

AGU25

Table of Contents

Atmospheric Sciences (A)	1
Biogeosciences (B)	118
Cryosphere (C)	209
Earth and Planetary Surface Processes (EP)	244
Global Environmental Change (GC)	283
Hydrology (H)	365
Near Surface Geophysics	518
Ocean Sciences (OS)	531
Paleoceanography and Paleoclimatology	558

The deadline to submit abstract submissions for AGU25 has passed. Abstract acceptance notifications will be emailed, and the final scientific program will be published in early October. Please utilize this document to view and search for sessions and submitted abstracts. Please refer to the [Annual Meeting website](#) for updated information.

Please email the [Scientific program Team](#) with any questions about abstracts or the scientific program.

ATMOSPHERIC SCIENCES

246829

Advanced AI/ML for high-impact weather prediction and observation

Conveners: **Jiaxi Hu**, University of Albany; **Hui Su**, Jet Propulsion Lab; **Xiaoming Shi**, University of California Berkeley; **Yixin Wen**, University of Oklahoma Norman Campus

1981571 *A PMP-Inspired Evaluation Framework for Assessing the fit-for-purpose of Deep-Learning Weather Prediction Models:* **G Pallotta**, S Duan, C Bonfils, J Lee, P Ullrich

1957089 *Development of Gridded Climate Data using Neural Process for CONUS:* **R Opio**, D Patel, Y Rao

1961475 *Distributional Regression U-Nets for Postprocessing Precipitation Forecasts Over India:* **C Thakur**

2004997 *Enhancing Radar Reflectivity Prediction for Rainfall Nowcasting Using a CSI-Optimized Loss Function:* **C Zhai**, W Gong, K Dai, H Su

1953508 *Enhancing Spatiotemporal Aerosol Optical Depth Data Continuity by Leveraging Geostationary ABI Aerosol Retrievals and Deep Learning Techniques:* **J Lee**, S M Loria Salazar, H Holmes, A M Sayer

1951089 *Generative Data Assimilation for CONUS-wide High-Resolution Weather State Estimation:* **C Lewellyn**, N Silverman, N Krall, N Brenowitz, S Byrne, K Kashinath, C Miller, M Bender, N Pan

1992974 *Partial-CNN-based Spatial Restoration Using Predicted Station Data:* **J Lee**, D Choi, S H Han, J B Lee, J G Kang, H Y YU

2000428 *Physics-Informed Deep Learning Emulator for Predicting Hurricane-Driven Compound Flooding:* **R Gauher**, A Sarhadi

1952081 *Predicting Ambient Air Temperature of Bangladesh Using Machine Learning and Remote Sensing:* **R Islam**, M N Tushar, S Dey, S I Uddin, Shampa, A I A Chowdhury, S B Murshed, S Haque, M Salehin

1892253 *Skillful Joint Probabilistic Weather Forecasting From Marginals:* **I Price**, F Alet, T Andersson, A El-Kadi, R Lam, A Sanchez, D Masters, P Battaglia, S Markou, J Stott, M Willson

1997563 *Tropical Cyclone Wind Field Reconstruction Using AI:* **H Su**, E Zhang, P W Chan, W Zhou, C Zhai

1990433 *Uncertainty Estimation and Explanation for Convective Initiation Nowcasting Using Bayesian Deep Learning:* **D Fan**, D J Gagne II, S J Greybush, E E Clothiaux, J Schreck, C Shen

1927908 *AI-Based Data Assimilation of the Tomorrow.io Microwave Sounder Constellation:* **F Cannon**, R Chase, B Taylor, E Nelson, J Munchak, A Chawla

1947401 *Class-wise Statistical Downscaling of Extreme Precipitation Events in CMIP6 Models:* **A Singh**, K Landu

1946981 *Comprehensive evaluation of diffusion model based precipitation downscaling:* **Y Wen**, W Qian, C Yi, Z Li, L Li, PhD, S Yan, S Zhu

1938444 *Deep Learning-Based Convective Initiation Detection Using GK-2A/AMI Satellite Data:* **I C Chung**, S Lee, H Cho, M Choo, J Im

1928099 *Enhancing Near-Surface Air Temperature Forecasts Using TS2Vec-Based AI Post-Processing Model in Short and Medium Range NWP prediction:* **J Kim**, Y G Lee, Y Lee

1936728 *Performance Comparison of AI-Based Weather Models in Forecasting Strong Landfalling Typhoon:* **X Zhang**, F Hu, L Wang, F Wang

1918075 *Prediction of Semidiurnal Precipitation in an Urban Forest Using Meteorological Observations at High Temporal Resolution and Machine Learning Tools: An Application of Convolutional Neural Network:* **Z Dong**, J Lyu, T Xu, Y Shi, Y Han, Z Ruan, X Wang

1949421 *Supporting AI/ML Weather Prediction in NOAA: A Flexible Verification Pipeline with wxvx:* **D Burrows**, A Kumar, M Pope, P Madden, I Jankov, S Frolov

1871843 *Observational (Ground-Based and Satellite) and Atmospheric Modeling capabilities at the Environmental and Geophysical Sciences (ENGEOS) Lab – Khalifa University for weather and climate applications:* **H Shaikh**, D K Francis, N R Nelli, R M Fonseca, Y Yarragunta, C Cherif

1949787 *The NOAA Anemoi Experience: scalable and user-friendly tools for training AI weather prediction models:* **M Pope**, D Burrows, T Smith, S Frolov, D Abdi, I Jankov, A Kumar

1894482 *Physics-Informed Machine Learning for Sub-Seasonal Prediction of Tropical Cyclone Genesis:* **A Russ**, S Xiao, T Ehrmann, A Sarhadi

1928574 *Weather Foundation Models: Global to Regional to Hyper-local:* **J Gupta**, N Shankar, C Bodnar

- 1893198** *Bias Correction of MPAS-A Forecasts Using a Diffusion Model-Based Deep Learning Framework:* **M Fan**, Z Zhang, H Kang, PhD, W Zhang, D Lu, G Zhang
- 1900138** *Predicting Intraseasonal Variability of Tropical Cyclone Frequency and Causal Interpretability Using Physics-Informed Machine Learning:* **H Kim**, A Sarhadi
- 1874020** *Exploring the Origins of Forecast Errors and Large-Scale Dynamics of Weather Extremes with an AI Weather Model:* **Y Nie**, A Sengupta, L Delle Monache
- 1886062** *Forecasting Soil Acidification Risk from Wet Deposition Using Deep Learning:* **A Kapilavai**, E Feng
- 1876927** *Regional Ensemble Weather Forecasting Using a Probabilistic Swin-Unet with a CRPS-Based Loss Function:* **Y Hirabayashi**, D Matsuoka
- 1876513** *Forecasts of Hurricane Helene Using AI Machine Learning Models:* **K Lou**, T Ballard

251114

Advances in Atmospheric Chemistry Driven by Laboratory Studies

Conveners: **Christopher Kenseth**, University of Washington Seattle; **Carl Percival**, Jet Propulsion Laboratory; **Rebecca Caravan**, NASA Jet Propulsion Laboratory; **Frank Winiberg**, NASA Jet Propulsion Laboratory, California Institute of Technology; **Yue Zhang**, University of North Carolina at Chapel Hill

- 1908825** *A Laboratory Study on the Photooxidation of Acetoin under Simulated Atmospheric Conditions: Reaction Products Study and Atmospheric Degradation Mechanism:* **R SAHA**, A Chattopadhyay, S Mandal, T Chakraborty
- 1950842** *Collaborative Chamber Study of Mercury Redox Chemistry Involving Br, O₃, NO_x, OH, and CH₄:* **C P Jones**, S N Lyman
- 1946547** *Conversion yield of dimethyl sulfoxide to methanesulfonate by the Fenton reaction in water:* **F Hayashi**, N Numadate, S Enami
- 1891994** *Dark Chemistry, Light Pollution: NO₃ Reactions and SOA Yields from Aromatics:* **S Kattel**, M N Fiddler, C Thompson, S Bililign
- 1903302** *Evaluating SO₂ Ozonesonde Filter Performance in the Presence and Absence of Volcanic Emissions Using Dual-Sonde Flights from San Jose, Costa Rica:* **S Cuson**, G A Morris
- 1945629** *Experimental Study of the OH-initiated Oxidation of Propionaldehyde: OH Regeneration from Excited RO₂ Isomerization and Decomposition:* **A Petersen**, P S Stevens

- 1856911** *Spatial Clustering of heat wave Regimes Through ConvAE Latent Space Analysis and Teleconnection Linkages:* **M Rezaali**, D Keellings, C J Matyas, S Li
- 1880047** *Leveraging Machine Learning to Assess Santa Ana Wind-Driven Wildfire Risk in Southern California:* **R Sukhdeo**, K Singh, C W Thackeray, J T Randerson, A D Hall, R Scholten
- 1884143** *Successes and challenges in storm prediction integrating physics-based models with AI/ML:* **M Astitha**, U Khaira, I Jahan
- 1890305** *Low-Level Wind Shear Prediction at Jeju International Airport Using Tree-Based Machine Learning Algorithm:* **J Seok**, H W Choi, S Lee
- 1872079** *Monte Carlo-enhanced machine learning regression for filling urban air pollution gaps: a case study for Delhi, India:* **S Shafi**, N Scafetta
- 1913734** *Nowcasting 4D Cloud Fields with Satellite Data and Deep Learning:* **J Gibbons**, R Lagerquist, S Garimella
- 1954496** *Humidity-Dependent Photochemical Decomposition of ISOPOOH:* **Z An**, Y Li, S Frey, J H Kroll, F N Keutsch
- 1876609** *Improving Global Secondary Organic Aerosol Estimates Using Laboratory-Derived Data:* **Y Zhang**, W C Porter, D R Cocker III
- 1925775** *Investigating Light Absorption of Brown Carbon Aerosols Derived from African Biomass Fuels:* **C Thompson**, S Kattel, M N Fiddler, S Bililign
- 1974601** *Investigating Chlorine-Initiated Oxidation of Volatile Organic Compounds in an Arctic Oil Field:* **G Milkova**, A Romig, P Boruah, K D Kulju, D Jeong, A Jensen, N Woodall, J Krechmer, B M Lerner, P Zimmerman, A T Lambe, K Pratt
- 1873818** *Iron Promoted Formation of Reactive Nitrogen from Organic Nitrates:* **E Melssen**, Y Baker, P Mettke, T Schaefer, Y Losovyj, H Herrmann, J D Raff
- 1947697** *Laboratory Characterization of Furanoids Measured by PTR-ToF-MS:* **W Permar**, M Tucker, L Hu
- 1968694** *Laboratory Studies of Gas-Phase Oxygenated Organic Sulfates:* **S Lee**, L Tiszenkel, V Vasudevan Geetha, J Elm, A Pedersen, G Hopf
- 1899766** *Laboratory studies of the oxidative lifecycle of reactive organic carbon:* **J H Kroll**, L Franco, Y Li, J Krechmer, F N Keutsch
- 1854734** *Measurement of the Temperature Dependence of the Rate Coefficients of 1,4-H shift Isomerization Reactions of Organic Peroxy Radicals produced from Selected Unsaturated Aldehydes:* **H Fuchs**, L Vereecken, F Berg, A Novelli
- 1891696** *Measuring Ultraviolet Radiation to Predict Hydroxyl Radical Production in Electrical Discharges:* **J Jenkins**, W H Brune

- 1918995** *Monitoring aging of single levitated sulfate aerosols via incoherent cavity enhanced broadband spectroscopy:* **C Sagan**, A Floyd, M Weichman
- 1902692** *Novel Mechanistic Insights from a Mercury Oxidation Chamber Experiment:* **J Haskins**, J Coley, S N Lyman, C P Jones
- 1949655** *Oxidation of African Biomass Burning Emissions within Cloud Water Mimics as a Potential Source of Secondary Organic Aerosol and Brown Carbon:* **H Royer**, V Campbell, C Christensen, M Mouton, M Fiddler, S Bililign, J D Surratt, B J Turpin
- 1986873** *Oxygenated organic molecules (OOMs) formation from OH-initiated oxidation of n-dodecane: molecular composition, yield, and role of NO_x:* **J Peng**
- 1931488** *Photochemically Produced Greenhouse Gases Detected in Antarctic Blue Ice:* **J Ahn**, G Lee, S Azharuddin, J Han, I Oyabu, J Marks Peterson, C Han, M Hirabayashi, E Brook, K Kawamura
- 1862145** *Quantifying the Role of Atmospheric Oxidants (OH, O₃, and Br) in Mercury Oxidation Using an Environmental Chamber:* **A Harper**, C Flowerday, Z Giauque, L Lowe, J Hansen
- 1927149** *Rate Coefficient Determination of OH + Ethylene Oxide at Room Temperature:* **M Woods**, F Winiberg, C Percival, M Okumura, P O Wennberg, X Zhang
- 1896927** *Reactive Uptake of DMS Oxidation Intermediates to Acidic Marine Aerosols:* **S Brown**, T Bertram
- 1984122** *Reactivity of BVOC-Derived Organonitrates in the Mixed Aqueous/Organic Phase:* **A Carrasquillo**, R Lyn Lalonde, K Yang, E Zamurs, A Magaden
- 1902695** *Reactivity Space Coverage and Information Entropy in Environmental Chamber Experiments:* **V P Barber**, S Silva
- 1954016** *Surface Propensities of Atmospherically Relevant Ions Investigated by Spray Ionization Mass Spectrometry:* **K Kosugi**, N Numadate, S Enami
- 1993075** *Synergistic Photochemical Coupling Mechanisms in Soot Aging:* **M Li**, J Li, Y Zhu, C Chen, J Zhao
- 1885818** *Synthesis, Calibration and Aqueous-Processing of Limonene β -Hydroxyhydroperoxides:* **C Ojike**, J Rivera-Rios
- 1960965** *The emissions and oxidation of long-chain aldehydes from cooking activities in urban environments:* **C E Stockwell**, M M Coggon, K Bates, G Gkatzelis, M A Robinson, C Jernigan, J Roberts, PhD, A Novelli, L Vereecken, Q Z Rasool, Y Wu, M Roska, C Warneke
- 1994738** *The Influence of Surfactant Molecular Composition on Model Sea Spray Aerosol Hygroscopic Growth and Microphysics:* **A Sanders**, A A Frossard
- 1901424** *Trends in Reactivity of β -hydroxy Radicals Derived from Volatile Organic Compounds With Molecular Oxygen:* **C Markus**, M F Vansco, F Winiberg, R Caravan, M Woods, L Walsh, D L Osborn, C A Taatjes, L Sheps, M I Lester, C Percival
- 1966846** *Uncovering the Unexpected Tropospheric Impacts of Select Oxygenated Reactive Intermediates via Direct Laboratory Studies of Reaction Mechanisms.:* **R Caravan**, A Jasper, S Klippenstein, C Percival, F Winiberg, M Woods, N Hansen, D L Osborn, L Sheps, C A Taatjes, C Markus, M F Vansco, M I Lester, L Walsh, T Bannan, M A H Khan, D E Shallcross

1955029 *Weathering influences the ice nucleation activity of microplastics:* **B Bharti**, P Brahana

1950528 *Assessing the Influence of Microphysics Parameterizations on In-Cloud Ground Icing Using a NWP model.:* **P Punde**, T Eidhammer, Y Birkelund, M S Virk, P Sokolov

1904609 *Categorization of bimodal raindrop size distribution from a bin microphysics model:* **M Okazaki**, E Nakakita, K Suzuki, T Yanase, Y Sato, K Yamaguchi

1970659 *CCN Budgets and Coalescence Processing in Lagrangian Simulations of Marine Clouds Observed Over the Eastern North Atlantic:* **Z J Horning**, D B Mechem

1974936 *Cloud Edge Entrainment Increases the Local Proportion of Large Droplets Through Slower Phase-Relaxation: Results from Airborne Holography and High Resolution LES:* **E Rosky**, R A Shaw, H Morrison, K K Chandrakar, W H Cantrell, S Woods, A Bansemer

249114

Advances in Cloud and Precipitation Processes: Integrating Observations, Modeling, and Theory

Conveners: **Yongjie Huang**, Insititute of Atmospheric Physics, Chinese Academy of Sciences; **Greg McFarquhar**, University of Oklahoma; **Yi Huang**, The University of Melbourne; **Fan Yang**, Michigan Technological University

1885276 *Aerosol Effects on a Stratus with Embedded Cumulus Case:* **Z Wang**, K Cao, H Xue

1966635 *Aerosol Scavenging in Arctic Marine Stratocumulus Clouds during Cold Air Outbreaks:* **L Cai**, J Snider, S Mahant, E Weissburg, M D Petters

- 1908153** *Comparison of cloud-to-ground lightning activity and microphysical characteristics between warm-sector heavy rainfalls and frontal heavy rainfalls:* **X Wu**, Y Zhang, J Feng
- 1990319** *Dependence of Stratocumulus-to-Cumulus Transition on the Numerical Model Resolution for Stratocumulus Simulations:* **H B Lee**, H Lee
- 1925716** *Detecting Convective Activity and Analyzing Convective Cloud Properties in the Mid- and Far-Infrared:* **C Bean**, T L'Ecuier, K S Mattingly
- 1981235** *Evaluating Droplet Collision Theory in a Tall Convection-cloud Chamber Using Large-eddy Simulations with Lagrangian Microphysics:* **Y Ren**, K K Chandrakar, F Yang, R A Shaw
- 1977669** *Exploring Ice Microphysical Bulk Parameter Sensitivities with Perturbed Parameter Ensembles of Single Column Models:* **J Ko**, T Eidhammer, H Morrison, M van Lier Walqui, K Lamb
- 1865579** *Extreme Isotopic Depletion in a Southeastern U.S. Snowstorm: A Case Study of 20-22 January 2025:* **V Juneja**, K L DeLong, PhD, G Dolou, H Huang
- 1913331** *High-Speed Rainfall Characterization Using Event-Based Sensors: A Neuromorphic Approach to Precipitation Microphysics:* **P Coye**, A Willitsford
- 1849010** *How does a Kilometre-Resolution Climate Model Represent Marine Low Clouds?:* **Q Gao**, Y Huang, C H Su, S T Siems, C Vincent, P May, D P Harrison
- 1935742** *How well do model bulk schemes properly represent the cloud particle size distributions of marine boundary layer clouds across the globe?:* **Y Huang**, L Ger Aragon, J Crosier, P Connolly, P May, S Abel
- 1883627** *Impact of Aerosols on Shallow Cumulus Cloud Formation and Convection Initiation:* **Y MA**, G Lu, K Cao, S Fu, H Xue
- 1956223** *Impact of rain on the diurnal variation of ground-level ozone:* **S Cui**, J Liu
- 1898032** *Improving WRF Precipitation Prediction Using PALM LES Building-Resolved Simulations:* **H WANG**, Y Cui, Q Li
- 1919797** *Investigating Cloud Glaciation in Mixed-Phase Clouds Using Airborne Lidar and Radar Retrievals: A Case Study:* **K Li**, M Saito, O Cruikshank, C Grasmick
- 1917444** *Investigating Dust Ice-Nucleating Particles and Their Role in Cloud Formation Using Integrated Modeling and Observations from the ASKOS Campaign:* **E Drakaki**, E Marinou, A R Nehrir, P Katsafados Sr, V Amiridis
- 1932354** *Lidar observations of vertically-resolved response of clouds to dry air entrainment:* **J Yeom**, S P Singh, H Fahandezh sadi, J C Anderson, F Yang, Y M Sua, R A Shaw, W H Cantrell
- 1928483** *Mixing characteristics in non-precipitation stratocumulus clouds: a model intercomparison study:* **F Yang**, K O Choi, K K Chandrakar, F Hoffmann, P Hou, S K Krueger, C Lu, M Ovchinnikov, Y Ren, S I Shima, P Wu, C Yin, Z Zhu, S S Yum
- 1856549** *New insights on Secondary Ice Production during Riming:* **S Hartmann**, J Seidel, A A Kiselev, D Niedermeier, T Leisner, M Pöhlker
- 1952465** *Precipitation Intensity Sensitivity to Large-Scale Thermodynamic State:* **S Shamekh**, P Angulo-Umana
- 1908073** *Role of Aerosol Ice-Nucleus Effect in the Development of the "21.7" Henan Extreme Precipitation:* **W Wang**, G Chen, Y Zhang
- 1900507** *Same As It Ever Was: Integrating observations and theory to simulate clouds and precipitation in the age of Artificial Intelligence:* **A Gettelman**, P L Ma, H Morrison, M van Lier Walqui
- 1867227** *Sea-breeze Induced Rainfall Response to Land Surface Heterogeneity in the Coastal Urban Area of Southern Texas:* **J Chen**, Y Tang, S L Tai, X Wei, A Varble, Y Ma, L Berg, Y Wang, F Chen, J Fast, C Kaul, Y Liu, C Lu, Y Qian, Y Guo, Z Qin, Z Yang
- 1909388** *Secondary Ice Production in Deep Convective Clouds over Coastal Urban Areas: Insights from TRACER Radar Observations and Large-Eddy Simulations:* **Y Huang, PhD**, G M McFarquhar, A Ryzhkov, M Xue, J Snyder, D Mise, L Xue, M Oue, P Kollias, M P Jensen
- 1882160** *Settling and Rotation of Frozen Hydrometeors in Turbulent Air:* **T J Garrett**, E Pardyjak, D K Singh Sr
- 1888862** *Stage-Dependent Responses of Shallow Marine Cumulus Cloud Size to Aerosol Loading: A Large-Eddy Simulation Study:* **K Cao**, S Fu, H Xue
- 1936732** *Study of Vertical Moisture Exchange in the Marine Stratocumulus Boundary Layer Using Stable Isotopes in Water Vapor from the SCILLA Airborne Campaign:* **N Sheena Sunil**, L R Welp, P Y Chuang, A Molino, M Leandro, A Bucholtz, M Witte
- 1846077** *The 11 Colours of the Rainbow - Part 4 of the T.Q.U.M. paper series:* **J L Ricard**
- 1942397** *The Morphology of Extreme Tropical Precipitation: Insights from Observations and Models:* **P Angulo-Umana**, D Kim, P N Blossey, D Y Kim

248361

Advances in Decadal Climate Change: Evidence from Air-Sea Interaction, Mechanisms and Predictability (joint with GC, OS)

Conveners: Jianping Li, Ocean University of China; Luo Dehai, Institute of Atmospheric Physics; Feili Li, Xiamen University; Qingquan Li, National Climate Center, Chinese Meteorological Administration; Xin Qi, Ocean University of China

1935741 *AMOC Decadal Variability in a High-resolution Model:* **W Jiang**, F Li

1927501 *Atlantic multi-decadal variability driving Arctic warming:* **N S Keenlyside**, F Li, F Ogawa, N E Omrani, E S Chung, K J Ha, V Semenov, H Nakamura, T Aldonina, X Q Yang

1968992 *Atlantic Multidecadal Variability Driven by the Western Current Warming–Eastern Low Cloud Mechanism:* **S Hu**, X Li, A V Fedorov, L P Van Roekel

1893663 *Attributing Northern Hemisphere Summer Surface Warming Trends via the Land Surface Energy Budget:* **D Cao**, H Lin, Y Huang, J F Derome

1991945 *Development potential and carbon emission reduction effect of photovoltaics in countries along the belt and road:* **J Chou**, Y Li

1943898 *Early burst of Tibetan Plateau vortices increases extreme precipitation over Tibetan Plateau in early spring:* **L Li**, R Zhang, J Su

1933147 *Emergence of a decadal climate oscillation in the Arctic Ocean due to global warming:* **S K Kim**, S I An

1844470 *Estimating the decadal-scale climate predictability limit using nonlinear local Lyapunov exponent with optimal local dynamic analogues:* **J Li**, R Li, Z Hou, R Sun, S Zhen, H Song

1999292 *Historical Simulations and Future Projections of Multidecadal Hydroclimate Variability in the Sahel from CMIP6 Models:* **M Madhavan**, J Overpeck

1876642 *How to Affect the Snow Cover over the Tibetan Plateau of Solar Activity:* **Y Song**, Z Li, Z Xiao, Y Zhou

249245

Advances in Fundamental Understanding of Atmospheric Convection: From Cloud Microphysics to Large-Scale Organization

Conveners: Qiu Yang, Peking University; Mitchell Moncrieff, ; Larissa Back, University of Wisconsin Madison; Xingchao Chen, Organization Not Listed; Hao FU, Woods Hole Oceanographic Institution

1904242 *Interdecadal Variation Of Rossby Wave Source Over The Tibetan Plateau And Its Impact On The East Asia Circulation Pattern During boreal summer:* **X Sun**

1887512 *Observational Evidence Supporting Interaction between the Interdecadal Pacific Oscillation and Atlantic Multidecadal Variability:* **J C Yang**, W Y Xu, Y Zhang, X Lin, Z Lv

1947255 *Quantifying the Drivers of Long-Term Changes in North Atlantic Tropical Cyclone Intensification:* **R Zhan**, K Song, Y Wang

1980147 *Seasonally Opposing Climate Responses to the Atlantic Multidecadal Oscillation over Central Eurasia:* **D Jeong**, C Yoo

1911422 *Skill assessment of a multi-system ensemble of initialized 20-year predictions:* **D Nicoli**, S Roncoroni, W A Müller, S Brune, M Donat, H Pohlmann, R Mahmood, S G Yeager, W J Merryfield, R Sospedra-Alfonso, P Athanasiadis

1936787 *Skillful Forecasting of Spatiotemporal Rainfall Anomalies Over High Mountain Asia:* **J Ma**, H L Ren

1856558 *Strong oceanic forcing on decadal SST variability over global ocean assessed from surface heat flux:* **Z Liu**, P Gu, T L Delworth

1880405 *Strong Wind-Driven Oceanic Forcing on Decadal SST Variability over Global Ocean:* **T Liu**, Z Liu, P Gu

1977503 *The robustness of the AMV teleconnection to the tropical Pacific: a multi-model Large Ensemble study:* **A Kalyan**, A Maycock, J R Knight, Y Ruprich-Robert

1903998 *The Seasonal and Diurnal Variation Characteristics of Soil Moisture at Different Depths from Observational Sites over the Tibetan Plateau:* **H Li**, Z Xiao, J Wei, G Wang

1932923 *Understanding Decadal Prediction Errors of East Asian Climate through Process-Based Analysis:* **H Lee**, S W Yeh

1882737 *Winter extreme precipitation over the Tibetan Plateau influenced by Arctic sea ice on interdecadal timescale:* **Q Li**, M Bi, S Yang, Q Wu, Y Ding, X Shen, X Sun, M Zhao

1889499 *全球平均海面温度低频变化的主要来源和归因: 来自大集合模拟的见解:* **L Yang**, P Lin, H Liu

1962639 *A Mechanical Energy Perspective on the Lifecycle of Heavy Rain-Producing Storm Systems:* **M Bolot**, B Fildier, R Roca, O Pauluis, T Fiolleau

1978021 *A Model for Cumulus Cloud Tilt and the Effect of Vertical Shear:* **D Falcone**, M Igel, J A Biello

1882281 *Cloud Edge Energy Adjusts to the Saturated Tropospheric Mean Independent of Climate State:* **T J Garrett**, T DeWitt, K Rees, C Bois

1955913 *Dynamics of Thermals Impinging a Sharply Stratified Interface:* **A Khan**, A Aiyer, R S

- 1895991** *Expansion of Tropical Ascent with Warming in Idealized Mock-Walker Simulations:* **A B Sokol**, T Merlis, S Fueglistaler
- 1950983** *Exploring the large-scale radiative impacts of convective aggregation by tropical cyclones in global climate models:* **G Rios**, G A Vecchi, W Yang
- 1910317** *Intensification of Summer Mesoscale Convective Systems in East China under extreme warming climate:* **Y Lu**, J Marsham, D J Parker, J Fang, J Tang
- 1968034** *Inter-annual and sub-seasonal variability of the Indian Summer Monsoon: Precipitation Variance Budget:* **S Roy**, V Dixit
- 1958534** *Inter-seasonal and sub-seasonal variability of Indian Summer Monsoon: Precipitation Variance Budget:* **S Roy**, V Dixit
- 1883502** *Multi-Decadal Increase of Humidity in the Stratospheric Ozone Layer Caused by Warming of the Tropical Tropopause Layer and by Subsequent Poleward Drift of Brewer-Dobson Circulation:* **R Freeman**, W E Janach
- 1893145** *Regimes of Convective Response to Large-scale Forcing:* **H FU**, D Yang
- 1892675** *Response of Tropical Convective Systems to Ocean Warming in Convection-Permitting Aquaplanet Simulations:* **R Rios-Berrios**, K Emanuel, G H Bryan, B Medeiros, J Done
- 1845016** *The convective dynamics of nuclear winter:* **D M Romps**
- 1859666** *The Evolution of Dry and Wet Areas in Convective Self-aggregation Simulations: A Water Vapor Budget Perspective:* **B Yang**, Z M Tan, J Nie
- 1890864** *The non-monotonicity of moist adiabatic warming:* **O Miyawaki**
- 1877196** *The Role of Cold Pools in Convective Aggregation over Tropical Oceans: A Two-Layer Stochastic Dynamic Model:* **Q Yang**, Y Li
- 1884199** *Transition to Periodic Precipitation in a Warmer Climate due to Stronger Convectively-Coupled Waves:* **H Quan**, Y Zhang, G Dagan, S Fueglistaler
- 1894573** *Updraft Width Modulations on Convective Cloud Growth: Sensitivity to Model Resolution:* **Z Feng**, A Varble, J Marquis, E Jo, W I Gustafson Jr
- 1862001** *Weak Temperature and Pressure Gradients in the Free Troposphere Interact with Stronger Ones in the Boundary Layer:* **A H Sobel**, S Cohen, I Bunge, M Biasutti, S Wang
- 1873271** *Bayesian Localization and Quantification of Hydrogen Leaks in Complex Industrial Settings Using LES-Based Virtual Observations:* **Y Cui**, H Wang, J D Albertson
- 1862259** *Black Carbon Emissions Generally Underestimated in the Global South as Revealed by Globally Distributed Measurements:* **Y Ren**, C R Oxford, D Zhang, X Liu, H Zhu, A M Dillner, W H White, R Chakrabarty, S Hasheminassab, D J Diner, E Le Roy, J Kumar, V Viteri, K Song, C Akoshile, O Amador-Muñoz, A Asfaw, R Y W Chang, D K Francis, P Gahungu, R Garland, M Grutter, J Kim, PhD, K Langerman, P C Lee, P Lestari, O Mayol-Bracero, M Naidoo, N R Nelli, N T O'Neill, S S Park, A Salam, B Sarangi, Y Y Schechner, R Schofield, S N Tripathi, E Windwer, M T Wu, Q Zhang, Y Rudich, M Brauer, R Martin
- 1877501** *Characterizing Indoor Biomass Combustion Emissions with Affordable Sensor Arrays:* **N T Duc**, D Montecinos, J P Kumar, S Sarkar, R Wathore, J Felix Amann, J Joppich, S Lawande, R Kumar Ranjan, J Routh
- 1961082** *Characterizing the Effects of Ambient Temperature on Emissions of Intermediate- and Semi-volatile Volatility Organic Compound from Diesel Truck:* **X Zhang**, S Zhang
- 1977528** *Continuous Measurements of Ambient Air Toxics in Urban Environment:* **Y Yu**, O Pikelnaya, C Tsai, J Porter, N Brockway, W Senga, R Mayorga, A Polidori

249947

Advances in Methods and Technologies for Emission Monitoring and Exposure Assessment to Hazardous Air Pollutants (joint with GH)

Conveners: Olga Pikelnaya, University of California LA; Tara Yacovitch, Aerodyne Research Inc; Jochen Stutz, University of California Los Angeles; Yifan Yu, South Coast AQMD; Yifan Yu, South Coast AQMD

- 1995028** *4-wavelengths operations with the Langley Mobile Ozone Lidar:* **G Gronoff**, D Phoenix
- 1997483** *Aerosol Size Distributions At The ASCENT Los Angeles Site: Toward Better Interpretation Of Growth Events And Instrumental Artifacts:* **V Blankenship**, H D Baliaka, R X Ward, P Kumar, R C Flagan
- 1881584** *Ammonia Monitoring: Meeting regional air quality directives with Picarro CRDS Ammonia Analyzers and LNI Permacal System:* **R Chedgy**, M Hofmann, T Selvaratnam, J Woźniak, A Dembicki, P Swinkels, T Hemenway
- 1898646** *Aromatic Volatile Organic Compounds in an Arctic Oil Field:* **A Rovinski**, A Jensen, F Tahiry, N Woodall, D Jeong, K D Kulju, J Krechmer, M Claflin, B M Lerner, A T Lambe, K Pratt

- 1862092** *Defining Baseline Urban Air Toxics in Houston Through Hyperlocal Citizen Science Community Air Monitoring Networks:* **A Marcotte**, K Moore, B Murray, J Caldwell, J Flores, C Hinojosa, A Miller, S Martinez, M Armen, T Aloui, J A Burbridge, D Walker, D King, G Lewis
- 1897089** *Development of a lightweight broadband cavity-enhanced spectrometer system for simultaneous monitoring HONO and NO₂:* **Y Li**, J Chai, C Womack, N Schafer
- 1966009** *Development of a Reference Open-Path Optical Remote Sensing System for Oil Refinery Fenceline Monitoring Auditing:* **L Tsiang**, G Quevedo, S F Colosimo, J Stutz, C Tsai, Y Yu, O Pikelnaya
- 1899139** *Emission inventories for the Eaton and Palisades Wildland Urban Interface (WUI) fires derived from bottom-up estimation and in situ measurement observations:* **C Schissel**, D Allen, M Kleeman, S M Raffuse, N Ng, H D Baliaka, R X Ward, J Seinfeld, R C Flagan, P O Wennberg
- 1979195** *Heavy-Duty Diesel Emissions Monitoring Using Low-Cost Sensors:* **K Steele**, S Larson, A Allen, Z Driskill, S Swindler, J Gates, N Williams, D Barry, E Sorensen, M Jones, D Sonntag, D Tree, P Lundrigan
- 1976373** *Heavy-Duty Diesel Vehicle Deterioration: Impact of Vehicle Age and Emission Control Technology on NO_x Emissions:* **A Allen**, D Sonntag
- 1981677** *High-Resolution Spatiotemporal Variability and Source Apportionment of VOCs and Trace Gases in a Transboundary Coastal Airshed: Imperial Beach and the Tijuana River Region:* **D Sung**, E Deveraux, C H Lin, B Kienzle, A Neville, L El Khoury, S Zhai, K Konon, D Jarma, J P Maestre, C Frobenius, J Herbst, B Rico, L El Masri, J Hamlin, G Sandstorm, C Lee, M Castrejón, B Klimeck, K Cysneiros de Carvalho, K Barsanti, W C Porter, S Wang, K A Prather, K Kinney, L Hildebrandt Ruiz, P Misztal
- 2000475** *Indoor Concentrations and Sources of Black Carbon and Brown Carbon Concentrations in New York State Neighborhoods:* **D Eugene**, A Jackson, Z Hossain, J Nimo, M A Bari
- 2001596** *Investigating Drivers of Refinery Benzene Emissions Disparities Between US States: Insights from Fenceline Measurements:* **D Peters**, E Mohr, L E Padilla, R Alvarez
- 1965279** *Measurements of Atmospheric Aromatic Hydrocarbons in an Arctic Oilfield:* **F Tahiry**, A Jensen, A Rovinski, N Woodall, D Jeong, K D Kulju, B M Lerner, M Claffin, J Krechmer, A T Lambe, K Pratt
- 1971392** *Mobile Hazardous Air Pollutant Measurements in Louisiana with EC-TOF: Combined Real-time and Speciated VOC Measurements:* **D Blomdahl**, B Werden, A Yassine, B Nault, PhD, M Claffin, G Lewis, B Calvin, D Peters, J Nix, F Adesanya, B Wright, L E Padilla, P F DeCarlo
- 1945392** *Near-Real-Time Emission Characterization for Major Industrial Sectors Using Multisatellite and Base-Year Emission Inventories:* **J Ye**, T WU, H Liu, J Zheng
- 1919067** *O-ACES: an Onboard-UAS Cavity Enhanced Spectrometer for measuring NO₂:* **P A Cleary**, C Womack, N Schafer, N Rose, J Worden, T Day, A Langert, T O'Connor
- 1980319** *Observations from year one of the Colorado Air Toxics Trends Stations program and future plans for this air toxics trends data:* **A Carlson**, L Gibson, E Joplin, R Summers, S Szocik, B West, M Richie, A Cochran, T Weinmann, A Collier-Oxandale, C Sharp, J Schroder
- 1962029** *Overcoming Challenges in Real-Time, Sensitive Emission Monitoring of HAPs and other Climate Relevant Pollutants:* **J H Shorter**, T I Yacovitch, J R Roscioli, S C Herndon, C Daube, E Lunny, J B McManus, D D Nelson
- 1978421** *Recent Developments in ppb-Scale Detection and Quantification of Hydrogen:* **T I Yacovitch**, S C Herndon, Y Cui, J D Albertson, R Nathan, C Daube, E Lunny, J Budney, B Daube
- 1904093** *Research on Vehicle Pollutant Emissions Based on Urban Tunnel Observations: An 8-Year Long-Term Study:* **H Mao**, Q Zhang, J Peng
- 1966858** *Rethinking Hazardous Air Pollutant Exposures in Mining Areas: Insights from Chemical Composition and Source Apportionment:* **K Gupta**, V W C Chang, M Yellishetty, H C Phuleria
- 2002167** *Sequestration and Detection of Bioaerosols: Advanced Materials, Technologies, and Challenges:* **S S Batool**, P G Oduor, S Batool, T DeSutter, M Meehan
- 1859391** *Sky Polarization Neutral Point Tracking for Monitoring Atmospheric Aerosols:* **C DeLeon**, R Espinosa, Y Long, M Kupinski, V Salajko
- 1975901** *Source and Air Toxics Characterization of Urban Air Pollution in Denver Using Combined Positive Matrix Factorization of Multi-Instrument ASCENT Data:* **S Yun**, D A Day, A V Handschy, E Mattson, A Koss, M Abou-Ghanem, J A de Gouw, R Bahreini, A M Dillner, A G Russell, N L Ng, J L Jimenez
- 1948478** *Source Apportionment and Seasonal Characteristics of PM_{2.5}-Bound PAHs in Industrial Regions of West Bengal, India:* **M Y S**, G Habib

1970891 *Spatial Measurements of Volatile Organic Compounds in Southeastern Louisiana's Industrial Corridor to Assess Fenceline Communities' Exposures and Non-Cancer Health Risk:* **A Yassine**, B Riess, E Robinson, B Nault, B Werden, M Tehrani, S Agarwal, A Chiger, S Lupolt, C Gigot, M Claffin, B M Lerner, T I Yacovitch, H Stark, M R Canagaratna, C Daube, J R Roscioli, S C Herndon, A Avery, E Lunny, T A Burke, A Rule, K Koehler, K E Nachman, P F DeCarlo

250668

Advances in monitoring, modeling, and exposure assessment of airborne bioaerosols
(joint with B)

Conveners: **Jordan Schnell**, Princeton University; **Yingxiao Zhang**, Organization Not Listed; **Daniel Katz**, Cornell University; **Yiluan Song**, University of Michigan Ann Arbor

1927364 *Spatiotemporal Characterization of Bacterial Bioaerosols in Puerto Rico Using WIBS-5 and Molecular Tools:* **P D Acevedo**, B Sarangi, N DeLeon-Rodriguez

1938735 *Advancing global-scale pollen emission modeling in an Earth System Model:* **D M Leung**, Y Zhang, S Tilmes, A Foster, M C Barth, L K Emmons

1856377 *Association between short-term pollen exposure and emergency visits for respiratory and cardiovascular diseases in Melbourne, Australia:* **A Dhankhar**, N Osborne, S Dey, D Darssan, E R Lampugnani

1980674 *Biological changes, political ideology, and scientific communication shape human perceptions of pollen seasons:* **Y Song**, A Millard-Ball, N Fox, D Van Berkel, A Agrawal, K Zhu

1886571 *Effect of Biomass Burning Emissions to Air Quality in Africa:* **R Damoah**, J Quansah, S Nikzad, K Asare, O Akingbola

1919534 *Linking Observations and Modeling to Understand Primary Biological Aerosols:* **A L Steiner**, Q Du, T Subba, Y Zhang

1973117 *Uncovering Ultrasmall Nanoparticle Emissions in the South Coast Air Basin Using Mobile Monitoring:* **L Cai**, S Han, M Han, J Hazelwood, S Petters, A Collins, N Meskhidze, M D Petters

1870531 *Volatile Organic Compound and Air Toxic Sources in Northern Colorado:* **L Low**, I T Ku, Y Zhou, A Sullivan, D Weber, A Hecobian, J L Collett Jr, E Fischer

1907879 *Mapping microbial exposure in urbanized arid environments through the integration of dust regimes and meteorological parameters:* **A Siddique**, B Sajjad, K Rasool, S A Moosakutty, M R Alfara

1993425 *Microbes in Trans-Atlantic Dust (MITAD): Summary Findings from Four Years of Atmospheric Microbial Analysis:* **A Hossein Mardi**, R Hanlon, C Gonzalez-Martin, E Crosbie, L D Ziemba, E Winstead, E Blades, C Gaston, A Sorooshian, D G Schmale III, H Foroutan

1914935 *NOAA GSL experimental pollen forecasting:* **J Schnell**, H Li, A L Steiner, Y Zhang, T Subba, B W Koziol, J Romero-Alvarez, S Bhimireddy, M Choi, E James, R Ahmadov

1966781 *Pollen Release Emission Models for Juniperus ashei Trees in Texas:* **D Katz**

1988679 *Real-Time Environmental Monitoring of Airborne Avian (H5N1) Influenza Using Low-Cost Biosensors:* **J Kumar**, M Xu, A Li, S W You, J R Cirrito, C M Yuede, B Doherty, J V Puthussery, W Gardiner, A Benegal, M Vahey, A Joshi, K Seehra, A C M Boon, Y Y Huang, R Chakrabarty

1878076 *Size-resolved bioaerosol exposure in indoor and outdoor residential microenvironment: A dosimetric assessment using MPPD modelling in Pune, India:* **A Kale**, P G Satsangi

1913804 *Springtime Pollen Rupture and Atmospheric Vertical Transport in the Southeastern US:* **T Subba**, A L Steiner, M A Zawadowicz, A Singh, C Kuang

1999248 *Storage Impact on IMPROVE Filters for Microbial Communities and Ice Nucleating Particles:* **K R Barry**, T Melling, A Sullivan, B A Schichtel, F Jawda, L Tsai, Y Zhao, T Kawamoto, S M Gering, N P Hyslop, A M Dillner, S M Kreidenweis

247920

Advances in numerical modeling and algorithm development of dynamical cores for global and regional weather and climate models. (joint with P)

Conveners: Joseph Mouallem, Cooperative Institute for Modeling the Earth System, Princeton University; **Cheng Li**, University of Michigan Ann Arbor; **Christopher Vogl**, Lawrence Livermore National Laboratory

1915602 *Achievements in NOAA Research Global-Nest Initiative – model development, application, and beyond:* **J H Chen**

1851221 *Advances in dynamic cores of the next generation LICOM ocean model:* **L Meng**, B An, Z Li, X Chen, Y Yu

1960357 *An Entropy Stable formulation of E3SM's spectral element atmospheric dynamical core:* **M A Taylor**, M Waruszewski, C Eldred, O Guba

1887337 *Consideration on computational advantages of a high-order dynamical core based on the discontinuous Galerkin method in atmospheric turbulent simulations:* **Y Kawai**, X Ren, S Nishizawa, T Katagiri, H Tomita

1928342 *Development of a high resolution coupled SHIELD model for extreme weather prediction:* **J Mouallem**, K Gao, B G Reichl, L Chilutti, L Harris, R Benson, N Zadeh, J Chen, PhD, J H Chen, C Zhang

251043

Advances in Radar Remote Sensing of Clouds and Precipitation: Observations, Data Processing, Weather and Water Model Applications (cosponsored by AMS: American Meteorological Society, AOGS: Asia Oceania Geosciences Society, EGU: European Geosciences Union) (joint with H, NH)

Conveners: Haonan Chen, Colorado State University; **Robert Cifelli**, NOAA Boulder; **V. Chandrasekar**, Colorado State University; **Sounak Biswas**, Colorado State University

1865254 *A 5-year Evaluation of Radar Quantitative Precipitation Estimates during the Cool Season:* **B Filipiak**, B Raykoff, M Sinchi, D Cerrai, M Astitha

1917845 *An Automated Rain Gauge Verification System for Real-time Comparison with Radar Rainfall Estimates:* **V V Chandrasekar**, R Bechini, P Yudhistar

1871471 *Error Growth Caused by Lateral Boundary Condition in Global Idealized Baroclinic Wave Simulation:* **M Lee**, S H Park

1949113 *Evaluating a Voronoi-based Lagrangian method for solving the spherical shallow water equations:* **S Millay**, P Caplan

1998963 *Examining the Contribution of Deep-Atmosphere Dynamical Cores to Mitigating Double ITCZ Bias in Aquaplanets:* **O Hughes**, H Ong, A R Herrington, P H Lauritzen, O Guba, M A Taylor, C Jablonowski

1877836 *LMARSpy: A GPU-Ready Nonhydrostatic Dynamical Core with a Sharpness-Preserving Monotonicity Limiter and a Conservative Vertical Implicit Solver:* **X Chen**, W Zhang

1932887 *New mountain-generated meso-scale flow test cases for dynamical cores:* **T Andrews**, C Jablonowski

1921061 *Overview for algorithms for Unstructured Grids on the Sphere: Regridding, Averaging and Integration:* **H Chen**, P A Ullrich, J Panetta, D Marsico, M Hanke, R Jain, C Zhang, R L Jacob

1919405 *Picking Up the Pace: Using Domain Specific Languages for Scientific Modeling:* **O Elbert**, F Malatino, J Kim, K Fandrich, C Kropiewnicki, F Deconinck, L Harris, R Benson

1956331 *Scalable and Optimized Terrain Parameter Computation with the GEOTiled-SG Framework:* **J Marquez**, K NG, G Laboy, P Olaya, R Vargas, M Taufer

1990337 *Application of Lidar-Radar Data Fusion and Machine Learning to Estimate Full Data Curtain Microphysical Properties of IMPACTS Wintertime Cyclones:* **S D Nicholls**, A Heymsfield, G M Heymsfield, J E Yorks, A Bansemer

1848648 *Climatological Analysis of Precipitable Water Vapor over the Himalayan Region of Nepal (2012 to 2017) Using MODIS Satellite Observations:* **N Sharma**, C Hyolmo, B D Ghimire

1880979 *Comparison of AQPI and NEXRAD Radar-Estimated Rain Rates during Two Extreme Atmospheric River Events over the Northern San Francisco Bay Area:* **J Rutz**, R Vilela, M Steen, V Chandrasekar, S K Biswas

1952853 *Detection of thermal internal boundary layer and assessment of baroclinicity using VHF radar and high-resolution numerical modelling:* **A A Christy**, M MG

1946486 *Development of Nowcasting Precipitation Forecast Model Integrating Optical Flow Extrapolation and Deep Learning:* **F Han**, F Xue

1971535 *Exploring Expanded Capabilities of the Airborne Phased Array Radar (APAR) Observing Simulation, Processing, and Research Environment (AOSPRE):* **B Klotz**, A McComiskey, J Vivekanandan, K Manning, N Barron

1870319 *Investigation of Elevated Potentially Unstable Layers and Associated Ice Microphysics predicted by a Neural Network in the Comma Head of Wintertime Extratropical Cyclones during IMPACTS:* **K Lundstrom**, S W Nesbitt, R Rauber

1999881 *Quantifying Similarities and Differences in Microphysical Properties of Low-Level Clouds and Drizzle Across Airborne, Ground-Based, and Satellite Measurements over the Southern Ocean:* **A Das**, X Dong, B Xi

1973944 *Rainfall Bias Correction for Coastal Texas Using Multi-Stage Quality Control, Information-Preserving Dynamic Validation, and Regression-Residual Density-Attenuated IDW:* **A Paudel**, D Li, A Kiaghadi, R Neupane, K Karimi, N Fang

1940096 *Rainfall distribution over the Western Ghats of India: Investigating orography-dynamics interactions using radar data and WRF simulations:* **A Jha**, G S Bhat, D M C R Kalapureddy Dr

251706

Advances in the Integrated Global Observing System for Air Quality: Science and Societal Benefit

Conveners: **K. Emma Knowland**, Universities Space Research Association Columbia; **Katherine Travis**, Massachusetts Institute of Technology; **Deborah Stein**, NASA Goddard Space Flight Center; **Limseok Chang**, National Institute of Environmental Research; **Tabitha Lee**, Oak Ridge Associated Universities Inc.

1957051 *Integration of TEMPO and Newly Available Pandora Observations to Assess Urban Air Quality in San Antonio and Austin, Texas:* **I Oseghae**, A M Mestas-Nunez

1960711 *Vertical NO₂ Distribution in a Coastal City: Insights from Pandora Observations in Miami-Dade:* **L Antunes Alexandre**, P Olivas

1996917 *A Determination of the Minimum Ozone Sonde Sampling Frequency Necessary for Computing Ozone Trends:* **G A Morris**, R M Stauffer, P J Walter, A Thompson, D Kollonige, J T Sullivan, I V Petropavlovskikh, O Cooper, K L Chang, B L Lefer

1897684 *A Gradient Preserving Retrieval Reduces Systematic Bias in TEMPO NO₂:* **S Beaudry**, R C Cohen

1931421 *Advancing Insight on Air Quality Drivers over Asia with the Pandora Asia Network:* **S Kim**, U Jeong, H Hong, A Cede, L Chang, S Kim, D Kim, H Lee, T F Hanisco, N Abuhassan, S C Tsay, D Kim, J Kim, PhD, J H Kim, A Salam, S Phoompanitj, E Davaanyam, M F Khokhar, R Risyanto, S V Salinas, E Ednofri, S Kato, H Takashima

1880148 *Simulating Topography's Role in Enhancing Precipitation in a Central Andean Valley Using Large Eddy Simulations:* **S P Chavez**

1992095 *Spatiotemporal Flood Prediction Using Radar Data in a Deep Learning Framework Toward Operational Applications:* **M Lavallee**, J W Nielsen-Gammon

1964619 *Teaching Satellites to See in 3D: Predicting Cloud Vertical Structure with Neural Networks:* **K Smalley**, E de Jong, H Beydoun, A S Donahue

1999661 *The Airborne Phased Array Radar (APAR): Implementation, Lessons Learned, and Path Forward:* **E Joseph**, W C Lee

1999942 *The APAR Observing Simulation, Processing, and Research Environment (AOSPARE):* **W C Lee**, B Klotz, K Manning

1933819 *Unraveling Vertical Air Motion and Precipitation Processes in Shallow-Type Heavy Rainfall: Insights from Multi-Sensor Observations:* **S Shige**, N Toda, S Ohhata, K Aonashi, Y Goto, T Shinoda, H Hashiguchi

1979635 *Aerosol chemistry following a degassing volcanic plume using a detailed regional model: Insights from evaluating against satellite retrievals and in situ observations.:* **M R Mohanty**, P Saide, J Christopoulos, M Shrivastava, B Zhao, B Gaudet, J Kim, PhD, M KIM, J D Crounse, P O Wennberg, K Ball, Y R Lee, R Moore, L D Ziemba, E Winstead, C E Jordan, M Shook, F Gallo, C E Robinson, S Roy, J L Jimenez, P Campuzano Jost, G Symonds, D Kim

1966159 *Airborne Demonstration of CHAPS-D for Targeted Trace Gas Remote Sensing:* **W H Swartz**, F Morgan, H Taylor, L M Judd, L N Lamsal, N A Krotkov, G Otter

1875059 *Analysis of Summertime Air Quality in Urban Areas in the United States:* **K Travis**, J H Crawford, L M Judd, J Szykman, P Rawat, M A G Demetillo

2000045 *Assessing Air Pollution Drivers in Asia Through Multi-Species Data Assimilation During NASA's ASIA-AQ Campaign:* **J Choi**, K Miyazaki, T Sekiya, S Y Ogino, H Eskes, P Rijsdijk, R Bennett, G S Diskin, J Miech, A Franchin, E C Apel, P O Wennberg, J D Crounse, K Ball, Y R Lee, D R Blake, A Wisthaler, J L Jimenez, M A Zondlo, G Wolfe, J Yu, J H Woo

1889404 *Atmospheric composition from the Geostationary Interferometric Infrared Sounder (GIIRS) over East Asia: First three years of observations:* **Z C Zeng**, M Sheng, S Liu, S Han, Y Zheng, W Wang, L Lee, C Qi, F Lu, J Li

1995097 *Automated NO₂ Retrieval from Pandora Spectrometer Measurements using DOAS:* **M C P Ancheta**, J L F Gabayno

- 1962278** *Combining Satellite Data with Ground-Based Observations to Investigate Urban Air Quality in Denver:* **L D Anderson**, D Blauth, S Yun, D A Day, E Mattson, B Dix, J L Jimenez, J A de Gouw
- 1963379** *Comparison of Pandora remote sensing MAX-DOAS NO₂ partial and tropospheric columns with airborne in-situ measurements from SARP and ALEGROS:* **B Place**, A Pandey, J M St Clair, E Delaria, J Liao, G Wolfe, N Abuhassan, T F Hanisco, E S Lind
- 1868201** *Connecting Surface-Column HCHO Observations Using Pandora Spectrometers in a Coastal Urban Environment:* **C Naughton**, J Geddes, G Gonzalez Abad, R Mooers
- 1997636** *Developing a United States Air Quality Assessment System Based on GEOS-Chem High Performance (GCHP) integrated with NASA's satellite Information to Support NASA's Earth Science to Action for Air Quality:* **J Yu**, K Miyazaki, L Wu, S Hasheminassab, J Choi
- 1999705** *Diurnal Analysis of Aerosol Optical Depth Around the World: An Analysis of the Daytime and Nighttime Trends of the Aerosol Optical Properties with AERONET.:* **J Mallay**, P Gupta, T F Eck
- 2003179** *Diurnal variations of HCHO columns and vertical profiles during extreme heat events and their link to surface ozone over North America:* **T Zhao**, J Mao, X Zhao, D Griffin, R Alwarda, K Strong, W R Simpson, M M Friedrich, M Tiefengraber, M Gebetsberger, A Cede, E S Lind, A Pandey, V Shah, K E Knowland, T F Hanisco
- 1900843** *Drivers of variability in NO₂ and HCHO lower-tropospheric vertical profiles in southeastern Los Angeles:* **P Peterson**, C Umstead
- 1910081** *Elevated mid-tropospheric ozone over the remote South China Sea from NASA DC-8 Observations During ASIA-AQ 2024:* **S Ravindra Babu**, N H Lin, J H Crawford
- 1910742** *Estimation of emission rates from point/area sources and validation of NO₂ vertical profile from remote sensing using airborne measurements during ASIA-AQ campaign:* **Y Choi**, J Kim, Y Kanaya, G Lee, J Jun, H Kang, B K Seo, G Lee
- 1940078** *Estimation of Open Biomass Burning Emissions in Lao PDR using Fuel and Fire Tool:* **H Park**, S Oh, S Garivait, B Kim, J Kim, J H Woo
- 1988664** *Evaluating and Improving NASA's GEOS-CF Simulations with MAGEQ Airborne Observations:* **N Balashov**, G Wolfe, L Ott, V Shah, P Wales, S Basu, J V Ardizzone, B Weir, A R Nehrir, S S Brown, X Ren, I Pollack, P G Brodrick, E Delaria, J E Dibb, B McDonald
- 1929725** *Evaluation of Air Pollution Trends of East Asia from Residual-Corrected Long-Term Satellite Records:* **J Lee**, J Kim, PhD, M KIM
- 1994446** *Evaluation of Pandora formaldehyde retrievals and implications for satellite validation:* **A Pandey**, E S Lind, B Place, T F Hanisco, E Delaria, J M St Clair, G Wolfe, L Valin
- 1867907** *Expanding Geostationary Atmospheric Composition Satellite Constellation: Towards Global Coverage:* **A H Omar**, P Levelt, S Kondragunta, P Artaxo, A da Silva, D Sheldon, O Emam Sr, J E Hickman, B L Lefer, D Nicks, R M M Suleiman, B Veihelmann, H M Worden, S Bahramvash Shams, J Wang, K E Knowland, J W Hannigan
- 1965968** *Exploring the relationship between near-surface and TEMPO column temporal and spatial variability of NO₂ over Los Angeles and Baltimore.:* **E Delaria**, G Wolfe, J M St Clair, B Place, A Pandey, T F Hanisco
- 1865780** *Geostationary Fire Detections Improve Burned Area Estimates in Southeast Asia:* **N Maneenoi**, P Saide, J Christopoulos, M Mohanty, L K Emmons, W Tang, R R Buchholz, C Wiedinmyer, V Boonlerd
- 1984497** *High-Resolution PM_{2.5} Exposure Analysis in Africa: Leveraging Satellite, Ground, and Model Observations for Air Quality Management.:* **P Sey**, P Jaramillo, A Presto
- 1961644** *Homogenization and Quality Control of the El Paso Ozone Sonde Dataset (2017-2023): A Foundation for Assessing Regional and Transboundary Ozone Influences:* **K Fong**, G A Morris
- 1876180** *Hourly Satellite NO_x Emissions Constraints based on Geostationary Retrievals Improve Air Quality Modeling over Southeast Asia:* **J Christopoulos**, P Saide, M Mohanty, N Maneenoi, J Kim, PhD, L M Judd, J M St Clair, E Delaria, G Wolfe, A Sebol, A Franchin, C Cho, J W Hair, T Shingler, A R Nehrir, R A Barton-Grimley
- 1992306** *Insights from the ASIA-AQ Campaign into Winter High-PM_{2.5} Episodes in Megacity Seoul:* **H Lee**, C Yun, M Lee, J A Kim, A Savic, J H Son, S A Shin, L S Chang, M S Park, J Lee
- 1897954** *Integrating ASIA-AQ in situ data and box modeling to enhance satellite-based assessments of ozone production regimes:* **J Liao**, G Wolfe, A Sebol, J M St Clair, E Delaria, T F Hanisco, J H Crawford, K Travis, F M Flocke, A Franchin, C Cho, G S Diskin, J P DiGangi, D R Blake, B Barletta, E C Apel, R S Hornbrook, S R Hall, K Ullmann, A Wisthaler, T Mikoviny, P O Wennberg, J D Crounse, K Ball, Y R Lee, G Chen, M L Silverman
- 1906995** *Investigating Asian Dust Effects on Geostationary Infrared Sounder Observations and Its Implications for Numerical Weather Prediction:* **Y Ota**
- 1939426** *Investigating Temperature-Dependent NO_x and VOC Emissions using TEMPO in California:* **A Zhao**, H Wang, Y Zhang, A B Guenther

- 1974876** *Investigating Turbulence Impact on NO₂ Vertical Profile Structure*: **M Eke**, Z Li, A Lawal, Y Hu, A P Mouat, J Kaiser, A G Russell
- 1929749** *JEDI Applications for Atmospheric Composition: A Unified Framework for Observational Integration and Evaluation*: **S W Wei**, C H Lu, S Ha, J Barré, B Menetrier, C Dang, M Abdi-Oskouei
- 1983544** *Long range transport events as revealed by GEMS and airborne observations onboard G-III during the ASIA-AQ Campaign*: **J Kim, PhD**, W Kang, Y Chai, Y Seo, S Oh, J Lee, M KIM, H Lee, J H Kim, J Bak, J H Crawford, S J Janz, L M Judd, J W Hair, T Shingler
- 1845860** *Mapping NO₂ Variability with a Custom Pandora Sky Scan Azimuth Schedule at Multiple Locations in Boston*: **R Mooers**, J Geddes, C Naughton, A Pandey, B Place, G Gonzalez Abad
- 1981486** *Megacities as Indicators of National NO_x and CO₂ Emission Trends*: **L Yang**, K Miyazaki, K Bowman
- 1876672** *Model Evaluation and Source Contribution of PM_{2.5} and Ozone in Southeast Asia During the ASIA-AQ Campaign*: **H Kim**, G R Carmichael, G Ferrada, L K Emmons, G Pfister
- 1950381** *Multi-Platform Evaluation of TEMPO Air Quality Products Using Ground-Based Observations and Atmospheric Composition Models*: **M Kang**, M Goldberg, F Moshary, S Kondragunta, H Zhang, B Baker, W Li, Y Wu
- 1992402** *Multi-year variability of Water-Soluble and Insoluble Brown Carbon in PM_{2.5} over the Seoul Metropolitan Area*: **H Park**, T Joo, M Lee, S Lim, J A Kim, H Jin, J Kim, H Kim
- 1948462** *New developments and future directions for the NASA GEOS Composition Forecasting (GEOS-CF) system*: **V Shah**, P Wales, C Malings, M R Damon, B Weir, S Basu, K Wargan, M Long, N Balashov, F Liu, R Mecikalski, T Tobin, R A Luccesi, J V Ardizzone, S J Roberts, M Abdi-Oskouei, J Barré, K E Knowland, L Ott, S Pawson
- 1958389** *Nitrogen Dioxide Emissions from Offshore Oil and Natural Gas Platforms in the Gulf: Insights from TEMPO and the SCOAPE-II Campaign*: **N M Fedkin**, R M Stauffer, A Thompson, D E Kollonige, H D Wecht, L N Lamsal, L M Judd, S J Janz, B Place, J Gallegos, T F Hanisco
- 1923967** *NUWRF4HTAP: A Multiscale Earth System Modeling System Supporting HTAP3-Fires and Other Policy-relevant Activities*: **M Huang**, G R Carmichael, K Bowman, J H Crawford, S V Kumar
- 1969383** *Observational Constraints of Nitrogen Dioxide and Ozone from Aircraft and Satellite Remote-sensing over Central Luzon, Philippines during ASIA-AQ*: **M A G Demetillo**, L M Judd, M O L Cambaliza, J H Crawford, J B B Simpas, M T Cruz, K Travis, P Rawat, T Lee, J W Hair, M A Fenn, T Shingler, M Hetlage, S J Janz
- 1983594** *PM_{2.5} Composition and Optical Properties in East Asia: Insights from DC-8 Aircraft and Ground-Based Observations*: **H Jin**, J E Dibb, M Lee, T Joo, M S Kim, H Park, J L Jimenez, J A Kim, J Gil, C I Czimczik, X Xu, J C Walker, L S Chang
- 1861007** *Possible futures for airborne atmospheric chemistry research (or) How small mammals outlasted dinosaurs*: **G Wolfe**, J M St Clair, J Liao, A Sebol, A Colwell, E Delaria
- 1941472** *Quantification of Nighttime Nitrate Formation Pathways within the boundary layer over Seoul*: **J Kim**, G Lee, J Lee, C Yun, Y Choi, M Lee, K Kim, H S Lee, H Lee
- 1945535** *Quantifying Regional and Long-term Air Quality Changes with TRACER-1 (Tropospheric Chemistry and Emissions Reanalysis) – Preliminary Results*: **A Raman**, A Mizzi, C H Hsu, J T Benik, K Miyazaki, C Harkins, B C McDonald, R Kumar, I G Brosnan, M S Johnson, K Bowman, K E Knowland
- 1886053** *Sources and chemistry of free tropospheric NO_x informed by cloud-sliced NO₂ observations over North America from the TEMPO geostationary instrument*: **R Dang**, D J Jacob, Y Oak, L Yang
- 1893212** *Space-based characterization of nitrogen dioxide (NO₂) pollution diurnal variations and exposure disparities in the United States*: **L Chen**, D L Goldberg, D E Huber, PhD, S Anenberg, V E Fioletov, Y Zhang, G H Kerr
- 1948454** *The 2024-2025 Airborne and Remote Sensing Multi-Air Pollutant Surveys (AiRMAPS) – Results from the NOAA Twin Otter Campaigns in Colorado, Utah and the Mid-Atlantic*: **S S Brown**, X Ren, S Baidar, C Warneke, B C McDonald, S Kondragunta, R J Alvarez II II, A Brewer, B Carroll, W Chace, C Francoeur, M Holloway, P Kelley, J Lau, C Lyu, N Malarich, R Marchbanks, A Middlebrook, I Pollack, J Peischl, S Renton, S Sandberg, P Stratton, J Sun, C Sweeney, R M Volkamer, C Womack, M Zucker
- 1976035** *The Challenge of Using Satellite Data to Understand Surface Ozone*: **D A Jaffe**, H Lee
- 1969129** *TROPOMI, OMI, and EarthCare: data synergy to further characterize global trends, transport pathways and radiative impacts of UV-absorbing aerosols*: **D C Stein**, M de Graaf, M Sneep, G J van Zadelhoff, E van der Plas

1897039 *Turbulence-Based Method for Determining Boundary Layer Heights from In-situ Airborne Profiles during ASIA-AQ:* **J Miech**, J P DiGangi, G S Diskin, Y Choi, R Moore, L D Ziemba, F Gallo, C E Jordan, M Shook, E B Wiggins, E Winstead, S Roy, C K Gatebe, J M Dean-Day, J W Hair, T Shingler, A L Cook, M A Fenn, R A Ferrare, D B Harper, M Hetlage, C A Hostetler, A J Scarino

1902072 *Update on the MAIA Pre-launch Mission Status and Plans for Mapping Speciated Airborne Particulate Matter in Selected Major Metropolitan Areas:* **D J Diner**, S W Boland, K A Burke, H H Chang, S Gluck, S Hasheminassab, S Val, S Chow, A M Dillner, Y Liu, C L'Orange, R Martin, C R Oxford, M Qi, J Sarnat, J Wang, H Zhang

248624

Advances of Remote Sensing Inversion

Conveners: **Oleg Dubovik**, University of Lille; **Feng Xu**, JPL; **Reed Espinosa**, NASA Goddard Space Flight Center; **Reed Espinosa**, NASA Goddard Space Flight Center

1894110 *A Machine-Learning Based Algorithm for Retrieving Above-Cloud Smoke Properties over Ocean from PACE observations:* **R K Mishra**, Z Zhang, K Meyer, D J Miller

1984825 *A new approach to calculate radiative forcing using surface and multi-spectral observationally constrained absorbing aerosol number, size, and mixing: applications over high emitting and industrial areas in China and South Asia:* **J B Cohen**, P Tiwari, L Guan, Z Liu, S Wang, K Qin

1911942 *A New Perspective on Spectral Biases: RTTOV Diagnostics for Accurate Atmospheric Retrievals from Hyperspectral Infrared Sounders:* **V Volonnino**, J M Lalande, R Armante, J Vidot

1940785 *A Physically-Based Framework for Global Quantification and Mitigation of Scene Inhomogeneity Biases in Imagery-Derived Cloud Properties:* **H Chen**, S Schmidt, H Iwabuchi

1873169 *Advanced retrieval of aerosol vertical profiles using synergy of EarthCARE ATLID and passive spaceborne observations:* **A Lopatin**, C Li, A Tsekeri, A Gialitaki, W Lin, O Dubovik, E Malina, D Gasbarra, T Georgiou

1846298 *Aerosol Optical Depth Retrieved from PACE Polarimetric Measurements:* **Y Zhen**, S Stamnes, A Bell, E Chemyakin, J G Allen

1857889 *An Aerosol Retrieval Algorithm Over Land From Multispectral Single-Viewing Measurements Of Intensity And Polarization:* **Z Ji**

1957521 *An Analysis of Machine Learning-Driven Extinction Retrievals from Space-Based Lidar:* **N Midzak**, J E Yorks, P A Selmer, A Cresanti, K E Christian, N Roldan-Henao

1998981 *Use of TEMPO Data for Air Quality Management Applications:* **A R Naeger**, A White, K K Fuell, J Case, K Murphy, R Allen, E Berndt

1955585 *Using a Tiered Observing System to Evaluate the Next Generation Global Air Quality Forecast System with NOAA's Newly Developed UFS-Chem Model:* **J He**, L Zhang, R Schwantes, B Baker, L W Horowitz, V Naik, PhD, C Lyu, Z Moon, G Grell, R Ahmadov, J Schnell, K Yang, Z Wei, S Wang, K L Chang, A Gorchov Negron, A Zhu, S Kondragunta, E C Apel, I Bourgeois, R Commane, S R Hall, A J Hills, R S Hornbrook, J Peischl, K Ullmann, G Gonzalez Abad, Z Ayzapour, C R Nowlan, B C McDonald

1944423 *Application of Super-spheroid and Hexahedron Models in Retrieval of Aerosol Properties Using GRASP Algorithm:* **W Lin**, O Dubovik, M Momoi, T Lapyonok, A Lopatin, O Munoz, G Regmi, R Espinosa, M Saito, L Bi

2000194 *Cloud Thermodynamic Phase Determination using the OCI and HARP2 Instruments:* **K Sinclair**, PhD, B Cairns, D J Miller, B van Diedenhoven, C Rajapakshe, A M Sayer, A P Wasilewski

1916129 *Enhancing the AERONET aerosol retrieval adding polarization measurements.:* **A Siniuk**, E S Lind, O Dubovik, I Slutsker, T F Eck, P Gupta, M G Sorokin

1847685 *EnKF1D-Var Optimal Estimation of Thermodynamic Profiles using Integrated Ground-Based Remote Sensing System and Its Impact on Short-term Precipitation Forecasting:* **Q Zhang**, M Shao

1866952 *From Radiometric Intercomparison to Skin SST Retrieval: Algorithm Development Using INSAT-3DR and Meteosat-8 TIR Observations:* **S Satapathy**, J Goyal

2000319 *Global Retrievals of Dust Aerosol Optical thickness and Effective Radius from CALIOP-IIR Observations and Their Radiative Effects Considering Regional Variability in Mineralogical Composition:* **D Li**, P Yang

1989387 *GRASP retrieval platform for atmosphere remote sensing applications: new updates and achievements:* **O Dubovik**

1865580 *Identifying Practical Challenges in 3D Cloud Tomography: A CAMP²Ex Case Study Retrieval Using Atmospheric Tomography with 3D Radiative Transfer and Observations from MISR:* **J Lundstrom**, J Loveridge, L Di Girolamo

1953743 *Integrated aerosol and ocean color products from the PACE FastMAPOL algorithm:* **M Gao**, B A Franz, K D Knobelspiesse, P Zhai, K Aryal, A M Sayer, A Ibrahim, J Werdell, B Cairns, Y Hu, X Xu, J V Martins, G Fu, O P P Hasekamp

- 1931305** *Optimal Estimation-Based Retrieval of Aerosol and Ocean Parameters Using Multi-angular Polarimetric Measurements.*: **S Lee**, U Jeong, Y J Choi, J S Byun, S Stammes
- 1858873** *Penetrating Clouds: A Spectral-spatial Deep Learning Model Framework to Retrieve Temperature and Humidity Profiles Below Clouds.*: **Q Hu**, X Chen, Q Yue, N G Loeb, S Kato, X Huang
- 1973022** *Polarized Radiative Transfer from Ultraviolet to Thermal Infrared: Markov Chain Modeling and Applications to Aerosol Remote Sensing.*: **F Xu**, A B Davis, D J Diner, O V Kalashnikova, R Espinosa, J Gong, D L Wu, J Redemann, W Zhang, C Qiao, L Gao
- 1951969** *Potential of aerosol core/shell structure retrieval from remote sensing.*: **Y Derimian**, P Lesueur, O Dubovik, T Lapyonok
- 1895528** *Remote Sensing of Aerosol and Ambient Surface Pollutants from Space with Advanced AI Models.*: **Z Li**, J Wei
- 1907221** *Retrieval of aerosol and surface properties from PACE polarimetric and spectrometric observations using GRASP algorithm.*: **C LI**, O Dubovik, A Puthukkudy, A Lopatin, P Lytvyonov, V Martins, D Fuertes, J C Antuna-Sanchez, J Gómez López, A Garcia Gómez, C Matar
- 1910552** *Retrieval of aerosol physical and optical properties from in situ polarimeter measurements during the LUMINOUS field experiment.*: **Q Xu**, B Bertozzi, M Gysel, R Modini, C Mohr, G Titos, E Bazo González, A Casans, I Zabala, J A Casquero Vera, D Pérez-Ramírez, F José Olmo, L Alados-Arboledas, V Martins, F Rejano, C LI, D Fuertes
- 1886695** *Sensitivity of Polarization Neutral Point Locations to Atmospheric Aerosols: A GRASP Simulation.*: **Y Long**, C DeLeon, R Espinosa, M Kupinski, V Salajko
- 1904593** *Simultaneous profiling of aerosol and tropospheric nitrogen dioxide from synergetic ground-based observations of sun-sky photometer, lidar and spectrometer.*: **M Momoi**, E S Lind, O Dubovik, M Stöckhardt, M Herreras Giralda, B Torres, T Lapyonok, A Lopatin, W Lin, F Rejano, A Kreuter, A Cede
- 2001727** *Synergetic aerosol/surface properties retrieval from passive multi-instrument measurements using GRASP algorithm.*: **P Lytvyonov**, O Dubovik, S Zhai, C Chen, C Matar, A Lopatin, T Lapyonok, C LI, D Fuertes
- 1892822** *The ASSIST and TROPoe for Ground-Based T/q Profiling: Intercomparison of Seven Co-Located Infrared Spectrometers.*: **J P Gagnon**, V Michaud-Belleau, D D Turner, B Adler, J M Wilczak, L Rochette
- 1902159** *Using cloud aspect ratio for correction on cloud optical thickness retrievals and for simplified cloud tomography: Application to PACE OCI satellite data.*: **M D Alexandrov**, I V Geogdzhayev, C Brian, D J Miller, C Emde, B van Dienenhoven, A P Wasilewski
- 1877113** *Analysis of the feasibility of deep learning models for subseasonal solar and wind forecasting based on time-series patterns.*: **M Oh**, D Oh, M Lee, C K Kim
- 1895587** *Benchmarking Machine Learning Models for Subseasonal Temperature Forecasting Across the Contiguous U.S.*: **M Holthuijzen**, T Ehrmann, M G L Brown, K Goode, J Johnson
- 1950518** *Between the Rains: Understanding and Predicting Monsoon Breaks.*: **J Aboobaker**, S Singh
- 1938831** *Can AI Data-Driven Models Capture the Temporal Clustering of Unique Atmospheric Rivers and the Influence of Climate Modes?.*: **Z Yang**, M J Defflorio, A Sengupta, B Guan, Z Zhang, K Guirguis, A Gershunov, L Delle Monache
- 1932109** *Deep learning based short to sub-seasonal streamflow forecast for the flood-prone regions in the United States.*: **A K Krishnankutty Ambika**, K Tayal, V Mishra, D Lu
- 1906752** *Deep Learning-Based Postprocessing of East Asian Summer Precipitation Forecasts for S2S Prediction Using Multiple Architectures, Loss Functions, and Ensemble Means.*: **J Wie**, D Kim, Y Lee, J M Yeom

252232

Advancing AI and Machine Learning for Improved Subseasonal-to-Seasonal (S2S) Forecast Skill

Conveners: **Christine Bassett**, National Oceanic and Atmospheric Administration; **Mark Olsen**, National Oceanic and Atmospheric Administration; **Nachiketa Acharya**, CUNY Hunter College; **Johnna Infanti**, Organization Not Listed; **Marybeth Arcodia**, University of Miami

- 1874297** *A Hybrid Dynamical-Machine Learning Forecast Tool for Subseasonal Precipitation Prediction Based on ENSO and the MJO.*: **E K M Chang**, C Zheng, H Kim, E LaJoie, S He
- 2001946** *A Machine Learning-Based Interactive Ensemble for ENSO.*: **C Martinez**, MS, B P Kirtman, S Goldberg
- 1900644** *Advancement in NOAA's DynAmic Forecasting of Air Composition using Optimized Machine Learning (DAFCOM) approach.*: **B Tang**, B Baker, Y Tang, P C Campbell, T Chai, D Tong

- 1941678** *Deep Learning-based Subseasonal Prediction of Winter Temperature Extremes in North America:* **H Park**, J H Kim, M K Sung, D Kang
- 1980444** *Does DL Downscaling Affect S2S Forecast Performance?:* **A Valencia**, T M Fenske, B P Kirtman, S J Kramer
- 1885742** *DUNE2: A Physics-Guided Deep Learning Framework for Long-Lead Annual Forecasting over the U.S.:* **P Shukla**, M Halem
- 1988875** *Enhancing Sub-seasonal to Seasonal Regional Precipitation Predictability From Tropical Oceans Using Customized Multi-modal Machine Learning.:* **S Mahajan**
- 1914466** *Evaluation of Multi-month Forecasts by Two NOAA Weather Forecast Models Over the USA: AI vs. Traditional NWP:* **Q Liu**, X Huang
- 1882763** *Forecasting and projecting karst spring discharge under variable climate scenarios with hybrid deep learning model:* **R Zhou**
- 1948322** *Forecasting Hourly Electrical Load Demand: A Comparative Study of XGBoost and Bi-LSTM Models:* **S Dey**, A Alam, S Dey
- 1908956** *HiResCastNet: A 3D Deep Learning Surrogate Model for Probabilistic Regional High-Resolution Subseasonal Forecast Through Downscaling.:* **S Resifi**, T M Luong, E AL Aawar, H Ibrahim
-
- 251767**
Advancing Earth System Science Research using Global Navigation Satellite Systems Technology
(joint with AE, C, H, NH)
Conveners: **Kuo-Nung Wang**, NASA Jet Propulsion Laboratory; **Kevin Nelson**, NASA Jet Propulsion Laboratory, California Institute of Technology; **Ramon Padullés**, Institute of Space Sciences ICE-CSIC, IEEC; **Zhuoyi Zhao**, University of Colorado Boulder; **Zhuoyi Zhao**, University of Colorado Boulder
-
- 1940587** *Constraining microphysics assumptions with GNSS-PRO:* **R Padullés**, A Paz, E Cardellach, K Lonitz, V Vidal
- 1938475** *Mapping Surface Elevation via Spaceborne GNSS-R Phase Altimetry and Crossover Adjustment:* **Y Wang**, J T Minear, A Putnam
- 1954506** *Monitoring Tectonic Deformation Using Low-Cost GNSS Systems: A Feasible and Scalable Approach:* **B Akpınar**, S Ozarpaci, C Aydin, N O Aykut, A Ozdemir, O Gunes, U Dogan, G Oku Topal, E T Ayruk, M F Karabulut
- 1962102** *Human-centered operational benchmarking of AI weather models for subseasonal monsoon onset forecasts in India:* **R Masiwal**, M Gupta, A Marchakitus, C Aitken, Y Q Sun, T Yang, H Pahlavan, K Kowal, A Jina, W R Boos, P Hassanzadeh
- 1952605** *Hybrid Deep Learning for Sub-Seasonal to Seasonal Forecasting of Agricultural Drought Over India:* **S Verma**, K Lanka
- 1955757** *NIVA: An Earth System Foundation Model Used for Subseasonal to Interannual Predictions:* **A J Sweeney**, K Ramea, A Pal, K Heyblom, H Singh
- 1872354** *Statistical Postprocessing of Subseasonal Cumulative Precipitation Forecasts Using a Spatial Heterogeneity-Aware U-Net:* **Q Duan**, S Liu, W Li
- 2003453** *Sub-seasonal to seasonal (S2S) forecast of North American weather regimes and associated precipitation extremes in the U.S. using artificial intelligence.:* **S S Borkotoky**, K A Schiro, K M Grise, A Mamalakos
- 1862810** *Summer Greenland Blocking Index Prediction Using Nonlinear System Identification and Interpretable Machine Learning Methods:* **H L Wei**, Y Sun, E Hanna, L Luu
- 1964083** *Supermodelling towards improved seasonal prediction:* **N S Keenlyside**, F Counillon, T Singh, P G Chiu, L Montag
- 1901407** *Using data science tools to investigate S2S predictability of near-coastal sea surface height:* **L Thapa**, M Arcodia, E Barnes, DJ Amaya
- 1990866** *Observing Coseismic Ionospheric Disturbances from $M_W \geq 7.0$ Earthquakes: Replication of 2016 Kaikoura AGW Signals and Development of a Public Global Database:* **L Luscri**, J Yao
- 1988078** *Phase-Matching Methods for Retrieving Bending Angle in Atmospheric Rivers Using Airborne GNSS-RO:* **K Lord**, J S Haase, B Cao, J Kontzer
- 1964386** *PlanetiQ Precipitation Observations via Dual Linear Polarization Radio Occultation Measurements:* **E R Kursinski**, J Brandmeyer, B Giesinger
- 1855150** *Quasi-global Gap-free GNSS-R Ocean Wind Speed Mapping:* **H Du**, R Fablet, N Nguyen, W Li, E Cardellach, B Chapron
- 1946965** *Recent Developments from Spire's GNSS Radio Occultation and Reflectometry Constellation:* **M Talpe**, V Nguyen, P Jales, J Cartwright, S Vetra-Carvalho, G Savastano, B Yeoh
- 1981146** *Tracking SENTINEL-6 GNSS-RO Grazing Reflection Signals and its PBL Characterization Applications:* **K N Wang**, T K Meehan, C R Galley, C O Ao, A Dorsey

1889027 *Variability of Precipitable Water Vapor in the Himalayan Region of Nepal Using GPS Observations (2016–2020):* **S Dahal**

252047

Advancing Precipitation Predictions with Physical Models and Artificial Intelligence (joint with GC, H, NH)

Conveners: **Xiaodong Chen**, University of Oklahoma; **Ming Pan**, Scripps Institution of Oceanography; **Kelly Mahoney**, NOAA/ESRL/PSD; **Tiantian Yang**, University of Oklahoma Norman Campus; **Nana Liu**, Texas A & M University Corpus Christi

1941449 *Accelerating Climate Model Development using AI Weather/Climate Emulators:* **J Seo**, D Kim

1863926 *Advancing Rainfall Nowcasting in Tropical Southeast Asia with Physics-Informed Deep Generative Models:* **Z Niu**, H Naing, S Chen, Z Xu, J Lee, K Furtado, H Zhang, X Liu, X He

1945184 *Analysis of Precipitation Forecast Characteristics of the 8 km High-Resolution Korean Integrated Model (KIM) in Summer and Winter Seasons:* **B Ku**, S Choi, H J Choi, K Cho, J O LIM, I H Cho

1897606 *Analyzing AI-NWP Performance for Extreme Flood Events in Kentucky and Texas:* **A Varholak**, S J Greybush, C Spallone

1928043 *Analyzing Precipitation Characteristics and Environmental Conditions During the East Asian Summer Monsoon by Utilizing Diffusion Models:* **Y Takano**, T T Kawabata

1931497 *Data-Driven Discovery of Thermodynamic Controls on South Asian Monsoon Precipitation:* **S L Ferretti**, M S Pritchard, F Ahmed, T Beucler, S Shamekh, J W Baldwin

1955622 *Derived and Crowdsourced Observational Precipitation Phase Compared to the Atmospheric Conditions of HRRR Forecast Simulations in the Western CONUS:* **S Wolvin**, C Strong, S Brewer

1987258 *Differentiable Downscaling Model for GCMs Precipitation:* **K Sawadekar**, P Li, S A McGinnis, C Shen

1897373 *Evaluating AI-Based Numerical Weather Prediction Models for Precipitation Type Classification Using Crowd-Sourced Observations:* **S Akor**, A N Flores, C Becker, J Schreck, D J Gagne II

1982187 *Evaluating AI-Based Weather Prediction of Extreme Precipitation Events: A Global Comparison with Physics-Based Models:* **A Al Jabri**, Z Lebo

1885496 *Extending the Lead Time for Rainfall Nowcasting with an Echo Intensity Categorizer:* **X Jiang**, J Chen

1972661 *Global seasonal precipitation forecasts using model-analogs:* **D J Amaya**, H H Wei, M Newman, J J Barsugli, S G Yeager

1963024 *Improving the Medium-Range Precipitation Forecasts Over CONUS Using Diffusion Model:* **Y Hua**, H Yue, T Yang

1958798 *Investigating and Attributing Nonlinear Drivers of Extreme Precipitation Events through Deep-Learning Approaches:* **J Corner**, A Mamalakis, K A Schiro

1922942 *Investigating Historical Precipitation Trends in Models and Observations: Forced Signals and Atmospheric Internal Variability:* **W Liang**, M Zhao, Z Tan, T R Knutson, W Dong, B Zhang

1995162 *Lightweight 3-D Convolutional Framework for Radar Rainfall Nowcasting in Data- and Resource-Limited Settings:* **A Abdelhalim**, M A Rico-Ramirez, W Liu, D Han

1894192 *Moving beyond parameterized precipitation processes using holistic machine learning and satellite observations:* **R Moreno**, D R Durran, N Cresswell-Clay

1957054 *Physics-Informed Recurrent Models with SHAP-Based Interpretability for Sensor-Level Rainfall Prediction in the Seveso Basin, Northern Italy:* **S Li**, X Song, G Venuti

1851773 *Seasonal Changes in Tropical MCS Precipitation under Global Warming: Insights from an MMF Approach:* **G Lin**

1847744 *Skillful global precipitation forecast using generative AI:* **Q Duan**, W Li, B Pan

1880575 *Skillful seasonal predictions of continental East-Asian summer rainfall by integrating its spatio-temporal evolution:* **J Ma**, H L Ren, M Cai, Y Deng

1920891 *The efficacy of ten snow-liquid ratio algorithms to predict snowfall for impactful winter storms in the Northeast United States:* **B Filipiak**, U Khaira, M Walters, M Astitha

247790

Advancing Research on Atmospheric Aerosols and Their Impacts on Climate, Air Quality, and Health (joint with B, GC)

Conveners: **Qianqian Song**, Princeton University; **Arman Pouyaei**, Princeton University; **Xiaohan Sally Li**, Princeton University; **Shipeng Zhang**, Organization Not Listed

- 1849164** *Estimating mortality due to air pollution in Europe for the CATALYSE project:* **B Steffens**, A Pozzer, J Lelieveld
- 1889164** *Aerosol Phase States and Their Implications for the Heterogeneous Formation of Particulate Nitrate in Urban Atmospheres:* **T Van Do**, N R Choi, T Lee, H Shin, K Lee, J S Park, S Seo, M Song
- 1991771** *Are we living with toxins? Decoding Health hazards of PM_{2.5} bound metals and VOCs (HCHO and BTEX) in the Indoor and Outdoor Environment of Residential Buildings:* **K Singh**, M K Kandikonda, A Satsangi
- 1955832** *Atmospheric Gases and Particulate Matter as Quantitative Indicators of Urbanization Across Land-Use Gradients:* **J Weinberg**, C Salvador, M A Mayes, T Mead
- 1894994** *Black carbon aerosol size in wild- and agricultural- fire smoke:* **J P Schwarz, PhD**, A E Perring, J M Katich, E Gargulinski, A J Soja, B Mediavilla, B Weinzierl, R Moore
- 1942305** *Black Carbon Emissions During Peak Traffic Hours in Semi-Urban Environments: Influence of Vehicular Activity and Meteorological Conditions:* **I Srivastava**, A K Patra
- 1907725** *Characterization and Source Analysis of Airborne Microplastics in an Urban Area of South Korea Using Single-Particle Analysis and Transport Models:* **H Lee**, C W Kang, H Yoo, Y T H Le, K J Jeon
- 1970536** *Characterization of Aerosol Properties in a Gulf Coast Urban Environment: A Case Study from New Orleans:* **M Gasseller**, F Landry, B Wardlow
- 1993144** *Characterization of Aerosols and Estimation of Direct Radiative Forcing over Key Indo-Gangetic Plain Cities Using SBDART:* **A Jangid**, S Pratap Singh
- 1977819** *Characterizing Horizontal Gradients of Aerosol Pollution and Chemical Speciation Across Oklahoma:* **S M Loria Salazar**, E West, C J Flynn, J Redemann
- 1994642** *Cloud and Radiation Characteristics Associated with Sea-Breeze Boundaries in the Southeast Texas Region:* **M Jones**, A Williams, M P Jensen, A J Drager, M Deng, D WANG, P J Walter, N Pszeniczny, D Vrinceanu, B Prince, M Harvey
- 1915201** *Comparing Saharan and East Asian Dust Events in Changchun:* **Y Yukhymchuk**, G P Milinevsky, Y Shi, X Gao, X Wei, I Syniavskyi, V Danylevsky
- 1913056** *Development and Characterization of a Hydration Spectrometer (HySpec) System for Studying Aerosol Cloud Interactions:* **O Y Enekwizu**, E R Lewis, A J Sedlacek III
- 1897699** *Development of a Satellite-Based Air Quality Monitoring Dashboard for South Africa:* **L Shikwambana**, Z T Katamzi-Joseph
- 1857693** *From Regulation to Radiative Forcing: Constraining the Climate Response to Declining Shipping Aerosol Emissions:* **D Watson-Parris**
- 1847872** *Growing influences of wildfire aerosols on cloud condensation nuclei and cloud albedo over remote North Atlantic Ocean:* **J Wang**, S Zhou, H Gordon
- 1960505** *Impact of measurement uncertainties and intrinsic scatter on the quantification of precipitation susceptibility:* **J Wang**, S Zhou, M Zhang, V P Ghate, M P Cadeddu, C Chiu
- 1972235** *Informing long-term trends in criteria pollutants with high time resolution data from the Baltimore Social-Environmental Collaborative:* **B Nault, PhD**, D Blomdahl, M Tehrani, L Aiyar, B Werden, A Yassine, A Pettijohn, K Koehler, A Ring, J G Hunter, B F Zaitchik, P F DeCarlo
- 1962242** *Initial Measurements of Atmospheric Aerosol Size Distributions for Training a Machine Learning Model to Predict Aerosol Liquid Water and Cloud Condensation Nuclei:* **E Parkhurst**, J P Sherman
- 1908901** *Modeling Black Carbon Dry Deposition and Climate Forcing in the Indo-Gangetic Basin Using a Hybrid Machine Learning and Physical Approach:* **V Bartaria**, A Ganguly, A Jangid
- 1914743** *Multi-decadal Variability and Decadal Shifts in Black Carbon and Sulfate Aerosols over North East India (1980–2020): Insights from Reanalysis:* **S Saha**, A Kundu, S S Kundu, A Chhari
- 1978855** *Optical Properties of Core–Shell Aerosols Using Mie Theory:* **V Sanchez Castano**
- 1897989** *Prediction of Ambient PM_{2.5} Chemical Components in Southern California Using Machine Learning:* **J Yang**, S Hasheminassab, M Franklin, PhD, A Zhang, D J Diner, J P Pinto, Y L Yung
- 1881278** *Quantifying source contributions to Central American particulate matter using GEOS-Chem modeling and satellite data:* **A Lasso de la Vega**, N June, S O'Donnell, J R Pierce
- 1982247** *Quantifying the Changing Role of Natural Aerosols in Brazil's Air Quality and Health Impacts:* **N M Mahowald**, A Aboagye-Okwere, A Hayden, F Lo

- 1954405** *Quantifying the Influence of Internal and External Mixing States on the Direct Radiative Effect of Polluted Dust Aerosols Using Satellite Observations and Reanalysis Data.:* **R Wang**, Z Zhang, J Zheng, PhD, Q Song, H Yu
- 1936499** *Satellite Observations Show Increase in Aerosols Over Black Rock City After Burning Man Event:* **G Dauber**, M Wisdom, J B Fisher
- 1995514** *Seasonal Trends and Source Apportionment of Water-soluble Inorganic Ions in PM_{2.5} in Makkah, Saudi Arabia:* **H A Khwaja**
- 1923008** *Smoke, Dust, and Resilience: Unraveling the March 2025 Oklahoma Compound Hazards:* **S M Loria Salazar**, D Schwartzman, E West, J Lee, C J Flynn, K Eskew, A M Sayer, E Miller, C R Homeyer, P Ciren, S Hitchcock
- 1918025** *The Effects of Smoke Aerosols on CAPE formation Over Severe Weather Regimes:* **M Oehler**, M Oyola Merced, K Wilson, S Kluge

252208

Advancing Skill in Subseasonal-to-Seasonal (S2S) Prediction

Conveners: **Christine Bassett**, National Oceanic and Atmospheric Administration; **Mark Olsen**, National Oceanic and Atmospheric Administration; **Jadwiga Richter**, National Center for Atmospheric Research; **Yan Xue**, NOAA NWS Office of Science and Technology Integration; **Margaret Orr**, University of Delaware

- 1876381** *A Large-scale Evaluation of Available Subseasonal Precipitation Forecast Products over the Contiguous United States: Bias, Skill, and Relative Performance:* **L Zhang**, T Yang, K M Dresback, C Szpilka, R L Kolar
- 1859074** *A Multi-Model Assessment of WR-GMM for Seasonal Precipitation Prediction Using Deterministic and Probabilistic Evaluation:* **J Ryu**, C Ratterman, B Vernon, W Zhang
- 1890438** *A Statistical Approach to Monthly Arctic Sea Ice Prediction Based on Spatiotemporal Anomaly Persistence:* **G Lee**, S H Woo, J H Kim, J H Jeong
- 1934722** *Assessing seasonal predictability of East Asian winter temperature via monthly predictable mode analysis:* **W Zhong**, Z Wu
- 1961023** *Assessment of Subseasonal-to-Seasonal Precipitation Forecast Skill for Southern India:* **S Yadav**, M Rathinasamy
- 1973533** *Bayesian Analysis of Polar Vortex and SSW Representation in CAM7/WACCM7 - Does Improved Polar Vortex Representation Lead to Enhanced Predictability of SSWs?:* **H Hunter**, M Bramberger, H M Horowitz

- 1967849** *Towards Global Retrievals of Cloud Condensation Nuclei and Aerosol Absorption based on EarthCARE ATLID observations:* **J Redemann**, L Gao, B Lamkin, P Stier, D Donovan, S Gross, M Wirth
- 1866601** *Tracking Global Wildfire-sourced PM_{2.5} Pollution by Multisource Data Fusion:* **Q Xiao**, C He, Y Wang, G Geng, Q Zhang
- 1945933** *TRENDS AND PATTERNS IN AIR QUALITY: A TIME SERIES ANALYSIS OF AQI AND PM_{2.5} IN DHAKA CITY, BANGLADESH:* **A K Majumder**, M Rahman, M N A Patoary, M Hossain
- 1978538** *Wildfire and Vehicle Emission Influences on Aerosol Light Absorption at a Background Southeastern U.S. Site:* **K Martin**, J P Sherman, R Swarthout
- 1946623** *Wildfire Exposure Assessment Using a Satellite-Constrained Lagrangian Models: Insights from the 2024 Smokehouse Creek Fire:* **Y Jia**, D W Hyndman, I J Pissso
- 1994945** *Bridging the Gap in S2S Drought Forecasting: Leveraging CFSv2 and NMME Ensembles for Improved Predictability:* **C M Carrillo**, T Ault, A T Degaetano
- 1857394** *Contributions of the Stratosphere vs. the Tropics to the Subseasonal Forecast Skill of North American Cold Air Outbreaks:* **J C Furtado**, O Millin
- 1869016** *Coupled WRF-Hydro and UFS modeling to improve subseasonal-to-seasonal predictions:* **E Dougherty**, D Tokuda, R Cabell, M B Ek, A L Dugger, D Rosen, P Dirmeyer
- 1858004** *Dependence of Accurate Numerical Simulations of the Madden-Julian Oscillation and Subseasonal Precipitation on Initial Conditions in the Energy Exascale Earth System Model:* **D Xu**, Z Pu, S Zhang, J L Anderson, R Leung
- 1882335** *ENSO and the onset of the rainy season in Central America: A moist static energy perspective.:* **A Garcia**, **PhD Student**, R Seager, Á G Muñoz, R L Miller
- 1964226** *Evaluation of Alaska summer temperature and precipitation from dynamical seasonal forecasts:* **C Borries Strigle**, U S Bhatt, T Ballinger, P Bieniek, B Bartos, E Fischer, J Hostler, N Kettle, R Lader, H Strader, H Shook, C F Waigl
- 1974131** *Getting the Spread Right: Tropical Precipitation Variance at Long Leads:* **A F Z Levine**
- 1958988** *Global Probabilistic Subseasonal Precipitation Prediction Using the NASA GEOS-S2S and Linear Inverse Modeling:* **A W Robertson**, J Yuan, S Kravtsov, M Ghadamidehno, A Molod
- 1959121** *Impact of Dynamically Balanced Coupled Model Initialization on S2S Climate Prediction:* **A A Fahad**, A Molod, D Menemenlis, A L Trayanov, H Zhang

- 2003518** *Impact of Land Surface Uncertainty on Coastal Maritime Weather Predictions:* **S Rushley**, C A Reynolds, P Finocchio, W Crawford
- 1973343** *Improving seasonal forecasts of winter rainfall hazards in Alaska:* **P Bieniek**, U S Bhatt, C Borries Strigle, N Kettle, P Hutton
- 1966048** *Improving the Skill of Seasonal Extreme Rainfall Predictions Using a Space-Time Nonstationary Stochastic Rainfall Downscaling Model:* **Y Derin**, D B Wright, Y Liu, R Emberson, L C Andrews, T Stanley
- 1887708** *Initial Condition Sensitivity of ENSO Prediction in CESM SSMILE:* **Y Mao**, G Zhang, H Li, D J Amaya
- 2001896** *Investigating the Predictability of Atmospheric Blocking in SubC Forecasts:* **K Y Ho**, L Wang
- 1879631** *Mixed Layer and Oceanic Kelvin Wave Response Biases to Equatorial Pacific Westerly Wind Events in Multi-Models:* **J Cui**, E M Riley Dellaripa, C A DeMott, E D Maloney
- 1936055** *Modulation of Extreme Precipitation in West Africa by the Madden-Julian Oscillation: Insights from Observations and CMIP6 Models:* **C Niang**, L Luo, A T Gaye
- 1896972** *NWS's Weeks 3-4 Program and Seasonal Forecast System Project: Progresses, Challenges, and Community Engagement:* **Y Xue**, S M Simon, K Garrett
- 1910076** *Production of High-Resolution Temperature Fields in South Korea Based on CFSv2 forecasts Using Statistical Downscaling Method:* **C Y Song**, K Jang
- 2004889** *S2S Bench: A Global Benchmark of Subseasonal-to-Seasonal Forecasts with Implications for the Water, Energy, and Food Nexus:* **O Bagheri**, G A, I Velicogna
- 1918431** *Simulating the effects of aerosol-radiation interactions on subseasonal prediction using the coupled Unified Forecast System and CCM-Chem:interactive aerosol module versus prescribed aerosol climatology:* **S Sun**, G Grell, L Zhang
- 1983446** *Stratospheric Impacts on Eurasian Soil Moisture on Subseasonal Timescales:* **Y Dai**, P Hitchcock, F Lehner
- 2001775** *Sub-seasonal to Seasonal Arctic Summer Sea Ice Forecasts Using Dynamical Downscaling with the Regional Arctic System Model:* **Y J Lee**, W Maslowski, A Craig, J L Clement Kinney, R Osinski
- 1956817** *Subseasonal-to-Seasonal (S2S) Prediction Skill of Rainfall Diurnal Cycle over the Maritime Continent and Its MJO Dependence:* **W Y H Tsai**, N Sakaeda, J H Ruppert Jr
- 1965196** *The impact of enhanced vertical resolution on seasonal prediction skill in CESM2: a new community hindcast dataset:* **I Simpson**, M J DeFlorio, J Wang, L Delle Monache, N Mascioli, J Edwards, N A Rosenbloom, M Simpson, G Danabasoglu, Y Li, P B Gibson, P Mulrooney, J Richter, S G Yeager
- 1995856** *The NSF NCAR Community Software Facility (CSF): Evolving Software Governance and Engineering to Enable Earth System Predictability:* **T Hauser**, J Petch, G Mullendore, G S Romine, D Colegrove, K Kuzemka
- 1933312** *The potential impacts of improved MJO prediction on the prediction of MJO teleconnections in the UFS global fully coupled model:* **J Wang**, D Domeisen, C Garfinkel, A Jenney, H Kim, Z Wu, C Zheng, C Stan, F M Ralph
- 1867754** *The teleconnection between snowpack in the Western U.S. and late-spring precipitation in the Southern Great Plains:* **Y Qiu**, Y Xue, G Y Niu, A Behrangi, J S Famiglietti
- 1912887** *Tropospheric and Stratospheric Boreal Winter Jet Response to Eddying Ocean in a Seasonal Forecast System:* **S Hirahara**, I Ishikawa, Y Fujii, H Nakano, H Tsujino, Y Adachi, H Naoe
- 1878522** *Unified Forecast System Prediction of the Madden-Julian Oscillation and Easterly Waves in the East Pacific During Boreal Summer:* **E D Maloney**, Y C Tsai
- 1948664** *Unlocking Predictive Potential: A Framework for Strategic Weekly Rainfall Forecasts:* **F Liu**, B Wang, D Chen
- 1917579** *Winter Precipitation Predictions in the Contiguous U.S.: Challenges for Two Seasonal Forecast Models, SEAS5 and CFSv2:* **Q Ding**, Y Zhang, H Wang
- 1935534** *3D Chemical Imaging reveals surface and internal heterogeneity of airborne fungal spores:* **Z Cheng**, Y Zhang, E Bredeweg, G W Vandergrift, A Rahman, X Mansoura, V Sola, T Ahmadullah, D Dexheimer, Q Zhang, A Laskin, J Fast, F Mei, PhD, S Baker, A L Steiner, S China, Z Zhu
- 1984266** *In-situ and Off-line Characterization of Vertical Profiles of Supermicron Bioaerosols in Forest and Coastal-Urban Environments:* **M A Zawadowicz**, C Kuang, A Vakhtin, T Subba, S Serbin, BA, MS, PhD, D Dexheimer, C Longbottom, G Whitson, C Ruiz, J Creamean, Z Cheng, G W Vandergrift, A Rahman, N N Lata, S China

252174

Advancing Understanding of Terrestrial-Atmospheric Interfaces: Linking Trace Gases, VOCs, and Aerosol Processes Across Scales

Conveners: **Zezen Cheng**, EMSL, Pacific Northwest National Laboratory; **Gavin Cornwell**, Pacific Northwest National Laboratory; **Jianqiu Zheng**, Pacific Northwest National Laboratory; **Swarup China**, Pacific Northwest National Laboratory

- 1923874** *Aerosol Sources and Processes: Insight from a Hot and Humid Summer in Texas:* **A C Aiken**, K Benedict, K Gorkowski, J Lee, R N Farley, A Meyer, S Jordan, A S M Shawon, M K Dubey
- 1990625** *Carbon Hybridization Determines the Light Absorption Spectra of Black and Dark Brown Carbon in Wildfire Smoke:* **J Kumar**, G Y Jung, R Mishra, R Chakrabarty
- 1929435** *Characterizing Chemical Emission Signatures of Recent Canadian Wildfires (2023-2025) with TROPES Trace-Gas Retrievals:* **S Lee**, K W Bowman, J Laughner, L Kuai, F Werner
- 1998633** *Characterizing the ice nucleation potential of particles in Bankhead National Forest: Investigating the contributions and impacts of bioaerosols and biogenic particles:* **K Chan**, N N Lata, S China
- 1905155** *Chemical Composition and Mixing State of Wintertime Aerosol from the European Arctic Site of Ny-Ålesund, Svalbard:* **J Lai**, Z Cheng, N Nahar Lata, S Mathai, M A Marcus, M Mazzola, C Mazzoleni, S Gilardoni, S China
- 1862595** *Chemical Composition of Fire Smoke-Emitted Organics in the Gas and Aerosol Phase During the Recent G-WISE-2 Prescribed Burn Experiments:* **S Lee**, V Vasudevan Geetha, L Tiszenkel, R Saleh, J O'Brien
- 2001603** *Dark Brown Carbon Amplifies Surface Dimming Due to Light Absorption in an Urban Coastal Region:* **G Chelluboyina**, A Li, R Chakrabarty
- 1976568** *Developing a Sorbent-Based Volatile Organic Compound Analysis Platform to Study Biogeochemical Processing in Terrestrial Ecosystems:* **M Guagenti**, V Balasubramanian, C Clendinen, A Bhattacharjee, K K Weitz, N Munoz, H M Olson, K Tate, Z Cheng, S China
- 1924066** *Disentangling the factors controlling the emission of bioparticles that act as ice nucleating particles:* **G Cornwell**, S Joshi
- 1956455** *Flux of reactive nitrogen from intact core and sieved soil in North American Forests:* **F Jiang**, R P Phillips, J D Raff
- 1897351** *GBEMIS: A Global Biogenic Emissions Dataset Estimated by MEGANv3.3:* **H Wang**, Y Zhang, S Nagalingam, A B Guenther
- 1993421** *High-Resolution Spatial and Temporal Characterization of Particulate matter in Eastern Africa (Kigali, Rwanda) Using Mobile sampling.:* **T Habineza**, A Presto, A Robinson
- 1882120** *Is Size or Chemical Composition More Important for Volcanic Ash Nutrient Solubility?:* **C Gaston**, H Elliott, E Blades, H Royer, C Buck, C Kollman, R K Kukkadapu, S China, Z Cheng, N Nahar Lata, M Engelhard, M E Bowden, N Lahiri, R Parham, L Meagher, B Angstman, A P Ault, A Hornby, K Dayton, E Gazel
- 1919943** *Local Formation versus Regional Contributions to Organic Aerosol:* **A L Steiner**, D Wei, M Shrivastava
- 2002208** *Mercury in Plant Species of Japanese Grasslands:* **S Irei**, S Yonemura, S Kameyama, H Shimazaki, A Sakuma
- 1924341** *Real-time detection and classification of biological particles using machine learning Detection and Assessment of Their Ability to Form Clouds at Bankhead National Forest:* **S Joshi**, N N Lata, M Rogers, A Rahman, S China, G Cornwell
- 1874717** *Regional-Scale Modeling of Dark Brown Carbon Radiative Forcing Contributions in the Southeast United States:* **A E Ng**, M Shrivastava, B Gaudet, C He, Z Cheng, W Vizuete
- 1868074** *Seasonal Influence on the Chemical Composition of Gas Phase Compounds from Different Air Mass Source Regions and the Effect on New Particle Formation at Skidaway Island, Georgia:* **A Deegan**, M Shields, E Smerznak, A Sanders, A Avery, M R Canagaratna, K Zimmermann, A A Frossard
- 1927397** *Soils as Engines of Volatile Exchange: Linking Belowground Processes to Atmospheric Chemistry:* **L K Meredith**, P Geffre, Z Zhang, J Gil-Loaiza, A DiGuseppe, M Ledford, J Krechmer, D H Hagan, M Bill, L K Honeker, J H Shorter, R Chakraborty, M Tfaily, E Brodie, J R Roscioli
- 1880364** *Stink, Stank, Stunk: Persistent floral emissions from a corpse flower reveal efficient pollution techniques highly impacted by air pollution:* **R Rossell**, M Riches, A Koss, D Farmer, T Brenner
- 1869107** *Variations in vertical O₃ and SO₂ concentrations during rainfall in a boreal-temperate forest:* **Y Zhang**, J Liu, H Croft, R M Staebler, M Wang, X Luo, L He, A Gonsamo, PhD, J Chen
- 1927221** *Vertically Resolved Distributions/Chemical Speciation of Anthropogenic, Biogenic, and Biomass Burning Organic Aerosols at the Southern Great Plains:* **S Gu**, L Yee, G W Vandergrift, S China, D Dexheimer, A H Goldstein
- 1902311** *VOC contributions to rhizosphere carbon cycling in a semi-arid sorghum agroecosystem revealed by GC-PTR-TOF-MS:* **Z Zhang**, J Gil-Loaiza, F Guo, E Lunny, B Pastor, S Calleja, A DiGuseppe, M Claffin, J H Shorter, D Pauli, J R Roscioli, L K Meredith

247913

Aerosol Impacts on Clouds: Assessment via AI and Statistical Methods

Conveners: **Xiaojian Zheng**, Argonne National Laboratory; **Jianhao Zhang**, University of Miami; **Peng Wu**, Pacific Northwest National Laboratory; **Dié WANG**, Brookhaven National Laboratory; **Litai Kang**, University of Washington

1999811 *Aerosol Influences on Cloud Water: Insights From ARM EPCAPE Observations With Explainable Machine Learning:* **H Zhang**, Y Zhang, Z Li, Y Zheng

248003

Aerosol, Cloud, Precipitation and Radiation Studies over High Latitude Oceans

Conveners: **Greg McFarquhar**, University of Oklahoma; **Andrew Dzambo**, University of Wisconsin - Madison; **Sarah Woods**, NSF National Center for Atmospheric Research; **Manfred Wendisch**, University of Leipzig

1978931 *A Semi-Lagrangian Perspective on 21 Years of Arctic Marine Cold Air Outbreaks:* **H Seppala**, Z Zhang, X Zheng

1896278 *An Overview of the NASA ARCSIX Field Campaign from Inception to Implementation:* **E P Nowottnick**, H B Maring, T Markus, S Schmidt, P C Taylor

1966745 *Arctic Clouds From Within: Comparing Airborne In-Situ Data With EarthCARE's Microphysical Retrievals During CELLO-Arctic:* **T Carlsen**, S Ghemuleş, A Vlad, M Ardelean, R David

1867458 *Arctic water cycle properties observed by multi-frequency radar including the G-band Differential Absorption Radar GRaWAC:* **S Schnitt**, M Mech, K Ebell, L Bühler, M Maahn, S Kneifel

1992226 *Are Surface Measurements of Ice-Nucleating Particles Relevant at Cloud Level?:* **R David**, A Vlad, T Carlsen, F Hellmuth, I Thurnherr, A Seidl, H Sodemann, T Storelvmo

1953041 *Characterization of Lead Cloud Microphysics from Airborne Observations during CHACHA:* **S Woods**, S Lance, J D Fuentes, K Pratt, W R Simpson, P B Shepson

1959797 *Closed to Open-Celled Mixed-Phase Cloud Transition Over the Nordic Seas Observed During the CAESAR Campaign:* **S Ephraim**, P Zuidema, A Bansemer, N Amundsen, J French, B Geerts, C Grasmick, T W Juliano, G M McFarquhar, E Rosky, Z Wang, M McGinnity, G Noer, S Woods

1923493 *Aerosols and Deep Convection in the Amazon Basin: A Spectrum of Possible Updraft Responses:* **C P Lackner**, D WANG, S Gupta

1901707 *Factors Affecting Aerosol Activation to Cloud Droplets and Aerosol Growth by Cloud Processing during the Eastern Pacific Cloud Aerosol Precipitation Experiment (EPCAPE):* **L M Russell**, A Williams, V Z Berta, C Pelayo, J Dedrick, S Han, E Ravichandran, M D Petters, L Robinson, R Y W Chang, I Silber, D Lubin, M A Miller, J J B Wentzell, M J Wheeler, J Liggio

1973253 *Physics-Informed Neural Networks for Aerosol Activation in High-Resolution WRF-Chem Simulations of Aerosol-Cloud Interactions over the Eastern North Atlantic:* **L Peng**, Y Xia, P N Blossey, M J Prather, P L Ma, H H Lee, X Zheng, M Pritchard

1931672 *Cloud Microphysical Properties derived from data collected during the CAESAR Field Campaign and their Dependence on Meteorological Conditions:* **G M McFarquhar**, N Amundsen, S Woods, A Dzambo

1969504 *Improving our understanding of Arctic marine cold-air outbreaks - initial results from COMBLE-MIP's second stage:* **F Tornow**, T W Juliano, A M Fridlind, A S Ackerman, G Elsaesser, B Geerts, C P Lackner, I Silber, M Ovchinnikov, G Svensson, M K H Tjernstrom, P Wu, K K Chandrakar, J Chylik, A Baro Perez, D Chechin, A Ekman, A Gupta, L Ickes, A Debolskiy, B Kosovic, W Li, H Morrison, R Fadeev, R Neggers, A Possner, T Raatikainen, M Karalis, N Schnierstein, M Tolstykh, M Köhler, L Xue, X Zheng, E Mortikov, S I Schima

1868349 *Improving Southern Ocean Ice Nucleating Particle Observations: Nearly a Decade of Insights:* **C Bekemeier**, S M Kreidenweis, K A Moore, P J DeMott, T C J Hill, C S McCluskey, K R Barry, M Vazquez, E Buxton, G G Mace, K Barber, S Sodano, S Alexander, T Paynter, L Ackermann, Z Pei, J Pernov, J Creamean

1880698 *In-situ Measurement of Mixed-Phase Microphysics in Cold Air Outbreak Clouds: Using Stable Water Isotopes to Identify Ice Growth Pathways.:* **E Rosky**, A Raudzens Bailey, M Sarkar, A Žaba, P Zuidema, H Sodemann, G M McFarquhar, B Geerts, A Seidl, J French, S Woods, A Bansemer

1991445 *Meteorological Overview and Forecast Verification of Cold-Air Outbreaks During the CAESAR Campaign:* **A Dzambo**, T W Juliano, C Costanza, S Ephraim, P Zuidema, B Geerts, J D Doyle, G M McFarquhar, M K H Tjernstrom, G Svensson, H Sodemann, G Noer, J J Cassano, A Raudzens Bailey, E Rosky, N Amundsen, Z Xia, Q Niu, S Patil, T Tatro, F Tornow, E Newman, L Xue, C Wolff

1914768 *Southern Ocean MCC Precipitation Occurrence and Precipitation Phase for Hyperspectral Satellite Imagers using Machine Learning based on CloudSat and CALIPSO*: **D Wang**, G G Mace, A Protat

249515

Aerosols and Chemistry in Aquatic Environments

Conveners: **Andrew Rollins**, University of Colorado / CIRES; **Hosein Foroutan**, Virginia Tech; **Gordon Novak**, University of California San Diego; **Raymond Leibensperger III**,

1926467 *Aerosol Iodine Recycling is a Major Control on Tropospheric Reactive Iodine Abundance*: **A Moon**, L Liu, X Wang, Y C Chan, G Novak, A Fritzmann, R Pound, A Lees, L Marden, M J Evans, L Carpenter, J Stutz, J A Thornton, D Rollins, G P Schill, X He, H Finkenzeller, M Reza, R M Volkamer, K Bates, A Saiz-Lopez, A Sharad Mahajan, B Alexander

1912521 *Atmospheric Oxidation of Benzothiazole by Nitrate Radical*: **J JPanakkal**, M Goswami

1990985 *Development of a film and jet drop-resolved sea spray source function*: **N Pokhrel**, H Foroutan

1945721 *Drivers of Cloud Condensation Nuclei Variability in the Eastern North Atlantic: Insights from the ENA Atmospheric Observatory*: **B Kemp**, D Sodiya, W W Walters

1917868 *Excess calcium in southeastern Pacific marine stratocumulus clouds and its influence of aqueous phase SO₂ oxidation*: **J Luckett**, G Michalski, A Larrea Valdivia, L R Welp, J Antonio Valeriano Zapana, E George, S Pfoccoalata Montanez, A M Salas Yaulli, L A Paccosonco Sucapuca, C J Valenzuela Huillca

2002865 *Icy Algae: Temporal Ice Nucleation of Marine Microalgae in a miniMART*: **M M Rogers**, T Gresham, N N Lata, S Joshi, G Cornwell, S China

1905557 *Improving natural sulfur cycle in Earth system models with machine-learned oceanic dimethyl sulfide emissions*: **Y Shi**, P L Ma

1911011 *The Impact of Synoptic Meteorology on Observed Surface Heat Fluxes Over the Southern Ocean*: **S A V**

1923291 *Thermodynamic and Microphysical Controls on Precipitation Efficiency in Arctic Cold Air Outbreaks*: **M Sarkar**, A Raudzens Bailey, E Rosky, C A Yang, S Dee

1879788 *Investigating the Role of Lake Spray Droplets as a Mechanism for Cyanobacteria Cell Aerosolization during Harmful Algal Blooms*: **M Rogers**, S Salemin-Harry, C Gushulak, N Pujara, G Wilkinson, T H Bertram

1980331 *Microbial Communities and Surfactant Production in the Sea Surface Microlayer*: **F E Agblemany**, D Ammer, A Birt, M Bowen, J Biddle, A A Frossard, A S Wozniak

1965125 *Modeling the Global Budget of Tropospheric Bromine and Its Impact on Atmospheric Chemistry*: **B Roozitalab**, E C Apel, R S Hornbrook, R P Fernandez, B Gaubert, D E Kinnison, C Cuevas, A Saiz-Lopez, L K Emmons

1925947 *Nitrogen Isotopic Characterization of Gas-Phase Ammonia and Particulate Ammonium in Size-Segregated Aerosols at the Eastern North Atlantic*: **D Sodiya**, M Weatherly, A Baer, M Goedken, B Kemp, T Costantini, W W Walters

1985451 *Organic Matter Coats Most Sea Spray Aerosols over the Tropical Atlantic Ocean Near Barbados*: **P Scharle**, H Royer, S Shrestha, E Blades, N N Lata, Z Cheng, S China, Z Zhu, J S Reid, R Parham, A P Ault, C Gaston

1943943 *Ozonation-Driven Formation and Sea-Air Gas Exchange of Aldehydes from the North Atlantic Ocean*: **H An**, M Shaw, C G Stapleton, I Thistlethwaite, R Chance, J R Hopkins, M X Yang, F E Hopkins, T G Bell, L Carpenter

1954247 *PFOA alters phase behavior in laboratory sea spray aerosol*: **K Gianni**, R Jaglan, M A Freedman

1945248 *Sea spray aerosol production flux retrieval based on Doppler lidar measurements*: **D Hamilton**, T T Pujiastuti, M D Petters

1914014 *Tracing Marine and Anthropogenic Sulfate in the North Atlantic via Multi-Isotope Analysis of Size-Resolved Aerosols*: **J Bunge**, A Baer, M Weatherly, M Goedken, T Costantini, W W Walters

254648

AI-Driven Innovations in Earth and Atmospheric Sciences (*joint with ED, GC, NH, SY*)

Conveners: **Jianfeng Li**, Pacific Northwest National Laboratory; **Samiah Moustafa**, Bay Area Environmental Research Institute Moffett Field; **Dasa Gu**, Hong Kong University of Science and Technology; **Ruben Delgado**, University of Maryland Baltimore County; **Guanyu Huang**, Stony Brook University; **Yuzhong Zhang**, Georgia Institute of Technology; **Aoxing Zhang**, USDA Forest Service; **Ziming Chen**, Pacific Northwest National Laboratory

1928531 *A Hypertemporal Geostationary Satellite-Based Cloud Mask Dataset for Semantic Segmentation:* **K K Kabasares**, W Wang, T Park, I G Brosnan, P K C

1942648 *Advancing Urban Climate Science with Modeling, Sensing and AI/ML:* **L Zhao**

1950055 *AI Innovation for NOAA Earth System Science:* **A Mariotti**, C Deck

1915604 *AI-Enhanced Forward Modeling of Microwave Radiative Transfer:* **F Monte**, S Businger, P Antonelli, K Giamalaki

1997681 *BenchFlux: Scalable AI Benchmarks for Terrestrial Carbon Fluxes to Advance Research, Education, and Resource Management:* **S Metzger**, M Bassiouni, S Bower, A R Desai, M Fortier, S Hoffman, Y Kang, T Keenan, D Losos, A Moreno, C Pal, S Ranjbar, PhD Candidate, O Sonnentag, P C Stoy, E Izquierdo, J Xiao

1978749 *Bridging Monitoring Gaps: Multi-Task Learning Enhances High-Resolution Surface-Level O₃, NO₂, and NO Estimation:* **Z Wang**, J Crooks, E Regan, M Karimzadeh

1944471 *Can a Single Sounding Predict the Weather? An AI Downscaling Framework for Local-Circulation-Dominated Flow over Complex Topography:* **F H W Hsu**, M K Hsieh, C M Wu

1974383 *Creating and Assessing an Unconventional Global Database of Dust Storms Utilizing Generative AI:* **A T Crooks**, S Keidel, S M Evans

1912673 *Emulating Smoke Transport Between Canada and NYC Using a Graph Neural Network:* **P Braun**, S M Evans, X Fan, K Sun

1922377 *Enhancing Satellite Imagery Resolution for Coastal and Ocean Engineering Applications Using Sub-pixel Convolutional Neural Networks and PixelShuffle Techniques:* **A Dezhban**, P M Koola

1992905 *Enhancing Small Satellite Imagery with Hybrid Super-Resolution:* **V Della Corte**, C De Martino, L Inno, F Cozzolino, V Da Deppo, S Venafrà, G Ruggiero, P Zuppella, L Moualla

1984864 *Evaluation of Spaceborne Lidar Estimates of Backscatter and Depolarization Ratio Using Machine Learning Denoising Methods:* **A Cresanti**, J E Yorks, P A Selmer, K E Christian, N Roldan-Henao, N Midzak, Z Li

1903616 *Exploring Steep Super-Resolution for Rapid Turbulent Flow Reconstruction:* **Y Choi**, S H Lee, S Lee

1908387 *Exploring the Spatiotemporal Variability of Leaf Area Index and Its Influence on Land Surface Temperature: A City-Scale Analysis in Hong Kong:* **X Lu**, C Zhang

1917051 *Geophysical Retrievals in an Artificial Intelligence (AI) Framework:* **V P Ghate**, N Ramchandra, M Buehlmann, A Wells, S Habib

1934859 *Hierarchical Testing of a Hybrid Machine Learning-Physics Model:* **Z Chen**, L R Leung, W Zhou, J Lu, S W Lubis, Y Liu, C C Chang, B E Harrop, Y Wang, G Zhang, Y Qian

1885814 *Long-term Spatial Estimates of Wet Deposition of Sulfate, Nitrate, and Ammonium over North America, Europe, and East Asia:* **M Hu**, X Lu, W Chen, J C H Fung

1938163 *Machine Learning Downscaling of Global AI Forecasts for Near-Surface Wind Prediction:* **M Yang**

1888915 *Machine Learning Enhances Projections of High-Latitude Land Warming:* **S Lee**, C E Park

1969036 *OceanAI: A Conversational Agent for Accurate, Transparent, Near-Real-Time Oceanographic Insights:* **B Chen**, R He, P Liu, D Xu, G Dusek, R J Redmon, P Hogan

1976887 *Promises and Limitations of AI Weather Models: From Democratizing Forecasting to Forecasting Gray Swans:* **P Hassanzadeh**

1963337 *Retrieval of Cloud Properties for the Copernicus Atmospheric Missions Sentinel-4 and TROPOMI / Sentinel-5 Precursor using deep neural networks:* **F Romahn**, D G Loyola, R Lutz, V Molina García, A Doicu, A Argyrouli

1908419 *Spatial Filtering Fourier Neural Operator for Large-Eddy Prediction of Real Urban Turbulent Flows:* **H Kim**, S H Lee, Y Choi

1951742 *The Adaptability of Deep-Learned Observation Operators:* **K Lieberman**, M Bender, M Ridhwaan Alam, N Krall, C Miller, N Silverman, N Brenowitz, L Slivinski, S Frolov, J DaRosa

1984538 *Understanding Ice Crystal Habit Diversity with Self-Supervised Learning:* **J Ko**, H Govindarajan, F Lindsten, V Przybylo, K J Sulia, M van Lier Walqui, K Lamb

- 1960361** *UNet-based methods for identifying Chicago lake breeze fronts from NEXRAD*: **R C Jackson**, S Park, B Raut, S M Collis, T Arcomano, J R O'Brien, M Tuftedal, M Grover, P Muradyan, E Wawrzyniak, R Sankaran, N Ferrier, D Dematties, G Anderson, S Shahkarami, Y Kim
- 1956772** *When can we use explainable Artificial Intelligence tools to generate physical insight about the Earth system?: A Mamalakis*, W Chapman, K J Mayer, PhD
- 1847651** *ORBIT-2: Scaling Exascale Vision Foundation Models for Weather and Climate Downscaling*: **X Wang**, D Lu, P Balaprakash, M Ashfaq, D Wang, P E Thornton, M Fan, J Y Choi, T Kurihana, I Lyngaas, H J Yoon, A Tsaris, M Wahib, N M Nafi, A Aji, M Hossain, X Xiao

248086

Air Pollution and Meteorology Extremes: Interactions, Trends, and Public Health Dimensions (joint with GC, GH)

Conveners: **Yuhan Wang**, University of California Berkeley; **Makoto Kelp**, University of Utah; **Hongliang Zhang**, Louisiana State University; **Gaige Kerr**, George Washington University; **Mary Angelique Demetillo**, University of Virginia, Environmental Sciences

- 1985625** *Assessing PM_{2.5} Variations, Trends, and the Associated Health Impacts in India: Understanding the Role of Meteorology Extremes and Climate Change*: **Y Xie**, T Zhang, M Zhou, K Hunt, R Gupta, G Goswami, D L Mauzerall
- 1895640** *Building a National Potential Smoke Impact Factor (PSIF) Library: Enabling Spatiotemporal Assessment of Fire Smoke Exposure in the U.S.*: **B Jalalzadeh Fard**, K Gribben, A Vaidyanathan, J E Bell
- 1890988** *Compound Drivers of Rising Ozone Pollution Extremes in the North China Plain (2013–2023): Aerosol Decline, Hot Droughts, Afforestation-Driven BVOCs, and Reduced Vegetation Uptake*: **M Lin**, L W Horowitz, Y Xie, I De Smedt
- 1952837** *Effects of irrigation on weather extremes, air pollution and their interactions in China: A triple-edged sword for climate, health and food security*: **A P K Tai**, T Yuan, J Wu, J Li, S Li, T M Fu
- 1858934** *Global hotspots and mechanisms of extreme humid heat and air pollution co-occurrence*: **S Bartusek**, Y Wu, M Ting, A M Fiore, D M Westervelt

- 1854385** *Physics-Guided Discriminator Generative Models for Fast and Physically Consistent Reconstruction of Sparse Scatterometer Ocean Surface Winds*: **R Bo**, Z Zhou, H Du, P Yang, X Zhao, Q Li, Z Zang
- 1861526** *Unexpectedly Strong Landscape Interconnections Captured by Earth Foundation AI for Land*: **C Shen**, J Liu, N R Kraabel, C Xu, M McDill
- 1862562** *Deep Learning for Clouds, Cloud Shadow, and Plume Segmentation in Methane Satellite and Airborne Imaging Spectroscopy*: **M Nasr**, M Pérez-Carrasco, S Roche, C Chan Miller, Z Zhang, PhD, J Roger, C Francisco Park, E Walker, C Garraffo, D Finkbeiner, D J Varon, K Sun, J E Franklin, R Gautam, S C Wofsy
- 1984803** *Impacts of Heatwaves on Tropospheric Ozone Pollution in the Greater Bay Area, China*: **J Zhang**, S Zhai, A P K Tai
- 1974259** *Impacts of nuclear war on global vegetation and human health from enhanced surface ultraviolet radiation*: **S Xu**, L Xia, A Robock, C Bardeen, S Madronich, S Setoguchi
- 1847119** *Mechanisms of O₃ and PM_{2.5} evolution along the cold wave passage in Eastern China*: **M Shao**
- 1977757** *Quantifying the contribution of multiple natural hazards to PM_{2.5} across the United States*: **M G Chung**, D E Damby, N Clements, B Crawford
- 1925201** *Quantifying Wildfire Smoke Contributions to PM_{2.5} Using the U-Net Model and Global Fire Emissions Database*: **W Chen**, Y Li
- 1944835** *Slowing Growth of Transboundary Ozone Export From Mainland China*: **F Zhang**, X Lyu, PhD
- 1998069** *Spatio-Temporal AQI Early Warning System for Rajasthan's Non-Attainment Cities Using ML/DL models*: **S Kumar Ray**, A Mondal, R Garaga
- 1993679** *The Impacts of Canadian Wildfire Smoke and African Saharan Dust on Air Quality at Residential Neighborhoods in New York State*: **E Turek**, J Nimo, M A Bari
- 1985084** *Understanding Spatial Heterogeneity in Wildfire PM_{2.5} Relationships: A GTWR Analysis of the 2018 Camp Fire (California)*: **M Ali**, V Aneja, S Sanyal
- 1908846** *What Drove the Recent Rapid Ozone Reduction at a Coastal Background Site in South China?:* **R Zhou**, H Liu, N Wang, Y Zhang, Z Huang, X Lyu, PhD

252868

Air Pollution and Well-Being: Bridging Surface, Space, and Modeling Studies

Conveners: Audrey Gaudel, CIRES University of Colorado Boulder; Kathryn Goldfarb, University of Colorado Boulder; Gaige Kerr, George Washington University; Benjamin Zaitchik, Johns Hopkins Univ

1900511 *Air Quality-Informed Roadway Network Design: Reducing Transportation-Sourced PM_{2.5} Exposure and Disparities:* **A Bin Thaneya**, F Greer, A Horvath

1892303 *Bridging Data Gaps in PM_{2.5} Exposure Estimation Using a Multi-Network Machine Learning Testbed Informed by Chemical Transport Models:* **L Zhang**, J Xing, J S Fu

1987128 *Causal Discovery of Air Pollutant Drivers in Metropolitan Sub-Saharan Africa:* **P Sey**, P Jaramillo, A Presto

1884539 *COVID-19 as a Natural Experiment: Tracking PM_{2.5} Dynamics and Meteorological Influence in New Delhi, India:* **S Phuyal**

1881767 *Decadal Changes of Global and Regional Fine Particulate Matter Composition over 2003-2023:* **Y Zhang**, R Martin, C Li, S Shen, I Singh, V Shah, D Zhang, G Luo, A van Donkelaar, Y Li

1848823 *Estimates of submicron particulate matter (PM₁) concentrations for 1998–2022 across the contiguous USA: leveraging measurements of PM₁ with nationwide PM_{2.5} component data:* **C Li**, R Martin, A van Donkelaar, J L Jimenez, Q Zhang, J R Turner, X LIU, M Rowe, J Meng, W Yu, G Thurston

1959882 *Exploring Comparability of Aerosol Mass Concentrations and Speciations: Updated Results from the DOE ARM SPICE Campaign:* **E West**, C J Flynn, M Loría-Salazar, Y Ren, C R Oxford, M A Zawadowicz, J Redemann

1914213 *Exploring Surface Ozone Exposure, Multidecadal Trends, and Formation Sensitivity in Kansas City, Missouri:* **A Christiansen**

2003472 *Indoor air quality and filtration in dust-impacted communities:* **W C Porter**, A Trinidad, A Cheney

250139

Air pollution interactions with extreme weather and climate: mechanisms and impacts

Conveners: Yang Gao, Joint Global Change Research Institute; Xin Huang, Nanjing University; Meng Gao, Hong Kong Baptist University; Guangxing Lin, Pacific Northwest National Lab; Wenbin Kou, Ocean University of China

1933926 *Mobile Street-Level Air Pollution Mapping to Understand Air Quality Inequalities:* **S Liu**, A Saha, Y Zhang, M Kessey

1889423 *Predicting daily fine particulate matter in Mexico City: a machine learning-based spatiotemporal modeling approach:* **M He**, E Ren, I Gutiérrez-Avila, R Wright, I Kloog

1910781 *Quantifying Benefits of Mitigating Anthropogenic Emissions on Aerosols across Non-attainment Cities of Western India:* **S Dhaka**, S Lakshmi, S Shekhar, A Vaishya, N Ojha, A Pozzer, A Sharma

1997548 *Quantifying Health and Economic Benefits of PM_{2.5} Reduction in Chattogram Using BenMAP-CE:* **M Kabir**, S K Pal

1845304 *Quantifying Industrial Impacts and Decarbonization Co-Benefits on Local Communities: The Local Air Emissions Tracking Atlas:* **K A Graham**, A Jordan, D Rodriguez, Y Lee, K Sale, C Talsma

1964115 *Regional transport of peroxyacetyl nitrate (PAN) within East China and its impact on ozone:* **T Yuan**, S Zhai, B Franco, L Clarisse, P Coheur, G Zhang, A P K Tai

1986402 *Spatial Heterogeneity in Predictors Importance for PM_{2.5} Forecasting: Physical Process Understanding and Model Optimization in Complex Terrain:* **D Nieves**, K S Hernandez, J S Pérez Carrasquilla, M D Zuluaga, M Ramírez, A Z Orrego Sr

1928724 *Spatiotemporal Modeling of PM_{2.5} in Relation to Urban Growth, Meteorology, and Vegetation Phenology: A Case Study of Columbus, Ohio:* **S Silvi**, G Sinha

1914648 *The Colorado State University Spur Regional Air Monitoring Site (RAMS): Launching Long-Term Air Quality Observations in Denver, Colorado:* **A Lawrence**, C Siegfried, K Worthington, G Hawkes, J Reyling, L Garofalo, S Jathar, D Farmer, M D Willis

1961678 *Towards a neighborhood scale, community accessible model of air quality:* **Z Gao**, E Smith, A G Carlton, R C Cohen, S Pusede

1930785 *Validating HYSPLIT Predictions of PM Fallout from the 2025 Moss Landing Battery Fire:* **H Tang**, J Gonzalez-Rocha

1871457 *Impacts of aerosols on the environment triggering a tornado event in Yangtze River Delta, China:* **R Wang**, T Fan, Z Li

1914161 *Inconsistent 3-D Structures and Sources of Sulfate Ammonium and Nitrate Ammonium Aerosols during Cold Front Episodes:* **B Zhu**, W Peng, H Kang, H Liao

1911609 *Machine Learning-guided Integration of Fixed and Mobile Sensors for High Resolution Urban PM_{2.5} Mapping:* **T Li**, X Huang, X Wang

1947702 *Mechanisms of Subtropical High-Driven Ozone Pollution Episodes in Coastal Cities in Southeastern China: Insights from the July 2022 Fuzhou Event:* **L Zhao**, X Huang

248543

Air pollution, greenhouse gases and emissions in Asia and its interactions with the world (joint with B, GC, GH, IN)

Conveners: **Jintai Lin**, Peking University; **Zhifu Mi**, University College London; **Meng Gao**, Hong Kong Baptist University; **Steve Hung-Lam Yim**, Nanyang Technological University; **Lulu Chen**, Organization Not Listed

1852969 *(Un)intended Consequence of Extreme Heatwaves on Air Pollution and Its Social Cost: Evidence from the Power Sector in China:* **P Sun**, B Guo, Y Wang, C Wang

1855986 *A Deep-Learning Model for Predicting Daily PM_{2.5} Concentration in Response to Emission Reduction:* **S Liu**, G Geng, Y Xiang, H Hu, X Liu, X Huang, Q Zhang

1988135 *Air Pollution Reduces Economic Activity: Evidence from India:* **A Behrer**

1945659 *Air Pollution Reduction and Emission Mitigation in the Himalayan Region of India: An approach for Cleaner Energy generation by converting Pine Needle to Biochar:* **U Kakati**, I Aier, A Anand, P Kaushal

1936086 *Assessing East Asian Climate and Air Quality Using the GRIMs-ESM Under a SSP5-8.5 scenario:* **S Song**, S W Yeh, B K Moon, R Park, S Lee

1877043 *Characterization of Year-long Atmospheric Trace Gases and Particulate Matter in Kathmandu Valley, Nepal:* **D P Bajgai**, A Saikia, S Adhikari, B Bessagnet, Q Zhang, S Pokhrel, G Lamichhane, D Gyawali, R Sahu

1994794 *Climate Co-benefits of PM_{2.5} Emission Reduction (2020 – 2050): A Source-wise Mitigation of Black Carbon Emission:* **M Sharma**, A Tripathi, P K Nagar

1985654 *Cost of Air Pollution Control in Northeast Asia under Multiple Future Scenarios:* **A Lee**, B Kim, S Eo, Y Kim, J H Woo

1935976 *Detection of Criegee intermediates from the ozonolysis of isoprene at a mountain rural site of Chengdu, China:* **J Zheng**

1937258 *Development of High-Resolution Future CO₂ Emissions through Integration of IAM Projections and Traffic Forecast Model Data:* **J H Woo**, H Hu, M Choi, B Kim, S Kang, M Choi, S Kang, H Park, M Park, J Kim

2000195 *The Global Sea Salt Cycle and Uncertainty in CMIP6 Models:* **S Jingjing**

1889605 *The Impact of Global Urban Green Space Emissions on Air Pollution:* **W Kou**, Y Gao, J Zheng, H Fu, Y Lai

1946206 *Evolving Carbon Monoxide Pollution in Rural India and its CMIP6 future projections:* **M Pathak**, J Kuttippurath

1940243 *Future Air Pollutant Emission Pathways under Strong Mitigation Scenarios in Northeast Asia: An IAM-based Analysis for Six Northeast Asian Countries (GUIDE-Global):* **B Kim**, A Lee, H Park, J Kim, S Kang, Y Kim, S J Yoo, J H Hong, J H Woo

1940972 *Future CO₂ Emission Pathways in Korea under Two Different Carbon Mitigation Scenarios:* **M Y Choi**, B Kim, H Hu, J Kim, J H Woo

1877281 *Global climate impacts of China's air pollutants and greenhouse gases emissions:* **S Wang**

1963864 *Hydroxy Nitrates as a Diagnostic of Alkene Emissions, Chemistry, and Impacts in Asia:* **K Ball**, Y R Lee, G Kappaganthula, J D Crounse, P O Wennberg, G Wolfe, E Delaria, R Hannun, A Sebol, J M St Clair, F M Flocke, A Franchin, C Cho, K Lesko, C Owen, A J Weinheimer, E C Apel, A J Hills, R S Hornbrook, D Jeong, B Roozitalab, A Wisthaler, T Mikoviny, F Piel, S Swift, W Wojnowski, D R Blake, B Barletta, N J Blake, S Meinardi, I J Simpson, C K Gatebe, R Poudyal

1941592 *Impact of Climate Hysteresis on East Asian Winter Haze under Carbon Removal Scenarios:* **J Jeong**, R Park, S W Yeh, S I An

1878573 *International Trade Shapes Global Mercury-related Health Impacts:* **R Chang**, Y Zhang

1986754 *Investigating Formaldehyde Sources Over Thailand During ASIA-AQ:* **A Sebol**, G Wolfe, J M St Clair, E Delaria, T P Canty

1959905 *Life Cycle Assessment of Fired Brick Production Using Biomass Briquettes in India: A Case Study of Jhajjar Zigzag Kiln:* **K**, G Habib, S Maithel

1996136 *Longer Lifetime of black carbon and organic carbon from Fossil Fuel Combustion than from Biomass Burning: $\Delta^{14}\text{C}$ Evidence:* **C Li**, C Zhang, F Yan, K Shichang

1981648 *Measured and modeled volatile organic compound speciation and OH reactivity in different chemical environments during the 2024 ASIA-AQ campaign:* **E C Apel**, B Roozitalab, R S Hornbrook, L K Emmons, D S Jo, B Gaubert, A J Hills, D Jeong, D R Blake, B Barletta, N J Blake, S Meinardi, I J Simpson

- 1894290** *Near-Real-Time Daily CO₂ Emissions for 344 Chinese Cities Based on Carbon Monitor Cities*: **Y Yu**
- 1912955** *Ozone-depleting Carbon Tetrachloride (CCl₄) Emissions in China and Their Implications for the Global Emission Gap*: **M An**, L Western, R G Prinn, B Yao, M L Rigby, J Hu
- 1943034** *Radiative Forcing of Continuously Changing Sulfur Emissions from Consumption by Developed and Developing Countries Since 2000*: **F Ren**, J Lin, L Chen, J Wang, C Zhou, H Kong, Y Yu
- 1890822** *Relating Aerosol Optical Depth (AOD) to Surface Fine Particulate Matter (PM_{2.5}) Under a Fast-changing Environment in China*: **Z Yu**, S Zhai, H Zhu, J Kim, PhD, S Yele, J Jiang, G Geng, A P K Tai, P Liu
- 1976312** *Repartitioning CESM Fire CO and CO₂ Emissions Using Satellite-Derived Modified Combustion Efficiency*: **L Chutia**, J Wang, M Zhou, PhD, W Deng, X Chen, H Bhattarai, PhD, B Dobbins

247422

Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific (joint with NH, OS)

Conveners: **Mingyue Tang**, University of Hawaii at Manoa; **Sandro Lubis**, Pacific Northwest National Laboratory; **Ning Zhao**, JAMSTEC; **Mingting Li**, Sun Yat-Sen University; **Mingyue Tang**, University of Hawaii at Manoa

- 1938541** *Aerosol effects on Maritime Continent precipitation: Oceanic intensification*: **K H Seo**
- 1960151** *Closing the Loop: How Does the Indonesian Throughflow Modulate the eastward propagation of the MJO?*: **L Ma**, M Li, F Liu, J Li
- 1876855** *Cold pools, Breezes, and Monsoons: Propagating Convection over New Guinea*: **M Tang**, J Dudhia, C Liu, G Torri
- 1956887** *Contribution of Simulated Mesoscale Convective Systems (MCS) Rainfall Components to Rainfall Diurnal Cycle Errors in the GEFSv12 Reforecast*: **W Y H Tsai**, N Sakaeda, J H Ruppert Jr
- 1984733** *Heavy rainfalls over the western Java region during the cross-equatorial northerly surges in mid-February 2021*: **N Zhao**, P Wu, Q Moteki, A Manda, S Yokoi, S Mori

- 1991551** *Satellite-Based Analysis of Long-Term Air Pollution Trends and Chemical Sensitivity Regimes in East Asia (2011–2022)*: **D H Ahn**, S Lee, H Chong, J Kim, PhD, S K Kuk, H C Lee, H Choi, D J Jacob, J H Koo, R Park, G Gonzalez Abad
- 1846433** *The Carbon-Nitrogen Cycles and Global Change*: **B Gu**
- 1942683** *The Role of Trade and Atmospheric Transport in Shaping Global PM_{2.5} Emission Related Health Burdens*: **K He**, F Wagner, G Kieseewetter, C Liao, J Lin, L Liu, R Wood, F Dai, Z Mi
- 1969012** *Tracking the Invisible: A Data-Driven and Community-Centered Approach to Explore Air Pollution in Nepal*: **N K Malakar**, K M Shakya, B Giri, B Pokharel
- 1883795** *Typhoon Subsidence Intensity flips surface ozone spikes from photochemical production to vertical transport*: **X Wang**
- 1856117** *Impact of Improved Ocean Initial Condition on the Predictability of Coupled Korean Integrated Model (KIM)*: **S Kim**
- 1896967** *Interannual Land Surface Variability Modulates MJO Dynamics over the Maritime Continent*: **S W Lubis**, S M Hagos, Z Chen, C C Chang, Y Qin, K Balaguru, L R Leung
- 1860768** *Role of the Indo-Pacific oceanic channel and Western Boundary Currents in ENSO dynamics and predictability*: **D Yuan**, X Zhao, X Yin, B Li, K Wang
- 1979806** *Salinity-Driven Barrier Layer Dynamics in the Equatorial Pacific*: **Y J Lin**, A Subramanian, K B Karnauskas, C A DeMott, J Sprintall, R Sun
- 1911917** *The continued saga of nocturnal offshore rainfall propagation over the Maritime Continent*: **C Schumacher**, R T North
- 1935465** *The Diurnal Cycle of Islands in Idealized Models and their Modulation of Convective Organization*: **N Z Wong**
- 1876394** *The Impact of the Madden-Julian Oscillation (MJO) on Climate in Hawaii*: **A Nash**, G Torri
- 1875597** *The role of surface flux parameterization choice for MJO-ENSO interactions in CEMS2*: **C A DeMott**, M Branson, J Cui, E M Riley Dellaripa, E D Maloney
- 1855730** *Tracking Salinity's Fingerprint on ITF Variability and Change*: **J Sprintall**, X Lu, S Hu

251055

Atmospheric Aerosols and Their Interactions with Clouds, Radiation, and Climate (*joint with GC*)

Conveners: **Bin Zhao**, Pacific Northwest National Laboratory; **Yu Gu**, UCLA; **Hong Liao**, Institute of Atmospheric Physics, Chinese Academy of Sciences; **Chuanfeng Zhao**, Beijing Normal University

- 1974725** *Impact of Fine-Mode Aerosols on Warm Cloud Properties Over the Bay of Bengal:* **V Bangar**, A K Mishra
- 1928898** *A Clean Comparison: Two Aerosol Schemes in the Canadian Earth System Model:* **L Fraser-Leach**, P J Kushner, R Digby, K von Salzen, A Akingunola
- 1963521** *A New Multi-Scale Sea Spray Aerosol Parameterization Scheme Capturing Global Aerosol Optical Depth Trends:* **R Leibensperger III**, MS, S Fiedler
- 1991105** *A Novel Cold-Stage System for Quantifying Impact-Initiated Contact Freezing of Ice Nucleating Particles:* **J Chen**, U Rai, K McMillan, M A Tolbert, S D Brooks
- 1990885** *A Targeted Approach to Investigating Aerosol-Cloud Interactions: A Case Study of Ship Track Pollution at the ARM ENA Site:* **H Zhang**, T Yuan, H Song, C Chiu
- 1937452** *Aerosol patterns and their relationships with cloud variabilities during summer across North America:* **C H Chang**, P Arnott
- 1989027** *Aerosol Vertical Distribution Influences the Cloud-Top Entrainment of Marine Stratocumulus Clouds over the Southeast Atlantic:* **Y Wang**, C Zhao, T Fan
- 1908439** *Aircraft-based observation of mineral dust and ice-nucleating particles over the western North Pacific:* **S Ohata**, Y Tobo, N Moteiki, K Adachi, H Matsui, K Kita, T Mori, M Mochida, M Igarashi, M Koike
- 1905092** *An Increase in Low-volatility OOMs Accelerated Growth Rate of New Particle Formation under the Background of Air Quality Improvement in China:* **M HU**, L Tang, Z Feng, D Shang, S Chen, L Zeng, Z Wu, S Guo
- 2001082** *Assessing the Role of Surface Meteorology on Aerosol Dynamics at Multiple Elevations:* **K Ramos-Wilson**, B Sarangi, E J Melendez-Ackerman
- 1953837** *Characteristics and influencing factors of ice nucleating particles in tropical marine atmosphere:* **W Hu**, P Duan, P Fu
- 1982098** *Characteristics of Aerosols and CCN over the Yellow Sea in Spring from 2020 to 2024:* **P Seo**, M Park, C Ahn, H J Yoo, C J Soo, S S Yum
- 1994097** *Characteristics of Ultrafine Aerosol Particles at a Rural Location in the Western Ghats:* **A K Biju**, D Sunil S, A Narayana Sarma
- 1875751** *Characterizing the Influences of Seasonality, Air Mass Origin, and Altitude on the Hygroscopicity Closure of Aerosol Particles in the Southern Great Plains:* **K McCarty**, H Yim, R Pereira, M A Zawadowicz, A Gonzalez, J Shilling, Q Ying, X Meng, Y Zhang
- 1981647** *Climate-wildfire coupling drives hemispherically distinct responses and reduced climate variability:* **S Leister**, J Fasullo, P Lawrence, D M Lawrence
- 1929123** *Cloud Condensing Nuclei Characterization in Urban Ground Level Ambient Air: A Case Study in urban Río Piedras, Puerto Rico:* **D Hillman Girod**, B Sarangi, E J Melendez-Ackerman
- 1920372** *Cloud Radiative Effect due to Aerosol Radiative Interaction: A Multi-Decadal Analysis Using GFDL AM4 and AM5⁺:* **F Yang**, V Ramaswamy, D Paynter
- 1947398** *Discerning the pre-monsoon Aerosol Optical Depth over India: Dust and Anthropogenic contributions:* **K Dubey**, S Verma
- 1931116** *Disentangling Aerosol-Cloud Interactions Using Explainable Machine Learning: A Contrast Between ARM Coastal and Continental Sites:* **S Zhou**, H Zhang, Z Li
- 1983213** *Diurnal variations in atmospheric temperature and clouds as an indicator of the impact of light-absorbing aerosols on clouds and climate:* **E M Wilcox**, M E Giordano, F Hosseinpour, J Wang
- 1952674** *Dust and Primary Biological Aerosol Effects on Sea Breeze Systems over Houston:* **Q Du**, Y Zhang, A L Steiner, C Pettersen, D J Posselt, R L Storer
- 1950305** *Effects of plume rise on long-range transport of wildfire aerosols and Arctic clouds using the Multi-Scale Infrastructure for Chemistry and Aerosols (MUSICA_{v0}) model:* **W Wang**, X Liu, Z Lu, W Tang, L K Emmons
- 1967889** *Explaining Contrasts in Black Carbon Mixing State following Condensation or Coagulation:* **C Jourdain**, A Boies, J Symonds
- 1916776** *Exploring the Properties of Rainwater and Aerosol Samples Containing Ice Nucleating Particles near Charleston, South Carolina:* **G Rickmon**, M Rutter, M Larsen, N Drucker, M E Rhodes
- 1939997** *Formation and Ageing of Organic Aerosols from Global Anthropogenic and Wildland Fire Organic Emissions across the Full-Volatility Range:* **L Huang**, B Zhao, Y He, S Wang, D Yin, Z Li

- 1856640** *Future Directions for Aerosol-Cloud-Precipitation Interaction Research in the Arctic from the QuIESCENT 2024 Workshop:* **L M Zamora**, G Sotiropoulou, G de Boer, R Calmer, J C Raut, I Wadlow, Q Coopman, E Gryspeerdt
- 1940015** *Gas-aerosol partitioning of reactive nitrogen in the Netherlands: First results of the Cloud-Aerosol Interactions in a Nitrogen-dominated Atmosphere (CAINA) 2025 campaign:* **J Fry**, P Ooms, F Nursanto, L Novak, M C Krol, W Kroese, R Holzinger, M van den Born, U Dusek
- 1956023** *Impact of the aerosol aware scheme in the MPAS-A simulations with a variable resolution grid over Brazil:* **D L Herdies**, J Pendharkar, M Lyra
- 1851205** *Impacts of Arctic Warming on Ice-Nucleating Particles over Recent Decades: Distributions and Contributions of Dust, Marine Organic Aerosols, and Bioaerosols:* **Z Ren**, K Kawai, M Liu, H Matsui
- 1895222** *Impacts of Fire Aerosol Radiative and Indirect Effects on Weather and Subseasonal to Seasonal Predictions in NOAA's Global Aerosol Forecast Systems:* **L Zhang**, G Grell, G Ferrada, S Sun, P S Bhattacharjee, B Green, H Li, J Schnell, A Jensen, R Ahmadov, L Bernardet, L Pan, B Baker, F Yang, B Fu, Y Wang, A Tangborn, C Martin
- 1882235** *In-chamber backscatter ratio retrievals of engineered aerosols: applications to climate engineering and specifically Mars Terraforming:* **A Kling**, E S Kite, A Braude, A Dumitrescu
- 1887470** *Increased Freezing Temperature of Clouds Over China Due To Anthropogenic Pollution:* **D Liu**
- 1943107** *Increasing Arctic Dust Suppresses the Reduction of Ice Nucleation in the Arctic Lower Troposphere by Warming:* **H Matsui**, K Kawai, Y Tobo, Y Iizuka, S Matoba
- 1996789** *Influence of Changing Anthropogenic Emissions on New Particle Formation and Cloud Condensation Nuclei Activity in Coastal India:* **A Singh**, B Swain, S N Tripathi, M L Pöhlker, J D Allan, G McFiggans, U Pöschl, H Su, S T Martin, M O Andreae, R R, Y Cheng, H Coe, P Liu, S S Gunthe
- 1912157** *Influence of Season and Air Mass Source Region on Aerosol Particle Hygroscopic Growth at Skidaway Island, Georgia:* **M Shields**, E Smerznak, A Deegan, A Sanders, K Zimmermann, A A Frossard
- 1938504** *Influences of Aerosols and Clouds on Solar Brightening over East Asia in Recent Decades:* **S Ahn**, Y H Ryu
- 1914297** *Modeling the Effects of Smoke Aerosols from Wildfire Emissions on Severe Weather Outbreaks:* **K Wilson**, M Oyola Merced, S Kluge, M Oehler, M McKellar
- 1919336** *Observational constraints reveal overlooked longwave radiative forcing from desert dust:* **J F Kok**, A Gupta, A T Evan, A A Adebiyi, S Albani, Y Balkanski, R Checa-Garcia, P R Colarco, D S Hamilton, Y Huang, A Ito, M Klose, L Li, N M Mahowald, R L Miller, V Obiso, C Pérez García-Pando, A Rocha Lima, J Wan
- 1941181** *Observational Evidence from AIRS for Three Canonical Tests of Tropical Convection and Radiation:* **K Qiu**, J Yang, H Aumann, X Jian, J H Jiang, Y Luo, Y L Yung
- 1959313** *Peeking Beneath Clouds: An Investigation of Aerosol-Cloud Interactions over the Southeast Atlantic:* **E Lenhardt**, J Redemann, L Gao, S Gupta, G M McFarquhar, F Xu, B Cairns, R A Ferrare, C A Hostetler
- 1974999** *Resolving the roles of soot and dust in cloud ice formation at regional and global scales: insights from parcel and climate models:* **X S Li**, S Fan, H Guo, P A Ginoux
- 1913909** *Seasonal and Episodic Variability of Ice Nucleating Particles Derived from Daily Aerosol Filter Samples in the Western Himalayas:* **A Chandel**, C Sarangi, A Welti, S China, G W Vandergrift, R Hooda
- 1895336** *Sensitivity of Lower Tropospheric CCN to Upper Tropospheric Particle Formation and Vertical Transport:* **G LI**, D Keith, M Wang
- 1871746** *Shipborne Observations of Brown Carbon Aerosols from the Western North Pacific to the Arctic:* **C Zhu**, F Taketani, T Miyakawa, M Takigawa, Y Kanaya
- 1903002** *Simulating radiative forcing of wildfire smoke using a coupled high-resolution meteorology-chemistry model: HRRR-Chem:* **M Choi**, R Ahmadov, J Schnell, S Bhimreddy, J Romero-Alvarez, H Li, S Kondragunta, F Li, C Xu, F A Team
- 1888786** *Study on Aerosol Indirect Effects Using the Korean Integrated Model (KIM) with the Simplified Chemistry Module:* **E J An**, J Y Kang, S Y Bae, R S Park
- 1866729** *Surface Albedo Regulates Aerosol and Cloud Radiative Effects:* **C Zhao**, A Chen, H Zhang
- 1913679** *The Dependence of Emissions-based Anthropogenic Aerosol ERFs on Background Meteorological and Chemical States:* **S Zhang**, V Naik, PhD, L W Horowitz, D Paynter
- 1979585** *The first multi-seasonal study of southeastern U.S. aerosol hygroscopicity under sub and super-saturated conditions and its relationships with aerosol speciation and optical properties:* **J P Sherman**, P Liu, R Swarthout
- 1944192** *The Influence of Various Aerosol Types on Cloud microphysical processes: An Examination of Arctic Aerosol-Cloud Interactions in Relation to WRF-Chem Parameterization Sensitivity:* **P Fattahi Masrou**, Q Coopman

1926473 *Variability of Wildfire Aerosol Properties and Fire Intensity Across Global Hotspots:* **A Fakoya**, J Lee, L Gao, I Chang, C J Flynn, S M Loria Salazar, J Redemann

246754

Atmospheric Convection: Processes, Dynamics, and Links to Weather and Climate

Conveners: **Giuseppe Torri**, University of Hawai'i at Mānoa; **Yang Tian**, National Center for Atmospheric Research; **Rachel Storer**, University of Wisconsin-Milwaukee; **Hanii Takahashi**, Jet Propulsion Laboratory

1983347 *An analytic approximation for subcloud-layer precipitation efficiency:* **T Cronin**, J Hollis

1951639 *An Assessment of Atmospheric Convection Trends Over India Using Radiosonde Derived CAPE and Other Proxies:* **P Ojha**, A K Mishra, S Sharma, A Gupta, K Kumar

1852977 *Atmospheric Conditions on the West Coast of India During the Dry and Wet Spells event in July 2024:* **A Sahoo**, G M S

1937287 *Characterizing Convective Storm Variability Across Distinct Synoptic-Scale Sea Breeze Regimes in Florida:* **R Odongo**, Y Wen, W Qian, J Kisembe

1867188 *Cloud-Cloud Interactions and Their Roles in the Development of Convective Cloud Systems:* **J Chen**, C Xu, C Lu, S M Hagos, X Zhang, H Xiao, Z Feng, J Fast

1980702 *Cold Pool Dissipation and Boundary Layer Recovery:* **G Torri**, M Tang

1994427 *Cold surge vortices, heavy rains, and the MJO: A study in the Maritime Continent:* **C Lagare**, J Ito, G Torri, T Yamazaki

1895179 *Comparisons of cloud top heights derived from lidar and radar observations and levels of neutral buoyancy:* **S Kato**, D P Duda, K M Xu, S H Ham, S Sun-Mack, Y Chen, W F Miller

1979309 *Deep convection in anelastic convective entity (ACE) and cloud-resolving models: bypassing strong surface inhibition with nonlocal flow-buoyancy interaction:* **J D Neelin**, Y H Kuo, K T Kuo, C M Wu

1963916 *Evaluating Differences in Environmental Conditions Supporting Isolated Deep Convection vs Organized Mesoscale Convective Systems:* **R Weinstein**, K A Schiro, W M Tsai, L Paccini, F Ahmed, J D Neelin

1927021 *Evaluating interactive SST feedbacks to convective self-aggregation in channel domain RCE simulations coupled to a slab ocean model:* **K Shackelford**, C A DeMott, P J van Leeuwen, MSc PhD

1988157 *How convective mass flux responds to environmental humidity:* **S Seidel**, N Arnold, B Wolding

1981009 *Water Uptake Enhances Aerosol Light Absorption: Can Mie Theory Capture This Effect?:* **Z Zheng**, C D Cappa

1976019 *Improved Understanding of Drivers of Upper-Level Updrafts and their Relationship to Supercell Thunderstorm Overshooting Tops:* **M T Berman**, R J Trapp, S W Nesbitt

1859682 *Internal Oscillations of Tropical Mesoscale Convective Disturbances:* **B Yang**, W R Boos, Z M Tan, J Nie

1934844 *Investigating how Different Large-Scale Environmental Conditions impact the Shallow-to-Deep Transition of Convection:* **N Z Wong**, A Naskar, S Shamekh

1968717 *Investigating the Impacts of Convective Downdraft Outflow on Boundary Layer Aerosol and Thermodynamic Properties during TRACER:* **M P Jensen**, M Dalsin, A J Drager, M Deng, D WANG, J Newton, A Williams, P J Walter, M Harvey, B Prince, D Vrinceanu

1885996 *Learning the Limits: Causal Discovery Model Links Environment to Convective Cloud Detrainment:* **D WANG**, S Lee, T Zhang, C P Lackner, D J Kirshbaum, M P Jensen

2000312 *Local Environmental Controls on the Early Stages of Convective Cloud Development Over the Southeast U.S:* **N Leitmann-Niimi**, G Elsaesser, S Giangrande, J Wu, J R Mecikalski, X Liu, W Wu, B Irion, S Serbin, BA, MS, PhD, C Kuang, J M Peters

1954107 *Mass Flux Across Cloud Lifecycles in LES: Informing Convection Parameterisation via Tracking Analysis:* **J Zgubic**, M Herzog, V Nair

1951068 *Mean Cold Pool Size of Quasi-equilibrium Convection:* **H FU**, M E O'Neill

1908229 *Observed dynamic and radiative characteristics of tropical deep convective and anvil clouds for different upper-tropospheric stabilities:* **D Octarina**, H Masunaga

1988718 *Precipitation Recycling in the Subtropical Hawaiian Islands:* **L Viscardi**, G Torri, A D Nugent

1930057 *Process-level Assessment of Cloud Feedbacks in SCREAM Global Storm Resolving Model:* **L W Chao**, M D Zelinka, C Terai, H Beydoun, B R Hillman, N D Keen, P M Caldwell, S A Klein

1910979 *Role of soil moisture gradients in favouring mesoscale convective systems in East China:* **Y Lu**, J Marsham, D J Parker, C Klein, C Taylor, J Fang, J Tang

1972418 *Scientific Insights from Novel Radar Scan Strategies and Deep Convection Tracking over Houston, Texas:* **S Gupta**, D WANG, S Giangrande, M P Jensen, A Theisen, N L Hickmon

- 1920575** *Synoptic Modulation of the West African Coastal Atmosphere and Mesoscale Convective Systems:* **N Sakaeda**, S N Wu, R Rios-Berrios, E R Martin, K Núñez Ocasio, K M Bedka, M Hollis, B Lambrigtsen, A R Nehrir, Q Lawton, M Rajagopal, M M Schreier, S Wong
- 1920708** *The diurnal cycle of precipitation efficiency in tropical deep convective clouds estimated from satellite data:* **A Derras-Chouk**, G Elsaesser, J Luo

249328

Atmospheric Observations and Modeling for Renewable Energy Applications

Conveners: Dongdong Wang, Peking University; Jun Qin, IGSNRR Institute of Geographic Sciences and Natural Resources Research, CAS

- 1871717** *A novel metric for quantifying solar irradiance stability: Mapping solar irradiance variability to photovoltaic power generation:* **Z Xie, PhD**, Q Tian
- 1913915** *An Open-access Database and Machine Learning Toolbox for Solar Energy Forecasting across the Globe:* **Y Nie**, S Campbell, Q Paletta, L Zhang, T Jing, S Chaaraoui, J Giezendanner, A Scott, M Aragon, J Camier, A Jensen, F Kotthoff, M Li, S Meilinger, Y Wu, A R Brandt, S Wang
- 1983734** *Assessing Global Solar and Wind Investment Potential Under Climate-Driven Supply Risk:* **M Zhang**, A Nayak, U Lall
- 1999011** *Characterizing the Vertical Wind Profile at a Forested Mountain Site for Potential Wind Energy Applications:* **G Henderson**, S De Wekker, M Puccioni, S Wharton, J D Fast
- 1870651** *Climate Change Prolongs Wind Drought Durations and Enhances Their Co-Occurrence with Heatwaves:* **M Qu**, L Shen, Z Zeng, B Yang, H Zhong, X Yang, X Lu
- 1907416** *Coastal sea surface wind speed retrievals from X-band Synthetic Aperture Radars onboard StriX satellites:* **O Toshihiko**, Y Takeyama, S Morioka, F Aito, O Krzysztof, P Kumar
- 1884507** *Developing High-Resolution Future Projection Datasets Using Dynamical Downscaling for Energy System Planning:* **J Yang**, M Sengupta, Y Xie

- 1897304** *The offshore propagation of tropical convection: a case of dynamics vs. thermodynamic forcing:* **M Tang**, G Torri
- 1914474** *The Response of Downdrafts in Deep Convection to a Future Climate Scenario:* **Q Mulhern**, J M Peters
- 1885437** *Vertical motion estimates in tropical cirrus clouds with early observations from EarthCARE:* **H Masunaga**
- 1905406** *Enhancing Renewable Energy Forecast Accuracy via High-resolution WRF-Solar and Roughness sublayer scheme:* **C Gwak**, E C Chang, J Lee
- 1958694** *Estimating Hourly Hub-Height Wind Speed in the Tropical Andes Using Random Forest and ERA5 Sub-Grid Orography information:* **J Contreras**, N van Lipzig, E Samaniego, D Ballari, D Ballari
- 1950217** *High Resolution Projections of Wind and Solar Capacity Factors for Morocco Using Bias Corrected CMIP6 Ensembles:* **O Rigat**, A Chaqdid, N El Mocaïd
- 1911635** *Impacts of Solar Farm Development on Water Resources in Northwest China's Arid Regions:* **Z Lu**, T Xie, W Huang, J Tang, T Ou, D Chen, F Chen
- 1934713** *Improvement of the model function for sea surface wind retrievals using ASNARO-2:* **N Takemoto**, Y Takeyama
- 1997471** *Improving Variable Renewable Energy Modeling for Grid Planning via Reanalysis Downscaling and In-situ Observations:* **O Pfeiffer**, R Ciricione
- 1960392** *Marine Atmospheric Boundary Layer Wind Profiles Across Stability Regimes: A Flux-Based Comparison of HRRR and Lidar Observations:* **P Miller**, J M Freedman
- 1967108** *Marine Boundary Layer Observations on an autonomous floating platform:* **R Krishnamurthy**, A Kirincich, N Bodini, V P Ghate, S Letizia, R C Jackson, M Chabert, H J Fernando, L Goldberger, J Wehof
- 1940946** *Offshore wind map from C-band and Ku-band satellite scatterometers around Japan:* **S Sato**, Y Takeyama
- 1871754** *On the Prediction of offshore wind farm power output in the near-shore region of Yellow Sea under winter cyclonic effects:* **H Xu**, J Guo, J Shi, J Li, X Zhu, R B Cal
- 1988405** *Understanding Dunkelflaute Events in Idaho Using CESM2-LE and ERA5-Derived Capacity Factors:* **I Cionni**, A N Flores, S Lenhart
- 1918268** *Which Locations Across the Western U.S. Are Most Resilient to Wind Energy?:* **W LIU**, S Rahimi, L Haung

250355

Atmospheric processes at the kilometer and sub-kilometer scale: implications for Air Quality, Urban Climate, Weather, Wildfires, and Energy

Conveners: Andrew Janiszkeski, University of Notre Dame; Paola Crippa, University of Notre Dame; Einara Zahn, Princeton University

1956526 *Assessment of Health Impacts of Los Angeles Wildfire Smoke Exposure and its Social Vulnerability:* **O Ologunorisa**, T Ologunorisa

1918611 *Attributing PM_{2.5} Exposure via Urban Airsheds:* **W Liao**, P Crippa, R Marcantonio

1927767 *Capturing Variable Fire and Smoke Behavior during the Lahaina Wildfire:* **N Moisseeva**, S Businger

1973853 *Comparing Dynamical, Machine Learning and Deep Learning Approaches to Downscaling Compound Hazards from Reanalysis Data:* **D B Kirk-Davidoff**, C Draxl, J Lala

1915931 *Contrasts between mesoscale and large-eddy simulations of wind farms: under-resolved gradients, slow wake recovery, and fast turbulence decay with mesoscale wind farm parameterizations:* **J K Lundquist**, W C Radünz, R J A M Stevens, J H Kasper

1972844 *Evaluation of WRF-CMAQ-simulated meteorology and air quality over Southern Lake Michigan Region using field campaign and AQS data:* **D Partha**, V Lang, D E Horton

1924477 *Impact of Emissions Spatial Heterogeneity on CCN Activity: A Particle-Resolved LES Study:* **N S Riemer**, S Frederick, M Mohebalhojeh, J H Curtis, M West

1922905 *Improving Wind Energy Forecasts over Complex Terrain: Insights from WRF-LES Simulations at Perdigo:* **P Crippa**, D Aloqaily, P Giani

2004089 *Integrated Observations of Terrain-Driven Fire Spread:* **J P P Yip**, C B Clements, A K Lofas, M M Valero

248181

Atmospheric Research Supported by Uncrewed Aerial Systems and Tethered Balloon Systems

Conveners: Fan Mei, Pacific Northwest National Laboratory; Greg McFarquhar, University of Oklahoma; Darielle Dexheimer, Sandia National Laboratories; Gijs de Boer, Brookhaven National Laboratory

1935749 *Integrating Atmospheric Physics and Spatiotemporal Machine Learning to Project Wildfire Smoke Exposure and Health Risks in Canada under Future Climate:* **Y Li**, J Sheng

1927803 *Multiscale Wind Modeling in Complex Terrain: Evaluation with Perdigo Field Data:* **D Aloqaily**, P Giani, P Crippa

1917877 *Numerical Prediction of Firebrand Transport and Post-Landing Accumulation in Topography-Induced Turbulence:* **I Dal-Ri dos Santos**, N Yaghoobian

1915814 *Overview of Aerosol Properties Across Four Asian Urban Centers During 2024 ASIA-AQ:* **S Roy**, F Gallo, C E Jordan, E Winstead, E B Wiggins, M Shook, G Symonds, D Kim, S Yun, D A Day, P Campuzano-Jost, J L Jimenez, J P DiGangi, G S Diskin, Y Choi, J Miech, W Wojnowski, F Piel, S Swift, A Wisthaler, L D Ziemba, R Moore

1863718 *Persistent cold air pools evolution and associated sustained haze pollution in Taiyuan Basin:* **S Liu**, X Cai

1927369 *Representing runoff, storage and subsequent evaporation of precipitation in WRF-SLUCM:* **E Zahn**, E Bou-Zeid

1886111 *The Impact and Implications of Urban Morphology and Urban Heat Island Effect on Ozone Formation in Atlanta, GA.:* **K G Mahoney**, O Akinola, T N Skipper, C Ivey, J Kaiser, A G Russell, A Lawal

1888068 *The Role of Wave Type and Multi-Scale Forcing in Modulating Sundowner Wind Intensity:* **A Janiszkeski**, P Crippa

1956944 *The Sensitivity of Realistic High-Resolution Weather Simulations to Turbulence Parameterizations:* **P Giani**, P Crippa

1986198 *Understanding Surface Ozone Variability and Underlying Mechanisms under Local Wind Circulations in Coastal Korea:* **S Ma**, S H Lee

1847454 *Wind Speed Oscillations Offshore the West Coast of Central Taiwan: Two Case Studies:* **C Chang**, F C Chien, J H Teng

1871860 *Aerial Mapping of Bioaerosols Using Dual UAV Platforms in an Austrian Spruce Forest.:* **F Wieland**, M Rupprecht, P J Wlasits, J Gratzl, R Hanlon, P Langer, J Horral, C Smedley, P Sterlich, G Peller, D G Schmale III, H Grothe

1927536 *Aeronautical Regional Geospatial Observer System (ARGOS): Advancing a low-cost flying wing for high-altitude long-endurance operations:* **J J Bailey**, B R Hogan, W K Tobiska

- 1861878** *Air Mass-Driven Variability in CCN Activation: Insights from ARM TBS and UAS Operations:* **F Mei, PhD**, J Wang, J Li, I Silber, J Fast, G Kulkarni, M S Pekour, Q Zhang, C Niedeke, S Glienke, D Dexheimer, B Schmid, J M Tomlinson, H Mehta
- 1948633** *Are we there yet? Intercomparison of weather-sensing UAS during the SCALES field campaign:* **T Bell**, G Azevedo, S Bailey, E Smith, A Houston, J O Pinto
- 1872412** *Deriving Ozone and PM Pollution Vertical Profiles using Lightweight, Cost-Effective Sensors and Deep Learning:* **D Nissenbaum**, R Sarafian, E Windwer, E Tas, C Womack, S S Brown, Y Rudich
- 1947539** *Evaluating sea-breeze induced changes to atmospheric turbulence using uncrewed aircraft systems and surface-based sensors during TRACER:* **G de Boer**, B Butterworth, F M Lappin, P M Klein
- 1897235** *Heterogeneity of Vertically-Resolved Boundary Layer Temperature Profiles in the Bankhead National Forest:* **D Dexheimer**, C Kuang, C Longbottom, C Ruiz, T Settecerri, J Lien, G Whitson
- 1976933** *Increasing Uncrewed Aircraft Systems (UAS) Literacy:* **P Chandler**, A U Gold, B M Argrow, M Wagner, L Clayton
- 1964673** *Shape-Based Clustering of Atmospheric Temperature Profiles for Adaptive UAS Sampling:* **A Medina**, H A Moreno, E Smith, L De la Fuente, M Velez-Reyes
- 1923839** *sUAS Instrumentation for Remote Sensing of Wildfire Intensity – NightFOX:* **J Taylor**, T D Thornberry, R S Gao, S J Ciciora, S Lee, J P Schwarz, PhD, M Forbes
- 1969207** *The Sharkeye: A New Instrument for Cloud Microphysical Measurements on Mid-size UAVs:* **P Lawson**
- 1903093** *Towards Photophoretic Flight of Lightweight, Nanofabricated Structures in Near-space:* **B Schafer**, J H Kim, F Sharipov, G S Hwang, J Vlassak, D Keith
- 1844637** *UAS and TBS in CLOUDLAB: A flexible field setup to study ice processes and cloud phase heterogeneities:* **N Omanovic**, C Fuchs, J Henneberger, A J Miller, F Ramelli, R Spirig, H Zhang, U Lohmann
- 1976721** *UAS-Based Methods for Quantifying Methane Emissions from Midstream Oil and Natural Gas Facilities:* **Z Trader-Gough**, J Nivitanont, PhD, S M Murphy
- 1978762** *Using building-resolving large-eddy simulations and UAS observations from the microSCALES field campaign to investigate the cause of PBL biases in the HRRR model.:* **J O Pinto**, J Lave, J Sauer, D Munoz-Esparza, J Boehnert, G de Boer, S Bailey, S De Wekker, K Adkins, A Houston, E Smith, G Azevedo
- 1985681** *Using UAS Measurements to Enhance PM_{2.5} Emission and Dispersion Modeling of Grassland Prescribed Burns with a Coupled BlueSky-WRF-HYSPLIT Framework:* **C H Fite**, F Ngan, J Aurell, B Gullett, M Cohen, H C Kim, T Chai
- 1916249** *Vertical Distribution of GHGs in the Daytime and Nighttime PBL: Observations Using Ground-to-Balloon Dual Comb Spectroscopy:* **J Kasic**, M Walsh, C Ruiz, D Dexheimer, R Ding, J Genest, A Van Tassle, K Cossel, I Coddington, A Christensen, J Urayama, P Schwindt
- 1969577** *Vertical Mixing of Aerosol Properties: A Tethered Balloon Study:* **J Fontenette**, B Seymore, P J Walter, M P Jensen, A J Drager, M Harvey, B Prince, D Vranceanu
- 1948393** *Vertically-Resolved Measurements of Newly Formed Particles at the DOE ARM Bankhead National Forest Site in Northwestern Alabama:* **C Kuang**, S Giangrande, S Serbin, BA, MS, PhD, G Whitson, C Ruiz, C Longbottom, D Dexheimer
- 1866456** *A Multiscale Study of Atmospheric River Formation and Moisture Origins:* **S Whiteman**, S D Miller, J M Forsythe, T H Vonder Haar
- 1968745** *Air-sea flux and SST variability associated with atmospheric rivers over the Arabian Sea:* **T Shinoda**, S Pei, W Han
- 1914044** *An Investigation of Drought Busts Associated with Atmospheric Rivers in the Northeast U.S.:* **H Morse**, C Gharibian, N D Metz
- 1938308** *Assessing the Role of Atmospheric Rivers in Flooding: A Case Study on the Sylhet Flash Flood in 2022:* **M S Islam**, S Islam, P Biswas Paul
- 1851521** *Assessment of Atmospheric Rivers and Their Societal Impacts in New Zealand: A Study of Non-Stationarity and Traffic Disruptions:* **R Holgersson**, C Ramseyer

248210

Atmospheric Rivers: Processes, Impacts, Observations, and Uncertainties

Conveners: **Yang Zhou**, Lawrence Berkeley National Laboratory; **Christine Shields**, National Center for Atmospheric Research; **Juan Lora**, University of California Los Angeles; **Anna Wilson**, Center for Western Weather and Water Extremes (CW3E), Scripps Institution of Oceanography, UC San Diego; **Allison Collow**, Universities Space Research Association Greenbelt

- 1914025** *A Comparison of Northeast Inland and Coastal Drought with Atmospheric Rivers:* **C Gharibian**, H Morse, N D Metz

- 1850787** *Atmospheric River Chain Reaction: Linking Asian and North American Extreme Weather:* **J D Doyle**, C A Reynolds, K Biernat, M Fearon
- 1894860** *Atmospheric river impacts on the Greenland Ice Sheet through the Last Interglacial:* **J Schnaubelt**, C R Tabor, B L Otto-Bliesner, J M Lora
- 1998239** *Atmospheric River Structure and Energy Transport in a Hierarchy of Idealized Models:* **S R Scholz**, J M Lora
- 1914388** *Atmospheric River, Cutoff Low, and Associated Precipitation Patterns in the Northeast U.S.:* **E Ingram**, N D Metz, S Schaay
- 1936641** *Atmospheric Rivers and West Antarctic Sea Ice Variations:* **A Marcarelli**, M R Mazloff, A J Miller, C Renkl, X Zou
- 1889530** *Atmospheric Rivers as Key Drivers of Global Extreme Precipitation: The observed analysis from 1979 to 2024:* **G N Konda**, J Y Lee, A B Nellikkattil, PhD, B Guan
- 1890237** *Atmospheric Rivers Drive Contrasting Vertical Structures of Extreme Temperatures Over Svalbard Across Seasons:* **Y Chen**, A Rinke, J Landwehrs, S Tiedeck
- 1930577** *Atmospheric Rivers Force Sea Ice Variability: Insights from the Community Earth System Model Version 2 Large Ensemble:* **A Massa**, P Zhang, M M Holland, C A Shields, K Nardi, L Li
- 1850756** *Atmospheric Rivers in North Pacific: Observation Impact from Drifting Buoys:* **C A Reynolds**, J D Doyle, R Stone, M Fearon, K Biernat
- 1872981** *Atmospheric Rivers Influencing Severe Storm Environments:* **C A Davis**, J M Cordeira, S Bartlett, J Houser
- 1844935** *Characterization of Atmospheric Rivers and Their Impacts on Precipitation Patterns in West Africa:* **R T Akinnubi**, PhD
- 1935738** *Cloud Radiative Effects Modulate Subseasonal Variability in Atmospheric Rivers via the Baroclinic Annular Mode:* **S W Lubis**, B E Harrop, J Lu, Z Chen, L R Leung
- 1974497** *Constraining Atmospheric River Uncertainty Using Instantaneous Poleward Latent Heat Transport:* **A Mahesh**, W D Collins, W R Boos, T A O'Brien, Y Zhou
- 1920652** *Cyclone-Driven Moisture Transport Over Europe: Seasonal Dynamics And Climate Change Implications:* **A Wypych**
- 1948476** *Fingerprints of atmospheric rivers in marine heatwaves:* **S Hu**, S Hu
- 1892425** *From Coast to Crest: Using Backwards Trajectories to Estimate Atmospheric Rivers' Contributions to Colorado's Wettest Days:* **D Nash**, J Rutz, J M Cordeira, Z Zhang, F M Ralph, K Sanders, E Walter
- 1880638** *Global Atmospheric River Historical Data Record: Combining AR Detection and Intensity Categorization:* **E A Slinsky**, J Rutz, F M Ralph, B Guan
- 1859727** *Harnessing improved atmospheric river forecasts for multi-objective water management of the Willamette River Basin:* **E Yeates**, A Martin, J Cordeira, N Buccola
- 1858100** *Hysteretic Atmospheric River Response to Carbon Dioxide Removal:* **S Chung**, C Park, Y Kwon, S W Son
- 1914509** *Impacts of Atmospheric Rivers on Aerosol Parameters in the Northeast U.S from 2013-2017:* **A Simmons**, N D Metz
- 1974046** *Investigating the Impact of Numerical Model Uncertainty in the Marine Boundary Layer on the Predictability of Atmospheric Rivers and Onshore Precipitation:* **K Lupo**, M Simpson, L Delle Monache
- 1970828** *Linking Antarctic Atmospheric River Characteristics with Their Landfalling Impacts:* **J Butler**, M MacLennan, F Perez, J McAuliffe
- 1960241** *MJO-AR connections over the North Pacific and associated North American precipitation in CMIP6 Models:* **P C Loikith**, L Fernandes, W Ma
- 1995722** *More Frequent and Intense Atmospheric River-Driven Extreme Precipitation Events Under Warming in a High-Resolution Climate Model:* **X Guo**, Y Gao, S Zhang, J Lu, W Cai, R Leung, J Zscheischler, L Thompson, B Guan, J Rutz, H Gao, C Guo, L Wu
- 1930187** *Quasi-Stationary Atmospheric Rivers as the Primary Driver of Rossby Wave Activity in the Global Subtropics:* **H I Lee**, N Nakamura
- 1930054** *Response of atmospheric river width and intensity to aquaplanet warming: A detection algorithm- and background moisture-independent approach:* **S H Baek**, E McClenny, P Ullrich, K T Quagrain, W D Collins
- 1909742** *Rossby Wave Breaking events exacerbate the heatwave conditions over the Indian region:* **B Thomas**, R K Kunchala, B B Singh, N K Kondapalli, Y Viswanadhappalli
- 1857668** *Scaling and Regional Variability of Future Atmospheric Rivers by Wind-Moisture Characteristics:* **Y Zhou**, M F Wehner, A Rhoades, A D Jones
- 1926533** *Simulated Responses of Extreme Moisture Transport and Atmospheric Rivers to Nuclear Conflict:* **C Zhang**, A C Winters, J Coupe
- 1979424** *The Interaction between Short-wave Troughs and Atmospheric Rivers over the North Pacific:* **Z Zhang**, F M Ralph, J M Cordeira, X Zou, L Delle Monache, J D Doyle, C A Reynolds
- 1899042** *Understanding Global Atmospheric Rivers Evolution with Energy Budget Analysis:* **A Zhang**, D Yang

247327

Atmospheric Sciences 2025 Ascent, Holton, and Kaufman Award Winners

Conveners: Andrew Gettelman, Pacific Northwest National Laboratory; Amy Clement, University of Miami

258571

Atmospheric Sciences Student, Postdoc, and Early Career Flash Talks (joint with B, C, GC, H)

Conveners: Kathryn Moore, Colorado State University; Claire Moffett, Pacific Northwest National Laboratory

1979369 *An Evaluation of Urban and Regional Air Quality in North Texas Using Air Modeling and Machine Learning Techniques:* **J Kanayankottupoyil**, K John

1906258 *Emission Characteristics and Environmental Risk Assessment of Multi-Pollutants from Korean Barbecue Cooking:* **H OH**, W Y Yang, S Y Yoo, H W Ryu

1875040 *Estimating Nitrogen Oxide Emissions from U.S. Fertilized Soils:* **G Parajuli**, L Luo, D S Cohan

1879730 *Ozone Changes the Pulse and Perfume of Citrus Trees:* **M Riches**, L Mamie, D Farmer

247326

Atmospheric Sciences 2025 Fellows

Conveners: Andrew Gettelman, Pacific Northwest National Laboratory; Amy Clement, University of Miami

247308

Biosphere-Atmosphere Interactions in Urban Areas: Emissions, Chemistry, and Climate (joint with B)

Conveners: Yingnan Zhang, University of California Irvine; Eva Pfannerstill, University of Cologne; Sanjeevi Nagalingam, University of California Irvine; Qindan Zhu, Peking University; Hui Wang, University of California Irvine

1861825 *Biogenic and Anthropogenic Contributions to Urban Terpenoid Fluxes:* **E Katz**, C Arata, E Pfannerstill, R J Weber, D Ng, MSc, M Milazzo, H Byrne, H Wang, A B Guenther, C Rey-Sanchez, J Apte, D D Baldocchi, A H Goldstein

1935453 *CO₂ Uptake and BVOC Emissions of Los Angeles' Urban Forest:* **T Vo**, J Ryan, C Faiola, D Roper, P Vannucci, N Rollins, W Berelson

1991015 *Sources and Composition of Southern Ocean Ice Nucleating Particles during CAPRICORN-2 and SOCRATES:* **K A Moore**, M Perron, T C J Hill, C S McCluskey, M Diaz, N Fierer, A R Bowie, P J DeMott

1948703 *Towards a Long-Term Record of the Northern Hemisphere Growing Season Net Flux:* **M Loechli**, G Keppel-Aleks, N Chandra, M Kiel

1989779 *Understanding Time Series Shifts in Lower Tropospheric Atmospheric States from Satellite and Reanalysis:* **T Do**, Q Yue, H Nguyen, G Chen

1964364 *Weakened Aerosol Cooling Effects Under Heightened Sea Spray Aerosol Emissions:* **R Leibensperger III, MS**, T Hassan, J Herbst, M O Andreae, K Kimble, D Stokes, C Lee, C Harb, L R Leung, G B Deane, S M Burrows, K A Prather

1930432 *Wintertime Particulate Nitrate Formation is Trending Toward More NO_x Sensitivity in the Agricultural Midwestern United States:* **T Vo**, A Christiansen

1961383 *Correcting PTR-ToF-MS measurements of monoterpenes (m/z 137.1325) for monoterpene fragmentation in ambient datasets:* **M M Coggon**, C E Stockwell, J Gilman, K Bates, M Carter, L Xu, C Warneke

1851281 *Deep transfer learning unravels drivers of urban isoprene variations in a warming climate:* **X Lyu, PhD**, S Liu, F Yang, Z Shi, X Huang, T Liu, H Wang, M Li, J Gao, N Chen, G Shi, Y Zou, C Pei, Z Li, C Tong, X Liu, L Zhou, A Ding, A B Guenther, N Wang

1952446 *Enhancing the Representation of Volatile Organic Compounds in Air Quality Models for European-scale Assessments:* **Y Wang**, C Barker, M Vieno, E A Marais, S Medinets, Y Ge, T Liska, J Scheffler, R Beck, B Langford, E Nemitz

1878031 *First inventory of litter VOC emissions from urban Mediterranean species:* **M Rocco**, J Kammer, M Santonja, B Temime Roussel, V Baldy, E Quivet, H Wortham, E Ormeno

- 1945956** *High Chemodiversity of Nitrogen-containing Organic Compounds in Vehicle Emissions Driven by Transformative Reactions:* **S Chen**, Y Xu, D Liu, J Deng, S Kong, R Liu, P Fu
- 1945488** *Impact of Antagonistic Temperature Stresses on Plant Volatile Emissions:* **S Nagalingam**, H Wang, Y Zhang, S Kim, A B Guenther
- 1849036** *Impacts of Meteorological Factors and Vegetation Emissions on Ozone Pollution in Typical Cities of the Yangtze River Delta Region:* **Z Shupeng**, Y Zhu, X Chen
- 1899376** *Investigation of Enantiomeric Ratios of α -Pinene and Camphene Emissions from Two Typical Urban Trees: Geijera parviflora and Magnolia grandiflora:* **Y Luo**, S Nagalingam, H Wang, V Moreno Ruiz, Y Yu, A B Guenther

248024

Boundary Layer Clouds and Earth System Coupling (joint with C, GC)

Conveners: **Ewan Crosbie**, ; **Hailong Wang**, Pacific Northwest National Laboratory; **Xiaoli Zhou**, University of Washington Seattle; **Hongwei Sun**, University of Hawaii at Manoa

- 2003646** *Substantial Diel Changes of Cloud Adjustments to Aerosols in Ship-tracks:* **T Yuan**, H Song, R Wood, L Oreopoulos, K Meyer, W L Smith Jr, R M Eastman
- 1972029** *Boundary layer Exploration of Aerosols and Clouds ON Ships (BEACONS): A Pilot Study:* **R Krishnamurthy**, D J Coffman, C Sivaraman, L Goldberger, G Kulkarni, T S Bates, H J Fernando, L M Russell, K Strom, R Hudak, M Christensen, J Mulmenstadt, L K Berg, J Fast, A M Macdonald
- 1951497** *Caution When Using N_d as a Proxy for Aerosols in Estimating Aerosol-Induced Cloud Responses:* **H Ward**, X Zhou
- 1851622** *Cloud susceptibility and climate response to midlatitude marine cloud brightening in Earth system models:* **H Hirasawa**, M Henry, S J Doherty, A Mason, R Wood, J M Haywood, K von Salzen
- 1951888** *Convective Cloud Transitions over Bankhead National Forest: Results from Continuous LES Study:* **G N Raghunathan**, D Colantonio, T Heus
- 1897952** *Does it Buffer? Investigating Aerosol-Cloud-Precipitation Interactions Across the Globe:* **I McCoy**, M C Wyant, P N Blossey, C S Bretherton, R Wood, C Chiu

- 1864259** *Ozone Formation and Downward Flux in the Urban Environment of Beijing:* **E Tas**, D Choi, Y Huangfu, E Fredj, Q Li, X Zhang, X He, B Yuan, H Liu
- 1917521** *Reconciling Biogenic VOC Emission Factors of Dominant California Urban Trees Species:* **V Moreno Ruiz**, C Soong, H Wang, S Nagalingam, Y Zhang, A B Guenther
- 1971432** *Urban Enantiomers: An Exploration of Diurnal and Seasonal Variations in Ambient Volatile Organic Compounds in Los Angeles:* **J Ryan**, T Vo, W Berelson, C Faiola
- 2001704** *Validating Urban Leaf Area Index Products with Year-Long Field Observations:* **Y Yu**, Y Zhang, A B Guenther, H Wang, A Zhao, Y Luo, V Moreno Ruiz
- 1987146** *Estimates of PBL Height from Spaceborne and Airborne Backscatter Lidar Data:* **A Cresanti**, J E Yorks, N Roldan-Henao, Z Li
- 1977597** *Examining the Thermodynamics, Dynamics, and Life Cycle of Arctic Low-level, Optically Thin Clouds During the ARCSIX Field Campaign:* **B Lamkin**, J Redemann, C J Flynn, L Gao, E Crosbie, A R Nehrir, K L Thornhill II, B Collister, S Schmidt
- 1887613** *Land-Atmosphere Coupling and the Organization of Boundary Layer Clouds:* **T Dror**, G Feingold
- 1878742** *Low-level Angolan convection dictates aerosol-cloud interactions in the southeast Atlantic:* **T Tatro**, P Zuidema
- 1951624** *Machine Learning derived CCN concentrations better constrain aerosol-cloud interactions than aerosol optical properties:* **L Gao**, J Redemann, E Lenhardt, B Chen, F Xu, R A Ferrare, J W Hair, A R Nehrir, C A Hostetler, T Shingler, M A Fenn, B Cairns, A Sorooshian
- 1930736** *Observations of cloud characteristics over Dome C, Antarctica, and their influence on surface downwelling longwave radiation:* **M Ganeshan**, Y Yang
- 1901125** *PBL Height Estimated by Frigatebird Behavior Aligns with Airborne Flight Data:* **M E Gilmour**, J M Ryoo, J M Dean-Day, B Clark, E Leat, S Oppel, S Weber, L Shearer, I G Brosnan
- 1969265** *Southern Ocean Mesoscale Cellular Convection and Cold Pools:* **L Kang**, R Wood, P N Blossey, J Tian
- 1888964** *The interplay of cloud and clear-sky radiative effects in different shallow cloud morphologies:* **E Eytan**, I McCoy, J J Gristey, G Feingold

248631

Boundary Layer Processes and Turbulence (joint with B, EP, GC, H)

Conveners: Mostafa Momen, University of Houston; Tirtha Banerjee, Karlsruhe Institute of Technology; Neda Yaghoobian, Florida State University; Khaled Ghannam, Northeastern University

- 1996454** *A Data-Driven Model for Prediction of Flow over Surface-Mounted Cuboids:* **M G Giometto**, G S Hora
- 1928843** *A Numerical Investigation on the Role of Urban Layouts on Firebrand Spotting Behavior:* **I Dal-Ri dos Santos**, K Evans, N Yaghoobian
- 1878505** *A simplified stochastic model of wall turbulence from the surface into the log region.:* **M Guala**, R Ehsani, M Heisel
- 1881981** *A Wind Modification Behind Wind Fences for Reducing Blow-Over Risk Reduction Using Wind Profile Measurements:* **M Joshi**, N Ohara
- 1901536** *Addressing log-layer mismatch in wall modeled large eddy simulations over rough surfaces and canopies for geophysical flows:* **M Howland**, E Y Shin
- 1909524** *An Analytical Solution to a Nonlinear Single-Column Model Describing Hurricane Boundary Layer Mean Wind Profiles:* **K Sathia**, M G Giometto
- 1868977** *An Observation-Based Annual Climatology of the Southern Great Plains Low-Level Jet and associated PBL characteristics:* **M Yabra**, J A Santanello Jr, J English
- 1954874** *Anisotropy-Generalized Monin Obukhov and Scalar Exchange Over Varied Ecosystems and Vegetated Canopies:* **T Waterman**, I Stiperski, M Calaf
- 1888989** *Applying the Monin-Obukhov Similarity Theory to the Entire Boundary Layer Over a Heterogeneous Terrain:* **W Zhang**, T Ma, C Lin, F Chen, P W Chan, J C H Fung
- 1966024** *Assessing the Role of Land-Atmosphere Feedbacks during the 2017 and 2024 Solar Eclipses using the High-Resolution Rapid Refresh (HRRR):* **D D Turner**, J Simonson, T Heus, G N Raghunathan, S Kimball, J Kenyon
- 1978114** *Atmospheric stability effects on firebrand transport in wildland fire plumes:* **H Mohanan Pillai**, I Dal-Ri dos Santos, R R Dubey, N Yaghoobian
- 1953306** *Benchmarking Phase-aware Models of Wind-wave Interactions Against Phase-averaged and Phase-resolved Approaches Using WRF-LES:* **B Kale**, M Howland
- 1847846** *Characteristic Features of the TKE Budget in the Urban Roughness Sublayer:* **G G Galeazzo**, K Ghannam
- 1965945** *Characteristics of the longitudinal heat flux co-spectrum in stratified atmospheric flows.:* **R Niraula**, K Y Huang, G G Katul
- 1980489** *Effect of Wind Gusts Induced by Canopy Motion on Fire Behavior:* **R R Dubey**, A Jiang, K Shoele, N Yaghoobian
- 1905371** *Enabling Large Scale Flow Simulation over Flexible Branched Tree Canopies:* **A Jiang**, K Shoele
- 1994776** *Enhanced Mixing and Intermittency in Scalar Dispersion Above a Model Canopy:* **L Shig**, V Babin, Y Bohbot-Raviv, A Liberzon
- 1992727** *Evaluation of Different Parameterizations for the Computation of Surface Fluxes over Mountainous Region:* **S Singh**, P Srivastava
- 1977773** *Experimental Evidence of Short-lived Shallow Convective Boundary-Layer Formation in the Intertidal Zone of Western Alaska:* **J Lopez**, G J Fochesatto, S Choi, D Pandisalackal Thomas, S Ramakrishnan, D E Atkinson, D Keller
- 1912918** *Generalized MOST Framework with Turbulence Anisotropy as a Boundary Condition for High Resolution Large-Eddy-Simulations.:* **B Uдина**, M Calaf, I Stiperski
- 1887267** *Impact of a heterogeneity patch on the atmospheric boundary layer:* **H Soeda**, E Bou-Zeid
- 1932228** *Impact of Dryline Passages on Boundary Layer Kinematics and Aerosol Mixing over Drylands using Routine Doppler Lidar Measurements:* **S Pal**, M Hamel, D Harr, N Dhangar, H Dhaliwal, D DAS, T Lee
- 1854783** *Improving Solar Radiation Forecasts During Stratocumulus Conditions Using Large Eddy Simulations, Ground-Based Observations, and an Ensemble Kalman Filter:* **S R De Roode**, M van Soest, F C Vossepoel, R Verzijlbergh, H Jonker
- 1969261** *Improving Turbulent Flux Estimates and Similarity Theory Performance for Stable Atmospheric Boundary Layers:* **M Zamzam**, H Holmes, H J Oldroyd
- 1928509** *In-Situ Drone Measurements for Raman Lidar Validation: Challenges and Opportunities:* **M Teshiba**, M Yabuki, K Matsuki, T Hasegawa
- 1916832** *Large Eddy Simulation of Saltating Polydisperse Particles:* **L Roy**, M G Giometto, S Salesky
- 1949242** *Large Eddy Simulations of the response of the atmospheric boundary layer to solar eclipses:* **T Heus**, G N Raghunathan, T Rosenberger, D D Turner, J Simonson, T J Wagner, S Kimball
- 1958195** *Mean and Turbulent Flow Over a Forest, With and Without Canopy Breaks:* **J D Fast**, R Krishnamurthy, R K Newsom, Y Liu, L Berg

- 1956184** *Multi-Scale Interactions in Turbulent Mixed Convection Drive Efficient Transport of Lagrangian Particles:* **A Grace**, D H Richter
- 1954999** *Multivariate Estimation of Vertical Profiles to Better Understand the Shallow-to-Deep Transition of Convection in the Bankhead National Forest:* **A Naskar**, N Z Wong, S Shamekh
- 1899133** *New Biologging Technology Could Provide In-situ Vertical Wind Profiles Over the Ocean:* **M E Gilmour**, N Eller, D Dearborn, M Haussmann, J Schoombie, P J Boston, J Ross, I G Brosnan
- 1932445** *Observed Land Surface Influence on Atmospheric Boundary Layer Heat and Moisture Profiles During Interstorms:* **M Zhang**, D D Turner, D Entekhabi
- 1986121** *Planetary Boundary Layer Response to the October 2023 Solar Eclipse: Preliminary Results from Radiosonde Observations:* **A Vieira dos Santos**, J Gong, B Demoz
- 1987249** *Planetary Boundary Layer Sensing using Next-Generation Hyperspectral Microwave Sounders in the High-frequency Microwave and Millimeter-wave Radiometer – High Definition (HAMMR-HD):* **S C Reising**, A Mohamed, O Pradhan, A Babenko, S T Brown, A Tanner, P Kangaslahti, R Thomas, S Farzana, M Abedin, A Whitney
- 1979441** *Quantifying small-scale anisotropy in turbulent flows:* **T Banerjee**, S Chowdhuri
- 1932199** *Rice paddy effect on local convective rainfall over Seoul metropolitan area:* **Y H Lee**, H J Lim, J S Kim
- 1978792** *Scaling analysis for buoyant plumes over wildland surface fires in forested environments:* **A Desai**, A Cervantes, T Banerjee
- 1965894** *Simulation-based Study of Wind Turbulence over Ocean Wave Groups with Modulational Instability:* **X Hao**, T Li, J D Mirocha, R S Arthur
- 1992641** *Structural Analysis of the Planetary Boundary Layer (PBL) and Its Implications for Air Quality: A Case Study in the Sabana Centro Province in Cundinamarca, Colombia:* **J C Fraile Beltran**, E E Vega Rodríguez
- 1930013** *Subgrid-Scale Models for Large Eddy Simulations of Cloud Turbulence: Direct Numerical Simulations and A Priori Tests:* **S Salesky**, C Doyle, M Frank, D H Richter
- 2003965** *Surface Drag on Deformed Topographic Boundaries: A Local Implementation in Terrain-following Coordinates:* **C Epifanio**, Y Li
- 1973832** *Surface Energy Balance During Shallow Cold Flow in the Arctic Winter Boundary Layer:* **S Ramakrishnan**, D Pandisalackal Thomas, D E Atkinson, D Keller, G J Fochesatto
- 1942244** *The Characteristics of Atmospheric Boundary Layer Structure during a Summer Navigation over the Southern Ocean:* **T Qiu**, Q Yang, X Xi, S Peng, B Han, Z Cai, G Zhang, C Liu
- 1974635** *The Radiative-Dynamic Coupling in the Buildup of Surface-Based Temperature Inversion Layers in Cold and Dark Arctic Atmospheres.:* **D Pandisalackal Thomas**, S Ramakrishnan, D Keller, D E Atkinson, G J Fochesatto
- 1930174** *The role of surface heterogeneity and mesoscale circulation in modifying the atmospheric boundary layer structures:* **M Baidu**, A N Ross, J Marsham, S Boeing
- 1876769** *Turbulence at the inflow of a wildfire plume using multivariate decomposition of tower measurements:* **G Wasson**, M Katurji, P Zawar-Reza, A Valencia-Correa, J Zhang, T Strand, G Pearce, J Kerr
- 1975169** *Turbulence over vegetated terrain: investigating the role of canopy edges:* **A Petersen**, M Placidi, G Iacobello, M Carpentieri, K Lazaridis, G G Katul, T Banerjee
- 1942771** *Turbulent kinetic energy dissipation rate in the roughness sublayer:* **J S Kim**, Y H Lee
- 1861426** *Turbulent Transport Mechanisms of Momentum and Scalars in the Urban Roughness Sublayer:* **S Tarannum**, K Ghannam
- 1989914** *Urban Influence on Boundary Layer Dynamics: A Case Study over O‘ahu, Hawai‘i:* **L Viscardi**, G Torri, A D Nugent
- 1978644** *Using the New York State Mesonet surface and profiler observations to adjust model-based surface roughness and gust characteristics:* **J M Freedman**, J Zack
- 1921795** *Wind-Vegetation Interaction of Turbulent Boundary Layer Flow Over Highly Flexible Canopies:* **Y Jin**, Q Deng, D Bhamitipadi Suresh
- 1930798** *Year-round monitoring of the high spatiotemporal temperature and water vapor profiles using UV-C Raman lidar systems in the remote islands on the west coast of Japan:* **M Yabuki**, K Matsuki, M Teshiba, T Takeuchi, Y Tabata, Y Uchiho, R Muto, T Hasegawa

249186

Bridging the Gap from Climate to Extreme Weather: Theory, Modeling, and Observations

(joint with GC, H, NH)

Conveners: **Suqin Duan**, Department of Earth System Science, Tsinghua University; **Alyssa Stansfield**, Stony Brook University; **Akintomide Akinsanola**, University of Georgia; **Mingyu Park**, Princeton University; **Funing Li**, Massachusetts Institute of Technology

1907546 *A Generalized Clausius-Clapeyron Scaling Approach Highlights Local Thermodynamic vs Large-scale Circulation Controls on Extreme Precipitation:* **S Andria**, M Borga Sr, M Marani

1913799 *A Global Regionalized Non-Asymptotic Extreme-Value Framework for Estimating Present and Future Storm Surge Extremes:* **P Devò**, T Wahl, M Marani

1910087 *A Pathway for Northeast Pacific Marine Heatwaves to Influence Temperatures in Western Europe During Early Winter:* **J Shi**, J Ma, N J Holbrook, J Chen, Z Li

1887598 *A Record-Breaking Pan-Tropical Atlantic Marine Heatwave During Early-Spring 2024 Fueled by Local and Remote Forcing:* **J C Yang**, S Li, I Richter, Y Liu, Y Zhang, Z Li, X Lin

1903803 *An Abrupt Shift in Tropical Variability and Its Impact on Cold Extremes over North America since the late 1990s:* **M Kim**, H Kim, M K Sung

1978662 *Analysis of Thermodynamic Variables Associated with Hawaiian Extreme Precipitation Using the Fraction of Attributable Risk (FAR):* **M Sinnenberg**, O Timm

1845777 *Assessing the Roles of Natural Variability and Anthropogenic Forcing in Wind-Driven Wildfires in Southern California:* **G D Madakumbura**, J T Abatzoglou, A Hall, B Wang, P Williams

1846695 *Bayesian Approach for Low Flow Estimation using Metropolis-Hastings Algorithm:* **S Nepal**, V P Pandey Dr, B R Thapa

1951535 *Change in Mid-latitude Extreme Weather Induced by Climate Engineering:* **D Ko**, H Kim

1933843 *Changing Rossby Wave Pathways Behind the Increasing Frequency of Summertime Extreme Precipitation in Northeast China and Pakistan:* **Z You**, Y Deng, Y Ming

1875793 *Characteristics And Mechanisms of Cold Air Outbreaks in the Central and Eastern United States:* **Z Wang**, Z Solecki, R Rauber, J E Walsh

1954289 *Climate Change-Induced Trends in Extreme Snowfall Over Mountain Regions:* **A McClure**, E Chow, R Nazarian, B Matijevic, A A Akinsanola, J Broccoli, N Lutsko

1901089 *Convective Storms Are More Severe in Colder Climate: Evidence and Physics from Historical and Modern Climate Data:* **P K Wang**

1918124 *Critical Impact of Land-Atmosphere Feedbacks on Midlatitude Wintertime Surface Temperature Variance:* **K Lu**, G Chen, B GE, R Fu, W Ma, H Wang

1999691 *Dry Dynamics Matter: the Contributions of Synoptic Eddies to Atmospheric Blocking Events in Observations and Idealized Models:* **L Wang**, Y Hu

1949345 *Examining Extreme Winter Precipitation Over the Contiguous United States and the Modulating Role of Large Scale Modes of Variability:* **M R Tye**, S G Yeager, I E de Vries, R R McCrary, S Minallah, J Lave, G Meehl, J Richter

1971148 *Exploring the relationship between tropical cyclone frequency and tropical circulations in an idealized climate model:* **Y Ma**, C Wolfe, K Reed, M Rao, G Zhang

1915233 *Future Winter Snowfall and Precipitation Phase Shifts Across the CONUS:* **U Khaira**, L Xue, M Astitha

2002217 *Global Severe Hail Climatology: An Ensemble Reanalysis Approach:* **C Cuervo-Lopez**, J T Allen, D Kluver, M Taszarek

1878022 *Heatwaves in a changing climate: Dynamical insights from idealized modeling experiments:* **D Domeisen**, E Russo, B Jiménez Esteve, W Wicker, H Afargan Gerstman, M Pyrina, D Folini, N Harnik, K Kornhuber

1878897 *Historical and Projected Fire Weather Changes in the Contiguous United States: Evidence from Multi-source Ensemble Analysis:* **T Zhang**, J Mao, J Kumar, S C Kao, E C Massoud, F Hoffman, D M Ricciuto

1970062 *Historical Trends in Skewness and Extremes of Temperature, Moisture, Sunshine, and Wind Speed since 1885 at the Blue Hill Observatory:* **M J Iacono**, M Douglas, A Joly, J Polen, T S Ledley

1961072 *How does vegetation impact the magnitude and occurrence of extreme heat events in urban environments?:* **N A Brunsell**, D A Rahn

1878941 *Identifying Physical Processes Impacting Extreme Winter Warmth and Skewness of Temperature Distributions.:* **A Friedman**

1885938 *Impact of Ocean Temperatures on Heat Stress in South Florida:* **S DiPietro**, A C Clement, K J Mach

1885294 *Impacts of Jet Stream Structure on Cyclone Mergers and Persistent Anticyclones: Insights from Dry Idealized Simulations:* **G Zhang**, M Ren, K Y Cheng, L Harris, T Brodsky, J Mouallem

1952035 *Impacts of Near-Term Aerosol Emissions Uncertainty on Global Patterns of Heatwave Hazard and Exposure:* **G Persad**, C Cummins, S Utama, D Paynter, J W Baldwin, D E Touma, PhD

- 1935951** *Influence of Tropical Cyclone–Midlatitude Interactions on Pacific Western North American Ridges and Their Effects on Surface Heat Extremes:* **X Bai**, D Kalashnikov, P C Loikith, S Bigalke, A Mitchell, L F Bosart, M Ting, A Lavery, D Singh
- 1927761** *Investigating Low Likelihood, High Impact Extratropical Cyclone Characteristics in a Warming Climate:* **D K Apoznanski**, A J Broccoli, R E Kopp
- 1905068** *Investigation of Spatial-Temporal Changes of Heatwaves in Japan and Factors Contributing to Their Occurrence:* **M Nakayoshi**, H Kito
- 1918602** *Isolating Regional Tornado Trends: A Physically-Informed Decomposition of the United States Tornado Record and Analysis of Variability and Trend Components:* **T Moore**
- 1919368** *Manually Controlling Tropical Cyclones in a Coupled Aquaplanet: Insights into Upscale Climate Impacts:* **J Pan**, C Zarzycki
- 1917889** *Mind the Gap: A theoretical framework on extreme precipitation intensity scaling with temperature at the weather and climate timescales:* **G Wang**, F M Alvee, H Qin, R Leung, H Hu, X Sun
- 1879739** *Modulation of U.S. Hazardous Convective Weather by the Pacific Decadal Oscillation:* **I Glade**, J W Hurrell, K Rasmussen, L Sun
- 1986339** *Moisture Matters: Distinct Roles of Diabatic Heating in Atmospheric Blocking in Idealized Models:* **Z Liu**, L Wang
- 1884076** *MULTI-SCALE DRIVERS OF WARM SEASON HEAT EXTREMES IN THE MIDWESTERN UNITED STATES.:* **S Rasaki-Balogun**, J T Schoof
- 1848067** *Multivariate scaling against specific and relative humidity helps explain variations of precipitation extremes across regions and under climate change:* **R van der Drift**, P A O’Gorman
- 1888318** *Physical Processes Driving Surface Temperature Variability Changes in a Warming Climate:* **A Basinski Ferris**, I Eisenman
- 1858002** *Physical Processes Leading to Future Changes in Extreme Day-to-day Temperature Change Over North America:* **K Hamal**, S Pfahl
- 1924753** *Post-tropical Storm Ida: Linking mesoscale and statistical analysis to contextualize an unprecedented precipitation event:* **J F Booth**, C Mossel, T P Janoski, T Galarneau Jr, N Devineni
- 1948207** *Projected Changes in Atmospheric Pathways of Western North American Heatwaves from High-Resolution Coupled Model Simulations:* **M Park**, N C Johnson
- 1895507** *Quantifying Uncertainty in Precipitation Extremes Using an Observational Large Ensemble:* **K McEvoy**, K A McKinnon, A Poppick
- 1993334** *Rapid Intensification of Spatiotemporally Contiguous Heatwaves Across the Arabian Peninsula:* **W U Hassan**, M S Saharwardi, H Gandham, H P Dasari, A G Prajeesh, I Hoteit, Y Abualnaja
- 1986934** *Rare event sampling for moving targets: daily precipitation and temperature extremes in a general circulation model:* **J M Finkel**, P A O’Gorman
- 2003044** *Rare Heatwave Events Over the U.S. Continent: Spatial Variability and Driving Mechanisms:* **X Zhang**, H Tang, J Zhang
- 1944533** *Record setting heavy precipitation occurrence in 2024:* **C W Thackeray**, J Norris, A Hall, M D Zelinka, S Po-Chedley
- 1991022** *Revisiting Indian Summer Monsoon Extremes and Variability with CMIP6 HighResMIP Models: Benefits of Increased Horizontal Resolution:* **A Kumari**, A Mishra, A Kumar
- 1951881** *Role of vertical moistening processes in modulating Indian heatwaves:* **M Saha**, V Dixit, K Lanka
- 1919983** *Spatial Scales of Daily Extreme Precipitation in the US: Climatology, Trends, and Relationships to Intensity:* **T Chatterjee**, R M Horton
- 1908263** *Stratosphere–troposphere coupling during extreme cooling in Alaska in January 1989: new look:* **R Yu**, G P Milinevsky, O Evtushevsky, A R Klekociuk, Y Andrienko, D Zazubiyk, A Grytsai, O Bilous
- 1953073** *Surprise Heatwaves: Comparing Theory- and Data-Driven Estimates of Surface Air Temperature Upper-Bounds to Identify Where and Why Historical Records May Under-Predict Future Heatwaves:* **D Feldman**, M D Risser, S Rahimi, W R Boos
- 1938973** *The Effect of Temporal Resolution in Model Output on Extreme Precipitation and Its Apparent Intensification Under Climate Change:* **J Tang**, C Jung, J Wang, V R Kotamarthi, E J Moyer
- 1886928** *The Generation of Extreme Heat in Middle Latitudes by Local and Equatorial Greenhouse Gases, Transported by Hadley and Ferrel Cells:* **M E Yousif**
- 1982004** *The link between ENSO and extreme precipitation in a super-large ensemble of atmospheric model simulations:* **J S Hong**, Y Okumura, D Liu, D E Touma, PhD, G Persad, C S Jackson, A Blanchard, A Black, N Parashar, E Nabizadeh, C Miyahara
- 1933553** *The Record-Breaking Compound Heatwave and Drought Event in 2024 over the Sichuan Basin, Southwest China:* **Y Li**, C Yan, Q Chen, X Zhou, W Wang, Y Zhu, X Cao, G Gao

- 1855885** *The Semi-Annual Seasonality of the Northeastern Pacific Marine Heatwaves (MHWs) in the Observations and the CESM1 Pre-Industrial Simulation:* **J Li**, J Y Yu, Y Zhao
- 1951341** *Trojan Horse Snowfall: How dust in snowfall produces delayed, but significant impacts across the Upper Colorado River Basin:* **D Feldman**, L Gibson, F Yu, M Cowherd, W J Rudisill, E R Siirila-Woodburn, A C Aiken, L Riihimaki, H Telg
- 1946027** *Tropical cyclone activity may shift and weaken the Intertropical Convergence Zone: a global climate modeling study:* **G Rios**, G A Vecchi, W Yang

247312

Causes and consequences of polar amplification (joint with C, GC, OS)

Conveners: **Lantao Sun**, Colorado State University; **Yutian Wu**, New York University; **Qinghua Ding**, Polar Science Center; **Yu-Chiao Liang**, Organization Not Listed; **Pengfei Zhang**, Pennsylvania State University

- 1978065** *An analytic theory for the degree of Arctic Amplification:* **W Zhou**, R Leung, S P Xie, J Lu
- 1975828** *Arctic Sea-Ice Loss, Long-Term Weakening of the Stratospheric Polar Vortex, and the Observed Strengthening of the QBO-MJO Connection:* **L L Hood**, C Hoopes
- 1982791** *Assessing the Roles of Sea Ice Concentration Loss and Thinning in Arctic Temperature Amplification:* **L Sun**, A Trujillo, J W Hurrell, D M Hueholt
- 1926899** *Augmenting arctic warming reduces North Atlantic jet waviness in a coupled climate model:* **G Magnusdottir**, J Arnheim, Y Peings
- 1920257** *Causes and Consequences of Polar Amplification Elucidated by the Polar Amplification Model Intercomparison Project (PAMIP):* **C Deser**, J Screen, M Gervais, P J Kushner, Y C Liang, N Feldl, R Mudhar, M England, R Blackport, D M Smith
- 1944398** *Climate Change Trivializers are Misleading the Public, Policymakers, and Themselves: Evidence from the Arctic:* **K F Forbes**
- 1973375** *Dominant Roles of Sea Ice Loss and Atmospheric Dynamics in Explaining the Historical Arctic Winter Warming:* **H Wang**, Y Huo, R Zhang, A J Sweeney, Q Fu, P J Rasch, Y Zou, M Wang, W Ma
- 1958974** *Enhanced linkage between winter Northern Hemispheric continental temperature variability and autumn Arctic sea ice anomalies in the North Pacific region:* **S Ding**
- 1933367** *Exploring the Atmospheric responses to Arctic sea-ice loss in Google's NeuralGCM:* **Y C Liang**, N Lutsko, Y O Kwon

- 1923054** *Tropical Moist Heat Extremes on Small Scales Are Not Well Constrained by Reanalysis-Derived Quasi-Equilibrium Relationships:* **Q Bowman**, L E Back
- 1990633** *Understanding the added value of dynamical downscaling in capturing extratropical extreme wind events:* **P J Kushner**, L Prates, M Morris
- 1981876** *Using CHIRTS-ERA5 Heat Index and CHIRTS-ERA5 Wet Bulb Globe Temperature to Monitor Extreme Humid Heat Events and their Frequency Through Time:* **R Saldivar**, C C Funk, L Harrison, P Peterson, C Tuholske, D C Alaso, G J Husak
- 1981614** *Inconsistent Response of Large-Scale Meteorological Patterns to Arctic Sea Ice Loss in PAMIP:* **M Gervais**, A Poulos
- 1973551** *Increased Model Resolution Amplifies Arctic Precipitation and Atmospheric Circulation Response to Sea-Ice Loss:* **C Deser**, L Sun, A R Herrington, M Gervais, I Simpson
- 1984887** *Key Role of the Water Vapor Feedback for Arctic-Amplified Warming in Feedback Locking Experiments:* **L Hahn**, K Frank, N Lutsko, I Eisenman, T Mauritsen
- 1901554** *Minimal Arctic sea ice loss in the last 20 years, consistent with internal climate variability:* **M England**, L M Polvani, PhD, J Screen, C Y Chan
- 1850196** *On the survivability of Arctic sea ice parcels: Understanding the drivers of the sea ice albedo feedback:* **P C Taylor**
- 1910355** *Quantifying Anthropogenic Aerosol Impacts on Arctic Sea Ice by Separating Thermodynamic and Dynamic Contributions:* **Y Hong**, S Y Wang, J H Yoon
- 1978019** *Regional Polar Vortex Geometry from Planetary Wave Phase Diagnostics and Its Role in Midlatitude Cold Air Outbreaks:* **V Chandra**, M Wang, J E Overland
- 1906062** *Scale-dependent Response of Mid-latitude Transient Waves to Arctic Sea-ice Loss:* **I Karbi**, R Chemke
- 1938767** *Summer Arctic Warming and Emergence of Atmospheric Energetics Changes:* **E Noh**, J Kim
- 1937299** *Summer Arctic warming and potential implication for European Heatwaves:* **E Noh**, J Kim, S W Son, Y Kosaka, S W Yeh, S Y Jun
- 1961317** *The role of Arctic sea ice loss in the projected response of midlatitude jet waviness:* **R Blackport**, M Sigmond
- 1901181** *The Role of Internal Variability in Observed Arctic Spring Warming and the Underlying Coupling Mechanisms:* **S Gale**, Q Fu, A J Sweeney, H Wang, M Wang
- 1945109** *Using energetic frameworks to quantify and understand artificial heating in coupled sea ice loss experiments:* **J Kang**, T Shaw, L Sun

247189

Climate Forcing, Response, and Recovery in a State-Dependent System

Conveners: **Ivan Mitevski**, Princeton University; **Ivan Mitevski**, Princeton University; **Jiang Zhu**, University of Wisconsin Madison; **Jonah Bloch-Johnson**, National Centre for Atmospheric Research

- 1906672** *A Null Hypothesis for Earth's Albedo in a Warming Climate:* **D D B Koll**, Z Zhang, T Cronin
- 1956081** *A Perturbed Parameter Ensemble Dataset for State-Dependent Climate Forcing, Feedbacks, and Extremes:* **J Zhu**, B L Otto-Bliesner, E C Brady, T Eidhammer, A Gettelman, R Feng, C S McCluskey
- 1855485** *A Strong Constraint on The State-dependent Radiative Forcing of Well-mixed Greenhouse Gases:* **J Feng**, D Paynter, R Menzel, R J Kramer
- 1941473** *Asymmetric Hydrological sensitivity between CO₂ increase and decrease:* **I Guendelman**, I Mitevski, G A Vecchi
- 1972793** *Constraining State-Dependent Climate Sensitivity Using Emergent Constraints Across Cenozoic Warm Intervals:* **M G Albright**, N Weitzel, G N Inglis, S Steinig, M Renoult, T Reichgelt, T Fletcher, J Tindall, R Feng
- 1943013** *Dynamical Mechanism of the Poleward Intensification of the Southern Hemisphere Westerlies Induced by Sea Ice Change:* **H G Kim**, J Kim, S Y Jun, S J Kim
- 1988243** *Glacial-interglacial apparent Earth system sensitivity:* **B B Cael**, G L Foster, M Jansen, M Osman, J Tierney
- 1889798** *Irreversibility of Extreme Precipitation Intensity in Global Monsoon Areas under Multiple Carbon Neutrality Scenarios:* **M B Miah**, J Y Park, M U Lee, W Jeon, Y H Byun, H M Sung, J G Hong, M J Uddin, S K Mondal
- 1857047** *Modelling tipping cascades: the interlinked evolution of the Amazon rainforest, ocean circulation and the Greenland ice sheet:* **L Moinat**, T Lucet, J Kasparian, M Brunetti
-

247077

Climate Sensitivity and Feedbacks: Advances and New Paradigms

Conveners: **Ivy Tan**, University of Colorado Boulder; **Mark Richardson**, NASA JPL; **Chad Thackeray**, University of Waterloo; **Nicholas Lutsko**, Massachusetts Institute of Technology; **Li-Wei Chao**, Lawrence Livermore National Laboratory

- 1947228** *More Stabilizing Radiative Feedbacks in CO₂ removal scenarios contribute to global surface temperature hysteresis:* **I Mitevski**, G A Vecchi
- 1941462** *No Significant Weakening of East Asian Summer Extreme Precipitation Under Net-Zero CO₂ Emissions:* **S Paik**, D Kim, S I An, S E Park, A King, S K Min, C Liu, J Shin
- 1873094** *Non-linear and distinct responses of temperature and precipitation to volcanic eruptions with stratospheric sulfur injection from 5 to 160 Tg:* **D Raiter**, Z McGraw, L M Polvani, PhD
- 2000874** *Non-linear response to CO₂ forcing in the GFDL CM4.0 model:* **S Shrestha**, D Paynter, R J Kramer, H He
- 1864127** *Non-linearity and state-dependence in paleoclimate models and data:* **D J Lunt**
- 1856384** *Persistent austral winter storm track weakening beyond doubling of CO₂ concentrations:* **R Chemke**
- 1958584** *Potential Arctic Climate Change Tipping Points under Zero Emission Commitment:* **Y T Wu**, A Romanou, M J Previdi, L M Polvani, PhD
- 1956438** *Runaway Cooling from Large Solar Reductions Modulated by Ocean Overturning Circulation and Heat Uptake:* **M V Chung**, W Yang, G A Vecchi
- 1963395** *State dependence and limits of precipitation change under warming:* **D B Bonan**, T Schneider, J Zhu
- 2002406** *State-dependence increases the risk of future high warming under moderate to high emissions scenarios:* **J Bloch-Johnson**, J M Gregory
- 1895523** *State-dependence, Memory and Nonlinearity in Stochastic Climate Models.:* **N W Watkins**, D A Stainforth
- 1955261** *Weaker Arctic Amplification during CO₂ Removal from a Future Warmer State:* **K Tran**, I Mitevski, T P Janoski, G A Vecchi
- 1888653** *A Nonlocal, Pattern-aware Response and Feedback Framework for Global Climate Response:* **J Lu**, P Madathil Kooloth, Y Huang, D DeSantis, Y Huo, F Liu, Z Wang, H Wang
- 1958863** *A Prognostic Theory for the Land-Ocean Warming Contrast:* **P Giani**, A M Fiore, N E Selin
- 1931567** *Cloud Classification without a Simulator: A Simplified Approach to Cloud Radiative Kernels:* **C Park**, B Soden
- 1990178** *Controls on the pace of climate equilibration in climate models:* **E Newsom**, D B Bonan, A F Thompson, K Armour, L Zanna

- 1923267** *Does a Climate Model's Mean-State Atmospheric Circulation Govern the Strength of Its Subtropical Low Cloud Feedback?:* **K M Grise**, K A Schiro
- 1987787** *ENSO as an Emergent Constraint on the Pattern Effect:* **T Hanke**, C Proistosescu
- 1872446** *Estimating the pattern effect with statistical methods:* **M Rugenstein**, F Leif, S Van Loon, D W J Thompson
- 1916769** *Explaining the Transient and Equilibrium Longwave Feedback with Moist Adiabatic Theory and its Deviations:* **N Feldl**, J Feng, D Paynter
- 1931738** *Instantaneous Atmospheric Forcing Differentiates Tropical High Cloud Adjustments Across Greenhouse Gases:* **Y T Chen**, T Merlis, Y Huang
- 1932343** *Making sense of ZEC and TCRE: A conceptual model for the coupled climate response to carbon emissions.:* **C Proistosescu**, A L S Swann, K Armour, B B Cael
- 1958808** *Moderate Tuning Uncertainty on the Climate Sensitivity of the EC-Earth3 Model:* **F Fabiano**, C Ventrucchi, S Della Fera, D Rotoli, M Albanese, P Davini, J von Hardenberg, S Corti
- 1863929** *Observed trend in Earth energy imbalance may provide a constraint for low climate sensitivity models:* **G Myhre**, Ø Hodnebrog, N G Loeb, P Forster
- 1931476** *Quantifying Anthropogenic Aerosols' Role in Historical Radiative Feedback Parameter Evolution:* **K White**, G Persad, C Deser, A Phillips, X Zhao

251851

Constellation of Low Earth Orbit and Geostationary Satellites for Atmospheric Composition and Air Quality

Conveners: **Heesung Chong**, Yonsei University; **Diego Loyola**, German Aerospace Center DLR Oberpfaffenhofen; **Monika Kopacz**, NOAA; **Prajjwal Rawat**, NASA Langley Research Center

- 1907842** *Comparison of GEMS NO₂ a Priori Profiles with Ground-based Pandora Retrievals Using SMART-s Algorithm:* **S Kim**, U Jeong, H Hong, H Lee, Y Jung, S C Tsay, J Kim, PhD, A Cede, T F Hanisco

- 1975911** *Radiative Feedbacks over the Historical Record: Insights from a New Reconstruction of Sea-Surface Temperature and Sea Ice:* **V Cooper**, K Armour, G J Hakim
- 1987914** *Regional Impacts of Climate Sensitivity on Projected Temperature Trends and Extremes:* **P Salunke, PhD**, C A Schlosser, A P Sokolov, J R Scott
- 1932185** *Revisiting the Apparent Negativity of Lapse-Rate Feedback Through a Physics-Based Climate Feedback Framework:* **J Sun**, M Cai
- 1855932** *The Efficiency of Water Vapor on Top-of-atmosphere Radiation:* **J Feng**, N Feldl, D Paynter, Z Tan, P Lin
- 1892442** *The Pattern Effect Down Under: Southern Ocean Cloud Regime Transitions Control Evolution of Climate Sensitivity Across Climate Models:* **K McSweeney**, M Rugenstein
- 1937235** *The Role of the Southern Ocean Mean State in Constraining Climate Sensitivity:* **Y Tian**, S Hu, C Deser, X Huang, X Chen
- 1984158** *Transient climate responses in idealized coupled Aqua and Ridge planets:* **Y Ma**, C Wolfe, K Reed, G Zhang, I Simpson, B Medeiros
- 1870958** *Vertical Profile Analysis of Cloud Feedbacks:* **H Kawai**, T Koshiro, S Yukimoto
- 1844919** *A Global Constraint on Convection:* **M Zagoni**
- 1996291** *A New Era of Air Quality Monitoring from Space over North America with TEMPO: Mission Status from First Two Years in Orbit:* **X Liu**, K Chance, H Chong, J E Davis, J Fitzmaurice, M Ghahremanloo, G Gonzalez Abad, J Houck, W Hou, C R Nowlan, J Park, R M M Suleiman, L Yatsushashi, H Wang, J Bak, C Chan Miller, K J Daugherty, D E Flittner, C Fenn, V E Roback, J Strickland, S J Janz, J Joiner, N A Krotkov, O Torres, J L Carr, R C Cohen, D P Edwards, J R Herman, D J Jacob, A R Naeger, M Newchurch, R B Pierce, R J D Spurr, J Szykman, J Wang, B H Henderson, L Valin, L M Judd, K E Knowland, P Rawat, S Kondragunta, C Li, Z Fasnacht, S M Frith, D P Haffner, S V Marchenko, W Qin, C J Seftor, A P Vasilkov, E S Yang, J R Ziemke, N A Kramarova, L E Flynn, J Geddes, M S Johnson, V Shah, K Yang, X Zhao
- 1917416** *A Scalable Instrument Design for Atmospheric Composition Monitoring from Geostationary Orbit:* **B M Farris**, D Nicks, E Frater, T Delker, S Schieffer, L Aycok, J Fleming, M Knudtson, J Soto, E Bannon, M Dalton, F Quist, S Drobot
- 1894837** *Chemical signature of Ozone and PM_{2.5} from space: A study over Northern India:* **V Tomar**, M K Naja, P Rawat, K Sun, R Kumar, U Kumar

- 1875150** *Cloud impacts on TEMPO's NO₂ Tropospheric Columns during STAQS*: **L M Judd**, C R Nowlan, G Gonzalez Abad, X Liu, H Wang, J Szykman, R B Pierce, J H Crawford, K Travis
- 1897329** *Comprehensive Analysis of Bias in TEMPO NO₂ Column Densities & Generating Deep-Learning-Based TEMPO Products*: **M Ghahremanloo**, C R Nowlan, G Gonzalez Abad, C Garraffo, X Liu, H Wang, B H Henderson, E Baumann, L Valin, J Geddes, X Zhao
- 1988159** *Enhancing Cloud Detection for Environmental Hyperspectral Geostationary Satellites (TEMPO and GEMS) Using Unified Physics-Informed Machine Learning*: **J Wei**, K Yang, Z Li
- 1949052** *Europe's new missions for the operational monitoring of atmospheric composition: The Path to Operations of Copernicus Sentinel-4/UVN and Sentinel-5/UVNS.*: **R Lindstrot**
- 1903571** *Evolution of Ammonia (NH₃) in Wildfire Smoke Plumes during the Summer of 2018 from Space*: **M Shogrin**, V Payne, S S Kulawik, M J Iacono, J Juncosa, K Corwin, I B Pollack, J Lindaas, T L Campos, F M Flocke, E Fischer
- 1997785** *Extending NASA total O₃ column dataset with NOAA-20/OMPS Nadir Mapper.*: **K Baek**, C Li, B L Fisher, N A Kramarova, G R Jaross, G J Labow
- 1940764** *Geostationary Satellite Monitoring of Ozone Stratosphere-To-Troposphere Transport: Insights from FY-4B/GIIRS over East Asia (2022-2025)*: **S Liu**, Z C Zeng, L Lee, C Qi, F Lu, X Zhao, Z Li, S W Kim, C K Song, Y Kanaya, A Keppens, J C Lambert, C Clerbaux, J Kim, PhD
- 1921514** *Ground-based validation of the operational satellite ozone products: an assessment of ozone recovery and processes impacting its short-term variability*: **I V Petropavlovskikh**, B Noiro, G A Morris, J Wild, L E Flynn, E Beach, T Zhu, Z Zhang, P Cullis, M G Divakarla, K Pryor, B J Johnson
- 1942496** *Hourly Smoke Aerosol Optical Centroid Height (AOCH) Retrievals from Geostationary Satellites in Contiguous United States: Synergy of TEMPO and ABI/GOES-R*: **X Chen**, J Wang, J L Carr
- 1966822** *Improve the TEMPO radiance spectral calibration accounting for scene inhomogeneity*: **W Hou**, X Liu, H Chong, J Houck, C Chan Miller, D E Flittner, L E Flynn, S V Marchenko, J L Carr, K Chance, H Wang, G Gonzalez Abad, C R Nowlan, J E Davis, R M M Suleiman, J Fitzmaurice, L Yatsushashi
- 1962692** *In-flight Performance of the Aerosol Radiometer for Global Observation of the Stratosphere (ARGOS) Instrument*: **M T DeLand**, M Kowalewski, P R Colarco
- 1992118** *Investigating the Characteristics of Wildfire Smoke in GEMS and AMI Retrievals with Validation from EarthCARE ATLID Observations*: **B Kim**, G Kim, M Cho, Y S Choi
- 1896827** *Leveraging Geostationary HCHO Retrievals from TEMPO for Surface Ozone Dynamics*: **P Rawat**, K Travis, J H Crawford, L M Judd, M A G Demetillo, T Lee, J Szykman, L Valin, B H Henderson, G Gonzalez Abad, T F Hanisco
- 1922544** *Long-Term Tropospheric TROPES Ozone Trends Using CrIS, AIRS, and OMI Satellite Products and MOMO-Chem Reanalysis Products*: **E A Pennington**, J L Neu, K Bowman, K Miyazaki, V Payne, G B Osterman
- 1936931** *Measurements of atmospheric NO₂ columns over Asia from the Geostationary Environment Monitoring Spectrometer (GEMS)*: **Y Jung**, H Lee, J Park, H Hong, J Kim, PhD, R Park, N A Krotkov, U Jeong
- 1884531** *Measurements of Nitrogen Dioxide and Formaldehyde from the Geostationary TEMPO Satellite Instrument: Algorithm Status and Results from the First Two Years in Orbit*: **C R Nowlan**, G Gonzalez Abad, X Liu, K Chance, H Chong, M Ghahremanloo, W Hou, J Houck, J Park, H Wang, B H Henderson, L M Judd, K E Knowland, P Rawat, V Shah, L Valin, P Wales
- 1911358** *Observations of Lightning NO_x Production from High-temporal Resolution TEMPO Case Studies over the United States*: **D J Allen**, K E Pickering, E Bucsela, J Lapierre, P Wales, C R Nowlan, K Virts
- 2002594** *Optimal-Estimation Pandora Global Network (PGN) Multi-Axis Retrievals for Evaluating diurnal cycle of TEMPO Formaldehyde (HCHO) over North America*: **T Zhao**, J Mao, X Zhao, D Griffin, K Strong, W R Simpson, R Alwarda, M M Friedrich, M Tiefengraber, M Gebetsberger, A Cede, E S Lind, A Pandey, T F Hanisco
- 1932029** *Retrieval and Validation of Aerosol and Cloud Properties for Tropospheric NO₂ from GOSAT-GW Observations*: **H Lim**, H Tanimoto, T Fujinawa, T Sugita, Y Kanaya, T Sato, Y Kasai
- 1895557** *TEMPO Science and Applications*: **S Kondragunta**
- 1850237** *TEMPO Total-Ozone and Ozone-Profile Algorithm: V04 Status, Updates, and Evaluation*: **J Park**, X Liu, J Bak, H Chong, K Chance, W Hou, J Houck, G Gonzalez Abad, C R Nowlan, H Wang, K Yang, L E Flynn, D P Haffner, D E Flittner, M S Johnson, J T Sullivan, L M Judd, M A G Demetillo, K E Knowland, V Shah, P Wales, A Mizzi, S M Frith, J Herman, N A Kramarova, M Newchurch, R J D Spurr, X Zhao, J R Ziemke
- 1946892** *TEMPO/OCRA: Retrieval of Radiometric Cloud Fraction from TEMPO UV-VIS Measurements*: **V Molina García**, R Lutz, A Argyrouli, F Romahn, L Lelli, D G Loyola

- 1893355** *The PEGASOS project for comparisons of GEMS and TEMPO L2 data with LEO and ground based observations:* **R Lutz**, D G Loyola, C Zehner
- 1962957** *The Tropospheric Emissions: Monitoring of Pollution (TEMPO) Level 0-1 Processor – Algorithm Updates and Product Status:* **H Chong**, X Liu, D E Flittner, J Houck, J L Carr, W Hou, J Park, G Gonzalez Abad, C R Nowlan, H Wang, L E Flynn, S V Marchenko, J Joiner, J E Davis, R M M Suleiman, J Fitzmaurice, L Yatsushashi, K Chance, B Baker, C J Seftor, G R Jaross, J Robaidek, X Wu, H Xu, B Basnet, Y Bai, C Cao, D R Doelling
- 1934052** *Top-down Estimates of Sectoral NO_x, SO₂, and CO Emissions Using TEMPO, TROPOMI, and MOPITT Observations Over North America:* **Z Qu**

247567

Constraining Greenhouse Gas Exchange Processes Using Remote Sensing and In Situ Observations (joint with B, GC)

Conveners: **Andrew Schuh**, Colorado State University; **Abhishek Chatterjee**, Universities Space Research Association Columbia; **Sourish Basu**, NASA/GSFC

- 1987896** *2015-2023 mean CO₂ flux patterns from the OCO-2 v11 MIP inversion ensemble:* **D F Baker**, S Basu, F Chevallier, A R Jacobson, F Jiang, Z Jin, M S Johnson, J Liu, S S Maksyutov, S Miller, K Morgan, S Philip
- 1974967** *A comparison of CO₂ measurements from the National Observations of Greenhouse gases from Aircraft Profiles (NOGAP) campaign with a global CO₂ model:* **J Peischl**, K McKain, K Schuldt, A McAuliffe, S Borenstein, T Newberger, C Sweeney
- 1982755** *A Comparison of RCP Predicted Methane Growth Rates to Observations and Observation-Constrained Model Output Through Year 2024:* **N A Randazzo**, L Ott, S Basu, B Weir
- 1972377** *A New Approach for Leveraging the Complementarity of Diverse Satellite and In Situ Observations for Greenhouse Gas Tracking and Air Quality Applications:* **A Andrews**, B C McDonald
- 1869753** *An Overview of the Multi-instrument CO₂*

Dataset Collected during the 2023 AEROMMA Campaign: **D Roten**, J Laughner, S Das, G Osterman, H Parker, A Meyer, J E Franklin, F M Hopkins, S Winslow, C E Miller, T Taylor, V Payne

- 1948924** *Total Column Water Vapor for Sentinel-4, 5 and 5p Towards a Climate Data Record:* **L Lelli**, S Maruvada, K L Chan, P Valks, D G Loyola
- 1963432** *TROPOMI NO₂ for urban and polluted areas globally from 2019 to 2024:* **D E Huber, PhD**, G H Kerr, O Nawaz, S Runkel, S Anenberg, D L Goldberg
- 1978638** *Updates to Dark Target Aerosol Products for MODIS Collection 7, VIIRS v2.1, and Multidecadal Continuity:* **V R Sawyer**, R C Levy, S Mattoo, V P Kiliyanpilakkil, Y R Shi, M Kim, L Remer, G P Cureton
- 1903032** *Validation of Aerosol Optical Depth (AOD) from the Visible Infrared Imaging Radiometer Suite (VIIRS) on the Suomi National Polar-Orbiting Partnership (SNPP) Satellite Over Africa:* **S Bahramvash Shams**, R Kumar, R C Levy, H Liu, H M Worden, P Levelt
- 1979272** *An Update of National Carbon Budget Estimates based on Orbiting Carbon Observatory-2:* **J Liu**, J Yun, S Basu, F Chevallier, M S Johnson, F Jiang, Z Jin, S S Maksyutov, K Morgan, S Miller, S Philip
- 1998648** *Analytical Estimation of Carbon Dioxide Fluxes and Information Content from OCO-2 Satellite Data:* **H O Nesser**, K Bowman, A Bloom, B Byrne, D Carroll, J Liu, D Menemenlis, M D Thill, L T Murray, M Bertolacci, M Payer Sulprizio
- 1986779** *Decrease in Net Transfer Coefficient for Uptake of CO₂ by the Global Ocean:* **S E Schwartz**
- 1980265** *Estimating Surface Fluxes in a Geostatistical Inverse Modeling Framework: Performance and Error Assessment in the v11 OCO-2 MIP:* **K Morgan**, S Miller, D Baker, J Liu, S Basu, F Chevallier, F Jiang, Z Jin, M S Johnson, S S Maksyutov, S Philip
- 1892836** *Examining the Drivers Leading to the Seasonality of OCO-2 Satellite Constrained Terrestrial Biospheric CO₂ Fluxes over India:* **E Singha Roy**, S Philip, M S Johnson
- 1945294** *GEMINI-UK: Progress Towards Improved Carbon Flux Estimates for the UK Using a New National Network of Ground-Based Greenhouse Gas Observing Spectrometers:* **N Humpage**, P I Palmer, A Kurganskiy, L Feng, J Woodward, W Morrison, S Doniki, D Weidmann, R Parker, L Bharathan
- 1937332** *Highly elevated GPP in the northern hemisphere during El Nino years:* **M C Liang**, S Newman, M H Thieme, G Koren
- 1968597** *Integrating Satellite and Isotopic Observations in CarbonTracker-CH₄ for Improved Methane Emission Estimates during 2019-2024:* **Y Oh**, L Bruhwiler, S Basu, X Lan, M He, Z Chen, N Balasus, D J Jacob, S Halder, A Andrews, J B Miller

- 1928217** *Interannual Variability in African Regional Ecosystem Carbon Fluxes and Their Drivers Revealed by Satellite Observations:* **J Yun**, J Liu, D F Baker, S Basu, F Chevallier, F Jiang, M S Johnson, X Li, Z Liu, S Miller, S Philip, S N Vardag, J Xiao, N Zeng
- 1921269** *Inversion-Based Reassessment: Is the Tropical Terrestrial Ecosystem a Carbon Source or Sink?:* **Q Wang**, B Byrne, Y Yin
- 1983736** *Investigating the capability of atmospheric :* **S Halder**, X Lan, S Basu, L Bruhwiler, Y Oh, B Riddell-Young, S Michel, J B Miller
- 1876014** *Progress in multiresolution flux inversions in support of OCO2-MIPv2:* **K W Bowman**, M D Thill, H O Nesser, J Liu, A A Bloom, D Carroll, D Menemenlis
- 1975978** *Reconciling Regional Carbon Budgets in Europe Using $\Delta^{14}\text{C}$ -CO₂-Constrained Inversions:* **C Gómez-Ortiz**, Y L Villalobos, U Karstens, G Monteil, M Scholze
- 1971175** *Reconciling Top-Down and Bottom-Up Estimates of Tropical Gross Deforestation Flux:* **J T Randerson**

252740

Contribution of Natural Aerosols to Uncertainty in Aerosol Climate Forcing (joint with B, GC)

Conveners: **Yan Feng**, DOE Argonne National Laboratory; **Douglas Hamilton**, University of Maryland College Park; **Kostas Tsigradis**, Columbia University in the City of New York

- 1978552** *Aerosol Radiative Forcing: A Case Study of Biomass Burning and Mineral Dust Aerosols Over Puerto Rico:* **B Torres**, B Sarangi, Y Feng, M P Cadetdu, E J Melendez-Ackerman, O L Mayol-Bracero, Q Gao
- 1986452** *Global Dust Cycle in the DOE's Earth System Model:Improvement in Emissions, Transport and Direct Radiative Forcing:* **Y Feng**, M Wu, H Wang, H Wan, S Xie, J C Golaz
- 1987031** *Increase in high-latitude wildfire aerosols and their radiative effects:* **Y Cho**, S W Kim
- 1979038** *Near Infrared-Absorbing, Non-Black Carbon Aerosol from Biomass Burning: Gray Carbon (GrC) Particles:* **A J Sedlacek III**, T B Onasch, E R Lewis

250565

Cross-timescale Interference of Modes of Climate Variability

Conveners: **Laurel DiSera**, Columbia University; **Marybeth Arcodia**, University of Miami

- 1944134** *Relating Multi-Scale Plume Detection and Area Estimates of Methane Emissions:* **S Pandey**, J R Worden, D Cusworth, D J Varon, D J Jacob, M D Thill, K W Bowman
- 2002822** *The Third Decadal U.S. Carbon Cycle Science Plan:* **B Poutra**, A Chatterjee, L Barbero, M Tzortziou, E T Sundquist
- 1949199** *Towards a Continuous, Long-Term Record of the Northern Hemisphere Growing Season Net Flux:* **M Loechli**, G Keppel-Aleks, N Chandra, M Kiel
- 1998281** *Training Early Career Scientists to Use Current and Future Atmospheric Greenhouse Gas Observing Systems:* **A E Schuh**, S Basu, A Chatterjee, S Crowell
- 1929487** *Understanding Methane Variability in River Floodplains: A Screening Framework for Hotspot Likelihood:* **E Turk**, K Celis, E Paulus, V Noel, K Boye, A Bhattacharyya, R Tinnacher, A Kokkinaki
- 1994901** *Using Downscaled Satellite Solar-Induced Fluorescence to Monitor Crop Photosynthesis at the Local Scale:* **T Jones**, J F Dooley, A Al Ali, J Chen
- 1998686** *Using SF₆ to Evaluate the Precision of Global Atmospheric Transportusing the OCO-2 v11 MIP Suite of Models:* **A E Schuh**, J Lyons, S Basu, A R Jacobson
- 1918153** *Shift in assumed Carbonyl Sulfide (OCS) Atmospheric Abundance and Implications for Stratospheric Sulfate Aerosol Forcing:* **C Gurganus**, D Rollins, E Bednarz, E Waxman, T D Thornberry, J P Schwarz, PhD, S A Montzka, E A Ray
- 1958278** *Small Particles in the Lower Stratosphere: Airborne Observations, Model Comparison, and Solar Climate Engineering Implications:* **M Lyu**, C A Brock, A Ahern, S J Taylor, A Fodel, G P Schill, M J Lawler, D Murphy, M Abou-Ghanem, C Gurganus, Y Zhu, S Tilmes, E J Hints, F L Moore, G S Dutton, J D Nance, B D Hall, E A Ray, T D Thornberry, R S Gao, D Rollins, E Waxman, K L Zuraski, G S Diskin, Y Choi, R B Pierce, F Kuderna, B Weinzierl, M Dollner, E Jensen
- 1907972** *Sources of Water-Soluble Organic Aerosols at the Cape Point GAW Station:* **M Rawatlal**, K Spence, M Smith, C Labuschagne, K Altieri
- 1861606** *Volcanic Forcing and ENSO-NAO Driven Climate Anomalies Over MENA in MIROC6 Simulations:* **M M A Dogar**, S Watanabe, M Fujiwara, A Shahid
- 1917673** *An Investigation of the Role of Non-linear Interactions During Indian Summer Monsoon Using a Multi-scale Framework:* **D Ravi**, S K Dubey
- 1973229** *Big Whirls Talking to Smaller Whirls: Detecting Cross-scale Information Flow from El Niño-Southern Oscillation to East Asia Precipitation:* **M Palus**

1993064 *Rainfall Irregularity Uncertainty in the Indian Himalayan Region: A Comparison Between Monsoon and Non-monsoon Dominated Basins:* **S Singh**, S Mukherjee, A K Gupta, P K Garg

251793

Cyclones in the Polar Regions: Dynamics, Impacts, and Future Changes

Conveners: **Kevin Boyd**, University of Illinois at Urbana-Champaign; **James Doyle**, Naval Research Lab Monterey; **Steven Cavallo**, University of Oklahoma; **Xiangdong Zhang**, North Carolina State University Raleigh; **Kevin Boyd**, University of Illinois at Urbana-Champaign

1948211 *Accurate Extended Range Predictions of the Intense Arctic Cyclone of January 2022:* **D H Bromwich**, L Bai, Q Xie

1951683 *An Observed Seasonal Symmetry in Intense Cyclone Impacts on the Global Marginal Ice Zone:* **C Mundi**, T L'Ecuier

1921415 *Atmospheric Circulation Controls on the West Antarctic Ice Sheet Surface Mass Balance in the Twentieth Century:* **E Hunter**, C Strong, S Rupper

1970058 *Characteristics of Tropopause Polar Vortex Formation in the Arctic:* **S M Cavallo**, M Bray, D Keyser

1875527 *Classification of Arctic Cyclones Based on Their Intensification Mechanisms:* **Z Wang**, M Yang, J E Walsh, J D Doyle

1940845 *Coupled Characteristics of Arctic Cyclones and Tropopause Polar Vortices in the Community Earth System Model v2:* **M Bray**, S M Cavallo

1864414 *Development of polar lows in forward and reverse shear environment and the role of moist processes:* **T Spengler**, M O Løkken

248333

Data-driven methods for quantifying atmospheric composition: Advances in computation and statistical learning

Conveners: **Zhen Qu**, University of Colorado; **Daniel Varon**, GHGSat, Inc.; **Makoto Kelp**, University of Utah; **Sam Silva**, University of Southern California

1927927 *A Decline in Summertime Lower Tropospheric Ozone across Northern Hemisphere Midlatitudes during the 1980s–1990s: Insights from Trajectory-mapped Ozonesonde dataset for the Stratosphere and Troposphere (TOST):* **Z Zang**, J Liu, D W Tarasick, J Chen

1933495 *Exploring the Impact of Polar Cyclones on Antarctic Sea Ice With a Brittle Sea Ice Rheology:* **G Cheong**, C Horvat, R Santana, M Webster

1859372 *Extratropical Cyclones as Buffers and Drivers of Changes in Surface Mass Balance of the Antarctic Ice Sheet under Global Warming:* **D Xu**, D Chen, Y Lin

1898233 *Impact of surface sensible heat flux on the intensity and size of idealized polar lows:* **L Regibeau-Rockett**, J D Doyle

1933952 *Investigating Recent Arctic Cyclone Structure, Evolution, and Boundary Layer in the Community Atmosphere Model including sensitivity to the New CLUBB-MF Parameterization:* **A Jacobs**, E Blanchard-Wrigglesworth, C M Bitz

1924024 *Mechanisms of Polar Low Development from a Shear Line:* **K Boyd**, J D Doyle, Z Wang

1864170 *Observations of the Ocean's Response to a Summer Arctic Cyclone and the Role of Precipitation and Surface Melt:* **S T Cole**, L Hirth

1878989 *Pathway-Dependent Predictability of Arctic Cyclones in Physics-Based and Machine Learning Forecasts:* **M Yang**, Z Wang, J D Doyle, J E Walsh

1853323 *Predictability of Polar-Low Environments Using Deep-Learning Sensitivity Analysis:* **D Lloveras**, J D Doyle

1904151 *Response of Changes in Sea Ice Thickness to Cyclones: New Insights from the MOSAiC Expedition:* **Y Liang**, R Lei, H Bi, X Chen

1997632 *The Role of Diabatic Processes in the Genesis and Evolution of Summer Arctic Cyclones:* **H Tang**, X Zhang, J Zhang, B R Hillman, E L Roesler, M Veneziani, W Weijer

1919384 *The Sea Ice Response to Arctic Summer Cyclones: Insights from Reanalysis and In Situ Observations:* **P Finocchio**, D P Stern, J D Doyle

1893617 *A Non-Parametric Statistical Approach for Assessing Surface Air Quality Impacts of the 2025 LA Fires:* **B Schlaff**, S Silva, Y Lu, J Zhang

1951856 *AOD Retrieval using Physics-Informed Neural Network (PINN) and its Evaluation Against Traditional Physics based Model:* **R Kumar Singh**, A N V Satyanarayana

1958917 *Assessing the Impact of Crop Residue Burning, Meteorological Factors, and Long-Range Transport on Urban PM_{2.5} in South Asia:* **A Wagle**, B de Foy

1912222 *Atmospheric Chemical Modeling and Machine Learning using the EarthSciML framework:* **C Tessum**, H Emamipour, L Guo, J Liu, M Park, X Yang, S Lowry

- 1913925** *Atmospheric chemistry surrogate modeling with sparse identification of mass action dynamics: Toward 3D online integration:* **X Yang**, L Guo, C Tessum
- 1958067** *Automated Detection of Methane Plumes in Tanager Hyperspectral Imagery Using SpecTF, a Transformer-based Deep Learning Algorithm:* **P R Sullivan**, D Cusworth, J Lee, R Duren
- 1998744** *Characterizing Drivers of Organic Aerosol Using Data-Driven Hourly Models in Three California Cities:* **D Quevedo**, R Bahreini, D Collins, C Ivey
- 1886831** *Combining first principles with graph theory to automatically identify important pathways in atmospheric chemical mechanisms:* **O Sturm**, E C Ware, E Li, S Silva
- 1929687** *Combining matched-filter and bayesian estimation algorithms to reduce bias in methane point-source retrievals:* **J Kim**, D Cusworth, R Duren
- 1971606** *Constraining the Global Methane Sink through Joint Assimilation of CH₄ and CO:* **M A Mirrezaei**, B Gaubert, I Ortega, K McKain, L Bruhwiler, Y Oh, A Saiz-Lopez, R P Fernandez, L K Emmons, A F Arellano Jr
- 1890553** *Data Driven Discovery of Atmospheric Chemical Reaction Mechanisms:* **D Getter**, O Sturm, S J Silva
- 1880837** *Enhancing Estimation of Daily 1-km Resolution Fine Particulate Matter Concentrations for North America with Deep Learning from Geophysical A Priori Information:* **S Shen**, A van Donkelaar, N Jacobs, C Li, R Martin
- 1902498** *Fine-tuning an Earth system foundation model to constrain the atmospheric oxidative capacity and methane lifetime:* **E Kim**, E Mei, A J Turner
- 1945899** *GEOS-Chem-hyd: Enabling Source-Oriented Sensitivity Analysis with GEOS-Chem:* **S Akinjole**, S Capps
- 1927655** *Guaranteeing Positivity and Mass Conservation in Machine Learning Models of Atmospheric Chemistry:* **B Rodriguez**, O Sturm, D Getter, S Silva
- 1981076** *Hybrid Deep Learning Framework for Forecasting Ground-Level Ozone in Urban Areas:* **J Kanayankottupoyil**, A A Mohammed, K John
- 1880362** *Incorporating Geophysical a Prior Information into a Deep Learning Model for Nitrogen Dioxide Estimation:* **Y Yan**, S Shen, R Martin
- 1987327** *MALOPE: A Hybrid Machine Learning-Optimal Estimation Framework to Predict Column Concentrations and Retrieval Diagnostics of the TROPES Atmospheric Composition Profiles:* **F Werner**, K W Bowman, S Lee, J Laughner, V Payne, J McDuffie
- 1936449** *Mapping and Explaining the Global Variability of Power Plant Plume Detectability from Space:* **R Huang**, S Wang
- 1996885** *Multi-model multi-constituent chemical (MOMO-Chem) data assimilation for city-to-global scale atmospheric composition and emission analysis:* **K Miyazaki**, T Sekiya, K W Bowman, H Eskes, P Rijdsdijk, L Wu, J Yu, J Choi
- 1968408** *Orders-of-magnitude speedup of advection in chemical transport modeling without spatial coarsening using mass-balanced learned solver:* **M Park**, C Rackauckas, C Tessum
- 1931965** *Physics-Informed Neural Networks for Atmospheric Transport Modeling of Methane on Oil and Gas Sites:* **M Jia**, A Holmberg, S Wu Fung, D Hammerling
- 1957948** *Probing the Learned Embeddings of a Transformer-Based Air Quality Foundation Model:* **J Hu**, M Kelp, I Higuera-Mendieta, O Sturm, M Burke
- 1937476** *Resolving Model Discrepancies in Ozone Formation Analysis Using Process-Informed Machine Learning:* **H Kim**, Q HU, J A de Gouw
- 1855829** *Smoke and Health Impacts of O₃ from Wildfires in the United States (2008–2024) Using Generalized Additive Models:* **H Lee**, D A Jaffe
- 1898817** *Spatiotemporal Estimation of Particulate Matter in the Pacific Northwest using Machine Learning with Emphasis on Wildfire Smoke:* **A U I Zarrah**, M J Islam, J Meng
- 1891630** *The EACH project: Artificial Intelligence Emulating Atmospheric Chemistry:* **K Klingmueller**, T Butler, S Gromov, O Jorba, L Kuhn, I Mas Magre, A Melli, C Mouchel-Vallon, H Petetin, R Sander, M Schaap, M Thürkow, J Lelieveld, A Pozzer
- 1847896** *Toward a learnable Artificial Intelligence Model for Aerosol Chemistry and Interactions (AIMACI) based on the Multi-Head Self-Attention algorithm:* **Z Xia**, C Zhao, Z Yang, Q Du, J Feng
- 1969899** *Toward Satellite Informed Estimates of Wildfire-Ozone Chemistry:* **J Palmo**, A M Fiore, Q Zhu, J Laughner, C L Heald
- 1899321** *Towards Accelerated CO₂ Inversion Modeling for Understanding Uncertainties through Multicore Processing and a Reusable Code Base:* **S Andrade**, R Giordano, N Asimow, R C Cohen
- 1903884** *Tracking Global Shift in PM_{2.5} Chemical Composition over Decade under Climate Change and Stringent Emission Policies:* **Z Wang**, Q Xiao, Y Wang, C He, G Geng, Q Zhang
- 1847683** *Unraveling Chemical and Meteorological Effects on Ground-level Ozone Pollution Using Machine Learning:* **Z Li**

250920

Decision-Relevant Understanding of Impactful Weather and Extremes

Conveners: **Abhishekh Srivastava**, University of California Davis; **Paul Ullrich**, University of California Davis; **Richard Grotjahn**, Retired; **Seung Hun Baek**, Lawrence Livermore National Laboratory; **Raymond Sukhdeo**, University of California Los Angeles

1875341 *A Climatology of Atmospheric River-Induced Electric Power Outages, 1970 to 2024:* **J Rice**, K Balaguru, N Sun

1979647 *Adaptation Decision Making: Quasi-probabilistic climate vulnerability planning scenarios for California water resource management and adaptation:* **A Schwarz**

1974122 *Advancing Long-Lead User-Tailored Flash Flood Guidance with an AI-Informed Precipitation Forecast Error Prediction Model and High-Resolution Flood Modeling:* **A P Barros**, M Liao

1907853 *Analysis of Heatwave Intensity, Duration, and the Incidence of Heat-Related Illness in South Korea:* **E Kim**, B Park, J Song, Y Ahn, K Kim

1894262 *Assessing Historical and Future Trends of the US Wind Warnings and Cyclone Hazards:* **I Jahan**, M Astitha, J Dellicarpini

1924329 *Assessing New York City Heatwaves: Hazards and Vulnerability based on observations and DOE Model Data:* **J F Booth**, G Randazzo, S Hill, J Eissner, N Devineni, P Ramamurthy, Y Kucheva

1943887 *Assessment of Heatwave Risk Using Socio-economic Parameters and IPCC Framework at the Sub-district Level of Maharashtra:* **R Shinde**, P D Udmale

1869904 *Assessment of Power System Vulnerability to Weather-Induced Outages:* **H I Munabia**, D Cerrai

1966338 *Coastal Clouds and Temperature-Driven Variability in Water Deliveries:* **L Wicker**, R E S Clemesha, K Guirguis, J W Baldwin, M C Levy

1977094 *Correlating Integrated Water Vapor Transport to Anomalous Extreme Precipitation Events Across the United States:* **H Kostka**, T Dang, K Strongman

1904602 *Creating the basis of Relevant Decision Making: Physical Consistent and Relevant Event-sets of Extreme Cyclonic Storms - From Extra-tropical Storms to Impactful TCs:* **G C Leckebusch**, K Ng

1982446 *Deep Learning-Based Discrimination of Polar Cloud and Snow Using VIIRS Imagery.:* **S Lenard**

1949715 *Early Warning of Impactful Hot and Dry Conditions Using Drivers of Recent Extremes and Subseasonal Model Forecasts:* **L Harrison**, C C Funk, W Turner, D C Alaso, S Shukla, R Saldivar, B Das, S Peterson, G J Husak

1961768 *EMPIRIC: Machine Learning for Climate-Related Risks to Health and Health Infrastructure in Pacific Island Countries and Territories:* **C Horvat**, S Salap-Ayca, B Kafoa, M McCrystall, L McLeod, H Fagan, A Mannino, K Oli, E Winkelman, B Zhao

1852733 *Evaluating Climate Data Products Across Heatwave Related Metrics:* **C Randall**, P Ullrich

1941322 *Expanding Amazon Dry-Hot Season under Anthropogenic Climate Change:* **M Pan**, S Hu, B F Zaitchik, Y Tian, L Liu, W K Pan

1992582 *Expanding Spatial and Demographic Footprints of Record-Breaking Precipitation Under Global Warming:* **H K Bangalath**, A van Dijk, H Beck

1955671 *Exploring Compound Extreme Weather Events: Co-Occurrence of Atmospheric Rivers and Synoptic Systems over United States:* **D Kamnani**, T A O'Brien, W Chapman, W M Tsai, K T Quagraine, H Wang, J L Catto, Y Zhou, R Leung, J D Neelin, W R Boos, N Dai, S Duan, S Zebaze

1937062 *Forecasting Heat-Driven Electricity Demand for Climate-Resilient Power Systems with Deep Learning:* **B Sahin**, M R Allen Dumas

1919558 *Forecasting Record-Breaking Precipitation and Temperature Events Across the United States:* **S Maebius**, P Naveau, G Villarini

1923528 *Future amplification of compound drought and heatwave events in the eastern part of the Baltic Sea region:* **L Klimavičius**, E Rimkus

1987784 *Gamma Distribution as a Model of Local Daily Precipitation in the Hawaiian Islands and Implications for Assessment of Changes in Fractional Attributable Risks of Extremes.:* **O Timm**, M Sinnenberg

1921983 *Impacts on Fire-Management Resource Strain of Projected Changes in Western US Wildfire Simultaneity:* **S A McGinnis**, L Kessenich, A Cullen, R R McCrary

1983805 *Inside and Out: How Medical, Demographic, and Indoor Conditions Shape Heatstroke Mortality Risk:* **N Inoue**, K Kakinuma

1880183 *Integrating Satellite and Model-Based Precipitation Analytics for Climate Resilience in Central Pacific Island Nations:* **F K Dwomoh**, S Kagone, G B Senay, M E Andersen

1973741 *Lunar-Orbital Signatures in Tropical Pacific SST Anomalies Inform Multi-Year ENSO Prediction:* **J Lucey**

1940622 *Meteorological Drivers of Floods in the Sudetes (Central Europe) in the Context of Climate Change:* **M Grześkowiak**, M Sadkiewicz, M Rauk, J Toszek

- 1983919** *Misalignments between assessed and perceived risks exacerbate vulnerability to extreme heat:* **J R Marlon**, N Begotka, A Preston, M Steifel, J Keenan, C Inman, N Malmin, J Carman, J Kotcher, E Maibach, A Leiserowitz
- 1990129** *Modulatory Role of Climate Patterns on Flash Drought Risk Across Africa and the MENA Region:* **M Osman**, A McNally, A Hazra
- 1845018** *Monitoring Heat and Other Environmental Hazards: Improvements at West Point and Other Service Academies:* **R Ramos**, A Kalkstein
- 1906681** *Monitoring of an Extreme Hailstorm Event over Northeast India, a Post-Disaster Assessment of Predictive Capabilities, and the Way Forward:* **A Kundu**, S S Kundu, R B Gogoi, R Mahanta, A Srivastava, T Jaman, P Biswakarma, S Bhaskar, S K Swain, K K Sarma, S P Aggarwal
- 1962284** *Most at-risk regions for surprise extremes:* **I E de Vries**, E M Fischer, L Harrington, R Huser, S Sippel
- 1945504** *Physico-Chemical Characterization of Aerosols During Extreme Cold and Extreme Hot Weather in India:* **V Bartaria**, A Bhatnagar, A Ganguly, A Jangid, R Kumar
- 1920345** *Regional Patterns of Power Grid Disruption from Compound Heatwave and Storm Events Across the Contiguous United States:* **S A Saki**, G Sofia, B Kar, E N Anagnostou
- 1967013** *Representing Uncertainty in Extreme Precipitation Using a WRF Ensemble:* **K Gray**, F Dominguez
- 1931556** *Sitting Ducks in a Changed Climate: Assessing Increasing Risk of Extreme Rainfall and Temperature:* **E Coughlan**, A Aljoda, L Artur, A I Chowdhury, N Dhakal, D Heinrich, M Lagmay, I G Masukwedza, B Nhantumbo, A Sharma, L Stephens
- 1852388** *Snow-eater heatwaves of the western United States:* **A Rhoades**, J North, W J Rudisill, B Hatchett, M D Risser, A A Beltran-Peña, A Heggli, S Hotaling, L Huning, M Laplante, A Mahesh, A M Marshall, R R McCrary, D McEvoy, S Rahimi, C Randall, A K Srivastava, M F Wehner, Y Zhou, A D Jones
- 1938437** *Spatiotemporal Patterns and Drivers of Extreme Heat Change in California:* **X Yang**, R E S Clemesha, K Guirguis, M C Levy
- 1892690** *StormCast-WestUS: A Machine Learning Model for Simulating Landfalling Atmospheric Rivers and Extreme Precipitation:* **Z Chen**, L R Leung, S Taraphdar, N Sun
- 1989377** *Structural changes in weather sensitivity of public transit using Bayesian models:* **L Zhang**, X Wu, A Ermagun, C Xiong
- 1929378** *Studying Heatwave Dynamics in the Transboundary Rio Grande River Basin Using High-Resolution Climate Observations:* **D Dayal**, S S Palmate, R Sanchez
- 1883772** *Surface Wind Variability and Extremes in the Northeastern U.S. and their Implications for Energy Systems:* **P Dugan**, A Karmalkar
- 1987581** *The Development of CW3E's Subseasonal and Seasonal Outlooks: A Collaboration with the California Department of Water Resources:* **M J Deflorio**, F M Ralph, M Anderson, J Jones, C Castellano, J Wang, Z Yang, J Kalansky
- 1875222** *The Impact of Winter Weather on Traffic Safety in the Lake-Effect Snowbelt of Northeast Ohio:* **S Rainey**, S C Sheridan
- 1970765** *Time-based and warming level-based approaches to characterize changes in extreme precipitation and impacts to debris flow levels in wildfire burn scar areas: A utility planning case study:* **R Muralidharan**, E Kuhle, O M Doherty, V Ford, J Roman, N L Freitas, M D Koenig
- 1908978** *Tropical modes of variability are key drivers of humid heat extremes in the global tropics and subtropics:* **L S Jackson**, C E Birch, G Chagnaud Dr, J Marsham, C Taylor
- 1927779** *Understanding the Evolving Patterns of Extreme Rainfall:* **C Bonfils**, S Duan, M Bador, G Pallotta, G D Madakumbura
- 1983373** *Unveiling the Hidden Costs of False Spring: A Phenology-Based Approach to Crop Damage and Economic Losses:* **Y Jiang**, J A Burney, Z Zhang, T Corringham, C He
- 1939756** *Interannual variation of the Earth's brightness observed by DSCOVR/EPIC:* **X Jian**, S Fan, L Gu, J Yang, Y Lin, C S Fan, J H Jiang, H Aumann, Y Luo, Y L Yung
- 1996343** *MALAC EPIC version 3: Joint retrieval of AOD, spectral absorption, and aerosol layer height:* **M Choi**, A Lyapustin, Y Wang, S Korkin, E J Hyer
- 1993281** *Scaling resolution and Complexity Analysis of DSCOVR/EPIC Full-Disk Observations:* **A Delgado-Bonal**, A Marshak, Y Yang

247186

Deep Space Observations

Conveners: **Alexander Marshak**, NASA Goddard Space Flight Center; **Adam Szabo**, NASA Goddard Space Flight Center

- 1937841** *Decadal Variability of Oceanic Light Availability from EPIC-Derived PAR Observations:* **R J Frouin**, J Tan

249915

Dust in a Changing Climate: from Small-Scale Insights to Large-Scale Understanding (*joint with B, EP, GC, GH*)

Conveners: **Yan Yu**, Peking University; **Jasper Kok**, University of California Los Angeles; **Danny Leung**, The Chinese University of Hong Kong; **Michelle Van der Does**, Royal Netherlands Institute for Sea Research, and Utrecht University; **Danny Leung**, The Chinese University of Hong Kong

1988126 *A global inventory of convective dust storms compiled from ground- and satellite-based measurements towards quantifying convective dust emission:* **Z Jia**, Y Yu, X Meng

1960576 *At-source measurements of vertical dust flux: Etosha Pan, Namibia:* **M Baddock**, J M Nield, R Bryant, N Wallum, G Wiggs

1940537 *Attributing the Decadal Variations in Springtime East Asian and North American Dust Emission to Regime Shifts in Extratropical Cyclone:* **Y Wang**, Y Yu, J Nie, B Pu

1919158 *Characterizing Dust Fluxes from Microscale Meteorological Events in the American Southwest:* **S Jurado**, N Webb, J Van Zee, C Hocut

1902337 *Characterizing Dust Plume Microphysical-Property Evolution During Trans-Atlantic Transport:* **R A Kahn**, J Limbacher

1889598 *Characterizing the Long-Term Trends in Dust Aerosol Concentrations over East Asia Using a Combination of Ground-Based Observations and Modeling Outputs:* **Y Liu**, A Gupta, J F Kok

1881084 *Climatological Desert Dust Optical Properties from AERONET Observations: Spectral Absorption, Size Distributions, Spectral AOD and Seasonal Dynamics:* **T F Eck**, J S Reid, P Gupta, E S Lind, A Siniuk, A T Arola, I Slutsker, B Holben, P Goloub, J Schafer, M G Sorokin, A Smirnov, H Yu, D Kim, J Kraft, E A Reid, N T O'Neill

1905818 *Comparison of Soil Mineralogy from EMIT Remote Imaging Spectroscopy and Ground-Based X-ray Diffraction Measurements in Southern California Deserts:* **X Liu**, A T Evan, P A Ginoux, C Pérez García-Pando, A González-Romero, X Querol, P G Brodrick

1851463 *Direct and Indirect Effects of Agricultural Dust on Climate:* **X Liu**, T Barone

1986924 *Disentangling the Climatic Drivers of Spatiotemporal Dust Activity in East Asian Source Regions:* **S Kim**, S H Lee

1968298 *Dust Radiative Forcing During the Last Glacial Maximum: Sensitivity to Source Location and Implications for Climate Sensitivity.:* **R L Miller**, A N LeGrande, V Obiso, C Pérez García-Pando, J P Perlwitz

1917749 *Environmental Controls on Dust Devil Diameters: A Field Study from Smith Creek Valley, NV:* **K Marek**, L Fenton, G Arzaga, S Scheidt, S Metzger, T Michaels, T Dorn, R Battin, B Cole, J Crevier, E Idec, B Jackson, L D Neakrase, J Smith, O Sprau

1940549 *Evaluating Dust Concentrations at Cold Cloud Temperature Regimes in Global Climate Models using Aircraft Observations:* **F V Maciel**, J F Kok, K D Froyd, X Li

1949057 *Evaluating the Extent of Chemical Aging in Long-Range Transported African Dust:* **H Royer**, M Sheridan, H Elliott, E Blades, N N Lata, Z Cheng, A P Ault, C Gaston

1865333 *Field Validation of EMIT Hyperspectral Mineral Mapping at a Major Southern Hemisphere Dust Source: Evidence from Etosha Pan, Namibia:* **N Wallum**, R Bryant, R F Kokaly, G Wiggs, R Huck

1958891 *From Africa to the Canary Islands: Chemical and Mineralogical Characterization of Saharan Dust Within and Above the Atmospheric Boundary Layer:* **M Karami**, A Hossein Mardi, H Foroutan, F M Michel, C Gonzalez-Martin

1918504 *Importance of Dust Radiative Feedback on the Trans-Atlantic Evolution of the Saharan Air Layer:* **E Torres-Moya**, P Miller

1988298 *Improved Representation of High Latitude Mineral Dust Sources in the NASA GEOS Model:* **K A Moore**, P R Colarco, J Joshi, D M Leung, J King, A Downey, H Skov, F Hildebrand, C Marsay, C Buck, B G Koffman, D Gaiero, M R Kaplan, C Groot Zwaafink, J F Kok, L M Zamora

1941813 *Investigating the impact of regionally and size varying mineralogy on dust absorption in MONARCH model:* **L Ilić**, V Obiso, M Gonçalves, L Li, N M Mahowald, R L Miller, P A Ginoux, Q Song, P G Brodrick, D R Thompson, R N Clark, B L Ehlmann, G S Okin, B Zhou, O V Kalashnikova, R O Green, C Pérez García-Pando

1878438 *Mineral Dust and Black Carbon: Altitude-Driven Variations in Light Absorption and Heating Rate in the western Mediterranean:* **S Gautam**, M Pandolfi, N Perez, A Alastuey, M Ivančič, A Gregorič, I Ježek, M Rigler, L Drinovec, J Yus-Díez, G Mocnik

1961316 *Observation-based Dust Shortwave Direct Radiative Effect Over Desert Regions:* **Q Song**, Z Zhang, Y Wang, A Lyapustin

1907446 *Observational constraints reveal longer-than-expected dust lifetime:* **X Meng**, Y Yu

- 1943288** *Over a Decade of Saharan Mineral Dust Deposition Collected over the Atlantic Ocean:* **M van der Does**, B Matzenbacher, S Schoone, H Croysdill, J B Stuut
- 1926478** *Quantifying Electric Field Effects on Coarse Dust Settling in a Controlled Dust Plume Environment:* **I Norwood**, K Gorkowski
- 1886067** *Radiative Impacts of Diurnal Dust–Cloud Interactions:* **I Chang**, A A Adebiyi, L Gao, J Zheng, PhD, P Xian, M S Kacenelenbogen, A Fakoya, C J Flynn, P Castellanos, D Painemal, W L Smith Jr, S A Christopher, J Redemann, R Wood, P Zuidema, Z Zhang
- 1879330** *Re-evaluating Dust Emission Potential from Burned Surfaces on Vegetated Dunes in the Southwest Kalahari:* **R Huck**, G Wiggs, D Thomas
- 1927466** *Reconstructing the 21st-Century dust cycle: Observational constraints and inverse modeling Insights:* **A Gupta**, J F Kok, V Amiridis, A Gkikas, K Rizos, C Pérez García-Pando, E Proestakis, E Marinou
- 1887127** *Resolving convection doubles Sabel's contribution to global dust emission during monsoon season:* **T Ying**, A T Evan

249704

Early Career Researcher Showcase in Urban Systems Research (joint with B, EP, GC, H)

Conveners: **Xinchang Li**, University of Illinois Urbana-Champaign; **Timothy Jiang**, Pacific Northwest National Laboratory; **Jason Horne**, The Pennsylvania State University; **Sarah Berk**, University of North Carolina at Chapel Hill

- 1876043** *A Capacity Assessment Tool for Conservation Programs at Higher Education Institutions:* **D Turner-Ward**, C Hobbs
- 1972351** *Characterizing Spatiotemporal Drivers of Urban Surface Temperatures Using Remote Sensing and Machine Learning:* **S Islam**, L E Ortiz
- 1989264** *Impacts of Rooftop Photovoltaic Systems on Local Climate:* **H Yin**

- 1956957** *Tracing a Northern African Contribution to European Dust During the Last Glacial Maximum:* **D D Rousseau**, C Chauvel, P O Hopcroft, P Gutierrez, S Saulnier-Copard, P Antoine, M Fuchs, A Ustrzycka
- 1929922** *Transported African Dust in the Lower Marine Atmospheric Boundary Layer is Internally Mixed with Sea Salt leading to Hygroscopicity and Lower Lidar Depolarization Ratio:* **S Shrestha**, R Holz, W Marais, Z Buckholtz, I Razenkov, E W Eloranta, H Elliott, N Nahar Lata, Z Cheng, S China, E Blades, R M Chewitt-Lucas, A Ortiz, R Agrawal, A Allen, E A Reid, J Ruiz-Plancarte, D Blades, A Bucholtz, R Yamaguchi, Q Wang, T F Eck, E S Lind, M Pöhlker, J S Reid, A P Ault, C Gaston
- 1977328** *Twenty years of satellite observations reveal a shift in the diurnal trend of dust optical depth over West Africa:* **X S Li**, P A Ginoux
- 1938111** *Understanding the Role of Heat Waves in the 2020 “Godzilla” Dust Event:* **I Tella**, B Pu, Q Jin
- 1959522** *Using Upscaling Techniques to Incorporate Particle Settling Speed Enhancement in a Coarse-Mode Deposition Model:* **A Grace**, D H Richter
- 1906533** *Warming exacerbates dust emission from temporarily dried waterbodies:* **Y Yu**, P A Ginoux
- 1961847** *Modeling a Broader Range of Outcomes in the Complex Urban Environment:* **T Jiang**
- 1952386** *Project Overview: Approaches for generating fine scale and human centric heat stress:* **S Berk**, A Hsu, T Chakraborty, X Wang, X Li, I Vincent
- 1950599** *Small Spaces, Big Impact: Overlooked Urban Pavement Crevices as a Frontier for Biodiversity Conservation, Carbon Storage, and Pollution Remediation:* **M Manu**, L Gamage, A Pandey, J Li
- 1924937** *Urban Building Energy Modeling from Global to Local Scales:* **X Li**
- 1898145** *Urban Microclimate: Building Morphology and Satellite-Derived Evapotranspiration:* **X Sui**, Z L Yang
- 1860548** *URBAN ORNAMENTAL PLANT STUDIES REMARKED EXPOSURE SCIENCE AND PUBLIC HEALTH RISK CONCERN:* **M M Hossain**, D Zhu

249532

Coupling Climate and Hydrologic Models for Regional Hydroclimate Insights: Advances in Downscaling, Integration, and Decision-Relevant Applications (joint with GC, H)

Conveners: **Husile Bai**, IEE Institute of Earth Environment, Chinese Academy of Sciences; **Kathleen Holman**, Bureau of Reclamation Denver; **Maribeth Kniffin**, Riverbytes LLC; **Courtenay Strong**, University of Utah

1911351 *A Statewide Weather Generator for Climate Change Impact Assessments in Massachusetts:* **N Najibi**, S Steinschneider

1960785 *Applying the AI Weather Prediction Revolution to Regional Hydroclimate: Coupling, Scales, and Reliability:* **E D Gutmann**, K Sha, A J Newman, R R McCrary, S A McGinnis, W R Currier, K Newman, T Hertneky, N Lybarger, D J Gagne II

1869726 *Assessment of CMIP6 GCMs Performance in Simulating Weather and River Flow in the Western Lake Erie Basin, USA:* **F Babaeian**, A Murumkar, T N D Tran, M Tapas, M Kalcic, J Martin, L Miralha, PhD, V Lakshmi, V Shedekar

1949373 *Assessment of Satellite-based Precipitation Datasets across Agro-Ecological Zones in the Guder Sub-basin: Insights for the Upper Blue Nile Basin, Ethiopia.:* **S F Demessie**, Y D Taddele, B Bedadi, T G Tarkegn

1868982 *Assessment of the Downscaled NASA NEX-GDDP-CMIP6 Dataset for its Applications in Energy and Infrastructure Decisions:* **N Khadka**, B M Hegyi, F P, P W Stackhouse Jr, P C Taylor

249958

Extreme weather and climate in urban areas: Physical modeling, AI/ML approaches, and digital twins for social impacts and mitigation

(cosponsored by AMS: American Meteorological Society, WCRP: World Climate Research Programme) (joint with GC, GH, H)

Conveners: **Ashish Sharma**, University of Illinois System; **Fei Chen**, National Center for Atmospheric Research; **Donald Wuebbles**, University of Illinois at Urbana Champaign; **Peiyuan Li**, University of Illinois at Urbana Champaign

1859033 *Comparing Machine Learning and Traditional Downscaling Methods for Climate Projections Under Stratospheric Aerosol Intervention:* **N Grant**, C Lee, L Xia, Z Zhang, A Robock

1963853 *Elevation Controls on Energy and Temperature Responses to Snow/Ice Loss in Patagonia:* **Z Sun**, H Bai, H Xiao

1899361 *Emerging Hydrologic Shifts in California's Critical Basins from 0.5° to 3.5°C of Warming:* **B Bass**, L Su, D W Pierce, S Rahimi, A Hall, D R Cayan, W Krantz, A Rhoades, P Ullrich

1972669 *Enhancing Resilience to Sediment Hazards: CMIP6 Projections for the Awash River Basin:* **H Doko**, D Koji

1956037 *Estimated water consumption under sixteen climate change scenarios for an arid U.S. metropolitan area:* **M Marcus**, K E Lansey, P Stoker

1921472 *From Skill to Value: Understanding the relationship between water supply forecast errors and economic value:* **B Livneh**, P Modi

1979837 *Impacts of Hurricane Defoliation in Puerto Rico with Dynamically Downscaled Projections in Mid-to-Late Century Climates:* **A Banks**, T L Mote, J Preece, P Miller

1872672 *Integrated Downscaling and Coupled Climate-Hydrologic Modeling Reveal Groundwater Sustainability Challenges under Climate and Population Change in the Varuna River Basin, India:* **R Kumar**, S Gaur, A Ohri

1943078 *Integrating socio-hydrological and climate models for improved water management under climate change:* **P Greve**, A Schmitt, A Dengri, S Schreiber

1902683 *Projecting Upper Mississippi River Basin Flows Using Downscaled CESM-LE Ensemble Members:* **O McCauley**, W J Gutowski Jr, S Rahimi, P W Gassman

1954591 *Significance of Nominal Climate Model Resolution in Representing Hydroclimatic Extremes in High Mountain Asia:* **A Vijayan Nair**, D S de Alcantara Araujo, B T Jong, E I Nikolopoulos

1962747 *A Framework for Integrating AR/VR with Digital Twins to Enhance Transportation Infrastructure Resilience:* **J Etuke**, A Banjo, A Dunmoye, O Owolabi

1897171 *A Transformative Los Angeles Digital Twin and Urban DT Laboratory: Developing a Collaborative Framework for Urban Resilience, Planning, and Education:* **D E Waliser**

1978305 *Air quality inference at neighborhood scale for Chicago Metropolitan by Graph Neural Network:* **K Thakur**, C Feng, P Li, A Sharma

1930084 *Bridging Rural–Urban Systems: Early Warning and Decision Support for Resilient Cities:* **X Z Liang**

1964393 *City Digital Twins from Processes to Infrastructure Risk Management:* **D Niyogi**, N Sudharsan

- 1976448** *Detailed and Dynamic Description of Urban Vegetation (3DUV) for Enhanced Urban Climate Resilience:* **P Li**, A Sharma
- 2001827** *Development of Future Neighborhood Urban Parameters for Evaluating the Impact of Built Structures on Future Urban Temperature:* **M R Allen Dumas**, B Pandey, PhD, R McManamay, J R New
- 1930851** *Digital Twin-Based Flood Risk Modeling and Early Action Planning in Kinshasa's Ndjili Basin:* **J C B Munyaka**, M Hlal, M Chenal Sr, J Chenal Sr
- 1932017** *Expanding Cities, Intensifying Storms? Future Urbanization's Impact on Extreme Rainfall Events and Flooding Risk in the Texas Triangle:* **P Crippa**, G Moraglia, M Aboelnour
- 1959018** *From Data to Decision: Leveraging Data-Driven Insights to Evaluate Extreme Weather Impacts on Power Outages and Future Vulnerability:* **R Valdez**, A Moore, N D Jackson, T Gunda
- 1905864** *Global Database of 1 km Resolution Urban Canopy Parameters for Better Representativeness of Urban Areas in meso- to Global Scale Weather Simulation:* **M Nakayoshi**, A Kawaura
- 1956375** *Heat Monitoring in New York City Subway System:* **A R Bah**, R Shahidullah, S LaRose, A Barua, K Ditsch, K Maharjan, T Olayemi, H Norouzi, R Blake
- 1909436** *High-Resolution Wet-Bulb Globe Temperature (WBGT) Estimation for the Seoul Metropolitan Area Using an Urban Land Data Assimilation System:* **J Bak**, D L Lee, S H Lee
- 1890600** *Historical Flood Simulation and Inundation Mapping in Bengaluru Using an Integrated Flood Modelling Framework:* **P Alle**, N Kishore, A Hosahalli Mallikarjunappa, R Das Bhowmik
- 1990424** *Kilometer Scale Urban Modeling of Thunderstorms over Delhi-NCR- A Pragmatic Approach.:* **S Balakrishnan**, M Mohan, S Dey, M Mohapatra
- 1972105** *My Connection to Weather, the Environment, and Solar Energy — A case study through SkyScouts:* **E Cai**, J Wang, I Sharma, S Wu, A Sharma
- 1862121** *Predicting Occupant Thermal Comfort in Urban Landscape using Machine Learning (ML) and Artificial Neural Networks (ANNs):* **M T Hasan**, M F R Dhrubo, M N Uddin, M Hasan, J Hossain, H H Shawon, G M Rahad, M H Islam, M I A Imran
- 1986641** *Quantifying the Magnitude of Heat Microenvironments in Small Cities and Rural Communities: 50 Years of Urban Climate Research:* **E M B Doran**
- 1951039** *Rain to runoff in real time: GPU-accelerated AerisIQ-flood forecasting for Illinois:* **A Wadhwa**, A Sharma, X Xia
- 1978052** *Seasonal Asymmetries in the Sensitivity of Cooling Efficiency to Extreme Heat and Climate Variability:* **J Casselman**, C Karamperidou
- 1964158** *Sky Scouts: Cultivating climate curiosity through wonder, storytelling, and backyard science:* **I Sharma**, A Sharma, E Cai, A Kumar, J Wang, S Wu, A Kandya, V Patel, R Kumar, A S Kumar
- 1986715** *Spatiotemporal variations of air temperature under urbanization and climate change based on high-resolution datasets in China during 2011 – 2020:* **Y Liu**, X Li, S Shi, H Kan, X Meng
- 1942789** *Synergy between Heatwaves and Urban Heat Island in Three Major Cities of Taiwan:* **C Y Chang**, M H Lo
- 1985598** *The Role Of Urban Morphology In Modulating Excessive Heat During Megacity Heatwaves:* **D Lee**, S H Lee
- 1985921** *Tornado in a bottle: exploring extreme weather events through backyard monitoring, visiting exhibits, and easy experiments:* **A Kumar**, R Kumar, I Sharma, S Wu, A Sharma
- 1932007** *Tracking Urban Tree Stress Through Integrated Growth and Water Use Signals:* **A Cho**, F Rios Bolivar, S Dietzen, A Vincent, M B Berkelhammer, M A Gonzalez-Meler
- 1898985** *Urban Expansion Amplifies St. Louis's Heat Island: A Case Study of the August 2023 Heatwave:* **F Sun**, K Phan, R Penczykowski, K Medley
- 1931268** *Urban Wind Hazard Assessment Using Scenario-Based Simulation:* **S Lee**, S Lee, S H Choi
- 1951362** *Using Machine Learning to Forecast and Model Extreme Heat Within the New York City Subway System:* **M Muntaha**, L Metlitsky, A R Bah, H Norouzi, R Blake

247267

Emerging Air Pollutants: Emissions, Chemistry, and Air Quality Impacts

Conveners: **XiaoPu Lyu**, Hong Kong Baptist University; **Ke Li**, NUIST Nanjing University of Information Science and Technology; **Bin Yuan**, Jinan University; **Matthew Coggon**, CIRES and NOAA Chemical Science Laboratory

1949348 *A better understanding of ozone chemistry in response to temperature increase over North China Plain:* **K Li**, B Yuan, H Liao

2001455 *A computational structure-activity relationship for atmospheric lifetimes of emerging pollutants:* **C D Holmes**, S Bhakta

1851902 *A Pilot Assessment of PM₁₀-Bound Microplastics in Coastal Mangroves: Land-Sea Breeze as a Driver of Source Mixing:* **A Ghosh**, G K Darbha, A M Mandal, J Karmakar, S Mazumdar

1918975 *Assessing Industrial Emission Impacts on Ambient Volatile Organic Compound (VOC) Levels in Houston, Texas:* **A Dodero**, M Olin, L E Padilla, G Lewis, D Peters, A Adame, L Hildebrandt Ruiz, C Warneke, M M Coggon, Y Zhang

1875753 *Buildings as emission sources and chemical mediators of reactive organic carbon:* **D Farmer**, E Franklin, M P Vermeuel, R K Rossell, A Belanger, L Tonnesen, D B Millet, R Commane

1868235 *Changes in microplastics emissions using an upgraded dispersion model and optimization using the Gibbs sampler:* **N Evangeliou**, O Tichý, I Evangelou, S Eckhardt, V Košík, V Smidl

1950409 *Characterization of Ground-based Particle Emissions From an Airbus A350 Running Standard and Alternative Fuels as Part of the ECLIF3 Campaign:* **P I Williams**, T Schripp, T Grein, G Smallwood, M Johnson, M Gauthier, P Swann, D Ahrens, R Sallinen, G Eckel, R Ware

1901351 *Characterization of Speciated Organic Aerosol Emissions from Laboratory-Scale Combustion of Structural Materials:* **M Milazzo**, L Yee, R J Weber, K Ridgway, L Cast, A Helfrich, S Jathar, C L'Orange, N M Kreisberg, A H Goldstein

1874142 *Characterizing the Aerosolization Efficiency and Physicochemical Properties of Microplastics from Lake Spray Aerosols:* **R Parham**, G Young, A P Ault

1931895 *Characterizing VOC Emissions from Chemical Plant Plumes in Hopewell, VA:* **A Parikh**, K Paredero, S Hughes

1998985 *Chemical Drivers of Ozone and Particulate Matter Concentrations During the Utah Summer Ozone Study:* **D Pagonis**, O Tobler, N Assetta Nash, M Clafin, D Cottam, K Staples, L R Williams, E Stam, I Vasquez-Echols, A Fraser, P Hyatt, N Sanchez Jr, T Williams, D Castro, M North

1884007 *Comparing summertime VOC sources and chemistry in Salt Lake City, Utah and Fort Collins, Colorado: preliminary results from SLC-SOS 2024 and FROZÉ 2025 mobile laboratory deployments:* **E Cope**, W Permar, L Tan, D Ketcherside, A Kisner, A Deters, D Guevara, B McGuire, J Nivitanont, PhD, Z Trader-Gough, E Beamesderfer, A Robertson, K Johnson, N Ribar, S M Murphy, R Hannun, A G Hallar, J C Lin, A Sullivan, J L Collett Jr, E V Fischer, L Hu

1928448 *Comparison of Measured Fluxes to Modeled Estimates of Biogenic Volatile Organic Compounds in Phoenix, AZ, USA:* **T Olguin**, R A A Braun, G Cano, P Herckes, M P Fraser

1899303 *Comparison of VOC Emissions and Chemistry in Denver and the Los Angeles Basin:* **D Blauth**, L D Anderson, A Jensen, S Yun, D A Day, E Mattson, A Hodzic, J L Jimenez, J de Gouw

1979897 *Contaminants of Emerging Concern in the Marine Atmospheric Environment: Emissions and Multiphase Photochemical Transformations in Sea Spray Aerosol Mimics:* **J H Slade**, A Cooper, A Creekmore, M Morris, D Tran

1877339 *Development of a chemical transport model for polycyclic aromatic hydrocarbons and nitro-polycyclic aromatic hydrocarbons in East Asia:* **H Kim**, C H Song, J Y Lee, S D Choi, S Lee, S W Jeong, K M Han

1970294 *Development of Nitrous Acid (HONO) Chemical Mechanisms in the Community Earth System Model and the Global HONO Impacts on Air Quality:* **L WANG**, B Gaubert, M Val Martin, D Jo, K Pratt, N May, Y Huang

1918465 *Effects of Atmospheric Aging on the Respiratory Toxicity of Atmospherically Relevant Polystyrene Nanoplastics Particles:* **A Dodero**, O Lampe, S Gagan, S Niu, N M Johnson Dr, Y Zhang

1944491 *Effects of rising temperatures on ozone pollution in Hong Kong:* **M SUN**, F Zhang, X Lyu, PhD

1922423 *Elevated Urban HFC and HCFC Emissions from the New York City Region:* **G Plant**, E A Kort, I J Vimont, C Sweeney

1891886 *Exploring the Chemistry of Wildfire Smoke: Leveraging High-Resolution Mass Spectrometry Approaches to Detect Chemical Signatures:* **A Maybank**, E Coker, E Lin, J Zhou, S Liu, L Boland, J Koelmel, S Weichenthal, K Pollitt

- 1845772** *Gas and Aerosol Phase PFAS Measured with Iodide HR ToF-CIMS in Houston:* **Z Watson**, L Tiszenkel, V Vasudevan Geetha, S Lee
- 1913913** *Highly Oxygenated Ring-retaining and Ring-opening Products Drive Aerosol Formation from the OH-initiated Oxidation of Benzyl Alcohol:* **A Lawrence**, T Melles, C Zang, A Ksaibati, A Dearden, K Richard, D Ketcherside, L Tan, C E Stockwell, H Luo, M Akbarzadeh, L Xu, A Middlebrook, A Piasecki, L Garofalo, C Warneke, L Hu, D Farmer, S Jathar, M D Willis
- 1847992** *Highly Resolved Global Emissions and Potential Toxicities of 30 Parent PAHs from 1960 to 2021:* **R Dai**, S Tao
- 1970186** *Impacts of Cooking with Hydrogen Blends on Indoor Concentrations of NO, NO₂ and PM:* **A Kyi**, D Rush, L Hildebrandt Ruiz, A Novoselac, S Hyun
- 1912173** *Investigating Gas-Particle Partitioning of PFAS and its Atmospheric Implications:* **A Hrdina**, C DesAutels
- 1948524** *Measurements of Gas-Phase Chloramines during 2024 USOS Campaign:* **S Thakali**, M A Robinson, C Jernigan, W Chace, D Rollins, E Waxman, K L Zuraski, M M Coggon, K Bates, C E Stockwell, C Womack, S S Brown, T Bertram
- 1993072** *Molecular Fingerprints and Formation Mechanisms of Secondary Organic Aerosol (SOA) from Siloxane-Containing Personal Care Products:* **W Hu**, B Yuan, M Liu, S Huang, Z Yang, T Pan, X Wang, J Wang, X Wang, T Feng, M Shao
- 1959487** *Observations of Volatile Chemical Products (VCPs) Tracers in the Greater Los Angeles Area using Mobile PTR-MS:* **A C MacMillan**, S L Blair, J Nestor, O Galindo, D Iha, Y Song, D Negrete, S Ibarra, A Romillo, C Berg, H Zhang, A Haar
- 2006065** *Comparative assessment of Indoor Air Quality across diverse functional spaces in a commercial building:* **R Verma**, B R Gurjar, O Chandra Shekhar Prasad
- 1961441** *Quantifying Ambient Concentration and Emission Profile of D5-siloxane of a Residential Neighborhood in the Greater Houston Area:* **K McCary**, S Niu, A Dodero, Y Kim, PhD student, H Yim, S Gagan, K Baumann, T B Onasch, R Betha, Q Ying, Y Zhang
- 1865628** *Quantifying Wintertime Deposition of Microplastics to the Sierra Nevada, United States:* **M M Arienzo**, H Lei, J Blaszcak
- 1886432** *Radiative Properties of Next-Generation Halocarbons:* **K Le Bris**, M Jacobs, D Huo, M O Ishtiaq, K Strong
- 1973523** *Reanalysis of Mobile Measurement of Volatile Organic Compounds in Southeast Michigan during Summer 2021 for Fugitive Solvent Emissions:* **B M Lerner**, T I Yacovitch, M Claffin, M R Canagaratna, C Daube, S C Herndon, E P Olaguer Jr
- 1918333** *Reconciling Observed and Modeled Estimates of Terpenoid Emissions in Los Angeles:* **Y Zhang**, K Wu, H Wang, E Pfannerstill, S Nagalingam, Y Wang, V Moreno Ruiz, C Ho, Y Yu, J Novelly, C Pawlak, S Kim, A H Goldstein, A B Guenther
- 1925434** *Secondary organic aerosol formation potential inside a real house during the CLEAN Home Campaign in spring 2025:* **R Mesburis**, S Yun, D A Day, P Campuzano Jost, M Morris, M Shulman, A V Handschy, R Robertson, A Schaum, S Schwink, Q Ye, K Bates, M Vance, J A de Gouw, J L Jimenez
- 1985003** *Soils, Wildfires, and Background Ozone: The Degradation of Air Quality Across the Southwestern US:* **I C Faloona**, Y Wang, F Hosseinpour, R Derwant, D D Parrish
- 1999474** *Spatial Variability of Ozone Formation Chemistry in Salt Lake City:* **D Pagonis**, M North, D Castro, O Tobler, L Felix, A Fraser, H Porter, N Sanchez Jr, T Williams
- 1996044** *Summertime Ozone Formation in Salt Lake City: Insights from the 2024 Utah Summer Ozone Study:* **C Womack**, N Schafer, S Baidar, A Brewer, B Carroll, R Marchbanks, B McCarty, C J Senff, S Sandberg, M Zucker, M Holloway, X Ren, P Stratton, J Sun, K Bates, M M Coggon, C E Stockwell, C Warneke, C Jernigan, M A Robinson, S Thakali, I Pollack, W Chace, K L Zuraski, E Waxman, D Rollins, Y Huang, L WANG, N Mariscal, E Lill, A Baron, K Smith, T Leblanc, F Chouza, K Cossel, D Pagonis, D Olsen, R S Martin, L Lyu, M Horsford, J Chai, A Gaudel, B McDonald, M Li, S Brown
- 1881173** *SVOC Observations and Source Appointment from the FROG-NY 2023 Field Campaign:* **R Rossell**, E Franklin, A Belanger, L Tonnesen, D Farmer, C Osburn
- 1946038** *Synchronizing Isomer-Resolved VOC Detection with PTR Signal Correction: Implications for Atmospheric VOC Analysis:* **X Feng**, Z Wang, Y Chen, L Hui, P Zheng, Y Xu, M Claffin, B M Lerner, D R Worsnop
- 1996534** *The Elephant in the Air Conditioned Room: Quantifying Refrigerant Leakage from Residential Air Conditioners and Heat Pumps:* **Y Kashtan**, D Michanowicz, S B C Shonkoff, R B Jackson
- 1926307** *Traffic-Driven Airborne Microplastic Pollution: A Case Study Along NH-16, Kharagpur:* **G Alam**, A K Patra
- 1984286** *Understanding sources and composition of indoor particulate matter in a high-altitude community in Ecuador:* **M Ruiz-Urigüen**, G A Isaacman-VanWertz, M Bolaños Barrera, N Carpintero-Salvador, E Llumiquinga, A Valarezo Garcés, L Bejarano López, S Jozi, C McMullin, J Hayes

1942798 *Vertical differences of sulfate formation mechanisms and sources in the urban atmosphere based on tower measurements:* **M Y Fan**, Y Zhang, J Liu, C Wu, R Xu, F Cao

1905239 *VOCs Concentrations and Health Risks Associated with Nail Care in Different Indoor Environments:* **J Lee**, S Kang, M Yoon, H W Ryu

1872339 *Volatile Chemical Products Amplify Urban Aerosol Pollution:* **G Gkatzelis**, M Riva, R Tillmann, M M Coggon, Y Wu, A Grasse, A Nissinen, A S Prevot, A C Marcillo Lara, A Buchholz, A Novelli, A Middlebrook, A Zanders, A Voliotis, A Kumar, B Winter, B Bohn, B Yang, C Warneke, C E Stockwell, C Wesolek, D M Bell, D R Worsnop, E D Pufitasari, E Matthews, E Pfannerstill, F Nursanto, F Partovi, F Rohrer, G McFiggans, H Fuchs, H Coe, H Wang, I Pullinen, I El-Haddad, J Top, J L Fry, K Bates, L Liu, L Kesper, M R Canagaratna, M Leiminger, M Mueller, M Graus, M Rissanen, M G Adam, M Färber, M A Robinson, M Roska, M Alton, N Vinkvist, P Khare, R Dubus, R Wegener, Q He, R Asgher, S Farhoudian, S Albertin, S Perrier, S Wedel, S Barua, S Iyer, S Schobesberger, S M Van de Wouw, S Zorn, S Brown, T Bannan, T Hohaus, T Reinecke, Y Chen, Y Wang, Y Wang, A Nölscher, A Wahner, A Kiendler-Scharr

248329

Emissions of atmospheric pollutants from oil, gas, and coal operations

Conveners: **Scot Miller**, Johns Hopkins University; **Archana Dayalu**, Atmospheric and Environmental Research Lexington; **Matthew Johnson**, Carleton University

1917781 *Air toxics and methane emissions during blowout at oil and gas well in Galetton, CO:* **L Low**, M Davis, J Stickney, I T Ku, Y Zhou, K Cossel, J L Collett Jr, E Fischer

1936941 *Assessment of persistent, high-emitting oil and gas methane point sources in eastern Venezuela using MethaneSAT:* **J Warren**, L Guanter, M Sargent, Z Zhang, PhD, M Omara, J Williams, A Valverde, C Chan Miller, S Roche, J E Franklin, K MacKay, S C Wofsy, R Gautam

1958147 *Characterizing Methane Emission Distributions from Oil and Gas Production Regions to Assess Mitigation Efficacy:* **V Fox-Coughlin**, D Zavala Araiza, D Xie

1976886 *Compounds Emitted and Formed from Unconventional Oil and Gas Development in the Eagle Ford Shale:* **K Konon**, L El Khoury, E Deveraux, P Abue, L Jahn, M Modi, A Turner, C H Lin, D Blomdahl, K McPherson, D Allen, P Misztal, L Hildebrandt Ruiz

1941835 *Weekly Resolved Characterization of Tropospheric Volatile Organic Compounds (VOCs) and Partially Oxidized VOCs (po-VOCs) in Dronning Maud Land, East Antarctica, using Thermal Desorption - Gas Chromatography - Orbitrap High Resolution Mass Spectrometry:* **P A Lamprea Pineda**, P Van Overmeiren, S Boxho, N Mattielli, F Sauerland, N van Lipzig, A Mangold, A W Delcloo, K Demeestere, H Van Langenhove, C Walgraeve

1903471 *What Pollutants Are in My Air: A Risk Characterization of Volatile Organic Compound (VOC) Concentrations Outdoors in Albuquerque, New Mexico:* **J Ritchie**, A Mulchandani, S Morales, P Hudson

1892688 *Costs of Energy Transition: Metal Processing and Local Air Quality in Indonesia:* **D Amin**, M Schreier, J Lou, S Smith

1919454 *Diurnal Stationarity of Heavy Tailed Methane Emissions Distributions Constrained via Rapid Return Remote Sensing:* **E Manninen**, A Chulakadabba, M Sargent, Z Zhang, PhD, S Roche, C E Miller, A R Nehrir, R A Barton-Grimley, J E Collins Jr, A Yerasi, E D Kyzivat, J S Benmergui, J V Pittman, E Walker, J Bushey, J Samra, B Luo, D Miller, M Nasr, J Chen, K Sun, J E Franklin, X Liu, S C Wofsy

1973751 *Estimating oil and gas methane emissions: why skewness is a challenge:* **D Hammerling**, W Daniels

1952058 *Global gridded inventory of fossil fuel methane emissions from point sources using the growing satellite constellation of point source imagers:* **J D East**, H Kamdar, J Bruno, D Jervis, E Reidy, D J Jacob

1921892 *Measurements Measurements Everywhere: Do we know enough to know that we have enough?:* **A L Hodshire**, A Santos, M Moy, J Brown, D Zimmerle

1890532 *Methane, hydrogen sulfide, and volatile organic compound emissions from non-producing oil and gas wells:* **M Kang**, K El Hachem, G Micucci

1903101 *Periodic, Basin-Scale Coal Mine Methane Measurement Campaign Reveals Super-Emitting Coal Mines in The Appalachian Basin:* **M Meyer**, S N Stokes, A P Ravikumar

1922207 *Quantifying the Impact of Wind Data on the Performance of Continuous Monitoring Systems at Operating Oil and Gas Sites:* **S Kidd**, W Daniels, C Okenberg, S Yang, S N Stokes, A P Ravikumar, D Hammerling

1862708 *Regulatory and Voluntary Changes Have Led to a Threefold Reduction in Methane Emissions Intensity in the Uinta Basin:* **S N Lyman**, T Coxson, J C Lin, C P Jones

1935903 *Satellite Data Reveal Global Super-Emitting Liquefied Natural Gas Supply Chains:* **A P Ravikumar**, H Ma, Y Zhu, W Long, M S Masnadi, G Heath, P Balcombe, S Roman-White, F George

248136

Extreme Events: Observations and Modeling

(cosponsored by AOGS: Asia Oceania Geosciences Society, EGU: European Geosciences Union, JpGU: Japan Geoscience Union, WCRP: World Climate Research Programme)

Conveners: **Sridhara Nayak**, Japan Meteorological Corporation; **Tetsuya Takemi**, Disaster Prevention Research Institute, Kyoto University; **Satoshi Iizuka**, NIED National Research Institute for Earth Science and Disaster Resilience; **Isao Kanda**, Japan Meteorological Corporation

1888867 *A comprehensive validation of reanalysis and NWP precipitable water vapor using a combination of airborne G-band water vapor radiometer and dropsonde observations:* **M S KIM**, T Y Goo, S P Jung, D D Kang, S Han

1927154 *A Disproportionate Increase of Unprecedented Rainfall Events in Low Income Countries:* **L Todorovic**, L Nguyen, M Ombadi

1902234 *A unified global tracking dataset of terrestrial and marine heatwaves from 1982 to 2024:* **J Li**, Y Qian, L R Leung, M F Wehner, J Effy, T Chakraborty, K Balaguru, W Ma, S Chen, W Zhou

1862806 *An Objective Measure of Geophysical Data Poverty:* **M O'Shea**, J S Mankin

1915524 *Compounding effects of climatic and non-climatic factors on wildfire risk and residential survivability in the United States:* **M Kumar**, J T Abatzoglou, M Sadegh, A AghaKouchak, C Kolden

1912432 *Distinct Characteristics of Contiguous Atmospheric Heatwaves Across Terrestrial, Marine, and Coastal Environments:* **Y Bekris**, M Ting, D Singh, D Kalashnikov

1937506 *Ensemble Boosting of Extreme Heat Events in Japan Using the d4PDF Ensemble Dataset:* **T Higuchi**, Y Imada

1899194 *Spatial and temporal variability in atmospheric emissions from oil and gas sector sources in the Marcellus production region:* **Q Chen**, N Raksi, L Niewenhaus, S J Almasalha, J Graves, V Brown, S N Stokes, D Allen, L Hildebrandt Ruiz

1907455 *Underestimated Formaldehyde Emissions from Residential Coal Combustion in China:* **M Zhao**, H Shen, L Xue

1990443 *Evaluating WRF Parameterization Scheme Sensitivities for Modeling Winds during Hurricane Events over the Gulf of Mexico:* **A Razavi Arab**, D Bernstein, M K Cambazoglu, J D Wiggert

1919283 *Examining Air Quality in the Los Angeles Region During and After the Palisades and Eaton Fires.:* **K Morris**, T J DeVries, J Sherman

1910258 *Exploring the characteristics of extreme rainfall events using IMD observed and satellite-based precipitation datasets over a homogenous region of India:* **A Pagire**, S Ratna, P Kumar

1941125 *Future changes in mean and extreme precipitation over North-East Africa and Arabia:* **M Waberi**, P Camberlin, B Pohl, J Blanchet, O Assowe

1868160 *Historical Nor'easter Characteristics and Trends in a High-Resolution Regional Climate Simulation: Evaluation Against Reanalysis:* **M Weaver**, S Christiansen, M E Mann

1946961 *Illuminating Development: A Geographically Weighted Regression Analysis of Artificial Light at Night (ALAN) Hotspots and Their Socioeconomic Drivers in Bangladesh:* **P Biswas Paul**, S O Ajoniloju, S R Singha, M K Das

1959148 *Improving 7-Day Wet-Bulb Globe Temperature Forecast Accuracy in the Imperial Valley, California.:* **F De Sales, PhD**, F Portillo, S P Borse

1893578 *Interconnection between Space Weather and Tropospheric Weather: Occurrence of Large Tornado Outbreaks in the Context of Solar Wind Coupling to Magnetosphere-Ionosphere-Atmosphere:* **P Prikrýl**, V Rusin

1919544 *Intra-seasonal variability of spatial clustering of severe European winter windstorms:* **S Feltz**, G C Leckebusch, K Ng, C Allen, T Kruschke, M Angus, A Quinn

1850125 *Intraseasonal precipitation variability over Northern Peru: origins and their extremes:* **J C Sulca**, V C Mayta, K Takahashi, J C Tacza Anaya, J Davalos, R Zubietta

- 1889396** *Irreversibility of Extreme Precipitation in East Asia under Multi-Scenario to Carbon Neutrality:* **M U Lee**, J Y Park, H K Kim, Y H Byun, H M Sung, J Park, W Jeon
- 1924867** *Is it feasible for communities across the country to adapt to climate extremes?:* **K M Sanks, PhD**, M Brown
- 1987013** *Mapping the Risk of UNSEEN Heat Extremes:* **A Stellema**, D Irving, J Risbey, D Monselesan, T Parker, N Ramesh, C Tozer
- 1957918** *Mild, Moderate and Extreme Heatwaves: Comparing Trends Across North America:* **É Comeau**, A Di Luca, M Kirchmeier-Young
- 1998101** *Modeling Streamflow Extremes Across Indian River Basins Using Conceptual Hydrological Models and Multi-GCM Climate Projections:* **V Sharma**, S Barbhuiya, V Gupta
- 1985286** *Moist Thermodynamic Processes Leading to the Onset of Moist Tropical Heat Waves:* **S Avila Nevarez**, A Adames-Corraliza

253260

Future Horizons in Climate Science: Turco Lectureship

Conveners: **Amy Clement**, University of Miami; **Andrew Gettelman**, Pacific Northwest National Laboratory

253622

General Session: Aerosols and Clouds

Conveners: **Kelley Barsanti**, National Center for Atmospheric Research; **Kristen Rasmussen**, Colorado State University Fort Collins

- 1907579** *Analyzing cloud seeding operations using Cloud Water Inertial Probe (CWIP) measurements: A case study from the Regional Cloud Seeding Program in Saudi Arabia:* **O Panagopoulos**, S A Logothetis, I Matsangouras, A M Albar
- 1971648** *Assessing the Impacts of Aerosols and Greenhouse Gases on the Surface Energy Budget in E3SMv3:* **K Zhang**, W Lin, J C Golaz, Y Qian
- 1979173** *Atmospheric water harvesting: lessons learned from cloud chemistry for an emerging water source:* **A Mulchandani**
- 1886426** *Contrary CCN modality-drizzle relationships in clean stratus:* **J G Hudson**, F Emin, S R Noble Jr
- 1896578** *DSCOVR EPIC-Derived Satellite Insights into the Aging of Biomass Burning Plumes:* **Y Wang**, C Zhang, O V Kalashnikova, M Choi, A Lyapustin
- 1901852** *Evaluation of Prognostic Aerosols and Aerosol-Cloud Interactions in a Global Storm-Resolving Model:* **M Huang**, P L Ma, A Varble, J Fast, T Hassan, J Li, Y Qin, S Tang, P A Ullrich, Y Yao

- 1890687** *Performance of coupled atmospheric-ocean modeling system for simulation of storm Phailin in a cloud resolving scale:* **K S Singh**, R MS, S K Behera
- 1908462** *Probabilistic Assessment of Global Drought Risk Transitions under Climate Change: Insights from CMIP6 Models and Risk Ratio Methodology:* **A T Ogunrinde**, X Xue SR, S Shah Jr
- 1874215** *Regional uncertainty in future cold extremes in North America:* **L Brito**, V Srikrishnan
- 1929813** *Roles of atmospheric environment and a marine heatwave on the record-breaking snowfall in Obihiro, Hokkaido, Japan, in February 2025:* **T Sato**, H Hirata, K Tamura, T Morioka
- 1943416** *Spatiotemporal Impact of Humidity on Heat Wave Severity across the U.S.:* **D Keellings**, M Rezaali, A Narayanan, E Bunting

- 1916388** *How the Mixing State of Aerosols Can Simplify Their Properties in the Remote Troposphere:* **D M Murphy**, G P Schill, M Lawler
- 1920166** *Incorporating realistic aerosol mixing states enhances the fidelity of Earth system simulations:* **M Wu**, P L Ma, R A Zaveri
- 1880333** *Measurements of saturation ratio and water droplet development in a rapid expansion chamber:* **G Pokrifka**, C Sagan, M A Erinin, I Ahmed, N Jeevanjee, L Deike, M Weichman
- 1979791** *Passive Remote Sensing of Aerosol Vertical Distribution:* **V Natraj**, S Kondragunta, M de Graaf, J Kim, PhD, J Flemming, X Xu, J Wang, M Friberg, H T Jethva, O P P Hasekamp, A Lyapustin, G Taha, O Torres, Z C Zeng, J P Veefkind, B Veihelmann
- 1940579** *Satellite-Based Analysis of Cloud Properties Over Saudi Arabia in Support of Regional Cloud Seeding Program:* **S A Logothetis**, I Matsangouras, A M Albar
- 1954456** *The Legacy of the NASA CALIPSO/CloudSat Science Team and its Contributions to Our Understanding of Aerosols, Clouds, and Aerosol/Cloud Interactions:* **D B Considine**, G L Stephens, D M Winker, C R Trepte, M D Lebsock, L Carrington
- 1931874** *Tracing Aerosols from Coast to Peak: A Comparative Study in Puerto Rico:* **B Sarangi**, D Baumgardner, O L Mayol-Bracero, J A Ogren

1988103 *Tracking Tornado Outbreak Environments under the Influence of Wildfire Smoke Using Satellite Observations:* **S Kluge**, M Oyola Merced, K Wilson, M Oehler

250409

General Session: Atmospheric Chemistry and Composition

Conveners: **Ross Salawitch**, University of Maryland;
Victoria Barber, Massachusetts Institute of Technology;
David Wilmouth, Harvard University

1875592 *Addressing UTLS water vapor data gaps with water vapor sondes and radiosondes:* **E Asher**, B Boyadjiev, A Fritz, E Hall

1991337 *Airborne Water Vapor Measurements with Open-path Dual-comb Spectroscopy:* **K Cossel**, C Fredrick, L Horstman, T Rahmes, D Deane, B Washburn, D Ochoa-Mendoza, C Parks, S Vartak, M Wiebold, C Hoyt

1895185 *Assessing the Feasibility and Uncertainties in Constraining Primary OH Production from Space:* **D C Anderson**, J Liu, A Sourì

1976028 *Assessing the Information Content of Future Infrared Sounders for Planetary Boundary Layer Characterization Using OSSEs and LES Data:* **R C Wilson**, D J Posselt, J Teixeira, M Kurowski, A Lambert, V Natraj

1960463 *Black Carbon Trends in the United States: Understanding the Discrepancies between Observations, Emissions, and Models:* **R Nassau**, L Jaegle

1959634 *BrO Observations in the Tropical and Subtropical UT/LS using Chemical Ionization Mass Spectrometry during the SABRE Campaign:* **D Jeong**, G Novak, D Rollins, C Womack, N Schafer, S S Brown, B Roozitalab, E C Apel, T D Thornberry, S Cicicora, S Lee, A Moon

1991333 *City- and County-Level NO_x Emission Trajectories in China from 2012 to 2024: Trends, Status and Emerging Challenges:* **F Ren**, H Kong, J Lin, L Chen, R Ni, S Wang, Y Zhang

1869822 *Climate and land use impacts on soil hydrogen sink in the 21st century:* **A Y H Wong**, C A Schlosser

1888923 *Comparison of Influencing Factors on Inorganic Aerosol pH and Its Buffering Capacity between Urban and Rural Atmospheres in South Korea during Summertime:* **E Na**, T Van Do, K Lee, J Ham, H Song, C Yoo, M Song

1904752 *Contributions of Lightning to Long-term Trends and Inter-annual Variability in Global Atmospheric Chemistry Constrained by Schumann Resonance Observations:* **X Wang**, Y Zhang, T Bozókí, R Liang, X Xie, S Zhao, R Wang, Y Zhao, S Sun

1988785 *Unveiling aerosol impacts on deep convective clouds: scientific concept, modeling, observational analysis, and future direction:* **J Fan**, Y Zhang, Z Li, T Prabhakaran, H Yan, D Rosenfeld, A Khain

1990296 *Data Homogenization and Improvements to the Beltsville, MD, USA, 20-year Ozonesonde Record:* **J Richards**, R M Stauffer, A Thompson, B Demoz, R Sakai, A Flores, D Kollonige

1904227 *Does lightning directly make more hydroxyl than you think it does?:* **W H Brune**, P McFarland, J Jenkins

1933543 *Enhanced atmospheric N₂O₅-ClNO₂ chemistry in Delhi: driving factors and implications for PM_{2.5} pollution:* **Y Chen**, E Tsiligiannis, J Pettersson, M Hallquist, C Wu, J Jiang

1961802 *Evaluation of Gas-Phase Chemistry Advancements in NASA-GISS ModelE version 3.1:* **H Plaas**, O Clifton, G Faluvegi, K Tsigaridis, S Bauer

1905565 *Examining Air Quality Change during COVID-19 in Delhi from Ground-based Observations and Regional Meteorology-Chemistry model Simulations:* **P P Ching**, M Kajino, S Hayashida

1997018 *Exploring the Potential Chemical Mechanism responsible for high PM_{2.5} during Haze Episodes over the Indo-Gangetic Plain : A Review:* **V Srilekha**, S Verma

1918839 *First Airborne VOC Measurements Using Thermal Infrared Remote Sensing: Mapping Fire Plumes with the Scanning High-Resolution Infrared Sounder:* **C Hu**, D B Millet, K C Wells, J Brewer, J Juncosa, V Payne, J K Taylor, D C Tobin

1900981 *Global Ocean Data Set of Marine Aerosol Properties:* **P Quinn**, T S Bates, D J Coffman, L Upchurch, J E Johnson

1902075 *Graph Theory-Based Insights into Atmospheric Chemical Mechanisms:* **S J Silva**, O Sturm, D Getter, E Li

1930868 *Human Influence on the Ozone Layer Detectable by the 1960s:* **J Guan**, S Solomon, G Chiodo, A M Fiore, Q Fu, R R Garcia, D E Kinnison, J F Lamarque, Y Li, B D Santer, K Stone, P Wang, J Zhang

1941636 *Impacts of iodine on the atmospheric oxidation of elemental mercury (Hg⁰):* **A Feinberg**, J M C Plane, D Catalan Fenollosa, J Carmona-Garcia, A U Acuña, C Cuevas, R P Fernandez, D Roca-Sanjuán, J Francisco, J Sonke, A Saiz-Lopez

1905321 *Inferring Drivers of Tropical Isoprene: Competing Effects of Emissions and Chemistry:* **J Yoon**, K C Wells, D B Millet, C Frankenberg, S Sanghavi, A L S Swann, J A Thornton, A J Turner

1959391 *Investigating Atmospheric Mercury Cycling at Carlsbad Caverns National Park Using CMAQ-newHg-Br v2:* **L Wu**, H Mao, W T Luke, B C Sive

- 1980711** *Investigating Organic Aerosol Composition, Phase State, and Health Effects Across Two Cities with Evolving Vehicle Fleets*: **J Ditto**, K Kolhe, K Sahu, H C Phuleria
- 1904509** *Investigation of elevated wintertime nitrate events at Mammoth Cave and Great Smoky Mountains National Parks*: **J Ban**, T Park, A Sullivan, A Marsavin, Y Zhou, B A Schichtel, A J Prenni, J Jernigan, J Renfro, T Lee, J L Collett Jr
- 1900214** *Linking Laboratory Observations to Chemical Mechanisms: A Framework for VOC Oxidation Evaluation*: **J Jiang**, L Franco, E Helstrom, N Tahsini, J H Kroll
- 1967879** *Low Molecular Weight Organic Acids in Cloud Water at Whiteface Mountain, New York: A Seven Year Study of Summertime Variability, Wildfire Impacts and Ammonium Interactions (2018-24)*: **A Tripathy**, C Lawrence, S Lombardo, P Casson, K DeMarle, R Patel, L P Hammond, S McKim, J Schlemmer, H A Khwaja, E Yerger, M Hussain, D Kelting, P Snyder, E C Apel, R S Hornbrook, A J Hills, S Lance
- 1969523** *NASA Earth Science Unit Notation Standard: Adoption of WIGOS Measurement Unit Code List*: **M L Silverman**, E Huffer, M E Buzanowicz, B Collister, M Shook, A Milan, J Klausen, G Chen
- 1945841** *Ozone (O₃) Observations in Saxony, Germany: Trends and Insights from Photochemical Modelling*: **Y Wang**, D van Pinxteren, A Tilgner, E H Hoffmann, M Hell, H Herrmann
- 2001752** *Ozone Forecast Biases in UFS-AQM During Varying Smoke Intensities in EPA Region 3*: **A Yarber**, S Chiao
- 1903781** *Peroxyacetyl Nitrate at Central China's Highest Mountain (Mt. Shennongjia): Unexpected Net Production and Implications for Ozone Formation*: **H Huang**, H Li, H Cheng, L Xue, X Lyu, PhD
- 1917933** *Preliminary Data Analysis of the 2023 Boeing ecoDemonstrator Explorer SAF Emissions and Contrail Project*: **R Miller**, S L Baughcum, T Rahmes, W Griffin, C Tully, R Moore, R C Miake-Lye, C Voigt, D N Sauer, R Märkl, R K Dischl, A Roiger, T Bräuer, G Dalakos, C Miller
- 1989695** *Quantification of the Reasons for Stagnation of the Expected Recovery of Northern Hemisphere, Mid-Latitude Ozone*: **R J Salawitch**, L McBride, B F Bennett, P von Der Gathen, I Wohltmann, M Rex, M Chipperfield, M Coldewey-Egbers, S Dhomse, V Fioletov, S M Frith, L Howar, J de Laat, D G Loyola, E Mahieu, M Prignon, W Steinbrecht, R V D A, P Wales, M Weber, J Wild
- 1888969** *Simulating Present and Future PM_{2.5} Composition Over India: Evaluating Emissions and Meteorological Influences Using WRF-Chem*: **M Kumar**, D Ganguly, S Dey
- 1886929** *Source apportionment of PM_{2.5} based on long-term chemical components analyses in Karlsruhe, southwest Germany (2011-2019)*: **X Wang**, E Eiche, S Norra
- 1954349** *Spatiotemporal Variability of the Summertime Formaldehyde to Nitrogen Dioxide Ratios during the Utah Summer Ozone Study (USOS) and the Salt Lake City — Summer Ozone Study (SLC-SOS)*: **Y Huang**, L WANG, N Mariscal, J Chai, L Lyu, M Horsford, W Chace, K L Zuraski, E Waxman, D Rollins, S S Brown, C Womack
- 1913947** *Summary and first results from the Colorado Front Range Ozone Experiment (FROZÉ 2025)*: **A Marsavin**, A Sullivan, Y Zhou, J Stickney, J Ban, D Guevara, B McGuire, M Davis, E V Fischer, J L Collett Jr, B C Sive, W Permar, E Cope, D Ketcherside, L Hu, E Mattson, A Frazier, T Moore
- 1953068** *The Global Hydrogen Budget*: **Z Yang**, R B Jackson, M Saunio, J G Canadell, Y Zhao, C Morfopoulos, P B Krummel, P K Patra, G P Peters, F Dennison, T Gasser, A T Archibald, V Arora, G Baudoin, N Chandra, P Ciais, S Davis, S Feron, F Guo, D Hauglustaine, C Jones, M W Jones, E Kato, D Kennedy, J Knauer, S Lienert, D L Lombardozzi, J R Melton, J Nabel, M O'Sullivan, G Petron, B Poulter, J Rogelj, D P Sandoval Calle, P Smith, P Suntharalingam, H Tian, C Wang, A Wiltshire
- 1907143** *Trend and Uncertainty Analysis of Reactive Mercury in the Atmosphere*: **J Gacnik**, A Feinberg, E Roy, A Ryjkov, A Dastoor, O Travnikov
- 1955156** *Tropospheric Ozone Trends (1998 to 2023) from SHADOZ, IAGOS and other Ground-based Networks: A Reference for Satellite Product and Model Assessments*: **D E Kollonige**, R M Stauffer, A Thompson, G A Morris, P Cullis, R Van Malderen, H G J Smit, B J Johnson
- 1943441** *TropOx: An aircraft measurement based project to investigate tropical oxidation capacity*: **J D Lee**
- 1967455** *Two-Decade AIRS and MLS Observations Reveal QBO-Driven Variability of O₃, H₂O, and CO in the Tropical upper troposphere-lower stratosphere*: **Y Zhang**, J H Jiang, H Aumann, J Yang, X Jian, Y Luo, Y L Yung
- 1888804** *Unraveling chemical structures of organic aerosols from diverse biomass sources through a year-long offline source apportionment in Hyytiälä, Finland*: **Q Sun**, R Zhou, S Ohata, C Shirota, T Petäjä, L Ahonen, M T Kulmala, M Mochida
- 1891765** *Unravelling the Size-Dependent Formation Pathways and Light Absorption of Secondary Organic Aerosols in Inland and Coastal Indian Cities*: **Y Sathish**, A Chakraborty
- 1959805** *VOCs in Major US Cities during AEROMMA 2023 (Atmospheric Emissions and Reactions Observed from Megacities to Marine Areas)*: **C Warneke**, R Schwantes, J Gilman, C E Stockwell, M M Coggon, V Treadaway

1976119 *Wildfire smoke influence on ozone and other atmospheric constituents during the Colorado Front Range Ozone Experiment (FROZE 2025):* **B McGuire**, D Guevara, A Marsavin, A Sullivan, J Stickney, Y Zhou, J Ban, M Davis, W Permar, E Cope, D Ketcherside, B C Sive, E Mattson, A Frazier, D Welsh, T Moore, L Hu, J L Collett Jr, J R Pierce, E V Fischer

253623

General Session: Atmospheric Physics, Dynamics, and Climate

Conveners: **Kristen Rasmussen**, Colorado State University Fort Collins; **Kelley Barsanti**, National Center for Atmospheric Research

1937179 *Assessing the Short-Term and Intraseasonal Variability of Non-Migrating Atmospheric Tides in the Thermospheric Gap of Tidal Observations:* **C S Krier**, G Liu

1941177 *Cluster Analysis of Summertime East Asian Atmospheric Circulation and Mechanisms of Frequency-Increasing Clusters:* **D H Kim**, K H Seo, S P Yoon

1928228 *Enhancing Temperature Guidance for Mountainous Areas Using Three-Dimensional Multiquadric Interpolation:* **Y G Lee**, K A Noh, E Cho, Y Lee

1926315 *Evaluating Weather Sensitivity to Atmospheric Physics Models in WRF Simulations in the Central Valley of California:* **W To**, M S Johnson, J Jung, J D Mirocha, R J Salto, M Pasillas-Pablo

1971198 *How countergradient fluxes of momentum modulate the general circulation in the Community Atmosphere Model:* **C M Zarzycki**, K Nardi, V E Larson, G H Bryan

249101

High-Resolution Earth System Modeling on Large Supercomputers (joint with GC, OS)

Conveners: **L. Ruby Leung**, Pacific Northwest National Laboratory; **Gokhan Danabasoglu**, NCAR; **Pier Luigi Vidale**, University of Reading; **Malcolm Roberts**, Met Office Hadley Centre

1958732 *Advancing High-Resolution Atmospheric Modeling with CAM7: MCS and Tropical Cyclone Diagnostics from 0.25° AMIP Simulations:* **C Hannay**, B Stephens, D Fu, P Chang, C Zarzycki, J T Bacmeister, R B Neale, V E Larson, A Prein

1875694 *SCREAM if You Love -5/3: Kinetic Energy Spectra and HRRR-Based Evaluation of the E3SM Global Storm-Resolving Model:* **M Dubey**, B R Hillman, M A Taylor, M Taylor

1914979 *How Jet Stream Shifts are Amplifying Clear Air Turbulence (CAT) in U.S. Commercial Aviation (1980 - 2023)?*: **I Rodriguez**, M Oyola Merced

1992965 *Investigating Bjercknes Compensation under the abrupt-4xCO₂ CMIP6 Scenario:* **C Kappatou**, J H LaCasce, C Li, A Gjermundsen

1899948 *Investigating the Atmospheric and Oceanic Conditions Associated with the Cessation of Eastern Africa's Short Rains:* **J Kisembe**, C Wainwright, R Odongo, W Qian, Y Wen

1852344 *The Impact of Amazon Deforestation on the Regional and Global Climate:* **I F Cavalcanti**, C Coelho, P Kubota, I Talamoni, B Guimaraes, A P K Argles, D Spracklen, E Robertson, E Wright, J C A Baker, C Smith, R Chadwick, S Costa, S Figueroa, S MCClory

1965253 *The Influence of African Orography on the South Atlantic and Southern Ocean Temperatures:* **J E Lee**, M Ye

1996182 *Understanding the Applicability of Satellite Sounder Estimates of Large-scale Vertical Motion for Identifying the Ratio of Locally and Synoptically Forced Precipitation Events:* **N Gyawali**, B E J Rose, C R Ferguson

1932477 *Why Idealized Models Are More Important Than Ever in Earth System Science:* **K A Reed**, B Medeiros, C Jablonowski, I Simpson, A Voigt, A A Wing

1961086 *Why is spring longer than fall?:* **J Scheff**

1879992 *A Unified Mesh Framework for Land, River, and Ocean within the E3SM Model:* **C Liao**, X Asay-Davis, G Bisht, P E Thornton, L R Leung

1895211 *An update on UXarray: A Python package for the analysis of kilometer-scale model outputs:* **J Clyne**, H Chen, P Chmielowiec, O Eroglu, C Hannay, R L Jacob, R Jain, B Medeiros, P A Ullrich, C M Zarzycki

1953783 *Evaluating Extratropical Windstorms in Global Storm Resolving Models:* **B E Harrop**, Z Chen, Z Feng, L Goldberger, Y Han, L R Leung, P A Ullrich

1860384 *Excessive equatorial light rain causes modeling dry bias of Indian summer monsoon rainfall:* **G Li**, C Zhao, J Gu, J Feng, M Xu, X Hao, J Chen, H An, W Cai, G Tao

1956656 *GFDL's Next-Generation Atmospheric Model (AM5) to advance Earth System simulations:* **B Xiang**, V Naik, PhD, D Paynter, H Guo, P Lin, S Malyshev, Z Tan, M Zhao

- 1968822** GPU-accelerated single and multiple regional refined mesh (RRM) simulations using the E3SM/EAMxx model: **G Sever**, B Gamelin, D K Fytanidis, P Perry, M Dasgupta, M Altinakar, S Afolayan
- 1930306** Modeling Ocean – Sea Ice Interactions Using the E3SM Arctic-Refined Eddy-Resolving Ocean and Sea Ice (AEROSI) Model Forced with JRA55-do Reanalysis: **W Maslowski**, Y Lee, R Osinski, M R Petersen, A Craig, J L Clement Kinney, A Roberts, M Veneziani
- 1904809** NCAR CESM2 Simulations of the Pacific Equatorial Undercurrent: Influence of Ocean General Circulation Model Horizontal Grid: **D Halpern**, J Kurian, P Chang
- 1881450** New Cylc-based workflow for automated running, post-processing, and verification of high-resolution variants of GFDL SHiELD model: **A Kaltenbaugh**, C Blanton, L Harris

249375

Exploring Inadvertent and Deliberate Aerosol Perturbations on Clouds and the Climate (joint with GC)

Conveners: **Haruki Hirasawa**, University of Toronto; **Lucas McMichael**, University of Washington Seattle Campus; **Tianle Yuan**, NASA GSFC; **Haipeng Zhang**, Nanjing University; **Cindy Wang**, Cornell University

- 1859245** A framework for defining scales of SRM field studies involving controlled aerosol emissions: **S J Doherty**, M Diamond, R Wood, H Hirasawa
- 1934899** Cirrus cloud thinning susceptibility in a future climate with warming in E3SM: **A Hu**, X Liu, B R Hillman, D L Bull, P N Blossey, S Turbeville
- 1909409** Comparative Analysis of Stratus Clouds in the Southern Ocean and Arctic Ocean: Implications for Mixed Phase Cloud Thinning: **L M Zamora**, J F Kok, A T Evan, K A Moore, X Li, G V Cesana
- 1850961** Complex seasonality of Arctic mixed-phase cloud brightening/thinning: **C E Singer**, A Gettelman, M M Holland, W Lee
- 1847271** Conflict-Induced Ship Traffic Disruptions Constrain Cloud Sensitivity to Stricter Marine Pollution Regulations: **M S Diamond**, L Boss
- 1866364** Estimating Twomey forcing sensitivity to ship track spreading rates using a combination of LES and Langevin particle modeling: **L A McMichael**, R Wood, K von Salzen, E Erfani
- 1943323** Evaluating High-Resolution Simulations of Ship Tracks for Marine Cloud Brightening Experiments: **A Tippet**, E Gryspeerd, P Field

- 1908422** Quantum Algorithm for Modeling Probability Distributions in the Collision-Coalescence Process of Cloud Droplets: **K Ueno**, H Miura
- 1856523** Rareness-amplified intensification of extremes (RAINE): **I E de Vries**, F S Castruccio, D Fu, P A O'Gorman
- 1987352** Relevance of Global km-scale Modeling for Large-scale Atmospheric Variability: Perspectives from a 10-year NICAM simulation: **D Takasuka**, C Kodama, M Nakano, Y Yamada, R Masunaga, T Suematsu, H Miura
- 1940106** Scalable Mesh-Aware Coupling for High-Resolution E3SM Simulations: **R L Jacob**, I Grindeanu, V Mahadevan, D Wu
- 1852679** Towards a New Paradigm in Analyzing Global km-scale Simulations: **Z Feng**, A Gettelman, F A Ziemann, B E Harrop, Z Chen, L Paccini, C Li, H Franke, M Muetzelfeldt, T Auerwald, J Song, F Song
- 1931541** Exploring Marine Cloud Brightening Strategy Patterns Under Climate and Operational Constraints: **Z Liu**, H Hirasawa, R Wood
- 1914781** Exploring the Colocation and Validation of PREFIRE and EarthCARE Observations for Smoke Aerosol-Cloud Interactions: **P Bartels**, M Oyola Merced, T L'Ecuier
- 1879012** Exploring the combination of Marine Cloud Brightening and Stratospheric Aerosol Injection: **E Brody**, D MacMartin, D Visoni, E Bednarz, B Kravitz
- 1866213** Extensive Decline of Reflective Clouds over the North Atlantic and Northeast Pacific: **K von Salzen**, A Akingunola, J N Cole, R Digby, S J Doherty, L Fraser-Leach, E Gryspeerd, M Sigmond, R Wood
- 1955173** Far-reaching Effects of Cooling a Coastal Megacity with Marine Cloud Brightening Modeled Using a Regionally Refined Mesh Grid: **J Wan**, S Tilmes, A R Herrington, J Brzenski, K Ricke
- 1970924** Global trends in cloud droplet concentrations in marine boundary layer clouds from MODIS.: **R M Eastman**, C Wright, K von Salzen, R Wood
- 1976259** Isolating the Impacts of Anthropogenic Aerosols on Convection in a Perturbed Parameter Ensemble: **J M Nugent**
- 1903353** Negligible Contribution from Aerosols to Recent Trends in Earth's Energy Imbalance: **C Park**, B Soden
- 1992564** Optimal Conditions for Enhancing Radiative Cooling Through Marine Low Cloud Intervention Based on a Deep Learning Model: **M Wang**, Y Cao, Y Zhu, D Rosenfeld
- 1981671** Potential climate effects of a low aerosol forcing nuclear war: **A K H Cheung**, P J Kushner, F S R Pausata, Z Zhuo, M Brown

1885963 *Quantification of the influence of anthropogenic and natural factors on the record-high temperatures in 2023 and 2024:* **E Farago**, L McBride, A P Hope, T Canty, B F Bennett, R J Salawitch

250532

Identifying, Understanding, and Resolving Earth System Model Biases (cosponsored by AMS:

American Meteorological Society,AOGS: Asia Oceania Geosciences Society,EGU: European Geosciences Union,WCRP: World Climate Research Programme) (joint with C, EP, H, OS)

Conveners: **Michael Ek**, National Center for Atmospheric Research; **Weiwei Li**, University of Illinois at Urbana Champaign; **Wenyu Zhou**, Pacific Northwest National Laboratory; **Kathryn Newman**, Developmental Testbed Center (DTC)

1863253 *A Copula-based Framework for Emergent Constraints Using MCMC simulations:* **X Zhang**, J Li, Q Dong, C Gao, H Chen

1846708 *Analysis of Internal Climate variability over Europe as a benchmark for climate model outputs assessment:* **H H R H Randriatsara**, E Holtanova, J Miksovsky

1848382 *Bias reduction in Earth system models via improved coupling of longwave radiation:* **L Manzo**, C S Zender, E Thomas, A Roberts

1931151 *Diagnosing Land-Atmosphere Coupling Errors in E3SMv3 Using Diurnal Metrics and ARM Observations:* **S Xie**, C Tao, M Zhang, W Lin

1966835 *Differences in Radiosonde and Aircraft Moisture Measurements Resulting in Misleading NWP Initialization and Verification:* **D D Turner**, S Benjamin, T J Wagner, E James

1987732 *Do Models Mis-Represent Evaporative Regimes in Arid and Semi-Arid Regions?:* **L Zhu**, I Simpson

1957179 *Evaluation of Diurnal Energy Cycle in NOAA's Seasonal Forecast System Using DYNAMO Cases:* **W Li**, S Sun, J Dudhia, M Zhang

1927092 *Excessive Downward Shortwave Radiation in the HRRR and RAP Weather Models and Testing Strategies for Improvements:* **S Benjamin**, E James, D D Turner, K Balmes, K O Lantz, A Jensen, J A Augustine

1934472 *Identifying Model Biases in the Arctic Boundary Layer: Insights from Comparing the Community Atmosphere Model to the MOSAiC field campaign:* **A Jacobs**, J T Bacmeister, C M Bitz

1864517 *Simulating What Was Missed: Aerosol Effects on High Supersaturation Beyond Current Observations in Tropical Deep Convective Clouds:* **D Rosenfeld**, C Fan

1986033 *Visible Ship Tracks Reveal Dark Matter of Aerosol Indirect Forcing from Ship Emissions:* **T Yuan**, H Song, L Boss, M Diamond

1958094 *Impact of Central and Eastern Atlantic Niño on SST and precipitation patterns in reanalysis and Earth System Models:* **A Cruz Perez**, H Li

1968898 *Implementation of a Reflectance Derived Sediment Supply Map in the UFS and Analysis of Impacts on AOD and Dust Emission.:* **E Faber**, B Baker, A Rocha Lima, K Schepanski

1979526 *Influence of Elevated Andes Topography on South American Precipitation Biases:* **K Olivas Ordoñez**, D Meegan Kumar, G Elsaesser, J Wu, J W Baldwin

1939566 *Intermodel Spread in Indian Ocean Basin Mode Simulation: Roles of Indian Ocean Winds and Pacific Cold Tongue:* **W Jiang**

1928526 *Meteorological Assessment of the Unified Forecast System with Chemistry (UFS-Chem) using an Open-Source Model Evaluation Toolkit:* **L Thompson**, R Schwantes, M Bruckner, P Lichtig, C H Hsu, J He, C Lyu, B C McDonald

1905993 *Performance and Bias Assessment of Historical Climate Simulations from the GRIMs-NEMO Coupled Earth System Model:* **S Lee**, R Park, S W Kim, S W Son, S W Yeh, C Yoo, B K Moon, J H Jeong, J Yoon, B M Kim, C K Song, D H Cha, M I Lee, E H Baek

1990541 *Process-Oriented Evaluation of Stationary Rossby Waves and Their Impacts on Extreme Events in Dynamical Downscaling over North America:* **K Sakaguchi**, S A McGinnis, L R Leung, M S Bukovsky, R R McCrary, Z Chen, C C Chang, Y Li

1980419 *Quantifying Structural Error in a Reduced Representation of Secondary Organic Aerosol Condensation Microphysics:* **D Quevedo**, J Johnson, M Dawson, N Riemer, L Fierce, B Murphy

1966087 *Rapid Evaluation Framework for the CMIP7 Assessment Fast Track:* **F M Hoffman**, B Hassler, R Swaminathan

1873741 *The Role of Radiation and Microphysics in Winter Storm Prediction Bias:* **F Azizpourshoubi**, M Astitha, U Khaira

1930571 *Understanding Biases in Simulated Cloud Radiative Effects in E3SMv3:* **Y Zhang**, S Xie, W Lin, C R Terai

1903771 *Understanding How Cyclone Biases Contribute to Winter Precipitation Biases over the CONUS in the GFDL SPEAR Model:* **S He**, J Lee, X Yang, C Zheng, E K M Chang

251788

Integrated Perspectives of Aerosol's Origin, Properties, Deposition and Impacts: Implications for Acid rain, radiative forcing, climate change, vegetation, materials and public health (cosponsored by ACSESS: Alliance of Crop, Soil, and Environmental Science Societies, AOGS: Asia Oceania Geosciences Society, ISEE: International Society of Environmental Epidemiology, WCRP: World Climate Research Programme)

Conveners: **Alok Gautam**, Hemwati Nandan Bahuguna Garhwal University; **Ranjit Kumar**, Dayalbagh Education Institute; **T V Lakshmi Kumar**, Jawaharlal Nehru University; **Vaishnav Bartaria**, Dayalbagh Education Institute

1993325 *Air Quality Monitoring and Health Risk Assessment of PM_{2.5} Exposure at Toll Plazas in Agra Region:* **B** , D Daneesh Massey, M Habil

1885358 *ANALYZING AEROSOL TYPES USING GROUND-BASED AERONET OBSERVATIONS AND REANALYSIS MODEL PERFORMANCE OVER SINGAPORE:* **N Sharma**, S Dahal, D S Kumar, K Patel

1939621 *Are Commuting Vehicles Safe? A Comparative Assessment of Air Quality and Health Risks Inside Buses and Metro Systems:* **A Swroop**, A Jangid

1939899 *Bioaerosols as Invisible Threats: Linking Airborne Biological Particles to General Health Outcomes:* **A Bhatnagar**, M Iqbal, J Masih

248686

Isotopes of the Atmospheric Components: Laboratory Investigation, Field Observation, Modeling, and Remote Sensing

Conveners: **Jianghanyang Li**, NOAA; **Jiajue Chai**, SUNY College of Environmental Science and Forestry; **Wendell Walters**, Brown University; **Daniel Crocker**, Harvard University

1992534 *Advancing Atmospheric Methane Source Attribution Using Clumped Isotopologue Measurements: Method Development from the POLYGRAM Project:* **S Defratyka**, C Rennick, F Wilson, M Clog, A Gartside, T Arnold

1944478 *Characterization of Black Carbon in the Indo-Gangetic Basin Using FESEM-EDX: Soot Morphology and Health Risk Assessment:* **V Bartaria**, A Ganguly, A Jangid

1990392 *Chemical Composition and Health Risk Assessment of Fine Particulate Matter in the Traffic-Prone Site of Glass Industry in India:* **S** , A Taneja

1888043 *Contrasting Air Pollution Patterns in the Indo-Gangetic Plain and North-East India: Implications for Region-Specific Mitigation Policies:* **M K Srivastava**, B J J Mehrotra, S Sonkar , A Choudhary, P Kumar, A K Srivastava

1939433 *Integrated Community-Based Interventions for Clean Air: A Vision:* **R Kumar**

1959589 *Investigating Long-Range Smoke Transport to the Southern Great Plains, USA via Weather Regimes:* **M Loria-Salazar**, K Eskew, K Pegion, C J Flynn, H Webb

1909331 *Monitoring of long-term spatiotemporal aerosol dynamics over Indian terrestrial ecosystem:* **R Tiwari**, P K Chauhan, D K Gupta, A K Singh

1994564 *Morphological Fingerprinting of Indoor and Outdoor PM_{2.5} at Urban Residences of India:* **K Singh**, M K Kandikonda, A Satsangi

1849045 *OBSERVATIONS OF NEW PARTICLE FORMATION AND FAVORABLE CONDITION AT A HIGH-ALTITUDE BACKGROUND LOCATION OF UTTARAKHAND, INDIA:* **A S Gautam**

1848618 *SATELLITE EVIDENCE OF EMISSION TRENDS, POLLUTION HOTSPOTS, AND CLIMATE IMPACTS ACROSS INDIA (2005–2024):* **A Saxena**

1910497 *The Atmospheric Transport of Commercially Sold Microplastics:* **A Reininger**, A Stohl, D Tatsii, T Bhowmick, G Bagheri

1851291 *A Full Theoretical and Experimental Model of The Isotope Effect in Photodissociation:* **M H Thiemens**, T L Jackson, K Komorova, N Gelfand, F Remacle, R Levine, S Chakraborty, O Kostko

1864362 *Adding Clumped Isotopologues to Methane Source Attribution Techniques:* **J Famiglietti**, M M Williams, A Turner, M Haghnegahdar, C Magen, J Farquhar

1900658 *An Improved Method for Stable Nitrogen and Oxygen Isotopic Analysis of Nitrate in Seawater, Freshwater and Atmospheric Nitrate Using Ti(III) and Iodide:* **M Scholer**, G Michalski, L R Welp, B Davidheiser, L Ring, C Persch, J Li

1935076 *Chemistry of fast CH₄ oxidation by OH in an Oxidation Flow Reactor for isotopic fractionation analysis:* **J Li**, D A Day, Z Peng, J L Jimenez, J A de Gouw, S Michel, J V Ortega, J R Clark, K Braun

- 1944364** *Comparative Analysis of ^{13}C KIE And $^{\text{D}}$ KIE in CH_4 -OH Reaction:* **C C Chen**, C van der Veen, G Adnew, T Röckmann
- 1993317** *Comprehensive Analysis of Atmospheric Radiocarbon Monoxide (^{14}C O) Trends Since the Pre-bomb Period Using the EMAC Model:* **S Gromov**, C A M Brenninkmeijer, P Joeckel, T Röckmann
- 1970176** *Deconvolving the effects of stratospheric chemistry and transport on the isotopic compositions of long-lived gases measured at Earth's surface:* **K A Boering**
- 1923413** *Detailed Characterization of a Mist Chamber for the Collection of Ammonia Gas:* **D Sodiya**, W W Walters
- 1955935** *Direct Constraints on the $\delta^{13}\text{C}$ of Ancient Atmospheric CO_2 from Halite Fluid Inclusions:* **J G Park**, J Shelley, M F Schaller
- 1944869** *Direct detection of stable isotopes and tracers in biogeosciences using a multi-QCL gas analyzer:* **C Espic**, J Bruckhuisen, M Hundt, J Hlubucek, O Aseev, E Smith
- 1913448** *Evaluating Concentration Methods for Isotope Analysis of Low Nitrate Concentrations:* **M Goedken**, M Weatherly, W W Walters
- 1985245** *Experiments on a Simplified Calibration Scheme for Field Deployment of Optical Carbon-Isotope Analyzers:* **J Kim**, P Salameh, T J Lueker, E J Morgan, C M Harth, J Seibel, W Paplawsky, R F Keeling
- 1867087** *First Triple Oxygen Isotope Results of Methanesulfonate in Antarctic Aerosols Using ESI-Orbitrap-IRMS:* **Y Hong**, I Sakiko, U A Jongebloed, K Hara, B Alexander, M Hayashi, S Hattori
- 1886189** *Insights into the source attribution and chemical pathways of reactive nitrogen based on isotopic and trace gas analysis in summertime Salt Lake City:* **L Lyu**, M Horsford, M M Coggon, C E Stockwell, Y Li, S Ward, L WANG, Y Huang, N Mariscal, H Humble, M R Garcia, J C Lin, C Warneke, C Womack, J Chai
- 1845208** *Isotopic Signatures and Atmospheric Monitoring of CO_2 in a Post-Industrial Urban Environment:* **B Sensula**, A Ustrzycka
- 1966869** *Long-Range Dust Deposition on Tropical Islands: Sr-Nd-Pb Radiogenic Isotopes and Trace Metals Geochemical Evidence from Reunion Island Soils:* **D Palchan**, P Gutierrez, C Chauvel
- 1925447** *Modeling Atmospheric Sulfate Oxidation Chemistry in the US Using the Oxygen Isotope Mass-Independent Fraction: Implications of Model Updates and Decadal Trends:* **H Fang**, A Baer, W W Walters
- 1954459** *Nitrate Reductase Enzyme-Azide Method for Analysis of Nitrogen and Oxygen Isotopes of Nitrate:* **M Weatherly**, W W Walters
- 1890360** *Nitrogen Stable Isotopes Track Ammonia Emission Sources and Ammonium Aerosol Formation Processes in the Marine Boundary Layer:* **K Altieri**, S Smith, S Fawcett, J Granger, K Spence, M Mathuri
- 1954318** *Orbitrap-Based Isotopic Characterization of Nitrate and Sulfate Aerosols: Advancing Sensitivity, Matrix Handling, and Clumped Isotope Analysis:* **W W Walters**, A Bowen, C Christian
- 1874154** *Real-time spectroscopic determination of $\delta^{15}\text{N}$ -NO in atmospheric samples:* **A W Rollins**, C Jansen, E Waxman, Z Decker, J Li, M Scholer, P Edwards, A Gorchov Negron
- 1944141** *Source Apportionment of Black Carbon Aerosols at the Summit of Mt. Fuji using Dual-Isotope Analysis (^{14}C , ^{13}C) and the GEOS-Chem Model Comparison:* **M Uchida**, K Mantoku, N Kaneyasu, H Kumata, K Kawamura
- 1977388** *Southern high latitude sulfate sources and chemistry inferred from sulfur isotopes in Antarctic ice cores:* **U A Jongebloed**, T P Fischer, P R Kyle, L Kang, Y Bhatti, B Alexander
- 1881118** *Summertime Diurnal Isotopic Analysis of Nitrogen Dioxide and Ozone in a Northeastern City in the United States:* **L Marcus**, H Kim, M G Hastings
- 1930671** *Temperature Dependence of the Oxygen-17 Anomaly in Ozone and its Transfer to CO_2 :* **G Cazares**, K A Boering
- 1959737** *The Isotopic Composition of Nitrous Oxide Generated in a Low-Temperature Non-Equilibrium Plasma and Its Applications to the Atmosphere:* **E Hazen**, K A Boering
- 1895382** *Year-round observations of atmospheric nitrate in a metropolitan city: Isotopic insights into seasonal trends in formation mechanisms and main sources:* **Y Li**, J Chai, G Shi

253265

Jacob Bjerknes Lecture

Conveners: Amy Clement, University of Miami; Andrew Gettelman, Pacific Northwest National Laboratory

253270

Jule Gregory Charney Lecture

Conveners: Amy Clement, University of Miami; Andrew Gettelman, Pacific Northwest National Laboratory

247187

Light Scattering and Radiative Transfer: Basic Research and Applications (joint with C, OS, P)

Conveners: Pengwang Zhai, Goddard Earth Sciences Technology and Research (GESTAR) II; Ping Yang, Texas A&M Univ

1949616 *A comprehensive evaluation of cloud microphysical assumptions in radiative transfer simulations:* **D B Shin**, D Kim, J Kim

1995203 *A fast polarized radiative transfer model for cloudy atmospheres using machine learning:* **C Liu**, B J Sohn, Y Ling

1907022 *Assessment of Inherent Optical Properties to Remote Sensing Reflectance Transformation Methods in Highly Turbid Coastal Waters of the Wadden Sea:* **M Moradi**, D B Arabi, M Lu

1950772 *Deriving IPAR from PACE Multi-Angular Polarimeters: theoretical basis and implementation:* **P Zhai**, K Aryal, M Gao, B A Franz, J Werdell

1867529 *Does Turbulence Affect Light Scattering by Ice Crystals?:* **M M Khan**, H Mishra, S P Thampi, A Roy

1935022 *FastMAPOL/Component Algorithm: Initial Assessment with PACE Polarimeter Data:* **K Aryal**, P Zhai, M Gao, B A Franz, K D Knobelspiesse

252861

Low-cost air quality sensors: challenges, opportunities, and collaborative strategies across the world

Conveners: Audrey Gaudel, CIRES University of Colorado Boulder; Colleen Rosales, Openaq; Mohammed Mead, Imperial College; Sebastian Diez, Universidad del Desarrollo

2001533 *Harnessing Low-cost Sensors for Promoting Sustainable Indoor Air Quality at Underserved Neighborhoods in New York State :* **M A Bari**, J Nimo, D Eugene, Z Hossain, A Jackson, S D Miller, C H Lu, E Dueker, B Pavilonis

1978083 *Performance of a Dual-Wavelength MetOne Carbon (C-12) Monitor in Contrasting Atmospheric Environments: A New York State Intercomparison Study:* **J Nimo**, M A Bari, S D Miller, C H Lu, E Dueker, B Pavilonis

1985727 *Lidar Scattering Properties of Large Absorbing Dust Particles: Geometric Optics Interpretation and Implications:* **T La Luna**, Z Zhang, J Zheng, PhD, Q Song, H Yu, J Ding, P Yang, M Saito

1947175 *Light Scattering by Non-spherical and Inhomogeneous Particles: Integrating Physical and Machine Learning Approaches:* **L Bi**, Y Xi, X Wang

1994847 *Mie Scattering of Uncoated and Water-Coated Spherical Models of Volcanic Ash and Auto Road Dust:* **C A Jingco**, J L F Gabayno

2002064 *Multiple Scattering in CloudSat Returns: The Impact of 3D Cloud Variability:* **A B Davis**, M D Lebsock

1855264 *Radiometric Calibration of Spectral Instruments using Radiative Transfer Modeling:* **D Hallett**, J Shetye, L Mukherjee, D L Wu

1970771 *Ray Propagation through the Atmosphere:* **H McIntyre**, M Noah

1946519 *RTM-SuperAero : A New Aerosol Optics Scheme based on Super-ellipsoidal models for Application in Radiative Transfer Models:* **Y Meng**, L Bi

2002563 *Studies of phytoplankton in the ocean and aligned and chiral aerosols in the atmosphere based on advanced light-scattering and vector radiative transfer modeling capabilities:* **P Yang**, J Ding, J Wei, K Meyer, X Liu

1940659 *The Twenty-First Century Atmosphere from an Infrared Perspective: The Legacy of the Atmospheric Infrared Sounder:* **J Teixeira**

1925836 *A Framework for Interpreting Air Pollution Sensor Data: Bridging Gaps in Monitoring, Analysis and Community Engagement:* **D Lsoto**, R Sserunjogi, G Okello, Y Chen, J A Patz, J J Schauer

1979562 *Assessing the Performance of the Teledyne (T640/X) Alignment Factor in Climate-Distinct Regions Across the United States:* **K Steiner**, B Nault, P F DeCarlo

1909242 *Assessment of Air Pollutant Concentrations Near Major Roads in Addis Ababa, Ethiopia:* **T M Mekonnen**, M N Fiddler, A Ayele, B Deresse, S Bililign, M Ayelign, K Ture, E Biabie

1973271 *Empowering Communities and Students through Low-Cost PM Sensors: A Model for Environmental Education and Justice in New Orleans:* **M Gasseller**, N Hammoudeh

1920239 *Evaluating Air Quality Sensors in Humid Subtropical Climates: Insights from Dual-Collocation Studies:* **T Khan**, Z Emerson, W Rice, R Kuemmerlin

- 1892600** *Evaluating the Transferability of Calibration Models of Low-Cost Sensors:* **P deSouza**
- 1952332** *Evaluation and Calibration of the C-12 MetOne Black Carbon (BC) Low-Cost Sensors Using Brown and Black Carbon Surrogates:* **T Okanga**, R Dickerson, A A Asa-Awuku, X Ren, P Stratton, S Jacoby
- 1911342** *Fine-scale variations in PM_{2.5} and black carbon concentrations and chemical composition of total suspended PM in heavy traffic road intersection in Addis Ababa, Ethiopia:* **A Ayele**, B Deresse, T M Mekonnen, M Fiddler, K Ture, E Biablie, J D Surratt, H Royer, S Bililign
- 1972787** *FIRE-SENSE: An Open-Source, Low-Cost Air Quality Sensor Network for Fire-Prone and Underserved Regions:* **S A Rai**, J Gonzalez-Rocha, J Villa, C Namarugommula, T de Swiet
- 1881606** *Image-Based Extinction Retrieval for Real-Time Visibility Assessment Using Low-Cost Cameras:* **A Willitsford**, P Coye, B Demoz
- 1919248** *Improving PM_{2.5} Measurement Accuracy with Size Distribution-based Corrections for Low-Cost Sensors:* **Y Dahima**, A Vaishya
- 1879693** *Informing Community-Scale Air Quality Monitoring Through Risk-Aware Optimization of Low-Cost Sensor Networks:* **B Choi, PhD**, M Hummel
- 1962478** *Know Thy Foe: Information Provision and Air Pollution in Tbilisi:* **A Behrer**
- 2001931** *Lessons from seasonal calibrations of lower-cost air monitors deployed in rural Tamil Nadu:* **R Krishnan**, A Upadhyay, A Pillarisetti, S Sendhil, R R, D Natesan, N Puttaswamy, W Ye, K Balakrishnan
- 1851424** *Neighborhood-scale Monitoring of Hourly PM_{2.5} and PM₁₀ levels using Low-Cost, Open Hardware Sensors in Utqiagvik, Alaska:* **M Shaban**, L F Murillo, H E Epstein

251076

Machine Learning for ocean-atmosphere sciences: advance, challenges and the way forward (joint with NH, OS)

Conveners: **Jing-jia Luo**, Bureau of Meteorology; **X. Li**, CAS Key Laboratory of Ocean Circulation and Waves, Institute of Oceanology, Chinese Academy of Sciences and Center for Ocean Mega-Science, Chinese Academy of Sciences; **Yoo-Geun Ham**, Seoul National University; **Swadhin K. Behera**, JAMSTEC

- 1907618** *A Physically-Inspired Covariate-Adaptive Conformal Prediction Framework for Probabilistic Rapid Intensification Forecasts of Tropical Cyclones:* **F Meng**, X Chen, Q Li

- 1880231** *Observational Inferences of NO_x and CO Emission Factors in Cities Using Dense Urban Monitoring Networks:* **Y Zhu**, M Patel, A Winter, N Asimow, R C Cohen
- 1970516** *PHOENIX: A Dense Sensor Network for Outdoor PM Monitoring in Altadena, CA after the 2025 Eaton Fire:* **H D Baliaka**, C Roehl, N Kanakaris, M de la Torre Juarez, M C McDowell, I N Aguilar, T Tacail, F Tissot, T E Morrell, V Blankenship, S Hasheminassab, R Habre, N L Ng, J Seinfeld, R C Flagan, P O Wennberg
- 1874769** *Reconciling airborne, ground-based, and remote sensing observations of ambient hydrocarbons in southern California:* **K Okorn**, L T Iraci
- 1972447** *Satellite AOD and Low-Cost Sensor Integration with Machine Learning for PM_{2.5} Prediction in Complex Terrain:* **C Garcia**, Y Son, P Arnott
- 1948554** *Scalable PM_{2.5} Forecasting Using Low-Cost Sensor Networks and Transformer-Based Time-Series Foundation Models in India:* **S Dey**, K Sharma, R Sen, S Chauhan
- 1942755** *Spatial Variation of Low-cost Particle Sensor Calibration Performance using Land Use Regression:* **M H Hasan**, H Yu
- 1935762** *The BEACO₂N International Collaboration:* **A Winter**, Y Zhu, N Asimow, M Patel, R C Cohen
- 1956091** *Uncertainty-Aware Calibration of Low-Cost PM_{2.5} Sensors Using Deep Learning Approaches:* **K Smith**, A S Malarvizhi, C P Yang
- 1974452** *Underserved and Overexposed: Air Monitoring Gaps in Agricultural Communities across California's Monterey and Santa Cruz Counties:* **J F Morales**, M Troxell, G Rosas-Gonzalez, J Gonzalez-Rocha
- 1889731** *Application and Evaluation of a Deep Learning-Based Vertical Mixing Parameterization in an Ocean Model:* **J Li**, Y Yu, X Li
- 1975196** *Application of Machine Learning on Bias-Correction for High-Resolution Ocean Model Data:* **T Mink**, Y Zhu, S Siedlecki, F Soares
- 1854777** *Data-driven Global Ocean Modeling for Seasonal to Decadal Prediction:* **J J Luo**, F Ling, Z Guo, L Bai, N Boers, P Lyu, T Izumo, S E Cravatte, A Capotondi, T Yamagata, W Ouyang
- 1957414** *Improvement of PDO Index Prediction Skill in DCP-A Hindcast Experiments Using Machine Learning:* **J Dixit**, K M Achutarao
- 1952625** *Neural-ROM: A Graph Neural Network for Probabilistic Regional Ocean Forecasting in the Baltic Sea:* **D Holmberg**, E Larsson, J Oskarsson

1877260 *Post-biatus enhancement of ENSO forecast skill via salinity-mediated Indo-Pacific inter-basin coupling:* **J Wang**, J Sprintall, H Wang, X Li

1962044 *Predicting Discrepancies Between Satellite and Buoy Wind Measurements Using Machine Learning:* **S Rai**, S A Wijffels, H Seo

250220

Making Atmospheric Composition Observations More Open and More Findable, Accessible, Interoperable, and Reusable (FAIR) (joint with IN)

Conveners: **Morgan Silverman**, Analytical Mechanics Associates, Inc; **Fan Mei**, Pacific Northwest National Laboratory; **Giri Prakash**, Organization Not Listed; **Sara Lubkin**, NASA Headquarters

248553

Megafire and Pyrocumulonimbus in the Earth System (cosponsored by AMS: American Meteorological Society, AOGS: Asia Oceania Geosciences Society, EGU: European Geosciences Union) (joint with NH)

Conveners: **David Peterson**, National Research Council; **Neil Lareau**, University of Nevada, Reno; **Olga Kalashnikova**, NASA Jet Propulsion Laboratory; **Michael Fromm**, Naval Research Lab DC

1966744 *Enhanced Radiative Cooling by Large Aerosol Particles from Pyrocumulonimbus:* **Y Li**, J Dykema, D A Peterson, X Feng, X Shen, N June, M D Fromm, T M McHardy, J Jacquot, J V Pittman, B Daube, S C Wofsy, J M Dean-Day, A D Rapp, K P Bowman, D J Cziczo, L Mickley, J R Pierce, F N Keutsch

1926463 *Forecasting pyrocumulonimbus events for the upcoming 2026/2027 INSPYRE field campaign:* **D V Mallia**, H Holmes, T Wilmot, D A Peterson, J Campbell, E J Hyer

1859835 *How Atmospheric Stability and Topography Govern Pyrocumulonimbus Clouds Formation and Fire Behavior.:* **A Rovithakis**, G Torri

252599

Modeling and Untangling Atmosphere-Hydrology-Ecology Interactions through Extreme Events

Conveners: **Zeyu Xue**, Pacific Northwest National Laboratory; **Wenli Zhao**, Columbia University; **Raymond Sukhdeo**, University of California Los Angeles; **Shuaiqi WU**, University of California Davis; **Jianing Fang**, Columbia University

1916019 *Prediction of Marine Ecological Environment Based on Deep Neural Network:* **G Pu**, K Yang, Y Chen, J Qi, S Wu, Z Du

1997269 *Sub-Seasonal To Seasonal Temperature Forecasting Over The Extreme Heat Zone Of India Using Data Driven Machine Learning Approach:* **S Bhoopathi**, M Pal

1953328 *Advancing Variable Level Metadata: Triumphs and Pitfalls:* **M L Silverman**, E Huffer, J Klausen, G Chen, B Magagna, S Schindler

1844915 *How Sensible Heat Release and Water Vapor Emissions Impact the Characteristics of Pyro-convective Plumes:* **J Mueller**, F Senf, I Tegen

1985961 *Investigations of Pyrocumulonimbus Convection, Lightning, and Energetic Radiation:* **J Remington**, D Shy, J E Grove, B F Philips

1885985 *Microphysical Effects of Wildfire Smoke on Pyrocumulonimbus Development: Sensitivity to Aerosol Activation and Vapor Diffusion Parameterizations:* **Y Liu**, Y Wang, Y Zhang, J Fan, Q Tang, J Li

1971824 *Performance Evaluation of NOAA's Rapid-Refresh Forecast System (RRFS-Smoke) model in Capturing Deep Smoke Injections from Intense Wildfires in Northwestern US:* **S Bhimreddy**, R Ahmadov, J Romero-Alvarez, J Schnell, H Li, M Choi, E James, S Kondragunta, C Xu, F Li, J Otkin, R B Pierce

1875781 *Pyrocumulonimbus Early Warnings from NUCAPS Thermodynamic Profiles:* **L Wilson**, D A Peterson, T M McHardy, L Porter, C P Camacho, M L Surratt, J R Campbell

1918955 *Radar-Based Retrieval of Wildfire Ash Particle Size Using Volcanic Ash Methods:* **A Wang**, S T Peters, M Frediani, N Lareau

1925825 *The INjected Smoke and PYrocumulonimbus Experiment (INSPYRE):* **D A Peterson**, N Lareau, O V Kalashnikova

1946719 *Evapotranspiration: The Key to Understanding the Role of Land-Atmosphere Interactions on Extremes :* **K L Findell**, H Hsu, D Yoon

1890883 *Declining Contribution of Plant Physiological Effects to Global Drought Characteristics With Rising CO₂ Using State-of-the-Art Earth System Models:* **Z Li**, F Sun, H Wang, T Wang

1947139 *Divergent dominant physical processes of extreme heatwaves in northern and southern China:* **Y Ni**

- 1933465** *Diverse responses of drought to vegetation: Z Xue, PhD, R Leung, G Bisht, L Li, PhD*
- 1951437** *Florida mangrove dieback on a decadal and centennial timescales: M Cohen, D P Cardenas Ruiz, É Rodrigues, Q Yao, K B Liu, A Aragón-Moreno, A Vivan de Souza, J Ryu, L C Ruiz Pessenda, S Nunes*
- 1944721** *Integrated Assessment of Aquatic Ecosystem Health Using Bayesian Networks: Connecting Drought Indices and Environmental Variables to Streamflow Health Indicators: J Kim, P S D R Fabian, H H Kwon*
- 1863508** *Lake-atmosphere feedbacks amplify the socioeconomic impacts of large lake shrinkage during extreme droughts: L Huang, X Wang, L Zhang, C Wang*

251923

Modeling the Hunga volcanic eruption: synthesis of atmospheric and climate impacts (joint with V)

Conveners: William Randel, National Center for Atmospheric Research; Graham Mann, University of Leeds; Paul Newman, NASA Goddard Space Flight Center; Yunqian Zhu, National Oceanic and Atmospheric Administration

- 1933122** *Changes in Stratospheric Chlorine Partitioning Observed by the MkIV Balloon Interferometer after the 2022 Eruption of Hunga Tonga-Hunga Ha'apai and their Impact on Stratospheric Chemistry: A Kleinboehl, G C Toon, J F Blavier, L Howar, R J Salawitch*
- 1879037** *Clarifying the Fate of Hunga Tonga-Hunga Ha'apai Water Vapor with Tagged Volcanic Tracer Simulations: A M Johnson, M Flanner, C Jablonowski*
- 1880829** *Comparing Multi-Model Ensemble Simulations with Observations and Decadal Projections of Upper Atmospheric Variations Following the Hunga Eruption: Z Zhuo, X Wang, Y Zhu, F S R Pausata*
- 1867218** *Evaluating models skills in simulating the evolution of aerosols and water vapor from the Hunga eruption: results from HTHH-MOC Exp2a.: V Aquila, R Ueyama, A E Bourassa, S Khaykin, A Baron, L A Rieger, A Rozanov*
- 1884478** *Hunga Effects on Stratospheric Temperatures and Circulation: X Wang, L Coy*

- 1857634** *Remote Effects of High Mountain Land Temperatures Found to Cause Catastrophic Drought/flood Events in North America and East Asia: Y Xue, I Diallo, Q LI, W K M Lau, X Kong, J D Neelin, A Wang, Z Cao*
- 1894362** *Shifting Seasons, Shifting Extremes: Impacts of Earlier Vegetation Phenology on the Characteristics of Droughts, Pluvials, and Extreme Heat: A Fallahmaraghi, M A Barlow, J B Basara, G J Kooperman, D M Lawrence, C B Skinner*
- 1943247** *Vegetation-Driven Circulations and Their Modification During Heatwaves: Downwind Impacts of Semi-Arid Forests in Peninsular India: D Sen, J Monteiro*
- 1918933** *Modelling the Impact of Hunga on Polar Stratospheric Ozone Depletion: S Heddell, M Chipperfield, G W Mann, S Dhomse, W Feng, M Yoshioka, X Zhou*
- 1865823** *Multi-model analysis of the radiative impacts of the 2022 Hunga eruption indicates a significant cooling contribution from the volcanic plume: I Quaglia, D Visioni, E Bednarz, Y Zhu, G L Stenchikov, C C Liu, G W Mann, Y Peng, T Sekiya, S Tilmes, X Wang, S Watanabe, P Yu, J Zhang, W Yu*
- 1995283** *Stratospheric Circulation in the Southern Hemisphere: Links to Tropical Winds, Ozone, and the Hunga Eruption – Evidence from ERA5 Reanalysis: W Yu, X Wang, W J Randel, R R Garcia, P A Newman, S M Davis, K Rosenlof*
- 1913853** *The 2022 Hunga Eruption: middle and upper atmospheric effects: C Wright, J Yue, N Hindley, J Lei, L Millan, S Wallis, W Yu*
- 1861378** *The 2022 Hunga Eruption: Radiative Forcing and Atmospheric Impact APARC Report: G L Stenchikov, M R Schoeberl, E Bednarz, I Quaglia, Z Zhuo, E L Fleming, Y Huang, P Sellitto, C Timmreck, M Toohey, J Wang*
- 1976142** *The Hunga Impacts Report Chapter 5: Effects of the Hunga eruption on stratospheric ozone and related trace gases: F F Oesterstroem, M L Santee, M Chipperfield, S Evan, D Smale, K Wargan, D M Wilmouth, I Wohltmann*
- 1874428** *Updates on observed middle atmosphere cooling from Hunga: W J Randel, J Starr, X Wang*
- 1918531** *When Will the Stratospheric Water Vapour Return to Pre-Hunga Level?: X Zhou, Q Chen, W Feng, S Heddell, S Dhomse, G W Mann, H C Pumphrey, L Millan, M L Santee, M Chipperfield*

248625

Models, In situ, and Remote sensing of Aerosols (MIRA)

Conveners: **Masanori Saito**, Texas A&M University College Station; **Luke Ziemba**, NASA Langley Research Center; **Eleni Marinou**, National Observatory of Athens; **Susan Mathai**, Oak Ridge Associated Universities Inc.

- 1949035** *A New Shape for Dust: Reproducing Dust Spectral Backscatter Using Mixtures of Simple Shapes:* **A Gialitaki**, A Tsekeri, M O'Callaghan, D Kouklaki, K Papachristopoulou, M Haarig, A Floutsis, M Kezoudi, A Papetta, F Marengo, K Kandler, S Aryasree, M Eknayan, V Amiridis
- 1938955** *Aerosol Classification Through K-Means Clustering: Findings From Aerosol Data Over Southeast Texas During the TRACER Field Campaign:* **A Takeishi**, Y Tian, K K Chandrakar, C S McCluskey, A B Funk, C Schumacher, G C Roberts
- 1890739** *Aerosol Emission Estimation by Assimilating Ground and Satellite Observations over Europe:* **B George**, A Thomasson, P Roldin, A Segers, N Schutgens
- 1965614** *Closure of Aerosol Radiative Properties from Remote Sensing and In Situ – Pertinent to Assessing the Accuracy of AERONET Sky Scan Inversions:* **L T Mitchell**, C J Flynn, J Redemann, K Pistone, S LeBlanc
- 2004475** *Comparison between ground-based and satellite solar aureole measurements of aerosol optical properties:* **K Aoki**, M Momoi, O Dubovik, E S Lind
- 1948639** *Development of a New ICESat-2 Atmospheric Research Data Product:* **K E Christian**, P A Selmer, J Gomes, S P Palm, M J McGill, N Midzak, A Cresanti, E P Nowottnick, J E Yorks
- 1920925** *Earth's Atmosphere Through Multiple Lenses: NASA's Integrated Approach to Aerosol Research and Observation:* **K E Knowland**, E P Nowottnick, K W Jucks, J T Sullivan, W McCarty, L Carrington
- 1896425** *Effect of LCLU Characteristics and Meteorology on BVOC Emission Estimates via MEGANv2.1:* **X Wang**
- 1984163** *First-order and second-order effects of data assimilation on aerosol absorption estimates from a global model:* **E J Hyer**, P Xian, C P Camacho, L McDermid, T McHone, M Choi, Y Wang, A Lyapustin

- 1943273** *From Images to Mass: A Camera-Based Approach to Estimating Aerosol Optical Properties and Mass Concentration:* **J Sim**, J Shin, Y Mun, D Kim, Y Noh
- 1876434** *Global Climate Models Overestimate Concentrations of Giant Sea Salt Aerosol:* **K Ackerman**, A D Nugent, J B Jensen
- 1945244** *Investigating Dust Mixing State, Using the Backscatter of Realistic Dust Shapes:* **A Tsekeri**, A Gialitaki, J Gasteiger, N Kustova, A Konoshonkin, M Yurkin, T Georgiou, A Kampouri, M Tschla, S Metallinos, N Asimakopoulou, E Marinou, M Kezoudi, F Marengo, A Papetta, A Sudharaj, K Kandler, M Haarig, A Floutsis, H Baars, A R Nehrir, J E Collins Jr, E Crosbie, R A Barton-Grimley, E P Nowottnick, S Gross, V Amiridis
- 1936968** *Leveraging co-located PACE SPeXone data and NASA ModelE-MATRIX to determine atmospheric composition:* **S Foisy**, S Bauer, K Tsigaridis, O P Hasekamp, G Fu
- 1862540** *Optical Properties of Aerosols in TAO Database:* **S Mathai**, G L Schuster, L D Ziemba, E Chemyakin, M Saito, Y Derimian, P Lesueur, F Ducos, M Chin, R Espinosa
- 1927103** *Physico-chemical Properties of Free Tropospheric Mineral Dust at the Remote Pico Mountain Observatory, in the Azores:* **I Norwood**, R P Reveggino, S Joshi, L R Mazzoleni, P Fiahlo, S China, B Zhang, A A Baccarelli, M Morgenstern, K Anderson, S K Schum, C Mazzoleni
- 1971613** *Relational database construction for Tables of Aerosol and Cloud Optics:* **Y Derimian**, G L Schuster, P Lesueur, F Ducos, S Mathai, M Saito
- 2001558** *Simulations of the optical properties of nonspherical dust aerosols using state-of-the-art light-scattering computational capabilities:* **P Yang**, J Ding, D Li, S Wang
- 1949525** *ST-AeroClassifier: A Simulation-driven Transfer Learning Framework for Lidar-based Aerosol Typing:* **Y Xi**, L Bi
- 1974005** *Vertical Profiles of Aerosol Properties in the Arctic Spring and Summer: Observations during NASA ARCSIX 2024:* **L D Ziemba**, M D Brown, J P DiGangi, G S Diskin, E L Edwards, F Gallo, S Mathai, R Moore, A R Nehrir, M Shook, A Sorooshian, J Wang, E Winstead
- 1964877** *Wildfire and Regional Influences on Aerosol Loading at Appalachian State's NASA AERONET and MPLNET Sites:* **R Kitteringham**, J P Sherman

249819

Multi-Decadal Change in the Middle Atmosphere and Geospace: The Next Frontier in Climate (*joint with GC*)

Conveners: **Juan Añel**, Universidade de Vigo; **Shunrong Zhang**, MIT Haystack Observatory; **Romina Nikoukar**, Johns Hopkins Applied Physics Laboratory; **Kimberlee Dube**, University of Saskatchewan

1977619 *28-Year Observations of Middle Atmospheric OH During Solar Cycles 23 – 25:* **S Wang**, T Pongetti, L F Millan Valle, K F Li, Y L Yung

1879915 *Two solar cycles of SABER/TIMED upper atmosphere measurements and lessons learned.:* **J Yue**, M G Mlynczak

1994197 *A Parametric Study of Oxygen Photodissociation Driven by Solar Absorption in the Schumann-Runge Continuum: Insights from 20 Years of TIMED/SEE Data:* **R Nikoukar**, R DeMajistre, F Eparvier, D Woodraska, T N Woods, J H Yee, X Zhu

1858701 *A rocketsonde database for middle and upper atmosphere research:* **J A Añel**, L de la Torre Ramos, J C Antuna-Marrero, G Beig

1950914 *Linking Long-term Arctic Variability and Changes in the Stratosphere, Mesosphere, and Lower Thermosphere:* **S Kumar**, J Oberheide, J Zhang, N M Pedatella, X Lu

1995245 *Long-Term Trends of Ionospheric Day-to-Day Variability during the Past Century:* **X Zhou**, X Yue, H Liu

249359

Multiphase Chemistry at Atmospherically Relevant Interfaces

Conveners: **Yixin Li**, Texas A&M University; **Yafang Cheng**, Max Planck Institute for Chemistry; **ManishKumar Shrivastava**, PNNL / Climate Physics; **Chong Qiu**, University of New Haven

1923354 *A Coupled Kinetic–Thermodynamic Aerosol Model: Resolving Phase-specific Viscosity and Diffusivities in Simulations:* **Z Shen**, A Zuend, M Shiraiwa, M Schervish, Y Li

1963816 *A Kinetic Perspective on Multiphase Sulfate Production Accelerated at the Interface of Deliquescent Aerosols:* **Y Li**, B Aridjis-Olivos, V Kowalewski, R Zhang

1845697 *Atmospheric sulfate aerosol formation from SO₂ oxidation by NO₂ enhanced by interfacial anions:* **G Wang**

1912776 *Brake Wear Particles as Unrecognized Catalysts in Urban Atmospheric Chemistry:* **J Peng**, H Mao

1953139 *Observational Evidence of Stratospheric Contraction Outpacing Previous Estimations:* **L de la Torre**, J A Añel, A Kuchar, P Sacha, R R Garcia, M G Mlynczak, C Pérez Souto

1997661 *Prediction and Validation of foF2 Trends Driven by Secular Geomagnetic Variation:* **D Singh**, S Zhang, L P Goncharenko, I S Batista

1988633 *Simulations of Seasonal Changes in the Thermosphere and Ionosphere into the 21st and Early 22nd Centuries using the Whole Atmosphere Community Climate Model - eXtended (WACCM-X):* **J M McInerney**, S M Nossal, L Qian

1908325 *Stratosphere, Stratopause, and Lower Mesosphere in the JRA-55 and JRA-3Q Reanalyses: Insights and Discrepancies:* **C Pérez Souto**, J A Añel, A Kuchar, L de la Torre Ramos

1993547 *The Brewer-Dobson Circulation and Increasing CO₂: Response Timescales and Ozone Feedbacks:* **C Orbe**, M Menzel, L M Polvani, PhD, D Waugh, G Chiodo

1996214 *The Long-term Trend of Thermospheric Compositions from Whole Atmospheric Simulation and Satellite Observation:* **C T Hsu**, W Wang, L Qian, E Aa, J M McInerney, S Zhang, Y Zhang, A Newheart, D Lin

1896049 *Upper Atmospheric Atomic Hydrogen Response to Solar Activity and to Impacts of Greenhouse Gases Across Atmospheric Regions:* **S M Nossal**, E Mierkiewicz, J M McInerney, L Qian, L Ashworth, R C Woodward Jr, H Liu, A Ranabhat

1876270 *Constraining multiphase chemistry of nitrous acid with isotopic characterization:* **J Chai**, Y Li, D E Blum, E Donnachie, T C VandenBoer, C Young, M G Hastings

1937113 *Direct Measurements of N₂O₅ Reactivity in Salt Lake City Under Atmospheric Inversion and Non-Inversion Conditions:* **J Christie**, T Severud, L Forshee, V Selimovic, S Roy, H Lawson, M R Garcia, A G Hallar, H Humble, J C Lin, P Zuidema, K Pratt, C Gaston

1869684 *Effects of Snow Type, Sunlight, and Temperature on Organic Compound Fluxes at the Air-Snow Interface:* **K Zager**, S N Lyman, T O'Neil

1977216 *Geographical and chemical influences on the oxidation capacity of atmospheric particulates and associated respiratory health outcomes:* **M C Liang**, H J Wen, P C Wu, S L Wang, K F Huang, C D Wu, S K Huang

1885299 *Heterogeneous Formation and Light Absorption of Secondary Organic Aerosols from Acetone Photochemical Reactions: Remarkably Enhancing Effects of Seeds and Ammonia:* **S Zhang**

1993704 *Heterogenous Aerosol Chemistry: An Integrated Approach of Ground-Based Measurements and Satellite Data to study Haze Chemistry:* **A Satsangi**

- 1908726** *Interfacial Properties of Aqueous Solutions of Alkylamine Oxalate Salts on A Non-Polarity Surface:* **C Qiu**, K P Buckley, G E Teall, T R Sharp
- 1954045** *Multiphase Oxidation of Phenol Emitted from Biomass Burning Enhances Formation of High-Molecular-Weight Brown Carbon under Humid Conditions:* **N L Ng**, D Pando Gonzalez, S I M Ng, M Dam, M K Mohan, S Luo, R J Weber
- 1955708** *N₂O₅ Reactivity and ClNO₂ Production Analysis Based Upon Ion Chromatography Analysis of Soluble Inorganic Ions in Wintertime Salt Lake City:* **T Severud**, J Christie, L Forshee, V Selimovic, S Roy, H Lawson, M R Garcia, A G Hallar, C Gaston, K Pratt
- 1992835** *Peroxides and Carbonyl Compounds Contributes to PM_{2.5} Formation by Multiphase Pathways:* **Z Chen**, Y Dai

252749

NASA's INvestigation of Convective Updrafts (INCUS) Mission: Observing the Drivers of Severe Weather from Space (joint with AE, H, NH)

Conveners: **Derek Posselt**, NASA Jet Propulsion Laboratory; **Sue van den Heever**, Colorado State University; **Pavlos Kollias**, McGill University; **Kristen Rasmussen**, Colorado State University Fort Collins

- 1873705** *Convective Cores Variability in the RASTA Collection of the Meso-NH-for-C2OMODO Kilometer-Scale Simulation Dataset:* **J P Chaboureaud**, J Richard
- 1930198** *Developing a Convection Tracking Database in Support of the INCUS Mission and Beyond: The AUX-GEOIR Product:* **Z J Luo**, H Takahashi, Y Selevich, S W Freeman
- 1950665** *Developing A Global, Multi-decadal (1983-2017) Convection Tracking Database Utilizing ISCCP HXG Data:* **Y Selevich**, J Luo, H Takahashi, W B Rossow
- 1929371** *Establishing Consistency of Anvil Properties between INCUS and Ground-Based Radar Measurements:* **G G Mace**
- 1992471** *Evaluation of Different Candidate Indicators of Convective Intensity in a Local Convective Neighborhood:* **S Prasanth**, Z S Haddad, J Susiluoto, P Marinescu, I Singh, L D Grant, S C van den Heever
- 1999682** *High-resolution Numerical Simulations of Tropical Convection for the NASA INCUS Mission:* **P Marinescu**, J Bukowski, I Singh, L D Grant, R L Storer, G R Leung, S Prasanth, R Schulte, B Dolan, D J Posselt, K L Rasmussen, S C van den Heever

- 1924346** *Probing the thermodynamics of ambient submicron aqueous aerosols over a wide range of conditions: Insights from the NASA ASIA-AQ aircraft mission:* **P Campuzano Jost**, D Sueper, S L Clegg, G Symonds, D Kim, S Yun, D A Day, J Ban, T Park, T Lee, J Kim, J Lee, C Yun, J Y Ahn, G Lee, L Chang, R J Boyd, Y Choi, V I Sevostianov, D Moore, M A Zondlo, K Ball, Y Ro Lee, J D Crounse, P O Wennberg, L D Ziemba, F Gallo, M Shook, R Moore, Y Choi, G S Diskin, J P DiGangi, J E Dibb, H Kim, M Lee, M O L Cambaliza, M T Cruz, J Simpas, S Khruengsa, W Rujopakarn, J L Jimenez
- 1996177** *Towards the Development of an Aqueous Chemical Mechanism of Oxalic Acid within the NASA GISS ModelE 3.1:* **C Lawrence**, K Tsigaridis, R L Miller, S Myriokefalitakis
- 1907902** *Uptake of HCl on minerals of interest for stratospheric aerosol injection: a Knudsen cell study:* **A Lostier**, Y Segev, T Kislev, G Schwartz Roitman, M Romanias, A Lostier
- 1969647** *How Does Model Grid Spacing Affect the Horizontal Spatial Variability of Atmospheric Fields?:* **I Singh**, J Bukowski, P Marinescu, L D Grant, R L Storer, G R Leung, S V D Heever
- 1965175** *Microphysical Considerations in Spaceborne Radar and Microwave Radiometer Observations and Simulations for Deep Convection:* **D J Posselt**, J Shates, R Schulte, S Tanelli, F Scarsi, O Sy, R L Storer, M D Lebsock, S V D Heever
- 1950059** *The INCUS Mission Data Products :* **P Kollias**, S V D Heever, S Tanelli, D J Posselt, K L Rasmussen, C Radhakrishnan, A Burzynski, S W Freeman, G J Huffman, Z J Luo, G G Mace, P Partain, S Prasanth, S C Reising, O Sy, R Beauchamp, A Umeyama, H Takahashi, Z Xu, M G Morris, R Schulte
- 1955501** *TIME-SLICE-AL: A Leveraged Asset Field Campaign for Quantifying Convective Mass Flux using Delta-T Techniques with Adaptive Sampling:* **S W Freeman**, P Kollias, P N Gatlin, E P Luke, E Ebbert, C G Amiot, C Kwinta, B P Treserras, B Dolan, K Rasmussen, W A Petersen, C Schumacher, S C van den Heever
- 2001567** *TIME-SLICE-CO: Detecting and sampling updrafts with ground-based instrumentation:* **B Dolan**, K L Rasmussen, P Kollias, E P Luke, V Chandrasekar, I Arias Hernandez, B P Treserras, S C van den Heever, S W Freeman, R Schulte, I Singh, C R Williams
- 1915065** *Understanding the Evolution of Anvil Top Characteristics with Geostationary Satellite Imagery:* **R Auth**, K M Bedka, R Chase, J W Cooney, S W Freeman, P Marinescu, S V D Heever

1964526 *Unraveling Tropical Storm Dynamics with NASA's INCUS Mission:* **S C van den Heever**, D J Posselt, S Tanelli, P Kollias, K Rasmussen, P Partain, G L Stephens, R Auth, J Bukowski, A Burzynski, B Dolan, S W Freeman, P N Gatlin, L D Grant, G J Huffman, G R Leung, Z J Luo, G G Mace, P Marinescu, M G Morris, W A Petersen, S Prasanth, S C Reising, R Schulte, C Schumacher, I Singh, R L Storer, O Sy, H Takahashi

247846

New Developments in Urban Greenhouse Gas Emissions Quantification

Conveners: **Anna Karion**, National Institute of Standards and Technology Gaithersburg; **Paul Shepson**, Purdue University; **Lucy Hutyra**, Boston University

1928104 *Algorithm to Derive Regional CO₂ Background Signal from Urban-Influenced Monitoring Stations:* **M Sardarli**, J Kim, T J Lueker, R F Keeling

1980947 *Data and Analysis Updates from the Los Angeles Megacities Carbon Project:* **J Kim**, T J Lueker, A Karion, P Salameh, V Yadav, M Sardarli, N Rollins, W Berelson, F M Hopkins, C I Czimczik, E DiGangi, G Salinas, S Prinzivalli, C Draper, C E Miller, R F Weiss, R F Keeling

1921238 *Development of a Machine Learning Benchmark for Inferring CO₂ Emissions de-novo From Measurements of a Real-Time Sensor Network:* **N Asimow**, R C Cohen

1921065 *Diagnosing Urban CO₂ and CH₄ Emission Inventories in Kraków Using Atmospheric Measurements and Lagrangean Modelling:* **J M Necki**, A Wypych, J Bartyzel

1988626 *Early results from the NASA Goddard EM27/SUN network:* **H Park**, J M St Clair, T F Hanisco, L Ott

1931365 *Efficient atmospheric trace gas measurements through collaboration with the Civil Air Patrol:* **D P Lathrop**, E Jaross, E Strobach, R R Dickerson, P Kulczakowicz

1965048 *Evaluation of Updates to the U.S. GReenhouse gas And Air Pollutants Emissions System with Airborne Field Campaign Data:* **B C McDonald**, C Lyu, C Harkins, Q Z Rasool, M Li, PhD, J He, A Gorchov Negron, I Pollack, J Prothero, K L Mueller, J Peischl, A Choi, J B Miller, S Pandey, J R Worden, A Meyer, J C Lin

1868817 *Evaluation of Vegetation Photosynthesis and Respiration Model Parameterizations for Estimating Carbon Flux from Managed Turfgrass Lawns:* **J K Marrs**, A Reinmann, D W Allen, L Hutyra, K J Davis, B Ahlswede, S Murphy, J Horne, C Kohler, I Lopez-Coto, D Wei

1945412 *Fifteen years of research quantifying urban greenhouse gas emissions yields a global legacy of knowledge:* **K J Davis**

1906613 *Fossil CO₂ Emissions from Warehouse and Distribution Centers in Southern California's Inland Empire:* **I Bachant**, G M Santos, H A Haines, F M Hopkins, C I Czimczik

1892297 *High-Resolution Estimation of Urban Anthropogenic Carbon Emissions:* **Z Lin**, B Huang, J He, Y Yan, M Xiao, Q Luo, Z Qi, X Ding

1934757 *Methane Sources in Cities Re-interpreted Using New Laboratory Results:* **R Commene**, R Dhall, A Hallward-Driemeier, M Modi, L D Schiferl, Y Zhao

1963971 *Progress in establishing a new US network of EM27/SUN spectrometers:* **J M St Clair**, H Park, T F Hanisco, L Ott, S Das

1998893 *Quantifying FF-CO₂ emissions across the Arizona Urban Megaregion using ¹⁴C measurements of annual plants:* **A Cadena**, C Ebert, H Rowe, A Welch, K R Gurney, E Schuur

1962266 *Quantifying fossil fuel CO₂ enhancements along an urban-rural gradient with radiocarbon analysis of turfgrasses:* **C I Czimczik**, C C Yanez, M K Dubey, F M Hopkins, A Meyer, X Xu, J Kim, J N Romero, H Parker

1981567 *Reconciling Building-Sector CO₂ Emissions in Arizona: A Comparative Analysis of HESTIA, AutoBEM, and EDGAR:* **V K Singh**, H Li, S Chowdhury, F Li, A Kato, K R Gurney, M Georgescu, J R New

1980976 *Residential Field-based Leakage Measurements and Combustion Emissions from a 10% Hydrogen-Blended Natural Gas System in O'ahu, Hawai'i:* **D Michanowicz**, E Lebel, Y Kashtan, N Lucha, G Huang, T Sparks, J K Domen, C Finnegan, S Derrick, A Cardoso, R B Jackson, S B C Shonkoff

1966977 *Residential Methane Emission from Natural Gas Meter Set Assemblies, Appliances, and Distribution Infrastructure in California:* **B Sharma**, W R Chan, W W Delp, B C Singer

1919626 *Resolving seasonal urban methane emissions with space-based observations from TROPOMI:* **E Whiting**, G Plant, E A Kort

1959969 *Seasonal Carbon Dioxide Flux and Environmental Controls in an Urban Turfgrass System:* **K Anderson**, J Horne, K A Szlavecz, I Yesilonis, B Ahlswede

- 1906026** *Spatiotemporal Analysis of the Built Environment's Role in CO₂ Emissions in South Korea Using Satellite Imagery and Deep Learning:* **M KIM**, H J Song
- 1965942** *Summertime Methane Emission Detection in Salt Lake City, UT Using Near and Mid-Infrared Open-path Dual-Comb Spectroscopy:* **R Rhoades**, N Sweet, B Washburn, I Coddington, K Cossel
- 1908125** *Urban GHG inversions from Indianapolis to Paris: a brief tribute to Dr. Whetstone:* **T Lauvaux**, S Hammer, K L Mueller, O Laurent, K Che, M Ramonet, P Ciais, J Lian, N L Miles, S Richardson, K J Davis, J C Turnbull, A Christen, N Taquet, M Grutter
- 1916283** *Using commercial aircraft to monitor urban GHG emissions:* **C Sweeney**, J Peischl, B B Stephens, K McKain, S Borenstein, A McAuliffe

249406

New Particle Formation in the Troposphere: Observations, Experiments and Modeling

Conveners: **Nirvan Bhattacharyya**, Carnegie Mellon University; **Andrea Pozzer**, Max Planck Institute for Chemistry, Department of Atmospheric Chemistry; **Lee Tiszenkel**, Organization Not Listed; **Neil Donahue**, Carnegie Mellon University; **Boxing Yang**, Paul Scherrer Institute

- 1940001** *Characteristics of New Particle Formation Events Occurred during the ASIA-AQ Campaign:* **C Ahn**, P Seo, M Park, J Park, H J Yoo, R Moore, L D Ziemba, M Shook, E Winstead, F Gallo, C E Jordan, E B Wiggins, S Roy, S S Yum
- 1996036** *Conditions Leading to New Particle Formation Above the Arctic Polar Dome:* **R Pooley**, R Leaitch, M D Willis
- 1971995** *Low-volatility Organics are Key to New Particle Formation in Urban Houston:* **S Lee**, L Tiszenkel, J Flynn, A Dodero
- 1900707** *Modeling New Particle Formation and Growth Observed in Urban Outflow Plumes during AEROMMA:* **E Li**, S O'Donnell, K Bates, M M Coggon, E V Fischer, J Gilman, G Gkatzelis, E Lill, M Lyu, A Piasecki, I Pollack, A W Rollins, C E Stockwell, V Treadaway, C Warneke, E Waxman, K L Zuraski, S Jathar, J R Pierce

- 1879962** *Using Network Observations to Constrain CO and CO₂ Emissions from an Oil Refinery in the San Francisco Bay Area:* **M Patel**, N Asimow, A Winter, Y Zhu, R C Cohen
- 1977755** *Using Trace Gas and ¹⁴C Measurements from the AEROMMA Campaign to Develop High-frequency Fossil Fuel and Biospheric CO₂ Data Over North American Cities in 2023:* **A Choi**, J B Miller, M Dyonisius, B McDonald, C H Hsu, J Peischl, C Lyu, J He, C Harkins, J Gilman, C Francoeur, J R Southon, C Wolak, P Cappa, S Morgan
- 1947072** *Evaluating the Performance of the High-Resolution Rapid Refresh in the Urban Boundary Layer for Greenhouse Gas Inversions:* **K Fletcher**, K J Davis, Z Barkley
- 1853237** *New Particle Formation and Growth in Polluted Regions: Present Conditions and Future Evolution:* **B Zhao**, J Shen, Z LI, S Wang, X Zhang, N M Donahue, M Shrivastava
- 1912294** *New Particle Formation Events and Constraints on Particle Growth at the Taunus Observatory:* **N Bhattacharyya**, M Granzin, M Zauner-Wieczorek, T Keber, M Simon, A Kurten, J Curtius
- 1947528** *RO₂ Lifetime Drives Biogenic New Particle Formation and Growth in the Planetary Boundary Layer:* **B Yang**, L Liu, J DeVivo, L Caudillo-Plath, D Russell, F Kunkler, B Judmaier, Z Zheng, W Scholz, E Sommer, W Yu, A Pignatelli, A Upadhyay, L Dada, A Pozzer, N M Donahue, I El-Haddad
- 1973349** *Role of Amines in Determining Vertical Gradients in New Particle Formation in the Southern Great Plains:* **B Dobson**, D J Katz, T Subba, M Alton, H Stark, D R Worsnop, M R Canagaratna, C Kuang, E C Browne
- 1873935** *Temperature-Controlled α -Pinene Oxidation and Biogenic Nucleation in the Free Troposphere:* **D Li**, M Wang

249474

New Perspectives on the Exchange of Reduced Nitrogen Between the Atmosphere, Land, and Water from Remote Sensing, in situ Measurements, and Modeling Approaches (joint with B)

Conveners: **Matthew Davis**, Colorado State University Fort Collins; **Kimberley Corwin**, Colorado State University Fort Collins; **Lauren Magliozzi**, University of Colorado Boulder

1984924 *Ammonia emissions from US Midwest fertilization based on mobile lab and satellite observations:* **Y Li**, H Yi, V I Sevostianov, R J Boyd, Y Choi, J McSpiritt, L P Wendt, M A Zondlo

1853404 *Analysis of atmospheric ammonia concentrations at a coastal site along the east coast of the USA:* **N Lichiheb**, M Heuer, L Myles, R D Saylor, M Cohen, M Rogers, D R Gentner

1972487 *Assessing Wildfire Smoke as a Potential Source of Ammonia to High Elevation Lakes and Regions of the U.S. Rocky Mountains:* **K Corwin**, L Naimie, K E Cady-Pereira, M J Iacono, L Magliozzi, J Baron, J L Collett Jr, E Fischer

1974489 *Contributions of wildfire smoke and agricultural emissions to changing ammonia across the western US:* **L Naimie**, K Corwin, K E Cady-Pereira, M J Iacono, L Magliozzi, J Baron, E V Fischer, J L Collett Jr

252545

Next-Generation PBL Observations: Synergistic Approaches and Technological Breakthroughs from NASA's WH²yMSIE-APEX Campaigns

Conveners: **Antonia Gambacorta**, Science and Technology Corporation (STC); **Amin Nehrir**, NASA Langley Research Center; **Alexander Kotsakis**, NASA Goddard Space Flight Center; **Shawn Serbin**, Brookhaven National Laboratory

2003162 *Comparison of AI-Enhanced IR Sounding Retrievals with HALO Lidar Profiles from the WH²yMSIE Campaign:* **A B Milstein**, W J Blackwell, J A Santanello Jr

1967743 *Data Fusion of Passive and Active Measurements for Planetary Boundary Layer Sounding: Insights from WH²yMSIE:* **A Kotsakis**, A Gambacorta, J Caraballo-Vega, N Shahroudi, R I Rosenberg, D Gershman, J M Blaisdell, K E Christian, S D Nicholls, R Kroodsma, E P Nowottnick, P Stegmann

1958296 *Diagnosing Discrepancies between Satellite-Derived and Bottom-Up Estimates of Ammonia Emissions from Fertilizer Plants:* **C Dai**, X Zhang, D Liang, A Elmore, K Sun

1873652 *Evaluating the Impact of the Bidirectional Exchange of NH₃ from the Canadian Great Lakes Using a Modified Version of the GEM-MACH Chemical Transport Model:* **M Davis**, J G Murphy, M Sitwell

1879701 *Multi-Year Analysis of Wildfire Smoke Impacts on Reduced Nitrogen Across the U.S.: Insights from the 2023 Fire Season:* **E Lill**, M Shogrin, K Corwin, I Pollack, A Middlebrook, A Piasecki, N Schafer, J Peischl, C E Stockwell, M M Coggon, K Bates, C Warneke, O Cooper, E V Fischer

1975872 *Oligotrophication patterns, trends, and drivers across the Contiguous United States:* **M F Meyer**, J Baron, S Hampton, D Leech, I Oleksy, A Pollard, H Dugan, R Pilla, T King, R Ladwig, S Sharma, J A Zwart, N J Gubbins, J Ren, M Ross, S Topp, J Wang, I Woolway

1980209 *Spatiotemporal Co-variation of Organic Nitrogen Wet Deposition and Terrestrial Phenology:* **P Miramontes Gonzalez**, D Murray, A S Wymore

1862412 *Tiered and Machine Learning-Assisted Monitoring for Land-Atmosphere Exchange of Ammonia:* **D Pan**, A Mukker

1961075 *What do observations of ambient ammonia reveal over India?:* **S Balasubramanian**, S Chatterjee, P Chaudhari, P Sanghavi, V S V Botlaguduru

1985314 *Deep Learning Infrastructure for PBL Observations: Multi-Sensor Fusion, Transfer Learning, and XAI Interpretability at Scale:* **J Caraballo-Vega**, D Gershman, A Kotsakis, N Shahroudi, S D Nicholls, A Gambacorta, R Kroodsma, R I Rosenberg, J M Blaisdell, K E Christian, E P Nowottnick

1948974 *Evaluating In Situ and Remote Observations for Understanding Planetary Boundary Layer Processes Driving a Strong Low-Level Jet During the WH²yMSIE Campaign:* **M Yabra**, J A Santanello Jr, S Serbin, BA, MS, PhD, A Gambacorta

1989831 *First Light Spectral Analysis Results of CoSMIR-H from the WH²yMSIE Campaign:* **S D Nicholls**, R Kroodsma, A Gambacorta, R I Rosenberg, J M Blaisdell, P Stegmann

1947616 *From Airborne Campaign to Space: the NASA AURORA Pathfinder. Advancing Earth PBL Sounding with Hyperspectral Microwave and Photonic Technologies.:* **F Gambini**, A Gambacorta, B Bulcha, N Shahroudi, M Coon, M Fritts, P Stegmann, V Torres, J Peng, T Khan, J R Piepmeier, J Lucey, M Stephen, P N Mohammed-Tano

1874658 *Improving PBL Sounding by Combining Hyperspectral MW and IR Sounders with Active Lidar Measurements:* **W Wu**, X Liu, Q Yang, A Gambacorta, B Collister, R A Barton-Grimley, H S Jang, M Zhao, X Xiong, Q Yue, A R Nehrir, A M Larar, L Lei, R Kroodsma

1972585 *Investigating the role of surface interactions and heterogeneity on the planetary boundary layer with the NASA WH²yMSIE campaign:* **A Feldman**, S Serbin, BA, MS, PhD, A Kotsakis, A Gambacorta, J A Santanello Jr, S D Nicholls, P Stegmann, R Wang, J A Gamon, R Holz, R S Eon, M Yabra, P L Parker, R Swap, T Schnell, C Richey

1995407 *Performance of the Airborne Hyperspectral Microwave Sounder CoSMIR-H during WH²yMSIE:* **R Kroodsma**, M Fritts, I S Adams, P Mohammed, A Gambacorta

1966014 *Physical Retrievals of Atmospheric Profiles within the Planetary Boundary Layer from CoSMIR-H Observations during WH²yMSIE:* **N Shahroudi**, P Stegmann, A Gambacorta, R Kroodsma, A Kotsakis, S D Nicholls

246807

Numerical Modeling, Data Assimilation (DA), Artificial Intelligence (AI), and Research to Operations (R2O) for Better Analyses and Forecasts of High-impact Weather Events

Conveners: Guoqing Ge, European Geosciences Union; Minghua Zheng, Center for Western Weather and Water Extremes (CW3E), Scripps Institution of Oceanography, UC San Diego; Haiqin Li, NOAA Global Systems Laboratory; Anders Jensen, NOAA/GSL

1881980 *A pilot study of improving the aerosol representation in NOAA's RRFsv2 numerical weather prediction model with the MPAS dynamical core:* **H Li**, R Ahmadov, A Jensen, J Schnell, J Olson, M Zhang, C Evans

1940802 *A study on verification methods for high-resolution NWP models:* **C Y Kang**, S Park, S Park, H Park, Y Gong, J C Ha

1986188 *Advancing Atmospheric River Predictions with Reconnaissance and High-Resolution NWP: A Research and Operations Partnership Supported by Water in the West initiative:* **V Tallapragada**, F M Ralph, D Novak, J Ten Hoeve, A M Wilson, A Wilson

1979074 *AIDA: Operational AI Data Assimilation from Level 1 Observations:* **R Keisler**, A Bollinger, G Dresdner, A Kleeman, J Mohrmann, D A Rothenberg

1940798 *All-sky assimilation of GIIRS infrared hyperspectral radiance in CMA-GFS using 4D-Var:* **S Kong**, W Han, L Bi

1940387 *Profiling the PBL with the SPARC Mobile Laboratory, a Community Instrument Facility at the University of Wisconsin-Madison Space Science and Engineering Center:* **J Gero**, E W Eloranta, R Holz, T J Wagner, E Olson, Z Buckholtz, F A Best, M Mulligan

1996055 *Quantum Atomic Rydberg Radiometer for Earth Measurement (QuARREM): a quantum-based microwave radiometer:* **L Aycock**, E Bottomley, S Verploegh, J Guthrie, S Geiger, T Pett

1949272 *Temperature Gradient Profiling within the Planetary Boundary Layer using Airborne High Spectral Resolution Lidar:* **M Hetlage**, J W Hair, T Shingler, A R Nehrir, D B Harper

1933431 *The Hyperspectral Microwave Photonic Instrument (HyMPI): A Ground Based Hyperspectral Microwave Intensive Field Campaign:* **V Torres**, F Gambini, A Gambacorta

2003662 *The Westcoast & Heartland Hyperspectral Microwave Sensor Intensive Experiment (WH 2 yMSIE): a NASA Planetary Boundary Layer Mission Pathfinder:* **A Gambacorta**

1888824 *Assimilation of dual Multi-Parameter Phased Array Radar Observations within a real-time numerical weather prediction system using 1000-member ensemble and 30-second update:* **J Taylor**, S Otsuka, A Amemiya, Y Tarumi, T Miyoshi, S Satoh, S Kawamura, H Hanado, Y Kawatani

1901317 *Atmospheric River Reconnaissance: Mission Planning, Execution, and Incorporation of Operational and Science Objectives:* **M Zheng**, F M Ralph, V Tallapragada, A Wilson, S Babbitt, S Bartlett, B Cao, L R Centurioni, J M Cordeira, C A Davis, L Delle Monache, J D Doyle, T Elless, S Feuer, J S Haase, N Hathaway, T Hutchinson, P Iniguez, B Kawzenuk, E Knappe, D Lavers, A Lundry, A C Michaelis, F Pappenberger, C A Reynolds, R Rickert, S Roj, J Rutz, A Subramanian, R Torn, J Wang, K Wu, X Wu

1997612 *Creation of an Omniscale Next-generation Ensemble to Improve Power Sector Decision-making:* **T Ivancic**, R Cirincione, B Ho, O Pfeiffer, E Hewitt

1899977 *Cycling MPAS+JEDI developments for the Rapid Refresh Forecast System (RRFS) v2 and the prototype Atmospheric River Prediction System (ARPS):* **G Ge**, M Hu, S Liu, C Zhou, J Hu, S Pan, H Lin, D Dowell, T Lei, S Degelia, X Zhang, D Lippi, M Oigawa, S Trahan, H Liu, J Beck, T T Ladwig

1937938 *Enhancing Forecasts of Atmospheric River Related Precipitation at Multiple Lead Times Using Data Assimilation:* **J Wang**, D Lavers, L Delle Monache, B Ingleby, M Zheng, X Wu, F M Ralph, F Pappenberger, J Rutz, J Kalansky

- 1935092** *Ensemble-Based Background Error Diagnostics for Improving KIM Hybrid Data Assimilation:* **S H Park**, H J Song, Y S Jo, J H Ha
- 1867688** *Evaluating MPAS-A and WRF Forecasts of Severe Thunderstorms Over Bangladesh:* **K M G Rabbani**
- 1929425** *Evaluating the Impact of SMAP Soil Moisture Spatial Resolution on Land Assimilation Efficiency and Atmospheric Response:* **E Kim**, Y Kwon, S Jun, K H Seol, I H Kwon, Y Lee, H Kim
- 1911873** *GraphTrack Real-time experiment:* **H Leighton**, X Zhang, L Zhu, Z Zhang
- 1932853** *Impact of Enhanced CO2 Variability on Numerical Forecasting Models:* **D H Sun**, K H Seol, R S Park
- 1989602** *Impacts of Assimilating Mode S EHS Aircraft Data from Portable Aircraft Derived Weather Observation Systems (PADWOSs) in the Rapid Refresh Forecast System (RRFS) on forecasts of convective weather events in the Southeast United States:* **J M English**, M McPartland, T Bonin, E James, D D Turner, M Hu
- 1920838** *Implicit Learning of Surface Physics in Data Driven Models: An Evaluation Using 2-m Temperature:* **D Stuber**, C Evans, D Abdi, I Jankov

250741

Observation and Model Studies of Cloud Properties and Associated Processes

Conveners: **Peng Wu**, Pacific Northwest National Laboratory; **Chuanfeng Zhao**, Beijing Normal University; **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **Kuan-Man Xu**, NASA Langley Research Center; **Jingjing Tian**, Pacific Northwest National Laboratory

- 1933768** *Assessing the Role of Isobaric Mixing in Boundary-Layer Cloud Formation:* **J Yeom**, N Allwayin, V P Ghatge, K Lamer, F Mei, PhD, R A Shaw
- 1939167** *Automated Detection of Transverse Cirrus Bands in GEO-KOMPSAT-2A Imagery Using Deep Learning:* **G Lee**, S Yang, G Lee, Y Kim, J Im
- 1988329** *Characterizing Longwave Infrared Polarized Radiance of Ice Clouds Using Idealized Single-Column Simulations:* **E Sepulveda Araya**, S Sullivan, F Xu, D L Wu, J Gong, M Kupinski
- 1924864** *Cloud adiabaticity and droplet size distribution cause bias in spaceborne cloud droplet number concentration retrieval:* **T Auerenon**, D Barahona, D McCoy
- 1987408** *Cloud Masking Algorithm Refinement Suitable for AI/ML for WorldView Spacecraft Series:* **G Wind**, C C Porter, A K Liljedahl, K Meyer
- 1929521** *Improved Atmospheric River Forecasts through JEDI Assimilation of Satellite Transformed Retrievals in MPAS:* **K Giamalaki**, S Businger, P Antonelli, F Monte
- 1905444** *Improvement of Short-Range Prediction System and Weather Analysis Using Observation-Based Hydrometeor Adjustment:* **E C Chang**, Y Kim
- 1995759** *NOAA NESDIS's Dynamic Response to Evolving User Needs:* **C McCaskill**, J Kent, J Garcia-Rivera
- 1881218** *On the Land Surface Model Contribution to the Bias in the UFS prediction of CAPE over the CONUS:* **J W Bao**, S A Michelson, W Zheng, E D Grell
- 1856720** *RIKEN's activities to integrate data assimilation and AI/ML:* **T Miyoshi**, S Otsuka, J Liang, M Goodliff, Y Tarumi, S Ouala, P Tandeo, G Saliou
- 1906953** *The Impact of Implicit-Explicit Vertical Advection Schemes on Operational Weather Forecasting of KMA: A Summer-Period Study with the Regional Prediction System by the KMA:* **J Park**, S H Park, U Shin, E Lee, J Lee, S Lee
- 1940793** *Verification of the Global NWP Model Precipitation Prediction Skill using SEEPS score:* **S Park**, S Park, H Park, C Y Kang, Y Gong, J C Ha
- 1964413** *Cloud morphological response to varying aerosol concentrations during Arctic cold-air outbreaks:* **P Wu**, M Ovchinnikov, P N Blossey, A Varble, J Tian
- 1929416** *Cloud-aerosol interactions in subtropical marine stratocumulus weaken in a warmer climate.:* **H Sun**, P N Blossey, R Wood, E Erfani, S J Doherty, J Y Chun
- 1999903** *Connecting Convective Mass Flux to Tropical Anvil Cloud Properties:* **J Bukowski**, P Marinescu, I Singh, L D Grant, R L Storer, G R Leung, S C van den Heever
- 1983671** *Determining Thermodynamically Relevant Morphological Features of Cirrus Ice Crystals Using a Convolutional Neural Network:* **K Friedls**, G Nicolaou, T Stephens, K J Sulia, J Cai, J Ko, K Lamb
- 1891533** *Estimation and Parameterization of Entrainment and Detrainment Rates in Cumulus Clouds Using Global Satellite Observations:* **C Lu**, L Zhu, Y Wang, Y Zhu
- 1876922** *Evaluation of SGLI/GCOM-C Cloud Property Retrievals: Comparison with Surface and MODIS Data:* **P Khatri**, H Irie, T Hayasaka
- 1984468** *Fast Liquid Water Cloud Retrievals from the Geometric Parameters of Polarized Cloudbow measured by HARP2:* **R Smith**, X Xu, B McBride, J V Martins
- 1982612** *From Seeding to Simulation: Validating NWP Cloud Microphysics for Operational Impact using Multi-Sensor Data:* **R Boragapu**, I Matsangouras, A M Albar
- 1944011** *Frozen hydrometers retrieval combining spaceborne radar and millimeter-wave radiometer observations.:* **K Ohara**, H Masunaga

- 1985176** *Inferring Instantaneous Depositional Ice Growth Rates From Ice Crystal Images:* **T Stephens**, G Nicolaou, K Frields, K K Chandrakar, J Ko, K Lamb
- 1970533** *Inferring Thermodynamic Histories from In Situ Ice Crystal Imagery via Conditional Diffusion Models:* **G Nicolaou**, K Frields, T Stephens, K J Sulia, J Cai, J Ko, K Lamb
- 1902605** *LASSO-ENA LES Library of Shallow Maritime Clouds with Spectral-Bin Microphysics and Aerosol Sensitivity Comparisons for the Azores:* **W I Gustafson Jr**, S Giangrande, S Endo, J Rausch, H Xiao, D Zhang
- 1936603** *Physical characteristics of marine stratocumulus clouds over the East Sea / Sea of Japan during cold air outbreak in winter:* **Y J Lee**, H Lee
- 1931536** *Retrieval of cloud optical depth constrained by radiation observations for overcast conditions from WVIP3:* **K Balmes**, D D Turner, L Riihimaki, J Sedlar, K O Lantz

250454

Observations and Modeling of Marine Fog Processes

Conveners: **Eric Pardyjak**, University of Utah; **Clive Dorman**, University of California, San Diego; **Harindra Fernando**, University of Norte Dame; **Darko Koracin**, University of Notre Dame

- 1914194** *A Sable Island Nova Scotia low cloud/fog event on 18-19 July 2022 first established by a ridge and then modified by a mid-level cyclone.:* **C E Dorman**, D R Koracin, R Dimitrova, S Hoch, J Ruiz-Plancarte, Q Wang, A Perelet, J Fernando
- 1895362** *AI-Enabled, Cost-Effective Measurement of Fog Liquid Water Content and Wind Speed:* **D K Singh Sr**, C Ledesma, I Gultepe, A O Perelet, S Hoch, E Pardyjak
- 1984785** *An Updated Relation Between Liquid Water Content and Visibility for Foggy Conditions Across a Variety of Fog Types.:* **A O Perelet**, I Gultepe, S Hoch, E Pardyjak
- 1879427** *Bridging Scales in Marine Fog: Coupling Large-Eddy Simulation with Large-Scale Dynamics and Microphysics:* **A Barve**, I Gultepe, H J Fernando, Q Wang, L Shen
- 1872464** *Climatological Features of Arctic Sea Fog and Its Response to Arctic Warming:* **S Song**
- 1995169** *Dimensional Turbulence in Marine Fog: Observed Transitions Between 2D and 3D Regimes During the FATIMA Field Campaign:* **K Rees**, E Pardyjak, I Gultepe, S Hoch, A Perelet

- 1923715** *Retrieve Nighttime Cloud Microphysical Parameters from VIIRS Observations: A Physics-Informed Transformative Machine Learning Approach:* **Y C Chen**, J Wang, M Zhou, PhD, X Chen
- 1913494** *Tracking Airplanes and Contrails: Results from the Aviation Weather Mission with NASA and the Civil Air Patrol:* **S Babb**, A Autore, M Colon Robles, D P Duda, T M Rogerson, R Vitanza, R Moore, J Taylor, K Weaver, H Kohl
- 1941499** *Tracking the Sensitivity of Cloud Properties over the Southern Ocean to Cloud Morphology:* **L Kang**, T Alinejadtabrizi, Y Huang, S T Siems, F Lang
- 1881949** *Understanding Drivers of Biases in Simulated Liquid Water Path in DP-SCREAM During Stratocumulus to Cumulus Transition Using Machine Learning:* **P Ghosh**, H Beydoun, P Bogenschütz, X Zheng
- 1949001** *ZJU-AERO: An Accurate and Efficient Radar Observation Operator:* **L Bi**, H Xie, W Han
- 1880404** *First Observations of Vertical Variation of Fog Microphysics over the Ocean:* **Q Wang**, R Yamaguchi, D G Ortiz-Suslow, J Ruiz-Plancarte, R Y W Chang, D Fernandez, E D Creegan, S Lee, I Gultepe, H J S Fernando
- 1906996** *Fog Detection with Deep Learning and Pseudo Labeling on GEO-KOMPSAT-2A:* **S Kim**, D Kim, Y Lee, D Han, J M Yeom
- 1890451** *Integrated Ground-Based and Satellite Remote Sensing for Enhanced Fog Detection in the Namib Desert:* **D Malik**, H Andersen, J Cermak
- 1913981** *Marine Fog Microphysics and Dynamics during the FATIMA GB and YS Campaigns:* **I Gultepe**, H J S Fernando, E Pardyjak, Q Wang, S Hoch, A O Perelet, S Lee, S Gabersek, L Shen, A Barve, D G Ortiz-Suslow, J Ruiz-Plancarte, R Yamaguchi, K I Chang
- 1988381** *Multiscale Processes Affecting Wintertime Cold-Fog Formation and Evolution in Complex Terrain: Insights from the 2022 CFACT Field Campaign:* **Z Pu**, I Gultepe, A G Hallar, E Pardyjak, G Carrillo-Cardenas, C Feng, O Durmus
- 1924205** *Observations of Fog During a Research Vessel Cruise in Atlantic Canada in July 2022:* **D Koracin**, C E Dorman, J Fernando, F Frntic, D G Ortiz-Suslow, K Veljovic Koracin, A Dowling, S Wang
- 1918915** *Rethinking of Marine Fog Genesis: The Role of Synoptic Weather Systems:* **H J Fernando**, I Gultepe, C Dorman, A Dowling, S Wang, Q Wang, E Pardyjak, L Shen
- 1984418** *Retrieval of Fog Droplet-Size Distributions from Horizontal, Ground-Based Transmission of Infrared and Microwave Radiation During Fog.:* **A O Perelet**, I Gultepe, S Hoch, E Pardyjak

1967949 *Simultaneous Measurement of Fog Microphysics and Turbulence using the Super Combo Probe:* **S Motalebioskouei**, I Gultepe, J Fernando, K Y Huang

252272

Organic peroxy radical chemistry and the formation of secondary air pollutants

Conveners: **Keding Lu**, Peking University; **Zhaofeng Tan**, Forschungszentrum Jülich GmbH; **Huan Song**, University of Washington Seattle

1896059 *A Comparison of Ambient and Chamber Organic AMS Spectra Under Varying RO₂ Regimes:* **H S Kenagy**, E Caballero, N Tahsini, M Goss, L Franco, E Helstrom

1878916 *Chemical Precursors to Wintertime Carbonyl and Ozone Formation:* **L Dhar**, S N Lyman

1955933 *Connecting laboratory measurements to global modeling: updating the volatility basis set for terpene oxidation:* **M Goss**, H S Kenagy, C L Heald, J H Kroll, F N Keutsch

1921278 *Evaluation Of POA Aging And SOA Formation From The 2023 Canadian Wildfires Using KinSim And Volatility Basis Set Parameterizations:* **F Taksibi**

1905856 *Exploring the Fates of Atmospheric Peroxy Radicals with Model-Informed Environmental Chamber Experiments:* **V P Barber**, C Crabtree, S E Murphy, D Kendall

1918489 *Investigating Multi-phase Reaction Pathways and Product Distributions of Peroxy Radicals:* **L LeMar**, S Frey, Y Li, F N Keutsch, J H Kroll

1893829 *Investigating Peroxy Radical Reactivity via Tailored Organic Iodides:* **B Wimalarathne**, J Rivera-Rios

1872502 *Isomeric and Isotopic Constraints on the Initial Steps of α -Pinene Ozonolysis:* **C M Kenseth**, M Riva, M Kamrath, H Kjaergaard, J A Thornton

249291

Processes of (Sub) Cloud Scales: Modeling, Observations and Parameterizations

Conveners: **Chunsong Lu**, NUIST Nanjing University of Information Science and Technology; **Yangang Liu**, Brookhaven National Laboratory; **Lulin Xue**, Developmental Testbed Center (DTC); **Alexei Korolev**, Environment and Climate Change Canada

1908691 *A framework for modeling aerosol-cloud-lightning interactions: Validation of charge structure and aerosol effects:* **W Wang**, G Chen, Y Zhang, D Zheng

1925377 *The Influence of Tidal Mixing Fronts on the Evolution of the Marine Atmospheric Boundary Layer and Fog Lifecycle:* **A Dowling**, H J S Fernando, S Lee, D G Ortiz-Suslow, J Ruiz-Plancarte, K Oh, S Lee, M Kim, S Gabersek, K I Chang, E J Thompson

1893960 *Kinetics and Spectra of Organic Peroxyl Radicals in Aqueous Phase: A Laser-Based Study:* **Y Zhang**, T Schaefer, H Herrmann

1947033 *Measured and Modeled Radical Concentrations at Different Elevations Beneath the Canopy in a Northern Michigan Deciduous Forest:* **I Spink**, B Hoover, J Mireku, A Petersen, B Bottorff, P S Stevens

1855161 *Measurements of HO₂ reactivity in ambient air using laser flash photolysis coupled with laser induced fluorescence detection technique:* **L C Onel**, L Whalley, Z Qin, D E Heard

1896650 *Modelling the Spectroscopy and Dynamics of Atmospherically Relevant ROO and QOOH Radicals:* **T Barua**, B Marchetti, L Guidry, T Karsili

1931481 *Phenylacetaldehyde Photolysis: Modeling Toluene's Understudied Atmospheric Oxidation Pathway:* **D Kendall**, V P Barber

1909496 *Revisiting the source, chemistry and global budget of atmospheric glyoxal:* **A Zhang**, T M Fu, Y Wang, Y LI, E Xiong, K C Wells, D B Millet

1990891 *Role of Nitrogen Dioxide in the Formation of Highly Oxygenated Organic Molecules in the Atmosphere:* **Y Zhao**, H Zang, Y Liu, W Nie, W Huang, F Bianchi

1964928 *The Fate of Peroxy Radicals formed from Alkenes in Urban Regions Across Asia:* **K Ball**, Y R Lee, G Kappaganthula, J D Crounse, P O Wennberg, G Wolfe, E Delaria, R Hannun, A Sebol, J M St Clair, F M Flocke, A Franchin, C Cho, K Lesko, C Owen, A J Weinheimer, E C Apel, A J Hills, R S Hornbrook, D Jeong, B Roozitalab, A Wisthaler, T Mikoviny, F Piel, S Swift, W Wojnowski, D R Blake, B Barletta, N J Blake, S Meinardi, I J Simpson, C K Gatebe, R Poudyal

1886802 *Dampening of the precipitation response to aerosol pollution from turbulence in cumulus clouds:* **K K Chandrakar**, H Morrison

1894103 *Frequent Bimodal Droplet Size Distributions in Fogs and Clouds: Mechanisms, Dispersion Effects and Parameterization:* **D Liu**, S Zhao, P Tian, P Connolly, Y Wu, S Li, X Jiang, K Hu, C Lu

1909962 *Interaction of Microphysics and Turbulence in High-Resolution Simulations of a Dense Fog Event:* **M Tian**, L Shun, I Gultepe, B WU

1965249 *Inverse Mapping of the Collision Kernel and Wall Flux Scaling in a Large-Scale Convection-Cloud Chamber Using Local Sensors and Knowledge-Informed Deep Learning:* **A Wang, PhD**, P Jiang, S M Burrows, S Glienke, M Ovchinnikov, N Mahfouz

1981725 *Relationship between Turbulent Entrainment-Mixing and Droplet Clustering:* **Y Liu**, S Gao, C Lu, Y Shu

1981099 *Stochastic Condensation/Evaporation with Different Physical Constraints and Information Flow for Causal Discovery:* **Y Shu**, Y Liu, T Zhang, R L McGraw

248327

Remote Sensing of CH₄ and CO₂ from Space:

The Expanding Observing System (joint with B)

Conveners: **Scot Miller**, Johns Hopkins University;

Vivienne Payne, NASA Jet Propulsion Laboratory;

Hannah Nesser, Jet Propulsion Laboratory, California Institute of Technology; **Christopher O'Dell**,

Cooperative Institute for Research in the Atmosphere

1999072 *A Comprehensive Automated System for Accelerated Operational EMIT Methane Plume Detection:* **J Lee**, B Bue, C Xiang, J Fahlen, S Lu, K Wei, M Hu, P G Brodrick, A K Thorpe

1957563 *Accounting for topography and albedo biases in remotely sensed methane inverse modeling:* **E D Kyzivat**, J S Benmergui, M Knapp, S Roche, C Chan Miller, J Bushey, E Walker, A Chulakadabba, Z Zhang, PhD, S Ayvazov, M Russi, C Hairfield, J V Pittman, M R Sargent, B Daube, J Samra, J Hohl, B Luo, D Miller, M Nasr, K Sun, J E Franklin, X Liu, S C Wofsy

1925785 *Accurate, Low-Latency Monitoring of Whole-Atmosphere CO₂ Growth Rates with Satellite Observations:* **S Pandey**, J Liu, A Chatterjee, C O'Dell, S Basu, S Miller, F Chevallier, K Morgan, D F Baker, S Maity, S Philip, M S Johnson, S S Maksyutov, V Payne

1956311 *Automated Methane Emission Quantification from Aircraft Hyperspectral Data Using Integrated Mass Enhancement and Multi-Background Correction:* **P Masnadi Khiabani**, W Jentner, Y Jang, C Nicholson, A Aezoumand, D S Ebert

1905639 *Bias Correction Method Development for Multi-Satellite Integration in Carbon Cycle Studies:* **T Maki**, T Nakamura, K Ishijima

1858963 *Carbon Mapper: greenhouse gas measurement performance and findings from Tanager-1:* **R Duren**, D Cusworth, A Ayasse, K Howell, T Scarpelli, J Kim, D Bon, A Diamond, M Keremedjiev, J Guido, R T Nallapu, A K Thorpe, D Jensen, F Reuland, A R Brandt, T Adams, E A Kort, R O Green

1904671 *Theoretical framework for measuring cloud effective supersaturation fluctuations with an advanced optical system:* **Y Kuang**

1873109 *What have we learned about cloud microphysics from 10 years of Pi Chamber experiments and simulations? From supersaturation fluctuations, to haze-cloud interactions, to entrainment, to mixed-phase cloud equilibrium, to hygroscopic cloud seeding:* **R A Shaw**

1995736 *Carbon-I: Imaging the Carbon Cycle from Space — From point-source detection to global flux inversions.:* **C Frankenberg**, A Michalak, A K Thorpe, D J Jacob, B Baier, P G Brodrick, L Bruhwiler, R O Green, A Hoyt, E Kebreab, S Sanghavi, D R Thompson, A J Turner, P O Wennberg, Y Yin

1973885 *Cloud and Cloud Shadow Segmentation of GHGSat Imagery:* **J Sampson**, N Beaudoin-Dion, A Dury, L Formenti, M Girard, J Hales, D Jervis, J P MacLean, J McKeever, F Piedboeuf, A Ramier, M Strupler, E Tarrant, D Young

1940901 *Constraining terrestrial biospheric CO₂ fluxes over India by assimilating surface and satellite observations in a global inverse model:* **L Raja Nayagam**, S S Maksyutov, R Janardanan Achari, T Oda, Y K Tiwari, S Gaddamidi, A Datye, J C D Jain, M Venkat Ratnam, V Sinha, H Hakkim, Y Terao, M K Naja, K Ahmed, H Mukai, J Zeng, J W Kaiser, Y Someya, Y Yoshida, T Matsunaga

1940371 *Cross-platform Consistency in Satellite-derived Methane and Its Evaluation with Model Simulations:* **D Deepshikha**, S Dey, P K Patra, N Chandra

1879373 *Deep Learning Fusion of XCO₂-NO₂ Satellite Observations for Seamless Megacity ΔXCO₂ Mapping:* **Z Wang**, F Zhang

1972273 *Enhanced Global XCH₄ Mapping Through Machine Learning and Multi-sensor Data Fusion:* **J N Keya**, Y KIM, H Choi, J Im

1924106 *Estimating the Global Oil-Gas Methane Emission Rate Distribution using Multiple Satellite Systems:* **D Jervis**, J P MacLean, J McKeever, M Strupler, A Ramier

1869005 *Evaluating Satellite-based XCO₂ Measurements from OCO-2 and OCO-3 Against Ground-based Measurements from TCCON and COCCON, and Airborne Measurements from ATom:* **S Das**, M K Sha, S S Kulawik, M Kiel, J Laughner, G B Osterman

1981333 *Evidential Spectroscopic Transformer for Interpretable Methane Retrieval with Quantified Uncertainties:* **W Keely**, J Lee, P G Brodrick, D R Thompson, J Fahlen, A K Thorpe

- 1953287** *First MethaneSAT Retrievals of CH₄ dry Air Mole Fractions Using the CO₂-Proxy Approach: Evaluating Retrieval Accuracy for Single-Pass Emission Inversions:* **C Chan Miller**, S Roche, J Wilzewski, X Liu, B Luo, D Miller, K Sun, N LoFaso, C Hairfield, S Ayvazov, M Russi, M Nasr, D Wells, R Gautam, J E Franklin, S C Wofsy
- 1956837** *First near-real-time estimates of whole-atmosphere greenhouse gases based on OCO-2 and TROPOMI data:* **B Weir**, A Webb, E Bell, H Zafar, S Basu, L Ott, V Payne, A Chatterjee, C O'Dell, X Lan, J B Miller, J Mund, G Petron, M A Buchwitz, S Noel
- 1949277** *Foundation Model for Reconstruction of Missing Data in TROPOMI Sentinel-5P Greenhouse Data Products:* **G Nyirjesy**, M Zortea, L Klein, K Das, L Pondian Tizzei, I Khabibrakhmanov, T van Kessel, J L Sousa Almeida
- 1956003** *GEO-ring for near-global monitoring of extreme methane point sources:* **T L He**, D J Varon, S Kondragunta, Y S Cho, X Ren, M Cohen, S S Brown, C Sweeney, D J Jacob, T de Jong, J Gerritsen, J Maasakkers, I Aben, D Cusworth, R Duren, D Lindsey, J Peischl, B Carroll, N Malarich, P Stratton, C Xu, C Warneke, A Brewer, S Baidar
- 1964341** *Global High-Resolution Methane Plume Monitoring: Developing an Automated Deep Learning Algorithm with Hyperspectral Sensors:* **S Yang**, Y KIM, M Choo, H Choi, J Im
- 1974117** *HITRAN2024: Advancing Remote Sensing through Improved and Extended Spectroscopic Data:* **I Gordon**, R Hargreaves, F Gomez, T Bertin, L S Rothman
- 1976892** *How rotational Raman scattering in the O₂ A-band affects satellite-based GHG measurements:* **S Sanghavi**, C O'Dell, C Frankenberg, R R Nelson, V Payne, A Chatterjee
- 1881462** *Identifying High-Probability Methane Emitting Wells in the San Juan Basin Using Sentinel-5P and Google Earth Engine for Targeted Field Measurement:* **R Espino**, S A Nowicki
- 1928645** *Improving Remote Sensing of Volcanic Carbon Dioxide Emissions from OCO-2 through Machine Learning-Based Retrieval of Aerosol Parameters from L1B Spectra:* **K Peng**, S Chen, V Natraj, Y Luo, R R Nelson, Y L Yung
- 1961774** *Improving the CO₂ Proxy Product from MethaneSAT Using dP and Aerosol Dependencies and Using the Improved Product to Quantify Coal Plant Emissions:* **E Walker**, S Roche, C Chan Miller, C O'Dell, Z Zhang, PhD, X Liu, B Luo, D Miller, J S Benmergui, M R Sargent, E D Kyzivat, M Knapp, M Nasr, S Ayvazov, M Russi, C Hairfield, E Manninen, J Bushey, J E Franklin, S C Wofsy
- 1947811** *Inverse analysis of TROPOMI satellite observations to infer methane emissions from Africa at high resolution before, during, and after the 2020–2022 global methane surge:* **N Balasus**, D J Jacob, O Schneising, M A Buchwitz, A J Turner, J D East, L Estrada, S Hancock, T A Mooring
- 1899837** *Large-Scale Controlled Methane Releases for Satellite Detection and Quantification of Point Sources:* **F Reuland**, T Adams, K Galvin, E D Sherwin, E A Kort, A R Brandt
- 1869515** *Maximizing the Use of Spatial Information in Dense XCO₂*
- Observations for Urban-Scale Bayesian Inversions: **D Roten**, A Chatterjee, J C Lin
- 1914316** *MethaneSAT L0 to L1B Processor and in-Flight Calibration and Performance:* **B Luo**, D Miller, X Liu, J E Franklin, S Ayvazov, N LoFaso, N Allen, C Cervantes, K Sun, T Veness, E Conway, S Crowell, C O'Dell, S Roche, C Chan Miller, M Nasr, J S Benmergui, S C Wofsy
- 1948534** *MethaneSAT XCH₄ and XCO₂ using the O₂-proxy method:* **S Roche**, C Chan Miller, X Liu, B Luo, D Miller, K Sun, N LoFaso, S Ayvazov, C Cervantes, C Hairfield, T Veness, S Crowell, G McGarragh, C O'Dell, D Wells, J S Benmergui, M Sargent, E D Kyzivat, Z Zhang, PhD, M Knapp, E Walker, M Nasr, R Gautam, J E Franklin, S C Wofsy
- 1856199** *Quantifying the Spatiotemporal Patterns of Atmospheric Methane Emissions and Their Associations with Environmental Factors in Bihar, India:* **A Dass**, R K Ranjan
- 1999081** *Segment Anything Model for EMIT Methane Plume Delineation and Mask Refinement:* **M Hu**, B Bue, J Lee, P G Brodrick, A K Thorpe
- 1999077** *Sensitivity and Uncertainty Aware Deep Learning for Improved EMIT Methane Plume Detection:* **K Wei**, B Bue, J Lee, P G Brodrick, J Fahlen, A K Thorpe
- 1937945** *Simulating out-of-sample atmospheric transport to enable flux inversions:* **N Dadheech**, A J Turner
- 1998446** *Simultaneous Retrievals of CO₂ and CH₄ from MethaneSAT Observations Using a Full Physics Optimal Estimation Approach:* **G McGarragh**, C O'Dell, S Crowell, J E Franklin, C Chan Miller, S Roche, K Sun, S Wofsy
- 1877610** *Spatial and Temporal Distribution of Global Wetland Methane Emissions During 2019–2020 Estimated from Satellite Observations:* **A Chen**, Z Zhang, B Poulter, L Feng, H Liu, L T Murray, X Yu, Z Huang, D C Gaeta, K Morgan, Q Zhu, S Miller

1955197 *Status and initial results of the GOSAT-GW greenhouse gases observation mission:* **H Tanimoto**, T Matsunaga, Y Someya, T Fujinawa, H Ohyama, I Morino, H Yashiro, T Sugita, T Saeki, Y Yoshida, A Müller, S Inomata, H Lim, N D T Chi, M Saito, H Noda, Y Yamashita, Y Niwa, S Okamoto, K Ikeda, Y Kanaya, T Sekiya, P K Patra, M Takigawa, M Yamaguchi, Y Kasai, T Sato, Y Kojima, K Shiomi, M Sakai, Y Okamura

1974539 *The eleven-year OCO-2 and six-year OCO-3 ACOS version 11 XCO₂ products: a unified data set for informing global carbon cycle science:* **C O'Dell**, T Taylor, V Payne, A Chatterjee, J Liu, B Fisher, R Rosenberg, G R Keller-Rodrigues, J Laughner, M Kiel, R R Nelson, G McGarragh, S Mauceri

1975987 *Tracking and Locating Recent Methane Emissions from China using Satellite Data:* **Z Huang**, L Feng, A Chen, S Miller

251495

Spaceflight and Earth's Atmosphere: How the Coming Era of Larger and More Frequent Rocket Launches and Space Debris Reentries Could Affect Global Climate, Ozone, High-Altitude Clouds, and Upper Atmosphere.

Conveners: **Christopher Maloney**, Organization Not Listed; **Martin Ross**, The Aerospace Corporation Los Angeles; **Kostas Tsigaridis**, Columbia University in the City of New York; **Robert Field**, Columbia University in the City of New York; **Christopher Maloney**, Organization Not Listed

1946765 *A Baseline for the Clouds at the Edge of Space: Preparing for the New Era of Spaceflight:* **G Baumgarten**, R Eixmann, J Fiedler, J Froh, M Gerding, M Grygalashvily, J Höffner, T Mense, A Vellalassery

1892330 *Atmospheric Composition in the Constellation Era – The AC²E Initiative (2028 – 2038):* **K Blix**, K Schoppmann, M Abrahamsson, K Andersson, M Hörschgen-Eggers, R Kirchhartz

1853548 *Dependence of Atmospheric and Climate Impacts on Seasonal Variations in Launch Vehicle Emissions:* **N Wongrapinkul**, G Cinar, O Jia-Richards

247346

Spatiotemporal AI methods for analyzing aerosol, clouds and air pollution

Conveners: **Qian Liu**, University of Missouri; **Manzhu Yu**, Pennsylvania State University Main Campus; **Jeffrey Wood**, University of Missouri Columbia

1871635 *Understanding the Empirical Relationships Between Vegetation Dynamics and Methane Emissions From Wetlands in East Africa:* **K Wu**, P I Palmer, L Feng, M Lunt, D Yang, T Li, M Zhou, S Zhu, Y Liu

1941734 *Validation of Cross-Platform Spectral Radiance Datasets for Greenhouse Gas Monitoring Using Radiative Transfer Simulations:* **S Ishida**, N Kasuya, K Shiomi, R Kajiura, A Kuze, H Suto

1987721 *Was There a Tropical Land Carbon Sink During 2015-2023? Results from an Ensemble of Global Inversion Models Constrained by OCO-2 Version 11 and the Global In Situ Network.:* **S Crowell**, D F Baker, I T Baker, S Basu, A Chatterjee, F Chevallier, F Jiang, Z Jin, M S Johnson, A Kaushik, J Liu, S Maity, S S Maksyutov, S Miller, K Morgan, C O'Dell, S Philip, V Payne, A E Schuh, K Schuldt, B Weir

1901156 *Estimated fluxes of spacecraft metals from measurements of stratospheric aerosol particles:* **M J Lawler**, M Abou-Ghanem, G P Schill, D Murphy

1935441 *In Situ Determination of Lower Stratospheric Emissions Ratios from a Kerosene-Fueled Rocket:* **T D Thornberry**, J P Schwarz, PhD, M Ross, E Waxman, G S Diskin, C Gurganus, M Lyu, G Novak, T V Bui, A Ahern, D Rollins, C A Brock, G Michailoudi, M A Robinson

1936529 *Investigating the Potential Atmospheric Accumulation and Radiative Impact of the Coming Increase in Satellite Reentry Frequency:* **C Maloney**, R W Portmann, M Ross, K H Rosenlof

2001113 *Proposed Representative Emission Pathways for Spaceflight Impacts Assessment:* **M Ross**, C Maloney, K H Rosenlof, K Tsigaridis, T D Thornberry

1939864 *Resolving the Byproducts of Atmospheric Reentry through Physics-Informed Molecular Dynamics Simulations:* **J P Ferreira**, K I Nomura, J Wang

1975421 *Rocket Launches and satellite reentry: The need for observational constraints given projections of a rapidly increasing number of low earth orbit satellite constellations:* **K H Rosenlof**

1891042 *Spatial and Temporal Patterns of Valley and Mountain Fog in the Czech Republic and their Potential Links to Aerosol Influence (2006–2021):* **S Suruchi**, I Hünová

1844726 *A Deep Learning model for Sub-pixel cloud Detection of OMPS Nadir Mapper Imagery:* **Q Liu**, H Xu

1990874 *Advancing Spatiotemporal PM_{2.5} Forecasts and Air Quality Alerts in Texas via Bidirectional LSTM and Double Kolmogorov-Arnold Networks:* **Z Cui**, Y Hang

- 1859636** *Calibrating Low-Cost Air Quality Sensors for High Accuracy PM_{2.5} Measurements Using Machine and Deep Learning, Enabling Monitoring of Air Quality for a Wider Range of Geographic Regions:* **S Jaddu**, S Smith, C P Yang
- 1993592** *DustCast: An Ensemble Machine Learning Model for Monthly Atmospheric Dust Aerosol Forecasting Across the Arabian Peninsula.:* **C Ramos**, B Gaertner, S J Greybush
- 1903651** *Enhancing Low-Cost Sensor Reliability for Air Quality Monitoring using Deep Learning and Monte Carlo-based Uncertainty Quantification:* **S Jaddu**, K Smith, C P Yang
- 1988803** *Enhancing Spatiotemporal Continuity of TEMPO Tropospheric Nitrogen Dioxide via Gaussian Process Regression Gap-filling:* **H Mahmoud**, S Scott, A Radkevich, E Joyner, Q Tan
- 1940997** *Evaluating PM_{2.5} Estimation Errors over South Korea: A Comparison between MPAS-CMAQ and WRF-CMAQ:* **J T KIM**, S I Lee, H J Song
- 1883911** *Evaluation of Spatiotemporal Heterogeneity in PM_{2.5} Forecasting Using ST-Transformer: Western US as a Case Study:* **A S Malarvizhi**, K Smith, S Ahmed

247042

Stratospheric Dynamics, Aerosol Processes, and Interactions with the Troposphere

Conveners: Hongwei Sun, University of Hawaii at Manoa; **Qiang Fu**, University of Washington; **Amy Butler**, NOAA Boulder; **Fangqun Yu**, University at Albany State University of New York

- 1989741** *Detection of the stratopause and thickness of critical atmospheric layers related to climate markers as captured with Spire Radio Occultation data:* **M de la Torre Juarez**, T L Kubar, J Katona, J Turk
- 1917438** *Asymmetric impacts of a symmetric imposed QBO in idealized models:* **P W Staten**, B Kravitz, E Bednarz, J Hildebranski
- 1965496** *Breakup of the Antarctic Ozone Hole and its relationship to stratosphere-troposphere coupling:* **P A Newman**, L R Lait, L Coy, N A Kramarova
- 1919406** *Comparisons of balloon-borne, satellite and simulated aerosol properties following major stratospheric perturbations:* **A Baron**, K Smith, E Asher, P A Case, P R Colarco, E Hall, P Cullis, A Fritz, S Evan, J F Brioude, J M Metzger, M Martinsen, D Kuniyuki, D Nardini, P Smale, B Liley, R Querel, T D Thornberry
- 1987506** *Darkening of Sea Ice From Deposition of Alumina Aerosols From Anthropogenic Activities:* **G Chelluboyina**, R Chakrabarty

- 1898223** *From Static to Dynamic: How Regular Retraining Improves Machine Learning Air Pollution Forecasts, illustrated with the NASA GEOS-CF use case.:* **N Lazrak**, U Ayub, K Cromar, C Malings, C Keller, K E Knowland
- 1945092** *Hybrid Transfer Learning for PM_{2.5} Estimation in Regions with Sparse Ground-Based Data: A Scalable Framework:* **M J Hussain**, M Seong, B Shahid, H Bai
- 1951755** *Improving Real-Time Air Quality Forecasting through Bias-Correction and Machine Learning over Southeastern U.S.:* **Y Yang**, K Do, Y Zhang
- 1940185** *Machine Learning Approaches to Analyze and Predict Particulate Matter Concentrations in Delhi-NCR:* **D S Kumar**, N Sharma
- 1928186** *Satellite PM_{2.5} Retrieval Using Machine Learning Models – Maryland Case Studies:* **X Li**, D Okon, F Akindolire, G R Arunachalam, E Mawire, M Unegbu, E Ross-Jones, T Fapohunda, Y R Shi, R C Levy
- 1949743** *Spatio-Temporal forecast of PM_{2.5} over the Indian Subcontinent using an advanced Machine learning algorithm:* **V Kakkotussery Kavungal**, S Verma, A N R
- 1974908** *Deep Stratosphere-to-Troposphere Transport of Ozone associated with North Pacific Weather Patterns:* **J W Lee**, Y Wu, S Lee
- 1982877** *Dynamical Effects of East Asian Topography on the Northern Hemisphere Stratospheric Polar Vortex in Winter:* **Q Yang**, Y Yu, X Xia
- 1921877** *ENSO-QBO correlations: a robust dynamical coupling or a coincidence due to the short record?:* **K Koepnick**, N Harnik, D A Randall, E Tziperman
- 1955986** *Evaluating the GEOS-CCM Stratospheric Aerosol Microphysics “Forecast Skill” with Dense Observations of the January 2022 Hunga Plume:* **P A Case**, P R Colarco, W E Choi, N A Krotkov, P Castellanos, O Torres
- 1918366** *Evolving Vertical Structure of the Winter Siberian High:* **W Jang**, J Yoon
- 1955048** *Expansion of the NOAA AirCore program - StratoCore observations since early 2023 and ongoing to monitor and assess stratospheric composition and dynamic changes:* **M Jesswein**, B Baier, F L Moore, T Newberger, J Higgs, S Wolter, G S Dutton, B D Hall, C Sweeney
- 1967689** *Halogens in Stratospheric Aerosol Particles:* **G P Schill**, M J Lawler, D Murphy
- 1854176** *Hemispheric asymmetry in recent stratospheric age of air changes:* **K Dube**, S Tegtmeier, F Ploeger, K Walker
- 1930092** *Indirect climate impacts of the Hunga eruption:* **E Bednarz**, A H Butler, X Wang, Z Zhuo, W Yu, G L Stenchikov, M Toohey, Y Zhu

- 1875954** *Insights from balloon-borne measurements of stratospheric aerosol and water vapor following volcanic and pyrocumulonimbus injections (2019 – 2024):* **E Asher**, A Baron, M Todt, K Smith, E Hall, A Fritz, S M Davis, E A Ray, P Cullis, P Smale, R Querel, M Martinsen, G Taha, P Yu, S Evan, J F Brioude, P J Walter, S L Alvarez, J Flynn, G A Morris, K H Rosenlof, T D Thornberry
- 1860525** *Investigating the dynamical and morphological characteristics of the Arctic stratospheric polar vortex and exceptionally strong vortex events:* **A Kumar**, C Jacobi
- 1920024** *Microphysical Analysis of Stratospheric Aerosol Particles in the Arctic Vortex Collected during the SABRE 2023 Campaign:* **S Abou-Rizk**, Y Li, Z Cheng, Z Lai, B O'Callahan, G W Vandergrift, N Nahar Lata, A Rahman, S China, F N Keutsch
- 1907268** *Minor sudden stratospheric warmings and their influence on the ozone distribution and change over Antarctica:* **G P Milinevsky**, A Grytsai, R Yu, O Evtushevsky, V Reshetnyk, D Zazubyk, A R Klekociuk, Y Yukhymchuk
- 1994076** *Near-field Turbulent Mixing and Spatial Variability in Dilution Ratio in Aircraft Exhaust Plumes: Implications for Contrail Formation and Stratospheric Aerosol Injection:* **A K Khadka**, F Yu
- 1917824** *QBO, gravity waves, and deep convection responses to surface warming in GFDL AM5 simulations:* **L Luan**, P Lin, M J Alexander, M Bramberger, L Holt, M Zhao, C Liu
- 1910579** *QBOi El Niño-Southern Oscillation experiments: Overview of experiment design and ENSO modulation of the QBO:* **Y Kawatani**
- 1929655** *Radiative forcing from volcanic eruptions and the influence of aerosol microphysical representation:* **I Quaglia**, S Tilmes, C Bardeen, F Vitt, E Bednarz, D Visioni
- 1857095** *Record-High Ozone in the Austral Mid-Latitude UTLS Driven by Dynamical and Chemical Effects of the 2019 Sudden Stratospheric Warming:* **S Zhang**, S Solomon, J Zhang, D E Kinnison
- 1897936** *Stratosphere-Troposphere Exchange of Water Vapor Based on Observations and Reanalyses:* **C Dong**, Q Fu
- 1964835** *Stratospheric Aerosol Injection Design and Microphysics: A Separate-Effect Modeling Framework for Climate Response:* **Y Lederer**, B E J Rose, D Halbertal, N Wygoda
- 1953407** *Stratospheric Gravity Wave Variability during QBO Phases:* **B Thurairajah**, C Y Cullens
- 1881647** *Stratospheric in Situ Measurements of N_2O_5 Constrain and Parameterize Heterogeneous Chemistry and Its Influence on Ozone:* **Z Decker**, G Novak, E Bednarz, S S Brown, A Ahern, T V Bui, J M Dean-Day, G S Diskin, G S Dutton, C Gurganus, B D Hall, E J Hintsä, C Jernigan, M Lawler, M Lyu, S Lee, F L Moore, D Murphy, J D Nance, E A Ray, M A Robinson, G P Schill, T D Thornberry, P Veres, E Waxman, A W Rollins
- 1916768** *Stratospheric Injection Lifetimes:* **M R Schoeberl**, Y Wang, R Ueyama
- 1954026** *Stratospheric Polar Vortex Exerts Different Controls on the Transport of Tropical and Mid-Latitude Volcanic Aerosols:* **Y Peng**
- 1953725** *Stratospheric Predictability and Its Surface Linkages in S2S Forecasting:* **X Ding**, B Xiang
- 1974558** *STRIVE: A Next-Generation Satellite Mission Concept for High-Resolution Observations of the Upper Troposphere and Stratosphere:* **L Jaegle**, L Oman, J Wang, M T DeLand, M J Alexander, A E Bourassa, P J Cameron-Smith, P R Colarco, Q Fu, A Gettelman, J C Gille, T F Hanisco, V L Harvey, N Hindley, L A Holt, D Kim, P A Newman, C Orbe, R M Stauffer, K Strong, G Taha, Q Tang, A J Turner, K Wargan, H M Worden, C Wright, D Zawada
- 1884182** *The Role of Antarctic Ozone Depletion in Explaining Model-Observation Discrepancies in Sea Surface Temperature Trends:* **P Wang**, S Solomon, C Deser, D W J Thompson, N S Diffenbaugh
- 1996607** *Trace gas seasonal variability in the upper troposphere and lower stratosphere over Boulder, CO: analysis from 12 years of NOAA AirCore profiles:* **B Baier**, C Sweeney, J Higgs, T Newberger, S Wolter, J Li, F L Moore
- 1937326** *Two-Decade AIRS, MLS Observations and ERA5 data Reveal QBO-Driven Variability of O_3 , H_2O , and CO in the Tropical upper troposphere–lower stratosphere:* **Y Zhang**, J H Jiang, H Aumann, J Yang, X Jian, Y Luo, Q Jiang, Y L Yung
- 1989212** *Unveiling the Shortwave Absorption Spectra of Alumina Aerosols: Implications for Stratospheric Warming:* **T S Kapoor**, P Upadhyay, J Huang, G Ren, J Cavin, D Mitroo, J Kumar, J Hachtel, R Mishra, R Chakrabarty
- 1922178** *Uptake of HCl to Organic Aerosol Proxies Under Stratospheric Conditions:* **C Pedersen**, D Verbart, F N Keutsch
- 1931429** *What Controls the Statistical Asymmetry of Stratospheric Dynamics and SSW Frequency?:* **S Liu**, N Nakamura
- 1910307** *Zonal asymmetry of the Quasi Biennial Oscillation:* **H Ryo**, Y Kawatani

247459

Targeting Methane Mitigation: Quantification of Anthropogenic Methane Sources at all Scales through Atmospheric Measurements

Conveners: **James France**, Environmental Defense Fund; **Mary Kang**, McGill University; **Anna Karion**, National Institute of Standards and Technology Gaithersburg; **Alba Lorente**, Environmental Defense Fund; **James East**, Harvard University

1977796 *Mobile Survey Campaigns Reveal Regional Variability and Trends in Methane Emissions from Alberta's Active and Suspended Oil and Gas Infrastructure:* **R Latimer**, K El Hachem, M LeVernois, E Bournlon, M Lavoie, D A Risk

1872647 *A First Measurement-Based Oil and Gas Sector Methane Inventory for Colombia:* **M Johnson**, N Calderón-Cangrejo, S Festa-Bianchet, S Wilde, B M Conrad, D R Tyner, PhD

1944411 *A High-Temporal-Resolution Methane Budget for California from Multiscale Assimilation of Satellite, In Situ, and Plume Observations:* **S Pandey**, J R Worden, V Yadav, M D Thill, G Chang, H O Nesser, D J Varon, L Estrada, K Bowman

1979318 *Advancing Greenhouse Gas Mapping with JPL's AVIRIS, EMIT, and Carbon-I Instruments:* **A K Thorpe**, R O Green, C Frankenberg, A Michalak, D R Thompson, M L Eastwood, P G Brodrick, D Chadwick, V Scott, Y Kim, W Frazier

1951027 *Assessing Methane Emissions from Ammonia Production Plants Worldwide:* **V Fox-Coughlin**, D Zavala Araiza, I Rettig, S Esquivel Elizondo

1879749 *Assessing the ability of in situ measurements to constrain local methane emissions and their trends in New York State:* **M Loman**, L T Murray, P Ivatt, R Commane, J Maasakkers, E M Leibensperger, A Hallward-Driemeier, R Dhall

1991427 *Characterizing methane emissions with onsite lidar camera-based continuous monitoring systems:* **A Pinard**, A Pomerantz, D Sharma, G Ross, D Hammerling, P Waggoner, M Doshi, L Peneula

1851554 *Constructing a methane emissions inventory in the Cincinnati Metropolitan area:* **E Caudill**, A Townsend-Small

1898008 *Controlled Release Testing of Multiple Classes of Methane Measurement Technology at the TADI Facility:* **A McManemin**, C Juárez, V Blandin, A R Brandt

1976082 *Cross-roads of tropical methane emissions: Constraining emissions from Nigeria using TROPOMI satellite observations:* **L Potyk**, D J Jacob, S Hancock, L Estrada, M Payer Sulprizio, J Bruno

1954273 *Development of rapid assessment and quantification of UK methane sources by offsite mobile measurement:* **D Lowry**, J France, V Rafflin, A AlShalan, M Lanoisellé, R Fisher, M LeVernois

1960066 *Direct observation of plume velocity for remote measurement of trace gas point sources:* **D R Thompson**, M L Eastwood, R O Green, J Fahlen, T Adams, A R Brandt, P G Brodrick, A Chlus, E A Kort, F Reuland, A K Thorpe

1943448 *Estimating Methane Emissions in the Tokyo Metropolitan Area from Ground-Based Column Measurements:* **H Ohyama**, M M Frey, I Morino, K Shiomi, M Nishihashi, F Hase

1998155 *Evaluating the Global Ethane Decline From 1982-2009 Using Historical and Modern Surface Measurements:* **C L Butenhoff**, A Smith, A Koskela, A L Rice, A K Khalil

1867163 *GENERATING A BOTTOM-UP INVENTORY OF NON-OIL AND GAS METHANE EMISSIONS IN THE DENVER-JULESBURG BASIN:* **M Mbua**, A L Hodshire, E Kiplimo, S Riddick, D Zimmerle

1846553 *Integrating MethaneAIR Aircraft and TROPOMI Satellite Observations in the Integrated Methane Inversion (IMI) to Optimize Methane Emissions:* **J Bruno**, D J Jacob, R Gautam, M Omara, X Wang, D J Varon, L Estrada, S C Wofsy, M Payer Sulprizio

1923737 *Landfill Sector Methane Emission Estimates with the GHGSat Constellation:* **D Jervis**, M Girard, J P MacLean, D J Marshall, J McKeever, A Ramier, M Strupler, E Tarrant, D Young

1931014 *Marginal Wells, Major Emitters: A Call for Comprehensive Methane Emission Measurements in the U.S. and Globally:* **Z Li**, E Lemaitre, F Stavropoulou, D Lyon, D Zavala Araiza

1992053 *Methane and Health-Damaging Pollutant Emissions from Natural Gas Commercial Cooking Appliances:* **E Lebel**, D Michanowicz, Y Kashtan, N Lucha, G Huang, T Sparks, C Finnegan, R B Jackson, S B C Shonkoff

1851590 *Methane Emissions from Unplugged Abandoned Oil and Gas Wells in Louisiana, USA:* **K Maiti**, F Driscoll, I Gupta, K Hall, A Arumugam

1949067 *Methane Source Apportionment Using the Ethane-to-Methane Enhancement Ratio in Urban and Oil & Gas Production Regions:* **X Ren**, P Stratton, J Sun, P Kelley, H Daley, A Karion, I Stein, R R Dickerson

- 1946069** *Mobile Measurement and Modelling of Methane Emissions from Anaerobic Digestion Facilities in the UK.:* **V Rafflin**, D Lowry, J France, R Fisher, M Lanoisellé, A AlShalan
- 1900686** *Observation of Seasonal Wetland Methane Emissions Using Optical Techniques:* **A Opalka**, M A Tsai, E Vesnaver, T DelSontro, K Daun
- 1963043** *Preliminary Satellite-Derived Methane Inversions for Estimating Oil and Gas Emissions from the San Joaquin Valley and Denver-Julesburg Basins:* **B M Farris**, D K Henze, L Estrada, F M Hopkins, T Larrabee, E Emerson, A Vijayan
- 1897779** *Quantification of Methane Emissions from Dispersed Controlled Release Sources Utilizing Ground-based Hyperspectral Imaging:* **M A Tsai**, A Opalka, R Iftakhar Hossian, L Coyle, D A Risk, K Daun
- 1948993** *Quantifying methane emission trends in the United States (2019-2024) through high resolution inversion of satellite observations:* **L Estrada**, M He, J D East, D J Varon, S Hancock, N Balasus, M Payer Sulprizio, K Bowman, D J Jacob
- 1927814** *Quantifying Monthly Methane Emissions in Colombia from 2019–2024 Using Satellite Observations and National Inventory Data:* **S Hancock**, D J Jacob, R Jimenez-Pizarro, A V Ardila, L A Morales-Rincon, N Balasus, L Estrada
- 1892404** *Quantifying Total Methane Emissions on Basin-Scales Using MethaneSAT Satellite Data:* **M Knapp**, J S Benmergui, E D Kyzivat, A Chulakadabba, J Bushey, M R Sargent, Z Zhang, PhD, S Roche, C E Miller, M Russi, S Ayvazov, J Williams, N LoFaso, R Gautam, S C Wofsy
- 1861325** *Rapidly Identifying and Quantifying Discrete Methane Sources for MethaneSAT and MethaneAIR Using Processing Pipeline:* **Z Zhang, PhD**, M Sargent, R Ottenheimer, J Warren, L Guanter, J Williams, M Omara, M Russi, S Ayvazov, N LoFaso, S Roche, C Chan Miller, E D Kyzivat, M Knapp, J S Benmergui, J V Pittman, E Walker, E Manninen, A Chulakadabba, J Bushey, B Luo, D Miller, M Nasr, K Sun, R Gautam, J E Franklin, X Liu, S C Wofsy
- 1926403** *Regional Estimates of Methane Emissions from MethaneSAT Observations: Insights from the Permian Basin and the San Joaquin Valley:* **J Williams**, M Omara, M Knapp, J S Benmergui, A Himmelberger, K MacKay, J Warren, M R Sargent, M Russi, S Ayvazov, E D Kyzivat, J E Franklin, T Melendez, N LoFaso, C Chan Miller, S Roche, J Bushey, D Miller, M Nasr, B Luo, D Zavala-Araiza, S C Wofsy, S Hamburg, Z Zhang, R Gautam
- 1933721** *Sectoral methane emission estimates by high-resolution inversion of GOSAT-2 retrievals during 2019-2022.:* **R Janardanan Achari**, S S Maksyutov, F Wang, L Raja Nayagam, Y Yoshida, X Lan, T Matsunaga
- 1946185** *Single-Blind Evaluation of Emerging Continuous Methane Monitoring Systems Across 400+ Controlled Releases:* **T Adams**, K Galvin, F Reuland, S E Abbadi, T Le, A R Brandt, E A Kort
- 1983145** *System level greenhouse gas emissions from metropolitan wastewater and sludge process chain:* **Y Li**, L P Wendt, J McSpiritt, R J Boyd, V I Sevostianov, Y Choi, D Moore, N Li, H Yi, M A Zondlo
- 1968825** *Toward a Low-Cost, Solar Powered Optical Sensor for Ecosystem-Scale Methane Emissions Measurements from Wetlands and Rice Paddies:* **C Huff**, A Hoyt, A Wilkin, M LoCascio, Z Zhang, J Lamb, N Nguyen, C Gorle, A Majumdar, S E Fendorf, L Hollberg
- 1935153** *Toward Regional Methane Source Attribution and Inventory Refinement Using MethaneSAT Flux Product and Earth Observation Satellite Imagery:* **Y Cui**, K Chen, D Xie
- 1949605** *UNEP's International Methane Emissions Observatory (IMEO): Advancing Empirical Methane Emission Estimates from the Coal sector through Multi-platform Field Campaigns:* **R Field**, K Tibrewal
- 1907954** *Using Mobile Measurements to Detect Fugitive Methane Emissions in New York City:* **T Moore**, R Commene, J R Hopkins, W S Drysdale, R Dhall, A Hallward-Driemeier, Y Zhao, J D Lee
- 1936081** *Validating and characterizing performance of satellite-based methane point source emission quantification with Tanager:* **D Cusworth**, A Ayasse, J Kim, K O'Neill, K Howell, R Duren
- 1996385** *Airborne Wind Energy Kites with Inverting Wings: PIV analysis Prototype Testing:* **Z Jimenez**, E C Everbach
- 1964944** *Assessing Vegetation Dynamics in Reclaimed Mine Sites of Eastern Kentucky Using LiDAR Data:* **A Akinleye**
- 1860764** *Deployment of the A3SatPQ Emulator on a Low Altitude Tethered Platform:* **M Jabot**, J Moore, J Kang
- 1863147** *Developing a Kite-Borne System for Measuring Particulate Matter Fluxes in the Lower Atmosphere:* **S Jurado**, F Telles

248356

Tethered Aerosystems for Atmospheric Research and Remote Sensing

Conveners: **Blake Haskins**, Oklahoma State University; **Matthew Ellis**, Oklahoma State University Main Campus; **Nour Kastoun**, Cornell University; **Kathleen McNamara**, Oklahoma State University Main Campus

- 1996699** *A Novel Prototype Sensor Package for Continuous Tethered Balloon System Profiling:* **E D Creegan**

- 1932571** *Distributed Temperature Sensing on a Tethered Balloon System:* **G Whitson**, D Dexheimer, T Settecerci, J Lien, C Longbottom, C Ruiz
- 1925708** *Kite Tail Behavior in Atmospheric Field Deployments: Impacts on Stability and Data Collection:* **B Haskins**, M Ellis, N Hostler, L Yates, K McNamara, G Bland, J Jacob

251581

**The Agriculture-Atmosphere Nexus:
Agriculture, Air Quality, Nitrogen Cycle, and
Climate Connections** (joint with B, GC, SY)

Conveners: **Da Pan**, Georgia Institute of Technology;
Ilana Pollack, University of Colorado at Boulder; **Glenn Wolfe**, University of Maryland Baltimore County;
Annmarie Carlton, NOAA Earth System Research Lab

- 1863215** *Agricultural Ammonia Emissions and Source Attribution over the Conterminous United States:* **Z Li**, K Guan, K Sun, S Wang
- 1985854** *Air quality benefits of urease inhibitors in reducing ammonia emissions from U.S. croplands:* **L Luo**, B Luo, A P K Tai
- 1990618** *Analyzing NO₂ Emissions In Croplands using TEMPO Data:* **J Marte**, X Yu
- 1884342** *Assessing Agricultural VOC Emissions in WRF-Chem with Flight Campaign Data in California's Central Valley:* **S Youn**, Q Z Rasool, R Schwantes, I Pollack, C Haskins, M M Coggon, J Gilman, M A Robinson, C E Stockwell, C Warneke, E Pfannerstill, Q Zhu, C Arata, A Bucholtz, A H Goldstein, D K Henze, B C McDonald
- 1868047** *Assessing Air Quality Dynamics of Maryland's Eastern Shore and its Impacts on the Chesapeake Bay and Maryland Coastal Bay's Water Quality:* **M Xia**, D Sauder, B Bediako, B Sahoo, PhD, A Khairullah, H Liu, J Cumming
- 1942941** *Bridging Temporal Resolution in NH₃ Monitoring: AI-Based Downscaling and Cross-Regional Applicability:* **S Malik**, E Kang, Y Kang, J Im
- 1873545** *Characterizing Springtime Emissions of Ammonia and Methane from Concentrated Animal Feeding Operations in the Northern Colorado Basin During the CORNCOB field campaign:* **M Davis**, E Lill, R Rhoades, I Pollack, K Cossel, E V Fischer
- 1998628** *Comparing Estimates of Cattle GHG Fluxes from Greenfeed and Open-Path Measurements:* **N Sweet**, K Stackhouse-Lawson, P Carvalho, L Sitorski, J Vargas, S Place, E Burke, B Washburn, K Cossel

- 1925831** *Lift and Drag Characteristics of Kite Tails Under Simulated Wind Conditions:* **M Ellis**, B Haskins, L Yates, N Hostler, K McNamara, G Bland, J Jacob
- 1983061** *Low Cost Tethersonde System for Measuring the Planetary Boundary Layer: Design, Deployment and Applications:* **K Miller**, S Jurado, J Halberstadt, L Alcoba, A Bagree, C B Farber, W H Kao, N Kastoun, C Kaufman, E Keefe, S LaBore, J Lau, J Sinha, E Srivastava, R Toledo
- 1959418** *Demystifying the Invisible: Exploring Drivers of Ozone Damage to Leaf Physiology:* **W Selvidge**, D L Lombardozzi, J Singh
- 1934732** *Effects of Agricultural Ammonia Emissions on Global Air Quality under Future Climate Change:* **X Chen**, L Luo, H Wang, B Luo, L Emberson, A P K Tai
- 1862485** *Evaluating a Bidirectional Flux Model for Nitrogen Oxides:* **D Pan**
- 1933131** *Evaluation of Combined Urease and Nitrification Inhibitors for Reduction of Ammonia and Nitrous Oxide Emissions from Urea Fertiliser Applied to Pasture:* **S Balvert**, J Luo, K Ding, S Lindsey
- 1859075** *Global Nitrogen budget: 1980-2020:* **X Zhang**, X Xu, C Wang, W Winiwarter, B Gu
- 1912755** *Global Variations of Ammonia During Dawn and Dusk: an Analysis of Satellite Retrievals from FengYun-3E/HIRAS-II:* **J Hua**, M Sheng, R Zhou, Z C Zeng
- 1876156** *Humidity Mediates Response of Citrus Plants to Ozone Stress: A Leaf-to-Region Analysis Across Contrasting Climates:* **L Mamic**, M Riches, D Farmer
- 1957262** *Investigating Agricultural NO_x Emissions Using Observations from New Generation Satellite Instruments:* **Z Ayazpour**, K Sun, C R Nowlan, G Gonzalez Abad
- 1850956** *It came from Beyond the Watershed: Evaluating Atmospheric Inputs of NH₃ Across Watershed Boundaries to an Upstate New York lake:* **D P Swaney**, R Howarth, T Butler, R Marino, A Hinesley
- 1897976** *Linking Dairy Cow Traits and Management to Manure CH₄, N₂O, and CO₂ Emissions During Storage and Field Application:* **J Mirabella**, R Larson, H Mantovani, X Zhu-Barker
- 1991901** *Long-Term Impact of Aerosols and Climate Variability on Rice Yields across Agroclimatic Zones in India:* **D K K Gupta**, A K Singh, S Pramanick
- 1875177** *Mechanistic and Parametric Estimates of Nitrogen Oxide Emissions from U.S. Fertilized Soils:* **G Parajuli**, L Luo, D S Cohan
- 1990853** *Mitigate PM_{2.5} and nitrogen deposition through agricultural NH₃ control strategies in China's Beijing-Tianjin-Hebei region:* **L Zhang**, L Li, Y Guo

- 1996897** *Nitrification Inhibitor Effects on Post-flooded Soil N₂O and CO₂ Emissions:* **F Johnson**, J Taylor, J Hoeksema, M T Moore, M Locke
- 1987109** *Overestimated Contribution of Ammonia Volatilization to PM_{2.5} in Rice Paddies Due to Canopy Exchange:* **W Adalibieke**, F Zhou
- 1873350** *Ozone Changes the Pulse and Perfume of Citrus Leaves:* **M Riches**, L Mamie, D Farmer
- 1929344** *Spatiotemporal Analysis of the Sensitivity of Wintertime Particulate Nitrate to Precursor Emissions over the Midwestern United States:* **T Vo**, A Christiansen

249207

The Dynamics of the Large Scale Atmospheric Circulation in Present and Future Climates: Jet Streams, Storm Tracks, Stationary Waves, and Monsoons (joint with GC)

Conveners: **Lei Wang**, The University of Chicago; **Osamu Miyawaki**, Union College; **Yi Zhang**, New York University; **Gang Chen**, University of California Los Angeles; **Osamu Miyawaki**, Union College

- 1933743** *A 1D Gray Box Model of the Winter Polar Stratosphere:* **S Liu**, N Nakamura
- 1856220** *A Novel Monsoon Coordinate System and an Advanced Rossby Wave Flux Diagnostic for Understanding East Asian Summer Monsoon Variability and Wave Propagation:* **Y Yang**, J Li
- 1926363** *A Stochastic Energy Balance Model (SEBM) for Subseasonal Midlatitude Surface Temperature Variability under Climate Warming:* **B GE**, G Chen
- 1887216** *A Vector Autoregressive Model for Understanding Midlatitude Atmospheric Variability:* **D Vishny**, N Lutsko
- 1885187** *A weather feature perspective on jet dynamics:* **T Spengler**, C Spensberger, K Konstali, H Auestad, A Marcheggiani, O Lachmy
- 1884891** *Amplifying Variability of the Southern Annular Mode in the Past and Future:* **D Ma**, J Nie, Y Zhang
- 1933526** *Atmospheric response to various SST forcings: the role of mesoscale ocean eddies and nonlinearity:* **D W Kim**, Y O Kwon, C Frankignoul, C Deser, G Danabasoglu
- 1946025** *Attributing Phase Asymmetry in Dynamic Synoptic Eddy Feedback on NAO:* **H L Ren**, S Zhao
- 1878497** *Characterizing Tropical Precipitation Changes Under Meltwater Forcing using a Seasonal Cycle Framework:* **D Hsu**, A R Atwood, C Uejio, A Donohoe, D Battisti

- 1871309** *The Global Ripple Effect: How Climate Model Limitations Influence Agricultural Predictions:* **M WANG**, J Zhou, X Hu
- 1947658** *Transforming agriculture and food systems for clean air and sustainable development: A call for deeper atmospheric chemistry engagement:* **A P K Tai**, L Luo, B Luo, PhD candidate, B Gu
- 1869877** *Warming-induced increases in agricultural soil NH₃ and NO_x emissions could worsen PM_{2.5} air quality:* **A Y H Wong**, J Geddes
- 1932279** *Whole-chain intensification of pig and chicken farming could lower N pollution and GHG emission with economic and food production benefits:* **L Cheng**, X Zhang, C Wang, O Deng, B Gu
- 1969827** *Constraining 21st-Century Regional Precipitation Projections Using Present-Day Tropical Pacific SST Gradient and Atmospheric Circulation:* **L Wang**, K M Grise
- 1953297** *Demystifying the Drivers of the Spring Warming Asymmetry between Eurasia and North America:* **X Ding**, G Chen, Y Wang, L Sun
- 1889162** *Diagnosing South Asian Summer Monsoon Variability Using Quasi-Geostrophic Omega: Insights from Observations and Applications for Model Evaluation:* **D Solanki**, A Nikumbh
- 1934788** *Diagnosing wintertime midlatitude precipitation projections using the Transformed Eulerian Mean framework:* **I Hur**, C Yoo
- 1973086** *Disentangling warming and circulation influences on hydroclimate using nudging experiments:* **A M Varuolo-Clarke**, J E Kay, B Medeiros, W Chapman, I Baxter
- 1988569** *Does the End of Heatwaves Terminate Atmospheric Blocking Events, or Is It the Other Way Around?:* **Y Hu**, L Wang
- 1925211** *Dynamics of Monsoon Intraseasonal Oscillation through Regimes of the Tropical Easterly Jet:* **R M Sunil**, M MG
- 2001292** *Enhanced Highland Warming Intensifies Midlatitude Moist Heat and Convection:* **T Brodsky**, F LI
- 1900413** *Extreme Windstorms in CMIP6 HighResMIP Model Output:* **R Zhang**, S C C Pryor, O Asselin, D Paquin
- 1936682** *From Axisymmetric Models to Regional Insights: A Theory of Mass Circulations Integrating Eddy Effects:* **H I Lee**, N Nakamura, J Mitchell, Y T Hwang
- 1984761** *Global moisture dynamics explained by numerical water tracers:* **A Audette**, N Feldl
- 1979227** *Hadley Circulation Under Different Zonally-Asymmetric Thermal Forcings and CO₂ Concentrations in an Idealized Model:* **P Hunt**, Y Ming, S Kim

- 1998218** *How well does daily synoptic circulation represent the North Pacific stationary ridge?:* **S Bigalke**, P C Loikith, D Singh, X Bai, A Laverty
- 1950178** *Impact of Climate Engineering on the Future Asian Monsoon Climate:* **Y Cho**, H Kim
- 1873107** *Increased Frequency of Planetary Wave Resonance Events over the Past Half-Century:* **X Li**, M E Mann, M F Wehner, S Christiansen
- 1977742** *Investigating Causal Pathways of ENSO Teleconnections to High Mountain Asia Winter Precipitation:* **P J Borah**, A Mamalakis, C Guilloteau, A Tejedor, E Foufoula-Georgiou
- 1926821** *Investigating the Inter-Model Spread of the Southwestern U.S. Precipitation Changes Forced by Anthropogenic Aerosols:* **Y N Kuo**, F Lehner, I Simpson, L Wilcox, B H Samset, R J Allen, J Jeon
- 1942183** *ITCZ and the nontraditional Coriolis terms:* **H Ong**, O Hughes, A R Herrington, C Jablonowski, P H Lauritzen, D Yang
- 1986416** *Jet Orientation Controls on Northern Hemisphere Winter Storm Intensities:* **Y Kaspi**, O Hadas
- 1972873** *Linear Wave Theories Explain the Equatorial Jet Direction in a Shallow Atmosphere but Fail for a Deep Atmosphere:* **H Quan**, L Matilsky, A Van Kan, W Kang, G K Vallis
- 1952843** *Linking the Extratropical Storm Tracks and the Jet Stream through the Annular Modes:* **J M Battalio**
- 1942127** *Long-term Trends of Summertime Water Vapor and Precipitation over Korean Peninsula and Associated Rossby Wave Activity:* **B G Song**, I S Song, H I Lee
- 1926649** *Mechanisms of Southern Hemisphere Midlatitude Surface Air Temperature Variability under Climate Warming in the CESM2 Large Ensemble (LENS2):* **B GE**, G Chen, K Lu
- 1890706** *Moist adiabatic scaling explains mean and fast upper-level jet stream wind response to climate change:* **T Shaw**, O Miyawaki
- 1929021** *Nonlinearity in Atmospheric Circulation Response to Increased Carbon Dioxide: A Multi-model Study:* **P Forson**, X Zhang, PhD, D Waugh, C Orbe, I Mitevski, L M Polvani, PhD
- 1860578** *Northern Hemisphere summertime regional circulation trends driven by anthropogenic aerosol forcing:* **J Kang**, T Shaw, L Sun
- 1863828** *Possible mechanisms for 2025 summer heatwaves in East Asia:* **J H Son**, Y Kim, J Choi, Y Won, B Y Yim
- 1934613** *Projected Changes of the Northern Annular Mode Linked to Seasonality of the ENSO Teleconnection:* **T Kawamura**, Y Kosaka, S Okajima, H Nakamura
- 1980287** *Relative Contributions of Hadley Circulation vs. Walker Circulation to the Tropical Circulation Weakening:* **Y Ming**, S Y Kim
- 1993742** *Representation of Tropospheric Rossby Wave Breaking Flavors and Their Associated Sensible Weather Features in the CESM-LENS2:* **M Gervais**, G LaChat, K Bowley
- 1967567** *Revisiting the weakening of boreal summer extratropical cyclone activity and circulation in the Northern Hemisphere and its link to thermodynamic extremes:* **I Baxter**, T Shaw, I Simpson, P Lin, Z Tan
- 1923078** *Rossby Wave Breaking events exacerbate the pre monsoon Indian heatwave conditions:* **B Thomas**, R K Kunchala, B B Singh, N K Kondapalli, Y Viswanadhapalli
- 1856432** *Seasonal emergence of human-caused expansion of the boreal tropical hydrological cycle:* **R Chemke**, K M Grise
- 1877917** *Seasonal Shifts and Structural Changes in Western Disturbances over Hindu Kush Himalayas:* **S Mitra**, D Sardana, A Agarwal
- 1860826** *Seasonally Asymmetric Projected Changes in Austral Atmospheric Waves:* **I Karbi**, R Chemke
- 1988707** *Separating radiative and SST-induced impacts of time-evolving aerosol emissions on historical summertime Northern Hemisphere extratropical storm activity variability:* **X Zhao**, C Deser, G Persad, A Phillips, N A Rosenbloom
- 1940953** *Simulated climatologies of Northern Hemisphere blocking in a hydrostatic and nonhydrostatic atmospheric climate models:* **A Yamazaki**, Y Baba, A Yamamoto, P Martineau, M Nonaka, C Kodama
- 1924673** *Stronger Interhemispheric ITCZ Asymmetry in Lower-Obliquity Climates:* **P Zhang**, S P Xie, N Lutsko
- 1872780** *Structure and Water Vapor Transport of the Great Plains Low-level Jet in Atmospheric Reanalyses, Models, Rawinsondes, and Profilers:* **S S Leroy**, S Vannah, C Park, Y Ming
- 1881935** *Subseasonal Storm Track variability associated with tropical heating variations:* **E K M Chang**, R Zhang, S Lee, A Mewhinney
- 1921478** *The Asian–Bering–North American Teleconnection: A Key Mode of Winter Temperature Co-Variability Across Eurasia and North America:* **W Zhong**, Z Wu
- 1906019** *The Pacific-Japan (PJ) Pattern and Variability as Climate Model Evaluation Metrics:* **J Jeong**, J Yoon
- 1851261** *The Role of Stratospheric Dynamics and Western Boundary Currents in the Seasonal Migration of the Tropical-Midlatitude Boundary and Jet Stream Systems:* **M Muto**, T Kohyama, H Miura
- 1937151** *The Role of Tropical Synoptic-Scale Disturbances in Modulating the Strength of East Pacific Hadley Circulation:* **P P Baruah**, N J Mani, S Ettammal

- 1889065** *The Subseasonal North Atlantic Oscillation is a Quasi-Semiannual, Propagating Disturbance:* **J Lu**, S J Smith, P W Staten
- 1998647** *Topology Meets Cyclogenesis: Equatorial Wave Modes, Reflection, and Their Impact on Ocean-Atmosphere Coupling:* **D Kundu**, A Gupta, S Pentakota
- 1896711** *Trans-Basin Linkages Prolong Northwestern Pacific Marine Heatwaves through a Circumglobal Wave Pattern:* **Y Zhao**, J Y Yu

250158

The Global Methane Opportunity: Methane Emissions from Solid Waste (joint with B, GC, SY)

Conveners: **Tia Scarpelli**, University of Edinburgh; **Paul Imhoff**, University of Delaware; **Charlotte Scheutz**, Technical University of Denmark; **Tia Scarpelli**, University of Edinburgh

- 1984402** *Estimating Methane Fluxes from Landfills in New York State: A Methodological Intercomparison:* **L T Murray**, M Loman, J Zhang, M J Schwab, A M Catena, J Marto, J J Schwab, E Liebensperger, A Hallward-Driemeier, R Commane
- 1862886** *Advancing Drone Technologies for the Solid Waste Industry: Safer, Smarter, and More Efficient Data Collection:* **E Martinez**
- 1948308** *Advancing Landfill Methane Measurement: Insights from the SIMFLEX Controlled Release Facility:* **D A Risk**, P Buntov, R Iftakhar Hossian, Y Dudak, K El Hachem, K Marsh, C Hall, A Chepkova, T R Abichou
- 1963149** *Assessing Methane Oxidation and Significance of Aerobic Waste Degradation across Different Landfill Covers with Eddy Covariance Data:* **T S Raaz**, P T Imhoff, M Delkash, R Yazdani
- 1968349** *Digital Twins to Understand Methane Emissions From Landfills:* **P T Imhoff**, M Elius, K Yang, H Gamarro, R Yazdani, M Delkash, T S Raaz, F K Chow
- 1881814** *Estimation of Anthropogenic Methane Emissions from U.S. Landfills Using Activity-Based Methods:* **H Sun**, K R Gurney, P Sadavarte, A Kato, P Dass, L A Gawuc, B Aslam

- 1882009** *Using Finite Amplitude Wave Activity to Examine the Impact of Latent Heating on Baroclinic Wave Activity:* **R Zhang**, E K M Chang
- 2003954** *Using Microseism to Study Atmospheric Rivers:* **D Yang**, A Zhang, S Park
- 1887138** *Western Disturbance Break Periods and Their Role in Driving Pre-Monsoon Heat Extremes over India:* **S Kadam**, A C Ruane, M Ting, R Seager
- 1884361** *Zonal Atmospheric Energy Fluxes and Interannual Shifts in the Walker Circulation:* **Y Hu**, J Chiang
- 1923161** *Informing landfill emission reporting models using airborne and satellite remote sensing:* **K Howell**, T Scarpelli, D Cusworth, R Duren
- 1992728** *Methane emission quantification and mitigation within the waste sector.:* **C Scheutz**
- 1918213** *Methane Radiocarbon Measurements From Capped Landfills Indicate Substantial Fossil Carbon Biodegradation:* **J Wasserlauf**, P M Douglas, G Clark, J Asomaning
- 1957977** *Simulating Wind-Driven Methane Dispersion Over Landfill Terrain: A CFD Approach with UAV-Based Detection Integration:* **I Cerquozzi**, M Johnson
- 1955106** *Understanding Trends In Methane Emissions From Landfills In The Appalachian Region – Impact Of Seasonal Changes, Precipitation And Landfill Characteristics:* **A Srikanth**, S N Stokes, S Yang, A P Ravikumar
- 1897593** *Using Earth Observations to Quantify Methane Concentrations Produced by Landfills in New Hampshire:* **A Gluck**, C Alimurong, A Chavez, S Lockwood
- 1969212** *Waste Outweighs Oil: Sectoral Analysis of Methane Source Persistence Using EMIT Data over the Arabian Peninsula:* **A Aljurbua**, R Estrela, A K Thorpe, R O Green, C Elachi
- 1920932** *Year-round Monitoring of Landfill Methane Emissions Captures Seasonality and Meteorological Drivers:* **A Hallward-Driemeier**, Y Zhao, M P Drews, M R Sargent, S C Wofsy, R A Barton-Grimley, A R Nehrir, A Yerasi, R Commane

251875

The Influences of Regional Aerosol Changes on Climate and Extreme Events (*joint with GC, GH, NH, SY*)

Conveners: **Yanda Zhang**, Lamont Doherty Earth Observatory; **Robert Allen**, University of California Riverside; **Geeta Persad**, University of Texas at Austin; **Laura Wilcox**, University of Reading; **Veronika Redensek**, University of Texas at Austin

1907821 *Absorbing Aerosols Can Enhance Both Extreme Precipitation and Dry Spells:* **G Dagan**, E Eytan, S T, N Habib

1932624 *Climate impacts of aerosol emissions from high-income and developing countries, and implications for coupled human-climate models:* **P Polonik**, J A Burney, K Rieke

1864687 *Dynamical responses of wildfire aerosol emissions to global environmental changes:* **Y Yu**, X Meng, R Xu, P A Ginoux

1985017 *Influence of Global and Regional Aerosol Emission Reduction on Near-Term Projection of Fire Weather Risk:* **V S Utama**, G Persad, D Paynter, D E Touma, PhD

250965

The Madden-Julian Oscillation and Convectively Coupled Waves in the Tropics: Observations, Theory, Modeling, and Prediction (*joint with OS*)

Conveners: **Daisuke Takasuka**, Tohoku University; **Stephanie Henderson**, Colorado State University; **Fiaz Ahmed**, University of California Los Angeles; **Daehyun Kim**, University of Washington Seattle Campus

1901547 *A Critical Role of the Land-atmosphere interactions for the Damping of the Madden-Julian Oscillation over the Maritime Continent:* **X Jiang**, H Y Ma

2001494 *A dynamical transition between Rossby modes and the MJO in an idealized GCM:* **C MacDonald**, Y Ming

1882138 *A Multiscale Interaction Mechanism for the Observed QBO-MJO Connection:* **K Huang**, C C Chen, M W Moncrieff, J Richter

1884621 *A Simple Intermediate Coupled MJO-ENSO Model: Multiscale Interactions and ENSO Complexity:* **Y Zhang**, N Chen, C Moser

1909592 *Assessment of the MJO's Southward Detour in CMIP6 models:* **Y Choi**, D Kang, D Kim

1907115 *Can Background Circulation Facilitate Intraseasonal Mixed Rossby-Gravity Waves over the Central-Eastern Pacific?:* **M Mehak**, S Ettammal

1926256 *Investigation of The Temporally Evolving Pattern Correlation Between Anthropogenic Aerosols and Their Climatic Impacts:* **K Roeder**, K White, G Persad, A Phillips

1913633 *Local and Remote Effects of Regional Aerosol Reductions on Future Precipitation in Arid and Semi-Arid Regions:* **Y Zhang**, D Westervelt

1920413 *Mechanisms of Enhanced Near-Term Arctic Warming in Response to Remote Regional Aerosol Emission Perturbations in RAMIP:* **Y Zhang**, D M Westervelt, M J Previdi, B H Samset, L Wilcox, R J Allen, M T Lund, A Ekman

1992816 *Modelling of Chemistry-Climate Interactions: Project FOCI - Non-CO2 Forcers and Their Climate, Weather, Air Quality and Health Impacts:* **T Halenka**, R Sokhi, S Finardi, N Machado-Crespo

1944179 *Recently Rising Smoke Plumes over Boreal Forests due to Intensifying Wildfires and Ambient Convection:* **R Xu**, Y Yu

1979043 *The AMOC Response to Regional Reductions in Aerosol Emissions:* **T Carson**, R J Allen

1870123 *The Impact of Regional and Global Aerosol Changes on African Air Quality: Feedbacks on Dust Emissions:* **J A Amooli**, D Westervelt, Y Zhang, C A Toolan, L Wilcox, B H Samset, M T Lund, R J Allen, K Tsigaridis, R L Miller

1977658 *Changes to the Madden-Julian Oscillation with Surface Temperature Warming in Aquaplanet Simulations:* **S Ressel**, D Kim, P N Blossey

1956603 *Convectively Coupled Equatorial Waves in Machine-Learning-Based Weather Predictions:* **J Dias**, M Gehne, B Wolding

1892309 *Eastward Shift in Boreal Summer Intraseasonal Oscillation Amplifies Heatwave and Wildfire Risks over Larger Areas of North America:* **Z Chen**, S W Lubis, J Lu, C C Chang, H Huang, W Zhou, B E Harrop, L R Leung

1967219 *Exploring Convectively Coupled Equatorial Wave Instability with Linear and Nonlinear Data-Driven Convection Parameterization:* **Q Song**, Z Kuang

1965356 *Future changes in intra-seasonal North Atlantic tropical cyclone variability associated with the Madden-Julian Oscillation:* **C C Chang**, L R Leung, S W Lubis, Z Chen, K Balaguru, S M Hagos, M Zhao, K Yoshida, H Murakami

1987948 *Identifying Increased Dimensionality in the Madden-Julian Oscillation through Canonical Polyadic Decomposition:* **T Ehrmann**, D L Bull, E Phipps, H Kolla

1883154 *Impacts of Indian Ocean Basin Mode on the MJO during boreal summer: implication for Meiyu variations over South China:* **Y Wei**

- 1941874** *Influence of Madden-Julian Oscillation on Primary Productivity in the Northern Bay of Bengal:* **K Karmaker**, K M A Chowdhury, E H C Albin
- 1963287** *Influence of the Madden-Julian Oscillation on Marine Heatwaves in the Central Tropical Indian Ocean:* **L Pedraza**, T Shinoda
- 1910593** *Intraseasonal Equatorial Kelvin and Rossby Waves in Modern AI-ML Models:* **S Jalan**, J Sukhatme
- 1908904** *Kelvin waves and the MJO control the day-to-day variability of tropical humid heat extremes:* **C E Birch**, L S Jackson, C Taylor, G Chagnaud Dr, A Hidayat Ms, J Marsham, J Law
- 1856314** *MJO Predictability: Sources, Limits, and Future Directions:* **H Kim**

249773

The Spectral Dimension of Shortwave and Longwave Radiation in the Earth System (joint with GC)

Conveners: **Jake Gristey**, Cooperative Institute for Research in Environmental Sciences; **Yolanda Shea**, NASA Langley Research Center; **Shiv Priyam Raghuraman**, University of Illinois at Urbana-Champaign; **Daniel Feldman**, Lawrence Berkeley National Laboratory

- 1913895** *Analysis and Attribution of Trends in Observed Spectral Radiances through EC-Earth Climate Model Simulations:* **S Della Fera**, F Fabiano, M Ridolfi, P Raspollini, J von Hardenberg, U Cortesi
- 1881640** *Analysis of CCCma Radiative Transfer Calculations for Overcast Ice Clouds:* **J Bredecke**, X Dong, B Xi, X Zhong, H Barker, J Li, P Pilewskie
- 1899787** *COSP-RTTOV: Spectral radiation diagnostics to enable new science applications in model evaluation, climate change detection, and satellite mission design:* **J Shaw**, D J Swales, S G Desouza-Machado, D D Turner, J E Kay, D Schneider
- 1994548** *Development of a ground-based microwave spectral radiometer for pre-launch calibration and validation of the satellite-mounted SAMRAI:* **T Maeda**, Y Kobayashi, N Tat Trung, Y Takei, T Yano, N Tomii
- 1940657** *Direct Observational Evidence from Space of the Effect of CO₂ Increase on Longwave Spectral Radiances:* **J Teixeira**, R C Wilson, H Thrastarson

- 1934749** *Modal Interference Drives Madden-Julian Oscillation Evolution and Predictability:* **D Marsico**, J Albers, M Newman, J Dias, M Gehne, G N Kiladis, E LaJoie, Y Wang
- 1883172** *On the initiation and impacts of the March 2023 MJO:* **Y Wei**, M Mu, H L Ren
- 1850443** *Scale analysis for the Madden-Julian oscillation:* **H Ong**
- 1871243** *Simulations of Convectively Coupled Kelvin Waves (CKWs) With Three Different Cumulus Parameterization Schemes:* **S Lee**, S H Park, M T Chien, D Kim
- 1920351** *Stratospheric Influences on the MJO: Further Evidence from the Observed Response to 27-day Solar UV Variations:* **C Hoopes**, L L Hood
- 1947947** *The Role of Equatorial Waves in MJO Predictability in Deep Convolutional Networks:* **L Yao**, D Yang
- 1967283** *Empirical Studies of Increased Measurement Integration Time on Modeling Solar Irradiance Variability in the Near-Infrared:* **T Stribling**, O Coddington, C L Peck
- 1867957** *Insights into Earth's Emission Spectrum from One Year of PREFIRE Observations:* **T S L'Ecuyer**
- 1964698** *Libera Earth Target Scans for Split-Shortwave Irradiance Evaluation:* **J J Gristey**, S Schmidt, D Harber, M Z Hakuba, P Pilewskie
- 1927128** *Performance Tolerances for Channeled Polarimetry using Stokes Resolved Differential Temperatures:* **E Spitzer**, N Rubin, S Sullivan, M Kupinski
- 1905002** *Preparing for Libera: Spatio-temporal Variability of Visible and Near-infrared Radiation in Simulations:* **M Z Hakuba**, P Pilewskie, G L Stephens, J Gristey, D Feldman, W D Collins, X Zhong, A Bodas-Salcedo, X Huang
- 1978246** *Sensitivity of Gross Primary Production (GPP) prediction to Higher Spectral and Directional Resolution Radiative Forcing:* **X Zhong**, Y Song, B Xi, T Hu, J Bredecke, P Neri, H Zhang, X Dong
- 1999675** *Simulating far-infrared signals over the Antarctic Plateau using temperature-dependent ice cloud optical property models:* **T Ren**, J J Coy, P Yang
- 1940966** *Single-point Multi-spectral Observations of the Earth: A Linear Analysis:* **X Jian**, L Gu, S Fan, J Yang, Y L Yung
- 1952255** *Spectral Insights into the Diurnal Cycle of Earth's Outgoing Longwave Radiation:* **M Saba**, D Paynter, V Ramaswamy
- 1863368** *Spectral Outgoing Longwave Radiation Measured by the Polar Radiant Energy in the Far Infrared Experiment (PREFIRE):* **X Chen**, X Huang, T Michaels, B Drouin, T S L'Ecuyer

- 1897812** *Thermal Spectro-Polarimetry for Phase Discrimination of Ice and Water*: **J John**, M Kupinski
- 1855224** *Toward Transparency and Consistency: An Open-Source Optics Parameterization for Clouds and Precipitation*: **J Feng**, D Paynter, R Menzel

249993

Toward Modifications of Extreme Weather Events (joint with GC, H, IN, NH)

Conveners: Takemasa Miyoshi, RIKEN; **Tetsuo Nakazawa**, Japan Science & Technology; **Shu-Chih Yang**, National Central University; **Kohei Takatama**, Japan Science & Technology

- 1973391** *Climate Model Downscaling Techniques Using DDPM*: **R Kaneko**, A Okazaki, S Kotsuki
- 1993066** *Ensemble-based Analysis of Line-shaped Convective Systems in Japan Toward the Design of Atmospheric Modification using Offshore Curtain*: **A Ono**, Y Naka, K Yamaguchi
- 1991174** *Ensemble-Based Model Predictive Control for Meteorological Applications: A case of August 2021 North Kyushu Heavy Rainfall*: **A Okazaki**, K Kurosawa
- 1906306** *Exploring Cloud Seeding Impacts on Typhoon Hagibis Using NHM-Chem Model*: **S Hirose**, H Fudeyasu, M Kajino, Y Kiyohara, T Tobar, R Yoshida
- 1871096** *Heavy Rainfall Control by Wind Intervention*: **K Yamaguchi**
- 1909652** *Idealized Numerical Simulation for the impact of Condensation Nuclei Concentration on Tropical Cyclone intensity*: **Y Kudo**, R Yoshida

248070

Tropical Cyclones: Observations, Modeling, and Predictability - Today and into the Future (joint with NH)

Conveners: Michael Bell, Colorado State University; **Rosimar Rios-Berrios**, University at Albany State University of New York; **Zhuo Wang**, University of Illinois at Urbana Champaign; **Robert Rogers**, NOAA/AOML/Hurricane Research Division

- 1954041** *A Machine Learning Approach to Estimate the Three-Dimensional Tropical Cyclone Wind Field*: **M Fischer**

- 1905927** *Tracking Earth's Radiative Energy Imbalance: Insights from Uvsq-Sat Nanosatellite (2021–2024) and CERES Observations (2013–2024)*: **M Meftah**, A Sarkissian
- 1919083** *Why increases in CO₂ cool the stratosphere and how this amplifies radiative forcing*: **S Cohen**, R Pincus, L M Polvani, PhD
- 1909659** *Impact of Cloud Condensation Nuclei Concentration on Convection During the Genesis of Typhoon Faxai in 2019*: **M Shibata**, R Yoshida
- 1953189** *Numerical Experiments of Cloud Seeding for Mesoscale Convective Systems in Japan: A Strategy for Mitigating Localization of Heavy Rainfall*: **Y Hiraga**, J Mbugua, S Kotsuki, Y Suzuki, S H Chen, A Hamada, K Yasunaga, T Funatomi
- 1890295** *Numerical Simulation of Tropical Cyclone Sensitivity to Hygroscopic Aerosol Concentrations: A Case Study of Typhoon Faxai 2019*: **R Yoshida**, H Fudeyasu, R Yasui, T Takemura, Y Sato
- 1978126** *Precipitation Control via Ensemble-Based Convex Optimization of Time-Series State Perturbations*: **S H Kim**, T Ohtsuka
- 1934562** *Statistical Assessment of Regional Precipitation Ensembles Generated by a Diffusion Model*: **N Saito**, D Shiojiri, S Kotsuki
- 1906293** *Suppression of Tropical Cyclone Development by Lower-Tropospheric Diabatic Heating outside the Eyewall*: **H Fudeyasu**, Y Wang
- 1950864** *Weather Jiu Jitsu: Toward Adaptive Control of Extreme Weather Regimes Using the Seasonally Forced Lorenz-84 Model*: **M Liu**, Q Huang, U Lall
- 1931639** *Weather Jiu-Jitsu: Steering Tropical Cyclones with Small Perturbations of the Jet Stream in Experiments with Deep Learning Foundation Models*: **Q Huang**, M Liu, U Lall, Y Kwon, H H Kwon, Y Liu
- 1950476** *A Sensitivity Study Of WRF Model Microphysics, Pbl, And Cumulus Parameterization Schemes For The Simulation Of Tropical Cyclones In The Bay Of Bengal Using In-Situ Observations*: **M F Methila**, M K Das, F Akter, M M Islam
- 1964346** *An analytical model for tropical cyclone size expansion on the sphere*: **D Wang**, D R Chavas
- 1903199** *Analysis of Forecast Characteristics of Midlatitude Upper-Level Troughs over the Western North Pacific Affecting Typhoon Tracks*: **E Lee**, D KIM, K Lee, S Lee
- 1873296** *Atmospheric Circulation Constraints on Future Changes in Tropical Cyclone Activity*: **M Rao**, G Zhang, K A Reed

- 1875869** *Attributing Changes in Tropical Cyclone Activity to Climate Change using a Hybrid Machine Learning General Circulation Model:* **Z Wang**, S Henry, M Yang
- 1852950** *Category '6' Tropical Cyclone Hot Spots in the Warming Climate:* **I I Lin**, C C Wu, Y Wang, C C Lien, Y Chang
- 1952816** *Combined Ground and Satellite data for Monitoring Cyclones and Changes in Ocean color in the Bay of Bengal:* **M Mehdi**, A Chauhan, R Singh
- 1925085** *Distinctive impacts of forced versus internal Atlantic Multidecadal Variability on tropical cyclone genesis and intensity:* **X Li**, S Hu
- 1921781** *Do continents control how fast hurricane environments expand? Insights from idealized past and future worlds:* **A Kruskie**, D Chavas
- 1989999** *Effects of Radiative Feedbacks on Tropical Cyclones in Aquaplanet Simulations:* **A Burnett**, A Sheshadri, T E Robinson Jr, P Lin
- 1990505** *Enhancing Tropical Cyclone Forecasting with Multi-Source Data Assimilation and Ocean-Wave Coupling:* **H Liu**, J C H Fung, Z Li, S Zhang, A K H Lau
- 1891114** *Enhancing typhoon forecasting performances by assimilating Synthetic Aperture Radar (SAR) ocean surface wind data:* **Y Gong**, H Su
- 1926932** *Examining Role of Future Urban Expansion on Hurricane Impacts Using Km-Scale Earth System Modeling:* **T Chakraborty**, J Li, Y Qian, L R Leung
- 1874280** *From Earth to Titan: Resolving Tropical Cyclones in Idealized Planetary Atmospheres:* **D Moore**, J Mitchell
- 1965436** *Future Projection of Tropical Upper Tropospheric Troughs and Implications for Tropical Cyclone Activity:* **C C Chang**, Z Wang, Z Yan, M Zhao, L R Leung
- 1989593** *Global Trends of Rapid Intensification Volume in Tropical Cyclones:* **H Jiang**, O Guzman, H Willoughby
- 2004287** *High-resolution satellite imagery reveals distinctive convective patterns in rapidly intensifying tropical cyclones.:* **D Nieves**, J S Pérez Carrasquilla, J Chen, C D Hoyos Ortiz
- 1932134** *Historical and Future Tropical Cyclone Characteristics in the SPEAR Large Ensemble:* **W Chu**, J Garcia-Franco, S J Camargo, C Y Lee, M Tippett, H Murakami
- 1884092** *Historical Tropical Cyclone Variability Through the Lens of the Modern Naming System:* **J Ortegren**, N Barnes
- 1877324** *Impact of Marine Heatwaves on the Tropical Cyclone Genesis:* **S M Choi**, H S Kim, M S Park
- 1989575** *Impact of Vortex Height on Tropical Cyclone Genesis under Moderate Vertical Wind Shear:* **C Nam**, C Stoll, M M Bell
- 1982362** *Improving Upper-Ocean Response Estimates to Tropical Cyclones via Lagrangian Data Assimilation of Surface Drifter:* **J Dong**, J Carton, L Sun, J O Wengrat, S G Penny
- 1848172** *Land-Ocean Comparison of Forecast Errors in Track and Intensity of North American Landfalling Tropical Cyclones:* **V Juneja**, H Huang
- 1885483** *Local energetics of extratropical transition: A case study of typhoon Hagibis (2019):* **Y Kwon**, S W Son
- 1894649** *Mechanisms Underlying the Contrasting Lightning Activity of Tropical Cyclones between Open Ocean and Enclosed Sea:* **W Xu**
- 1915455** *Observations and Modeling of Air-Sea Interactions During Hurricane Lee.:* **A Williams**, B Villas Boas, M Schonau, E Sanabia, S R Jayne
- 1942256** *Predictability of Typhoon Intensity Based on Lightning Data and Meteorological Reanalysis Data:* **M Sato**, Y Takahashi, H Kubota
- 1870696** *Probing Seamless Prediction of Tropical Cyclone Activity with a Hybrid AI-Physics Climate Model:* **G Zhang**, M Rao, J Yuval, M Zhao
- 1893257** *Results from the NASA TROPICS Tropical Cyclone Microwave Sounding Constellation Mission after 30 Months of Operation:* **W J Blackwell**
- 1947445** *Role of Moisture Flux in Precipitation During Cyclonic Storms Over the Northern Bay of Bengal and Coastal Bangladesh: Insights from MPAS-A:* **M Jannat**, K M G Rabbani, R Awal, F Akter
- 1943523** *Sensitivity of Tropical Cyclone-Cold Wake Interaction to Ocean Mixed Layer Structure:* **C Woo**, J Kim, E H Baek, H G Kim
- 1878336** *Shifting hotspot of tropical cyclone clusters in a warming climate:* **Z H Fu**, D Xi, S P Xie, W Zhou, N Lin, J Zhao, X Wang, J C L Chan
- 1947858** *Simple Fast Models to Predict the Complete Radial Structure and Size Evolution of the Tropical Cyclone Wind Field:* **D R Chavas**, D Tao, R Nystrom, A Avenas, D Wang
- 1881345** *Storylines of Near-term Change in Tropical Pacific Climate and Global Tropical Cyclones:* **Y Xia**, C Y Lee, A H Sobel, S J Camargo, PhD, R Seager, K Reed
- 1994539** *Subseasonal Tropical Cyclone Predictability with the Model for Prediction Across Scales (MPAS):* **R G Nystrom**, F Judt
- 1866305** *Subseasonal-to-seasonal Variability of Rapid Intensification in North Atlantic Tropical Cyclones:* **H Uppu**, H Huang
- 1934786** *Surface and Subsurface Marine Heatwave Impacts on North Atlantic Tropical Cyclone Intensification:* **F de Santiago Acero**, J Nakamura, M Ting, S J Camargo

- 1879669** *The Impacts of a Scale-Aware 3D Turbulent Kinetic Energy (SA3DTKE) Scheme on Tropical Cyclone Forecasts:* **K Y Fung**, P Zhu, X Zhang, J Zhang, C K Wang, B Liu
- 1917542** *The Importance of Seed Types for Tropical Cyclone Genesis in the Eastern and Central Pacific:* **J Ocegueda Sanchez**, D R Chavas, J W Baldwin
- 1864241** *The Modulation of Upper Ocean Temperature Structure, Heat Content, and Ocean Currents by Hurricane Laura (2020):* **S Tsei**, S D Howden, A R Diercks, K Balaguru, M Le Hanaff, I F Pun, K M Martin, MS
- 1991168** *The Role of Boundary Layer Pumping in Pre-Genesis Tropical Disturbances:* **T Barbero**, M M Bell, D Colón Burgos
- 1994159** *The Time-Dependent Response of Atlantic Tropical Cyclone Potential Intensity to Pacific SST Variability:* **J Lin**, R Rousseau-Rizzi, K Emanuel
- 1994273** *The Wind-Dependent Surface Drag Coefficient Contributes to Secondary Eyewall Formation in Tropical Cyclones: A Case Study of Typhoon Gaemi (2024):* **Y Wang**, H Wang Dr
- 1884515** *Trends and ENSO-related variability in Atlantic tropical cyclone intensity and intensification:* **S J Camargo, PhD**, M Tippett

248949

Understanding and Modeling of Mesoscale and Severe Local Convective Storm Processes (joint with NH)

Conveners: **Zhe Feng**, Joint Global Change Research Institute; **Jiwen Fan**, Pacific Northwest National Laboratory; **Huancui Hu**, Pacific Northwest National Laboratory; **Angela Rowe**, University of Wisconsin Madison; **Huancui Hu**, Pacific Northwest National Laboratory

- 1924444** *Advancing Process-level Understanding of Congo Basin Convection through MPAS-Atmosphere Simulations:* **A Rosen**, S Zhao, R Fu, K N Ocasio, R Nystrom, C He, J Zhang
- 1934533** *An Observational Measurement of Updraft Entrainment Using Gridded Radar Data and ERA5 Reanalysis:* **A Ejioogu**, J M Peters
- 1987294** *Changes in Violent Precipitation and Severe Winds under Temperature Rising and Urban Expansion Scenarios:* **J Fan**, D Brooks, Y Zhang, S Zhang
- 1900126** *Characteristics of extreme precipitation intensity scaling with local temperature over global land MCS hotspots:* **H Hu**, L R Leung, G Wang, X Sun, H Qin, F M Alvee

- 1904695** *Tropical Cyclone Precipitation Efficiency: A Variable, not a Constant, Quantity:* **R Rios-Berrios**, J Kukulies, T Y Cha
- 1907399** *Tropical cyclone response to ambitious decarbonization scenarios:* **M Moon**, S K Min, J E Chu, S I An, S W Son, H Ramsay, Z Wang
- 1955925** *Tropical cyclone seed structure in future climates: What controls the structure of TC seeds?:* **K Y Lu**, K Reed
- 1888272** *Tropical Cyclones Tend to Track Parallel to the Southern Coast of China:* **L Li**, J C L Chan, G Wang, Y Zheng
- 1982432** *Turbulence structure of the low-level hurricane eyewall from uncrewed aircraft observations:* **J Zhang**, J Cione, J Wadler, G Lin, J S Elston, M Stachura, J Fromm, J Dunion, X Zhang
- 1895458** *Using High-Wind Direct Covariance Air-Sea Heat Flux Observations to Understand Sea Spray Physics and Inform Tropical Cyclone Model Development for Current and Future Climates:* **B W Barr**, H Seo, J B Edson, C Sauvage, C A Clayson
- 1944716** *What Drives Extremes in Active and Inactive Hurricane Seasons?:* **S S Chen**, A P Daley Jr, R Zhuang, B W Kerns, L R Leung, K Balaguru
- 1951751** *Classification of Mesoscale convective systems over the west coast of India:* **A Shaji**, M MG
- 1948583** *Composite Characteristics and Lightning Flash Rates in Summer and Winter Thunderstorms over Bangladesh:* **M Akter**, F Akter, K M G Rabbani, A Kabir, S T Ovi
- 1880926** *Contrasting the Environmental Conditions of Tropical MCSs Tracked in Observations and Reanalysis Data:* **S Heflin**, Z Feng, L R Leung, Q Fu
- 1898764** *Controls on orographic convection across RELAMPAGO/CACTI events using LASSO-CACTI ensemble simulations:* **A Lopez**, D J Kirshbaum
- 1988786** *Development of a 3D observation system for thunderstorms based on cloud imaging from the ground:* **Y Takahashi**, H Kubota
- 1968526** *Dynamic and Microphysical Evolution of a Coastal Bow-Echo MCS Associated with Heavy Rainfall in South Korea:* **S H Kim**, J H Jeong, S B Oh, J E Lee, C L Tsai, G Lee
- 1870906** *Environmental Controls on Tropical Oceanic Mesoscale Convective Systems in Global Kilometer-Scale Simulations:* **L Paccini**, Z Feng, H Franke, M Muetzelfeldt, T Auerswald, C Li
- 1944086** *Evaluating WRF-ARW diagnostic methods for lightning early warning systems in Bangladesh:* **S T Ovi**, K M G Rabbani, F Akter, M Akter

- 1882512** *Generation Processes of Tornadoes Associated With Typhoon Shanshan (2024) Observed by Phased Array Weather Radar*: **T Adachi**, W Mashiko, A Umehara
- 1851269** *ICON simulations of hail storms in Switzerland and their response to varying aerosol environments*: **N Omanovic**, U Lohmann, A Koch
- 1961988** *Impact of horizontal resolutions on the simulation sea breezes during the TRACER field campaign*: **H Y Ma**, Y Zhang, J Zhang
- 1892810** *Insights into the South Asian Mesoscale Convective System Hotspots and Environmental Drivers*: **D Paul**, S K Dubey, W Cui
- 1962378** *Investigating Thermodynamic Controls on Tropical Mesoscale Convective System Lifecycles*: **S Kulkarni**, K A Schiro, G Elsaesser, A Adames-Corraliza, F Ahmed, J D Neelin, B Wolding
- 1850171** *Large-Eddy Simulations of Deep Orographic Convection in the Colorado East River Basin During SAIL*: **J Liu**, D J Kirshbaum
- 1965273** *Leveraging realistic large-eddy simulations to better understand the dynamics driving downdrafts in deep convection*: **J Mulholland**, J Marquis, E Jo, Z Feng, A Varble, J M Peters, H Morrison, C J Nowotarski, E Nielsen, G Elsaesser
- 1958122** *New Insights into Hail Growth using Cryogenic Electron Backscattered Diffraction*: **N LeBrun**, A K Rowe, C E Bonamici
- 1957239** *Observations and Mesoscale Modeling of Convective Weather and its Hazards at the Severe Storms Research Center (SSRC)*: **M J Peterson**, L Boggs, J Losego
- 1853153** *On the Atmospheric Environment of the Tornadoic Supercell in the Province of Pampanga, Philippines (27 May 2024)*: **G Capuli**, M A Noveno, M P Ibañez
- 1962633** *Overview of the In Situ Collaborative Experiment for the Collection of Hail in the Plains (ICECHIP)*: **J T Allen**, R Adams-Selin, V Gensini, A Heymsfield, I M Giammanco, M R Kumjian, K Kosiba, J Wurman, B M Argrow, K A Lombardo, K Friedrich, D T Dawson II, H C Vagasky, E Mansell, R S Schumacher, Z J Lebo, J Keeler, E Frew, C R Homeyer, X Chen, V Chandrasekar, J Brimelow, L D White, Y Gao, C Ziegler, J Dodd, J Soderholm, O Romppainen-Martius, A Protat, M Kunz
- 1969809** *Process-based investigation of severe wind generation in derecho events*: **R J Trapp**, K Killion, F Lombardo
- 1932094** *Quantifying Precipitation Efficiency in Tropical Mesoscale Convective Systems: Insights from the FLEXTRKR Tracking Database*: **T E Makgoale**, S Sullivan
- 1888402** *Transition of Mesoscale Gravity Wave Forms*: **A Sen**, M Kaplan
- 1902844** *Unraveling the Spatiotemporal Causal Relationship among the Environmental Variables for Severe Convective Storm (SCS) Events*: **W Qian**, Y Wen, J Kisembe, R Odongo

246921

Urban air pollution: interaction with weather/climate and impact on health (joint with GC, GH)

Conveners: **Cenlin He**, Department of Atmospheric and Oceanic Sciences, University of California; **Guy Brasseur**, Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research; **Maria de Fatima Andrade**, USP University of Sao Paulo; **Alberto Martilli**, Ciemat; **Jiachen Zhang**, University of Southern California

- 1877416** *Non-Agricultural NH₃ in Cities: Overlooked Driver of PM_{2.5} and Health Burdens*: **Y Gu**, D K Henze, H Liao
- 1872712** *Urban Fleet Evolution Scenarios and Air Pollutant Emission Reduction: a Comparative Assessment in Milan, Italy*: **L Di Micco**, S Abati, M Bultrini, A Lepore, M Faticanti
- 2005136** *A Century of Vehicular Emissions in Brazil: Unveiling the Impacts of Unique Fuel Mix on Air Quality*: **S Ibarra Espinosa**, E D D Freitas, B Gaubert, P Lichtig, G Pereira, J M P Nascimento, K Ropkins, L D Martins, A L Vara Vela, D Schuch, R Ynoue, S Diez, L Hoinaski, M Gavidia-Calderón, T Toledo, Z Mera, A Casallas, F Vallejo, V Diaz, R Pedruzzi, R Abrutzi, M A Franco, N Huneeus, H Jorquera, L Belalcazar, N Y Rojas, M D F Andrade, L K Emmons, G P Brasseur
- 1961349** *A Temporal Assessment of the Impact of Temperature Projection on Ozone Reaction Kinetics and Sensitivities*: **O Akinola**, K G Mahoney, Z Gao, C Ivey, A G Russell, A Lawal
- 1903375** *Air Quality Impacts of Adopting Zero-Emission Truck Regulations in Southern California*: **S E Neyestani**, X Zhang, S Fazelvalipour, J Zhang, L Jin, E Pennington, J Zhang
- 1993936** *Analysis of Atmospheric Conditions Responsible for an Ozone Exceedance Event in Southeast Virginia on June 15, 2022*: **D B Phoenix**, T Berkoff, G Gronoff, D Salkovitz, C Bernier, K E Knowland, J T Sullivan, M Roots, L Twigg, T N Knepp

- 1868485** *Analysis of Ozone and its Precursors in Baltimore and the Northern Chesapeake Bay:* **S Renton**, X Ren, R R Dickerson, S S Brown
- 1925066** *Analyzing the Relationship Between Air Quality and Urban Vegetation in Los Angeles, CA (2000-2020):* **Y Zhang**, Y Hang
- 1946635** *Assessing the contribution of transboundary transport of black carbon aerosol over the East Indian region:* **S Patel**, S Verma
- 1887898** *Changes in the Size Distribution of Particle matter (PM) between Urban Forests and Cities during High PM Episodes in Korea.:* **S Choi**, C Kim, J Jeong, H D Sou, C R Park
- 1904133** *Effective climate policies for major emission reductions of ozone precursors: Global evidence from two decades:* **S Yu**, N Yao, L Chen, L Song
- 1921021** *Evaluating Imbalances in Air Quality and Urban Heat in Greensboro, NC:* **M N Fiddler**, S Dorestant, S Kobelev, W Allen, P Msrac, S Bililign
- 1953776** *Evaluating the Trade-offs between Climate Benefits and Air Quality Effects of High-Albedo Roof Deployment Across China in Summer:* **N Zhao**, Y Zhang, L Xue
- 1949705** *Gestational Exposure to Traffic-related Air Pollution in Relation to Risk of Developmental Delay in the Children's HealthWatch Study:* **L Lichtiger**, C Robbins, S Coleman, S Ettinger de Cuba, K Lane
- 1877506** *Impacts of Lakes on Diurnal Variation of PM_{2.5} Concentrations in Urban and Surrounding Regions:* **Z Yang**, C Zhao, Z Xia, Q Du, G Li, Q Yang, M Xu
- 1883846** *Improved modelling of biogenic emissions in human-disturbed forest edges and urban areas:* **Y Zhang**, H Ran, A B Guenther, Q Zhang, X Wang
- 1972456** *Influence of Regional Fires and Long-Range Transport on Spatiotemporal Dynamics of Air Pollution in an Andean Valley:* **S Grisales**, D Grajales, V Gutierrez-Velez, J Tavera, J Ramirez, M Salazar, M Gomez, J G Piñeros
- 1873454** *Interactions among urban vegetation, air quality and heat waves:* **A B Guenther**, S Kim, J H Woo
- 1946392** *Long-Term Black Carbon Exposure in Pakistan's Metropolises: Trends, Hotspots, and Health Implications:* **S Hina**, S Tariq, H Nisar, A Habib, E Ezani, M Ibrahim
- 1847574** *Meteorological and emission drivers of compound heat and ozone pollution episodes in the Southern Great Plains:* **C Wang**, X M Hu, S Ma, D Tong
- 1979902** *Meteorological Influences on the November 2024 Smog Event in India and Pakistan:* **S Dahal**, N Sharma, S Dey, S Ahsan Ali Bokhari, H Holmes
- 1962935** *Removing Dust Storm Influence from PM_{2.5} Measurements in Kuwait:* **E Couzo**, E Stoller, H Alhusainan
- 1975542** *Salt Lake City Winter CO₂ and Traffic Analysis: 2002 Olympics Focus:* **J Abi-Karam**, J C Lin, H Humble
- 1987312** *Seasonal Monsoon Meteorology Controls on Urban Air Quality in Dhaka, Bangladesh: Impacts of Rainfall Patterns on PM_{2.5} Dynamics and Public Health Implications:* **M Shahrier**
- 1997004** *Sensitivity of Ambient Secondary Organic Aerosol Formation to Perturbations Measured Using Parallel Photochemical Smog Chambers:* **R Rajput**, S Wu, B Schulze, R X Ward, Q Zhang, C D Cappa, J Seinfeld, M Kleeman
- 1956198** *Source Apportionment of Transport-related Air Pollution in the Port of Rotterdam:* **J Fry**, S Hornik, J Brito, V Riffault, H Chen, L Alleman, J E Petit, O Favez, H Chebaicheb, M I Manousakas, K Eleftheriadis, M Gini, S Vratolis, J Ondracek, H Bison, E van der Gaag
- 1886704** *Spatial Modeling of Particulate Matter in the Metropolitan Region of São Paulo Using Machine Learning:* **D Dias Cruz**, M A Franco
- 1937189** *Summertime spatiotemporal patterns of nitrogen oxides (NO_x) in Salt Lake City during SLC-SOS 2024 Field Campaign:* **D Guevara**, I Pollack, B McGuire, E Cope, W Permar, J Nivitanont, PhD, Z Trader-Gough, A Robertson, K Johnson, E Beamesderfer, N Ribar, K Okorn, L Tan, S M Murphy, L Hu, R Hannun, A G Hallar, J C Lin, E V Fischer
- 1912623** *The Spatial Distribution of Heat and PM_{2.5} in the Urban Area With Green Spaces:* **S H Wang**
- 1983675** *Urban Air Quality Coupled to Mountain and Lake Dynamics: Salt Lake City Airborne Measurements in Summer 2024:* **B Carroll**, S Baidar, N Malarich, C Womack, X Ren, A Brewer, S S Brown
- 1950311** *Urban-resolving air quality modeling during the ASIA-AQ campaign using Multi-Scale Infrastructure for Chemistry Modeling (MUSICA) Version 0:* **Y Cheng**, W Tang, L K Emmons, C He, L Zhao
- 1923986** *Urban-Rural Gradient of Ammonia and Non-Urban Contributions to Asian Cities:* **Y Choi**, H Yi, R J Boyd, V I Sevostianov, D Moore, M A Zondlo, G S Diskin, Y Choi, J P DiGangi, A Roiger, M Eckl, L Knez, P Waldmann, A Wisthaler, T Mikoviny, M Mueller, F Piel, T Reinecke, S Swift, W Wojnowski
- 1965014** *Using the Integrated Observing System for Air Quality to Improve Our Understanding of Urban Pollution:* **T Lee**, K Travis
- 1965486** *Variability of Air Quality Exceedances with Synoptic-Scale Meteorology in the Southeastern Texas Region:* **B Seymore**, M Jones, P J Walter, M P Jensen, A J Drager, D WANG, T Castro, M Estes, M Harvey, B Prince, D Vrinceanu

248696

**Verification of Anthropogenic Emissions:
Informing International Regulation and
Compliance** (*joint with GC*)

Conveners: **Minde An**, Massachusetts Institute of Technology; **Luke Western**, Massachusetts Institute of Technology; **Youmi Oh**, National Oceanic and Atmospheric Administration; **Yu Zhao**, Nanjing University

- 1848060** *Advances in Measurement and Monitoring of Greenhouse Gas Emissions in Support National and Regional Greenhouse Gas Inventories:* **B Poulter**, J G Canadell, P Ciais, D J Hayes, A Bastos
- 1899063** *An open-source data system for comparing top-down and bottom-up emissions: Application to methane:* **R M Hoesly**, S Smith, J Behrendt, K Ordonez Olazabal, S Chen
- 1935941** *Beyond Data Quality: Why Uncertainty Quantification is Critical (But Hard) in MMRV:* **Z Weller**, S Rai, B Fosdick
- 1966407** *Can atmospheric radiocarbon data quantify global fossil fuel CO₂ emissions?:* **H D Graven**, S Hammer, Q Hua, R F Keeling, S Lehman, C Lewis, T J Lueker, J B Miller, S Preunkert, C Ramsey, C Rödenbeck, J C Turnbull, S Walker
- 1997668** *Chlorocarbon emissions from East Asia during wintertime 2023-24:* **T Derrah**, S Andrews, R Pound, M Rowlinson, T Saito, L Carpenter
- 1978314** *ClimateTRACE Facility-Level Wastewater Emissions Dataset:* **S Anderson**, G Collins, A Peña, A Chen, C Katz, P Tulloch, C Piatko, L Sridhar, M Martin, E Aygün, S Randhawa, E Reilly
- 1941628** *Emissions Characterization of Volatile Organic Compounds (VOCs) utilizing Multiple Data Sets:* **Y Sunwoo**, K Namgyu, S Hyowon, J Kim

252246

**Weather and Climate Extremes over South
Asian Monsoon Regions** (*joint with GC, NH, OS*)

Conveners: **Mansur Ali Jisan**, NOAA National Ocean Service; **Tanvir Ahmed**, Karlsruhe Institute of Technology; **Madan Sigdel**, Tribhuvan University; **Saadia Hina**, Government College University Faisalabad; **Mostofa Kamal**, University of Saskatchewan

- 1922087** *Enabling Actionable Emissions Tracking with Climate TRACE: High-Resolution Global Emissions Data with Timely Updates:* **B Lancellotti**, A Davitt, K Raniga, D Moore, Z Doctor, I Saraswat, T So, E Reilly, T Gowdy, P Markakis, J Malof, K Bradbury, G McCormick
- 1995264** *HFC Lifetime Uncertainty May Undermine Climate Gains of the Kigali Amendment:* **M Lickley**, C Beezley, S Bourguet
- 1947614** *Hierarchical Bayesian Methods for Enhanced Emissions Inventory Analysis:* **M Pekala**, Z Doctor, E Reilly, G McCormick, G Collins, D Moore, A Piscopo, K Raniga, M Robinette, T So
- 1972231** *Inverse Modeling of Treaty-Relevant Anthropogenic Radioactive Gases:* **D D Lucas**, N Gunawardena
- 1981518** *New data sets from the global AGAGE network of abundances and emissions of chemically and radiatively important trace gases:* **L Western**, J Muhle, P B Krummel, M L Rigby, J R Pitt, J Arduini, C R Lunder, S O'Doherty, S Park, S Reimann, K M Stanley, M K Vollmer, B Yao, D Young, B Adam, M An, A Ganesan, H J Wang, R F Weiss, R G Prinn, P Fraser
- 1944784** *Quantifying H₂ Emissions Across the Value Chain:* **C Woolley Maisch**, A Hensen, I Velzeboer, P van den Bulk, E Lunny, S C Herndon, T Röckmann
- 1903877** *Recent Evolution of Hydrofluorocarbons (HFC) Emissions from East Asia under the Kigali Amendment:* **H Choi**, M K Vollmer, S Henne, M J Müller, J Kim, R Thompson, J Choi, J Muhle, S Reimann, S Park
- 2005102** *Reduced U.S. Methane Emissions During the COVID-19 Pandemic: Insights from Atmospheric Observations and Process-Based Inventories:* **S Ibarra Espinosa**, L Hu, C Harkins, B McDonald, S Miller, Y Oh, L Bruhwiler, C Sweeney, A Andrews
- 1971163** *Some Remaining Challenges for the Montreal Protocol and Recovery of the Stratospheric Ozone Layer:* **S A Montzka**, G S Dutton, M Chipperfield, S M Davis, Z Wang, H Walter-Terrinoni, I J Vimont, L Hu, S Clingan, M Crotwell, B D Hall, R W Portmann
- 1913229** *Which Computational Assumptions are Primarily Responsible for Inducing Uncertainty in the Outcomes of Inverse Modeling Analysis?:* **M PARK**, S Jeong, S Sim
- 1927351** *Non-economic losses and perceptions of heat vulnerability in Kathmandu Valley:* **A Sharma**, U Sanga, E Coughlan de Perez
- 1940761** *An Integrated Drought-Monitoring Approach for Agricultural Resilience Using GNSS-Reflectometry and Machine Learning in Bangladesh:* **S R Singha**, P Biswas Paul, S Yildiz, M S H Bhuyian, M K Das, K Karmaker, K A Runa, S Hossen, M S Kabir, H H Rahat

- 1983822** *Assessing Long-Term Spatiotemporal Trends in Monsoon Dynamics and Rainfall Extremes in Bangladesh:* **M Ahmed**
- 1887324** *Association of Atmospheric River with Extreme Rainfall and Subsequent Extreme Flooding in the Feni-Tripura Region:* **M Billah**, A A A Prodhana, R Rahman, A Islam, Shampa, S B Murshed
- 1942137** *Atmospheric Circulation Patterns and Synoptic-Scale Forcing of the Eastern Bangladesh Flood, August 2024: A Meteorological Perspective:* **S T Ovi**, M K Das, M F Methila, S F F Sowrav, S R Singha, U H Ekra, S Karmakar
- 1952575** *Changing Patterns Of Extreme Rainfall In Eastern Bangladesh: A Climatological Analysis Of The Eastern Bangladesh Flood, August 2024:* **M F Methila**, M K Das, S F F F Sowrav, S Hossen, S T Ovi, S R Singha
- 1943781** *Detection and Attribution of Extreme Precipitation Changes over India:* **C S T**, K M Achutarao, D R
- 1950542** *Emerging Compound Hazards of Urban Heat and Lightning in Colombo, Sri Lanka: A Multi-Source Satellite and Reanalysis Approach (2020–2024):* **D S Premathilake**
- 2005625** *Exploring the Influence of Moisture Flux on Extreme Rainfall during the Northeast Monsoon Season:* **A KT**
- 1991712** *Extreme Temperature Trends in 21st Century Bangladesh: Insights from CMIP6 Models.:* **M Kamal**, T I Sanjid, T Ahmed
- 1871240** *Future Changes in Temperature Extremes over Bangladesh Using Bias-Corrected CMIP6 Multi-Model Ensembles:* **A K M R Khan**
- 1885581** *Future Drought Characteristics in South Asia Using the Effective Drought Index (EDI):* **A Talukder**, M Kamruzzaman, S H Rahman
- 1992129** *Heatwaves, Ground-Level Ozone, and Vegetation Health in Border Districts of Bangladesh and India.:* **A I Rony**, M Kamal, M Mishu, M A H Laskor, T Ahmed
- 1851551** *Identifying Past and Future Vulnerable Hotspots of Weather Extremes in Bangladesh, Pakistan and Nepal:* **S Ali**, M Reboita, A Goheer
- 1943916** *Importance of land surface processes on formation of heavy rainfall and lightning events over Indian region:* **M Mohapatra**, A Madhulatha, S C Bhan, A K Das, D R Pattanaik, R Saxena, G Iyengar
- 1989256** *Interannual Variability of Winter Extreme Cold Days over the Tibetan Plateau: Modulations by the Northern Hemisphere Polar Vortex and El Niño-Southern Oscillation:* **M Lu**, H Zhang, H L Ren
- 1924579** *Long-Term Frequency and Trends of Rainfall Events Over India: A Spatiotemporal Analysis:* **G Ganjir**
- 1905969** *Long-term Variations and Seasonal Signatures of Multi-Scale Extreme Rainfall Events in the Northwest Himalaya:* **A Ranade**
- 1931449** *Marine Heatwaves in the Arabian Sea Drive Extreme Precipitation Along the West Coast of India and Across Pakistan:* **D L Suhas**, W Han, T Shinoda, R Sun, A Subramanian, M A Bourassa, M A Alexander
- 1998837** *Modelling the Correlation Between Migration and Monsoon Flood Recurrence in Bangladesh: A longitudinal and Geospatial Data Science Approach.:* **G M S Iqbal**, M S Shakib, S A Mito
- 1918172** *Planetary Positions and Astrological Forecast for Extreme Precipitation and Flood from the Transboundary Response in Nepal:* **T R R Adhikari**, S Shrestha, M Sigdel, R Talchabhadel, S R Adhikari, B Baniya, R P Awasthi, B R Budhathoki
- 1943208** *Pre-monsoon Heatwave, Drivers and Emerging Risks in Kerala - A case study:* **S Singh**
- 1861984** *Projected Intensification of Precipitation Extremes in Bangladesh Using Bias-Corrected CMIP6 Models:* **M Kamruzzaman**
- 1925872** *Projected Shifts in Large Floods and Large Droughts over the Central India:* **S Rajendran**, S Sandeep
- 1991369** *Quantifying Monsoon Rainfall Anomalies and Trends in Myanmar's Dry Zone:* **S S Sultana**, S D Shuvo
- 1885605** *Spatio-Temporal Variations of Land Surface Temperature and Surface Urban Heat Island Intensity in the Sylhet City Corporation, Bangladesh:* **M A H Laskor**, A Tabassum, T I Sanjid, M M Kamal, P Ludwig, T Ahmed
- 1897447** *Subseasonal Variability of Humid Heat During the South Asian Summer Monsoon:* **C Ivanovich**, R Horton, A H Sobel, D Singh
- 1998856** *The 2022 Bangladesh Floods: Extreme Rainfall Events and Contributing Climatic Factors:* **C M Wahid**, G M S Iqbal, N Mohammad, S Rafiq
- 1937948** *Understanding Coldwave Variability in Bangladesh in Relation to Large-Scale Atmospheric–Oceanic Oscillations.:* **M M Kamal**, J Meem, T I Sanjid, T Ahmed
- 1905304** *Understanding Interannual Variability of River Basin Flows Through Bayesian Causal Networks:* **N Rastogi**, N J S, B Rajagopalan
- 1849793** *Unraveling Centuries of Monsoon-Related Hydroclimatic Extremes in Northern Pakistan Through Tree-Ring Analysis:* **F Asad**, H Zhu

248202

Wildfire Spread Forecasting Solutions (joint with
GC, GH, IN, NH)

Conveners: **Ziheng Sun**, George Mason University
Fairfax; **Daniel Tong**, Cooperative Institute for Climate
and Satellites University of Maryland; **Yunyao Li**,
University of Texas at Arlington; **Li Zhang**, CU
Boulder/CIRES

- 1951706** *Advances in the Unified Forecast System & Short-Range Weather App: Fire Behavior & Smoke/Dust Modeling Capabilities:* **J Kim**, B W Koziol, M Kavulich Jr, J Romero-Alvarez, C H Jeon, P Jiménez, R Ahmadov, M Eghdami, D Rosen, M Lueken, M Frediani
- 1857734** *Advancing Wildfire Detection Through Lightweight Attention Mechanisms in YOLOv8n Architectures:* **S M Bateni**, P Parisouj, H Aghalou
- 1849607** *Analysis of Daily Weather Variable Correlations with the Size and Severity of the Largest Recent Wildfires in the Pacific States of California, Oregon and Washington:* **S Vasquez**, C S Potter, S Pass, W To, J Mirocha
- 2002223** *Assessing the Role of Climate Variables in Wildfire Emergence in the Eastern United States:* **M Hein**, E A H Smithwick, M Tasnim, C Hamilton
- 1991451** *Assessing the Role of Drought and Wind in Driving the Extreme 2025 Ofunato Wildfire, Japan:* **C Sun**, Y Touge, K Tanaka
- 1890642** *ASSESSMENT OF WILDFIRE PROPAGATION RISK IN URBAN FRINGE FORESTS BASED ON LIDAR-DERIVED FUEL STRUCTURE AND TOPOGRAPHY:* **Y Zhang**, Z Song, Y Song
- 1964612** *Conditional Score-Based Diffusion Models for Probabilistic Prediction of Wildfire Spread in Sub-Wildfire-Scale Regions:* **B Shaddy**, H Qin, B Binder, A Dasgupta, J Haley, PhD, A Farguell, K Hilburn, D V Mallia, A Kochanski, J Mandel, A Oberai
- 1983531** *Coupled Interactive Forecasting of Wildfire Potential and Active Fire Impacts:* **K Hilburn**, J Haley, PhD, J Mandel, A Kochanski
- 1915708** *Developing regional-scale wildfire activity forecasts for air quality predictions:* **T Wilmot**, D V Mallia, H Holmes
- 1922717** *Development of an Machine Learning (ML)-Based Wildfire Emission Prediction System for Weather and Subseasonal-to-Seasonal (S2S) Forecasting:* **L Zhang**, G Ferrada, Z Sun, Y Li, S Sun, D Tong
- 1943719** *Evaluating Wildfire Emissions and Plume Rise Using WRF-Chem: A Case Study of the 2019 Williams Flats Fire:* **S K RO**, Y H Ryu
- 1894385** *Experimental Analysis of Fire Turbulence and Ember Lofting for Wildfire Modeling:* **A Ordentlich**, A Cervantes, T Banerjee, A Petersen
- 1978949** *Forecasting Post-Wildfire Vegetation Recovery Dynamics Using a Spatiotemporal Vision Transformer:* **S Medavarapu**, Z Sun
- 1969196** *Forecasting Subseasonal Fire Radiative Power with Novel TabNet-GPR and GNN-LSTM:* **S Rao**, S Natarajan, I Nagpal, H Singh, Z Sun
- 1866550** *FRP based Global Wildfire Predictions Using Deep Learning:* **T WU**, J Zheng, Z Huang
- 1866069** *Importance of accounting for fire/atmosphere feedbacks in wildland fire modeling:* **R Linn**, K Hiers, D Robinson, J O'Brien, K M Yedinak, Z Crennen, C M Hoffman, J Canfield, A Josephson, A L Atchley, S Goodrick
- 1880007** *Improving Wildfire Modeling with Artificial Intelligence and Data Driven Techniques:* **N Gunawardena**, D D Lucas
- 1911847** *Influence of Built Environment Characteristics on Fire Spread: A Case Study of the Eaton Fire:* **N Saharan**, N Elhami Khorasani, P Hadinata, F J Szasdi Bardales, W LIU, R Uddien Shaik, A Hall, T W Juliano, E Taciroglu, M Frediani, S Rahimi
- 1969513** *Machine Learning to Advance Fire Spread Modeling:* **J T Randerson**
- 1923296** *Modeling the Eaton Fire through the Wildland and Urban Landscapes:* **P Hadinata**, N Elhami Khorasani, F J Szasdi Bardales, W LIU, N Saharan, R Uddien Shaik, A Hall, T W Juliano, E Taciroglu, M Frediani, S Rahimi
- 1862204** *Satellite-derived wildfire smoke plume height climatology across CONUS:* **S An**, X Zhang, F Li, M A Cochrane, S Kondragunta
- 1936871** *Time-Resolved Moving-Window Machine Learning Modeling for Human-Caused Wildfire Ignition Prediction in California:* **Z Cao**, Y Xue, F Ye, T W Gillespie
- 1932176** *Toward Field-Scale, Daily Wildfire Risk Forecasting: Integrating Remote Sensing, Modeled Soil Moisture and Biomass, and One-Class Machine Learning:* **J A Zollweg**, E Winarski
- 1855448** *Updates of Fire Intensity and spRead forecAst (FIRA): Effects of Dynamic Fuel Fraction on Fire Spread Prediction:* **W T Hung**, B Baker, P C Campbell, Y Tang

247593

Advancements in Lightning Meteorology, Climatology, and Remote Sensing (joint with A, NH)

Conveners: **Kelcy Brunner**, Texas Tech University; **Sarah Stough**, Cooperative Institute for Severe and High-Impact Weather Research and Operations; **Sarah Bang**, NASA Marshall Space Flight Center; **Timothy Lang**, Osaka University; **Sarah Stough**, Cooperative Institute for Severe and High-Impact Weather Research and Operations

1923728 *Variations in Lightning Regimes during the 17-20 November 2022 Event of the Lake-Effect Electrification Project:* **B Lamsma**, S M Steiger, Y Wang, V Chmielewski

1924179 *Spectral Signatures of Convection: Linking Lightning Activity to Kinetic Energy Slopes and Vertical Motion in HRRR:* **M Dubey**, M A Taylor, M Taylor

1926077 *Self-Action in Waveguide Excitation by VLF Sources:* **J Santos**, R C Moore

1926584 *Cloud and Convective Characterization of Lightning Measurements from the 2017 GOES-R Post Launch Test Field Campaign:* **S M Stough**, K Wheeler, T D D Walker, M Quick

1928034 *Lightning Modification by Wind Turbine Installations:* **R S Reger**, R Sonnenfeld, J Tilles

1939255 *Lightning Characteristics within Intense Tropical Cyclones over the Indian Ocean:* **M H Rafi**, M G Mostafa

1939317 *Multi-Observer Lightning Remote Sensing for Optical Transport Validation:* **B Storm**, T Edwards, E C Bruning, K N Brunner

1942584 *Evaluation of the Meteosat-12 Lightning Imager diurnal flash detection efficiency with the Ebro Lightning Mapping Array:* **J Montanya**, O Van Der Velde, J A López Trujillo, N Pineda, D Romero, G Sola, M Arcanjo, E Defer, S Soula, B Viticchiè, S E Enno, J Grandell

1944486 *Global Regimes of Predictability for Lightning:* **K Lahiri**, A Nikumbh, R S

1948314 *Evolution of Thunderstorm Charge Structure over the Central Tibetan Plateau:* **D Liu**, F Li, X Qie

1948394 *IONOSPHERIC CHARACTERIZATION FROM SATELLITE RECORDINGS OF LIGHTNING INDUCED WHISTLERS:* **E R Worthington**, M Cohen

1950045 *Why LEE2: Why do we need a second LEE field campaign?:* **S M Steiger**, E C Bruning, V Chmielewski, M Peterson, M Stock, S A Weiss, Y Wang, T White, E Caldon, B Lamsma

1952801 *Analyzing Electrified and Non-Electrified Clouds During the Lake-Effect Electrification (LEE) Project 18-19 November 2022 Event using the WRF-ELEC model:* **T White**, Y Wang, S M Steiger

1953089 *An Analysis of Multi-Radar Multi-Sensor (MRMS) Variables with Respect to Thundersnow during the Lake-Effect Electrification (LEE) Campaign:* **E Caldon**, B Lamsma, S M Steiger, Y Wang

1980803 *Preliminary Analysis of the Impact of DoD Chaff Releases on Thunderstorm Lightning Activity:* **J Moura**, A Leal, P Stepanian, E R Williams

1981826 *Insights on Compact Intracloud Discharges based on multi-frequency measurements from space and ground:* **L K Tarnecki**, A Nag, E H Lay, R A Haaser, T Neubert, O Chanrion, F Christiansen

1992317 *Rising Trend of Positive Cloud-to-Ground Lightning Activity in Monsoon Thunderclouds Over Western India: Role of Dust Aerosols:* **A Gangane**, S Pawar, H Varikoden, V Gopalakrishnan, D M Lal

1993228 *A Spatiotemporal Dataset for Lightning Prediction Using TRMM LIS Flash Observations and ERA5 Reanalysis Data:* **A Shelke**, R Sivaramakrishnan, A Nikumbh, A Patil

1995137 *Spatio-Temporal Evolution and Meteorological Controls of Lightning Activity over the Indian Subcontinent:* **A Patil**, R S, A Nikumbh, K Lahiri

1997378 *Comparison and Diagnosis of Underpredicted WRF-ELEC Flash Rates During the Lake Effect Electrification Field Campaign:* **Z McDaniel**, E C Bruning, Y Wang, T White

2001174 *Terrain Impacts on Lake Maracaibo Lightning in High Resolution WRF Simulations:* **I Montgomery**, G Priftis, U Nair, V G Anantharaj

1870088 *Environmental and Microphysical Drivers of Lightning Flash Rate Variability in Convective Storms from Regional Campaigns and Global Satellite Observations:* **M Gregg**

1880418 *An Object-Based Analysis of Lightning Characteristics in Pre-Tropical Cyclogenesis Environments:* **N Mesa**, B Trabing, M M Bell, A Brammer, P T Duran, P Klotzbach, K Musgrave, S Stevenson

1896494 *Analysis of Optical Pulse Characteristics from the Fly's Eye GLM Simulator during the GOES-R Post Launch Test:* **T D D Walker**, S M Stough, K Wheeler, M Quick

1895846 *Evaluation of Lightning Flashes from Thunderstorms with Anomalous Electrification Structure:* **K Wheeler**, S Stough, M Quick, T D D Walker

- 1893544** *Final granule and lightning climatology products from NASA low-Earth orbit sensors covering 1995-2023:* **T J Lang**, D Cecil, D M Mach, D E Buechler, K Virts, D Samuelson
- 1867300** *Lightning Climatology and Hotspots Over Bangladesh Observed by Three LEO and GEO Satellites and Three Ground-Based Lightning Detection Networks:* **K M G Rabbani**, O Rahman, D Cecil, Z Jie, N A Shawn
- 1878624** *Properties of positive Narrow Bipolar Events observed in South-Eastern France:* **I Kolmasova**, S Soula, O Santolik, E Defer, Y Zhu, S Pédeboy, R Lan, A Kolinska, L Uhler

248415

GNSS for a Changing Planet: Advancing Science and Resilience with IGS Products (joint with A, GC, NS, SY)

Conveners: **Camille Martire**, Jet Propulsion Laboratory/California Institute of Technology; **Rolf Dach**, University of Bern; **Elisabetta D'Anastasio**, GNS Science Te Pū Ao; **Thomas Herring**, Massachusetts Institute of Technology; **Camille Martire**, Jet Propulsion Laboratory/California Institute of Technology

250269

Advances in Interactions of Air Quality and Public Health Using Integrated Modeling Frameworks (joint with A, GC, SY)

Conveners: **Yaoxian Huang**, CSU CIRA; **Yang Liu**, Emory University; **Yuqiang Zhang**, Duke University; **Ying Xiong**, Wayne State University; **Debatosh Partha**, Wayne State University

- 1926057** *Air Pollution and Mental Health in LMICs: Investigating the Nexus of Household and Ambient Air Pollution Among Reproductive-Aged Women:* **M M Patwary**, S Ashraf, M R Ritu
- 1905106** *Assessing the interplay of air pollution, genetic susceptibility, and hyperthyroidism in middle-aged and elderly populations:* **Q Zhou**, M Ramanathan, Z Zhang
- 2001179** *Characterizing Emissions, Chemistry, and Health Impacts of Aged Biomass Burning Smoke in Wildland Urban Interface: A Missoula, Montana Case Study:* **L Jin**, V Selimovic, D Ketcherside, L Tan, K Nauman, R J Yokelson, L Hu
- 1978508** *Climate Associations with Kawasaki Disease Incidence on the West Coast of the United States: Evidence for Role of Wind-blown Aerosol Trigger:* **N Copeland**, C A Shimizu, L L De Haan, J Szmuszkovicz, J Teh, N Ashouri, D E Michalik, S Gandham, V Acharya, D R Cayan, J C Burns, J A Burney

- 1902572** *The influence of the aerosol distribution on the lightning frequency and charge structure of convective clouds around Japan in winter.:* **Y Sato**, Y Yamada, R Yasui, T Takemura, S Hayashi
- 1892347** *The WWLLN Thunder Hour Climatology: Case Studies and Comparison with Other Networks:* **K Virts**, R H Holzworth II, M McCarthy
- 1844740** *Integrating Satellite Image Driven Spectral Indices and Machine Learning Algorithms for Lithological Mapping in the Main Ethiopian Rift:* **B Tilahun**, B Hailu
- 1864853** *The Impact of Ambiguity Resolution on Coordinate Noise in Multi-GNSS Precise Point Positioning Using Non-JPL Products in GipsyX/RTGx:* **D Basil**, A Susnik, N T Penna, P J Clarke
- 1899176** *Co-benefits of Long-term Climate Policies under the Paris Agreement for Future Global Air Quality and Human Health:* **Z Wang**, Y Zhang, Z Liu, Z Han, B Luo, B Rice, S J Smith, Y Ou, J Moyer, H C McJeon, T Glotfelty, K Mulvaney, J J West
- 2003944** *Community-Engaged Mapping of Environmental Hazards to Advance Public Health and Resilience in Atlanta's West End:* **F Keita**, N Jelks
- 1950548** *Comparing the Air Quality and Health Implications of the Inflation Reduction Act and a Net-Zero Pathway:* **N Mailloux**, E Mayfield, J Jenkins, T Holloway, J A Patz
- 1850556** *Divergent Impacts of Air Pollution on Cardiovascular-Kidney-Metabolic Progression: Comparative Evidence from Chinese vs. British Cohorts:* **Y Shi**, Z Zhang, J Qiu, J Xue, Y Zhang, M Su, Q Zhou, S Huang, Z Liang, Y Wu, H Liang, S Biswal, M Ramanathan, K Chen, J Wang, L Zheng
- 1985342** *Estimating Dynamic Exposure Misclassification to Ambient Particulates using Crowdsourced Smartphone Location Data:* **M H Hasan**, H Yu, A Stuart
- 1988497** *Evaluating the Air Quality and Health Co-Benefits of Expanding RGGI to Pennsylvania and Virginia Using GCAM-USA and COBRA:* **N Tabassum**, K M Kennedy, Y Zhang
- 1964496** *Exploring the Impact of Elevated PM_{2.5} Exposure on Asthma-Related Emergency Department Visits in Providence, Rhode Island:* **V Chen**, M G Hastings

- 1927171** *Global Health Benefits of Anthropogenic Emission Reductions on PM_{2.5}, O₃ and NO₂-Associated Deaths by Sector, City and Time of Day*: **P Wiecek**, D K Henze
- 1912548** *Global Trade and the Unequal Burden of Air Pollution Mortality (1992–2015)*: **S Wang**, C Tessum
- 1925745** *Growing Impacts of Fire Smoke on Ozone Pollution and Associated Mortality Burden in the United States*: **Y Li**, X Jin, M Kelp, M Qiu, H Sun
- 1959162** *Impacts of Technology Uncertainties and Policy Strategies on Future Air Quality and Health Effects in The US*: **C Campos**, W Peng, J Shiwan, A Zhao, Y R Cui
- 1994991** *INTEGRATING METHANE AND CO-POLLUTANT EXPOSURE FROM OIL AND GAS TO INFORM EVIDENCE-BASED POLICY APPLICATIONS*: **M Weisner**, P Varner, V Southerland, J L Collett Jr, I T Ku, D Pan, W Zhang, K Robinson, L M McKenzie
- 1959068** *Investigating the Short-Term Effects of Nitrogen Dioxide on Pediatric Asthma using New Satellite Data*: **K Fong**, T K Siu, G Martin
- 1955613** *Learning How Acute Air Quality Deterioration Exacerbates Pediatric Asthma in Hampton Roads, Virginia*: **J Colen**, E Werner, H Richter, D McSpadden, A Quinn, J Santos, M J Darling, M Schram, M M Gleason
- 1955825** *Location-Specific Assessment of PM_{2.5}-Related Health Benefits from Wind and Solar Energy Development in the United States*: **Y M Kim**, L Corso, J Fargione, E Kalies, N Steinsult, D Majka, C Tessum, H Richardson, M W Tessum, S Lowry
- 1964262** *Modeling Daily Taxa-specific Pollen at 1-km Resolution in Atlanta, GA, Using Dispersion Model and Machine Learning*: **X Zhang**, Y Saburi, W Wang, Z Jin, H Paduch, Y Liu

248863

Air Pollution Health Risk in a Changing Climate

(joint with A, GC)

Conveners: **Lucas Henneman**, George Mason University Fairfax; **Yunyao Li**, University of Texas at Arlington; **Kelvin Fong**, Dalhousie University; **Rebecca Saari**, Massachusetts Institute of Technology; **Qindan Zhu**, Peking University

- 1884798** *Nationwide Air Pollution Source Impacts for Long-Term Regulatory Accountability and Exposure Assessment*: **L Henneman**, T Zhang, S Hussain
- 1886267** *Occupational Exposure to Marble Dust: Global Systematic Review of Chronic Health Impacts, Prognosis, and Preventive Strategies*: **F Ahmed**, I A Ahmed
- 1997452** *Quantifying the Health Co-Benefits of Air Pollutant Reductions From the Mass Save Program*: **B Sousa**, J Buonocore, M P Fabian, E Ryan, C Cleveland
- 1999283** *RECENT ADVANCES IN EXPOSURE RECONSTRUCTION FOR ENVIRONMENTAL HEALTH RESEARCH*: **M Jerrett**
- 1863977** *Regional Differentiation Promotion Strategies for New Energy Vehicles in China and Assessment of Their Environmental Health Benefits*: **Y Yang**, M Liu
- 1962275** *The Influence of Spatial Resolution on Power Systems Modeling and the Health and Equity Impacts of Power Plant Emissions*: **B Meotti**, J Johnson, F Garcia-Menendez
- 1898895** *Traffic Impacts on Local Air Quality of the Claiborne Corridor in New Orleans, LA*: **M Mohamed**, A Katner, M S Rahman, D Harrington, S Cuccia, A Stelly, E Oral
- 1851852** *Two-Stage Interrupted Time Series Analysis with Machine Learning: Evaluating the Health Effects of the 2018 Wildfire Smoke Event in San Francisco County as a Case Study*: **Y Ma**, A Dey, G Carrasco-Escobar, C Han, F Rerolle, T Benmarhnia
- 1931651** *Wildland Fire-Related Smoke PM_{2.5} and Cardiovascular Disease ED Visits in the Western United States*: **Y Liu**, L Li, W Wang, H H Chang, A Alonso
- 1977413** *Ambient air pollution during pregnancy and offspring cerebral palsy*: **H Zhuo**, B Ritz, J G Su, J Warren, Z Liew
- 1896275** *Climate change, air pollution and health: connections amid complexity*: **P L Kinney**
- 1917336** *Deadly Synergy: How Extreme Heat and Air Pollution Amplify Mortality Risks in Urban India – A GeoHealth Perspective*: **W Wajid**
- 1897382** *Estimating the Effect of Precipitation on Particulate Matter Under Normal and Wildfire Conditions Across the U.S.*: **D Neupane**, L Henneman, V Maggioni
- 1850689** *Health status assessment of people adjacent to temporary waste disposal sites in Khulna city, Bangladesh*: **A T Shammi**, M R Golder, N Hassan, H Molla, S Saiful
- 1895903** *Air Pollution and Respiratory Health: Assessing PM_{2.5} Impacts on Children in Delhi's Urban Slums*: **S Ahmad**
- 1973804** *Air pollution, heat, and adverse human health outcomes: An interdisciplinary climate change scoping review*: **Y J McDonald**, A Podraza, K Cross, E Paik, F Alvarez-Carrascal, V Powell, A Irvin, J M Gilligan

- 1894080** *Impact of urban fires on air quality in the Los Angeles basin from the Eaton and Palisades fire as seen from TROPESS:* **J Laughner**, F Werner, M D Thill, L Kuai, K Miyazaki, Z Pierrat, C Percival, K W Bowman
- 1865551** *Impact of wildfire smoke waves on long-term exposure to low-level fine particulate matter and cardiovascular hospitalizations in the United States:* **K Chen**, S Zhang, Y Wang, J Wei, H M Krumholz, Y Lu
- 1889641** *Linking wildfire emissions, air pollution, and premature deaths in an urbanizing Himalayan basin:* **S Kuikel**, H K Paudel, D Kuinkel, B Pokharel
- 1884528** *Mapping the invisible: Health Risk Assessment of Air Toxins in the Try-Valley, California.:* **F Kasaj**, A Gour
- 1913814** *Quantifying the temperature-induced PM_{2.5} changes and associated mortality burden in the US:* **M Qiu**, A I Wilson, M Burke
- 1989746** *Scenario-Based Analysis of Heterogeneous Airline Emissions, Costs, and Health Impacts:* **J Wang**, H Zhang, P Wang, J Yu, F Lu
- 2001793** *Source Apportionment of PM_{2.5} across Contiguous United States for 2011-2020:* **S Hussain**, T Zhang, L Henneman

247685

Computational Methods and Tools for Air Quality Exposure Assessments and Solutions

(cosponsored by ISEE: International Society of Environmental Epidemiology) (joint with A, GC)

Conveners: **Yuzhou Wang**, University of California Berkeley; **Srinidhi Balasubramanian**, University of Illinois at Urbana Champaign; **Christopher Tessum**, Organization Not Listed; **Yuqiang Zhang**, Duke University; **Yuzhou Wang**, University of California Berkeley

- 1979823** *A Green's Function Approach to Black Carbon--Ensembles of Policy Analysis in Southeast Asia:* **L Freese**, C Springer, S D Eastham, N E Selin
- 1925976** *A Computational Framework for Modeling Air Quality Exposure: From Outdoor to Indoor Environments:* **J Shen**, M Usmani
- 1992752** *A Hybrid CMAQ-Graph Neural Network Model for High Resolution PM_{2.5} Field Generation over the Korean Peninsula:* **D Choi**, J B Lee, S H Han, J Y Lee, J G Kang, H Y Yun
- 1921897** *A Microscale Chemical Transport Model Simulation of an Ozone Episode in Detroit, Michigan:* **E P Olaguer Jr**

- 1934448** *Source-Specific PM_{2.5} Exposure and Atrial Fibrillation Risk in U.S. Older Adults: A Nationwide Cohort Study:* **Q Zhu**, H Hao, Y Deng, C Liu Dr, Y Sun, Y Liu
- 1918189** *The Hidden Cost of Crop Burning: Linking Agricultural Fires to Respiratory Illnesses in Rural India:* **M Mantasha**
- 1959155** *The Utility of Climate TRACE in Environmental Health Research: An Investigation of Asthma Risk and Exposure to Pollution:* **M Robinette**, G Collins, M Pekala, T So, Z Doctor, D Moore, K Raniga, G McCormick, E Reilly
- 2005124** *Tracking Temperature Rise in My City: A Student-Led Climate Change Study from Two Locations in Roorkee, Uttarakhand:* **I Fatima**
- 1919138** *Wildfire exposure and health outcomes: An umbrella review of systematic reviews and meta-analyses:* **M Bardhan**, M M Patwary, M R Ritu, M H E M Browning, P Dadvand, M L Bell, M A Rahman, T Astell Burt, M J Z Sakhvidi, O McAnirlin
- 1896680** *Wildfire Smoke and Asthma in Uttarakhand: Integrating Satellite Data and Epidemiological Models for Health Risk Assessment:* **A Asra**
- 1908396** *Applying machine learning and statistical modeling approaches to remote sensing observations for inferring surface-level NO₂:* **M O Nawaz**, V Southerland, D E Horton, V Lang, S Anenberg, D L Goldberg, G H Kerr
- 1920123** *Attributing Interstate Air Pollution: An Airshed Approach:* **W Liao**, P Crippa, R Marcantonio
- 1897470** *Constraining Black Carbon Emissions in California Using Log-transformed Bayesian Inversion:* **J Zhang**, L Jin, Q Ying, S E Neyestani, X Zhang, J Zhang, T Ho, C Preble, T Kirchstetter, X Xu, A Spurlock, H Breunig, J Butler
- 1939091** *Contributions of NO_x and VCP Emissions to Nonlinear Air Pollution Formation and Acute Health Effects Through Higher-Order Sensitivity Analysis with CMAQ-hyd:* **J Liu**, S Capps
- 1932073** *Data-Driven PM_{2.5} Predictions and Health Assessment at 1 km Resolution Across the Contiguous United States:* **Z Qu**, K Fan
- 1867951** *Developing a Framework to Assess the Co-Benefits of Local Mitigation Action Plans: insights from the EU Covenant of Mayors initiative:* **E Pisoni**, S Zauli, F Monforti-Ferrario, J Bastos, L Valentini, M Giulia Baldi, G Melica

- 1968431** *Developing an interdisciplinary modeling pipeline to study health implications of wildfire smoke transport over the United States:* **M Park**, S P Urbanski, H Emamipour, A Collins, M Kreider, J Fargione, R Houtman, S Spawn-Lee, A G Kamoske, C Tessum, K Davis, K Riley, S Anderson, S Barndt, K Ordonez
- 1903333** *Development and Application of a Symbolic Equation-Based Reduced-Complexity Atmospheric Chemical Transport Model:* **J Liu**, C Rackauckas, C Tessum
- 1866596** *Dynamic Exposure Assessment of Fine Particulate Matter across Multiple Traffic Microenvironments in a Chinese Megacity:* **X Chen**, R WU, S Zhang
- 2001673** *Emissions and Air Quality Modeling for the Community Health and Air Quality Implications of Refinery Retrofits and Retirements (CHAIRS) Project:* **C I Efstathiou**
- 1984325** *Enhancing Air Quality Forecasts with Open-Source AP4 Model Updates:* **R Rosen**, T W Davis, N Muller, M Whiston, M Jamieson, A Curtright
- 1941169** *Enhancing PM_{2.5} Prediction with Machine Learning: Assessment of RandomForest Models with Standard and Optuna-Optimized Settings in Kerala, India:* **T J Mathew**, G Nair L
- 1971377** *Evaluating simulated PM_{2.5} sensitivity to uncertainties in emissions inventories and secondary organic aerosol chemistry using GEOS-Chem:* **T Clarizio**, H M Horowitz
- 1897180** *Examining changes in city-scale NO_x, PM_{2.5}, and CO emissions at 1 km resolution by diesel, gasoline, and electric vehicles:* **X Shan**, S Hussain, L Henneman
- 2000704** *Exploring solutions to heavy-duty vehicle air pollution using the SMOKE-MOVES-WRF-CMAQ modeling framework at high resolution:* **D E Horton**, V Lang, D Partha
- 1975588** *Four-decade (1980–2022) Surface Ozone Concentrations across the Contiguous United States: Fine-Resolution Estimates and Urban-Rural Exposure Patterns:* **L Chu**, R Liu, N C Deziel, K Chen
- 1946463** *From Watts to Wheels: Comparing electrification pathways of light- and heavy-duty vehicles in the U.S. Midwest – assessing air quality, public health, and equity outcomes:* **V Lang**, S F Camilleri, A Montgomery, M A Visa, J Schnell, M Janssen, Z Adelman, S Anenberg, E Grubert, D E Horton
- 1965009** *High Resolution Air Pollution Monitoring in Louisiana Through Satellite, Sensor, and Machine Learning Integration:* **A Murray**, A Kolker, K Kirshenbaum, D A Hughes
- 1866892** *High Resolution Air Quality Refinement Using Multi-Domain Nesting and Deep U-Net Bias Correction:* **W Zhang**, A K H Lau
- 1869083** *High-resolution estimates of source contributions to PM_{2.5}, O₃, and NO₂ health burdens worldwide.:* **D K Henze**, O Nawaz, P Wiecko, J Choi, Y Gu
- 1902626** *High-Resolution PM_{2.5} Exposure Assessment of Large Scale Deployment of Biomass Distributed Generation in California Using InMAP:* **X Zhang**, S Smith, Y Wang, S Nordahl, H Breunig, C D Scown, J Zhang, L Jin
- 1860340** *Identification of air pollution control areas for the management of extreme PM_{2.5} regions in India:* **N Barman**, L Rojas Mendoza, Y Wang, PhD, Z Arub, S Saxena, J Apte, J Marshall, S Balasubramanian, C Venkataraman
- 1985024** *InMAP-Based Intercomparison of Simulated PM_{2.5} and NO_x Concentrations over the Greater Chicago Region Using Four Different On-Road Emission Estimates:* **M Santiago**, V Lang, D E Horton
- 1931414** *Landfill Burning Detection for Air Quality Impacts in South and Southeast Asia: A Machine Learning Approach:* **M Nicholson**, P Tulloch, R B Jackson
- 1940811** *Long-Term Spatiotemporal Trends in Aerosol Composition and Exposure over South Asia Using Satellite Observations and Machine Learning:* **S Dey**, S Srivastava, V Singh, S Saha, C Venkataraman
- 1938405** *Machine Learning-Based Bias Correction for Improving PM_{2.5} Prediction Performance Using the Community Multiscale Air Quality (CMAQ) Model:* **S I Lee**, H J Song, H R Oh, Y Kwon
- 1980972** *Mobility-Based Air Pollution Exposure Assessment in the San Francisco Bay Area Using Coupled CMAQ-BEAM Modeling:* **L Jin**, C Poliziani, Y Fan, J Zhang, H Laarabi, S E Neyestani, Z Needell, J Zhang, A Spurlock
- 1938382** *New Source-Receptor Tools for Air Quality Management in California:* **Y Wang, PhD**, C Barrientos, L Jin, L Koolik, J Marshall, L Rojas Mendoza, A Unal, C Venkataraman, Y Wang, J Apte
- 1976558** *Quantifying model performance of Volatile Organic Carbon predictions from a regulatory air quality model in Houston, Texas:* **A Valencia**, E Couzo, K Craig, L Suciu, B Flowers, C Sanchez Guerra, J R Green, W Vizuite
- 1881076** *Spatial and Distributional Air Quality Impacts of New York City's Congestion Pricing Policy: Evidence from Ground and Satellite Observations:* **A Anand**, D M Westervelt, P Goldberg
- 1958029** *Substantial But Unequal Health Benefits from Electric Vehicles Adoption in China:* **Y Wen**, S Zhang, Y Wu

1970098 *Understanding How Interannual Shifts in Emissions Drive Regional PM_{2.5} Exceedances in the United States: Insights from a Chemical Transport Model:* **M Hossain**, H M Horowitz

246961

Discoveries and Emerging Topics in the Atmospheric Biome

Conveners: **Morgan Gorris**, University of California Irvine; **Allison Steiner**, University of Michigan Ann Arbor; **Kathleen Weathers**, Cary Institute of Ecosystem Studies; **Behzad Ghanbarian**, University of Texas at Arlington

1968584 *A Brief History of Bioaerosol Sampling for Atmospheric Investigations: From Early Achievements to Future Prospects:* **G Mainelis**

1893412 *A Novel Air Sampler Evaluation for Drone Optimization: Using Drones as Tools for Environmental Air Sampling:* **P Kessinger**, M Nieto-Caballero, T C J Hill, M Hernandez, A Bosco-Lauth, S Magzamen

1978944 *Beyond Particles: Wildfire Smoke Delivers Disease-Causing Fungal Pathogens Validated in Mouse Models:* **P Lampman**, L Kobziar, K Bonfantine, J Smith, Z Zhao, N Anger, A Adhikari, S Fox, D C Vuono, J Aurell, B Gullett, K Garrett, O Lampman, M Remke, B Mehrad

252388

Effectively Using Climate and Weather Data for Health Applications (joint with A, GC, H, NH)

Conveners: **Yun Hang**, University of Texas Health Science Center Houston; **Ryan Harp**, University of Colorado Boulder; **Beth Haley**, Environmental Protection Agency; **Ismail Nabeel**, Department of Environmental Medicine at Icahn School of Medicine at Mount Sinai; **Yiqun Ma**, University of California San Diego

1907919 *A High-Resolution Climate Change Dataset for Assessing Zoonotic Disease Risk and Human Health:* **S Ma**, S Zhou, Z He

1997716 *A Novel Community-Based Heat Warning System: Bayesian Spatial Modeling of Emergency Department Visits Due to Extreme Heat Across California Neighborhoods:* **J Molitor**, D P Eisenmann, D Garcia-Gonzales, M Villanueva, M Jerrett, S Monte-Sano, K McNamara

1852563 *Bioaerosols in the Earth System: Research Gaps and Frontiers:* **A C Aiken**, S M Kreidenweis, K C Weathers

1888975 *Comparative Analysis of Antibiotic Resistance Genes, Heavy Metals, and Microbial Communities in Springtime PM_{2.5} During Asian Dust and Non-Dust Periods in Seoul, Republic of Korea:* **J Lim**, S Kang, K S Cho

1957646 *Diel Variation in the Taxonomic and Functional Composition of a Dryland Aeromicrobiome:* **A Besser**, J Lima-Zaloumis, R Lappan, J A Bradley, J Goordial, C Greening, H Throop, E Trembath-Reichert

1913986 *Evidence of local aerosol dispersion of diverse genotypes of the soil-borne fungal pathogen *Coccidioides posadasii* (causative agent of Valley fever) from single hot spot in Arizona: First step in linking infections to environment.:* **D Kollath**, N Stone, J Sahl, A Stout, M Ramsey, D Wagner, B Barker, P Herckes, M P Fraser

1916141 *The Characterization of the Airborne Microbiome: Bridging Atmospheric Sciences and Microbial Ecology:* **B Ervens**, P Amato, M Joly, L Nuñez López, F Mathonat

1998972 *The Role of Sampler Type and Environmental Humidity on Biological Ice Nucleation:* **K R Barry**, M Nieto-Caballero, K Rugh, E Kraus, M Hernandez, S M Kreidenweis

1922343 *A Spatial Framework and Online Platform for Linking Climate and Health Data in Jordan Using Hospital Service Areas:* **I Zaslavsky**, S Lamont, M O Hussien, S Z Akasheh, C Neale, C Kirkpatrick, W Al-Delaimy

1917943 *An Open-Access Workflow Linking Climate Model Data and Health Impacts of Air Quality:* **J W Hurrell**, A Wells, B Anderson

1925663 *Application of a Deep Learning Approach Using Google Street View Imagery to Improve Characterization of Neighborhood Deprivation for Environmental Health Research:* **R Jones**, L Marcus Post, R V Remigio, J Fisher, Y Hang, J E Bell, Q Nguyen

1896755 *Assessing Compound Climate Exposures and Public Health Outcomes in California:* **M E Marlier, PhD**, R Connolly, Y Ma, M Jerrett, T Benmarhnia

1955046 *Assessing Heat Exposure Metrics for Health Outcomes: Historical and Future Projections for Southeast Texas Using a Newly-Developed 1-km Climate Dataset:* **I C Nduka**, S Chambliss, C Cummins, P V V Le, P Passalacqua, G Persad

1999297 *CalHeatScore: A Novel Heat-Health Ranking System for California:* **F Chiang**, B Bell, S Cohen, W Wieland

- 1961756** *Current Approaches and Recommendations for Understanding the Impacts of Environmental Disasters on Risk of Alzheimer's Disease and Related Dementias.:* **A James**, G Wellenius, S Adar, J D Berman, M Gall, J Brook, J E Bell, E Gause, S Mueller, K Francois, M Ganesan, K Lane
- 1926979** *Examining the impact of bias correction configurations on a multivariate meteorological index: A case study of Heat Index analysis in the Northeast US:* **W Xu**, K W Dixon, N Zenes, J R Lanzante
- 1865126** *Heat Exposure and Excess Morbidity in the City of New Orleans, Louisiana during the Warm Season, 2010-2019:* **S Mathews**, E Scott, M Lackovic, A Reilly, B Babin, S Baker, V Brown, M Desjardins, G Smith, K Koehler, S Zeger, J Madrigano
- 1973846** *Hourly Satellite-Derived Ozone Dynamics Reveal Transboundary Pollution Patterns and Health Risks along the U.S.-Mexico Border:* **A Mei**, Y Hang, K North, J Aguilera

246595

Utilizing Precipitation Datasets and Quantifying Associated Uncertainties in Hydrometeorological and Climate Impact Applications (joint with A, GC, NH, SY)

Conveners: **Paul Kucera**, National Center for Atmospheric Research; **Ali Behrangi**, University of Arizona; **Andrew Newman**, National Center for Atmospheric Research

- 1920635** *How Uncertain Are Our Estimates of Rare Precipitation Extremes? A Global Assessment of Data Injustice Using Station and Gridded Data:* **T Chatterjee**, R M Horton
- 1958023** *A CONUS Precipitation Event Database: Using MRMS to Characterize Extreme Events:* **P E Kirstetter**, D Watters, A J Newman, A Wood, G Tang
- 1961662** *A New CONUS Multi-decadal Ensemble Surface Meteorological Dataset for Hydrological and Sectoral Applications:* **A W Wood**, G Tang, A J Newman, P Kirstetter, D Watters, C Mueller, C Frans
- 1978733** *Assessment of the High-Resolution Rapid Refresh (HRRR) Precipitation Forecasts for Urban Coastal Areas: New York City Testbed:* **S Makrides**, D D Turner, K M Mahoney, R Khanbilvardi, T Lakhankar
- 1868843** *Bias Correction Applied to Short-term Precipitation Forecasts: Impact on Hydrological and Snow Predictions Across Canada and the Northern U.S.:* **A Pérez Bello**, É T É M Gaborit, M Surcel, V Vionnet, F Lespinas, V Fortin

- 2003876** *Identifying the Health Impacts of Severe Weather caused Power Outages in California through a Qualitative Approach:* **J Toweh**, J Suckale, S Luby
- 1873941** *NIH CHORDS Tools to Integrate Environmental Health and Extreme Weather Data: Wildfire Smoke and Asthma in Oregon:* **A K Miller**, A Liu, D Bost, A Burkholder, D Fargo, K P Messier, A Motsinger-Reif, D Reif, C Schmitt
- 2002128** *None-Knotted R_0 's: Our R_0 's are Area Specific:* **S Brinker**
- 1950869** *Sometimes Missing the Heat: Daily Heat Index Approximations and Systematic Underestimations of Extreme Heat Events:* **N Zenes**, W Xu, K W Dixon, D Adams-Smith
- 1953428** *Understanding Data Needs for Accelerating Research at the Intersection of Climate and Health:* **Z Popp**, E Gause, K Spangler, H Clifford, M Hoenig, J Cetron, M Audirac, J Goldman, A Nori-Sarma, F Dominici, G Wellenius, D Braun, K Lane
- 1856484** *Weather Differences in the Backyard and Front Yard: Observations, Visualization, and Pattern Analysis:* **T Su**
- 1870315** *Comparing Satellite Rainfall Datasets-IMERG and MSWEP in Capturing Tropical Cyclone Rainfall in the North Indian Ocean:* **A Akter**, C J Matyas
- 1892224** *Estimating meteorological and hydrological forecast uncertainty in Anticipatory Action and Forecast-based Finance humanitarian programs:* **M E Brown**, I Kipkemoi, D Backer, A Cheruiyot
- 1974567** *Evaluating Gridded Datasets for Representing the Intensity of Sub-daily Rainfall Events across Florida:* **S Kaiser**, E Ahmadisharaf, C Polatel
- 1868505** *Evaluating Performance of Near Real-Time GPM Products using High-Resolution PIERS Gauges Across Diverse Ecosystems and Weather Regimes over Land :* **D DAS**, S Pal
- 1927882** *Evaluation of IMERG and CMORPH Satellite Precipitation Products with Respect to Extreme Precipitation from Sub-daily to Multi-day Scales Against in-situ Reference Network:* **O P Prat**, D A Coates, J Uehling, B R Nelson, M A Palecki
- 1970958** *Evaluation of Low-Cost 3D-Printed Automatic Weather Stations (3D-PAWS) for Operational Use:* **R Zieber**, P A Kucera, K Payne, B Smith, M Steinson, W Nicewonger
- 1874361** *Evaluations of Gauge-Based and Satellite-Derived Gauge-Corrected Gridded Precipitation Datasets Across Diverse Climate Zones of the Brazos River Basin, Texas, USA:* **T G Tarkegn**, R Ray, G Tefera

- 1915043** *Examination of Future Changes in Global Extreme Precipitation Based on CMIP6 Climate Models:* **J Baker**, S Y Wu
- 1876169** *Exploring Snow Surface Variability over Alaska's Glaciers Using Airborne SWE and Precipitation Observations:* **Y Song, PhD**, A Behrangi
- 1965784** *Global Validation of Satellite-Only Ensemble Precipitation Dataset (STREAM-Sat) against multiple Radar Networks:* **Y Derin**, K Peng, D B Wright
- 1903546** *High-Resolution Depth-Duration-Frequency Curves from Radar-Derived Precipitation: A Case Study of Puerto Rico and the U.S. Virgin Islands:* **A Mejia-Manrique**, S Mejia-Manrique, N Devineni, R Khanbilvardi
- 1918015** *How satellite-based precipitation advances multi-scale flood modeling and prediction:* **H Wu**, Z Huang, G Gu, K Yilmaz
- 1969866** *MSWEP V3: Machine Learning-Powered Global Precipitation Estimates at 0.1° Hourly Resolution (1979–Present):* **X Wang**, A Abbas, H Beck
- 1974873** *Noisy Sampling Inherent to Daily Precipitation Observations and Some Implications About Return Level Inferences:* **A Weyant**, R E S Clemesha, A Gershunov
- 1971875** *Rainfall Reality Check: Unraveling Monsoon Regimes Across India via Triple Collocation-Based Assessment of Precipitation Products:* **S Paul**, H Alemohammad, PhD
- 1861806** *Spatial Clustering Patterns of Precipitation Indicators Across the Continental United States (CONUS):* **S Eero**, A Dietrich, D Sutley

250963

**Standards, Stewardship, and Solidarity:
Building Flourishing Science Commons** (joint with
A, GC, SY, SA)

Conveners: **Ryan McGranaghan**, NASA Jet Propulsion
Laboratory; **Chelle Gentemann**, NASA Headquarters;
Luis Murillo, University of Notre Dame

- 1900851** *Community-Driven Efforts to Advance Vertebrate Paleocological Data Curation, Standards, and Governance in the Neotoma Paleocology Database:* **J Blois**, J Arroyo-Cabrales, M Balk, N Cullen, E Davis, D Espinosa-Martínez, M Etnier, S J Goring, R Graham, N Hoffman, M Pardi, S Pilaar Birch, V Syverson, C Widga, J W Williams
- 1927396** *The Heliophysics Software Search Interface:* **I Smith**, J I Barnum, MSc, R Ringuette, J P Renaud, C Byrd, S Polson
- 1973325** *Suitability of Various Gridded Datasets for Representing Sub-daily Rainfall Event Properties across the US Gulf Coast:* **S Kaiser**, E Ahmadisharaf, C Polatel
- 1862816** *The Changing Distribution of Daily Precipitation Intensity Across the Chesapeake Bay Watershed:* **M Khatiwada**, A W Ellis
- 2003691** *The future depends on objective use of uncertainty quantification:* **G Elsaesser**, M van Lier Walqui, K Loftus, F Tornow, A M Fridlind, S Bauer, A S Ackerman, J Wu, G A Schmidt
- 1963283** *Translating AI-enhanced forecasts and automatic weather station observations into trusted, accurate, and actionable predictions of rainy season onsets in Kenya:* **C C Funk**, M Kilavi, F Sedah, G Flaspohler, P Ochieng, A H Fink, W Turner, J Adkins, P A Kucera, C Shitote, S Shukla, J Sirengo, L Harrison, F Davenport IV, PhD, B Das, D C Alaso, G J Husak, A Jong
- 1848976** *Trends in Extreme Precipitation in the Missouri and Upper Mississippi River Basins: A Comparative Study of 1950–1986 and 1987–2023:* **C Gupta**
- 1876151** *Uncertainty Mapping of In-Situ Hourly Precipitation Datasets Along the U.S. East Coast in the Context of Instrumentation Change:* **M Rahimi Golkhandan**, B Rosenzweig, A T Degaetano, P Gurian, F A Montalto
- 1979165** *Validation of Gridded Precipitation Products in the Ohio River Basin:* **M Fomaca de Sousa Junior**
- 1944535** *Who and What is Required for the Governance, Maintenance and Stewardship of International Scientific Data Standards to Support a Global Open Science Commons:* **L A Wyborn**, K Lehnert, S Hodson, L McEwen, I Bruno, R Farrington
- 1967861** *Building Collective Intelligence Networks for Flourishing Scientific Communities:* **R Tamari**, S Oriel, W Finck
- 1970977** *Transforming Science on Schema to RDF: Building Community Knowledge Graphs with Dagster and the GleanerIO Stack:* **D W Valentine Jr**, D Fils, L Marini, Y L Yang
- 1972299** *Updates from the 2025 CF Workshop:* **E Davis**, D Hassell, D Lee, L Barring, S Bartholomew, E Fisher, L Marsden, A Pamment, A Cofiño, K O'Brien, G PimentaCastelao
- 1975278** *Finding Collectively-Derived Solutions to Governing Science Mission Directorate (SMD) Data, Information and Software:* **D K Smith**, K Bugbee
- 1976574** *GeoFAIR: All are Welcome!:* **D Kinkade**, S Stall, N H Raia

1979105 *Project Pythia's Cookbook hackathon experience: a participatory approach to building a geoscience knowledge commons*: **B E J Rose**, D Camron, J Clyne, O Eroglu, R Ford, J Gum, J Kent, H Hampapura, R May, J Munroe, K Tyle

1982438 *Navigating Complexity: Collaboration and Synthesis in SPRUCE's Scientific Commons*: **T A Ruggles**, T Velliquette, J Birkebak, M A Mayes, D M Ricciuto

252498

Transforming NASA Science Through Cloud Computing: Infrastructure, Platforms, and Success Stories (cosponsored by AMS: American Meteorological Society, EGU: European Geosciences Union) (joint with A, EP, OS, P)

Conveners: **Daniel Duffy**, NASA Center for Climate Simulation; **DeVon Griffin**, NASA Headquarters; **Elena Steponaitis**, Tulane University; **Mark McInerney**, NASA Goddard Space Flight Cent

1946792 *ChatGSFC: Deploying Secure Enterprise AI to Transform Scientific and Engineering Workflows at NASA*: **J Gilman**, O Hatamleh, M Dosberg, M Biskach, R McClelland

1958934 *Scaling SAR Data Processing for NISAR: OpenScienceLab's Role in NASA's Science Cloud*: **S Shriver**, F J Meyer, A Lewandowski, E Lundell, D Palmieri, B Buechler, C Showalter, S Gallagher

247483

Advances in Data Assimilation, Data Fusion, Machine Learning, Predictability, and Uncertainty Quantification in the Geosciences (joint with A, GC, H, OS)

Conveners: **Steven Fletcher**, Cooperative Institute for Research in the Atmosphere; **Brian Ancell**, Texas Tech University; **Matthias Morzfeld**, Organization Not Listed; **Derek Posselt**, NASA Jet Propulsion Laboratory

1855271 *Integrating Supervised and Self-Supervised Deep Learning to Develop Gap-Free Daytime and Nighttime Land Surface Temperature at 100-M Resolution*: **T Rashid**, D Tian

1859582 *We Need Better Long-Term Hazard Models: Building an unbiased model for volcanism and faulting in Kyushu (Japan)*: **C Connor**, L Connor, M Connor

1860954 *Controlled Latent Diffusion Models for 3D Rock Reconstruction*: **D de Freitas Naiff**, B Schaeffer, G Pires, D Stojkovic, T Rapstine, F Ramos

1984106 *Toward an Equitable Crisis Commons: Earth Observation and the Ethics of (In)Visibility*: **J Van Den Hoek**

2003147 *Climate TIES: A Prototype Web-based Transdisciplinary Portal for Organizing and Integrating Climate Change Data, Information, and Stakeholders*: **K Maier**

1962468 *Advancing Agile Earth Science Mission Design with the Novel Observing Strategies Testbed*: **E Gonzalez**, H Banafsheh, D Ramachandran, M Wrzesien, C Vuyovich, P Grogan

1989621 *Experiences evolving a compliant and scalable Earth Data Cloud platform*: **T D Goff**, N Clark, C Pitts

1990396 *High-performance Cloud Computing of Coupled Wildfire-Atmosphere-Chemistry Simulation on the NASA Science Managed Cloud Environment*: **C Da**, A Farguell, Z Yang, S Fnu, N Golpayegani, C Cruz, A Kochanski, J Mandel, J E Dorband, M Halem

1998322 *HelioCloud: A Cloud-Native, Cost-Optimized Platform for Collaborative Big Science*: **P Shumate**, L Knowles, O Shalaby, S Rourke, A K Antunes, B A Thomas, J W Bradford, J D Vandegriff

2004378 *The National Data Platform Experience in Supporting NASA-Relevant Research: A Cloud-Native Composable Service Ecosystem for Scalable, FAIR, and AI-Enabled Earth Science*: **I Altintas**, M Parashar, M Floca, J Tate, S Alharir, C Meertens, A Gupta, K O'Laughlin

1867657 *Explanation and Optimizing Multi-model Blending Algorithm Using Random Variables Theory*: **W Yu**, D Kan, C Yong, S Yue, Z Xiaoqing

1870413 *Can the Generative AI Shark Eat the Entire Data Assimilation System?*: **M Morzfeld**, D Hodyss

1872438 *Seismic Image Denoising via Diffusion Model by Signal Fitting*: **Y Zhang**, S Chen Prof

1873505 *Localizing High-Dimensional Covariance Estimates with Hierarchical Rank Structure*: **R Armstrong**, A Damle, S Otto

1877313 *Implementing an update of aerosol initial states for Community Multiscale Air Quality (CMAQ) model simulation through kriging method*: **T Choi**, C H Song, J Yu, S Y Park, D Lee

1878401 *Harnessing the Butterfly Effect: A Duality-Based Framework for the Efficient Control of Extreme Weather*: **T Miyoshi**

1880247 *Model discovery on the fly using continuous data assimilation*: **J Whitehead**

1890632 *Integrating ideas from nonlinear data assimilation into machine learning*: **P J van Leeuwen**

- 1892410** *Ensemble Data Assimilation Methods for Applications with Mixed Probability Distributions:* **J L Anderson**
- 1906121** *Investigating Mechanisms of Meso-Convective Systems with Large Ensemble DA: Meteorological Informatics Approach:* **T T Kawabata**
- 1910672** *Improving Extreme Rainfall Prediction over North-east India through Hybrid Ensemble Data Assimilation Technique:* **A Kundu**, R B Gogoi, S S Kundu, A Chakravorty, A Srivastava, R Mahanta, K K Sarma, S P Aggarwal
- 1913488** *Physically Consistent Global Atmospheric Data Assimilation with Machine Learning in Latent Space:* **H Fan**, L Bai, B Fei, Y Xiao, Y Qu, P Gentile
- 1926576** *Seismic Low-Frequency Extrapolation via Physics-Aware Conditional Diffusion Models:* **I Deiana**, H Alswaidan, B L Biondi
- 1937239** *Nonlinear GenAI-Based Ensemble Data Assimilation Methods Applied to Convective-Scale Cloud Microphysical Parameter Estimation:* **D J Posselt**, H Chipilski
- 1937672** *Towards Developing Coupled Land-Atmosphere Data Assimilation for Improved S2S-Scale Predictability with the DOE E3SM Model:* **Z Pu**, S Zhang, B M Raczka, D Xu, J L Anderson, R Leung
- 1939509** *Bayesian Hierarchical Network Model for Disaggregation of Spring Seasonal Streamflow:* **C Jerez**, B Rajagopalan, U Lall
- 1950071** *Advancing Predictability of Extreme Weather through Data Assimilation and Machine Learning:* **S J Greybush**
- 1951571** *Applying a lognormal based 1DVAR retrieval to improve moisture values over the Mediterranean Region in the NVAP-M data set.:* **S J Fletcher**, J M Forsythe, T H Vonder Haar, S Liu
- 1958243** *Adapting a Neuro-Physical Inverter to Field Data: A Physics-Coupled Machine Learning Framework for Subsurface Resistivity Estimation in a Blind Geothermal System:* **J D Kim**, S Ravela, R L Evans
- 1962706** *Multiple Solutions to Geophysical Inverse Problems via Tracking Flights Across a Deeply Incised Model Landscape:* **M E Everett**

250350

Advancing Data Assimilation for Earth System Prediction (joint with A, GC, H, P)

Conveners: Soyoung Ha, NCAR; Moha Gharamti, National Center for Atmospheric Research

- 1968119** *AQcGAN - A Deep Conditional Generative Adversarial Network for Emulating and Extending Global Atmospheric Composition Forecasts:* **J A Sleeman**, V Shah, P Castellanos, C Keller, C J Ribaudo, A Hillier, C Tang, C Kofroth, A Chen, P Wales, J Kouatchou, R Govindaraju, K Breen, K E Knowland
- 1971118** *Data Assimilation for CONTIGO: Collaboration for Observational and Numerical Thermosphere with Integrated Geospace Orbits:* **N Mathews**, K Garcia-Sage, J Klenzing, P W Schuck, E Zesta
- 1974037** *Adaptive Ensemble Smoother – Multiple Data Assimilation (ES-MDA):* **K Ivey**, M Morzfeld
- 1985638** *An Approach to Improving the 4DEnVar-Initialized Deterministic Prediction Skill in a Global NWP System:* **S Zhu**, B Wang, L Zhang, J Liu, Y Liu, J Gong
- 1987932** *High-resolution wind fields for operational methane monitoring at oil and gas sites by integrating physics-based simulations, field observations, and scientific machine learning:* **A Fathi**, E Kharazmi, E Menezes, G E Karniadakis, A Sundaram
- 1991688** *Machine learning-based temporal tracking of volcanic umbrella clouds properties from spaceborne sensors: The 2022 Hunga and 2024 Ruang Eruptions:* **A Gupta**, R Bennartz
- 1994785** *Quantifying Information and Inferential Power in Incomplete Volcanic Eruption Records:* **C Harper**, L Karlstrom
- 1995346** *“A Skill-Optimized Reanalysis Ensemble with Cloud and Aerosol Integration for Assessing Spatiotemporal Trends in Precipitable Water over South and Southeast Asia”:* **J Daluz**, K Fitch
- 2000239** *Learning Enhanced Ensemble Filters:* **B Chen**, E Bach, R Baptista, E Calvellido, A Stuart
- 2001708** *Applying Machine Learning on Reflection Seismic and Well Logging Data to Identify Gas- and Brine-Saturated Reservoir Zones:* **M Hamdallah**, W Harbert
- 2001771** *GeoAttnUNet: A 3D Attention U-Net for CO₂ Plume Detection in Carbon Storage Sites:* **J Ali**, W K Mohanty, S Sarkar
- 1872307** *Towards Fully Coupled Ensemble Earth Data Assimilation and Prediction in the Red Sea: Progress and Challenges:* **I Hoteit**, S Sanikommu, R Sun, N Raboudi, M R Mazloff, S Masabathini, M Gharamti, A G Prajeesh, A Subramanian, P Zhan, B Ait-El-Fquih, G Krokos, H P Dasari, B D Cornuelle
- 1898886** *Recent Algorithmic Innovations in the Data Assimilation Research Testbed (DART):* **M Gharamti**
- 1904713** *The Role of Ocean Initialization in Improving the Decadal Prediction Skill of East Asian Summer Monsoon.:* **W Zhang**, Y He, B Wang

- 1910915** *4D sensitivity kernels, or time dependent observation operator, for assimilation of acoustic wave observations in atmosphere models:* **R Garcia**, S G  rier, R Martin
- 1919503** *Recent Developments and Applications of the Data Assimilation Research Testbed (DART) with Regional Chemical Data Assimilation and Emissions Estimation (Chem-DART):* **A Mizzi**, C H Hsu, A Raman, Y Cui, B C McDonald, M S Johnson, J L Anderson
- 1920538** *Challenges and Insights in Transitioning Hydrologic Data Assimilation from Regional to CONUS Scale:* **A Rafieeiniasab**, M Gharamti, M Casali, I Srivastava, A L Dugger
- 1922165** *Toward a Unified Hybrid Linear Tangent Model for the Global Forecast System (GFS): Applications in Ensemble—Variational Data Assimilation:* **J Rotondo**, D Holdaway, T Hill, K Bhargava, C Sampson

249228

Compound and Cascading Extremes: Understanding & Predictability for enhanced resilience (joint with H, IN)

Conveners: **Somnath Mondal**, Northeastern University; **Sushree Swagatika Swain**, Scripps Institution of Oceanography; **Goutam Konapala**, NASA Goddard Space Flight Center; **Daniel Fiifi Tawia Hagan**, Ghent University; **Sudhanshu Kumar**, Auburn University

- 1929498** *Quantifying the Role of Vegetation Structure in Tree Trimming Effectiveness on Grid Resilience:* **S A Saki**, K Udeh, X Zhang, E N Anagnostou, V Anderson, D Cerrai
- 1999763** *Advancing Understanding and Prediction of Drought-Heat-Wildfire Extremes:* **Y Yin**
- 1990185** *Arctic Lake-Permafrost Compound Extremes: Multivariate Analysis of Temperature and Active Layer Depth:* **R Jane**, M Nagaraj, P Dev  
- 2001167** *Assessing Compound Hazards: Integrating Fire and Post-Fire Debris Flow Risk in Southern California:* **S Babagiray**, A AghaKouchak, A Hjelmstad, J Duku, A Boschee, D Y de Oliveira
- 1846576** *Atmosphere-Lithosphere Interactions in Tectonically Active Regions: Evaluating Seismic Triggers from Tropical Cyclones:* **E Gebremichael**
- 1867018** *Automated Workflow for Climate Data Processing and Impact Attribution Using CDS and EU-Supported Datasets:* **P Terefenko, PhD**, J Sledziowski, D Paprotny, K A Tanwari, A Giza

- 1928144** *Improvements to ensemble-based data assimilation using stochastic parameterization in a global ocean model:* **K Boden**, I Grooms
- 1950874** *Land Surface Model Component and Data Assimilation for the Research-to-Operations Transition in the Unified Forecast System Development Framework:* **J Kim**, C H Jeon, G Petro, E Snyder
- 1957964** *Toward Consistent Aerosol Data Assimilation:* **C Dang**, B Johnson, S Ha, C H Lu, S W Wei, J Barr  
- 1960279** *New Methods for Assimilating Highly Non-Gaussian Distributions and Recent Applications of the Data Assimilation Research Testbed:* **J L Anderson**, K Raeder, L Kugler, I Grooms, M M Wieringa, O Lewis, B M Raczka, B K Johnson
- 1999054** *Advancing Storm-Scale Ensemble Data Assimilation:* **S Ha**, J Park
- 1923554** *Changing Patterns of Annual and Seasonal Hydroclimatic Extremes Across Kansas' Reservoirs:* **A Howlader**, S C Zipper, J Kastens
- 1929104** *Evaluating the Impact of Wildfire on Runoff using Automated Geospatial Watershed Assessment (AGWA) Tool: A Case Study of Eaton Fire, Los Angeles, California:* **F Rafi**, D Rowland, S Gao
- 1954892** *Flash Flood Alley Unleashed: Hydrometeorological Factors and Consequences of the Guadalupe River Catastrophe on July 4, 2025:* **A Bose**, C Furl, M Giacomoni, H O Sharif
- 1863769** *Flood after Fires: A Scalable Decision-Support Framework for Post-Fire Debris Flow Risk:* **M Kim**, A Dodd, J Radke, V Ulyashin, A Serra-Llobet, A Falzone, G M Kondolf
- 1935516** *Hydrometeorologic Analysis of Hyperclustered Flood Damage for Compound Risk Assessment:* **T Gu**, A Nayak, U Lall
- 1885922** *Modeling Cascading and Compounding Multi-Hazard Risks In A Changing Climate: An Explainable Boosting Approach Using CMIP6 Scenarios:* **K Shrestha**, P Lal, M M Rahman
- 1908551** *Projecting the Unequal Global Risk of Compound Hot-Dry Extremes:* **D Cai**, G Lohmann, M Ionita
- 1942025** *Rapid Transitions in Soil Moisture Extremes Across India, 1951–2024:* **P Sharma**, V Mishra
- 1850870** *The Role of Drought Early Warning Information Systems in Building Resilience to Drought:* **M D Svoboda**
- 1851764** *Towards a resilience framework for compound extremes and cascading failures:* **A R Ganguly**

Data Science for Weather and Climate Extremes: Risks, Drivers, and Impacts

Conveners: **Mukesh Kumar**, Los Alamos National Laboratory; **Sridhara Nayak**, Japan Meteorological Corporation; **Somnath Mondal**, Northeastern University; **Raju Attada**, Indian Institute of Science Education and Research Mohali

- 1978363** *A data-driven causal perspective on the origin of the 2021 Pacific Northwest heatwave:* **J S Pérez Carrasquilla**, M J Molina, J J Nichol, D L Bull
- 1855003** *A Global Database of Glacier Break-offs: Spatio-Temporal Patterns and Implications for Hazard Assessment:* **E Bashkova**, S Rupper, S Brewer, C Markovsky, R R Forster, S Wolvin, C Strong, D H Shugar
- 1906387** *A Multi-Parametric Heat Risk Assessment through Integrated Climate, Demographic, and Land Use Analysis: A Divisional-Scale Case Study from Bangladesh:* **F I Mou**
- 1908348** *Assessing the disparities in air conditioning use for heat management across Southern California:* **D Ramos Aguilera**, Y Wang, J Zhang, K Sanders
- 1861946** *Data Driven extreme weather event attribution using Granger causal inference:* **M F Wehner**, M D Risser
- 1891411** *Discrepancies in Heat Metrics Across the United States:* **C Frank**, M Huber
- 1959295** *Extreme Humid-Heat Disentangling, Stickiness, and Responses to Local Sea Surface Temperatures in Future Climates of the Arabian Peninsula:* **D Bose**, C Tuholske
- 1904351** *FireConformer: Fine-tuning Continuous Transformer based Weather Forecasting Model for Wildfire Forecasting:* **H Saleem**, F Salim, C Purcell
- 1960854** *How Interpretable Machine Learning Advances Our Understanding of Climate Extremes and Their Impacts on Ecosystems and Infrastructure:* **W Zhao**, B Zhu, K W Bowman, J Fang, G Y Qiu, P Gentine
- 1857224** *Investigating Commonalities and Differences between Different Ignition Sources and Their Drivers: A Machine Learning-based Predictive Approach:* **Y Pourmohamad**, J T Abatzoglou, M Sadegh
- 1960298** *Investigating the Impact of Hurricane Helen on Turbidity Dynamics in the Tennessee River Using Remote Sensing Technology:* **A A A Hossain**, M Smith, M Shields
- 1960849** *Multi-Decadal Assessment of Hydrometeorological Droughts across Ravi River Basin:* **S Hina**, M Fatima, A Habib, A Arshad
- 1929807** *Natural variability was primarily responsible for the elevated January 2025 Los Angeles County fire weather risk:* **A K Srivastava**, M D Risser, P A Ullrich
- 1969673** *Operationalizing AI Weather Forecasts of Monsoon Onset for Farmers in India:* **K Kowal**, C Aitken, R Masiwal, A Marchakitus, M Gupta, W R Boos, A Jina, M Kremer, P Hassanzadeh
- 1935475** *Patterns and Trends of Wildfire Ignitions, Burned Area and Their Drivers in the Western United States:* **A Montazeri**, J T Abatzoglou, J Prestemon, Z Holden, K Short, A Akbari Asanjan, M Sadegh
- 1986603** *Rapid Disaster Response and Damage Estimation with Social Media and Pretrained Large Language Models: Insights from Multiple Hurricanes:* **B Zhou**, L Zou, M Yang, B Lin, D Mandal, J Abedin, H Cai, H Tian, A G Klein, S Ji
- 1951622** *River discharge and short-term forecasts of fire risk in Amazon Forests:* **A D D A Castanho**, D C Morton, M Machado, M T Coe, M Macedo
- 1900325** *The application of climate projections to predictive failure modeling for electric infrastructure:* **E Kuhle**, R Muralidharan, O Kavvada
- 1861060** *The Complexity of Wildfire: Insights from Data-Driven Approaches:* **M Forrest**
- 1908187** *Unveiling the Physical Drivers of Short-Term Heat-Cold Compound Extremes with Explainable Machine Unlearning:* **C Sun**, Y Chen, D Zhang
- 1951048** *Using Deep Learning to Constrain Coastal Subsidence with InSAR:* **R Bussard**, C Wauthier, R Housego, A Piliouras
- 1851079** *Using Machine Learning to Understand the Environments of Lightning-Ignited Wildfires in Northern California and their Recent Changes:* **L R Leung**, S S C Wang, Y Qian, R Grotjahn
- 1971493** *Vulnerability of U.S. Power Generation to Extreme Weather: A Data-Driven Analysis:* **Y Lu**, T Sun, R Rajagopal

249582

Hurricane Katrina 20 Years Later: Turning Tragedy into Resilience (*joint with A, GC, PP, SY*)

Conveners: **Joshua Bregy**, Clemson University; **Davin Wallace**, University of Southern Mississippi; **Clay Tucker**, University of Southern Mississippi; **Jill Trepanier**, Louisiana State University

250198

The Nexus for Exoplanet System Science (NExSS) – Building a Community for Interdisciplinary Research Across NASA Science Divisions (*joint with A, OS, SA*)

Conveners: **Ofer Cohen**, Harvard-Smithsonian CfA; **Linda Sohl**, Columbia University of New York; **Hilairy Hartnett**, University of Washington Seattle

1969283 *The Rise of Biomolecules and Temperate Climate on Early Earth and Young Rocky Exoplanets Under the Active Young Sun:* **V Airapetian**, K Kobayashi, G Gronoff, M Way

1859790 *A Change Will Do You Good: Geological Perspectives on Interdisciplinary Terrestrial and Exoplanet Science:* **C B Till**, K Brugman

1928122 *A Workshop on Extraterrestrial Photosynthesis: Bridging Specialized Scientific Communities in the Search for Life:* **N Y Kiang**, R E Blankenship, C Gisriel, A Agostini, D Canniffe, T Cardona, N Ennist, W W Fischer, Y Fujii, Y Komatsu, B Kacar, N La Rocca, A Mandell, T Matsuo, G Moore, E Schwieterman, L Young

1953521 *Beyond the Habitable Zone: Data-Driven Tests of Climate Feedbacks on Earth-like Exoplanets:* **M Underwood**, A Lenardic, J Seales Jr, B Kwait-Gonchar

249023

Advances in Seismoacoustics (*joint with A, NH, V*)

Conveners: **Jelle Assink**, Royal Netherlands Meteorological Institute; **Anna Perttu**, Earth Observatory of Singapore; **Junghyun Park**, Southern Methodist University; **Efrem Vitali**, Lawrence Livermore National Laboratory; **Nora Wynn**, Sandia National Laboratories

1889864 *Listening for Fireballs: A Trial of Seismo-acoustics and Optical Observations of Meteors Over Perth, Australia:* **I Hamama**, E Sansom, M Cupak, M Towner, H Devillepoix, H Elbehiri, I Clemente, B Hartig, M Y Yamamoto

1933064 *Acoustic Wave Signatures of Earthquake Rupture Dynamics in the Upper Atmosphere:* **Y Kaneko**, P Inchin, Y Nozuka, R Sabatini, R Enomoto, J B Snively

1926831 *A Coastwide Risk Reduction Hindcast: Katrina to Present:* **B McMann**, J Fischbach, D Johnson, P Kane, O Diaz, M Bregman, D Di Leonardo

1987651 *Assessing resilience of the Gulf Coast through sediment records: What we know about Holocene sea-level rise and storms, and what it may mean for Alabama's future:* **R L Totten**, D J Wallace

1916486 *Community-Based Assessment of Spatial Vulnerability in Coastal Mississippi:* **S Han**, S Mun, N Lee

1915779 *CUISINES: A 2025 Update on the Menu:* **T Fauchez**, D Sergeev, R Barnes, G Chaverot, D Christe, J D Haqq-Misra, C E Harman Jr, N Iro, T Lichtenberg, L E Sohl, K Tsigaridis, G Villanueva, A V Young, N Mayne

1880100 *Earth, With a Twist: How Orbital Parameters Affect the Photochemistry and Climate of Earth-like Exoplanet Atmospheres with ROCKE-3D:* **C E Harman Jr**, K Tsigaridis

1963781 *Effects of Orbital and Continental Configurations on Land Habitability of Earth-like Exoplanets:* **J Jernigan**, É A Laflèche, A Capirala, S L Olson

1946876 *Exploring past habitable Venus scenarios using a coupled spin-climate evolution model:* **A M Salazar**, R Wordsworth

1959077 *Geologic Factors Influencing Long-term Habitability on M-Dwarf Exoplanets:* **T Hammond**, S L Olson

1994182 *Leveraging Seasonality for Exo-Earth Characterization with NASA's Habitable Worlds Observatory:* **É A Laflèche**, S L Olson, J Jernigan, M N Parenteau, E Schwieterman, N Wogan, A G Ulses, S R Gilbert, J Krissansen-Totton

1857731 *The SAMOSA (Sparse Atmospheric MOdel Sampling Analysis) Intercomparison for M-dwarf Planetary Habitability:* **J D Haqq-Misra**

1873811 *Advances in Seismoacoustic and Infrasound Data Analysis for Improved Detection and Location in the Korean Peninsula:* **J Park**, J Reiter, S Arrowsmith, C Hayward, I Y Che, K Goddard, T VanDeMark

1874409 *Air-Ground Coupling from SpaceX Starship Launch Signals:* **J Villagomez**, J McNease, Z Zhang, M A Murphy, Y Zheng

1924657 *Analyzing Wind Noise – Correlations with Topography to Support Site Selection and Local Wind Noise Mapping:* **C Jesus**, R Waxler, L D Yarbrough, C H Hetzer, C L Talmadge, H Buchanan, N Thirunilath

1928606 *Application of a Statistical Method for Analyzing Wind Noise Levels for Infrasound Sensor Site Selection:* **R Waxler**, C H Hetzer, C Jesus, C L Talmadge

- 1905755** *Atmospheric Wave Propagation in Multi-Component Atmospheres: The Role of Species Diffusion:* **B Pineyro**, R Sabatini, J B Snively
- 1998367** *Deep Clustering for Infrasound Phase Identification:* **M Ronac Giannone**, S Arrowsmith, G Averbuch
- 1898719** *Deep Learning-based Method for Near Real-time Estimation of Infrasound Transmission Losses in the Middle Atmosphere:* **A Janela Cameijo**, Y Sklab, S Arib, A LE Pichon, S Aknine, Q Brissaud, S P Näsholm
- 1894245** *DL-G2S: A Deep Learning Ground-to-Space Model for Infrasound Propagation:* **S Albert**, E A Silber, J Sakamoto, M Cho
- 1978489** *Estimating explosion yield from single-channel infrasound recordings at regional distances with random forests:* **S Awender**, D Fee, A J Witsil
- 1882291** *Estimating mass eruption rate from Shishaldin Volcano, Alaska, with near-source acoustic-gravity waves:* **M M Haney**, D Fee, J J Lyons
- 1933534** *Geoacoustic Inversion of the San Diego Shallow Water Subsurface Using Active Acoustics Data:* **C Fagan**, A Istanbulu, W Hodgkiss
- 1880222** *Identification of Subtle Seismoacoustic Signals and Noise through Network-based Coherence:* **L Scamfer**, D Fee, D Tan
- 1995082** *Identification of Tornado Seismic Signals in the Central United States:* **S Thompson**, N S Carpenter, Y Soni, Z Wang, E W Woolery
- 1935252** *Infra-N2N: denoising infrasound array data using machine learning:* **D Fee**, J R Colwell
- 1887317** *Infrasound Analysis and Waveform Simulation of PE1-A: Investigating Depth of Burial and Topographic Effects:* **S Wang**, D Fee, K Kim
- 1875418** *Infrasound Directivity from Equivalent Acoustic and Ground-Surface Reflected Sources:* **R S Matoza**, A M Iezzi, E Opper, K Kim, J Parrish
- 1983027** *Infrasound from the 2024 Surprise Inlet Landslides: Complex Propagation in Steep Fjords:* **J J Lyons**, A M Iezzi, L Toney, E Karasozen
- 1959675** *Locating Infrasound Sources in a Prescribed Rangeland Fire:* **M Hunt**, J Anderson
- 1942157** *Long-range Infrasound Detections of SpaceX Starship Failures: Implications on Source Parameter Uncertainties for Global Monitoring:* **B Walsh**, B Fernando
- 1867635** *Modeling Infrasound from Combustion Sources:* **I Bauer**, O Marcillo, K M Yedinak, J M Lees
- 1910764** *Numerical developments to estimate the sensitivity of infrasound travel times to atmospheric parameters in the presence of wind:* **S G  rier**, R Martin, R F Garcia
- 1928683** *OSIRIS-REx re-entry: Infrasound weak-shock analysis:* **E A Silber, PhD**, V Sawal
- 1955599** *Possible Impacts of Small-Scale Atmospheric Perturbation on Infrasound Propagation:* **K Kim**
- 1954143** *Radiosonde-2-Space (R2S): Observation-based atmospheric specifications for infrasound propagation modeling:* **L Schaible**, E A Silber
- 1872957** *Recent Advances in Infrasound Localization – Refined Celerity Models and Event-Specific Methods:* **P S Blom**, J W Bishop
- 1847524** *Resolving seasonal variations in infrasonic travel times with ambient noise from long-time series:* **L G Evers**
- 1980122** *Revisiting the Pressure Signals from the 18 May 1980 eruption of Mount St. Helens:* **A B Perttu**, K F McKee, PhD, J B Johnson, G Lube
- 1862734** *Routine Seismoacoustic Data Ingestion Using Apache Airflow:* **C N L Gammans**, B Spears, M McClurg, J MacCarthy
- 1998549** *Scalable Modeling of Infrasound Propagation in Realistic Environments from Surface to Exobase:* **J B Snively**, D Calhoun, S Aiton, C Burstedde, H Brandt, T Griesbach, B Pineyro, P Inchin, R Sabatini, M Hirsch, M D Zettergren
- 1887773** *Seasonal effects on infrasound signatures from controlled multi-yield explosions:* **E A Silber**, D C Bowman, K Kim, E A Silber, PhD
- 1858349** *Seismo-acoustic Analysis of Explosions at the 2024 Toropets, Russia Depot:* **M Pasyanos, PhD**, K Kim, A Price
- 1872329** *Signal Subspace Methods in Infrasound Array Processing:* **J W Bishop**, P S Blom, J D Webster, J Carmichael
- 1968278** *Simulating Thunder Generated Acoustic to Seismic Wave Propagations:* **G Kline**, D Kim, T Zhu
- 1941644** *Statistical Analysis of Large-N Infrasound Array Data from the OSIRIS-REx Reentry Capsule:* **N Wynn**, E A Silber, D C Bowman
- 1914091** *Stratospheric Balloon Observations of the December 2021 to January 2022 Hunga Eruptive Sequence:* **P Hardy**, A Podglajen, A LE Pichon
- 1892058** *The use of modal group velocities for infrasound celerity modeling:* **J D Assink**
- 1861937** *Waveform-Envelope-Based Machine Learning Detection and Characterization of Small Events:* **R Tibi**

251310

Gravity Waves, From the Surface to the Edge of Space (*joint with A, OS, P*)

Conveners: **Corwin Wright**, University of Bath; **Neil Hindley**, University of Bath; **Tyler Mixa**, University of Colorado Boulder; **Haruka Okui**, The University of Tokyo; **Haruka Okui**, The University of Tokyo

- 1895754** *A Case Study of Overlapping Medium Scale Traveling Ionospheric Disturbance and Gravity Wave Observations over Alaska at Geomagnetically Quiet Times:* **S Phillips**, K Bossert, E Becker
- 1992884** *Airborne and Balloon-borne Gravity Wave Observations and Modelling During the Multinational TEAMx Observational Campaigns Over the European Alps:* **N Hindley**, A Orr, C Wright, A N Ross, T Banyard, P Noble, M Lehner, S Gumber, S Mobbs, C Chemel
- 1929488** *Airborne Rayleigh and Sodium Lidar Observations of Convective Gravity Waves during the CGWaveS Campaign:* **B P Williams**, D C Fritts, S Meloney, D S Nolan
- 1942399** *Assessing mesospheric cooling rates from vertical wind observations using multistatic meteor radar networks and advanced retrieval methods:* **G Stober**, A Liu, A Kozlovsky, D Janches, J Zeng, L Poku, W Yi, W Krochin, Z Qiao, S Nozawa, M Tsutsumi, N Gulbrandsen, J Kero, M Lester, N J Mitchell, T Moffat-Griffin
- 1928329** *Atmospheric Instabilities above the Andes Lidar Observatory:* **J Norrell**, K Bossert
- 1909126** *Climatologies of Gravity Wave Properties over Scandinavia: A Multi-Instrument Comparison:* **J Jaen**, C Wright, P Noble, N Hindley, R Wing, P Berthelemy
- 1996657** *Comparison of gravity waves observed by Atmospheric Waves Experiment and simulated by high-resolution WACCM-X:* **J Zhang**, H Liu, Y Zhao, P D Pautet, L Scherliess
- 1890229** *Coupling of Gravity Wave Parameterisation to Cloud Ice Processes: Implementation and Effects in a Global NWP Model:* **A Kosareva**, S Dolaptchiev, A Seifert, P Spichtinger, U Achatz
- 1932316** *Dual-station Triangulation of Spritacular Citizen Science Observations Exhibiting Concurrent Mesospheric Gravity Waves and Sprites:* **F Di Mare**, B Kosar, J Yue
- 1866790** *Exploring the Link between Convectively Generated Gravity Waves and Ionospheric Anomalies: Insights from Observations near the Low-Mid Latitude Geomagnetic Transition Region:* **M Malik**, M R Rather Jr, A H Bhat Jr, R K Thokuluwa

- 1897043** *First Observations of Conjugate Equator-eastward Propagating Nighttime MSTIDs: 4 October 2018 Case Study:* **Z T Katamzi-Joseph**, C R Martinis, J J Makela, Y Otsuka, J B Habarulema, A Hiyadutuje, M B Moldwin, S Toledano
- 1930146** *Flying Around Thunderstorms at Night: The Convective Gravity Waves in the Stratosphere Experiment (CGWaveS):* **D S Nolan**, D C Fritts, B P Williams, Y Dai, T Lund, C G Kruse, B D McNoldy, S Majumdar, C Pine
- 1848370** *Geolocation Algorithms and On-Orbit Calibration for Atmospheric Waves Experiment:* **E McKinney**, K Blonquist, Z Hatfield, C Waite, P Sevilla, L Scherliess, H Latvakoski, G Cantwell
- 1952158** *Gravity waves measured by the CONDOR Meteor Radar in the Andes:* **A Z Liu**, G Stober, W Dong, Z Qiao, J L Chau, J F Conte, C Adami
- 1962183** *GW-KHI Interactions in the MLT: KHI Localization and Modulation by the GW Field:* **T Mixa**, D C Fritts, T Lund
- 1900005** *High-resolution observations of mesoscale gravity wave events in the nocturnal boundary-layer over the Netherlands and Belgium:* **J D Assink**, S Knoop, H Leijnse, N Theeuwes, S Tijm, L G Evers, M de Haij, F Bosveld, C Unal, Q Laffineur
- 1909505** *Inertia-gravity waves above extratropical storm track:* **I S Song**, J T Bacmeister, A R Herrington, P H Lauritzen
- 1850303** *Influences of Derecho Storms on the Ionosphere and Thermosphere: Gravity Wave Coupling from Deep Convection:* **L Wilcoxson**, K Bossert, P Inchin
- 1885416** *Initial exploration of gravity wave responses to diverse sources at ~87 km employing the NASA Atmospheric Waves Experiment (AWE) aboard the International Space Station:* **D C Fritts**
- 1894886** *Local Time Variability of Gravity Wave Activity Revealed by SABER Temperature Observations:* **D Koshin**, N M Pedatella, A K Smith, H Liu
- 2001952** *Modeling Thermospheric Responses to Acoustic-Gravity/Gravity Waves Generated by Isolated Thunderstorms:* **S Mesfin**, B Pineyro, B Bergsson, J Aguilar Guerrero, PhD, C J Heale, J B Snively
- 2002809** *Multi-instrument Synoptic Characterization of Deep Convective Events and Associated Gravity Wave Responses Over CONUS Using AWE, AIRS, TEC, and LLITED:* **J Aguilar Guerrero, PhD**, B Bergsson, S Debchoudhury, S Mesfin, P Inchin, J B Snively, M D Zettergren, A Barjatya, L Scherliess, Y Zhao, P D Pautet
- 1850265** *Multi-Season Hydroxyl Airglow Observations of Gravity Waves Over Poker Flat, AK:* **T Karasinski**, K Bossert

- 1885219** *Numerical Simulations of the 1992 February 14-15 STORM-FEST Gravity Wave Event with Wave Genesis Diagnostics*: **R Bhandari**, M Kaplan
- 1976836** *Observed and Modeled Critical Level Filtering of Convection-Generated Gravity Waves Sampled During the CGWAVES Field Campaign*: **C G Kruse**, D C Fritts, D S Nolan, S D Eckermann, B P Williams, Y Dai, J Aguilar Guerrero, PhD, T Lund
- 1963758** *SAAMER-NOVA is a new multistatic meteor radar network for gravity wave studies above Tierra del Fuego*: **G Stober**, D Janches, B Fuller, R Weryk, D O'Connor, J L Hormaechea, L Maslov
- 1999946** *Spatial Downscaling of WACCM-X Using a Graph Diffusion-Transformer (GDiT) Model: A Novel Approach to Gravity Wave Parameterization*: **W Dong**
- 1920426** *Statistical Characterization of Small-Scale Instabilities in the Mesosphere and Lower Thermosphere from Machine Learning-Detected Ripple Structures in Airflow Images*: **J Hu**, A Feener, A Liu, J Li, T Li, W Dong
- 1850521** *Stratospheric Gravity Waves and Medium-Scale Traveling Ionospheric Disturbances Induced by Heavy Rainfall in August 2021 over Kyushu, Japan*: **M Kogure**, I S Song, B G Song, H Liu, M Nishioka, S Perwitasari, H Kam, J Hong

250468

AI and High-Resolution Forecasting for Societal Resilience

(cosponsored by AOGS: Asia Oceania Geosciences Society, EGU: European Geosciences Union, JpGU: Japan Geoscience Union, WCRP: World Climate Research Programme) (joint with GC, H, NH)

Conveners: **Sridhara Nayak**, Japan Meteorological Corporation; **Mohan Kumar Das**, National Oceanographic and Maritime Institute; **Netrananda Sahu**, University of Delhi; **Pawan Kumar Chaubey**, Indian Institute of Science Education and Research Mohali

- 1946674** *"Multi-Timescales Indian Ocean Dipole Predictability in a Warming Climate with Support Vector Machines and Ocean-Atmosphere Coupling Indices"*: **R Karim**, M J Uddin, M K Das, T A Shormy, N Fariha, S R Haque, M F Hasan
- 1954623** *Advancing Understanding of Sea Surface Height Dynamics in the Bay of Bengal: High-Resolution CROCO Simulations for 2024*: **A T Mahmud khan**, M A Hakim, M E Hoque, M J Uddin, M K Das
- 1954976** *An Adaptable Machine Learning-Driven Framework for Coastal Resilience Against Climate Hazards in the Northern Bay of Bengal Region*: **K Karmaker**, M K Das, S R Singha, M S A Hoque, M A Hossain, N T Hridita

- 2001122** *The generation of primary and secondary gravity waves and traveling ionospheric disturbances from deep convection over the United States during 25-26 March 2015*: **S Vadas**, E Becker, S Mrak, J D Huba, K Bossert
- 1963882** *The limitations of steady source gravity wave parameterizations at reproducing observed momentum flux distributions*: **R King**, B Green, A Sheshadri
- 1987664** *Three-Dimensional Structure of the Mesospheric Circulation and the Role of Waves*: **H Okui**, K Sato
- 1919142** *Tracing low-latitude thermospheric gravity waves in a whole-atmosphere simulation to their sources*: **C Stephan**
- 1938956** *Validation and Impact of Large-Scale Gravity Waves using ICON-MIGHTI and SD-WACCMX*: **C Y Cullens**, H Liu, A I Maute, N M Pedatella, S England, B Thurairajah, T J Immel
- 1927857** *Validation of the mesopause region temperature observations by the Atmospheric Waves Experiment*: **T Yuan**, P D Pautet
- 1952208** *Vertical Evolution of Antarctic Gravity Waves from 30-110 km and comparison of LIDAR Observations with a GW-resolving Model*: **J Jandreau**, X Chu, S Vadas, E Becker
- 1944001** *An Integrated Machine Learning Framework for Long-Term Drought Forecasting in Bangladesh Using SPEI, Teleconnection Patterns, and Climate Shift Detection.*: **S Tasnim**, M J Uddin, M K Das, M A I Anik, S Hossain
- 1985302** *Analyzing Lightning Extremes over India Using World Wide Lightning Location Network (WWLLN) Data from 2005 to 2024*: **U Mondal**, S K Panda
- 1937691** *ASSESSMENT OF HISTORICAL TRENDS AND FUTURE PROJECTIONS OF HEATING DEGREE DAYS IN SOUTH ASIA UNDER CLIMATE CHANGE SCENARIOS*: **M A H Laskor**, S U A Dipu, F Bhuiyan, A Azim, A S Islam
- 1976762** *Climatological Vertical Structure of Temperature and Salinity Stratification in the Bay of Bengal Using the CROCO Ocean Model*: **M A Hakim**, M K Das, A T Mahmud khan
- 1973112** *Comparative Analysis of Power Dissipation Index (PDI) for Cyclone Remal Using WRF-ARW with FNL and CFSv2 Forcings*: **A Hakim**, M K Das, A T Mahmud khan
- 1887492** *Deep Reinforcement Learning for Enhancing Coastal Emergency Responses*: **M Sano**, D M Ferrario, S Torresan, A Critto

1951145 *Development of a WRF-Assisted Deep Learning Model for Lightning Forecasting and GIS-Based Risk Analysis in Bangladesh:* **M K Das**, M A Hossain, M S H Bhuyian, S Karmakar, K Karmaker, J Merajul, P Biswas Paul, S Islam

1937427 *Evaluating Rainfall-Driven Flood Dynamics Through Remote Sensing in Bangladesh's Southeast Region During the 2024 Monsoon:* **P Biswas Paul**, S R Singha, S F F F Sowrav, K M Ibtehal, M K Das, M F Methila, A S Islam, F Akter, F Abdullah, M J U Khan, M M Hoque, D M S Hossain

BIOGEOSCIENCES

250707

Advancements in Wildland Fire Science, Management, and Engagement: Integrating Earth Observation Technologies and Collaborative Development (joint with GC, NH, SY)

Conveners: **Jacquelyn Shuman**, NASA Ames Research Center; **Joanne Hall**, University of Maryland College Park; **Morgan Crowley**, Natural Resources Canada - Canadian Forest Service; **David Saah**, Spatial Informatics Group, LLC; **Harrison Raine**, Bay Area Environmental Research Institute Moffett Field

1951315 *Development of the Wind Hazard Identification, Surveillance and Prediction via Radar (WHISPR) system for enhanced firefighter safety:* **K Yeakel**, P Stepanian, M Veillette, T Bonin

1983099 *Eyes in the Sky After the Fire: Monitoring Rainfall-Triggered Landslides Using Multi-Sensor Remote Sensing plus AI:* **S Vajedian**, H Poulos, PhD, J Maurer, E Horgan, L Farrell

1960912 *A 32-year Species-specific Live Fuel Moisture Dataset for Southern California Chaparral:* **K C Varga**, C Jones

1975524 *A Network Modeling Approach to Quantify Homeowner Responsibility for Wildfire Risk Mitigation in the Wildland Urban Interface:* **M Kim**, H Raine, J Radke, M Gonzalez

2004493 *A new approach to integrating multiple spatiotemporal records to analyze how wind speed drives variable wildfire rate of spread (ROS):* **N Devito**, M Katurji, C B Clements, S Dilworth

1977966 *A Novel Strategy for Fuel-Break Placement Informed by Fire-Spread Connectivity to Effectively Mitigate Wildfire Risk:* **M Engsig**, A Tejedor, E Foufoula-Georgiou, Y Moreno, C Kasmi, G Johnson, P Smyth, J T Randerson

1931207 *How the National Weather Service is Training AI to Reach Multilingual Populations During Extreme Weather Disasters:* **J Trujillo-Falcón**, M Bozeman, L Llewellyn, S Halvorson, M Mizell, S Deshpande, B Manning, A Shastry, T Fagin

1933731 *Performance of high resolution WRF modeling system for prediction of intense tropical cyclones over Arabian Sea:* **K S Singh**, R Ashok

1999129 *A Wildfire Tool Out in the Cold: Lack of Awareness and Use of NASA FIRMS Among Wildfire Officials and Diverse Communities:* **N Bransky**, K Grimm, T Sankey, R Mitchell

1966536 *Advancing Community Preparedness to Wildfire through Collaborative Science and Partnerships at NOAA's Climate Program Office:* **L Petes**, M Kopacz, A Mariotti, C Deck, J Mahoney

1998211 *An Adaptable Framework for Assessing Water Quality Impact Potential of Materials in Burned Watersheds:* **J L Ryder**, S Paris, N Barabas, B E Johnson

1989094 *Around the Fire: Integrating a Research-to-Operations / Applications Paradigm into NASA's FireSense Project:* **M Miller**, R A Wade, K Murphy, S Stolze, J K Shuman, PhD, H Raine, J Fowler

1921584 *Automated 2-Meter Resolution Multispectral Mapping of Active Wildfire Flame Location:* **S Meade**, M McCarthy, PhD, A Myers

1983888 *AVIRIS-3 Rapid Response to WUI Fires: A Case Study with the 2025 Eaton Fire:* **R W W Coleman**, M Ward-Baranyay, M Wronkiewicz, F Ochoa, D Sousa, C Parker, D R Thompson, C Elder, G S Okin, K D Chadwick, J Chapman, K R Miner, R Eckert, R O Green, D Jensen, P G Brodrick

2004465 *BurnPro3D: A Data-Driven, Scalable Platform for Prescribed Fire Planning:* **I Altintas**, M Floca, R Linn

1996395 *Deploying Real-Time High-Resolution Fire Intelligence: Results from Urban Sky's Balloon Platform:* **R Reid**, J Leidich, J B Fisher, I Mccubbin, R Stonebreaker, S Davidoff

1878767 *Designing Fuel Treatment Strategies: Optimizing Fuel Connectivity for Wildfire Risk Mitigation in Sierra Nevada:* **T Zhang**, W W Hargrove, K Hall, M Steckler, F Hoffman, J Kumar

1935061 *Effect of Fire Disturbance on Carbon Cycle in Boreal Forest of China:* **T Hu**, X Dou, L Sun

1983739 *Enhancing Fire Behavior Modeling Through Live Fuel Moisture Analysis:* **S Li**, S Sevanto, T Banerjee

- 1986477** *From Perimeters to Probabilities: Advancing Wildfire Spread Forecasting in Alaska with FiRE-HNL*: **J Caraballo-Vega**, T V Loboda, M Carroll, D Chen, A Bredder, A V Rocha, R Badzioch, C Spradlin, P Montesano, M Martinez-Vega
- 1935133** *Geospatial Database Mining for Multi-Resolution Pre and Post-Fire 3D Height Metrics Generation from USGS 3DEP Lidar Data in California*: **K K Kabasares**, T Park, K H Tran, I G Brosnan, S Horner, H Hashimoto, W Yip, P K C
- 1896042** *Improving Wildfire Smoke Forecasts for Air Quality Early Warning Systems*: **H Holmes**, T Wilmot, D V Mallia, K Kelly
- 1986911** *Incorporating Actionable CYGNSS Soil Moisture Information into State-Level Wildfire Risk Prediction Systems*: **I Colwell**, C Chew, D Masters, R Clark, S Purdy
- 1982992** *Integrating Innovative Observations into Coupled Wildfire Models*: **K Hilburn**, J Mandel, A Kochanski, A Oberai, L Nguyen, A Michaelis, D V Mallia, W L Smith Sr
- 1955032** *ISOFire: Very near real-time fire temperature retrieval from airborne spectroscopy*: **W Keely**, P G Brodrick, A Chlus, K Mistick, P E Dennison, D R Thompson, R O Green
- 1978927** *Key Predictors of Wildfire Building Damage - A Data-Driven Approach Across California's WUI*: **S BAR, PhD**, S Li, T Banerjee
- 2002198** *Mapping Vegetation Fuels and Post-Fire Recovery in Santa Barbara County Using Multi-Source Remote Sensing and Machine Learning*: **Y Zhan**, D A Roberts
- 1988937** *Modeling Burn Severity of the Early 2025 Los Angeles County Wildfires with EMIT and ECOSTRESS Pre-Fire Fuels Conditions Using a Random Forest Approach*: **M Ward-Baranyay**, C M Lee, M Pascolini-Campbell, D Sousa
- 1974734** *NASA FireSense – Supporting Proactive Wildfire and Prescribed Fire Management*: **H Raine**, J K Shuman, PhD, J Fowler, R A Wade, M Miller, S Stolze, K Murphy
- 1941518** *NASA's Fire Information for Resource Management System (FIRMS): Advancing Wildland Fire Management Through Real-Time Earth Observation Integration*: **D Davies**, J Hewson, B Quayle, O Olsina, A Radov, L Giglio, D Mendes, J Hall, S Devadiga
- 1905623** *Physics-Based Model with Bayesian Calibration Predicts Foliage Biomass from Single-Scan Terrestrial Lidar in Arizona Shrubland, Woodland, and Forest*: **J Tenny**, T Sankey
- 1962911** *Pilot Study of Mobile X-Band Radar Observations of Smoke Plumes from Prescribed Wildland Fires*: **M Loria-Salazar**, K Eskew, D Schwartzman
- 1878586** *Realtime Imaging Spectrometer Measurements of Active Fires for Fire Operations and Science: Results from the 2025 FireSense Campaigns*: **P E Dennison**, K Mistick, H Bender, P G Brodrick, J Chapman, A Chlus, M L Eastwood, R Eckert, R O Green, M Miller, R A Wade, J Fowler, H Raine, J K Shuman, PhD
- 1972544** *Rethinking Wildland Fire*: **J O'Brien**
- 1974438** *Satellites as critical national assets for monitoring post fire hazards in coastal waters: a demonstration study following the early 2025 Los Angeles Fires*: **I A Callejas**, V Espinoza, C M Lee, M M Gierach, A Lopez, B Holt, C Blackwood
- 1915953** *Self-supervised explainable deep learning to forecast future fire at monthly, seasonal, and annual, landscape scale*: **Y Qiu**, D Roy, H Zhang, H Huang
- 1879508** *Sensitivity Analysis of BurnP3+: Unpacking the Drivers of Probabilistic Wildfire Spread in Complex Landscapes*: **K H Reece**, D Eythorsson, M P Clark
- 1965002** *Species-Specific Biomass and Carbon Stock Estimation Using Integrated Hyperspectral-LiDAR*: **M U Masood**
- 1929557** *Tracking Individual Fire Spread Behavior to Understand Global Fire Risk*: **R Scholten**, Z Becker, Y Chen, S Coffield, M B Follette-Cook, J E Kim, T Liu, T D McCabe, D C Morton, E Orland, J T Randerson
- 1920279** *Tracking Recovery: Temporally-Matched 3D Gaussian Splatting of Ecosystems after Prescribed Burns*: **D Neamati**, G Gao
- 2004764** *Two-Dimensional Dual-Doppler Lidar Wind Observations During Prescribed Stubble Burns in Darfield, New Zealand*: **S Dilworth**, M Katurji, N Devito, C B Clements
- 2002657** *Vineyard Smoke Exposure Assessment: A Web-based Dashboard Utilizing HRRR-Smoke Model*: **B Sams**, M Aboutaleb, N Dokoozlian
- 1995667** *Wildfire Severity Assessment Using Machine Learning Approach*: **P Paudyal**
- 1964566** *A Simple and Efficient Approach to Accelerate Carbon–Nitrogen Spin-Up in the DayCent Model*: **J Arteaga**, M D Hartman, W J Parton, D Sharp, M Chen, W Gao
- 1938724** *Advance in understanding of the changes in the carbon cycle and its linkage to the water cycle during the 2023–2024 El Niño in Amazon region*: **W Zhao**, J Fang, K W Bowman, P Gentine

249258

Advances in land carbon cycle modeling (joint with GC)

Conveners: **Feng Tao**, Tsinghua University; **Bailey Murphy**, University of Wisconsin Madison; **Lifen Jiang**, Northern Arizona University

- 1977915** *Advances in long-term global mapping of leaf photosynthesis for carbon cycle modelling:* **Y Liu**, J M Chen
- 1965033** *Advancing Process-Based Modeling of Wetland Methane Emissions with Data-Driven Parameterization in ELM-Wet:* **J E C Missik**, G Bohrer, T Yazbeck, M Scyphers, E J Ward, J Villa, R Bordelon, D Taj, W J Riley, Q Zhu, B N Sulman, M Borton, K Wrighton
- 1896356** *Advancing the Modeling of Tillage Impacts on Soil Organic Carbon Dynamics in the APEX Framework:* **R Singh**, S K Anand, J Jeong, S Calabrese
- 1976256** *An Open Workflow to Generate Inventories and Scenario-based Projections of Greenhouse Gas Balance Across California's Croplands:* **D LeBauer**, C Black, M Longfritz, R Kooper, M Dietze
- 1918301** *Assessing the Potential Net Warming or Cooling Impacts of Vegetation Change in the Western U.S. Using Climate Models:* **M Patrick**, J Lu, M M Lague, J A Wang
- 1886623** *Bridging Trait Plasticity and Microclimate to Improve Carbon Cycle Modelling in Monsoon-regulated, Heterogeneous Montane Ecosystems:* **A Mishra**, S C Garkoti
- 1948114** *Can Process-Based Models Capture Soil Carbon Dynamics in Data Limited Regions? An Assessment of Model Performance in Sub-Saharan Africa:* **S von Fromm**, R Z Abramoff, C Anuo, S Kwatcho Kengdo, S B Asabere, J Kanyiri, K Nketia, K Rocci, A Mureva, L Zhang
- 1983459** *Deep Learning for Time Series Soil Carbon Prediction and Mapping in Hawai'i:* **A Boettcher**, H Peter-Contesse, S E Crow, S Grunwald
- 1888949** *Divergent responses of land surface models to land-use change and elevated CO₂ exacerbate intrinsic difference in terrestrial carbon turnover:* **D Hyeon**, C E Park, D Kim
- 1893892** *Dryland Litter Decomposition - Photodegradation or Hot Spot Moisture Effects?:* **D E Bloom**, A Bonner, D Moorhead, J Li, H Throop, A Besser, I Torres, S Reed, A Cueva Dr, K Todd-Brown
- 1973737** *Enhancing the DayCent Grazing Sub-model to Simulate Regrowth and Trampling Effects in Managed Grasslands:* **S Susan**, R Miranda
- 1922158** *Enhancing the MEMS Model to Incorporate Pyrogenic Organic Matter Dynamics:* **E Hamilton**, J A Subke, S J Leuthold, M F Cotrufo, Y Zhang
- 1883165** *Faster Soil Carbon Aging with Depth at Higher Elevations in a Subtropical Forest:* **W Li**, J Wang, H Sun, N Wei, L Yan, J Zhang, J Xia
- 1864650** *Global patterns of optimal photosynthetic strategies:* **N G Smith**
- 1889410** *High-Resolution SOC Stock Mapping Using NIR Spectroscopy and Machine Learning: A Robust Baseline for Local Carbon Accounting in Gyeonggi Province, South Korea:* **I Seo**, J Bae, J G Hyun, G Yoo
- 1936066** *How Well Does DifferLand Perform in Retrieving Model Parameters?:* **F Liu**, Y Huang
- 1982644** *Implementing belowground control on nutrient uptake in a land surface model improves representation of a boreal peatland ecosystem:* **Y Wang**, D M Ricciuto, J Mao, S Weber, V G Salmon, X Shi, X Yang, N Griffiths, H Paul, J Warren, C M Iversen, M A Mayes, P E Thornton
- 1953899** *Improved Forecasting of Land and Atmosphere Processes using the Data Assimilation Research Testbed (DART):* **B M Raczka**, X Huo, J C Lin, J Lai, Z Luo, Y Sun, Z Pu, D Xu, M Gharamti, J L Anderson
- 1891775** *Improving Carbon Flux Simulations with CLM5 in the Constructed Riverine Wetland in South Korea:* **H Oh**, J E C Missik, G Bohrer, M Kang, J Park, Y Kim
- 1905222** *Inferred drought-induced plant allocation shifts and their impact on drought legacy at a tropical forest site:* **M Worden**, C A Famiglietti, P A Levine, S Ma, A A Bloom, D Bonal, C Stahl, A G Konings
- 1958082** *Model structures determine the distribution of soil carbon age:* **L Fu**, Z Shi, M Jia, J B Fisher, T Chen, H Ruan
- 1997513** *Modeling Below Ground Land Processes: a Meta Analysis of Land Models:* **A L Gagné Landmann**, D N Huntzinger, B Rogers, C Schaedel, J Wells, J M Poe, H Matthes
- 1938123** *Modeling Ecosystem Carbon Dynamics Under the Influences of Four Global Change Factors: Insights from EcoSIM and a Decadal Experiment:* **L Zhang**, W J Riley, M S Torn, J Tang, J Tao, S Yang, R F Grant, P Reich
- 1941843** *Predicting Ecosystem Respiration under Climate Extremes Requires Varying Parameters:* **C You**, S Chen, J Zhou, C Bian, F Wan, N Wei, X Xia, L Chen, L Yan, J Xia
- 1995747** *Retrieving global canopy chlorophyll content from Sentinel-3 OLCI TOA data using a two-step upscaling method:* **D Li**, K Yu
- 1912655** *Root and Microbial Respiration in Sub-Tropical Forest by Using Trenching Method, Central Nepal:* **B Rai**
- 1871231** *Study on Carbon Metabolism and Storage Mechanisms of Biological Soil Crusts from the Perspective of Carbon-Nitrogen Coupling:* **X Zhou**
- 1896069** *Temperature Dependence of Soil Iron Reduction in Humid Tropical Soils: Weighing Model Complexity, Uncertainty, and Carbon Cycle Interactions:* **S S Tulip**, S Calabrese, S Pérez Castro, A Thompson, J Pett-Ridge

1889441 *Thermal Acclimation of Stem Respiration Implies a Weaker Carbon-climate Feedback:* **H Zhang**, H Wang, I Wright, I C Prentice, S Harrison, N G Smith, A Westerband, L Rowland, P B Reich, T Keenan, L Plavcová, N B Nguyen, H Morris, S Jansen

252342

Advances in Measurements, Synthesis, Analysis and Modeling of Greenhouse Gas Fluxes from Natural Ecosystems (joint with A, GC)

Conveners: **Rafael Stern**, Stanford University; **Robert Jackson**, Stanford University; **Alison Hoyt**, Singapore-MIT Alliance for Research and Technology (SMART); **Sara Knox**, University of British Columbia; **Fa Li**, University of Wisconsin-Madison

1996952 *A Machine Learning Approach for Inferring Methane Fluxes from Vegetation Traits Across Diverse Wetland Types:* **E Kaiser-Veyrat**, B Alvshere, L Haber, K Preisler, C M Gough

1911396 *An Automated Chamber System for Measuring Greenhouse Gas Fluxes in Intermittent Streams:* **O Bongiovi**, X Ying, B Wang, J D Wood, A Argerich

1929464 *Assessing Shifts in Carbon Allocation Over Two Decades in a Mixed Northern Hardwood Forest:* **J Dionis**, A Kotulak, A Contosta, A Ouimette, C Blommel, J Hastings, E Tetreault, V Vandewater, S V Ollinger

1946464 *Biogeochemical Drivers of CO₂, CH₄, and N₂O Emissions from a Tropical Monsoonal Estuary (Cochin, India):* **D S Valliyodan**, G GVM

1845707 *Carbon Budget and Hydrological Regime Interactions in Old Woman Creek Wetland:* **P Pourabedini**, G Bohrer, J E C Missik, Y Onyango, J Villa, A H Sawyer, K Wrighton, S McMurray, J Cianci-Gaskill

1963168 *Chamber versus Tower: A Comparison of Carbon Dioxide and Methane Emissions from Different Landcover Types Within Flux Footprints Using Eddy Covariance and Chamber Techniques:* **C Minions**, J Hung, S Ludwig, Z Dietrich, S Natali

1966377 *Changing Carbon Balances of Mangrove Forests in Southern Florida:* **A Colwell**, E Delaria, C Doughty, G Wolfe

1980874 *Comparing CO₂ and CH₄ fluxes using different chamber sizes in a coastal deltaic floodplain:* **S Lingo**

1892648 *Discovering New Pieces to Help Solve the Old Surface Energy Imbalance Puzzle:* **E Chirpich**, J D Wood, Q D Liu, L Gu, C Wike

1967019 *Uncertainty-aware surface soil organic carbon mapping in agricultural lands:* **N Dubey**, A Norouzi, J R Doppa, K Rajagopalan

1857564 *Using Machine Learning and generative AI to constrain uncertainties in soil organic carbon storage & dynamics predictions:* **U Mishra**

1982679 *Diurnal Dynamics of CO₂ and N₂O Fluxes and their Interrelationship in Conventional and Organic Cotton Systems:* **B F Dogbey**, N Miyanaka, S M U Salehin, N Rajan

1894626 *Effects of Plant Diversity on Wetland Greenhouse Gas Emissions:* **M Holgerson**, M Theus

1989403 *Effects of QA/QC Rules on Gap-Filling Outcomes and Energy, CO₂ Flux Estimates in Eddy Covariance Data from Sites in the Sacramento–San Joaquin Delta of California:* **Y Xie**, R D Pyles, O Guerrero Medina, E C Ware, K Suvocarev, K T Paw U

1979981 *Global 1°×1° CH₄ and N₂O IPCC 2019 Tier 2 Emissions from Cattle on Pasture (2015–2024):* **A Haireti**, V Sagan, D Tesser, A Davitt, L Sridhar, L Betz

1874715 *Global Pre-Industrial Rates of Reactive Soil N Loss from Depth Integrated Soil δ¹⁵N Values:* **R Amundson**, A Abramova, M Chitsaz

1886795 *Greenhouse Gas Emissions from Northeastern USA Tidal Marshes: Insights from Two Years of Field Monitoring and an Ex-situ Sulfate Manipulation Experiment:* **M Norton**, S Moseman-Valtierra, M Stolt

1872444 *Greenhouse gas exchange in Sahelian semi-arid savanna:* **A Wieckowski**, T Tagesson, P Vestin, J Ardö, O Diatta, M Heliasz, T Biermann

1967313 *Hot Moments of Biogeochemical Processes in Aquatic Ecosystems: Real-time In situ Monitoring of CH₄ and N₂O Concentrations and Isotopic Signatures in Estuarine Water and Sediment:* **J H Shorter**, J R Roscioli, E Lunny, F Guo, S D Wankel

2004223 *Identifying Key Biogeochemical Parameters Driving Methane Emissions in Riparian Floodplains:* **K Celis**, E Turk, K Farber, E Paulus, V Noel, K Boye, R Tinnacher, A Kokkinaki, A Bhattacharyya

1978593 *Integrating Mechanistic Modeling and Smart Sensor Data to Characterize Greenhouse Gas Dynamics in Ice-Covered Lakes:* **R Q Wang**, B Amr

1876881 *Mechanistic Modeling of Bioturbation-Driven Greenhouse Gas Fluxes in Coastal Wetlands Using a 3D Reactive Transport Framework:* **Y Huang**

- 1967751** *MidFlux: Integrating ground-to-airborne eddy covariance measurements and airborne-to-satellite remote sensing to assess regional CH₄ dynamics across diverse mid-Atlantic wetlands:* **L Haber**, M M Aguilos, B Alvishere, K D Chadwick, B Cook, E Delaria, J S King, N Gurwick, R Hannun, D C Morton, T L O'Halloran, R Pavlick, B Poulter, M Priddy, C Rey-Sanchez, T M Scanlon, S Serbin, BA, MS, PhD, R Vargas, E Ward, G Wolfe, Q Ying, C M Gough
- 1940977** *Quantifying landcover-specific fluxes over a heterogeneous landscape through coupling UAV-measured mixing ratios with a large-eddy simulation model and Eddy-covariance measurements:* **T Yazbeck**, M Schlutow, A Bolek, N Triches, E Wahl, M Heimann, M Goeckede
- 1897308** *Rethinking soil incubation greenhouse gas monitoring: How the Picarro G2508 coupled with Sage gas autosampler compares against gas chromatography analysis:* **J Bhattacharya**, T Perez, W L Silver
- 1962084** *Saltwater Intrusion Effects on Greenhouse Gas Emissions From Coastal Forest Wetland Soils:* **V Forbes**, C Pell, G W Moore

250678

Advances in Modeling of Terrestrial Ecosystem Carbon and Water Fluxes

Conveners: **Cheng Meng**, University of Oklahoma; **Xiangming Xiao**, University of Oklahoma Norman Campus; **Li Pan**, University of Oklahoma

- 1861146** *Analysis of Climate and Human Drivers of NPP Changes in Florida's Terrestrial Ecosystems from 2001 to 2024:* **Z Hu**, F Yu
- 1900751** *A Spatio-Temporal Deep Learning Approach to Elucidate Drivers of Ecosystem Carbon Fluxes Across Biomes and Timescales:* **N Gollakota**, W Jiao, S Calabrese
- 1991282** *Carbon Balance and Ecosystem Productivity Dynamics across diverse Agricultural Systems in the Indus Basin:* **U W Liaqat**, M Hafeez, M Naveed
- 1929148** *Carbon Flux Monitoring: Comparing Emerging Sensor Networks with Eddy Covariance in a Cropland Ecosystem:* **M J Mullin**, A E Suyker, M J Saunders
- 1925245** *Contextualizing Carbon-Water Relationships Across Virginia's Forested Landscapes:* **L Finks**, D L McLaughlin, B D Strahm, Y Shao, V A Thomas
- 1955093** *Coupling of Nocturnal Water Vapor and CO₂ Uptake in Arid Soils: Comparative Analysis from Three Arid Soils:* **T T Nguyen**, N Bekin, N Agam, E Levintal
- 1954665** *Enhancing the APEX Model for Perennial Vegetation Ecosystem Carbon Fluxes and Storage:* **Z Yan**, C Song, L Ran, C Wang, J Jeong

- 1912946** *Scalable Prediction of Reservoir-Based GHG Emissions Using Satellite Observations and Machine Learning:* **M Seth**, M Ubierna Aparicio, C Diez Santos, E R Patro, PhD
- 1908099** *Soil carbon fluxes from temperate Korean forests during the growing season:* **A Saher**, G Kim, M Ku, Y Son
- 1892019** *Spatial and Temporal Variability of Greenhouse Gas Fluxes Across Vegetation Communities in Korean Riverine Wetlands:* **H Oh**, Y Kwak, Y Min, Y Kim
- 1956572** *Temperature Rise and Variation Impact on Patterns and Drivers of Soil Respiration in Switchgrass Cropland:* **M Gaire**, L Gamage, A Pandey, M Manu, J Li
- 1940046** *Temporal Variability in the Causal Dynamics of Methanogenesis and Methanotrophy in a High-Latitude Fen Peatland:* **S Yang**, J Tang, Z Li, L Zhang, K Yuan, Q Wu, S Hodgkins, R Wilson, Q Zhu, R F Grant, W J Riley, S Saleska, V I Rich, R K Varner, PhD, S Shao
- 1946767** *Unraveling major driving mechanisms for nitrous oxide and methane emission from urban mangroves in SE China: an in situ isotope study:* **Z Niu**, L Yu, Q Wu
- 1927902** *Estimating Half-hourly Terrestrial Ecosystem Carbon Fluxes Using Multi-modal Data and a Hybrid Deep Learning Approach:* **B Fan**, Z Li, H Zhang
- 1921547** *Evaluating C₄ Photosynthesis Representation at NEON Grassland Sites Using the Community Land Model:* **R Hallmark**, D L Lombardozzi
- 1984367** *Hydration-Driven Bryophyte Physiology: Implications for Modeling Terrestrial Carbon and Water Fluxes:* **C Schine**, L Marsala, R Andresen, S Reed, V G Salmon, B N Sulman, P E Thornton, K Coe
- 1973501** *Impacts of Coupling DayCent with the Conjunctive Surface-Subsurface Process Model (CSSP) on Simulated ANPP and ET in the U.S. Great Plains:* **J Arteaga**, D Sharp, M D Hartman, W J Parton, C Sun, M Chen, J Straube, X Z Liang, W Gao
- 1904007** *Improving Representation of Vegetation Response to Drought in Community Land Model (CLM) through Revised Plant Hydraulic Parameterization:* **M Badhan**, J Knighton, G Wang
- 1886260** *Land Carbon Stocks and Fluxes over Africa Enhanced by Assimilating Satellite Leaf Area Index (LAI) and Soil Moisture (SM):* **J Lai**, Z Luo, B M Raczka, Y Luo, F Tao, Y SUN
- 1940724** *Modeling Long-Term Net Ecosystem Exchange Trend Across Global Eddy Covariance Towers with Machine Learning:* **X Wang**, Y Kang
- 1934999** *Monitoring Productivity of Terrestrial Ecosystems Using Hyperspectral Satellite Data:* **S Tuyambaze**, R Wang, J A Gamon, B Wardlow

- 1893791** *Near real-time prediction of the coupled carbon and water cycles:* **P C Stoy**, S Ranjbar, PhD Candidate, D Losos, S Arabi, S Hoffman, Q Huang, A R Desai
- 1885927** *Probing Global Photosynthesis for Climate Mitigation and Food Security: New Insights from Innovative Tracers through Remote Sensing and Earth System Models:* **Y Sun**, J Lai, Z Luo, O Kira, J Wen
- 1945268** *Robust Parameter Estimation in Ecosystem Models Using Genetic Algorithms and Multi-Constraint Inversion:* **D Dutta**
- 1968129** *Scenarios of Sustainable Development in the Brazilian Cerrado:* **M O Hunter**, M Barroso, A S Pinto, M P D Santos, I Nogueira, G Arruda, L G Ferreira, M Cardoso
- 1866654** *Temperature-VPD-Vegetation Cascade Effects Drive the Slowdown in Carbon Sink Enhancement:* **W Zhang**, A Chen

250240

Advances in Remote Sensing and Modeling of Wetlands (joint with GC, GH)

Conveners: **Chenchen Zhang**, University of Oklahoma; **Xinxin Wang**, Fudan University; **Jinwei Dong**, University of Oklahoma Norman Campus; **Xiangming Xiao**, University of Oklahoma Norman Campus; **Shenglai Yin**, Eastern Ecological Science Center, United States Geological Survey

- 1962562** *A discerned hierarchy of environmental conditions driving restored wetland carbon assimilation using multi-sensor remote sensing:* **E T Romero**, C Rey-Sanchez, C Gerlein-Safdi, D D Baldocchi, P Lee, I Dronova
- 2001799** *A Time-Series Approach to Forecasting Land Area Dynamics in the Mississippi River Delta:* **B Awasthi**, X Meng, T Gentimis, M K C
- 1956532** *Aboveground Biomass Modelling in Salt and Brackish Marshes Using Multi-Modal Remote Sensing and Ensemble Machine Learning:* **X Yan**, L Sutter, K Runion, A Julien, R Sharma, P Hawman, D R Mishra
- 1924304** *Are Taquari River Basin wetlands under threat?:* **T Silva**, V Martins, F B Justino
- 1961514** *Assessing Freshwater Vegetation Responses to Acute Saltwater Intrusion Events Using UAV Multispectral Imagery and Greenhouse Gas Fluxes:* **M Moore**, D Taj, J Villa
- 1911855** *Bridging Process-Based and Data-Driven Models to Map Wetland Inundation and Methane Fluxes in North Carolina's Coastal Plain:* **J N Abrahamson**, J Gray
- 2003144** *Classifying Storm Surges Along the Louisiana Coast Using a Machine Learning Approach:* **J Villa**, F Okunbor

- 1971789** *Tree rings Show Global CO₂-driven Rise in Leaf Photosynthesis and Increased Stomatal Regulation Since 1901:* **M Haagsma**, C J Still, L R Hawkins, S P Good, A L S Swann, B Buchovecky, A Liu, G J Kooperman, A Cornish, C Zarakas, C Koven, J T Randerson, S Voelker
- 1981493** *Underestimation of Vegetation Productivity by Global GPP Products in Southwest China:* **X She**, Y Wang, Y Li
- 1966317** *Upscaling terrestrial carbon flux responses to drought using remote sensing and machine learning in the Great Plains of the USA:* **R L Ray**, G Tefera
- 1856888** *Vegetation Photosynthesis and Ecosystem Respiration Model (v2.0): A satellite-based model for quantifying biosphere-atmosphere exchange fluxes of carbon dioxide:* **C Meng**, X Xiao
- 1908949** *Water Use Efficiency in Arid Ecosystems of Northern Coast of Egypt:* **A Hotaiba**, B Salem, M Halmy
- 1953064** *Developing a Coastal Observatory for Integrated Global Coastal Information and Decision Support with NASA datasets:* **T Fatoyinbo**, M Simard
- 1854654** *Developing a Multimodal AI Framework for Wetlands Mapping with Multi-Sensor Earth Observation Data:* **K Fatima**, R Parker
- 1971992** *Drought Impacts to Vegetation of Louisiana Forested Wetlands:* **O Otenburg**, T Nguyen, E White Jr
- 1995764** *Evaluating the contribution of wetland ecosystems to carbon storage in a dryland landscape using a data fusion model:* **E NatiJohnson**, J Brandt, T T Caughlin
- 1920221** *Examination of Satellite Data Analysis Methodologies for Detection and Monitoring of Alternanthera philoxeroides:* **K Shinohara**
- 1867549** *GEOSTATISTICAL INSIGHTS INTO WETLAND-CATCHMENT DYNAMICS: A HYDROLOGICAL AND LANDSCAPE CONNECTIVITY ANALYSIS OF THE BHOJ WETLAND, INDIA:* **M Rawat**, A K Gupta, B Yadav, P K Gupta
- 1903539** *High-Resolution Inland Wetland Vegetation Classification with a Foundational CNN Framework Using WorldView-2:* **F Benzi**, C Zhang
- 1878970** *Integrating Google Earth Engine for near-real-time monitoring of giant salvinia (Salvinia molesta) in wetlands:* **V Ayala**, D Kinsler, I Grijalva, R Diaz
- 1937838** *Integrating Sentinel-1 and Sentinel-2 Imagery to Map Wetlands in Alaska:* **C Li**
- 1876953** *Low-Latency Global Freshwater Wetland Methane Flux (2000-2025):* **M Li**, R B Jackson
- 1929022** *Machine Learning Reveals Environmental Drivers of Distinct Floodplain Natural Communities in Floodplain Ecosystems:* **I U Haq**, K Underwood, R M Diehl, E M B Doran

- 1990364** *Mapping Temporal Dynamics of Wetland Change in Colombia's Caribbean Region:* **V Sarmiento**, V Gutierrez-Velez
- 1987141** *Microtopographic Change of a Peat Bog Surface Detected by Multitemporal Observations Using a UAV-boarded LiDAR:* **T Machimura**, S Sugita, S Tsuyuzaki, S Hotes
- 1887357** *Muted Global Changes Despite Large Regional Responses: The Contrasting Future Trajectories of Inundated and Saturated Wetlands:* **D Xu**, Z Tan, E Fluet-Chouinard, G Bisht, D Hao, D Feng, T Zhou, H Y Li, L R Leung
- 1976042** *Peatland Plant Functional Groups Exhibit Distinct Seasonal Dynamics in Sun-Induced Fluorescence and Reflectance During Low Precipitation Periods:* **M Antala**, S Wang, M Strozecki, R Juszczak, A Rastogi

251906

Advances in Remote Sensing for Fire Detection, Monitoring, and Characterization

Conveners: **Kyle Story**, Muon Space; **Catherine Olkin**, Muon Space; **Ilkay Altintas**, University of California San Diego; **Jacquelyn Shuman**, NASA Ames Research Center; **Kat Jensen**, Muon Space

- 1873379** *Airborne and spaceborne observations for optimal fire characterization:* **C M Ichoku**, L Ellison, D A Peterson, R Dominguez, J K Shuman, PhD, E Hildum
- 1857943** *A Multidimensional Framework for Identifying Extreme Fire Seasons Using Satellite-Derived Metrics in the Western United States:* **R Li**, X Zhang, F Li, A Shuai, Y Ye, S Kondragunta
- 1965182** *Advancing Hotspot Detection from Space: Early Results from FireSat Protoflight:* **K Jensen**, C Olkin, K Story, C Melancon, T Dittmann, C Spradlin
- 1975239** *An Ensemble Version of Fire Potential Index (eFPI) Integrating Seasonal Variability in Sub-pixel Fuel Composition:* **T Feng**, D A Roberts, M Moritz, Y Zhan, A Murray
- 1960152** *Automated Active Fire Perimeters and Fire Progression: Tracking and Detecting Wildfire at an Operational Scale:* **A DeCastro**, C Olkin, K Story, C Melancon, K Jensen, C Spradlin, T Dittmann
- 2003172** *Can GOES-17 Detect Wildfires Faster Than People?:* **D King**, N R Pavlovic
- 1968451** *Characterizing the Global Diversity of Fires with FireSat0: Implications for Emergency Response:* **C Spradlin**, C Melancon, K Story, C Olkin, K Jensen, T Dittmann

- 1847190** *Reassessing Global Mangrove Dynamics: From Net Loss Narratives to Emerging Recovery and Structural Change:* **Z Zhang**, D Friess
- 1903271** *Seasonal wetlands mapping using CYGNSS and Sentinel-1 data:* **C Ding**, H You, M Chen
- 1863411** *Surface Water Trends and Variations in Protected Areas in Northeast Asia:* **C Zhang**, X Xiao, X Wang, C Meng, Y Qin, Y Yao, L Pan, B Pan, J Dong
- 1914932** *Water Depth and Hydroperiod Control Everglades Tree-Island Change: Evidence from 50 Years of Landsat Remote Sensing and Machine Learning Classification:* **N Appiah**, S Goldberg
- 1871405** *Data Mining Multi-Source Satellite Observations to Reveal Fire-Prone Environmental Conditions on a Global Scale:* **T N D Tran**, B Q Nguyen, S K Do, S Marshall, S Kantosh, V Lakshmi
- 1865874** *Deciphering Forest Canopy Complexity: Unsupervised Remote Sensing Analysis in Minnesota:* **N Salehnia**, P Wolter, B Sturtevant, D Abbas Iossifov
- 1873776** *Detection of Burnt Areas Using a Dual-Polarimetric SAR Approach: Insights from the May 2022 Wildfire on Stromboli Island, Italy:* **M Polcari**, E Ferrentino, G Esposito, C Bignami
- 1940451** *Enhancing VIIRS Fire Detection Accuracy: Differentiating Static Heat Sources from Vegetation Fires Using Persistence, Proximity, and Machine Learning:* **B Hernandez**, Y Chen, R Scholten, W Schroeder, S Coffield, D C Morton, J T Randerson
- 1860784** *Evaluating the Isolation Forest Algorithm for Detecting Anomalous Fire Disturbances in Tropical Forests:* **S Poudel**, R Parker, H Balzter, T L Quaife, D I Kelley
- 1969986** *FireSat's Quickbeam Instrument: Calibration and Validation:* **C Olkin**, J Haag, K Story, C Spradlin, M Bordenave, M Hoffman, S Maxwell, T Dittmann
- 1978431** *From Satellite Observations to Operational Response and Ecosystem Impact: Measuring Fire Radiative Power from the FireSat Mission:* **K Story**, C Olkin, C Melancon, K Jensen, T Dittmann, C Spradlin
- 1971854** *Fuel Type Influences the Relationship Between Fire Radiative Power and Carbon Emissions in Fires Observed by MASTER During FIREX-AQ:* **E Gargulinski**, A J Soja, S Kondragunta, C Xu
- 1996933** *Increasing Burned Area and Shifting Fire Size Contributions in Global Forests (1984–2022):* **J He**, W Zhang, Q Duan, X Zou, R Liu, Y Liu

- 1895427** *Low Cost, Light Weight, High Altitude Glider Flocks for Rapid Recon, Dataset Prospecting, and Enhancing High Value Asset Planning:* **M Vergalla**
- 1973451** *Mapping Vegetation Fuel Properties Using EMIT Hyperspectral Time Series and PROSAIL for Wildfire Risk Assessment:* **N Carmon**, N B Nur, D R Thompson, P G Brodrick, C M Bachmann, R O Green
- 1974316** *Per-Pixel Wildfire Temperature Regression from Monocular RGB Imagery via Knowledge Distillation:* **M Habibpour**, M Marinaccio, F Afghah, M Hamid Raha, A Tavakkoli
- 1868708** *Shortwave infrared slope as a saturation-resistant method for estimating flaming combustion:* **K Mistick**, P E Dennison
- 1985109** *Spatiotemporal Monitoring of Wildfire Impact on Forest Vegetation and Recovery Using Multispectral and SAR Remote Sensing in Uttarakhand, India.:* **P Patidar**, N Khandelwal
- 1879662** *Strong and rapid post-fire recovery of vegetation productivity in Australia:* **L Pan**, X Xiao
- 1981082** *Systematic filtering of VIIRS 375 m global active fire product for vegetation fire detection in the United States:* **A Throne**, A Hoffman-Hall

250437

Advances in Understanding and Predicting Forest Demography and Carbon in a Changing World (cosponsored by ESA: Ecological Society of America) (joint with GC)

Conveners: Kelly Heilman, Oak Ridge Associated Universities Inc; **Jennifer Kowalczyk**, Brown University; **Margaret Evans**, University of Arizona

- 1915075** *Assessing Ecosystem Carbon Balance Across Afforestation sites in the Southeastern U.S.:* **J Liang**, C M Siegert, A Himes, K Poudel, H J Renninger
- 1880628** *Assessing the Role of Post-Disturbance Recovery in 21st-Century Boreal Forest Vegetation and Carbon Dynamics Using a Dynamic Vegetation Model:* **L Layritz**, M Anand, J E Kim, K Gregor, B M Meyer, S Kruse, A Krause, A Buras, T Pugh, C Boettiger, A Rammig
- 1923944** *Beyond Biomass: Integrating Stocks and Fluxes to Advance Forest Carbon Quantification:* **M Barnes**, M P Dannenberg, S Kannenberg, F Wang, X Yang, D P Beverly, K A Novick
- 1986692** *Calibration of the Individual-based Forest Landscape and Disturbance Model (iLand) for Forests of the Southern Rockies:* **M Johnston**, S W Flake, K Brazianas, W Hansen

- 1981361** *The Fastest-growing and Most Destructive Fires in the US (2001 to 2020):* **J Balch**, V Iglesias, A Mahood, M Cook, C H Amaral, A DeCastro, S Leyk, T McIntosh, R C Nagy, L St Denis, T Tuff, E Verleye, P Williams, C Kolden
- 1967998** *The FireSat Mission: An Innovative Advancement for Operational Space-based Wildfire Insight:* **T T Dittmann**, C Olkin, K Story, C Melancon, K Jensen, C Spradlin, D McCleese
- 1851185** *Towards a Global Wildfire Prediction Model: Integrating Precipitation and Soil Moisture from Remote Sensing:* **E Valeanu**, K Y Kim, V Lakshmi, B Fang, T N D Tran
- 1965568** *Towards Wildfire Detection and Characterization using a Laser Heterodyne Radiometer (LHR) Sensor for Potassium Radiative Emissions:* **E McCaughey**, J H Miller
- 1960625** *Tracking and Assessing Accuracy of Fire Locations from a Southwest Idaho Rangeland Fire Using Infrason:* **M Hunt**, J Anderson
- 1980449** *WildFireSat : Updates on the Operational Wildfire Monitoring Mission:* **D Dufour**, J M Johnston, A Cantin, C B McFayden, M A Crowley, M C de Jong, D K Thompson, E Allaire, M A Claveau, I Jean, G Marcotte, C Vester, M Robichaud, O Djazovski
- 1924586** *Determining the conflicting impacts of tropical cyclones winds and precipitation on tree growth and carbon storage.:* **A Ezzati**, J T Maxwell, G L Harley, M Karvarinasab, J C Bregy, S Robeson, J Altman
- 1853793** *Estimating recent trends in forest carbon across the Western US by fusing forest inventory and disturbance data:* **C Zarakas**, G Badgley, M Goulden, J T Randerson
- 1910189** *Estimating Regional-Scale Carbon Stocks with Remote Sensing: Integrating Individual Tree-Level and Area-Based Biomass Metrics:* **D KIM**, S Lee, G Jekal, Y Kim, J Ro, H Kim, Y Song
- 1902444** *Impact of LiDAR Data Systems on Gross Primary Productivity (GPP) Estimates in Southern Forests with the Ecosystem Demography Model:* **K Brock**, I Bueno, M Longo, C Klauberg, J Vogel, A Ivory II, C A Silva
- 1986885** *Impacts of Hemlock Decline Due to Hemlock Woolly Adelgid on Soil Carbon Pools:* **P Tansey**, S Van Hise, B Murphy, M W Palace, A Barker Plotkin, A Contosta
- 1986867** *Importance of Multiscale Benchmarking for the FATES Vegetation Demography Model: Seeing the Forest and the Trees:* **J Kowalczyk**, M Longo, C Koven, J Needham, R Knox, N Carroll, G Pastorello, H Zhang-Zheng, Y Malhi, J Chambers

- 1954534** *Improving Forest Carbon Accounting in Economic Models: Updating GTAP Land Cover with Recent Remote Sensing Products*: **Y Yuan**, F Taheripour, U L C Baldos, S Chen, Q Zhuang
- 1937702** *Mapping Secondary Forest Age Annually at 30-Meter Resolution Across the Contiguous United States*: **N Chen**, S Wang
- 1924302** *Modeling Forest Demography to Improve Carbon Estimation and Additionality Under Nature-Based Solutions*: **J A Holm**, S Shu, J Needham, C Koven
- 1935787** *Patterns of Tree Mortality in the Amazon: Unraveling the Role of Climate Variability and Extreme Events*: **M Hari**, R Dalagnol, F Wagner, Y Yang, P Ciais, S Saatchi
- 1879016** *Predicting the Spatio-temporal Dynamics of Forest Responses to Changing Wildfire Regimes*: **L Chang**, S Liu, A S Antonarakis, M Longo, H Tang, J D Armston, R Dubayah, P R Moorcroft
- 1952136** *Remotely sensed Amazon forest Biogeography of drought response reveals drivers of forest mortality and carbon sink dynamics*: **S R Saleska**, S Chen, L A Cuartas, B W Nelson, A D Nobre, N Restrepo-Coupe, J Schiette, S C Stark, J Tavares, PhD, C Terror

251290

Advances in Understanding Water-Energy-Carbon Interactions (joint with GC, H)

Conveners: Justin Mankin, Columbia University of New York; Yanlan Liu, Ohio State University Main Campus; Dan Gianotti, Boston University; Flavio Lehner, Cornell University; Xiangtao Xu, Cornell University

- 1917164** *Observation-Driven Framework for Large-Scale Mapping of Land Water, Energy, and Carbon Fluxes*: **A Mahmood**, L Farhadi
- 1902429** *Advancing Understanding of Land-Atmosphere Interactions Using Soil Moisture Energy Spectra*: **M Bassiouni**, L R Hawkins, I Simpson
- 1910562** *An inter-seasonal analysis of abiotic factors involved in the surface and subsurface fluxes of CO₂ in a desert soil*: **N Bekin**, T T Nguyen, D Kool, E Levintal, N Agam
- 1947776** *Competing Influences on Evapotranspiration Modulate Vegetation-Hydroclimate Impacts in Earth System Models*: **G J Kooperman**, A Cornish, A Cordak, A L S Swann, C Zarakas, C Koven, C B Skinner, A Grundstein
- 1897128** *Constraining global canopy temperatures: implications for the water, energy and carbon cycles*: **J K Green**, T Keenan, D J Moore, X Lian
- 1923386** *Decoupling water resources and vegetation productivity in mid-latitude drylands*: **Z Shen**, J K Green, S Valencia, D J Moore

- 1878352** *The PEA_n+SIPNET Terrestrial Carbon Cycle Reanalysis of North America: Development and Validation*: **M Dietze**, D Zhang, Q Li, C Boma, C Finkeldei, S Serbin, BA, MS, PhD, Y Gu, C Webb, J Huggins, J M Zobitz, M Lai, S Ramachandran, A Roberts
- 1963294** *The role of forest demography on the land carbon sink*: **C A Quinn**, T Colligan, B Gay, Q Ying, E Ward, S Serbin, BA, MS, PhD, B Poulter
- 1979149** *Threading the Needle through Multi-year Forest Inventory Intervals: Advancing Forest Carbon Estimation with forestTIME Annualized Interpolation*: **D Steinberg**, E Scott, R Diaz, K Heilman, B F Walters, G M Domke, M Evans
- 1907572** *Understanding the role of flow-structure interactions on tree failure*: **J Webb**, K Sabnis
- 1868190** *Using dendrometer data to inform future land model projections of European tree growth and carbon storage*: **B Clark**, D Visioni, S Kothari, M T Lerdau
- 1910112** *DifferBESS: Uncovering the Role of Canopy Temperature in Ecosystem Carbon and Water Fluxes Using a Hybrid Modeling Approach*: **J Fang**, Y Ryu, H Zhang, S Jeong, W Zhan, X Lian, Y Li, J Han, P Gentile
- 2000746** *Does ecosystem productivity have an optimum temperature?:* **L Vargas Zeppetello**
- 1963476** *Dual Controls of Moisture and Diffuse Light on Subalpine Canopy Gas Exchange*: **B Kamplain**, B Rastogi, P Blanken, J D Wood
- 1971902** *Ecophysiological Traits Drives Divergent Grassland Responses to Soil and Atmospheric Dryness*: **M R Alizadeh**, D Gianotti, J F Adamowski, A G Konings, D Entekhabi
- 1845767** *Freshwater acidification monitoring and environmental stewardship in Thunder bay national marine sanctuary*: **L Acevedo**
- 1880596** *Global vegetation sensitivity to past precipitation rivals that to recent precipitation*: **M Zhao**, G A, L E Hoeltgebaum
- 2001372** *Improving Surface Energy Flux Simulations with Remote Sensing Data Assimilation and Irrigation Representation*: **F Wu**, K J Davis, P Lawston Parker, Y Jiang
- 1957121** *Interactive Effects of Long-Term Warming and Drought on the Metabolic Responses of Stream Biofilm Communities*: **A Schreiber**, A J Shogren, J Todd, N Keck, M Berwick, K Khamis, M Ledger, A Huryn, J Benstead, W Cross

- 1852919** *Irreversibility of the Hydrological Cycle in the Amazon Basin in Response to CO₂ Removal:* **J Hsu**, J Kim, S I An, M H Lo
- 1932437** *Key Dimensionless Controls on Long-term Soil Heterotrophic Respiration:* **S K Anand**, R M Silva Souza, A O P Jha, A G Hunt, S Calabrese
- 1960156** *Modeling Plant Water Stress Thresholds: Insights from CABLE-POP_Hydraulic across Diverse Soils:* **Z Lu**
- 1902561** *The Impact of Recent Sub-Diurnal Asymmetric Warming on Atmospheric Dryness and Terrestrial Ecosystem Productivity:* **Z Zhong**, H Chen

251066

Advancing Agricultural and Ecosystem Science with Imaging Spectroscopy (joint with GC, IN)

Conveners: **Peng Fu**, Louisiana State University; **Shawn Serbin**, Brookhaven National Laboratory; **Carl Bernacchi**, Global Change and Photosynthesis Research Unit, Agricultural Research Service, USDA

- 1970625** *It's Complicated: How Landscape and Management Impact the Relationship Between Spectral Reflectance and Plant Diversity in the Nebraska Sandhills:* **C Chan**, J A Gamon, D Uden, R Wang
- 1995222** *Toward Improved Hyperspectral Data Fusion: from Precise Pixel Alignment to Enhanced Hypersharping of UAS-based Sensors:* **A Hassanzadeh**, J Macalintal, D Messinger
- 1932896** *Adaptive endmember extraction in hyperspectral fractional cover mapping:* **Z Ye**, T Zheng, P A Townsend
- 1867877** *Advancing Crop Monitoring and Nutrient Estimation through Unmanned Aerial Vehicle (UAV) and Satellite Remote Sensing Data Fusion:* **G Birru**, A Zoller, M R Schmer, V Jin, A S Freidenreich, T P Kharel, D Joshi, T Tsegaye, Z Mersha
- 1999613** *Advancing SIPNET for Managed Ecosystems: Incorporating Agronomic Events, Nitrogen Cycling, and Greenhouse Gas Fluxes into a Modular, Open Source Biogeochemical Model:* **M Longfritz**, C Black, M Dietze, J M Zobitz, R Kooper, D LeBauer
- 1962996** *Advancing SOC Prediction Using Fractional Derivatives and Spectral Simulation: A Comparative Study of Hyperspectral and Simulated Multispectral Data:* **M Khorram**, S Kumar, D Sanyal
- 1938913** *Assessment of Flooding Stress of Soybean through Imaging of LED-induced Chlorophyll Fluorescence:* **S Kong**, S Choi, H Kimm
- 1938491** *Comparative assessment of planar density and stereoscopic density for estimating grassland aboveground fresh biomass across growing season:* **C Xu**, D Zhao

- 1952185** *Two-leaf scheme optimizes stomatal slope parameter estimation for enhanced carbon and water flux modeling:* **R Wang**, J M Chen, J Cao
- 1865782** *Understanding Soil Moisture Invariance to the Stomatal Response to CO₂:* **K A McColl**, T Gallagher
- 1908138** *Unveiling Global Ecosystem Water Limitation through Thermodynamic Energy Metrics and CO₂ Physiological Responses:* **J Xu**, Y Fan, K A McColl, A M Berg, Y Liang, J Yang
- 1899263** *Using Simple Mathematical Models to Link Rainfall and Decomposition:* **J Yu**, C F Harvey
- 1911506** *Enhancing Transferability of Soil Property Estimation Using Multi-Source Spectra and Robust Preprocessing:* **E T L**, D Dutta
- 1895969** *Estimating Photosynthetic Traits in Populus deltoides and its Hybrids Using UAV-Based Hyperspectral Imaging and Machine Learning:* **B Paudel**, H J Renninger, K Poudel, J Du, R Bhattarai
- 1867733** *High Throughput Monitoring of Synergistic Effects Among Phosphate Deficiency, Arbuscular Mycorrhizal Symbiosis, and Drought in Soybean:* **C Chang**, M A Hassan, R Kibbe, D Muddiman
- 1972063** *How Well Can Satellite Sensors Estimate Photosynthetic Capacities? A Spectral Library-Based Evaluation:* **P Fu**
- 1908464** *Mapping Tree Species Diversity in Kenyan Montane Rainforest Remnants Using Airborne Hyperspectral Data and Unsupervised Clustering:* **I Vuorinne**, J Heiskanen, H Adhikari, I Ocholla, C Wekesa, P Nygren, P Pellikka
- 1979375** *Measurement of Feedlot Ammonia Emissions via Random Forest Regression on Spectral Data and Spectral Matched Filter:* **G Hoving**
- 1932826** *Multi-Seasonal Disease Monitoring in Potatoes Using Airborne Imaging Spectroscopy:* **O H Y Lam**, A J Gevens, S Jordan, B Heberlein, W B Hills, P A Townsend
- 1918561** *PACE Terrestrial Products – A New View of Ecosystem Distributions, Phenology, and Function:* **K F Huemrich**, P K E Campbell, S Caplan, R Wang, J A Gamon, S Serbin, BA, MS, PhD
- 1995146** *Scaling plant functional traits with hyperspectral remote sensing: linking physiology, genotype, and environment:* **T Magney**, C Wong, R Ray, J Lyons, T Buckley, M Klein, J Maloor, G Monroe, B Quarles, J Schmitt, G Taylor
- 1963108** *Status and Updates from the EMIT Imaging Spectrometer Mission on the International Space Station:* **D R Thompson**, R O Green, U Bohn, E Brageot, P G Brodrick, D Chadwick, R W W Coleman, E Greenberg, M Kiper, J Lee, E Greenberg, C Ung

248008

Advancing Agricultural Estimation and Prediction through Data Assimilation

Conveners: Meijian Yang, Columbia University; Alexander Ruane, NASA Goddard Institute for Space Studies; Danyang Yu, Cornell University; Zhenqi Luo, Cornell University

- 1938758** *A Data-Driven Detailed Analysis of Determinants of Cropping Pattern Variation in Maharashtra Using Panel Data Regression Modeling:* **R. Shinde**, P D Udmale
- 1905364** *A Hybrid Forecast-Based Irrigation Scheduling Framework: Merging Weather Forecasts with Data-Driven Approaches:* **S Saminathan**, S Mitra, F C Varghese
- 2000385** *Assessing Crop and Soil Specific Irrigation Requirements and Climate Change Impacts on Agro-environmental Variables Using a Machine Learning Framework:* **R. Sarkar**, B Deegala, S Gurau, K Kularathna, D Wilson, R Jackson, G Tefera, O Akenzua, R Ray
- 1950857** *Assessing Economic Stability Through Validated Spatiotemporal Yield Maps Across Crop Rotations:* **J Rathore**, M Gardezi, O Walsh, A Dadkhah, D Joshi, D Rizzo
- 1863546** *Assessment of the Impact of Rainfall Variability on Maize Yields in Semi-Arid Kenya: Insights from Stochastic Weather Generation and Crop Modeling:* **M Odhiambo**, J Tuure, A Mahmud, J Heiskanen, P S A Mäkelä, L Alakukku, S Wachiye, M Räsänen, P Pellikka
-

251955

Advancing biogeochemical cycle modeling with artificial intelligence (AI): Bridging data-driven methods and process-based approaches (joint with GC, IN)

Conveners: Yang Song, Oak Ridge National Laboratory; Umakant Mishra, Joint BioEnergy Institute; Forrest Hoffman, Computational Earth Sciences Group and Climate Change Science Institute

- 1898023** *A Microbially-Enabled E3SM Land Model Reveals Contrasting Seasonal Responses of ecosystem respiration Across NEON Grassland Sites:* **C G Jung**, S Gautam, U Mishra
- 1941492** *A Process-Guided Machine Learning Approach Improves Stomatal Conductance Prediction and Reveals Its Dynamic Association With Photosynthesis:* **H Li**, G Zhao, W Xie, R Olson, K Yoshimura
- 1979183** *AI-based spinup for the land component of an Earth system model:* **P E Thornton**, D Wang, D M Ricciuto, X Yang

1884245 *Assimilating Remote Sensing-based LAI into the DSSAT Model Using Reinforcement Learning for Maize Yield Prediction:* **U Janjua**, M Maimaitijiang, K Osterloh Dr

1858177 *CrYP: An open-source Google Earth Engine tool for spatially explicit crop yield predictions:* **L Crecco**, S Bajocco, S Bregaglio

1998279 *Improved Water and Carbon Fluxes in Land Surface Modelling through Multi-Source Data Assimilation:* **H Zhao**, H J Hendricks Franssen

1870833 *Integrating SIF-based photosynthesis model with stomatal conductance and energy balance:* **S Beegum, PhD**, D Fleisher, D Timlin, V Reddy, C Ray, Y SUN, C Chang

1860979 *Multi-modal Data Assimilation with Agroecosystem Digital Twins:* **Z Jin**, B Qian, J Zhou

1885505 *Optimizing Satellite-Based Cropland Monitoring Through Integrated Accuracy Assessment and Sampling Design: A Multi-Country African Case Study:* **C L Nakalembe**, A D Adebayo, S Skakun, D B Frimpong, A Ginsburg, Y H Gadhiya, H R Kerner, M Adjei

1940004 *Predictive power of models for identifying the impact of Irrigation on winter wheat yield in Afghanistan.:* **B Das**, F Davenport IV, PhD, S Shukla, D Lee, L Harrison, S Peterson, G J Husak, C C Funk, K M Tabor, M E Budde

1849541 *Reinforcement Learning for Precision Irrigation Using UAV-Derived Data and Physics-Guided Crop Models:* **M Murad**, S Martinez, J Carmona, J Moyers, S Velazquez

1938902 *An Artificial Intelligence-based emulator for western US crop productivity and evapotranspiration in land surface and water resource models: The upper Colorado River basin as a testing case:* **H Zhang**, T Hu, P Neri, Y Song

1941133 *Assessing the Implication of Mineral Adsorption for Soil Carbon Stock and Emissions Across the CONUS: an integrated A.I. and process-based parameterization.:* **S Wilson**, Y Song

1912682 *DeepCarbon: A Global Data Product of Upscaled Carbon Fluxes from Knowledge-Guided Deep Learning Models:* **A Rozanov**, V Kumar, A Renganathan

1872562 *Digital Twins to Enhance Model-Experiment (ModEx) Integration:* **Y Luo**, J Zhou, N Wei

1980396 *Experimental-data-informed, AI/ML-enabled framework for evaluation and development of land carbon cycle in Earth system models:* **Z Shi**, Y Zhang, F M Hoffman, J Zhou

1986382 *Machine Learning-Enhanced Vegetation Demography and High-Resolution Earth System Modeling*: **L Li, PhD**, Y Fang, G Bisht, P Jiang, P Shi, H Tran, M Shi, Z Hou, Z Zheng, M Longo, J Holm, R Fisher, J Q Chambers, C Koven, N McDowell, R Leung

1976498 *Stage-Specific Biogeochemical Controls on Soil Respiration in Cotton: Insights from Machine Learning and Explainable AI*: **J Yang**, J Hu, C Daniel McCraine, J Czarnecki

247758

Advancing Community-Driven Nature-Based Climate Solutions (joint with A, GC, SY)

Conveners: Kristina Bartowitz, University of Idaho; **Eric Walsh**, University of Idaho; **Laura Laumatia**, Coeur d'Alene Tribe; **Danielle Ignace**, University of Minnesota Twin Cities; **Tyler Opp**, Coeur d'Alene Tribe

2000278 *Addressing carbon emissions through landscape-level land restoration*: **L Laumatia**

1854798 *Climate-smart legume-grass system can improve net soil organic carbon (SOC), productivity by reducing greenhouse gas emission*: **A Arshad**

1916683 *Efficacy of Climate-Smart Land Management Practices on Reducing Greenhouse Gas Emissions*: **J Smith**, T W Hudiburg, K Bartowitz, D Berardi, J Parks, E Walsh, A Ballantyne, L Lynch, K Haltinner, L Laumatia, D Baumann, N Koenig, A Maas

1998824 *Enabling Local Governments: Policy and Spatial Solutions for Nature-Based Carbon Sinks*: **S Myeong**

1881632 *FireSmart-Bioenergy Nexus in remote and off-grid communities in Canada*: **N Mansuy**

1954985 *Forests as a Nature-based Climate Solution: The Role of Forest Certification in Forest Sector Resilience and Carbon Stewardship*: **G Cooper**, L Cooper

1989739 *From Muddy Fields To Clear Solutions: Testing Biochar As A Nature-Based Approach To Reducing Greenhouse Gas Emissions In Flood-Prone Agricultural Fields*: **C Gibson**, T Becker, D Gucker, L Dallas, F Rademacher, E Rademacher

1998619 *How the Carbon Balance of an Intensively Grazed Pasture is Sensitive to Climate*: **C Hicks Pries**, E Lane, A Ouimette, R Ruzol, D Hollinger

1952207 *Weaker CMIP6 Carbon Sink Projections and Enhanced Confidence Level Constrained by Artificial Intelligence*: **Z WU**, Q Zhu, J D Albertson, W Sun, C Terrer, T Cambron, R Norby, W K Smith, F Lehner, J Wen, Y Luo, F Tao, N Wei, P Ma, A Walker, X Luo, J Fan, C Gomes, Y Sun

1845380 *Implementing Potential Climate-smart Practices Through Diverse Partnerships*: **K Bartowitz**, J Mathias, E Walsh, L Lynch, S Krantz, C Arthaud, T W Hudiburg

1901829 *Innovation Meets Land Stewardship: Advancing Climate-smart Solutions and Economic Opportunity in the Inland Northwest*: **E Walsh**, K Bartowitz, T W Hudiburg

1920834 *Investigating historical land use impacts on vegetation and salmon communities in Coos Bay to inform Pacific Northwest estuarine restoration through biogeochemical and eDNA analyses*: **A Minu-Sepehr**, K Podkovyoff Lewis, A Rizzo, A Drummond, K Poppe, K Adair, A Cordes, J Younker, L Aoki, B Bohannon, S D Bridgham, L Silva

1878936 *Investigating the Use of Diverse, Deep-rooted Grasses in Orchard Alleys to Increase Carbon Sequestration*: **K Postma**, D Afton, J K Wilson

1967562 *Monitoring Tree Planting Progress with Aerial Imagery and AI-Assisted New Tree Detection to Support Maryland's Five Million Trees Initiative*: **Q Shen**, G C Hurtt, Y Xie, L Ma, J Chapman, V Phan, W Sha, R L Lamb, F M S Panday

1957989 *Nature-Based Solutions for Strengthening Urban Flood and Drainage Management for the Coastal Cities in Bangladesh*: **A S Islam**, G T Islam, M A Hussain, M M Winey, Z Tasnim, F I Mou, K M A Rahaman, S Ravela

1970279 *Partnering with Appalachian farmers to diversify and manage pastures for increased soil carbon*: **K Close Reed**, J Kane, R Schartiger, A Martin, C Dang, K Guthrie, J Kotcon, E Morrissey

1998168 *Reimagining Tribal Forest Management Plans to Enhance Climate Resilience*: **D Ignace**, L Laumatia, A James, J Steele

2003812 *Tribal and local community adaptations and land-management changes under a changing climate*: **N Koenig**

248239

Advancing Environmental Monitoring through Near-Surface Remote Sensing: Capabilities, Applications, and Future Directions (*joint with GC, H*)

Conveners: Mostafa Javadian, Northern Arizona University; Lin Meng, Lawrence Berkeley National Laboratory; Troy Magney, University of Montana; Andrew Richardson, Northern Arizona University; Oscar Zimmerman, Northern Arizona University

1853030 *Advancing Leaf Inclination Angle Estimation: A Comparative Analysis of Terrestrial LiDAR-Based Methods for Broadleaf Tree Species:* **J Pisek**, C Murithi Murithi, D Schraik, B Bailey, A Stovall, J Liu, G Zheng, A K Skidmore, M Vicari

1941768 *AVILAS: Automating Individual Tree-Scale Vegetation Structure and Aboveground Biomass Inventory and Monitoring at Local to Regional Scales with Drone Lidar and Satellite Data:* **W Woodgate**, S R Phinn, T Devereux, S Levick, R Aryal, J Rivory, T Lowe, G Eaton

1864793 *Comparing Fractional Cover Mapping of Mesquite Using Machine Learning approaches:* **A Hoque**, M Buenemann

1859846 *Detecting invasive species using leaf level spectroscopy and functional traits:* **K Hassani**, D Boellstorff, M Davoodianidaliki, C Fisher-Reid, H Marella, E Welch

1987544 *Evaluating Systematic Elevation Errors in Drone-Derived DEMs Using RTK Ground Control in Precision Agriculture:* **B Ademola**, F Tian, G Ruan, J Zhou

1886663 *Frontiers in near-surface imaging of solar-induced fluorescence for physiological inference:* **L Albert**, K Cushman, C Southwick, L Alonso, D Allen, A Porcar-Castell, K Kral, J R Kellner

1897964 *Integrating LiDAR and Multi-temporal Multi-spectral Imagery for High-Resolution Mapping of Target Woody Vegetation Communities for Rangeland Management:* **C Libantino Norton**, D Curley, W J Van Leeuwen, C Holifield Collins

2003826 *Is Hexbin Mapping the Optimal Method for Visualizing Aquatic Plant Distribution?:* **B Courtemanche**, S Poulin, J Isabelle

246687

Advancing Remote Sensing for Ecosystem Health: Bridging Science, Technology, and Forest Management

Conveners: Swati Singh, Auburn University; Swati Singh, College of Forestry, Wildlife and Environment; Swati Singh, Auburn University

1905231 *Is Your Thermal Camera Telling the Truth? Assessing Measurement Accuracy for Ecosystem Science:* **J L Diehl**, M Javadian, B Wiebe, A V Rocha, D Uni, F Sullivan, J Kelley, L Bell, S Paleri, M R DeVan, W Hagan Brown, Z Pierrat, A D Richardson

2002716 *Novel Autonomous Surface Vehicle and Adaptive Machine Learning Pipeline for Real-Time Aquatic Plant Species Mapping:* **S Poulin**, B Courtemanche, R Butler

1940458 *Real-Time Geometric Quality Assessment and Visualization of Hyperspectral Imagery for Environment Monitoring – Ensuring Satisfactory 3D Coverage and Resolution by Exploiting the mesh Format:* **H Sneffjellå Løvås**, A Sivertsen, D Stødle, S Løkse

1969406 *Real-Time Merging of VNIR and SWIR Spectra for UAV-based Hyperspectral Imaging for Environmental Monitoring:* **S Løkse**, A Sivertsen, H Sneffjellå Løvås, D Stødle

1877791 *Real-Time UAV-Based Hyperspectral Imaging for Environmental Monitoring Using the Hypermesh Format:* **A Sivertsen**, D Stødle, S Løkse, H Sneffjellå Løvås

1983082 *Seasonal Albedo Dynamics of a Polygonal Arctic Tundra Site with Near-Surface Remote Sensing:* **C Brown**, M S Torn, S Dengel, J Tadić, B Curtis

1904514 *Tracking Tree Physiological Responses to Drought Using Hyperspectral Sensing Across Multiple Species:* **M Hossain**, B Wolfe

1937443 *Tracking Vegetation Phenology Across Diverse Biomes Using Version 3.0 of the PhenoCam Dataset:* **A Young**, K Hufkens, K Ballou, M Javadian, A Post, C Schaedel, D M Browning, C Florian, M Moon, A D Richardson

1995927 *Two Decades of the Phenological Eyes Network (PEN): Past Achievements and Future Directions for Long-Term Environmental Monitoring:* **T Sasagawa**, K Ichii, H Noda, T Akitsu, T Kobayashi, K N Nasahara, T Saitoh, H Muraoka

1962591 *UAV-Based Estimation of Nitrogen Content in Soybean Using Multispectral Vegetation Indices:* **D Khatri**, A Chiluwal

1867685 *USGS Flow Photo Explorer: A flexible AI/ML approach to transforming timelapse imagery into environmental insights:* **P Goodling**, J Fair, A Gupta, J Walker, K Johnson, E Gohring, G A Sexstone, C Marsteller, H Olds, P Reneau, S Schoen, J Marshall

1912492 *A Deep Learning-based Method for High-precision Tree Species Classification and Stand Boundary Extraction:* **J Huang**, Y Pang, P Lang, X Wang

1948856 *Building California-tailored disturbance monitoring system using long-term and continuous Landsat data:* **H Hashimoto**, K H Tran, P K C, K K Kabasares, Z Zhu, S Horner, W Yip, R R Nemani, I G Brosnan, T Park

- 1939971** *Deep Learning-Based Detection of Brown Spot Needle Blight in Pine Forests of the Southeastern US Using UAV-Based Imagery and LiDAR Data:* **S Singh, PhD**
- 1965867** *Estimating Field Tree Volume and Biomass Change Using UAV Imagery and Structure from Motion Point Clouds:* **J Kim, S C Popescu**
- 1992809** *FasterR-CNN for Urban Tree Detection and Enumeration Using Optical R G B: Insights and Limitations from a City Scale Experimentation:* **M S Agbozo, L J Marzen, M B Kursah**
- 1966102** *Learning to Count Standing Dead Trees: CSRNet-Based Detection of Snags in Washington State:* **S Willsey, S Fei**
- 1945884** *Losing Green Lifelines: Three Decades of Riverine Forest Degradation in Sindh Revealed through Remote Sensing:* **R Naz, M Afrsiyab, S Hafeez, Z Shabir**

250525

Anthropocene Changes in Tropical Forests

(cosponsored by AMS: American Meteorological Society, EGU: European Geosciences Union, ESA: Ecological Society of America, WCRP: World Climate Research Programme) (joint with A, GC, H, SY)

Conveners: **Gabriel de Oliveira**, University of South Alabama; **Zoe Pierrat**, JPL/NASA/Caltech; **Qianlai Zhuang**, Purdue University; **Amanda Hoffman-Hall**, University of Maryland College Park; **Erin Koster**, University of South Alabama

- 1961295** *Machine learning for carbon flux estimation in tropical and subtropical forests:* **A Mergen, C Q Dias-Junior, S Botia, G de Oliveira, G Fisch, D R Roberti**
- 1963929** *Spatial Patterns of Forest Loss Near the Vale do Javari Indigenous Land, Brazilian Amazonia:* **E Koster, P Godoy Junior, D Brito de Melo, G A V Mataveli, J G de Souza Ribeiro, N L R de Andrade, G de Oliveira**
- 1980934** *Spatial trends of wildfires in and around the Vale do Javari Indigenous Land (1985–2024): evidence for priority conservation areas:* **P Godoy Junior, E Koster, G A V Mataveli, G de Oliveira**
- 1999602** *From Spectral Haze to Clarity: Advancing Forest Degradation Monitoring in the Southwestern Amazon with Sensor-Specific Reflectance Correction of PeruSat-1 Imagery:* **R De Fazio**
- 1996818** *Mining in the Guaporé River Basin, RO - Brazil: Spatial Concentration, Hydrosocial Risks, and Territorial Conflicts:* **P Godoy Junior, N L R de Andrade, J G de Souza Ribeiro, N C de Araújo, G de Oliveira**
- 1990231** *Assessing Tropical Forest Cover Changes in the Chittagong Hill Tracts of Bangladesh Using Multi-Sensor Sentinel Data:* **W Zaman, H R K Real, M S Tamim**

- 1988682** *Mapping tree species diversity in a subtropical mountainous forest using Bi-temporal Sentinel-2 and airborne LIDAR data:* **S Li, Q Liu**
- 1987602** *Miti360: An Integrated Dataset Combining Remote Sensing, Ground Measurements and Weather Data for Improved Reforestation Monitoring:* **C Kiplimo, S Gachana, C wa Maina, A Sichangi, D Gitundu**
- 1939663** *Parameter Optimization of RGB-Based Structure-from-Motion Photogrammetry for Individual Tree Detection in a Loblolly Pine Forest:* **S Singh, PhD**
- 1977319** *Species, Subspecies, and Stress: Spaceborne Hyperspectral Analysis of Forestry Monitoring Impacts:* **M Gallagher, R Hammock, J Kravitz**
- 1926417** *Capturing Complex Landscape Controls on Tropical Forest Structure with Satellite Lidar:* **M Redana, B Starinchak, M R Moura, M H Vancine, P M Brando, P Jantz**
- 1921921** *Congo Basin Carbon Cycle Responses to Global Change:* **S Worden, E Ordway, M Bauters, S Maes, L S Koutika, D Sonwa, H Verbeeck, W Hubau, N Russo, L B Sagang Takougoum, S S Saatchi, P F M Boeckx, S Kwatcho Kengdo, V Medjibe, R Fu, T B Smith, A A Bloom, T Fatoyinbo**
- 1959893** *Development and assessment of an hourly biogenic carbon dioxide (CO₂) flux model for the Amazon:* **A Dayalu, B Rastogi, M E Mountain**
- 1891301** *Enclaves of Growth, Islands of Degradation? Assessing the Environmental Impact of Special Economic Zones in Ethiopia:* **A M Meressa, A T Mengistu, T A Haylu, G B Araya**
- 1955061** *Exploratory Analysis of Satellite-Derived Carbon and Water Fluxes in Amazon Forests Using Eddy Covariance Data From ATTO:* **G de Oliveira, C Q Dias-Junior, A Mergen, E Koster, P Godoy Junior, G Fisch**
- 1953162** *Forest Conservation via Agroforestry: Causal Evidence from Vanilla Cultivation in Madagascar:* **C DeSisto, H Parikh, R Rasolofson**
- 1881822** *From Degradation to Regeneration: Tracking Amazon Forest Dynamics through Spectral Indices:* **S Delgado, D Imrecke**
- 1950624** *High-Resolution Mapping of Forest Biomass and Post-Hurricane Change in Puerto Rico: Implications for Carbon Monitoring and Resilience Planning:* **N Haghtalab, E Helmer, T Heartsill Scalley, T Wood**

- 1979932** *Improving Tropical Deforestation Mapping Through Integration of Forest Disturbance Datasets:* **L Alves dos santos**, R Dalagnol, F Osborn, A Jensen, F Wagner, A Mullissa, S Hagen, L B Sagang Takougoum, S Saatchi
- 1907137** *Land Use Change-Induced Abrupt Changes in Vegetation and the Role of Climate Factors:* **D Lee**, S W Park, Y Shin, J S Kim, PhD, J Kam, J S Kug
- 1930912** *Land-Atmosphere Feedback after Deforestation: Insights from WRF Simulations in East Africa:* **D Aloqaily**, P Crippa, J S McLachlan
- 1914684** *Quantifying Infrastructure-Driven Deforestation: A Multi-Scale Analysis of Chinese Development Finance Projects Using Satellite Monitoring:* **C Zhang**, M A Friedl, R Ray, A Ni

248645

Applied Remote sensing for Coastal Ecosystem Studies (joint with GC, OS)

Conveners: **Ranjani Kulawardhana**, Jackson State University; **Wei Wu**, University of Southern Mississippi; **Jada Cummings**, Alabama A & M University; **Kelly San Antonio**, Bethune-Cookman University; **Jada Cummings**, Alabama A & M University

- 2002722** *Assessing Hypoxia and Its Environmental Drivers in the Coastal Waters of Northern Gulf of America:* **J Cummings**, R Kulawardhana, PhD, S Chatterjee
- 1881176** *Analyzing changes in marsh vegetation by remote sensing-derived fractional cover:* **Z Yang**, C Hladik, M Alber
- 1878130** *Are Coastal Dunes Built to Resist or Destined to Recover? Multi-Scale Insights from the U.S. East Coast Using Remote Sensing, Field Data, and Stable Isotopes:* **F van Rees**, V Reijers, P Berghuis, J Marchionno, H S Fischman
- 1889416** *Assessing Coral Reef Wave Attenuation Using Satellite Altimetry: A Global Remote Sensing Approach:* **M Passaro**, F Ardhuin, M Usoltseva, G Dodet, S Connors, J F Piolle, A Ollivier
- 1917136** *Characterization of Water Quality in Mississippi Sound: An In-Situ and Satellite-Based Approach:* **E Butler**, V Martins, C Caballero, R Paulino, E Sparks
- 1979373** *Coastal and Marine Surface State Mapping Using Remote Sensing and Deep Learning: Toward Interpretable Multi-Scale Data-Driven Ecosystem Modeling from Phytoplankton to Whales:* **N LaHaye**, A Easley, N Giebink, T Richards-Dimitrie, K Luis, F Lopez Ornelas, M M Gierach, D M Palacios, A Zerbini, L Irvine, R Beltran

- 1952728** *Tailored multi-sensor fire detection approaches to better constrain fire dynamics in tropical forests and peatlands:* **S Coffield**, S J Wee, H Stouter, Y Chen, P A Arevalo, X P Song, R Field, J T Randerson, E Ordway, A Alencar, T Manurung, S M Putri, Y Seno, L Mané, J Amougou, P Forghab, D C Morton
- 1968965** *The Influence of Legality on Deforestation Spatial and Temporal Distribution in the Brazilian Amazon:* **F Osborn**, R Dalagnol, L Alves, A Jensen, S Saatchi, S Hagen
- 1999937** *Towards Climate-Adaptive Conservation: A Multi-Year Occupancy Study Of Lowland Tapirs Across The Colombian Orinoquia:* **A Alviz**, R D Stevens, K E Perez, J Salazar-Bravo
- 1997817** *Detecting Coastal Sewage Spills Using Earth Observation Technologies:* **B Hofmann**, J Noble, L Terlinden-Ruhl
- 1998353** *Detecting Temporal Changes in Elkhorn Coral Health Using UAV-Derived High-Resolution Imagery and Machine Learning:* **G Nwachukwu**
- 1906889** *Drone-Based Mapping of Vegetation Edge Limits in Dutch Wadden Sea Salt Marshes: Spatial Variability, Human Interventions, and Environmental Drivers:* **S Dzimballa**, V Kitsikoudis, E Folmer, B Borsje, P Willemsen, D C Augustijn
- 1962716** *Global Assessment of Marine Heatwave-Induced Coral Reef Thermal Stress and Decadal Trends:* **N K R Busireddy**, Z Lachkar, F Paparella
- 1897907** *Heat-driven Functional Extinction of Caribbean Acropora Corals from Florida's Coral Reef:* **D Manzello**, R Karp, R Cunning, K T Brown, E F Geiger, G Liu, B Spady
- 1923043** *High-Resolution Seascape Mapping Across Three Living Shoreline Designs Using Drone-Based OBIA and RTK-GNSS:* **B Burchi**, H Sirianni, R Gittman
- 1925491** *Improving Coastal Marsh Accretion Models Through Spatiotemporally Explicit Tidal Datum Estimation at a Tidal Creek – Marsh Interface:* **A Cai**, J L O'Connell
- 1976191** *Mapping biophysical gradients in wetland ecosystems with hyperspectral satellite imagery through machine learning techniques:* **A Taramelli**, E Valentini, S Sapio, A Troccoli, S Liburdi, F Mattei
- 1913122** *Mapping Coastal Water Quality from Space: Time-Series Insights from the S3CARD Framework over the Mississippi Sound:* **C Caballero**, V Martins, R Paulino, E Butler, E Sparks
- 1865124** *Mapping Coral Reef Habitats with ICESat-2 and Satellite Imagery: A Comparative Evaluation of Machine Learning and Spectral Unmixing Approaches:* **G Trudeau**, M Lyon, K Lowell, J Dijkstra

- 1891872** *Mapping Vegetation Changes in Salt Marshes Using WorldView-2 and WorldView-3 Imagery*: **Y Serra**, S Fagherazzi, A Campbell
- 1985874** *Mapping Wrack Disturbance Dynamics in Salt Marshes Using Satellite Imagery*: **T Lynn**, M Alber, D R Mishra
- 1971729** *Monitoring coral bleaching with NOAA Coral Reef Watch and ECOSTRESS: A case study in the Belize Barrier Reef Reserve System*: **I A Callejas**, C M Lee, J Longenecker, J Meiseles, G C Hulley, M M Gierach
- 2003217** *Monitoring the Coral Growth and Dynamics in Palmyra Atoll's Lagoon through High-Resolution Drone Imagery and Machine Learning Techniques*: **G Raber**, J Pollock, A Pollock, D Sabine
- 1924142** *PACE Over the Gulf of Maine: A Colorful Insight into Optical Water Types*: **R Paulino**, V Martins, S J Kramer, I Cetinic
- 1952473** *Parsing Long-term Landcover Trends and General Patterns of Change on Barrier Islands to Improve Prediction Capabilities*: **A Evans**, S L Zeigler, M Barlett, E E Lentz
- 1905165** *Quantifying Coastal Squeeze and Its Global Implications for Beach Tourism*: **S Baek**, H Yoon
- 1984896** *Real-Time Shoreline Monitoring Using Deep Learning-Based Semantic Segmentation from Public Beach Cameras*: **K Mulenga**, J Calderon, S Velasco, K Hubbard, J Grant, S C Medeiros, K San Antonio, H J Cho

251987

Atmosphere-Biosphere Interaction via Bioaerosols: Atmosphere as a Source, Sink, and Long-Range Conveyor of Bioaerosols (joint with A, GC, GH, OS)

Conveners: Ali Hossein Mardi, Virginia Tech; Rocio Calderon, Cornell University, Cornell Agritech

- 1944071** *Atmospheric Dry Deposition: A Major Pathway for the Removal of Bioaerosols from the Atmosphere*: **R Kumar**, R Singh

251484

Atmospheric Exchange of Aerosol and Gases Across the Air-Sea Interface (joint with A, GC, OS)

Conveners: Douglas Hamilton, University of Maryland College Park; Nicholas Meskhidze, North Carolina State University

- 1935212** *A Missing Source of Secondary Organic Aerosols Regulated by the Phytoplankton Emissions in Marine Atmospheres*: **Y Wang**, M HU, H Gao

- 1912376** *Repurposed Wetlands - A Case Study of a Reconstructed Urban Stormwater System along East Central Florida's Halifax River*: **K San Antonio**, H J Cho, D Burow
- 1990214** *Spatiotemporal Mapping of Potential Fishing Zones in the Northern Bay of Bengal: Advancing Ecosystem-Based and Sustainable Fisheries Management*: **T B Abin**, S F F Sowrav, M K Das, M A Hasan, M J Uddin, M J Hasnat, S Tasfia, L Chakma, M N Hoque Akib
- 1909824** *The Use of Remote Sensing and Modeling to Understand Anthropogenic and Climatic Drivers of Change in Natural Ecosystems*: **M Jahan**, A Puente, C Galván, A Silió, F Hosseini, B Ondiviela
- 1856134** *Toward a Reliability Metric for Satellite-Derived Sea Surface Temperature for Coral Bleaching Monitoring*: **M Yoshida**, A Harris, B Spady, S Duce, S F Heron
- 1878943** *Tracking Coastal Inundation and Wave Dynamics at Public Beaches Using High-Resolution Surveillance Camera Images*: **S Velasco**, K Hubbard, J Calderon, K Mulenga, J Grant, S C Medeiros, K San Antonio, H J Cho
- 1965154** *Tracking Ecological Change in Protected Coastal Forested Wetlands: A Remote Sensing Assessment of Ramsar Sites (2001–2024)*: **M Martinez**, E White Jr, X Yang, E S Bernhardt
- 1957777** *"Not Only What, But Where": Bringing the 1950s MacConnell Collection Cape Cod Land Cover Collection into the Digital Era*: **F J Bowlick**, R Seifried, M Wood
- 1997575** *Bioaerosol-driven heavy metal deposition and Biospheric response: A remote sensing-assisted Phytoremediation study in the Pin Valley National Park, North-Western Himalayas, India*: **D Sharma**, A Galodha, J Verma
- 1939816** *CLOUD-DRIVEN ALTERATION OF AIRBORNE MICROBIAL DIVERSITY IN THE WINTERTIME ARCTIC ATMOSPHERE*: **M A Mushtaque**, S K Das
- 1938154** *Temporal surveillance of Coccidioides in aerosols at a single location in Arizona*: **A Stout**, D Kollath, M Ramsey, B Barker, P Herckes, M P Fraser
- 1860370** *Atmospheric Chemical Processing Dictates Aerosol Aluminum Solubility: Insights From Field Measurement at Two Locations in Northern China*: **T Zhang**, M Tang
- 1904907** *Evaluating Satellite-Based Evidence for Dust-Phytoplankton Relationships in the North Atlantic*: **M Romm**, M Behrenfeld, L A Remer, Y R Shi, T Westberry, H Yu, H Plaas, D Hamilton, D S Hamilton
- 1866465** *Model evaluation of anthropogenic and lithogenic aerosols based on observations of trace metals in aerosols over the North Pacific*: **A Ito**, M Kurisu, K Nagashima

- 1972727** *Modelling the Global Phosphorus Aerosol Cycle*: **D Hamilton**, S D Rathod, E Bergas Masso
- 1920292** *Multi-Source Aerosol Deposition Drives Rapid Chlorophyll Responses in the Global Ocean*: **E Bergas Masso**, M Gonçalves, J Llort, PhD, D S Hamilton, T K Westberry, C Pérez García-Pando
- 1986115** *Progress Toward Autonomous, Low-Power Eddy Covariance CO₂ Flux Measurements in the Marine Environment*: **M Jacques**, M Emond, D C Vandemark, S Shellito, J M Covert, I Bogoev, S Cornelsen, A Singleton, A Lawyer, M Lund, B Strickler, S D Miller

252698

Biogeochemical Coupling In Terrestrial Ecosystems: Synthesizing Across Scales and Disciplines (cosponsored by ACSESS: Alliance of Crop, Soil, and Environmental Science Societies, ESA: Ecological Society of America, SSSA: Soil Science Society of America) (joint with GC)

Conveners: **Holly Andrews**, University of Arizona; **Thomas Bytnerowicz**, University of Florida; **Emma Hauser**, University of Montana; **Alexander Krichels**, University of California Riverside; **Emily Stuchiner**, University of Colorado Boulder

- 1908218** *Atmospheric circulation impacts on terrestrial atmospheric nitrogen deposition under growing imbalance of regional nitrogen emissions and deposition*: **Q He**
- 1910786** *Biogeochemical Impacts of Coastal Water Intrusion and Upwelling in the Cochin Estuary*: **M GD**
- 1960617** *Decoding the Role of C:N Ratios in Lignocellulosic-C and Soil Water Dynamics Using 2D Thermal Analysis in a Managed Urban Soil System*: **M S Nice**, A Whitley, G Kharel, E Gebremichael, O R Harvey
- 1997017** *Disentangling Effects of Nitrogen and pH on Forest Carbon Allocation and Sequestration in a Long-Term Experiment*: **C L Goodale**, D Frey, S Freund, E Kebede, M Hecking, B Hafner, W King, A de Villiers, T L Bauerle, C E Martinez
- 1933095** *Drivers and Confounding Factors Influencing Dissolved Organic Carbon and Nitrogen in Continental U.S. Streams*: **I Ahlstrom**, E C Seybold, K Underwood, S Mah, I U Haq, S Swami, D M Rizzo, N Hicks, L Lowman, N K Corak, A Vierbicher, C Hatley, M Murphy, J N Perdrial

- 1999175** *Quantifying Black Carbon Wet Deposition Flux in the Northern Indian Ocean Using Satellite data*: **S K Singh**, S Tiwari
- 1955353** *Quantifying Size-Resolved Dust Dry Deposition in the North Atlantic Using Integrated Satellite Observations*: **A Rasheeda Satheesh**, N Meskhidze, D Hamilton
- 1865653** *Residential Burning is a Significant Source of Soluble Iron to the Ocean*: **H Plaas**, R Li, S D Rathod, M Tang, D S Hamilton
- 1877877** *Effects of 12 years of nitrogen additions on root traits, microbial activities, and organic carbon pools along soil depth profiles*: **H Lee**, K Min
- 1864593** *Environmental drivers of spatial and temporal microbial carbon storage in bacterial communities of grassland soil*: **Y Ding**, V Gartiser, B Tonn, M A Dippold, K Mason-Jones, C C Banfield
- 1926371** *Linking carbon, nutrient and water cycles in a subtropical grassland: insights from a Bayesian hierarchical model*: **C Wilson**, N Caram, S Smith, S Kucharski
- 1929332** *Long-Term Patterns of Forest Productivity and Nitrogen Availability in a Northeastern U.S. Temperate Forest*: **A Kotulak**, J Dionis, S D Frey, A Ouimette, C Blommel, J Hastings, E Tetreault, V Vandewater, S V Ollinger
- 1906282** *Nutrient Constraints on Carbon Sequestration Potential in Global Natural Forests*: **J Wu**, Y Huang
- 1852908** *Nutrient Limitation Shapes Microbial and Enzymatic Controls on SOM Decomposition across Ecosystems*: **D Sihi**, Y Du, M Sternberg
- 1941239** *Short-term Effects of Amyntbas Earthworms on Microbial Activities and Nutrient dynamics in Temperate Forest Soil*: **D Kim**, G Kim, A Saher, Y Son
- 1881396** *Soil Microbes Regulate Decadal-Scale Changes in Soil Carbon Stock Under Nitrogen and Phosphorus Addition in Tropical Forests*: **G Liang**, M Van Breugel, S Batterman, L O O Hedin, J Wright S, J Hall, E Johnson, K Saltonstall, M Wong
- 1978892** *Soil phosphorus fractions respond to treeline expansion in an alpine ecosystem of the Himalayas*: **C Rai**, Y Zhou
- 1969343** *Toward high-resolution, real-time mapping of small carbon- and nitrogen-containing solutes in the subsurface*: **J R Roscioli**, E Lunny, J H Shorter, F Guo, L K Meredith, L Li, M Laan, P M Homyak

247857

Bridging Remote Sensing, Machine Learning, and Ecological Modeling to Address Forest Health Challenges

Conveners: **Yorkinoy Shermatova**, University of Minnesota Twin Cities; **Jesus N Pinto Ledezma**, University of Minnesota Twin Cities; **Jeannine Cavender-Bares**, Harvard University Herbaria; **Yorkinoy Shermatova**, University of Minnesota Twin Cities

1940654 *A daily, long-term, microwave remote sensing-informed dataset of live fuel moisture content from machine learning:* **T W Robinett**, E Biju, D Feng, A G Konings

1865988 *Autocorrelation, not ecological context, drives tree mortality forecasts at continental scale:* **K Ganz**, L Van Wagtenonk, P K C, L M Moskal

2003353 *Automated Norway Spruce Tree Detection and Delineation Using Fused YOLO-SAM Model with UAV Data:* **S Kuikel**, X Meng, S Thapa, P O Olsson

1984756 *California Carbon Explorer: an Open-Source Platform for Visualizing Modeled Forest Carbon Cycle Dynamics with CARDAMOM:* **L Klinek**, J Au, T L Smallman, D T Milodowski, M Williams, A A Bloom, T Magney

1979652 *CHMer (Canopy Height Model-er): Leveraging Deep Learning for Site-Specific Sub-Meter Canopy Height Predictions:* **M Mitchell**, C Abolt, Z Crennen, A Marcato, A L Atchley

1955468 *Combined Multi-scale, Multi-modal Observations to Detect Invasive Plants and Elucidate Their Ecological Impacts:* **K S Huelsman**, S Serbin, BA, MS, PhD, K Lewers, N L Quinteros Casaverde

1896255 *Data Assimilation for Forest Pathogen Forecasting: Fusing Phenological Remote Sensing Outputs and Spatial Kernels in Oak Wilt Epidemiology:* **Y Shermatova**, J N Pinto Ledezma, J Cavender-Bares

246841

Building a More Complete Representation of Methane Dynamics Across Earth's Ecosystems
(joint with A, GC, H)

Conveners: **Benjamin Runkle**, University of Arkansas; **Bassil El Masri**, Murray State University; **Gary Stinchcomb**, University of Memphis; **Clarice Perryman**, Stanford University

1848596 *Drifting Away: Global Changes in Human Proximity to Forests (2000–2020):* **Y Wang**, Z Li Mr, B Chen

1930845 *Forest litter carbon stocks in protected areas based on geospatial modeling:* **A Narykova**, A Plotnikova

1893842 *Hyperspectral detection of foliar chemistry in aspen to detect infection by two cankers:* **P Reim**, E Czyz, A Trowbridge, C Olivera, P A Townsend

1979468 *Improving LAI Estimation in Broadleaf Forests via Deep-Learning DHP image Segmentation with Woody-Component Removal:* **J Lee**, J Lee, W Kim, Y Kang, J Im

1970382 *Integrating Ground and Aerial Data: Continental-Scale Mapping of Forest Biodiversity across the U.S. National Ecological Observatory Network:* **Z Li**, G Zemlevskiy, S Mao, H Alrefaei, D Murong, H Chen, T Qiu

1928243 *Large-Scale Forest Scenario Modeling in California using an Integrative Machine Learning Framework:* **T Brown**, A Cale, J A Greenberg

1967339 *Mapping Tree Mortality and Burn Severity Using Deep Learning: A Case Study on the 2020 Creek Fire:* **P K C**, L Van Wagtenonk, V R Kane

1920314 *Predicting future synchrony between tree bud break and egg hatch of a major forest pest in northeastern US:* **C Scholl**, X Xu

1933215 *Reflectance Spectra Capture the Temporal Dynamics of Traits in Leaf Phenology in a Seasonal Environment:* **C Nichodemus**, J E Meireles

1937888 *Remotely Sensed Canopy Structural Parameters as Indicators for Eastern White Pine Health:* **G Yadav**, P Rahimzadeh-Bajgiran, P Das

1929339 *Spatially-explicit uncertainty modeling as a strategy for monitoring and communicating forest loss.:* **R E Kennedy**, M Sime, P Clary

1976483 *AI Based Data Fusion for Multimodal Three Dimensional Geospatial Methane Data Cube Generation:* **L Klein**, H Hamann, G Nyirjesy, M Zortea, J L Sousa Almeida, L Pondian Tizzei, I Khabibrakhmanov, T van Kessel, K Das

1958926 *Assessing partitioning and timing of CH₄ pathways in Arctic wetlands:* **S Brieler**, M Williams, G Kell, K Braun, C G Andresen

1901666 *Comparison of Contemporary Process-Based Methane Modeling Approaches in Agroecosystem Models: A Review and Synthesis:* **M K Mehla**, S Park, J Jeong, L Ran, H Lee

- 1924118** *Contrasting Methane Oxidation Pathways in Thawing Fens and Arctic Lake Sediments:* **R K Varner**, PhD, R M Younge, C Jones, C Oti, S Bosman, J Ellenbogen, M Kuhn, F Li, J Chanton, K Wrighton, M M Tfaily, S McIlroy, T S Marcus, H Lin, S Rajakaruna, J Tang, S Yang, S Hodgkins, V I Rich, S Saleska, G W Tyson
- 1948234** *Drivers of Soil Methane Sources and Sinks within a Northern Conifer Forest:* **K E Savage**, Z Dietrich, M Bartkus, C Hettwer, R Ruzol, S Fraver, D Sihi, H Cadillo-Quiroz, J Watts
- 1998186** *Ecophysiology of Hydrogenotrophic Methanogens Across Temperature, pH and Salinity Conditions.:* **I M Perez-Rodriguez**, A Manna, M Kreger, K Bousses, Y Kim, A Mathijssen
- 1902865** *Extreme environmental conditions and their role in carbon dioxide and methane fluxes in forested wetlands.:* **K Khatiwada**, J B Moon, G E Stinchcomb, B El Masri, B Runkle
- 1979085** *Integrating Microtopographic and Vegetation Controls of Methane Fluxes in Costa Rican Peatland Systems:* **H Cadillo-Quiroz**, J Marin Diaz, J Loisel, C R Perryman, R Gates, A Hoyt, A G Pérez, W Giraldo-Sanclemente
- 1986287** *Inter-annual, Sediment Depth, and Horizontal Landscape Distributions of Dominant Methanogens in a Brackish Tidal Marsh:* **Q Dowling**, J H Vineis, A E Giblin, I Forbrich, J L Bowen, Z G Cardon
- 1878295** *Methane Exchange in a California Oak Savanna: Insights from Tree Stem, Soil, and Ecosystem Fluxes:* **K Kasak**, R Ranniku, M Beland, J Verfaillie, D D Baldocchi
- 1854517** *Methane fluxes and changes in emissions of forested Amazon peatlands: an evolving process of natural and anthropogenic factors.:* **H Cadillo-Quiroz**, A J West, J Marin-Diaz
- 1996667** *Methanogen Populations are Vertically Stratified and Methylophilic Methanogens are Abundant During High Sulfate Conditions in a Brackish Tidal Marsh:* **J H Vineis**, Q Dowling, S M Thomas, A E Giblin, I Forbrich, Z G Cardon
- 1881553** *Microbial Hotspots Complicate Scaling of Methane Emissions Across Tree Surfaces:* **J Gewirtzman**, W Arnold, J Peccia, P A Raymond, M Bradford, C Merenstein, J Matthes
- 1865165** *Modeling Methane Dynamics Across Polygonal Tundra Landscapes: Insights from a Coupled Biogeochemistry Model (ELM-PFLOTTRAN):* **B Murphy**, B N Sulman, N Tas
- 1869895** *Role of Alternate Wetting and Drying and Ratooning on Methane Emissions and Carbon Balance in Rice Cropping Systems of Texas:* **S M U Salehin**, N Rajan, W Wheeler, J Mowrer, J A Howe
- 1941277** *Temporal and environmental drivers of eddy covariance and chamber discrepancies in methane flux measurements:* **A Malhotra**, T Määttä, S Bansal, G Bohrer, K B Delwiche, A R Desai, S Feron, M Helbig, J Järveoja, A Korrensalo, K Krauss, M B Nilsson, S Niu, Z Ouyang, M Peichl, K E Savage, O Sonnentag, A C I Tang, E S Tuittila, M Ueyama, J Wang, E J Ward, Z Zhang, R B Jackson
- 1958784** *The Effects of Seaweed-Supplemented Dairy Cow Excreta on Greenhouse Gas Emission and Nutrient Cycling in Soils:* **M S Hossain**, M A Rahman, W Sims, A F Brito, A Contosta
- 1895877** *Transcriptomic and metagenomic evidence for a denitrifying anaerobic methanotroph related to 'Candidatus Methylophilus iodofontis', in riparian groundwaters of an agricultural landscape in north-central Montana:* **E Tate**, A Bertagnolli, S A Ewing, F J Stewart, R A Payn, H Choi
- 1978218** *Tree stem methane emissions show strong diurnal variation in some Amazonian floodplain species:* **J Lamb**, H Blineow, A Moomaw, L Santamaria-Rojas, S R Pangala, B Willett, D Gris, A S Fleischmann, A Hoyt
- 1927174** *Tree stem methane fluxes show distinct trends across the landscape of a northern conifer forest:* **M Bartkus**, Z Dietrich, C Hettwer, S Fraver, D Sihi, J Watts, K E Savage
- 1888750** *Uncovering the Role of Grassland Erosion in Tropical Headwater Streams of Madagascar:* **V D Z Andriamanantena R**, H Kang
- 1965349** *Understanding Soil CH₄ Sink-To-Source Transition in Sub-boreal Forest via Model-Data Fusion:* **R Tang**, J Watts, K E Savage, X Xu, H Cadillo-Quiroz, S Fraver, H Zhao, J West, D Sihi
- 1894488** *Wetland Methane Flux Variability Inferred from In-Situ, Drone, and Satellite Measurements:* **Z Brown**, B El Masri, L S Guild, M S Johnson
- 1868870** *Decades-old carbon reserves are widespread among tree species, constrained only by sapwood longevity.:* **D Peltier**, M S Carbone, K Ogle, G W Koch, A D Richardson
- 1959859** *Incorporating a passive carbon allocation algorithm TIMBCA in CLM-FATES:* **J Dong**, B Baniya, D Kim, M Nkrumah, C Sarpong, G Miao, A Noormets

249597

Carbon Allocation Dynamics: From Plant to Ecosystem Scale

Conveners: **Benju Baniya**, Texas A&M University College Station; **Dohee Kim**, Ewha Womans University; **Moeka Ono**, Texas A&M University; **Asko Noormets**, Texas A&M University

- 1890418** *Microhabitat Slope And Soil Nitrogen Density Determine Soil Organic Carbon Sequestration Rate In Temperate Broad-Leaved Secondary Forest:* **S Wang**, F Xu
- 1928575** *Mycorrhizal fungi as conduits of carbon into soil: effects of nutrients, drought, and common mycelial networks:* **Y Lekberg**, M E DuPre, A Goke, R Koide, P Ramsey, J Rousk, G Sapes, A Sala

251967

Carbon Cycling in Global Wetlands and Peatlands

Conveners: **Jennifer Bowen**, University of Michigan; **Julie Loisel**, University of Nevada Reno; **Wenxin Zhang**, University of Glasgow; **Alison Hoyt**, Singapore-MIT Alliance for Research and Technology (SMART); **Clarice Perryman**, Stanford University

- 1850209** *A Review and Synthesis of Wetland and Peatland Models Simulating CH₄ Production, Oxidation and Transport:* **A Tilak**, R Ingle, A Premrov, B Runkle, N Roulet, M J Saunders, A Malhotra, K A Byrne
- 1972238** *Anaerobic Manganese Reduction May Drive Pedogenic Carbonate Formation in Water-Logged Wetland Vertisols:* **M Fail**
- 1967236** *Assessing Spatial Variability in Peatland Subsidence in Southeast Asia Using InSAR Remote Sensing:* **R Gates**, W Neely, C R Perryman, J C Bowen, R J Knight, G Z Anshari, N Novita, A G Konings, A Hoyt
- 1999403** *Biogenic Gas Dynamics in Peat Soils From Boreal, Subtropical, and Tropical Regions: Insights From Laboratory and Field Investigations:* **M R Islam**, D Nering, I Newton, S Adams, S Peirce, A Cobb, R Dommain, X Comas
- 1897738** *Carbon Accumulation in Costa Rican Peatlands: Comparing Whole-Core Data and Model Outputs:* **M Allison**, J Loisel, B Zhao, K Teja Saripudi, H Mitchell
- 1979637** *Cluster-Based Site Selection for Representative Wetland Studies in the Prairie Pothole Region:* **R Matamala**, M P Ricketts, J Minai, S Bansal, R T Mills, P Weisenhorn, R Boiteau, M Boyanov, J K Golla, K M Kemner, K J McFarlane, K D Morrison, E E Nuccio, E J O'Loughlin, A Shahriar, Y Yang, M Zavarin
- 1950762** *Coastal peatlands in Southeast Asia may lose more carbon with sea water intrusion:* **H Akhtar**, S M Jaafar, R Sukmaria binti Hj Sukri, M Lupascu
- 1916007** *Constructing Multi-Proxy Palaeoecological Histories of Four Distinct Costa Rican Peatlands:* **H Mitchell**, J Loisel, M Allison, A Leri

- 1865527** *Water Limitation Similarly Alters Carbon Allocation Patterns in Oil Sorghum versus Wild-type Grain Sorghum:* **Y Liu**, K Estera-Molina, M P Kan, C Ramon, A Curtright, J Masterson, C Jang, D Lee, R Patra, E R Brzostek, W H Yang, J Pett-Ridge, K Park, M Wang, E Cahoon
- 1993775** *Controls of Methane Inventory and Emissions of Coastal Marsh in the Texas Chenier Plain Experiencing Subsidence and Restored by Dredging Material Placement.:* **M Hoch**, F Jahan, P Bryan, P Frederick, A Heredia, E A Morris
- 1923822** *Decadal Warming Reshapes Carbon and Nitrogen Dynamics in Deep Peat: Insights from the SPRUCE Experiment (2012–2020):* **A Hedgpeth**, H Paul, J R Phillips, K Mcfarlane
- 1951602** *Disentangling environmental controls on soil carbon accumulation in temperate wetlands from the formerly periglacial Appalachian highlands:* **A J Benfield**, F Delgado, M Araoz Pozo, C J Williams, R C Walter, D Merritts
- 1858643** *Disrupting the Microbial Metabolic Network Supporting Peatland Methane Emissions:* **B B McGivern**, J Ellenbogen, D W Hoyt, J Bouranis, B Stemple Dr, R Daly, S Bosman, M B Sullivan, A Hagerman, J Chanton, M Tfaily, K Wrighton
- 1958409** *Environmental and Microbial Drivers of Methane Emissions Across a Michigan Peatland Transect:* **A Mayernik**, M J Philben, A Best, L Cribbs
- 1856808** *Forecasting Tropical Peatland Burned Area Potential 10-30 Days in Advance:* **N Koupaei-Abyazani**, A R Desai
- 1845948** *Hydrogeophysical measurements suggest that groundwater upwelling enhances methane ebullition in patterned pools of a northern peatland:* **R J Hess**, H Moore, X Comas, D Ntarlagiannis, A S Reeve, L D Slater
- 1946311** *Hydrological and vegetation responses to Mid-Holocene climate variability in ombrotrophic peatlands: implications for carbon accumulation:* **J Dill-Russell**, G Plunkett, G Swindles, N Pratt
- 1883514** *Impacts of Land Reclamation on Greenhouse Gas Emissions from a Subtropical Peatland:* **S L Wang**, C C He, P N Chiang
- 1961424** *Insights into the Persistence and Vulnerability of Tropical Peat Carbon Stocks from a Long-Term Field Decomposition Experiment:* **C R Perryman**, M Baysinger, A Cobb, L Gandois, J Chanton, T Evans, A Chua, J Eri, H B bin Haji Idi, J M Incham, J P Pu, A Teo, R A Zulkiflee, C F Harvey, A Hoyt

- 1960031** *Investigating Carbon and Water Storage and Flux in High-Andean Peatlands Using Shallow Geophysical Methods:* **N Perez**, J Loisel, F Aburto, J Cambeiro, L Forster
- 1955796** *Large Variability in Dissolved Organic Matter Quality Across Lowland Peatlands in Costa Rica:* **C Breyer**, C R Perryman, J C Bowen, R Gates, W Giraldo-Sanclemente, A G Pérez, J Loisel, H Cadillo-Quiroz, A Hoyt
- 1875720** *Managing Wetland Methane Emissions and Associated Feedbacks:* **E Ury**, Z Zhang, D Visioni, E L S Hinckley, B Buma
- 2000968** *Methane Emissions at Tidal Cypress-Tupelo Swamp Upstream and Downstream of a Saltwater Barrier Structure on the Lower Neches River, Southeast Texas:* **A Heredia**, F Jahan, P Bryan, R Trent, P Frederick, R Servantes, M Hoch
- 1888143** *Microbial Co-occurrence Network Connectivity Regulates Soil Carbon Dynamics Under Seasonal Warming and Drought in a Coastal Wetland:* **W Liu**, J Xia, L Yan, W Li
- 1988583** *Modeling the responses of nutrient cycling dynamics to warming and elevated CO₂ in peatland ecosystems:* **X Yang**, D M Ricciuto, V G Salmon, C M Iversen, N Griffiths, Y Wang, P J Hanson, M A Mayes
- 1993923** *Optimizing Wetland Rewetting Strategies through Process-Based Modeling of CH₄, CO₂, and O₂ Fluxes under Water Table Fluctuations:* **W Zhang**, B Zhao, B Elberling
- 1848696** *Partitioning soil respiration in a grassland on organic soils in the Irish Midlands:* **I Clancy**, G Lanigan, R Murphy, M J Saunders
- 1925064** *Patterns and Processes for Global Peatland Initiation and Expansion:* **J Loisel**, A V Gallego-Sala, G Z Anshari, J C Benavides, A Benfield, N Chaudhary, S A Finkelstein, E Fluet-Chouinard, S E Frolking, D G Gavin, A Hedgpeth, A Hoyt, A Korhola, T Määtä, A Malhotra, B D Naafs, N Perez, C R Perryman, P Prokopiou, J Shahan, A Stansfield, S Winton, C Zagaceta, B Zhao, Q Zhuang
- 1903099** *Peat-DBase: A new global database of peat measurements:* **S Winton**, J R Melton, L Saumier
- 1949941** *Recent Carbon Accumulation Rates of Michigan Peatlands Decline with Increasing Temperature:* **B Pikaart**, M J Philben
- 1969553** *Restoring Soil Carbon Cycling Processes in Degraded Riparian Wetlands:* **A Krichels**, A Vulcan, K Driscoll
- 1940525** *Seasonal Changes in Soil Carbon Respiration Pathways in a Louisiana Salt Marsh:* **G Hunter**, K Maiti, S He, C L Stagg
- 1922636** *Separating the Effects of Warming Versus Drying on the Decomposition of Peat Collected from a Northern Minnesota Peatland Bog:* **R McDearis**, C W Schadt, M A Mayes, J Birkebak, N Griffiths, R K Kolka, M Craig
- 1902924** *Significant Contributions of Arctic Tundra Ponds to Ecosystem Scale Carbon Fluxes:* **G Kell**, K Braun, M Williams, J A May, A R Desai, C G Andresen
- 1954236** *Temperature Sensitivity of Methane Emissions in a Climate Transect of Temperate Peatlands:* **M J Philben**, A Mayernik
- 1899919** *The Blue Carbon Timescale Network - Utilizing Radiocarbon in Blue Carbon Ecosystems:* **D Vaughn**, P A Raymond, A Ansari
- 1862006** *The Regulatory Role of Phenolic Compounds in Peat Decomposition:* **A Slentz**, S Bosman, C Petro, K Smith, A M McKenna, R G Spencer, M Tfaily, J E Kostka, R Wilson, J Chanton
- 1866187** *Tracking Microbial Activity and Community Differences Between Restored and Pristine Wetland Environments:* **L Van Dyke**, T J Samo, R Stuart, A Chew, G M Allen, J Kimbrel, J Pett-Ridge, A Paytan
- 1982909** *Using Methane Isotopologues to Evaluate Methane Emissions in Tidal Wetlands- a Study of Jug Bay Wetlands Sanctuary:* **M M Williams**, D Niu, M Harbison, B Tadesse, J Famiglietti, C Magen, J Farquhar
- 1946503** *Warming and plant community composition drive methane dynamics in a coastal wetland:* **G L Noyce**, A Lewis, PhD, R Rich, P Megonigal
- 2002677** *Water table flux as a determinant of Kenai Peninsula peat carbon mass vulnerable to aerobic decomposition:* **C Kuhle**, E S Klein, L Wieland, L Boccignone, K Hall

248861

Carbon Monitoring Systems Research and Applications (joint with A, GC, OS)

Conveners: **Libby Larson**, NASA Goddard Space Flight Center; **George Hurtt**, University of Maryland College Park; **Kenneth Jucks**, NASA Headquarters; **Cecile Rousseaux**, Universities Space Research Association Columbia; **Mallory Barnes**, University of Arizona

- 1971004** *Systematic Bias in Field-Based Tree Height Measurements: Implications for Biomass Estimation and Ecosystem Monitoring:* **H Wang**, T Keenan
- 1900179** *A 20-Year Tree Cover Product (2000–2019) at 30 m Resolution Across Mexico Using Landsat Time Series, G-LiHT LiDAR, and Machine Learning:* **K H Tran**, M Sarupria, R Vargas, I G Brosnan, T Park
- 1983803** *A Methane Monitoring System for the Ports of Los Angeles and Long Beach:* **I Leifer**, C Melton, D M Tratt, D R Blake, M S Johnson

- 1856490** *Above-ground Biomass Assessment and Fuelwood Across Vegetation Types in Guam, Northern Mariana Islands:* **B Middleton**, K M Buffington, K Krauss, S Tareyama, K Thorne, A Perez
- 1879881** *Advancing Forest Carbon MMRV Through Stakeholder-Driven Integration of Remote Sensing, Landscape Modeling, and Small-Area Inventory in Maine's Working Forests:* **D J Hayes**, X Wei, J Zhao, Y Shafirin, A O Finley, A Daigneault, S Serbin, BA, MS, PhD, B Cook, A Weiskittel
- 1885444** *Advancing High-Resolution Forest Structure, Biomass, and Change Estimation in ASEAN Countries through GEDI-TanDEM-X Fusion:* **W Qi**, J D Armston, R Dubayah, A Pascual, T de Conto, N Basargin, K Papathanassiou, M Pardini
- 1912599** *AI-Driven Remote Sensing of Forest Dynamics and Tree Mortality in Semi-Arid Ecosystems:* **D Paragiri**, G C Hurtt, L Ma
- 1856474** *Airborne Observations of Carbon Fluxes Across Wetland Ecosystems in Florida and the Mid-Atlantic:* **E Delaria**, G Wolfe, C Doughty, R Hannun, B Poulter, L Haber
- 1928823** *Benchmarking USA Methane Inventories using GOSAT based Methane Fluxes:* **J Worden**, Z Qu, S Pandey, H O Nesser, L Estrada, D J Varon, K W Bowman, B C McDonald, D J Jacob
- 1950061** *Blue Carbon Sequestration by Submerged Aquatic Vegetation in Chesapeake Bay: Where's the Peat?:* **R C Zimmerman**, V J Hill, D Burdige, R P Hale
- 1858962** *Carbon Mapper: operational monitoring in support of methane mitigation programs:* **R Duren**, D Cusworth, D Bon, M Huffman, J Giaconia, T Scarpelli, J Schroeder, S Zelinka, J Herner
- 1934992** *Causal Carbon: Identifying Greenhouse Gas Drivers in Florida Watersheds via Double Machine Learning and Biophysical Modeling:* **G Golmohammadi**, B Voram, A Gaddam
- 1958467** *Characterizing the Importance of Atmospheric Transport for Interpretation of the Carbon Cycle Over Tropical Areas:* **A E Schuh**, M Otte
- 2001553** *DeepED: A Deep Learning Emulator for Uncovering Ecosystem Tipping Points under Intermediate Climate Scenarios:* **Z Wang**, Y Xie, X Jia, L Ma, R Wang, L Ott, G C Hurtt
- 1980089** *Dramatic increase in fire carbon emissions in 2024 revealed by top-down atmospheric CO inversions:* **J Liu**, J Yun, K Miyazaki
- 1969469** *Ecosystem Responses to Large-Scale Iron Addition in HNLC Regions Using CESM Simulations:* **R Roy Chowdhury**, K T Lindsay, K M Krumhardt, M Levy
- 1929236** *Emissions-Reducing Solutions for Sources in the Climate TRACE Inventory:* **Z Doctor**, C Lewis, G McCormick, D Moore, A Piscopo, K Raniga, I Saraswat, T So, L Sridhar, P Thomas
- 1976187** *Enhancing aboveground biomass density estimates in tropical forests using GEDI waveform data:* **W Ni-Meister**, A Rojas, I Grant
- 1875320** *Enhancing Forest Biomass Estimation Using Airborne LiDAR across Diverse Forest Types:* **X Wei**, D Hayes, G Daniels, A Weiskittel
- 1999921** *Facilitating Interdisciplinary Carbon Science to Inform Policy: Two Decades of Strategic Coordination by NASA's Carbon Cycle & Ecosystems Office:* **L K Larson**, K Stover, P Griffith
- 1974035** *From Detection to Mitigation: The California Satellite Methane Project:* **D Phillips**, S Zelinka, J Schroeder, E G Yang, J Herner
- 1953689** *Greenhouse Gas Forecasting with NASA's GEOS Composition Forecasting (GEOS-CF) System:* **S Basu**, B Weir, V Shah, P Wales, L Ott
- 1928208** *High-Resolution Gridded Greenhouse-Gas Emissions from the Climate TRACE Inventory and Related Applications:* **Z Doctor**, K W Bowman, G Collins, J Liu, G McCormick, D Moore, H O Nesser, M Pekala, K Raniga, E Reilly, M Robinette, M D Thill
- 1873113** *Improving Crop-Residue Burning Emissions for National Greenhouse Gas Inventories:* **J Hall**, N Torbick, J McCarty, M Reba, L Giglio
- 1961104** *Integrating Atmospheric Measurements and Ecosystem Modeling to Improve Forest Carbon Flux Estimates and Guide Airborne Campaigns:* **Q Shen**, G C Hurtt, R Hannun, L Ma, G Wolfe, S R Kawa, K Blanock, R L Lamb
- 1987301** *Integrating Uncertainty in Fuel Properties for Wildland Fire Carbon Emissions Inventories:* **C M Saiki**, N H F French, F Seidel, J T Randerson, A T Hudak, D A Roberts, L L Bourgeau-Chavez, J Paki, M Billmire, R Scholten, K An, C Cook
- 1988948** *Inter-annual changes in net soil carbon balance on U.S croplands:* **V Bandaru**, B C Irigireddy, R Nandan, C Kulakarni, S Sikarwar
- 1956836** *Intercomparison and analysis of terrestrial biospheric products at the United States Greenhouse Gas Center:* **B Weir**, J Kolassa, A Webb, E Bell, H Zafar, T Colligan, C A Quinn, S Serbin, BA, MS, PhD, B Poulter, L Ma, G C Hurtt, A N Shiklomanov, K Bowman, L Ott

- 1960436** *Inventories, ecosystem models and inversions: Do our methods converge on consistent sub-continental CO₂ flux monitoring?:* **K J Davis**, N L Miles, J Yun, Y Liu, T E Bilir, A Bloom, J Liu, G D Ferreira, S Ogle, F J Breidt, G Domke, B K Byrne
- 1935513** *Investigating Emissions of CO and PM_{2.5} from an Urban Fire: the Eaton Fires:* **D Wu**, P Wennberg, K Suselj, J D Crounse, H D Baliaka, S P Urbanski, D V Mallia, A Holder, J Liu
- 2001427** *Knowledge-guided machine learning to enhance ecosystem carbon estimation with in-situ observations:* **S Xu**, Y Xie, X Jia, Z Wang, L Ma, G C Hurtt, R Wang, R Li
- 1870562** *Lateral Carbon Fluxes from Land to Rivers using Ecosystem Demography Modeling and Land-Use Change Datasets:* **L P Chini**, G C Hurtt, C S Rousseaux, B Clark, T W W Meshesha, S Schollaert Uz, L Ma, S Crooks, P Friedlingstein, J Chapman
- 1933127** *Mapping aboveground carbon density across space and time (4D) in tropical savanna using multi-source remote sensing data and artificial intelligence:* **C I Alvites Diaz**, C A Silva, D Valle, A P Corte, I Bueno, F Rodrigues Pereira, V Liesenberg, L Bielak Rezende, G Silva, C Klauberger, A T Hudak
- 1994412** *Mapping Coastal Wetland Salinity for Improving Methane Emissions Inventorying for the United States:* **J R Holmquist**, A Carr, A Lewis, PhD
- 1969686** *Methane Emissions Associated with Bald Cypress Knees Across the Mississippi River Alluvial Valley:* **B Middleton**, M Martinez, R Bordelon, J Villa, H Kang, I Jang
- 1968881** *Monitoring Annual Net Forest Carbon to Inform University Sustainability Goals:* **N Rosenthal**, G C Hurtt, L Ma, J Chapman, R L Lamb, E Campbell, F M S Panday, Q Shen
- 1979045** *Near-Real-Time Monitoring of Global Gridded Carbon Emissions from Human Activities:* **X Dou**, Z Liu, P Ciais
- 1969703** *ODIAC - Global High-Resolution CO₂ Emission Inventory in Support of Climate Science, Monitoring, and Mitigation Benchmarking:* **T Oda**, D Bell, L Ott, S Chakraborty, H N Kostis, J Vicino, Z Wang, M Roman, M Saito, M Hefner, S S Maksyutov, H Suto, R Run, R Naithram, Z Klimont, P I Palmer, B Weir, O Tarasova
- 1901549** *Precision and accuracy of aboveground biomass density maps evaluated at six aggregation scales with utility to stakeholders:* **A T Hudak**, J Bakken, A Lister
- 1999173** *Predicting and Correcting the Influence of Boundary Conditions in Regional Inverse Analyses:* **H O Nesser**, K Bowman, M D Thill, D J Varon, C Randles, A Tewari, F Cardoso, E Reidy, J Maasakkers, D J Jacob
- 1926864** *Results from a High-Resolution, Spatially-Explicit Model of Global Soil Organic Carbon Dynamics:* **C Creze, PhD**, S S Saatchi, Y Yang
- 1912068** *The effects of global climate change on forest carbon sequestration potential:* **L Ma**, G C Hurtt, R Dubayah, Y Xie, J D Armston, E Campbell, L P Chini, L Duncanson, R L Lamb, A Lister, L Ott, H Tang, D Paragiri, Q Shen, Z Wang
- 1986983** *The WMO IG³IS Integrated Global Greenhouse Gas Information System: Recent progress on integrated methods for producing greenhouse gas emission estimates relevant and actionable across scales and sectors:* **P DeCola**, J C Turnbull, F R Vogel, O Tarasova
- 1954705** *Urban Pollution and Impacts on Carbon Stocks of Long Island Salt Marshes:* **A Castillo**, C Cassese, C Beisher, M Ramirez-Buckles, L Onderdonk, D M Peteet

251315

Characterizing the Environmental Impacts of Active, Abandoned, and Orphaned Oil and Gas Wells, Locating Undocumented Orphan Wells, Prioritizing Plugging, and Advancing Well Reuse for Renewable Energy Applications

(cosponsored by GSA: Geological Society of America, SEG: Society of Exploration Geophysicists) (joint with GH, H, NS, SY)

Conveners: Margaret Coleman, Environmental Defense Fund; Nicholas Gianoutsos, U.S. Geological Survey; Greg Lackey, University of Colorado at Boulder; Sina Saneiyan, Binghamton University

1878488 *AI-Enhanced Data Fusion for Detecting and Localizing Orphan Wells:* **C Stauffer**, S Nimri, S Saneiyan, S Kohtz

1862389 *An investigation of the temporal variability of hydrocarbon gas loss rates from orphan wells:* **N Pekney**, A S Karim, R Gorantla, M Reeder

1927839 *Distribution of Hydrocarbon Gas Loss Rates from Orphaned Wells:* **A Karim**, R Gorantla, M Reeder, N Pekney

1937657 *Estimating Long-Term Fractional Cover of Oil and Gas Well Pads in the Permian Basin Using Landsat Time Series (2000–2023):* **H Li**, X P Song, Y Ma

1878498 *Hydrogen Sulfide Emissions from Kentucky Oil and Gas Legacy Infrastructure:* **Z Walton**, A Washburn, D Zierer, M High, A Hawksley, T Parris

- 1999278** *Legacy Well Identification and Energy Infrastructure Planning Using a Geospatial and Data-Driven Approach:* **C Schooley**, I R Pfander, S Nakacwa, D Tetteh, J Oliver, J Shay, K Hoover, J Bauer
- 1861581** *Locating legacy oil and gas wells from drone-based magnetic surveys at Stonewall Jackson Lake, WV, and best practices:* **C Kohnke**, R Gorantla, J Sams, R W Hammack
- 1983916** *Machine learning approaches to identify orphaned wells using aerial imagery:* **A Kim**, T Kadeethum, P Kim, M Mehana, C Downs, H S Viswanathan, D O'Malley
- 1982868** *Measuring Methane Emissions Legacy Infrastructure in Kentucky:* **A Hawksley**, A Washburn, D Zierer, Z O Walton, M High
- 1955326** *Methane Emissions from Orphan Wells: Insights from Subsurface and Well Characteristics in Louisiana:* **I Gupta**, O Santos, F Driscoll, M Abdelaal, K McCarter, J Garzona

251630

Characterizing the interactions of biogeochemical processes and critical materials to support development of new recovery approaches (joint with MR)

Conveners: **Jayde Aufrecht**, Pacific Northwest National Laboratory; **Yoshiko Fujita**, Idaho National Laboratory; **Alex Beliaev**, Pacific Northwest National Laboratory

- 1913794** *Application of in-vivo Random Mutagenesis and Droplet-based Directed Evolution to Improve Rare Earth Element capacity and selectivity on the Vibrio natriegens Membrane:* **A Ganesh**, S Medin, A Schmitz
- 1925142** *Bioleaching of olivine and formation of Mg-oxalate mediated by engineered biology:* **J Klug**, L Plante, J Adair, A Almansoori, S Murillo Maikut, B Barstow, E Gazel
- 1978372** *Biosorption of REEs using Shewanella and Desorption with Sodium Citrate:* **M Hill**, B R Briggs
- 1948437** *Culturing Conditions Reflected by Characteristics of Metal Carbonate Precipitates as Biominerals and Extracellular Vesicles from Bacillus subtilis:* **D Truong**, A Wadle
- 1996725** *Engineering the Bio-Geo Interface for Bioremediation and Critical Metal Bioprocessing:* **J R Lloyd**
- 1997082** *Metal-Rich Mineral Natural and Directed Evolution for Microbial Metallophore Production:* **A Igwe**
- 1959267** *Microbial olivine dissolution in mild conditions: Process limitations and genetic engineering solutions:* **N Dalvie**, M Springer, P Silver

- 1959942** *Occurrence of hydrogen sulfide in abandoned oil and gas wells across Canada:* **K El Hachem**, L Bowman, L Klotz, A Fernandes, G Ding, O Gregoire, R M Staebler, C von Sperber, M Kang
- 1973914** *Plug the Worst First: An Update on Hazard Scoring and Plugging Prioritization of Orphaned Wells in Kentucky:* **A Washburn**, S Woods, D Zierer, T Parris, Z O Walton, M High, A Hawksley
- 1866371** *The Socio-Economic Impacts of Crude Oil Pollution of Mangrove-Rich Niger Delta Region of Nigeria.:* **L Mbah**
- 1870599** *Understanding the Risks of Orphan, Idle, Abandoned and Marginal (OLAM) Wells and Defining the Benefits and Opportunities of Permanently Plugging the Wells:* **D Arthur**
- 1857110** *Microstructural and Physiological Insights into Heavy Metal Uptake by Vetiver Grass under Landfill Leachate Treatment:* **A Mahzabin**, S Khan, S Kitano
- 1994335** *Mobility and Fractionation of Select Rare Earth Elements in Biosolid Amended Soil:* **J Salvat**, J F Ranville
- 1920487** *Nitric-acid Pretreatment of Waste PCBs Enhances Iron-Oxidising Bioleaching by Stabilising Redox Potential and Fe³⁺ Supply:* **P Priadarshi**, S Goel
- 1960942** *Novel Acidophilic Methylophilic Strain LAC1 Capable of Using Multi-carbon Substrates and Accumulating Heavy Rare Earth Elements:* **K H Chu**, J Chung
- 1966148** *Sulfide oxidation kinetics and stable isotope geochemistry in microbially mediated and abiotic environments:* **A Culpepper-Wehr**, A Masterson, B Killingsworth, D Akob, A Mason, J Hayles
- 1906271** *Ultrafast Electron Transfer Kinetics at Semiconductor-Microbe Interface: Key to Efficient Extracellular Photoelectron Utilization:* **Y DU**, Y Li, Y Li
- 1947618** *Uncovering Microbe-Mineral Relationships with Environmental Genomics: Challenges and Opportunities:* **M O Schrenk**, S Gonzalez Henao, B Barstow, E Gazel, K Thompson, C Russell, A Berliner, S Kreps, C Mason
- 2000969** *Unraveling the lanthanome in bacteria to generate biological platforms for Rare Earth recovery:* **N C Martinez-Gomez**, A Zytneck, N Good
- 1893114** *Whole Genome Screening of Gluconobacter oxydans for Bio-Accelerated Weathering of Ultramafic Rocks:* **J Lee**, J Klug, E Gazel, L Plante, C Kitzinger, S Marecos, A Almansoori, B Barstow

249982

Coastal Fog: Connecting the Atmosphere, Ocean, Land, and Society (joint with A, GC, H, OS)

Conveners: Sara Baguskas, San Francisco State University; Rachel Clemesha, Organization Not Listed; Travis O'Brien, Lawrence Berkeley National Laboratory; Sonya Rauschenbach, University of California Davis

1855581 *Beyond the Bay: Spatio-Temporal Dynamics of Coastal Fog and Its Ecosystem Impacts from Local to Global Scales:* **C Gerlein-Safdi**, P Seibert, Z Li

1956977 *Coupling Satellite Observations and Machine Learning to Predict Future Fog Prevalence Along the Coast Redwood Range:* **P Seibert**, A Palmer, M Hartmann, D Wilcox, K Miller

1998333 *Fog interception by forest to promote a Nature based Solution strategy in semi-arid coastal basins:* **D Poblete**, S Vicuna, F Lobos Roco, A Gutierrez

1975864 *Illuminating Arctic Fog: Determining Surface-Level Cloud Phase and Extent with In Situ and Remote Sensing Measurements:* **S Rauschenbach**, N H Pope, A L Igel

251798

Coastal Wetland Carbon and Nitrogen Cycles: Recent Advances in Measurements, Modeling, and Syntheses (joint with A, GC, GH, H)

Conveners: Omar Abdul-Aziz, West Virginia University; Kevin Kroeger, U.S. Geological Survey; Joseph Tamborski, Woods Hole Oceanographic Institution; Patty Oikawa, California State University East Bay

1980724 *An integrated field and experimental approach to greenhouse gas drivers and salinization impacts in tropical coastal wetlands:* **C López Lloreda**, E R Hotchkiss

1912352 *An integrated observing platform for investigating mid-Atlantic coastal carbon cycling processes:* **C M Gough**, L Haber, P Bukaveckas, S C Neubauer, S Serbin, BA, MS, PhD, B Poulter, M Priddy, B Alvesshere, S Tenda, S L McCallister, D Giles, E Ward, B Cook, R Lopez, E Crawford, G Wolfe, R Franklin, R Swap, Q Ying, E Delaria

1853975 *Building and Validating a Process-Based Model to Estimate Lateral Carbon Fluxes in Tidal Wetlands:* **I Amitay**, E Gamez, J Silberman, M Matsumura, J Shahan, L Windham-Myers, B A Bergamaschi, K Nakatsuka, J R Holmquist, S Kuhl, K D Kroeger, Q Shangguan, A Z Wang, B Broach, P Y Oikawa

1896163 *Carbon Fluxes and Plant Traits Respond More to Sedimentation than Salinity Change in a High-Latitude Wetland:* **C Bricker**, M Petit Bon, K H Beard, A J Leffler, K Kelsey

1934914 *Microbial viability in Pacific coastal fog water:* **P S Weiss-Penzias**, E Rahav, S A Baguskas, A J Oliphant, D Fernandez, R E S Clemesha, T A O'Brien

1884207 *Modelling fog harvesting across time, space and landscapes: the AMARU models' principle, validation and applications:* **F Lobos Roco**, K Keim Vera, C del Río, J Herrera, N Vergbrughe, V Carter, F Suárez-Poch

1901564 *Observed Fog and Low Cloud Cover along the North American West Coast: Long-Term Trends, Variability, and Interactions with Marine and Terrestrial Heat Waves:* **I Campbell**, R E S Clemesha, A Weyant, T A O'Brien

2004078 *Surface microclimates and plant functioning associated with fog and low cloud cover in coastal California.:* **S A Baguskas**, A J Oliphant, K Hopfe, J Solis

1958088 *The influence of synoptic weather disturbances on summer fog frequency over the California coast:* **S Zebaze**, T A O'Brien, R E S Clemesha

1953586 *Towards a fog drip flux parameterization in RegCM5:* **T A O'Brien**, S Zebaze, R E S Clemesha, S A Baguskas, P S Weiss-Penzias, D Fernandez

1948755 *Data-Driven Comparison of Continuous and Discrete CO₂ Flux Measurements in Massachusetts Salt Marshes:* **A Puckett**, M E Eagle, A Z Wang, J Tamborski, K D Kroeger, S Kuhl, E Lechner, K Morkeski, T Little

1887021 *Dissolved Carbon and pCO₂ variability in a river-coastal lake continuum, northern Gulf of Mexico:* **A Dristi**, Y J Xu, F T C Tsai

1989375 *Ecosystem Function and Seasonal Greenhouse Gas Exchange in Salt Marshes with Contrasting Salinity and Hydrology:* **S He**, F Driscoll

1956797 *Evaluating Hydrodynamic and Sea-Level Rise Controls on Carbon Fluxes in Coastal Wetland:* **K Chen**, F Yuan, B N Sulman

1968896 *Impacts of River Reconnection on Denitrification Rates of Marshes in Barataria Bay, Louisiana:* **J DeWaters**, J R White

1854483 *Living Seagrass Required to Retain Stored Sediment Carbon:* **K Valentine**, M Ramirez-Buckles, O Beitz, P Campbell-Kaswell, B Finney, S Wyllie-Echeverria

1978816 *Machine Learning Can Lead to Generalized Predictive Models of Carbon Fluxes in Diverse Coastal Salt Marshes:* **O I Abdul-Aziz**

1875265 *Making Sense of Marsh Sediment Profiles:* **J T Morris**

1960893 *Measuring Changes in Greenhouse Gas Fluxes in Organic and Mineral Freshwater Wetlands Using Automated Chambers Before and After Acute Saltwater Intrusion:* **M Mashiyat**, D Taj, E Fromenthal, C L Stagg, J Villa

- 1997963** *Mid-Century Sea Level Rise Reshapes the Distribution of Estuarine Bacteria in Louisiana's Atchafalaya Basin:* **D Banuelas**, E Yang, F de Barros, R Kessesshak, C C Thrash
- 1851234** *Modeling the Effect of Anthropogenic Stressors on Aquatic Vegetation and Intricate Biogeochemical Interactions in a Shellfish-dominated Shallow Estuary:* **S Deb**, T Guyondet, M Coffin, J Barrell, M van den Heuvel
- 1930897** *On-off Switch of Alkalinity Export from Tidal Marshes to the Coast:* **M Zhang**, X Cai, A E Giblin, N B Weston, P A Raymond
- 1970241** *Plant Traits Regulate the Seasonal Patterns of Methane Production, Oxidation, and Transport across Coastal Wetlands:* **A Lewis, PhD**, G L Noyce, P Y Oikawa, E Koontz, B J Roberts, A Stearns, C Young, A Malhotra, J R Holmquist
- 1889482** *Quantifying Dissolved Organic Carbon (DOC) Flux in a mesotidal estuary:* **M Mezied**, S Fagherazzi
- 1933036** *Scrub and Fringe Mangrove Wetlands Leaf Productivity and Expansion are controlled by Air Temperature, Phosphorus Availability, and Salinity in Port Fourchon, Louisiana, USA:* **S M M Uddin**, V H Rivera-Monroy, T Blanchard, X Zhao, M G Fraser, C Davila-Lechuga, J C Sahona, I Vargas-Lopez

247465

Consequences of drought and heat stress for terrestrial vegetation: From physiology to global feedbacks (joint with GC)

Conveners: **Steven Kannenberg**, Indiana University; **Julia Green**, University of Arizona; **Brandon Strange**, University of Arizona; **Meng Zhao**, University of Idaho

- 1951347** *Bromus Inermis Forage Production and Quality under Long-Term Rotational Grazing and Nutrient Enrichment in Eastern Nebraska, U.S.:* **H Shehab**, M Khorchani, A Mazis, J Hiller, G Erickson, M Schmer, B Wardlow, A Suyker, X Sun, A S Freidenreich, G Birru, V Jin, T Awada
- 1932221** *Assessing Drought Effects on Edge Forest Sway Dynamics and Wind Resistance in Southern New England:* **S Everhart**, A Bunce, A Reinmann, R T Fahey
- 1995182** *Biotic constraints limit ecosystem recovery of a semi-arid grassland after prolonged, extreme drought:* **M D Smith**, E G Tooley, A Knapp
- 1921534** *Changes in Bur Oak Leaf Temperature, Critical Temperature, and Thermal Safety Margin under Elevated Temperature and CO₂:* **X Jiang**, M P Dannenberg, S Meerdink, M Johnston, P Liebrecht, A Stoddard, N Osborne
- 1964333** *Climate-induced tree mortality impacts on terrestrial carbon uptake in the conterminous United States:* **L Yang**, W Anderegg

- 1904306** *Seagrass recirculated groundwater as a sink of nitrous oxide offsets methane emission potential:* **J Liu**, E Tan, X Yu, S J Kao
- 1926779** *Sediment Carbon Sources Determined from eDNA and Stable Isotopes Across Reference, Restored, and Disturbed Tidal Wetlands in the Pacific Northwest of North America:* **K Poppe**, K Adair, S D Bridgham, L Aoki, E Huckstead, K Podkovyrov, Lewis, B Bohannon, L Silva, C Cornu, C Janousek, J Rybczyk, H Diefenderfer, A Borde, S Knox
- 1986588** *Spatial and temporal dynamics in *Spartina alterniflora* biomass, productivity, gas fluxes and carbon stocks:* **B J Roberts**
- 1854528** *Tracking Lateral Carbon Fluxes Across Salinity and Land-Use Gradients to Inform Estuarine Restoration and Resilience:* **B Broach**, P Y Oikawa
- 1915681** *Uncovering Early Warning Signs of Blue Carbon Decline Across Diverse Salt Marsh Ecosystems:* **K Runion**, J L O'Connell, M Alber, P Hawman, D R Mishra
- 1892722** *Compound Drought-Heatwave Events Disrupt Terrestrial Carbon Uptake: Insights from Vine Copulas and Eddy Covariance Flux Observations:* **L Yang**, B Ogutu, S Zhu, J Dash
- 1977308** *Constraints on Western U.S. drought responses from in-situ and space-based CO₂ observations:* **B Rastogi**, A Kaushik, L Bruhwiler, J B Miller, C B Alden
- 1873611** *Decadal Extreme Drought Reduces Alpine Subsoil Carbon Stocks:* **R Zhou**, J Wang, S Niu
- 1883350** *Decadal trends in global grassland growth peaks and their drivers since the 1980s:* **C You**, Z Tu, C Bian, E Cui, K Huang, F Wan, J Ping, N Wei, S Chen, J Xia
- 1845913** *Divergent Thermal Acclimation of Different Ecosystem Respiration Components:* **Q Zheng**
- 1962163** *Drought legacies delay spring green-up in northern ecosystems:* **Y Zhang**, J Penuelas, Y Liu, S Kannenberg, W Yuan, S Zhou, H Gong, S Piao
- 1894931** *Ecosystem Resilience and Vulnerability in Response to Repeated Drought Events:* **T Green**, M A Friedl
- 1929542** *Evaluating Divergent Thermoregulatory Strategies of Four Dominant Eastern U.S. Tree Species:* **J Hastings**, F Sullivan, A Ouimette, M W Palace, J T Gersony, V Vandewater, M A Vadeboncoeur, S V Ollinger

- 1983419** *Extreme heatwave exposes trade-off between leaf thermoregulation and photosynthetic heat tolerance:* **B C Posch**, M Moran, D Koepke, A Schuessler, J Chan, M R De Los Angeles Ortiz, L M T Aparecido, B Blonder, K R Hultine
- 1924134** *High spatial variability of ecosystem responses to drought revealed with ECOSTRESS:* **A Feldman**, T Holmes, K Cawse-Nicholson, J B Fisher, B Poulter, M Anderson, W T Crow, S Serbin, BA, MS, PhD
- 1967878** *Hybrid oaks are more sensitive to environmental stressors than their non-hybrid parents:* **L M T Aparecido**, S Hinnert, R Freitas
- 1892402** *Hydroclimate-Driven Soil Moisture Declines during the North American Megadrought:* **J Hu**, M Barnes, R Pervin, S Kannenberg
- 1959321** *Impacts of Prolonged Droughts on the Carbon and Water Cycles in the Amazon:* **M Shi**, N G G McDowell, Y Fang, J Wang, K Cho, R Leung
- 1940297** *Increased Spread of Global Flash Droughts Threatens Vegetation Productivity Resilience:* **R Guo**, X WU, P Wang, T Chen, X Chen, J Cai, X Wang, Z Zhang, Z Meng, Y Liu
- 1967254** *Increasing Drought-induced Terrestrial Productivity Reduction Dominated by Atmospheric Dryness:* **Y Shangguan**, X Li, R Zhao, J Xiao, J Liu, Z Fu, W Jean-Pierre, P Ciais, X Li, S Wang, Z Shi
- 1969858** *Influences of structural and species diversity on forest resistance to drought:* **J Xiao**, E Crockett, Q Guo, J Atkins, G Sun, K M Potter, J K Costanza, S V Ollinger, C Woodall, S McNulty, C C Trettin, J Holgerson
- 1995993** *Linking Leaf Physiology to Ecosystem Fluxes: Climate Variability and Soil Texture as Drivers of Transpiration and Photosynthesis Dynamics in Dryland Agroforests:* **J M Ochoa-Rivero**, K Esquivel Herrera, E Okyere, M Mauritz, L Jin, A Darrouzet-Nardi, L U Castruita-Esparza, M Rao, H A Gutiérrez-Jurado
- 1932238** *Necrodiversity: the variety of ways plants dysfunction, de-structure, and die:* **W M Hammond**
- 1978279** *Performance of Community Terrestrial System Model (CTSM) in simulating the impact of drought and heat on gross primary productivity variability at hourly and daily timescales:* **Y Chen**, A Seth, G Wang
- 1977077** *Population-Level Variation in Heat and Drought Tolerance of a Foundation Riparian Tree Species in a Dryland Common Garden:* **J Williams**, A Lambert, K R Hultine, L D Anderegg, K Kerr
- 1882426** *Representing effects of droughts and heatwaves on vegetation physiology in SCOPE simulations:* **W Li**, J Pacheco-Labrador, G Wohlfahrt, S Jiang, M Migliavacca, H Liu, D Martini, W Zhang, M Reichstein, G Duveiller, T Keenan
- 1873655** *Revealing Meteorological and Hydrological Thresholds of Ecosystem Respiration in the Ecosystems of the Conterminous United States:* **G Tefera**, R Ray, S Gurau, B Deegala, D Wilson, K Kularathna, S Chaudhary, C Igwenagu, B Mengistie
- 1921866** *Scale matters: ecosystem-effective hydraulic traits across spatial scales:* **Y Liu**, Z Tan, Z Chen, A G Konings, X Xu, K Cawse-Nicholson
- 1911675** *Shifts in Ecosystem Photosynthetic Optimum Temperature under Drought and Their Attribution:* **H Wang**, A P K Tai, J Wu, S Sitch
- 1942469** *Spring Phenology Modulates Ecosystem Responses to Compound Drought-Heat Events Across Northern Hemisphere:* **Y Li**, W Zhang, D D Breshears, F Babst, X WU, L Wang, J K Green, S Kannenberg, W K Smith, D J Moore
- 2005138** *Stability of biosphere-climate coupling:* **D Gianotti**, D Entekhabi
- 1922357** *The 2021 Pacific Northwest Heatwave as a Case Study in Examining the SIF-PAR Relationship:* **L Pong**, J Yoon, A L S Swann, A J Turner
- 1956456** *The Vegetation-Induced Paradox of Flash Drought Impacts in the Northeast United States:* **J B Basara**, J Christian, J Hubbard, S Bakar, E Boudreau, T Schneider, V Lakshmi
- 1957666** *Africa's Fuel Accessibility: A Travel-Time Analysis:* **M D Leh**, D Wickramasinghe, J Baskarakurukkal, N M Velpuri, P Schmitter, A Seid
- 1942099** *Development of a Web-Based System for Soybean and Corn Monitoring in the United States Using Pre-Harvest Crop Classification and Satellite-Derived NIRv Index:* **J Jung**, S Seok, M Kim, S Kim, T Kim, W Yu, Y Ryu, K Lee
- 1900987** *Domain-Adversarial Learning Improves Soybean Root Biomass Estimation Across Contrasting Climate Regimes Using Multi-Temporal SkySat Imagery:* **A Haireti**, V Sagan, A Maiwulanjiang, S Sarkar, H Ye, D Raju, H Nguyen

248076

Data-Driven Agriculture: Remote Sensing and Machine Learning Solutions for Food Security

Conveners: **Alifu Haireti**, Taylor Geospatial Institute; **Itiya Aneece**, USGS Western Geographic Science Center; **Jyoti Jennewein**, USDA Agricultural Research Service

- 1998409** *Accessible AI for Agriculture: Improving Land Cover Mapping with CNNs:* **S Light**, A McNally, W G Alemu, M Wooten, J Caraballo-Vega, C S R Neigh

- 1931841** *Edge Effects on Intra-field Crop Yield Variability: S Ranjit*, E Cho, PhD, S Kraatz, A Holguin, J Chang, F Gao, M Anderson, D Johnson, H Zhao, R Cirone
- 1945829** *Enhancing Agricultural Monitoring: Achieving Gap-Free NDVI with SAR and Optical Data Fusion: C Jalluri*, S Yeggina
- 1844990** *Integrating Crop Dynamics and Pesticide Exposure Zones to Identify Organic Farming Potential in Vietnam's Mekong River Delta: N Kupfer*, L Klamann, C Montzka, T Quoc Vo
- 1868691** *Integrating High-Resolution UAV Imagery with Vertical Soil Carbon Change Modeling: B Roy*, V Sagan
- 1928924** *Integrating UAV LiDAR and Multispectral Imagery for 3D Characterization of Soybean Canopy and Canopy Cover Estimation: N Shrestha*, V Sagan, A Hairati, D Tesser, A Pawar, C Gul, H Ye, D Raju, H Nguyen
- 1973895** *Machine Learning to Understand Farmer Decision-Making in Prevented Planting: K Son*, J M Deines, F Hung, J Yoon
- 1924814** *Mapping Agricultural Abandonment in the Lesser Himalayas with Remote Sensing and Deep Learning: R Whiteside*, G Allington, K Keranen
- 1893444** *Mapping Urban and Peri-Urban Farming in New Jersey: A Multi-Method Evaluation of OBIA and Deep Learning Approaches: M S Rahman*, S Nuzhat, A Ishtiaque, M Meenar
- 1908791** *Multi-Temporal SIF Time Series and Neural Network Modeling Enable Accurate In-Season Corn Yield Forecasting Across Climatic Gradients: O Kira*
- 1884404** *Multiscale Analysis of Fractional Vegetation Cover (FVC) and Land Surface Temperature (LST) Using Images from UAV and Satellite Platforms in Kenyan Agricultural Landscapes: A Mahmud*, J Tuure, M Mjomba, P Pellikka, J Heiskanen
- 1965905** *Non-Destructive Estimation of Carrot Yield Using Ground Penetrating Radar: A Precision Agriculture Approach: M Vahidi*, R Saud, S Shafian, J Fike, G Huijie, J E Barrett
- 1974689** *OurEnergyLandscape: A Harmonized Spatiotemporal Inventory of Solar Infrastructure and its Impacts on Land, Food, and Ecosystems in North America: J T Stid*, A D Kendall, J Bingaman, A Ellsworth, C Bonten, J Rapp, A Antil
- 1980239** *Pinpointing High-Yield Climate Windows via a Satellite-Powered RF-GDM Framework for Four Staple Crops: S B Haji Seyed Asadollah*, A Jodar-Abellan, M Á Pardo Picazo
- 1978247** *Precision Yield Prediction Using Statistical and Machine Learning Methods for Small Holder Cotton Farming: M Hossain*, S Sen, M M Nesa, M F Rahman, M Ashiquzzaman, A K Tuhin, H M Abdullah
- 1947343** *Soil Organic Carbon Can Improve the Stability of Crop Productivity, Especially When Its Concentration Exceeds a Critical Concentration: Y Huang*, Z Shi
- 1992906** *Space to Ground: Remote Sensing and Machine Learning Expose Soil Nutrient Loss from Stubble Burning: J Hoojon*, M Narayanan, I Ilampooranan
- 1996212** *Studying the effect of climatic variables on wild blueberry productivity and modelling yield using MODIS photosynthetic productivity products: K Barai*, P Rahimzadeh-Bajgiran, I Herrmann, Y Zhang
- 1927185** *Towards Scalable Vineyard Mapping: Grape Type Classification from Hyperspectral Imagery and AI: L Kauer*, T Piechota, H Atamian
- 1951832** *UAV-Based Multispectral, and LiDAR Remote Sensing for Mapping and Evaluating Fine-Scale Variations and Temporal Dynamics of Crop Growth Parameters in Corn.: B Ghimire*, J Rugandirababisha, R Kulawardhana, PhD, S Chatterjee, D Davis, M Mbila PhD, X Kuang, W Tadesse
- 1902148** *Assessment of High CO₂ Growth Anomalies in 2023 and 2024 from the Mauna Loa CO₂ record: M Sardarli*, E J Morgan, R F Keeling
- 1885305** *Detecting Overlooked Wildfire Impacts on Forest Structure with Terrestrial and UAV Laser Scanning in the 2025 Korea Wildfire: S Jo*, Y Ryu, C Choi, T Yang, Y Nam
- 1859477** *Global model data fusion to unravel land carbon sinks and their changes: P Gentine*, J Fang, W Zhao
- 1971082** *Harmonized Anthropogenic Land Fluxes Indicate a 56 Pg Carbon Missing Sink in the Cumulative Global Carbon Budget Since 1930: A P Walker*, W Obermeier, M O'Sullivan, J Pongratz, P Friedlingstein, C Koven, C Schwingshackl, S Sitch

251243

Deciphering Land Carbon Sinks: Integrating Data, Models, and Observations

Conveners: Tackang Yang, Seoul National University; Youngryel Ryu, Interdisciplinary Program in Agricultural and Forest Meteorology, Seoul National University; Changhyun Choi, Seoul National University; Huiqi Wang, University of California Berkeley; Jianing Fang, Columbia University

-
- 1997927** *Assessing the Terrestrial CO₂ Budget over Asia through Integrated Analyses of Bottom-Up and Top-Down Approaches: K Ichii*, M Hase, D Henri

- 1985585** *Improving Simulation of Soybean Canopy Photosynthesis by Incorporating Realistic 3D Canopy Structure*: **X Wang**, K Guan, S Wang, A J Zhai, S Wang, B Bailey, E A Ainsworth, Z Jiang, K Li
- 1901344** *Leveraging atmospheric benchmarks for informing land carbon sinks: Moving beyond the top-down vs bottom-up paradigm*: **A M Michalak**, K T Foster, W Sun, J Wen
- 1907138** *Machine Learning-Based Hourly Gross Primary Productivity Estimation Using Geostationary Satellite: Evaluate the Impact of Aerosol-Induced Radiation Dynamics*: **S Bae**, B Son, T Sung, Y Kang, J Im, S Lee, G Lee, S Yang, G Lee
- 1879904** *Quantifying the Effects of Blue Carbon Storage Considering Coastal Landscape Change in Hatiya and Manpura Islands of Bangladesh: A Remote Sensing Approach*: **K M Ibtehal**, T Hamid, N Biswas, S Reza, A A Mahmud, M M Hoque
- 1939206** *Reconciling Land Carbon Sinks with Greenhouse Gas Partial Columns*: **N Parazoo**, D Carroll, A A Bloom, N S Lovenduski, M Keller, D Schimel
- 1938569** *Seasonal and Regional Variations in the Changing Trends of Forest Carbon Absorption in South Korea*: **J Park**, S Cho, M Kang, S Sohn, P Go Eun
- 1915384** *SIFLUXCOM: Towards improving spatial generalization in gross primary productivity by synthesizing eddy covariance measurements and solar-induced chlorophyll fluorescence*: **X Yu**, M Jung, S Walther, J A Nelson, G Duveiller, M Reichstein, C Reimers
- 1991852** *Temperature Thresholds Drive Latitudinal Divergence in Herbaceous Ecosystem Carbon Balance*: **H Li**, F Jiang, G Dong

251069

Digital Tools and Earth Observations for Resilient and Sustainable Agriculture (joint with H)

Conveners: **Peng Fu**, Louisiana State University; **Vinit Sehgal**, Louisiana State University; **Yanhua Xie**, University of Oklahoma; **Carl Bernacchi**, Global Change and Photosynthesis Research Unit, Agricultural Research Service, USDA

- 1927036** *Understanding Soil Salinity Hotspots and Agricultural Pressures in Coastal Bangladesh Through Integrated Remote Sensing and Ground Observations*: **A Sharma**, U K Ustalu, S B Murshed, E Coughlan de Perez
- 1988979** *A Virtual Agricultural Innovations Laboratory (AVAIL) – combining NASA resources for coherent decision support for Iowa and beyond*: **A C Ruane**, S Archontoulis, M Yang, J Guarin, C Weatherwax, T Nipp, C Rosenzweig

- 1885367** *Terrestrial LiDAR Reveals Post-Fire Tree-level Biomass Loss in Korean Forests*: **C Choi**, Y Ryu, S Jo, Y Nam, T Yang
- 1846645** *The 2023 Canadian Heat-drought Enhances Net Forest CO₂ Uptake Via Reduced Respiration*: **G Dong**, F Jiang, Y Zhang, W Ju, S Piao, P Ciais, W Peters, I Luijckx, J Liu, F Chevallier, N Zeng, X Tian, S S Maksyutov, O Sonnentag, M A Arain, A Barr, Y Huang, C Yue, W Yuan, L Liu, L Fan, X Yue, J Xiao, X Li, S Stith, P Friedlingstein, M O'Sullivan, J Knauer, V Arora, D Kennedy, L Ma, P E Thornton, R Séférian, T Nützel, J Heinke, Q Sun, S Zaehle, P P Peylin, E Kato, H Alcock, B Lecavalier, M Wu, J Wang, L Zhang, G Lv, Y Zhang, D Zhao, J M Chen
- 1975985** *The Dominant Role of Drylands in Global Net Carbon Flux Interannual Variability Persists With Different Dryland Biome Classifications*: **L Bogucki**, A Feldman, D J Moore, L Wang, J K Green, C H Amaral, F Babst, D S Ojima, R Pervin, S Reed, W K Smith, W Zhang, N MacBean
- 1887724** *Towards Generalized Individual Tree Segmentation Using Transformer and Synthetic Dataset*: **Y Nam**, Y Ryu, T Yang, C Choi, H Mun
- 1975784** *Understanding the causes of the unprecedented growth of atmospheric CO₂ in 2024*: **J B Miller**, X Lan, A R Jacobson, B Rastogi, A Kaushik, G Petron, J T Randerson, Y Chen, G van der Werf, R Vernooij, S Michel, J Li, S Pandey
- 1885060** *Wall-to-wall forest height growth mapping of the Republic of Korea*: **T Yang**, Y Ryu, C Choi, S Jeong, Y Nam, J Lee
- 1873954** *AlfAdvisor: A web-based cyber-platform to estimate alfalfa yield and quality to support harvest scheduling*: **Z Zhang**, T Yu, M Digman, J Cherney, P Mitchell, J Jung, J Zhou, N Gallagher, J Chen, L Azimi, D Fares
- 1987279** *Assessing Climate Impacts and Adaptation in Mexican Maize Systems*: **V H Rohden Prudente**, L Rodriguez, M V Deshpande, M Jain
- 1977126** *AVAIL/AgLIS Integrated Crop-Hydrological Modeling and Multidimensional Data Assimilation Framework for Precision Agricultural Decision Support*: **M Yang**, A C Ruane, P W Liu, R Bindlish, J Erlingis, S V Kumar, S K Ahmad, J Guarin, L Monhollon, C Weatherwax, Z Yang, G Feng, J V Geiger, Y Huang, C Rosenzweig
- 1933385** *Bridging Remote Sensing and Plant Physiology for Crop Stress Detection and Management*: **O H Y Lam**, A J Gevens, P A Townsend

- 1989532** *End-of-Season and Forecast Yield Prediction for Rabi Wheat in India's Breadbasket Using Multi-sensor Fusion of Satellite Data and Machine Learning:* **M V Deshpande**, V H Rohden Prudente, T A Mathew, M Jain
- 1997324** *Enhancing Farm Scale Soil Salinity Prediction with UAV-Based Multispectral Data using a Bayesian Deep Learning Framework:* **S Kumar**, D Dayal, S S Palmate, G K Ganjegunte
- 1949314** *From Fine-Scale UAV Observations to Regional-Scale Satellite Models: An Integrative Machine Learning Framework for Classifying Rangeland Vegetation Cover:* **N Shermin**, N G Pricope, P Dash, J Osorio Leyton
- 1979574** *Informing the Bioeconomy Supply Chain: Species-Specific Lignocellulose Estimation Using a Portable NIR Sensor:* **K Vittore**, E A Ainsworth, S Hwang, D Lee
- 1858771** *Large-scale impact quantification of sustainable agricultural practices on GHG emissions and SOC sequestration across Europe using remote sensing and DNDC:* **D Perondi**, A Halligan, M Jones, A Toro, Z Yi, S Howson, G Garner, G Gopalakrishnan, W Salas

250005

Ecological Forecasting in the Earth System (joint with GC)

Conveners: **Tong Qiu**, Duke University; **Michael Dietze**, Boston University; **Abigail Lewis**, Virginia Polytechnic Institute and State University

- 1912796** *A Cohort-Based Carbon Reanalysis Across the CONUS NEON Sites Using PECO+LPJ-GUESS:* **Y Sun**, M Dietze, H Grady, J S McLachlan, I Fer, M Forrest, D Zhang
- 1924701** *Beyond Climatology: Thermal Tolerance Landscapes Forecast the Biological Impacts of Marine Heatwaves:* **A Villeneuve**, E White
- 1960531** *Coral Bleaching Projections for the Great Barrier Reef Throughout the 21st Century:* **T DeCarlo**, H Whitaker
- 2001512** *Earth System Modeling of Mercury Using CESM2: Oceanic Model POP2/Hg:* **M Mao**
- 1897959** *Evaluating Real-Time Forecasts of Soil Carbon Flux Across the Continental United States:* **J M Zobitz**, M Dietze
- 1885571** *Forecasting Climate-Driven Impacts in Migratory Pathways of an Endangered Waterbird Using Atmospheric Circulation Patterns:* **B Wang**, D Ma, C Y Choi

- 1896138** *Modeling Root-Zone Moisture Dynamics from Surface Observations Using Pseudo-Diffusivity:* **F A Adekila**, V Sehgal
- 2003881** *Plant Traits and Associated Agricultural Practices Drive Modeled Soil Carbon Dynamics in Bioenergy Feedstocks under Elevated Atmospheric Carbon Dioxide:* **S Juice**, D Berardi, E R Brzostek
- 1924776** *The Mississippi River Drought & Water Dashboard: Strengthening Drought Early Warning for Agriculture and Beyond:* **K Satalino**, M Muth, M Woloszyn, E Wickham, S Ansari, R Bilotta, J Frimmel, J Baker, M Shaw, D Burt
- 1928625** *Towards a Farm-to-Fork Agricultural Data Management System using the Observations Data Model version 2:* **C M M Thiaw**, L R E Asie, A N Rousseau, P Celicourt, PhD, J Robitaille Sr, A F S Dimate SR
- 1888104** *Towards scalable near real-time crop type mapping with satellite remote sensing and street view imagery:* **C Diao**, Z Yang, Y Liu, Z Zhou
- 2004257** *Translating Predictive Earth System Information into Agricultural Decision Support: A Case Study of the DAWN Climate Data Viewer:* **J Kennedy**, A M Meadow, X Z Liang, M A Kenney, PhD
- 1903156** *High resolution mapping of Mormon cricket with a Bayesian spatiotemporal species distribution model:* **D Wu**, G Cao, R Srygley, G Li
- 1879655** *Improving NEE and LE Estimates Across North America: A Hybrid Data Assimilation + Machine Learning Approach to Gap-Filling, Model Bias Correction, and Downscaling:* **Y Gu**, M Dietze, D Zhang
- 1926385** *Long-term Ecological Studies Must Continue: Insights From a Dryland Transition Zone:* **R Vargas**, V H Le, S L Collins
- 1888266** *Mapping the North American Terrestrial Carbon Cycle: a Process-based Reanalysis Using State Data Assimilation (SDA):* **D Zhang**, Q Li, Z Zuo, C Webb, S Serbin, BA, MS, PhD, M Dietze
- 1941085** *Research Trends on Ecosystem Responses to Earthquakes:* **E Byun**, H Yoo, S Kim
- 1969886** *Testing Probabilistic Visualization Designs and Their Impacts on Agricultural Decision Making:* **S Sainjoo**, A Joshi, J Kennedy, M Gerst, M A Kenney, PhD
- 1934215** *Unequal Urban Greening Revealed by the First Sub-Meter Vegetation Map of the U.S.:* **Z Li**, H Chen, T Qiu
- 1873442** *Using National Forest Inventory Data to Advance Carbon Cycle Model-Data Assimilation:* **C Webb**, M Dietze, D Zhang, M Evans, K Heilman

249856

Advancing Understanding of Microbial-Explicit Mechanisms of Biogeochemical Processes Through Cross-Disciplinary Integration

Conveners: Danielle Berardi, University of Idaho; Laurel Lynch, University of Idaho; Emily Graham, Washington State University; Edward Brzostek, West Virginia University

1862829 *Autotrophy is a key and overlooked microbial metabolism in diverse soil ecosystems:* **A R Kuhn**, A L Jaffe, P Penev, B Kolody, P Tasoff, J Pett-Ridge, J F Banfield

1947023 *Beyond the Surface: Simulating the Effects of Plant-Microbe Interactions on Soil Carbon Dynamics in Boreal Forests:* **E Woerner**, R Fisher, T Berntsen

1926345 *Developing the MEMS Model for Simulating Soil Organic Carbon Dynamics with Microbial-Explicit Mechanisms:* **J Locatelli**, P Hansen, M F Cotrufo, Y Zhang

1971099 *Drought Constrains Fertilization-Induced Losses in Soil Microbial Efficiency:* **S Kucharski**, J Lucas, C Wilson

1992748 *High microbial carbon and nitrogen use efficiencies increase soil organic matter through necromass formation:* **C Wang**, Y Kuzyakov, R Bol

1985144 *Integrating and parameterizing saprotrophic functional groups into a microbially explicit soil carbon model:* **T Hoffman**, B Tripathi, J Walkup, E R Brzostek, E Morrissey

1964711 *Measuring and Modeling the Response of Plant-Microbial Interactions to the Cessation of Excess Nitrogen Inputs in Temperate Forest Soils:* **E R Brzostek**, H DeHetre, E Kangi, J Nipko, E Stone, J Walkup

1974894 *Metals and Microbes: Assessing the Influence of Urban Land Use on Metal-Microbe Interactions throughout Chicago, Illinois:* **S Raglin**, A Kent, A J Margenot, M Kolak

249413

Spatial Fingerprints of Climate Extremes: Impacts on ecosystem processes, vegetation function and biodiversity (joint with GC, H)

Conveners: Nima Madani, University of California Los Angeles; Nicholas Parazoo, Jet Propulsion Laboratory; Karen McKinnon, National Center for Atmospheric Research; Enrique Vivoni, Arizona State University

1906902 *Assessing Climate Change Impact on Korean Endangered Plants under SSP Scenarios:* **E S Lee**, J Lee, M S Shin, C Seo

1956513 *Microbial Carbon Use Efficiency Across Soil Aggregate Scales in Conventionally and Organically Managed Agricultural Systems:* **C K McMillan**, A Curtright, W R Horwath, X Xu, J L M Rodrigues

1920862 *Microbial friends or foes? Germination of ponderosa pine is enhanced in 800°C charred soils while survival is hindered by a fungal pathogen in 200°C charred soils:* **J Parks**, P Goebel, N Arts, U Griffith, D Gul, A Ball, J Kashyap, W Hansen, E B Graham, N C Martinez-Gomez, T Cheeke, K Udekwi, L Chubiz, C Marx, L Lynch, T W Hudiburg

1969747 *Molecular Crosstalk Facilitates Nitrogen Fixation in Desert Soils:* **F Warsop Thomas**, J Drewes, C Nelson, T Northen, S M Kosina, F Garcia-Pichel

1982745 *Relationships between Soil Carbon Fractions and Microbial Community Dynamics Across a Chronosequence of Abandoned Paddy Fields:* **S Kim**, Y L Park, J Bae, G Yoo

1902216 *Shrinking snowpacks and microbial phenology: Exposing knowledge gaps under the snow:* **W R Wieder**, A Simonpietri, G Blumencweig, B A Hungate, M S Carbone, H Holland Moritz, C Hicks Pries, S Grandy, J G Ernakovich, S Li, E B Graham, L Lynch, M Strickland, T W Hudiburg

1955453 *Soil microbial communities are consequential in shaping the future carbon trajectories of wet and dry eucalyptus forests:* **J M Mathias**, T Stephenson, D Berardi, C Moon, M Jones, T W Hudiburg, L Lynch

1995796 *Testing the microbial carbon acquisition ecological strategy framework across biomes to support microbially explicit modeling:* **E Morrissey**, B Tripathi, T Hoffman, J Walkup, R Ozbolt, E R Brzostek

1929187 *Tracing the Fate of Soil Carbon Inputs Under Changing Nutrient Conditions to Enhance Understanding of the Earth System:* **T Stephenson**, L Lynch

1887112 *Assessing GPP Extremes and Their Environmental Drivers: Insights from Observations and CMIP6 Earth System Models:* **B Sharma**, J Kumar, A R Ganguly, F M Hoffman

1929647 *Assessing the impact of extreme weather events on carbon fluxes in Arctic and Boreal ecosystems:* **C Bachand**, E S Euskirchen, I Wargowsky, A M Virkkala, K E Bennett

1938197 *Changes in Extreme Climate Events and Their Impacts on Vegetation Productivity in China (1985–2019):* **P Fang**, J Wang

- 2000347** *Climate-Driven Vegetation Productivity Variability as a Driver of Human-Elephant Conflict in Semi-Arid Southern Africa*: **E Patrick**, M Pepperdine, J M Krieger, N McManus, E Fabiano, P Roehrdanz, A Larsen
- 1847971** *Climatic Influences on Vegetation Dynamics in Spain's National Parks: A Multi-Decadal Assessment*: **M Adell-Michavila**, M Franquesa, A Halifa-Marín, S M Vicente-Serrano
- 1920913** *Contrasting Climate and Anthropogenic Disturbance Impacts on Congo Basin Carbon and Water Flux Coupling*: **S Worden**, S Saatchi, N Madani, Y Yang, N G G McDowell, L Li, PhD
- 1998041** *Deciphering the Multiscale Influences of Drought Characteristics on the Water Use Efficiency Across CONUS Ecosystems*: **A Chakraborty**, S Nandi, J T Abatzoglou, M Safeeq
- 1913379** *Disentangling the Drivers of Fire-Induced Land Cover Transitions Across the Conterminous United States*: **S H Seyedan**, S Moghim, M R Alizadeh
- 1920083** *Examining the Impact of Drought on Vegetation in the Contiguous United States*: **Y Zhong**, Q Li, L Nguyen, M Ombadi
- 1953373** *From Above and Below: Assessing Impacts of Droughts and Storm Surges on Coastal Wetland Health*: **N Lonergan**, J R White, C S Potter

248705

Emerging Machine Learning Approaches for Process Understanding and Predictions in Ecosystem Sciences (joint with GC, IN)

Conveners: **Yanghui Kang**, Virginia Tech; **Maoya Bassiouni**, SLU Swedish University of Agricultural Sciences Uppsala; **Trevor Keenan**, Climate and Ecosystem Sciences Division, Lawrence Berkeley National Laboratory; **Qing Zhu**, Lawrence Berkeley National Laboratory; **Doaa Aboelyazeed**, Pennsylvania State University Brandywine

- 1907324** *A Flux Interpretation and Analysis Tool (FIAT) to Unravel Ecosystem Response to Environmental Conditions*: **X Chen**, J A Nelson, A Hildebrandt, M Reichstein, M Jung
- 1970668** *A Hybrid Modeling Approach to Global Water-Carbon Cycles Informed by Atmospheric and Terrestrial Observations*: **Z Baghirov**, M Reichstein, B Kraft, B Ahrens, M Körner, J Martin
- 1887799** *A Physics-Informed ControlNet Framework for Global Ocean Chlorophyll Forecasting*: **J Park**, J Y Park, Y G Ham
- 1912897** *abstract to delete*: **O Ennaji**, A Belgaid, A El Allali

- 1930815** *Leveraging Satellite Observations to Uncover Variable Ecosystem Responses to Climate Extremes*: **N Madani**, N Parazoo, A Chatterjee
- 1899342** *Marsh elevation dynamics following vegetation dieback in the lower Mississippi River Delta*: **A Nelson**, T E Quirk
- 1974351** *Modeling Climate-Driven Shifts in Habitat Suitability for Rare Plant Species at the Jack and Laura Dangermond Preserve*: **Y Zhan**, X Yan, W Yang, O Ross, Y Liu, I Lopez, J Vogel, Z Li, I Perez, E Tao, L Song, D Cui, A Frazier
- 1901096** *Pushed Over the Edge: Using Multi-scale Approaches to Understand and Forecast Dryland Responses to Climate Extremes*: **S Reed**, W K Smith, A Feldman, R F Kokaly, N MacBean, D J Moore, L Wang, M E Litvak, R Scott, W Zhang, D S Ojima
- 1889540** *Spatiotemporal dynamics of megadroughts over the past century and their impact on tree growth*: **H Chen**, Y Zhang, H Zhang
- 1946687** *Tree species diversity enhances drought resistance but exacerbates vulnerability under hot drought across global forests*: **Z Zhang**, X WU, P Wang
- 1875250** *Vegetation whiplash: Understanding global trends in dramatic vegetation shifts*: **J K Roundy**, PhD, L Lowman
- 1870537** *Watching the Earth Breathe: Monitoring Plant Solar-Induced Chlorophyll Fluorescence and Evapotranspiration from OCO-3 and ECOSTRESS on the ISS*: **T P Kurosu**, A Chatterjee, Z Pierrat, K Cawse-Nicholson
- 1894296** *ALIVE-KGML: A Knowledge-Guided Machine Learning Framework for Coupled Carbon and Water Flux Estimation from Geostationary Satellites*: **S Ranjbar**, PhD Candidate, D Losos, S Hoffman, Q Huang, A R Desai, P C Stoy
- 1934421** *Assessing Forest Health and Ecosystem Services at Scale: Novel Lightweight AI Architectures for Accessible Remote Sensing-Driven Decision Support*: **C H Amaral**, J Gammie, E Verleye, N T Ilangakoon, A LoPresti, E N Stavros, C Monteleoni, L E Dee
- 1972111** *Assessing the best modeling technique among linear, nonlinear, and artificial intelligence models for estimating the age of longleaf pine (*Pinus palustris* Mill.) trees from terrestrial laser scanning*: **K Brock**, K D Rocha, A P Corte, A Sharma, J Cannon, C I Alvites Diaz, M A Karasinski, R Vieira Leite, M B Schlickmann, J Xia, J Vogel, J Atkins, A Sing, A T Hudak, C Klauberg, A J S Meador, C A Silva, A Cardil
- 1991801** *CarbonSense/EcoPerceiver 2.0: Multimodal Deep Learning for Global Hourly Flux Modelling*: **M Detto**, M Fortier, L Lara, M La Rochelle, O Sonnentag, C Pal

- 1870238** *Environmental Controls on *Lespedeza cuneata* Invasion in the U.S. Southern Great Plains: A Multi-Model Approach*: **S Shrestha**, Y Zhou, S Brasher, M S Islam, H Gholizadeh
- 1954785** *Estimation of Key Photosynthetic Parameters through Machine Learning*: **R Singh**, M Steckler, F Hoffman, E Massoud, N Collier, J Kumar
- 1883613** *Exploring the Temperature Response of Nighttime Ecosystem Respiration in a Deciduous Broadleaf Forest Using Long-term Observations and Explainable AI*: **M Son**, Y Ryu, S Jeong, H Zhang
- 1953011** *From Pixels to Predictions: Prithvi-EO-2.0 for Land, Disaster, and Ecosystem Intelligence*: **S Roy**, D Szwarcman, P Fraccaro, M Maskey, R Ramachandran
- 1960776** *High-Resolution Carbon Flux Monitoring using a Global Estimation Model (CARBON-GEM) in Google Earth Engine*: **E Izquierdo**, A Moreno, J Muñoz, J Hirn, L Martínez-Ferrer, G Camps-Valls
- 1940231** *Importance of soil moisture temporal scale, depth, and antecedent conditions for machine-learning based predictions of dryland carbon and water fluxes*: **R Pervin**, M Barnes, S Robeson, S Kannenberg, J Hu, N MacBean
- 1898345** *Investigating Snowpack-Shrub Interactions in the Arctic Tundra using Machine Learning and Process Models*: **I Lu**, L R Hawkins, K Dagon, S Kumar, S Ryu
- 1970082** *Leveraging Memory in Deep Learning to Improve Drought Impact and Legacy Predictions in Forest Ecosystems*: **J Bu**, C Xiao, J Liu, J W Munger, J Xiao
- 1953967** *Machine Learning-Based Optimization of Site-Specific Fertilizer Recommendation*: **O Ennaji**, A Belgaid, A El Allali
- 1886284** *Modeling Photosynthesis and Plant Hydraulics Using a Differentiable Physics-Informed Machine Learning Framework*: **D Aboelyazeed**, C Xu, L Gu, X Luo, F Hoffman, J Liu, K Lawson, C Shen
- 1862207** *Monitoring the Early Growth of *Pinus* and *Eucalyptus* Plantations Using a Planet NICFI-Based Canopy Height Model: A Case Study in Southwest Brazil*: **F H Wagner**, F M Breunig, R Balbinot, E Araújo Silva, M Carneiro Soares, M A Kramm, M C D M Hirye, G Carter, R Dalagnol, S Hagen, S S Saatchi
- 1967563** *Next-Generation Modeling of Global Natural Methane Fluxes: Integrating Multi-scale Observations with Knowledge-Guided Machine Learning*: **Y Oh**, L LIU, Q Zhu, S L Malone, G McNicol, C Smith, S Chen, Y Sun, A Malhotra, B Gay, C A Quinn, E Ward, F Li, F Yuan, J Zheng, K Morris, K Rozmiarek, K Yuan, K A Arndt, L Bruhwiler, Q Ying, S Metzger, Y Yang
- 1859486** *Parsimony versus complexity*: **P Gentine**, J Fang, W Zhao, A Lahlou
- 1950729** *Physically Interpretable Machine Learning for Wildfire Prediction in the Western US*: **F Li**, M Chen, Q Zhu
- 1933514** *Predicting Storm Surge Impacts on Avian Biodiversity Using Spatial Temporal Adaptive Ensemble Deep Learning Models*: **L Li**
- 1938611** *PREDICTION OF CARBON EXCHANGES OF A FORESTED AND A GRASSLAND ECOSYSTEM OF HIMALAYA: A COMPARATIVE ASSESSMENT USING MACHINE LEARNING CLASSIFIERS*: **P Lohani**, S Mukherjee
- 1880606** *Process-Guided Interpretable Machine Learning for Ecosystem Dynamics: Modeling Biogeochemical Fluxes with Kolmogorov-Arnold Networks*: **Z Wang**, Y Kang
- 1909685** *Response of Global Photosynthesis to Climate Change based on Earth Observation and Machine Learning*: **R Kashyap**, J Kuttippurath
- 1974284** *Spatiotemporal Interrogation of Crop Yield Patterns to Identify Key Variables and Feature Interactions using a Tandem Evolutionary Algorithm*: **J Hanley**, A Dadkhah, D M Rizzo, P R Adler, R van der Heijden, M W Myers, J Rathore, L A Garcia, G F Pinder, K Underwood, A Zia
- 1978108** *Uncertainty-Aware Tillage Mapping in Data-Limited Agroecosystems*: **A Norouzi**, M A Gharsallaoui, J R Doppa, K Rajagopalan
- 1944499** *Uncovering Soil Organic Carbon Saturation and Protection Mechanisms: Parameter Learning on Multiple Sparse Data Sources with Comprehensive Uncertainty Estimation*: **L Roßdeutscher**, K Georgiou, W J Riley, M Chettouh, T Wutzler, M Schrumpf, M Reichstein, B Ahrens
- 1961699** *Using Machine Learning to Detect Seals and Polar Bears in Multispectral Aerial Imagery*: **L Porras**, E Moreland, M Velez-Reyes

249160

Enhanced Weathering for Carbon Dioxide Removal and Improved Soil and Agronomic Properties (*joint with GC*)

Conveners: **Jennifer Pett-Ridge**, Lawrence Livermore National Laboratory; **Anu Khan**, Organization Not Listed; **Isabel Montanez**, University of California Davis; **Tim Jesper Suhrhoff**, Yale University; **Samuel Shaheen**, Yale University

1990071 *Analysis of MRV measurement criteria through high density solid-phase sampling at the field scale:* **J Bernstein-Schalet**, F Alder, P Chougule, J Jordan

1917219 *A holistic geochemical approach to tracking enhanced rock weathering in amended irrigated pasture:* **M Ben Israel**, I P Montanez, R Schmidt, S Whiteaker, J Sohng, A T O'Geen, N Planavsky, N Sokol, K Esquivel, J Pett-Ridge

1893379 *A Web-Based Platform for Simulating and Visualizing Enhanced Weathering Scenarios Using SCEPTER, ATS, and DRN models:* **Y Smeglin**

1927701 *Agronomic Impact of Stacking Enhanced Rock Weathering and Compost in a Pasture Agroecosystem:* **S Whiteaker**, C Ownby, H Knoblich, O Elliott, T Tamura, J Sohng, M Ben Israel, R Schmidt, A T O'Geen, I P Montanez, J Pett-Ridge

1914664 *An integrated modelling framework to determine terrestrial carbon dioxide removal via enhanced rock weathering:* **A Paschalis**, Z Zhang, G Jones, S Calabrese, M Bertagni, S Fatichi, B G Waring

1957145 *Application of reactive transport modeling to quantify microbially enhanced weathering from a soil mesocosm experiment.:* **C R Lawrence**, T Timmermann, P Weyman, D Dores, Y Y Yang, G Fuenzalida-Meriz

1938497 *Applying a Reservoir and Flux Framework for Standardized Intercomparison Between Enhanced Weathering Carbon Removal Quantification Methodologies:* **B Woollen**, A Khan, T J Suhrhoff, J Lambert, E Troein

1937246 *Benchmarking the reactive transport code SCEPTER:* **Y Kanzaki**, C T Reinhard

1919709 *Can we monitor enhanced rock weathering using stream chemistry?:* **M A Torres**

1929265 *Carbon dioxide removal by enhanced weathering on American green clay tennis courts:* **J Lambert**, F J Pavia

1993778 *Carbon sequestration induced by enhanced silicate rock weathering in a temperate larch plantation in Northeastern China:* **R Kang**, Z Wu, C Su

1938567 *Carrying Capacity as a Constraint for Maximum Achievable CDR through Enhanced Rock Weathering in Croplands:* **J Mills**, S A Bea, D Su, S Benner Sr, A Marklein, J Soong, U Mayer

1963945 *Coupling Enhanced Rock Weathering with Biochar and Bioenergy for Sustainable Agricultural Systems:* **B Zhang**, H Wang, Y Yao

1969363 *Direct measurement of in-soil carbon dioxide removal from enhanced weathering:* **E Milliken**, A Woodley, N Planavsky

1909092 *Do Economic Preferences Predict Support for Different Carbon Dioxide Removal Technologies?:* **C Baum**, L Lades, B Sovacool, L Fritz

1969839 *Enhanced Rock Weathering Effects on Crop Yield and Nutrients:* **S Meagher**, C W Evans, C H Tsai, B Z Houlton

1958263 *Enhanced rock weathering for improved farmer welfare in the Global South: A case study for paddy rice agriculture in India and accompanying mesocosm pot-experiments:* **J Jordan**, R Dixit

1880760 *Evaluating the efficacy of enhanced rock weathering in mid-western U.S. agricultural soils: Initial results from a two-year greenhouse mesocosm experiment examining basaltic amendments:* **A Tashjian**, A D Jacobson, L Egerton-Warburton, N Zerega, B B Sageman

1951645 *Field and Experimental Constraints on Carbon Dioxide Removal Potential of Basalt Applied to Acidic Soils in the Midwest:* **D Miller**, A Carson, D Maxbauer

1965959 *Field-Scale Tracing of Enhanced Rock Weathering Using Sr Isotopes in an Agricultural Catchment:* **R Rioux**, E Milliken, A Bateman, C Li, D Asael, P A Raymond, N Planavsky, J E Saiers

1959039 *Fluxes of CO₂, CH₄, N₂O, and NH₃ from an enhanced weathering field trial: a statistical analysis of levers on and response of agricultural emissions to rock amendments:* **I Chiaravallotti**, E Milliken, S Zhang, A Woodley, N Planavsky

1973547 *Incorporating Stream Metabolism into Carbon Assessment of Enhanced Weathering:* **Y Li**, R B Neumann, S Zhang

1947182 *Insights from commercial-scale basalt weathering in agricultural farmland in the Southeast US:* **J Martens**, E Chang, C Schaffer, R Jones, J Schneider, H Liu, M Yap, E Milliken, N Planavsky

1955514 *Isotopic and Chemical Analyses to Assess Co-benefits of Enhanced Rock Weathering on Soil Water Retention and Carbon Sequestration:* **A J Harm**, A Visser, N Sokol, J Pett-Ridge, R Schmidt, M Ben Israel, A T O'Geen, I P Montanez, S Whiteaker, J Sohng

- 1957258** *Lab dissolution experiments and reactive transport models reveal the interplay between alkalinity generation and secondary mineral formation in the Upper Deschutes Basin, Oregon:* **S Muñoz**, J S Miller, E J Ramos, N Jemison, Y Hou, W Larsen, J Bernstein-Schalet, K D Suquino, M Gammerman, P C Kemeny, M Torres, D E Ibarra
- 1924966** *Linking Researchers to Real-World Data: ERW Data Quarry Can Help Advance Scientific Understanding:* **T Thorlakson**, V Rao
- 1880329** *Managing agricultural rock amendments for decadal-scale deployment:* **T Kukla**, Y Kanzaki, F Chay, C T Reinhard
- 1950683** *Mesocosm-Scale Evaluation of Self-Integrating Accumulators for Monitoring, Reporting and Verification of Enhanced Rock Weathering in Agriculture:* **M E Kelland**, J Sellars, T Michaelis, G Faria, C Bisping, D Bell, E L Kelland, F Carlton, A McBride, A Schwarz, W A Bischoff, T Oehm
- 1981769** *Modeling Enhanced Rock Weathering with Field Validation: Unveiling Ecological and Geochemical Interactions in Croplands:* **S Shao**, W J Riley, R F Grant, Z Li, S Yang, J Tang, S Saleska
- 1979591** *Modeling soil pH buffering for carbon dioxide removal during enhanced weathering:* **K Maher**, D B B Rogers
- 1990649** *Not just CO₂: Impacts of Enhanced Rock Weathering on N₂O and CH₄ emissions in Agricultural Soils:* **B Arora**, J Zhang, R Kumar, E L Sonnenthal, P S Nico
- 1976815** *Organic-Inorganic Interactions in Enhanced Rock Weathering: Implications for carbon dioxide removal:* **W Buss**
- 1973531** *Quantifying the Impacts of Enhanced Weathering on Soil Nitrogen Cycling and Crop Production via a Calibrated Reactive Transport Model:* **B Zhou**, Y Kanzaki, N Planavsky, I Chiaravalloti, S Zhang, C T Reinhard
- 1955054** *Quantifying Uncertainty, Managing Risk: A Digital Twin Decision Support Framework for Scalable Enhanced Rock Weathering Projects:* **T Mittal**, J S Jordan, N Choquette-Levy, M S Fantle
- 1987599** *Rhizosphere-Biochar-Weathering Interface for Carbon Dioxide Removal:* **M Rivera**, J Lehmann, D Lee, D Lozano
- 1883430** *Role of Soil Cation Exchange in Regulating Carbon Dioxide Removal via Enhanced Weathering:* **I Davis**, H Sheridan, S Ruiz, C R Pearce, T Roose, R H James
- 1976583** *Significant decoupling of carbon sequestration and rock weathering in acidic soils:* **C Su**, R Kang, Y Fang
- 1921734** *Soil Properties Influence Enhanced Rock Weathering Efficacy and Carbon Accrual Dynamics:* **A Zhou**, I Shabtai, R Wilhelm, O Qafoku, Z Zhu, J Bougoure
- 1959013** *Spatial Heterogeneity of Soil Greenhouse Gas Emissions in an Enhanced Weathering Agricultural Trial:* **I Falkson**, I Chiaravalloti, E Milliken, N Planavsky
- 1951265** *Synergistic Carbon Removal in Agroforestry Coffee Systems: Enhanced Rock Weathering, Biochar, and Mycorrhiza for Climate and Yield Resilience in Colombia:* **J C Silva**, A Barrero, L A Silva
- 1903211** *Synergistic effects of enhanced rock weathering and organic inputs on microbial communities and soil carbon accrual:* **J Sohng**, N Sokol, P K Weber, S Schweizer, K D Morrison, S Whiteaker, R Schmidt, M Ben Israel, J Pett-Ridge, I P Montanez, A T O'Geen, K Scow
- 1953016** *The case for enhanced rock weathering using lime, not basalt:* **S L Brantley**
- 1916941** *Tracing Carbon Loss in Small Agricultural Tributaries: Implications for Enhanced Rock Weathering:* **R B Neumann**, D E Butman, M Orrand, E Bauer, J Haken, K E Stevenson, A Stumpf
- 1918182** *Tracking Weathering Signals Using Trench and Lysimeter Waters in a California ERW Field Trial:* **C Ownby**, M Ben Israel, O Elliott, J Sohng, S Whiteaker, R Schmidt, A T O'Geen, N Sokol, K Esquivel, J Pett-Ridge, I P Montanez
- 1952831** *Trends in U.S. Agriculture Policy: Implications for Enhanced Rock Weathering Research:* **A S Roberts**, R Smith

249573

Evaluating blue carbon across the tropical/subtropical seascape (joint with EP, GC, OS, PP)

Conveners: **Zhen Zhang**, Tulane University; **Annie Tamalavage**, Smithsonian environmental research center; **Luke Lamb-Wotton**, ; **Lucy Carruthers**, East Carolina University Department of Coastal Studies; **Zoë Shribman**, Tulane University

- 1970333** *A Warming Ocean Stalls Global Mangrove Restoration Targets and Diminishes Their Economic Value:* **K Ricke**, B Bastien, D J Amaya, O Aburto-Oropeza, F Favoretto, E Urbano, L Brander
- 1851507** *Blue Carbon Potential of the West African Coastal Ecosystem and Possible Threats:* **N Ogbonna**
- 1996334** *Carbon accumulation in paired restored and natural mangrove ecosystems:* **B E Rosenheim**, B A Aguilar Enriquez, S Schuster, J Smoak, J Breithaupt, K Radabaugh, R P Moyer, J Gutierrez-Paiz, A Vazquez-Marrero

- 1968652** *Carbon Storage in Tropical Saltmarshes: A Case Study from Sri Lanka*: **S Swarnamali**, E P D N Thilakarathne, M Danthurebandara
- 1941811** *Climate-Driven Adaptations in Mangrove Carbon Sequestration: Simulated Experimental Evidence*: **L Chen**, P Qiao Dr, X Gu Dr
- 1944425** *Decadal Changes in Blue Carbon: High-Resolution Multi-Sensor Monitoring of Mangrove Total Carbon Stocks in Kenya's South Coast REDD+ Sites*: **L B Nasimiyu**, M Gebreslasie, R Masolele
- 1888693** *Evaluating Blue Carbon Across Tropical Seagrass Meadows at the Site and Geomorphic Scales*: **N Iram**, D Friess
- 1956659** *Exploring deposition of blue carbon on karst coastlines: opportunities within sinkholes (cenotes)*: **A Tamalavage**, S Canty, H Morrissette, P Megonigal, A Rovai, F Arcega-Cabrera
- 1993202** *Forest's Structure and Carbon Stock Potentiality of Planted Mangrove in Nijhum Dwip Island, Noakhali, Bangladesh*: **M I Alvi**, A F M A Rahman
- 1857553** *ForestSplat: Proof-of-Concept for a Scalable and High-Fidelity Forestry Mapping Tool Using 3D Gaussian Splatting*: **M Wu**, S Crooks
- 1884988** *Generation of global mangrove species reference dataset*: **H Zhang**, H Zhang
- 1992255** *Geochemical Controls on Carbon Sequestration in Degraded Mangrove Soils of the Bay of Bengal: A Comparative Study of Sundarban and Bhitarkanika in Eastern India*: **A Das**, P Bhattacharyya, S Khaoash
- 1954761** *Global-scale patterns of carbon and nitrogen soil fluxes in mangrove ecosystems*: **L Lamb-Wotton**, M Fernanda Adame, J Adams, V Budi Arifanti, T G Bornman, D Buttner, L Chen, D Epron, J Hoyos-Santillan, L Human, N Iram, G Lin, W Nakamura, R Ray, J Rosentreter, J Salas Rabaza, D Friess
- 1926704** *High Resolution Mapping of Global Mangrove Canopy Height*: **D Zhang**, Y Yang, N Kwon, S Li, L B Sagang Takougoum, F Wagner, S S Saatchi

251622

Exploring the Aeromicrobiome: Advances in Sampling, Modeling, and Understanding Microbial Roles in Atmospheric Processes

Conveners: Saira Hamid, ; Vernon Morris, Arizona State University

- 1974134** *Air Microbiome Shifts Following Natural Disaster Hurricane Helene*: **K Metris**

- 2001234** *Mangrove carbon stocks & fluxes along environmental gradients in arid Baja California Sur to improve carbon accounting*: **Z Shribman**, J R Torres Velázquez, T Frausto-Illescas, L Lamb-Wotton, C Ortega-Trasviña, Z M Sanchez-Mejia, D Friess
- 1949783** *Mapping the resilience of mangrove forests across Mesoamerican Reef region with a time series model and remote sensing data*: **S Punalekar**, S Canty, M Sime, Q Huang, A J Nowakowski, C Fergus, R E Kennedy, G M Connette
- 1983516** *Mapping the Variability in Seagrass Carbon Stocks Across the Caribbean*: **L Smart**
- 1954341** *Methods Comparison for Soil Organic Carbon Estimation in Semi-Arid Mangrove Sediments Reveals Systematic Inflation of "Blue Carbon" Credits*: **L Norton**, J Sanderman, M Jacques, P Hagberg, A Diatta, K Guild Douglass, D M Peteet
- 1902663** *National-level data sources and capacities for monitoring blue carbon in mangroves*: **J Bukoski**, R Bhargava Gajre, I Ford, A Gonzalez, K M A Islam, J Acosta-Velázquez, D Friess, S Wilson
- 1978879** *Porewater Salinity Is a Major Global Control on the Structure and Function of Mangrove Ecosystems*: **A Molini**, A Nwokoye, A Rovai
- 1959923** *Seagrass as a stabilizing environment for benthic foraminifera living in anthropogenically impacted coastal areas*: **S Abramovich**, S Ashckenazi-Polivoda, G Antler, Y Eshed, G Winters
- 2002752** *Spatial Heterogeneity in Dissolved Inorganic Carbon and Hydrologic Controls of Solutes in Tropical Mangrove Estuaries*: **C N Sunjo**, E A Atekwana, H M Agbogun, H N Ali, I K Njilah
- 1921587** *USING BERYLLIUM 7 TO DETERMINE SEASONAL DEPOSITION RATES IN A SEAGRASS BED ON THE NORTH CAROLINA COAST*: **K Smith**, B A McKee
- 1992074** *Where has blue carbon accumulated in Singapore over the last 10,000 years?*: **B P Horton**, Y Nathan, T Li, S Chua, T Ng, C W J Tan, F Y Tan, D Friess, A J Meltzner
- 1978439** *Presence of Aerosolized and Aquatic Halophiles Confirmed via Halobacteria-Specific Primers*: **N Drucker**, C Cody, M Rutter, M E Rhodes
- 1988898** *What Makes an Atmosphere Habitable?*: **D Gentry**
- 1866846** *The Atmosphere: A Living, Breathing Ecosystem?*: **R Lappan**, A Besser, J Lima-Zaloumis, E Magnuson, E Martinez-Rabert, L Molaes Moncayo, J Thakar, J A Bradley, J Goordial, E Trembath-Reichert, C Greening
- 1897709** *Life in the Clouds of Venus?*: **S S Limaye**

1950224 *Early Cloud Microbiology at Whiteface Mountain: S Lombardo, A Tripathy, S V Chittur, P Casson, A Hayden, M L Kuentzel, K DeMarle, R Patel, L P Hammond, S McKim, J Schlemmer, S Lance*

249839

Exploring the Influence of Environmental Contaminants on Soil Biogeochemistry: Advances in Analytical Techniques and Methodologies

Conveners: **Tasneem Ahmadullah**, Pacific Northwest National Laboratory; **Emily Graham**, Washington State University; **Sophie Lehmann**, Johns Hopkins University; **Nefeli Bompoti**, University of Massachusetts Dartmouth

1970305 *Application of Pyrolysis Gas Chromatography-Mass Spectrometry (Py-GC/MS) in Analyzing Mineral Associated Organic Matter and Organic Contaminants in Environmental Samples: T Ahmadullah, S B Lehmann, E B Graham, M Flury, V Noel, E Paulus*

249237

Fog in Tropical Mountains, Islands, and Forests (joint with A, H)

Conveners: **Han Tseng**, University of Hawaii at Manoa; **Thomas Giambelluca**, University of Hawai'i at Mānoa

2005204 *Detecting Cloud Water Interception in a Tropical Montane Cloud Forest Using Dual-Disdrometer Observations in La Réunion: A Gaspard, C Ah-Peng, P Staménoff, E Moreau, C Duprat, A Boudaoud, S Drevensek, J Van Baelen, V K/Bidi, R Biron, B Boudevillain*

246685

Forest Ecophysiology: Forest Physiological and Ecological Processes from Molecules to Ecosystems (joint with GC, H)

Conveners: **Doug Aubrey**, University of Georgia; **Daniel Johnson**, University of Georgia; **William Hammond**, University of Florida; **Caren Mendonca**, University of Georgia

1994562 *Acquisitive fine root strategy could predispose yellow-cedar to climate change induced decline: M Simovic, S T Michaletz*

1946444 *Chlorophyll a Fluorescence as a Tool for Rapid, High-Throughput Assessment of Post-Fire Tree Foliage Mortality: J McDaniel, J O'Brien, D M Johnson, D P Aubrey*

1920176 *Microplastic Detection in Complex Environmental Matrices: Comparative Study of Thermal Degradation Methods: A Afzal, T Malloy, Q Fu, J Radovic*

1933327 *Orbitrap IRMS as an emerging capability for tracking environmental pollutants: A preliminary laboratory fingerprinting study using $\delta^{13}\text{C}$ analysis of PFOA: J Moran, H Nelson, Z Xu, H Li*

1919253 *Preliminary Assessment of PAHs in Soils Near a Coal-Fired Power Plant: D Zheng, P Nguyen, T Malloy, J Radovic*

1885173 *The impact of microplastic pollution on bioturbating soil invertebrates and biogeochemical cycling: S Krause, M Wazne, U Schneidewind, L Simon, F Mermillod-Blondin, L Kelleher, L Haverson*

1848677 *Evaluating WRF-Chem Performance for Simulating Dense Fog: A Case Study over Delhi NCR, India: A K LAL, R Kumar, R K Kunchala, M Mohan*

1871736 *Fog Suppresses Microclimate Spatiotemporal Variability by Weakening Land-Atmosphere Interactions: Y S Jang, M H Lo, Y J Lai*

1884664 *In Situ Ground-Based Fog Droplet Measurements for Cloud Water Interception Prediction in a Hawaiian Tropical Montane Cloud Forest: H Tseng, T W Giambelluca, R Sankaran, P Beckman, D Giardina, J Leigh*

1922677 *Coastal Pine Ecophysiology and Successional Dynamics Under Chronic Salinization: C Pell, B Miller, G W Moore*

1848412 *Coordination of Whole-Tree Water Transport and Storage Is More Synchronized in Mesic Than Semi-Arid Species: L Tucker, K Reinhardt, D M Johnson, R Emanuel, K Minick, J Bahramian, D Love, J Rojas*

1945277 *Coupling continuous water potential and electrical resistivity tomography observations provides novel insight on the seasonal controls of whole-plant conductivity limiting tree and forest gas exchange: D P Beverly, A Parsekian, A Crookshanks, R P Phillips, K Novick*

1963573 *Differentiating Structural and Non-Structural Carbon Using Ecosystem Carbon Flux Measurements: B Baniya, D Kim, M Nkrumah, C Sarpong, M Ono, J Dong, G Miao, A Noormets*

- 1981395** *Divergence in functional strategies between two widespread boreal conifers in response to warming and CO₂*: **Y Song**
- 1959764** *Divergent Hydraulic Strategies in Boreal Peatland Tree Species Affect Leaf Temperature And Carbon Uptake*: **M Balog**, J Warren, S Colunga, M Krassovski, K J Pearson
- 1849881** *Environmental changes recorded in tree-ring width of the Norway spruce (*Picea abies* L.) growing in the Śnieżnik Massif (S Poland)*: **A Cedro**
- 1980823** *Evaluating Climatic and Environmental Drivers of Coast Redwood (*Sequoia sempervirens*) Growth Using Hourly Point Dendrometer Data*: **L Klinek**, M Rao, M Rodriguez-Caton, K Suvocarev, H Chu, K T Paw U, T Magney
- 1868735** *Forest response to dam removal*: **K Peterson**, R Oelkers, H T T Nguyen, PhD
- 1891529** *Hydrological Dynamics in Developing Forest Stands*: **C Mendonca**, C R Jackson, D P Aubrey
- 1991959** *Hyperspectral LiDAR fusion for forest drought monitoring*: **J Allen**, L D Anderegg, D A Roberts, A T Trugman
- 1923118** *Impact of Salt Stress on Leaf Physiology of Pine Saplings*: **B Miller**, C Pell, G W Moore
- 1958795** *Impacts of an Early Growing Season Prescribed Burn on Hydraulics of *Pinus palustris*, *Quercus laevis*, and *Quercus margaretta* saplings*: **V Hudspeth**, D M Johnson, S T Brantley
- 1936016** *Linking Turgor Loss Point to Tree Ring Growth Rates across a Latitudinal Gradient in the Eastern United States to Assess Differences in Inter- and Intraspecific Responses to Drought*: **V Vandewater**, J Hastings, M A Vadeboncoeur, H Czech, P Knight, K Ghimire, E Tetreault, J Dionis, A Kotulak, D Lemke, S V Ollinger, J Gersony
- 1862087** *Long-term Impacts of Prescribed Fire Return Intervals on Tree Growth and Forest Structure*: **D P Aubrey**, J O'Brien, J Taylor
- 1903555** *Myriad Ecophysiological Responses of Boreal Plants to 10 Years of Whole Ecosystem Warming and CO₂*: **J Warren**, M E Dusenge, J Peters, M Krassovski, J Noce, K J Pearson, J Lau, A D Richardson, M Balog, D M Ricciuto, A Seibert, J Enterkine, N F Glenn, P J Hanson
- 1949086** *Plant Latex Resilience; A Vein-level Defense Strategy in Latex Producing Species*: **M Boakye**, B Cundiff, B Blonder
- 1983331** *Poleward Forest Migration that Affects Light Competition and Tree Fecundity: Evidence from a Continental Comparison*: **M Hu**, J S Clark
- 1868880** *Putting soil waterlogging into stomatal conductance models*: **B Wolfe**, M Brennan
- 1957338** *Species-Specific Responses to Ecosystem Warming May Lead to Greater or Lesser Vulnerability to Cold Damage*: **F Campos-Arguedas**, M North, A Kovaleski
- 1878993** *The Long-term Effects of Forest Thinning on Xylem Vessel Anatomy in a Temperate Deciduous Forest*: **C Dow**, S Kannenberg
- 1969032** *The Role of Hydrologic Intensification in Ecosystem Recovery from Flash Drought Induced Acute Water Stress Across the Western United States*: **A Khan**, K Ogle, P C Stoy, D Peltier
- 1949761** *Tree Growth and Its Climate Signal Along a Latitudinal Gradient: Comparison of Contiguous and Disjunct Populations of *Tsuga Canadensis* in the Eastern US*: **M Ferriz Nunez**, J T Maxwell, G L Harley, K King
- 1863154** *Tree growth represents a small sink for newly fixed carbon*: **S Kannenberg**, F Babst, M Barnes, A Cabon, M P Dannenberg, M Johnston, W Anderegg, W Wright, J Ehleringer, R Monson

249293

Forest Phenology in a Changing Climate: Integrating Observations, Models, and Ecosystem Impacts (joint with EP, GC)

Conveners: **Dhruvi Sedha**, GUJARAT UNIVERSITY;
Andrew Richardson, Northern Arizona University;
Dhruvi Sedha, GUJARAT UNIVERSITY

- 1858090** *Assessing Leaf Phenology in Tropical Dry Deciduous Forests: A Comparative Analysis of Model Estimates and Satellite-Derived LAI*: **P Nuttiprapun**, A Ito
- 1956938** *Cold Hardiness Informs Time to Budbreak in Temperate Woody Perennial Plants*: **E Kirchhof**, A Kovaleski
- 1934877** *Detecting Flowering Phenology in Temperate Forests Using PlanetScope Imagery*: **S Kim**, M Moon, H Lee, J Kim, H S Kim
- 1967832** *Disentangling data and process error in simulating vegetation responses to drought*: **C Heckman**, L Lowman
- 1907818** *Estimating Fall Foliage Onset from Photographic Data Using an RGB-Based Indicator*: **S Lee**, S Jeong
- 1904886** *Investigating Phenological Responses to Climate Variability through PhenoCams: Insights into Leaf Movement and Heat Tolerance Mechanisms*: **J R Mathew**, C P Singh, H Solanki, D Sedha
- 1848008** *Phenological Monitoring in Water-Limited Forest Ecosystems: Digital Imagery and Machine Learning Integration for Vegetation Assessment*: **D Sedha**, C P Singh, H Solanki, J R Mathew

1846327 *The Acadian Phenocam Network: Tracking and Anticipating Changes to Forest Phenology and Growth in Eastern Canada:* **L Spafford**, L D'Orangeville, M MacDonald, A H MacDougall, A Taylor, L Kellman, J Steenberg

247123

Forest Structural Diversity: Metrics, Methods, and Links to Ecosystem Functions (joint with GC)

Conveners: **Jingfeng Xiao**, University of New Hampshire; **Erin Crockett**, University of British Columbia; **Qinfeng Guo**, USDA Forest Service - Eastern Forest Environmental Threat Assessment Center; **Jeff Atkins**, USDA Forest Service Southern Research Station

1999585 *Agentic AI Extraction of Dendrometric Parameters from a 3D Point Cloud Acquired by SLAM-based Handheld-MLS for Forest Inventories:* **M Jabrane**, I Sebari, K Ait El Kadi

1987593 *An Automatic Threshold Optimization Method of Spaceborne Large-footprint Full-waveform LiDAR for Forest Parameter Estimation:* **C Wang**, Y Pang

2000472 *Assessment and Enhancement of Spaceborne LiDAR-Derived Forest Canopy Height in a Temperate Forest:* **X Xu**, A K C, B Pokharel

1994715 *Correlating Airborne LiDAR Forest Structure with Explicit Tree Architecture:* **L Gulas**, J Carpenter

1968462 *Global Pasture Watch Short Vegetation Height Product Quantifies Median Height Increases Before and After Land Use Change Identification in the Brazilian Cerrado:* **M O Hunter**, L Parente, M Barroso, L Sloat, L G Ferreira

1971753 *Humid tropical forest foliar height diversity (FHD) increases after deforestation with stand age – a comprehensive Democratic Republic of Congo multi-decadal study using the NASA GEDI FHD and European Union Tropical Moist Forest Cover Loss products:* **H Kashongwe**, D Roy, M S Cho, C Hakkenberg

1984658 *If a tree is “Protected”, is it? Using satellite-borne LiDAR to understand the structural dynamics of West African Protected Areas:* **A Barenblitt**, T Fatoyinbo, A Stovall, L Duncanson, M Liang, V Leitold

1988806 *Quantification of Slope-induced Errors in GEDI- and ULS-based Canopy Height Models:* **G Lim**, Y Ryu, T Yang, C Choi, Y Nam

1963247 *Quantification of Wood Decay in Sal (*Shorea robusta*) Using Sonic Tomography in Nepal's Central Inner Terai:* **K Ghimire**, S Ulak, P Pandeya, S Bhandari

1983164 *Scale as a New Dimension of Forest Structural Diversity:* **C G Andresen**, J A May, B Murphy, T Zheng, A R Desai

1947392 *Timing of peak growth in leaves, stemwood, and roots is asynchronous:* **M L McCormack**, M Lo, N Tran, T Nikitin, R Nakahata, V Bonnywell, M Midgley, C Rollinson, C M Iversen, PhD

1852576 *Parking Lots and Cornfields: Do Forest Edges Know the Difference?:* **B Li**, Z Horve, B McCallister, B S Hardiman, S Rao, R T Fahey

1854909 *Harnessing Plant Trait Databases for Tracking Functional Diversity in conservation and management:* **J Lee**, W Cornwell, J Brazill-Boast, R Gallagher

1871418 *Three-Dimensional Forest Structure from Terrestrial Laser Scanning Improves Biomass Estimation in a Temperate Broadleaf Forest:* **Y Zhou**, M Barnes, K A Novick

1874995 *Species-Specific Structural Complexity Reveals Strategies for Light and Water Use in Deciduous Forest:* **Y Fan**, X Yang

1888375 *Deep learning-based Wood Reconstruction and Leaf-Wood segmentation model for full tree volume estimation from 3D Tree Modeling under Presence of Occlusions and Leaves:* **H Mun**, Y Ryu, T Yang, Y Nam, C Choi

1897821 *Linking Vertical Structure and Biodiversity: Functional Diversity of Indian Forests from Space:* **T Satapathy**, D Dutta

1899323 *Drought, Wildfire, and Tree Mortality: A Decade of Forest Height Trends in California:* **N Queally**, C Anderson, C DeRanek, E Ordway

1905831 *A Forest Vegetation Survey on Janggeorido-Island, Sogomundo-Island, Bodeunagiseom-Island, Yeosu, Jeollanam-do, Korea:* **S K Lee**, H S Je, A Seol, C Park

1913948 *Assessing Structural Recovery of Secondary Tropical Forests Using GEDI mission:* **L Haneda**, D Valle

1916288 *Crown Structure and Competitive Interactions in Mixed Forests: Insights from an Individual-Based Model:* **H Sato**, A Sumida

1922906 *Crowns, Competition, and Continuity: A Machine Learning Approach for Annual Yield Prediction of *Pinus taeda* (L.) Using UAV-LiDAR Data:* **G Barua**, PhD Student, D Carter, V A Thomas, P Green, P Radtke, T Pingel, R L Cook, T Albaugh, R Rubilar, O Campoe, M Sumnall

1928318 *Forest Structural Diversity as a Biome-Wide Predictor of Taxonomic Diversity:* **B Alveshere**, L Bulluck, T Siddiqui, E A LaRue, C M Gough

1928555 *Interactive Effects of Wildfire and Log Decomposition in the Pacific Northwest: Results From Year 40 of a 200-year Log Decomposition Experiment:* **J Bukoski**, H Peter-Contesse, G Seyfried, Y Wang, C Winters Borcich, M Harmon

- 1936058** *The Role of Forest Structural Legacies from Prior Experimental Disturbance on Outcomes from an Ice Storm:* **I Kennedy**, R T Fahey, C M Gough
- 1946174** *Forest structure assessment through in-forest drone flight with a compact LiDAR system for satellite laser:* **A Kato**, S Yamada, T Nakaji, N Tsutsumida, Y Sawada, S Suzuki, T Nakata, R Noda
- 1948085** *Deriving Hardwood Species and Functional Traits from Incomplete LiDAR Data:* **J Carpenter**, J Jung

250826

From Air to Orbit: Integrating Field, Airborne, and Satellite Observations for Terrestrial and Aquatic Ecosystem Monitoring

Conveners: **Erika Podest**, Jet Propulsion Laboratory; **Dana Chadwick**, Jet Propulsion Laboratory, California Institute of Technology; **Erin Hestir**, North Carolina State University Raleigh; **David Schimel**, Jet Propulsion Laboratory, California Institute of Technology

- 1967492** *AVUELO Endmember Diversity, Its Relationship with the Dimensions of Biodiversity, and Implications for Current and Future Imaging Spectroscopy from Space:* **N L Quinteros Casaverde**, E Czyz, Y Angel, A Baresch, E Marsh, H C Muller-Landau, P A Townsend, P G Brodrick, D Schimel, E Podest, J Chapman, M Bernas, S Serbin, BA, MS, PhD
- 1968765** *Integrating Airborne Imaging Spectroscopy and Dendroecology to Investigate the Dynamics of Plant Traits and Forest Carbon:* **E Shafron**, C A Cansler, J Carrasco, E Czyz, C DeRanek, S Ferrenberg, J S Kimball, R Pavlick, F Schneider, P A Townsend, T Zheng, A Ballantyne
- 1988233** *"Trees within LAC": Environmental Monitoring and Education through Citizen Science in Latin America and the Caribbean (2023–2025):* **M Savino**, A B Prieto, C Caro, A Ventoso, J Gonzalez
- 1974586** *Advances in NEON Airborne Observation Platform Data Products:* **V S Konduri**, S R Weintraub-Leff, T Goulden

- 1958072** *Canopy Complexity as a Key Mechanism Linking Tree Diversity and Productivity Across Two Large-Scale Forest Diversity Experiments:* **C Fahey**, D H Choi, J Wang, G M Domke, J Edwards, S Fei, S Kivlin, E A LaRue, M McCormick, W J McShea, R P Phillips, J Pullen, J Parker
- 1959187** *Simulating Mature and Old Growth Forest with Associated Lidar Waveforms for CONUS Study Sites:* **A H Armstrong**, B Poulter, J Bruening, N Pederson, K A Melocik, L Wertis, R Dubayah, J Sanborn
- 1966517** *Validating GEDI-Derived Habitat Structure for Use in Biodiversity Studies:* **C Sweeney**, K Zhao, C Wei, B Zuckerberg, M A Jarzyna
- 1866308** *Airborne and In Situ Campaigns Cover the Earth's Climate and Floristic Variation:* **D Schimel**, A Baresch, N L Quinteros Casaverde, Y Angel, E Czyz, E Podest, P A Townsend, D Chadwick, K R Miner, S Serbin, BA, MS, PhD, T Goulden, J Slingsby, T Zheng, H Frye, K R Kovach, S R Weintraub-Leff, V S Konduri, A Cardoso, A M Wilson, K Cawse-Nicholson, S J Goetz, C E Miller, K F Huemmrich, P C Griffith, P G Brodrick, C Ade, J Chapman, R O Green, R Pavlick, W W Turner, M E Schaepman, A Hueni, M Rast, M Celesti, B K Bhattacharya
- 1857769** *Airborne and Spaceborne Imaging Spectroscopy Capture Belowground Microbial Communities and Physicochemical Characteristics in Invaded Grasslands:* **M N A Rakotoarivony**, K Hassani, S D Fuhlendorf, B Bachelot, R G Hamilton, H Gholizadeh
- 1901847** *Assessing geodiversity and spectral diversity across spatial scales in the Cape Floristic Region:* **K Grant**, P G Brodrick, K Cawse-Nicholson
- 1926916** *Bridging Scales in Terrestrial Ecology: A Scalable, Modular Tool for Harmonizing Spectral Data Across UAS, Airborne, and Satellite Sensors:* **C H Amaral**, T Tuff, N T Ilangakoon, T McIntosh, S Gennette, M Bitters, E Verleye, J Shastri, P Appanna, C Jensen, N Hofford, R C Nagy, M Cattau, C A Wessman, J Balch
- 1913026** *Capturing Lake Mendota Seasonal Phenology with an Airborne Hyperspectral Field Campaign:* **S K Skoglund**, B Heberlein, M M Oo, H Schlimm, J Sustachek, R Holz, P A Townsend, K D McMahon, G Wilkinson, P C Hanson
- 2005226** *eDNA and Canopy Signatures Track Biodiversity Across the Western Cape's Managed and Disturbed Landscapes:* **M Slimp**, S Johnson, J Nessler, J Malindi, M Hayden, A Hargey, E N Stavros, M W Rossi, R Meyer

- 1924838** *ELEVATE: CO₂ Fertilization Experiment in a Costa Rican Neotropical Forest*: **G Shirkey**, A Agatep, G Dauber, C D Deering, C Doughty, J F Espeleta, R Fisher, L Fu, G R Goldsmith, H Hatch, M Jia, A Liu, J Vargas Murillo, K Nelson, C S O'Connell, A L Pivovarov, E Podest, S van Riper, D Schimel, F M M Schwandner, A L S Swann, M Snyder, C Terrer, M Camacho Umaña, G Yokoyama, C Zalman, J B Fisher
- 1953842** *Following the Wildflower Blooms: Multiscale Spectroscopy from Flower to Orbit*: **Y Angel**, E Lang, D Kathuria, E Czyz, D Chadwick, E Podest, S Serbin, BA, MS, PhD, D Schimel, A N Shiklomanov
- 1946016** *From leaf to orbit: the technical and social evolution of field campaign scaling diagrams*: **P C Griffith**, K F Huemmerich
- 1865045** *How Imaging Spectrometer Specifications and Deep Learning Metrics Influence the Assessment of Spectral Diversity and Biodiversity Relationships*: **M D Chaity**, R Bhatta, J A van Aardt
- 1976252** *Imaging Spectroscopy Reveals Global Variation in Leaf-Economics Trait Relationships*: **P A Townsend**, E Czyz, B Dechant, H Frye, K R Kovach, H C Muller-Landau, P Ravindran, E Shafron, J Slingsby, T Zheng, S Graves
- 1998457** *Integrating Imaging Spectroscopy and Avian Functional Diversity for Biodiversity Monitoring*: **F Adegbola**, A Wilson, S M Evans, C Larsen, H Williams
- 1976641** *Landscape scale functional traits and functional diversity explained productivity across contiguous United States*: **S LIU**, P A Townsend, Y Feng, J Wu

252422

From Bedrock to Atmosphere: Forest Functional Responses to Disturbance in Mountain Watersheds

Conveners: **Marshall Worsham**, Science Systems and Applications, Inc.; **Nicola Falco**, Organization Not Listed; **Mariah Carbone**, Rocky Mountain Biological Laboratory; **Erin Carroll**, University of California Berkeley

- 1985378** *Critical Zone Structure Moderates Dry Season Plant Water Stress Along a Hillslope*: **K Hearst**, J A Whiting, W J Hahm, D M Rempe, D Dralle

- 1961247** *Multi-Scale Remote Sensing of Genetic Variation in Quaking Aspen (Populus tremuloides)*: **E Carroll**, A Phillips, R Cruz-de Hoyos, D Sousa, M Expósito-Alonso, B Blonder
- 1964275** *Phytoplankton Community Composition in Inland Waters from Airborne and Satellite Hyperspectral Data*: **S Sharp**, R E O'Shea, L S Guild, A Cortes, A Forrest, J Kravitz, L Robertson-Lain, S Mpapane, R Mudzielwana, H Pillay, G Pindihama, G Schladow, M Smith, J L Torres-Perez
- 1910971** *Remote Sensing for Biodiversity: Insights from the BioSCAPE Campaign*: **A Wilson**, E L Hestir, J Slingsby, A Cardoso
- 1934137** *Seeing the physiology in the trees: the potential of resolving physiological information from spectroscopic signals*: **A Baresch**, S Serbin, BA, MS, PhD, E Podest, P A Townsend, H C Muller-Landau, N L Quinteros Casaverde, E Czyz, L Londoño, Y Angel, M R Carvahlo, R Collin, B Heberlein, J Vergara Cortez, C Jaramillo, E Marsh, J McLean, L Puente, C Troy, J Wright S, B Poulter, D Schimel
- 1969852** *SHIFTing from Flora to Fauna: Combining Bioacoustics and Imaging Spectroscopy to Track Seasonal and Spatial Patterns of Riparian Animal Vocal Activity*: **C McMahon**, N Queally
- 1977782** *Spatial Patterns of Three California Native Oaks Across Heterogeneous Landscapes using Imaging Spectroscopy and LiDAR*: **H Li**, J P McFadden, D A Roberts, L D Anderegg
- 1917446** *Toward Validating Digital Twins of Complex Shrubland Ecosystems for Next-Generation Airborne LiDAR Studies*: **R Bhatta**, M D Chaity, J A van Aardt
- 1956586** *Quantifying deep subsurface controls on forest dynamics using near-surface geophysics, in-situ measurements, and remote sensing*: **R P Callahan**, A Donaldson, K M Jarecke, A Price, M Dumont, J Lee
- 1955301** *Simulating endogenous and exogenous forest dynamics in mountain ecosystems*: **A Foster**, W R Wieder, A Simonpietri, A D Richardson, B Lucas, M S Carbone
- 1950411** *Winter Contributions of Root and Microbial Respiration to the Soil CO₂ Flux in Mixed-Conifer and Aspen Forests*: **A Simonpietri**, A D Richardson, G Blumencweig, W R Wieder, A Foster, B A Hungate, K H Williams, M S Carbone

252380

From Molecules to Food Webs: Nitrogen Cycling Processes in Aquatic Environments (joint with EP, GC, OS, PP)

Conveners: Lin Zhang, Woods Hole Oceanographic Inst; Wei Qin, University of Illinois at Urbana-Champaign; Weiyi Tang, University of South Florida St. Petersburg; Xin Sun, University of Pennsylvania; Charlotte Lee, Texas A&M University Corpus Christi

1896606 *Amino Acid Concentrations and Nitrogen Isotopes Patterns In Phytoplankton Across Growth Phases:* **N Delgado**, J Baca, N Vidyarthna, K Wahid, P M Glibert, M A Altabet, C Lee, L Zhang

1887838 *An analytical framework for intramolecular $\delta^{15}\text{N}$ analysis of poly-nitrogenous amino acids:* **C W M Lee**, M A Altabet, J Baca, J Barrera, N Delgado, L Gilley, E Moats, J Guest, C Jones, L Rios, L Zhang

1863270 *Coupled oceanic nitrogen losses and inputs over the past six million years:* **X T Wang, PhD**, T Kong, H A Ren, Y Cui, A Auderset, D Marconi, R Zhai, J R Farmer, J Lueders-Dumont, C J Somes, A Oschlies, B Petrick, A C Ravelo, A Martinez-Garcia, G Haugh, D M Sigman, Y Zhang

1990429 *Environmental Controls and Ecological Niches of Dominant Marine Ammonia-oxidizing Archaea Ecotypes in the Northeastern Pacific:* **L Hou**, X Sun, H Li, Z Zhang, D Stahl, W Qin

1972826 *Evaluating foraminifera-bound $\delta^{15}\text{N}$ as an ocean deoxygenation proxy: The influence of oxygen-deficient zone depths:* **T Kong**, T C Lee, K Landry, R Zhai, S Dong, X T Wang, PhD

1968109 *Finding the Roots of the Nitrogen Cycle in Marine Sediment Using DET Samplers and qPCR:* **J Scotten**, D Shull

249256

From Nano to Field: Scaling Soil Biogeochemistry with AI-Powered Multimodal Data Integration

Conveners: Tamas Varga, Pacific Northwest National Laboratory; Debjani Sihi, University of Florida; Jianqiu Zheng, Pacific Northwest National Laboratory; Arunima Bhattacharjee, Pacific Northwest National Laboratory

1917116 *Metabolic capabilities of nitrogen cycling organisms:* **S Chowdhury**, D Segre, R W Fulweiler

1855844 *Microbial Interactions Matter for Biogeochemistry: Nitrite Consumers Induce Nitrite Accumulation:* **X Sun**, D McCoy, L Xu, P Buchanan, E Zakem

1936214 *mSIDGO v1: A global open access marine metazoan stable isotope database:* **J Lueders-Dumont**, K O'Brien, R Steinshouer, L Corbitt, A O'Dea, S Finnegan, D M Sigman, B B Ward, T X Wang

1901328 *Natural Intelligence of the Nitrogen Cycle: Fine-Tuning by Multiple Nitrogen Cycling Processes to Optimize Opportunities in Ocean Dead Zones:* **J M Beman**, F Gutierrez

1858830 *Nitrogen availability and control of primary production, nutrient removal efficiency and outwelling in a river-dominated estuary, Mobile Bay, Alabama:* **J C Lehrter**, Z Liu, A Fletcher, N LaBon, A Bourne, C Mikolaitis, J Cameron, O Pickett, E Zibas, B Dzwonkowski, H Sreeshylam

1990476 *Ocean warming enhances iron use efficiency in marine ammonia-oxidizing archaea and reshapes large-scale nitrogen cycling:* **W Qin**, A Tagliabue, S John, F Fu, D A Hutchins

1950899 *On the coupling between N_2 fixation and particulate organic matter stoichiometry in the global ocean:* **C J Somes**, N Li, A Landolfi, M Pahlow, A Oschlies

1971644 *Trophic Position and Basal Nitrogen Sources of Zooplankton Across Oceanographic Gradients:* **L Gilley**, C Lee, J Barrera, M A Altabet, L Zhang

1954763 *Unraveling Marine Nitrogen Cycling in the Western North Pacific and South China Sea: Insights from Dual Nitrate Isotopes and Isotope-Based Modeling:* **R Y Cai-Li**, H A Ren, Y C Liu

1901372 *$\delta^{15}\text{N}$ -AA of Eye Lens Layers in Roundnose Grenadier from Two Norwegian Fjords with Contrasting Hypoxia Conditions:* **C Barrera**, A Finley, J Barrera, C Lee, J Baca, M A Altabet, L Zhang

1996512 *Advancing Root Analysis in Coastal Wetlands Through Optical Imaging and AI:* **M Hassan**, A Truong, M K Mudunuru, L Butler, A Rovai, C Larimer, J Daddona, A H Ahkami, J Bardhan, T Varga, K G Stratton, S Karra, R Twilley, N Jafari

1896462 *Automated Soil Microstructure Characterization Workflow for EMSL's Molecular Observation Network (MONet) Database:* **H S Wijesuriya**, L Washburn, W Petersen, M K Mudunuru, T Varga

1977466 *Coupling Chemical Imaging and CFD for Pore-Scale Reactive Transport:* **X He**, A Truong, M K Mudunuru, T Varga, N P Qafoku, O Qafoku

1928523 *Cross-Scale Insights into Silicate Weathering: Integrating Field-Based Samples and Observations with Advanced Analytical Techniques*: **R Lybrand**, M Morris, C Collins, D G G Zaharescu, D D'Amore, B Sutter, F J Tepley III, T Varga, P A Schroeder, E Slessarev, E E Nuccio, O Qafoku

251138

**GeoAI-driven Sustainable Agroecosystems:
Current state, Applications, & Future Directions**
(joint with EP, IN, NH)

Conveners: **Yuchi Ma**, Stanford University; **Ignacio Ciampitti**, Purdue University; **Phuong Dao**, Department of Agricultural Biology, Colorado State University, 307 University Avenue, Fort Collins, CO 80523, USA; **Jing Zhou**, Oregon State University; **Shuo Chen**, Beijing Normal University

1971998 *A secure, privacy-preserving Microsoft Confidential Clean Room to bridge the data-sharing gap between farmers and agri-tech innovators*: **G Shuai**, A K Whitcraft, R Sahajpal, D Joshi, A Shankar, H Prabhu

1862037 *Artificial Intelligence in Sustainable Potato Production: Nitrogen Management and Yield Prediction through Spectral Remote Sensing*: **A Alkhaled**, P A Townsend, Y WANG

1904757 *Assessing Corn Nitrogen Status at Key Growth Stages Through Multimodal Approaches with Ultra-High Temporal, Spectral, and Spatial Resolution*: **F Tian**, G Ruan, J Zhou

248531

**Geoclimatic drivers of nitric oxide (NO), nitrous oxide (N₂O), and nitrogen (N₂) emissions:
Microscale to global scale controls** (joint with GC)

Conveners: **Peter Homyak**, University of California Riverside; **Longfei Yu**, Norwegian University of Life Sciences; **Wendy Yang**, University of Illinois at Urbana-Champaign; **Caroline Buchen-Tschiskale**, Thuenen Institute of Climate-Smart Agriculture

1913486 *A New Model for Determining the Kinetic Isotope Effects for N₂O Synthesis and Its Application to Nitrification and Denitrification Reactions*: **E Rivett**, L Ellis, E Hegg

1983792 *An Open-path Nitrous Oxide Laser Analyzer for Eddy Covariance Flux and Mobile Monitoring Applications*: **R Jiang**, W Shen, K Wang, D Wilson, T J Lin, Y Wang

1953932 *Microbes Persist: Bridging from Multi-Omics to Multi-Scale Predictions*: **J Pett-Ridge**, L Honeker, P Chuckran, Z Li, M M Foley, G G Trubl, PhD, N Didonato, L Paša-Tolić, P Dijkstra, B A Hungate, K Georgiou, S Blazewicz

1873258 *Permafrost, Sea Ice, and Snow Through Nanoscale X-ray Microscopy*: **D Mazzilli**, E Goodell, G Cuciti, A LaPoint, J Nichols, O Rutkowski, C Tilton, A Vermilyea, M Sama, R Lieblappen

1947265 *Digital Twins and GeoAI: Revolutionizing the Future of Sustainable Agriculture*: **K Guan**, B Peng, S Wang, X Wang, Z Jiang, J Fan, L Liu, Z Jin, J Tang, R Qin, K Zhao

1879019 *Generalizability of Remote Sensing Based Data-Driven Plot-Scale in-Season Crop Yield Forecasting Models*: **K Yumnam**, Y Ge, O Murad, T Gilmore, F Bai, J Keshwani

1963017 *Hyperspectral Imaging and Machine Learning Models for Detection of Grapevine Red Blotch Virus in Vineyards*: **E Laroche**, M Cooper, M Fuchs, L Brillante

1857505 *Safeguarding Traditions, Enhancing Agriculture: Indigenous Data Sovereignty as a Tool in the Age of AI Centered Agriculture*: **L Jennings**, B Lameman, A Martinez, J Cummins, S Carroll

1975425 *Scaling Agroecosystem Intelligence: A Dense Time-Series Transformer-Based Model with Active Learning for Continental-Scale Crop and Phenology Monitoring*: **Z Yi**, A Toro, J Shriver, M Jones, P Ahn, R Schueder

1932789 *Toward High Spatial Resolution Digital Soil Health Mapping Using Sensing-based Data: A Case Study in Soybean Experimental Plots*: **G Ruan**, F Tian, B Ademola, J Zhou, N R Aloysius, T M Reinbott

1957151 *Assessing N₂O Emissions from Single and Multi-species Cover crops and Subsequent Corn Growing Season After Cover crop Termination.*: **D K Liyanage**

1995362 *Best Practices for Survey Chamber Measurements of N₂O Emissions: Evaluation of Measurement Approaches and Data Processing Pipelines*: **A Suratt**, A Digrado, E Moses, J Flater, R Chawla, M Durstock, W Hall, C Jang, J W Lee, S Rana, R Shi, E A Ainsworth, A Kent, A J Margenot, D Lee, M D McDaniel, A VanLoocke, W H Yang

1906438 *Climate warming reduced soil gaseous nitrogen losses in a temperate forest*: **K Huang**, D Wu, D Liu, Y Duan, P Dörsch, K Butterbach-Bahl, G A Gurmessa, W Zhu, P M Homyak, Y Fang

1891738 *Do cover crops mitigate N₂O and N₂ losses? Exploring management and climatic drivers of N₂O and N₂ losses in temperate maize-soybean rotation*: **A Huddell**, M Almaraz, P M Groffman

- 1914022** *Effect of Crop Rotation Diversification on Non-growing Season N₂O Emissions*: **E Lumor**
- 1989643** *Getting to the root of spatial variation in soil nitrous oxide emissions*: **W H Yang**, W Eddy III, J O'Connor, A D Leakey, D Allen, S Walker, S McCoy, S Varela, K Parth
- 1910732** *How can we better reveal N₂O production and consumption processes?:* **C Buchen-Tschiskale**, D Lewicka-Szczebak, H Mielenz, J Stenfert-Kroese, T Potthoff, S Burkart, R Well
- 1850529** *Identification of N₂O production pathways and quantification of N₂O reduction to N₂ using isotope three-dimensional modelling with FRAME*: **D Lewicka-Szczebak**, S Deb, M Piórkowski, M Lewicki
- 1991356** *Increasing Fire Intensity in Grassland Soil Alters Nitrogen Cycling and Trace Gas Emissions*: **K Czapla**, E Stephens, A Krichels, M Ordonez, L Hillary, S D Allison, M J Wilkins, J B Emerson, S Glassman, P M Homyak
- 1900164** *Linking dynamic N availability to post-fire soil NO and N₂O emissions*: **M Laan**, K Czapla, J R Roscioli, E Lunny, F Guo, J H Shorter, S Glassman, M Ordonez, P M Homyak
- 1989055** *Magnitude and Drivers of NO_x Emissions from Row-Crop Agriculture in the Midwest, USA*: **W Eddy III**, S Hall, M Henry, K Christensen, D Lee, W H Yang

252796

Geology-Ecology Interactions (joint with A, GC, NH, V)

Conveners: **Florian Max Schwandner**, Nanyang Technological University; **Joshua Fisher**, Chapman University

251229

Global Nitrous Oxide Budget and Nitrogen-Climate Interactions: Advances in Observations, Modeling, and Synthesis (joint with A, GC, OS)

Conveners: **Hanqin Tian**, Boston College; **Eric Davidson**, University of Maryland Center for Environmental Science Appalachian Laboratory; **Brian Buma**, University of Colorado Denver; **Xingchen Wang**, Max Planck Institute for Chemistry

- 1936339** *A bottom-up synthesis of the nitrous oxide budget in Asia, 1970–2023*: **A Ito**, K Nishina

- 1913637** *Modeling Soil N₂O Emissions from Agricultural Landscapes using Soil Microclimate, Meteorological, and Management Drivers*: **S M U Salehin**, N Rajan, W Wheeler, P Sidhu, C Cocco, E Pereira, J A Howe, C L S Morgan
- 1861726** *N₂O Reduction Process Contributes Key Constraint on the Geoclimatic Pattern of N₂O Emission from Global Forest Soils*: **B Zhang**, L Yu, E Harris, Z Sun, A Wang
- 1962922** *Prescribed Burn Effects on Soil NO and N₂O Emissions in a Young Mixed Conifer Forest*: **M Laurin**, K Czapla, E Stephens, B Zhilik, A Krichels, R York, S Glassman, P M Homyak
- 1879004** *Understanding and managing drivers of N₂O and N₂ emissions from agroecosystem – integrating ¹⁵N isotopes with scaling and modelling approaches for agronomic and environmental benefits*: **J Friedl**, N Takeda, C Scheer
- 1932105** *Understanding Contextual Drivers of N₂O Fluxes in Bioenergy Agricultural Soils*: **J Lee**, J Flater, A VanLooche, M D McDaniel, A Howe
- 1883289** *Whole-system estimation of hourly nitrogen removal in a flow-through riverine wetland*: **W Zhang**, H Li
- 1875982** *Did trees lower Late Paleozoic atmospheric carbon dioxide concentrations? Contesting the evidence from seawater Li isotope reconstruction*: **A Ghosh**, A J West, F A Corsetti, R Blankenship, R S Shapiro
- 1919305** *Elevated CO₂ effect and assimilation significantly stronger in dry than humid tropical rainforests*: **L Fu**, J B Fisher, M Jia, R Fisher, J A Holm, A L S Swann, A Liu, G Shirkey, C Terrer, M Camacho Umaña, G Yokoyama, C Doughty, C S O'Connell, C Zalman, A Agatep, H Hatch, G Dauber, K Nelson, C D Deering, F M Schwandner, G R Goldsmith
- 1952513** *A Harmonized, High-Resolution Global Dataset of Crop-Specific Nitrogen Inputs from Synthetic Fertilizer and Manure (1961–2023)*: **W Hao**, H Tian, H Shi, N Pan, X Yu, S Pan, F N Tubiello, F Zhou
- 1893486** *Advancing N₂O Isotopic Measurements Using Picarro's new PI5131-i isotopic N₂O Analyzer and Sage gas autosampler*: **J C Guerrero**, J Bhattacharya, J Woźniak, M Hofmann, T Hemenway, R Chedgy, J Zhou
- 1901693** *Advancing the global understanding and quantification of nitrous oxide emissions from agricultural soils*: **D Grados Bedoya**, N Pan, W Hao, M Zong, X Tang, Y You, H Tian, C Terrer, D Abalos
- 1912469** *Drivers of Fertilizer-Induced N₂O Emissions and Regional Assessment in China*: **X Ge**, D Xie, J Mulder, L Duan

- 1977531** *Drivers of Spatial Heterogeneity of Nitrous Oxide (N₂O) Emissions in Agricultural Peatland Soil:* **C Kwong**, T Perez, W L Silver
- 1933455** *Global Lake nitrous oxide emissions based on Lake-level quantification:* **Y Zhou**, J Huang, Q Jiang, Y Liu
- 1880733** *Hydrologic Connectivity Amplifies Riverine N₂O Emission Hotspots and Hot Moments across the continental United States:* **M Hu**, Z Yu, T J Griffis, J M Baker
- 1862861** *Hydroxylamine Drives Nitrous Oxide Formation in Wastewater Chlorination:* **M Hathcock**, K McPeak, W Moe, S Snow
- 1878821** *Incorporating a soil nitrate movement mechanism into an Earth System Model:* **J Luo**, P G M Hess
- 1916424** *Integrating Top-Down Estimates and Environmental Drivers to Improve Process-Based N₂O Modeling:* **W Liu**, C Lu, C D Nevison, H Tian
- 1956108** *Mitigation of greenhouse gas emissions from dairy feed production through co-developed knowledge:* **K C Vi**, D Pelster, C Wagner-Riddle

249614

Harvesting the Sun Twice: Innovations and Insights in Agrivoltaic Systems (joint with GC, H, SY)

Conveners: Maria Elena Orduna Alegria, University of Kansas; Chad Higgins, Oregon State University

- 1925862** *Development of a low-cost sap flow sensor for small-diameter herbaceous stems to quantify spatial variation of transpiration in a photovoltaic array:* **S Lawton**, S P Loheide III, S Kumar, B Krishnaswamy, K Han, V Wanjiang
- 1895961** *Integrated Multiphysics Assessment of Agrivoltaic Performance Across PV Types:* **E Hosseini**, G G Katul, M Abou Najm, A Daccache, Q Burlingame, S Ravi, C S Choi, E Bou-Zeid

250729

Heat and Microclimate Impacts on Plant Functioning: From Molecules to the Biosphere (joint with A, EP, GC, H)

Conveners: Sean Michaletz, University of British Columbia; Luiza Maria Aparecido, University of Utah; Bradley Posch, Desert Botanical Garden; Nicole Bison, University of British Columbia

- 1885468** *Microclimate-Driven Divergence in Photosynthetic Strategies Across Aspect and Canopy Position in Montane Forest Trees:* **A Mishra**, S Kumar, M Dhaulakhandi, S C Garkoti

- 1895139** *Nitrous Oxide Budgets in Global Peatlands:* **U Mander**, M Espenberg, PhD, J Pärn
- 1858983** *Nitrous Oxide Production and Consumption in Surface Ocean Waters:* **B B Ward**, W Tang, X Wan, C Frey, C Hexter, E Leon-Palmero
- 1930338** *Parameterizing N₂O Flux Responses to Soil Moisture and Fertilization for COMET-FARM and DayCent Model Improvements:* **S Bashir**, Z E Kayler
- 1937175** *Recent Changes in Global Ocean N₂O fluxes and Their Relationship to Ocean Climate Variability: A Modeling Study:* **Y Feng**
- 1956561** *Secondary Production of N₂O From the Oxidation of Atmospheric NH₃:* **J G Murphy**, S Pai, C L Heald
- 1954771** *Shipping Nitrogen Emissions Enhance Ocean Productivity in Nitrogen-Limited Regions: Insights from Satellite Observations:* **H Lan**, X Zhang, V Coles
- 1919672** *Transportation Related Sources of Nitrous Oxide in New York City:* **R Dhall**, A Hallward-Driemeier, T Moore, M Modi, Y Zhao, R Commene
- 1888167** *Integrating renewable energy into agricultural landscapes: Co-development of a novel water-energy-food-environment synergy in southwestern Kansas, USA:* **S C Zipper**, H Szydlowski, A D Kendall, J Bingaman, J T Stid, C Deng, A Anctil, J Ifft
- 1921644** *Light Modulating Panel Impacts on Microclimate, Crop Performance, & Water Use Efficiency in Agrivoltaic Systems:* **K M Heroux**, G Chaboya, A Morgan, M Tabassum, Y Xi, A Daccache, M Abou Najm
- 1924432** *Plant response to novel microclimates within Midwest US solar photovoltaic arrays:* **H Mackin**, C J Kucharik, E Mather, K Han, S P Loheide III, A R Desai
- 1998747** *Understanding and Anticipating the Overlap Between Wetlands and Solar Energy Generation:* **T Huebler**, E Steele, R R Hernandez
- 1970816** *Can Tropical Leaves Thermoregulate to Withstand High Temperatures in a Warming World?:* **M Schoonover**, J Beslity, J L M Van Haren
- 1881501** *Decoupling of photosynthesis and evapotranspiration in heatwaves:* **M Cross**, T A Black, S Knox, R Jassal, Z Nesic, P Moore, S T Michaletz
- 1939382** *Do canopy temperatures below air temperature exist?:* **R Y Gu**, W Zhan, J Fang, J Liu, J Han, Y Yao, P Gentine
- 1975685** *Heatwave-Driven Declines in Ecosystem Productivity: Observational and Modeling Analysis:* **Z A Mekonnen**, W J Riley, C J Still, R F Grant

- 1977759** *Loss of Epiphytes Leads to Changes in Microclimate and Sap Flow Dynamics in a Costa Rican Tropical Montane Cloud Forest:* **S G Gotsch**, D Vaughan, L Lowman, N Nadkarni, T E Dawson, E Cubero, P Gutierrez
- 1933297** *Microclimate-Responsive Roadside Plants for Pollution Mitigation and Greenbelt Planning:* **S Sarkar**, A K Patra
- 1990656** *Plant-Water Use and Ecosystem Functioning in Subalpine Communities:* **J Navarro**, R Cruz-de Hoyos, L Seltzer, B J Enquist
- 1995975** *Plasticity Across Salsola Tragus Genotypes in Differing Temperature and Precipitation Regimes:* **M Buhman**, L M T Aparecido, A Bosworth
- 1960203** *Shifts in Crown Structure Modulate Thermal Responses at Two Scales in a Hawaiian Tropical Wet Forest:* **S Bayliss**, E Broadbent, S Pau
- 1928748** *Stomatal Optimization Theory Overestimates Leaf Cooling in Populus fremontii Saplings During Drought and Episodic Heatwave Stress:* **C Pannikkat**, B Posch, D Koepke, S E Bush, A Schuessler, J S Guo, K Kerr, K R Hultine, G Vargas G
- 1879056** *The kinetic basis of photosynthetic heat tolerance:* **N Bison**, S T Michaletz

249389

The Role of Fire in the Earth System: Understanding Drivers, Feedbacks, and Interactions with the Land, Atmosphere, and Society (joint with A, GC, NH)

Conveners: **Rebecca Scholten**, University of California Irvine; **Marta Basso**, University of Idaho; **Xiulin Gao**, ; **Qian He**,

- 1956484** *Accuracy Assessment of Multiple Fire Products Across the North America Arctic-Boreal Region:* **Y Zhang**, C E Woodcock, M A Friedl
- 1853781** *Agricultural Burning Policy Effectively Reduced the World Cropland Biomass-Burning Emissions during the Past Two Decades:* **S An**, X Zhang, S Kondragunta, A Zhu, Y Ye, F Li
- 1925069** *Aridity reshapes the distribution of wildfire severity in Californian forests:* **M Hung**, P Williams
- 1979118** *Characterizing Fire Behavior Across the Continental United States With a Decade of Sub-Daily Fire Perimeters:* **Z Becker**, E Orland, T D McCabe, Y Chen, R Scholten, L Rosenthal, J T Randerson, M B Follette-Cook, D C Morton
- 1987661** *Characterizing fire transmission pathways in Indonesia's peat and tropical forests:* **S Riadi**, M Yu

- 1971818** *Tropical Leaf Responses After Exposure to Extreme Heat in an Enclosed Tropical Forest at Biosphere 2:* **J L M Van Haren**, M Schoonover, J Beslity, J Deleeuw
- 1975655** *Understanding the sensitivity of stomatal conductance to heat and drought using Physics-Informed Neural Network:* **J Han**, M C Benson, K A Novick, C Grossiord, A Kullberg, P Gentine
- 1958759** *Upper temperature thresholds in tropical forests.: C Doughty*, B Wiebe, M Slot
- 1978528** *Use of thermal imaging to quantify the influence of irrigation deficit on the cooling potential of horticultural vines:* **A Keyser-Gibson**, N Benson, B Herman, J Sisneroz, A Ossola, S Poudyal, U Schuch, N Levy, S H Kim
- 1909227** *Vertical Gradients in Thermal Responses to Photosynthetic Traits of Pinus koraiensis in a Korean Evergreen Needle-leaf Forest:* **J Kim**, Y Ryu, E Kaiser, H Zhang, S Jeong, J Lee
- 1992825** *Weighing the Options: a Test of Alternative Stomatal Optimisation Models at High Temperatures:* **C Sicangco**, M Sabot, J E Drake, M G Tjoelker, B Medlyn
- 1892828** *Which temperature, and which VPD, should we be using to understand ecosystem responses to heat waves?:* **K A Novick**
- 1916265** *Climate-Driven Fires Amplify Atmospheric Iron Deposition in Fe-Limited Oceanic Regions:* **E Bergas Masso**, D S Hamilton, S Myriokefalitakis, S D Rathod, M Gonçalves, C Pérez García-Pando
- 1897719** *Coupling and Evaluating Vegetation, Fire, and Air Quality Models for Understanding Fire Dynamics in the Western United States:* **S Debnath**, P Saide, X Gao, L M Kueppers, N Queally, E Ordway, L Huang
- 1961461** *Decoupling Burned Area and Emissions: Climatic and Biotic Drivers of Fire Emission Intensity:* **X Yang**, H Tian, N Pan, S Pan, J Mao, J G Canadell
- 1977751** *Developing a Wildfire Integrated Modeling System to Assess the Impact of Energy Systems on Wildfires:* **Y Liu**, H Huang, K Mongird, J Tagestad
- 1888952** *Divergent Post-Fire GPP Trajectories Across Siberian Forest Types:* **A Lee**, C E Park
- 1852247** *Earth, Air, Water, and Fire: When the Classical Elements Get Complicated:* **G F S Boisrime**, A Harpold, C Fong, C Anderson, M Berli, S Sueki
- 1954762** *Economic Impact of Megafires on the Recreational Business in Oregon:* **A Koirala**, A Susaeta, Y Chen, P Lewin
- 1984347** *Effects of Post-Wildfire Regeneration Trajectories on Carbon and Nitrogen Cycling Mechanisms in Boreal Forests:* **J Wells**, E Whitman, B N Sulman, D Johnson, T Whitman

- 1879324** *Erasing the western US forest-fire deficit will require approximately 60 million hectares of ecologically beneficial burning over the next decade.*: **W Hansen**, L Murphy, C Raymond, T McIntosh, J Balch, J Hall, M Johnston, M Sandor
- 1995443** *Experimental Forecasting of Wildfire Emissions within NOAA's Rapid-Refresh Forecast System (RRFS-Smoke) Model Using Meteorology and Fuel Moisture Content*: **J Romero**, H Li, E James, J Schnell, C Hartsough, S Bhimireddy, S Kondragunta, X Zhang, F Li, P A Jimenez, R Ahmadov
- 1931387** *Extratropical Lightning Fires Burn Increasingly More Severe than Human-ignited Fires*: **H Su**, K Qiu, Y Yu, Y Tang, S Wang, X Meng, W Guo
- 1920365** *Fire carbon emissions in an Earth system model: ModelE-pyrE*: **K Mezuman**, N Y Kiang, K Tsigaridis, R Field, G Faluvegi, A Romanou, I D Aleinov, D M Peteet, C J Lui
- 1905609** *Fire Weather Waves Fuel Extreme Fire Activity*: **C Yin**, J T Abatzoglou, M W Jones, M Sadegh
- 1983682** *Future trends of global fires under compound stress of the changing climate and land use: projections from the orography-aware NOAA Geophysical Fluid Dynamics Laboratory (GFDL) land model LM4.2-HydroBlocks*: **R Wang**, S Malyshev, W Cooke, T L Delworth, E Shevliakova
- 1940172** *High severity forest fires enhance burn probability and decrease fire intensity of reburns one decade after fire*: **V Bhoot**, J E Kim, J T Randerson, M Goulden
- 1917422** *Historical Context and Future Projections of Area Burned in Western US Forests*: **C Guiterman**, P Williams, J T Abatzoglou, E Margolis, M Lonergan, S Parks, E Whitman, M C Stambaugh, C Naficy, M Krawchuk, A Wion, L Yocom, D Falk, R Loehman, L Daniels
- 1884111** *Hurricane Disturbance Leads to Elevated Wildfire Activity in the Gulf Coast Region*: **H Steele**, R S Vachula
- 1961112** *Impact of Vegetation Fire Emissions to Atmospheric Methane at Two ICOS Stations In Europe*: **R Hundal**, P Cristofanelli, M Maione, R Cesari, D Kubistin
- 1974138** *Integrating Experimental Soil Heating Data with an Expanded SheFire Model to Predict Postfire Hydrophobicity*: **E Cox**, J Miesel, M Dickinson, W Burke, K Arizmendi, E J Hanan
- 1863915** *Large and Compact High-Severity Burn Patches Compromise Conifer Forest Recovery in Sierra Nevada Megafires*: **A Pellegrini**, A Caprio, J Schoenecker
- 1979847** *Lightning-Fire Coupling across California: Understanding Summer Dry Lightning Storms and their Impacts on Ignitions and Burned Area*: **K Benison**, R Scholten, C J Schultz, J T Randerson
- 1955896** *Modeling the Post-fire Recovery Dynamics of the Anaktuvuk River Fire With DVM-DOS-TEM*: **H Mevenkamp**, B Maglio, T Carman, H Genet, R Rutter, E S Euskirchen
- 1982654** *Quantifying the Controls on Boreal Forest Reburning with Interpretable Machine Learning*: **J Forsythe**, L T Berner, S J Goetz, W Hansen, J F Johnstone, M C Mack, S Potter, B Rogers, A Talucci, J A Wang, X J Walker
- 1862908** *Sensitivity Analysis of Post-Fire Recovery Parameters in Boreal Forests Using iLand*: **Q Asena**, K Hayes, J Hall, W Hansen
- 1925005** *Sharp Increases in Fire Emissions Caused the Record-high Atmospheric CO₂ Growth Rate in 2024*: **J Yun**, J Liu, K W Bowman, S Pandey, K Miyazaki
- 1999509** *Synergies of Climate and Wildfire in Forest Biogeochemical Cycling*: **J Eckdahl**, J Kristensen, K Ljung, D Metcalfe, L Nieradzik, L Rütting
- 1868595** *Temporal Patterns of Post-Fire Recovery of Grassland Aboveground Biomass Based on Satellite Remote Sensing Data*: **Q Zhang**, J Yang, S D Fuhlendorf, Y Zhou, H Yang, A Desjardins, S Fang, X Jiao
- 1953708** *The Paramo Fire Atlas: quantifying burned area and trends across the Tropical Andes*: **L Obando-Cabrera**
- 1880430** *Tropical Small-Scale Nuclear War Fire Emissions Cause Greater Ozone Depletion Than Extratropical Large-Scale Conflicts*: **Z Zhuo**, F S R Pausata, P J Kushner, A K H Cheung, K von Salzen
- 1924552** *What makes a good fire index? An evaluation of fire indices' ability to represent daily risks of fire ignition and spread in the western United States*: **B Wang**, P Williams, D Entekhabi, G D Madakumbura, S Rahimi, L Huang, A Hall
- 1901111** *Wildfire and Water Security: Understanding Wildfire Impacts on Source Water Quality and Drinking Water Resilience in the Western U.S.*: **K D Bladon**
- 1895123** *Wildfire Impacts on Long-Term Soil Carbon Storage Across Boreal and Arctic Ecosystems*: **X J Walker**, M C Mack, D Arseneault, J L Baltzer, Y Bergeron, E Boucher, L Brehaut, C Brown, J Eckdahl, H Cooper, S J Goetz, M Gundale, K Hayes, J Hung, S Natali, M A Parisien, J Kristensen, L Ribeiro Diaz, J Lageniere, D Metcalfe, B M Rogers, L B Saperstein, A Talucci, M R Turetsky, D Pare, S Veraverbeke, A Pulak, E Whitman

249496

**Intersections of Ecology, Hydrology, and
Climatology in Earth's Drylands** (joint with A, GC,
H)

Conveners: **Matthew Dannenberg**, University of Arizona; **Mallory Barnes**, University of Arizona; **William Smith**, Assistant Professor; **Joel Biederman**, Agricultural Research Service Tucson; **Andrew Feldman**, NASA Goddard Space Flight Center

1962074 *A Wide Look at Seasonal n-Alkane Distributions and Isotope Values in Native Sonoran Desert Plants:* **K Harris**, R Baldwin, P Murphy, J Tierney

1915545 *Aerodynamic roughness dynamics after rain-induced grass growth in a hyper-arid environment:* **J M Nield**, M C Baddock, R Huck, G Wiggs, E Marais, G Maggs-Kölling

1972597 *Developing high-resolution maps of aboveground biomass from airborne lidar to estimate the current and future contribution of non-forest ecosystems to western U.S. carbon stocks under rapid climate change:* **J Lu**, E Bullock, W Liang, J A Wang

1915055 *Disentangling Feedbacks Between Hydrology, Geomorphology and Vegetation in Drylands: A Modelling Approach:* **L Turnbull**, E N Paton Sr, J Wainwright, B Tietjen

1946216 *Ecological Restoration and Its Impacts on Ecosystem Functioning in Sub-Saharan Woodland Ecosystems:* **H Chen**, E A H Smithwick, W Twine, T Qiu

1908005 *Effects of changing precipitation patterns on the carbon budget of global semi-arid savannas:* **L Nadolski**, T S El-Madany, J A Nelson, A Carrara, A Hildebrandt, F Skhosana, M Reichstein, S C Lee

1905771 *Exploring sun-induced chlorophyll fluorescence as an indicator of photosynthetic activity in arid woodland groundwater dependent ecosystems:* **S Gao**, T Doody

1906919 *From Facilitation to Competition: A Mechanistic Model for Forecasting Dryland Ecosystem Response to Rainfall Variability:* **Y Mau**, O Hollander, N de Malach

1944862 *Meteorological-Ecological-Hydrological Drought Propagation in the Yellow River Basin Under Human Activities:* **Y Wang**

247527

**Its All Fun-gi and Games: The Role of Fungi in
Biogeochemical Cycles**

Conveners: **Sean Schaefer**, University of New Hampshire; **Mark McDonald**, University of Louisiana at Lafayette; **Lang DeLancey**, University of Minnesota Twin Cities; **Hannah Shulman**, University of Tennessee

1930454 *Pervasive increases in vegetation leaf area and its interannual variability across global drylands:* **W Zhang**, D J Moore, Y Li, N MacBean, A Feldman, Y Kang, J K Green, S Reed, C Schwalm, R L Scott, B Poulter, W K Smith

2002182 *Precipitation From Tropical Cyclones Stimulates Disproportionately High Productivity Across Ecosystems in the Southwestern USA:* **B Strange**, D Peltier, N Parazoo, K Ogle

1988059 *Precipitation Pulse Dynamics Are Not Ubiquitous: A Global Meta-analysis of Plant and Ecosystem Carbon- and Water-related Pulse Responses:* **E Reich**, J S Guo, D Peltier, E Palmquist, K Samuels-Crow, R Boone, K Ogle

1914609 *Quantifying the relevance of rain-induced ecosystem respiration pulses in drylands:* **X Yu**, R Orth, M Reichstein, M Bahn, A Bastos

1962679 *Sensitivity of vegetation phenology and productivity to rainfall variability in dryland ecosystems:* **B E Morgan**, D Entekhabi

1898563 *The Adaptation and Response in Drylands (ARID) Campaign: Towards Effective Use and Production of Decision-Relevant Dryland Research and Data:* **A K Leidner**, J J Reyes, K Prentice, A Feldman, S Reed

1997847 *The Effect of Forest Thinning on Watershed Health in Semi-Arid North-Central New Mexico:* **S Karki**, C Maxwell, A Fernald

1981136 *The Role of Biogeographic Processes in TRENDY DGVM Simulations of Gross Carbon Uptake Across Western North American Drylands:* **R Pervin**, S Robeson, M Barnes, S Sitch, A P Walker, B Poulter, F Maignan, Q Sun, T Colligan, S Zaehle, K Mahmud, PhD, P Anthoni, A Arneeth, V Arora, V Bastrikov, L Bogucki, B Decharme, C Delire, S Falk, A Ito, E Kato, D Kennedy, J Knauer, M O'Sullivan, W Yuan, N MacBean

1930584 *Using Phenoregions to Identify and Monitor the Sensitivity of Drylands to Climate Variability and Change:* **A L Gao**, M A Friedl

1921689 *Widespread land surface temperature warming in western US drylands is exacerbated by disturbance and land use, but partially mitigated by areas of stable or expanding tree cover:* **J A Wang**, Y Marambe, M M Lague, M Patrick, J Lu, H Bigelow

1885935 *Trace Metal Contamination Drives Enzymatic Suppression and Fungal Diversity Loss in Hypersaline Sediments of the Indian Sundarbans:* **S Mahanty**, G K Darbha, S Majumder

1905779 *Cultivation Technique of Mycelium and Fruiting Bodies of *Pleurotus ostreatus* Using a Recyclable Inorganic-Based Substrate:* **J Jang**, J Yoo, J Lee, H W Ryu

- 1933669** *Fungal functional roles in lakes along a dissolved organic carbon gradient in Canada:* **J Gauthier**, R Garner, S Soria-Piriz, A Shahabinia, W Chen, F Pick, P del Giorgio, H P Grossart, D Walsh, M A Xenopoulos
- 1973978** *Fungal populations isolated from Mariana forearc serpentinizing basement fluid and their potential for carbon cycling:* **L Hayes-Guastella**, P H Barry, M W Broadley, S Q Lang, K G Lloyd, S Mitchell, M Petersen, E Trembath-Reichert, J Seewald, C Wheat, B Kiel Reese
- 1906009** *Growth and Thermal Properties of Fomitella fraxinea Mycelium Composites Cultivated on Vermiculite-Based Substrates:* **J Yoo**, J Jang, J Lee, H W Ryu
- 1861546** *How mycorrhizal fungi shape ecosystem biogeochemical cycles: insights from mycorrhizae-explicit modeling efforts:* **S Shao**, B N Sulman, C Hicks Pries

248734

Land Surface Phenology: Advances in Time Series Analysis and Phenological Detection, Modeling, and Prediction Through Emerging Technologies and Multi-Scale Observations (joint with GC, IN)

Conveners: **Yuxia Liu**, South Dakota State University; **Xiaoyang Zhang**, South Dakota State University; **Feng Gao**, USDA ARS; **Jianmin Wang**, Purdue University; **Yongchang Ye**, South Dakota State University, Geospatial Sciences Center of Excellence (GSCE), Department of Geography & Geospatial Sciences

- 1861891** *CropPlantHarvest: A 500m annual dataset of crop planting and harvesting dates (2001–2024) in the U.S. Midwest:* **Y Liu**, C Diao
- 1991005** *Disentangling Terrestrial Complexity Through Phenological Deconvolution of Woody and Herbaceous Leaf Area Dynamics Across North American Biomes:* **N N Kahiu**, J Anchang, L Prihodko, H M E Geli, N P Hanan
- 1993258** *Drought-Induced Phenological Changes of Urban Trees captured by high-resolution Sentinel-2 leaf area index over Suwon City, South Korea:* **H J Hong**, Y Ryu, S Jeong, C Choi, T Yang
- 1857905** *Enhancing dryland land surface phenology by fusing Harmonized Landsat and Sentinel-2 with PhenoCam time series:* **Y Liu**, X Zhang, Y Ye, A Shuai, Y Shen
- 1926593** *Evaluating Five Satellite Vegetation Indices for Monitoring Crop Phenology:* **P Du**, X Zhang, Y Shen, Y Liu, Y Ye
- 1957856** *Exploring Climate Variation Impacts on Crop Growth Stage Durations at County Level Across Central United States:* **N A Malik**, X Zhang

- 1905595** *Putting Mycorrhizal Carbon on the Map: Modeling the Total Carbon Flux and Sequestration Potential of Earth's Mycorrhizal Fungal Networks:* **M Van Nuland**, J Elhance, J Stewart, H Hawkins, R K Braghieri, V Kokkoris, T Shimizu, T Kiers
- 1874821** *Rewilding forest fungal microbiology as a natural climate solution:* **C Averill**, D Fairbanks, A Raiho, I Ware, A Ketz, C Yates, Z Werbin, D Willett, W Bradham, T Claxton, L Gogel, L Gannon
- 1910849** *Soil Fungal Contributions to Carbon Dynamics: Insights from Decades of Land Use Changes at Camp El Tesoro, Texas:* **T Pyle**, O R Harvey
- 1857741** *The influence of arbuscular mycorrhizal fungi on plant resource use economics:* **S Chatterjee**, E A Perkowski, N G Smith
- 1880782** *Fusion of multiple temporal and spatial resolution satellite time series for land surface phenology detection:* **X Zhang**, Y Ye, Y Liu, Y Shen
- 1986974** *GTGRI: A Gaussian Time-Weighted Growth Index for Robust Paddy Rice Detection Using Sentinel-1 SAR:* **D Liu**, C Deng
- 1845658** *Identify and track white flower and leaf phenology of deciduous broadleaf trees in spring with time series PlanetScope images:* **B Pan**, X Xiao, S Luo, L Pan, Y Yao, C Zhang, C Meng, Y Qin
- 1963694** *Identifying Soybean Phenology Using UAV Based Multispectral Indices:* **S Poudel**, A Chiluwal
- 1984868** *Integrating Ground-Based Imaging and Satellite Time Series to Monitor Early-Season Vegetative Growth in Grapevines:* **M Trivedi**, H Grover, L Ulmer, R Stall, K Gold
- 1995965** *Mitigating Differences of Multi-Sensor Satellite Time Series for Analyzing Long-term Global Land Surface Phenology Trends:* **Y Ye**, X Zhang, Y Liu, S An
- 1894454** *Monitoring Winter Cover Crops Using Remote Sensing Phenology:* **F Gao**, M Anderson, W D Hively
- 1874841** *Near real-time crop mapping through multimodal integration of remote sensing observations and crop planting patterns:* **L Qiao**, J Zhou, F Li, X Li, S Kianian, C Yang
- 1872905** *Quality Assessment for SAR Data Affected by Precipitation Using Normalized Polarimetric Radar Vegetation Index for Agricultural Monitoring:* **J Chang**, F Gao, M Anderson, S Kraatz
- 1864370** *Refined Long-Term Satellite Leaf Area Index Reveals Sustained Global Greening and Accurate Tropical Seasonality:* **Y Ryu**, S Jeong, P Gentine, X Lian, J Fang, X Li, B Dechant, J Liu, J Kong, L Wan, C Choi, H Zhang, T Yang, J Wu, G Song, I C Prentice, S Harrison

1969258 *Rethinking Land Surface Phenology Modeling in an Era of Abundant Dense Time Series*: **G M Henebry**, M Tomaszewska, I Sirodov, M Gašparović

250295

Leveraging Artificial Intelligence Tools to Couple Models and Experiments for Enhanced Ecosystem Predictability (joint with H)

Conveners: **Vanessa Garayburu-Caruso**, Washington State University; **Avni Malhotra**, Pacific Northwest National Laboratory; **Dipankar Dwivedi**, Lawrence Berkeley National Laboratory; **Pamela Weisenhorn**, Argonne National Laboratory; **Allison Myers-Pigg**, Pacific Northwest National Laboratory

1935032 *AI Frameworks to Enhance Predictability of Biogeochemical and Hydrologic Processes* : **P Kumar**, A Dolant, A Moronfoye, T Agrawal, H Shah, A E Goodwell

1854227 *Accelerating the Scientific Learning Cycle: AI-powered Integration of Models, Data and Experiments for Environmental System Science*: **X Chen**, P Jiang, S Niroula, F T Zahura

1870436 *AI Enabled Model-Data-Knowledge Integration for Ecosystem Predictability*: **Q Zhu**

250629

Linking Terrestrial Carbon Cycle Timescales and Processes (joint with GC)

Conveners: **Jeffrey Beem-Miller**, University of Michigan Ann Arbor; **Emma Lathrop**, Northern Arizona University; **Shane Stoner**, University of Wisconsin; **Caitlin Hicks Pries**, Dartmouth College; **Darby Bergl**, Northern Arizona University

1930001 *Radiocarbon and Stable Isotopic Signatures Reveal Accelerated Carbon Cycling in a Boreal Peatland Subjected to Warming and Elevated CO₂* : **K J McFarlane**, A Hedgpeth, G McNicol, H Paul

1977769 *An improved method for analyzing the ¹³C content of dissolved organic carbon in soil extracts in high-molarity salt solution*: **A Curtright**, X Zhu-Barker, W R Horwath

1906875 *Biomass Estimation and Carbon Sequestration Potential of Salix chaenomeloides in Korean Riparian Wetlands*: **J Lee**, E S Lee, C Seo, J C Lim

1986189 *Bridging Land Cover Classifications and Model Inputs: Assessing Global Uncertainties from Products to input4MIPs*: **Z Li**, L Biyong, S Fangming

1911735 *Species-Level Phenological Characterization of Urban Trees Using PlanetScope Imagery*: **K M Nafee**, L Liang

1877386 *Data-Driven and Theory-Guided Simulation through a Deep Learning Emulator of a Terrestrial Ecosystem Model*: **T Sakauchi**, A Ito

2000142 *From Barn to Model: Evaluating Manure-Specific CO₂ and GHG Emissions Using AI and Machine Learning Approaches*: **A Rahman**, A Fares, S Islam, M Celestine, R Awal, A Valiya veettil, A Adem, N A Ausaji, A Elhassan

2003866 *Integrating Transformer-Based Land Surface Phenology into the Community Land Model for Climate-Responsive Vegetation Dynamics*: **A Lahlou**, L R Hawkins, A Foster, D M Lawrence, P Gentine

1973453 *Methane and Microbes in the High Antarctic: Integrating Targeted Experiments with Deep Learning to Resolve Biogeochemical Mechanisms*: **J Wynne**, N Azbijari, M David, A Thurber

1961862 *Transforming multiscale grain size mapping with modular AI and video surveys*: **Y Chen**, PhD, J Bao, L Renteria, B Li, J Stegen

1854444 *Where Bioelectricity Meets Intelligence with a Jellyfish-Tuned Deep Learning Model for Forecasting Plant Microbial Fuel Cells Output*: **N N H Pham**, T C Cheng, J S Chou

1906382 *Deriving Decomposition and Vertical Transport Rates from Global Soil Database Using a Reactive Transport Framework*: **M Chitsaz**, A Abramova, R Amundson

1914634 *Direct measure of soil carbon persistence over years to centuries*: **J D Landis**, C Hicks Pries, C E Renshaw, S von Fromm, D Spinola, R Portes, W H McDowell, C J Nytch, M C Palucis, J Zhou, D Obrist, K J McFarlane

1865671 *Statistical approaches to soil carbon dynamics*: **A Flamholz**, Y M Bar-On, W W Fischer, C Frankenberg

1949698 *The International Soil Radiocarbon Database (ISRaD) version 2: Expanding Global Access, Utility, and Insights for Soil Biogeoscience*: **S von Fromm**, D Vaughn, O Vindušková, A Hoyt, K Jandová, C Hicks Pries, S Stoner, S Winton, A Abramova, A Malhotra, J Beem-Miller, L Minich, D Wasner, N T Looker, K Georgiou, S Trumbore, M Chitsaz, K A Heckman, K Grant, J Shahan, J Bowen, C Lawrence

1883305 *Using Soil Carbon Quality and Microbial Community Structure as Indicators of Mangrove Ecosystem Health*: **J Shahan**, N Erazo, L Carrera, J Illescas, P Villegas, R Lakhamraju, R Monge, J S Bowman, N Molina-Moreira, A Hoyt

248706

Measuring and Modeling the Role of Roots and Belowground Processes in Biogeochemical Cycles

Conveners: Emma Hauser, University of Montana; Avni Malhotra, Pacific Northwest National Laboratory; M. McCormack, Morton Arboretum; Shersingh Joseph Tumber-Dávila, Dartmouth College

1863313 *A Continental Scale Analysis Reveals Widespread Root Bimodality:* **M Lu**, S Wang, A Malhotra, S J Tumber-Dávila, S R Weintraub-Leff, M L McCormack, X T Wang, PhD, R B Jackson

1953662 *Belowground Dynamics Shape the Response of Peatland Biogeochemistry to Warming and Elevated CO₂:* **V G Salmon**, J Childs, H Paul, C M Iversen, PhD, J Latimer, A Malhotra, K Julian, R J Norby, J Warren, T Stewart, S Weber, D J Weston, X Yang, M A Mayes

1985931 *Effects of Root Suberin Enrichment on Decomposition and Soil Carbon Storage:* **A Seiden**, S S Chacon, A Rajurkar, M Quintana, W Busch, A A Berhe

1955781 *ELM-TAM: a structure-based, function-oriented land model embracing fine-root system complexity:* **B Wang**, D M Ricciuto, M L McCormack, X Yang, M Xu, F M Hoffman

1975669 *Fertilization Alters Plant and Microbial Drought Responses in Miscanthus:* **R Schartiger**, J Kane, R Ozbolt, D LeMaster, N Doza Lopez, E Morrissey

1973459 *Getting to the root of drought: Integrating multi-omic root exudate and rhizosphere microbiome data with aboveground plant responses to drought:* **A P Smith**, H R Coker, H A Lin, C Shackelford, R Watters, M Tfaily, J A Howe

1976358 *Getting to the root of drought: Isolating the microbial response to Gossypium hirsutum root exudate shifts during drought:* **R Watters**, H R Coker, C Shackelford, J A Howe, A P Smith

1890080 *In Situ Changes of Rhizosphere Hydraulics Associated with Root Exudates:* **G Tzvik**, Y Mishael, N Schwartz

1968758 *In Situ Measurements of H₂ from Biological Nitrogen Fixation Near the Roots of Legumes:* **J R Roscioli**, F Guo, E Lunny, J H Shorter

1976399 *Incorporating Root Water Uptake Dynamics for Improved Evapotranspiration Modeling in Groundwater-Dependent Ecosystems:* **S Cerasoli**, B Morgan, C Terrer

1983615 *Linking fertilization-driven root trait plasticity to plant-microbe interactions in a Miscanthus x giganteus bioproduct agroecosystem:* **J Kane**, R Schartiger, D LeMaster, E R Brzostek, E Morrissey

1873872 *Resolving the Paradox of Post-fire Forest Recovery in the Greater Yellowstone Ecosystem: The Importance of Subsurface Nitrogen Cycling:* **R Heumann**, M Turner, C C Cleveland

1893220 *Root exudation rates in mature trees: In search of first-principles controls and ecosystem impacts:* **R P Phillips**, Y Oh, T Muratore, N R Chari, S D Frey, M Midgley, B Taylor

1958113 *Root Exudation Persists under Nighttime Hydraulic Redistribution for Zea mays. :* **F Ellsworth**, D Velickovic, A R Possinger, D S Mackay, M Hitchcock, R Marinos

1993355 *Root System Plasticity Under Drought: Deep Foraging Without Carbon Penalty in Citrullus colocynthis:* **A Cochavi**, O E Shemer, A Distelfeld Sr, A Levi

2002909 *Sagebrush root metabolites reveal the strategy of phosphorus and iron uptake by shallow and deep roots:* **L Li**, N Munoz, D Velickovic, W Dong, E K Eder, Y Qi, P Sorensen, S Wang, J N Christensen, M Bill, E Brodie, K H Williams, J F Banfield, B Gilbert

1978342 *Salty roots, fewer toots? The influence of salinity on radial oxygen loss in Typha angustifolia.:* **I Stein**, I Forbrich, S M Thomas, Z G Cardon

1921605 *Spatial and Temporal Metabolic Reprogramming of Roots and Rhizosphere: Interactions with Microbial Communities under Controlled and Field Conditions:* **A H Ahkami**, J Aufrecht, K Zemaitis, D Velickovic, T E Winkler, S P Couvillion, V Balasubramanian, D Herrera, C Perdue, R Tournay, S Doty

1895990 *Tracing the effects of a deep-rooted grass, Panicum virgatum L., on soil organic carbon cycling in a range of environments across the USA:* **E Slessarev**, J Pett-Ridge, K Min, A A Berhe, S Das, R Jackson, J D Jastrow, K J McFarlane, M Kan, T Longbottom, E Oerter, G P Robertson, G Sanford, B Richards, E E Nuccio

1994666 *Will winter climate change alter soil carbon turnover and stabilization in the rhizosphere?:* **J R Ridgeway**, J Duffy, C Hicks Pries

252236

Microorganisms and Biogeochemical Cycles in the Critical Zone (*joint with EP, GC, H, NS*)

Conveners: Emma Aronson, University of California Riverside; **Stephen Hart**, University of California Merced; **Jerald Ibal**, Idaho State University; **Micah Unruh**, University of Kansas

1862070 *Contrasting depth dependencies of root presence and root mass underscore prolific root-regolith interactions:* **S A Billings**, P L Sullivan, L Li, J B Nippert, D Hirmas, H Ajami, K Singha, A N Flores, W L Silver, E Hauser, M Unruh, L Souza, J Chorover, E L Aronson, D D Richter Jr, S C Hart, J R Gerson, I Baneschi, A Ederer, W H McDowell, R Keen, T S White, A L D Dere, R E Gallery, D Markewitz, K A Lohse

1934255 *Depth Structures Absolute Growth Rates of Methane-cycling Microbes in a Coastal Wetland:* **S Kent**, G L Noyce, P Dijkstra, E Schwartz, B A Hungate

250114

Missing Carbon: Mechanisms Controlling Carbon Transfer from Terrestrial to Aquatic Systems (*joint with H*)

Conveners: Cheristy Jones, University of New Hampshire Main Campus; **Ruth Varner**, University of New Hampshire; **Carolina Olid Garcia**, University of Barcelona; **Allison Herreid**, St. Olaf College

1984287 *Anthropogenic Inputs and In-stream Processes Drive Dissolved Organic Matter Composition in the Illinois River Waterway from Lake Michigan to the Mississippi River:* **K Wickland**, M Kurek, J Fleck, L C Loken, D J Fazio, C M Soderstrom, S Lafond-Hudson, R G Spencer, J Duncker

1950793 *Carbon on the Move: Wetlands as Gateways Between Land and Water in the Lake Erie Watershed:* **N Mirnasl**, G B Arhonditsis, I F Creed

1883952 *Characterizing transport mechanisms and pathways of organic carbon export from thawing permafrost hillslopes:* **A Mohammed**, R Polk, R J Frei, B Yokeley, S Godsey, S G Evans

1931338 *Chemoautotrophic, methanotrophic, and ancient carbon contributions to stream food webs:* **A G DelVecchia**, A Ellwein, J Stanford, X Xu

1870592 *Contribution of Wastewater Treatment Plants in the Mississippi River Basin to the Riverine Carbon Transport:* **Y J Xu**

1912459 *Do the Mechanisms Controlling Soil Extracellular Enzyme Activities Vary with Depth? An Interplay among Climatic, Edaphic, and Biological Factors:* **Y Yang**, E L Aronson, M Unruh, A Ederer, J R Gerson, M Swenson, W L Silver, S A Billings, W H McDowell, J Chorover, R E Gallery, K A Lohse, J Botthoff, S C Hart

1962538 *Microbial Community Composition of Ancient Hydric Soils and its Recovery in Contemporary Floodplain Restorations:* **A Yaculak**, J Kan, M Peipoch, E Moore, J G Galella, S Kaushal, T L Trammell, E K Peck, PhD, S P Inamdar

1921492 *Thaw is Change, and Change Is inevitable: Understanding Bacterial Community Changes Following Permafrost Thaw:* **M McDonald**, S Bagby, C Baker, R Barbato, J Barta, J A Bradley, S J Doherty, R E Hewitt, H Holland Moritz, M Kim, B D Lanoil, J O'Brien, U Schuette, K Shek, T A Vishnivetskaya, J Voříšková, J West, M Yang, M Zahid, J G Ernakovich

1959908 *Wildfire Effects on Carbon Losses through Combustion vs. Altered Microbial Respiration Rates Post-fire in Canadian Boreal Forest:* **T Whitman**, D Johnson, K Kruger, E Kaufman, L Sielski

1856392 *Determining the influence of thermokarst erosion on greenhouse gas fluxes at Arctic tundra-lake interfaces:* **K A Bennett**, C Voigt, L Cornette, J Brouin-Jacques, R Maranger, C Gray, C von Sperber, S Tank, O Sonnentag, A Vicente-Luis, B Schmidt

1956632 *Estimating stream carbon budgets from tracer release observations in fen-adjacent mountainous streams.:* **R Garza**, B Saccardi, S Shedroff, R Cole, D F Boutt, T Giacoppo, M Winnick

1919493 *Fate of Organic Carbon Release from Manure in Soils: Column Experiments:* **S Scheppman**, R J Saracanlao, B Hassanpour

1993585 *Gradients of Deposition and In Situ Production Drive Global Glacier Organic Matter Composition:* **R G Spencer**, A M McKenna, A Kellerman, B Tom, J Fellman, E W Hood, H Peter, M Schon, V De Staercke, M Styllas, M Tolosano, A Holt

1959382 *Groundwater Inflow and Carbon Dioxide Dynamics in a Headwater Stream: Insights from Long-Wave Infrared Remote Sensing:* **R Cole**, R Wicks, D F Boutt, B Saccardi, R Garza, S V McKnight, T Giacoppo, M Winnick

1966001 *Lateral Loss of Carbon from Fields to Surface Waters: DOM Dynamics in a Tile-Drained Agricultural Watershed:* **L Rasnake**, T V Royer, K Novick, J L Tank, R Meyer, A Pruitt

1960577 *Seasonal Hydrologic Contributions to Stream Dissolved Organic Carbon (DOC) Transport in the Forested Watersheds of the Upper Mississippi River Basin:* **D Ajewole**, P M Allen, J D White

1977136 *The Role of River-Lake Network Structure and Climate on the Fate of Terrestrially Derived Carbon:* **V Slevin**, S Jones, J Gardner

251213

Model Data Integration to Advance Understanding of Wetland Biogeochemical Cycles

Conveners: **Kunxiaojuan Yuan**, Lawrence Berkeley National Laboratory; **Qing Zhu**, Lawrence Berkeley National Laboratory; **William Riley**, Lawrence Berkeley National Laboratory; **Euan Nisbet**, Royal Holloway, Univ London

1994304 *A Process-based Modeling Approach for Simulating Microbial Activity in a Temperate Freshwater Wetland:* **E Hassett**, C Monty-Bromer, J Senko, B Adesanmi, L Kinsman-Costello, Z A Mekonnen, A Brereton, G Bohrer, J E C Missik, T H Morin

1999399 *Assimilating Multi-site Eddy-Covariance Data to Calibrate the CH₄ Wetland Emission Module in a Terrestrial Ecosystem Model:* **J Theanutti Kallingal**, M Scholze, P A Miller, J Lindstrom, J Rinne, M Aurela, P Vestin, P Weslien

1941203 *Measuring Regional Scale Methane Emission Fluxes From Wetlands:* **J L France**, R Fisher, D Lowry, S Batten, M Lunt, J Shaw, G Allen, S Hancock, S Bauguutte

247377

Multiscale Microbial Drivers of Soil Biogeochemistry: Theory, Data, and Models

Conveners: **Elsa Abs**, LSCE Laboratoire des Sciences du Climat et de l'Environnement; **Ulas Karaoz**, Lawrence Berkeley National Laboratory; **Nicola Falco**, Organization Not Listed; **Kristen DeAngelis**, University of Massachusetts

1975875 *Multiscale Microbial Mechanisms Driving Soil Respiration Responses to Drought and Rewetting:* **K S Hofmockel**, M S Lipton, W C Nelson, L Bramer, S L Bell, H McCullough, H S Song

1954943 *Beyond Microbial Biomass and Carbon Use Efficiency: Rethinking Microbial Activity under Climate Change:* **A Richter**, D Metze, L Fuchslueger, H Schmidt, L Stein, V Ritter, C Rottensteiner, C Kaiser, A Canarini

1926516 *Towards Global Carbon Metabolism: integrating terrestrial and aquatic flux data at the watershed to continental scale:* **A Ballantyne**, R O Hall Jr, C L Torrens, E Shafron, M Johnson, S Fletcher, B Bain-White

1893017 *Unravelling global patterns and drivers of plant litter decomposition variability in intermittent rivers and streams:* **X Zhang**, H Yang, P Ciais

1945416 *Methane emissions in northern peatlands: Integration of process-based model and multi-site observations:* **M Wu**, W Duan, M Peichl, H He, N Roulet, S Knox, P E Jansson

1994125 *Nutrient removal and greenhouse gas tradeoffs in a restored wetland in a highly agricultural midwestern watershed:* **S E Newell**, S Jarrett, N Ray, S Jacquemin, H Hoehn, M Jutte

1956539 *Predictive Hybrid Modeling of Wetland Nutrient Cycling Through Sentinel 1 and 2 Spatio-Temporal Machine Learning Analysis:* **E A L Salas**, K Schrack, S Kumaran, R Bennett

1875820 *Scalable Annual Carbon Flux Estimates in Restored Wetlands Using Data-Model Fusion:* **K B Delwiche**, P Y Oikawa, S Knox, D D Baldocchi

1927328 *Trees and Knees: Understanding Dynamics of Methane Flux Pathways in a South Louisiana Swamp:* **R Bordelon**, J Villa, D Taj, E J Ward, S Merino, K Wrighton, G Bohrer

1851213 *Water table depths impact simulated Methane (CH₄) Transport Pathways for a Rice Crop grown on Degraded Fen Peat Soil: results from Peatland-VU model:* **A Tilak**, M van den Berg, K Rootlieb-van Huissteden, T Lippmann, A Malhotra, M J Saunders, C Wüst-Galley, K A Byrne

1916521 *Characterization of microbial community composition across arctic polygonal tundra ecosystems:* **M Brown**, L Guo, M J Lara, M Muscarella

1961007 *Continental-scale Estimation of Soil Microbial Properties with Mid-infrared Spectroscopy:* **S Ghimire**, Z Freedman, Y Zhang, J Huang, E Majumder, A E Hartemink, E B Graham, O Qafoku, J Andrews

1919816 *Dry heat beats the peat: warming intensifies the effects of drought on microbial decomposition in a northern peatland:* **J E Kostka**, K Duchesneau, B Aldegue Riquelme, C Petro, G Makke, M Green, M Tfaily, R M Younge, J Chanton, J Hatt, B B McGivern, K Wrighton, H Paul, Q Quan, J Zhou, Y Luo, K Konstantinidis

1977304 *From Biomarkers to Models: Accounting for Microbial Trait Variation and Uncertainty in Soil Necromass Carbon Estimates:* **A Fine**, F Santos, L York

1887872 *Functional Consequences of Solving Elemental Imbalances:* **J Murua**, B Bertolet, L Chavez Rodriguez, S D Allison

1858016 *Microbial functional traits through the whole soil profile and their response to warming:* **U Karaoz**, R J Eloy Alves, N Tolic, R K Chu, C Nicora, E K Eder, J Toyoda, E Eloje-Fadrosch, M S Torn, E Brodie

1934937 *Permafrost-specific moisture control functions improve CH₄ and CO₂ predictions in soil carbon models:* **A Price**, C Kallenbach, P M Douglas, D Pierson

1856701 *Revealing Missing Microbial Mechanisms in Soil Carbon Models through Community-Resolved Simulations:* **E Abs**, D Coulette, F X Joly, H Moss, K Knight, R Z Abramoff, D S Goll, S Manzoni, S Hattenschwiler, Y Wang, X He, S D Allison, P Ciais

249107

New Mechanisms, Interactions, and Approaches for Predicting Global Biogeochemical Cycles (cosponsored by ESA: Ecological Society of America) (joint with H, OS)

Conveners: **Forrest Hoffman**, Computational Earth Sciences Group and Climate Change Science Institute; **Shijie Shu**, Lawrence Berkeley National Laboratory; **Bharat Sharma**, Northeastern University; **Jing Tao**, University of Maryland College Park; **Bharat Sharma**, Northeastern University

1938927 *A Carbon-Water Cycle Reanalysis for Improved Understanding, Monitoring, and Prediction of Carbon Climate Feedbacks:* **N Parazoo**, T E Bilir, A A Bloom, J Liu, R K Braghiere, F Hoffman, N Collier

1959449 *Annotating Microbial Dark Matter with Transformer Models to Advance Biogeochemical Process Understanding:* **N Azbijari**, M David, J Wynne, A Thurber

1958676 *Capturing the spatial variability of plant hydraulics at continental scale using differentiable modelling.:* **A G Konings**, D Feng, Y Liu, N Holtzman, Z Tan, M Anderson, T R Holmes, C Hain, M Browne

1880964 *Carbon-Nutrient Interactions Control Arctic Vegetation Dynamics:* **J Tao**, W J Riley, C Koven, R Knox, J A Holm, Q Zhu, Z A Mekkonen, Y Liu, V G Salmon, B Dafflon, M S Torn

1913906 *Constraining forest net ecosystem production using lidar remote sensing observations and mechanistic ecosystem modeling:* **L Ma**, G C Hurtt, L Ott, L P Chini, J He, Q Shen

1860793 *From Nitrous Oxide Fluxes to the Full Nitrogen Cycle in the Earth System: Toward a Comprehensive Global Nitrogen Budget:* **H Tian**

1908824 *Soil Microbial Life on the Hydrologic Roller Coaster: Modeling Challenges Across Scales:* **A M Porporato**, S Calabrese, D B Olaitan

1961106 *Spatial Heterogeneity of Plant Litter Distribution across North American Drylands:* **A Besser**, I Torres, D E Bloom, J Peng, A Bonner, A Cueva Dr, D Moorhead, S Reed, K Todd-Brown, J Li, H Throop

1926436 *How non-growing season plant nitrogen uptake affects northern temperate forest growth: modeling and field measurements:* **C Bian**, P G M Hess, Q Zhu, S Freund, C L Goodale

1973473 *Improving simulations of Northern Peatlands through integration of models, ecosystem experiments and observations:* **D M Ricciuto**, X Shi, A P Walker, X Yang, D Wang, Y Wang, J Mao

1967135 *Informing Land Surface Model Performance Through Functional Relationship Benchmarks: A Case Study of High-Latitude Respiration Sensitivity to Temperature:* **J M Poe**, D N Huntzinger, W J Riley, J Wells, E Schuur, C Schwalm, L T Berner, H Rodenhizer, N Bouskill, V Brovkin, E J Burke, P Ciais, G Georgievski, A Gustafson, D M Lawrence, A H MacDougall, Z A Mekkonen, J R Melton, G Meyer, A Pongracz, C Qiu, B N Sulman, S C Swenson, J Tao, D Warlind, Y Xi, F Yuan, Q Zhu, C Schaedel

1922157 *Integrating Physical Principles and Data-Driven Calibration for Scalable GPU-Based Land Surface Modeling: ClimaLand:* **R K Braghiere**, K Deck, J Sloan, T Reddy, A A Renchon, O Dunbar, K Phan, C Frankenberg, T Schneider, N Efrat-Henrici

1881662 *Quantifying Uncertainty in Nitrogen Leaching Simulations of the E3SM Land Model:* **Z Tan**, D Feng, H Tian, B Drewniak

1990655 *Satellite-Constrained Dynamics of Biospheric Photosynthetic Production Across Land and Ocean:* **Y Zhang**, W Li, G Sun, J Mao, M P Dannenberg, J Xiao, Z Li, H Zhao, PhD, Q Zhang, S Hu, C Song, N Cassar

2000677 *The Deep Soil Ecotron: A New Frontier for Ecosystem Research:* **Z E Kayler**

1933308 *The influence of diffuse radiation on global terrestrial photosynthesis:* **J E Kim**, C Zarakas, A J Rigden, C J Still, M Goulden, J T Randerson

252418

Organic Matter Persistence: From Molecules to Microbes to Matrices

Conveners: **Brianna Finley**, Lawrence Berkeley National Laboratory; **Romy Chakraborty**, Lawrence Berkeley National Laboratory; **Brianna Finley**, Lawrence Berkeley National Laboratory

1923495 *An experimental approach to iron-mediated removal of dissolved organic carbon in deep ocean hydrothermal plumes:* **C W M Lee**, C R German, S Q Lang, C Santinelli, D Repeta

1895757 *Cryo-Focused Pyrolysis GC/MS as a Tool for Tracing Organic Matter Sources and Chemical Diversity in Soils from Varied Ecosystems:* **A Shahriar**, M Zavarin, E E Nuccio, K Grant, K McFarlane, J Pett-Ridge, D Toews, J Sexton, R Ryals, J Baccei, A Berndt, R Boiteau, I A Jawad, Y Yang, S Bansal, E J O'Loughlin, R Matamala, K D Morrison

1877708 *Distribution and Abiotic Contributions of Microbial Extracellular Enzymes Indicate Limitations in Assumptions of Microbially-Explicit Soil Organic Carbon Models:* **M Kim**, K Min

1868617 *Does secondary mineral formation compete or cooperate with organic matter storage?:* **M A Torres**, W Larsen, J Bernstein-Schalet, M Gammernan, Y Hou, D E Ibarra, P C Kemeny, S Muñoz, E J Ramos, T Sun, K D Suquino

1964571 *Elucidating the mineral-organic associations in cultivated temperate soils using a novel sequential extraction protocol:* **N Saji**, S Kumaran, R Satish, E Salas, R Bennett, A Walker, R Hightower

1991608 *How do organic matter properties shape microbial traits in deep salt marsh sediments?:* **S A A Rafie**, J L Bowen, A Bulseco, J H Vineis

1986918 *Hydrothermal History Shapes Fate of Dissolved Organic Nitrogen Compounds in Al(III)-Fe(III) (Oxy)hydroxide Systems:* **O R Harvey**, B C Leonce, K Athipatla

252167

Peatland Futures: Disturbance, Recovery, and Earth System Feedbacks (joint with A, H)

Conveners: **Xiaoying Shi**, Oak Ridge National Laboratory; **Daniel Ricciuto**, Oak Ridge National Laboratory; **Randy Kolka**, US Forest Service Grand Rapids; **Siya Shao**, Lawrence Berkeley National Lab and University of Arizona

1996705 *Intrinsic Ecosystem Drivers Outweigh Wildfire Effects on Soil Organic Carbon Properties at a Regional Scale:* **Y Lee**, M Zhu, O Chadwick, J L Deenik, P Vitousek

1902386 *Microbial Biofilms and Their Implications for Life Detection in Serpentinizing Systems:* **A Grabowski**, S Gonzalez Henao, M O Schrenk

1998488 *Microbial Necromass Decomposition is Accelerated by Long-Term Warming-Induced Shifts in Soil CNP Availability:* **M Montero Sanchez**, C Anderson, A L H Chan, E Ruff, M Kleiner, M A Mayes, H Vanderschuren, R Moser, L He, A Jung, K M DeAngelis

1911403 *Molecular diversity of organic matter as a novel concept in aquatic and terrestrial systems : A state-of-the-art summary:* **S Remke**, R LaCroix, J Lehmann

1936403 *Organic Matter Preservation and Alteration in Silica Sinter Deposits from Active and Extinct Hydrothermal Systems:* **R L Cheng**, C Munoz-Saez, A D Czaja

1980443 *Rare Hexose in Soils Suggests an Unexplored Pool of Biochemical Recalcitrance:* **C M Boot**, S Cardinalli-Lemas, A Haase, P De, B Avera, P Baas, R T Conant

1959207 *Relating Molecular Properties to the Persistence of Marine Organic Matter with Liquid Chromatography-Ultrahigh-Resolution Mass Spectrometry:* **C Dewey**, R Boiteau

1921508 *Soil porous microstructure control over soil organic matter mobility: a multimethod workflow for understanding chemistry-dependent organic matter binding in soil:* **T Varga**, T W Wietsma, N Didonato, S C Duckworth, Q Zhao, N A Sconzo, A K Battu, J Zheng, X He, D Rippner, O Qafoku, M Rockhold, N P Qafoku

1933614 *Substrate partitioning and competition among fermenters, sulfate reducers and methanogens under sulfide stress in anaerobic digestion systems:* **G Coon**, V Kouadio, O E Jagoutz, T Bosak

1917655 *Wildfires Enhance Soil Organic Matter Biodegradability:* **J VanderRoest**, S Fettrow, C Broeckling, K Sparks, A Skinner, M J Wilkins, L Babcock-Adams, A M McKenna, T Borch

1987724 *Evaluating the Response of an Ombrotrophic Bog's Carbon Cycle to Current and Future Climates:* **E Humphreys**, Z Chen, P Cowden, P Lafleur, J R Melton

2001059 *Investigating the Impacts of Saltwater Intrusion in the Pore Structure of Tropical and Boreal Freshwater Peat Soils Using X-ray CT and Ksat Measurements:* **I Newton**, M R Islam, S Adams, D Nering, E Harkas, X Comas, J Knaub

1909309 *Peatlands have the potential to emerge as significant contributors to future climate warming:* **N Chaudhary**

252104

Prescribed Fire as a Tool for Science and Management (*joint with A, GC, NH, SY*)

Conveners: **Ryan Wade**, NASA Marshall Space Flight Center; **Jacquelyn Shuman**, NASA Ames Research Center; **Aaron Piña**, USDA Forest Service; **Marcus Williams**, USDA Forest Service; **Kelley Murphy**, NASA Marshall Space Flight Center

1956756 *Application of Surface Based Wildland Fire Behavior Measurements in Ecological Modeling:* **S Flanagan**, J O'Brien, J Grego, J Lindborg, D Hitchcock, J Paki, R Kremens, N Tutland, L E Loudermilk

1902224 *Effect of Fuel Moisture Content on Plume Dynamics in the Convective Boundary Layer:* **R R Dubey**, N Yaghoobian

1985324 *Ground-based and Airborne Observations during the 2025 NASA FireSense Prescribed Burn Field Projects:* **S Stolze**, M Miller, P Pangle, T Murphy, R A Wade

1885285 *Impacts of Meteorological Forcing and Land Cover on Grassland Fire by WRF-SFIRE Simulation and its Computational Optimization:* **M Lou**, Q Wu

1970675 *Improving Wildfire AI with Radiometric Thermal UAV Data: An Introduction to the FLAME 3 Dataset:* **M Habibpour**, B Hopkins, C Oneil, E Rowell, R Parsons, C Seielstad, M Marinaccio, S Flanary, I Nazim, F Afghah, M Hamid Raha, A Tavakkoli, J Coen

248610

Quantifying the Local-to-Global Greenhouse Gas Exchanges of Inland Waters (*joint with A, GC, H*)

Conveners: **Dustin Roten**, University of Utah; **Chequita Brooks**, Louisiana Universities Marine Consortium

1890021 *Carbon Cycling and Greenhouse Gas Dynamics along a River-Ocean Continuum in the Humid Subtropics:* **H W Lo**, N M Chung, Y Li, J Liu, H C J Thomas, Q Yang, Y Zhou, B Thibodeau, L Ran

2004317 *Carbon Flux of the Inland Streams in the Southern Appalachian Mountains:* **S Tuberty**, D Roten, K Ruff, D Bettini

1867758 *Integrating Fire Behavior Models with Chemical Transport Models: A Case Study of Coupling CMAQ with WRF-SFIRE:* **Z Li**, Y Hu, S O'Neill, R El Asmar, H Yu, D Tanner, L G Huey, R J Weber, A G Russell, T Odman

1915621 *Model Fuel Treatments: Convergent and Contrasting Effects of Prescribed Fire and Mechanical Thinning on Stand Structure, Fuel, and Demography Rates:* **X Gao**, J Katz, C Koven, L M Kueppers

1848972 *Prescribed Fire Smoke Monitoring: Failure-Case Simulation for Sensor Placement Decision-Making:* **E Twarog**, D Neamati, G Gao

1921198 *The Role of Prescribed Fire in Ecosystem Restoration in Central Texas:* **J O Thompson**, J Krueel, J F Smekens, S Griffin, C Simurda, C Schwoppe, M O'Toole, J D White, M S Ramsey

1978166 *The Utilization of UAS-Borne Radiosondes to Document Atmospheric Conditions of a Prescribed Burn During the Spring 2025 NASA FireSense Campaign:* **P Pangle**, J Fowler, J K Shuman, PhD, R A Wade, A Dachtler, D Abramson, A Jaffe, H Raine, J Hall, A Kotik

2004693 *Using spaceborne lidar data to assess the spatial effects and longevity of fuel treatment strategies on vegetation structure in California:* **M Liang**, C Hakkenberg, L M Villa, L Duncanson, C B Field

1956708 *City, Mountains, and Coast: Greenhouse Gas Concentrations of Inland Waters Across a Tropical Landscape:* **W H McDowell**, J Potter, T Barreto-Vélez

1921094 *Measuring Gas Exchange in Small Streams Via a Moving Platform:* **B J Dalzell**, A Herreid

1978502 *Salinization Driven Changes in Stratification, Oxygen, and Methane Dynamics in Urban Lakes:* **Z Plechaty**, H Sauer, A Heathcote, T L Hamilton, J Cotner, M B Edlund

1895848 *Using Sentinel-3 imagery and machine learning to quantify aquatic greenhouse gas flux in Lake Michigan estuaries:* **J Greene**, A Gluck, B A Biddanda, M J Philben, S A Woznicki

249781

**Radiative Transfer over Land Surfaces:
Observations, Modeling, Inversion, and
Applications**

Conveners: Dalei Hao, RAD Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Yelu Zeng, CAU China Agricultural University; Min Chen, UW-Madison; Tiangang Yin, The Hong Kong Polytechnic University; Haoran Liu, University of Wisconsin Madison

1893988 *A Clumped-Foliage Canopy Radiative Transfer Model for a Global Dynamic Terrestrial Ecosystem Model III: Diurnal and Seasonal Albedo:* **L Mirzaghali**, N Y Kiang, W Ni-Meister, W Yang, A J Oliphant

1917791 *A Global Long-term Land Surface Component Temperature Dataset Based On AATSR Observations:* **Y Lu**, Z Bian, H Li, Q Xiao

1897612 *Beyond Plant Functional Types: Modeling Climate Impacts of Trait-Based Leaf Optics in Earth System Models:* **R K Braghieri**

1986386 *Combining geometric-optical and spectral invariants theories for modeling canopy fluorescence anisotropy:* **D Hao**, Y Zeng, Y He, Y Lu

2000035 *Estimating Hourly 2-km All-Sky Surface Downward Longwave Radiation from GOES-R Imagery Using Machine Learning:* **Y Guo**, P Yu, J Wei

1961456 *Global Retrieval of Harmonized Microwave Land Surface Emissivity Leveraging Multi-Sensor Measurements from GMI, AMSR2 and MWRI:* **J Hu**, R Li, P Zhang, Y Wang, S Wu, L Husi, F Weng

1912947 *Improved satellite-scale land surface temperature components retrieval with hotspot effect correction and temperature difference constraints:* **H Li**, Y Lu, Z Bian

1880538 *Improving Simplified Models of Radiation Interception and Evapotranspiration Commonly Used in Remote Sensing of Discontinuous Canopies:* **M A A Ponce de León**, M Roby, K Knipper, N E Bambach, W P Kustas, A J McElrone, B Bailey

252784

**Radiocarbon measurements to fingerprint
global change (joint with A, GC, SY)**

Conveners: Claudia Czimczik, University of California Irvine; Guaciara Santos, University of California Irvine; Francesca Hopkins, University of California Riverside; Melissa Schwab, University of California Irvine

1993389 *Loss of Millennia-aged Carbon from Disturbed Peatlands:* **J C Bowen**, X Xu, Y Andriyani, P J Wahyudio, D S Putri Aulian Barry, E SPi, A Hoyt, G Z Anshari, T Nguyen, L Aluwihare

1986085 *Integrating Multi-Angle SIF and Multi-Source Vegetation Indices in a Physically-Guided Deep Learning Framework for Soybean Yield Estimation:* **Y Gao**, K Li, D Hao, Y He, Y Zeng

1998021 *Integrating Prior Knowledge with Deep Learning for Enhanced Wheat Yield Estimation Using Remote Sensing and Meteorological Data:* **Y Zeng**, K Li, Z Li, Y Gao, H Tian

1954488 *Low-level atmospheric turbulence dataset in China generated by combining radar wind profiler and radiosonde observations:* **D Meng**, J Guo

1850648 *PROSPECT-DP: A coupled leaf optical properties model for better simulation in red-edge domain:* **L Liu**, S Du

1951286 *Reconstructing high-resolution satellite solar-induced chlorophyll fluorescence based on an end-to-end convolutional neural network with spatial redistribution:* **J Hu**, Z Ma

1907683 *Separating soil background signals from canopy reflectance using spectral invariant theory-based model for improved solar-induced chlorophyll fluorescence estimates:* **D Ahn**, Y Ryu, J Lee

1932799 *Synergetic retrieval of leaf area index and leaf chlorophyll content:* **J M Chen**, H Zhou, Z Zeng, M Xu, X Wang, R Shang, R Wang, Z Cheng, Y Yan, W Ju

1927966 *Synergy between Geostationary and Hyperspectral Remote Sensing: A Case Study with TEMPO Data:* **W Wang**, H Hashimoto, T Park, Y Wang, I G Brosnan

1995376 *Unraveling Intracanopy Reflectance Heterogeneity with a Gaussian Mixture Model to Improve Leaf Chlorophyll Retrieval from UAV Hyperspectral Imagery:* **Y Feng**, R Zhang, Z Li, Y Gao, S Kang

1959373 *Unrevealing site-dependent relationship between Solar-induced chlorophyll Fluorescence and Gross Primary Productivity using the Terrestrial Ecosystem Carbon cycle simulator:* **H Liu**, Z Pierrat, H Dashti, M Chen

1906688 *Quantification of Fossil Emissions in the Atmosphere Using Radiocarbon:* **S Szidat**

1911062 *Radiocarbon Observations in Atmospheric Methane and Carbon Monoxide in London:* **F Liu**, X Xu, T Knowles, H D Graven

1931805 *Radiocarbon-based source apportionment of carbonaceous aerosol in the Athabasca oil sands region:* **L Niu**, X Xu, E B Wiggins, A M Welch, G M Santos, J T Randerson, C I Czimczik

1974288 *Soil Organic Carbon Persistence and Thermal Stability After Forest Replacement By Plantations:* **N Perez**, A Navarrate, C A Sierra, A P Smith, P Castillo, F Aburto

1955641 *Using radiocarbon to evaluate global carbon uptake and turnover in the terrestrial biosphere:* **H D Graven**, H Warren, H Gibbs, S Khatiwala, C Koven, J Lester, I Levin, S Spawn-Lee, W R Wieder

250540

Recent Advancements for Representing Microbial Dynamics in Earth System Models

(joint with C, EP, GC, H)

Conveners: **Jing Tao**, University of Maryland College Park; **Gianna Marschmann**, Lawrence Berkeley National Laboratory; **Hannah Holland Moritz**, University of New Hampshire; **Zhen Li**, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; **Zhen Li**, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences

1958141 *A comparative analysis of carbon use efficiency dynamics in popular models of biological growth:* **J Tang**, W J Riley, G Marschmann, E Brodie

247609

Recent Developments in Empirical and Modeling Studies of Forest Ecosystems: Implications for Management and Climate Change

Conveners: **Mahdi Andre Nakhavali**, IIASA International Institute for Applied Systems Analysis; **Fulvio Di Fulvio**, IIASA International Institute for Applied Systems Analysis; **Justin Baker**, Science and Technologies for Phosphorus Sustainability (STEPS); **Amanda Palazzo**, IIASA International Institute for Applied Systems Analysis

1867837 *Assessing Carbon Balance in European Forests Using a Dynamic Vegetation Model: Recent Trends and Drivers:* **H Zhong**, A Eckes-Shephard, M Lindeskog, A Viana-Soto, C Senf, K Kowalski, K Piltz, P A Miller, S Olin, S Suvanto, T Pugh

1958059 *Climate Uncertainty and Future Tree Growth; an Application of Artificial Neural Nets to Tree Level Growth:* **R Manner**, J S Baker

1887181 *Leveraging genomic data to assess and model microbial life history tradeoffs:* **S D Allison**, L Chavez Rodriguez, J Murua, G Marschmann, K Shek, U Karaoz, A A Malik, C Broderick, D Fairbanks, W Anthony, A Clum, A R Nelson, E Brodie, B Bertolet

1887035 *Modeling Microbial Mechanisms of Soil Carbon Loss Under Warming: A Modular Approach to Improve Earth System Model Predictions:* **D Sihi**, J Zheng, J Weverka, D Minikaev, G Larocca Conte, C K McMillan, G Louis, E A Davidson, M N Weintraub, A Nottingham, C S O'Connell, J Pett-Ridge, S Reed, T Wood

2002089 *Uniting Modelers, Microbiologists, and Biogeochemists to Improve Wetland Methane Prediction: Workshop Report and Community Engagement:* **V I Rich**, R K Varner, PhD, G Bohrer, M Borton, J Watts

1862496 *Closing the Water Balance of a Small Forested Watershed in Northern Arizona:* **J Urban**, Z Keller, E R Vivoni

2004209 *Identifying Merchantability Opportunities in California's Priority Landscapes: A strategy for Wildfire Risk Mitigation:* **O Sodiya**, J S Baker

1924233 *Integrating Climate Change and Management for Modeling Socio-ecological Impacts to Naturally Regenerating Temperate Forest Systems:* **A Daigneault**, C Carovillano, E Simons-Legaard, S Morano, A Weiskittel

1911816 *Mapping Forest Communities at 10-m Resolution Using Deep-Learning-based Embedding Fields:* **X Gao**, V Pasquarella, C Brown, J Thompson

1879118 *Multiple Constraints Limit China's Afforestation Carbon Sink Potential:* **Y Cao**, D Sperlich, R Yousefpour, D Zhong, M Hanewinkel

1903799 *Quantifying the Impact of Forest Management on Carbon Uptake in South Korea under Climate Change:* **M Ku**, S Kwon, J A Lee, Y Son

1998994 *Remotely Sensed Canopy and Litterfall Trends of Longleaf Pine Plantations in South Georgia, USA:* **N Shephard**, S Kinane, D Markewitz, D Clabo

248515

**Remote Sensing of Terrestrial Ecosystems:
Monitoring, Understanding, and Management
Across Scales (joint with GC, IN)**

Conveners: **Yanghui Kang**, Virginia Tech; **Liyin He**, Carnegie Institution for Science; **Andrew Feldman**, Massachusetts Institute of Technology; **Joshua Fisher**, NASA Jet Propulsion Laboratory; **Wantong Li**, Max Planck Institute for Biogeochemistry

1944388 *A Foundational Earth Observation Model for Land Cover in the Andes.*: **V M Mantas**, C Caro

1864081 *A Novel Framework for Classification of Temporal Vegetation Dynamics (TVDs) in Dryland Systems*: **J Peeling**, G Allington

1857497 *A phenology-guided approach for mapping grassland invasive species using satellite image time series*: **M S Islam**, M N A Rakotoarivony, R G Hamilton, Y Zhou, S Shrestha, H Gholizadeh

1951862 *A Proximal Sensing Method for High-Resolution Macropore and Soil Structure Imaging of Intact Soil Thick Sections*: **S Mukhopadhyay**, M Bronnikova, D Hirmas

1877153 *A Simple Method for Quantifying Cloud-Fog Induced Reduction in Solar Radiation Using High Spatiotemporal Geostationary Satellite Data*: **T Y Ou**, R Y Gu, Y S Jang, C H Shih, T Y Yang, M H Lo

1972192 *Advancing Remote Sensing Approaches to Map Invasive Grasses After High-Severity Fires in Dry Forests and Shrublands of the Pacific Northwest*: **A Nath**, C Tortorelli, B K Kerns, M Krawchuk

1979993 *Advancing Terrestrial Evapotranspiration Monitoring through Diurnal Observations from Himawari-8 Satellite*: **B Zhang**, K Ichii, Y Yamamoto, W Li, A Higuchi, W Yang, M Kang, Y Ryu, S J Kim, S Murayama

1870346 *Assessing the Biogeophysical Cooling Potential of Restored Prairie with Eddy Covariance & UAV Remote Sensing*: **R Pacer**, M P Dannenberg, S Meerdink, B Swanson

1907681 *Assessing the Impacts of LULC on Carbon-Water Exchange in Arid Coastal Ecosystems of Egypt*: **A Hotaiba**, B Salem, M Halmy

1922174 *Classifying Urban Tree Genera in New York City with Phenological Time Series from PlanetScope and Airborne Lidar*: **D L Miller**, A Ghosh, A Green, O Keenan, Q Li, W Xi, A Young, D Katz

1939918 *Co-developing California's Land Monitoring System for Wildfire and Ecosystem Resilience through Interagency Collaboration, Remote Sensing, and Data Innovation*: **T Park**, S Horner, A Awasthi, H Hashimoto, K K Kabasares, P K C, K H Tran, W Yip, I G Brosnan

1977535 *Creating Large-Scale Mosaics and Time Series using spectralmatch Python Library for Relative Radiometric Normalization*: **K Lindiwe**, J Percival, R L Perroy

1878836 *Crown Depth as a Game-Theoretic Outcome: Evidence from Large-Scale ALS Observations*: **Z WU**, X Yang

1914945 *Decreases and Increases in Regional Livestock in the Last Decades Significantly Increased and Decreased Net Primary Productivity*: **J Anadon**, O Sala, L Cruz-Amo, J Barbosa, S Begueria, Y Pueyo

1992735 *Deep Learning-Based Mapping of Ecosystems in South Korea Using the IUCN Global Ecosystem Typology*: **B Haedam**, K Lee, S Park

1943983 *Desert Type Extraction and Its Dynamic Changes on the Qinghai-Tibet Plateau from 2000 to 2020*: **S Liu**, R Lu, H Duan, W Kang, Y Zhi, T Wang

1926104 *Detecting Forest Mortality in Western US Forests by Monitoring Spatial and Temporal Anomalies in Land Surface Temperature*: **Y Marambe**, A Radford, M Campbell, P E Dennison, W Anderegg, J A Wang

1864352 *Detecting Individual Trees and Their Carbon Fixation in Complex Urban Ecosystems Through Multi-Modal Sensing*: **Y Ryu**, T Yang, R Kwon, C Choi, Z Zhong, Y Nam, S Jo

1991072 *Detecting Urban Understory Shrubs using Sentinel-2 : A Case Study in Seoul, South Korea*: **S Park**, S Kim, C Park

1991299 *Determining the Relative Influence of Water Potential, Biomass, and Temperature on Vegetation Optical Depth*: **D Feng**, A G Konings

2000334 *Diurnal Modeling of Gross Primary Production in East Asia with Himawari-8/9 and JapanFlux and KoFlux Data*: **Y Yamamoto**, K Ichii, W Yang, Y Ryu, M Kang, M Ueyama

1890977 *Dry-season Estimation of Grass Biomass and Fractional Cover in a Kenyan Rangeland Using Multi- and Hyperspectral Remote Sensing*: **I Vuorinne**, J Heiskanen, L Pesonen, T Korpelainen, I Ocholla, P Nygren, M Mjomba, P Pellikka

1992352 *Effects of Himawari-8/9 Observation Geometry on Seasonal Vegetation Dynamics Monitoring Across Southeast Asia*: **M Hase**, K Ichii, Y Yamamoto, W Li, B Zhang, W Yang, T Kumagai, Y Hata, N Takamura, C S Deshmukh, M Ueyama, H Yoshioka, T Miura

1939862 *Estimation of leaf area index and foliage vertical profile using Wide-Angle UAV LiDAR*: **J Wang**, K Zhao, C Wingren, S Fei

1974746 *Evaluating spectral variability and species classification performance across Southern California parklands*: **N Stork**, R Martin, K Cawse-Nicholson, G Asner, N Vaughn, A Mainzer

- 1991872** *Evaluating Vegetation Indices From High-Resolution Satellites: A Comparative Study of NDVI and Tasseled Cap Greenness Using KOMPSAT-3:* **S Lee**
- 1949312** *Flower Color Index (FCI) for Detection and Monitoring of Flowering at Scales:* **B Thapa**, B S Hardiman, S Fei
- 1881697** *Forest structure and biomass monitoring with a novel method for automatic tree segmentation and structural modeling from lidar point clouds:* **R Li**, T Han, N Cranmer, A Sams, C L Goodale, X Xu
- 1998596** *Heterogeneous Response of Productivity to the Interannual Climate Variations in the High-Latitude Northern Forest across Different Plant Functional Types:* **K Liu**, J Liu, C Frankenberg, P O Wennberg
- 1909977** *Impacts of changing Atmosphere-Land-Ocean (ALO) interactions on Terrestrial Ecosystems in India during recent decades:* **R Kashyap**, J Kuttippurath
- 1930748** *Linking Forest Structure to Avian Habitat Use: A Multi-Scale Analysis Integrating Remote Sensing and Citizen Science in Eastern North America:* **C Wei**, C Sweeney, H Keebler, T Roberts, D Fink, B Zuckerberg, K Zhao, M A Jarzyna
- 1995958** *Linking Radar Microwave Remote Sensing to Vegetation Water Status in a Tropical Rainforest:* **P Sanchez Martinez**, S S Saatchi, I Fenni, L Martius, J Bush, M Mencuccini, A G Konings, A L da Costa, E Mitchard, P Meir
- 1906586** *Long-Term Disturbance Shapes Sagebrush Vegetation and Management Effectiveness in the Great Basin:* **N Rogova**, V E Skvortsov, L Ellsworth
- 1845621** *Long-Term Vegetation Dynamics in Spain's National Park Network: Insights From Remote Sensing Data:* **M Franquesa**, S M Vicente-Serrano, M Adell-Michavila
- 1941075** *Machine Learning Meets Ecohydrology: Explainable Models for Water Flux Estimation:* **S Behera**, D Dutta
- 1997415** *Mapping conifer forest drought response with photoprotective pigment dynamics across North America using the MODIS Chlorophyll-Carotenoid Index (CCI):* **L Kunik**, R Wang, D R Bowling, J C Lin
- 2000082** *Mapping Invasive Giant Reed (Arundo Donax L.) Expansion in the Balcones Canyonlands Ecoregion Using Multi-Source Remote Sensing Data:* **S I Ritu**, J Jensen
- 1998715** *Multi-scale Remote Sensing for Indigenous Forest Management in Northern California: Change Detection and Forest Structure in Yurok Ancestral Territories:* **P Baltezar**, D Lagomasino, C Ibeh, D Wood
- 1915905** *Natural Climate Solutions: When and where do they work for farmers and the climate?:* **X Wang**, K Novick, M Barnes, L Yoder, T V Royer, J L Tank, S Suttles
- 1882391** *NEON SIFnet: The first view of coordinated NEON fluxes and SIF measurements towards redefining the Golden-standard GPP at flux towers:* **S Lee**, L Gregory, L Gu, Y Sun
- 1921435** *Observing the Seasonality of Amazon Forest Greenness at Fixed Phase Angles Using a Geostationary Satellite:* **Q Wang**, C Frankenberg, D C Morton
- 1957899** *Open-Source High Resolution Biomass Benchmark Maps from Airborne Lidar with Propagated Uncertainties for Satellite Product Evaluation:* **E Bullock**, J Lu, W Liang, D J Moore, J A Wang
- 1860516** *Plant Diversity Estimation in Forest, Grassland, Wetland and Cropland Ecosystems:* **Y Zeng**, Z Zheng, C Xu, Y Zhao, P Zhao, L Ren, Y Fu, S Yang
- 1874254** *Precision Habitat Mapping in Arid Regions Using EnMAP Hyperspectral Data and Deep Learning:* **H Morgan**, A Elgendy, B Tran, H M El-Askary
- 1894005** *Proximal remote sensing for scaling forest ecophysiology from leaf to globe:* **Z Pierrat**, T Magney, L Brissette, B A Logan, J Reblin, S Nelson, J Stutz, C Frankenberg, D R Bowling, C Wong
- 1992395** *Remote Sensing Modelling and Historic Prediction of Net Ecosystem Carbon Fluxes using Google Earth Engine and Machine Learning:* **J Onyegbula**, C Reed, J A Greenberg, B W Sullivan
- 1862522** *Scaling Imaging Spectroscopy of Non-Photosynthetic Vegetation Components from Field to Aerial Data.:* **K E Union**, H E Epstein, C Bollinger, K Y Kim
- 1899932** *Scaling In Situ Data With Proximal and Remote Sensing Observations to Assess the Resiliency of Coastal Spruce Forests in Maine, USA:* **G McHale**, D Hayes, P Nelson, J B Fisher, S Fraver, C Bosley-Smith, M Grega, J W Wason III
- 1950446** *Scaling Up Wildlife Monitoring: AI-Driven Satellite Surveys Reveal Migratory Wildebeest Populations in the Serengeti-Mara Ecosystem:* **Z Wu**, Z Zhu, T Wang, Z Xu, I Duporge, P Gong
- 1992112** *Sensitivity of canopy water content to leaf water content varies between species and vegetation structures:* **J Allen**, L D Anderegg, D A Roberts, A T Trugman
- 1975431** *Spatiotemporal Analysis of Rainfall Variability and Vegetation Response in Kenya Using MODIS and CHIRPS:* **M Goswami**
- 1939156** *Spatiotemporal Mapping of Invasive Yellow Sweetclover Blooms Using Sentinel-2 and High-Resolution sUAS imagery:* **S Saraf**, R John, V Kolluru, K Jain, G M Henebry, J Chen, R Laforzezza, G Shirkey

- 1956463** *The influence of management on prairie grassland biodiversity, productivity, and climate feedbacks:* **R Wang**, J A Gamon, D Uden, C Chan, K Hogan, H Gholizadeh, N McMillan, D Wedin
- 1868213** *Tracking Individual Tree Mortality Across the US Coasts:* **C H Yeung**, X Yang
- 1996618** *Uncovering the Biogeophysical Mitigation Potential of Off-Season Croplands in Global Mollisol Regions:* **Y Cui**, C Zhang, M R Alizadeh, S Ren, N Chen, C Terrer, J Dong, R Liu

250984

Science and Applications Enabled by Remote Sensing Data Fusion, Time Series Analysis, and AI

Conveners: **Yun Yang**, Cornell University; **Zhe Zhu**, University of Connecticut; **Simon Kraatz**, USDA-Agricultural Research Service Beltsville; **Shi Qiu**, University of Concepcion

- 1946484** *Cereal Crop Mapping and Classification: Insights from Remote Sensing and Machine Learning:* **R BEN Harraf**, M Mhada, N El Mocayd
- 1973625** *Advances on OpenET-Brazil for agricultural and environmental water management:* **A Ruhoff**, L Laipelt, B C C de Andrade, G Matte Rios Fernandez, J B Rossi, W Alves, N Ramalho, F S Melton, S G Larsen, M Anderson, Y Yang, J B Fisher, R G Allen, A Kilic, W Carrara, J M Volk, A J Purdy, F Munoz-Arriola
- 1925737** *Bridging Data Gaps in Agriculture using Earth Observations and Scale Transfer:* **Y Ma**, D B Lobell
- 1912485** *Classification of Spanish moss from Terrestrial Laser Scanning 3D Point Clouds Using Unsupervised and Supervised Methods:* **A Gaskins**, J Xia, C A Silva
- 1981933** *Comparison of NASA Harmonized Landsat and Sentinel-2 (HLS) surface reflectance products with MODIS:* **Q Zhou**, M Feng, J Ju, J O Sexton, P Wang, S Channan, A Angal, M Wooten, M Sridhar, C S R Neigh
- 2004974** *Evaluating accuracy and spatial variability in PlanetScope-derived Fractional Vegetation Cover across ecosystems:* **B Kang**, Y Ryu, W Choi, S Jeong
- 1970712** *Evaluation of Long-term Land Cover Change from Global Land Cover Mapping:* **Y Zhang**, P A Arevalo, C E Woodcock, Z Zhu, M A Friedl
- 1923739** *Forecasting Agricultural Drought Impacts Through Satellite Soil Moisture Products and Deep Learning in Water-Limited African Regions:* **A D Adebayo**, C L Nakalembe

- 1975116** *Vegetation Greening and Browning Trends in the Peruvian Andes:* **H Lepage**, E Barnes, P Antonopoulos, F Gomes, Y R Ilcheva, C H W Barnes
- 1929258** *Where Earth Touches the Clouds: Mapping Montane Cloud Forests across the Globe:* **D Carchipulla-Morales**, L Lowman
- 1992305** *Fusion of UAV-Based Structure-from-Motion and Ground Penetrating Radar for Integrated Surface-Subsurface Modeling:* **S Bernardes**, E G Garrison, D Goodman, J Wilson, A Sarmah
- 1967572** *Global Land Cover mapping and Estimation (GLanCE): Long-term Annual Datasets from Landsat-CCDC Across Five Continents:* **P A Arevalo**, Y Zhang, A Ni, M A Friedl, C E Woodcock, Z Zhu
- 1866338** *High Resolution Land Cover Mapping at Large Scale Through AI and Multi-source Data Integration:* **K H Tran**, H Hashimoto, P K C, K K Kabasares, A Awasthi, S Horner, W F Yip, I G Brosnan, T Park
- 1880768** *High-Fidelity Spatio-temporal Fusion of Multi-sensor Satellite Data: A Two-Stage Generative Adversarial Framework Built Upon ConvLSTM and ViT Deep Learning Models:* **N Purushothaman**, H Liu, L Wang, D Tian, A Palaparthi, Y Lu, S Cohen, B S Das
- 1926858** *HLS-GPT: A Generative Pretrained Transformer (GPT) Model for Accurate Harmonized Landsat and Sentinel-2 (HLS) Annual Reflectance Time Series Reconstruction:* **J Li**, H Zhang, D Roy, Y Qiu
- 1948623** *Machine Learning-Driven Framework for Vegetation Stress Detection, Leaching Metal Contamination Mapping, and Site-specific Phytoremediation Recommendations in Data-Limited Environments:* **S Karim**, B Nojabaei, H Foroutan
- 1957808** *Modeling aboveground biomass in fragmented tropical forests using multitemporal Harmonized Landsat Sentinel-2 data:* **R Vieira Leite**, M Wooten, W Wagner, J Caraballo-Vega, Q Zhou, C S R Neigh
- 1866010** *Multi-season Crop Type Mapping Using High-Resolution Planet Imagery:* **R Barzin**, E R Vivoni, Z Wang, A N French, P C Guillevic, E C Wisniewski, R Houborg
- 1956358** *Overview and Future Outlook of NASA's Harmonized Landsat and Sentinel-2 (HLS) Project:* **P Olofsson**, PhD, M Sridhar, J Ju, Q Zhou, C S R Neigh

- 1919339** *Principles and Paradigms for Data Fusion of Remote Sensing and In-situ Nature Technology in Real-World Sustainability Applications:* **S Lombardo**, A Rosenthal, A Pajot, T Walker, C Batist, C Beirne, D Luther, V Ramesh, A Swanson
- 1910833** *Revamping the National Land Cover Database with AI: Approach, Applications, and Next Steps:* **T Sohl**, N J Pastick, R Fleckenstein
- 1885874** *Robust hyperspectral reconstruction from satellite and airborne observations via a deep hierarchical fusion network across heterogeneous scenarios:* **F Ji**, J Yang, P A Townsend, T Zheng, K R Kovach, T Yu, R Yang, M Liu, M Chen
- 1965377** *Satellite evidence for a shift from human-directed to wild disturbances in the US:* **S Qiu**, Z Zhu, X Yang, C E Woodcock, R T Fahey, S V Stehman, Y Zhang, M Cullerton, A Grinstead, F Hong, K Song, J W Suh, T Li, W Ren, R R Nemani
- 1980909** *Smallholder crop type dynamics characterized with high-frequency observations from Harmonized Landsat and Sentinel-2:* **M Wooten**, Q Zhou, R Vieira Leite, J Caraballo-Vega, W Wagner, M Carroll, C S R Neigh
- 1965909** *Structural overshoot weakens boreal forest resilience:* **Y Zhang**, N McDowell, S J Goetz, Y Liu

252084

Seeing the forests and the trees: Advances in active remote sensing capabilities leading to a better understanding of forest ecosystems and natural resource management.

Conveners: **Gerald Bawden**, NASA Headquarters; **Amanda Whitehurst**, NASA Headquarters; **Yadira Bordlemay Padilla**, NASA Headquarters; **Amber Emory**, NASA Goddard Space Flight Center

- 1949913** *AI-Driven Fusion of NAIP Photogrammetry and Multi-Sensor Data for High-Resolution Forest Biomass Mapping:* **C Wang**, C Song, T Schroeder, T Pavelsky, Z Yan, Y Zhang, F Yao, Y Fu
- 1949297** *Continuous Global Forest Structural Complexity Mapping at 25m Resolution from GEDI and SAR Deep Fusion:* **T de Conto**, J D Armston, R Dubayah
- 1951913** *Dry deposition of air pollutants by city-owned street trees:* **S Cui**, M Adams Dr
- 1892097** *Effectiveness of Protected Areas on Post-disturbance Forest Regeneration:* **M Oxe**, J R Kellner
- 1998048** *Estimating Temperate Forest Aboveground Biomass using Timeseries L-band ALOS SAR Data:* **N Ramachandran**, S S Saatchi, A Christensen, K Cushman
- 1922917** *Forest Vegetation Moisture from InSAR Closure Phase:* **E Wig**, R J Michaelides, H A Zebker

- 1975789** *The Harmonized Landsat, Sentinel-2, and PlanetScope (HLSP) Surface Reflectance Product:* **R Houborg**
- 1984559** *Transformers in the Treetops: A Multi-Path AI Framework for Predicting Canopy Height Change:* **N Kalluri**, M M Moussa, D J Harding, J P Mackinnon, M A Brandt
- 1912195** *UAV4DCrop: An Ultra-High Resolution, Multi-Angle Benchmark UAV Dataset for Time-Series 3D Crop Reconstruction and Modeling:* **J Zhou**, Q Yang, Z Jin, C Yang, D Mulla, V Kumar, L LIU
- 1926614** *Using One Million Aerial Photographs to Quantify Historical Land Cover Changes in Africa:* **H Murayama**, S Berggreen, H Druckenmiller, J Ferguson, S Greenhill, S M Hsiang, C Ilin, A Madestam, E Noda, N Nordfors, A Tompsett
- 1971914** *View Angle Effect Characterization at the 30-m Scale in NASA Harmonized Landsat and Sentinel-2 Data:* **J Ju**, C S R Neigh, Q Zhou, M Sridhar
- 1901529** *VineScaleNet: Bridging Scales with Deep Learning for Precision Vineyard Yield Forecasting in California's Central Valley:* **S Fazli**, W Li, H Kamngir Dr, E Jalilvand, PhD, H M El-Askary, M S Jahangir Dr
- 1849481** *Imaging vegetation and change with the airborne QUAKES-I and SAR-Fusion instruments as a precursor to Surface Topography and Vegetation (STV) observations:* **A Donnellan**, C Padgett, R Applegate, J J Green, R W Zinke, S Bell, T McGirt
- 1989874** *Intercomparison of L-band and C-band SAR Inundation Products with Water Level Sensor Validation:* **B T Lamb**, PhD, K C McDonald, M Tzortziou, D Tesser, N Steiner
- 1981225** *L-Band SAR BASED ANALYSIS of FOREST CHANGE DYNAMICS IN THE CONGO BASIN:* **A Mullissa**, S S Saatchi, N Trux, R Dalagnol, F Wagner, L B Sagang Takougoum, Z Liu, L Alves, M C D M Hirye, S Hagen
- 1949073** *Landsat-based Stratification for Quality Filtering and Aboveground Biomass Density Estimates in GEDI Data Products:* **J Mascaro**, P A Arevalo, A Ni, M A Friedl, J Bruening, J D Armston, J R Kellner
- 1937602** *Leveraging NISAR Time-Series Data for Monitoring Forest Disturbance and Regrowth to Support Sustainable Timber Management and Decision-Making:* **J Kellndorfer**, L Sethares, P R Siqueira, B D Chapman, A Das, C Patnaik, K C McDonald, S S Saatchi, C Pedraza
- 1931021** *Mapping Terrain and Canopy Structure of a Tropical Peatland by Fusing GEDI and ICESat-2:* **H Tang**, E Rodriguez-Ronderos, Y Sun, Y Li, A Cobb

- 1966649** *Modeling L-band Microwave Scattering in Boreal Forests using MIMICS and MLS-Derived Forest Structure during SMAPVEX22-Boreal*: **N Steiner**, K C McDonald, A A Berg, A Colliander
- 1954639** *Monitoring forest structure change using multi-temporal airborne lidar workflows in OpenForest4D*: **C P Scott**, S Krishnamari, V Nandigam, C I Alvites Diaz, C A Silva, A J S Meador, M Dreher, M Christiano, A T Hudak
- 1969653** *Multi-Scale Structural Patterns Derived from LiDAR Informs the Monitoring of Forest Restoration Efforts*: **B Fuentes**, S Jeronimo, D Churchill, M LeFevre
- 1958098** *Multimodal crown segmentation across spatial resolutions*: **A East**, S Record, A Eichenwald
- 2002592** *Multitemporal Aboveground Biomass Density Modeling in California's Forests Using GEDI LiDAR and Remote Sensing*: **M D Islam**, J Miesel, M Dickinson, A Johnson, J T Stevens
- 1937535** *NISAR Tropical WETlands Validation Experiment (WETVEX): Execution of a workflow for calibration-Validation of NISAR Datasets for a Tropical Wetlands Complex*: **K C McDonald**, E Podest, N Steiner, D Tesser, R Huneini, R Zimmermann, A Niessner, M Rios, J D Urquiza Muñoz, B Downs, B Chapman
- 1899461** *OBIWAN API: GEDI-Based Monitoring of Forest Biomass Change*: **S P Healey**, Z Yang

249262

Soil as a solution to climate change? Insights from empirical, modeling, and big data studies (joint with GC)

Conveners: **Yuanyuan Huang**, Northern Arizona University; **Feng Tao**, Tsinghua University; **Sophie von Fromm**, Dartmouth College; **Benjamin Houlton**, Cornell University

- 1849339** *Assessing Coastal Prairie Soils for Long-Term Carbon Removal*: **P Nguyen**, T Malloy, J Radovic
- 1852109** *Carbon Credits from Soil Erosion Reduction Under Cover Crops: More Than just Plant Inputs*: **W Huang**, L Jiang, J Zhou, H S Kim, J Xiao, Y Luo
- 1902576** *Carbon input regulates global particulate and mineral-associated organic carbon storage*: **Y Huang**, Y Liu, J Qian, J Hu
- 1984148** *Change in Soil Organic Carbon Stock 10–15 Years After Forest Conversion to Cropland and Urban Parkland, South Korea*: **M Choe**, J Lee, L Youngjin, S Kwon, Y Son
- 1896987** *Decadal-Scale Assessment of No-Tillage Impacts on Crop Productivity and Soil Carbon Using a Multi-Model Ensemble Approach*: **C G Jung**, S Gautam, U Mishra

- 1951249** *On the synergy of the NASA GEDI and NASA/ISRO NISAR missions for high-resolution biomass mapping*: **P Lal**, J D Armston, N Ramachandran, D S Saatchi, R Dubayah
- 1993141** *Seasonal and intra-seasonal variations in SAR data driven by moisture changes in soil and trees observed during the SMAPVEX22 campaign in the NISAR context*: **S Kim**, X Xu, A Colliander
- 1980315** *Seeing through the big trees: GEDI-based detection of strawberry guava invasion in Hawai'i*: **J Percival**, O Jarvis, A Pascual, M Johnson, N Tsutsumida, J Reiche, R L Perroy, F Rodriguez-Puerta
- 2002896** *Texture-Driven Structural Classification of Tropical Forests Using Dual-Polarized L-band SAR*: **D Tesser**, K C McDonald, E Podest, B T Lamb, PhD, N Blüthgen, C Tremlett, F Newell, E Villa-Galaviz, M Schaefer, R Nieto
- 2003488** *Thirty Years of Airborne Forest Mapping from LVIS*: **M A Hofton**, J B Blair, D Rabine
- 1934012** *Uncovering definition inconsistencies in dryland woody cover maps using UAV-based lidar data*: **X Li**, M Hansen, P Potapov, A Tyukavina, A M Dieye, C Mbow, A A Diouf, A J Poulson, W A Hernandez Serna, J Pickering, B Ndao, C Mame Mor Mbodji, K A Melocik
- 1935556** *Validation of NISAR Wetland Inundation Requirements Using Fully Polarimetric L-band Airborne SAR Data*: **B D Chapman**
- 1872547** *Efficacy of woody debris preservation for carbon dioxide removal from the atmosphere*: **Y Luo**
- 1879175** *Ensemble agroecosystem modeling to predict crop yield and soil carbon change in CONUS croplands*: **S Gautam**, U Mishra, C Gyo Jung
- 1906715** *Flexible Temperature-dependent Differentiation of Carbon Fractions with the Elementar soli TOC® cube*: **C Preece**, K W R Taylor, F Alt, A Loos
- 1854078** *From Climate Solution to Uncertainty: How Changing Precipitation Patterns Affect Soil Carbon Dynamics*: **A A Berhe**, K Min, L M Wahab, Y Yang, T A Ghezzehei
- 1847578** *Improving soil health and plant growth through torrefied biomass: A circular economic approach*: **A Rehman**
- 1982089** *Insects & Biochar: What's Making the Impact?*: **H Bell**
- 1954222** *Mapping the global soil organic carbon restoration opportunity*: **J L Safanelli**, J Sanderman, T Hengl, S Isik, X Tian, I Wheeler
- 1944253** *More Carbon Per Drop: Decoding Soil Carbon for Climate Resilience in Water-Limited Areas*: **R Ghimire**, S Sapkota, J Frene, P Bista, P Acharya, A Singh

- 1877175** *Organic Nitrogen Stimulates Soil Respiration In Decade-Long in Grassland Soils: A Critical but Overlooked Component of Natural N Deposition:* **L Dong**, B Berg, Y Luo
- 1997622** *Overlooked Biases in Machine-Learning Soil-Carbon Maps: Depth Autocorrelation, Circular Density Logic, and Validation Gaps:* **S Kumar**, L Bokati, R Talchabhadel, A C Somenahally, J Robatjazi
- 1966539** *Plasticity in the Soil Hydrogen Sink: Increasing Soil H₂ Uptake Through Biostimulation:* **L K Meredith**, B Ngyuen, J Gil-Loaiza, Z Zhang
- 1937374** *Process-guided and AI-assisted Soil Carbon Foundation Model for Natural Climate Solutions:* **F Tao**, H Xu, J Fan, Y Luo, C Gomes, B Z Houlton
- 1954126** *Quantifying the Effects of Grassland Restoration on Soil Organic Carbon Stock:* **C Hogan**, I J Larsen, A Keiser, H Naughton, T Cook, M Winnick, R Hestrin, C Kulak, E Marder, B Bernard

250902

Soil Biogeochemistry at Regional Scales using Ecological Networks.

Conveners: **Odeta Qafoku**, Battelle Pacific Northwest; **Samantha Weintraub-Leff**, National Ecological Observatory Network; **William Hockaday**, Baylor University; **John Bargar**, Pacific Northwest National Laboratory; **Emily Graham**, Washington State University

- 1891762** *A Machine Learning Approach to Predicting WEOM Composition from Soil and Climate Variables:* **Y Dharaskar**, O Qafoku, E B Graham, V A Garayburu-Caruso, T Varga, M Zhu
- 1998076** *Continental-scale integration of soil metagenomes and metabolomes reveals ubiquitous microbial capacity for recalcitrant carbon decomposition:* **E B Graham**, Y Song, C Shi, K G Stratton, I Stohel, V Freire Zapata, M Tfaily, E Elloe-Fadrosch
- 1961567** *Creating Pedotransfer Function with MONet data types for scaling: Community Science Campaign Pilot:* **S Kumaran**, A Kumaran, E Salas, K Schrack, O Qafoku, A Chakrawal, J Bargar, E B Graham
- 1930133** *Deconstructing the Carbon Stability Paradigm: Seasonal Coupling of Water-Extractable and Mineral-Associated Organic Matter:* **X Takver**, E B Graham, M Dumont, R Yilangai, H R Barnard, R K Chu, W Kew, K F Patel, C Simonsen, K Singha, A Townsend, J Toyoda, P L Sullivan

- 1996852** *Systematic review and meta-analysis of the carbon dioxide removal potential, cost, and geochemical aspects of Enhanced Weathering:* **T J Suhrhoff**, C Dietzen, T Kukla, A Lunstrum, T Reershemius, J Thompson, D B B Rogers, J Schneider, F Tao, L Bullock, P Frings, J Lambert, R Van Der Bauwhede, S K Anand, J Campbell, I Chiaravalloti, I Davis, M Dobson, X Dupla, S Fonteinis, M Guo, K Harrington, C Kent, A Klemme, J Kroeger, T Linke, S Linnekogel, S Moller, E Milliken, L Ndlovu, H Niron, S Patel, E Pihlap, K Rees, R Rioux, M Rizzi, S Shaheen, L Steinwider, I Steeley, T Sweere, F Sun, X Sun, L Tejedalemus, W Tatge, A Vienne, J Westphalen, B Woollen, M Almaraz, S Calabrese, T Cyronak, B Z Houlton, Y Kanzaki, K Maher, R B Neumann, I Power, P A Raymond, J E Sakers, R Santos, S Zhang, C T Reinhard, N Planavsky, S Vicca, P Renforth, J Hartmann, S Fuss
- 1868422** *Tilling is Not Enough: Biochar is Highly Mobile in Hydrologically Variable Environments:* **T Chaza**, A Bekele, X Gao, M B Higgins, J Seay, C A Masiello
- 1881749** *Dual and Divergent Formation Pathways Govern the Composition and Origins of Mineral-associated Organic Carbon:* **H Liu**, C Thompson, C Liang, A M McKenna, F Chen, M Zhu
- 1998135** *Influence of changing hydrothermal conditions on microbial functions and their attribution to soil carbon dynamics across the CONUS:* **Y Song**, C Fan, S Wilson
- 1925671** *Links between the molecular composition of dissolved organic matter and nitrogen cycling in diverse soils:* **S R Weintraub-Leff**, V A Garayburu-Caruso, E B Graham, O Qafoku, S Hall
- 1879261** *Mapping the Soil Microbiome Functions Shaping Wetland Methane Emissions:* **M Borton**
- 1879348** *Mineral stabilization of soil organic sulfur at the continental scale:* **M Zhu**, Z Zhang
- 1984373** *Molecular and Microstructural Data for Regional Modeling of Earth Systems Responses: EMSL's Molecular Observation Network (MONet):* **J Bargar**, A Chakrawal, Y E Corilo, E B Graham, S Leichty, D Mans, K F Patel, O Qafoku, Y Song, J Toyoda
- 1898542** *Nutrient Remediation in Florida Soils Compared to a Commonly Used Soil Amendment:* **S G Parker**, C Nitsch, K Goos, N Cheek, A Patel, J Volk, M Blow, N Young, K M Kibler, L G Chambers, M J Beazley
- 1973323** *Predicting Carbon and Nitrogen Cycling Rates Within and Across Diverse Ecosystems in the NEON Network:* **S Stoner**, S R Weintraub-Leff, W C Hockaday, A Thompson, S Hall

- 1877745** *Soil heterotrophic respiration is more sensitive to seasonal changes in temperature and water content than autotrophic respiration in a monsoon continental climate:* **H Kim**, K Min
- 1972957** *Switchgrass genotype-by-environment interactive effects on soil organic matter composition and microbial functional capacity:* **M P Ricketts**, Y Song, V A Garayburu-Caruso, O Qafoku, R Matamala, J D Jastrow, F Fritsch, J Bonnette, T E Juenger
- 1855342** *Towards a biogeography of secondary metabolites produced at the plant root:* **D McRose**

249076

Soils in the Anthropocene: Advancing Characterization and Evaluation of Soil Health

(cosponsored by ACSESS: Alliance of Crop, Soil, and Environmental Science Societies)

Conveners: **Daniel Liptzin**, University of Colorado; **Yang Lin**, University of Florida; **Arshdeep Singh**, Chico State University

- 1956919** *Assessing Soil Health Across Farming Systems and Seasons to Inform Climate-Resilient Agricultural Practices:* **M Zeraatpisheh**, C Ritzenthaler, A White, H Darby, D A Neher, J W Faulkner, B Kretzler, H C Turner, E JB von Wettberg, C Hammond Wagner, G L Galford
- 1877699** *A Depth-Responsive Framework for National-Scale Soil Health Assessment:* **M Park**, K Min
- 1977283** *A Soil Gossip Column from the Midwest U.S : Comprehensive Soil Carbon Profiling Across Land-Use Types Using a Multi-Analytical Approach:* **P Jaya**, Y Rui Dr, S S
- 2001267** *Addressing Diminishing Soil Health Challenges in the Palouse Region:* **G Kaur**, H Lury Neely, C Neely, G LaHue, D G LaHue, K Murphy
- 1991149** *An on-farm soil health and carbon network:* **D Liptzin**, C L S Morgan, J Sanderman, A A Kumar
- 1951896** *Biochar and Organo-Mineral Fertilizers Enhance Soil Carbon Pools and Carbon Indices in Maize Cropping Systems: Beyond Conventional:* **K A Fentaw**, I Ortaş
- 1982153** *Cultivating Climate Resilience: Quantifying the Nutrient Management Potential of Agroforestry with Shaded Microclimates.:* **C Hudson**, C Alster, N S Wells, T Clough, S McNally
- 1973157** *Digging Deep: Multi-Year Soil Health Gains from Compost and Cover Crop Usage in Perennial Orchard Systems:* **J Borum**, A Cooper, S D S Khalsa, R Ryals, A Terriberry

- 1990775** *Understanding the control of chemical weathering on the soil carbon and nitrogen isotope compositions along the climatic zones of the eastern Himalaya:* **Y Banerjee**, M Vieira da Costa, O Biswas, M Naskar, S Bera, M L C Sirbescu, A Chappaz, S K Sahoo
- 1850289** *Using soil spectroscopy and ecological networks for unravelling biogeochemically-important soil microbial properties:* **Z Freedman**, S Ghimire, Y Zhang, J Huang, J Andrews, E B Graham, O Qafoku, A E Hartemink
- 1973457** *X-ray Photoelectron Spectroscopy Reveals Differences in Elemental Composition of Surface Soils When Compared to Bulk and Water-Soluble Extractions in Soils Collected at a Continental-Scale:* **C Pettinger**, V Shutthanandan, O Qafoku, E B Graham, A Karakoti, E Majumder
- 1956265** *Examining the Soil Carbon Legacy of Historical Plantations in the Southeastern United States:* **J Chapman**, W C Hockaday
- 1844690** *Greenhouse Gases Flux in the Integrated Cover Crop-Livestock Regenerative Organic System.:* **S Hamido**, A Smith, A Ghalegolabbahani
- 1980927** *Measuring Dynamic Soil Properties with Neural Networks and Optical Microscopy:* **A Graves**, H Martinez, A Veatch, S Datta
- 1932019** *Medium-Term Effects of Biochar on Soil Properties in Bluegrass Soil Conditions:* **S Kandel**, A Chiluwal
- 1957611** *Regenerative Management Influences Soil Organic Matter Accumulation, Fractionation and Speciation in a Semi-arid Vineyard Soil:* **M Schmidt**, E Scudiero, R G Anderson, N Celis, G Pennyroyal
- 1875745** *Remediation of Lead-Contaminated Soil with Organic Amendments: Impact on Soil Health and Lettuce Productivity:* **A Mahmood**
- 1884517** *Rethinking woody plant encroachment: can it improve soil health of formerly overgrazed rangelands?:* **P A Leite**, A Noormets, B P Wilcox, S D Fuhlendorf, L Neumann
- 1918702** *Sand meets compost: an investigation into constructed Technosol health and nutrient leaching with sediments from the NYC Clean Soil Bank and a range of NYC composts:* **S P Egendorf**
- 1988153** *Soil Health: Soil Organic Matter Dynamics with Stable C and N Isotopes, and Phospholipid Fatty Acids in Agricultural Field.:* **K Mahato**
- 1984333** *Storage time inflates water extractable organic carbon measurements in archived soils:* **Y Lin**, F Celestin, S Mahmood, R Champiny, J Donald, A Plaque, X Wang, G Maltais-Landry
- 1906396** *Synergetic effects of biochar on soil carbon sequestration and crop yield in upland soil:* **S C Kim**, Y K Hong Dr, J W Kim, J M Lee, H J Jeong

1970575 *The Known Unknowns of the Soil Carbon Story under Cover Crops in the U.S. Midwest*: **T RoyChowdhury**, R Rubin, M Jacques, E E Oldfield, J Sanderman

247219

Soils in the Anthropocene: Cross-scale Mechanisms of Stabilization and Change (joint with GC)

Conveners: Sophie von Fromm, Dartmouth College; **Avni Malhotra**, Pacific Northwest National Laboratory; **Katerina Georgiou**, Stanford University; **Samantha Weintraub-Leff**, National Ecological Observatory Network; **Katherine Rocci**, Colorado State University

1929939 *A Trait-Based Modeling Framework for Predicting Emergent Soil Biogeochemical Processes*: **J Zheng**, V L Bailey

1951731 *Aboveground Disturbance Leads to Surprising Shifts in Belowground Carbon Dynamics and Soil Aeration in a Hurricane-Impacted Temperate Forest*: **H Naughton**, M Hanley

1978961 *Assessing the Contribution of Microbial Primary Production to the Soil Organic Carbon Pools of Arid Lands.*: **S Koger**, F Garcia-Pichel

1982594 *Beyond Temperature Dependence: Disentangling Microbial Physiology, Community Shifts, and Substrate Controls on Soil Respiration*: **S Kwatcho Kengdo**, R J Eloy Alves, E Pegoraro, K Jardine, E Brodie, M S Torn

1882178 *Clarifying the Effects of Change on Soil Carbon Persistence and Vulnerability with Radiocarbon*: **K J McFarlane**, K Grant, K M Finstad, A Mayer, P Zander

2002524 *Controls of Soil C Concentration and CO₂ Efflux Vary with Microtopographic Position in a Temperate Forest*: **G Goebel**, D Charles, J D Landis, D A Lutz, C Hicks Pries

1896075 *Cross-Scale Controls on Soil Carbon Dynamics: Integrating Microbial, Plant, and Environmental Drivers Through Process-Based Modeling*: **Z Li**, W J Riley, R F Grant, J Tang, S Saleska, E Brodie, N Bouskill, R K Varner, PhD, V I Rich, E E Nuccio, K Georgiou

1978689 *Decadal-Scale Dynamics of Measurable Soil Organic Matter Pools in Deciduous Forest Exposed to Atmospheric CO₂ Enrichment*: **J D Jastrow**, S O'Brien, K Sturmer, T W Boutton, R Matamala, R M Miller, M Craig, C M Iversen, PhD, R J Norby, A P Walker

1980171 *Distribution and Controls of Mineral-Associated Organic Matter (MAOM-C and MAOM-N) in Phaeozems (Mollisols) of Northeast China*: **Z Yu**, L Yang, S Ji, H Liu, J Sun, J Duan, D Wan, K Geng, Y Zhou

1985646 *Diurnal CO₂ Adsorption-Desorption in Desert Soils: a Neglected Component of the Soil Carbon Cycle*: **A Abramova**, J Mills, G Maurer, B Gilbert, M G Dessie, L Lammers, S Zahabi, M Chitsaz, M Pfeiffer, R Amundson

1903561 *Effects of Extreme Precipitation on Soil CO₂ Release: Insights from a Field Manipulation Experiment*: **H Nagano**, Y Suzuki

1893305 *Effects of the soil mineral matrix on soil carbon across scales in continental Europe*: **L M Wahab**, B Hunter, E Slessarev

1909703 *Efficiency of Mineral-associated Carbon Formation from LMW-C and Structural Inputs*: **J Liang**, Q Si, Y Yu, K Chen, P Shao, P Dijkstra, B A Hungate, X J A Liu, Y Luo

2000065 *Eutrophication decreases soil respiration via nutrient co-limitation in a semi-arid grassland*: **I Beltran**, N G Smith

1947487 *Forest Soil Respiration After Compound Disturbance: The Effects of Changing Canopy Structure, Species Composition, and Microclimate*: **A Johnson**, K C Mathes, S Spence, C M Gough

1950836 *Geochemical and Mechanical Response of Sulfate-Bearing Expansive Soils Treated with Waste-Derived Magnesium Oxide (MgO)*: **G M**, T T

1847514 *Interactive effects of urbanness and land cover types on soil carbon and nitrogen pools in green spaces*: **P Huang**, Y Sun, K Watkinson, A Coole, R Bardgett, D Johnson

1953696 *Long-Term Patterns and Proposed Drivers of Soil-Atmosphere Feedbacks in a US Northern Hardwood Forest*: **A R Possinger**, C T Driscoll, T Fahey, D Frey, C L Goodale, M Green, C Johnson, M M Koppers, G Macedo de Alencar, J L Morse, L Martel, R Shaw, P H Templer, A Uribe, G Wilson, M Wong, P M Groffman

1891744 *Machine Learning Prediction of Soil Organic Carbon Fractions to Assess Global Soil Carbon Sequestration Potential*: **C Kusser**, G Sanford, J Huang

1892056 *Mineralogical Controls on Soil Organic Matter Formation and Destabilization in the Rhizosphere*: **I Shabtai**, J O'Sullivan, T Kinniburgh, A Zhou, K S Gunnala

- 1924391** *Persistence and Turnover of Soil Organic Carbon in Global Drylands*: **H Wang**, F Maestre, N Lu, G Zhao, Y Zhang, V Ochoa, C A Sierra, M Schrumpf, S von Fromm, D S Bramble, A Tangarife-Escobar, K Wang, C Wang, W Chen, D J Eldridg, N Gross, Y L Bagousse-Pinguet, H Saiz, B Gozalo, S Asensio, C Plaza, E Guirado, M García-Gómez, E Valencia, J J Gaitán, J Martínez-Valderrama, B J Mendoza, M A Dippold, S Zaehle, B Fu, S Trumbore, J Huang
- 1980715** *Rapid rebound of aggregate pore structure precedes organic matter recovery in a restored prairie*: **J O'Sullivan**, S O'Brien, K Sturner, K M Kemner, M Boyanov, L Yang, J D Jastrow
- 1903008** *Relative contributions of above- and belowground plant inputs to soil carbon storage and changes in Northern forests and grassland*: **R Jia**, C Terrer

251742

Spatiotemporal Dynamics of Forest

Disturbance and Recovery (joint with GC)

Conveners: **Na Chen**, Massachusetts Institute of Technology; **Di Yang**, University of Florida; **Yaqian He**, Indiana University Bloomington; **Yanlei Feng**, Massachusetts Institute of Technology; **Chenchen Zhang**, University of Oklahoma

- 1925149** *A comprehensive understanding of direct and legacy effects of drought globally*: **M Liu**, W Anderegg
- 1872356** *A Fusion Approach for Near Real-Time Mapping of Forest Wind Disturbances Across Europe*: **W Gao**, M Larjavaara
- 2002224** *Analyzing and Accounting for Interpreter Uncertainty in Training Data to Create Higher Certainty Forest Change Maps*: **M Sime**, R E Kennedy, P Clary
- 1937077** *Assessing changes in small-scale forest boundaries with Sentinel-2 and 3DEP LiDAR in Minnesota*: **X Zhu**, R Cheng
- 1932074** *Best practices for using remote sensing data and artificial intelligence for mapping southeastern forest structure and dynamics*: **C I Alvites Diaz**, C A Silva, K Brock, I Bueno, J Cannon, J Atkins, A Sharma, M Longo, C Hamamura, A T Hudak
- 1960341** *Boreal Forest Regrowth Stage Classification Using Multi-Sensor Remote Sensing and Machine Learning*: **N Muhetaer**, V Sagan, D Tesser, F A Lopes, A Farbo
- 1889378** *Comparison of PlanetScope and Sentinel-2 for Detecting Dead Tree Crowns in Disturbance-Prone Forests*: **K S Cheung**, J Wang, S Fei

- 1892473** *Restored prairie beats monoculture perennial grasses and row crops in SOC accumulation among bioenergy crops in long-term study*: **I B Kantola**, E Blanc-Betes, A C von Haden, M D Masters, B Blakely, C Bernacchi, E H DeLucia
- 1923425** *Stable Carbon Pools Associated with Distinct Mineral Phases in Soils: A Cross-Ecosystem Study Using Targeted Dissolution Extractions*: **O Adeyemi**, Q Zhao
- 1932888** *Structural Composition of Soil Organic Matter in Hawaiian Oxisols from Surface to Depth*: **T B Beckstrom**, C Tallamy Glazer, T McClellan Maaz, H Peter-Contesse, J L Deenik, S E Crow
- 1911066** *Unearthing Legacy Effects of Anthropogenic Nitrogen Deposition on Microbial Mechanisms Mediating Soil Carbon Storage*: **B Propson**, Z Freedman, A Stevenson, A Classen, A J Burton, D R Zak
- 1994351** *Decadal Soil Respiration Following Field-Simulated Insect Infestation and Ice Influence*: **S Spence**, A Johnson, B P Bond-Lamberty, S Sunil, J Shull, K C Mathes, C M Gough
- 1873391** *Development of Ecological Restoration Technologies for the Recovery of Forest Wildlife Habitats Affected by Wildfires and Landslides*: **E Han**, B J Choi, H G Kim, D Y Kim, Y S Jeong, S J Go, J Chung, M Cho, C Park, Y T Shin, H S Oh
- 1973862** *Did hydrological processes exacerbate the impact of Hurricane Helene in eastern Tennessee and western North Carolina?*: **J Kumar**, R Limber, B Guan, E Massoud, J Spruce, S Gangrade, S C Kao, S P Norman, F Hoffman, W W Hargrove
- 1981784** *Evaluating the Sensitivity of Mature and Old Growth Forest Classification to Disturbance and Impacts on Carbon Sequestration*: **C Quintero**, J Foster
- 1989798** *Forest Biomass in the Southwestern U.S. from MISR and GEDI: Assessment with NASA Carbon Monitoring System Data*: **M J Chopping**, Z Wang, C Schaaf, M A Bull
- 1892200** *From Ashes to Analysis: Evaluating Vegetation Recovery after Wildfires in the US Pacific Northwest*: **N Palaia**, L Miralha, PhD
- 1887758** *Global Mining Activities Cause Substantial but Uneven Forest Biomass Loss*: **J Chen**, L Yang, Y Huang
- 1936467** *Harnessing Data Cubes to Detect Early Warning Signals of Ecosystem Transformations*: **N T Ilangakoon**, T McIntosh, M Cook, V Iglesias, C H Amaral, T Tuff, R C Nagy, J Balch, A Post, K Siegel, C Jenson, R Platt
- 1989014** *High Spatiotemporal Resolution Satellite Fusion Data Reveals Undetected Deforestation of Landsat-only Observations in Southeast Asian Tropical Regions*: **S Hahn**, Y Ryu, S Jeong, J Kong, W Choi, R Kwon

- 1988637** *Improving forest mapping and disturbance in Africa by integrating PALSAR, Landsat, and LiDAR data at High Spatial Resolution for Global Forest Resources Assessment*: **Y Yao**, X Xiao, Y Qin
- 1945055** *Indicator-based framework for vegetation resilience to forest fires in seasonal tropical forests of Uttarakhand, India*: **A M**, K Lanka, J Indu
- 1969927** *Insects and Ice: Temperate Forest Canopy Structural Signatures of Compound Disturbance*: **J Lively**, R T Fahey, B Alvshere, A Johnson, N Winiarski, B S Hardiman, S A Spera, T R Lookingbill, C M Gough
- 1987836** *Land-Use and Land-Cover Change Over Two Decades Escalates Socio-Environmental Risk Across Northeast Brazil's Wet and Dry Forest Biomes*: **K Ganem**, Y Xue, T W Gillespie, Y Sheng, Y Li, C Silva Junior
- 1928351** *Landscape Change Monitoring System (LCMS) v2024-10: 40 Years of Data Mapping the Causes of Landscape Change Across the United States*: **E Hardwick**, J Heyer, I Housman, L Leatherman, K Megown, J Ross, B Ruether
- 1888712** *Long-term Spatiotemporal Analysis of Forest Change Effects on Fire Regime*: **Y Li**, D Yang
- 1865016** *Long-Term Vegetation Recovery and Land Cover Change Following Wildfires in Greece: Insights from Remote Sensing and Burn Severity Analysis*: **A Walters**, K Chaleplis, A Gemtzi, V Lakshmi
- 1893052** *Mapping Caribbean Primary Forest Change Considering Disturbance History, Resilience, and 3D Structure*: **Z Zhu**, J W Suh, F Hong, K Song, S Qiu, Z Yang, S B Hedges

248050

Sun-Induced Chlorophyll Fluorescence: Measurements, Modeling, and Applications from Field, Airborne, and Satellite Platforms

Conveners: **Liyin He**, Duke University; **Jennifer Johnson**, University of Kansas; **Xi Yang**, University of Virginia; **Zhaoying Zhang**, Nanjing University, International Institute for Earth System Sciences

- 1935184** *A Field-Deployable Dual-Spectrometer System for Monitoring Solar-Induced Fluorescence: Evaluating Meteorological Influences on Canopy-Level SIF Dynamics*: **M WU**, C Y Huang, L Garda Denaro, K B Sung, J L Li, H N Chou
- 1936888** *A Study on the Response Mechanisms of Solar-Induced Chlorophyll Fluorescence (SIF) to Heat Stress in Global Ecosystems Based on Multi-Source Satellite Data*: **W Lyu**, J Yang, L He, Y Wang, Y L Yung

- 1883120** *Mapping intra-year compound disturbance in humid tropical rainforests using Sentinel-1 and 3D deep learning*: **F Zhao**, R Sun
- 1989974** *Monitoring Above-Ground Biomass and Vegetation Growth Dynamics in Reclaimed Mine Lands Using UAV lidar, Imagery, and Geo AI*: **K Paudel**, B Gyawali
- 1979205** *Monitoring photosynthetic responses of wildfire and bark beetle-induced tree mortality using satellite observations of solar-induced chlorophyll fluorescence (SIF)*: **L Kunik**, D R Bowling, B M Raczka, J A Hicke, C Frankenberg, R Cheng, M Slaton, J C Lin
- 1987319** *Quantifying Post-Fire Ecosystem Recovery With Spectral Indices and Eddy-Covariance Flux Towers*: **Q Koch**, K Preisler, B Alvshere, L Haber, C M Gough
- 1895898** *Quantifying Post-Fire Forest Composition and Cover with UAS Imagery in Boreal Reburn Landscapes*: **L Lad**, C M Hoffman
- 1920358** *Quantifying the history of pulse disturbances in the Everglades National Park using time series satellite imagery*: **S Meerdink**, H Cooley, P Ruiz, S L Flory, D Hiatt
- 1910723** *Spatiotemporal Dynamics of the Global Fire Season from Satellite Observations over 2001-2022*: **W Zhang**, J He, R Liu, C Wu, Y Liu
- 1933773** *Spatiotemporal trends of vegetation recovery in burned areas of the Americas*: **O Maillard**
- 1854124** *Unraveling the processes behind forest vulnerability to compound disturbances*: **J Dai**, A B Harper, T L Mote, G J Kooperman, M Uriarte
- 1858546** *Advances in Sun-Induced Chlorophyll Fluorescence Detection with GOSAT, GOSAT-2 and MicroCarb satellites*: **M Cartwright**, R Parker, D Orr, P Somkuti, S Cheng, K Haines, T L Quaife, S Petch, A Webb, A Di Noia, H Boesch
- 1947921** *Advancing Algal Blooms Monitoring: TROPOMI Red SIF Outperforms Conventional Fluorescence indices in High Turbidity Coastal Waters*: **J Hu**, J Zhang
- 1980574** *AirFloX: Bridging Scales for SIF Calibration and Validation in Support of FLEX*: **G Tagliabue**, M Rossini, R Garzonio, T Julitta, A Burkart, J Bendig, U Rascher, B Siegmann, S Cogliati, P Chierichetti, L Vignali, C Panigada, F Pätzold, A Lampert, M Tudoroiu, R Colombo
- 1847620** *Assessing Urban Vegetation Dynamics and Productivity using Solar-Induced Chlorophyll Fluorescence (SIF)*: **J Bamah**, O Kira, A T Muleta
- 1994045** *Bayesian Downscaling of Satellite-Derived Solar-Induced Chlorophyll Fluorescence*: **R Goebel**, J F Dooley, T Jones, L Moldavchuk, L Carvalho, L Hutya

- 1983502** *Disentangling the SIF–LUE–GPP relationship across vegetation types, environmental conditions and scales:* **J A Gamon**, R Wang, S Tuyambaze, H Ellerman, R Barents, T Julitta, U Rascher
- 1929667** *Drought-induced Photosynthetic Decline and Increased Heat Dissipation Complicate SIF-based Analysis of Amazonian Forests Responses to Climate:* **L G Ziccardi**, D Kramer, N Gonçalves, N Restrepo-Coupe, T Taylor, B W Nelson, N Prohaska, K Campos, A Siqueira-Silva, S Saleska, S C Stark, K James
- 1957829** *FluoresensTM10 - An automated system for the Continuous and Long-Term Monitoring of Canopy Solar-Induced Fluorescence.:* **P Prajapati**
- 1997525** *How Well Can Remote-Sensing Observations of Solar-Induced Fluorescence (SIF) Constrain the Total Number of Photons Emitted Inside Leaves?:* **K Liu**, Y M Bar-On, Y Wang, J A Berry, C Frankenberg
- 1922488** *Implementing the Johnson & Berry Photosynthetic Model in the ORCHIDEE TBM for SIF-constrained GPP Estimations Under Stress Conditions:* **D Martini**, M J Hoque, J E Johnson, G Wohlfahrt, F Maignan
- 1995653** *Lessons learned from 15 years of solar-induced chlorophyll fluorescence observations from space: past, present, and future needs:* **C Frankenberg**
- 1878023** *Modelling SIF in the JULES Land Surface Model:* **T L Quaife**, N Douglas, P McGuire
-
- 249964**
Surface-Atmosphere Interactions: Flux Measurements for Real-World Impact (joint with A, GC, GH, SY)
Conveners: Rui Cheng, Organization Not Listed; **Syam Chintala**, Indian Institute of Technology Hyderabad; **Stefan Metzger**, AtmoFacts; **George Burba**, CarboDew CoP
-
- 1875381** *An Internet of the Environment (IoE) Data Pipeline for Post-Processing and Spatializing Fluxes:* **T Thomas**, J R Hupp, J C Kathilankal, S Ivans, F Griessbaum, G G Burba, T Barker
- 1876461** *Data-driven assessment of rice methane emissions based on the duration of inundation periods:* **B Runkle**, M L Reba, B Moreno-Garcia, C Reavis, R B Mahbub, W P Richardson
- 1975198** *Development of Eddy Covariance System to Quantify Fluxes of Pesticides in an Agricultural Environment.:* **U Arora**, H Coe, T Bannan, J D Allan, M Flynn, L Cardenas, E Matthews, R Wu, S Johnston
- 1993832** *Monitoring of Solar-Induced Chlorophyll Fluorescence (SIF) as Carbon Removal Maker by the Greenhouse gas Observations of Biospheric and Local Emissions from the Upper sky (GOBLEU):* **H Suto**, A Kuze, S Mori, T Oda, S Ishida, K Shiomi, A Matsumoto
- 1909517** *Physical modeling and scaling canopy far-red SIF radiance down to leaf and photosystem fluorescence efficiencies:* **Z Malenovský**, O Regaieg, J Bendig, B Siegmann, J Krämer, N Lauret, J Buffat, U Rascher
- 1887135** *Predicting Solar-Induced Fluorescence from PACE Vegetation Indices:* **C Harmon**, R H Wynne, V A Thomas
- 1948737** *SIF Full Spectrum Retrieval in the Framework of the ESA EE-8 FLEX Mission:* **P Chierichetti**, J Vicent-Servera, P Kolmonen, N Sabater, T Paccoud, A Maiocchi, G Tagliabue, M Rossini, R Colombo, M Tudoroiu, S Cogliati
- 1986563** *Topographic Regulation of Vegetation Productivity Uncovered by Causality-Guided Machine Learning:* **Y Yao**, J Liu, F Giardina, P Gentile
- 1866388** *Upscaling Photosynthetic Function from Leaf to Canopy Level and Across the Seasons:* **P K E Campbell**, K F Huemmrich, S Serbin, BA, MS, PhD, C S R Neigh, C Van der Tol, T Julitta
- 1859053** *Environmental drivers of ecosystem fluxes in bioenergy crops: Insights from long-term eddy covariance and interpretable machine learning:* **K Yi, PhD**, M C Benson, T L Pederson, C Bernacchi
- 1902188** *Evapotranspiration impacts of fallowed rice field flooding for migratory bird habitat in California, USA:* **J F Knowles**, J Davids, C Harter, D Smith, J Brantigan
- 1853875** *Greenhouse Gas Monitoring in Texas Croplands to Support Climate-Smart Markets and Policy Development:* **N Rajan**, S M U Salehin, P Sidhu, W Wheeler, M Atiemo, J A Howe
- 1949223** *Integrating Remote Sensing and Machine Learning for Accurate Evapotranspiration Estimation in Semi-Arid India: A Case Study:* **N Arige**, A S, S Moharana
- 1844454** *Latest Tools for Using Direct Flux Measurement Outside the Academia: Clear Guidance, Automation, Resource Sharing, Professional Services, and Weather Station-Inspired Approach:* **G G Burba**
- 1881751** *Low-Cost Autonomous Chambers Enable High Spatial and Temporal Resolution Monitoring of Soil CO₂ Emissions Across Landscapes:* **J Gewirtzman**, A Keiser, C Palmer, M Nieland, V Patel, E Forbes

- 1854146** *Measuring CO₂ and CH₄ fluxes in rice paddies using the closed chamber and Bowen ratio methods:* **K Noborio**, N Sato, C Campbell, D R Cobos, T Doi
- 1903533** *Methane Mitigation through Irrigation Control: Field Assessment and Process-Based Model Validation:* **S R Jhang**, C F Chiang, S Mohammad
- 1971448** *Monitoring Greenhouse Gas Fluxes Using Flux Towers in Regenerative Agriculture Systems in Subtropical Brazil:* **A Mergen**, C Maboni, V D A Souza, M E Oliveira Pinheiro, T Zimmer, R Lobato, D dos Santos, E Cargnin de Souza, M Machado Lopes, G de Oliveira, M Stefanello, R Jacques, D R Roberti

249963

Surface-Atmosphere Interactions: From Single Flux Measurements to Integrated Synthesis

(joint with A, GC, H)

Conveners: **Gilberto Pastorello**, Lawrence Berkeley National Laboratory; **Yujie Liu**, Northern Arizona University; **Sreenath Paleri**, National Ecological Observatory Network, Battelle; **Dario Papale**, euro-Mediterranean Center on Climate Change (CMCC)

- 1929879** *A Renewed Frontier in Flux Studies: Integrating Graphical and Recursive Neural Networks with Footprint Modeling:* **J Chen**, G P Robertson, H Zou
- 2004251** *A Review: Long-term trends and emergent dynamics in the eddy covariance record:* **J Reu**, M Bassiouni, Y Kang, J H Matthes, A D Richardson, T Keenan
- 1888614** *A Systematic Review of the Ecosystem-Atmosphere Carbon, Water, and Energy Fluxes in India: Preliminary Findings and Future Scopes:* **P Deb Burman**, G S Bhat, T Yk, R Morrison, S Rodda, S Mukherjee, V Dadhwal, A G Turner, P Das, G Agarwal, D Sarma, P Mutyala, N Gogoi, G Palingamoorthy, S Paleri, D Desai
- 1981371** *AmeriFlux Management Project Site Visits Framework: The Gift to the Community That Keeps On Giving (After 25 Years!):* **B Wang**, H Chu, S Chan, S Dengel, S Biraud
- 1969369** *Analysis of Energy Balance Closure in a Southeastern U.S. Deciduous Forest:* **I M Cely Toro**, P Krishnan, R D Saylor, J Kochendorfer, T Lee, T B Wilson, M Heuer, T P Meyers
- 1960794** *Bayesian Energy Balance Closure Tool for Eddy Covariance Towers:* **A Kunadi**, R Silberstein, S E Thompson
- 1987531** *Building a Collaborative Future in Flux Science: The FLUXNET Early Career Network:* **X Sun**, I Aguirre, R Ruzol, S Paleri, A C I Tang, A Zambrano, B Wang, K Yuan, L C Hernandez Rodriguez, H Lee, T Yazbeck

- 1945039** *Satellite Driven Evapotranspiration Partitioning in the Semi-Arid Region of Southern India for Climate-Smart Agriculture:* **E Nithin**, S Moharana
- 1883667** *Theoretical Deficiencies Are the Main Cause of Eddy Covariance Energy Imbalance and Trace Gas Biased Measurements:* **L Gu**
- 1899035** *Uncovering Spatial Heterogeneity in Flux Footprints: Insights from a Distributed Eddy Covariance Sensor Network Across an Agricultural Field:* **S Ivans**
- 1908635** *Unravelling the role of environmental conditions on ecosystems carbon, water and water use efficiency fluxes in Maize:* **S Chintala**, M Abhinay Reddy, P Susan, P Kbnv Prof, V Jatoth, S Mudavath
- 1892394** *Carbon and Water Dynamics of Differently Managed Native Tallgrass Prairies Under Variable Weather in the U.S. Southern Great Plains:* **P Wagle**, B K Northup, X Xiao, A Cibils, S Gunter
- 1860172** *Climatic Controls on Diurnal Temperature-Humidity Hysteresis Regimes Revealed by Global Flux Tower and Land Reanalysis Data:* **C H Shih**, M H Lo
- 1972242** *Continuous Net CO₂ and H₂O Gas Exchange in CAM-Dominated Drylands: The Case Study of Cardón Cacti (Pachycereus pringlei) Using a Mesocosm Approach:* **J Hillhouse**, C Lopez, E Sánchez-Cañete, D G G Zaharescu, J L M Van Haren, F Maestre, K Dontsova, R L Scott
- 1961789** *Diurnal dynamics of Carbon allocation and respiratory costs under water stress using isotopic flux partitioning:* **D Kim**, B Baniya, C Sarpong, M Nkrumah, A Noormets
- 1971632** *Diurnality of Carbon and Energy Fluxes from Global Eddy Covariance Networks Reveals Ecosystem-Specific Interactions with Climate:* **T Park**, H Hashimoto, W Wang, X Xiao, R Vargas, I G Brosnan
- 1986997** *Estimating Canopy Resistance Using Machine Learning and Analytical Approaches:* **C I Hsieh**
- 1973632** *Flux Scaling as the Final Frontier: Challenges and Opportunities Across Disciplines:* **S Metzger**, D Durden, N Falco
- 1899622** *FluxBench: Insights From a Statistical Model Benchmark Comparison for Evapotranspiration:* **M Beckner**, K A McKinnon
- 1958378** *Global Patterns of carbon, water and energy exchange observed by FLUXNET:* **D J Moore**, K A Novick, M S Torn, K Ichii, M Kang, S Biraud, C Moore, G Pastorello, T Keenan, Z Chen, D Papale
- 1977386** *Identification of Erroneous Wintertime GPP in Forests in ONEFLUX Products:* **A K Carlile**, D R Bowling

- 1972362** *Increasing Respiration Weakens the Carbon Sink over Two Decades in a Temperate Deciduous Forest:* **D Bergl**, M S Carbone, A Ouimette, Y Liu, B Lucas, D Hollinger, P H Templer, S V Ollinger, A D Richardson
- 1949459** *Integrated multi-platform observations to quantify net surface-atmosphere fluxes and impact of fine-scale variability over a heterogeneous wetland ecosystem:* **M Goeckede**, A Bolek, M Schlutow, S Backer Kanakassery, N Eves, N Triches, J Vogt, K Ivanova, L Oxley, E Wahl, E Pratt, M Heimann, T Yazbeck
- 1970372** *Leveraging FluxNet Data for Improved Estimation of Potential Evapotranspiration Using the Priestley-Taylor Method:* **M Kumar**, P Raghav
- 1901627** *Minimizing Motion-Induced Errors in Infrared Gas Analyzers:* **I Bogoev**
- 1887542** *Modeling rain-induced soil carbon pulses from global drylands with FLUXPULSE:* **N B Nguyen**, M Migliavacca, M Bassiouni, D D Baldocchi, L Gherardi, J K Green, D Papale, M Reichstein, K H Cohrs, A Cescatti, D Nguyen, H Nguyen, Q Nguyen, T Keenan
- 1980816** *On the effect of different low GPP thresholds for calculating growing season length: a case study exploring the impact on carbon flux inter-annual variability at closed forest versus open dryland ecosystem sites:* **N MacBean**, D J Moore
- 1853973** *Partitioning Carbon Fluxes in Coastal Wetlands: Artificial Neural Networks Reveal Diel Inhibition of Respiration:* **E Gamez**, I Amitay, J Silberman, M Matsumura, D J Szutu, B Broach, J G Verfaillie, R Shortt, D D Baldocchi, K Bajda, L Stewart, O Kocer, K Poppe, S Russell, S Knox, L Windham-Myers, C Sturtevant, P Y Oikawa
- 1925906** *Rapid assessment of terrestrial CO₂ and CH₄ fluxes reveals responses to the warmest Arctic-Boreal winter on record:* **G Falvo**, E S Euskirchen, S Natali, K A Arndt, O Sonnentag, E Schuur
- 1944081** *Representativeness of AmeriFlux and NEON networks in terms of carbon and water flux estimates:* **W Zhang**, T Keenan

251074

Surface-Atmosphere Interactions: Scaling Fluxes with Remote Sensing (joint with A, GC, GH, H)

Conveners: **Stefan Metzger**, AtmoFacts; **Leila Hernandez Rodriguez**, Lawrence Berkeley National Laboratory; **Nicola Falco**, Organization Not Listed; **David Durden**, Battelle, National Ecological Observatory Network

- 1999624** *Round-robin evaluations of FLUXNET data products from regional network for the FLUXNET Shuttle:* **G Pastorello**, C Ewenz, C Trotta, S Sabbatini, D Durden, P R Isaac, S Biraud, D Papale
- 1898416** *Scaling Spatialized Eddy-Covariance Methods for Applications Across Sectors.:* **S Bower**, S Metzger, A R Desai, G G Burba, J C Davids, D Durden, S Paleri, D Papale
- 1963347** *Simultaneous trace gas flux monitoring of 10 greenhouse gases and air pollutants with a single instrument:* **C Espic**, M Hundt, J Bruckhuisen, E Smith, O Aseev
- 1970503** *Small-Scale Heterogeneity, Large-Scale Implications: A Flux Footprint Analysis of Influences on GPP:* **L Bell**, E Gallo, C L Devine, W Zhang, R L Scott, D J Moore
- 1927864** *Soil influences Gross Primary Productivity Across Different Ecosystems in the United States.:* **A Abarzua**, D J Moore, C Rasmussen, W Zhang, Y Li, L Bell, S Valencia
- 1932969** *Spatial Representativeness of MexFlux as a regional FLUXNET network:* **V H Le**, R Vargas, S Villarreal, M S Alvarado-Barrientos, A Cueva Dr, J Delgado-Balbuena, D Flores, C Hinojo, M Cervantes-Jiménez, E R Perez-Ruiz, Z Sanchez-Mejia, T Tarin, S H Bullock, A E Castellanos, B Figueroa, J Garatuza-Payán, F Holwerda, J C Rodriguez, J Uuh-Sonda, E Velasco, E A Yépez
- 1943105** *Typhoon disturbance effects on micrometeorological processes in a Japanese cedar stand in Xitou, Taiwan:* **T Nakai**, Y J Lai
- 1933001** *Understanding rangeland carbon dynamics using standardized observations and their application in machine learning model:* **J Duan**, Y Xia, J Watts, J Sanderman, A Mullen, A Orfanou
- 1931744** *Vegetation Greening Promotes the Water Use Efficiency in the Yellow River Basin, China:* **J Li**, C Deng
- 1902604** *Water Savings Drive Enhancement of Ecosystem Water-Use Efficiency Under Rising CO₂: Insights from Eddy Covariance and Machine Learning:* **W Zhan**, X Lian, J Liu, J Han, Y Huang, H Yang, C Zhan, A J Winkler, P Gentile
- 1974277** *A machine learning approach to improve the spatiotemporal resolution of actual evapotranspiration estimates by upscaling eddy covariance tower measurements to the field scale:* **A Dadkhah**, D M Rizzo, P R Adler, A Ahmadi, N B Beckage, P J Clemins, L A Garcia, M W Myers, G F Pinder, S Swami, A Zia
- 1943138** *A Practical Method to Estimate Land Surface Emissivity for FY-3D MERSI-II over the Heterogeneous Landscape of the Tibetan Plateau:* **Y Qi**, L Zhong, Y Ma
- 1988535** *Enhancing Forest Flux Predictions with Foliar Traits:* **B Blakely**, T Zheng, K R Kovach, S Ranjbar, PhD Candidate, P C Stoy, P A Townsend, A R Desai

- 1946772** *Estimating Cropland Carbon Fluxes and the Role of Agricultural Conservation Practices Using Remote Sensing and Machine Learning*: **X Wang**, H Liu, S Hegde, K Novick, M Barnes, A Endsley, K Key
- 1989816** *Flux Tower Measurements Combined With Deep Learning To Estimate Carbon Sequestration*: **H Debary**, L Klein
- 1936233** *Functional Diversity from Imaging Spectroscopy Enhances Within-Season GPP Stability Across U.S. Ecosystems*: **R Yang**, T Zheng, S Liu, K R Kovach, A R Desai, P A Townsend

248821

Terrestrial ecosystem hydraulics in a changing world (joint with H)

Conveners: Steve Kannenberg, West Virginia University; **Kimberly Novick**, Indiana University Bloomington; **Ana Maria Restrepo Acevedo**, Indiana University Bloomington; **Michael Benson**, Indiana University Bloomington

- 1950256** *Assessing Drought Stress within the Rocky Mountain Region*: **I Rejouis**, X Tai
- 1946819** *Assimilation of Vegetation Optical Depth within NUCAS Integrated with a Plant Hydraulic Module*: **M Wu**, H Zhu, T Kaminski, M Voßbeck
- 1972728** *Canopy Scorch and Tree Hydraulics: Sap Flow and Water Potential Responses to Fire in Loblolly Pines*: **V Gremler**, D P Aubrey, D M Johnson
- 1897225** *Canopy water content dynamics across space and time in three southern California oaks*: **A Ongjoco**, N Vinod, N Queally, L Sack, K D Chadwick, P G Brodrick, L D Anderegg, E Ordway
- 1867433** *Climate-Driven Hydraulic Traits Shift in Natural and Planted Forests: Patterns, Drivers, and Future Acclimation*: **Y Bai**, Y Hu, Y Liu, K Yu, X Luo, L Yu, L Tian, J Huang
- 1901456** *Drought response of fire-adapted Mediterranean plants under elevated CO₂*: **M Zomer**, B Moreira, J Martinez-Vilalta, J G Pausas
- 1967063** *Effect of Biochar Application on Soil Water Dynamics in Drought Prone soils*: **A Hass**, I M Lima, A Chadband, R Cantrell, H Sizemore
- 1925967** *Exploration of Dendrometer Data to Infer Plant Water Stress at High Temporal Resolution*: **D Zheleva**, M Zamora Re, A Tomasek, M Haagsma, J S Selker, C Udell, C Fuentes

- 1870077** *Integrating Eddy Covariance and Remote Sensing to Optimize Evapotranspiration Modeling in Agricultural Landscapes Using SEBAL-OPT*: **I Kisekka**, A Ghorbanpour, S R Peddinti
- 1959773** *Variations in canopy physical and functional traits drive the variations of the gross primary productivity in a northern temperate forest*: **T Zheng**, Z Ye, J A May, B Butterworth, B Blakely, C G Andresen, A R Desai, P A Townsend
- 1874801** *How Much Sapwood Do Trees Maintain? Insights from Age and Water Balance*: **H Xu**, W Anderegg
- 1931001** *Linking Soil Nutrient Availability to Plant Hydraulics in Amazonian Dark Earth Forests*: **R Beu**, T S Franco, L C R Silva, A C Franco
- 1953868** *Major Axes of Hydraulic Traits and Hydraulic Functional Types Derived From High-resolution Ecosystem-scale Traits*: **Z Tan**, Z Chen, A G Konings, X Xu, J Kolassa, A N Shiklomanov, Y Liu
- 1962107** *Mapping Tree Hydraulics and Assemblages at Continental Scale*: **A Moreno**, J Muñoz, J Knighton, P Sanchez Martinez, L D Anderegg, B Dechant, F D Schneider, J Kattge, A Koppa, D G Miralles, T Kattenborn, G Camps-Valls
- 1879159** *Observations of species-specific hydraulic response traits – model-based interpretation and long-term data*: **G Bohrer**, J E C Missik, S Bungard, C M Gough, C S Vogel, A M Matheny, J D Lenters, A M Restrepo Acevedo, J Tallant
- 1925105** *Observed Patterns of Foliar Water Uptake in Arid Mangrove Ecosystems: The Role of Salinity and Leaf-Level Salt Secretion*: **A Nwokoye**, E Ozioko, M Ulatowski, A M Matheny, A Molini
- 1851572** *Plant water dynamics inferred from field- vs satellite-scale microwave remote sensing*: **A Feldman**, W K Smith, A G Konings, S Serbin, BA, MS, PhD
- 1984248** *PSInet: a global database of plant water potential*: **J S Guo**, A M Restrepo Acevedo, S Kannenberg, K Novick
- 1989685** *Quantifying soil hydraulic properties in cover cropping systems using paired in situ sensors*: **B O Christoffersen**, F Pilco, M Gautam, A Racelis
- 1951464** *Sap Flow-VPD Hysteresis as an Indicator of Tree Resilience to Freshwater and Estuarine Flooding in Coastal Forests*: **K A Morris**, B P Bond-Lamberty, B Issak, A Stearns, V L Bailey, P Megonigal

252770

The Effect of Plant Communities and Their Microbial Associations on Soil Biogeochemistry

Conveners: Caitlin Hicks Pries, Lawrence Berkeley National Laboratory; **Richard P Phillips**, Indiana University Bloomington; **Amelia Fitch**, Oregon State University

1995801 *Arbuscular Mycorrhizal Fungi Restructure Plant-Soil Interactions to Enhance Soil Function Under Drought:* **S P Couvillion**, D Leach, W Garcia, S L Bell, A Vulcan, M Vincent, M Arrambidez, R Berner, P Lalli, E Warburton, M Burnet, J Eder, J Flores

1964842 *Biogeochemistry across a Mycorrhizal Gradient in a Northeastern Temperate Forest:* **A Carreras Pereira**, M Ramirez-Buckles, M Gollerkeri, D Menge

2004105 *Do high nitrogen use efficiency maize modulate the rhizosphere microbial community?:* **H Loper**, M Faghihinia, S Sterinbach, L Halverson

1980766 *Effects of Agricultural Management practices on Arbuscular Mycorrhizal Fungi (AMF) in the Rhizosphere of Dryland Systems:* **L Watkins**, S Sousa, P Delaune, T J Gentry, K Lewis

1932618 *Fungivorous protists as natural suppressors of Fusarium solani in diverse soil ecosystems:* **M Fujino**, R Asiloglu

1954875 *How do different plant functional types affect soil organic carbon sequestration in particulate and mineral-associated fractions? Insights from a long-term experiment.:* **V Suseela**, P Singh, J P Kaye, B Bradley

1932243 *Human Redistribution of Nitrogen Fixation Across the Terrestrial Biosphere and Consequences for Earth System Models:* **C R Reis Ely**, S Kou-Giesbrecht, S Perakis, C C Cleveland, D Menge, S Reed, B Taylor, S Batterman, T Crews, K A Dynarski, M G Gei, M Gundale, D Herridge, S Jovan, M B Peoples, J Piipponen, E Rodríguez-Caballero, V G Salmon, F Soper, A Staccone, B Weber, C A Williams, N Wurzburger

249233

The Global Methane Budget: Sources and Sinks in Natural and Anthropogenic Systems (joint with A, GC)

Conveners: Robert Jackson, Stanford University; **Marielle Saunois**, LSCE Laboratoire des Sciences du Climat et de l'Environnement; **Josep Canadell**, CSIRO; **Benjamin Poulter**, Spark Climate Solutions

1931394 *A Comparison Between Top Down and Bottom Up Methane Flux Calculations in The Great Dismal Swamp:* **C Turner**, S Hughes, K Paredero

1989789 *Investigating the role of mycorrhizal fungi in carbon management after a timber harvest:* **M Monroe**, M Liu, C Hicks Pries

1988957 *Long-Term Fertilization Shapes Microbiomes to Promote Legume Growth but Degrades Rhizobial Symbiotic Efficiency.:* **D Duan**, A Kent

1998202 *Long-term nitrogen enrichment decreases the role of mineral-associated carbon in surface and subsurface soils:* **A Fitch**, R McGaw, J C Pett-Ridge, A Cobos, S Perakis, S Kiel

1952028 *Manganese Content and Speciation Across Pine Barrens Soil Profiles with Varying Vegetation:* **I Wasserman**, R Huang, S M Mariano

1976283 *pH-Dependent PFAS Uptake in Plants Linked to Microbial and Phosphorus Dynamics:* **Q Yu**, S Huang, P R Jaffe

1984059 *Plant-microbe interactions in the rhizosphere and detritosphere mediate soil organic matter dynamics under drought:* **L K Honeker**, N Sokol, M M Foley, S Blazewicz, N Didonato, L Paša-Tolić, W Kew, K Estera-Molina, M K Firestone, A Greenlon, B A Hungate, J Pett-Ridge

1881601 *Root-Secreted Reductants Enhance Soil Phosphorus Bioavailability:* **C J Schuler**, D McRose

2000401 *Topographic position and dominant tree mycorrhizal composition independently shape soil properties in temperate forests of Southern Indiana:* **I Jo**, E Hoffman, R P Phillips, M Magana-Nugent

1986229 *Unraveling Rhizosphere Microbial Structure in an Unusually Productive Tundra Ecosystem of North Greenland:* **M Kim**, N R Myeong, J Y Jung, S J Jeong

1958372 *Are Methane $\delta^{13}\text{C}$ Isotopic Constraints Consistent with Emissions Based on TROPOMI Retrievals?:* **S Basu**, X Lan, S Michel, B Weir

1883723 *Attributing 2019–2024 methane growth using TROPOMI satellite observations:* **M He**, D J Jacob, L Estrada, D J Varon, M Payer Sulprizio, N Balasus, J D East, E Penn, D Pendergrass, Z Chen, T A Mooring, J Maasackers, P G Brodrick, C Frankenberg, K W Bowman, L Bruhwiler

- 1973599** *Breathing Earth: A First Look at What Thousands of New Flux Measurements Reveal About Methane Uptake in Soils Across Ecosystems in the United States*: **K R Hall**, M Zhu, M Scholer, A C Ihle, H Piao, M L Buursink, T S Weber, M P Stock, L Kunhardt, K M Walter Anthony, V V Petrenko
- 1941349** *Contribution of both anthropogenic and natural factors to reduced atmospheric oxidation and increased methane growth in 2020*: **Y Zhang**, W Chen, R Liang
- 1911707** *Controls on Methane Emissions from Lakes: Evidence from a Process-Based Model*: **P A Raymond**, C Shen
- 1934412** *Discerning the sources driving variations in stable methane isotopologues ($\delta^{13}\text{C-CH}_4$ and $\delta\text{D-CH}_4$)*: **I Ferguson**, A J Turner, A L S Swann
- 1915516** *Enhancing Global Soil Methane Quantification with Cluster-Based PGDL Soil Moisture and Biogeochemical Modeling*: **X Xi**, Q Zhuang
- 1927817** *Evaluating the Biogeochemical Impacts of Fish Introductions in Winter Flooded Rice Fields in California*: **K Brown**, W R Horwath
- 1872545** *Evaluation of a Dynamic CH_4 and H_2 Soil Deposition Scheme in the ECHAM5/MESSy Atmospheric Chemistry Model (EMAC)*: **A Martin**, K Klingmueller, B Steil, J Lelieveld, A Pozzer
- 1950158** *Exploring Improvement to the Global FETCH₄ ^{14}CO Measurement Network Through OSSEs*: **S Miller**, L T Murray, V V Petrenko
- 1963616** *First Annual (2024-2025) Global Measurements of ^{14}CO from the FETCH₄ Network to Better Constrain OH, the Main Sink for Atmospheric CH_4* : **A Chattopadhyay**, S Miller, E Thomson, L T Murray, A M Smith, B Yang, A Amartya Joshi, B Thomas, R Burgener, A Colton, M Doneghey, R M Chewitt-Lucas, E Blades, A Borges, N C Machín, P Soriano, M Leitch, H Schaefer, G W Brailsford, O Magand, D Combemale, P Hernandez, E Golubic, K R Hall, S Ahn, M Scholer, A C Ihle, A J Turner, V V Petrenko
- 1856551** *From Emissions to Degrees: Reframing Climate Action for Maximum Temperature Impact through the T-MACC*: **M Mena**
- 1986458** *Global methane mitigation: challenges and opportunities in aquatic systems and their atmospheric interactions*: **L Shen**, M Zhuang, S Peng, V Gauci
- 1919961** *Investigating the Role of Hydroxyl and Chlorine Radicals on Methane Isotopic Composition and Trends*: **E Mei**, C Lipe, U A Jongebloed, B Alexander, A J Turner
- 1911885** *Kinetic Isotope Effects in Methane Oxidation Reactions: Temperature Dependence of the OH and Cl KIEs for $^{13}\text{CH}_4$, CDH_3 , $^{13}\text{CDH}_3$, CD_2H_2 , CD_3H , and CD_4 from 100 to 500 K*: **M K Mikkelsen**, J Elholm, S Gromov, T Röckmann, K Mikkelsen, M S Johnson
- 1942212** *Large Methane Fluxes above the Amazon Basin*: **L Ort**, C Frankenberg, N Dadheech, A J Turner, J Yoon, H C Lachnitt, P M Hoor, J Lelieveld, H Fischer
- 1864857** *Methane Emissions and the Carbon Balance of Wetlands and Other Ecosystems using In Situ and Satellite-Derived Estimation*: **B El Masri**, Z Brown, M S Johnson, L S Guild, C S Potter, S Pass
- 1969225** *Methane emissions from geologic microseepage in the Denver-Julesburg Basin are lower than previously estimated*: **A C Ihle**, K R Hall, T S Weber, H Piao, M L Buursink, M Scholer, M Zhu, R Klusman, K M Walter Anthony, V V Petrenko
- 1953246** *Methane Fluxes During a seasonal cycle of Flooding in an Amazonian Igapó Forest: New Eddy Covariance Observations from Cupari, Tapajós Region (Amazon)*: **R Tapajos**, R da Silva, J del Aguila Pasquel, W Machado, J M S Moura, R C Oliveira Junior, K Silva Campos, J L M Van Haren, S Saleska
- 1944846** *Numerical Simulation of the Impact of Atmospheric Sink Variability and CH_4 Biomass Burning Emissions on the Global Mean $\delta^{13}\text{C}(\text{CH}_4)$ Trend*: **A L Nickl**, P Joeckel, F Winterstein, A Schmidt
- 1982352** *Observation and Multi-Model Intercomparison of $\delta^{13}\text{C-CH}_4$ from an Arctic Permafrost Thaw Lake*: **K Rozmiarak**, X Liu, Y Oh, I Overeem, E Miller, V A Morris, B H Vaughn, N Hasson, B Chase, K M Walter Anthony, Q Zhuang, C Smallwood, G B Rieker, T R Jones
- 1949685** *Observation-Constrained and Causal Machine Learning Projection of Global Wetland CH_4 Emissions in the 21st Century*: **F Li**, R B Jackson, K Yuan, Q Zhu
- 1995591** *Reassessing Methane Growth: The Underestimated Impact of Atmospheric Exchange Processes*: **Y Yin**, N Nguyen, Q Wang, A J Turner, C Frankenberg
- 1963919** *Role of atmospheric chemistry in monitoring changes in the CH_4 Budget*: **B Gaubert**, M A Mirrezaei, A F Arellano Jr, R P Fernandez, I Ortega, L K Emmons, B Roozitalab, L Bruhwiler, Y Oh, X Lan, G Petron, K McKain, A Saiz-Lopez, C Cuevas, C Feng, Y Xu, G Brasseur

- 1930825** *Seasonality of Ecosystem Methane Fluxes Upscaled from Chamber Measurements in Upland and Seasonally Flooded Forests of the Eastern Amazon Basin:* **J del Aguila Pasquel**, J L M Van Haren, R P Tapajós, J M S Moura, R C Oliveira Junior, M Ferreira Junior, L M Brechet, F Pereira de Aquino, D da Silva Lima, L Alves, S Saleska, M T Fernandez Piedade, J Shongart SR, L Demarchi, B W Albuquerque, V P Klein, A F D Resende, G B Mori, T André, A Frederico Mortati, A C da Cunha, L L Oliveira, F Wittmann, A Costa Quaresma, G Feitosa, S D N Gomes de Souza, A L Costa
- 1883679** *The Global Methane Budget 2000-2024: changes in anthropogenic and natural sources in relation to the objective of the Global Methane Pledge:* **M Saunois**, B Poulter, D Custodio, J G Canadell, R B Jackson, P A Raymond, P K Patra, P Bousquet, P Ciais

250512

The Resilience and Vulnerability of Arctic and Boreal Ecosystems to Climate Change (joint with A, GC, NH)

Conveners: **Elizabeth Hoy**, Global Science and Technology Inc Greenbelt; **Ryan Pavlick**, NASA Headquarters; **Amanda Whitehurst**, NASA Headquarters; **Jonathan Wang**, University of Utah; **Bradley Gay**, NASA Goddard Space Flight Center

- 1999562** *18 Years of Abiotic and Biotic Phenological Change in the Arctic:* **A Young**, M Melendez Gonzales, A Jackson, M S Bret-Harte, B A Van Dam, A Kade, C Hauptert
- 1969559** *250+ Datasets and Growing: Making NASA's ABoVE Arctic Research Archive Accessible to All:* **E E Hoy**, P Griffith, S J Goetz, L K Larson, C E Miller, Y Wei, D Singh, A Sokolowski
- 1923929** *Predicting forest burn risk from 2026 to 2040 in interior Alaska:* **J Hall**, K Hayes, Q Asena, J Forsythe, P C Frumhoff, K T Hu, K C Mathes, L Murphy, B M Rogers, A Talucci, J A Wang, W Hansen
- 1981979** *A Look into 35 Years of Alaskan Tundra In-situ Soil Organic Carbon: A Synthesis Perspective:* **S Henze**, K Bakian Dogahneh, J Du, J Kimball, M Moghaddam
- 1990096** *ABCFlux v2: A New Synthesis of Monthly Carbon Dioxide and Methane Fluxes from Arctic-Boreal Terrestrial and Freshwater Ecosystems:* **I Wargowsky**, A Virkalla, J Vogt, M Kuhn, S Natali, B M Rogers, J Watts, K A Arndt, M Goeckede
- 1985906** *Abrupt permafrost thaw increases old carbon losses despite increases in plant carbon inputs:* **E Lathrop**, J Ledman, J Warren, A Kelley, M McGroarty, A Thompson, A Welch, C Ebert, E Schuur

- 1953623** *The low latency methane budget : a community effort to understand growth rate changes between 2019 and 2024:* **P Ciais**
- 1990968** *Toward Satellite-Derived Methane Growth Rates Using CrIS and AIRS: A Multidataset Comparison within the TROPES Project:* **F A Oyafuso**, S Pandey, K Bowman, S Lee
- 1950104** *Using Methyl Chloroform and ^{14}CO as a Joint Constraint on OH Abundance and Variability:* **E Thomson**, L T Murray, T S Weber, A Chattopadhyay, S Miller, A M Smith, B Yang, A Amatya Joshi, K R Hall, M Shi, P Ivatt, V V Petrenko
- 1944603** *Utilizing tropospheric CO isotope observations from a low-latitude Atlantic sampling network to constrain the oxidative chlorine sink:* **C Brashear**, M van Herpen, B van de Kraats, S Gromov, A Saiz-Lopez, D Meidan, M S Johnson, L Pennacchio, M K Mikkelsen, T Röckmann
- 1964667** *AI-vergreens - a New Multi-level Labelled Multi-temporal of Harmonized Landsat and Sentinel-2 (HLS) based Training Dataset Optimized for Northern Circumboreal Forest:* **B Heim**, L Enguehard, J Schladebach, F van Geffen, U Herzschuh, B Demir, K Papathanassiou, R Hänsch, S K Panda, A Bartsch, S Kruse
- 1898259** *Are boreal wildfires on the rise? It's actually quite complicated:* **D Chen**
- 1944733** *Atmospheric carbon fluxes of a boreal peatland complex near the southern permafrost limit recovering from a recent late-season wildfire (October 2022):* **O Sonnentag**, H Alcock, K A Arndt, S Natali, M Detto, G Hould Gosselin, J F Fouché, A Lhosmot
- 1870254** *Beaver Engineering Impacts on Arctic Riparian Vegetation:* **S Zavoico**, K D Tape, C E Miller, S Zwieback, P A Townsend, K R Kovach, M M Loranty, E Graham
- 1876108** *Beaver Occupancy Dynamics and Predicted Range Expansion in Arctic Alaska:* **T Glass**, K D Tape, J Speed, B M Jones, S Zavoico
- 1914882** *Benchmarking Land Model Simulations in the Arctic using ILAMB:* **E C Massoud**, J Kumar, N Collier, F Yuan, N E Bruns, F M Hoffman
- 1900611** *Boreal Wetland Inundation Maps: GNSS-R and Computer Vision for Improved Water Cycle Monitoring of High Latitude Ecosystems:* **K Stephens**, T Pu, C Gerlein-Safdi
- 1953514** *Burned area mapping across the Arctic-boreal zone with Landsat and Sentinel-2 imagery:* **S Potter**, Y Yang, A L Burrell, A Talucci, A Clelland, S Veraverbeke, J T Randerson, S J Goetz, L T Berner, M C Mack, X J Walker, S Natali, B M Rogers

- 1852334** *Canada's forests shifting from a recovery-driven carbon sink to a disturbance-driven carbon source:* **S R Curasi**, J R Melton, E Humphreys, V Arora, J Beaver, A J Cannon, T Hermosilla, S C Lee, M Wulder
- 1965391** *Carbon Storage Capacity and Turnover in Cottongrass Tussocks in the Arctic:* **H Dysert**, R Badzioch, R Berwick, E B Rastetter, N Beronio, N Fetcher, S R Curasi, A V Rocha
- 1873765** *Changes in Albedo and Land Surface Temperature Following Short-Interval Reburn Events in the North American Boreal:* **A Talucci**, A Erb, S Potter, L Ribeiro Diaz, J Dean, L T Berner, S J Goetz, M C Mack, C Schaaf, X J Walker, B M Rogers
- 1930936** *Characterizing soil organic carbon distribution and disturbance effects in Arctic and Boreal ecosystems using a two-stage deep learning framework:* **Y Yi**, W Peng, U Mishra, J Kimball, J Watts, S J Goetz
- 1947241** *Climate drivers of greenness and productivity over 17 years in three types of Arctic tundra:* **D Menge**, J Motes, S Kjaer, K L Griffin, N Boelman
- 1874855** *Combining drone imagery and computer vision to characterize pre- and post-fire forest conditions in northeastern Siberia:* **M M Loranty**, H D Alexander, E Manos, A Perera, M Pimenta, C Witharana
- 1966454** *Constraining Seasonal Dynamics of Carbon Fluxes in Arctic-Boreal North America Using Atmospheric CO₂ Observations:* **J Wen**, W Sun, K Foster, B P Bond-Lamberty, C E Miller, A Michalak
- 1975897** *Constraining shoulder season carbon fluxes (CO₂ and CH₄) from the Arctic-Boreal zone using remote-sensing observations:* **A Chatterjee**, S Basu, J Mendonca, J M Poe, L T Berner, B Byrne, S J Goetz, H Lindqvist, A Mikkonen, R Nassar, D Wunch, C O'Dell, C E Miller
- 1894495** *Cross-scale controls of Arctic phenology: Vegetation and local topography shape climate responses and long-term trends:* **X Zhu**, J A Wang, M A Friedl
- 1960582** *Cross-scale Data Integration from UASs, Airborne, and Satellites Uncovers the Heterogeneous Trajectory and Drivers of Vegetation Recovery 21 Years after a Wildfire in a Boreal Forest in Alaska:* **D Yang**, F Santos, G W Schwaner, M Krassovski, M Alonzo, M C Mack, J Anderson, B Cook, S Serbin, BA, MS, PhD, C M Iversen, PhD
- 1870617** *Delineation of Arctic Valleys in Fennoscandia:* **T Smith**, W Zhou, PhD, V Y Ivanov, J Wang, A Y Sheshukov
- 1965149** *Demographic Simulation of Arctic Greening by 2100 on the Seward Peninsula:* **S Dillard**, K Paff, Z Robbins, J P Schwenk, K E Bennett, J Tao, A Giunttoni, J Holm, C Koven, C M Iversen, C Xu
- 1907521** *Direct and Indirect Effects of Winter Snow Depth on Carbon Emissions in Autumn at Moist Acidic Tundra in Arctic Alaska:* **K Okano**, M S Bret-Harte, E S Euskirchen
- 1896598** *Drivers and Impacts of Three Consecutive Extreme Fire Years in Boreal North America:* **R Scholten**, Y Chen, J E Kim, T Liu, T D McCabe, D C Morton, J T Randerson
- 1914175** *Drivers of Photosynthetic Physiology Revealed by Long-term Continuous Chlorophyll Fluorescence Measurements:* **W Dawson III**, A Jablonski, J Kim, J Watts, H E Epstein, X Yang
- 1984033** *Effects of seasonal and multi-decadal lake area change on methane emissions in a lowland tundra river delta:* **A Mullen**, J Watts, E E Jafarov, E Levenson, S W Cooley, J Hung, Z Dietrich, M Carroll, J Caraballo-Vega, C Spradlin
- 1858856** *Evaluation of Vegetation, Soil, And Land-Atmosphere Exchange from an Arctic-Informed Land Surface Model Across Pan-Arctic Tundra Field Sites:* **B N Sulman**, B Murphy, F Yuan, V G Salmon, F Santos, J Kumar, N Tas
- 1891304** *Flooding and Warming Drive More Complex Greenhouse Gas Responses in an Arctic Coastal Wetland Than Adjacent Coastal Tundra:* **K Kelsey**, A J Leffler, K H Beard, M Petit Bon, C Bricker, M DiCianna
- 1979306** *High-resolution Vegetation Mapping Approach For Evolving Ice-Wedge-Polygon Terrain in Prudhoe Bay, Alaska:* **O Hobgood**, D A Walker, M K Raynolds, A L Breen, M Z Kanevskiy, J White
- 1895294** *Impacts of fuel removal on fire intensity and fire extent in Interior Alaska: three case studies:* **M P Calef**, J Schmidt
- 1935217** *Impacts of wildfire on permafrost thaw and soil carbon cycling in black spruce forests near Hess Creek, Alaska:* **Y Liu**, J Watts, X Xu, S Pedron, A L Kholodov, C Minions, C I Czimczik
- 1924412** *Improving understanding of Alaska boreal forest CO₂ response under warming climate and fire disturbance conditions:* **J Watts**, A Mullen, H Genet, E E Jafarov, E Heffernan, W Dawson III, H E Epstein, X Yang, C I Czimczik, N Parazoo, K E Savage
- 1947718** *Incorporating Permafrost Thaw Subsidence into Flood Risk Assessment: A Co-produced Case Study from Nunapicuaq, Alaska:* **S Natali**, D Dusseau, M Alexie, G Fiske, A Mullen, J Dean, T Windholz, A L Kholodov, R J Michaelides, S Zolkos, S Cooperdock
- 1884647** *Increased deciduous tree dominance reduces wildfire C losses in northwestern North American boreal forests:* **E Black**, X J Walker, M C Mack, L T Berner, B M Rogers, W Hansen, S J Goetz, A Talucci, J Dean, S Potter

- 1949562** *Investigating Long-Term Changes in Willow Cover and Greenness Using Multispectral Satellite and UAV Data in Western Siberia:* **T Kumpula**, E Koivisto, A Kuzmin, L T Berner, B C Forbes, J Kerby, T Kolari, P Korpelainen, A Skarin, T Tahvanainen, M Verdonen, M Villoslada
- 1859810** *Landscape Change on the Ikpikpuk River Delta Driven by Storm Surge Flooding, Permafrost Thaw, and a Snow Goose Population Boom:* **B M Jones**, M Ward Jones, B Person, M J Macander, A Prichard, T Obritschkewitsch
- 2000019** *Landscape Controls on Stream Carbon Export from Drained Thaw Lake Basins on Alaska's North Slope:* **M Hock**, A K Liljedahl, C Witharana, M Pimenta, D Zona
- 1913604** *Landscape, climate, and hydrologic influences on carbon processing revealed by the Harmonized Arctic-Boreal Lake (HABL) database:* **T Howard**, L C Smith, E D Kyziat, D E Butman, R G Spencer, M Kurek
- 1894387** *Latitudinal variability in net ecosystem productivity during the summer of 2017 within the NASA ABoVE study domain in northwestern Canada:* **H Alcock**, A Lhosmot, G Hould Gosselin, T A Black, S K Carey, M Detto, E Humphreys, B Johnson, P Lafleur, P Marsh, E Nicholls, W L Quinton, J Skeeter, O Sonnentag
- 1897076** *Leveraging Long-Term, Multiscale Data to Understand Shifting Carbon Storage Capacities in an Alaskan Boreal Fen Complex:* **E Serocki**, E S Kane, C M Dieleman, E S Euskirchen, L L Bourgeau-Chavez, T Liu, W Cox, M R Turetsky
- 1930367** *Limited gain in Arctic-boreal photosynthesis from warming indicated by multi-scale observational constraints:* **W Sun**, W Zhan, J Wen, A Michalak
- 1925925** *Mapping Post-Fire Polygonal Ice Wedge Degradation in Arctic Tundra Using High Resolution Satellite Imagery and Computer Learning:* **R Badzioch**, N Jacobs, E B Rastetter, A V Rocha
- 1945985** *Measurements, Models, and More: Cross-Disciplinary Science to Understand and Predict Rapidly Changing Processes at the Top of the World:* **C M Iversen, PhD**, K E Bennett, B Bolton, B Dafflon, R Crumley, M DeLue, MSc, E S Euskirchen, M Drake, N Griffiths, F Hoffman, C Koven, H Mevenkamp, J Holm, S L Painter, F Santos, J P Schwenk, B N Sulman, N Tas, M Thornton, P E Thornton, T Velliquette, D Yang
- 1925364** *Meta-analysis of North American Arctic and Boreal Aboveground Carbon Maps to Provide Guidance for User Communities:* **W Liang**, K Bauck, D Maloney, E E Hoy, P Montesano, J A Wang, M J Lara, D Yang, J Forsythe, L T Berner, X J Walker, L Duncanson
- 1980249** *Monitoring Arctic Ecosystem Change: Lessons Learned from the 2017–2024 ABoVE Airborne Campaigns:* **C E Miller**, P Griffith, E E Hoy, S J Goetz, D J Hodkinson, L K Larson, A Whitehurst, R Pavlick
- 1973348** *Monitoring Shoulder Season Freeze/Thaw Dynamics across Arctic Tundra Landscape Using a Decade of L- and P-Band PolSAR Imagery:* **K Bakian Dogahneh**, S Henze, Y Zhao, J Du, D Nicolsky, V E Romanovsky, J S Kimball, M Moghaddam
- 1878771** *Monitoring the circumpolar boreal forest's structure and shifts from the bottom up:* **P M Montesano**, C S R Neigh, M Carroll, J O Sexton, M Feng, L Duncanson, A L Neuenschwander
- 1903066** *Near Real-Time Measurements Reveal Record Carbon Dioxide and Methane Emissions and Release of Old Carbon From Tundra and Boreal Ecosystems in the Permafrost Region:* **E Schuur**, C Ebert, G Falvo, A Kelley
- 1924925** *Operational near real-time fluxes of CO₂ and CH₄ across the Arctic-Boreal region:* **G Falvo**, B Maglio, A Simonpietri, J Watts, A M Virkkala, E Schuur
- 1882019** *Plant biomass and woody dominance increased with climate warming across the Arctic tundra biome:* **K M Orndahl**, L T Berner, S J Goetz, M J Macander
- 1858413** *Plant-Microbe-Mineral Interactions Reveal Key Temporal Dynamics Regarding Carbon Cycling and Permafrost Priming:* **S Schaefer**, F Montañó López, H Holland Moritz, C Hicks Pries, S Grandy, W R Wieder, N Alexander, L Bernhardt, E Schlerman, M Rozinski, J G Ernakovich
- 1922496** *Post-fire Succession in North American Boreal Forests Increases Rates of Evapotranspiration:* **T Albrethsen**
- 1972805** *Potential Distribution of a Top Arctic Predator Under Multiple Climate Futures:* **D M Hueholt**, E Barnes, J W Hurrell, A Morrison
- 1889037** *Primary Production from Wet Sedge-Dominated Arctic Soils Increases Under One Week of Elevated CO₂ Exposure Without Stimulation of CH₄ Emissions :* **D Sirivat**, S Luedke, K T Paw U, D Lipson, W C Oechel, K Bernabe, D Zona
- 1870583** *Projecting Long-Term Impacts of Management Actions and Climate on Boreal Forest Fuel Reduction Treatments:* **N Link**, W Hansen, X J Walker, M C Mack
- 1954004** *Radiocarbon Age-Offsets from Birch Lake, Alaska Identify Large Shifts in Carbon Cycling During Holocene Establishment of Discontinuous Permafrost and Boreal Forests:* **H Sinon**, M B Abbott, B E Rosenheim, D Firesinger, M S Finkenbinder, C Novak, B Finney, M E Edwards

- 1971321** *Released: Validated Historical 22-year AVHRR-GAC-derived Burned Area Product for Asian Russia (1979 – 2000):* **A J Soja**, E Gargulinski, D Cahoon Jr, B J Stocks, S Potter, N J Jurko, B M Rogers, S G Conard
- 1974147** *Seasonal Relationships Between Vegetation Productivity and Export of Colored Dissolved Organic Matter from Deglaciated Landscapes:* **M Black**, J B Martin, E E Martin
- 1916824** *Shrub Expansion as an Indicator and Driver of Rapid Permafrost Loss and stability in Arctic Tundra from UAVSAR, G-LiHT and deep-learning segmentation of very-high resolution imagery.:* **D Radakovic**
- 1868959** *Significant soil warming across Alaska over the last 25 years:* **E Oliver**, C Phillips
- 1966365** *Taming the Data Zoo: A Toolkit for Standardizing ABoVE's Diverse Arctic Data:* **E Goodnough**, E E Hoy, C LaNeve, J M Poe
- 2005059** *The Alaska Soil Data Bank Project: A Statewide Harmonized Dataset Enabling High-Resolution Predictions of Soil Properties for Arctic-Boreal Ecosystem Research:* **N Jelinski**, F E Biles, I Ainuddin, D D'Amore, J Foss, C Brungard, S Grunwald, S Ives, J D Jastrow, T Jorgenson, R Matamala, M J Macander, J Minai, N J Pastick, T Nawrocki, C L Ping, D Swanson
- 1988088** *The Coupled Permafrost Carbon and Mercury Feedback:* **K M Schaefer**, C Olson, B M Geyman, C Olson, D Streets, E M Sunderland, C P Thackray, S Zolkos
- 1918259** *The Impact of Boreal Ecosystem Shifts in Response to Fire and Abrupt Thaw on Soil Emissions of Reactive Nitrogen, Volatile Organic Compounds, and Greenhouse Gases:* **A Gorchov Negron**, J Shabaga, C Jernigan, J Roberts, PhD, M M Coggon, C Womack, I Pollack, D Rollins, E Stuchiner, M R Turetsky, B C McDonald, H Mannino, N Schafer, J V Ortega, K Bates, Z Decker, E Waxman, W Cox, Q Z Rasool, S DeVogel
- 1977333** *The Nuance of Nitrogen: Form-Specific Controls on Plant Community, Canopy Roughness, and Photosynthesis in Moist Acidic Tundra:* **K L Griffin**, A Harris, J Gan, S Naeem, N Boelman, E B Rastetter, D Menge
- 1864313** *The Reorganization of Arctic Ecosystems After Fire and Nutrient Addition: Are Regime Shifts Caused by Decreased Ecosystem Resistance and Increased Community Openness?:* **A V Rocha**, R Badzioch, J Caraballo-Vega, I Klupar, S Curasi, G R Shaver, G Schaepman-Strub, E B Rastetter
- 1994346** *Thriving in the Shadows: Expansion of Rubus chamaemorus (Cloudberry) in the Arctic Tundra:* **P Olivas**, S F Oberbauer, D Sanchez
- 1968395** *Towards a Warmer, Less Frozen Future Arctic: Synthesis of Tundra Ecosystem Drivers and Responses in Western Alaska:* **G V Frost Jr**, U S Bhatt, M J Macander, C F Waigl, P Montesano, C S R Neigh, J Caraballo-Vega, M Carroll
- 1867942** *Types of Arctic-boreal Paper:* **P C Griffith**
- 1985786** *Vegetation cover mapping using the Pan-Arctic Vegetation Cover (PAVC) database:* **M Steckler**, J Kumar, A L Breen, T Zhang, F M Hoffman, W W Hargrove, D A Walker, A Wells, A Droghini, T Nawrocki, S Wullschleger, M J Macander, G V Frost Jr, V G Salmon, D Barnett, C M Iversen
- 1958411** *Biochar stimulates nitrogen loss in anoxic soil through ammonium oxidation coupled with iron reduction:* **B Yi**
- 1968459** *Effect of Elemental Sulfur on the Feammox Process for Acidimicrobium Sp. Strain A6:* **C Smorada**, S Huang, P R Jaffe, S Cuahutle Martinez, B Carlsson
- 1996324** *Enhanced Feammox Activity via Activated Carbon and Ion Exchange Resins as Microbial Carriers for Wetland Enrichment Culture:* **Z Ye**, S Huang, P R Jaffe
- 2002158** *Exploring Feammox Activity and Microbial Drivers in Iron-Rich Freshwater sediments:* **S Huang**, C Smorada, Q Yu, P R Jaffe
- 1953145** *The distribution of Feammox bacteria and their contribution to ammonium oxidation in coastal zones:* **C Chen**, F Thompson
-
- 249849**
- The Role of the Feammox Process in the Global Nitrogen Cycle, Mechanistic Insights, and Novel Applications**
- Conveners:** **Peter Jaffe**, Princeton University; **Shan Huang**, Princeton University; **Jinhee Park**, Princeton University; **Melany Ruiz-Urigüen**, Princeton University
-
- 1942689** *Acidimicrobium sp. strain A6 enhances bioavailability of crystalline Fe oxides in co-cultures with Geobacter sulfurreducens:* **J Park**, P R Jaffe, J Atkinson, S Huang, B Koel
- 1886329** *A microfluidic bioreactor for cultivating Acidimicrobium sp. strain A6 under soil-like, anaerobic conditions:* **A Karimi**, S Huang, P R Jaffe, A Abbaspourrad

253275

**The William S. and Carelyn Y. Reeburgh Lecture:
Recognizing Significant Contributions to the
Fields of Global Biogeochemistry**

Conveners: Emily Bernhardt, Duke University; Emily Bernhardt, Duke University; Rodrigo Vargas, University of Delaware

247016

Tropical Forests Under a Changing Environment

Conveners: Robinson Negron Juarez, Lawrence Berkeley National Laboratory; Elsa Ordway, Carnegie Institution for Science Stanford; Alison Hoyt, Singapore-MIT Alliance for Research and Technology (SMART); Santiago Botia, Biogeochemical Signals Department, Max Planck Institute for Biogeochemistry; Alison Hoyt, Singapore-MIT Alliance for Research and Technology (SMART)

1851582 *A data overview of the CongoFlux ecosystem site in the central Congo basin (Yangambi, DR Congo):* **P F M Boeckx**

1996412 *Amazon rainforest adjusts to long-term experimental drought:* **P Sanchez Martinez**, L Martius, P Bittencourt, M Silva, O Binks, I Coughlin, A L da Costa, L Rowland, V Negrão-Rodrigues, M Mencuccini, J Athaydes Silva, S W Rifai, S S Saatchi, P Meir, R Selman

1851301 *Benchmarking Carbon Estimates in Miombo Woodlands: Integrating NASA GEDI Lidar with Global Biomass Mapping Products for Improved Carbon Stock Assessment:* **K N Okigwe**

1983767 *Can a Functional Biogeography of drought resilience explain carbon-cycle differences between Amazonian and African forests?:* **S Chen**, C Terrer, L A Cuartas, B W Nelson, A D Nobre, N Restrepo-Coupe, J Schiette, S C Stark, J V Tavares, S Saleska

1882400 *Characterizing vegetation structure across Earth's tropical forests:* **W Li**, T Keenan

2002816 *Co-variation of leaf traits and microclimate across canopies: does it matter for forest function?:* **N Prohaska**, L G Ziccardi, N Restrepo-Coupe, K Campos, S C Stark, S Saleska

1976749 *Combining GEDI and Landsat-based satellite forest cover loss data to improve understanding of Democratic Republic of Congo humid tropical forest regrowth and carbon sequestration:* **M S Cho**, D Roy, H Kashongwe, D L Skole

1880194 *Congo Basin tropical forest ecosystem function and responses to global change across scales:* **E Ordway**, N Barbier, S Biswas, S Assola, R Bose, V Deblauwe, F Djomkam, B Egoh, G Chuissi-Kameni, A Ferraz, S Momo, B Dehaut, N Russo, M Dean, S S Saatchi, B Endezoumou, F Schneider, E Simpoh, T B Smith, B Sonké, M Lacour, H Stouter, P Ploton, G Oum Ndjock, A Tekam, S R Worden, E Njume, V Zaunbrecher

1971611 *Continental Integration of Soil Water, Sap Flow, Stem Diameter and Stem Water Potential Sensors Across Tropical Forests: Science Necessity, Technical Deployment and Operational Challenges:* **J Warren**, A Zambrano, N McDowell, E Mas, R I Negron Juarez, C Wright, B Gimenez, N Aqilah, J Wright S, C Santos da Silva, G Spanner, V da Silva Menezes, R Oliveira, A J N Lima, N Higuchi, J Chambers, C Koven

1991127 *Contrasting Methane Fluxes Across Upland and Flooded Amazon Forests: Insights from Tambopata, Guyaflux, and Mamirauá:* **R Stern**, E Cosio, N Salinas, R Cruz, E Ramos-Chang, D Bonal, L M Brechet, B Burban, A S Fleischmann, D R Roberti, D dos Santos, S Knox, A Hoyt, F Li, R I Negron Juarez, R B Jackson

1880695 *Cooling Feedbacks from Amazon Deforestation: An All-Sky Biophysical Perspective:* **T Dror**, G Feingold

1913204 *Deciduousness reveals diverse phenological processes in the Amazon rainforest:* **G Song**, A Hughes, X Lian, X Zeng, A R Huete, L Albert, X Xu, J Penuelas, C Zohner, B W Nelson, S Chen, M Detto, Z Guo, X Li, Z Lin, Y Malhi, S Saleska, Y Su, J Xiao, Y Zhao, P Zhu, L Liu, J Wu

1939191 *Diurnal variation in solar-induced chlorophyll fluorescence (SIF) and CO₂ flux of a tropical forest in Malaysia:* **T Morozumi**, H Noda, T Kato, T Miyauchi, T Nakaji, S Takanashi, Y Kosugi, M Lion

1864890 *Drought Amplifies Microclimatic Edge Effects and Increases Trees' Water Stress in an Amazon-Cerrado Forest Edge:* **L Byrnes**, L Maracahipes, PhD, L Maracahipes-Santos, A Carlos Silveiro da Silva, P M Brando

- 1874076** *Dynamic interpretation of tree-level sapflow response to environmental changes in the Amazon Rainforest:* **T Kim**, T Taylor, E Agee, N Restrepo-Coupe, K Silva Campos, N Prohaska, L Albert, M Figueira, J M S Moura, S Ferreira, R Senna, R C Oliveira Junior, M J Ferreira, J V F C Rodrigues, T Souza, V Y Ivanov
- 1998308** *Environmental drivers of spatial variation in tropical forest canopy structure: Insights from NASA's GEDI spaceborne LiDAR:* **P R Moorcroft**, S Liu, O Csillik, E Ordway, L Chang, M Longo, M Keller
- 1961883** *Evolving the PANGEA vision for tropical forest science:* **E Ordway**, I N Aguilar, A Alencar, A Bey, R K Braghiere, A Cardoso, D Chadwick, T Fatoyinbo, Y Feng, A Ferraz, J D Fuentes, P Griffith, L S Guild, M S Johnson, E Kane, M Keller, L S Koutika, Y Li, J Liu, M Longo, I Mccubbin, C E Miller, H C Muller-Landau, F Meunier, P Namulisa, R I Negron Juarez, T Nkuintchua, M Nunes, L B Sagang Takougoum, M J Santos, F Schneider, M Simard, B Sonké, H Stouter, C Terrer, M von Essen, M Wong, S R Worden, X Xiao, V Zaubrecher
- 1975207** *Exploring the Influence of Eastern Pacific and Central Pacific El Niño Events on Seasonal Vegetation Memory in the Amazon:* **M Salazar**, G Keppel-Aleks
- 1890602** *Fire Dynamics in the Congo Basin: Knowns and Unknowns:* **H Stouter**, E Ordway, D C Morton, S Coffield, P M Brando, I Zouh, L Mané, P Forghab, D Sonwa, F Palla
- 1884435** *Functional Trait Trade-offs Shape Tree Strategies in Wet and Dry Tropics: Insights from FATES-Hydro Simulations:* **J Ding**, N McDowell, E Mas, C Xu, A L Pivovarov, C Koven, N Aqilah, S J Davies, Y T Leong, J Ding
- 1966784** *Gross Primary Production and Solar-Induced Chlorophyll Fluorescence in the La Selva, Costa Rica Tropical Rainforest:* **J Bigwood**, U Seibt, T Magney, M Rodriguez Caton, D Dierick, S Cooperdock, N Parazoo, J Stutz
- 1897271** *High Resolution Study of Microclimatic Differences in Various Plant Zones on San Cristóbal Island, Galápagos Islands, Ecuador:* **K Krontiras**, S Schultze, A Kratsch, J Martin, F Laso, N Narvaez, L Tasipanta
- 1980134** *High-Resolution Mapping of Amazon Windthrow Dynamics Using Planet NICFI and Deep Learning:* **R Dalagnol**, F Wagner, D Braga, F Osborn, L Alves, A Jensen, L B Sagang Takougoum, A Mullissa, P Da Conceicao Bispo Dr, S Hagen, S Saatchi
- 1875066** *Intercontinental Differences in Tropical Rainforest Dynamics: Insights from ELM-FATES Simulations:* **D Yu**, M Longo, P R Moorcroft, R I Negron Juarez, J A Holm, J Kowalczyk, H Verbeeck, S D Hertog, X Xu, Y Ma, D Bonal, S Saleska, N Restrepo-Coupe, Y SUN
- 1881535** *Investigating Tropical Forest Water Storage Dynamics across Climate and Topographic Gradients:* **C O'Leary**, D Carchipulla-Morales, L Lowman
- 1920496** *Land use impacts on tropical soil aggregate structure and its effects on hydrological properties:* **V Holdaway**, S Calabrese, J A Howe, K Mitchell, J K Brumbelow, A P Smith
- 1921999** *Legacies of Indigenous Land Use in Contemporary Forests and their implications for Amazonian Forest Resilience:* **V Peripato**, C Levis, L E O C Aragão, D Gamerman, L Teixeira, G Moreira, A Maria da Silva, J Gregório, M Quintilhan, H Pose Guerra, L Silva
- 1952736** *Machine Learning-Driven Estimation of Site-Specific Wood Density in Tropical Forest Ecology:* **S Akinbiola**, A Olubaju, J Ibukun, J E Akinsola, A Salami, O Awotoye
- 1923477** *Managed forests support higher carbon density and sequestration in the Congo basin:* **L B Sagang Takougoum**, R Dalagnol, S George-Chacon, S Favrichon, S Li, F Wagner, Z Liu, D Zhang, A Ngomanda, V Medjibe, B Sonké, N Barbier, E Ordway, D S Saatchi, L White
- 1882003** *Modeling Edge Effects and Post-fire Recovery on Carbon and Water fluxes in the Amazon with FATES:* **X Wu**, L Meng, P M Brando, M Longo, C Koven, J Kowalczyk, H Li, J Q Chambers
- 1948954** *Monitoring emergent tropical trees with high-resolution spectral and structural data: Landscape fragmentation and Dipteryx panamensis in Costa Rica and Nicaragua.:* **F Saad**, R Mukherjee, M E Fagan
- 2003555** *Multiple Stressors and Functional Responses of Amazonian Fishes: Implications for Small-Scale Fisheries:* **C Arantes**, S Grinstead-Hessburg, E Shepta, M Beeksma, G Borba, S Mandai
- 1849720** *Politique d'Aménagement des Espaces Verts et Réduction des îlots de Charleur dans la Ville de Yaoundé au Cameroun Auteur: Christiane Guillaîne NIMPA NGUEMO, Hervé TCHEKOTE, Aristide YEMMAFOUO:* **N Christiane**, T Hervé Pr, Y Aristide Pr
- 1853742** *Quantifying impacts of human-induced disturbances on biodiversity-ecosystem functioning relationships in Central Africa:* **G Loubota**
- 2003578** *Radar-Based Monitoring of Tropical Forest Disturbance and Recovery Across a Chronosequence in the Chocó Biodiversity Hotspot:* **D Tesser**, K C McDonald, E Podest, B T Lamb, N Blüthgen, C Tremlett, F Newell, E Villa-Galaviz, M Schaefer, R Nieto

- 1918082** *Remote sensing for biodiversity in tropical forest habitats: navigating data complexity to connect signals of ecological integrity across scales:* **I Dronova**, M Baldino, R Gillespie, N Graham, D Gruner, O Jarvis, I Overcast, J Percival, R L Perroy, J Price, G Roderick
- 1953034** *Remotely sensing fruit presence and sugar content in complex landscapes: a case study on Barro Colorado Island, Panama:* **K Tiedeman**, C Núñez, S Grosse, L Torrez, A Schuerkmann, J Engert, M Crofoot
- 1959868** *Seasonal and Species-specific Variability of Radial Stem Growth in the Congo Basin:* **P Namulisa**, M Bauters, L Lefevre, F Kimbesa, D Ekili, P F M Boeckx, D Menge
- 1972512** *Small Persistent Clearings in Humid Forests Drive Tropical Forest Biomass Carbon Losses:* **Y Xu**, P Ciais, M Santoro, C Bourgoïn, F Ritter, A Pellissier-Tanon, Y Feng, C Zhou, G He, V Heinrich, S Besnard, N Robinson, S Cook-Patton, J Chave, L Aragao, J P Ometto, S Bowring, I Fayad, L Zhu, Y Su, W Jean-Pierre, W Li
- 1920809** *Soil Aggregation Effects on Water Movement and Nutrient Dynamics Across Three Costa Rican Land Uses:* **K Mitchell**, V Holdaway, J A Howe, S Calabrese, J K Brumbelow, A P Smith
- 1933336** *Trait mediated -continental-level responses of tropical forest vegetation to future climate change:* **A Baresch**, B Poulter, A Chlus, F Schneider, S Serbin, BA, MS, PhD, P A Townsend, M Longo, G Vaglio Laurin, D Schimel
- 1990675** *Tree Water Dynamics from Radar Tomography Reveal Tropical Forest Drought Response: Insights from diurnal and seasonal measurements of radar tomography from the Throughfall Exclusion Experiment in Caxiuanã, Brazil:* **S S Saatchi**, I Fenni, J Bush, P Sanchez Martinez, P Meir, M Mencuccini, A G Konings
- 1944817** *Tropical American Ecosystem's Vulnerability to Atmospheric Drought Is Shaped by Hydroclimate:* **Y Pan**, G Song, Y Zhao, X Wang, Z Guo, J Wu
- 1920896** *Uncovering the Impact of Leaf Cutter Ants Nesting Activity on Soil Biogeochemical Properties in a Tropical Forest Plantation:* **B Castaneda**, S Campos, J K Brumbelow, A P Smith, F Aburto
- 1976776** *Underestimation of Soil Phosphorus Sorption in the Tropics:* **K Kennedy**, D Yaffar, A P Walker, M Craig, T Mead, T Pettitt-Kenney, N Castaño, S J Davies, A Duque, S Ediriweera, D Kenfack, D Zuleta, M A Mayes
- 1909386** *Unmanned Aerial Vehicle (UAV) Measurements of Biogenic Volatile Organic Compounds (BVOCs) over Two Forest Types in Central Amazonia Reveal Contrasting Responses to the Severe 2023–2024 Drought:* **E Gomes Alves**, R A S D Santana, M Robin, D Pinheiro Oliveira, J Byron, J Williams, F Durgante Machado, H Hadlich, C Mallmann, L Demarchi, M T Fernandez Piedade, J Shongart SR, F Wittmann, C Q Dias-Junior
- 1920386** *Using simulated rainfall on large leaves growing in neotropical climates to determine convergent or divergent water flow paths among tree species:* **P Mendoza-Zamora**, G W Moore, S Restrepo, T G Pypker, C Pell, J K Brumbelow, A P Smith
- 1898526** *Variations in Xylem Chemical Composition Across the Amazon Basin Are Mediated by Wood Density and Environmental Gradients:* **M Quintilhan**, D Lira-Martins, C Signori-Müller, J V Tavares, D Galbraith, R S Oliveira, B Marimon, B Quesada, L Silva, P Groenendijk
- 1874875** *Vegetation Water Dynamics During Severe Amazon Droughts from Remote Sensing Observations:* **K Cho**, R I Negron Juarez, A Colliander, V Y Ivanov, J Q Chambers, J Wang
- 1958172** *Windthrow and Its Ecological Impacts Over the Amazon:* **M Shi**, R I Negron Juarez, C Peterson, J Needham, J Chambers, R Leung

250900

Understanding Historic Trends in Metal(loid) Pollution Through Proxy Records (joint with A, GC)

Conveners: **Heather Haines**, University of Nevada, Reno; **Ana Ruiz-Fernandez**, National Autonomous University of Mexico; **Sophia Wensman**, Desert Research Institute; **Adam Csank**, Nipissing University

- 1881642** *Assessing Environmental Health Hazards and Social Vulnerability: A Spatial Analysis of Contaminants in Southern and Central Arizona:* **L Matheson**, C Whitmore, J Hoover
- 1898574** *Assessing Spatial and Temporal Trends of Mercury Deposition from the Rouyn-Noranda Metal Smelter.:* **G Philippe**, I Lehnerr, J Kirk, A Gleason, G Lawson
- 1963711** *Assessing the suitability of using Sequoiadendron giganteum tree rings to understand long-term trends in atmospheric Hg:* **H A Haines**, M S Gustin, S M Dunham-Cheatham, M M Arienzo, A Z Csank
- 1880296** *Comparing a spatially distributed network of tree-ring Hg to a network of Hg measured in snowpack:* **A Z Csank**, M M Arienzo, P Weisberg, H A Haines, S M Dunham-Cheatham, M Schwan, M S Gustin
- 1972638** *Examining The Bioavailability Of Nutrients In Australian Dust Samples: Implications For Dust Fertilization And Biogeochemical Cycles.:* **A Johansen**, S Marx, B Kamber

1892785 *Half a Century of Changes in Soil Mercury Dynamics at the Hubbard Brook Experimental Forest (New Hampshire, USA):* **C Olson**, B M Geyman, J H Lee, S von Fromm, C P Thackray, C Johnson, E M Sunderland, C T Driscoll

1930404 *Historical Tracing of Natural and Human Impact Factors in Victoria's Oxbow Wetland Sediments:* **A Fenske**, N Warner, E Dunmire, A Lintern, L E McPhillips, P L M Cook, W W Wong

249132

Understanding Phenological Responses, Changes and Feedbacks: Patterns, Mechanisms, and Consequences (joint with GC)

Conveners: **Jitendra Kumar**, Oak Ridge National Laboratory; **Lin Meng**, Lawrence Berkeley National Laboratory; **Kai Zhu**, University of Michigan; **Forrest Hoffman**, Computational Earth Sciences Group and Climate Change Science Institute

1989238 *Artificial light at night outweighs temperature in lengthening urban growing seasons:* **L Meng**, L Wang, A D Richardson, F Hölker, H Li, J Mao, J Xia, T Longcore, D She

1981694 *Can we use warming experiments to predict phenological and growth responses to climate change?:* **Y Song**, Y Chen, R Montgomery, P Reich, A Stefanski, R Bermudez Villanueva, K Zhu

1981802 *Carryover effects in tree phenology offset productivity losses from late spring frosts:* **Y Shen**, X Gao, H Chen, Y Liu, J S Clark, T Qiu

1951515 *Comparative evaluation of satellite-based crop phenology characterization methods in the U.S. Corn Belt:* **Z Yang**, Y Liu, C Diao

1989701 *Cooling outweighs warming across phenological transitions in the Northern Hemisphere:* **L Meng**, Y Li, A D Richardson, X Lee, A Menzel, J Mao, J L Diehl, A Wang

1974136 *Effect of Scale on Phenological Senescence Season Length in Eastern CONUS:* **J Chapman**, A Lastner

1987427 *Impacts of spring green-up on tree reproduction in the temperate and boreal forests:* **T Qiu**, Y Shen, H Chen, J S Clark

1976613 *Linking soil frost and freeze-thaw dynamics to greenhouse gas emissions across pasture and deciduous forest:* **C Teixeira**, P Tansey, S Van Hise, M Rietzel, M A Knorr, S D Frey, A Contosta

1979213 *The application of long-term mercury proxy records to support policy, model development and improve our understanding of climate change impacts on mercury cycling:* **I Lehnherr**, J Kirk, U Jermilova, T Luu, A Dastoor, G Philippe

1936303 *Phenological responses of urban trees to microclimate variation at individual scale:* **J Zhu**, Y Song, K Zhu

1959305 *Quantifying the flowering phenology of individual urban trees using PlanetScope time series of leaf out and citizen science observations:* **D Katz**, D L Miller, Y Song, K Zhu, O Keenan, A Green, W Xi, A Young, A Ghosh

1930281 *Spatio-temporal Trends and Environmental Drivers of Plant Phenology Across The PhenoCam Network:* **C Hagen**, A Post, K Jay, M SanClements, J K Back, T G Bornman, A Cerón-González, P Cotiyane-Pondo, R Cruz, K Deshpande, G T Feig, C Florian, T Karns, C Keating, W L Kutsch, C M Laney, H W Loescher, P Mabee, M Mirtl, B Morris, B Murphy, T Ohnemus, L Pogosyan, A R Possinger, M Quam, A D Richardson, S Villarreal, B L Ruddell, J A Siggers, M D Smith, T L Swetnam, C Poppe, Q Xie, A Young

1910874 *Strong Biotic Regulations of Fine-scale Phenological Variability in Temperate Forest Ecosystems:* **Y Zhao**, Z Wang, I Dronova, Z Yan, M Moon, L Meng, J Wang, G Song, Z Guo, Y Su, L Liu, J Wu

1901655 *Tipping Point of Autumn Phenology Driven by a Shift from Thermal to Water Limitation using Causal AI:* **X Huang**, L Meng, J Mao, A D Richardson

1906371 *Understory Leaf Phenology Exhibits Greater Sensitivity Than Overstory to Extreme Drought in a Subtropical Forest:* **H Sun**, L Yan, Z Li, R Lu, W Cheng, X Xia, J Ping, C Bian, N Wei, C You, S Tang, Y Du, J Wang, Y Qiao, E Cui, X Zhou, J Xia

1907914 *Where the Acorns Fall – Connecting Masting and Foraging Behavior of Animals:* **L Végh**, T Kato

1873364 *GeoXAI in Vegetation Phenology:* **Q Weng**, M Cao

1853516 *Influence of the Tropical–Midlatitude Boundary on the Meridional Bifurcation of Skipjack Tuna Migration Routes:* **K Makino**, T Kohyama

1868537 *Variation in Bombus impatiens Foraging Habits Across Space and Time:* **A Bzdafka**, I Park

250330

Unlocking Climate-Smart Agriculture with Multimodal AI and Remote Sensing (joint with IN)

Conveners: **Alwaseela Hassan**, Colorado State University; **Phuong Dao**, Department of Agricultural Biology, Colorado State University, 307 University Avenue, Fort Collins, CO 80523, USA; **Kaitlin Gold**, Cornell University; **Yuchi Ma**, Stanford University; **Yuwei Yin**, Colorado State University Fort Collins

- 1929823** *A Multimodal UAV-Based Remote Sensing and AI Framework for Characterizing Drought Stress and Water Use Efficiency in Corn:* **Y Yin**, P Dao, H Zhang
- 1864682** *An Integrated Deep Learning Modeling Framework for County-Level Crop Yield Prediction in support of USDA NASS Operation:* **Z Zhang**, X Wang, Y Ma, M Wu, S Yang, H Liu, Q Huang, Z Yang
- 1975938** *Cross-Modal Knowledge Distillation for Tomato Disease Detection Using 3D Multispectral and 2D Proximal Imagery:* **G Vincent**, C Williams
- 1918609** *From Radar Physics to Carbon Markets: Deep Learning Enables Satellite-Based MRV of Alternate Wetting and Drying in Rice Fields:* **P Konkathi**, N Torbick, X Huang, I Ajmera, A Saini, M Price, M Reba
- 1858595** *Harmonized Multispectral Image Reconstruction using Generative Adversarial Networks with Multimodal Data Fusion for Crop Monitoring:* **T Yu**, J Chen, J Cherney, Z Zhang

247033

Vegetation canopies: physiology, structure, function (joint with A, GC, H)

Conveners: **Chi Chen**, Rutgers University; **Nicholas Smith**, Texas Tech University; **Xiangzhong Luo**, Lawrence Berkeley National Laboratory; **Luiza Maria Aparecido**, University of Utah

- 1951675** *A Shift in Coordinated Plant Traits Under Elevated CO₂ Suggests a Minor Contribution of Stomatal Conductance to Increasing Water Use Efficiency in Trees:* **V Nicholes**, C Figueroa, C Kenney, J Mathias
- 1929843** *Canopy position, along with species, influences the sensitivity of growth to climatic extremes (Drought):* **M Karvarinasab**, J T Maxwell, A Ezzati, T F AU, M Ferriz Nunez, G L Harley, S Robeson
- 1971506** *Community competition regulates ecosystem-scale evapotranspiration under drought:* **Y Tong**, P R Moorcroft, C Koven, J Holm, Y Liu

- 1988852** *Investigating the Potential of AI for Modeling Texas's Carbon Budget Using Multi-Source Satellite Earth Observations And Limited In-Situ Ground Datasets:* **A Tiwari**, S M U Salehin, S Panjwani, R Sarkar, S Sarkar, R Ray, G Baath, N Rajan, M Bhandari
- 1850114** *Knowledge-Guided Machine Learning for County-Level Corn Yield Prediction under Drought:* **X Wang**, Y Xu, J Huang, Z Yang, Z Zhang
- 1855635** *Mitigating NDVI Saturation in Imagery of Dense and Healthy Vegetation:* **Z Tian**, J Fan, T Yu, N D Leon, S Kaeppler, Z Zhang
- 1981075** *Monitoring Crops from the Ground to Space: Integrating AI and Robotics for Scalable Remote Sensing in Specialty Crops:* **Y Jiang**, K Gold, E Liu, Y Lin, K Kanaley, F Romero, R Pavlick, A K Whitcraft
- 1990422** *Multi-Scale Hyperspectral Sensing and Deep Learning for Spectral Phenotyping of Rhizoctonia Resistance in Sugar Beet (Beta vulgaris L.):* **S M Adapa**, A Hassan, E Hoopes, O Todd, K Dorn, P Dao
- 1958818** *Remote Sensing Super Resolution Exploiting Diffusion Priors for Crop Type Mapping:* **S Yang**, T Sui, Q Huang
- 1990613** *Robust Hyperspectral Plant Disease Detection via Generative Augmentation and Seasonal Domain Adaptation:* **A Hassan**, O Todd, K Dorn, S M Adapa, P Dao
- 1937415** *Transforming Agricultural Water Management Research with the AI Co-Scientist:* **S Ghosh**, M Garcia, P Silva, H Ramanayake, S Kour
- 1928297** *UAV-based time series images and deep learning for weed and crop segmentation in soybean:* **L Pun Magar**, A Chiluwal, J Sandifer
- 1992079** *Deep Learning for Automated Posture Annotation in Tall Grass Genotypes Using Multi-View UAV Imagery:* **S Bernardes**
- 1860186** *Differential Impacts of Soil Physical Properties on Root and Leaf Phenology in Cropland:* **M Cao**, Q Weng, P Mohammad, M M Rahman
- 1852106** *Discovering Hidden Photosynthetic Gain in Modern Corn Breeding through Chlorophyll Fluorescence:* **S Lee**, L Gregory, L Wickes-Do, N Lepak, C Romy, E Buckler, M Gore, Y Sun
- 1936009** *Eco-evolutionary Modeling of Global Vegetation Structure and Composition with a Demographic Vegetation Model:* **E Weng**, X Xu, M Detto, B Cook
- 1883643** *How Do Different Stomatal Conductance Models Change Vertical Profiles of Latent Heat Flux?:* **Z Zhou**, D L Lombardozi, D Barnard, G B Bonan
- 1920488** *Incorporating Canopy Structure into Process-based Modeling of Dew Deposition:* **A Cao**, C Gerlein-Safdi, M B Berkelhammer, L Wang, PhD

- 1931139** *Integrating UAV and UGV Phenotyping with Environmental Data to Model Maize Canopy Architecture and Performance:* **L Gregory**, C Tilley, S Lee, F Agosto-Perez, R Du, T Han, E Farmer, L Wickes-Do, P Michael, Z Gu, R Yan, N Lepak, C Romain, E Buckler, A Davis, X Xu, Y Jiang, M Gore, Y SUN
- 1932497** *Leaf Gas Exchange Measurement for Stomatal Conductance Model Calibration: Challenges and Recommendations:* **K Rizzo**, T Lei, T Buckley, B Bailey
- 1881673** *Leaf homeothermy and invariance of photosynthesis-temperature responses across a broad elevational temperature gradient:* **S T Michaletz**, J Garen, R Gullvåg, A Kullberg, J Navarro, C Ray, N Bison, J Chacon-Labela, S Cotner, D Egelkraut, J Gaudard, S Geange, A Halbritter, M Macias-Fauria, B S Maitner, R Telford, B J Enquist, V Vandvik
- 1969787** *Persistent increase of ecosystem water use efficiency driven by rising atmospheric CO₂:* **Y Kang**, T Keenan, M Bassiouni, W Li
- 1854523** *Photosynthetic Acclimation to Light Intensity and Spectrum Across Pinus koraiensis Canopy Layers:* **J Lee**, Y Ryu, J Kim
- 1848267** *Reconciling optimal and process-based modelling of stomatal conductance: A new interpretation of marginal water-use efficiency:* **A Potkay**, X Feng, A Perry, U Hochberg
- 1946681** *Resilience and Recovery from an Extreme Heatwave: The Role of Canopy Structure and Stature:* **C J Still**, L R Hawkins, K Jones, B Vierra, J L Diehl, K Ganz, R Fiorella, M Helbig, B Rastogi
- 1893067** *Smoke and Optics: An experimental approach to understand the physiological response of riparian tree species to fire-derived aerosols:* **F Ulep**, A Rumbaugh, T Magney
- 1934665** *Spatial Variation and Environmental Drivers of Seasonal Greenness Decline: a Case Study across NEON Sites:* **S Chow**, C Scholl, Y Ma, X Xu
- 1970159** *Spatiotemporally Continuous Mapping of Global Forest Two-Layer Plant Area Index Using a GEDI-informed Machine Learning Model:* **D Guo**, C Chen, X Tang, J Wang
- 1965241** *Are We Digging Deep Enough? Understanding the role of the transition zone in permafrost carbon emissions:* **C I Czimeczik**, M Schwab, S Pedron, J M Welker
- 1950089** *Carbon Losses as CO₂ 21 Years After Wildfires in a Boreal Forest in Interior Alaska:* **F Santos**, D Yang, M Alonzo, G W Schwaner, M Krassovski, C M Iversen, PhD
- 1940915** *Changes in Soil Organic Layer Carbon over Twenty Years of Post-Wildfire Succession in Interior Alaska:* **A Pulak**, M C Mack, X J Walker
- 1962726** *Characterizing Long-Term Carbon Dynamics in Thaw Slumps of Northwestern Alaska:* **M Williams**, M J Lara, A R Desai, C G Andresen
- 1919597** *Comparison of Carbon Dioxide and Methane Fluxes Across Diverse Permafrost Ecosystems:* **D Tringmoe**, K A Arndt, P Murphy, K Kent, K Lynoe, S Natali
- 1921839** *Decadal Trends in Old Carbon Mobilization from Sub-Arctic Permafrost Ecosystems:* **A Kelley**, C Ebert, J A O'Donnell, B Poulin, A Thompson, E Schuur
- 1967638** *Effects of environmental changes on Alaskan soil methane and carbon dioxide fluxes and related soil biogeochemistry: two case studies in boreal forest with permafrost thaw and Arctic tundra with different hydrological regimes:* **J Kim**, Y J Kim, S Nam, M Kim, J Y Jung, E S Euskirchen, C Edgar
- 1974849** *Elevated methane emissions and carbon cycling in a retrogressive thaw slump in northern Alaska:* **J Watts**, K A Arndt, S Natali, K Lynoe, C Minions, P Murphy, A Young, R Fulweber, M Melendez Gonzales

251357

Vulnerability of Permafrost Carbon to Climate Change (joint with C)

Conveners: **Edward Schuur**, Univ Florida; **Grant Falvo**, Northern Arizona University

- 1951001** *A Regional, Synoptic Survey of CO₂, CH₄, and N₂O Emissions Reveals Distinct Drivers of Abrupt and Gradual Permafrost Thaw in Interior Alaska:* **E Stuchiner**, W Cox, N Fierer, M Fuchs, T Harms, J Galletta, S K Jurgensen, A Gorchov Negron, C Bueno de Mesquita, J A Shabaga, H Webb, K Wrigton, M R Turetsky
- 1979348** *After the Thaw: Microbial Community Assembly in Changing Arctic Landscapes:* **S Bratsman**, J G Ernakovich, M Davis, H Holland Moritz, N Alexander
- 1901016** *An Increase in the Active Layer Soil Carbon Pool is Fueling Long Term Carbon Losses from Three Tundra Ecosystems at Imnavait Creek in Northern Alaska:* **M S Bret-Harte**, E S Euskirchen, K Okano, C Edgar, R Fulweber, V E Romanovsky
- 1974671** *Annual estimation of soil CO₂ emission in unburned and burned tundra wildfire of Kougark, Seward Peninsula, western Alaska:* **Y Kim**, B Y Lee, S J Park
- 1888488** *Arctic Greenhouse Gas Sinks: Exploring Coldspots of Methane and Nitrous Oxide in the Permafrost Domain:* **M Jenrich**, F Neiske, A M Virkkala, O Sonnentag, A Pellissier-Tanon, C Knoblauch, S Liebner, B Elberling, C Beer, H Siljanen, C Voigt

- 1945644** *Establishment and utilization of a pan-Arctic SOC fraction database to assess tundra soil carbon vulnerability to climate change:* **J Y Jung**, Y J Kim, J Kim, S Nam, S J Jeong, M Kim, G Yoo
- 1971587** *High-resolution Arctic greenhouse gas flux data from ephemeral ponds point to high amplitude diurnal variability and seasonally increasing emissions as ponds dry:* **M S Burnett**, C Kallenbach, I Laurion, J Comte, R Maranger, P M Douglas
- 1934167** *Hydrologic and Thermal Changes in Supra-Permafrost Soils and Aquifers Over the Last Four Decades of Warming:* **N Mukherjee**, B Gao, E Coon, P Shuai, D Hill, B T Neilson, R M Cory, G W Kling, J Chen, M B Cardenas
- 1883720** *Indication of ongoing tundra ecosystem change with sustained loss of carbon from the Imnavait Watershed in northern Alaska:* **E S Euskirchen**, M S Bret-Harte, C Edgar, R Fulweber, V E Romanovsky
- 1939005** *Methane emissions in polygonal tundra increase three-fold in response to experimental permafrost thaw:* **L Guo**, M Brown, M Muscarella, M J Lara
- 1922559** *Permafrost dynamics in the region of Upper Kuskokwim and its impact on the process of pedogenesis.:* **A L Kholodov**, K E Nyland, P Mnev, S K Panda, N I Shiklomanov, A I Shiklomanov
- 1922659** *Permafrost Methane Source-Sink Dynamics in Upland Tundra over a Decade of Thaw:* **J Warren**, G Celis, J Ledman, G Falvo, E Schuur
- 1926484** *Permafrost Thaw Causes Shift in Tundra Nitrogen Cycling and Vegetation Regimes:* **B Helmken**, E Lathrop, E Schuur
- 1949288** *Protecting carbon and permafrost with fire management in Alaska:* **K C Mathes**, B M Rogers, P C Frumhoff, L B Saperstein, M Burgard, S Natali, S Potter, H Mastro
- 1985409** *Regional Permafrost Thaw And Sensitivities Diagnosed From Remote-Sensing Observations Using CARDAMOM Model-Data Fusion:* **T E Bilir**, A A Bloom, N Parazoo, R K Braghiere, J Liu, J T Reager II
-
- 249370**
Warming-Induced Greenhouse Gas Emissions: Reducing Uncertainty from the Tropics to the Poles (joint with A, C, GC, H)
Conveners: **Danielle Potocek**, University of Southern California; **Robert Jackson**, Stanford University; **Susan Natali**, Woods Hole Science Center Woods Hole; **Hinsby Cadillo-Quiroz**, Arizona State University; **Licheng LIU**, University of Minnesota-Twin Cities
-
- 1880115** *Representing the effects of thermokarst disturbance on arctic and boreal carbon cycling in a process-based model:* **B Maglio**, R Rutter, T Carman, V Briones, C C Chang, E E Jafarov, W Li, A Mullen, J M Rady, B M Rogers, D Teber, C Witharana, A K Liljedahl, H Genet
- 1965598** *Root exudation stimulates permafrost carbon decomposition:* **F Montaña López**, S Schaefer, S Goldsmith, J D Landis, H Holland Moritz, W R Wieder, S Grandy, J G Ernakovich, C Hicks Pries
- 1990638** *Synthesis of Initial Flux Data From a Retrogressive Thaw Slump in Northern Alaska:* **K Lynoe**, K A Arndt, J Watts, C Minions, P Murphy, A Young, K Gleason, K L Griffin, S Natali
- 1978588** *The Niche Identity: Manipulating Redox and Temperature to Identify Microbial Niches in Post-Thaw Microbial Communities:* **N Alexander**, J G Ernakovich, M Davis, S Bratsman, H Holland Moritz, M McDonald, S Schaefer, E Schlerman, U Gurung
- 1999206** *THE ROLE OF PEPTIDASES IN THE DEGRADATION OF ORGANIC MATTER IN PERMAFROST AND ASSOCIATED FJORDS:* **F Abuah**, K Sipes, T A Vishnivetskaya, J Buongiorno, K G Lloyd
- 1947516** *Unraveling Hydrological and Biogeochemical Controls on Lateral Carbon Export from Permafrost Peatlands Using a Model Sensitivity Analysis:* **I Shirley**, Z Li, Z A Mekonnen, R F Grant, W J Riley, C Olid Garcia
- 1920642** *Variability of Carbon Fluxes in Response to Climatic Factors at a Tussock Tundra Site near Council, Alaska:* **K Kent**, K A Arndt, D Trangmoe, P Murphy, M Montemayor, S Dengel, M S Torn, S Natali
- 1930294** *Winter microbial activity and greenhouse gas fluxes from thermokarst ecosystems:* **M P Waldrop**, J W Mcfarland, K Manies, F Murphy, C Creamer, S R James, B J Minsley, R B Neumann, J Eklof, M Muscarella, L Bramschreiber
- 1925643** *Data-driven upscaling of global wetland methane emissions:* **K Yuan**, Q Zhu, F Li, W J Riley
- 1967529** *Microbial driver of 2006 – 2023 CH₄ growth indicated by trends in atmospheric $\delta D-CH_4$ and $\delta^{13}C-CH_4$:* **B RiddellYoung**, S Michel, X Lan, P P Tans, T Röckmann, B Dasgupta, Y Oh, L Bruhwiler, R Fujita, T Umezawa, S Morimoto, J B Miller
- 1904076** *Multiple sources of aerobic methane production in aquatic ecosystems respond to experimental warming and nutrient enrichment:* **J M Beman**, E Perez Coronel, F Machado-Perez

- 1909163** *Simulated Detection of Methane Emissions from Arctic Permafrost Thawing with Atmospheric Radiocarbon and Other Tracer Measurements:* **X Yang**, H D Graven, R Ward, A Ganesan
- 1888582** *Spatial and Seasonal Drivers of Methane Concentrations in Tropical Streams:* **V D Z Andriamanantena R**, E Rivas Pozo, H Kang, Y Kim
- 1963771** *The Evidence for a Feedback between Tropical Wetland Emissions of Methane and Changing Climate:* **L Bruhwiler**, Y Oh
- 1854937** *Towards a Tropical Wetland Digital Twin: Emulating Tropical Wetland Extent and Methane Emissions from the JULES Land Surface Model:* **R Parker**, C Ruiz Villena, K Fatima, N Gedney, C Pantula, P I Palmer

250207

Where Land Meets Water: Biogeochemical Cycling at the Terrestrial-Aquatic Interface

Conveners: **Peter Regier**, Pacific Northwest National Laboratory; **Kaizad Patel**, Pacific Northwest National Laboratory; **Allison Myers-Pigg**, Texas A & M University; **Matthew Kirwan**, Virginia Institute of Marine Science; **Chieh-Ying Chen**, University of Delaware

- 1984449** *A Multi-Year Seasonal Observation of Dissolved Organic Matter Chemodiversity in Galveston Bay, TX:* **X Xu**, M R Shields, Y Liu
- 1950915** *Coupling Biogeochemical Transformations Across the Land-Ocean-Aquatic-Continuum (LOAC) using the ECCO-Darwin global ocean-biogeochemistry model and CARDAMOM terrestrial carbon model:* **R Savelli**, D Carroll, D Menemenlis, T E Bilir, A A Bloom, S Dutkiewicz, K Bowman, M Simard
- 1967569** *Effect of Coastal Soil Physical Heterogeneity on Subsurface Saturation and Salinity Response to Flooding:* **O Ogunisola**, P Megonigal, V L Bailey, E D Emmanuel, J M Martin-Hayden, P Regier, S C Pennington, B P Bond-Lamberty, M N Weintraub, N D Ward, K Rod, K O Doro
- 2001715** *Engineered by Nature: Root Internal Structure and Tensile Strength Reveal Biomechanical Adaptations in Coastal Wetlands:* **M Hassan**, N Jafari, A Rovai, R Twilley

- 1896218** *Warming-induced Carbon Emissions from Permafrost Thaw and High-latitude Wildfires Indicate Need for Additional Action to Keep Paris Agreement Temperature Goals Within Reach:* **B M Rogers**, C Schaedel, R Treharne, T Gasser, M R Turetsky, E MacDonald, S Natali
- 1898864** *Warming-induced emissions solutions: Strategies for researching and mitigating indirect human emissions from ecosystems:* **B Buma**, P C Frumhoff, B M Rogers, S Sartzetakis, C Schaedel, S Natali, C Phillips, A Alpert, M Goldberg, J G Canadell, K Dooley, W Kurz, C A Nobre, E Ury, S Bansal, I F Creed, M Holgersson, S Knox, P Badiou, Z Zhang, B Poulter, S Hamburg
- 1878647** *Warming-Induced Greenhouse Gas Emissions: A Blind Spot in Climate Science, Policy and Mitigation:* **B Poulter**, D Potocek, B Buma, R B Jackson, B M Rogers, S Natali, P Duffy
- 1896876** *Wetland Greenhouse Gas Sink Capacity Collapses Under Warming, Fueling Methane-Driven Feedback:* **S Ma**, I F Creed, P Badiou, S Bansal, Z Zhang
- 1889167** *Forested Wetlands in Headwater Systems Affect Downstream Water Quality during Flooding Events:* **R Wells**, C N Jones, J Morejon, E Rice, D Peterson, A N Kirker, L Molina Serpas, C Tatariw, B Mortazavi
- 1883647** *From Pixels to Patterns: Mapping Coastal Forest Retreat in North Carolina using Deep learning and Multisource Satellite Data:* **T Tajudeen**, K L Martin, M Ardon, M G Tulbure
- 1898089** *Impact of Salinity on DOM Release from Soils Following Seawater Inundation:* **E J O'Loughlin**, C Caraballo, A Hopple, N Keltner, K M Kemner, J Kim, P Megonigal, A Myers-Pigg, O Ottenburg, M Reyes, K A Rod, L Stetten, N D Ward, S J Wilson, V L Bailey
- 1984462** *Impacts of inundation patterns on sulfur speciation in coastal wetlands:* **H Roth**, P Northrup, R Tapperro, E Herndon
- 1898461** *Incorporation of Organic Matter Chemistry to Understand Water Column Respiration Kinetics:* **T Ahmadullah**, P Jiang, K Muller, G E Hammond, V A Garayburu-Caruso, X Chen
- 1995901** *Investigating sources of soil methane production under simulated storm surge flooding in an upland coastal forest:* **S J Wilson**, R Cruz, A Seyfferth, S C Pennington, A Hopple, B P Bond-Lamberty, P Megonigal, R Vargas
- 1915881** *Linking spatially explicit carbon fluxes with biomass: towards understanding carbon dynamics in heterogeneous salt marshes:* **P Hawman**, K Runion, D R Mishra
- 1985607** *Metabolically Flexible Iron-Cycling Bacteria Dominate Microbial Communities in Bog Iron Seeps in the NJ Pine Barrens:* **J D Chaparro Villarreal**, E De Cicco, S Donachy, J Herbert, L M Seyler

- 1989607** *Microbial Resilience in Coastal Ecosystems: Insights from the TEMPEST Experiment*: **P Weisenhorn**, E J O'Loughlin, K Rod, V L Bailey, J Megonigal
- 1929959** *Mobilization of Dissolved Organic Matter in Response to Experimental Flooding in a Coastal Upland Forest*: **J Kim**, N D Ward, A Myers-Pigg, P Regier, A Stearns, E J O'Loughlin, K M Kemner, V L Bailey, P Megonigal
- 1970261** *Physiological and Greenhouse Gas Flux Responses of Freshwater Wetland Vegetation Patches to Moderate Saltwater Intrusion Events*: **D Taj**, M Mashiyat, R Bordelon, M Moore, J Villa
- 1878347** *Redox Biogeochemistry Across Inundation and Salinity Gradients in Active and Inactive Deltas of Coastal Louisiana*: **E Herndon**, H K Roth, M J Berens, G W Schwaner, J Villa
- 1979493** *Redox-Mediated Enzyme Release Stimulates Carbon Turnover in Flooded Coastal Forest Soils*: **D Day**, B Harris, O Demecs, A Lewis, A Myers-Pigg, K F Patel, P Regier, N Ward, M N Weintraub, V L Bailey, E Consortium
- 1968224** *Riparian Zone Delineator: A GEE-Based Earth Observation Tool for Delineating Riparian Extents*: **S Roy**, M K Goyal
- 1913968** *Riverine Particles and Sequestration of Salt Marsh Carbon: Assessing Rhizosphere Dynamics and Long-Term Burial*: **A C Spivak**, B Guo, M E Eagle, G Mariotti, J Pett-Ridge, P S Nico, M Rowley, M A Marcus, D Vaughn
- 1964699** *Salinity stress responses in *Salicornia pacifica* depend on duration and intensity of exposure*: **G Silva**, K Kolb, D Stathatos, D Hamilton, D A Roberts, J Y King
- 1981745** *Seasonality of Lateral Carbon Transport Across the Terrestrial-Aquatic Interface*: **C J Talbot**, S Hampton

250867

Wildfire Impacts on Watershed

Biogeochemistry, Hydrology, and Biodiversity

(joint with GC, H)

Conveners: **Michelle Newcomer**, Lawrence Berkeley National Laboratory; **Andrew Gray**, University of California Riverside; **Rachel Meyer**, University of California Santa Cruz; **Andrew Gray**, University of California Riverside

- 1980522** *Effect of wildfire on biochemical oxygen demand and dissolved organic matter properties in the Western Cascades, Oregon*: **E Nussdorfer**, H B Murshed, R P Cole, K E McCredie, T Kappen, K D Bladon
- 1924493** *First Flush, Future Impacts: Stream Water Quality Responses Across Burn Severity and Hydrologic Connectivity Following the Davis Fire*: **K Loria**, W Larson, B Kruger, M B Hausner, J L Ryder, M M Arienzo
- 1897208** *Sediment-Surface Water Nutrient Exchange Across Varying Hydrologic Conditions at Old Woman Creek-National Estuarine Research Reserve*: **M Back**, S McMurray, J Cianci-Gaskill, N Haddon, J Kerns, L Kinsman-Costello
- 1974173** *Small-scale Stratigraphic Controls on Soil Moisture and Shallow Subsurface Flow in Low-permeability Coastal Soils*: **P Atiti**, E D Emmanuel, V L Bailey, I Forbrich, F Machado Silva, P Megonigal, O Ogunsola, R Bittencourt Peixoto, K Rod, R Rich, N D Ward, M N Weintraub, K O Doro
- 1986272** *Spatiotemporal Dynamics of Environmental Conditions in Oyster Growing Habitats Along the Louisiana Coast*: **A Miele**, B A Stauffer
- 1927555** *Terrigenous inputs link nutrient dynamics to microbial communities in a tropical lagoon*: **C John**, N Silbiger, T Adam, D Barnas, K Bistolas, R Carpenter, N Castañeda, M Donahue, M Donovan, L Enright, H Epstein, J Gallagher, H Jorissen, J Kerlin, S Leidholt, R McLachlan, N Molina, C Mullenmeister, K Neumann, J Renzi, D Silva, K Speare, S Swift, A Vompe, L Wegley Kelly, M Zeff, C E Nelson, R Vega Thurber, D Burkepile
- 1895392** *Tracing Dissolved Carbon Composition from the Catchment to Reach Scale in a Subarctic Landscape*: **C Jones**, M Kuhn, L Castro Morales, A Perry, M Tfaily, S Rajakaruna, S Bosman, J Chanton, R K Varner, PhD
- 1972868** *Understanding coastal terrestrial-aquatic interface soils through model-data comparisons*: **A Malhotra**, T O'Meara, A Myers-Pigg, K F Patel, B N Sulman, F Yuan, P E Thornton, V L Bailey
- 1972072** *A scalable machine learning powered decision support tool for California wildfire management*: **D J Karto**, B Lopez Barreto, C M Lee, A M Kinoshita
- 1925277** *Balancing Fire Management and Water Quality: Modeling DOC Export Under Prescribed and Wildfire Scenarios*: **W Burke**, G L Alawode, A Rawal, J C Adam, M Liu, E J Hanan
- 1896446** *Biogeochemical Responses of Alaskan Boreal Watersheds to Fires over the Past 2500 Years*: **S Garla**, M L Chipman, W Nanavati, P Higuera
- 1957822** *Black Carbon on the Move: Spatial Variability in a Burned Stream Network*: **K Wampler**, R Barton, A Myers-Pigg, K D Bladon
- 1963974** *Black Carbon Through the Years: Temporal Variability of Dissolved Black Carbon in a Burned Stream Network*: **R Barton**, K Wampler, D Donahue, L Erkert, A Roebuck, J Cavaiani, A Myers-Pigg, K D Bladon
- 1904301** *Climate and Fire Influence Metabolism of Boreal Streams*: **J Adams**, T Harms, K Jorgenson

- 1984082** *Development of an agnostic reservoir model to explore wildfire impact on water quality:* **E J Summers**, J L Ryder, T A Dahl
- 1849525** *Disproportionate Effects of Wildfire in a Small Subwatershed on Mainstem Water Quality:* **A Fayram**, N Dorff, A Chessman, T Bohling
- 1990496** *DOC Down, Nitrogenous DBPs Up: A Post-Fire Paradox of Carbon, Nitrogen, and DBP Precursors in a Pacific Northwest Watershed:* **K E McCredie**, K Shimabuku, H B Murshed, A Hohner, M Bogaart, M Basso, K D Bladon
- 1880555** *How has groundwater infiltration changed after the 2025 Palisades fire? Insights from water isotopes and electrical resistivity tomography:* **A Ghosh**, A J West, S Keating, S Moon, R Blankenship, B Page, A Koutsoukos, M K Clark, F A Corsetti
- 1920181** *Identifying Post-Fire Vegetation Growth Trends in the Los Angeles San Gabriel Mountains: A Case Study of the 2020 Bobcat Fire:* **A Alamillo**, J Li, A Farahmand
- 1899235** *Impacts of Wildfire on Nutrient Dynamics and Lake Metabolism in the Northern Rocky Mountains:* **S Fletcher**, A Ballantyne
- 1984596** *Impacts of Wildfires on DOC and Nitrogen in Aridland Streams in Southern California:* **S Ode**, T Harms
- 1954333** *Influence of Hydrology and Recent Wildfires on Dissolved Black Carbon Export Behavior in the Yukon River, Alaska:* **M Miller**, A Slentz, K Turner, J Anderson, A Edmund, T Hamilton, K Strongheart, A Kellerman, M Tzortziou, R G Spencer, S Wagner
- 1916932** *Infusing Indigenous Ecological Knowledge in Quantitative Land Modeling: How Will Prescribed and Cultural Burning Affect Surface Hydrology?:* **Y Cheng**, C Woelfle-Hazard, L Hillman, D Sarna-Wojcicki, A J Newman, N Mizukami, D Lombardozzi, D E Touma, PhD
- 1851202** *Long-Term Hydrologic Response and Recovery of a Fire-Affected Watershed: A Case Study of the Chetco River:* **E Valeanu**, K Y Kim, A Walters, V Lakshmi, N R Pradhan, T N D Tran, I E Floyd
- 1925591** *Metabolomics Assessment of Incubated Burned Douglas-fir Leachates:* **A Skinner**, V A Garayburu-Caruso, A Myers-Pigg, J Stegen, J VanderRoest, C Broeckling, T Borch
- 1960501** *Modeling Organic Matter Transformation and Transport in 2D Hillslopes: The Integrated Influence of Wildfire and Hydrologic Connectivity:* **Y Xiao**, Z Li, H Huang, S Niroula, J Zheng, P Jiang, X Chen
- 1902477** *Modeling Post-Fire Nitrate Export in a Wet Forested Watershed: Influence of Fire Severity During Vegetation Regrowth:* **A Rawal**, M A Rind, M Liu, E J Hanan, J C Adam
- 1868964** *Modeling recovery trajectories of streamflow and DOC after wildfire in the Pacific Northwest:* **H Kang**, K Wampler, K D Bladon, J C Adam
- 1872468** *Monitoring System for Ecological Restoration in Post-Wildfire Forests: A Case Study in Uljin and Samcheok, South Korea:* **E Han**, B J Choi, D Y Kim, Y S Jeong, S J Go, J Chung, H G Kim, M Cho, C Park, H S Oh
- 1889484** *Persistent Runoff Increases And Amplified Flood Risks After Wildfires in North America.:* **C Liu**, H Yang, J Xie, B Zheng, P Ciaais
- 1862620** *Physics-Based Distributed Modeling of Post-Wildfire Hydrology in Santa Cruz Creek Watershed:* **A Walters**, I E Floyd, N R Pradhan, V Lakshmi
- 1997111** *Post-fire differences in turbidity and dissolved organic matter across ecoregions in the Pacific Northwest:* **T Kappen**, K E McCredie, R P Cole, K Wampler, S M Wondzell, K D Bladon
- 1946963** *Post-fire Ecosystem Carbon Balance Moderated by Shifts in Nutrient Availability in Alaskan Upland Peat Plateau Tundra:* **J Hung**, C Minions, M V Korolev, M Bartkus, S Natali
- 1959739** *Post-fire impacts on soil erodibility:* **J Allred**, G Cardon, C P Jones
- 1986832** *Post-Wildfire Alterations in Soil Chemistry and Contaminant Retention in the Bhimtal Lake Watershed, Uttarakhand, India.:* **P Patidar**, N Khandelwal
- 1870326** *Propagation of Nutrients and Metals After the 2022 Hermit's Peak Calf Canyon Gigafire:* **P Tunby**, A Kaphle, L Rodriguez, J Nichols, A Khandelwal, E Joseph, J Aldred, D J Van Horn, R Gonzalez-Pinzon
- 1928589** *Quantifying Changes in Wildfire-Induced Water Yield through Multi-Scale BACI Analysis with Remotely Sensed AET and Spatially Nested Controls:* **A Elshobary**, C Luce, M Kukal, L Boschetti, D Tonina
- 1978384** *Spatial Patterns of Soil Water Repellency on Unburned and Burned Hillslopes in Arizona Forests:* **C J Williams**, J Johnson, E Phelps
- 1887059** *Spatio-temporal vegetation and catchment dynamics following wildfires in the Southern Appalachian Ecoregion:* **I Bouvier**, P V Caldwell, P Houser
- 1962901** *Stream Nutrients, Microbial Communities, and Dissolved Organic Matter Responses to Wildfires in the Western Cascades, Oregon:* **H B Murshed**, B C Crump, K D Bladon

- 1944449** *The Impacts of Perennial Wildfires on the Socio-Economic and Eco-Cultural Aspects of the Human Population.:* **H Ndimele**
- 2003067** *The impacts of repeated wildfires on vegetation recovery and burn severity in southern California watersheds:* **D Vats**, A M Kinoshita, B Lopez Barreto, C M Lee, D J Karto
- 1931456** *Tracing Sediment Sources in Post-Fire Rill Runoff by Distinguishing Ash from Mineral Soil:* **A Watanabe**, P Robichaud, S Lewis, E S Brooks, A Srivastava, M Dobre, S Das, M Basso
- 2001621** *Transfer of heavy metals in burned areas observed in three national parks:* **A Draper**, M Matyjasik, B Hilbig

252818

Advances in Geodetic Mapping of Earth: Insights from NASA's Satellite Laser Altimetry Missions (ICESat, ICESat-2, and GEDI) and the Path to EDGE (joint with B, C)

Conveners: **Helen Amanda Fricker**, University of California San Diego; **John Armston**, Remote Sensing Center, Department of Science

- 2001906** *A 40-year record of Antarctic ice sheet dynamics and mass balance from satellite altimetry, climate and geodetic models:* **B M Csatho**, A F Schenk, H Gao, E Kabe Moukete, J Nilsson, I Parmuzin, S Adhikari, M R van den Broeke, D Felikson, B Medley, S Nowicki, N Schlegel
- 1970324** *An Overview of ICESat-2 Data Products and Release 007 Improvements:* **C Sadlik**, J Lee, L A Magruder, C E Parrish, A Gibbons, D Fritz, L Kaser, T Neumann
- 1950966** *Assessing GEDI's L2A Waveform-Based Measurements of Canopy Heights and Surface Topography:* **M A Hofton**, S Story, M Linkswiler, J B Blair
- 1918479** *Characterizing wildfire fuels and severity with satellite laser altimetry: a path from GEDI to EDGE:* **C R Hakkenberg**, M Clark, P Burns, J D Armston, S J Goetz
- 1901823** *Co-Development of Sampling Lidar Missions and Statistical Methods for Evaluating Vegetation Structure and Change:* **S P Healey**, Z Yang, J D Armston, G Ståhl, S Saarela, P L Patterson, R Dubayah, R McRoberts, T Gobakken, E Næsset
- 1974861** *EDGE swath altimetry for monitoring of ice-shelf rifts and rift propagation:* **B E Smith**, T Sutterley, K Poinar
- 1949224** *Evaluating ICESat-2 ATL03 Data for Public Release:* **A Gibbons**, K Brunt, S Holland, A Ivanoff, J Lee, T Neumann, T C Sutterley
- 1975188** *Fine resolution boreal forest canopy height retrievals using downscaled ICESat-2, PlanetScope imagery, and ArcticDEM:* **H R K Real**, D Liu

- 1906415** *Understanding Post-Fire Water Yield Dynamics: Evolving Controls across the Vegetation Regrowth Timeline.:* **M A Rind**, M Liu, S K Kampf, J C Adam
- 1974766** *Wildfire impacts on dissolved organic carbon and total dissolved nitrogen in source waters with implications for drinking water treatment:* **R Cole**, K Shimabuku, W S M S Wijerathna, A Hohner, X Jin, K E McCredie, K D Bladon
- 1962684** *Wildfire Impacts on Soil Properties and Nutrient Remobilization in a Rocky Mountain Front Range Lower Montane Riparian Ecosystem:* **A Vodopyanov**, S Rahman
- 1898838** *Wildfire-Driven Changes in California Water Budgets:* **A M Lopez**, C Raymond, M Pascolini-Campbell, C M Lee
- 1906185** *Four Decades of Forest Canopy Growth on the Loess Plateau Revealed by ICESat-2 and Landsat Data:* **M Liu**, B Zhao Sr
- 1966433** *From a laser swath to an actionable product, how will you use EDGE observations?:* **S Nowicki**
- 1870645** *Fusing GEDI and ICESat-2 Data for Regional Canopy Height Mapping:* **A Nazir**, N P Hanan
- 1942768** *Global Leaf Area Index Retrieval Based on Spaceborne LiDAR ICESat-2:* **R HU**, D Guo, S Cai, Y Xing, X Song, G Yan, P Kardol, Y Wang
- 1999046** *ICESat-2 Diffuse Attenuation Coefficients (Kd) in Coastal Waters: Comparison with In-Situ and Conventional Ocean-Color Satellites:* **E Eidam**, C Wang, K Bisson, H Glover, J Scheick
- 1961538** *Integrating Machine Learning and Spaceborne Laser Altimetry to Enhance Vegetation Height Estimation in Dryland Vegetation:* **T N Nde**, J Enterkine, N F Glenn
- 1912713** *Is SDB vertical accuracy dependent on satellite mission and processing method?:* **M Palaseanu-Lovejoy**, J Danielson, M Kim, B Eder, G Imahori
- 1986729** *libTTS: A Modular Topological Data Analysis Pipeline for Forest Point Cloud Analysis with a Pathway to Deep Learning Integration:* **X Xu**, F Iuricich, J D Armston, Y Tan, L D Floriani
- 1957942** *Mapping of Shallow Water Bathymetry by ICESat-2 Photons and Sentinel-2 Imagery:* **K H Tseng**
- 1974252** *Mapping permafrost disturbance from space: Results from the ICESat-2 mission and applications for EDGE:* **M Bryant**, A A Borsa, H A Fricker, R J Michaelides, M Siegfried
- 1952948** *Next Generation Forest Carbon Monitoring and Modeling Using Satellite Laser Altimetry:* **G C Hurtt**, L Ma, J D Armston, J B Blair, E T Campbell, L P Chini, R Dubayah, L Duncanson, M A Hofton, R L Lamb, S B Luthcke, Q Shen, J Pederson, H Tang

1915009 *Pan-Antarctic observations of ice shelf rift propagation and their topographic signatures: Implications for calving rate and ice shelf stability:* **C C Walker**, B P Lipovsky, C Needell, C Roberts, H A Fricker

1947904 *Selection criteria for release-3 models for GEDI aboveground biomass density:* **J R Kellner**, J D Armston, L Duncanson, J B Blair, J Bruening, T de Conto, S Hancock, S Healey, M A Hofton, A Holcomb, V Leitold, S B Luthcke, J Mascaro, D Minor, A Pascual, L Wertis, L Xiong, R Dubayah

251678

Advancements in Hydrologic Tools and

Technologies (cosponsored by ASA: American Society of Agronomy, CSSA: Crop Science Society of America, ESA: Ecological Society of America, SSSA: Soil Science Society of America) (*joint with ED, H, SY*)

Conveners: **Sushant Mehan**, South Dakota State University; **Daniel Ames**, Brigham Young University

1846385 *Spatial Attention layer for rainfall spatial interpolation:* **J Y Shin**, J Park, S Jang

1847570 *Hydrology Tool Set (HTS): A Suite of Online Tools and Models for Open Science:* **S Daniele scu**

1860270 *Streamlining Satellite-Based Water Quality Assessment: The RS-WaterQuality Mapper Toolbox for QGIS:* **H Su**, H Liu, L Wang, E Miliutina, J Men, D Tian, Y Lu, S Shu, R A Beck, A Premasagar

1866266 *A National Model for Predicting Submerged Hydraulic Jumps at Low-Head Dams Using Open-Access Remote Sensing Data:* **K Quintana**, R H Hotchkiss

1873051 *Coastwise: A Gamified Approach to Coastal Watershed Planning Through the Stormwater Management Model:* **S Lynn**, V L Sobral, L Schneider, J L Goodall

1873332 *Introducing the Next Generation of USGS Water Data APIs:* **M Mahoney**, A Viedma

1883736 *FIMserv v.1.0: A Tool for Streamlining Flood Inundation Mapping (FIM) Using the United States Operational Hydrological Forecasting Framework:* **A Baruah**, S Dhital, S Cohen, T N D Tran, H Elhaddad, C L Watts, D Devi, Y Chen, C Pruitt

1885833 *A Framework for the Evaluation of Flood Inundation Predictions Over Extensive Benchmark Databases:* **D Devi**, S Dhital, D Munasinghe, S Cohen, A Baruah, Y Chen, D Tian, C Pruitt

1964006 *Snow depth from satellite laser altimetry: Recent progress with ICESat-2 and potential for EDGE:* **D E Shean**, H Besso, J D Lundquist, N F Glenn, C Vuyovich, J M Pflug, B E Smith, J P Swinski, S B Luthcke, H A Fricker

1923985 *Strong potential for young boreal forest growth found in Russia:* **C S R Neigh**, P Montesano, J O Sexton, M Wooten, W Wagner, M Feng, N Carvalhais, L Calle, M Carroll

1960811 *The “Rosetta Stone” Potential of EDGE for Glacier Mass Balance:* **C Florentine**, M A Hofton, J B Garvin

1902306 *Artificial intelligence-guided iterations between observations and models significantly improve continental-scale predictions of sediment respiration:* **A Malhotra**, B K Forbes, S F Gary, MS, PhD, A E Goldman, B Rivera Waterman, V A Garayburu-Caruso, M P Bruen, E Fluett-Chouinard, S Mehan, M Taylor, M Ardon, M B Cardenas, W K Dodds, C Lønborg, W H McDowell, M Moustapha, A Myers-Pigg, P Regier, T Rubin, H S Song, R D Stewart, J Villa, N D Ward, T D Scheibe, J Stegen

1923976 *Bankfull and Mean-Flow Channel Geometry Estimation Through Machine Learning Algorithms Across the CONTiguous United States (CONUS):* **R Zarrabi**, R McDermott, M Erfani, S Cohen

1947802 *Demonstrating new tools and frameworks to facilitate continental-scale hydrologic data access and evaluation:* **S Lamont**, M Denno, K van Werkhoven, S Landsteiner

1959358 *Modernizing HydroShare: Using a Cloud-Native Architecture to Accelerate Water Science Innovation:* **A M Castronova**, I Garousi Nejad, S Black, A Bogan

1965986 *Operationalizing Hydrologic Research: Building Web-Based Forecast and Visualization Tools with Tethys Platform:* **J Shi**, D P Ames, N R Swain, T Mahjarin

1966682 *MoltenFAC: A Tiled Flow Accumulation Algorithm for Large-Scale, Massively Parallel, and Memory-Efficient CPU/GPU Processing:* **B Alexander**, H Cho, J Song, J Halgren

1967182 *Tethys Dash: A Modular Framework for Low-Code Hydrologic Dashboards, Integrated Data Visualization, and Decision Support:* **T Mahjarin**, C Krewson, D P Ames, J Shi, N R Swain

1968335 *A Neural Network-Based Integration of HEC-RAS, LISFLOOD-FP, and OWP-HAND FIM for Enhanced Flood Inundation Mapping:* **S Seyvani**, P Nikrou, S Cohen, D Tian

1968518 *Democratizing National Water Model Data: A Mobile App for National Water Model River Discharge Monitoring and Flood Warning:* **J Jaramillo Garcia**, D P Ames, M Womble

1968891 *MIDAS: A Memory-Efficient, Multi-Interface Toolkit for Scalable High-Performance Hydrologic Flow and Drainage Analysis Using OpenMP Parallelism*: **H Cho**

1995596 *Streamlining Community Modeling through Automated Data Processing for the Next Generation Water Resources Modeling Framework*: **J Halgren**, J Cunningham, C Perry, Q Lee, S Lama, A Patel, S Naser Neisary, S A Koriche, M Singh, N Minor

247735

Impacts and Resiliency of Coastal Ecosystems to Transient Disturbances (joint with H, OS)

Conveners: **Z. George Xue**, Louisiana State University; **Kanchan Maiti**, Louisiana State University; **Xinping Hu**, Texas A&M University - Corpus Christi; **David Lagomasino**, East Carolina University; **Xiaochen Zhao**, Louisiana State University

1983606 *Assisted migration of coastal vegetation dominants in a south Texas estuary*: **L Battaglia**

1903619 *Biodiversity Loss Under Rainfall Deficit Undermines Coastal Wetland Stability*: **X Wang**, L Yan, M Jiang, Z Wang, H Li, J Shi, W Liu, G Han, J Xia

1984318 *Characterizing Forest Response Pathways in the Blackwater National Wildlife Refuge Region*: **S Typrin**, B Alvesshere, L Haber, K Preisler, M Martinez, C M Gough

1976541 *Circulation of Fecal-contaminated Floodwaters in Back-barrier Bay Marshes Following Tidal Floods*: **A Jacobson**, T Thelen, K Anarde, E Farquhar, N Nelson, A Harris, D J Grimes, B Middour, N Volp

1996216 *Enhanced estuarine respiration caused by coastal vegetation die-off after a winter storm*: **X Hu**, C Amos, Z Liu

1981728 *Impact on Estuarine-shelf Exchange Flows Through the Barrier Island Tidal Inlets of the Mississippi Sound during the Extreme Events of Bonnet Carré Spillway Double Opening and Hurricane Barry in 2019*: **A Rizal**, H Ajibade, M Diard, B Armstrong, S K Kuttan, M K Cambazoglu, J D Wiggert

2003385 *Advancing Hazard Resilience with SPHERE (Spatial Platform for Hazard Evaluation and Risk Estimation): A Modular Open-Source Framework for Flood Risk Analysis*: **A Hoke**, T Schmidt, D Bausch

2003393 *WaterSoftHack: Machine Learning, Data Analytics and Cyberinfrastructure Training for Water Science and Engineering*: **V Samadi**, B Adhikari, D M Boyer, A Castronova, I Demir, K Panthi, A Neupane, M Saberian, N Zafarmomen

1905733 *Investigation of the Morphological Responses of Benthic Foraminifera to Climate-Change-Induced Hypoxia in the Chesapeake Bay*: **S Mba**, R Bryant, A Burgess, B N Hupp

1894275 *Localized Decline in Tidal Overtides Reveals Anthropogenic Smoothing of the Delaware Estuary*: **M N Kadir**, T Naher, J Lorenzo-Trueba, S A Talke, T Wahl, S Dangendorf, S B Lee

1844613 *Nutrient Escape Routes: Following the Trail from River to Gulf with Isotopes and Acoustics*: **Z Wei**, K Maiti, C Li, K Cochran

1981414 *Optimizing beach nourishment design for turtle nesting: A case study in southeast Florida, USA*: **L Novalvos Hernandez**, P Wang, R Trindell, D Thompson

1983551 *Performance Variation in the Cold Across a Subtropical-Tropical Latitudinal Gradient*: **R Wood**, R Earley

1910501 *Post-Hurricane Sediment Dynamics and Seagrass Resilience in Coral Bay, St. John, US Virgin Islands*: **A Belcher**, T Browning

1922695 *Regional Drivers of Coastal Forest Resilience under Saltwater Intrusion*: **S Liu**, X Yang

1913519 *Resilience of Lagoonal Estuaries South Texas Coast: Salinity Recovery from Compound Flooding Induced by Hurricane Harvey (2017)*: **Z Lei**, X Zhao, Z G Xue, D Bao, Y Wang, Y Ou, Z Zang

1932951 *Storm-Driven Responses to Carbon Cycling Along the Land-Estuary-Ocean continuum in the Mississippi River Delta*: **M Mahmood**, K Maiti, Y Wang, Z G Xue

1898216 *Water Quality Impacts in the Chesapeake Bay During 2011's Hurricane Irene*: **P St-Laurent**

CRYOSPHERE

251810

Advances in Arctic Carbon Cycling: Perspectives from Multiple Proxies, Timescales, and Methods (joint with B, EP)

Conveners: Hailey Sinon, University of Pittsburgh; Marisa Repasch, GFZ German Research Centre for Geosciences; Emma Lathrop, Northern Arizona University; Claire Treat, University of New Hampshire

1848040 *A decade of change in the composition of dissolved organic carbon in an arctic lake is linked to permafrost thaw:* **R M Cory**, G W Kling

1893421 *Ancient Carbon Exposed and Released from Retrogressive Thaw Slumps in Northwestern Alaska:* **M L Chipman**, M J Lara

247250

Advances in Glacier and Ice Sheet Hydrology (joint with H)

Conveners: Dougal Hansen, University of Wisconsin Madison; Aleah Sommers, Dartmouth College; Colin Meyer, Organization Not Listed; Jessica Mejia, Syracuse University; Amy Jenson, Montana State University

1937726 *A New Physical Model of Subglacial Hydrology:* **S O'Connell**, K L Riverman, H McLelland, J Leeman

1909333 *A nine-year record of slush on the Greenland Ice Sheet:* **E Glen**, A F Banwell, A Leeson, K Miles, R L Dell, J Maddalena, M McMillan

1881459 *A theoretical and numerical model for unconfined aquifers in cold firn:* **M A Shadab**, H Stone, R M Maxwell

1859968 *A Unified Model of Subglacial Blisters and Associated Ice-Flow Anomalies from Supraglacial Lake Drainage:* **H Zhang**, L Stevens, I Hewitt, H Stuart

1865191 *Advancing GLOF Detection Methods for the Greenland Ice Sheet Using Machine Learning and Multispectral Optical Imagery:* **E Carr**, A F Banwell, M Diaz, W Abdalati, M C Serreze

1881141 *Characterizing the Sub-Glacial Environment of Lower Thwaites Glacier Using Radar Modeling:* **C Pierce**, M L Skidmore, L Beem, D D Blankenship, E Adams, C Gerekos, W S Lee

1980904 *Does freshwater drive acidification and aragonite under-saturation in Hudson Bay?:* **D Capelle**, T Burgers, L A Miller, Z Z A Kuzyk, H Henson, B Else, K Brown, M Ahmed, R Mandryk, Y Yezhova, T N Papakyriakou

1858834 *Evidence from the last deglaciation reveals constraints on the permafrost carbon feedback:* **S Mark**, B Gaglioti, E K Thomas, D H Mann, G Otiniano, C Hancock, N McKay

2003587 *Microbial Bioremediation of Permafrost-Stored Carbon Using Integrated Experiments and Predictive Modeling:* **J Torlapati**, E K Armah

1956334 *Saline Permafrost Thaw and Immediate Carbon Mobilization: Implications from the Barrow Peninsula, Arctic Alaska:* **F Seemann**, M Baysinger, S Liebner, M Zech, M Jenrich, B M Jones, C Treat, G Grosse, J Strauss

1899256 *Thawing Permafrost Alters Microbial Community Through Competition For Resources:* **L Marquez**, J McLaren, K Ramirez

1884101 *Weakness in the Arctic Permafrost Mineral Weathering Feedback:* **P C Kemeny**

1869665 *Coupled Subglacial Hydrology and Ice Dynamics Modeling of Lake Drainages and Surging Glaciers in the Himalayas:* **N Narayanan**, W Chu, A Sommers, C Meyer, J Steiner, A Robel, B Minchew

1871184 *CRACKING THE SEDIMENT CODE: A NOVEL SPECTRAL-TOPOGRAPHIC FUSION APPROACH FOR HIGH-ACCURACY GLACIER LAKE OUTBURST FLASH FLOOD MAPPING:* **N Thapa**, P Thapa, M Thapa

1932832 *Detecting Supraglacial Streams in Southwest Greenland Using Drone Imagery and Deep Learning:* **M A Hassan**, A K Rennermalm, M R Islam

1902858 *Englacial meltwater drainage on the Greenland Ice Sheet: insights from computer vision and modeling:* **J Rines**, C Y Lai, N Coffey, E Abrahams, L Stevens, L A Stearns

1891178 *Evaluating Control of Basal Hydrology on Seasonal Ice Flow of Greenland's Outlet Glaciers using Observational—Model Integration:* **G Cheng**, K Oniszk, J Badgeley, W Colgan, S A Khan

1935886 *Flash Flood or Leaky Faucet? Quantifying Antarctic Subglacial Groundwater Exfiltration Through the Last Deglaciation:* **E Miller**, A Robel, R Creel, E Abrahams, M Siegfried, L Zoet, M McKenzie, R Haris, R Venturelli

1888074 *Future Irreversible Ice Loss in Wilkes Basin Accelerated by Subglacial Hydrology:* **Y Wang**, C Zhao, R M Gladstone, T Zwinger, B K Galton-Fenzi, P Christoffersen, E Jager

- 1926006** *Glacier contributions to rivers and oceans in the early twenty first century:* **A S Gardner**, N Schlegel, C A Greene, R Hugonnet, B Menounos, D N Wiese, E Berthier
- 1932816** *Greenland supraglacial lakes albedo-depth parameterization from multi-source remote sensing: an application of lake-albedo feedback modeling:* **J Wu**, L Zheng, F Hui
- 1973016** *High Sliding Velocities Limit the Ability to Reproduce Observed Seasonal Slowdown in Coupled Ice Flow-GlaDS Simulations:* **A Jensen**, M Truffer, J M Amundson, L Ultee
- 1977539** *Links Between Drainage System Evolution, Meltwater, and Velocities of a Temperate Surge-Type Glacier:* **P Wilkerson**, E M Enderlin, J Liu
- 1900834** *Modeling interaction between supraglacial melt lakes and calving in transient Antarctic simulations:* **D Grau**, M Poinelli, N Schlegel, A Robel
- 1851944** *No Long-Range, Inland Triggering of Ice-Sheet Hydro-Fracture:* **L Stevens**, M Nettles, S Larochelle, M Okal, J Rines, C Y Lai, E Falconer, G J Lu
- 1948413** *Parameterising crevasse field drainage into meltwater routing models for the Greenland Ice Sheet:* **T R Chudley**, C Stokes, J Lea, R Law, A Hepburn, C C Clason
- 1982121** *Subglacial conduit flow begins at the onset of the melt season in West Greenland: no seismic evidence for a transition from a distributed system:* **T C Bartholomaeus**, J Gulley, J Z Mejia
-
- 1987328** *Subglacial Meltwater Plume Deposits Across Antarctic Margin Settings: A Grain-Scale Comparison of Pennell Coast, George V Land, and Weddell Sea:* **N Varela**, L M Miller, A Vega Gonzalez, L Prothro, R Venturelli, V Stanley
- 1855371** *Subglacial seawater access with only minor grounding line migration at Thwaites Glacier:* **K L Riverman**, K Warburton, S Anandakrishnan, B Schmidt, P Washam, K W Nicholls, P E D Davis, J Smith, S O'Connell, H McLelland
- 1892921** *Supraglacial lake drainage through an Antarctic outlet glacier:* **K Winter**, S I Cordero, S Crowsley, B Davison, J Ely, N Frearson, A Hoffman, J Kingslake, S J Livingstone, R Muthyala, A Rose, A J Sole, R Stilwell, S Thorpe
- 1952896** *The Effect of Subglacial Water Flow and Sediment Properties On Glacier Slip During Transient Effective Pressure:* **N Morgan-Witts**, D Hansen, L Zoet, M Corum, J Prescott, P E Sobol
- 1980219** *The Proglacial Paradigm: Assessing the Impact of Proglacial Lakes on Concentration-Discharge Relationships in Glacial Streams:* **W Matyas**, A Russo, J Jenckes, PhD, D F Boutt, L Munk
- 1852523** *Topographic Control of Hard-bedded Meltwater Channels on Subglacial Water Pathways:* **S Zhao**, D M Schroeder

250832

Advances in Radar Remote Sensing of the Cryosphere (joint with H, NS)

Conveners: **Randall Bonnell**, USGS Water Mission Area; **Jack Tarricone**, NASA Goddard Space Flight Center; **Devon Dunmire**, KU Leuven; **Merritt Harlan**, University of Massachusetts Amherst

- 1971909** *AN INSAR SNOW MISSION FOR THE NEXT DECADE; ANALYZING L-BAND INSAR TEMPORAL COHERENCE AND SWE RETRIEVAL OVER SNOW USING UAVSAR DATA:* **S Oveisgharan**, E Havazli
- 1995465** *Evaluation of Arctic Sea Ice Products Derived from the Snowfox Machine Learning Algorithm:* **R Lazzaro**, C Jackson
- 1996149** *Fine-Resolution Mapping of Near-Bed Ice Layers with Ultra-Wideband Radars:* **S Rizvi**, M Thapa, B Fraysher, A Rapadas, S Neshani, D Taylor, J Lee, D Dahl-Jensen, S Gogineni, S Kolpuke, C Chung
- 1972654** *Mapping snow avalanches using L-band InSAR: Implications for NISAR:* **R R Forster**, J Lund, A Khatri, E J Deeb, H P Marshall
- 1987562** *Polar Geospatial Center: High-volume Remote Sensing Data Access and Geospatial Discipline Knowledge at the Earth's Poles and Beyond:* **J Dickson**, C Kelleher, J Bakker, M Cloutier, D Im, R Johnson, J Klassen, C Nguyen, C E Torres Parisian, C C Porter, D Power, N Schiller, E Schlossberg, M Sterner
- 1982277** *The Role of NISAR as Part of a Virtual International SAR Constellation for Ice Sheet Science:* **B Scheuchl**, E J Rignot, S Herreid, J B Barré, M Poinelli, S Shamsian
- 1958038** *Assessing SAR satellite snow retrievals in the San Juan Mountains, Colorado:* **A Marziliano**, R Webb, E O Lindsey, D E Shean, J M Hu, Y C Lin
- 1861910** *Antarctic-wide Grounding Line Mapping from COSMO-SkyMed DInSAR: A New Benchmark Dataset for Ice Sheet Dynamics and Sea-Level Projections:* **N Ross**, G Spinelli, L Dini, P Milillo
- 1911966** *Arctic Active Layer Freeze-Thaw Deformation Inferred from Co-located InSAR and GPS Observations:* **A Lasalarie**, J Chen, Y WU, M B Cardenas, G W Kling

- 1917973** *Assessing Passive Radar Sounding for Firn Aquifer Monitoring in Svalbard and Antarctica:* **N Gupta**, S T Peters, A Wang, R Culberg
- 1923767** *Assimilating Interferometric Phase Data from UAVSAR and Sentinel-1 for Snow Water Equivalent Estimation: Insights from the SnowEx Campaign:* **M Hildebrand**, S A Margulis, X Xu, R Shah, H P Marshall, E J Deeb, M Giroto, S H Yueh
- 1857093** *Broadband Dielectric Characterization of Permafrost Across Freeze-Thaw Cycles:* **M M Rahman**, A Hossain, S Perini, M Eltantawy, D Mandal, T Baser, M Lanagan
- 1949191** *Deriving Arctic Sea Ice Concentrations from SAR Products and Geospatial Modeling:* **R Julian**, S Helfrich, W Clark, C Jackson
- 1949795** *Distribution of the Basal Conditions at Lake Vostok, Antarctica, from Radar Reflectometry:* **C Grima**, K M Soderlund, J Greenbaum, T Pelle, D A Young, D D Blankenship
- 1950556** *Evaluating the Potential of Synthetic Aperture Radar to Detect and Monitor Caribou:* **L Stark**, Z Hoppinen, C Kane, T Meehan, H P Marshall
- 1955486** *Frozen on 35 mm Film: Unlocking 1970s Airborne Radar Echo Sounding Survey in Ross Ice Shelf, Antarctica:* **A Tarzona**, W Chu, D M Schroeder, M Siegfried, H Verboncoeur, C Combs, R Banerjee, R Yin
- 1892116** *Radar Evidence for Widespread Englacial Over-Winter Water Storage in Greenland's Ablation Zone:* **R Culberg**
- 1960231** *Radar-Derived Ice Fabric Anisotropy and Anisotropic Scattering in Thwaites Glacier, West Antarctica:* **D Li**, D D Blankenship, D A Young, S Yan, D Buhl, L Beem, C Pierce, C K Lee, K D Mankoff, E Quartini, S D Kempf, G Ng, W S Lee

252828

Advances in Satellite Altimetry of the Polar Regions (joint with G)

Conveners: **Helen Amanda Fricker**, University of California San Diego; **Sebastian Simonsen**, Technical University of Denmark

- 1904353** *Estimation of Seasonal Mass Balance of Hofsjökull Ice Cap, Iceland, using ICESat-2:* **H Xie**, Y Koo, T Jóhannesson, J M C Berlart, T Thorsteinsson
- 1990646** *Full-Band Synthesis from Sparse Subbands for High-Resolution Snow Thickness and SWE Estimation Using UWB Radars Under Bandwidth Constraints:* **S Neshani**, S Kolpuke, S Rizvi, M Thapa, D Taylor, S Gogineni
- 1984915** *Harnessing Radar-Laser Satellite Altimetry Bias to Quantify Firn Processes in Antarctica:* **M Marquardt**, M Siegfried, B Medley, C M Stevens

- 1866197** *Revealing the Internal Structure of the Rock Glacier – Debris Covered Glacier Continuum from Drone-Based Ground-Penetrating Radar:* **R Aguilar**, J W Holt, M Christoffersen, T Meng, S Nerozzi
- 1879846** *SCOUT: An EMI-Shielded, Environmentally Insulated, Ice-Penetrating Radar Power System:* **E Carreras**, S T Peters, T Kristinsson
- 1937835** *SNOWWI -- The new kid on the block, a three frequency wide-swath interferometric SAR for characterizing the snowpack:* **P Siqueira**, M Closa Tarres, J Maloyan, E J Deeb, H P Marshall, T Seaver, L Tsang, A Migridichian, F K Borah, M Adam, G Farquharson
- 1937919** *Sub-daily Quasi-Tomographic Monitoring of Alpine Snow Properties Using Tower-Based C-Band Radar:* **J Vandenbroucke**, H P Marshall, T Jonas, I Brangers, G J M De Lannoy, B Cox, G Leenders, H Lievens
- 1956694** *SWOT Ka-band Radar Observations of Cryosphere (Snow/Ice) and Surface Water Dynamics in Cold Regions:* **S F Sherpa**, L C Smith
- 1855957** *Understanding Glacier Movement in Eastern Nepal: Analyzing Khumbu, Ngozumpa, and Mera Glaciers with Sentinel-1 SAR:* **K Sah**, R B Kayastha
- 1851364** *Using the RadarSat Constellation Mission (RCM) to Track Fast Moving Glaciers and Changes in Sea Ice in Antarctica:* **S Shamsian**, E J Rignot, B Scheuchl, M Poinelli, S Herreid, J B Barré
- 1931889** *Wet snow mapping threshold validation using Sentinel-1 SAR and in situ data in Himalaya and Utah mountain:* **S Srivastava, PhD**, R R Forster, S Rupper, D M F Azam
- 1854292** *ICESat-2 land ice products resolve Greenland and Antarctic ice-sheet height changes on seasonal to multiyear time scales:* **T C Sutterley**, B Smith, H A Fricker, L Padman, M Siegfried, T E Black, D Felikson, B Freer, A Gibbons, S L Howard, B P Jelley, M D King, B Medley, M Morlighem, C Sadlik, W Sauthoff
- 1870338** *Improving ICESat-2 Surface Mass Balance and Surface Roughness Estimates with GNSS Interferometric Reflectometry in Central Greenland:* **D Pickell**, R L Hawley, D Felikson, J Good
- 1889627** *Long-term records of sea ice thickness and volume across the satellite era from 1993 onwards for both hemispheres:* **M Bocquet**, S Fleury, F Piras, R Ricker, S Hendricks
- 1858991** *Mapping Sea Ice Topography with SWOT: Advances and Challenges:* **S Kacimi**, S Jaruwatanadilok, R Kwok

1988471 *Mass Balance of the Greenland Ice Sheet between 1994 and 2020 from Laser Altimetry:* **H Gao**, B M Csatho, A F Schenk, M J Croteau, S Adhikari, I Parmuzin, N Schlegel, M Brils, M R van den Broeke, D Felikson, B D Loomis, B Medley, B Noel, S Nowicki, K Poinar

1962741 *Monitoring Ice Sheet Surface Melt and Snow Grain Growth with the CRISTAL AMR-CR Radiometer:* **A Hossan**, A Colliander, F Polverari, M G Morris, Z Zhang, S T Brown, S Kacimi

252700

Advances in Understanding Processes at the Bed of Glaciers and Ice Sheets

Conveners: **Jeremy Brooks**, Organization Not Listed;
Lucas Zoet, University of Wisconsin Madison

1983367 *3D seismic imaging of the eastern shear margin of Thwaites Glacier, West Antarctica:* **N Nakata**, Z Zhang, M S Karplus, P Christoffersen, T J Young, Z Bi, D F May, L F Gonzalez, D M Schroeder, A D Booth, J Suckale, J I Walter, G Kaip, S M Tulaczyk

1999034 *A generative model of sub-glacial topography:* **D Brinkerhoff**, A S Lucas, L S Muhle, M Filter

1969308 *A Global Empirical Relation Between Glacier Velocity and Proglacial Sediment Yield:* **J Wilner**, M Morlighem, C B Keller, E Dethier

1933152 *A new subglacial sediment deformation discharge rule:* **L Zoet**, R Schlegel, D Hansen

1979281 *Antarctic Sub-Ice Structure from Joint Analysis of High-Frequency Teleseismic Receiver Functions, Coda Autocorrelations, and Surface Wave Measurements:* **A Kumar**, H Wu, S Dong, V Schulte-Pelkum, W Shen

1848498 *Are asynchronous seasonal velocity variations across Taku Glacier's piedmont lobe indicative of a soft-to-hard bed transition?:* **J M Amundson**, L Kaluzienski, I Joughin, S Sugiyama, A Chang

1933906 *Constraining a Basal Sliding Event at Whillans Ice Stream Using Repeating Icequakes:* **S Cubillos**, W B Frank, G Barcheck, M Floyd

1917406 *Constraining Bed Properties Across the Eastern Shear Margin of Thwaites Glacier Through Joint Radar and Seismic Analysis:* **D F May**, D M Schroeder, M S Karplus, B L Biondi, G Kaip, N Nakata, A D Booth, T J Young, S M Tulaczyk

1950951 *Deformation of Cold-based glaciers on Mars: Analog experiments using slime:* **S Beaulac**, R Parsons

1905259 *Echoes Below: Insights from Sticky Spots near the Rutford Ice Stream Grounding Line:* **I Lee**, S Anandakrishnan, R B Alley

1882010 *New Catalog of Thwaites Glacier Subglacial Lakes and Their Activity Revealed by CryoSat-2 Altimetry:* **B H Kim**, C K Lee, K W Seo, W S Lee, J W Park

1967868 *The new capability of ICESat-2 Release 7 ATL12, Release 4 ATL19, and Release 2 ATL23 to yield Dynamic Ocean Topography (DOT) in Polar Oceans for all ice concentrations:* **J Morison**, S Dickinson, J W Robbins, D Hancock

1968439 *Geological Bedclasses to Improve Ice Sheet Models in the Amundsen Sea Embayment:* **K J Tinto**, A Muto, L Borthwick, C D Locke, M Tankersley, R Matai, D Porter, R E Bell

1869225 *Geostatistical analysis of subglacial topographic roughness reveals Antarctica geologic characteristics:* **E Mackie**, M Field, N Shao

1984954 *Ice-Sediment Interactions in Channelized and Distributed Subglacial Flows:* **J Haug**, J L Buttles, G A Catania, B A Johnson, B A Keisling, D C Mohrig

1926311 *Identification of glacial deposits within the Yampa River Valley, Colorado through Multi-channel Analysis of Surface Waves (MASW):* **K Dougherty**, O Wills, J Logan, E Ross, M Siegfried, B Passerella, M McKenzie, R Venturelli, R Bowling

1934855 *Inversion of subglacial effective stress from acoustic-impedance measurements using viscous grain shearing theory: application to Thwaites Glacier, West Antarctica:* **A Muto**, D Hansen, L Zoet

1990169 *Investigating Subglacial Processes Through Basal Icequakes on Thwaites Glacier:* **J Zak**, L Zoet, J P Winberry, N Stevens, A Willet, S Anandakrishnan

1925637 *ITS_LIVE global observations of seasonal glacier and ice sheet dynamics:* **C A Greene**, A S Gardner

1964437 *Modeling Thwaites Glacier's Eastern Shear Margin Position From Hydrological Controls with a Regularized Coulomb-Style Slip Law:* **M Hehlen**, C Martin

1966526 *Passive Seismic Characterization of Rutford Ice Stream Basal Properties:* **E Perkins**, S Anandakrishnan, I Lee, A Willet, R B Alley, B Parizek

1969563 *Reconciling Subglacial Lake Detection: A New Radar Framework for Antarctic Basal Hydrology:* **M Pham**, W Chu

1981336 *Seasonal Variability of Subglacial Groundwater Exfiltration in Antarctica from Geologically Constrained Numerical Modeling Forced by Satellite Altimetry:* **R Haris**, M Siegfried, T Hillebrand, E Miller, R Venturelli

1878860 *Sediment Entrainment by Frozen Fringe and Thermal Regulation:* **E Pierce**, I Overeem, G Jouvett

1928264 *Simulations Coupling Grounding-Zone Sedimentation and Ice Dynamics: Implications for Grounding Zone Wedges and Ice-Stream Stability*: **J E Christian**, A Robel, G A Catania, L A Stearns, L Miller, S Munevar Garcia

248577

Advancing Our Understanding of Ice-Shelf Processes

Conveners: **Susheel Adusumilli**, University of Oregon; **Sammie Buzzard**, University of Northumbria; **Martin Wearing**, University of Edinburgh; **Mattia Poinelli**, Delft University of Technology

1919653 *DeepLakes: Monitoring Antarctic Supraglacial Lakes using Deep Learning*: **M Bahrami**, L D Trusel, J Rowley

1885307 *Distinct seasonal flow pattern of Byrd Glacier, East Antarctica*: **T Yang**, Q Liang, X Cheng

1960618 *Extending West Antarctic Ice-Shelf Thickness Records Beyond the Satellite Era*: **C D Locke**, K J Tinto

1912096 *Higher Sensitivity of the Pine Island Glacier Ice Shelf to Submarine Melting Than to Rheological Parameters*: **O V Sergienko**

1988556 *How Basal Melting Can Cause Calving of Ice Shelves*: **W R Buck**

1991473 *Ice melt processes on Roi Baudoin Ice Shelf, Queen Maud Land, East Antarctica*: **R Charrassin**, E J Rignot, N Chauche, R Gadi, H Chen

1873154 *Impacts of Temperature-, Stress-, and Grain Size-Dependent Rheology on Ice-Shelf Front Bending*: **E Glazer**, W R Buck

1889954 *Mechanics of the Thwaites Grounding Zone Inferred from GPS and Tiltmeter Data*: **K Warburton**, K L Riverman

1855597 *Modeling ice shelf vibrations taking into account the presence of meltwater lakes on the ice shelf surface*: **Y Konovalov**

1976686 *Modeling of tidal-scale melt variations in the Ice Grounding Zone (IGZ) of idealized ice-shelves*: **R Gadi**, A F Thompson, D Menemenlis, E J Rignot

1932325 *Near-Total Loss of Buttressing Observed on Pine Island Ice Shelf*: **S Wells-Moran**, B M Minchew, B V Riel, M Ranganathan

1898599 *Pervasive Seawater Infiltration in Antarctic Ice Shelves: Mechanisms and Future Aquifer Evolution*: **I McDowell**, R Culberg, V Villagomez, C Nordahl, T A Scambos, J Z Miller

1972463 *Steady-State and Transient Variability in Seismic Reflections Driven by Effective Stress and Porosity at the Ice-Till Interface*: **D Hansen**, L Zoet, A Muto, N Morgan-Witts, J Zak, Z Schlossnagle, K L Riverman

1888814 *Tracing Sediment Provenance with Clay Minerals in the Dotson-Getz Trough, Amundsen Sea, West Antarctica*: **I Kang**, Y K Park, K C Yoo, M K Lee, J Kim

1880955 *Piecing together the evolution of ice shelf rift mélange with multi-sensor satellite observations*: **C Roberts**, H A Fricker, L Padman, C C Walker

1893899 *Plume Disruption Halts Basal Channel Evolution Beneath Thwaites Eastern Ice Shelf*: **C Wild**, K E Alley, R Drews, G Sauret, S Tyler, T A Scambos, A Muto, M Truffer, K W Nicholls, E C Pettit

1917742 *Record-high Supraglacial Meltwater Volumes on the Antarctic Peninsula in 2025*: **L D Trusel**, M Bahrami, J Rowley, R L Dell, M MacLennan

1896667 *Remote Sensing of Supraglacial River Incision Rate on the Petermann Ice Shelf, Greenland*: **M Savignano**, A F Banwell, W Abdalati, A Boghosian, S Esenther, E Glazer, L C Smith

1919398 *Structural Characteristics and Revised Thickness Estimates of the Larsen D Ice Shelf*: **V Villagomez**, I McDowell, R Culberg

1981608 *Terraced Basal Morphology of Thwaites Eastern Ice Shelf, West Antarctica: Insights on Formation and Melt Patterns*: **L Wanzer**, E C Pettit, K E Alley, M Truffer, G Sauret, C Wild

1931126 *Thwaites Glacier is Accelerating as its Eastern Ice Shelf Detaches*: **T A Scambos**, C Wild, A J Luckman, C A Greene, A S Gardner, R D Larer

1881519 *Toward new maps of basal melt rate in grounding zones with tidal flexure from ICESat-2*: **F Elgart**, B M Minchew

1983659 *Tracking Horizontal Migration of Sub-ice Terraces Using Phase-sensitive Radar*: **C K Lee**, C Eayrs, A Wahlin, C Pierce, K W Nicholls, W S Lee

1891008 *Variability of Water Masses and Heat Transport Along the Ross Ice Shelf: Evidence From Recent Year-Round Argo Observations and Long-Term Hydrographic and Velocity Measurements*: **A Garzia**, P Falco, C L Stevens, F Memmola

1922417 *Wave-induced Erosion of Ice Cliffs: Melt Rate Due to Boundary Layer Currents*: **N Pujara**, A Wolterman, T J W Wagner, L Zoet

1898252 *Will ice shelves become vulnerable to melt-driven hydrofracture in the 21st Century?*: **M Fields**, PhD Candidate, J N Bassis, S B Kachuck, M B Moldwin

246965

Climate and Snow: Past, Present, and Future

(joint with A, GC, H)

Conveners: **Adrienne Marshall**, Georgia Institute of Technology Main Campus; **Alan Rhoades**, University of California Davis; **Kate Hale**, University of British Columbia; **William Rudisill**, Lawrence Berkeley National Laboratory; **Arielle Koshkin**, Colorado School of Mines

1987497 *A Climatology of Rain-on-Snow Events Across CONUS to Better Inform Reliability Targeted Snow Load Estimates:* **S O'Neil**, D McEvoy, B Bean, A Heggli, W Zhang, A Liel, M Maguire

1965771 *A Climatology of Snowfall Events over the United States Central Great Plains:* **S Foskey**, P E Kirstetter, J B Basara

1886480 *A Paleo Perspective of Upper Colorado River Basin Snowpack:* **G A Tootle**, A A Ramirez Molina, A M Marshall, T Piechota

1864483 *Dirty Rain on Snow: Surface Albedo Impacts of a Dust Wet Deposition Event in Michigan's Upper Peninsula:* **A C Adolph**, B G Kopec, S Brueshaber, A Dyreson, D Wallis, N Miller, K Wing, S Hotchkiss, C Mullins

1942302 *Do Proxies Mark Attendance? A Causal Analysis of Teleconnections on the Himalayan Hydroclimate:* **S Sengupta**, R Das Bhowmik

1881994 *Elevation Dependent Bias Evaluation of SNODAS Based on the Historical SNOTEL Data in Wyoming:* **D Sapkota**, N Ohara

1955768 *Evaluating Earth System Model Snowpack Predictions Over the Western United States Using Downscaled Forcing and In-situ Snow Observations.:* **C Cox**, E Shevliakova, S Malyshev, E Zorzetto

1905393 *From Sierra Nevada to Sierra Lluviosa: Implications of Warming-Driven Hydroclimate Shifts on California's Water Resources and Irrigated Agriculture:* **A A Beltran-Peña**, A Rhoades, E Burakowski, M Giroto, A M Michalak, N S Diffenbaugh, H A Inda Diaz, P D'Odorico

1862852 *Global Rain-on-Snow Dynamics and Hydrologic Impacts from the Historical Period to the End of the 21st Century:* **F Z Maina**, S V Kumar

1917786 *On the differences in atmospheric forcings between rain-on-snow and non-rain-on-snow melt events in the ephemeral snowpack region of the United States:* **Z J Suriano**, E Janzon, R D Dixon

1929178 *Preparing for Uncertain Water Futures: Exploring Strengths and Weakness of the Western United States Dynamically Downscaled Dataset from the Perspective of California Water Managers:* **K Greenspan**, B Williams, S Rahimi, A Hall, L Huang, H Williams

1893367 *Projections of Western US Montane Snow Water Equivalent: Total Snow Mass in Regions with Projection Agreement and Divergence:* **J M Pflug**, S V Kumar, B Livneh, E D Gutmann, S Gangrade, S C Kao

1961589 *Quantifying the Contribution of Snow Fraction to Snowpack Variability under Present and Future Climates:* **C Ratterman**

1983508 *Simulating snowpack response to post-fire canopy loss: A case study of the 2024 Fish Creek & Pack Trail wildfires, Wyoming:* **O I Lang**, A N Flores, S Newcomb

1854308 *Storm-scale impacts on seasonal snow droughts: A case study in the Pacific Northwest, United States:* **D McEvoy**, A Rhoades, L Huning, A Heggli, B Hatchett

1952906 *The Northeast Snow Survey (NESS) Feasibility Study: The Role of Historical and Future Snowpack Conditions in Disciplined Network Design:* **E Burakowski**, J Benes, J Clayton, A Contosta, D S Grogan, A Grunes, H Hofman, B Lineman, C McCarthy, S McKim, G Murray, C Nadeau, S J Nelson, M Stewart, M Webb, S Zuidema, L Zukiewicz

1995753 *Trends in Emerging Climate Change Signals in Upper Colorado River Basin Snow Water Resources:* **S Carr**, A Dixit, F Lehner, N Addor, J A Vano, T Petach, K N Musselman

1894173 *Using Multiple Detection Algorithms to Analyze Rain-on-Snow Events and Their Impacts:* **M Murnane**, L Huning, A Rhoades, J North, D McEvoy

1874057 *What drives the change of runoff-to-precipitation ratio in Alaska? An insight from a newly developed modeling dataset:* **N Flores**, Y Cheng

1971585 *What Even Is Mixed Precipitation?:* **K S Jennings**, M M Arienzo, N Hur, M Collins

1918006 *Wildfire Smoke Deposition on the Greenland Ice Sheet: Spatiotemporal Patterns and Implications for Albedo Reduction:* **E Hall**

252711

Convergence Research in the Arctic: Drawing from Diverse Disciplines and Knowledge Systems to Address Complex Societal Challenges (*joint with GC, SY*)

Conveners: **Matthew Druckenmiller**, National Snow and Ice Data Cen; **Margaret Rudolf**, International Arctic Research Center; **Vera Kuklina**, George Washington University; **Casey Brayton**, Organization Not Listed

- 1968677** *A High-Reliability Organizing Approach to Enhance Infrastructure Resilience in Rural Alaska:* **H Safarpour**, A Lacau, E Beyer, D Butcher, K M Faust, K Stephens, L Spearing
- 1978365** *Arctic Disaster Risk Reduction: Study of Arctic Algal Blooms for Utqiagvik, Alaska:* **A Garland**, D M Anderson, K McMonigal, T Farrugia
- 2000528** *Co-developing knowledge sharing tools for community-based research in the Arctic:* **N Johnson**, M L Druckenmiller, N Haycock-Chavez, J Brown, B Sheffield, A Gautier, B Billingsley
- 1972958** *Convergence Research and Knowledge Co-production: Highlighting the real work behind the concepts:* **S BurnSilver**, P Frankson, A York, V Kuklina, C Maio
- 1856009** *Convergence Research: Emergent Processes and Innovative Deliverables within the Rising Voices, Changing Coasts Alaska Hub:* **K Erickson, MA**, A Dewey
- 1990836** *Equitable Collaborative Research in Practice: Insights from Project Leaders Working with Sivuqag Indigenous Communities:* **M Monakhova**, A York, M Peterson, S BurnSilver, T Degai
- 1861835** *Governing Green Steel: Shortfalls of Multi-level Governance:* **R Orttung**, L Shanmugasundaram, S Holtzman
- 1916597** *Indigenous Methods are Science: Fostering Indigenous-Led Research through an NNA Convergence Working Group:* **M Rudolf**, D Blaskey, S S Ksenofontov, A Roth, P A L M Takata-Glushkoff
-

250778

Coupled-system Processes of the Arctic Atmosphere-Sea Ice-Ocean System: Harnessing Field Observations and Advancing Models (*joint with A, OS*)

Conveners: **Patrick Taylor**, NASA Langley Research Center; **Matthew Shupe**, University of Colorado Boulder; **Eva-Lou Edwards**, Organization Not Listed; **Melinda Webster**, University of Washington

- 1866316** *Memory Institutions as Urban Adaptation: Biocultural Heritage in Fairbanks, Alaska:* **D Khaziakhmetova**, V Kuklina, A Luthra, A Sorrels
- 1972841** *Quantification of Present and Future Arctic Freshwater Flux into the North Atlantic Ocean and Impacts on the New England American Lobster Fisheries:* **P M Alexander**, J I Goes, H R Gomes, M Lehman, X Xu, M R Stukel, J Kim, M Tedesco, E Chassignet, A Goode, D C Brady, C Brehme
- 1983986** *Redundancy as Resilience: How Remote Alaska Residents Adapt to Infrastructure Gaps:* **A Lacau**, H Safarpour, K M Faust, L Spearing, K Stephens
- 1987796** *Rethinking Arctic research as collective action to navigate a changing climate:* **M L Druckenmiller**, N Carlo, A U Gold, N Johnson
- 1982422** *Seasonality patterns of hydroclimate conducive to rain-on-snow events and the impact on reindeer herding in Fennoscandia:* **W Zhou, PhD**, A Y Sheshukov, J Wang, K Mertens, J Ziker, P Ungar, G Celis, F Stammer, D Ehrich, J Kumpula, M Heskell, I Melamies, M Sponheimer, V Ukkola, M Macias-Fauria, D Liu, C Wren, O Paine, V Y Ivanov
- 1998214** *Stabilizing Permafrost: Snow and Meltwater Management and Urban Planning in Utqiagvik, Alaska:* **M G Jull**, J Fong, A Bell, S Yuan, L Cho
- 1869735** *The Arctic Rivers Project: Lessons learned and successes in convergence research:* **K N Musselman**, N M Herman-Mercer, J C Koch, C M Brooks, M N Gooseff, Y Cheng, D Blaskey, A J Newman
- 1860046** *The Decolon-ice-ation of Glaciology: An Indigenous, Feminist Analysis:* **K Beausoleil**
- 1874533** *The Power of Space: co-creating spaces for diverse knowledge systems in the academy:* **V Kuklina**, T Degai, M L Druckenmiller, V Korkina, A N Petrov, J Temte
- 1974467** *What Do Equitable Arctic Observing Systems Require? Insights from Community-Centered Workshops on Low-Cost, Open-Source Methods:* **C Brayton**, H E Epstein, L Mercer
- 1979084** *A Path to Improving Simulated Properties of Arctic Low Clouds Using Airborne In Situ Observations From Multiple Aircraft Campaigns:* **J B Dodson**, P C Taylor
- 1988546** *A Satellite-Based Model for Estimating Year-Round Photosynthetically Active Radiation in the Arctic:* **J Laliberte**, J Li, K Nieto Saavedra, M Ardyna, M Babin
- 1974211** *Airborne Measurements of Atmospheric Reactive Bromine Chemistry across the Alaskan Arctic:* **I Antczak**, D Jeong, J D Fuentes, P Peterson, S Lance, P B Shepson, W R Simpson, K Pratt

- 1949943** *Airborne observations of sea ice-ocean-atmosphere interactions from HELiPOD-based water vapor isotopic measurements during ARTofMELT*: **B G Kopec**, F Pätzold, A Lampert, V Hyöky, S Murto, E S Klein, L Eriksson, M K H Tjernstrom, P Zieger, J M Welker
- 1973032** *Aircraft Measurements Characterizing Vertical Trends in Black Carbon Properties in the Arctic from Late Spring to Summer*: **E L Edwards**, J R Bennett, M D Brown, G S Diskin, F Gallo, A Holen, R Moore, K Pratt, V Selimovic, M Shook, E Winstead, L D Ziemba
- 1939725** *Arctic PISCES: Observations in the Alaska Coastal Ice Zone for Improved Prediction of Ocean-Ice-Atmosphere Interactions*: **H Eicken**, J Thomson, R Branch, L Crews, J Gobat, J Haxel, C Lee, B Light, A R Mahoney, P Bieniek, C Sivaraman, M Henke, Z Liu, A J B Schweiger, Z Yang, J Zhang
- 1876571** *Arctic Sea Ice Loss Contributes to Increased Precipitation and Extreme Snowfall Over High-Latitude Land via Two Mechanisms*: **Q Tang**, Y Liu, R Leung, D Chen, J A Francis, C Zhang, H Chen, S C Sherwood
- 1884823** *Assimilating Summer Sea-Ice Thickness Observations Improves Arctic Sea-Ice Forecast*: **R Song**, L Mu, S Loza, F Kauker, X Chen
- 1968387** *Breaking the Ice: Evaluating MOM6-NEP Sea Ice on the Bering Sea and its Impacts on Ocean Temperature*: **S Yu**, W Cheng, H M Tabisola, P J Stabenon
- 1978908** *Chemical identification of Arctic mineral-containing aerosol particles using airborne single-particle mass spectrometry measurements*: **X Chen**, L Forshee, A Holen, V Selimovic, R A Kahn, K Pratt
- 1952877** *Community-Scale Observations of the Landfast Ice Heat Budget in Labrador, Canada*: **M Wang**, C Richards, A Tivy, M Jacque, E Oliver
- 1898881** *Coupled Atmosphere-Ice-Ocean Modeling in the Era of Climate Extremes: A Critical Review of Recent Advances, Persistent Challenges, and Future Pathways (2014-2025)*: **A Arshad**, M Shafeeqe
- 1856125** *Development and Evaluation of the Coupled Atmosphere-Sea Ice Model in the Korean Integrated Model (KIM)*: **J Park**
- 1942703** *Diagnosing and Improving Underestimated Arctic Ocean Heat Transport in CESM2: Impacts on Sea Ice and the Role of Ocean Mixing Parameterizations*: **J H Park**, J H Kim, S J Kim, B M Kim
- 1865686** *Dust, Ice, and Arctic Clouds: Evaluating dust-based ice-nucleating particle parameterizations to improve mixed-phase cloud modeling*: **K Chan**, F V Maciel, K A Moore, K R Barry, J F Kok
- 1940695** *Enhancing convection in the Arctic Ocean under greenhouse warming*: **R Gou**, H Guo, L Wu
- 1949455** *Great Lakes Earth System Model: Hindcast (1940-2022) and Future Projections (2022 - 2100)*: **J Wang**, D Cannon, H Zhang, A Fujisaki-Manome, A Hutson, J A Kessler, J Langan, A J Vander Woude, P Alsip, M Rowe, D Mason, E Rutherford
- 1961458** *Impact of Hudson Bay Sea Ice Cover on Continental Cold Air Outbreaks*: **A Spencer**, M Gervais
- 1868849** *Individual Sea Spray Aerosol Seed Arctic Clouds over the Baffin Bay Polynya*: **L Forshee**, A Holen, V Selimovic, A Korolev, E Costa, K Pratt
- 1853830** *Interannual Variability of Freshwater Storage and Circulation in the Beaufort Gyre*: **C Gregory**, G Gopalakrishnan, S Bulusu
- 1897249** *Linking Mackenzie River Discharge to Early Sea Ice Formation in the Beaufort Sea*: **M Zahn**, S Fournier, I G Fenty, M Steele, M Wood, P Gaube
- 1876601** *Oceanic Evasion Fuels Arctic Summertime Rebound of Atmospheric Mercury and Drives Transport to Arctic Terrestrial Ecosystems*: **S Huang**, Y Zhang
- 1868017** *Projection of Sea Ice Conditions in Nunatsiavut (Labrador)*: **T A Kyeimiah**, B Tremblay
- 1949321** *Sea Ice Albedo Data Assimilation: A Novel Approach to Enhancing Arctic Sea Ice Prediction with Underutilized Observations*: **J Rotondo**, M M Wieringa, C M Bitz, R P Clancy, S M Cavallo
- 1955987** *Sea Ice Anomalies, Glaciated Warm Clouds, and Elusive Ice Nuclei: Tracking the 2024 Arctic Melt Season with the NASA ARCSIX Mission*: **S Schmidt**, P C Taylor, L Boisvert, A Solomon, E Crosbie, A Korolev, A Sorooshian, L M Zamora, J Redemann, E P Nowottnick, H B Maring, T Markus
- 1956822** *Sea Spray Aerosol Chemistry and Cloud Formation in the Summertime Arctic*: **E Costa**, J Mirrieles, R Kirpes, H Lawson, L Forshee, M Kauffman, A Holen, V Selimovic, C D Rauschenberg, A Remenapp, V L Boschi, A M Grannas, P Matrai, P Zieger, A P Ault, K Pratt
- 1950478** *Sea Spray Aerosols and Links to the Changing Sea-Ice Surface during MOSAiC Expedition in the Central Arctic*: **T Zhu**, J Mirrieles, C Ng, H Kempf, J Creamean, N Bergner, B Heutte, J Schmale, A P Ault, K Pratt
- 1914806** *Simulation of Seasonal Variation of Arctic Low Clouds is Improved by Resolving Subgrid Open Water Fluxes to the Atmosphere in CESM2*: **Q Ma**, Y Wang, Y Han
- 1880158** *Spatiotemporal Variations of Wind Forcing on Antarctic Sea Ice Drift from 2015 to 2024*: **Y Koo**, W Meier
- 1986531** *The Contribution of Local Thermodynamic and Sea-Surface Conditions to Greenland Ice Sheet Surface Mass Loss*: **J Preece**, P M Alexander, T L Mote, G J Kooperman, X Fettweis, M Tedesco

1920187 *The NASA ARCSIX AVIRIS-NG Cloud and Radiation Products: Evaluations against In-situ Aircraft Measurements during the Sea Ice Melt Season:* **C A Peterson**, K Meyer, S E Platnick, G Wind, G T Arnold, N Amarasinghe

247060

Cryospheric Changes and Their Impact on the High-Mountain Water Cycle

Conveners: **David Rounce**, Carnegie Mellon University; **Enrico Zorzetto**, New Mexico Institute of Mining and Technology; **Summer Rupper**, University of Utah

1926993 *A Novel Physics-Informed Transformer for Glacier Ice Loss Estimation: A Case Study for High Mountain Asia:* **A Sandip**, A Kumar, S Adhikari, A Mandal

1893514 *An Enhanced Cloud-Free Snow Product for High Mountain Asia Enabling Cryosphere Monitoring, Climate Resilience, and Water Security:* **S Muhammad**

1846764 *Asynchronous Snow Melt Timing Across Western North America from Transient Snowline Time Series:* **E M Enderlin**, R Aberle, J Liu

1954792 *Deciphering Rock Glacier Contributions to Streamflow Using Hydrochemistry and Radiocarbon Ages:* **M McDonough**, S P Anderson, J Ruef, R S Anderson

1886468 *Future glacier mass balance and runoff projections under climate scenarios in the Chandra-Bhaga basin, western Himalaya.:* **G Hussain**, S Srivastava, D M F Azam

1936257 *Glacier Melt and GLOF Risk Modeling in the Manaslu Region Using ERA5 Reanalysis Data:* **D Dhakal**, B Dahal

1927009 *High-Resolution Mapping of Glacier Surge Timing and Extent in High Mountain Asia:* **A KC**, E M Enderlin, D McGrath

1993264 *High-Resolution Monitoring of Supraglacial Lakes on Kambila Glacier, Alaska: Implications on Glacier Dynamics (2017–2024):* **V L**, G Singh

249005

Decoding the surface elevation change signal of glaciers and ice sheets

Conveners: **Caitlyn Florentine**, University of Montana; **Lauren Andrews**, Institute for Geophysics; **Gwenn Flowers**, Simon Fraser University

2004247 *Understanding Model Biases and Sensitivities in Reproducing Extreme Arctic Sea Ice Loss During the January 2022 Record Cyclone:* **I Cerovecki**, R Sun, M R Mazloff, E Blanchard-Wrigglesworth, D H Bromwich

1938974 *Validation of a sea ice radiative transfer model (ARTMASS2): albedo and transmittance in Saroma-ko lagoon, Japan:* **T Tanikawa**, M Nakayama, T Toyota, T Toyota, N Ohkawara

1845254 *High-Resolution Mountain Topography can Inform Global Snow Vulnerability Estimates:* **A M Marshall**, J T Abatzoglou, A Rhoades, A Koshkin

1914672 *Impact of Glacial Lakes on Future Glacier Evolution in High Mountain Asia:* **M Abbruscato**, D Rounce

1868544 *Pan-Arctic changes in gaining vs losing stream reach for glacial watersheds:* **G Matejowsky**, S G Evans

1869926 *Quantifying Four Decades of Snow and Glacier Melt Contributions and Climatic Drivers in Gangotri Glacier System, Central Himalaya:* **P Vinze**, G Hussain, S Srivastava, M F Azam, M A Hussain, U K Haritashya

1931222 *Resilient rock glaciers will shape the future of temperate mountain ranges amidst widespread, accelerating recession of glaciers and perennial snowfields:* **A Khatiwada**, D McGrath, J Pomeranz, G Gianniny, L Tronstad, D Finn, E Case, F Knuth, D J Larsen, S Caskey, M Grubb, S Hotaling

1975925 *Seismic monitoring of the Pho Chu River valley upstream of Punakha, Bhutan: seasonal changes, monsoon rains, and glacial runoff:* **M S Karplus**, Z Mo Tamang, K Namgay, A A Velasco, N Wangmo, L April, N Nepal, J Chaput, K A Christianson, D Drukpa, J Nabelek, L Ma, P Namgyal

1847833 *Spatial variations in fluvial and glacial watershed $\delta^{18}\text{O}$ in Alaska and Canada:* **A Chesler**, K J Kreutz, D Winski, S W Campbell, A E Putnam, B G Koffman, E C Osterberg

1992237 *Yala Glacier: Tracking Cryospheric Decline in the Himalaya:* **S Joshi**

1990924 *$\delta^{18}\text{O}$ and $\delta^2\text{H}$ Signatures of Water Sources in the Mt. Everest High Mountain System:* **S Acharya**, K N Nicholson, K Neumann

1872639 *Attribution of Dynamic Surface Change at Petermann Glacier from ICESat-2 and ITS_LIVE Velocity Using Optimally Smoothed Strain Rate Estimates:* **C Taubenberger**, C J Harman, L C Andrews, D Felikson

1968696 *Characterizing ice sheet behavior and interactions with forcings using spatiotemporal analysis of remote sensing data:* **B M Csatho**, H Gao, S Nowicki, A F Schenk, E Kabe Moukete, I Parmuzin

1866127 *Combined Altimetry and Modeling Reveals Grounding State Transition of Helheim Glacier (1998-2022):* **D Yang**, K Poinar, B M Csatho, A Narkevic, W Chu

1845675 *Deriving surface mass balance of Gangotri glacier using thickness change-based ice flux divergence approach:* **A Islam**, D Varade, A Nanda

250860

Early career priorities for the International

Polar Year (cosponsored by NAGT: National Association of Geoscience Teachers) (*joint with ED*)

Conveners: **Mariama Dryák-Vallies**, University of Maine; **Meghan Schaberg**, Colorado State University Fort Collins; **Madison Payne**, University of Colorado Boulder; **Ellie Miller**, Colorado School of Mines

251048

Engineering and Scientific Innovations for Resilient Permafrost Landscapes (*joint with H, NH, NS*)

Conveners: **Anna Wagner**, Cold Regions Research and Engineering Laboratory Alaska; **John Thornley**, WSP; **Ming Xiao**, Pennsylvania State University Main Campus; **Julian Dann**, University of Alaska Fairbanks

251940

From Snowflakes to Runoff: Firn and Surface Mass Balance Processes

Conveners: **C Max Stevens**, University of Washington Seattle Campus; **Jonathan Ryan**, Aberystwyth University; **Kaitlin Keegan**, Niels Bohr Institute - University of Copenhagen; **Ian McDowell**, Cornell University

1911975 *Laboratory-Based Snow/Firn Compression Experiments for Improved presentation of Refrozen Firn densification within models of ice sheet surface mass balance.:* **G Brown**, D W F Mair, S Laha, J Lea, I Nias

1892805 *A comparison of the NASA GEOS surface model over the Greenland Ice Sheet with quantitative meltwater estimates from satellite observations:* **R I Cullather**, L C Andrews, J Kolassa, A Colliander, A Hossan, S Nowicki, R H Reichle

1966115 *Climate Models Accurately Estimate Ocean-going Meltwater Runoff from the Northwest Greenland Ice Sheet:* **S Esenther**, L C Smith, A LeWinter, L H H Pitcher, B Overstreet, C Onclin, A Boghosian, A K Rennermalm, D Petersen, M Lee, L C Andrews

1859349 *Have we been overestimating global glacier volumes?:* **T May**, J N Bassis

1898653 *Quantifying Climate Signals in Greenland Ice Sheet Changes:* **G Talebigheshlaghi**, N Senthil, S Nowicki

1989511 *Understanding Tidewater Glaciers' Evolution from Seasonal Observations of Velocity and Surface Elevation Change:* **H Gao**, B M Csatho, N H Andersen, D Felikson

1971259 *Amplifying Early Career Voices in International Polar Year Discussions: Outcomes from the Polar Early Career World Summit:* **E Miller**, M C Dryák-Vallies, M Payne, A Schlindwein, S Strand, M C Dryák-Vallies

1855510 *Building Community Through IPY Planning:* **M Rudolf**

1936618 *Integrated Data Visualization for the International Polar Year (IPY5) in OpenSpace:* **K Collins, PhD**

1983579 *Evaluating Distributed Acoustic Sensing for Surface Wave Analysis in Arctic Permafrost:* **G Zakarewicz**, G Rocha dos Santos, T Zhu, M Xiao

1991096 *Passive Ground Cooling with Radiative Geotextiles for Infrastructure Resilience on Permafrost:* **A M Wagner**, R Garber-Slaght, C Hanna, T Li, E Brehm, J Maakestad

1927703 *Supporting Sustainable Permafrost-Agroecosystems in Alaska through Researcher-Farmer Co-Production:* **M Ward Jones**, G Gannon, T Schwoerer, B M Jones, M Z Kanevskiy

1926822 *Decadal Changes in Greenland Surface Mass Balance are Attributable to Greenhouse Gases and Anthropogenic Aerosols:* **Y N Kuo**, R Culberg, F Lehner

1961861 *Development of a Seasonal Liquid Water Amount Data Product for the Greenland Ice Sheet Percolation Zone Using SMAP And SMOS Radiometric Observations:* **A Hossan**, A Colliander, J T Harper, T Moon, N Schlegel, B Vandecrux, J Z Miller, L C Andrews, J Kolassa, S Nowicki, R I Cullather

1919334 *Flowing Fingers: Evaluating Capillary Overshoot and Meltwater Flow Instabilities in Firn:* **C Chivers**, C Meyer

2000854 *Frost Percolation: Motility, Memory, and Morphology:* **S Nath**, T Pelletier, H Li, I Rumjaun, K Varanasi

1899589 *Influence of Melt Season Characteristics on Meltwater Partitioning and Delivery into a Perennial Firn Aquifer:* **N Jones**, R Culberg, M Brils, A Moure, X Fu

1891077 *Matrix vs. Preferential Flow: Partitioning Meltwater Infiltration and Refreezing in Greenland Firn:* **J T Harper**, T Moon, N F Humphrey

1878672 *Modeling meltwater infiltration and ice layer formation in Greenland firn:* **M A Shadab**, S Adhikari, C M Stevens, A K Rennermalm, J Xiao, M A Hesse, R M Maxwell

1911867 *Modelling Ice Slab Evolution and Surface Mass Balance across the Greenland Ice Sheet*: **S Laha**, D W F Mair

1954257 *Quantifying the radiative effect of meltwater ponding on the surface of the Greenland Ice Sheet*: **J Ryan**, M G Cooper, S W Cooley, A K Rennermalm, L C Smith

258563

General Contributions in Cryosphere

Conveners: **Emilio Mateo**, Ohio State University Main Campus; **Roger Creel**, Woods Hole Oceanographic Institution; **Jessica Mejia**, Syracuse University

1877399 *Arctic Ocean Fingerprints of AMOC collapse*: **A Romanou**, D H Rind, P Lerner, G Tselioudis

252623

Impacts of Glacial Retreat: From Ice Loss to Ecosystems and Societal Change (joint with B, GC, H, NH)

Conveners: **Jenny Suckale**, Stanford University; **Jason Amundson**, University of Alaska Southeast; **Meda Tsá Tsée Náakw DeWitt**, Yak-tat Kwáan Corporation, Alaska; **Insha Batool**, National University of Sciences and Technology

1967305 *130 Years of Glacier Change and Multidisciplinary Monitoring of Buried Ice in the Sunlight Peak Region, Absaroka Mountains, Wyoming*: **T Meng**, N Potter Jr, R Aguilar, E I Petersen, S Nerozzi, M Daniel, J W Holt, N E Putzig, A T Russell, R J Michaelides, J Heldmann

1884907 *Challenges To Preserving Watershed Integrity Amidst Glacier Loss And Environmental Conflict In The Cordillera Huaytapallana, Peru: A Social-Hydrological Approach Using Meltwater Tracing*: **T Shutkin**, B G Mark

1987611 *Evolution of Iceland's Sólheimajökull since 2013*: **L Wilson**, G Adalgeirsdottir

1983546 *Impacts on Downstream Environments of Disappearing Tropical Glaciers in Different Climate Conditions*: **W Hirsh**

252051

Penguins, Polar Bears, and Petabytes: Exploring Interoperability and Big Data Sharing Principles Across Polar Research

Conveners: **Cynthia Garcia**, Organization Not Listed; **Emma Menio**, National Science Foundation Office of Polar Programs; **Maya Reda-Williams**, Aleut Community of St. Paul Island Tribal Government; **Lauren Decker**, PolArctic LLC; **Hazel Shapiro**, ARCUS

1970451 *Surface mass balance and climate impacts of improved ice sheet snow processes in the NASA GISS ModelE Earth System Model*: **P M Alexander**, D Ringeyisen, L Roach, B Medley, C M Stevens, I D Aleinov, K D Mankoff, X Fettweis, G A Schmidt

1847554 *Arctic Pack Ice Habitat Restoration Via Induced Rafting*: **M Wolf**

1862973 *Forecasting Fast Ice Area in Terra Nova Bay using XGBoost Integrating Climate Variables*: **S H Kim**, C Choi, S Lee, H Han, S H Kim

1971761 *Is It in the Air: The Atmosphere's Role in Melting Arctic Sea Ice*: **M N Schaberg**, J Hurrell, A K DuVivier

1933106 *Large Antarctic sea-ice loss contributes to increased frequency of strong El Niño*: **J Liu**, Z Zhu

1903881 *Is Temporal Evolution of Seismic Harmonic Tremors Controlled by Sea Ice Extent*: **D Zhou**, G Rocha dos Santos, T Zhu

1979458 *Linking Glacier Retreat, Snowpack Loss, and Wildfire Activity in the San Joaquin Watershed*: **R Thomas**, I Shrivastava, S Maharjan, W Li, H M El-Askary

1896911 *Local perspectives on the impacts of glacier retreat on harvests, hazards, and livelihoods in the high mountains of British Columbia and Nepal*: **M N Koppes**

2003115 *Sustainable Cellulose Textiles as a Socio-Environmental Strategy to Mitigate Glacial Melt*: **B Sattler**, B Tom, A Cuzzi, M Summerer, K Weisleitner, B Koell, T Grube

1903319 *The socio-cultural implications of glacier retreat demand further attention: a case study from Cerro El Plomo in Santiago, Chile*: **K Cullen**, Á Ayala, M Spencer, MS

1882986 *Thermal and structural controls on rockfall in recently deglaciated terrain of the Gilkey Trench, Alaska*: **K L Riverman**, I Fellows, S W Campbell, M Funston, M Kalilina, S Collins, O Power, E Allan-Rahill, R Wall

1927697 *Uncertainty of Projected Glacier Evolution and its Impact on Anticipated Water Availability*: **S Larabi**, M Schnorbus

1963636 *Data access tools for polar radar sounder data: Enabling reproducible workflows for Open Polar Radar data*: **T Teisberg**, S Grigsby, J D Paden, R Mathews

1966589 *Data sharing and FAIR data principles at the US Antarctic Program Data Center (USAP-DC)*: **F O Nitsche**, K J Tinto, S I Cordero, A Strong, C Strydom

1963401 *Unifying data processing and access for polar radar data: An update from Open Polar Radar (OPR):* **N Holschuh**, J D Paden, H Talasila, K A Christianson, T A Jordan, R Mathews, S I Cordero, A A Pingarron, A Hoffman, A Fremand, K J Tinto, D A Young, S D Kempf, O Eisen, V Helm, D Jansen, D Steinhage, S Franke, T Teisberg

249870

Ice Core Records of Environmental Change (*joint with A, B, GC*)

Conveners: **Vasilii Petrenko**, University of Rochester; **Bradley Markle**, Institute of Arctic and Alpine Research; **Asmita Banerjee**, Oregon State University; **Sophia Wensman**, Desert Research Institute

1890792 ⁸¹Kr Dating of 1 kg Polar Ice: **X Feng**, F Ritterbusch, J Wang, S Shackleton, M L Bender, E J Brook, J A Higgins, Z H Jia, W Jiang, Z T Lu, J P Severinghaus, L T Sun, G Yang, L Zhao

1907845 *A 60-Year Sulfur Isotopic Record of Sulfate from a Southeastern Greenland Ice Core:* **Z Xu**, S Hattori, I Sakiko, Y Iizuka, Y Takahashi

1957728 *A Novel Ice Core Melter Design for Separating Contaminated Outer Layers in Nitrate Isotope Reconstructions:* **M Weatherly**, M Goedken, W W Walters

1946999 *A Record of Changes in Southern Hemisphere Atmospheric OH Abundance from ¹⁴CO in Glacial Firn and Ice (Law Dome, Antarctica, 1870 – present AD):* **P D Neff**, V V Petrenko, D M Etheridge, A M Smith, C Buizert, L T Murray, C M Trudinger, M Shi, E Crosier, B Hmiel, D Thornton, L M Jong, T D van Ommen, M Curran, R Beaudette, C M Harth, R L Langenfelds, B Mitrevski, M Dyonisius, J Ng, J P Severinghaus, R F Weiss

1908041 *Acidity-driven nitrate partitioning controls Arctic deposition: Insights from a minimally altered SE-Dome ice core:* **S Hattori**, I Sakiko, Z Wei, Y Iizuka

1891098 *An Open-Source Ice Core Hyperspectral Image Library for Machine Learning:* **S Akiba**, R Rumsey, H Beaudoin, G Hargreaves, C LaBombard, M Erskine, R Nunn, M N Zhizhin, A V Kurbatov

1851118 *BICC: A Bipolar Ice Core Chronology:* **Q Mackay**, S Rasmussen, F Parrenin, M Sigl, A Svensson, I Oyabu, A Landais, M Bouchet, T J Fudge, C Buizert

1936332 *Borehole Temperature and Ice Core Data Across Antarctica: A Unified, Accessible Database:* **R Ray**, E Dawson, W Chu

1977258 *CFA Measurement of Carbon Monoxide in Allan Hills Blue Ice Cores:* **S Gass**, A Hudak, A Banerjee, I Strawson, E Brook, C Buizert, J A Higgins, V Hishamunda, A J Schauer, S Shackleton, E J Steig

1928024 *Changes in global biospheric productivity during the last deglacial period:* **A Banerjee**, T Bauska, J W Yang, Y Z Yan, L Yeung

1983011 *Climatic conditions during reduced ice-sheet extent recorded in subglacial sediments beneath Prudhoe Dome, northwestern Greenland:* **J M N Aguilar**, E K Thomas, N Leon, A Balter-Kennedy, J P Briner, J Schaefer, I S Castañeda

1965748 *Dating of a New Shallow Dome C Ice Core Using Atmospheric Methane Matching:* **A Lunken**, C Buizert, M Kalk, E Leshner, E J Brook, A C Ihle, S Miller, J Savarino, E Vincent, V V Petrenko

1964105 *Differentiating Historic North American and European Pollution Sources Using High Resolution Ice Core Lead Isotope Records from Europe and Greenland:* **S Wensman**, J R McConnell, N Chellman, A Stohl, M Legrand, A Plach, S Preunkert

1900512 *Ethane Measurements From an Ice Core From the Allan Hills Blue Ice Area in Antarctica Covering the Penultimate Glacial-Interglacial Transition:* **G Gentner**, M Aydin, M Nicewonger, J Campos Ayala, E J Brook, J Epifanio, J Marks Peterson, C Buizert, A Carter, S Aarons, A Choi

1895728 *Examining Liquid Water Percolation in a Temperate Alpine Ice Core Water Isotope Record:* **P Siegel**, B Markle, E S Klein

1975155 *First Measurements of Molecular Hydrogen in Antarctic Ice:* **C Obiefule**, M Miranda, J Patterson, E S Saltzman, V V Petrenko, A C Ihle

1978449 *Fossil Air in Ice Cores from Allan Hill Blue Ice Areas, Potential for the Discovery of the Oldest Ice in Antarctica:* **V Hishamunda**, S Shackleton, J Marks Peterson, E J Brook, A Carter, S M Aarons, A V Kurbatov, D Introne, Y Z Yan, C Buizert, A Hudak, A Banerjee, L Davidge, E J Steig, A J Schauer, L Kirkpatrick, T J Fudge, J Morgan, P D Neff, J Epifanio, J P Severinghaus, S Streit, F Ishraque, M L Bender, J A Higgins

- 1956349** *Ice core $\delta^{13}\text{C}\text{-CH}_4$: very young to very old*: **I Strawson**, B Riddell-Young, R Rhodes, T Bauska, J Marks Peterson, S Shackleton, V Hishamunda, J A Higgins, F Prie, A Landais, E R Thomas, E J Brook
- 1995911** *IceSpec: A Hyperspectral Imaging Framework for Ice Core Research*: **A V Kurbatov**, G Hargreaves, R Rumsey, S Akiba, D Breton, E J Brook, C Buizert, J M Fegyveresi, T J Fudge, C LaBombard, R Nunn, M N Zhizhin
- 1904069** *Identification of non-volatile particulates from past forest fires in a Greenlandic ice core.*: **M Hirano**, K Kawakami, T Ando, H Ohno, S Matoba, Y Iizuka
- 1891759** *Increasing Complexity of Asian Pb Emissions Throughout Industrialization (800 to 2022 CE) as Revealed in the Denali Ice Core Records, Begguya, Alaska*: **K J Kreutz**, H L Brooks, M Handley, D Winski, J Chalif, E C Osterberg, B G Koffman, U A Jongebloed, L Kirkpatrick, C P Wake, M Schwikowski, E Skelton, D Ferris
- 1906563** *Last Interglacial Global Warming, Ocean Expansion, and Greenland Ice Decay*: **M Osman**, J E Tierney, M Lofverstrom, J Schnaubelt, C R Tabor, B Markle, M A Aquino-López
- 1852753** *Low-Volume Noble Gas Measurements to Detect Melt Layers: Preliminary Results*: **O Williams**, C Buizert, J P Severinghaus, M Kalk

246995

Ice Fracture Processes: Observations and Modelling

Conveners: **Thomas Chudley**, University of Cambridge; **Riley Culberg**, Cornell University; **Ravindra Duddu**, Vanderbilt University; **Jessica Mejia**, Syracuse University; **Naureen Khan**, University at Buffalo

- 1951393** *Diurnal Evolution of Ice Quakes on Milne Ice Shelf, Nunavut, Canada, from Low to High Frequency Reveals Flexure and Fracture Cycle*: **J C F Chen**, S Park, D Mueller, Y Antropova, J Bonneau, A J Crawford, O Kirkham, B Leclair_Brideau, A D Mullen, O Sepulveda Steiner, D R MacAyeal
- 1864048** *Empirical Constraints on Ice-Cliff Calving*: **C Needell**, C C Walker, J N Bassis
- 1961799** *Evaluating large-scale fracture dynamics on Shirase Glacier with Sentinel-1 derived products*: **J Logan**, J Millstein, M Siegfried, T Surawy Stepney

- 1938877** *Methyl Bromide Measurements from Antarctic Ice Cores*: **M Aydin**, J Patterson, M Nicewonger, J Campos Ayala, A Carter, S M Aarons, J Marks Peterson, J Epifanio, A Choi, C Buizert, E J Brook, E S Saltzman
- 1902163** *Quantification of Low-Concentration Sulfate Isotopes in Seasonal Ice Core Aerosol From 1995 to 2022 by ESI-Orbitrap-MS*: **E D Pronovost**, U A Jongebloed, A J Schauer, S M Mayanja, Z Haider, J Cole-Dai, D Brandis, A Kub, T Ohrman, J Savarino, J Saville, J Witwicky, N Chellman, R Moore, B Riddell-Young, B Alexander
- 1871753** *Reconstruction of Past Surface Snow Metamorphism on Greenlandic Highland Derived from Firn and Ice Structure of SE-Dome Ice Cores using Near-Infrared Reflectance*: **M Matsumoto**, K Kawakami, T Ando, M Shibata, S Matoba, S Fujita, T Aoki, S Adachi, A Hachikubo, K Fujita, A Hori, S Yamaguchi, T Tanikawa, Y Iizuka
- 1990816** *Trends and relative contributions of bromine since the 20th century in the 2022 Mt. Logan ice core, southwest Yukon*: **K M Holland**, MSc, A Criscitiello, J R McConnell, B Markle, H Yousif, E Skelton, S Wensman, B J L Jensen, D Winski, N Chellman
- 1905703** *Unforced Variability Can Explain Multidecadal to Centennial Methane Variability in Ice Core Records*: **E Mei**, K Armour, T Bauska, C Proistosescu, G J Hakim, A J Turner
- 1900492** *Experimental observations of flowing and freezing through a cold fracture*: **X Fu**, A Eujayl, N Jones, B Zhao
- 1975453** *From Ice Cores to Ice Quakes: Understanding How Ice Type Variability Controls Fracture Propagation in a Marine-Based Ice Shelf in Antarctica.*: **T M Mitchell**, E Pearce, O Marsh, A Brisbourne, J Tuhkuri
- 1870504** *High-resolution mapping of pan-Antarctic ice shelf fractures: algorithms and datasets*: **Z Huang**, S Wang, N Tiwari, R B Alley, B R Parizek
- 1930166** *Locating Icequakes in 3D to Determine Firn Aquifer Influence on Crevasse Propagation Depths on Helheim Glacier, Greenland*: **K Duncan**, K Poinar, E A Sandvol, B M Csatho, L Zoet
- 1978894** *On Rifts and Fractures: Flexural-Gravity Wave Interaction with Complex Ice Shelf Morphologies*: **P Nekrasov**, J Hoskins, D R MacAyeal
- 1855013** *Recent Variability in Fracture Characteristics and Ice Flow of Thwaites Ice Shelf*: **S Wang**, P Alexander, R B Alley, Z Huang, B R Parizek, A Willet, S Anandakrishnan
- 1853897** *Vulnerability of Firn to Hydrofracture: Poromechanics Modeling*: **Y Meng**, R Culberg, C Y Lai

249674

Integrated Multidisciplinary Observations and Modeling of Marine-Terminating Glacier System Dynamics (*joint with EP, OS*)

Conveners: **Duncan Wheeler**, Organization Not Listed; **Sean Gulick**, The University of Texas at Austin; **Mikayla Pascual**, University of Texas at Austin; **Nadia Cohen**, Oregon State University

- 1936648** *Differential Sedimentary Responses to Grounding Zone and Ice Shelf Retreat Around Ross Bank:* **M Szemak**, L Prothro, P J Bart, W Majewski, A Leventer, M Danielson, B Lindsey
- 1900629** *Dynamic sedimentary processes of morainal bank construction revealed in near-terminus, hybrid ROV-mounted chirp data, Kangerlussuup Sermia Glacier, Greenland:* **J Goff**, D Sherman, J Amendola, S P S Gulick
- 1875857** *Evidence of changes in central Cordilleran ice stream sediment contribution and interactions with nearshore Pacific Ocean circulation throughout the Pleistocene:* **M McKenzie**, T M King, S Rothman-Haji, A Nordgren, S B Penprase, R Venturelli, E Blair, J Schiavo, L Miller
- 1931167** *Georeferencing Drone Imagery of Marine Terminating Glaciers Without Ground Control in Western Greenland:* **R Foster**, C Vigilia, G A Catania, B Keisling
- 1955388** *In-situ Observations of Frontal Ablation at Gilkey Glacier, a Lake-Terminating System in Southeast Alaska:* **V Benson**, D Sutherland, W H Armstrong Jr, I Overeem, J N Reahl, K Wing
- 1925431** *Insights into sedimentation driven moraine building in marine terminating glaciers: A look inside from the TERMINUS expedition, west Greenland:* **S P S Gulick**, J Amendola, J Goff, J M Jaeger, R Durr, D Sherman
- 1876053** *Modification of the size distribution of bubbles upon their release from glacier ice into the water, and possible implications for the effect of bubbles on submarine melting:* **H Johnson**, G B Deane, D Stokes, O Glowacki, M Moskalik, M Chitre, H Vishnu

- 1919096** *Multidisciplinary investigation on the role of frontal ablation in Juneau Icefield lake-terminating glacier change:* **W H Armstrong Jr**, D Sutherland, I Overeem, V Benson, J N Reahl, K Wing, C Kammerdiener, N Scrocco, V Apostolides, L A Reece
- 1901483** *Novel Observations of Suspended Sediment Dynamics in a Greenlandic Subglacial Plume:* **E An**, E Eidam, R H Jackson, B Ovall, D Wheeler
- 1925063** *Observations of a Growing Subaqueous Proglacial Moraine and its Implications for Frontal Ablation Processes:* **A S Lucas**, D Sutherland, J D Nash, E C Pettit, J M Amundson, N Abib, J Cusack, T W Harrison, PhD
- 1856430** *Rapid Mélange Collapse and De-Buttressing in a Coupled Glacier/Ocean/Mélange Model (GLACIOME):* **P Summers**, R H Jackson, A Robel
- 1907811** *Recent instability of ice rises adjacent to Pine Island Glacier, Antarctica suggests irreversible retreat:* **K Winter**, J Woodward, R J Sanderson, S S Braddock, J Adams, K Nichols, R McCerery, S W Campbell, D H Rood, R Venturelli, B L Hall, D J Johnson
- 1899546** *Relating Terminus Stability with Proglacial Sedimentation in Two Western Greenlandic Fjords:* **R Durr**, J M Jaeger, W Kenney, D Duncan, M B Davis, J Amendola, D Sherman, S P S Gulick, J Goff, E An, E Eidam
- 1878849** *Resolving Greenland's Sediment Budget: the Role of Ice-Rafted Debris:* **E Pierce**, I Overeem, B Hasholt
- 1913102** *Seasonal Influence of the Southern Annular Mode on Antarctic Fast Ice Variability:* **E K Jin**, E S Heo
- 1999559** *Spatially Comprehensive Investigation of Submarine Terminus Morphology Across Greenland's Tidewater Glaciers:* **V Follingstad**, D Sutherland, T Wagner, E J Rignot
- 1937346** *Subglacial erosion rates calculated from proglacial sediments in two marine terminating glaciers in West Greenland:* **J Amendola**, D Sherman, S P S Gulick, J Goff, J M Jaeger, R Durr
- 1879557** *Submarine exploration of an active grounding line in Greenland with a hybrid ROV:* **G A Catania**, R H Jackson, M Jakuba, D Duncan, G Abram
- 1954668** *West Greenland Glacier Survey: ~80-year Elevation Changes Derived From Aerial Photography:* **S F Child**, L A Stearns, C J Van der Veen

253280

John F. Nye Lecture

Conveners: **Asa Rennermalm**, Rutgers University New Brunswick; **Asa Rennermalm**, Rutgers University New Brunswick; **S. McKenzie Skiles**, University of Utah

252187

Landscape Processes and Carbon Cycling in Cold Regions (*joint with B, EP, GC*)

Conveners: **Yutian Ke**, California Institute of Technology; **Jun Zhong**, Institute of Surface-Earth System Science, School of Earth System Science, Tianjin University, Tianjin 300072, China; **Ting Zhang**, CAU China Agricultural University; **Dongfeng Li**, Key Laboratory for Water and Sediment Sciences (Ministry of Education), State Environmental Protection Key Laboratory of All Material Fluxes in River Ecosystems, College of Environmental Sciences and Engineering, Peking University

1967519 *A Multi-Proxy Approach for Assessing the Impacts of Holocene Paleoclimate and Vegetation Change on an Interior Alaskan Peatland:* **J Kielhofer**, N R Patton, C Baish, E K Thomas, B Finney, B Sion

249607

Linking Glaciers and Oceans through Fjords and Ice-Ocean Processes (*joint with OS*)

Conveners: **Madeline Mamer**, Georgia Institute of Technology; **Till Wagner**, University of Wisconsin Madison; **David Sutherland**, University of Oregon; **Paul Summers**, Organization Not Listed

1887105 *Can a Glacier Protect Itself? Viewing Sikkusak (Ice Mélange) and Deep-Keeled Icebergs as a Heat Sink:* **M G Shahin**, K Hughes, L A Stearns, C J Van der Veen, A Roth, F Straneo

1918533 *Can internal waves enhance submarine melting at Greenland's marine-terminating glaciers?:* **J Cusack**, K Zhao, A Garanaik

1964757 *Detailed Observations of Buoyant Plumes within 15m of a Glacier Terminus:* **D Wheeler**, K Weiss, J D Nash, R H Jackson, M E Wengrove, E C Pettit, N Osman, N Cohen, J M Cusack, K Zhao, J Nahorniak, T W Harrison, PhD, D Sutherland

1918718 *EFFECTS OF AMBIENT CURRENT AT THE GROUNDING LINE OF A GLACIER:* **M Mondal**, D Holland, K W Nicholls, P Holland

1958303 *Glacial silicate dynamics in Arctic fjord and riverine sediments:* **K Howe**, L Bowman, K Hendry, J W Krause

1933225 *Melt from Sermeq Kujalleq, Greenland's most active glacier, drives vigorous nutrient upwelling and enhanced coastal productivity:* **M Wood**, D Carroll, I G Fenty, C Bertin, PhD, B Darby, S Dutkiewicz, M J Hopwood, A Khazendar, L Meire, H Oliver, T Parker, J K Willis

1957154 *Early-Season Sediment and Carbon Dynamics in Arctic Fluvio-Deltaic Systems:* **I Overeem**, J Arcuri, M N Repasch

1861288 *Eroding soil organic carbon in Arctic deltas:* **A Piliouras**, S Oregon, K B Lininger, G A Gibson

1937316 *Quantifying the relative roles of snowmelt and summer rainfall runoff in Arctic fluvial sediment and carbon export:* **M N Repasch**, I Overeem, J Arcuri, S P Anderson, R S Anderson, P C Kemeny, M Dumont

1945875 *River-permafrost interactions and their impacts on permafrost carbon feedback in a warming climate:* **Y Zhao**, D Li

1940429 *Source, transport of particulate organic carbon in rivers from Tibetan Plateau:* **J Zhong**, Y Ke, S Xu, C Q Liu, S L LI

1952895 *Near-terminus Surveys with a Hybrid ROV Reveal Multilayered Circulation and Strong Inflow at the Grounding Line of a Greenland Glacier:* **R H Jackson**, B Oval, G A Catania, E J Hunter, D Wheeler, M Jakuba, E Eidam

1978385 *Ocean and atmospheric warming in Wolstenholme Fjord, Northwest Greenland:* **B Schmidt**, P Washam, V Hegelein, F E Bryson, J Coppin-Massanet, D Lein, M Meister, J Lawrence, P Tanghe, E Quartini, B Revels

1874038 *Ocean Fertilization and Upwelling of Carbon: The Paradox of Melting Glaciers:* **D Carroll**, R Savelli, M Wood, A Koertzing, S Cozzi, C Cantoni, D Menemenlis, C Bertin, PhD, S Dutkiewicz, M Manizza, C E Miller, M J Hopwood

1891611 *Quantifying the Feedback Between Ice Mélange Buttressing Force and Glacier Calving:* **J Baker**, A Robel, P Summers

1895279 *Seawater Intrusion and Freshwater Outflow in Subglacial Channels at Rasmussen Glacier, Northwest Greenland:* **V Hegelein**, P Washam, B Schmidt, M Meister, F E Bryson, D Lein, J Coppin-Massanet, P Tanghe, J Lawrence

1951161 *Sources and pathways of freshwater in the collapsing ice and ocean ecosystem of Milne Fiord, Canada:* **P Washam**, J Bonneau, A Mullen, D Mueller, Y Antropova, B Laval, A Forrest, B Schmidt

1897551 *Subglacial discharge drives ice mélange breakup at deeply grounded glaciers:* **N Abib**, D Sutherland, J M Amundson, M D King, I R Joughin

1848392 *The Changing Greenland Ice-bioscape System: New Data, Tools, and Insights:* **T A Moon**, D Carroll, E M Enderlin, A KD, K L Laidre, B Cohen, T E Black, H L Stern III, J Meyer

1970908 *Thermal Shadows of Icebergs Observed with a Towed Fiber-Optic Cable:* **B P Lipovsky**, D Gräff, R H Jackson, D Wheeler, A Vieli, D Farinotti

1853904 *Understanding calving-induced mélange and fjord dynamics in Greenland through multiscale modeling and experiments:* **Y Meng**, Y Xu, T W N Haine

247072

Machine Learning in the Cryosphere

Conveners: **Ching-Yao Lai**, Princeton University; **Gong Cheng**, University of California Irvine; **Douglas Brinkerhoff**, University of Montana; **Mauro Perego**, Sandia National Laboratory

1981194 *A Machine-Learning Framework for Mapping Little Ice Age Maximum Glacial Extents:* **M Salmani**, B M Csatho, J P Briner, H Gao, A C Moraes Luzardi, S Nowicki, I Parmuzin

1893270 *Applying a universal machine learning based surrogate model for multi-catchment permafrost simulation:* **B Gao**, E Coon, D Lu

1992896 *Deep Learning Prediction of Cryosphere Carbon Cycling Under Climate Change:* **Y Qu**

1953473 *Deep learning the flow law of Antarctic ice shelves:* **Y Wang**, C Y Lai, D J Prior, C Cowen-Breen

1859379 *DMFS: Differentiable Modeling for Forzen Soil Thermodynamic Characteristics:* **L Gou**, Y Ren, M Xiao, Z Liu, C Shen

1911498 *Emulating surface melt over the Greenland ice sheet with ML tools: the MAR-IA model:* **M Tedesco**, R Matai, X Fettweis

1985327 *Evaluating Multiple AI/ML Models with Parallelized Jupyter Notebook Deployment in Kubernetes for Accelerated Arctic Geospatial Preprocessing and Predictive Visualization:* **M Shayeghmoradi**, K Foerster, N Kaabouch, S Parker, T Pasch

1988031 *Forecasting Sea Ice Concentration using SARIMA-LSTM for the Pan-Arctic region:* **C Kulkarni**, N Schlegel

1880344 *GEOCLASS-image, a Modular Cyberinfrastructure to Facilitate and Advance Machine Learning and Scene Classification in the Geosciences:* **S Twickler**, U Herzfeld, T Trantow, PhD

1886045 *How Much and How Uniquely Can Neural Operators Recover Greenland Ice Mass Change from Sea Level Fingerprints?:* **X Bao**, S Coulson, N Valencic, J X Mitrovica, S Dangendorf, S M Mousavi, A Lloyd

1894011 *Iceberg Velocity Estimation Over Large Displacements With Machine Learning:* **M Hellwig**, L A Stearns, M G Shahin

1929727 *Using Internal Gravity Wave Fibersensing Data to Quantify Glacial Melt and Investigate Fjord Dynamics:* **D Loska**, D Gräff, B P Lipovsky

1927734 *Identifying the current inland elevation limit of crevassing on Narsap Sermia, southwestern Greenland using machine learning:* **N Khan**, K Poinar

1887666 *Improving Calving Parameterization Using a Graph Neural Network Finite Element Emulator:* **Y Liu**, M Morlighem, G Cheng

2000694 *Improving Surface Property Retrievals in Boreal Seasonal Snowpacks through Multiscale Modeling of Subgrid Reflectance:* **S Singh**, A P Barros

1997088 *Improving Uncertainty Calibration and Segmentation Performance in Sea Ice Type Mapping Using Confidence-Aware Deep Learning:* **S Jalayer**, M Karimzadeh

1855026 *Leveraging GPU-based Computing and Physics-informed Deep Learning in IGM to Achieve High-resolution, Data-consistent Modelling of the Alps' Last Glaciation Coupled with Particle Tracking:* **T Leger**, G Jouvet, S Kamleitner, J Mey, A Vieli, S U Nussbaumer, B Finley, M Bernard, B Allegri, S Ivy-Ochs, A Henz, F Herman

1880580 *Long-Term Terminus Prediction Using Interpretable Machine Learning:* **K Shionalyn**, G Catania, D T Trugman, M G Shahin, L A Stearns, D Felikson

1927208 *Machine Learning Based Uncertainty Quantification for Ice Sheet Basal Friction Inversion:* **S He**, C Y Lai, F Sapienza, M Perego

1960759 *Machine Learning Emulation of a Hyper-resolution Physical Snow Model to Assess Landscape-scale Forest Management Outcomes:* **J A Biederman, PhD**, R Dwivedi, P D Broxton, T Woolley, J Leonard, J K Pearl, B Svoma, C Devine, M Robles

1941191 *Machine Learning in the Mountains: High Resolution Season Ahead Forecasts for the Himalayas:* **S Sengupta**, R Das Bhowmik

2000893 *MeltwaterBench: Deep learning for spatiotemporal downscaling of surface meltwater:* **B Lütjens**, P Alexander, R Antwerpen, T Widmann, G Cervone, M Tedesco

1846328 *Quantifying Global Glacier Change Using Surrogate-AI Methods:* **A Venkataraman**

1867095 *Reconstructing Ross Ice Shelf in 1970's using archival geophysical data and Physics-Informed Machine Learning:* **J Scalabrin**, D Yang, W Chu

1947679 *Seasonal prediction of Arctic sea ice based on diffusion model:* **W Dong**

1885427 *TanDEM-X Penetration Bias Estimation by AI Algorithms in Antarctica using ICESat-2 and ECMWF Data:* **A Vashishtha**, P Milillo, A B Campos, P Rizzoli, J Nilsson, J L Nueso-Bello

1906295 *Theory-guided machine learning prediction of summer Arctic sea ice:* **D A Kondrashov**

1863725 *Timeseries Classification of Greenland Ice Sheet Supraglacial Lake Evolution and Dynamics:* **D R Dunmire**, A Subramanian, A F Banwell, E Hossain, M O Gani, H Younas, B Myers

250716

Making Cryosphere Fieldwork Safe, Enjoyable, and Welcoming for All (joint with B)

Conveners: Katherine Braun, Illinois State Geological Survey; **Christine Liang**, Helmholtz Centre for Environmental Research UFZ Leipzig; **Shannon Dillard**, University of Wisconsin Madison; **Mariama Dryák-Vallies**, University of Maine; **Benjamin Maglio**, United States Permafrost Association

1991751 *Antiracist, Decolonial, Intersectional Praxis: Reflections From the Field:* **D Khor**, S Ramnath

1927979 *Considerations for Balancing Fieldwork and Parenting Responsibilities:* **M Ward Jones**, C Liang, T Prior

1955216 *How Can We Better Take Care of Each Other in the Field?:* **K Braun**, M Ward Jones, B Maglio, J Dann, S Dillard, J Warren

250974

Modeling of the Cryosphere: Glaciers and Ice Sheets

Conveners: Marianne Haseloff, Princeton University; **Helene Seroussi**, Jet Propulsion Laboratory; **Trevor Hillebrand**, Los Alamos National Laboratory; **Katarzyna Warburton**, University of Cambridge

1888568 *A glacier slip law incorporating debris-bed friction:* **J Brooks**, L Zoet, M J Hoffman, T Hillebrand, C Helanow, M Haseloff, N Morgan-Witts, D Hansen

1916773 *A Positive Feedback Between Iceberg Calving and Local Sea Level Through Hydrostatic Pressure:* **A Ambelorun**, A Robel, H L Seroussi

1981243 *An evaluation of four calving laws on the lake-terminating Gilkey Glacier, Juneau Icefield, Alaska, U.S.:* **C Kammerdiener**, W H Armstrong Jr, I Overeem, J N Reahl, D Sutherland, V Benson, A Sommers

1990143 *Anisotropic ice development at the Thwaites Eastern Shear Margin:* **E Liu**, T J Young, O Zeising, E Dawson, J Suckale

1914356 *Using physics-informed neural networks to constrain ice viscosity from ice-penetrating radar data:* **G J Lu**, Y Wang, K Gollamudi, C Y Lai, J Kingslake

1865972 *Using Thermal Model Ensemble and Machine Learning to Predict the Basal Temperature of the Northern Greenland Ice Sheet:* **L Liu**, D Yang, W Chu, J A MacGregor

1870232 *Polar STEAM's Pathway from Curiosity to Confidence: Preparing Participants to Thrive in Cryosphere Fieldwork:* **J Ivory**, M Barker, J Risien, J Hutchings, K S Bernard

1893010 *Reflections from 10+ years of Conducting Safe and Inclusive Field Campaigns in Arctic Alaska:* **B Bolton**, K E Bennett, R Busey, C M Iversen, M W Jones, G W Schwaner, N Tas

2003663 *The Need for Sustained Proactive Comprehensive Field Safety Efforts:* **C A Arendt**

1857018 *Transforming Field Culture: Insights from the ADVANCEing FieldSafety Program:* **A U Gold**, A F Hill, M C Dryák-Vallies, E Ward, B Schneider, E Marin-Spiotta, M Jacquemart, A Mattheis, K F Tiampo, M G Hastings, R Cassotto, M Dawson

2001693 -----: **A Contosta**

1878908 *Beyond a Snapshot: Assimilating Time Series to Constrain Greenland Ice Sheet Dynamics:* **H Shields**, M Morlighem, J Badgeley, M Sagebaum, T Harvey

1971285 *Calibration of Upernavik Isstrøm Using Ensemble Data Assimilation:* **Y Choi**, D Felikson, L C Andrews

1978261 *Capabilities of IGM 3.0, a GPU-Accelerated Inverse and Forward Ice Flow Model Based on Physics-Informed Convolutional Neural Network:* **G Jouvét**, B Finley, T Gregov, S Rosier, S Cook, T Leger

1926986 *Continental-Scale, High-Order, High-Spatial-Resolution Ice Flow Modeling Based on Graphics Processing Units (GPUs):* **A Sandip**, K Mosley, R Espin, M Morlighem

1898916 *Could Greenland Basin Weight Improve Projected Contribution of Sea Level Rise?:* **N Senthil**, X Luo, S Nowicki

1848801 *Densification strain rate at a firn-ice transition area around an ice cap on ice flow dynamics:* **T Toyoyama**

2002098 *Effects of Shear-Driven Crystallographic Preferred Orientation on the Compressional Flow Stress of Ice:* **R Das**, J Fowler, M Fleming, D J Prior, D Lukens, D L Goldsby

- 1932042** *Effects of Temperature and Salinity on Grain Growth in Melt-bearing Ice:* **M Berkman**s, N Walls, C Seltzer, C McCarthy, C Bate
- 1942559** *Evolution Of Crystallographic Fabric In Ice From Ice Sheets To Ice Stream Margins: A Numerical Study:* **Y Hu**, C Qi, P Bons
- 1996407** *Fabric-Induced Weakening of Ice During Tertiary Creep at High Shear Strain:* **J Fowler**, M Fleming, R Das, D J Prior, D L Goldsby, D Lukens
- 1913316** *Gleaning additional insight from the satellite record with observations of waves on glaciers:* **M Filter**, B V Riel, B M Minchew
- 1897508** *Horizontal Force-Balance Calving Laws: Ice Shelves, Marine- and Land-Terminating Glaciers:* **N Coffey**, C Y Lai
- 1858728** *Identifying drivers of seasonal mass loss for Greenland's three largest outlet glaciers using numerical modeling and GNSS observations:* **G Cheng**, V R Barletta, S A Khan, M Morlighem, H L Seroussi, D Berg
- 1878890** *Improved Model of Buoyancy Feedbacks in Ocean Surface Wave-Induced Melting of Ice Walls:* **M Mamer**, A Robel
- 1855186** *Inferring the Antarctic Ice Sheet sliding law from seismic observations – A Pine Island Glacier case study:* **K Hank**, R J Arthern, C R Williams, A Brisbourne, A M Smith, J Smith, A Wahlin, S Anandakrishnan
- 1910383** *Initialization of Antarctic Ice-sheet in Pre-industrial Era:* **J Caillet**, J Beckmann, N Jourdain, C Mosbeux, H L Seroussi, C Burgard, G Durand, F Gillet-Chaulet, P Mathiot, F McCormack
- 1885465** *Integrating Machine Learning into Ice Sheet Models using Universal Differentiable Programming:* **M Morlighem**, G Cheng
- 1897945** *Investigating the Effect of Ice Rheology on Steady-State and Transient Ice Sheet Dynamics Using a Flowline Model:* **G Myers**, M Ranganathan, D Lilien
- 1953765** *Investigating the effect of initial geometry on 21st century projections of the Greenland Ice Sheet:* **A C Moraes Luzardi**, S Nowicki, D Felikson, B M Csatho, J K Cuzzone, J P Briner, M Salmani, K Poinar
- 1875463** *Lake-drainage induced transient stress perturbation in a viscoelastic ice-sheet:* **E Lee**, C Y Lai, F Clerc
- 1902817** *Meltwater to Megawatts: Determining Peak Flow Timing for Dixon Glacier Using a Distributed Enhanced Temperature Index Model for Energy Applications:* **K Myers**, J Geck
- 1872040** *Microstructural evolution of ice in a laterally-confined, plane-strain geometry:* **C Needell**, A J Cross, M Fleming, D J Prior, R Thomas
- 1914116** *Microstructural evolution of partially molten ice under static and stressed conditions:* **C Seltzer**, C McCarthy, A J Cross, M Berkmans, N Walls
- 1989474** *Modeling the Contrasting Retreat of Tracy and Heilprin Glaciers in Inglefield Fjord (Kangerlussuaq), Northwest Greenland:* **J McMahan**, H L Seroussi
- 1970888** *Modeling the influence of surface mass balance on lake-terminating glaciers of the Juneau Icefield (Alaska, U.S. and British Columbia, CA) using the Instructed Glacier Model:* **J N Reahl**, I Overeem, D Sutherland, V Benson, W H Armstrong Jr, K Wing, G Jouv
- 1846469** *Modelling the impact of the Coriolis force on basal melting for Antarctic ice shelves:* **H Shim**, H L Seroussi
- 1968499** *Overview for the Ice Sheet Model Intercomparison Project for CMIP7 (ISMIP7):* **S Nowicki**
- 1976618** *Past and future retreat of Thwaites Glacier: sensitivity, calibration, and sea level contribution:* **M Poinelli**, E J Rignot, H L Seroussi, J K Cuzzone, T Pelle, E Y Larour
- 1943176** *Protocol for the Ice Sheet Model Intercomparison Project for CMIP7 (ISMIP7):* **H L Seroussi**
- 1883486** *Quantifying the Uncertainty in Greenland's Contribution to Sea Level Rise Due to the Bed Topography:* **M Krishna**, M Morlighem, D Mangini, Y Choi
- 1907732** *Revisiting surface melting in Antarctica under climate change and its Implications for future projections in ice dynamics:* **I W Park**, E K Jin, M Morlighem, M Rückamp, W S Lee, K K Lee
- 1989794** *Sensitivity of Amundsen Sea projections to ENSO-like ocean heat variability in a coupled ice-ocean model:* **B Getraer**, M Morlighem, D Goldberg, Y Nakayama
- 1885553** *Simulating the Glaciers in the Mt. Everest Region:* **T Zhang**
- 1910508** *Spatiotemporal Analysis of Glacier Flow and Ice Motion in Bara Shigri Glacier, India, using SAR Polarimetry and Geoinformatics Tools:* **S Bhattacharjee**, R D Garg, A C Pandey
- 1852831** *Subglacial Drainage System Controls Ice Flow Sensitivity to Groundwater Feedback:* **S Larochelle**, J Kingslake, G J Lu
- 1910464** *Surface energy balance on Drang-Drung Glacier, Ladakh:* **M A Hussain**, D M F Azam
- 1968049** *The Antarctic Ice Sheet Large Ensemble:* **S Muruganandham**, A Robel, T Hillebrand, M J Hoffman, S F Price
- 1861517** *The effect of chemical impurities on the superplastic creep strength of ice - implications for natural ice flow laws:* **R Thomas**, A J Cross
- 1844658** *The Effect of Proton Ordering on Dislocation Mobility in Hexagonal Ice:* **M Demkowicz**

- 1960659** *The Impact of Climatic Noise on Surface Mass Balance-Induced Glacier Dynamics for the West Antarctic Ice Sheet:* **C Markovsky**, S Rupper, D Shapero, C Strong, S Hudson, E Hunter
- 1856967** *The Role of Basal Melt in Ice Shelf Calving:* **J Chen**, C Y Lai
- 1988395** *Thermal and hydrological controls on marine ice stream dynamics:* **M Haseloff**
- 1948915** *Towards direct numerical simulation of ice stream shear margins:* **L Mann**, C Meyer

248029

Modeling of the Cryosphere: Seasonal Snow

Conveners: **Mark Raleigh**, University of Colorado at Boulder; **Tobias Jonas**, WSL Swiss Federal Institute for Forest, Snow and Landscape Research; **Vincent Vionnet**, Organization Not Listed

- 1962939** *A 40-year Evaluation of Biases and Representativeness of Meteorological Reanalysis Products for Snow Models in Complex Topography:* **A R Hedrick**, J Meyer, M Robertson
- 1975795** *Analyzing the Spatial Transferability of Airborne Lidar Snow Water Equivalent (SWE) data with Convolutional Neural Networks in the Continental US:* **E Tyrrell**, N P Molotch, K Rittger
- 1923362** *Assessing How Snow Data Assimilation And Model Complexity Influence Estimation Of Snowpack Liquid Water Content:* **B Mirza**, E E Small, M S Raleigh
- 1956282** *Climatological Terrain Accessibility Mapping Using Soil and Snow Conditions in the Western United States:* **K Rasouli**, D McEvoy, C Albano
- 1973854** *Dense-Media Snow Microwave Radiative Transfer (SMRT) model Extensions for Dual-Frequency Radar Backscatter at C- and Ku-Bands:* **H Sanaei**, P Siqueira
- 1946607** *Does Water Vapor Transport Explain the Bi-Layer Stratigraphy of Tundra Snowpacks?:* **K Fourteau**, J Brondex, H Loewe, F Tuzet, F Domine, P Hagenmuller, L Bouvet, N Calonne, K Jondeau, V Vionnet, C Cances, M Dumont
- 1868492** *Evaluating iSnobal Model Performance in Wildfire-Impacted Basins: the Role of Landcover Parametrizations:* **H Flynn**, D McGrath, J Meyer, N Caldwell, C Stevens-Rumann, S K Kampf, S R Fassnacht, A R Hedrick, K Elder
- 1987228** *Evaluating Machine Learning Model Transferability for Operational Snow Density and Snow Water Equivalent Monitoring:* **I O Alabi**, H P Marshall
- 1935612** *Evaluating the effects of a dynamic snow grain shape on the DOE E3SM snow simulations:* **L Luong**, D Hao, E Zorzetto

- 1861197** *Transient Inversions for Basal Friction and Mass Loss Projections in the Aurora Basin:* **T Harvey**, H L Seroussi, M Sagebaum
- 1898911** *Using GRACE observation to inform model weighting on ISMIP6-Greenland projections.:* **X Luo**, S Nowicki, M J Croteau, D Felikson
- 1931334** *Using numerical models to explore Greenland outlet glacier response to early industrial-era climate variability and change:* **S B Thompson**, J E Christian, J K Cuzzone, I Below
- 1960983** *Field-Based Validation of a Thermal-Hydro-Mechanical (THM) Soil Model:* **I Kim**, J Ammatelli, N Chellman, G Boisrame, R W H Carroll, A Heggli, M B Hausner
- 1957424** *Grounding the Shallow: Making Sense of the Ground Heat Flux when Modeling Thin and Ephemeral Snow:* **J Ammatelli**, I Kim, R W H Carroll, G F S Boisrame, A Heggli, M B Hausner, N Chellman
- 1964424** *High Resolution Modelling of Forest Thinning Impacts on Ephemeral and Seasonal Snowpacks in the Southwestern US:* **P D Broxton**, J A Biederman, PhD, R Dwivedi, W J D Van Leeuwen, T Sankey, T Woolley, B Svoma
- 1973197** *High-Resolution Downscaling and Uncertainty Estimation of Snow Depth Using Lidar-Informed Machine Learning:* **B Quinn**, J Herbert, E E Small, M S Raleigh
- 1945453** *Improving distributed snowpack estimates in complex terrain through the joint assimilation of in-situ and spaceborne snow observation:* **M Oberrauch**, B Cluzet, J Magnusson, T Jonas
- 1995504** *Improving Snow Energy Balance Models with In-Situ Observations of Albedo Decay and Recovery Following Colorado's Cameron Peak Wildfire:* **N Caldwell**, D McGrath, H Flynn, J Meyer, S R Fassnacht, S K Kampf, K Elder, A R Hedrick
- 1901281** *Modeling Post-Fire Snowpack Dynamics Across Variable Climate Conditions:* **A Koshkin**, A M Marshall, A Wood
- 1957866** *Physically Based Modeling to Inform Operational Snowmelt Predictions in the Northeastern United States:* **A Grunes**, K Hale, J Meyer, I U Haq, T DiPietro, K Jennings, B Wemple
- 1942852** *Projected Impacts of Climate Change on Snowpack for Indigenous Reindeer Herding in Sakha, Russia: Localized SNOWPACK Simulations Driven by CESM2:* **B Kao**, A H Lynch, V Solovyeva, D Bailey

1870912 *Quantifying the radiative effects of snow grain shape and deposition of light-absorbing particles: Implications for snowpack predictions over the Western United States:* **E Zorzetto**, D Hao, E Shevliakova, S Malyshev, P A Ginoux, L Luong, C Cox

1902973 *Recent iSnobal Enhancements: Assessing Improvements from an Updated Representation of the Radiative Balance Using Geostationary Satellite Cloud Cover in the Upper Colorado River Basin:* **A Robledano**, M Olson, J Meyer, J M Hu, S M Skiles

254665

Nutrient and Trace Element Biogeochemistry in the Cryosphere (joint with B, GC)

Conveners: **Adrian Rocha**, University of Notre Dame; **Adrian Rocha**, University of Notre Dame; **Joanna Carey**, The Ecosystems Center, MBL; **James McClelland**, University of Texas at Austin

1894065 *Bioavailable iron delivery to the Southern Ocean through glacial systems:* **K Winter**, J Woodward, S Dunning, S Henley Dr, J Jordan, J Graly, M Westoby, J Longman, R Raiswell

1894664 *Biogeochemical Cycling of Dissolved Zinc and Zinc Isotopes in the Arctic Ocean:* **E Langer**

1928107 *Characterization of 2016 Early Season Russell Glacier Meltwater:* **A Lawton**, P L Morton, J Hawkings, S McCollaugh

1920601 *High-Resolution Sea-Ice Analysis Using a New Continuous Melter System:* **R Reis**, N Magnier, D Mondragon, B H Vaughn, V A Morris, C C Walker, C R German, K P Hand, M Diaz

2004374 *Hydrologic and Biogeochemical Responses to Prolonged Summer Rainfall in Glaciated and Unglaciated High Arctic Watersheds (Qaanaaq, Greenland 2025):* **L Wieland**, E S Klein, C Kuhle, T Wirak, A Broberg, K Hall

1900004 *Landscape History in Permafrost Regions Dictates Biogeochemical Change in the Anthropocene: A Case Study Across Fluvially-Connected Landsystems of the Western Canadian Arctic:* **S E Tank**, S Kokelj, D G Froese, A Deurwaarder, G Hatten, J Smith, M Taskovic, B D Lanoil, A Alvarez

1899743 *Recent iSnobal enhancements: Improving radiation forcing inputs through integrated topographic downscaling and cloud parameterization in the Upper Colorado River Basin:* **M Olson**, A Robledano, J Meyer, S M Skiles

1972854 *Reduced Surface Hoar in a Warming Climate:* **W J Rudisill**, D Feldman, A M Marshall, A Koshkin

1904276 *Representing Canopy Snow Mass and Energy Balance Processes in iSnobal to Improve Snow Accumulation and Melt Timing:* **Y Liu**, J M Hu, A Robledano, S M Skiles

1967253 *Toward Spatially Adaptive Parameterization of Precipitation Partitioning in Land Surface and Snow Models:* **M Moradi**, R Reed, J M Jacobs

1959928 *Latitudinal Patterns in Snow Geochemistry and Algal Bloom Dynamics: A Comparative Study from Alaska to the Antarctic Peninsula:* **E Ryan**, A L Khan

1982933 *Mercury Mass Balances in West Greenland Fjords:* **C H Lamborg**, J Hawkings, L Meire, A N Youssef, J Calvin, X Cui, J West, M Despina, P J Lam, E M Kocik, I Kübler-Dudgeon, M McKenzie, K Prelich, L Piret

1881839 *Modeling Mercury Flux Dynamics in Permafrost Ecosystems:* **C Olson**, K M Schaefer, B M Geyman, C Olson, C P Thackray, S Zolkos, D Streets, E M Sunderland

1927063 *Preferential Use of Trace Oxygen by Facultative Iron Reducers in Subglacial Habitats:* **A Shoemaker**, M L Skidmore, E S Boyd

1920229 *Probing into mercury transformations in ice-free lands on King George Island, Antarctic Peninsula:* **M Tsui**, M Cheng, S Wang, G Liu, Z L Chen, J Li, S Y Kwon, J Chung, L Liu, A Chow

1895226 *Saltwater Intrusion Alters Soil Porewater Biogeochemistry Along an Arctic Coastline:* **E Elmstrom**, J McClelland, J Holtzer, J Guimond, A Spera, J Hung, S Natali

1972744 *Spatiotemporal Analysis of Dissolved Organic Matter in Tropical Glacier Streams in the Ecuadorian Andes:* **A Douglass**, A Jacoby, J D Barker

1962599 *Tracing Seasonal Ground Thaw with Stream Chemistry in Arctic Permafrost Catchments:* **A Grose**, J P Zarnetske, A Grewal, A J Shogren, A Rec, J A O'Donnell, B Abbott, W B Bowden

248996

Observations and Models of Glacier Change

Conveners: **Caitlyn Florentine**, University of Montana; **Brian Menounos**, Geological Survey of Canada Pacific; **Alex Gardner**, NASA Jet Propulsion Laboratory; **Livia Jakob**, Earthwave Ltd

- 1961903** *Advancing Glacier Mapping and Change Detection with Deep Learning: A Case Study from the Indian Himalaya:* **S K Verma**, S Vijay, A Banerjee
- 1942513** *Attribution of Glacier Change: An Overview of Existing Work and New Insights from Extreme Mass Loss Years:* **L Vargo**, B Anderson, R Dadic, R Hock, A King, A Mackintosh, B Marzeion
- 1998589** *Bayesian framework for global glacier model calibration against spatially distributed elevation change data:* **B Tober**, D Rounce, D Brinkerhoff, M Loso, M A Fahnestock, P Schmitt, F Maussion
- 1953767** *Cloud-based modeling of all Alaskan glaciers with PISM:* **A Aschwanden**, J H Kennedy
- 1943401** *HERMIT: A Low-Cost Integrated GNSS-Seismic Platform for Monitoring Glacier Dynamics:* **B Soja**, F Walter, D Binder, S Mertl, A Wolf, R Presl, Y Pan, D Farinotti
- 1971621** *Iceberg calving frequency and style of lake-terminating glaciers in the Juneau Icefield, Alaska:* **K Wing**, W H Armstrong Jr, V Benson, D Sutherland, J N Reahl, I Overeem, C Sharpe-Velazquez, B Aldrich
- 2003786** *Investigating Sub-Zero Melting at Milam Glacier: Linking Black Carbon Deposition to Non-Thermal Melt Anomalies:* **S S Saini**, A Chandel, S K Singh
-

249044

Observing and Modeling of Earth Surface Cryogenic Processes and the State of Permafrost

Conveners: **Dmitry Nicolsky**, University of Alaska Fairbanks; **Dmitry Streletskiy**, The George Washington University; **Elchin Jafarov**, Woodwell Climate Research Center

- 1918753** *A Data-Driven Framework for Active Layer Thickness Prediction across Circum-Arctic Permafrost Regions Using Geospatial Machine Learning:* **A Wilcox**, A Ahajjam, M Soaper, R Chance, T Pasch
- 1986146** *ASAP: A Web-based Analysis and Decision Support System for Alaska Permafrost:* **A Ahajjam**, S Miller, S Parker, S Pogalla, A Wilcox, T Pasch

- 1942364** *Multi-year precursors of marine-terminating glacier surges in Svalbard:* **W Zheng**, W Harcourt, T Li
- 1954007** *Quantifying the Present State of the Dana Glacier in the Central Sierra Nevada, California:* **E McQuilkin**, A C Bradley, G M Stock, Z Courville
- 1979139** *Snow4Flow: A new NASA airborne mission to measure and model the state and fate of Arctic glaciers:* **J W Holt**, J A MacGregor, L C Andrews, P Griffith, A Wu, D J Hodkinson
- 1925467** *Surface Elevation Loss and Glacial Retreat in the Cordillera Darwin Icefield from 2017 through 2024:* **E Neuhauser**, A C Bradley, C T Halsted
- 1925538** *Surface Velocity and Meltwater Flux at Two Alaskan Benchmark Glaciers: a Seasonal Analysis:* **L Summers**, E M Enderlin, C Florentine
- 1991916** *The different characteristics of glacier changes between two basins in HMA: the westerly basin and the summer monsoon region:* **Q Ye**, N Ali, Y Hu
- 1949148** *The Python Energy Balance Model for Snow and Ice (PEBSI): A New Open-Source Model with Physically-Based Albedo Evolution:* **C Wilson**, D Rounce, L Sass, E H Baker, M Flanner, M Skiles
- 1937994** *Three Decades of Glacier Retreat in the Hindu Kush Himalaya (1990s to 2020):* **S B Maharjan**, T C Sherpa
- 1982697** *Updated Rates of Ice Loss, Segmentation and Average Ice Velocities, Thicknesses and Elevations for Glaciers on Southern Ellesmere, Northwestern Devon and North Kent Islands:* **E VanMeter**, B R Edwards, W H Kochtitzky, L Copland
- 1884174** *Constraining the cryo-hydrological processes driving acid and metal mobilization from thawing permafrost in northern Alaska:* **R Rowe**, A Mohammed, R Basijokaite, P Fortier, J C Koch
- 1955245** *Coupled Surface and Subsurface Controls on Ground Thermal Dynamics in Discontinuous Permafrost Regions:* **C Wang**, I Shirley, S Wielandt, S Fiolleau, J Lamb, S Uhlemann, C Ulrich, H Ulloa, N Tas, K E Bennett, C M Iversen, PhD, B Dafflon
- 1975969** *Coupled Thaw-Slump Dynamics on Arctic Coastal Bluffs:* **M A Islam**, D Nicolsky, V E Romanovsky, T C Wright
- 1889403** *Decadal Trajectory of Post-Fire Permafrost Ground Deformation Revealed by InSAR Chronosequence in North Yukon:* **Z Cao**, M Furuya
- 1865398** *Ensuring the sustainability of infrastructure on permafrost under climate change and technogenic pressure:* **V I Grebenets**, T Sidorova, V Tolmanov, F D Iurov, D A Streletskiy

- 1897262** *Heterogeneous Permafrost Evolution on the Beaufort Sea Shelf over the Last 400,000 Years:* **Z Li**, K You
- 1936901** *Hydrologic Observations Across the Hillslope-to-River Corridor of an Arctic Tundra Watershed:* **D Hill**, N Mukherjee, M B Cardenas, P Shuai, R M Cory, G W Kling, B Gao, E Coon, B T Neilson
- 1864385** *Long-term thaw subsidence rates from Circumpolar Active Layer Monitoring sites in North America and Northern Eurasia:* **D A Streletskiy**, N I Shiklomanov, V I Grebenets, A Maslakov, D Kaverin
- 1940911** *Mapping of localized long-term active layer thickness change, North Slope of Alaska:* **V A Tolmanov**, F E Nelson
- 1895753** *Microstructural Characterization of Arctic Terrain Using X-Ray μ CT:* **A LaPoint**, E Goodell, G Cuciti, D Mazzilli, C Tilton, O Rutkowski, J Nichols, A Vermilyea, M Sama, R Lieblappen
- 1973098** *Modeling Permafrost State Dynamics Across the Circum-Arctic: Trend-Based Indexing and Residual-Corrected Ensemble Learning:* **M Soaper**, A Ahajjam, A Wilcox, R Chance, S Parker, T Pasch
- 1951468** *Modeling Permafrost Thaw and Land Surface Change in Arctic Alaska:* **D Nicolsky**, V E Romanovsky, D A Walker, M A Islam, T C Wright

247821

Quantifying Spatial and Temporal Variability of Snow and Snow Processes (joint with A, H, NH)

Conveners: Jesus Revuelto, CSIC; **Hans-Peter Marshall**, US Army Cold Regions; **Erich Peitzsch**, USGS; **Jeffrey Deems**, National Snow and Ice Data Center

- 1935523** *Are Microplastics Melting Snow? Radiative Forcing and Melt Contribution Assessment in the Western US:* **M Skiles**, C Donahue, J Brahney
- 1989855** *A global analysis of annual snowmelt runoff onset for the past decade: geographic controls, interannual variability, and implications for basin-scale water resources:* **E Gagliano**, D E Shean, S T Henderson
- 1882481** *A spatiotemporal analysis of non-snow errors in InSAR SWE retrievals:* **R Palomaki**, Z Hoppinen, H P Marshall
- 1926581** *Assessing Seasonal Snow Melt Controls in Colder versus Warmer Forested Basins using Lidar and Machine Learning:* **S Shaw**, E E Small, J Herbert, M S Raleigh
- 1965411** *Assimilation of community science data to improve mountain snow distribution estimates:* **C Aragon**, D Hill, G J Wolken, K Wikstrom Jones, R Crumley
- 1987987** *Canopy Structure and Radiative Influences on a Seasonal Snowpack in the Central Adirondack Mountains, USA:* **M Gunn**, H Gunn, S E Tuttle

- 1961955** *Resolving Circumarctic Zero-Curtain Phenomena with AI-Integrated Earth Observations:* **B Gay**, K R Miner, N Rietze, B Poulter, N J Pastick, C E Miller
- 1848626** *Simulation of permafrost changes in Hoh Xil of the Tibetan plateau over the last millennium:* **L Zhao**, Y Zhang
- 1934764** *The Effects of Weather Variability on Supra-Permafrost Thermal Hydrology:* **N Mukherjee**, B Gao, E Coon, P Shuai, D Hill, B T Neilson, R M Cory, G W Kling, J Chen, M B Cardenas
- 1920428** *The Role of Groundwater in Talik Temperature Regime Dynamics:* **V E Romanovsky**, D Nicolsky, C D Arp, C Brookins, M Rieser, N Goldup
- 1850796** *To Calibrate or Not to Calibrate? An Assessment of Modeling Ground Temperatures with GEOtop across the Tibetan Plateau:* **K Y Kim**, R Haagensohn, H Rajaram, V Lakshmi
- 1989284** *Towards an integrated model for time-calibrated paleoclimate reconstruction of yedoma deposits:* **T Zhang**, C Baciocco, F Liu, G Li, M Douglas
- 1999082** *Towards Modelling Hydrological Processes in Boreal Forest Wetlands: implications from a High-Latitude site and multi-model analysis:* **D Dai**, C He, Z Li, R Abolafia-Rosenzweig, O Sonnentag, T S Lin, L Bortolotti, S Ketcheson, H Alcock, V Harriman, Y Li
- 1899003** *Changing Snow-Cover Seasonalities in Kyrgyzstan 2001-2021 Observed by MODIS Terra: Trend Modulation by Elevation and Aspect:* **M A Tomaszewska**, G M Henebry
- 1878250** *Daily snow depth mapping with random forests and airborne lidar: A comparison between snowpacks in the eastern and western United States:* **J M Johnston**, C Pan, J M Jacobs, S O'Neil
- 1923297** *Demonstration and Assessment of a Low-Cost Snow Energy and Mass Balance Monitoring System to Support Snow Observations and Modeling.:* **W Roe**, S M Skiles, S Clark
- 1954077** *Determining Links Between Canopy Structure Metrics and Snowpack Dynamics around Mt Mansfield Vermont, US:* **J LaDue**, A Grunes, B Wemple, A Bomblies
- 1930969** *Evaluating Snowpack Simulations Using CONUS404 and AWS Data in Glacier National Park, Montana:* **A Bruckmeier**, E Peitzsch, E A Sproles, K Birkeland
- 1999068** *Fauna as Snow Engineers: Modeling Caribou Impacts on Snowpack:* **K Murphy**, W Zhou, PhD, V Y Ivanov
- 1937662** *From snapshots to time-series: filling spatial and temporal gaps between lidar surveys with machine learning and Snotel:* **J Herbert**, M S Raleigh, E E Small

- 1945316** *From Snow Water Equivalent (SWE) to Snow Water Availability (SWA): A New Framework for Quantifying Water Stored in Snowpack:* **A Nazemi**, R Sarpong, A AghaKouchak
- 1866960** *High-Resolution Observations of Snow Surface Evolution on Landfast Arctic Sea Ice and Its Effect on Sea Ice Trafficability:* **A Pinzner**, A R Mahoney, A Capelli
- 1881942** *How Soils and Forest Cover Affect Cosmic Ray Neutron SWE Measurements at Tenderfoot Creek Experimental Forest:* **H Kim**, B Whitehead, E A Sproles, S E Tuttle, E Cho, PhD
- 1947422** *Insight into Spatiotemporal Snowpack Dynamics from a Network of Temperature Measurements in an Adirondack Mountains watershed:* **E Mancini**, M Gunn, C M Beier, J Mills, S E Tuttle
- 1987941** *Leveraging Snow-Probe Measurements, LiDAR, and Machine Learning for Modeling Snow Distribution in Complex Terrain:* **D Liljestrand**, R C Johnson, B T Neilson
- 1962702** *Merging Land Surface Modeling and Remotely Sensed Snow Cover Fraction to Improve SWE Estimates: Initial Validation of the CoReSSD 1km North American SWE Product:* **J Dechow**, M T Durand, B Yadav, T Pavelsky, M Wrzesien, S V Kumar

254676

Remote Sensing of the Cryosphere (joint with A, EP, G, H)

Conveners: **Ellyn Enderlin**, University of Maine; **Ellyn Enderlin**, University of Maine; **Robert Hawley**, Dartmouth College; **Catherine Walker**, Woods Hole Oceanographic Institution; **Summer Rupper**, University of Utah

- 1898256** *A Vast Valley Network Beneath the Greenland Ice Sheet:* **A Chartrand**, J A MacGregor, M Morlighem, O V Sergienko, H Ockenden, W Colgan, G Cheng
- 1912311** *Advanced Snow Cover Monitoring in the Himalayas Using MODIS: A Data-Driven Spatiotemporal Analysis Framework:* **S Saravanan**, H R, S S
- 1864003** *An Automated Multi-Data Approach for Monitoring Glacial Lake Dynamics in High Mountain Asia:* **R Kumar**, S Vijay
- 1869959** *Antarctic Greening and Its Drivers:* **H You**, T Park, D Hao, C Che-Castaldo, A Chatterjee, F Li, Z Wang, F Ji, B Sen, M A Lazzara, Y Liu, T P Kurosu, M Chen
- 1916678** *Arctic Tundra Vegetation Change and the Feedbacks on Snow Cover and Permafrost Extent:* **S Dillard**, M Farley, D Yang, T Zhang, M Steckler, K Paff, C Demir, C Trotter, R Crumley, K E Bennett, C M Iversen

- 2004068** *Quantifying Snow Sublimation Patterns over the Continental U.S.:* **E Cho, PhD**, F Cooverji, E Cho
- 1986123** *Quantifying Topographic Uncertainty on L-band InSAR Snowpack Measurements:* **J Tarricone**, C Vuyovich, M J Johnson, M Sandusky, M Robertson, H P Marshall, R Bonnell, K Elder, T H Painter, C Beutler
- 1862390** *Reviewing the Importance of Lateral Flow through Snow in Hydrological Processes Globally:* **R Webb**, N Ohara, H P Marshall, J P McNamara
- 1883669** *Shrub Effects on Marginal Snowpacks Distribution in Central Pyrenees:* **F Rojas**, J Revuelto, E Alonso-González, C Deschamps-Berger, J I López
- 1885725** *Snow dune field morphodynamics according to precipitation and sintering rates.:* **J Alkalla**, M Poizat, O Rozier, J Vêrité, S Courrech Du Pont, C Narteau
- 1994725** *Snow Surface Roughness Variation and the Implications for Sublimation:* **S R Fassnacht**
- 1854095** *Spatiotemporal Measurements of Snow Density through the Integration of UAV-lidar and Ground-penetrating Radar Surveys:* **D McGrath**, H Flynn, N Caldwell, J Meyer
- 1977519** *Topographic and Vegetative Controls on Snow Accumulation and Ablation: Quantifying the Timing and Volume of Net Snow Water Input:* **B Olds**, P D Brooks
- 1880732** *Assessing the Potential of L-Band Microwave Observations for Detecting Ronne Ice Shelf Basal Marine Ice:* **N Tiwari**, S Wang, K C Jezek, M Brogioni, J T Johnson, Y Zhou, L Kaleschke, S Anderson
- 1978185** *Characterizing the Spectral, Spatial, and Temporal Behavior of Photoautotrophic Communities in Antarctic Wetlands:* **M R Salvatore**, E Johnson, J E Barrett, G Moriarty, M Wood, M N Gooseff, P T Doran, H Dugan, C Dougherty, B Adams
- 2002886** *Decadal trends in Greenland-wide proglacial mélange and calving behavior from integrated altimetry and SAR:* **M D King**, I R Joughin, C Jensen
- 1865334** *Development of Ice Thickness for Earth's Largest Lakes Using ICESat-2 Altimetry:* **I Peter**, E J Anderson, M Siegfried, B Villas Boas, N T Kurtz
- 1984561** *Enhanced Remote Sensing Model for Monitoring Glacial Lake Turbidity:* **U K Haritashya**, M Singh, J S Kargel
- 1901409** *Evaluating Snow and Terrain Influences on L-Band InSAR Coherence in Cottonwood Canyon, Utah in preparation for NISAR:* **A Khatri**, R R Forster, S Rupper, J Lund, E J Deeb, S Brewer
- 2003889** *Evaluation of Ice Measurements along the East and West Greenland Shelves near Cape Farewell:* **D J Torres**

- 1954898** *High-Resolution Glacier Dynamics Across High Mountain Asia from a Deep-Learning-Based Multi-Source Data Fusion Framework*: **L Li**, D Long, Y Wang
- 1966799** *Ice-sheet mass balance from satellite altimetry-gravimetry fusion precisely quantifies atmospheric and dynamic signatures of change*: **T C Sutterley**, B Medley, M Siegfried
- 1991658** *Improving Mass-Balance Estimates through Multi-Sensor Data Fusion*: **J Nilsson**
- 1926001** *ITS_LIVE Version 2.0: A global low latency record of land ice velocity*: **A S Gardner**, C A Greene, J H Kennedy, M A Fahnestock, M Liukis, L Lopez Espinosa, Y Lei, T A Scambos, A Dehecq
- 1864738** *Mapping Alaska's Past: Georeferencing Historical Alaska High-Altitude Aerial Photography (AHAP)*: **E Schlossberg**, C C Porter, J Dickson, M Sterner, N Schiller, C Kelleher
- 1861126** *Microwave Radiometry to Back Out Melt Extent, Melt Infiltration, Meltwater Amount, and Re-frozen Meltwater Within Ice Shelves*: **A Colliander**, A Hossan, N Schlegel, J Z Miller, C C Walker, B Vandecrux, J T Harper
- 1972158** *Multi-Scale Remote Sensing of Antarctic Lake Ice Surfaces and Implications for Long-Term Ice Stability*: **E Johnson**, M R Salvatore, H A Dugan
- 2003837** *Multi-year Changes in Antarctic Ice-Shelf Basal Melting*: **H Chen**, E J Rignot, B Scheuchl, R Gadi
- 1876700** *Observing and Quantifying Seasonal Sea Ice Melt and Sediment Plume Dynamics at Arctic River Mouths Using Remote Sensing*: **E Tofte**, A Piliouras
- 1889101** *Rapid Cryospheric Transformation Fuels Glacial Lake Expansion and GLOF Threat in the Indian Central Himalaya (1994–2023)*: **M Rajak**, S N Ali, P Pandey

247484

Remote Sensing of the Cryosphere - Seasonal Snow (joint with H)

Conveners: **Joachim Meyer**, Boise State University; **Jack Tarricone**, NASA Goddard Space Flight Center; **J Hu**, University of Utah; **Ross Palomaki**, Montana State University

- 1960407** *Accurate snow depth predictions across the Western U.S. using a deep learning model trained on 7 years of airborne lidar snow depth measurements*: **G Brencher**, D E Shean, E Gagliano, S T Henderson
- 1989388** *Advanced Machine Learning Applications for Snowpack and SWE Prediction in the Absaroka-Beartooth Wilderness, Montana*: **M OFlaherty**, A K Laskowski, R Gotz, A Schweiger

- 1961873** *Rapid Glacier Dynamics and Surface Change Analysis using Terrestrial Time-Lapse Camera at Drang Drung Glacier, Western Himalaya*: **P Singh**, S Vijay
- 1975952** *Seasonal analysis of glacier surges in Svalbard based on Sentinel-1 data (2014–2025)*: **W Milczarek**
- 1880476** *Spatial and Temporal Changes to Aufeis Distribution in Northern Alaska*: **J Dann**, S Zwieback, P B Leonard, B Bolton
- 1937532** *Spatial and temporal patterns in glacier melt extents and transient snowlines from Sentinel-1 SAR across Alaska*: **D Rounce**, A Wells, M A Fahnestock
- 1980999** *Spatiotemporal Variability in Seasonal Velocity Drivers at Sermeq Kujalleq*: **T Silva**, A Jenson, L Ultee, M Truffer, J M Amundson
- 1907435** *Study on the Instability of Two Large Glaciers in Northeast Greenland in Recent 60 Years*: **L An**, L Dai, X Liu, R Li
- 1979593** *Temporal Evolution of Greenland Ice Sheet Retreat Since the Little Ice Age*: **M Salmani**, B M Csatho, J P Briner, H Eberhardt, H Gao, A C Moraes Luzardi, S Nowicki, I Parmuzin, G Talebigheshlaghi
- 1927018** *Toward Automated Mapping of the Greenland Ice Sheet's Terrestrial Margins from Satellite Imagery*: **K H Zikan**, E M Enderlin, J A MacGregor, G Luetzenburg, R S Fausto
- 1997981** *Using a Hydrometeorological Warning System and Remote Sensing Data to Characterize Glacial Lake Outburst Flood Risk*: **N F Pelak III**, E Shamir, T Modrick Hansen, H Khoshnod
- 1971231** *Water Budgets for Antarctic Water Tracks and Wetlands from Drone-Borne Reflectance Spectroscopy, Optical Imaging, and Microwave Radiometry*: **J Levy**, I Andrews, I King, L Kuentz, J Johnson, A Talucci
- 1979941** *Coupled Atmospheric Physical Statistical Retrieval of SWE In Forested Environment from Airborne X And Ku-Band SAR Measurements*: **S Singh**, A P Barros, C Vuyovich
- 1927105** *Estimating Snow Aerodynamic Roughness Length Using Remote Sensing in Data-Scarce Mountain Regions*: **K T Scheidt**, R Pimentel, C Marin, R Barella, V Premier, M J Polo, C Notarnicola
- 1920929** *Evaluating Snow Cover Dynamics Using Satellite Imagery in Utqiagvik, Alaska*: **V Ekimova**, H E Epstein, M G Jull, L Cho, M Shaban, M Nelson
- 1870802** *Evaluating the Impact of Different Parameters on SWE Retrieval Using Sentinel-1 Interferometric Data and LIDAR Snow Depth*: **S Oveisgharan**, E Havazli, R W Zinke

- 1885395** *Evaluating uncertainties in modeled snow reflectance using multispectral remote sensing and UAV-based hyperspectral imaging:* **E A Sproles**, D G Fonseca, S Hamp, J Shaw, E Schreier, H R Hannula, R Pirazzini, R Logan
- 1862079** *Feasibility Mapping of L-band InSAR for SWE retrievals:* **P Kaur**, R Webb, J Tarricone, K Rittger, E Gagliano, D McGrath, H P Marshall, R Bonnell, R R Forster, E J Deeb
- 1987858** *Ground classification challenges for LiDAR snow depths in a forested watershed on Vancouver Island:* **A Maue**, B C Floyd, S Marchenko, M Korver, B O'Connor, E Griffiths, D Heathfield, S Beffort, S G Arriola, R White, B Menounos
- 1867681** *High-Resolution Insights into Snowpack Controls on Vegetation Dynamics: UAV vs. Sentinel-2 in the Pyrenees:* **J Revuelto**, P Dominguez-Aguilar, J Bandrés, F Rojas-Heredia, E Izagirre, M Courard Christie, C Deschamps-Berger, J I López
- 1956751** *Improving global snow depth retrieval from AMSR2 data using interpretable machine learning:* **K Yang, PhD**, S V Kumar, G Konapala, E Jalilvand, PhD, Y Yoon, C Vuyovich
- 1939151** *Leveraging Time-Series UAS LiDAR to Uncover Microtopographic Drivers of Snow Accumulation and Melt:* **N Morrow**, M Skiles

249690

Remote Sensing of the Cryosphere: Sea Ice

Conveners: **Sahra Kacimi**, NASA Jet Propulsion Laboratory; **Walter Meier**, National Snow and Ice Data Center; **Randall Scharien**, University of Victoria

- 1977345** *After DMSP: Ensuring the Continuity of a 50-year Passive Microwave Cryospheric Data Record:* **D J Scott**, W Meier, L Booker, L Herwehe, J S Stewart, H Wilcox, R Marowitz, A Windnagel, J Calme
- 1909918** *ARCANA: Integrating Aerial and Satellite Observations for Enhanced Maritime Navigation in Ice-Infested Arctic Waters:* **T R Lauknes**, S Løkse, S Normann Anfinssen, A Sivertsen
- 1931781** *Assessing Passive Microwave SIC Retrieval Biases by Emulating Brightness Temperatures from Models and Reanalyses:* **A Tavri**, C Horvat
- 1957188** *Automated Mapping of Landfast Sea Ice and Polynyas Around Arctic Coastal Communities Using Deep Learning:* **A Stringer**, S W Cooley

- 1877715** *Measuring Snow Water Equivalent (SWE) at Multiple Scales by Cosmic Ray Probes:* **E Gazzola**, S Gianessi, M Valt, D Gisolo, D Canone, S A Ferraris, M Zanetti, B Biasuzzi
- 1996959** *Physical Modeling of Co- and Cross-Polarized Rough Surface Backscattering for Radar Remote Sensing of Snow at Ku, X, C and L Band:* **F K Borah**, L Tsang, E Kim
- 1917643** *Sentinel-1 InSAR for Snowpack Monitoring over Alpine and Arctic Tundra Regions of the Western USA:* **R Bonnell**, D Rey, M A Walvoord, G A Sextone, K Elder, E Ross, C Kane, W McDermott, S Oveisgharan, J Marshall
- 1926639** *Snow Density Measurement with Impedance Spectroscopy:* **B Zutter**, K Tsao, J Frederick, A Schwartz, K Pfeifer, J Lewis
- 1918799** *Snow water equivalent estimates from airborne radar in the St. Elias Mountains:* **M Daniel**, J W Holt, M Mannello, J Li, F Rodriguez-Morales, D Brinkerhoff, M Truffer
- 1963186** *The Role of EMIT in Improving Snowmelt Prediction and Supporting Decision-Making for Water Resource Management:* **U Bohn**, J Dozier, E Bair, B Wilder, N Carmon, T H Painter, R Palomaki, K Rittger, P G Brodrick, D R Thompson, R O Green
- 1981164** *Using Low-Earth Orbit Instruments and Neural Networks to Downscale Geostationary Surface Albedo Products:* **T N Nde**, F Yu, W J Rudisill, A N Flores, D Feldman, N F Glenn
- 1901512** *Comparing Data Products and Constructing an Idealized 2D Thermodynamic Model on Snow Depth on Southern Ocean Sea Ice:* **Y Che**, E Wilson
- 1919518** *Comparison and Validation of Passive Microwave Sea Ice Concentration Retrievals Near Arctic Shorelines:* **F Diaz**, A C Bradley, J Bruns
- 1998528** *Comparison Of Thermodynamic Ice Growth From Icesat-2 With 1D Icepack Model Simulations In Weddell Sea:* **M Joshi**, S F Ackley, A M Mestas-Nunez, D A Bailey, S Arndt
- 1908546** *Daily Arctic First-year Sea Ice Thickness Observed By China's GNSS-R Satellite Constellation:* **Y Li**, L Zheng, Q Liang, T Li, C Peng, L He, Q Zhao, Z Chen, Q Tang, Y Li, B Liang, S Wu, X Cheng
- 1928621** *Decadal Climatology of Landfast Ice Regimes in the Bering Sea: Insights from NOAA's NWS ASIP Ice Charts (2008 – 2025):* **D Jensen**, S Raby
- 1887061** *Detecting Coastal Sea Ice Extent and Freshet Event Timing in Prudhoe Bay, Alaska Using Sentinel-1 C-SAR:* **I Showman**, S Lang, T W Bell, T Maksym

- 1888025** *Effect of Cyclones on Sea Ice and Snow Mass Balance in the Atlantic Arctic – A Case Study of Extreme Cyclone in March, 2019*: **S Liu**, S Xu, F Yanfei, W Guo, B Liu, J Landy, M Johansson, L Zhou, A Petty, D Chen
- 1918527** *Evaluation of Snowfox: a Machine Learning Algorithm Used Operationally to Delineate the Sea Ice Margin*: **L A Stearns**, E B Wendoloski, C Jackson
- 1895695** *Fram Strait Sea Ice Thickness from ICESat-2 and CryoSat-2 Freeboards*: **C Picard**, W Abdalati, W Meier, S Divina, D Divine
- 1983014** *Gridded Sea Ice Surface Roughness Inference from Sentinel-1 SAR and ICESat-2 Tracks*: **S Jalayer**, D Han, M Karimzadeh
- 1852662** *ICESat-2 Arctic Lead Detection Under Partially-Cloudy Conditions Using Deep Learning*: **M Saha**, N T Kurtz, J Wimert, S P Palm, Y Xie
- 1983973** *Improvements to ICESat-2 Sea Ice Data Products: New Capabilities and The Effects on Freeboard Heights*: **J Wimert**, N T Kurtz, J Lee, U C Herzfeld, S L L Farrell, K Duncan, K Robertson
- 1914277** *Improving accuracy and resolution of the AMSR2 thin ice algorithm for mapping of sea ice production in Antarctic coastal polynyas*: **K Nakata**, M Kachi, K I Ohshima

250379

Research in Active Conservation Methods for Ice Sheets and Glaciers

Conveners: **Douglas MacAyeal**, International Glaciological Society; **Michael Wolovick**, Princeton University; **Chang Hyeon Park**, University of Chicago

- 1891623** *Basal Anchoring for Ice Streams and Mountain Glaciers with Different Subglacial Hydrologies*: **N Akuli**, C Elsworth, J Suckale

251610

Saline permafrost and associated gas hydrates: distribution, definition, and evolution (joint with B, EP, H, PP)

Conveners: **Roger Creel**, Woods Hole Oceanographic Institution; **Benjamin Jones**, University of Alaska Fairbanks; **Judith Schicks**, Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences; **Michael Angelopoulos**, Alfred Wegener Institute Helmholtz-Center for Polar and Marine Research Bremerhaven

- 1985026** *Improving Ice Surface Temperature Retrieval from GOES-18 and GOES-19 ABI Data through Angular Emissivity Correction*: **F He**, Y Liu, J Key, X Wang
- 1880108** *Intercomparison of Remote-sensing-derived Antarctic Sea Ice Drift Data*: **Y Koo**, W Meier
- 1884208** *Observational Constraints on Sea Ice Properties Using Coincident Sentinel-1 and SWOT Observations*: **J Tucker**, D M Schroeder, E Wilson
- 1979133** *Quantification of Sea-Ice Morphology Transitions with the Scattering Transform*: **A F Thompson**, J Skinner, S Brenner, L Rainville
- 1853609** *Rectifying and Understanding Significant Biases in Passive-Microwave-Derived Antarctic Sea Ice Concentration*: **C Horvat**, A Tavri, K Mohammadnezhad, A Nguyen, P Heimbach
- 1954633** *the Copernicus Expansion Missions Sea Ice Experiment - CEMSIE*: **J J Yackel**, R T Tonboe, D Isileifson, A Langlois, J Lemmetyinen, M J Sandells, R K Scharien, H Skourup, G Spreen, J Stroeve
- 1959281** *Towards Automated SAR Classification of Antarctic Sea Ice via Transfer Learning-Based Machine Learning*: **K Mohammadnezhad**, C Horvat, A Tavri, E Winkelman
- 1978835** *Variability and Trends in Sea Ice Motion and Age from Enhanced Resolution NSIDC Products*: **W Meier**, J S Stewart, M A Tschudi
- 1851413** *Basal Slip Reduction of Glaciers with Bedrock Lifting*: **M Wolf**
- 1905379** *Glacier “Bio-Geoengineering”: Efforts to Control Biological Darkening of Glaciers*: **Y Onuma**, N Takeuchi, S Matoba
- 1882721** *The Ethics and Governance of Ice Intervention Strategies*: **C H Park**, D R MacAyeal
- 1958443** *Thermosiphons for Antarctic Climate Intervention: Mechanics and Thermodynamic Modeling*: **A S Miller**, J Cole, B Minchew
- 1980838** *Deciphering the Mechanisms of Cryopeg Formation in Permafrost using the CryoGrid Community Model*: **M Angelopoulos**, S Westermann, F Miesner, P Overduin, B M Jones, G Grosse, J Tronicke, J Boike, R Creel, M Krautblatter
- 1867924** *Evolution of Arctic Permafrost and its Associated Methane Hydrate Stability Zone Over Past Glacial-Interglacial Cycles*: **K You**
- 1874700** *Freezing Point Depression of the Saline Permafrost in Alaska*: **S Nadeev**, A Parsekian, E Owusu-Banahene, M Dejam, B M Jones, M Z Kanevskiy

- 1947189** *Fresh Eyes on the Flaxman Boulders of the Alaskan North Slope: an overlooked window into Laurentide Ice Sheet iceberg rafting during past warm periods:* **R Creel**, B M Jones, A Balter-Kennedy, M Z Kanevskiy, S Shackleton, P R R Wilson, S R Hemming, J Brigham-Grette
- 1903059** *Gas hydrate is widespread on Earth's continental margins: implications for permafrost systems:* **A Cook**, F Naim, U Majumdar
- 1886772** *Greenhouse Gas Production in Transforming Coastal Permafrost Landscapes:* **M Jenrich**, G Grosse, S Liebner, C Knoblauch, M Angelopoulos, M Proding, I Nitze, B M Jones, J Strauss, D Whalen
- 1873397** *Induced polarization signals in time-domain electromagnetic data on the Arctic Coastal Plain of Alaska and implications for interpretation of ground ice and saline permafrost:* **A Parsekian**, R H Harris, B M Jones, S Nadeev, R Correa Rangel, P R R Wilson, M Z Kanevskiy
-
- 248731**
"Strange Ice": Answer Unsettled Glacier and Ice Sheet Questions with Interdisciplinary Research (joint with EP, NS, S)
Conveners: Shuai Yan, University of Texas Institute for Geophysics; Duyi Li, University of Texas at Austin; Ailsa Chung, University Grenoble Alpes; Julia Marks Peterson, Oregon State University; Julia Marks Peterson, Oregon State University
-
- 1963952** *Hidden Under Nearly a Mile of Ice, an Intact Critical Zone: the Northwestern Greenland Landscape 400,000 Years Ago When the Ice Was Gone:* **P R Bierman**, H Mastro, C Larson, N Perdrial, C Collins, J Souza, L B Corbett
- 1958286** *Buried Massive Ground Ice in a northwestern Alaska Push Moraine from Marine Oxygen Isotope Stage 10:* **P R R Wilson**, B M Jones, J Brigham-Grette, M Z Kanevskiy, S Shackleton, R Creel, A Balter-Kennedy, J DePaolis, S Coulombe, D Fortier, S Wetterich, T Opel, G Grosse, K D Tape
- 1874897** *Coupling mountain peaks and continental shelves: reconstructing Antarctic deglaciation from integrated marine and terrestrial datasets:* **A R W Halberstadt**, R Venturelli, L Prothro
- 1979187** *Effects of multiphase microstructural evolution on dielectric properties of temperate ice:* **C Seltzer**, B H Hills, N S Wolfenbarger, A Cheng, D M Schroeder
- 1953476** *Equip Sermia Basal Ice: Analysis of Surface Change and Ice Sheet Deformation:* **R E Bell**, B M Csatho, S I Cordero, D Yang, W Chu, I Parmuzin, J D Paden, A Hoffman, A Boghosian, K J Tinto
- 1844598** *Massive Saline Ground Ice and Hypersaline Brines in a Pingo-Like Mound in Arctic Alaska:* **B M Jones**, M Z Kanevskiy, A Parsekian, D Lacelle, M Ward Jones, P R R Wilson, L Nicholas-Figueroa, S Shackleton, J Pohlman, E S Klein, L Wieland, J G Ernakovich, T Scalora-Riley, R H Harris, R Creel, M J Wooller, Y Shur, S Nadeev
- 1898993** *Subglacial Gas Hydrate Storage and Massive Methane Emissions During Deglaciation of the Fennoscandian Ice Sheet:* **Z Li**, R Creel, K You
- 1874603** *Time-Domain Electromagnetic Characterization of Subsurface Salinity and Ground Ice on the Alaskan Arctic Coastal Plain:* **R H Harris**, A Parsekian, B M Jones, S Nadeev, R Correa Rangel, P R R Wilson, M Z Kanevskiy
- 1923469** *Evaluating Englacial Radar Scattering as a Proxy for Antarctic Ice Sheet Age at Dome C, East Antarctica.:* **K Herman**, D A Young
- 1864802** *Experimental Investigations of Lava Interactions with Pure and Sediment-bearing Water Ice:* **C Ryan**, J Parry, S Kolzenburg, T K P Gregg
- 1870039** *Meteoric Beryllium-10 in Camp Century Subglacial Sediment Suggests the Ice Sheet Was Absent From NW Greenland for at Least 8000 Years During MIS 11:* **C Larson**, P R Bierman, M E Mann, L B Corbett, M Caffee
- 1911013** *Multiple Steady States of the Greenland Ice Sheet in a Coupled Climate-Ice Sheet System:* **M Andernach**, M L Kapsch, U Mikolajewicz
- 1958398** *Old Ice Preservation Explained by Stagnation Flow in the Allan Hills BIA, Antarctica:* **J M Manos**, B P Lipovsky, M Shaya, D Shapero
- 1971081** *Radar Attenuation through the Ross Ice Shelf Reveals Melt Shutdown and Accretion of Marine Ice within Basal Channels:* **M Yao**, A Hoffman, S I Cordero, K J Tinto, J Kingslake, D F Porter, R Constantino, A Boghosian
- 1881516** *Radar Characterization of the Basal Ice Unit and Its Potential Dependence on Englacial Temperature: A Case Study at the Southern Flank of Dome A, East Antarctica:* **S Yan**, D A Young, D D Blankenship, D Li, M Koutnik, T J Fudge, H Reeves, A Vega Gonzalez, S Singh, L Lindzey, M Kerr, E Wilbur
- 1983022** *Scanning Electron Microscope Electron Backscatter Diffraction Analysis of Allan Hills Ice: Insights on Ice Microstructure and Paleoclimate Proxy Preservation in Blue Ice Areas:* **A Choi**, N Morgan-Witts, N LeBrun, B Schneider, L Zoet, W O Nachlas, A Carter, S M Aarons, J Marks Peterson, S Shackleton, J A Higgins, E Brook, C E Bonamici

1931224 *Using an Ice-Flow Model to Evaluate the Possibility of Temperate Ice in the East Antarctic Basal Unit:* **A Bubar**, E Wilbur, J D Maurer, S Yan, D Shapero, M Koutnik

1973939 *Using Radar Observations and Ice Flow Modeling to Investigate Constitutive Properties of Accreted Ice from Subglacial Lake Vostok, East Antarctica:* **H Reeves**, D D Blankenship, S Yan, D A Young, C Grima, M Koutnik, M Cavitte, C Andersen

253003

Thawing Permafrost and its Impact for Environmental Systems and Infrastructure under a Changing Climate (joint with A, GC, H, NH)

Conveners: **Lin Chen**, Centre d'étude nordique; **Mingyi Zhang**, Northwest Institute of Eco-Environment and Resources; **Feiteng Wang**, NIEER/Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; **Yulan Zhang**, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; **Lin Chen**, Centre d'étude nordique

1968634 *Accelerated Arctic Point Cloud Analytics Leveraging Kubernetes-Orchestrated Workflows: Scalable LiDAR Segmentation and Feature Detection Along Steese and Dalton Highways, AK:* **K Foerster**, M Mullins, N Nawjis, N Kaabouch, A Wilcox, S Parker, T Pasch

2001519 *Automated Mapping of Rusting Rivers in Alaska's Permafrost Landscapes:* **E Graham**, C A Baughman, S Zwieback, M Carey

1875090 *Hidden Heat: Snow Chimneys As Visual Indicators Of Soil Warming And Advanced Permafrost Degradation In An Alaskan Boreal Forest:* **L Bulger**, G Iwahana

249354

The Cryosphere Is for All: Overcoming Barriers to Participation in the Cryospheric Sciences (joint with ED, SY)

Conveners: **Joanna Carey**, The Ecosystems Center, MBL; **Mohammad Afzal Shadab**, University of Texas at Austin; **Caitlin Locke**, Columbia University; **Alison Banwell**, University of Colorado Boulder; **Sarah Wells-Moran**, Wellesley College

1952365 *Building A Science Community Where Everyone Thrives: Evidence Based Approaches and Structural Changes Based on Core Principles:* **R E Bell**

1949403 *Glaciers, grief and genocide:* **R Bryant**

1904735 *Using the Community Ice Sheet Model (CISM) to Reconstruct Ice Flow History in Antarctica's Blue Ice Areas:* **F Ishraque**, W H Lipscomb, D E Amrhein, G R Leguy, J A Higgins

1939231 *Hydrological and Thermal Controls on Rock Glacier Seasonality from InSAR Observations in Wrangell-St. Elias National Park, Alaska:* **Q Sui**, Z Lu, T Meng, J Kim, B M Higman, C Dai, E J Budukumah, S McColl, I M Howat, C Hults, V Karanam

1995871 *InSAR Analysis of Climate-Driven Ground Deformation in Northern Alaska's Continuous Permafrost Zone:* **M Khosravi**, P Toomani, A Khosravi, Y Maghsoudi, M Welch

1988881 *Integrating Airborne Electromagnetic and Remote Sensing Data for Permafrost Characterization:* **M Couto**, P Chang Huang Arias, L J Heagy, D Froese

1933753 *Mechanism-informed AI and InSAR Unveil Thermokarst Lake Dynamics Over Qinghai-Tibet Plateau:* **M Chen**, X Hu

1918136 *Meltwater Contributions to Streamflow from Glacier and Permafrost Sources in a Moraine Complex, Canadian Rockies:* **F Bearzot**, M Hayashi, B Menounos

1981052 *Multi-Modal and Multi-Temporal Remote Sensing for Infrastructure and Heritage Monitoring at the Birnirk Mounds, Utqiaġvik, Alaska:* **S Rowell**, O Kuhlke, H Leggett

1966929 *Surficial Mapping and Permafrost Vulnerability of the Yukon-Kuskokwim Delta - Insights into Community Resilience:* **J Rogerson**, A L Kholodov, K David, T Lewis, B Weston, J Brigham-Grette, H Allen

1928825 *Incorporating Early Career Perspectives into 5th International Polar Year Goals – Takeaways from the Polar Early Career World Summit:* **M C Dryák-Vallies**, A U Gold, B Markle, M Payne, S Strand, A Schlindwein

1985622 *Integrating Compassion & Empathy, Communication, Openness, Resilience, Patience, and Support (ICE CORPS) in Cryospheric Sciences:* **M S Karplus**, T J Young

1954188 *Melting Barriers in Glaciology: A 50-Year Vision for diversity, equity, and inclusion (DEI) inspired by the 2023 Karthaus Summer School:* **A C Moraes Luzardi**, L Nicola, B A Keisling, S Wilson, R Frøystad, A Juarez-Martinez, M Menthon, K Turner

1855563 *Panel Discussion: On Replacing Rigid Institutional Hierarchies in Polar Science With Communities of Support (In Fieldwork and Beyond):* **M J MacFerrin**

256628

The End of The Golden Era of Polar and Cryosphere Science in the US? (joint with SY)

Conveners: **Asa Rennermalm**, Rutgers University New Brunswick; **Asa Rennermalm**, Rutgers University New Brunswick; **Keith Jennings**, University of Colorado at Boulder; **Mohammad Afzal Shadab**, University of Texas at Austin; **Gifford Wong**, Dartmouth College; **Mohammad Afzal Shadab**, University of Texas at Austin

1974403 *Arête Glacier Initiative – funding glaciological research to reduce the risks of sea-level rise:* **B M Minchew**, C Meyer, L Mahle, L Narcisse

247995

Uncertainties in Glaciology: Observations, Processes, Models

Conveners: **Matthias Scheiter**, Australian National University; **Emma Mackie**, Stanford University; **Tian Li**, University of Bristol; **Ralf Greve**, Hokkaido University

1902077 *A New Method to Statistically Combine Ice Sheet Mass Balance Estimates:* **A Ozerov**, B H Hills, F Perez

1932758 *Basal Temperatures from Radar Sounding: New Inferences Across East Antarctica:* **E Dawson**, M Christoffersen, D Yang, L Liu, W Chu

1978585 *Future Learning About Sea Level Contributions from the Amery Ice Shelf:* **Z Zerbe**, S Jantre, N M Urban, M J Hoffman

1901046 *ICESEE: An Open-Source, Scalable Data Assimilation Library for Ice Sheet Models:* **B Kyanjo**, A Robel

1966139 *Investigating Trends in Historical Mass Balance and Firn Air Content of World Glaciers and Uncertainty Due to Surface Forcing:* **N J Schlegel**, A S Gardner, C Greene

1848635 *Mapping ice stream sensitivity in the Amundsen Sector to changes in ice velocity observations:* **B Recinos Rivas**, D Goldberg, N Gourmelen, J R Maddison

1973977 *On sources of uncertainty in ice-sheet model predictions of Antarctic Ice Sheet behavior:* **T Hillebrand**, M J Hoffman, H K Han, M Perego, A Hager, A Nolan, X Asay-Davis, S F Price, J Watkins, M Carlson

259998

Cryosphere Student and Early Career GeoBurst Session

Conveners: **Emilio Mateo**, Ohio State University Main Campus; **Jessica Mejia**, Syracuse University

1874418 *Our Dependence upon Environmental Monitoring:* **L D Hinzman**

1913751 *Polar Science in the U.S. - Trend or Variability?:* **M R Albert**

1870840 *Supporting our colleagues in America: Defending Earth Science in an era of uncertainty:* **H A Fricker**

1904046 *The US Starting Building its Polar Research Capacity in WW2 - Why Throw it Away in 2025?:* **P R Bierman**

1924852 *Turbulent times- a perspective from a former "Official":* **R L Hawley**

1865902 *What's Next For Snow: Insights from the NASA Terrestrial Hydrology Program Community Snow Meeting:* **K Hale**

1911143 *Probabilistic inference of subglacial topography with mass conservation:* **N Shao**, E Mackie, N Schlegel, M Field

1935817 *Quantifying Ice Thickness Uncertainty Between HiCARS and MCoRDS Radar Systems in the Thwaites Glacier Region, West Antarctica:* **J Strange**, D A Young

1890902 *Quantifying the uncertainty in projected mass loss of Antarctica to uncertain bed topography:* **D Mangini**, M Morlighem, N Schlegel, B Castleman

1884575 *Stochastic Gravity Inversions of Sub-ice-shelf Bathymetry around Antarctica:* **M Field**, E Mackie

1995244 *The effects of choice of transient calibration constraints on ice-loss predictions and model uncertainty: the case of Thwaites Glacier:* **D Goldberg**, M Morlighem, N Gourmelen

1857748 *Uncertainties in Antarctic ice sheet projections: the role of model processes, external forcings, and observations:* **H L Seroussi**, S Nowicki, J Caillet

1886923 *Uncertainty ranges for mass-conserving bedrock topography and relationships to subglacial conditions applied to the East Antarctic Ice Sheet:* **M Scheiter**, A M Reading, T Staal, M Manassero, F Pattyn

1982544 *Validation of Linear Response Models for Projecting Antarctic Ice-Shelf Basal-Melt Contributions to Future Sea Level Rise:* **C Fox**, S Jantre, N M Urban, M Berdahl, G R Leguy, M J Hoffman

1892233 *Quantifying and Attributing Ice Sheet Model Divergence Across Greenland's Basins:* **B Raimondo**, N Senthil, S Nowicki

248615

GNSS-IR for Environmental Sensing (joint with C, EP, GC, H)

Conveners: **Surui Xie**, Scripps Institution of Oceanography; **Makan Karegar**, University of Bonn; **Dongju Peng**, Nanyang Technological University; **Jihye Park**, Oregon State University; **Surui Xie**, Scripps Institution of Oceanography

1927648 *Global Navigation Satellite Systems Interferometric Reflectometry (GNSS-IR) Studies in the Great Lakes and Greenland:* **K F Tiampo**, A Alfaro, K Huckleby, R Cassotto, H Fasullo, M Willis

247695

Recent Advances in SAR and InSAR Processing, Big Data Analysis and Earth Science Applications (joint with C, H, NH, NS)

Conveners: **Yujie Zheng**, Stanford Earth Sciences; **Heresh Fattahi**, Jet Propulsion Laboratory; **Kathryn Materna**, United States Geological Survey; **Molly Zebker**, Scripps Institution of Oceanography; **Harriet Zoe Yin**, USGS Geologic Hazards Science Center

1909706 *Development of an Operational InSAR Ground Motion Service for Svalbard:* **T R Lauknes**, H Hindberg, Y Larsen, L Rouyet, M Bredal, J Dehls

1915482 *A Global Archive of Analysis-Ready Coseismic Displacement Products from SAR and Optical Data for Earthquake Science and Disaster Response Applications:* **C M Speed**, M G Bato, R W Zinke, S Sangha, C Marshak, J H Kennedy, D Melgar, M M Solares, D P Bekaert, E J Fielding, F J Calef III, T K Soliman, P Ramirez

1893823 *ASF DISPLACEMENT PORTAL: ENHANCING ACCESS TO THE OPERA-DISP DATASET:* **F Williams**, D P Bekaert, R A Anderson, M G Bato, T Chase, K Fairbanks, C Fleming, M Govorcin, A L Handwerger, J Herrmann, W B Horn, A Johnston, S Mirzaee, H Kristenson, K Kristenson, A Player, S Sangha, G Short, C Showalter, J Smale, S J Staniewicz, Y Villafenez

1906435 *Assessing the impact of using dense GNSS network data for InSAR atmospheric delay mitigation:* **Y Kinoshita**

1894711 *Bistatic SAR imaging and SAR interferometry with FMCW L-band SAR systems from two multicopter UAVs:* **O Frey**, C L Werner, S Leinss, T Batt, E J Deeb, A LeWinter, D L Filiano, C Wagner, D C Finnegan, T H Dixon, T Sadeghi Chorsi

1936226 *GNSS-IR for Coastal Water Level Monitoring in Alaska's Challenging Environments:* **N Wardwell**, J Mitchell, R Robinson

1866086 *GNSS-IR monitoring of coastal and river water levels in Cameroon for Sentinel and SWOT Altimetry validation:* **M Karegar**, L Yap, J Chen, J Kusche, A Nasser Ngouh, C Ngouanet, L H Kandé, J Kamguia

1974826 *Low-Cost GNSS-IR Applications of Tidal Variation and Earthflow Motion:* **H Fasullo**, R S Nerem, R Cassotto, K F Tiampo, M Willis

1972735 *Monitoring water level and land fast Ice in Alaska using GNSS-IR:* **J Park**, A Azeez, J Bohn

1909172 *Strengthening the Greenland Tide Gauge Network using GNSS:* **P Knudsen**, C Solgaard, O B Andersen, F B Madsen, T Nylén

1958507 *Change pattern analysis in urbanizing areas using time-series SAR imagery:* **B Lee**, Y K Lee, S W Kim

1947322 *Characteristics of the Hungarian InSAR Ground Motion Service and Application: InSAR.Hungary:* **A Kenyeres**, B Magyar, I Hajdu

1911712 *Characterizing Soil Moisture Impacts on InSAR with Tomographic Methods:* **R Biessel**, R B Lohman

1865241 *Coastal Bathymetry Measurement from High-Resolution Long-Dwell Spotlight SAR Subaperture Imagery:* **S Beninati**, S Frasier

1934735 *Correcting for Precipitation Signatures in InSAR Time Series Analysis:* **R B Lohman**, L Urtecho

1848469 *Crustal Deformation and Strain Accumulation Across the Walker Lane from Large-Scale InSAR Observations:* **Y Jiang**, J Chen, D T Trugman

1880875 *Decadal Sentinel-1 InSAR Analysis of Anthropogenic Land Deformation in the Delaware Basin (2016–2025):* **S Asgari**, F Deng

1985885 *Deep learning on InSAR point cloud:* **K Liang**, Z Lu, J W Kim

1944986 *Denoising of InSAR Time Series through Hybrid Self-Supervised Spatiotemporal Deep Learning:* **G Costantino**, R Jolivet

1879365 *Detection of Sinkhole Precursory Signals in Florida Using InSAR:* **S Mudiyansele**, C Dai

1883942 *Diagnosing Acute and Chronic Landslide Behaviors Using SAR and Remote Sensing:* **X Hu**, Y Lin, Y Zhou, Y Song

1998757 *Early Challenges and Lessons Learned from Science Data Processing of NISAR:* **C Cheng**, H Hua, J Pon, G Manipon, H Mortensen, M Cayan, N Malarout, A Torres, L B Dang, D Garay, L Rodriguez

- 1959328** *Early results from NISAR SAR interferometry: Palos Verdes landslide complex, California:* **E J Fielding**, R Bürgmann, A L Handwerger, M Simons, D P Bekaert, K M Sreejith, J Jung
- 1908739** *Fault control on landslides a century after the 1920 Haiyuan earthquake revealed by InSAR observations:* **C Song**, Y Chen, C Yu, Z Li
- 1906863** *Geomorphic Characterization of Korea's Tidal Flats Using Multitemporal Sentinel-1 SAR Backscatter:* **H A Park**, H C Jung, Y S Lee, J CHOI, H Jeong, S J Lee
- 1947531** *Global Major Structural Failures in the Past Decade: Is Land Deformation to Blame?:* **X Yu**, X Hu
- 1885592** *Groundwater volume Loss and Land subsidence in the North China Plain investigated using Wide-Area InSAR Survey and Mechanical Modeling:* **X Zhang**, J Hu
- 1927055** *How to do Uncertainty Quantification for InSAR:* **Z Hurewitz**, A A Borsa
- 1928014** *Immersive Exploration of InSAR Synthetic Interferograms through Virtual Reality:* **G Holly**, C Kyriakopoulos, T Little
- 1889034** *InSAR Phase Errors due to Range Misregistrations:* **F Yang**, C Liang, Y Wang
- 1991093** *InSAR Time Series Analysis in Changing Urban Environments? A Case Study in Miami with Temporarily Coherent Scatterers:* **M Motagh**, A Piter, M Haghighi, F Amelung
- 1964392** *InSAR-Based Analysis of the 2016 Slow Slip Event in Central Cascadia:* **E Mishra**, Y Zheng, X Jian
- 1959669** *Integrating InSAR and GNSS to Overcome Sparse Geodetic Networks in Tectonically Active Regions: A case study from Hispaniola:* **Y C Lee**, J Maurer, R Dutta
- 1962799** *Investigating Landslide Monitoring using InSAR and Displacement Prediction with LSTM over Rudraprayag, India:* **P Dhayal**, S Sarkar, D R Rajak, S Banerjee, B Raman
- 1956733** *Large-Scale Characterisation and Correction of the InSAR Phase Bias: Insights from Nationwide Analysis in Italy:* **Y Maghsoudi**, A J Hooper, T J Wright, M Pinheiro
- 1914282** *Measuring the Effect of the Solar Cycle on SAR Ionospheric Delay via Ground Reflectors and Collocated GPS:* **M Brandin**, D T Sandwell, M Zebker, A Bennett
- 1871031** *Multi-Class Vessel Detection System Using Multi-Satellite SAR Data:* **H Sim**, O Jung, Y Jung, N H Seong, Y KIM, S H Kim, M H Jeong
- 1987738** *Multi-Temporal InSAR Time-Series Classification for Detecting Surface Deformation Patterns and Triggering Factors:* **H Y You**, J H Lee, Y K Lee, S W Kim
- 1897402** *Multisquint InSAR for Joint Retrieval of Deformation and Tropospheric Delay: Results from a Feasibility Study using Ultra-High-Resolution Spotlight Mode Data:* **S Huang**, S Chan, S Oveisgharan, X Wu, C Stringham, N Yague-Martinez, G Farquharson
- 2001085** *NISAR Geocoded Single Look Complex (GSLC) Product: Initial Assessment of Geometric and Interferometric Accuracy:* **S Jeong**, H Fattahi, H Ghaemi, B Hawkins, T Hudson, V Brancato, X Pi, S Krishnamoorthy
- 1894715** *Nisar InSAR Sensitivity And Performance: Comparison Of Radar Interferograms From Nisar And Sentinel-1:* **H A Zebker**, P Rosen
- 1926485** *NISAR On-Demand Workflows for Generating Ecosystem L3 Science Products:* **A Christensen**, B Chapman, K Cushman, B Downs, J Kellndorfer, M Laval, J Martinez, K C McDonald, A Peacock, N Pinto, N Ramachandran, P Rosen, D S Saatchi, L Sethares, P Siqueira, M Zhan
- 2000479** *NISAR Quality Assurance in Action: Assessing Operational L-Band Level-1 and Level-2 Science Products:* **S C Niemoeller**, G Gunter, H Fattahi, V Brancato, R Burns, H Ghaemi, B Hawkins, X Huang, T Hudson, S Jeong, J Shimada, G H X Shiroma
- 1852742** *On the Origin of An Apparent Bias in InSAR Time Series:* **E Wig**, R J Michaelides, H A Zebker
- 1998676** *SAFED-POL - Synthetic aperture radar interferometry for Sub-regional Analysis of Fluctuance post-Exploitation Deformation in POLand:* **W Milczarek**, N Bugajska-Jędraszek, A Kopeć, A Łańduch, M Tympalski, M Sompolski
- 1999402** *SAR interferometric investigation of the Myanmar earthquake of 2025:* **A Dawn**, S Ghosh, S Kour, A Chowdhury, U Sarkar
- 1852276** *Small-scale heterogeneity in stability and displacement rates - effects on complex coherence, phase closure and other operations involving spatial averaging, and prospects for mitigation:* **R B Lohman**, O C Paschall, R Biessel
- 1985728** *The Alaska Satellite Facility: Enabling Global Access to NISAR Data for All:* **F J Meyer**, W Albright, G Short, K Hogenson
- 1854583** *The NASA-ISRO SAR Mission - Results from Commissioning and Early Science Operations:* **P A Rosen**, H Fattahi, M Laval, G Bawden
- 1911235** *The Supremacy of L-band in InSAR Time Series Analysis:* **K Chen**, C Liang
- 1921136** *To Normalize (by Backscatter Intensity) or Not to Normalize: Examples of InSAR Coherence Dependencies on Normalization Over Western North America:* **L Marone**, O C Paschall, K Devlin, R B Lohman

1930467 *Unveiling the Critical Scenarios of Sinking Towns and Cities in the Indian Himalayan Region with Multi-Temporal SAR Interferometry:* **S Awasthi**, A K Krishnankutty Ambika, K Jain, A Goswami, D C Srivastava, D Lu

246727

Ice and Ocean Worlds: Geology, Oceanography, Chemistry, and Habitability (joint with C, OS)

Conveners: **Catherine Walker**, Woods Hole Oceanographic Institution; **Steven D. Vance**, NASA Jet Propulsion Laboratory, California Institute of Technology; **Kevin Trinh**, California Institute of Technology, Division of Geological and Planetary Sciences

1940331 *In operando constraints on the nonlinear viscoelasticity of ice-VI: application to tidal heating and ocean formation in icy satellites:* **A J Cross**, D Hein, D L Goldsby, L N Hansen, H Chen, T Breithaupt, A Nehring, A Osinchuk

1971801 *A Characterization of the Seafloor Tectonic States of Icy Satellites:* **H Dawson**, P K Byrne, C Klimczak, P V Regensburger, S D Vance, M Melwani Daswani, D Hemingway

1972182 *An Alkaline Fluid Chemistry on the Parent Body of Bennu: Evidence from an Early Ocean World?:* **F Klenner**, Y Cai, W Xu, C Glein, D C Catling, I Daniel, J Hao

1862100 *Assessing Terrestrial Analogue Field Sites for Ocean Worlds:* **J C Stern**, H Graham, B Burcar, E S Martin, A C Noell, K P Hand, J S Bowman, P T Doran, V P Edgcomb, J F Holden, A E Howells, M Malaska, J Mikucki, B L Nunn, J Radebaugh, L E Rodriguez, S Borges, D M Bower, S W Courville, M Diaz, B J Hockman, J A Huber, J Lawrence, T Vick-Majors, C A Nixon, J R Spear, A Steckel, A Solomonidou, N C Schmerr, B Schmidt, M O Schrenk, L M Seyler, A R Smith, C C Walker, P Whelley, N S Wolfenbarger, S D Vance

1882513 *Churning Europa's Ice: Assessing Convection-Induced Melt Lens Formation in Europa's Ice Shell:* **A Mills**, J H Roberts

1929741 *Combined Effects of Coupled Thermal- and Chemical-Buoyancy Driven Flows on Europa's Ocean Circulation:* **S Miller**, H Hay, B Schmidt, K M Soderlund

1857353 *Cometary impact-generated fractures as potential pathways for surface-to-ocean exchange of organics on Titan:* **J P Ortiz**, E Rougier, A Pujari, B Euser, J Hyman, P H Stauffer

1899148 *Compaction of Partially Molten Saline Ice and the Dynamics of Melt Migration on Icy Satellites:* **M Zaman**, C McCarthy, M A Hesse

1983635 *User-Driven Expansion of NASA's Earthdata Sentinel-1 Synthetic Aperture Radar (SAR) Level-2 Product Archive:* **H Kristenson**, F F Williams, A Johnston, J Herrmann, W B Horn, J Smale, K Kristenson

1953784 *Cracking the Ice: Fracture Behavior and Microstructural Analysis of Europa-Relevant Icy Analogs:* **N Morgan-Witts**, M Trzeciak, L Zoet, C E Bonamici, H Sone, B Schneider, W O Nachlas, P E Sobol, N LeBrun

1953055 *Do Microbial Biofilms Expand the Habitability Limits of High-Pressure Ocean Worlds?:* **E Cardoza**, A Picard, M O Schrenk

1953622 *Dynamic Tidal Heating as a Key to Europa's Habitability: How Variable Basal Ice Melt Rates Affect Europa's Ocean Composition, Redox State, and Metabolic Potential:* **E M Spiers**, K Robinson, B Schmidt

1984643 *Experimental determination of the liquidus in H₂O - salt solutions at pressures relevant to the icy worlds:* **H C Watson**, G H Shaw, E Fuqua, M Magno, T Zaledonis

1885324 *Exploration of Ocean World Activity and Habitability with HWO:* **R J Cartwright**, L C Quick, M Neveu, K L Craft, J C Castillo, T M Becker, U Raut, S Kameda, K France, G N Arney, A Roberge, M McElwain, G Villanueva, B Holler, R Juanola-Parramon

1933809 *Habitability Does Not Require Active Water-Rock Interaction: Radiogenic Salt-Driven Radiolysis as a Metabolic Energy Source on Europa:* **N T Truong**, C Glein, K Miller, K Mandt

1928094 *Ice shell motion and shape as a window to understand subsurface ocean dynamics:* **W Kang**, Y Zhang, J C Marshall

1945338 *Infiltration Instabilities in Partially Molten Ice:* **C Li**, C QI, M Fleming, Q Wang, M Palmer, D J Prior

1951847 *Investigating the Effect of Latitudinally Varying Tidal Heating on the Surface-Interior Dynamics in Europa's Icy Shell:* **H Kim**, A G Grima, L Daly

1988226 *Limited direct fluid exchange between the deep subsurface ocean and the shallow subsurface environment of Europa:* **L Ojha**, J Buffo, A Barik

1896088 *Lineament Azimuths and Europa's Tidal Stress Field - A Correlation Study:* **C Haslebacher**, L Duembgen, A Rhoden, E J Leonard, L M Prockter, N Thomas

1970751 *Long Transit Time from the Seafloor to the Ice Shell on Enceladus:* **Y Zhang**, S Bire, S Wang, A Ramadhan, A Nath, W Kang, J C Marshall

1995299 *Low-ambiguity, High-throughput Particle Characterization on Ocean Worlds from in situ Measurements of Polarized Light Scattering and Hyperspectral Absorption:* **P C Gray**, S O'Neill, M Estapa

- 1961455** *Making Subsurface Connections on Europa - Enabling Habitability?:* **K Shearl**, K L Craft, M Kinczyk
- 1904081** *Numerical Determination of the Nonlinear Convection Threshold in a Nitrogen-Ice Layer With Application to Sputnik Planitia:* **C Jain**, S Solomatov, W B McKinnon
- 1898328** *O₂ Absorption on the Icy Jovian Satellites:* **C Schmidt**, J R Spencer, W M Calvin, R J Cartwright, R E Johnson, A Oza, E Lovett, P R Lierle
- 1923998** *Potential for porous and discrete-fracture hydrothermal circulation below the seafloor of Europa, given low gravity and modest internal heating:* **K Dickerson**, A T Fisher, J Hyman, J P Ortiz, P H Stauffer, D K Blackman
- 1893925** *Slantwise convection and heat transport in the icy moon oceans:* **Y Zeng**, M Jansen
- 1926703** *Strong Tidal Dissipation in the Interior of Titan Revealed by Cassini Data Indicates Absence of a Subsurface Ocean:* **F Petricca**, S Vance, M Parisi, D Buccino, G Cascioli, J C Castillo-Rogez, B G Downey, F Nimmo, G Tobie, B Journaux, A Magnanini, U Jones, M P Panning, A Bagheri, G Antonio, J I Lunine

252197

Environmental Seismology (joint with C, H, NH, NS)

Conveners: **Bradley Lipovsky**, University of Washington Seattle; **Richard Aster**, Colorado State University; **Danica Roth**, University of Colorado Boulder; **Yifei Cui**, Tsinghua University; **John McLaughlin**, New Mexico Institute of Mining and Technology, Earth and Environmental Science

- 1897204** *Advancing volcanic dynamics monitoring through geometric phase sensing using seismic waves at Kilauea:* **B Luo**, S Beck, D Pierre, K Runge, E Kiser, P Moitra, F Huettmann, S Missoum, M Latypov, E Whitney, J Wang, S Schabib
- 1951154** *Ambient Noise Characteristics and Cross-Correlation at Western Rift 4 in the Ross Ice Shelf, Antarctica:* **K Dapre**, K Udell-Lopez, Z Schlossnagle, M H Huang, N C Schmerr, T Hurford Jr
- 1943961** *Artius: a Revolutionary Broadband Node to Enable Environmental Seismology:* **N Watkiss**, J Lindsey, F Restelli, P Hill
- 1982804** *Basal icequake detection at eastern shear margin of Thwaites Glacier, Antarctica:* **D Fleenor**, J I Walter, E C Smith, M S Karplus, L F Gonzalez
- 2001071** *Beamforming applied to Antarctic arrays to detect Amundsen Sea ice-ocean interface seismicity:* **J I Walter**
- 1926087** *DAS Observations of Infragravity Waves Across the Oregon Shelf:* **E F Williams**, B P Lipovsky, J Thomson

- 1957767** *Systematic changes in energy and nutrient fluxes from seafloor hydrothermal discharge on Enceladus and Europa:* **N G Randolph-Flagg**, T M Hoehler, A T Fisher, C R German
- 1890315** *Tectonic breathing of Europa: Geological processes supporting subsurface ocean habitability:* **M Kihoulou**, L Lebec, G Choblet, G Tobie, K Kalousova, O Čadek
- 1955542** *The Role of Orbital Parameters on the Simulated Sea Surface Temperature of the Earth-like Aquaplanet:* **O Erokhina**, K Rehfeld
- 1922836** *Transport of Sulfur Species and Isotopes Through the Water Column and Ice of an Ocean Worlds Analog:* **D J Yousavich**, J C Priscu, A E Murray, M G Trainer, K Farnsworth, D A Fike, K P Hand, M Diaz
- 1998803** *Using Magnetic Signatures to Investigate the Internal Dynamics of Icy Moons:* **S Biassey-Bogart**, C Borlina, M L Rudolph
- 2001781** *Waves Excited by Topography at the Ice-Ocean Boundary:* **D Abdullah**, W Kang
- 1865086** *What is the probability that Eris is an ocean world?:* **R Akiba**, F Nimmo
- 1910902** *Detecting Ice-Sheet and Subglacial Variations in Antarctica Using Ps Receiver Functions:* **S Brown**, N Valencia, K M Fischer
- 1980636** *Detecting Regional Seismicity Across Sparsely Instrumented Regions of Antarctica:* **P Matulka**, D Wiens, A Aguilar Suarez, G C Beroza
- 1862413** *Detection of Space Weather Across the Alaska Regional Seismic Network:* **S Green**, A T Ringler, E J Rigler, D Wilson, C Tape
- 1890570** *Glacial Earthquakes in Thwaites Glacier, West Antarctica, Detected by Short-Period Surface Waves:* **T S Pham**
- 1858733** *Global Primary and Secondary Microseism Multi-Decade Geographic Variation, Secular Intensification, and Period Lengthening:* **R C Aster**, F J Simons, T A Lee, A T Ringler, R E Anthony
- 1993273** *Identification of idling heavy-duty trucks based on geophone data:* **J Wang**, Y S Li, V Lang, D E Horton, S van der Lee
- 1895914** *Imaging and Monitoring the Yellowstone Magma Reservoir using Waterfall Noise and Teleseismic Coda Waves:* **H Kim**, F C Lin, J M Farrell, B Schmandt
- 1929517** *Imaging the seasonal evolution of the subglacial hydrological system in west Greenland:* **Y Yang**, W Fan, M D Behn, S B Das, J McGuire

- 1996724** *Linking Seismic Velocity and Crystal Fabric in Glacier Shear Margins*: **A Williams**, M S Karplus, L F Gonzalez, D F May, G Kaip, J I Walter, N Nakata, A D Booth, S M Tulaczyk, T J Young
- 1955017** *Microseismic Noise Source Characterization in Hispaniola: Impacts of Regional Ocean-Atmospheric Dynamics*: **Y Soni**, J Pulliam
- 1847632** *Monitoring Greenland ice sheet mass and basal conditions using ambient noise interferometry*: **Z Shenshen**, B Luo, G Wang, S Zhang, H Wu, J Chen, X Liang, J Ran, H Zhu
- 1919839** *Monitoring Pre and Post-flood Soil Moisture Using Ambient Seismic Noise*: **J M McLaughlin**, S L Bilek, D D Cadol, J B Laronne
- 1896824** *Monitoring Seismic Velocity Changes in West Antarctica Using Ambient Noise*: **C Liu**, S Mao, S Zhang
- 1942966** *Monitoring spatio-temporal groundwater level changes on a volcanic island using seismic velocity variations, and evaluating climatic and hydrological influences*: **S Lee**, S Kim
- 1983055** *Multi-Year DAS Observations of Sea Ice Collisions with Landfast Ice and Their Implications for Arctic Sea Ice Properties*: **T Zhu**, G Rocha dos Santos, D Zhou
- 1918315** *Near-surface seismic velocity variations driven by earthquakes in Alaska*: **T Lee**, B Schmandt
- 1920818** *Observations of Rainfall and Runoff Generation with Distributed Acoustic Sensing (DAS)*: **J M McLaughlin**, S L Bilek, C M Calvelage, D D Cadol, G Karslioglu
- 1994577** *Precision in Seismic Detection of Bedload Transport: Visualizing Array Geometry for Optimal Source Localization*: **A Padmadas**, J B Laronne, F Walter, S L Bilek, J M Turowski
- 1992427** *Predicting Seismic Ambient Noise from Urban Environmental Data: A Machine Learning Approach Using Dense Observations in Tokyo*: **T Hayashida**

250861

Geophysical Advances with Distributed Fiber-Optic Sensing in Natural Systems (joint with C, H, OS, V)

Conveners: **Jiaxuan Li**, Los Alamos National Laboratory; **Qibin Shi**, Rice University; **Ethan Williams**, California Institute of Technology; **Qiushi Zhai**, California Institute of Technology; **Yan Yang**, University of California San Diego

- 1894670** *A Fiber Install of EPIC Proportion: DAS in a Semi-Arid Environment*: **C M Calvelage**, G Karslioglu, G Chavez, K Arnell, C King

- 1860035** *Quantifying Subglacial Water Flow Using Glaciohydraulic Tremor: A Multi-glacier Analysis*: **K Beausoleil**, T C Bartholomaeus, A Criscitiello, E L Mittelstaedt
- 1974184** *Seasonality of sea ice extent and microbarom amplitude at high-latitude IMS infrasound stations*: **L Schaible**, S Albert, J Frederick, E L Roesler, M G L Brown
- 1895895** *Seismic Constraints on Subglacial Sediments and Crustal Properties Beneath the Southern Flank of Dome A, East Antarctica*: **D Li**, M Kerr, D D Blankenship, W Shen, J M Manos, D A Young
- 1905913** *Separating and Detecting Landslide Events from Continuous Seismic Recordings: Potential Early Warning via a Deep Learning*: **J Wen**, H Li, L Meng
- 1919923** *Source Study of Ice-quakes in a Ross Ice Shelf Rift*: **F Aziz Zanjani**, D Wiens, M E Wyssession
- 1905491** *Study of Background Seismic Noise in the Mount Everest Region*: **P Dhami**, S Subedi, F Pettenati, G Hetényi, M P Plasencia
- 1866298** *Tracking crustal velocity change through ambient noise interferometry and seismicity variations during the monsoon in Bangladesh*: **S I Bin Abdul Rahman**, K Emoto, K Lythgoe, A E Foster, S Wei, J Hubbard, S H Akhter
- 1896870** *Transportable Array for atmospheric sciences: Detecting gravity waves with surface barographs*: **Q Ji**, E M Dunham
- 1993186** *Untangling Hydrological and Volcanic Contributions to Seismic Velocity Changes at Aso Volcano Using Ambient Noise Interferometry*: **Y Kakiuchi**, T Tsuji
- 1979725** *Widespread Seismic Tremor in Greenland's Fjords*: **E Lucas**, Y Liu, N A Gomez
- 1888032** *Activation of shallow tremors near the Nankai Trough after the M 7.6 Noto Peninsula earthquake observed by distributed acoustic sensing*: **S Baba**, E Araki, T Hori
- 1854284** *Analysis of High-Resolution Seismic Scattering in the Lunar Near-Surface Using Distributed Acoustic Sensing Synthetics and Observational Analogs*: **Y Tamama**, Q Zhai, E Biondi, A L Husker, Z Zhan, F Civilini, J M Jackson
- 1984235** *Automated Mine-blast Detection Using Distributed Acoustic Sensing (DAS) and Deep Learning*: **J Miller**, P Yu, T Zhu
- 1983677** *Beyond geophysics: A roadmap of Distributed Acoustic Sensing for marine mammal monitoring*: **L Bouffaut**, H Klinck

- 1914868** *Characterizing Ambient Noise Levels for Distributed Acoustic Sensing Deployments: Developing a New DAS Noise Model*: **F Yin**, J Ajo-Franklin, A Nayak
- 1942165** *Characterizing Fault Zone Architecture with Borehole Fiber-Optic Acoustic and Thermal Measurements*: **K MA**, H T Lai, L Hsiao
- 1917807** *Constraining the Internal Structures of Los Angeles Basin with DAS*: **M Liu**, Y Yang, E Bird, E Biondi, T Liu, J Li, Z Zhan
- 1967273** *Controlled Distributed Acoustic Sensing Experiments in Laboratory Ocean Environments*: **F Kutschera**, C C Chien, Y Yang, B Wu, R Craft, S Constable, M A Zumberge, A A Gabriel
- 1942017** *DAS-Driven Seismic Event Detection and Phase picking: An End-to-End Pipeline Combining CATS and PhaseNet*: **I Kurosawa**, S Grubas
- 1884759** *DASNet: A Multi-Class Deep Learning Framework for DAS Signal Detection and Characterization*: **C Zhang**, W Zhu, B A Romanowicz, R M Allen, K Soga, Y Wu
- 1909554** *Deep Learning Denoising for Real-Time Dike Intrusion Imaging with Low-Frequency DAS Measurements*: **H Liao**, W Zhu, E Biondi, J Li
- 1942781** *Depth-Dependent Co-seismic Velocity Changes During the M_w 7.4 2024 Hualien, Taiwan Earthquake Revealed by Distributed Acoustic Sensing*: **C Rattanavetchasit**, H H Huang, Y M Wu
- 1906793** *Development of an LLM-based model for earthquake detection in Distributed Acoustic Sensing measurements.*: **G M Mendo Pérez**, H Nagao, S Katoh, M Shinohara
- 1979728** *Distributed Acoustic Sensing for Real-Time Urban Monitoring and Subsurface Response Analysis*: **L Arthur**, X Chen, H Cai, H Tian
- 1889113** *Distributed acoustic sensing observation for seismic activity in westernmost Nankai trough region using N-net offshore system*: **M Shinohara**, S Aoi, T Takeda, T Kunugi, K Uehira, M Mochizuki
- 1986719** *Earthquake Detection and Location Using Machine Learning on Integrated Offshore Distributed Acoustic Sensing and Seismic Arrays*: **Q Shi**, M Denolle, E F Williams, Y Ni, B P Lipovsky, W S D Wilcock
- 1898946** *Earthquake Focal Mechanisms with DAS-based Polarities and Amplitudes*: **T Yan**, Y Tian, J Li
- 1995555** *Earthquake spectral and source properties on the Kefalonia Transform Fault inferred from seismic and Distributed Fiber Optic Sensing (DFOS) data*: **R M Harrington**, G M Bocchini, M P Roth
- 1889847** *Enhancing Detection and Characterization of Microseismicity in the Marmara Sea Using Distributed Acoustic Sensing*: **J Zhang**, A Kato, A A Dindar, W Wang
- 1915429** *Feasibility of Distributed Fiber-Optic Sensing Networks for Detecting Earthquake Precursors*: **Y Li**, D Z Li, Y Zheng, L Huang
- 1922672** *Fiber-Imaged Supershear Dynamics in the 2024 M_w 7 Mendocino Fault Earthquake*: **J Atterholt**, J J McGuire, A J Barbour, C Stewart, M P Moschetti
- 1983489** *Fine-tuning the DiTing Seismogram Foundation Model to DAS Data for Natural Earthquake Phase Picking and Association*: **Z Wu**, B Luo, X Zhuowei, Z Guo, S Chen
- 1919581** *Imaging the Near Surface Using DAS Ambient Noise Autocorrelation Functions in Central New Mexico*: **Y Zhang**, C M Calvelage, S L Bilek, D E Portner, J M McLaughlin, S S Wei
- 1846211** *Overcoming the Repeater-Induced Reach Limitation: High-Resolution Continuous DAS on Active Trans-Oceanic Cables*: **M Mazur**, N Fontaine, M H Karrenbach, V Kamalov, R Ryf, L Dallachiesa, D Winter, H Chen, D Neilson
- 1962615** *Resolving the Active Milun Fault Structure at Hualien, Taiwan using 3-D DAS Array with Local Earthquake Data*: **E S Wu**, H H Huang, J Y T Ko
- 1939879** *Revealing Meter-Scale Rupture Complexity in Small Earthquakes Using Distributed Acoustic Sensing*: **S Han**, J Ajo-Franklin, J Kim, A Nayak, Y Kim
- 1988049** *Revealing the Role of Soil Pore Structure in Seismic Responses Using Distributed Acoustic Sensing*: **Q Shi**, M Denolle, S Jeffery, D Montgomery, A L S Swann, J Collins, A Barrio, T Nissen-Meyer, P Misiewicz, E F Williams, N C Cristea, J Ajo-Franklin
- 1935283** *Seismo-Acoustic Observations of Yasur Volcano, Vanuatu with a For-Purpose Distributed Fiber-Optic Sensing Array Deployment, Containing Both Subsurface and Subaerial Components: Implications for Volcano Geobazard Monitoring.*: **P Hollands**, L Adam, K van Wijk, L Watson, R S Matoza, J J Niroa
- 1934081** *Seismologically Lossless Compression of Distributed Acoustic Sensing Data via Compressive Sensing: Taiwan MiDAS Case Study*: **Y Ma**, L Meng, Y Y Lin
- 1990849** *Spatial and Temporal Dynamics of Ocean Surface Gravity Waves, Infragravity Waves, and Secondary Microseisms: Insights from Seafloor Distributed Acoustic Sensing in Monterey Bay*: **L W Chen**, B A Romanowicz, T Taira, Y Gou
- 1928391** *Synthesizing phase-resolved ocean waves from SWOT (Surface Water and Ocean Topography) and DAS (Distributed Acoustic Sensing)*: **S Zhang**, F Ardhuin, M Liu, F Nougier, A Bohe, F Collard, J Callies, Z Zhan

1900932 *Toward Operational Earthquake Early Warning with DAS: Integrating Amplitude Measurements:* **Q Zhai**, J K Saunders, G Tepp, Z Zhan, A L Husker

EARTH AND PLANETARY SURFACE PROCESSES

252450

Creating and Strengthening Transformative University and Community College Connections
(joint with EP, H, OS, SY)

Conveners: **Tess Weathers**, Cal Poly Humboldt; **Cristina Cardona**, Community College of Baltimore County; **Sonya Lopez**, California State University Los Angeles; **Karen Menge**, Delgado Community College

1972731 *A field-based Volcanoes and Ice Summer Program (VISP) in the central Oregon Cascades to engage community college students:* **C Volpano**, P Moreno-Yaeger, L Guerrero, A Myrbo, C Friedle, B R Edwards, B S Singer, M Townsend, S A Marcott

1928795 *ARISE: Bringing the Search for Life in the Universe to Undergraduate Science Education:* **J Earwicker**, V Gajjar

247665

Advances in Debris Flow Science: Observations, Modeling, and Beyond

Conveners: **Lauren Guido**, Colorado School of Mines; **Maryn Sanders**, University of Oregon; **Luke McGuire**, Organization Not Listed; **Francis Rengers**, University of Colorado

1918557 *An Event-Based Probabilistic Debris Potential Index Approach to Rainfall-Triggered Debris Flow Initiation and Runout Simulation:* **W C Haneberg**, J Norman, O Kozaci

1874917 *Assessing the Growth of Debris Flows in Diverse Geomorphic Settings using Grfin Tools:* **M E Reid**, C Cronkite-Ratcliffe, D L Brien, J P Perkins, E Rivera

1902321 *Comparisons of Unsaturated Hydraulic Conductivity and Soil-Water Repellency in Older, Stabilizing Post-Wildfire Burn Scars:* **S Griffin**, R R Morrison

1929799 *Comprehensive debris flow monitoring post the Eaton fire with seismometers:* **X Wei**, E Geyman, Z Chen, A Reid-McLaughlin, M P Lamb, Z Zhan

1938225 *Co-Collaboration Between Community College and University Students in Research at Sea Yields Mutual Benefits:* **T S Weathers**, J Aquino, T Barrueta, M Braswell, M Dragovich, S Gautier, B Shah, F Lorenzo, K Ly, J Valenzuela, R Pacier, V Vilton, S K Cooper

1892970 *Engaging community college students in field experiences with 4-year partners.:* **C Cardona**

1894455 *Engaging non-Earth Science students through a field-based Volcanoes and Ice Summer Program (VISP) in the Chilean Lake District of central Chile:* **P Moreno-Yaeger**, I Fustos-Toribio, B S Singer, B R Edwards, M Romero, Y Orellana-Salazar, C Volpano, F Vera, L Guerrero, A Myrbo, S A Marcott

1855872 *From Uncertainty to Preparedness: Leveraging Outreach to Strengthen the 2YC to University Pipeline:* **N K Murray**, B Reed

1911902 *Improving STEM Transfer Student Success through Leadership Development: Early Results from an NSF S-STEM Project:* **R Perkins**, J Weremijewicz, M J Gill, M T Stefanik

1952305 *Preparing Community College Students for STEM Careers through Multiple Opportunities for Research Experiences in Ocean Sciences and Engineering at WHOI:* **J A Huber**, M Serres, K Thieler, B Burger, M K Tivey, D L Foster

1930437 *Constraining empirical relationships for predicting debris-flow velocity:* **C Russo**, S W McCoy

2001039 *Debris Flow Behaviors on Alluvial Fans: Scaling Effects of Grain Size Distribution on Flow, Segregation, and Channelization:* **K M Hill**, R Axtell

1882603 *Detection of Critical Rain Rates for Postfire Debris Flow Initiation based on Historical Burn Areas and Extreme Precipitation Events using High-Resolution Radars:* **L McGuire**, J Rutz, R Vilela, D Nash, M Steen

1871844 *Erosion of sediment and bedrock by experimental debris flows – The influence of composition:* **L Roelofs**, E Nota, T Flipsen, P Colucci, C Friedl, J Hansen-Love, C Scheidl, D Draebing, V Stammberger, T D Haas

1993049 *How will climate change impact debris flow initiation in snow-dominated mountainous? Insights from a distributed hydrology-shallow landslide model in the North Cascades, Washington:* **E Istanbuluoglu**, J W Keck, R L Strauch, N C Cristea

1971117 *Intra-Channel Evolution of Postfire Debris Flows: Quantifying Sediment Recruitment from Lateral Channel Expansion and En-Masse Failures in the Grizzly Creek Burn Area:* **L Guido**, F K Rengers, P M Santi

- 1941172** *Modeling Granular Soil-Boulder Debris Flow and Structure Interactions with the MPM-DEM Method:* **Z Liu**, S Ren
- 1907939** *Monitoring Aquifer Depletion Impacts: Remote Sensing of Subsidence and Land Use Change in Marvdasht Plain (2015–2025):* **S Fathtabar**, P Heidarian, F Antezana Lopez, A Osman Pour, H Salehi
- 1854913** *New Insights into Debris Flow Surges from High Spatial and Temporal Resolution In-situ Measurements:* **J Aaron**, J Langham, R Spielmann, J Hirschberg, S Boss, B W McArdell, C Johnson, N Gray
- 1986863** *Post-wildfire Debris Flows in Western Canada: Preliminary Analysis of Basin Characteristics and Triggering Conditions:* **C Ring**, C A Hancock, J Gartner, C Scheip, E Moorhouse, H Shirra, G Ferland, C Melliship
- 1895435** *Precipitation Uncertainties in the Context of Post-Fire Debris-Flow Triggering Thresholds:* **A Sinclair**, N S Oakley, D E Horton
- 1852477** *Predicting Wildfire Burn Severity for Debris Flow Risk to Interbasin Water Transfers Using Bayesian Statistical Methods:* **A Fernandez Leger**, D D Cadol
-
- 254527**
Aeolian Processes Across the Solar System (joint with P)
Conveners: **Colin Marvin**, Stanford University; **Colin Marvin**, Stanford University; **Mathieu Lapotre**, Stanford University; **Madeline Kelley**, University of New Orleans; **Colin Marvin**, Stanford University
-
- 1955788** *A Machine Learning Framework for Classifying Dune Morpho-dynamics Driven by Seasonal ITCZ Migration.:* **A Alshakr**, M Sultan, H Elhaddad, A T Mohammad, H Saleh, H Karimi, M K Emil
- 1854361** *Aerodynamic Origin of Large Martian Ripples: A Low-Pressure Wind Tunnel Investigation:* **C Alvarez Zambrano**, M G A Lapotre, C Swann, R Ewing, P Jia, P Claudin
- 1906802** *Cellular Automaton Simulation of Dune Interactions:* **C Phillips**, N Vriend
- 1857381** *Do Aeolian Dune Fields Evolve to a Near-Critical Threshold State?:* **C C Marvin**, M G A Lapotre
- 1898006** *Evaluating ERA5-Land Wind Data Across Plateau and Canyon Environments in the Grand Canyon Region:* **H Lester**, M M Kelley, J B Sankey, J Caster, E Byerley, H Fairley, C C Marvin
- 1949211** *Evidence of Oxygen Isotope Composition of Quartz for Asian Steppe Contributions to Asian Aeolian Dust Transport:* **G Teni**, R Tanaka, M Asano, K Tamura
- 1935888** *Regional implementation of a probabilistic leaky barrel slope stability and debris-flow runout model for rainfall-triggered geohazard assessment:* **J Norman**, W C Haneberg, A Savage, E Arroway, O Kozaci
- 1967824** *Spatial patterns in debris flow scour following the 2020 Southern California wildfires:* **B T Fong**, R A DiBiase
- 1997104** *StreamScope: A new scanning lidar for retrieving stream cross-sections under dynamic conditions:* **J J Gourley**, J Duarte, B White, M Kohn, P E Kirstetter, M Nicotra
- 1850012** *The Importance of Building a Landslide Fingerprint to Better Assess Debris Flow Hazards:* **R Guthrie**, T Wasklewicz
- 1946322** *The Role of Initial Soil Moisture and Rainfall in Debris Flow Generation: A Global Numerical Analysis:* **S Dixit**, S Siva Subramanian, D S Sen
- 1927672** *Towards an Integrated Precipitation Risk Management Program: Debris Flow Modeling:* **O Kozaci**, W C Haneberg, J Norman, A Savage, T Atkinson, A Wade, J Wilson
- 1858624** *Uplift and erosion rates are encoded in the morphology of steep, debris-flow dominated valleys across landscapes:* **W Struble**, L McGuire, S W McCoy, K R Barnhart
- 1919636** *Experimental Management of Aeolian-Fluvial Interactions and Riparian Vegetation Feedbacks:* **J B Sankey**, J Caster, M M Kelley, H Fairley, L Pilkington, E Brennan, A Kasprak, A E East, E Palmquist, R Macy
- 1974683** *Geomorphology and Preliminary Chronology of the Stabilized Lunette Dunes (Lomas) in the Rio Grande Delta, south Texas, USA, and northern Tamaulipas, Mexico:* **A Ward**, T Y Dong, J L Gonzalez, C Alvarez, B Carlson, A Gunn
- 1848131** *Influence of Beach Wrack Pile Structure on Wind Flow and Sediment Deposition:* **P P Schmutz**, J Agin, S Seals
- 1902124** *Mixed-Phase Particle Dynamics on Titan: Implications for Sediment Transport and Geomorphology:* **Z Martin**, J Dufek, M Malaska
- 1916068** *Modeling the Dynamics of Aeolian Meter-Scale Bedforms Induced by Bed Heterogeneities:* **G Wiggs**, C Rambert, J M Nield, C Narteau, P Delorme, M C Baddock, J Best, K Christensen, P Claudin
- 1883997** *Morphodynamics of vegetated dunes at steady state through the barchan-parabolic transition.:* **J Alkalla**, C Narteau, O Rozier, J V  rit  , S Courrech Du Pont
- 1918137** *Morphometrics and dynamics of protodunes are similar on both Mars and Earth:* **G Wiggs**, J M Nield, R Warrilow, S Diniega, M C Baddock, J Best, K Christensen
- 1930507** *Prediction of migration rates of planetary ripples and dunes:* **O Duran Vinent**

1872325 *Quantitative Analysis of Aeolian Sand Provenance: A Comprehensive Analysis in the Otindag Dune Field, Central Inner Mongolia, China:* **Y Zhou**, Y Cui, I Lizaga, Z Dong, J Zhang, A Liang, P Lü, T Feng

1913189 *Scaling-up dune dating: Integrating portable and laboratory luminescence in the Thar Desert, India:* **S Nitundil**, A Stone, A Srivastava, T Kinnaired, R Devrani, A Chowdhury, K Songara

250819

Alluvial and River Corridor Systems: Innovations in Methods, Processes, and Dynamics Across Scales

Conveners: **Amobichukwu Amanambu**, University of Alabama; **Sagy Cohen**, The University of Alabama; **Adeyemi Olusola**, York University; **Bo Wang**, National Astronomical Observatories, Chinese Academy of Sciences; **Pawan Thapa**, University of Alabama

1887806 *Advancing 3D Hydrodynamic and Ice Modeling Toward Ice Jam Simulation in the Yukon River:* **S Memari**, E J Anderson

1989488 *Alluvial River-System Responses to the June 2022 floods in the Northern Greater Yellowstone Region, Western United States:* **A C Wilcox**, R Henson, Z DeLuca, L Persico, B T Crosby

1987737 *An Adaptable Method for Monitoring Suspended Sediment Concentration in Ungauged Rivers:* **X Guo**, A Piliouras, B T Crosby

1896654 *Beyond the Annual Maximum Series: Hydrological and Geomorphic Flood Risk in Dryland Streams:* **M Shallue**, J Scamardo, C B Phillips

1866497 *Calibrating the Geomorphic Clock: Remote Sensing of Sediment Storage and Transit Timescales in Alluvial River Corridors:* **J Rees**, V Ganti, E Greenberg, G Li, K K Caylor

1900617 *Changes in floodplain sediment storage along the middle Mississippi River from the late-19th century through the present:* **J W Remo**

1964814 *Connecting sedimentology, geometry and spacing to different process origins of scroll bars on the Kantishna River, Alaska, USA:* **C Sentz**, E P Chamberlin, J M Trop

1984393 *Development of a novel proximal sensing system for monitoring deposited sediment dynamics in river systems:* **A Neverman**, B Jolly, J Schindler, H Smith, G Kereszturi, G Harmsworth

1898300 *Effects of Floodplain Logjams on Soil Geochemistry and Plant Communities.:* **L Blehm**, E Wohl

1911131 *Sublimation Dunes on Pluto:* **P Jia**, B Andreotti, P Claudin

1980534 *The Stochastic Nature of Turbulence at 800 Hz: Direct Observations from a Field-Particle Tracking Velocimetry (F-PTV) System Deployed on a Sandy Beach:* **C Swann**, B Fleenor, S Trimble

1950029 *Three-dimensional spatial and temporal patterns of aeolian sediment transport on sandy, moist and gravel surfaces:* **M Baddock**, J M Nield, G Wiggs

1948879 *Enhancing Floodplain Representation in Network Flood Routing Models:* **R M Diehl**, D Baude, K Underwood, J Scamardo, B Wemple

1931106 *Evaluation of vegetation characteristics from a drone-based lidar point cloud for estimating floodplain depth-dependent roughness:* **N Michaelson**, E M Prior, M Alif, J A Czuba, W C Hession

1900469 *Experimental Insights into Frictional Controls on River Avulsion Sites:* **H Azarmidokht**, J A Nittrouer, K M Straub

1919481 *Flow and Sediment Partitioning Across a Floodplain Channel Network:* **S A Khan**, M Alif, S Leach, J A Czuba, D A Edmonds

1972768 *Global dynamics of multi-thread channels:* **F Zhao**, V Ganti, A Chadwick, E Greenberg, J S McLeod, Y Liu, L J Slater, E Foufoula-Georgiou

1909015 *Global river morphology atlas:* **N Collot d'Escury**, D Beelen, J Nienhuis, M G Kleinhans, E Stouthamer

1878775 *Going with the Flow: Experiments Evaluating the Effects of Beaver Dam Analogs (BDAs) on Streambed Complexity:* **E Heisler**, S Fathel

1869471 *Learning the Bank: ML-Powered Redefinition of Bankfull Stage in Lowland River Systems:* **A Amanambu**

1961196 *Linking Agricultural Land Cover to Sediment Dynamics and Surface Morphology of a Lowland Floodplain:* **M Alif**, S A Khan, G O'Hara, J A Czuba, D A Edmonds

1925529 *Probabilistic quantification of within-reach hydraulic geometry:* **A Lee**, J Castejon Villalobos, N Patterson, R M Diehl, C B Phillips, B A A Lane

1880494 *Process-Based Restoration Can Cause River Corridor Recovery in the Intermountain West:* **E Iskin**, N Kolarik, J C Rojas Lucero, J Brandt

1964129 *Quantifying Erosion and Deposition Patterns on the Meandering River Floodplain of the East Fork White River, Indiana, USA:* **G O'Hara**, D A Edmonds, J A Czuba

1997334 *Reconstruction of Holocene Rio Grande Delta Avulsions using a Relative Age Model of the Abandoned Channel Belts:* **S Lopez**, T Y Dong, A Zaki, T A Goudge, J Benavides, J L Gonzalez, J M Swartz

- 1899083** *Sediment fingerprinting reveals event-driven shifts in sediment sources for a large federal reservoir, Kansas, USA:* **C Lloyd**, A Layzell, T Harris, M Ketterer, A Husic, PhD
- 1946215** *The Timescale and Future of a Gradual River Shift: A Study of the Athabasca River Avulsion, Canada:* **B Wang**, K Khan, D A Edmonds
- 1943011** *TITLE: Integrating Acoustic Doppler Current Profiler (ADCP) Surveys with SWOT Altimetry for Bathymetry and Discharge Estimation in Central Alabama:* **B Akinade**, A Amanambu

249030

Bedrock Breakdown: The Role of Weathering in the Evolution and Function of the Critical Zone (joint with H, NS)

Conveners: **David Litwin**, Temple University; **Nancy Weinheimer**, University of Wyoming; **Russell Callahan**, University of Connecticut

- 1866348** *Analytical and Numerical Solutions for Reactive Transport in Finite-Width and Multi-Fracture-Matrix Systems:* **S Zhong**, C J Harman, H Rajaram
- 1862433** *Combining geomorphic theory with global geochemical data to model the extent of soil weathering:* **B Hunter**, L M Wahab, E Slessarev
- 1976813** *Critical zone structure and evolution across a topographic gradient of the Nepal Himalaya: insights from multiscale observations:* **C M Chen**, P Blunts, D Zekkos, D A Okaya, S Keating, M K Clark, D Chamlagain, M Bickle, E Tipper, A Celestian, A Atwood, A Bhattarai, S Bista, S Timalina, A Siwakoti, N Sidgel, P Dhami, A J West
- 1979506** *Disentangling Climatic and Topographic Controls on Weathering Using Geochemistry In the Eastern Sierra Nevada:* **S Gilchrist**, C E Lukens
- 1865291** *Fluxes and Weathering Depth of Rock-Derived Nitrogen Are Linked to Precipitation and Denudation Rates at Northwestern California Sites in Schist Bedrock:* **I Holzer**, B Z Houlton
- 1894305** *From Weathering to Relief: How the Critical Zone Modulates Sediment Size and Fluvial Relief in the Tropics:* **S F Gallen**, A Axness, A Pérez, K Drobnich, E Vicens Clavell, K S Hughes
- 1967819** *Geologic Nitrogen Inputs to Semi-Arid Soils with and without Mammalian Bioturbation:* **R Martinez**, R Howard, H Goertzen, N Bingham, I Holzer
- 1884613** *Hillslope grain size variation across evolving landscapes linked to climate, tectonics and lithology:* **T Li**, L Sklar, N M Gasparini

- 1992791** *Unlocking high-resolution spatial sediment fingerprinting through geospatial modelling and remote sensing integration:* **S Vale**, H Smith, A Amies
- 1989717** *Using SWOT Satellite Data to Estimate Hydraulic Resistance and Sediment Transport Capacity:* **J T Minear**, J Johnson, M P Lamb, T Rowley
- 2003907** *Investigating the Relationship Between Chemical Weathering and Physico-Mechanical Properties of Himalayan Metamorphic Rock:* **P Blunts**, C M Chen, S Keating, D Zekkos, A J West, M K Clark, D Chamlagain, A Bhattarai, A Siwakoti, S Bista, P Dhami, I Dhakal, N Sidgel, S Timalina
- 1926125** *Mass Gains and High Volumetric Strain During Subsurface Weathering Inferred from Bulk Geochemical and Geophysical Measurements of Sapolite and Unweathered Rock:* **K Wilcox**, J L Hayes, B Carr, C S Riebe, S Holbrook, B Flinchum
- 1919996** *Mineralogical and Chemical Patterns in Volcanic Soils Across Elevation Gradients in Costa Rica:* **C Montano Arellano**, C W Lin, Y Deng, C Sanchez, W Foysal, J K Brumbelow, A P Smith
- 1963088** *Modeling the subsurface critical zone: theoretical steady-state thickness and strength depth profiles of weathered bedrock in mountainous watersheds:* **Y Matsushi**
- 1987634** *Observations of thick weathered soils on rapidly eroding, steep granitic ridgelines in the Eastern Central Range, Taiwan:* **S Jonathan**, R A DiBiase
- 1958428** *Quantifying the Influence of Tree Throw and Bedrock Geology on Soil Rockiness:* **E Throop**, D A Edmonds, B J Yanites, T Doane, PhD
- 1988789** *Rates and Controls of Micro-Scale Mechanical Weathering by Progressive Rock Failure in Antarctic Rocks:* **M P Dahlquist**, M C Eppes, J L Lamp, K M Swanger, M Rasmussen, B Gulick
- 1967739** *Revisiting Soil Architecture in Deeply Weathered Soils Through the Effect of Pseudosands on Soil Hydrology:* **S Kilian**, K H E Meurer, A Andrino, J Tamale, B Singh, E Diaz Garcia, G Guggenberger, D Boy, H F Jungkunst
- 1972339** *Variable hydrogeochemical fluxes drive early-stage pedogenesis on model basaltic hillslopes:* **C Cunningham**, R Root, A Guertin, H H Bauser, T Zhou, L A Derry, J L Druhan, P A Troch, J Chorover

252509

Beyond the Mean: Capturing Spatial and Temporal Variability in Earth Surface Processes

Conveners: Molly O'Halloran, Organization Not Listed; Piret Plink-Bjorklund, Colorado School of Mines

- 1911329** *A Preliminary Study of the Morphology and Spatial Distribution of Funerary Elements in the West and South western cemetery of Wadi al-Ma'awel, Oman:* **M Solinas**, A S Meneses, M Musacchio, M F Buongiorno, M Ramazzotti

256837

Changing Permafrost Landscapes (joint with C, GC, H, SY)

Conveners: Anastasia Piliouras, University of Texas; Anastasia Piliouras, University of Texas; Marisa Repasch, GFZ German Research Centre for Geosciences

- 1916917** *A Circumpolar Map of Retrogressive Thaw Slump Susceptibility:* **H Rodenhizer**, E Makopoulou, Y Yang, B M Rogers
- 1876538** *Characterizing Rock Glacier Dynamics and Ground Thermal Regime in the Central Alaska Range:* **K Kelkar**, L M Farquharson, S Zwieback, M M Darrow, D Nicolisky, K Yoshikawa, E J Graves
- 1938961** *Constraining the Timing of Primary Loess Deposition and Geomorphic Processes along a Permafrost-Rich Hillslope in Interior Alaska, USA:* **Z V Robert, MS, J Dixon**, S A Ewing, L M Farquharson, D B McWethy
- 1856615** *Cool fans: Morphology and sediment transport processes of Arctic fans, Aklavik and Canyon Ranges, NWT, Canada:* **S B Penprase**, I Jones, A Getraer, B Nordin, M Stewart, J V Strauss, M C Palucis
- 1938746** *Declined Sensitivity of Cold-season River Discharge to Water Storage Induced by Permafrost Thaw:* **H Jiang**, Y Yi, D Chen, J Awange, J Kimball, B M Rogers
- 1942345** *Distribution of retrogressive thaw slumps in the north of West Siberia:* **I Tarasevich**, N Nesterova, A I Kizyakov, M Leibman
- 1862362** *Experimental Insights into Freeze-Thaw Effects on Fine-Grained Sediment Rheology Under Thermokarst Development:* **L Baker-Stahl**, B Carlson, B Ferdowsi, K Adhikari, B Bechtel, L Schwindack, M Farley

- 1895550** *Disentangling geomorphic equifinality in sediment and hydrologic connectivity through the analyses of landscape drivers of hysteresis:* **S J Cho**, N Sutfin, W Lund, J E Brown, A C Gellis, L N Gurley, G Ball, S D Hamshaw, J Kwang, A Laws, G B Noe, G P Oelsner, F Parchaso, C Peterman-Phipps, K Skalak, J Marshall

- 1991839** *Harnessing Machine Learning and GIS to Predict Future Bankline Shifts of the Padma River:* **M T Islam**, M S Hossain Talukder, M S Hossain Talukder, M H Riad

- 1981109** *High-resolution airborne LiDAR and drone analysis of topographic character at Enchanted Rock, Texas:* **N Muhammedy**, R R Stewart

- 1894665** *Hydrologic Extremes Dominate Suspended Sediment Fluxes in Puerto Rico:* **S F Gallen**

- 1976497** *Spatial and Temporal Variability of Suspended Sediment Concentrations in the Colorado River Basin:* **A Sigman**, C B Phillips

- 1861671** *Exploring how river ice impacts formative discharge in permafrost rivers:* **J Arcuri**, D F Vetsch, I Overeem

- 1923596** *How does arctic lake morphology control freeze-thaw timing?:* **A Nguyen**, C Lopez, J Melara-Valle, I Lopez, E Ross, A S Bradley, M Limbeck, C C Masteller, R J Michaelides

- 1914989** *Identifying Drivers of Variable Ice-Wedge Permafrost Thaw in Arctic Alaska:* **K Braun**, J A May, C Weiss, S Schneider, M Franke, C G Andresen

- 1940854** *Investigating Permafrost Landscape Dynamics Using Remotely Sensed Vegetation Phenology:* **E I Emon**, A M Islam, C Ball, J T Johnson, V Sagan, S Ozdemir, T Baser, G Iwahana

- 1985056** *Mapping active-layer thickness in Northslope, Alaska from 6 years of InSAR timeseries:* **R Dutta**, J Maurer

- 1918574** *Mapping Ice Wedge Degradation Stages in the North Slope of Alaska Over 75 Years:* **M Franke**, K Braun, C G Andresen

- 1851260** *Marine transgression during glacial inception drives the formation of saline permafrost in Arctic Alaska:* **R Creel**, B M Jones, A Balter-Kennedy, J Guimond, M Z Kanevskiy, S Shackleton, P R R Wilson, P Overduin, A Parsekian, B J Minsley, O Steadman, J Brigham-Grette

- 1870078** *Modeled Subsidence of Permafrost Terrain 2025-2050; North-Central Alaska:* **J Putkonen**, H Patterson, R Chance, M Soaper, T Pasch

- 1988489** *Pathways and Fluxes of Organic Carbon Across the Fluvial-Marine Transition of the Mackenzie River Delta-southern Beaufort Sea and Implications on Ocean Color Remote Sensing:* **A McCall**, M Hieronymi, P Overduin, G Grosse, L Bröder, J Lattaud, B Juhls

- 1887475** *Permafrost Thaw Effects and Climate Drivers of Landslide Behavior in the Central Alaska Range, Alaska, USA:* **K Bornong**, L M Farquharson, A Bayle, F J Meyer, S Zwieback, M Stoffel
- 1941783** *Physics Based Modelling for Bidirectional Reflectance Distribution Function (BRDF) of Permafrost in the Hyperspectral Remote Sensing Domain:* **A M Islam**, E I Emon, C Ball, J T Johnson, M M Rahman, D Mandal, T Zimudzi, M Lanagan, S Ozdemir, V Sagan, T Baser, G Iwahana
- 1949474** *Quantifying Drivers of Permafrost Thaw in Post-Wildfire Environments with InSAR:* **E Ross**, R J Michaelides, A Nguyen, T Meng, M J Lara, D Anderson
- 1978157** *Quantifying permafrost gully erosion and sediment deposition near Kotzebue, Alaska:* **C Baciocco**, M Douglas, F Liu, T Zhang, G Li
- 1957697** *River Discharge and Permafrost Dynamics in High Arctic Greenland:* **E S Klein**, L Wieland, C Kuhle, K Hughson, K Hall, A Broberg, T Wirak
- 1934447** *Rock Glacier Motion and Subsurface Ice Structure in the Dry Andes of San Juan Province, Argentina:* **M C Powers**, M A O'Neal, A Meglioli

249618

Coastal Geomorphology and Morphodynamics

(joint with H, NH, OS)

Conveners: **Lucille Baker-Stahl**, Carleton College;
Holden Leslie-Bole, Scripps Institution of Oceanography; **Abigail Eckland**, University of New Orleans; **Joshua Himmelstein**, University of North Carolina at Chapel Hill

- 1872655** *A Co-Developed Morphodynamic Model to Support Piping Plover Conservation Management:* **E Dammann**, J Lorenzo-Trueba, A Pollack, C Helgeson, K Keller
- 1922163** *A Generalized Optical Satellite-Derived Bathymetry Method for Monitoring Nearshore Change on Turbid Coasts:* **E Hugo**, M S Daniller-Varghese, D C Mohrig, G A Catania
- 1878535** *Advancing knowledge of sand transport dynamics in coastal settings using a Lagrangian sediment tracking model:* **N Pannozzo**, S Pearson, A M de Boer, M Meijer, T J Kooistra, T de Wilde, E Elias, J Wallinga, B C V Prooijen
- 1914953** *Assessing Coastal Changes under Stormy, Moderate, and Low-energy Conditions:* **N Bugajny**
- 1906322** *Assessing Seasonal Variability and Erosion in the Coastal Zone of the Southern Baltic Using LiDAR Data:* **A Giza**, P Terefenko, PhD, J Sledziowski, K A Tanwari

- 1947557** *Seasonality of Suspended Sediment Transport Processes in the Lower Noatak River:* **N Phillipson**, A Piliouras, X Guo, B T Crosby
- 1896158** *Shifting baseflow trends across permafrost regions of the pan-Arctic:* **S G Evans**, Y Sjöberg
- 1910684** *Shifting Seasonality in the Arctic: Evaluating Discharge Trends and Spring Freshet Timing in Five Major Rivers:* **N Lumbert**, E Tofte, A Piliouras
- 1904688** *The role of permafrost warming and extreme precipitation events on post-failure deep seated landslide movement in the Central Alaska Range:* **L M Farquharson**, B Gaglioti, D H Mann, K Bornong, D Capps, H Williams
- 1947408** *Tree-Ring Evidence for Intensifying Negative Impacts of Permafrost Thaw on Northern Forest:* **Y Jiang**, Y Chen
- 1859903** *Variability in Permafrost Sensitivity to Climate Along an Interior Alaska Transect:* **J Eklof**, B Dafflon, J Tao, K Ring, M English, M P Waldrop, R B Neumann
- 1914731** *Widespread subsidence in south-central Tibet caused by excess ice loss from permafrost observed by InSAR:* **C Li**, G Peltzer, S Moon, R W Zinke
- 1922533** *Assessing the Morphologic Impacts of Sequential Low-Intensity Tropical Cyclones, Matagorda Peninsula, TX:* **K Wilson**, C Swann, Z Sylvester, K Saylam, M Nawaz, D C Mohrig
- 1950392** *Assessing the Spatial Variability and Preservation of Bay-depositing Overwash and Breaching in East Matagorda Bay, TX:* **M Nawaz**, K Wilson, C Swann, M Cook
- 1994208** *Assessment of natural evolution and anthropogenic influences on Florida's gulf coast barrier islands for resilient coastal management:* **S Gutierrez**, M Dabees, P Wang
- 1932872** *Automated Camera-Based Analysis of Inlet Variability in a Dynamic Estuarine Inlet:* **J Taye**, C Dooley, S Giddings, A Young
- 1987688** *Back-barrier erosion as an ecogeomorphic response to sea-level rise, storms and anthropogenic influence along coastal Alabama:* **E A Elliott**, L Thornton, J C Bregy
- 1961636** *Barrier Island Restoration and Shelf Morphodynamics in Response to Sediment Dredging in Coastal Louisiana:* **K Xu**
- 1996864** *Bluff Erosion and Five-Year Sediment Budgets from Boat-Based Lidar in the Salish Sea:* **A Hacking**, G M Kaminsky, H Drummond, G Alampay, H M Weiner, K Selden
- 1997255** *Broad-scale Coastal Monitoring of Washington State shorelines using USGS PlaneCam:* **J T Dietrich, PhD**, H Drummond, A C Ritchie, J A Warrick

- 1977315** *Characterizing Event Driven Sediment Transport at Frying Pan Shoals.*: **L Lavengood**, K Anarde, D Grimes
- 1887239** *Classifying Estuarine Geomorphic Vulnerability to Relative Sea Level Rise in Tectonically Active New Zealand.*: **I Pang**, S McSweeney, J Brasington
- 1856921** *Climate-driven Avicennia germinans expansion reduces marsh edge erosion.*: **M Rabalais**, G Mariotti, T E Quirk
- 1977114** *Comparative Assessment of Morphological Changes for Various Scenarios Due to Hurricane Michael Near Tyndall Air Force Base Using XBeach.*: **U S Lima**, S P M Patch
- 1921226** *Data-driven approaches to predict the placement and efficacy of sand fence installations on South Padre Island, Texas, USA.*: **M Itzkin**, C Swann, H D Weathers
- 1979285** *Digging Deep into Subsurface Complexity: Integrating 2.5D Seismic Interpretation with Geospatial and Geotechnical Modeling on the Mid-Atlantic Shelf.*: **O Christoph**, J Madsen
- 1871254** *Enhanced Arctic Shoreline Detection with Satellite Imagery: Case Study from Northwestern Alaska.*: **S Washburn**, Y Mao, K Splinter
- 1898179** *Evaluating uncertainty in drone-based shoreline and elevation monitoring for living shorelines.*: **M Geesin**, G Tso, H Sirianni, R Gittman
- 1956516** *Four years of weekly coastal cliff erosion monitoring at five beaches in San Diego, California.*: **H Matsumoto**, C J Mack, R Krier-mariani, M Maclay, A Young
- 1976004** *From profiles to shore types: classifying Arctic shore zone morphology with unsupervised clustering of airborne lidar.*: **M Bryant**, A A Borsa, A Young
- 1964824** *Fusion of Multi-Method Satellite-Derived Bathymetry in Duck, North Carolina.*: **J Markel**, K DeVore, A O'Dea, T Hesser, D L Anderson, K Brodie
- 1975411** *Identifying drivers of coastal cliff erosion hotspots using high-resolution LiDAR and wave hindcast in Southern California.*: **R Krier-Mariani**, A Young, W C O'Reilly, C J Mack, H Matsumoto
- 1967116** *Impacts of Three Consecutive Hurricanes in 2024 along Low-lying Heavily Developed Barrier Islands, West-Central Florida, USA.*: **P Wang**, J Bishop, Z Westfall, L Novalvos Hernandez, E Royer
- 1884676** *Integrating Satellite Remote Sensing, UAV Photogrammetry, and Aeromagnetic Data for Multi-Scale Coastal Erosion Assessment Along Ghana's Eastern Coast.*: **B Asare-Bediako**, C Boateng, E Yiadom Boakye, D Wemegah
- 1957907** *Investigating Vegetation Controls on Mississippi Delta Morphodynamics Using a Novel High-Resolution MicroCT Imaging Approach.*: **S A Wanni Arachchige Don**, C Wilson, K Gooch, M A Kurtz, R Gomas
- 1925282** *Investigation of Sand Spit Morpho-dynamics during Storm Surge Events at the Southern Part of Shah Porir Dwip.*: **M M Hasan Saikot**
- 1989214** *Kahakai to Pali: Coastal Geomorphology of Hawai'i Island.*: **R L Perroy**, A Meyer, E Collier, Y Cho, A Kapono, R Rodriguez III, K Sullivan
- 1997917** *Lake Michigan Sediment Supply from Eroding Feeder Bluffs and Corresponding Nearshore Transport.*: **C Volpano**, L Zoet, J E Rawling III
- 1866644** *Machine Learning-Enhanced Shoreline Extraction through Satellite Imagery for Gulf Coastline Monitoring: Addressing Complex Coastal Environments Through Automated Multi-Temporal Analysis.*: **S Poudel**, N R Pradhan, R Talchabhadel
- 1963753** *Modeling sediment response to hydrodynamic drivers in an Arctic lagoon.*: **E Krolopp**, E Eidam, Y H Spitz
- 1965629** *Modern Water and Sediment Transport Patterns in Alluvial Ridge Basins of the Rio Grande Delta, TX.*: **W Nabi**, T Y Dong, K Rutan, J Benavides, J Kim, J L Gonzalez, B Carlson
- 1960533** *Monitoring Delta Shoreline Dynamics under Climate and Human Pressure using Remote Sensing via Google Earth Engine.*: **A Berbecariu**, Z Florin, E Anthony
- 1928973** *Monitoring the Spatiotemporal Variability of Suspended Sediment in Texas Coastal Systems Using In-Situ Measurements and Hyperspectral Imaging.*: **C Aramburu Tinoco**, B Carlson, O Karaca, S Khan, N Phillipson, L Baker-Stahl, S Garcia, R Wells-Mourre
- 1863706** *MORFEO – An open source automated toolkit for coastal morphology detection and analysis using LiDAR and DEM data.*: **J Sledziowski**, P Terefenko, PhD, A Giza, K A Tanwari
- 1979919** *Morphodynamic Changes of the Reopened Midnight Pass in Sarasota by Hurricanes Helene and Milton in 2024.*: **S Scott**, P Wang
- 1933857** *Morphological Evolution of a Flood-Tidal Delta in a Tidal Lake (Bahia Grande) of the Coastal Rio Grande, TX, USA.*: **A Pertuz Paz**, T Y Dong
- 1938343** *Observations of Morphological Evolution and Water Table Fluctuations of a Terraced Beach.*: **A Domi**, A Young, M A Merrifield, B Raubenheimer, S Elgar
- 1955594** *Observed Connectivity Across Marsh Platforms Under Changing Sediment Supply and Emerging Microtopography.*: **J D Himmelstein**, A B Rodriguez, B A McKee, L Cooper
- 1979528** *Predicting Coastal Wetland Resilience Under Sea Level Rise Using Novel Measurements of Sediment Accretion Rates Across West African Mangroves.*: **D Babanawo**, D Lagomasino, S Narayan, D Wood, T Fatoyinbo, D J Mallinson, N Heck

- 1929845** *Prediction of post-storm washover recovery in barrier islands: O Duran Vincent*, A Yousefi, J Himmelstein, A B Rodriguez
- 1999707** *Quantifying Breakwater Performance on a Crushable Shell Hash Shoreline Using the State Parameter Framework: H Nasiri*, N Jafari, Q J Chen
- 1994279** *Quantifying Post-Storm Coastal Dune Recovery on Managed Beaches: C Swann*, H D Weathers
- 1983938** *Quantifying Rates of Change Using Archival Visual Sources Along the Rocky West Coast of Ceredigion, Wales: C Goode*, S Tooth
- 1944118** *Reconstruction of A Coastal Elevation Model in Taiwan by Integrating Sentinel-2 and ICESat-2 Data: Y C Shih*, K H Tseng
- 1933239** *Response of Intertidal Oyster Reefs to Sea-level Rise Over Millennial Scales: A B Rodriguez*, J Ridge, M Bost, E R Eiseemann, Y Sharifi, J D Himmelstein, J Fodrie
- 1863708** *Scalable Python solutions for end-to-end processing of LiDAR and geospatial data to support coastal monitoring: K A Tanwari*, P Terefenko, PhD, J Sledziowski, A Giza
- 1950887** *Seasonal and decadal elevation dynamics in Polders and the natural Sundarbans of the Ganges-Brahmaputra delta plain: C Wilson*, A A Tanvir, A H Bhuiyan, M S Steckler, S S Mahmud
- 1960736** *Sediment Dynamics and Subtidal Erosion of the Alaskan Beaufort Shelf and Colville Delta: E Eidam*, N Stark, J Nienhuis, A Heath, J Malito, C Cooper, M Smith, J Thomson, M E Jewell
- 1931685** *Sediment Dynamics Outweigh Sea-Level Rise in Governing Global Salt Marsh Vulnerability: H Lin*, S Fagherazzi, C G Fichto
- 1909845** *Short-Term Beach Morphologic Changes along the South-East Coast of Nigeria: S Udo-Akuaibit*
- 1905547** *Spatial Variability in the Morphodynamics of Spit Complexes in a Tide-Influenced Arctic Fjord Delta: Insights from Dicksonfjord, Svalbard: D Kim*, K Choi, J Jo
- 1947845** *Terrestrial Laser Scanning and Drone Survey Insights into Seasonal Variability of Romanian Black Sea Soft Cliffs: F Tatui*, F Miron, M Radu
- 1870981** *The Influence of Beach Geometry on California Coastal Cliff Retreat: D Xie*, H Matsumoto, A Young
- 1929768** *The Influence of Channel Edge Vegetation on Interior Marsh Geomorphology: A Case Study in the Lower Mississippi River Delta: M Woodard*, T E Quirk
- 1952565** *The Sedimentologic Evolution of Marsh Platforms Hosting Phragmites australis: Implications for the Eco-Geomorphic Dynamics of the Birdsfoot Delta, Louisiana, USA: M A Kurtz*, C Wilson, K Gooch
- 1980108** *The Slow Return of Sand: Observations of Depth-Asynchronous Beach Erosion and Recovery During the 2023–2024 El Niño: H Leslie-Bole*, W C O'Reilly, R T Guza, A Domi, A Young, M A Merrifield
- 1930246** *Theoretically and Empirically Based Simple Model of Tidal Marsh Evolution: Spatial Distributions of Elevation, Species and Biomass Density as a Function of Sea-Level Rise Rate: A B Murray*, C Lester, A D'Alpaos, T Blount, O Duran Vincent, K Emerson, M Marani, S Silvestri, Z Yang
- 1959442** *Validation of Satellite-Derived Shorelines in San Diego County using 25 Years of Elevation Surveys: N Cirrito*, W C O'Reilly, M A Merrifield, A Young
- 1865846** *Wave-influenced deltas: growth through cyclical accretion of barrier-spits and the role of mud: C Broaddus*, J Nienhuis, D A Edmonds, E Foufoula-Georgiou
- 1844684** *A Geomorphic Comparison of Three Marsh Landscapes within the ACE Basin, South Carolina.: M Foster*
- 1846646** *Predicting Nearshore Geologic Substrate using Machine Learning: Lessons from the Great Lakes: P A Wernette*, P Esselman, A Geglio

248046

Coastal Subsidence and Relative Sea-Level Rise: Assessments, Processes, Projections, and Mitigation in Natural and Urban Environments
(joint with G, H, NH, OS)

Conveners: Julius Oelsmann, Tulane University;
Claudia Zoccarato, University of Padova; Jingyi Chen,
Stony Brook University; Torbjorn Tornqvist, Tulane
University of Louisiana

- 1914234** *Accounting for Near-Coastal Processes Improves Estimates of Vertical Land Motion from Altimetry-Minus-Tide-Gauge along the North American Atlantic and Gulf Coasts: W Coronel*, S Dangendorf, R E Kopp, P Kumar
- 1923915** *Depth-dependent subsidence, sedimentation and elevation change in coastal Bangladesh using surface measurements, InSAR and modeling.: M S Steckler*, C Wilson, A Chadwick, L Shen, K F Tiampo, M H Jaman, S L Goodbred Jr, B Oryan, S S Mahmud, A A Tanvir, Z Ahmed

- 1905682** *Elevation Trajectories of US Atlantic Coast Marshes: Insights from SET-MH Monitoring:* **M A Hasan**, T E Tornqvist
- 1862302** *Emerging Capabilities from Ultra-High-Resolution NewSpace SAR Imagery to Track the Effects of Relative Sea Level Rise: A Case Study in American Samoa:* **S Huang**, M Jo, J M Sauber, K Anderson Tagarino, C Baizeau
- 1950799** *Estimating the effect of the lithospheric structure on subsidence induced by sediment isostasy : The case of the GBMD:* **A Henry**, C J Grall, M S Steckler
- 1896171** *Evaluating InSAR-derived rates of surface-elevation change along the central U.S. Gulf Coast:* **G Li**, T E Tornqvist
- 1869668** *Flooded Economies: Evaluating the Flood and Financial Risks of Inland Subsidence in the Spring Creek Watershed, Southeast Texas, USA:* **A Greuter**, M Bagha, M Kc, M J Turco, C Canonico, A Petrov
- 1960196** *Implications of sediment compaction on a 5000-year salt marsh sea-level reconstruction:* **J S Walker**, M Brain, D C Barber, N Cahill, B P Horton
- 1975883** *Incorporating short term transients into VLM and RSLR projections: an example from Aotearoa/New Zealand:* **I J Hamling**, R H Levy, T Naish, S Hreinsdottir
- 1974588** *Increasing sea levels are surging building collapses throughout the Southern Mediterranean coasts:* **E Heggy**, S Fouad, O Amrouni
- 1936955** *Infrastructure and Ecological Exposure to Coastal Subsidence along Southern Gujarat Bay Area, India:* **S Sharma**, C Ojha

255214

Deep Water Sedimentary Processes (joint with OS)

Conveners: **Matthieu Cartigny**, University of Durham; **Robert Dorrell**, Loughborough University; **Hongbo Ma**, University of Illinois Urbana-Champaign; **Enrica Viparelli**, University of South Carolina, Columbia; **Rebecca Englert**, Monterey Bay Aquarium Research Institute

- 1987672** *A Detailed Investigation of the Structure and Dynamics of Near-Self-Similar and Rapidly-Varying Channelized Turbidity Currents:* **S Balachandar**
- 1937975** *A New Mechanism for the Subsidence of Submarine Turbidity Currents Revealed by a Two-Layer Model:* **H Ma**, M Cartigny
- 1940094** *Are trains of knickpoints in submarine channels shaped by a cyclic step instability in turbidity currents?:* **M Cartigny**, Z Wu, N Izumi

- 1989333** *InSAR-SBAS Time-Series Analysis and Hotspot Mapping of Land Deformation with Land Cover-Based Coherence Optimization in the Mississippi River Delta.:* **R Biswas**, R Salunke, S Khan, S E Shifat
- 1952171** *Machine Learning-Based Hazard and Risk Mapping of Subsidence in Dutch Peatlands: A Case Study from Krimpenerwaard Municipality, Zuid-Holland Province:* **M Hammad**, N Hartono, E Stouthamer
- 1852549** *Spatial and Temporal Variability of VLM in Coastal Massachusetts: Implications for Sea-Level Rise Projections:* **A Sharma**, S Wdowski
- 1924865** *Subsidence in Southern Louisiana Based on GPS and Water Level Monitoring with Numerical Modeling:* **Y Zhou**, G Voyiadjis, A Abdalla
- 1996579** *The History and Development of a Regulatory Solution to Prevent Subsidence in a Multi-Jurisdictional Urban Area, Houston Region, Texas, USA:* **M J Turco**, C Hughes, V Osegueda, A Petrov, A Greuter
- 2001762** *Using Field-derived Elevation Milestones to Inform Synthetic, Historic DEMs for Tidal Marsh Retrospective Modeling Efforts:* **J A Cherry**, E Elliott, C N Jones, C R Esposito
- 2000964** *Using Remotely Sensed Inundation to Map Elevation in Low Gradient Coastal Landscapes:* **C R Esposito**, M Beltran-Burgos
- 1978562** *Vertical Land Movement in the Pacific Northwest with a Time-Dependent Probabilistic Framework:* **A Pearson**, D A Schmidt, J Kim
- 1971794** *Can the complexity of seabed erodibility explain the frontal cell detachment of turbidity currents?:* **U Sasso**, G Porcile, M Bolla Pittaluga
- 1969772** *Consolidated-Undrained Shear Behavior of Diatomaceous Mudstones: Implications for Submarine Landslides:* **J S Reece**, W Scott
- 1950348** *Core-log-seismic Integration of an Exceptionally Large Megabed in the Northern Japan Trench (International Ocean Discovery Program Expedition 386):* **A Broome**, D Sawyer, M Strasser
- 1954335** *Evaluation of numerical recipes for channelization of submarine fans:* **K M Straub**, A Wahab, M Shringarpure, D Hoyal, R M Dorrell
- 1912137** *Global Controls on Submarine Canyon Formation and Oceanic Carbon Burial -Insights from Spatial Statistics:* **A Bernhardt**, W Schwanghart
- 1869444** *Influence of Flow concentration on the Transport Dynamics of Mixed Siliciclastic-Carbonate Turbidity Currents:* **D Nworie**, Z R Jobe, A Slootman, J Eggenhuisen, J Reijmer

- 1942252** *Integrated AUV/ROV Remote Sensing and Geotechnical Analysis to Assess Slope Stability at Squillace Canyon Headwalls (Central Mediterranean Sea):* **S Ceramicola**, N Markezic, M Terzariol, N Sultan, S Garziglia, T M Alves, V Huvenne, G Poneti, I Dzelajlija, M Charidemou, K Langedock, W Boone, I Morfis
- 1918861** *Interpreting Depositional History from the Petrophysical and Sedimentological Characteristics of Ooze Deposits in the Deepwater Gulf of Mexico:* **C Van der Maal**, K Tozier, J E Johnson, M Purkey Phillips, C Small, J Germaine, S Phillips, P B Flemings
- 1898123** *Intrabasinal sediment remobilizations drive morphodynamic evolution of submarine basins in salt provinces:* **X C Liu**, D C Mohrig, J L Buttes, T Hess
- 1887646** *It's been fluids rising from the deep: thermogenic gas preconditioned and potentially triggered the Cape Fear Landslide:* **M Kühn**, A Becel, H Daigle, C J Grall, J Kluesner, N C Miller, J Gibson, W E Baldwin, A Mohamed
- 1990051** *Knickpoints as the primary morphodynamic agent in submarine channel evolution:* **L Bailey**, D Bell, M Tilston, S M Hubbard, M Cartigny, J Eggenhuisen
- 1984277** *Minimal Slope Changes May Trigger Complex Supercritical Turbidity-current Bedform Transitions in the Abyssal Plain:* **B Wang**, G Zhong, L Wang, P Hu, M Cartigny, Y Li, Z Kuang
- 1974844** *Modeling the Interaction Between Earthquake-Induced and Autogenic Slope Failure on Basin Stratigraphy:* **H J Gray**
- 1934763** *Multi-frequency Ultrasonic Device (MUD) provides high-resolution turbidity current sediment concentration measurements:* **D R Parsons**, S Simmons, G Lintern, T Mudge, M A Clare, M Cartigny, P Talling
- 1940954** *Non-Fickian sediment transport dynamics in a stratified channel flow:* **C Lloyd**, R M Dorrell
- 1858615** *Predicting Turbidity Currents Dynamics at System Scale:* **E Skevington**, R M Dorrell
- 1990308** *Processes Controlling Grain-size and Sediment Distribution in the La Jolla Submarine Canyon and Fan System, Offshore Southern California:* **C Guzman**, C K Paull, J A Covault, Z Sylvester, R Gwiazda, E M Lundsten, D W Caress, A Fildani
- 1892544** *Quantifiable Sediment Transport Measured with Repeat Mapping Before and After Sediment Gravity Flows in Monterey Canyon During the SeismoSands Experiment:* **C K Paull**, D W Caress, A Micallef, PhD, R Englert, E M Lundsten, R Gwiazda, J B Paduan, A Savini
- 1956641** *Rheological Characterization and Sediment Transport Simulations of Biopolymer-Cohesive Sediment Mixtures:* **M Jans**, J Q Yang, I C Bourg
- 1896657** *Seismic Characterization of Turbidity Current Frontal Cells:* **R Englert**, C K Paull, M Baker, P Kunath, P Talling, R Gwiazda, P McGill, G Bayrakci, PhD Eng, E P M Gregory, E M Lundsten, A Micallef, PhD, M A Clare
- 1871528** *Sequence Stratigraphy of the Western Bengal Shelf-Fan System as a Response to Sea-level Fluctuations, using a Multichannel Seismic Record:* **S A Khan**, D M A Desa, D J Jacob
- 2002765** *Stratigraphic Evolution and Seismic Facies of Deep-Water Deposits in the Offshore Mahanadi Basin, India:* **N Gungor**, M Castele, D Hume, R R Stewart
- 1936962** *Structural Controls on Mien-Hua Submarine Canyon and the Sediment Transportation across the Passive Margin off NE Taiwan:* **C Y Huang**, H H Hsu, L F Lin, J H Chang, T T Chen, C S Liu, S C Chen, Y J Lin
- 1858120** *The accelerated propagation of pulsed gravity currents:* **R M Dorrell**, D Adekanye, A Khan, R Karaishi
- 1895855** *Three-layer model of long runout turbidity current transporting a mixture of sand and mud:* **N Sabahi**, E Viparelli, G Parker
- 1894693** *Universal avulsion rules for subaerial and submarine channels:* **O Odugbesan**, J Gearon, Z R Jobe, D A Edmonds, K M Straub
- 1960166** *Unsupervised Machine Learning Delineates the Variability of Turbidites in Unconfined Systems: A Distal Bengal Fan Case Study:* **Z Gao**, J Pickering, N Auchter, M D Blum
- 1863799** *What controls the structure of turbidity currents?:* **D Vendettuoli**, M Cartigny, M A Clare, P Talling, C K Paull, R Gwiazda, K Blanckaert, J Xu, E Pope

251759

(Dis)connectivity Across Processes and Landscapes (joint with H)

Conveners: **Matthew Hiatt**, LSU; **Kendall Valentine**, Virginia Institute of Marine Science; **Douglas Edmonds**, Indiana University Bloomington

- 1861838** *A two-dimensional nonlocal hillslope ravel model and post-fire hillslope-channel connectivity:* **T Doane**, PhD
- 1934147** *Apparent Hack's Law in River Deltas:* **T Y Dong**, L M Vulis, H Ma, A Tejedor, T A Goudge
- 1889872** *Automated Identification of Connected Pathways in Fluvial Networks: A Connectivity Algorithm Approach:* **V Guadagno**, M J Czapiga, A del Gaudio, G Del Giudice, C Di Cristo, D Di Martire, A Leopardi, L Repola, E Viparelli

- 1981665** *Controls of Hierarchical Link Lengths on Dynamic Connectivity and Flux Aggregation in River Networks:* **D Borse, PhD Candidate**, J Roy, A Hassanzadeh Bavojdan, A Tejedor, E Foufoula-Georgiou, A Singh
- 1981959** *Enhanced characterization of spatiotemporal urban flood connectivity with distributed camera sensors and high-resolution topographic analysis:* **J Dale**, C C Masteller
- 1923895** *Evaluation of the dominant spatial scales and factors influencing variability in channel widths, California, USA:* **D DiVita**, P Belmont, B P Murphy, B A A Lane
- 1848979** *From short bursts to long trends: disentangling human and climate influence on sediment connectivity across time and space:* **A Husic, PhD**
- 1931179** *How channel-floodplain connectivity is generated on meandering river floodplains:* **D A Edmonds**, G O'Hara, J A Czuba, S A Khan, M Alif, S R David
- 1915358** *Hydraulic characteristics of surface flow through secondary channels along a lowland meandering river floodplain:* **T Shukla**, C R Salas, B L Rhoads
- 1943889** *Hydrological Connectivity and Landscape Resilience in the Ile-Balkhash Delta: A Graph-Theoretic Approach to Dryland Delta Systems:* **K Mishra**, K E Fitzsimmons, P Weber

254019

Earth and Planetary Surface Processes General Contributions

Conveners: **Susannah Morey**, University of Washington; **Susannah Morey**, University of Washington; **Julia Cisneros**, Texas A & M University; **Chenliang Wu**, Tulane University

- 1946067** *Non-linear Aridification and Paleosol Evolution in the Thakkhola Graben in central Nepal, Southern Tibetan Margin:* **K Yoshida**, M Shimada, N Hatano, B Gyawali, B R Silwal, H Sugiyama
- 1945638** *The USGS Hydrologic Instrumentation Facility: A "1-Stop Shop" for Hydraulic and Hydrologic Research & Development:* **D Bussan**, C Wilson
- 1936274** *A Comparison Between Structure-From-Motion Photogrammetry and Field Measurements That Helps Identify Fluid Pathways Within Detachment Shear Zones:* **N Davis**, R Gottardi
- 1981369** *A new approach for separating microplastics from river sediment by using a microplastic sediment separator:* **B S Trinh**
- 1882710** *An innovative toolkit for evaluating the spallation expanse of fresh lunar craters:* **A Nandakumar**, S Mohan, S KS

- 1951233** *Identifying inter-deltaic avulsions from dis-connectivity of channel networks: Application of a new connectivity tool:* **M J Czapiga**, V Guadagno, K M Straub
- 1924707** *Longitudinal Floodplain Disconnectivity Drives Lateral River-Floodplain Connectivity in Unmodified River Systems:* **N Tull**, A J Moodie, P Passalacqua
- 1855048** *Nested, Spatially Distributed Annual River Channel Sediment Budgets Pinpoint Sediment Sources and Identify Downstream Sediment Transport Pathways:* **J E Pizzuto**, K Cribb, A Kelly
- 1871978** *Network-Based Advances in Connectivity for Understanding and Anticipating Landscape Change:* **L Turnbull**
- 1875353** *Post-Fire Suspended-Sediment Connectivity on the Colorado Front Range as a Function of Flow Type and Time Since Fire:* **C Shobe**, S L Rathburn
- 1912247** *Predicting Channel-Floodplain (Dis)connectivity and Fluvial Sediment Process Domains from High-Resolution Topography:* **A B Prescott**, R M Diehl, K Underwood
- 1968968** *Quantifying differences between floodplain and intra-floodplain connectivity in a lowland meandering river:* **A J Moodie**, E Lundeen
- 1890422** *Unraveling climate controls on river (dis)connectivity: Global evidence from river discharge analyses:* **P Plink-Bjorklund**, A Castillo-lopez, N J L Lenssen, A Hutson
- 1945895** *An Optimized Migration Imaging Algorithm for Ground-Penetrating Radar in Anisotropic Media:* **Y Yuan**, C Hu, P Zhu, Z Xu, Z Li, W Cai
- 1990749** *Combining Low-Temperature Thermal History Models with Plate Tectonic Reconstructions: Showcasing New Capabilities of the EarthBank Platform:* **M F McMillan**, S C Boone, A Nixon, M Danišik, R Zhou, B P Kohn, R Beucher Dr, M Theile, B McInnes, B Ware, F Mayer-Ullmann, F Kohlmann, W Noble
- 1906631** *Comparative Petrographic Analysis of Beach and River Sands and Insights into Provenance, Weathering, and Recycling:* **T Kim**, E Yu, H Yu, E Lee, J Seo, H Yun, I Seo
- 1996634** *Crustal Buoyancy and Plate Strength in Mantle Convection Simulations of Lithospheric Breakage:* **J Grant**, W Moore
- 1905629** *Deposition, Burial and Uplift of the Mesozoic Jinan Basin, South Korea:* **E Yu**, I Seo
- 1878683** *Distinguishing hisingerite from low-calcium pyroxene in the Máaz formation of Jezero crater, Mars, using an in situ multi-instrument and laboratory-based approach:* **K Ramo**, J Hurowitz, S Connell
- 1873429** *Draining the fluvial battery through groundwater and surface flow: energy partitioning and fluvial landscape evolution:* **D Litwin**, L C Malatesta

- 1916064** *Eastward Drainage-divide Migrations Driven by the Spatial Variations in Precipitation and Tectonic Uplift Contribute to the Formation of the Parallel Rivers in the Hengduan Mountains, Southeastern Tibet:* **F Gao**
- 1857663** *Evaluating Temperatures and Pressures in the Bingi Bingi Point Complex Granitoid during Late-stage Magmatic Differentiation —Magma Residue that Formed Oscillatory Zoned Structures in Amphibole—:* **K Kawakatsu**, S Matsuka, A Yamaguchi, Y Tsujimoto, D Nishikawa, K Fujimoto
- 1933256** *Floodplain and Cienega Restoration of the San Bernardino National Wildlife Refuge:* **D D Cadol**, K Burgos
- 1891495** *High-resolution Digital Terrain Models (DTM): a new approach to impact cratering:* **K Ernstson**, J Poßekel
- 2000418** *How might a box canyon modulate the passage of a large sediment pulse?:* **B Yuill**, S Gibson, P Boyd, P Barrera Crespo
- 1904197** *Impacts of Damming on the Xingu River (Amazon Basin): Ecosystem health through Diatom production and transport.:* **N Wall**, J A Nittrouer, N E Asp, K Strom, K H Adams, S Worne
- 1936222** *Linking Submarine Channel Morphology to Tectonic Processes at the Cascadia Subduction Zone:* **A Iverson**, M C Lucas, A R Duvall, H J Tobin
- 1944207** *Marshalling Environmental Covariates through Machine Learning and Geospatial Technologies for Precise Soil Erodibility Assessment in the Krishnagiri Reservoir Watershed:* **S T**, V R Lakshmanan Sr
- 1980199** *Microstructural and Petrological Investigation of Queyras Gabbros: Implications for Oceanic Lithosphere Rheology and Deformation at Slow-Spreading Ridges:* **C Lucht**, R Gottardi
- 1993406** *Monitoring the Temporal Variation of Riparian Vegetation Roughness:* **A Lamoreux**, K Kim, P Williams, M Muste
- 1918994** *Monte Carlo Simulations on the Co-seismic Surface Ruptures of Paleo-earthquakes -- A Case Study on the Longshou Shan South Fault:* **J LEI**
- 1918954** *Morphology and Dynamics of Interacting Sedimentary Fans:* **L Timko**, A J Moodie
- 1870274** *Mountain Building and Climate Change Shaped the Evolutionary Assembly of Northern Hemisphere Alpine Floras:* **W Ding**, R Ree, M R May, P Brun, D Karger, L Pellissier, O Hagen, N E Zimmermann, A Skeels, Y Xing
- 1919043** *Oh Chute!: Examining the Relationship Between Migration Rate and Cutoff Type in Meandering Rivers Using Remote Sensing:* **J Anderson**, N Sharmili, E A Hajek
- 1959565** *Parametric Analysis of Lunar Habitat – Temperature Control in 3D-printed Habitats:* **A Gravois**, M Lesan, A Bhattacharya
- 1903891** *Provenance of Quaternary Reddish-Brown Unconsolidated Sequences in Jeongok-ri, Korea, Based on Sr-Nd Isotopic Compositions:* **H Yun**, I Seo, J C Kim
- 1963559** *Rethinking the River: Local Land Loss Solutions in Plaquemines Parish, Louisiana:* **R Corkran**, M Ceragene, O Boushehri, C Cheramie, S Mirheidarian, L Duarte
- 1859408** *Revisiting the 1114/5 CE earthquake sequence in southern Turkey through modern lens:* **M Zohar**, J Williams
- 1892631** *Soil organic carbon evolution across thermo-erosional gullies on the North Slope of Alaska, USA:* **C Wilson**, B Hunter, S G Evans
- 1911357** *The Hydration State of the Bright Angel Formation, Jezero Crater, Mars:* **S Connell**, R C Wiens, L Mandon, C C Bedford, S Siljeström, S Schröder, E Cloutis, A Broz, D Applin, C Royer, J R Johnson, E Clave, F Poulet, P Beck, E Dehouck, T Fornaro, T Fouchet, A Jones, A Cousin, K P Hand, K Uckert, K Stack
- 1889068** *Tracing the Particulate Discharge with ¹²⁹I in River Sediments: A Case Study in Fukushima:* **T Nakanishi**, H Hagiwara, T Suzuki, T Ohyama, K Sakuma, H Funaki
- 1919447** *Understanding Erosion by Plucking Through Flume Experiments:* **K Denby**, A Cotto-Rivera, A Ndiaye, D J Harbor
- 1899222** *Universal photo-electronic level sensor:* **M Krassovski**, M Ericson
- 1942875** *Using InSAR-Derived Subsidence to Guide Well Placement for Hydraulic Characterization:* **N Ismail Medhat**, R M Holt, L D Yarbrough, T Oommen, A Ward, Z Lepchitz, R Salness
- 1907739** *Wave-Controlled Planform Asymmetry of a Volcanic Seamount: A Case Study of Dokdo Island:* **Y KIM**, C Kim, D Keum, L C Malatesta, W Kim
- 1958649** *When the lowlands rise and the highlands fall: a topographic reversal within 0.5 Ma in the Hengchun Peninsula, the southern tip of Taiwan:* **F Y Li**, M L Hsieh Dr

247732

Earth Surface Processes and the Global Carbon Cycle (joint with B, GC, H)

Conveners: **Yi Hou**, University of Southern California;
Preston Kemeny, California Institute of Technology;
Layla Ghazi, University of North Carolina at Wilmington;
Samyak Pradhan, Indian Institute of Technology
Kanpur

- 1957244** *Balancing the weathering budget in deglaciating catchments: a case study from Kachemak Bay, AK:* **S Muñoz**, J Jenckes, PhD, J S Miller, S Levine, E J Ramos, D F Boutt, L Munk, D E Ibarra
- 1953258** *Carbon storage in permafrost floodplains controlled by lateral river migration and overbank deposition:* **Y Ke**, E Geyman, J N Reahl, I Smith, A Norton, A Joshua, J S Magyar, M Douglas, A J West, W W Fischer, M P Lamb
- 1988868** *Constraining Climate-driven Controls on Temporal Changes in Mountain Stream Weathering Dynamics:* **K Suquino**, P C Kemeny, C Mock, H Choi, E J Ramos, M Torres
- 1978346** *Constraining the World's Hidden Deep Soil Carbon Stores:* **H Martin**, M P Lamb
- 1990033** *Controls on the Spatial and Temporal Patterns of Organic Carbon Delivery and Burial within an Arid River Reservoir:* **A Dunne**, M N Repasch
- 1959575** *Exploring Indoor Thermal Environment of Lunar Habitats – Implications of 3D-Printed Wall Configuration:* **M Lesan**, A Bhattacharya, A Maity
- 1948221** *Georespiration fluxes and net geologic carbon budgets based on oxidative weathering:* **L Ghazi**, M A Goni, B A Haley, J C Pett-Ridge
- 1889306** *How are landscape patterns of soil organic matter related to landscape evolution in Wisconsin, USA?:* **M Wallace**, J A Mason
- 1932273** *Hydrologic and geomorphic controls on bedrock organic carbon export:* **C Mock**, E J Ramos, M Torres, S Muñoz, D E Ibarra, H Choi, K H Williams, M Winnick, C Beutler, A Shirley
- 1930457** *Hydrologic Drivers of Soil Carbon Cycling in Semi-Arid Floodplains:* **M Kelsey**, A Webster, C Curry, M N Repasch
- 1988854** *Mapping Rock Weathering Fluxes Across the Contiguous United States:* **X Sun**, N Planavsky, J Hartmann, G Amatulli, S Zhang
- 1873815** *National-Scale Assessment of Wind Erosion and Soil Organic Carbon Loss in CONUS: A Comparison Between Rangelands and Croplands:* **G Cho**, L Ran, S Calabrese, J Jeong
- 1960482** *Observed Seasonal Hysteresis in Soil Respiration Reveals Hydroclimatic Control on pCO₂ Dynamics and Calcite Precipitation in Vertisols:* **M Berman**, D Breecker, M F Schaller
- 1942935** *Petrogenic organic carbon weathering and a geological carbon budget in the Yangtze River Basin:* **Y Wang**, Y Chen, S Li, H Wang, J Chen
- 1896468** *Quantifying Storm-Induced Lateral Carbon Transport in Agricultural Watersheds:* **J Dahlberg**, J Wang, J Bouchez, PhD, J L Druhan
- 1907896** *Quantifying the Export of Millennial and Decadal Carbon from the Amazon River Basin:* **V Galy**, B Boehman, J M S Moura, S Rosengard, R Spencer, T I Eglinton, T Lu, B E Rosenheim
- 1951322** *Relationship between clay mineralogy and carbon content of terraced agricultural areas in the Colca Valley of Peru.:* **S P Werts**, A Olive, L Kohut, M Velasco, B Langlie
- 1962369** *Rethinking the Role of Black Carbon in the Earth System:* **S Wagner**, R Barton, A Collins, J Hubbard, M Miller
- 1897293** *Riverine export of shale-derived particulate black carbon:* **A Collins**, M F Schaller, R Barton, J G Park, M Miller, S Wagner
- 2004171** *Selective Transformation and Preservation of Terrestrial Organic Carbon in the Amazon River–Estuary Continuum:* **T Lu**, B Boehman, C Manuel, C J Hein, B E Rosenheim, V Galy
- 1959461** *Spatio-Temporal Evolution of Land Use and Carbon Stock in Tropical Moist Deciduous Forest Using the Integrated GIS-InVEST Model:* **M H Riad**, M A G Fardin, M T Islam
- 1882306** *Stratigraphic variations in mineralogy affect the carbon budget of shale weathering:* **H Zhou**, P Negi, E J Ramos, M Nutt, J Shiller, J S Scheingross, M Torres
- 1885514** *Surface erosion processes in ophiolites and their role in carbonate alkalinity production: implications for geologic carbon cycle:* **P Asem**, N Boppana, B Behnia
- 1957064** *Time-dependent controls of clay mineral formation impact the net alkalinity generation from rock weathering:* **E J Ramos**, N Jemison, M Winnick, M Torres, P C Kemeny, S Muñoz, D E Ibarra, K H Williams
- 1925331** *Tracing Forest Recovery and Carbon Growth in the Korean Demilitarized Zone:* **J H Kim**, W Choi, Y Choi
- 1924607** *Tracking Carbon Cycling Dynamics in River Networks Following Terrestrial Enhanced Weathering:* **S Zhang**, Y Kanzaki, C T Reinhard, N Planavsky
- 1995398** *Two-stage Electron Transfer at Birnessite/Organic Carbon Interfaces: Mechanism, Regulation, and Geobattery Implications:* **H Ye**, Z Hu, R Yin, Y Li

- 1949229** *Variability in flood discharge reduces organic carbon preservation in deltas: Insights from physical experiments:* **J Silvestre**, Z Hom, K M Sanks, PhD, S Zapp, J Shaw, K M Straub
- 2001658** *What river chemistry tells us about the impacts of rock weathering on the carbon cycle:* **J Bouchez, PhD**, C Jin, J L Druhan, G Paris

248074

**Ecohydraulics and Ecomorphodynamics:
Biophysical Interactions in Natural and
Engineered Aquatic Systems (joint with B, H, NH)**

Conveners: Chien-Yung Tseng, Colorado State University Fort Collins; Jiarui Lei, National University of Singapore; Mengzhen Xu, Tsinghua University; Daniel White, Colorado State University Fort Collins; Shih-hsun Huang, University of Minnesota

- 1904108** *Assessing Floodplain Organic Carbon Storage Over Large Spatial Extents and Investigating the Effects of Human Alteration:* **L Thomas**, G Cao, K B Lininger
- 1898078** *Allometric relationships to inform seasonal variation in salt marsh wave attenuation.:* **E I H Lee**, H M Nepf
- 1962144** *Assessing the Role of Embedment or Sumping on Culvert Performance in Indiana:* **S Chaulagain**, V Merwade
- 1896415** *Comparing Potential Beaver-related Sediment Storage to Human-built Reservoir Sediment Storage in the Rocky Mountain Region, USA:* **K B Lininger**, J Scamardo, C Shobe, J Sholtes, A Hurst, A Eckland, M A Foster
- 1945925** *Conditional Averaging Based on Quadrant Analysis in Flows Over Vegetated Rough Beds:* **M S Afzal**, A Malothu
- 1953951** *Contrasting Morphodynamic Responses to Vegetation in Dryland Riparian Zones: Utilizing Spring-Fed Channels in the Henry Mountains, Utah:* **B Gray**, J P L P Johnson, A M Matheny, D M Rempe
- 1887120** *DARPA Reefense to enhance shoreline resilience: Hydrodynamic and morphodynamic impacts of a living shoreline mosaic:* **I Vona**, M Thenuwara, N Ramakrishnan, P Vein, K M Kibler, E Sparks, E Rothermel, D Kreeger, C Lupton, M Virden
- 1859273** *Effect of Plant Morphology on Vegetation Drag in River Channels:* **T Rahman**, C Y Tseng
- 1889797** *Effects of Floodplain Vegetation Type and Density on Main Channel Scouring Behavior:* **P X Song**, J F Li, S C Chen
- 1847417** *Effects of gravitational settling and riverbed-induced mortality on the transport of drifting fish eggs in rivers:* **Z Wu**, J Zhan, Z Zhu, M Zhang, L Chang, X Fu

- 1956555** *Windows into the ancient critical zone: measurements of CO₂ and δ¹³C on fluid inclusions in pedogenic carbonate provide a direct archive of soil respiration:* **M F Schaller**, M Berman, D Breecker
- 1950863** *Within-Lake Spatial Variability of Sediment Carbon Accumulation in Three Large Boreal Lakes in Finland:* **T Junna**, M Heikkilä, E Asmala, J Mäkinen, M Sahiluoto, K Koho
- 1967178** *Effects of Streambed Roughness on the Flow Field Generated by a Boulder in a Gravel-Bed River:* **G Blois**, D Tonina, A Monsalve, A Bertagnoli
- 1928053** *Effects of Vegetation Patch Configuration on Flow Resistance and Turbulent Structure in a Large-Scale Channel:* **J Ryu**, M Maio, S Kim, U Ji
- 1991486** *Flow and Scalar Transport Dynamics in an Open Channel Influenced by Floodplain Submergence and Riparian Vegetation:* **D Thokala**, A Wing-Keung Law, T Haur Chong, S N Kuiry
- 1860145** *Flow Resistance Influenced by Floodplain Vegetation in a Full-Scale Compound Channel:* **U Ji**, J Ryu, S Kim
- 1900596** *Grain-Scale Roughness and Scour Effects on Flow Dynamics and Hyporheic Exchange Around Boulders:* **A Monsalve**, D Tonina, G Blois, K Adler, A Bertagnoli
- 1978846** *Hydraulic Stress and Mussel Behavior: Experimental Analysis Using PIV and Behavioral Indicators for Habitat Suitability:* **G Lungudi**, M Wyssmann, B Sansom, S McMurray
- 1982312** *Impacts of the Nakdong River opening on microbial composition and functional profile:* **G Lee**, K Yoo
- 1960009** *Influence of Log Jam Movements on Bedload Transport in Caspar Creek Experimental Watersheds, California, USA:* **C Wright**, J Wagenbrenner, P Richardson, S Hilton, B Eichel, A Thompson, B Storms, M Arnold
- 1994355** *Influence of Riparian Vegetation Structure on Floodplain Sediment and Phosphorus Deposition:* **J Smith**, R M Diehl, B Wemple, E M B Doran
- 1931577** *Interactive Effects of Reintroduced Megafauna and Hydrological Regime Shift on Floodplain Vegetation Community:* **D Shao**, S Li
- 1923644** *Modeling Suspended Sediment Trapping by Rigid Vegetation in an Annular Flume:* **A Mashreghi**, B K Sahu, O N Nkiri, N Soheili, E Viparelli, H Chaudhry
- 1951195** *Modeling to Monitoring: Assessing the Success of Texas' First Freshwater Mussel Reintroduction:* **M DiNicola**, B A A Lane, A Davis, M Magruder
- 1891067** *Patterns of wood-induced pool characteristics in coarse-bed channels:* **S Triantafillou**, E Wohl
- 1892261** *Phytoplankton Dynamics and Its Key Environmental Factors in a Large-Scale Water Diversion Project:* **X Li**, M Xu, C Wang

- 1887088** *Post-Fire Patterns and Dynamics of In-Stream Large Wood*: **J T Kemper**, P Belmont
- 1966443** *Predicting fine sediment accumulation in gravel streambeds in northeast Alabama*: **C Chiang**, J Hargett, E Oare, S Leach, M Alif, J A Czuba
- 1967321** *Sands of time: Cyclic patterns of streambed embeddedness in a post-restoration urbanized stream*: **J Hargett**, J A Czuba
- 1852029** *Setting Down Roots in Shallow Coastal Waters: Hydrodynamic Habitat Preferences of Canopy-forming Aquatic Species are Governed by Canopy Properties and Hydro-morphodynamic Variables*: **K M Kibler**, M Donnelly, M Giuntoli, M Thenuwara, D Cannon, N Ramakrishnan, B Bennett
- 1883091** *Stem Dynamics and Turbulence Evolution in Three-dimensional Vegetated Flows*: **X Liang**, J Lei
- 1934687** *The effect of vegetation on scour patterns at bridge crossings in alluvial streams*: **A Ghimire**, P Williams
-
- 247363**
Fine-grained sedimentary systems: sediment transport dynamics, depositional patterns, morphologic expressions, and climate impact
 (joint with B, H, NS, PP)
Conveners: **Judy Yang**, University of Minnesota Twin Cities; **Hongbo Ma**, University of Illinois Urbana-Champaign; **Andrew Manning**, University of Hull; **Daniel Parsons**, Loughborough University
-
- 1921819** *ASSESSING DECADEAL SCALE SWASH ZONE DYNAMICS OF URBAN BEACH USING SATELLITE IMAGERY AND FIELD STUDIES*: **S Shevale**, N K Lakku, M R Behera
- 1927786** *Below-Capacity Equilibrium Suspended Sediment Concentration Profiles*: **B K Sahu**, A Mashregi, O N Nkiri, M J Czapiga, E Viparelli
- 1973502** *Biofilms Alter Acoustic Backscatter: Experimental Study*: **W Assis**, J Q Yang
- 1959699** *Biofilms Promote the Formation of Meandering Morphodynamics: Flume Experiments with Synthetic Biofilms*: **E Cunez**, J Q Yang
- 1944026** *Congaree River-specific threshold grain size between bed and wash material*: **E Viparelli**, B K Sahu, O N Nkiri, H Xu, M J Czapiga
- 1945689** *Controls on channel geometry in peatland streams: Morphologic expression of floodplain cohesivity*: **J Nelson**, J A Nittrouer, G Parker, G Tanaka, T Tompkins
- 1858158** *Deriving Bottom Sediment Grain Size in Tidal Channels Using Remote Sensing and Numerical Modeling*: **S Fagherazzi**, J Palacios, H Lin, C G Fichot
- 1888231** *THE INFLUENCE OF RIPARIAN VEGETATION ON RIVERBED EROSION*: **Y H Chen**, J F Li, S C Chen
- 1914913** *Thermal Buffering in Pool-Dominated Reaches: A Dimensionless Framework for Predicting Reach-Scale Cooling*: **D Tonina**, A Bertagnoli, A Hurst, A Tranmer
- 1985978** *Turbulent Dispersion and Residence Time in Seagrass Mats: A Flume Study on the Influence of Canopy Density and Patch Length on Flow and Transport*: **J E San Juan**, J E Conde Barrios
- 1937626** *Vegetation Patch Arrangement Controls Channel Morphodynamics in Flume Experiments Using High-Resolution Sensing*: **J Choi**, E Jang, W Kang, J Kim
- 1936437** *Wave-Induced Forces on Vegetation: Large-Scale Flume Experiments with a Real Mangrove Tree*: **C W Chang**, R Safari, N Mori
- 2000542** *Effects of Impulse Events on Near-Threshold Bed Load Transport and Particle Entrainment Dynamics in Turbulent Flows*: **C Tsai**, C H Chang
- 1852709** *Entrainment of Fine Muddy Sediment from Immobile Gravel Stream Beds*: **K Strom**, B Schiller, L Delay
- 1955226** *Evaporation-Driven Formation of Clay Bridges in Porous Media*: **P Pirdavari**, J Q Yang
- 1949393** *Examining Cohesive Sediment Gravity Flows using a Computational Fluid Dynamics Framework*: **M Jans**, I C Bourg
- 1852841** *Flocculated silt, not clay, dominates river suspended sediment load*: **J A K Nghiem**, G Li, M Zepeda-Rosales, Y Li, M P Lamb
- 1939645** *Flood Duration Controls Multiscale Bedform Dynamics*: **D Das**, V Ganti
- 1967823** *Glacial-Interglacial Sea-Level Changes Drive Source-to-Sink Reversals and Soil Formation on Carbonate Terrains: Evidence from the Galilee, Eastern Mediterranean*: **D Palchan**, Y Jacoby Gels, O Berlin, Y Ben-Dor
- 1847426** *Hydrodynamic Transport of Fine-Grained Materials in River Groin Fields under Varying Water Depths: Insights from Laboratory-Scale Numerical Simulations*: **W Dong**, T Uchida
- 1960376** *Increasing Salinity Reduces Yield Stress and Erosion Threshold in Sand-Clay Mixtures: Rheometry and Flume Experiments*: **E Zadehali**, J Q Yang, I C Bourg
- 1903864** *Integrated Geospatial and Geochemical Characterization of UNESCO Korean Tidal Flats: Sediment Dynamics, Organic Carbon, and Digital Twin Applications*: **J H Lee**, K Kim, J H Ryu, Y Jang, H S Jung

- 1853037** *Is There a Single Morphological Equilibrium, or are There Several?:* **T Hoitink**
- 1905936** *Late Pleistocene to Holocene Paleoenvironmental Evolution of the Northern Yellow Sea Margin: Insights from Sediment Texture and Micro-XRF Geochemistry:* **J H Cho**, B C Kum, S Jang, S Y Lee, D G Lim, S K Jung Dr, B R Lee, N D Jang, S H Lee, L S Yoo Dr, C Lee, J Koh, J Khang Dr
- 1920395** *MAPPING, DESCRIPTION AND CORRELATION OF SOIL AND SEDIMENT IN LAFAYETTE COUNTY, MISSISSIPPI, USA:* **A Babalola**, L D Yarbrough, J Gifford, B F Platt
- 1995672** *Mechanisms and Dynamics of Flocculation in Estuarine Systems: An Integrative Review:* **D R Parsons**, A J Manning, C Chassagne, K L Spencer, T J Hsu, X Yu, L Ye, J Peakall, J Rounce, J Spearman, Z Deng
- 1955492** *Microbial Polymer (EPS) Induced Suppression and Redistribution of Wall-Bounded Turbulence in Aqueous Geophysical Flows:* **J Best**, S Kang, B Jaco, L P Chamorro
- 1998426** *Microplastics Influence the Bedform Migration in Sandy-Bed River:* **S Jing**, J Q Yang
- 1934977** *Modeling Surface Particle Segregation in Dry Pluviation of Granular Materials Using the Discrete Element Method:* **J Park**, D Seo, T S Yun
- 1873723** *Reconstructing Cenomanian–Turonian Paleorivers and Modeling Climate-Driven Sediment Flux in Continental North America:* **E Maxwell**, A Goswami

249141

Fluvial Dynamics, Sediment Transport, and Landscape Evolution in Mountain Ranges (joint with H)

Conveners: **Emma Lodes**, Arizona State University; **Julia Carr**, Pennsylvania State University Main Campus; **Alexander Neely**, University of Tübingen; **Sean Gallen**, ETH Swiss Federal Institute of Technology Zurich

- 1854681** *3D coupling of thermo-mechanical and landscape evolution models: insights into deep tectonics and surface processes:* **Y Luo**, J Yang, B J P Kaus, A Popov, X Yuan, L Zhao
- 1969671** *A Mountain River's Response to Extreme Flooding:* **J Bower**, C C Masteller, C B Phillips
- 1935923** *A Seismic-Hydraulic Approach to Monitoring Bedload Flux:* **D D Cadol**, L Luong, J M McLaughlin, J B Laronne, J M Turowski, S L Bilek
- 1884811** *A tale of three tropical islands: the influence of Caribbean topography, lithology, and climate on ¹⁰Be mass loss rates, solute flux, and the pace of denudation:* **A H Schmidt**, P R Bierman

- 1882163** *Selective Sediment Trapping for Sustainable Sand Dams: Insights from Flume Experiments and Numerical Modeling:* **S Gulduren**, J S Selker
- 1949201** *Separating components of the polymodal grain-size distribution of sea-surface sediments and its environmental meanings: a example from the East China Sea:* **K Saito**
- 1921675** *Spatial Distribution of Sand and Mud of Hurricane Helene Deposits in the Congaree National Park, SC:* **O N Nkiri**, B K Sahu, M J Czapiga, N Soheili, H Xu, J F Jamal, E Viparelli
- 1970125** *Stratigraphic and Lithologic Variability in Shallow Bays of Upper Barataria Basin of Coastal Louisiana:* **A Gartelman**, K Xu, C Wilson, M Liotta, E L Chamberlain
- 1956476** *The Impacts of Aging on Turbulence Modulation in Clay-Laden Flows: An Experimental Approach Using Clear Clays:* **J Best**, S Kang, B Jaco, L P Chamorro
- 1973124** *The Role of Biofilms in Controlling the Erosion of Various Sediment Types:* **F Chen**, J Q Yang, W Assis, E Zadehali
- 1930005** *The Washload to Bed-Material Load Continuum: Modeling Fine Sediment Transport in a Large Dam-Regulated Canyon-Bound River:* **G Salter**, D J Topping, S Wright, J Nelson, E R Mueller, P Grams
- 1985804** *Tracing Long-Runout Turbidity Currents in the Northern South China Sea Abyssal Plain by Seismic Stratigraphic Mapping: Indicators of Plate Tectonic Evolution:* **B Wang**, G Zhong, L Wang, M Cartigny, Z Kuang
- 1948199** *Assessment of Sediment Regulation Changes Induced by Erosion of Sabo Structures in Constricted Mountain Rivers:* **C M Tseng**, Y J Tsai
- 1896331** *Becoming a Super River: the Yellow River Cutting Through the Sanmen Gorge-Evidence, Age and Geomorphic Models from Endorheic to Exorheic:* **Y Song**, Z Lai
- 1987338** *Capturing the Transition from Interrill to Rill Erosion Using a Low-Cost Camera Array in Laboratory Rainfall Experiments:* **J Y Yan**, C C Fang, S Y Yang, C Y Hung
- 1915004** *Climate controls timing of meander cutoffs and bedrock terrace formation:* **S A Schanz**, A Breyak, Y S Lin, B J Yanites
- 1913343** *Climate-modulated incision and fault-controlled base-level change in the Pagosa Springs terrace flight, San Juan River headwaters, Colorado:* **M Chakravarty**, C Chupik, A L Langston, M A Foster, V Gabel
- 1966195** *Cracking Nature's Code: How Fracture Patterns Influence River Valley Widening Rates in the Buffalo National River, Arkansas:* **K Hon**, J A Marshall, O Groeber, A L Langston

- 1859332** *Diagnosing Spatial and Temporal Uplift Changes in Mixed Bedrock-Alluvial Channels:* **A Thompson**, K X Whipple
- 1901862** *Elevation-Dependent Denudation Rates on Pikes Peak, Southern Rocky Mountains, USA:* **J Slosson**, E Marder, I J Larsen, A J Hidy
- 1945605** *Eulerian approach for surface coarsening of gravel bed caused by fine sediment erosion:* **T Uchida**, R Mitani, T Inoue
- 1931286** *Experimental Study of the Impact of Flow Conditions and Sediment Supply on Embeddedness in Gravel-Bed Streams:* **S Vanegas**, J Vasquez, J A Czuba, K Strom
- 1921274** *Experimentally linking upstream sediment supply and transport capacity to downstream cover patterns in bedrock canyons:* **E Fairley**, L Sklar, J G Venditti, J C Carr, C B Ross, M Hassan
- 1849532** *Fill and Flanks: Investigating the Complex Controls on Channel Morphology in a Post-Orogenic Landscape:* **E Godin**, K X Whipple
- 1850590** *Fluvial Architecture and Tectonic Controls on Siwalik Stratigraphy in the Trijuga Valley, Eastern Nepal Himalaya:* **S Khanal**, R Acharya, S P Kandel, L P Paudel
- 1987243** *Grain to Grain: Comparing Methods for Determining Sediment Size in Coarse-Bedded Streams in Hawai'i:* **I Rosales**, E Lodes, K X Whipple, N Colaianne, E Yager
- 1900742** *High-Resolution CFD Modeling of Plunging Flows in the Bedrock Reach of Alexandra Canyon, Fraser River:* **J Samarasinghe**, L Alvarez, J G Venditti
- 1898016** *Lithologic Heterogeneity Governs Transient Denudation in the East River watershed, Rocky Mountains, USA:* **E Marder**, I J Larsen, A Eger, X Huang, D E Granger, A J Hidy, K H Williams
- 1912384** *Lithological Control on Erodibility in Fluvial Impact Erosion:* **J Marggraf**, A D Wickert, J Lave, K B Gran, B Bugno
- 1956168** *Millennial-Scale Shifts in Erosion Dynamics Driven by Typhoon-Monsoon Interactions in the Zhuoshui Catchment, Taiwan: Evidence from U-Series Comminution Ages:* **C Wang**, C Li, S Yang, D Fan, J T Liu
- 1945988** *Post-Landslide Sediment Plume Monitoring in the Alaknanda River: A Multi-Sensor Approach for Hazard Assessment:* **R E**, S Kaushal, Y A Pulpadan
- 1942576** *Quantifying Lithologic Control on Topography in the Guadalupe Mountains, USA Using a New Relative Durability Rating:* **G Guryan**, J P L Joel, N M Gasparini
- 1962888** *Rapids of the Fraser Canyon:* **C B Ross**, J G Venditti, J C Carr, K Kusack, M Wright
- 1987155** *Refining the Glacial Chronology of the Sierra Nevada Mountain Range Using Luminescence and Electron Spin Resonance Dating Techniques:* **S Howard**, K Rodrigues
- 1858848** *River-landslide coupling in western Washington State: implications for landscape evolution and landslide hazards:* **S Ahrendt**, B B Mirus, J P Perkins, S LaHusen, O Hoch, L R Carlson Dunlap
- 1912389** *Scale-invariant hydraulic geometry in rivers, glaciers, and other self-formed channels on Earth and across the solar system:* **E Deal**, S Benavides, S W McCoy
- 1894717** *Sediment Cover Controls on Bedrock Meandering: New Terrace Chronology from the Smith River, Oregon:* **Y S Lin**, B J Yanites, S A Schanz
- 1973185** *Sediment Routing from the Brahmaputra River System to the Deep Sea Bengal Fan: Significance of the <250 Ma DZ U-Pb Age Group from Southern Tibet:* **M D Blum**, X Han, Z Alam
- 1948151** *Sedimentology, Chronology, and Sedimentary Provenance of Outburst Megaflood Deposits in the Siang River valley, Eastern Himalaya:* **S Nath**, K A Lang, K W Huntington, C Shobe, S Morey, R Rakshit, S Mukherjee, I J Larsen, D Montgomery
- 1924018** *Simulating geomorphic evolution through river networks:* **A D Wickert**, F McNab
- 1928077** *Testing if Stress, Climate, and Lithology Govern Bedrock Fracturing and Stream Sedimentation on West Maui Volcano, Hawai'i:* **J T Higa**, S K Rowland
- 1873203** *The remarkable consistency of flow history effects and the evolution of sediment transport thresholds in steep gravel-bed rivers:* **R Kostynick**, J Prata, J Bower, J Dale, C B Phillips, C C Masteller
- 1987456** *The role of discontinuity networks in bedrock river evolution:* **K Chilton**, M Zedan, K Strom, C Shobe, J A Spotila
- 1966796** *The role of size-dependent particle abrasion in downstream fining and the generation of a grain size gap along gravel-sand transitions:* **E N Bray**, L Sklar, G Parker
- 1940745** *Understanding the geochemical changes induced by landslides in the solute chemistry of the river systems of northwestern Himalayas:* **R Dhiman**, A Giri, D P Shukla, V Chembolu, H V Kulkarni
- 1918765** *Understanding the impact of grain size distribution on river morphology in steep, eroding landscapes:* **S Das**, B J Yanites
- 1893292** *Waterfall erosion creates local disequilibrium in mountain rivers:* **S Rothman**, J S Scheingross, S W McCoy

252100

Fluvial Flow, Form, and Forcing: Understanding the Mechanics Behind River Channel Reconfiguration

Conveners: Dylan Shoemaker, Louisiana State University; José Constantine, Williams College; Kory Konsoer, Louisiana State University; Douglas Edmonds, Indiana University Bloomington; Yuan Li, Wuhan Institute of Earthquake Engineering CO., LTD

- 1972492** *A Mechanistic Framework for Equilibrium Geometry in Sand-Bed Rivers: Linking Bank Strength, Sediment Transport, and Channel Adjustment:* **N Iscen**, A D Wickert
- 1884558** *Abrasion by suspended sand drives alluvial riverbank erosion:* **T Li**, M P Lamb
- 1938419** *Accreting, fast and slow: How sediment load sets the geometry and pace of meandering:* **Z Sylvester**, C M Speed, J A Covault
- 1951716** *Boundary Shear Stress Prediction and Bank Retreat Modeling in Vegetated Channels:* **G Artini**, S Francalanci, S Lanzoni
- 1945358** *Climate-driven deglacial aggradation determined the fate of nowadays perching Lower Yellow River:* **Z Lai**
- 1958429** *Creation of Oxbow Lakes Depends on Bifurcation Dynamics:* **Y Jing**, Y Li, D Shoemaker, M M Islam, J A Constantine, K M Konsoer, D A Edmonds
- 1933371** *Critical Thresholds of Floodplain Channel Stability from Morphodynamic Modeling:* **M Alif**, S A Khan, J A Czuba, D A Edmonds
- 1976003** *Damming and Water Use Increase Flood Risk in the Lower Rio Grande:* **H Xu**, T Y Dong, D J Dean, J B Sankey, T A Goudge, A Rodriguez
- 1987801** *Depositional Patterns for Oxbow Lakes Following Neck Cutoff Events:* **D Shoemaker**, K M Konsoer, D A Edmonds, J A Constantine, Y Li, Y Jing, M M Islam
- 1922924** *EXPERIMENTAL ANALYSIS OF SCOUR PATTERNS DOWNSTREAM OF POROUS HYDRAULIC STRUCTURES:* **A Shariq, PhD**, M S Afzal
- 1868094** *Flow Structure and Momentum Transport in a Flat-Bed Sinusoidal Meandering Channel with and without a Chute Cutoff: a Numerical Study with Various Channel Width-Depth Ratios:* **J Lin**, D K Fytanidis, G Parker, M H Garcia
- 1877017** *Flume-Scale Investigation of Flow Modification Induced by Bare and Vegetated Sandbars: Insights into Diverging and Converging Zones of the Channel:* **O P Maurya**, S Dutta

- 1922522** *How Do Alluvial Ridges Grow in Meandering Rivers?:* **J Han**, J H Gearon, D A Edmonds
- 1957623** *Hydraulic Controls on Sediment Sorting and Floodplain Deposition During a Large Flood:* **A Reveles-Hernandez**, D White
- 1896140** *Linking Downfan Variations in Avulsion Style to Gradient Transitions in Fluvial Fans:* **L J Gezovich**, S Mettel, P Plink-Bjorklund
- 1952857** *Modeling Crevasse Channel Hydraulics: The Case of Neptune Pass, Louisiana USA:* **M J Czapiga**, M A Allison, E Viparelli, E A Meselhe
- 1858121** *Morphodynamic Modeling of Supply-Driven Sediment Nourishments to Mitigate Bed Degradation and Discharge Skewing in the Dutch Rhine Branches:* **V Kitsikoudis**, E Liptai, B de Lange, M Oldenhof, N Welsch, V Chavarrias, S van Vuren, R Velner, D C Augustijn
- 2002851** *Numerical Investigation of Coherent Structures Induced by Submerged Vanes for River Training Applications:* **M Zuber Ahmed**, Z Ahmad
- 1914837** *Oxbow lakes as preferential pathways for erosion in meandering rivers:* **J Ahmed**
- 1943481** *Process-Based Understanding of Effective Discharge and Resilience in Indian Western Ghats Rivers:* **C Pradhan**
- 1950405** *Quantifying Turbulence Representation and Information Loss in Field-Scale CFD Models Using Grid Refinement Sensitivity in the Colorado River:* **L V Alvarez**
- 1899668** *Remote Sensing-Based Assessment of Stream Channel Migration and Erosion – A Case Study from Blanchard River Watershed, Ohio, USA:* **J Bzdafka**, A Murumkar, G Singh, F Babaian, L Miralha, PhD, J Witter, V S Shedekar
- 1922892** *Satellite Records Reveal a Rising Prevalence of Chute Cutoffs in the Amazon Basin:* **Y Li**, D A Edmonds, K M Konsoer, J A Constantine, Y Jing, D Shoemaker, M M Islam
- 1914182** *Spatial variability in meander migration rates in Illinois:* **K Wiley**, B L Rhoads, A J Margenot, S Zhou
- 1884190** *Spatiotemporal Characteristics of Sediment Transport and Channel Evolution During the 2020 Yangtze River Flood:* **H Zhang**, C Hu, J Guan
- 1978633** *Standing Wave Fields in Steep Rivers:* **D White**, E Yager, G E Grant, C Leonard, B Fasth, I Bae
- 1951111** *The Evolution of Channel Geometry and Planform Morphology of the Lower Mississippi River over the Last Millennia:* **C Wu**, Y Song, J Lee, F T C Tsai, G Parker, W Kim, K M Straub

249200

From Ridgelines to Valleys: Hillslope Processes, Morphology, and Evolution Across Scales (*joint with B, H, NH, T*)

Conveners: William Struble, University of Oregon; Seulgi Moon, Massachusetts Institute of Technology; Sarah Jonathan, Boston College; Brooke Hunter, Appalachian State University; Sarah Jonathan, Boston College

1985677 *Examining the link between bedrock erodibility and the enigmatic rugged topography of the southern Blue Ridge Mountains, USA:* **K Chilton**, A Stephens, J A Spotila

1906208 *Feedbacks between channel and hillslope form in the Kawhatau River, New Zealand:* **S Rothman**, S Carretier, S Bonnet, D Lague

1970847 *Modeling three-dimensional hollow infilling and failure recurrence in the Oregon Coast Range:* **S Davila Olivera**, J J Roering

2004162 *Process partitioning governs terrain evolution:* **S C Dobbs**, G E Hilley

1929477 *Ridgelines Record Tectonic Forcing:* **M Robinson**, J S Scheingross, S W McCoy, W Struble, D Lague

252435

Geophysical Granular Flows and Sediment Transport: Bridging Grain-scale Mechanics and Continuum Modeling (*joint with NH*)

Conveners: Lu Jing, Sichuan University; Kimberly Hill, University of Minnesota; Yue Meng, Purdue University; Qiong Zhang, Northwestern University; Benjamin Alessio, Stanford University

2001102 *Experimental Investigation of the effect of Confining Stress, Shear Rate, and Loading Direction on Inclined Sand Deposits Using a Direct Shear Device:* **S Pedrazzi**, N Ingabire Abayo, A Costanzo, S Asif

1959108 *A Seepage Prediction Approach for Debris Material Based on Fine Soil Proportion, Linking Grain Size Distribution to Pore Size and Hydraulic Conductivity.:* **M Dewrari**, S Siva Subramanian

1995692 *Bridging Grain-scale Deformation to Macroscopic Rheology in Granular Flows:* **C Harper**, J Dufek

1961428 *Characteristic Spacing in Granular Fingering Instabilities:* **R Gans**, M Arran, N Vriend

1947231 *Characterizing Granular Friction Through Grain Fragmentation:* **C Chang**, Y Hamada, H Noda, T Yamaguchi

1924598 *Directional stress history effects on sediment motion – from grain wiggles to saltation:* **S Bodek**, N T Ouellette

1908358 *Self-regulation system for evolution of soil-mantled hillslope underlain by granite and hornfels: the role of soil properties on rates of soil production and transport:* **T Watakabe**, Y Matsushi, H Matsuzaki

1922704 *Spatial patterns of erosion in shale and sandstone of the Valley and Ridge, Appalachians determined with in-situ produced cosmogenic nuclides:* **X Huang**, D E Granger, L Luo

1971326 *Systematic biases in soil production functions in non-steady soils:* **N Weinheimer**, C S Riebe, L S Sklar, C E Lukens

1928942 *The influence of hillslope processes on chemical weathering in rapidly uplifting and post-orogenic alpine landscapes:* **I J Larsen**, J Slosson, A Eger, M Winnick, P C Almond, E Thaler, J Marmolejo, E Marder, K H Williams, J M Rhodes

1977564 *Weathering Rind Development and Landscape Evolution in an Alpine Ultramafic Massif:* **A Rojas**, E H H G Cooperdock, R Milliken, K Robertson, P Nguyen, T Parsons

1894557 *Where do channels begin? An exact answer for a class of landscape evolution models using Riemannian metrics, and their implications:* **C J Harman**, Y Sire, D Litwin

1999728 *Does a granular analog to the glass quench rate likewise influence the mesostructures of granular materials?:* **R Kilburn**, V D Wright, M Chang, J Dasent

1903615 *Dynamics of Bedload Anomalous Transport: A Nonstationary Lévy Stochastic Process and Upscaling Model:* **Z Li**, H Sun

1992963 *Effect of 3D Dune Geometry on Flow Structure, Secondary Currents and Momentum Transfer:* **S S P Bodapati**, V Chandra

1987573 *Enhancing CFD-DEM for polydisperse bedload transport in turbulent flow:* **Y LIU**, L Jing, X Fu

1903326 *Erosion and transport of cohesive grains by a turbulent jet:* **A Sauret**, R S Sharma, J Roth, S Rajesh

1987968 *Estimating the Onset of Sediment Motion from Point Clouds and Intergranular Friction:* **I Bae**, S Bernal, E Yager

1906639 *Experimental and Numerical Study On Collapse of Quasi-two-dimensional Bilayer Granular Column:* **R Zhang**

1985152 *Experimental study of diffusion of monodispersed particles on a granular bed subjected to a turbulent flow.:* **R M L Ferreira**, A M Ricardo

1921324 *FLOW BEHAVIOUR OF POROUS WEIR FOR THROUGH FLOW CONDITION:* **M S Afzal**, A Shariq, PhD

- 1910932** *Generalizing sediment transport experiments from narrow flumes to wider channels:* **E Deal**, J T Perron, K Kusack, S Benavides, R W Bradley, Q Zhang, K Kamrin, J G Venditti
- 1938884** *Grain-Scale Probabilistic Description of Sediment Transport Based on Deep Learning PTV and Exner Equation:* **W Su**, L Jing, M Xu
- 1876709** *Granular Rheology of Photoelastic Avalanches:* **N Vriend**, B McMillan
- 1990794** *How Stress Distributes Across Different Granular Flow Regimes?:* **D Morad**, A Clark IV, E E Brodsky
- 1954073** *Influence of Contacting and Non-Contacting Particle Arrangements on Shock Compaction in Granular Materials: Insights from 2D Mesoscale Simulations:* **D Seo**, D Luscher, N Daphalapurkar
- 1938406** *Influence of Particle Size on Non-Darcy Flow in Rockfill Dams: Laboratory-Based Evaluation.:* **S Shrivastava**, A Banerjee, V N Khatri, S Pasupuleti
- 1986828** *Initiation of Bedforms on Subaqueous Erodible Beds:* **M Eley**, N T Ouellette
- 1924694** *Laboratory Experiments of Bedforms Evolution during Flood Events:* **S Francalanci**, N Marchiani, G Artini
- 1939088** *Non-monotonic Enhancement of Coarse Particle Transport to Grain Size Ratio under Fine Particle Addition:* **H Ma**, Y Zhang, Z Gong, L Jing, X Fu
- 1926418** *Numerical modeling of dry granular flow mobility in large-scale flume experiments:* **M Yang**, G Buscarnera
- 1981509** *Pore Pressure and Frictional Instability in Fluid-Saturated Granular Media: Insights from CFD-DEM Simulations:* **B Chhushyabaga**, B Ferdowsi
- 1916992** *Quantifying relationships between aeolian ripple dynamics, aerodynamic roughness and saltation height:* **J M Nield**, M C Baddock, G Wiggs, J Best, K Christensen, P Delorme, A Valdez, N Bristow, M Hipondoka, D Goss, N Wallum, P Claudin
- 1988186** *Quenched depositional energy exerts control on the mesostructures and relaxation dynamics of granular materials:* **V D Wright**, R Kilburn, J Dasent, C Burton
- 1989371** *Sea ice transport regulated by ice arches in narrow straits: Visualization of its granular nature through 3D photoelastic tests:* **S Wang**, W Li, L Zhang

251539

How landscapes become strata: advances in linking surface processes to the stratigraphic record

Conveners: **Eric Barefoot**, University of California Riverside; **Debsmita Das**, University of California Santa Barbara; **Chenliang Wu**, Tulane University; **Luke Gezovich**, Texas A&M University College Station

- 1947821** *Shear Weakening of Granular Soil Induced by Vertical And Horizontal Vibration:* **H Liang**, W Lu, L Jing
- 1997734** *Shear-Driven Acoustic Emissions in Synthetic Fault Gouge:* **K Adhikari**, B Ferdowsi
- 1987218** *Size Segregation of Bidisperse Granular Beds in Laminar Shear Flow: A CFD-DEM Investigation:* **X Li**, L Jing
- 1934091** *Size segregation of cohesive particles flowing down and depositing on a slope:* **Q Zhang**, J Zhang, J Ottino, P Umbanhowar, R Lueptow
- 1999799** *Statistical Analysis of Bedload Transport in a Rough Bed with Boulders from Numerical Simulations:* **C R Escauriaza**, M Barros
- 1917954** *Structured Chaos: Incorporating Turbulent Coherence into a Particle Resuspension Model:* **D Ben-Shlomo**, R Berkovich, E Fattal
- 1985746** *Suspension and deposition within turbidity currents:* **Y J Chou**, Y H Tsai, Y C Yeh
- 1932363** *The change of friction and compaction of shearing granular flow under acoustic vibration:* **L Huang**, E Brodsky
- 1951816** *The Effect of Cohesion and Friction in the Failure of Granular Material from 3D Discrete Element Models:* **P I Ioannidi**, J E Reber, G Morra, D Weatherley
- 1999477** *The Role of Humidity in Granular Flow: Cohesion, Friction, and Rheological Transients:* **A Zhakupova**, B Ferdowsi
- 1925957** *Unifying grain shape effects in granular flows down a rough incline:* **L Jing**, J Liu, M Zhang, T Pähz
- 1987363** *Visualizing Internal Dynamics in Irregular Granular Flows Using Refractive Index Matching and Active Contour Analysis:* **C H Chen**, P Aussillous, C Y Hung
- 1985441** *Visualizing Two-Phase Granular Collapse with Dual Refractive Index Matching of Fluids and Irregular Particles:* **Y C Cheng**, P Aussillous, C Y Hung
- 1935226** *Wildfire-Induced Alterations in Soil Behavior in Semi-Arid Grasslands: Insights from the Texas Panhandle:* **E Kotick**, B Ferdowsi, M Harris, B Carlson
- 1963975** *Channel-Scale Froude Supercritical Flow Deposits: Characterizing Catastrophe During A Climate Extreme:* **M O'Halloran**, P Plink-Bjorklund
- 1898169** *Characterizing the Progradation of the Subsurface Wedington Sandstone Delta Deposit in Northwest Arkansas:* **J Stewart**, J Shaw
- 1849805** *Dynamic Image Analysis applied to density fractions of aeolian sediments:* **P Stark**, M A Prins, C Beets, R van Balen, A P Kaakinen

- 1988978** *Fan and Fill: Sedimentology and Stratigraphy of Syn- to Post-tectonic Deposits within the Safford Basin, Southeastern Arizona:* **T Ropati**, K X Whipple
- 1904569** *Field Testing Autogenic Storage Thresholds for Environmental Signals in the Strata of the Mississippi River Delta, U.S.A.:* **U Mukherjee**, K M Straub
- 1963091** *Geomorphological and Seismic Characteristics of Sand Wave Fields on the Tidal Shelf of the Taiwan Strait:* **Y H T Liao**, H H Hsu, Y P Chen, C S Liu, S C Chen, L Chen, Y J Lin
- 1905254** *Integrated Petrographic and Zircon U–Pb Geochronological Constraints on the Sediment Provenance of the Gunsan Basin, Yellow Sea.:* **J Seo**, H Lee, S Park, I Seo
- 1930989** *Long-Term Fluvial Sinuosity Patterns Shaped by Rift Tectonics: Evidence from 3D Seismic Data:* **J Kwon**, Y Park, W Kim
- 1897634** *Quantitative Subsurface Characterization Uncovers the Stratigraphic Origin of the Alluvial Aquifer in the Lower Mississippi Valley:* **Y Song**, F T C Tsai, B J Minsley, C Wu, E Heggy

251989

Human Interventions in Delta Morphological Processes

Conveners: **Christopher Esposito**, Tulane University; **Madeline Foster-Martinez**, University of New Orleans; **Jaap Nienhuis**, WHOI

- 1981316** *Between Growth and Retreat: Five Decades of Change in the Nile, Indus, and Yellow River Megadeltas.:* **M Risha**, P Liu
- 1946994** *Evaluating Storm-Induced Overwash on the Barbamarco Spit (Po Delta, Italy) with UAV Topography and Morphodynamic Modeling:* **C Corbau**, W Nardin, U Simeoni, A Lazarou

252176

Hydro-geomorphic Impacts of Mining Activities on Fluvial Systems (joint with H)

Conveners: **Leo Guerrero**, Universidad De Ingenieria Y Tecnologia; **Kory Konsoer**, Louisiana State University; **Steve Darby**, University of Southampton; **Claudia Vega**, Centro de Innovación Científica Amazónica (CINCIA); **Julian Leyland**, University of Southampton; **Leo Guerrero**, Universidad De Ingenieria Y Tecnologia

- 1926954** *Designing and Redesigning Degraded and Post-mining Landscapes Using a Fluvial Geomorphic Model:* **G R Hancock**

- 1961248** *Regional Grain-Size Variability and Trends Along an Exhumed Submarine Slope System:* **B Romans**, S M Hubbard, L Stright, M Poyatos-Moré
- 1931083** *Sedimentological and Geochemical Insights into Saline Lake Evolution in the Salar de Llamara, Atacama Desert, Northern Chile:* **Z Adams**, A Sharifi, C Pollier, R Jansen, H Heath, A Pourmand, L R Daza, A Palma, E Suosaari, R P Reid, A Oehlert
- 1875565** *Sedimentology and Stratigraphy of One of Earth's Oldest Reported Dune Fields: The 2.64 Ga Vryburg Formation of the Transvaal Supergroup, Griqualand West, South Africa:* **V Colicci**, C C Marvin, M Hasson, W Altermann, M G A Lapotre
- 1847665** *Tidal Rhythmites and Microbial Mat Stabilization in the Late Precambrian: Insights from Stratigraphic Spectral Analysis and Petrography of the Aaron Formation, North Carolina, USA.:* **V Akudoro**, N K Noffke, L A Hinnov
- 1862335** *Vegetation Changes the Trajectory of River Bends:* **M Hasson**, A Finotello, A Ielpi, M G A Lapotre
- 1862795** *How does large-scale wetland reclamation affect salt intrusion and fine sediment dynamics in stratified estuaries?:* **R Siemes**, T M Duong, B Borsje, S J M H Hulscher
- 1989035** *Modern Dynamics Of A Large River Distributary: The Case Of Neptune Pass, The Largest Mississippi River Distributary To Form In A Century.:* **A Kolker**, H D Weathers, A A Renfro, C Swann
- 1953636** *SEDIMENT DYNAMICS AND CARBON STORAGE OF BALIZE DELTA CREVASSES OF THE MISSISSIPPI RIVER:* **K Gooch**, C Wilson, M A Kurtz
- 2000101** *From Extraction to Recovery: Understanding the Geomorphological and Social Transformations of Gravel Mining:* **M S A Chyon**, J Best, S M A Haq
- 1937668** *Gold Rush, Water Crush: Uncovering the Hydrological Cost Beneath the Glitter of Alluvial Gold Mining in Western Amazonia:* **A J West**, J Angel Amaya, H Cadillo-Quiroz, A Atwood, S Ramesh, D H Coayla Rimachi
- 1946605** *Hydromorphological responses to alluvial mining in a tropical river confluences:* **L Guerrero**, K M Konsoer
- 1945998** *Long-Term Trends and Drivers of Global Riverine Suspended Sediment Fluxes from 1985 to 2024:* **H Zhou**, J Leyland, S E Darby, C Tomsett, T Gernon, T Hincks, D R Parsons

1957043 *Runoff Effect on Stream Water Quality at Reclaimed Mine sites in Mixed Hardwood Forest Watershed:* **A Hass**, G Banda, M DeMatt, R Cantrell, F Rojano

1885806 *The Largest Geomorphic Experiment of All Time?:* **M Reed**, A Maxwell, C Shobe

248494

Insight into geologic evolution from changes to planetary landscapes by liquid flows

(cosponsored by AAS: American Astronomical Society, CGS: Chinese Geophysical Society, EGU: European Geosciences Union, JpGU: Japan Geoscience Union)

Conveners: **Carlos Gary Bicas**, Louisiana State University; **Indujaa Ganesh**, Georgia Institute of Technology; **Gaia Stucky de Quay**, Harvard University; **Suniti Karunatillake**, Louisiana State University

1882559 *Upstream Bend Skewing in Alluvial Meandering Rivers is Distinct Compared to Other Sinuous Channels on the Moon and Earth:* **T A Goudge**, J Vazquez, M D Nelson

1976397 *Data Driven Simulation of Martian River-Valley Evolution and Its Relation to the Paleoclimate:* **C Gunter**, T Weber

1895240 *Dynamic coevolution of valley networks and wrinkle ridges in Terra Sabaea on Mars: Implications for geologic evolution and paleoclimate:* **H Chen**, S Moon, E Kim

1919214 *Geomorphological Analysis of Martian Chloride Salt-Bearing Deposits:* **K Norberg**, E Das, T D Glotch

1876766 *Liquid Flow-Driven Landscape Evolution on Mars: Insights from Hydrological Transitions and Biosignature Preservation in the Qaidam Basin:* **L Xiao**, J Zhao, J Wang Dr

251149

Landscape Biophysical Interactions: Hydrodynamics, Sedimentary Processes, and Morphodynamics (joint with B, H)

Conveners: **Jorge San Juan**, Organization Not Listed; **Muriel Brückner**, University of Texas at Austin; **Pallav Ranjan**, Project Staff; **Caitlin Turner**, Louisiana State University

1882050 *A Unified Framework for Bed Shear Stress and Bottom Boundary Layer Thickness for Bare and Vegetated Beds:* **B LIU**, H M Nepf

1933653 *An Open-Source Model for Dynamic Coupling of Vegetation Processes and Hydro-Morphodynamics in Coastal Environments:* **N Tull**, M Z M Brückner

1870570 *The Malaria–Mining Paradox: How Artisanal Small-Scale Mining alters Riverine Landscapes:* **M Bendixen**, K Huang, J P Bizimana, K Kueviakoe, I Lars Lonsmann

1884743 *Magmatic Trigger and Control of Outflow Channel Activity in Hebrus Valles and Hephaestus Fossae on Mars:* **S Nerozzi**, R Spurling

1870352 *Outburst Flood Duration on Earth and Mars From Bedform Pattern Disequilibrium:* **C Blaske**, C C Marvin, M G A Lapotre

1955864 *Paleohydrology of Ancient Martian Rivers from Cross-Set Geometries at the Carolyn Shoemaker Formation, Gale Crater, Mars:* **N Downey**, B T Cardenas

1951254 *Possible Tidal Rhythmites in Gale Crater, Mars: Traces of a Lost Moon?:* **P Das**, R Sarkar, A Basu Sarbadhikari, S Karunatillake, M Cuk, S Mishra

1873574 *Reconstructing the Lost Waters of Mars: Insights from Global Chaotic Terrains:* **T WANG**, C He, H Yang, Z Peng, K X Whipple, Z W Koh, J Lawrence, R Wordsworth, G Stucky de Quay

1961656 *River-Dune Interactions in the Namib Sand Sea: Implications for Titan:* **S Kaplan**, S Birch, O M Umurhan, L Magana, M Malaska

1977087 *The large drainage systems of early Mars:* **A Zaki**, T A Goudge, D C Mohrig

1871854 *“Cyclorlasticflows” on Mars – mass wasting driven by the sublimation of ices:* **L Roelofs**, S J Conway, T D Haas, M Patel, M Sylvest, Z Emerland, J P Merrison, J J Iversen, M G Kleinhans, J McElwaine

1907548 *Biogeomorphological Response of a Tidal Marsh to Salinity-Induced Vegetation Shifts:* **J Bootsma**, B Borsje, D Van der Wal, S J M H Hulscher

1907066 *Cliff Erosion Observations and Modelling at the Wierum Salt Marsh in the Dutch Wadden Sea: The Importance of Local Water Levels and Site-Specific Calibration:* **S Dzimballa**, V Kitsikoudis, P Willemsen, E Folmer, B Borsje, I Y Georgiou, M Bregman, D C Augustijn

1964949 *Coupled Modeling of Hydrodynamic and Biogeochemical Responses within the Mississippi Sound and Bight to the 2019 Bonnet Carré Spillway Openings:* **H Ajibade**, A Rizal, B Armstrong, S K Kuttan, M K Cambazoglu, J D Wiggert

- 1988348** *Hydrodynamic and inundation characteristics in deltas under varying streamflow conditions and their implications for vegetation establishment:* **V Prasad**, M Z M Brückner
- 1880408** *HYDRODYNAMIC FLOW-FOCUSED DATA ANALYSIS: PCA CONSTRUCTION FOR LAKE SEMINOLE:* **S Crisanti**, A Tritinger, D Tarpley, P Tereszkiewicz, L Cortese, N P Snyder
- 1878162** *Immediate Hydrodynamic Impacts of an Engineered Oyster Reef: Flow Attenuation and Turbulence Dynamics:* **M Thenuwara**, K M Kibler, P Vein, J Taye, N Ramakrishnan
- 1983725** *Investigating Water Quality, Sediment, and Location Preferences of Oyster Drill (*Stramomita haemastoma* complex) Populations within the Grand Bay NERR Estuary:* **C McGarrah**, J DeBose
- 1998151** *LAKE SEMINOLE, GEORGIA, GENERAL FINDINGS: DATA ANALYSIS OF THE EFFECT OF VEGETATION ON HYDRODYNAMICS:* **D Tarpley**, P Tereszkiewicz, S Crisanti, A Tritinger, L Cortese, N P Snyder
- 1996569** *Monitoring the Environmental Impacts of Invasive Aquatic Vegetation: A Holistic Methodology:* **P Tereszkiewicz**, D Tarpley, A Tritinger, S Crisanti, K Fall, T Cagle
- 1970548** *Morphologic Evolution and Environmental Controls on Lateral Growth in Natural Intertidal Oyster Reefs:* **E R Eisemann**, A B Rodriguez, J Fodrie

252444

Land Surface Hazards: Linking Processes Across Landscapes (joint with NH)

Conveners: **Brian Yanites**, Indiana University Bloomington; **Seulgi Moon**, Massachusetts Institute of Technology; **Scott McCoy**, University of Nevada, Reno; **A. Joshua West**, University of Southern California; **Chan-Mao Chen**, National Chung Cheng University

- 1847054** *Climate-Tectonic Feedbacks in the East African Rift: A New Frontier for Earth System Science:* **D D Teklemariam**, K A Atalay, D E S K Dubbe, H L B Kumbi, H G D Lakew
- 1862921** *Widespread landsliding, catastrophic debris flows, and forest loss across southern Appalachia triggered by Hurricane Helene: past, present, and ongoing hazards:* **B B Mirus**, F K Rengers, L Schaefer, D Korte, P Moore, R Wooten, O Hoch, C Miles, A Witt, M Crawford, J Bauer, S Fuemmeler, P Prince, A Nandi, C Scheip, B G Johnson, A J Mersch, L Toney, P Burgi, K Allstadt

- 1864943** *Reconstructing the morphodynamic trajectory of the Wax Lake Delta: How important is vegetation?:* **G Mariotti**
- 1975695** *Relationship Between Vegetation and Belowground Biomass Across Nine Louisiana Coastal Basins:* **M Allen**
- 1953451** *Simulating live wetlands: Biogeochemistry + Biophysical:* **Y Xu**, C Schultz
- 1944431** *The Biophysical Foundations of Tidal Marshes: A Focus on Soil-Root Interactions:* **C Zoccarato**, H A Michael, A Roat, C L Meehan, P Teatini, C Schwarz, S Yoosefi Sigari
- 1984214** *The Impact of Large-amplitude Interannual Variation in Fluvial Inputs on the Coastal Hydrodynamics that Govern Shellfishery Viability within Mississippi Sound:* **J D Wiggert**, A Rizal, H Ajibade, M Diard, N Gagliano, B Armstrong, M K Cambazoglu, S K K
- 1854054** *Vegetation Characteristics Drive Morphodynamic Change and Carbon Storage Potential in Coastal Marshes:* **K Fontenot**, K Valentine, M Foster-Martinez, M Allen
- 1994951** *WATER QUALITY-FOCUSED DATA ANALYSIS: PCA CONSTRUCTION:* **A Tritinger**, S Crisanti, D Tarpley, P Tereszkiewicz, L Cortese, N P Snyder
- 1982579** *Water Salinity Impacts Aggregation, Settling, and Deposition of Fluvial sediment: Potential Implications for Wetland Restoration:* **P Brahana**, B Bharti
- 1873647** *Wood dynamics and biophysical response in mountain streams following extreme precipitation:* **A E Marshall**, B G Johnson, E Saunders, G Ponder, N Rauscher, T Linton
- 1999863** *Analysis of Post-fire Floods: Connecting Hazards and Scales in Mediterranean Climates:* **S Muñoz**, C R Escarriaza, S Nash, M Dobre
- 1945578** *Can Vegetation Regrowth Tame Post-Wildfire Flash Flooding?:* **E D Orland**, R Loehman, J Blake, P Robichaud, S Lewis, B S Sheppard, B A Ebel, M B Follette-Cook, T V Loboda, D C Morton
- 1905337** *Constructing a decadal sediment budget following the 2008 Mw7.9 Wenchuan earthquake:* **G Li**, A J West, H Qiu, Z Jin, D E Hammond, A Densmore, R G Hilton, F Zhang, J Wang, S Dong, A Atwood, W W Fischer, M P Lamb
- 2003339** *Deep critical zone controls on shallow landslides:* **S Moon**, G Formetta, J T Higa, R Busti, D G Bellugi, D Milledge, W E Dietrich
- 1903262** *Detection and Characterization of Debris Flow Events in a Catchment Affected by Historical Volcanic Deposits:* **T Koi**, N Nagata
- 1887753** *Development of Kinetic Energy–Rainfall Intensity (KE-I) Relationships using Disdrometer Measurements in the Mountainous Region of Tanay, Rizal:* **G Capuli**, M P Ibañez, A Pura, M Villafuerte II

- 1981284** *DistributedHydrologyGenerator: A new component for ingesting externally modelled distributed hydrology outputs into Landlab*: **J W Keck**, E Istanbuloglu, A M Pfeiffer, E Hutton
- 1853409** *Ecological Risk Assessment of Urban Expansion in the Northeastern Margin of the Qinghai-Tibet Plateau Based on Geological, Geomorphological, and Ecosystem Processes: A Case Study of the Jianzha Basin Urban Agglomeration*: **R Huang**
- 1937884** *Evolution of Sediment Granular Characteristics Carried by Hurricane Hilary-Induced Post-Wildfire Debris Flows*: **I Tomac**, L Landaverde Robles, H Chen
- 1914551** *Exploring Lithologic and Geomorphic Controls on River Hazard Cascades*: **F Shacheri**, A Long-Reid, B Pinke, A M Pfeiffer, J A Czuba
- 1861363** *FlowAlert: A new tool for postfire debris-flow situational awareness*: **F K Rengers**
- 1865385** *Forecasting Channel Response to Extreme Floods Using River Morphology: Lessons from Hurricane Helene*: **C C Masteller**, J Prata, A B Limaye, B G Johnson, C Scheip, C B Phillips
- 1893265** *Frictional constraints on conditions leading to initiation of the Sevier Gravity Slide, Southern Utah*: **M Idzakovich**, W A Griffith, D Mayback, R F Biek, M J Braunagel, D B Hacker, D H Malone, T A Rivera
- 1893680** *From Fault to Flood: Quantifying the Emergence and Mass Balance of a Cascading Hazard Following an Earthquake and Successive Storms in Taiwan*: **Y S Lin**, B J Yanites, Z Lee, R Y Chuang
- 1897524** *How long can eruptions disturb river systems?:* **S A Feehan**, J J Major, A R Mosbrucker, J Parrish
- 1989681** *Impact of Extreme Rainfall and Fire on Geomorphic Hazards of Western Transverse Ranges in Southern California*: **A Koutsoukos**, S Moon, A J West, I Akin, A Ghosh, C Li
- 2002829** *Increasing frequency and magnitude of Himalayan glacial outburst flows*: **S W McCoy**, J Jacquet, D McGrath, S Ghuffar
- 1905148** *Integrating Geospatial Technologies and Field Data to Evaluate Fuel Treatment Effectiveness in Alaska's Wildlands and Wildland-Urban Interface.*: **E Graham**, J Schmidt, H Chapman-Dutton, J Delamere
- 1896698** *Investigating the potential for volcanic island flank collapse and tsunami generation within the Pacific Ocean*: **D O'Hara**, S Hurwitz, M E Reid, C Mandeville, K R Barnhart, L Schaefer, E L Geist, E Rivera
- 1858370** *Landslide-Channel Feedbacks Amplify Channel Widening During Floods*: **G L Bennett**, D Panici, F K Rengers, J W Kean, S L Rathburn
- 1986066** *Large-scale monitoring of post-wildfire sediment dynamics in southern California using repeat airborne lidar*: **R A DiBiase**, B T Fong
- 1956762** *Leveraging River Channel Geometry to Enable Probabilistic Flood Inundation Forecasts Across Scales*: **C B Phillips**, J Castejon Villalobos, N Patterson, A Lee, J Bower, R M Diehl, C C Masteller, B A A Lane
- 1985983** *Mapping buried ice and quantifying degradation rates for the most dangerous moraine dams in Nepal using fused Sentinel-1 InSAR and feature tracking*: **G Brencher**, S T Henderson, D E Shean
- 1969547** *Modeling Catchment-Scale Sediment Dynamics and Flood-Related Hazards with SMART-SED*: **M Corti**, C Crippa, M Papini, L Longoni
- 1919151** *Natural Hazards in India's Mountain Regions: Analyzing Risks, Impacts, and Resilience Strategies*: **S Krishnan**
- 1941857** *Post-Disaster Landscape Recovery: Interactions Between Landslides, Vegetation Regrowth, and Soil Moisture in the Himalayas*: **A Sekar**, S Siva Subramanian
- 1897799** *Predicting failure events and long-term evolution in landscapes by modeling sediment creep dynamics under groundwater flow forcing*: **M Houssais**, M Orescanin, D Litwin
- 1945533** *Projected changes in precipitation-driven soil erosion across the contiguous United States*: **R Amorim**, G Villarini, A Michalek, A Prein
- 1944665** *Quantifying sediment fluxes for a small catchment from Cyclone Gabrielle using multitemporal lidar*: **J C Stout**, J Brasington, J M Rogers
- 1864288** *Rock and Roll: Smart Rocks for Observing Landslide Sediment Cascades from Within*: **G L Bennett**, K Roskilly, K Newby, A Senn, M Westoby
- 1882297** *Seasonal motion at the Barry Arm landslide, Prince William Sound, Alaska, USA, driven by headscarp-proximal glacier melt and subglacial topography of adjacent Cascade Glacier*: **H W Dow**, B D Collins, G J Wolken, C Miles, J Gassner
- 1884473** *Storm Structure Properties and Reflectivity Patterns in Post-Fire Debris Flow-Triggering Events Using Radar Composites*: **S Castillo Guerra**, C Jones, L V Carvalho
- 1852088** *The 2021 La Palma eruption: social dilemmas resulting from life close to an active volcano*: **V R Troll**, M Aulinas, J C Carracedo, H Geiger, F J Perez-Torrado, V Soler, F M Deegan, C Bloszies, F Weis, H Albert, G Gisbert, J M Day, A Rodriguez-Gonzalez, E Gazel, K Dayton
- 1906537** *Volume Estimation and Porosity Characteristics of Large Woody Debris Accumulation Using Indoor Experiments*: **F F Hsiao**, M C M Liang, S C Chen

1873598 *Watershed-Scale Rainfall-Subsurface Structure Interactions and their Influence on Shallow Landslide Triggering*: **M Kassem**, D Zekkos

249362

Landscape Evolution Beneath and Beyond the Ice (joint with C)

Conveners: **Shanti Penprase**, Carleton College; **Marion McKenzie**, Colorado School of Mines; **Dougal Hansen**, University of Wisconsin Madison; **Jingtao Lai**, Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences; **Natasha Morgan-Witts**, University of Wisconsin Madison

1866320 *Arctic Deltas Shaped by GIA-Driven Sea-Level Change and Sediment Supply*: **V M Bui**, J Lorenzo-Trueba, E Mackie, T Pico, J X Mitrovica

1889280 *Characterization of glacial lineation from outcrop and subsurface: Integration of outcrop data, remote-sensing techniques, and seismic imaging*: **H H Albayyat**, S Tofaif, M Sadah, H Ramadhan, K Dhamen

1907334 *Climatic and Geodynamic Drivers of River-Terrace Formation Since 1 Ma in the Patagonian Foreland, Argentina*: **T F Schildgen**, V M Fernandes, A Ruby, J Tobal, N Voßbürger, A D Wickert, L Grimm, F McNab

1902114 *Glacial Cirque Morphology and Paleo-Equilibrium Line Altitudes in the Bighorn Mountains and Southern Absaroka Range, Wyoming*: **K Anderson**, S M Principato

1999795 *Horizontal Bedrock Weaknesses as a Control On Subglacial Quarrying*: **C R Theiss**, B Bass, A Gay, T Elnitiarta

1969992 *Investigating the Depositional Environment of Laminated Glacial Sediments in Northwestern Washington, U.S.A.*: **M Locke**, D H Clark, C Ponton, B Foreman

249374

Morphodynamic processes in human-impacted fluvio-lacustrine environments

Conveners: **Jiyong Lee**, Oak Ridge National Laboratory; **Julia Cisneros**, Texas A & M University; **Hongbo Ma**, University of Illinois Urbana-Champaign; **Abigail Eckland**, University of New Orleans

1956447 *Bedform Dimensions on the Lower Missouri River Based on Four Years of Multibeam Bathymetric Data*: **M Free**, M Wyssmann, M Mansfield, J Shelley

1995648 *Carbon and Sediment Sequestration in the Fluvial-Deltaic Floodplain of the Rio Grande at Elephant Butte Reservoir, New Mexico*: **S Garcia**, J Radovic, K Potter, B Carlson, A Aguilar

1973369 *Northwestern Greenland Ice Sheet fluctuations since the late Pliocene recorded by cosmogenic nuclides in pro- and subglacial sediment and bedrock*: **A Balter-Kennedy**, J M Schaefer, J P Briner, N E Young, C Walcott-George, N Brown, J Charton, B A Keisling, T Kuhl, E Moravec, R Deconto, D Mangini, C Britt, S Anandakrishnan, N Stevens, E K Thomas, J M N Aguilar, Z Courville

1903486 *On De Geer and washboard moraines in New York State*: **S Grasing**, J P Briner

1879379 *Ongoing landscape response to continental-wide drainage reorganization in the ice-sheet marginal western Canadian Arctic*: **A Getraer**, B Nordin, I Jones, M Stewart, S B Penprase, J V Strauss, M C Palucis

1959477 *Sampling Signs of Slope in the Susquehanna: Detecting glacial isostatic adjustment as an ice-age climate signal modulating river sediment transport*: **S Kodama**, T Pico, M Douglas, A M Pfeiffer, S R David, S F Gallen, M P Lamb, N J Finnegan

1955107 *Sediment Deformation at the Large Scale: Effects of Non-monotonic Shear Localization on the Formation of Grounding Zone Wedges*: **I Madden**, J Suckale

1932161 *Shapes of Things: Specific Geomorphometry of Cryoplanation Terraces in Eastern Beringia*: **F E Nelson**, C Queen, K E Nyland, R J Mitchell, V Tolmanov

1924666 *The Timing of the First Missoula Flood—New Dating Underway*: **J McClellan**, I J Larsen, J E O'Connor

1852102 *Unraveling Tidewater Glacier Cycles in Greenland: From Idealized Models to Real-World Insights*: **M Pascual**, B A Keisling, G Catania, D Brinkerhoff, J E Christian, S P S Gulick, A Rodionov, D Felikson

1973928 *Channel Stability and Sediment Redistribution Following Dam Removal on the Elwha River, Washington State, U.S.A.*: **T Mohanta**, J A Nittrouer, K H Adams

1908692 *Effect of Banks Morphology on Curved Open-Channel Bends Hydrodynamics*: **V Kitsikoudis**, J Meinen, D C Augustijn

1903582 *Estimating the Future Storage Capacity Change at Federal Reservoirs*: **S N Bhanja, PhD**, D Singh, J Lee, C Hansen, A Chu

1887466 *Evaluating The Joint Influence of Natural Lake and Navigation Dams on the sediment dynamics in the Upper Mississippi River*: **A Gautam**, R Prajapati, R Talchabhadel

- 1951633** *Examining changes in flood frequency due to flow regulation by dams: a comparative analysis of the Chattahoochee and Flint rivers:* **F Li**, N P Snyder, G D'Angelo, V Truong
- 1882177** *Geomorphic Response to a Low-Head Dam Removal in a Steep Mountain Stream:* **V Alfred**, K B Lininger, C Shobe, G Valentine, K Meyer
- 1978367** *Influence of Resource Management Flows From a Large Dam on River Sediment Supply: A Thirty-Year Perspective:* **S Sartain**, P Grams, M Kaplinski, G Salter, R Tusso, K A Chapman, D J Topping
- 1883808** *Modeling linkages between floodplain sediment transport processes and post-disturbance sediment pulses:* **T Shukla**, D D Tullos, R L Flitcroft, M Santelmann, S Lancaster
- 1893525** *Numerical Analysis of Aspect Ratio Effects on Flow Characteristics Past Tandem Circular and Rectangular Rigid Bodies:* **F Bakhshandeh**, M Jamali
- 1927342** *Quantifying Recurring Levee Failures in the U.S. Using Multi-Temporal LiDAR Data and Characterizing Their Geomorphic Context:* **J Nazary**, B Mayhan, K M Trauth
- 1984817** *Reconciling Varying Sedimentation Rates in a Reservoir: Lake Seminole, Florida & Georgia, USA:* **A Edgington**, N P Snyder, K Wilson, A Regnier, J Bahr, S Hahs, M Nawaz, D Seal, T Cook, J D Landis, T A Dahl, B Mortimer
- 1878291** *Reconnecting secondary channels on complex river floodplains:* **G M Kondolf**

252053

Natural and Nature-Based Features (NNBF) and Hydro-Morphodynamic Feedbacks in Enhancing Coastal Resilience

Conveners: **Jyotismita Taye**, Scripps Institution of Oceanography; **Limin Sun**, University of Maryland Center for Environmental Science; **Manisha Thenuwara**, University of Central Florida; **Kelly Kibler**, University of Central Florida

- 1939265** *Applying sand engine in the Mississippi River Delta: A numerical feasibility analysis:* **K Hu**, E A Meselhe, A M Khalifa
- 1986703** *Black Mangrove Growth and Root Architecture in Recycled Glass Sand: Testing a New Substrate For Coastal Restoration:* **K Fronabarger**, A Deogracias, E MacDougall, K Lange, B Markel, S Van Bael, E Farrer
- 1972821** *Comparative Evaluation and Policy Analysis of Natural and Nature-Based Features:* **D Akter**, C J Friedland, R B Mostafiz

- 1887484** *Role of Impervious Surfaces, Erosion and Stream Sediment Supply Potential in Modulating Sediment Response and Hysteresis Pattern in Urban Streams Across the United States:* **S Safdar**, A Jefferson, K Underwood
- 1912413** *Sedimentation and vegetation-driven morphodynamics in a regulated reservoir: a modelling study of Lake Seminole (Florida, US):* **L Cortese**, M D Behn, A Edgington, S Crisanti, T A Dahl, C Sheehan, D Tarpley, A Tritinger, N P Snyder
- 1957442** *Timelapse LIDAR Imaging and Bankline Retreat in the Lower Colorado River to Constrain Human-Induced Sources of Erosion:* **L Papenhausen**, T A Goudge
- 1870518** *River Morphodynamics and Landscape Transformation from Artisanal Sand Mining in Rwanda:* **M Bendixen**, K Huang, N Noorbhai, M Mugabowindekwe, I Lars Lonsmann
- 1865513** *Geomorphic Classification of Returning River Segments in Large Reservoirs:* **P E Grams**, S Sartain, E R Mueller, M DeHoff, M Kaplinski, R Tusso, K A Chapman, G Salter, D J Topping
- 1861253** *High-Resolution CFD Modeling and Simulation of Turbulent Flow and Bed Shear Stress in a River Reach Calibrated with ADCP Data:* **M Razzaq**, M T H Tuhin, M Gurrus Prof, C Mudersbach, R Hinkelmann
- 1864812** *Sedimentation hotspots and nonlinear trapping in Texas reservoirs identified using remote sensing and bathymetric survey records:* **J Lee**, M Musa, S N Bhanja, PhD, A Chu, C Hansen, D Singh
- 1846975** *Coral Reefs and Seagrasses as Ecological Infrastructure for Coastal Dynamics in Lakshadweep Archipelago:* **A P Kumar**
- 1968821** *Dune Overwash Zone: Structured Overwash as Adaptation on a Barrier Island:* **M Dawkins**, B Davis, E Putalik
- 1953147** *Effects of coral reef spurs and grooves on wave energy dissipation and mean flow circulation:* **E Boles**, J Rogers, R Da Silva, S G Monismith
- 1889355** *Effects of Engineered Channel Morphology on Water and Sediment Fluxes in a Restored Tidal Marsh:* **Q Zhu**, W Nardin
- 1932085** *Effects of Western New York Varying Bedrock Lithology on Lake Erie Shoreline Bluff Erosion: A Historical Analysis and Small-scale Current Assessment:* **E DeMieri**, J Boyle, J P Briner
- 1926119** *Enhanced Coastal Resilience Planning Through Coastal Ocean Reanalysis Dataset Along the Coast of Maine, USA:* **M Sudhakaran**, K Huguenard, S G Roy

- 1851223** *Enhancing Coastal Resilience Through UAV Mapping of Vegetation Patterns:* **W Nardin**, M Bruscia, X Guo, G Franchi
- 1860363** *Evaluating a Hybrid Nature-Based Solution to Improve Resilience against Sea-Level Rise in Humboldt Bay, CA:* **A Rahman**, K Naseri, M Hummel
- 1967383** *Evaluating Coastal Flooding Under Diverse Climate Adaptation Strategies Along California's Coast:* **N Herran**
- 1911894** *Evaluating Marsh Terracing as a Long-Term Nature-Based Solution Using Integrated Geospatial and Wetland Simulation Modeling in the Back Bay National Wildlife Refuge, VA:* **N Carpenter**, L Costadone, T Allen
- 1918003** *How Dynamic are Coastal Dunes in a Barrier Island System?:* **R Bowen**, A Belcher, T Browning, K Smith, O Mascaro
- 1984401** *Hydrodynamics and Seagrass Growth: Evaluating Wave Climates and Sediment Transport Across Coastal Systems:* **N Ramakrishnan**, K M Kibler, M Thenuwara, P Vien, I Vona, L Andrade Barron
- 1986788** *Impacts of Rock Sill Placement on Hydrodynamics and Sediment Transport in a Microtidal Back-barrier Estuary:* **L Sun**, W Nardin
- 1915298** *Investigating the Feasibility of Using Recycled Glass Sand in Marsh Terraces in Terrebonne Bay, Louisiana:* **A Abdelrahim**, E A Meselhe, K Hu, A M Khalifa, M A Allison, N Jafari
- 1964047** *Nature-Based Solution for Coastal Climate Resilience Building in Bangladesh:* **A S Islam**, M A Hussain, G T Islam, Shampa, Z Tasnim, F I Mou, K M A Rahaman, N N Nasir, S B Murshed, S Haque, M A Iqbal, S Ravela

252145

**Reshaping Landscapes, Revving Up Life:
Exploring Processes and Impacts of River
Network Reorganization (joint with B)**

Conveners: **Pedro Val**, Federal University of Ouro Preto;
Maya Stokes, Florida State University; **Julia Carr**,
Pennsylvania State University Main Campus; **Eyal
Marder**, Colorado State University

- 1979662** *Comparing Grain Size, Soil Depth, and Soil Production Rates Across a Mobile Divide: Implications for Evolution of the Critical Zone:* **M Seeley**, J Patton, J Talmadge, I Ajayi, G Hobbs, K Sweeney, W Struble
- 1970163** *Drainage reorganization in gently-dipping layered rock:* **A Neely**, D Peifer, T Bernard, C Glotzbach, A R Beer, M Schaller, R Ott, Y Shi, T Ehlers
- 1926712** *Field and Topographic Evidence of Stream Capture In the Wake of the Mendocino Triple Junction, Northern Coast Ranges, California:* **H Sokey**, M Douglas

- 1991597** *Performance of a dynamic cobble revetment as a nature-based solution to coastal erosion:* **G M Kaminsky**, M Gostic, S Sumaiya, H M Weiner
- 1983605** *Physical and Ecological Monitoring of Natural and Nature Based Features- NNBF Case Study of Design, Implementation and Coastal Resilience in Southwest Florida, USA:* **M Dabees**, G Bourgault-Kennaley, S Gutierrez, M Damon, T Hall, M Nageon de Lestang, S Dabees
- 1962662** *Quantifying Mangrove-Induced Wave Attenuation Using Laboratory Models and Field Data:* **A Williams**, D Villarroel-Lamb
- 1872259** *Salt marsh restoration at a rapidly retreating site: a multi-scale assessment of interactions between hydrodynamics and biogeomorphic development:* **S Dzimballa**, M Stoorvogel, V Mason, B Borsje, T Bouma, S J M H Hulscher, P Willemsen
- 1951507** *Shoreline and Marsh Response Across Restoration Phases of a Hybrid Nature-Based Solution at Sugarloaf Island, NC:* **H Sirianni**, S Pettyjohn, B Burchi
- 1899212** *The Effects of Mangrove Presence and Change on Storm Surge Flooding Across the Pacific, Atlantic and Caribbean:* **Z Al-Attabi**, S Narayan, V G Shashank, A Burke, A Mackey, A Franklin, A Valdivia, D Lagomasino
- 1946956** *Understanding controls on sediment evolution in living shorelines:* **R P Hale**, E Yando, V J Hill, E Eddy
- 1874435** *USA National Mangrove Biomass Inventory:* **H Luís Baía**
- 1917508** *Geomorphic Feedbacks and the Longevity of Drainage Reorganization:* **E Shelef**, L Goren, T Qu, E Harel, O Porat, O Crouvi, S F Gallen, P Prince
- 1991278** *Linking Drainage Divide and Colluvial-Valley Morphology to Drainage Reorganization: The Role of Hillslope Processes:* **J Talmadge**, J Patton, M Seeley, W Struble, K Sweeney
- 1984436** *Linking drainage divide asymmetry to lithologic influence on baselevel:* **P Val**, D Peifer
- 1902288** *Long-term fluvial connection between the western Snake River Plain and Columbia Basin and a two-phased incision history of Hells Canyon:* **L Staisch**, J E O'Connor, C M Cannon, C Holm-Denoma, M Schwid
- 1972614** *Population genetic evidence for river capture across the Eastern Continental Divide, USA:* **M F Stokes**, A Culley
- 1903908** *River capture driven by extreme rainfall events: A case study of the Horsa-Dapu River Divide in central Taiwan:* **Y Y Huang**, E H Chen, S C Chen

1855664 *Riverscape Dynamics and Habitat Utilization Structure Evolutionary Diversification in Amazonian Electric Fishes:* **J S Albert**

249343

River Deltas: Observations, Modeling, and Experimentation (joint with B, GC, H, OS)

Conveners: **Alexandra Christensen**, Jet Propulsion Laboratory; **Yiyang Xu**, Boston University; **Marisa Repasch**, GFZ German Research Centre for Geosciences; **Jaap Nienhuis**, WHOI

1932662 *Multi-sensor Assessment of Suspended Particulate Matter in Lake Pontchartrain Through Regional Ocean Color Algorithm Development :* **M N Hashar**, E J D'Sa, B Liu

1917299 *A Bayesian approach for extracting delta surface water masks and delta network topology:* **M S Daniller-Varghese**, P Passalacqua

1950137 *Assessing a sediment budget for an intertributary bay in the Mississippi River Delta: East Bay, Louisiana:* **G Portocarrero**, S J Bentley, E Wei, N S Figueredo, F Walton

1925267 *Assessing the Influence of Spatially Heterogeneous Shallow Compaction on Delta Morphodynamics:* **Z Shi**, A J Moodie

1982296 *Cancellation of the Mid-Barataria Sediment Diversion Leaves Deteriorating Lower Mississippi Delta Wetlands with a Dangerous Sediment Deficit:* **M Keogh**, T E Tornqvist, A Kolker

1904853 *Decoding Millennial Delta Dynamics: Multi-Borehole Chronostratigraphy of the Han River Delta, Southeast China:* **P Lai**, Z Lai

1879306 *Delta-X Predicts the Mississippi River Delta Will Succumb to Relative Sea Level Rise:* **M Simard**, C Jones, A Christensen, A R Payandeh, S Fagherazzi, R Twilley, P Passalacqua, E Castaneda- Moya, A Rovai, P Biswas, M P Lamb, C G Fichot

1911166 *Determining nutrient flux in deltas across using satellite imagery at different spatial resolutions.:* **D H Knights**, A Koppolu, J Schwenk

1974254 *Determining vegetation establishment thresholds with custom-built sensors:* **A Eckland**, M Foster-Martinez, J Visser, V Sheremet

1872733 *Discharge and suspended sediment concentration variations across subdeltas in the lower Mississippi River Delta highlight areas of land loss:* **S Brannum**, K M Konsoer, M R Hiatt

1928372 *Tectonic controls on Landscape Evolution and Drainage Reorganization in the Sila Massif, Southern Italy, and Implications for Rock Uplift Patterns in the Calabrian forearc:* **A Pérez**, S F Gallen

1956413 *Does bottom trawling trigger sediment gravity flows on the Mississippi River Delta Front?:* **C Miller**, M A L Walton, J Obelcz

1907538 *Effects of Multiple Sediment Sources on Rift Basin Stratigraphy: 3D tank Experiments.:* **S Jung**, W Kim

2001388 *Effects of Shallow Benches on the Hydrodynamics at Channel bifurcations in the Mississippi River Delta:* **H Pokharel**, M R Hiatt, K M Konsoer, M Z M Brückner

1875094 *Estimating the Stability of Loops within the Sacramento San-Joaquin Delta:* **J Shaw**, N Moore, P Szymczak

2005182 *Estimation of sediment trapping efficiency of the Wax Lake Delta, Louisiana, using a high-resolution river delta morphodynamic model:* **D Wang**, H Alqattan, M P Lamb

1971139 *Exploring Controls on Backwater-Scaled Delta Avulsions: Model Experiments Illuminate Conditions that Favor Each of Two Alternative Mechanisms, and Interactions Between Them:* **N Hu**, A B Murray, K M Ratliff

1997344 *Geomorphic and Anthropogenic Controls on Global Delta Elevation:* **Z Florin**, F Miron, E Anthony

1951404 *Hurricane Francine (2024) Across the Mississippi Delta: Linking Offshore Waves to Estuarine Response with Multiscale Coupled Ocean-Wave-Hydrology Models:* **M F Geonova**, Z G Xue, Y Ou, J C Warner, M Olabarrieta, M R Hiatt, J George, J Davis, J Thomson, I Houghton, M Schonau, L R Centurioni

1931353 *Hydrodynamics and Sediment Dynamics of East Bay of the Mississippi River Delta, Louisiana, USA:* **J Reinhardt**, K Xu

1982398 *Improving Representations of River Delta Processes in Earth System Models via a New Bifurcation Scheme:* **T Zhou**, C Liao

1896647 *Improving Wetland Modeling with Multi-Sensor Remote Sensing: Lessons from the Mississippi Delta:* **A R Payandeh**, M Simard, C Jones, A Christensen, M W Denbina, D Jensen

2002602 *Integrated Hyperspectral Imaging and Non-Destructive Techniques for Surface and Subaqueous Characterization of the Birdsfoot Delta.:* **R Salunke**, R Biswas, M F Khan, A Nahian, R Pokhrel, S Khan

1918324 *Investigating Ecogeomorphic Feedback in the Mississippi River Delta Using Coupled Hydrodynamic and Vegetation Models: Implications for Restoration and Landscape Stability:* **S Ahmed**, E A Meselhe, K Hu, A M Khalifa, M A Allison

- 1908062** *Managed Realignment and its Influence on Estuarine Salt Intrusion*: **J Bootsma**, B Borsje, R Siemes, S Geerts, D Van der Wal, S J M H Hulscher
- 1892010** *Modeling the Impact of Vegetation on Nonlinear Hydrodynamic Interactions in a River-dominated Delta*: **S Feizabadi**, M R Hiatt, C Li
- 1925536** *Morphodynamic Variability Between Identical Delta Experiments*: **A Keenan**, A Piliouras
- 1936625** *Plume Sedimentation on the Mississippi River Delta Front: A Preliminary Modeling Study*: **R Du**, K Xu, Z G Xue, Y Ou, E A Meselhe, K Hu, C K Harris, PhD, J Chang
- 1953677** *Quantifying Soil Processes and Topographic Succession Responsible for Carbon Accumulation within the Wax Lake Delta, Louisiana*: **A Aalto**, D Breecker
- 1917834** *Recent Mississippi River Drought and Saltwater Wedge Intrusion in Historical Context*: **C Kemick**, E A Meselhe, A M Khalifa, M A Allison, K Hu
- 1994767** *Relating vegetation patterns to salinity and hydrodynamics in the lower Mississippi River Delta*: **T E Quirk**
- 1909149** *River deltas get muddier as they grow*: **M Kim**, J Nienhuis, W Kim

250375

River Resilience and Hydrologic Connectivity: Integrating Morphodynamic Insights and Climate Adaptation Across Scales (joint with H, NH)

Conveners: **Chandan Pradhan**, National Institute of Technology Karnataka; **Amrutha Suresh**, University of Padua; **Naga Venkata Satish Laveti**, National Institute of Technology Tiruchirappalli; **Sushree Swagatika Swain**, Scripps Institution of Oceanography; **Aparimita Priyadarshini Naik**, Colorado School of Mines

- 1858937** *Assessing Freshwater Biodiversity Intactness Using a Global Basin-Level Connectivity Index*: **I Pritchard**, A Britton
- 1906132** *Assessing River Corridor Dynamics in the Western Ghats Through Google Earth Engine and Cloud Computing*: **A K Kanrar**, C Pradhan
- 1960338** *Assessment of Climate Change Impacts on Spatiotemporal Variations of Runoff in the Kosi River Basin Using SWAT and CMIP6 Projections*: **S Dendukuri**, N V S Laveti Dr

- 1951662** *Sediment Dynamics and Geohazards in the Mississippi River-dominated Subaqueous Delta*: **N S Figueredo**, S J Bentley, E Wei, K Xu, F Walton, G Portocarrero, J Duxbury, T Magsino, J Woodall, D King
- 1985156** *Sediment Instability on the Mississippi River Delta Front: Ranges of Mudflow Motion from Storms to Quiescent Periods*: **K Moran**, J D Chaytor, W E Baldwin
- 1953388** *Sediment Transport and Accumulation in the Anthropocene offshore of Pass a Loutre, Mississippi River Delta, USA*: **J Woodall**, D King, S J Bentley, F Walton, E Wei
- 1893480** *Spring Flood Sediment Dispersal Offshore of the Mississippi River Delta*: **F Walton**, S J Bentley, A Romero-Martin, G Portocarrero, E Wei
- 1989087** *Subsidence Outpaces Sediment Supply: Accelerated Wetland Loss in the Lower Mississippi Delta*: **F Gulfsha**
- 1982823** *The Evolution of the World's Major Rivers and Deltas: How AI Can Help Us to Forecast Their Future Changes*: **P Liu**, M Risha
- 1862218** *Three ingredients for numerically efficient 2D river and delta morphodynamic modeling*: **G Mariotti**, A Canestrelli
- 1892839** *TOWARDS UNDERSTANDING OF DROUGHT EVENTS IN THE LOWER MISSISSIPPI RIVER USING STATISTICAL ANALYSIS AND NUMERICAL MODELING*: **A M Khalifa**, E A Meselhe, C Kemick, K Hu, M A Allison
- 1854843** *Braided Rivers and the Spring Theory of Resilience: Process-Form Feedbacks Across a Dynamic Continuum*: **S Dutta**
- 1889196** *Comparison of parametric and nonparametric standardized indices for detecting droughts over the Indian region*: **H Palagiri**, S S Swain, M Pal
- 1943507** *Development of a Freshwater Volume Estimation Method Using SWOT Satellite Data*: **S Lee**, D Kim, K Kim, S Choi, D KIM
- 1854536** *Efficacy of Nature-Based Solutions (NbS) for Hydro-morphological Risk Reduction in Large River Catchment*: **V Chembolu**
- 1992646** *Enhancing Bridge Pier Scour Depth Prediction Through Bi-Directional LSTM Networks: A Physics-Informed ML Learning Approach*: **F Rahman**, R Chavan
- 1945071** *Field-Based Assessment of Flow Characteristics in the Meandering Reach of a Large Artificial Lake*: **Y Kang**, D Kim, S Choi, Y Kim, C Lee
- 1953025** *Hydro-geomorphic Responses to Anthropogenic Alterations in the Brahmani River Basin*: **A ROY**, P Patel, A Sen Prof

1858444 *Role of Wetland Management for Sustainable Flood Risk Reduction in Large River Basin under Anthropogenic and Climate Change Stress*: **R Gupta**, V Chembolu

1877361 *Spatial Variability of Turbulence Structures in an Open Channel Influenced by Emergent and Submerged Sandbars: An Experimental Study*: **O P Maurya**, S Dutta

259006

Robert Sharp Lecture

Conveners: **Eric Kirby**, University of North Carolina at Chapel Hill; **Eric Kirby**, University of North Carolina at Chapel Hill; **Suzanne Anderson**, University of Colorado

251486

Space by space by time: applications of gridded arrays to analyze geomorphic problems (joint with H, IN)

Conveners: **Eric Barefoot**, University of California Riverside; **Andrew Moodie**, Texas A&M University; **Charles Nguyen**, University of Minnesota Twin Cities; **Andrew Wickert**, University of Minnesota

250443

Surface Processes Interactions and Feedbacks Across Active Tectonic Landscapes (joint with GC, NH, PP, T)

Conveners: **Ana Pérez**, Colorado State University Fort Collins; **Sean Gallen**, ETH Swiss Federal Institute of Technology Zurich; **Pedro Val**, Federal University of Ouro Preto

1959401 *Cenozoic Fault-Driven Exhumation in the Hyperarid Atacama: Evidence from Low Temperature Thermochronology in the Coastal Cordillera*: **T Aránguiz Rago**, A R Duvall, K W Huntington

1873886 *Competing Influences of Fluvial Erosion and Vertical Motion on Ocean Island Morphology*: **M Gillen**, K Huppert, A D Ashton, J T Perron

1966867 *Coupled 2D Geodynamic and Surface Process Modeling of Tectonic Evolution in the Dzereg Basin, Mongolian Altai*: **P Mohite**, J B Naliboff, R Leary, J Anaya, A Stevens Goddard

1918261 *Does river morphology reflect local rock uplift or upstream sediment supply?: A direct test from actively eroding bedrock rivers in Taiwan*: **S Das**, B J Yanites, P C Chiang, K M Johnson, N McQuarrie

1872199 *Unravelling the effects of hydrological connectivity on water quality in plain river network areas*: **R Wan**, S Yang, B Li, G Yang

1897136 *A geostatistically grounded workflow for spatial uncertainty quantification in lidar topographic differencing*: **C Brigham**, C Scott, R Arrowsmith, M Phan, J DeWitt, M Palaseanu-Lovejoy, V Nandigam, J Stoker, S W Anderson, D B Gesch, C J Crosby, M Beckley

1949028 *Impacts on Future Reservoir Sedimentation Assessed Using Coupled Landscape Evolution and Delta Sedimentation Models*: **C Sheehan**, M D Behn, N P Snyder, L Cortese, T A Dahl

1878733 *Sampled Spatial Random Field Models in the Earth Sciences: Analysis and Synthesis of Parameterized Covariance Models*: **O Walbert**, F J Simons, A Guillaumin, S Olhede

1925761 *Does Stochasticity Matter for Rock Uplift? Driving Landscape Evolution with Earthquakes*: **A M Forte**

1906111 *Earthquake Sequence Style as a Driver of Landscape Evolution: Insights from Coupled Seismic Cycle-Surface Process Modelling*: **M Basmenji**, A M Forte

1872890 *Exploring controls on topographic growth and decay of the Pyrenees Mountains with inverse landscape evolution modeling*: **M E Curry**, P van der Beek

1952828 *Illusions of Stream Network Disequilibrium in the Central Himalaya: River Piracy vs. Rainfall Patterns*: **J S Leonard**, K X Whipple

1875191 *Investigating the roles of climate, fluvial thresholds and sediment flux in river incision on the Hawaiian Islands*: **E Lodes**, N Colaianni, L W Raming, K X Whipple, E Yager, D E Granger, A M Strauch

1866612 *Long-term outer forearc uplift recorded by geomorphology, Central Nicoya Peninsula, Costa Rica*: **K D Morell**, A Moore

1898088 *Rapid Post-0.5 Ma Uplift of Marine Terraces in Southern Calabria Inferred from $^{40}\text{Ar}/^{39}\text{Ar}$ Dating, Shoreline Modeling, and Fault Zone Morphology*: **R J Dorsey**, G Di Vincenzo, M Meschis, S Longhitano, W Cavazza, D Chiarella

1930957 *Tectonics as a Regulator of Shoreline Retreat and Rocky Coast Evolution Across Timescales*: **C Lopez**, C C Masteller

1958103 *The Intrinsic Geometry of Fluvial Landscape Organization*: **N Klema**, L Karlstrom, J J Roering

248585

Understanding erosional to depositional landscape dynamics using thermo- and geochronological approaches. (joint with T)

Conveners: Magdalena Curry, Université Grenoble Alpes; **Marissa Tremblay**, Purdue University; **Malcolm McMillan**, University of Melbourne

1869757 *Asymmetric Exhumation Across the Western Himalayan Syntaxis: Implications for the Tectonic Evolution of Orogenic Wedge*: **S S Razzaq**, H Ghani, J Kley, I Dunkl, E R Sobel, R Thiede

1928363 *Deciphering the Neogene History of Amazonian Weathering Through Lithium Isotope Signatures in Sedimentary Archives from Deep Continental Drilling*: **R Blankenship**, A J West, C M Chiessi, P Baker, S Fritz, C Silva, C Jaramillo, A Sawakuchi, A J Noren

1950739 *Detrital Apatite Thermochronology of ODP sediments Reveals Mid-Pleistocene Decrease of Glacial Erosion Rates in the Mid-latitude Patagonian Andes*: **H Guo**, B Remian, M M Tremblay

1848121 *Enhanced erosion of the Laramide ranges during the Paleocene-Eocene Thermal Maximum, Bighorn Basin, Wyoming*: **G Jepson**, S George, B Carrapa

1977423 *Exhumation of the Southern Alps of Aotearoa New Zealand from Detrital Zircon (U-Th)/Pb and Fission-Track Single-Grain Double-Dating of West Coast Basins*: **D A Harris**, K A Lang, U Ring

1983123 *Influence of Transient Landscapes on the Cosmogenic Radionuclide Concentration*: **D Fieman**, B Sion, T Doane, PhD, K Norton, J Howarth

1991292 *Investigating tectonic uplift and glacial incision in West Antarctica using detrital thermochronology and thermo-kinematic modeling*: **J M Taylor**, C S Siddoway, S N Thomson, C P Teyssier

1911783 *Late-Cenozoic tectonic versus glacial control on the topographic evolution of the Terskey Range, Kyrgyz Tian Shan*: **L Gong**, P van der Beek, E R Sobel, T F Schildgen, A Mariotti, M Bernard, I Wapenhans, J Glodny

1846037 *The Response of the Three River System to Tectonic Activity in Southeastern Tibet*: **Y Luo**, J Yang, X Yuan, L Shihu, B J P Kaus, L Zhao, K Wang

1981043 *Living on the Edge: Cosmogenic Nuclide-derived Soil Production Rates in Landscapes Edging Toward Badland Topography*: **J K Willenbring**

1873004 *Modeling the Influence of Erosional Dynamics and Bedrock Properties on Detrital Zircon Provenance Signals*: **V Grom**, A M Forte

1974584 *New Constraints on Sediment Routing and Depositional Timing in the Iron Springs Formation from Detrital Zircon Geochronology*: **J Robinson**, S M Hudson, B B Britt, A Toner, B Taylor, O Tatum

1913568 *Provenance of the Kootznaboo Formation in Southeastern Alaska Using U-Pb Detrital Zircon Geochronology to Decipher Exhumation and Translation*: **C Gale**, C M Davidson, J Garver

1921266 *Pulsed Cenozoic Exhumation in the Hinterland of the Longmen Shan Thrust Belt and Implications for the Growth of the Eastern Tibetan Plateau*: **M Sadiq**, E Kirby, K P Furlong, K V Hodges

1872955 *Quantifying Quaternary Glacial Erosion and Relief Development in Mountain Belts with $^4\text{He}/^3\text{He}$ Thermochronology*: **P van der Beek**, I Wapenhans, M Bernard, L Gong, J Amalberti, C Colleps

1978982 *Sediment Mixture And Distribution Identification With Tensor Factorization In Multitype Provenance Dataset*: **G Bertolini**, N Richardson, N Graham, J E Saylor, M Friedlander

1932004 *Testing Stratigraphic Correlations of the Miocene Mill Creek Formation in the Greater San Bernardino Mountains Region, Southern California*: **E Bridges**, J Bottini, T Bidgoli

1937597 *The Cordilleran Uncovered: Applied Low-Temperature Thermochronology of Eastern Washington State and Oregon*: **B Trappett**, S Jess

1898182 *The Exhumation Response to the Eocene Collision of Siletzia in the North Cascades, WA*: **M M Tremblay**, A Curtis, M P Eddy, R Miller, R B Ickert

1927687 *Unraveling the Rodados Patagónicos: Cosmogenic nuclide dating of uplifted post-rift sediments across the Patagonian passive margin*: **S Jess**, L M Schoenbohm, N Akçar, J Rimando, J Paredes, A Peace, M Christl

259999

Earth and Planetary Surface Processes Student and Early Career GeoBurst Session

Conveners: **Claire Masteller**, Washington University in St Louis; **Kyle Straub**, Tulane University of Louisiana

1998443 *Cross-Sectional Geometry and Morphodynamics of Constant Curvature Meander Bends on Ice:* **N Singh**, R Fernández

1913655 *Cross-Source Point Cloud Registration for Urban Traffic Environment Modeling and Digital Twin Construction— Integrating Geometric Matching and Multi-Level Semantic Regularization:* **J Zhang**, W Xiao, H Liu

1968828 *Experimental study to assess the potential of Distributed Acooustic Sensing (DAS) to measure flow parameters in streams:* **N Soltani**, T Zhu, R Fernández

248925

Fundamentals of Geological Storage: Geochemistry, Geomechanics, Fluid Dynamics, and Caprock Integrity (joint with EP, GC)

Conveners: **Yun Yang**, Los Alamos National Laboratory; **Shimin Liu**, The Pennsylvania State University; **Chelsea Neil**, Los Alamos National Laboratory; **Min Wang**, Los Alamos National Laboratory; **Shaowen Mao**, Los Alamos National Laboratory

1878322 *A Unified Constitutive Model for Salt Rocks Under Triaxial Loading Conditions:* **F Yang**

1872552 *A Universal Analytical Prediction Model for the Time-Space Creep Field of Surrounding Rock in Salt Cavern Gas Storage:* **Y Zhang**, T Wang

1877894 *Annulus pressure variation to consider approaches for gas leakage rate prediction of salt cavern hydrogen storage:* **Y Liao**, T Wang

1890969 *Assessment of CO₂ Storage Potential in Post-Messinian Yafo Sand Member Reservoir in the Eastern Mediterranean Sea:* **O Makinde**, N Waldmann, O Eruteya

1953797 *Carbonate Attenuation Characterization using Ultrasonic Datasets and Cracked Isotropic Rock Analytical Model:* **S Adeosho**, F Bouchaala, M S Jouini, J Matsushima

1877983 *Development and application of a large-scale salt cavern energy storage physical model experimental device:* **T Wang**, C Yang

1919197 *Evaluation of caprock integrity during underground hydrogen storage in aquifers with different formation characteristics:* **M Zamehrian**, I Gupta

1912726 *Influence of Base-level Fall and Lithological Properties on Knickpoint Retreat and River Long Profile Form in the Lake Superior Basin:* **J Marggraf**, A D Wickert, K B Gran, B Bugno, D J Ward

1892379 *Linear Reservoir Behavior Across Large Spatial Scales:* **S Mohan**, A G Hunt

1919185 *Linking Flood Magnitude–Frequency Regimes to Climate, Landscape, and Human Drivers:* **A Hutson**, A Castillo-lopez, N J L Lenssen, P Plink-Bjorklund

1896919 *Patterns in Suspended Sediment Reveal Dynamic River Transport Response to Dam Removal:* **M Shallue**, C B Phillips

1933054 *Streambank Sediment Contribution in Low Order Semi-Alluvial Channels with Till Boundaries in Southern Ontario, Canada:* **J Redmond**, P Daggupati, A D Binns

1884005 *Evolution in Pore Structure and Wettability of Layered Salt Rocks Under Prolonged Exposure to Gas/Brine/Salt-Rock Systems: Implications for Underground Hydrogen Storage:* **Y Li**

1856035 *Experimental Study on Mechanical Properties of Layered Salt Rock in a Wide Temperature and Pressure Range:* **J Wang**

1872031 *Experimental study on mechanical properties of rock salt under hydrogen corrosion:* **T Wang**, X Ma

1871487 *Experimental study on the influence of different cavity diameters on the stability of deep salt cavern gas storage under multi-cycle injection-production:* **T Yang**, T Jiang, Y Zhang, H Chen, J Wang

1964104 *Geochemical Characterization of Caprocks for Feasibility of Geologic Hydrogen Storage in the Central Valley of California:* **T Garza**, M Izumi, M Tarpley, L Song, B Gilbert

1999627 *Hydrological Response of Sandstone to CO₂-Enriched Brine with Variable Salinity and Temperature:* **M Foroutan**, E Ghazanfari

1895166 *Imaging and Analysis of Mineral Concentrations Around Pore Structures in Carbonates:* **R Rivera**, L E Beckingham

1871111 *Innovative Multi-stage Cavity-building Process for Enhancing Efficiency and Long-term Stability in Underground Hydrogen Storage Salt Caverns用于提升地下氢气储存盐穴效率和长期稳定性的创新多阶段腔室构建工艺用于提升地下氢气储存盐穴效率和长期稳定性的创新多阶段腔室构建工艺:* **Z Ding**, T Wang

1934104 *Integrated Reservoir Modeling for CO₂ Injection at Tomboy (TMB) Field, Niger Delta:* **T Ude-Akpeh**, A Okpara, A Amosu, M Sanni, W Ampomah, N Sibaweih

- 1866817** *Integrating Laboratory Studies and Geochemical Models for Analyzing Monitoring of Carbon Capture Storage Management in Fusselman Formation: Insights from the Permian Basin Core Samples:* **M N Khan**, S Siddiqui, S Prakash, G C Thakur
- 1883660** *Interactions of H_2 with rocks during underground storage: Insights from adsorption tests on shales, coals and clay minerals:* **X Li**, T Zhang
- 1938602** *Laboratory Study of H_2 -Brine-Rock Interaction: Implication for H_2 Storage in Depleted Hydrocarbon Reservoir in New Zealand:* **R Feng**, L Adam, L Esteban, J Sarout, M Sari, L Monmusson
- 1963677** *Metal Mobilization During CO_2 Storage in Baffle-Reservoir Systems: Experimental Case Study of Hulett Member Sandstone, Powder River Basin, Wyoming, USA:* **A Mensch**, J P Kaszuba, J Dewey, A Eakin
- 1939034** *Microstructure of Shale: A Quantitative Case Study in Gondwana Region India:* **P Sarkar**
- 1873440** *Mineralogical Controls on H_2 Diffusion in North American Shales:* **Y Yang**, U Iyare, C Neil, M R Gross
- 1870754** *Modeling the Optimal Strategy for CO_2 Injection and Storage in Non-Structural Reservoirs:* **Y Kano**, M Sorai
- 1891541** *Multi-Scale Imaging and Mineralogical Analysis of Carbonate Rocks to Evaluate CO_2 Storage Potential in the Cassville Reservoir:* **S Mariano**, L E Beckingham
- 1883437** *Multiphysics Simulation of Insoluble Mineral Behavior During Salt Cavern Leaching via COMSOL:* **M Luan**
- 1891544** *Must We Account for Wellbore Effects during Simulations of CO_2 Sequestration in a Saline Aquifer?:* **U Ajugwe**, J A Cunningham
- 1871992** *Nanoscale Mechanical Properties of Impurity Salt Rock Studied by Combined Nanoindentation and SEM-EDS-XRD Techniques:* **H Tan**, T Wang
- 1965917** *Nanostructural Assessment of Shale Caprocks for Underground Hydrogen Storage:* **J Rubalcaba**, A Bhattacharjee, H Lisabeth, L Song, B Gilbert, T Garza, M Tarpley
- 1876717** *Numerical Simulation of Caprock Integrity for Hydrogen Storage in Bedded Salt Formations:* **C Liu**, T Wang
- 1883180** *Numerical Simulation Study of Dynamic Response of Salt Cavern Gas Storage Under High-Speed Penetration:* **W Liu**
- 1957342** *Pore-Scale Dynamical Effects in CO_2 and Hydrogen Geological Storage:* **Y Zhang**, A Taghavinejad, A J Amabogha
- 1861731** *Quantifying Dissolution Kinetics of Olivine in Water-Saturated free-phase CO_2 : A Novel Experimental Approach for Subsurface Carbon Mineralisation.:* **M Saleh**, N Darraj, M P Ryan, J P M Trusler, S C Krevor
- 1950942** *Relative Importance of Heterogeneity, Anisotropy, and Permeability-Saturation-Pressure Constitutive Relations on the Behavior of CO_2 During Geologic Storage in Deep Saline Aquifers:* **M Torof**, J A Cunningham
- 1878596** *Research on The Assessment of Compressed Air Energy Storage Capacity In Abandoned Coal Mine Underground Roadways and Coordinated Planning With The Power Grid:* **P Guo**
- 1998207** *Simulating Hydrogen Flow in Subsurface Rocks:* **G Marquez**, L Song, H Lisabeth, T Acharya, J Rubalcaba, A Bhattacharjee
- 2005105** *Solubility and Residual Trapping as Governing Mechanisms for Long-Term Geological CO_2 Storage in Unconventional Reservoirs:* **A Larbi**
- 1894152** *Study on Adsorption Characteristics of Hydrogen and Methane in Shale: Implications for Underground Hydrogen Storage (UHS):* **C Xu**, J Zhou, Y Peng
- 1882728** *Study on dissolution rate of rock salt during leaching of underground gas storage salt cavern:* **D Xie**, T Jiang, Y Liao, T He
- 1876493** *Study on the shape prediction of water-soluble cavern in bedded rock salt:* **T He**, T Wang
- 1924943** *Subsurface Characterization of U.S. Underground Natural Gas Storage Reservoirs: A Nationwide Framework for Future Developments and Repurposing for Hydrogen Storage:* **A Mirzaei Paيمان**
- 1921303** *The Geological Heterogeneity of UK North Sea Aquifers and Its Impact on CO_2 Injection and 4D Seismic Signal:* **B Kopydlowska**, C MacBeth
- 1883117** *The Microscopic Mechanical Properties Of Rock Salt Based On Molecular Simulation:* **P Wen**
- 1883188** *Theoretical Model And Early Warning Of Dynamic Gas Outflow Through Coal Tunnel Based On Damage-Seepage Coupling:* **T Jiafeng**
- 1872690** *Theory and mathematical representation of salt rock permeability prediction:* **H Chen**, T Jiang, T Yang, Y Zhang, J Wang
- 1949262** *Thermal performance in salt cavern gas storage coupled with water phase transition: Field experiment and modeling approach:* **P Sun**, T Wang, Y Liao
- 1911416** *Thermodynamic analysis of hydrogen storage in salt caverns by integrated wellbore-cavern coupling model:* **W Li**

1887910 *Toward More Comprehensive Geomechanical Assessment of Geologic Storage Systems: Capturing Spatial Heterogeneity with Scratch Test:* **N V Zakharova**, B Kim, C Treece, A Burns, A Haagsma, A Conner

249968

Physics of Fluids in Unconventional Reservoir Rocks (cosponsored by CGS: Chinese Geophysical Society, CGU: Canadian Geophysical Union, MSA: Mineralogical Society of America, SEG: Society of Exploration Geophysicists) (*joint with H*)

Conveners: **Behzad Ghanbarian**, University of Texas at Arlington; **Feng Liang**, Aramco Services Company; **Saman Aryana**, University of Wyoming; **Shaina Kelly**, Columbia University

1990467 *Apparent Permeability of CO₂ in Tight Shales: Experimental Methodologies and Impacts of Sorption:* **Y Lyu**, S M Althaus, S Eichmann, K Jessen

2001647 *Carbon mineralization pathways in interfacial adsorbed water nanofilms:* **M J Abdolhosseini Qomi**, Q R Miller, K M Rosso, T Schaefer, S Zare, M Youzi, J Stapper

1989329 *Mineralogical, Petrophysical and Geomechanical Properties of Limestones from Kansas:* **N Osorio**, W Dontoh, R Ghahfarokhi, C Jones, B Ghanbarian

1978354 *Multi-Scale Spatial Texture Characterization in Earth Systems using Topological Data Analysis and Bayesian Hierarchical Modeling:* **S Baugh**, T Mittal, B Roycraft, P Tanikella

250286

AI-Driven Approaches to Monitoring Fault Activity and land subsidence in Urban Environments (*joint with EP, G, IN, S*)

Conveners: **Ava Osman Pour**, Bu-Ali Sina University; **Mimmo Palano**, Università degli studi di Palermo; **Franz Antezana Lopez**, Beihang University; **Peyman Heidarian**, School of Transportatting Science and Engineering, Beihang University

248526

Landslide Life Cycle: From Hazard Analysis to Risk Assessment (cosponsored by EGU: European Geosciences Union) (*joint with EP, H, SY*)

Conveners: **Lisa Luna**, Potsdam Institute for Climate Impact Research (PIK); **Ben Leshchinsky**, Organization Not Listed; **Stratis Karantanellis**, University of Michigan Ann Arbor; **Eric Bilderback**, Organization Not Listed; **Tobias Halter**, WSL Swiss Federal Institute for Forest, Snow and Landscape Research

1883332 *Triaxial Rheological Mechanical Behavior of Salt Cavern Surrounding Rock:* **J Fan**

2000598 *Pore Scale Investigations on Fluid Flow in Anisotropic Porous Media And Its Impacts on Macroscopic Properties:* **R Guo**, H WANG, S A Hosseini

2002634 *Pore-Scale Processes Driving Critical Mineral Recovery and Carbon Storage in Reactive Reservoirs:* **N Lahiri**, Q R Miller, C H Stanfield, E Nienhuis, T Schaefer

1966727 *Pores, Pixels, and Pulses: Integrating Digital Rock Insights and Laboratory Measured Ultrasonic Velocity for Detailed Characterization of Shaly-Sandstone Reservoirs in the Damodar Valley Basin of India:* **V D Jamwal**, R Sharma, S Modi, N Vedanti

1948352 *Predicting Fracture Geometry and Fluid Flow based on Rock Mineralogy:* **L J Pyrak-Nolte**, K Han, J Hyman

2005055 *Pressure-Dependent CO₂ Transport and Storage Mechanisms in Low-Permeability Reservoir Rocks: A Bakken Formation Case Study:* **A Larbi**

1853172 *Simulation of Fluid Transport and Inter-Porosity Fluid Exchange in Dual-Porosity Dual-Permeability Shale Pore Network:* **C Liu**, D Phan

1933199 *Surface Reaction of CO₂ with Basaltic Minerals and its Influence on the Metal Ion Dissolution: Effect of Temperature and Nanoconfinement:* **Y Liang**, Z Shao, G Jo, K Nakamura, T Tsuji

1851490 *Unveiling microscale in-situ shale oil occurrence and pore-fracture artifacts in saline lacustrine reservoirs via Cryo-FIB-SEM:* **Y Cao**, Z Jin, L Dong, R Zhu Sr

1877161 *Integrated InSAR, Optical and Deep Learning-Based Fissure Monitoring in Nakuru County, Kenya:* **F Wawira**, N Njuguna, I Jelimo

1876292 *Machine-learning analysis of regional seismicity around the Korean Peninsula after the 2011 M_W9.0 Tohoku-Oki megathrust earthquake:* **B Kim**, T K Hong, J Lee, S Park, J Lee, D G KIM

1975117 *Regional identification of large, slow-moving, landslides and their 3D displacement using Satellite Radar Interferometry: a case study from Queenstown Lakes, New Zealand:* **I J Hamling**, C I Massey

1888449 *Evaluation of a Downscaled Climate Model for Landslide Early Warning in Data-Poor Regions of Southeast Alaska:* **R Plescher**, J J Roering, D Nash, E Lawrence

1848750 *A Physics-Informed Machine Learning Framework for Landslide Susceptibility Prediction:* **Y Yuan**, L Zhang, L Wang

- 1978611** *Accounting for spatial dependence and heterogeneity in landslide susceptibility assessment:* **E Aristizábal**, L Lombardo, O Korup
- 1893551** *Advancing Landslide-Generated Tsunami Modeling with a Three-Dimensional Rigid-Fluid Method: Toward Coupled Slide-Slump Simulations:* **Y X Huang, PhD**, T R Wu, S K Hu, C R Chu, C Y Wang, C Zhou
- 1868968** *Analysis of Landslide Displacement and Kinematics through Near-Real Time Surface Monitoring with RTK-GNSS Arrays:* **B A Leshchinsky**, E Fulmer
- 1957469** *Application of InSAR technique for slope stability analysis in Indian Himalaya.:* **R Kaur**, A Gupta
- 1931529** *Assessing the failure risk of a highway slope under extreme rainfall conditions:* **S Khan**, F Rahman
- 1885916** *Assessing the Stability of Active Slow-moving Landslides through Integrated Geotechnical Modeling and InSAR Remote Sensing:* **X Li**, A L Handwerger, R M Skarbek, G Buscarnera
- 1918219** *Automatic Detection of Mass Movements Using Infrasond at Two Mountainous Catchments near Haines, Alaska:* **H Chandler**, J J Roering, L Toney
- 1929069** *Base-level Lowering Rates Control a Landslide Process Transition in California's Franciscan Mélange:* **N Fakrai**, J P Perkins, N J Finnegan, A L Handwerger
- 1869763** *Bayesian Landslide Frequency Estimates to Inform County Level Risk Reduction Across the United States:* **L Luna**, J Woodard, J L Bytheway, G Belair, B B Mirus
- 1868720** *Bedrock ledges, colluvial wedges, and ridgetop water towers: Geomorphic and atmospheric controls on the initiation and runout of the 2023 Wrangell landslide, SE Alaska, USA:* **J J Roering**, M M Darrow, A I Patton, A B Jacobs
- 1883413** *Characteristics of landslides and geological structure induced by the 2024 Noto Peninsula earthquake: Focusing on the relationship with existing landslides:* **N Sasaki**, T Sugai
- 1860321** *Co-seismic Landslide Hazard Assessment Constrained by Landslide Dynamics and Landslide Size Information:* **B Gao**
- 1877400** *Combining in-situ soil moisture data and precipitation in machine learning for national scale landslide early warning:* **T Halter**, P Lehmann, J Aaron, A Bast, M Stähli
- 1873637** *Connecting the Dots Between Storms and Landslides: Using Model Climate to Improve Improve Situational Awareness of Atmospheric River Related Hazards in Southeast Alaska:* **D Nash**, J Rutz, A B Jacobs, B Kawzenuk
- 1950223** *Ecohydrological Controls of Vegetation on Landslide Hazards in the Loess Plateau--A Case Study: Suide County, Yellow River Basin:* **X Liu**, H Lan, L Li
- 1881195** *Elucidating the Dynamics of Static Liquefaction in Landslide Mobility:* **M E Reid**, E Rivera
- 1879255** *Enhancing Landslide Detection Using Change Detection-Based Annotations and Deep Learning Segmentation:* **G Agboola**, L H Beni
- 2000438** *Evaluating UAV-LiDAR and Photogrammetry Techniques for Accurate Multi-Temporal Slope Deformation Monitoring:* **S Darothy**, A Q M Zohuruzzaman, S E Shifat, S Khan
- 1897145** *Fluvial Response to the 2021 Chamoli Landslide Quantified from High Resolution LiDAR Digital Elevation Models:* **S Kaushal**, S Masudul Islam, Y A Pulpadan
- 1845492** *From Sky to Slope: UAS and Airborne LiDAR Applications to Landslide Monitoring and Susceptibility Modeling in Yellowstone National Park:* **A Butterworth**, D Delparte, B T Crosby, J Mahar, M Belt
- 1853469** *From the Golden Years to the Graveyard: The Fluvial Fate of Landslide Debris in a Cascading Hazard Chain:* **B J Yanites**, Y S Lin
- 1912788** *Groundwater Fluctuations Drive Accelerated Failure of Rock Slopes:* **C Xia**, K M Cuffey, Q Zhao
- 1964596** *High-Frequency, Repeating Seismic Signals in a Creeping Landslide and What They Tell us About Friction:* **S Li**, N J Finnegan, S Y Schwartz
- 1975063** *Identification of Potential Slow-Moving Landslides Using PCA/ICA on InSAR Time Series and Terrain Analysis:* **G Chaves Fitzgerald**, M H Huang
- 1936737** *Identifying Landslide Patterns and Precipitation Thresholds Using Machine Learning: A Case Study in Oregon:* **T Pei**, M D Diokhane, N Devineni, Y Tian
- 1852181** *Impact of Riverine Toe Erosion on Slope Stability in the Himalayas: Insights from the Kali Gandaki Corridor:* **R Subedi**, P Gyawali, B R Adhikari
- 1955994** *Integrated Landslide Hazard Assessment Using Remote Sensing, GIS, and Crowdsourced Data: A Community-Driven Approach to Early Warning and Risk Mapping:* **M A Zeb**, P Bencivenga, M Zizi, G De Matteis
- 1964124** *Integrating Multi-Temporal LiDAR and AHP for Landslide Detection and Susceptibility Mapping in Prince George's County, Maryland:* **M Okegbola**, O Owolabi, Y Liu, Z Sheng
- 1988121** *Investigating Hydro-Mechanical Drivers of an Expansive-Clay Highway Slope via SHAP-Enabled Machine Learning:* **S E Shifat**, A Q M Zohuruzzaman, Y Li, S Khan, S Darothy

- 1883578** *Investigation on seismic source activity and active geological hazards of the M_s 6.8 Dingri earthquake in Tibet:* **C Liu**, X Wang
- 1990674** *IoT-AI System for Real-Time Landslide Monitoring and Risk Assessment in Slopes and Levees:* **A Q M Zohuruzzaman**, M Zulfikar, A Alzghoul, S Khan
- 1992845** *Land Deformation and Debris Flow Simulation of the 2024 Wayanad Landslide Using DinSAR, RAMMS, and Slope Stability Modelling:* **S Maji**, P Nath Singha Roy, S Bisoi
- 1885154** *Landslide Conditioning Factors in the Hilly Regions of Bangladesh:* **B Zannat**, S Silvi, K H Mahmud
- 1919696** *Landslide Susceptibility Mapping in Aizawl Municipal Corporation Area, Aizawl, Mizoram, India: A Comparative Study Using Machine Learning Models:* **S Sailo**, Z Ralte, L Tlau
- 1891852** *Landslide Susceptibility Mapping Using Frequency Ratio in Chure Rural Municipality and Godawari Municipality in Kailali, Far Western of Nepal:* **T Ale**, A Shrestha, B Rai
- 2001173** *Landslide watch Aotearoa: Detecting and forecasting insidious landslide displacement across New Zealand Aotearoa:* **C I Massey**, I J Hamling
- 1851035** *Landsliding follows signatures of wildfire history and vegetation regrowth in a steep coastal shrubland:* **M A Thomas**
- 1879577** *Leveraging transferrable predictors for enhanced rainfall-triggered landslide hazard assessments over regional scales:* **J Woodard**, B B Mirus, L Luna, M Sutton
- 1971793** *Linking fan surface morphology to erosional process regimes: A morphometric framework:* **M A Sanders**, J J Roering
- 1851923** *Living on the Edge: A 40-Year History of Ground Motion in Lettomanoppello (Central Italy) from Satellite InSAR Observations:* **M Albano**, M Polcari, M Moro, M Saroli, G Ciccone, M Fiorucci, V Ruocco, F Doumaz
- 1924545** *Locating Landslide Slip Surfaces Using Kinematic Elements: A Case Study for Slumgullion Landslide:* **L Hu**, R Bürgmann, Y Xu, X Hu, D Donati, G Landi, F Zama, L Borgatti
- 1860644** *Machine Learning-Based Landslide Susceptibility and Risk Assessment for Disaster Risk Reduction in Kyrgyzstan:* **G M Henebry**, E Duulatov
- 1959731** *Machine Learning-Based Landslide Susceptibility Mapping in the Blue Ridge of South-Central Virginia:* **L Rollins**, R Das, M Chakraborty
- 1983175** *Modeling Rainfall-induced Landslide Hazard in Failure-prone Slopes in Midhill Region of Nepal Himalaya:* **H P Kandel**, H Khanal, B Devkota, K Bhattarai, A Nelubow
- 1890613** *Modelling landslide runout using Physics-Informed Neural Networks:* **Y Chen**, L Nava, F Wang Prof, M Van Wyk De Vries
- 1927892** *Multi-Scale Observations and Modeling of a Slow-Moving Landslide Controlled by Frictional Heterogeneity and Pore Fluid Pressure:* **M Yang**, N J Finnegan, V Lambert, Y Iwasaki, E Brodsky
- 1948601** *Multi-Source Remote Sensing Analysis of Landslide Lifecycle and Failure Processes: The June 2018 Kakrud Landslide in Northern Iran:* **J Li**, M Motagh, H Jiang, B Akbari, S Roessner, M Rezaei, Y Xu
- 1874775** *Operational Landslide Hazard Forecasting in Vietnam Using Bias-Corrected WRF Rainfall and Soil Moisture Modeling:* **E G Tarouilly**, E Shamir
- 1979916** *Postfire Erosion Dynamics Revealed by Multiple High-Resolution LiDAR Surveys after 2025 Palisade Fire:* **B Tan**, T Horvath, A Koutsoukos, S Moon, L Bouchard, D A Paige
- 1998361** *Quantifying Vetiver Grass Evapotranspiration Performance for Sustainable Slope Management in Expansive Soils:* **R Pokhrel**, R Biswas, M A Israk, R Salunke, S Khan
- 1856594** *Regional detection and characterization of hundreds of slow-moving bedrock landslides in southern Alaska:* **L N Schaefer**, J Kim, D M Staley, K R Barnhart, Z Lu
- 1926408** *Regional Rainfall-Induced Landslide Hazard Assessment with CyberWater 2:* **S Aly**, A Sheba, Y Liang, X Liang, J S Lin
- 1882959** *Rethinking the Landslide Life Cycle:* **B M Higman**, N J Finnegan, C Dai, B A Leshchinsky, O Korup, S J Conway, K Hughes
- 1877089** *Risks from coseismic landslides due to the $M=4.8$ earthquake of April 2025, on the southeast slope of the Nevado de Colima, Jalisco, Mexico.:* **C Suarez-Plascencia**, G Reyes Alfaro, E Trejo-Gomez, S Ramirez-Lopez
- 1885200** *Sentinel-1 Consecutive Interferogram Stacking Approach (CIAS) for High-Resolution Landslide Monitoring: A Dynamic Method for Continuous Data Integration:* **B Pan**, S Hussain, A Tariq
- 1876865** *Spatial-temporal Landslide Susceptibility modeling in Data-Scarce Areas: utilizing Recurrent Neural Networks and Transfer Learning:* **Z Tian**, Y Zhang, Y Wang, Z Fang, S Zheng
- 1985106** *Spatiotemporal Landslide Hazard Analysis in Seoul using GIS and Machine Learning under Climate Change Scenarios:* **C Kim**, M Jang, Y Ahn, K Kim, M Kang, B Min

- 1869454** *The Need for Simple Landslide and Debris-Flow Runout Maps: Techniques for Applying Grfin Tools for Regional Landslide Susceptibility:* **I Leb**, M E Reid, D L Brien, C Cerovski-Darriau
- 1932905** *Thermo-Hydro-Mechanical Modeling of Creep Phase of Landslides:* **F Sobhbidari**, A Caneday
- 1984173** *Towards a disturbance variable for post seismic landslides:* **A Sridharan, PhD**, G G Reshma, L B, G Gutjahr, T Stanley
- 1858484** *Towards operational landslide hazard forecasting system in Gandaki Basin, Nepal using machine learning, remote sensing and multi-source data:* **P M Amatya**, T Stanley, S B Maharjan, S Bhattarai, B Bajracharya, T M Lahmers
- 1872609** *Twenty-five years of landslide mapping of the Collazzone study area, central Italy, to produce a detailed and updated multi-temporal landslide inventory map.:* **F Ardizzone**, M Cardinali, F Fiorucci

246755

Recent Advances in Flood Risk: Prediction, Monitoring, Assessment, Management, Mitigation and Adaptation Planning (joint with EP, GC, H)

Conveners: **Dhruvesh Patel**, Pandit Deendayal Energy University; **Cristina Prieto**, Imperial College London; **Benjamin Dewals**, University of Bristol; **Dawei Han**, University of Bristol

- 1907653** *A Multi-Scale Index-Based Approach for Flood Risk Assessment in Urban Areas: The Case of Cosenza, Southern Italy:* **D Biondi**, G Capparelli, D Spina, F Cruscomagno
- 1980511** *A Scalable Flood Risk Assessment Method for Pavements: Quantifying Flood Damage at Segment and Network Scales Utilizing High Resolution Hydrodynamic Flood Modeling:* **K Boukin**, K M Strzepek, R Kirchain
- 1978145** *AI-Enabled Coastal Resilience via Storm Generation, Surrogate Modeling, and Optimization:* **A New**, J Markowitz, J Sleeman, G J Brett, PhD, N S Winstead
- 1892150** *An Integrated Framework for Flood Risk Forecasting Utilizing Global Weather Predictions and Hydrodynamic Modelling: An Appraisal of the Krishna River Basin Case Study, India:* **A Chakraborty**, K Mondal, M Ghosh, S Ghosh, S Karmakar
- 1891840** *Assessing flood risk in a rapidly urbanizing basin: a logistic regression approach for Istanbul (Türkiye):* **E Hamidova**, A Bosino, M E Cihangir, M De Amicis
- 1866605** *Assessing the characteristics and impact of unexpected 2024 flood in the Bagmati River basin of Nepal:* **B B Shrestha**, M Rasmy, K Tamakawa, S Joshi, D Kuribayashi

- 1930372** *Understanding Geo-Environmental Factors for Landslide Occurrences Using Geographically Explainable AI: A Case Study from the Northeastern United States:* **Q Liu**, T Pei, N Devineni, Y Tian
- 1875130** *Unveiling the 2023 Acceleration of the Portuguese Bend Landslide Complex: Insights from Long-Term 4D InSAR-GPS Monitoring:* **A Guo**, R Bürgmann, Y Xu, L Hu, A L Handwerker, E J Fielding
- 1938874** *Unveiling the Underappreciated Consequences of Landslides across the United States with Generative AI:* **X Wei**, V Balloli, L Palermo, B B Mirus, N J Wood, A Pennaz, A Wilkins, E Bondi-Kelly, S Loos, PhD
- 1856122** *Variable Velocity-Acceleration Scaling in Accelerating Creep:* **C Chang**, H Noda, D Huang, C Huang, Q Xu, T Yamaguchi
- 1865243** *Velocity derived from high-resolution ground-based radar interferometry: a case study of the slow-moving Rattlesnake Ridge landslide in central Washington State.:* **Y H Tung**, D A Schmidt
- 1952211** *Assessment of flood (inundation extent and flood depth) mapping using Synthetic Aperture Radar (SAR) in the OpenSARLab platform:* **K P Mondal**, S M A Habib, M N H Sharifee, M Sharif, M J Ashik, S T Islam
- 1987878** *Coastal Storm Tide Modelling for the US Northeast:* **D Kwon**, N Lin, A Begmohammadi, D Xi, C Blackshaw
- 1963449** *Data-driven Flood Risk Index for Downstream Decision-making:* **B Kar**, G Schumann, M T Glasscoe
- 1869673** *Demonstrating a Pipeline for Operational Use of the National Water Model for Responding to Community-scale Flood Hazards:* **M Vardaman**, N O Djan, K Adebayo, A Farshid, V Oladoja, A Simpson, S Zand, D Maidment, K McDonough, D Djokic, M D Bartos
- 1884959** *Flood Assessment and Mitigation planning using UAV, GeoHEC-HMS, GeoHEC-RAS and GeoSTORM tools- A case of Palej Industrial Area, Gujarat, India.:* **D Patel, PhD**, K Darji
- 1885344** *Flood stress on Rice yield regarding flood depth and flood duration at different rice growth stages and response of different varieties:* **M O Faruq**, M F Islam, A K Paul, B Karmakar
- 1971499** *Flood Vulnerability Assessment in the Hilly Districts of Southeastern Bangladesh: A Multi-Criteria Approach:* **G Morsad**, M T Ahmed, S B Murshed
- 1962961** *Forensic Analysis of the Camp Mystic Flash Flood Event and Opportunities for Early Warning Systems Using Low-Cost Sensors:* **A M Nemnem**, A Downey, J Imran
- 1867221** *Glacial Lake Outburst Flood Mapping and Risk Assessment Using Combined Approaches of Satellite Remote Sensing, GIS and Dam Break Modelling in Upper Indus Catchment:* **M Amin**, D A Abbasi

- 1990687** *Hydrodynamic and Risk-Based Assessment of the August 2024 Bangladesh Floods:* **A Nahian**, R Biswas, A Q M Zohuruzzaman, S Khan, J Imran, A Downey
- 1973967** *Improving Real-Time 2D Urban Flood Prediction in Southwestern India Using Physics-Informed Deep Learning:* **J I Montenegro Gambini**, MSc, G Corzo Perez, C Zevenbergen, T Kuzniecowa Bacchin
- 1860623** *Integrating physics-based and AI-enhanced disaster modeling with decision analytics for urban disaster-recovery master planning: Phnom Penh, Cambodia:* **S O Lee**, J Won, D Hwang, B So, D Lee, E Jung, D K Woo, G Lee
- 1978577** *Integration of Geospatial and Geomorphic Data for a Novel, Satellite-based, Emergency Alert System for Flash Floods in the Backcountry of Grand Canyon National Park:* **E Byerley**, T Gushue, P Grams, J Thomas, M Taylor, T Carter, DJ Topping
- 2002005** *Laboratory experiments and numerical simulations on levee breach by overtopping:* **Y Ozeren**, PhD, E Dumlu
- 1938986** *Mapping Wetland Inundation Dynamics through Python-Based Mathematical Simulation: A Case Study of Deepor Beel, a Ramsar Wetland of India:* **A K Sarma**, B Baishya
- 1980867** *Modeling the Effect of Erodible Coastal Sandbars on Urban Flash Flood Hazard:* **S Nash**, C R Escariz
- 1989661** *Near Real-Time Flood Forecasting Using Integrated MRMS Rainfall and HEC-HMS with Probabilistic Hydrographs:* **S Mahat**, A Paudel, D Li, N Fang

248824

Subsurface Resources and Earth Processes at the Intersection of Energy, Sustainability, and Innovation

(cosponsored by CGU: Canadian Geophysical Union, EGU: European Geosciences Union, GAC: Geological Association of Canada, SEG: Society of Exploration Geophysicists) (joint with EP, MR, SY, V)

Conveners: **Philip Ball**, Keele University; **C. Nur Schuba**, The University of Texas at Austin; **Christian Heine**, Shell Global Solutions International; **Graham Banks**, Geological Survey of Denmark and Greenland

- 2004297** *Advancing the Frontiers of Superhot Geothermal Resource Discovery and Characterization: Lessons from the DEEPEN Project:* **A Kolker**, G Mibei
- 1948138** *Geodynamic Heterogeneity in Back Arc Basins: Implications for Heat Flow Distribution and Geothermal Energy Potential:* **P Ball**, A N Nuhu, A Ceriani, A Decarlis

- 1993954** *Physics Informed Neural Network for flood vulnerability modeling of residential properties in data scarce environments:* **M Museru**, R Nazari, M Karimi
- 1862465** *Probabilistic Assessment of Flood Damage from Levee Breaches for Flood Insurance:* **M D'Oria**, A Maranzoni, M Mazzoleni
- 1967029** *Probabilistic Assessment of Levee Breach under Variable Overtopping Conditions:* **E Kurter**, A M Nemnem, I Karakan, L Micheli, H Chaudhry, J Imran
- 1958623** *Projecting Future Flood Risk in Feni District: Impacts of Land Use Dynamics and Changing Multi-Scenario Rainfall Patterns:* **M Ahmed**, Z Alam
- 1917906** *Quantifying Anthropogenic Impact on Geomorphic Surfaces Through Flood Modeling: A HEC-RAS 2D Assessment of NCT Delhi:* **V Shankar**, V Singh
- 1914416** *Rapid Need Assessment for Disaster Response in Satkhania Upzila for Chittagong Flood 2023:* **M M Hasan Saikot**, N Shahriar, M R Rajib, A Rahman, M Ahmed, S B Murshed
- 1953628** *Real-Time Flood Monitoring and Forecasting for Mumbai using 2D-Hydrodynamic Modelling .:* **P Tripathy**, R Murtugudde, S Karmakar, S Ghosh
- 1865512** *Real-Time Flood Risk Prediction Using Temporal Transformer-based Deep Learning and Multisource Remote Sensing Data:* **S B Haji Seyed Asadollah**, A Safaeinia, S Jarahizadeh, S Jarahizadeh
- 1977075** *Urban Coastal-Pluvial Flood Forecasting: Insights from LSTM-Based Data-Driven Modeling:* **S Kasaei**, P M Orton, K Liu
- 1885615** *Global Sediment Thickness model 1 (GST-1):* **D E Bird**, W D Mooney
- 1926272** *Improving the Geologic Framework of Critical Mineral Systems: High-Resolution Mapping of McDermitt Caldera's Lithium-Enriched Lacustrine Strata from Airborne Electromagnetic Surveys:* **L B Ball**, C D Henry, J Crespo, M H Darin, P Bedrosian, C Gustafson
- 1860024** *Integrated Geological and 2D Electrical Resistivity Tomography for Assessment of Geothermal Potential in Dilla Area, Southern Main Ethiopian Rift:* **G Assefa**, T Takele, T Degife, D Tadessa, A Kassie, A Tadesse, A Getenet
- 1975043** *Lithium Potential in Louisiana's Smackover Formation: A Geochemical Investigation of Oil Field Brines:* **I Gupta**, K Maiti, D Schechter, R Kumar, T L McIning, E L Sonnenthal, G H Neupane, R Colldeweih, T Atkinson
- 1990635** *Revealing Blind Geothermal Systems through Legacy Data and New Exploration Techniques, New Mexico Case Study.:* **J L Fonquergne**, S Kelly

1994085 *Structural Controls on Deep Fluid Pathways and Lithium Input in the Southeastern margin of the Salar de Atacama Basin (northern Chile):* **M Espinoza**, J Oyarzo, J Bobadilla, L Giambiagi, N Lucas, J Cortes-Aranda, A Arnous, F Álvarez-Amado

1959361 *Structural Controls on Geothermal Fluid Pathways Across the Lishan Fault at the Collision-Extension Transition in Taiwan: Insights from Lithological Contrasts, Fold Geometry, and Late-Stage Fault Kinematics:* **Y C Huang**, J C Lee, Y G Chen, C H Pang Sr

252202

The SZ4D Experiment: Comparing Subduction Zone Processes Across Three Margins

(cosponsored by CGU: Canadian Geophysical Union, EGU: European Geosciences Union, GSA: Geological Society of America, JpGU: Japan Geoscience Union) (joint with EP, NH, S, V)

Conveners: **Emily Brodsky**, University of California Santa Cruz; **Cristian Farias**, Universidad Católica de Temuco; **Demian Saffer**, Pennsylvania State University; **Alice-Agnes Gabriel**, Ludwig-Maximilians-Universität München

2002957 *3D Modeling of Slab-edge Driven Mantle Flow in the Cascadia Subduction Zone:* **C Kolke**, M A Jadamec, M Knepley

1980627 *Active Coastal Uplift in South-Central Chile Imaged by Erosion Rates and River Profiles in the Rapel River Watershed:* **G Long**, G E Hilley, F Aron

1934799 *Bayesian Joint Inversion of Coseismic Slip and Afterslip for the 2020 Mw 7.8 Simeonof Earthquake:* **Z Zhuo**, J T Freymueller, J Fukuda, Z Xiao, J Elliott, R Grapenthin

1919195 *Comparing seismic attenuation structures of the Tonga and north-central Chile subduction zones:* **Y Zhang**, S S Wei

1928908 *Earthquake Source Characterization Using DAS at Cook Inlet, Alaska:* **V Gaete-Elgueta**, B P Lipovsky, G A Prieto

1888935 *Earthquake stress drops in the Alaska, north-central Chile, and Tonga subduction zones:* **S S Wei**, Y Zhang, D Tian

1972939 *Erosion dynamics and sediment distribution on the Mataquito River, Chile:* **G Long**, F Aron, G E Hilley

1910476 *Fault Failure Mechanisms and Slip Modes Along the Shallow Subduction Interface: Insights from an Exhumed Accretionary Complex in Alaska:* **W M Behr**, M Rast, C Madonna, S Guérin-Marthe

1886295 *Global Trench-Parallel Inner Forearc Deformation Dictated by Subduction Zone Obliquity:* **K D Morell**, K Gilroy, T Finley, N Harrichhausen

1955474 *The Geothermal System of Montserrat: Insights from Nodal Seismology and Ambient Noise Tomography:* **J Chow**, T Mackay-Champion, S Shams, P Bogiatzis, R Kounoudis, J M Kendall, G Ryan, B Williams, R Stewart

1999434 *Imaging the Alaskan Subduction Zone Using Love Wave Phase Velocity Tomography:* **C Ramirez**, A N Adams, J Wen

1954906 *Improved Slab Imaging in the Alaskan Peninsula Through Converted Wave Detection:* **A Birkey**, S S Wei, K A Daly, G A Abers

1987426 *Late Triggered Megathrust slip following the 2020 M_w 7.6 Sand Point Alaska Strike-Slip Earthquake Could Explain its Tsunami:* **R M Parameswaran**, R Grapenthin, Z Xiao, D Nicolisky, S S Wei, J Elliott, J T Freymueller, G A Abers, H Zhu

1922681 *Near-surface processes during and after laccolith emplacement and volcanic eruption at Cordon Caulle, Chile - The CHILCO project:* **P Ruprecht**, A Amigo, F Aron, J Biasi, C Cardona Sr, L Córdova, F Delgado, T Giachetti, H M Gonnermann, C B Kratt, C Munoz-Saez, A Perez-Fodich, M E Pritchard, P Sanchez-Alfaro, J S Scheingross

1976144 *Offshore Observations Improve Earthquake Locations and Reveal Seismicity Near the Megathrust in the Alaska-Aleutian Subduction Zone:* **S Nolan**, G A Abers, G Barcheck, S W Roecker, D Wiens, E C Roland, P Matulka

1932312 *Precursory Patterns Prior to the July 2020 Mw 7.8 Simeonof, Alaska Earthquake Revealed in an Enhanced Microseismicity Catalog:* **C D M Friedman Alvarez**, G Barcheck, S Nolan, G A Abers

1873463 *Rayleigh and Shear Wave Imaging of the Alaskan Subduction Margin:* **A N Adams**, C Ramirez, J Wen

1924038 *Seismic Tomography of the Alaska Subduction Zone Using Distributed Acoustic Sensing (DAS):* **A Mirchandani**, E Biondi, M Denolle, E M Golos, W S D Wilcock, B P Lipovsky, A Rose

1963999 *Shallow Aftershocks Beyond the Updip Coseismic Slip Limit Revealed by a Machine Learning Catalog from RAPID Response and Permanent Seismic Stations:* **H Zhu**, G Barcheck, G A Abers, J T Freymueller

1961474 *Structure of the megathrust: amphibious imaging the Kodiak segment of the M9.2 1964 rupture zone:* **G A Abers**, K A Daly, S Nolan, M E Mann

1932883 *The 2020-2025 Alaska Peninsula Earthquake Sequence and Implications for Megathrust Slip Budget and the Earthquake Cycle:* **J T Freymueller**, J Elliott, R Grapenthin, Y Jie, R M Parameswaran, S S Wei, Z Xiao, Z Zhuo

GLOBAL ENVIRONMENTAL CHANGE

250924

MultiSector Dynamics: Preparing the Next Generation of Researchers to Meet Transdisciplinary Environmental Challenges (joint with GC)

Conveners: **Julia Szinai**, Lawrence Berkeley National Laboratory; **Thomas Wild**, Pacific Northwest National Laboratory; **Ana Dyreson**, National Renewable Energy Laboratory Golden; **Adam Wiechman**, Princeton University

1928167 *Charting a new course: transforming graduate education through participatory interdisciplinary learning opportunities:* **N B Grimm**, M Clark

251301

Addressing and Understanding Uncertainties in CMIP: Key Insights and Future Directions (cosponsored by WCRP: World Climate Research Programme) (joint with A, B, H, OS)

Conveners: **Yuhan Rao**, North Carolina State University; **Lina Teckentrup**, Barcelona Supercomputing Center; **Wandi Yu**, Lawrence Livermore National Laboratory; **Camilla Mathison**, University of Leeds; **Indrani Roy**, UCL Institute for Risk and Disaster Reduction

1969459 *A Global High-Resolution Ensemble of Wave Projections Forced by CMIP6 Models:* **S Causio**, V Sharmar, L Mentaschi, I Federico, M I Vousdoukas, L Feyen

1859325 *An evolving Coupled Model Intercomparison Project phase 7 (CMIP7) and Fast Track in support of future climate assessment:* **J P Dunne**, H Hewitt, J Arblaster, F K Bonou, O Boucher, T Cavazos, E Dingley, P J Durack, B Hassler, M Juckes, T Miyakawa, M Mizielinski, V Naik, PhD, Z Nicholls, E O'Rourke, R Pincus, B M Sanderson, I Simpson, K E Taylor

1959827 *Why do foreshocks occur where they do?:* **E E Brodsky**, J T De La Peña, A Maksymowicz, L Cabrera, D Ceroni, J Ojeda, B Potin, S Leon-Rios, T Alongi, S Ruiz

1888073 *CODE-AG: A Multidisciplinary Framework for Digital Agriculture Education:* **Y Huang**, M Bhandari, S Paudyal, Z Wei, J Baca, X Gonzales, S Dattamudi

1904397 *Design, Build, Deploy: CU GeoData's Lower-Cost Sensor Network as a Blueprint for Undergraduate Engagement with Science and Local Communities:* **N Kastoun**, S Jurado, K Miller, C B Farber, D Acosta, J Halberstadt, L Alcoba, A Aravind, J Lau, R Toledo, L Becker, J Yohannan, N Bhatti, J Chen, M Chinchilla, H Donnelly, S Doyle, U Grover, O Hoch, R Hu, R Husain, L Hwang-Geddes, E Keefe, S LaBore, M Lin, J McDonald, S Morgan, H Mu, L Rogers, A Saute, N Spoto, R Sreeram, N Sudarshan, D Xu, J Yiu

1980575 *Experiential Learning through a Multi-disciplinary Cohort-based Undergraduate Water and Climate Science Communication Fellowship:* **A Mulchandani**

1977738 *The CUAHSI Virtual University (CVU): Preparing the Next Generation of Water Scientists Through Modular, Inter-Institutional Learning:* **J Masterman**, S P Loheide III, L Turner

1922122 *ClimateBench2.0: Probabilistic Climate Model Scoring:* **D Watson-Parris**, C S Bretherton, P M Caldwell, W Chapman, W D Collins, G Elsaesser, V Eyring, P Gentine, S Hoyer, R F Keeling, N Koldunov, D M Lawrence, C Lessig, J D Neelin, M S Pritchard, S G Purkey, G A Schmidt, T Schneider, M Schulz, I Simpson, G L Stephens, J Teixeira, W Tobin, A Williams, L Zanna, R Yu

1888063 *Confronting Earth System Model trends with observations:* **I Simpson**, T Shaw, P Ceppi, A C Clement, E M Fischer, K M Grise, A G Pendergrass, J Screen, R Jnglin Wills, T Woollings, R Blackport, J Kang, S Po-Chedley

1957071 *Evaluating CMIP6 Precipitation Extremes over the United States with a Regional Focus on Texas:* **S M Banihashem**, A Paudel, D Li, N Fang

1898894 *Internal variability, observational uncertainty substantially contribute to uncertainty in global projections of heat-related mortality in a 2-degree world: Insights from bias-corrected Large Ensembles:* **K Schwarzwald**, N J L Lenssen, R M Horton, A Bonnanno, G Wagner

1875371 *Observation-Constrained CMIP6 Fire Projections for the 21st-Century United States:* **X Lu**, J Mao

1945647 *Relationship changes in ENSO and PDO due to global warming in CMIPs:* **M Kwon**, E H Jeong

1927367 *Sources of the Geographically Resolved Nonlinear Response to Interactions Between Heterogeneous Climate Forcings in CESM2*: **V Redensek**, G Persad

251005

Advance in remote sensing and modeling of tree and forest dynamics (joint with B)

Conveners: Baihong Pan, Organization Not Listed; **Yuan Yao**, School of Biological Sciences, Center for Earth Observation and Modeling, University of Oklahoma; **Yuanwei Qin**, University of Oklahoma Norman Campus; **Xiangming Xiao**, University of Oklahoma Norman Campus; **Yuan Yao**, School of Biological Sciences, Center for Earth Observation and Modeling, University of Oklahoma

1976242 *Deforestation Attribution using the Prithvi EO Foundation Model*: **R O Balogun**, S Khallaghi, S Roy, R Ramachandran, H Alemohammad, PhD

1925627 *A Multi-Model Framework for Assessing Climate Impacts of Urbanization: Integrating Remote Sensing and Process-Based Models to Analyze Heat, ET, and Carbon for an Urban Watershed in North Texas*: **P HassaniFakhrabadi**, D Li, N Fang

1983452 *Annual canopy height estimation in California using 15-day Sentinel-2 time series and a 3D-CNN*: **D Dixon**, Y Jin

1961585 *Annual Forest Types Mapping from 2020-2024 to Monitor Land Use Change and Support Global Sustainability Initiatives*: **M Neumann**, A Raichuk, M Overlan, M Rey, M Conserva, R Rajakumar, L Scheibenreif, Y Jiang, M Sims, R Stanimirova, S Carter, L Goldman, P Potapov, M Lesiv, S Fritz, N Clinton, C Stanton, D Morris, D Purves

1914921 *Bridging Region and Resolution Gaps for Individual Tree Crown Segmentation via Unified Knowledge Transfer*: **J Yang**, M Liu, M Chen

2003988 *Challenges and Opportunities for Carbon Balance under Changing Climate in the Forest Ecotone of Central Norway*: **Z Virk**, M Hassanzadeh Saray, M Moazezian, A Bryn, S Eisner, J Fennell, H Marttila, A Torabi Haghighi, B Kløve

1870045 *Continuous disturbance induced forest loss accelerates forest edge expansion in the U.S.*: **H You**, M Chen, Z Zhu, S Qiu, T Park

1852698 *Enhancing Conifer Forest Structure Modeling through Leaf-Wood Segmentation and TLS-Derived QSMs*: **J Xia**, C A Silva, T Martin, G F Peter, K Brock, J Atkins, M Gitzendanner, I Bueno, C I Alvites Diaz, A Gaskins, C Klauberg

1921561 *Tropical Pacific warming constrains future Mediterranean summer drying*: **L He**, M Biasutti, Y Kushnir

1888769 *Evaluating the effectiveness of reforestation in mitigating climate change and flood risk through remote sensing and machine learning in vulnerable upstream landscapes of Pakistan*: **S Khan, PhD**, M Aleem, M M Iqbal Dr, N Saddique, M M Tanveer, M A Akram Mr, H B Abid Mr

1853306 *Financial opportunities and constraints to restoring global mangrove forests*: **D Friess**, G Goto, J Busch, C S Goni, R Braun, M Cifuentes-Jara, J Howard, D Klinger, S Teav, T Worthington

1925349 *Four-decades of annual aboveground biomass maps at 30m reveal impacts of disturbances in Arctic and Boreal North America*: **W Liang**, K T Hu, O van Lier, P Tompalski, M A Friedl, J T Randerson, D C Morton, B M Rogers, A L Burrell, M J Macander, D Yang, Y Zhang, J Lu, E Bullock, X Zhu, J A Wang

1966705 *Harnessing High-Resolution Multispectral and LiDAR Data for Accurate Urban Tree Cover Mapping and Informed Sustainable Planning*: **A Awasthi**, K K Kabasares, H V Nguyen, R Vargas, R R Nemani, I G Brosnan, T Park

1932338 *High Resolution Tree Canopy Height Mapping of the Contiguous United States*: **G Carter**, F Wagner, S Gill, M C D M Hirye, S Hagen, S Saatchi

1978994 *High-Resolution Solar Mapping for Ecological Planting in Energy Infrastructure*: **A Dunaway**, F Trindade da Salvia

1989959 *Identifying green leaf and leaf phenology of individual trees and forests by time series satellite imagery and the chlorophyll and green leaf indicator (CGLI)*: **B Pan**, X Xiao, L Pan, A D Richardson, Y Liu, Y Yao, C Meng, Y Xie, C Zhang, Y Qin

1898559 *Improvements in Field Spectroradiometers for Precision Agriculture and Environmental Research*: **M Woodman**, N Venjean

1940751 *Local Benefits? The Great Green Wall's Impact on Local Residential Land Price*: **R Yuwen**

1919163 *Maple Tree Mapping Method Using the Harmonized Landsat Sentinel-2 (HLS) Data and Deep Learning*: **M Wang**, H Zhang

1873430 *Mapping Deforestation and Carbon Emission in Cocoa Landscapes of Côte d'Ivoire: Spatial Insights for Sustainable Interventions*: **D Aja**, J Silvester, D Gutiérrez-Zapata, A Castro-Nunez

1895722 *Modeling the CO₂ Fertilization Effect and Recent Global NPP Enhancement*: **Y Pan**

2002929 *Monitoring Forest Dynamics With the New and Improved National Landcover Database Tree Canopy Cover Dataset:* **B Ruefenacht**, J Heyer, K Schleeweis, I Housman, K Megown, S Bogle, J Reischmann

1966996 *The Blooming Threat: Tracking Bradford Pear Trees Using Satellite Imagery and Artificial Intelligence:* **H Semlali**, H N Dakshinamurthy

1891484 *Uncovering Spatially Heterogeneous Time-Lagged Effects in Forest NDVI Dynamics via Implicit Geographical Modeling:* **S Du**, S Li

248190

A Funding Future: How Private Sector and Venture Capital is Connecting Climate Science Research & Solutions

Conveners: Joshua Weinberg, American Geophysical Union; Heather Goss, American Geophysical Union

248920

Advances in Approaches for Earth System Model Uncertainty Quantification: Integrating Models and Observations to Enhance Predictability (joint with A, B, EP, H)

Conveners: Zhongjing Jiang, Peking University; Dié WANG, Brookhaven National Laboratory; Gregory Elsaesser, NASA Goddard Institute for Space Studies; Duncan Watson-Parris, University of California San Diego

1999245 *A framework to assess parameter identifiability and observation utility in earth system model calibration:* **J Schmitt**, R Baptista, T Reddy, C Christopoulos, O Dunbar, A Sridhar, T Schneider

1974511 *A Multi-Model PPE: Bridging Structural and Parametric Uncertainty to Constrain Aerosol-Cloud Interactions:* **J M Nugent**

1968869 *A quasi-Lagrangian LES-SCM case library of marine cold-air outbreaks for improved extratropical cloud feedbacks in GISS-ModelE3.1:* **F Tornow**, A M Fridlind, G V Cesana, G Tselioudis, K Loftus, G Elsaesser, M van Lier Walqui

1850454 *Advancing Land Surface Modeling using AI/ML:* **D Lu**, A K Krishnankutty Ambika

1927711 *Assessing Alternate Topographic Boundary Condition Performance in a Calibrated Physics Ensemble:* **D Meegan Kumar**, G Elsaesser, K Loftus, C Orbe, J Wu, J W Baldwin

1907105 *Assessment of two-source modeling approach to project potential evapotranspiration under elevated CO₂ and VPD.:* **S C Lee**, Y Jeong, D Kim, M Choi

1974868 *Understanding the Drivers of Local-Scale Inaccuracy in Global Forest Aboveground Biomass Maps:* **D Chu**, L Zhai

1936325 *Wall-to-Wall Individual Tree Mapping Using High-Resolution Remote Sensing and AI for Statewide Forest Health and Management:* **P K C**, K K Kabasares, K H Tran, H Hashimoto, S Horner, W Yip, I G Brosnan, T Park

1981145 *Building a Commercially-actionable Climate Model for Power Grid Planning:* **R Cirincione**, B Ho

1957322 *Bayesian Calibration of the DayCent Ecosystem Model to Simulate Evapotranspiration and Reduce Model Uncertainty Using OpenET Products:* **W Sun**, S M Ogle, L Hoskovec

1858917 *Building a scalable framework to evaluate the sensitivity of parameters in process-based biogeochemical models:* **F Serafin**, C D Jones, G Gopalakrishnan, W Salas

1995193 *Calibrated Probabilistic Wind Forecasting with Diffusion Models:* **Q Yang**, J Giezendanner, D Salles Civitarese, J Jakubik, E Schmitt, A Chandra, J Vila, D Hohl, C N Hill, C Watson, S Wang

2001023 *Deep Contrastive Learning for Microphysics Scheme Comparison in a Perturbed Initial Condition CESM Ensemble:* **A Sampath**, D Fan, D J Gagne II

1879069 *Diffusion-Based Modeling of Extratropical Cyclone Wind and Storm Surge Hazards:* **S Crompt**, K O'Grady, G Kisslinger, A N LeGrande

2002027 *Disentangled Contrastive Representation Learning for Interpretable Analysis of Warm Rain Microphysics Schemes:* **D Fan**, S Venkatasubramanian, D J Gagne II

1989947 *Exploring Structural Differences and Parameter Calibration for Microphysics in CESM with Latent Representations using Contrastive Learning Models:* **D Fan**, D J Gagne II, M S Pritchard, B Medeiros, G Elsaesser, A Semie, Q Yang

1937122 *How can observations be used to quantify and reduce Earth system model uncertainty?:* **D J Posselt**

1937863 *Improvement of Simulating GPP and ET in the Land Surface Model Based on Parameter Sensitivity Analysis and Calibration:* **H Li**, W Xie, X Li, K Yoshimura

1941397 *Improving Biogeochemical Model Reliability Through Bayesian Calibration and Uncertainty Analysis:* **M Valipour**, H Fakhraei, K Norouzi-Moghanjoghi

- 1906769** *Improving Extreme Precipitation Representation with ML Based Warm Microphysics in CESM: A Semie, B Medeiros, Q Yang, G Elsaesser, D Fan*
- 1958723** *Improving the Representation of Evapotranspiration in Process-Based Models: Insights From the Use of Single and Multi-Objective Emulator-Based Calibration on Latent and Sensible Heat: I Aguirre, W Knoben, N Vasquez, M P Clark*
- 1982825** *Lessons from a Perturbed Parameter Ensemble driven with an El Nino Southern Oscillation SST Pattern: R Tam, Y Qin, C Proistosescu, M Zelinka*
- 1882489** *Leveraging Machine Learning and MCMC to Optimize Community Land Model Parameters for Accurate Gross Primary Productivity Estimates: S Kumar, L R Hawkins, K Dagon, D Kennedy, D Tian, I Lu, S Ryu*
- 1960349** *Optimizing Objective Model Calibration approaches using Single Column Models: P Paul, C Proistosescu*
- 2003956** *Perturbed Parameter Ensemble (PPE) Efforts at NASA GISS: G Elsaesser, M van Lier Walqui, K Loftus, F Tornow, A M Fridlind, S Bauer, A S Ackerman, J Wu, G A Schmidt*
- 1990092** *Predicting Observational Dropouts to Quantify Uncertainty in Detecting Harmonic Trends of Vegetation Dynamics: A A Kafy, K Crews*
- 1992296** *Spatial Warping Error Models for Addressing Structural Biases in Aerosol Climate Simulations: M Kuusela, E Bensen, V Sanchez, H Gordon*

249763

Advances in Climate Engineering Science

Conveners: Walker Lee, NSF National Center for Atmospheric Research; Ben Kravitz, Indiana University Bloomington; Wake Smith, Yale University, School of the Environment; Daniele Visoni, Cornell University; Cindy Wang, Cornell University

- 1910128** *Enabling Global Solar Radiation Modification Impact Research: Updates from the DEGREES Modeling Fund and the GRIDS-CC Data Platform: L Xia, A Parker, A Bradstock, C J Lennard, B J Abiodun, D Visoni*
- 1950008** *Africa's climate response to stratospheric aerosol injection characteristics: R C C Odoulami, K Quagrain, C Mensah, T D Patel, F Otu-Larbi, B J Abiodun, C J Lennard, N A Prempeh, M G New, M Nguvava, T Nkemelang, N Kumi*
- 1855177** *Air quality impacts of Stratospheric Aerosol Injections are small and mainly driven by changes in climate, not deposition: C Wang, D Visoni, G Chua, E Bednarz*

- 1989265** *Structural Bias Should Be Addressed Before Effective Parameter Learning — Insights from SMAP Soil Moisture Simulations Using Differentiable Process-Based Models: P Li, C Shen, J Liu*
- 1973654** *Structural error-aware climate model calibration with global, local and zonal climatologies using Perturbed Parameter Ensembles (PPEs): Q Yang, A Semie, G Elsaesser, B Medeiros, D Fan*
- 1995091** *The Next Generation of NASA Calibrated Physics Ensembles for Climate Projections and Mission Support: M van Lier Walqui, K Loftus, G Elsaesser, F Tornow, A M Fridlind, S Bauer, J Wu, G A Schmidt, A S Ackerman*
- 2003366** *Towards Adaptive Sensing: Identifying High-Utility Observations from GNSS-R Data with Bayesian Inference: A Farrar, R Balasubramaniam, C S Ruf, D Wood, A Kruczkiewicz*
- 1925088** *Towards Model-Observing System Co-Design: An OSSE-Based Bayesian Framework for Prioritizing Earth System Measurements: Z Jiang, T Subba, N M Isenberg, J Gasparik, N M Urban, C Kuang, S Serbin, BA, MS, PhD*
- 1934324** *Variations of soil thermal properties and heat fluxes inferred with uncertainty quantification framework: D Kang, W Zhou, PhD, A Y Sheshukov, J Wang, G Celis, P Ungar, D Ehrich, M Heskell, V Y Ivanov*
- 1945025** *What should the target be for perturbed parameter ensembles (PPEs)?: D A Stainforth*
- 1930533** *An Evaluation of Existing Marine Cloud Brightening Strategies for Polar Sea Ice Restoration: E Emme, C C Chen, H Horowitz*
- 1984201** *An Uncertainty Database for Stratospheric Aerosol Injection: K Yaghoobzadeh, A Duffey, D MacMartin, D Visoni*
- 1969735** *Assessing Changes in Terrestrial Biogeochemical Cycles Following Abrupt Termination of Stratospheric Aerosol Intervention: P Kandel, M Xu, W Zhang, H Kang, PhD, X Yang, C E Yang, J Kumar, F M Hoffman*
- 1918565** *Assessing Impacts of Stratospheric Aerosol Injection on Coral Bleaching: G Anil, C S Harrison, J A Kleypas, D Holstein, T Oliver, K Roberts, V Garza*
- 1893308** *Assessing Polar-Focused SAI Strategies: Jet Shifts, Wind Stress, and Antarctic Ice Loss: P Goddard, B Kravitz*
- 1896119** *Assessing the impact of black carbon injection as an alternative SAI method on ozone and UV: J Xie, H He, W Yang, G A Vecchi*
- 1862038** *Assessing the performance of solar radiation management geoengineering simulations.: M F Wehner*

- 1863025** *Atmospheric dynamics of warming Mars with engineered aerosol:* **E S Kite**, M I Richardson, S Ansari, B Fan, R Ramirez, H Mohseni, M Mischna, M H Hecht, L Steele, F Sharipov
- 1985757** *Changes in CO₂ Fertilization Effects Under a Stratospheric Aerosol Intervention:* **M Xu**, F M Hoffman, H Kang, PhD, P Kandel, S Mahajan, C E Yang, X Yang, W Zhang
- 1955288** *Changes in Vegetation-Atmosphere Dynamics under Stratospheric Aerosol Injection:* **A Cornish**, G J Kooperman, F Hoffman, W Lee, S Tilmes
- 1859241** *Climate impacts in marine cloud brightening scenario simulations:* **H Hirasawa**, M Henry, P J Rasch, S J Doherty, R Wood, J M Haywood, K von Salzen, J F Lamarque, A Wong
- 1879304** *Comparison and Emulation of Stratospheric Chemistry Changes Between Complex SAI Strategies and Single-Point Injection Strategies:* **J Park**, D Visioni, E Bednarz
- 1867476** *Cooling the air: assessing maximum evaporative cooling potential through water spraying for kilometer-scale climate intervention applications:* **A Broerze**, S R De Roode, H Russchenberg
- 1922993** *Could ARISE-SAI-1.5 have looked different? Exploring diverging long-term stratospheric aerosol injection scenarios with G2-SAI:* **W Lee**, S Tilmes, E Bednarz
- 1927442** *Developing a multiscale plume-in-grid model to simulate subgrid plumes for stratospheric aerosol injection.:* **H Sun**, S D Eastham, D Keith
- 1878207** *Developing African capacity in Solar Radiation Modification research for climate equity and justice.:* **C J Lennard**, B J Abiodun, R C C Odoulami
- 1956189** *Economic and Ecosystem Impacts of Marine Cloud Brightening on El Niño:* **J Wan**, C Callahan, W W L Cheung, T Clarke, K Ricke
- 1994408** *Evaluating Marine Ecosystem Impacts of Solar Radiation Modification: A Comparative Framework:* **K Roberts**, M Diamond, D Visioni, B Kravitz, C S Harrison
- 1855329** *Exploration of the Stratospheric Aerosol Injection Strategy Space in Two Climate Models:* **E Brody**, D Visioni, E Bednarz, B Kravitz, M Henry, D MacMartin
- 1929994** *Exploring the Impacts of Deployment Timing for High Latitude, Low Altitude Stratospheric Aerosol Injection Scenarios:* **L Wheeler**, B M Wagman, W Smith, P Davies
- 1910212** *Future changes in Sea Surface Salinity in the Western Tropical Atlantic under Stratospheric Aerosol Geoengineering:* **C DA-Allada**, H J Agada, E Baloitcha, S Tilmes
- 1859182** *Future Projections of the 2011 Super Tornado Outbreak Under Global Warming and Stratospheric Aerosol Injection:* **J W Hurrell**, L Sun, K Rasmussen, B Summers, B Kravitz
- 1973518** *HCl surface reactivity of Alternative SAI Materials:* **D Verbart**, A Koyun, C Pedersen, J Dykema, F N Keutsch
- 1966841** *High-latitude low-altitude stratospheric aerosol injection; a multi-model assessment:* **A Duffey**, W Lee, L Wheeler, B M Wagman, M Henry, D Visioni, M Tsamados, P Irvine, D MacMartin
- 1929566** *How Marine Cloud Brightening could also affect stratospheric ozone:* **E Bednarz**, J M Haywood, D Visioni, A H Butler, A Jones
- 1966984** *How Solar Geoengineering Could Reshape Pollen Emission Patterns:* **Y Zhang**, L Xia, A L Steiner, J Schnell
- 1906356** *Impacts of climate engineering on China's north-south water resource imbalance:* **X Zhang**, Y Fan, J Tjiputra, H Muri, Q Chen
- 1901428** *Impacts of Climate Intervention on Ocean Acidification and the Aragonite Saturation Horizon:* **H Olivarez**, C S Harrison, J L Coupe
- 1868208** *Implementation of stratospheric injections of solid particles in WACCM6-CARMA:* **I Quaglia**, S Tilmes, F Vitt, C Bardeen, S Vattioni, G Chiodo, Y Zhu, T Sukhodolov, J Dykema
- 1917002** *Informed risk assessment for solar radiation management strategies using deep learning and explainability:* **P L Bommer**, C Roesch, C Last, G C Hegerl
- 1924475** *International Monitoring of Stratospheric Aerosol Injection: Technical and Institutional Capacity Needs:* **T N Felgenhauer**, PhD, MPA, M E Borsuk, J Wiener
- 1946079** *Is regional/national climate intervention worth thinking about?:* **B Kravitz**, W Smith
- 1856649** *Land radiative management increases heat stress in humid regions:* **Y Cheng**, K A McColl
- 1983469** *Local Arctic Ice Management: Evaluating Model Representations of Sea Ice Flooding at Experimental Scales:* **M M Wieringa**, E Blanchard-Wrigglesworth, M M Holland
- 1892613** *Macroclimate Growing Conditions for Luxury Crops After Stratospheric Aerosol Injection:* **D M Hueholt**, A Morrison, E A Barnes, J Hurrell
- 1985969** *Much higher efficacy of SO₂ and AM-H₂SO₄ Stratospheric Aerosol Injection Based on CESM2, E3SM, and GEOS-Chem with Advanced Particle Microphysics (APM):* **F Yu**, G Luo, A Nair
- 1997987** *Physicochemical Properties and Reactivity of Alternative SAI Materials:* **A Koyun**, D Verbart, J Dykema, F N Keutsch

- 1962777** *Potential Impact of Alternative Materials for Stratospheric Aerosol Injection on Cereal Crops in Africa:* **T S Egbebiyi**, R Odoulami, V A Arowolo, A Makinde, B J Abiodun, C J Lennard, M G New, T Sukhodolov
- 1896561** *Presenting the Climate Intervention Dynamical Emulator (CIDER):* **J Farley**, D MacMartin, D Visioni, B Kravitz, E Bednarz, A Duffey, M Henry
- 1986314** *Progress Report on the First Antarctic Stratospheric Aerosol Injection Test (FAST):* **G L Slater**
- 1955898** *Regional Sea Level Responses to Stratospheric Aerosol Injection in GLENS:* **B A Buzzanga**, J Fasullo, B Hamlington
- 1932248** *SAI Deployment and Human Civilization: The Question is No Longer If, but How, When, Where, and by Whom?:* **R Baiman**, M C MacCracken, G L Slater
- 1988588** *Sensitivity of Stratospheric Aerosol Injection Radiative Forcing to Layer Height and Surface Albedo:* **T S Kapoor**, L Zhang, P Upadhyay, R Chakrabarty
- 1889568** *Skill verification of Stratospheric Aerosol Injection ensemble projection: an evidence from GLENS simulations:* **H Ahmad Fatahillah**, C R W S W Utomo, F A Tjiaranata, N L Tasbihi, T D A Widhianingsih, K Fithriasari, H Kuswanto

251950

Advances in Emulating Earth System Models (joint with A, IN, NG, OS)

Conveners: **Björn Lütjens**, IBM Research USA; **Kalyn Dorheim**, St. Olaf College; **Paolo Giani**, Massachusetts Institute of Technology; **Pedram Hassanzadeh**, Organization Not Listed; **Björn Lütjens**, IBM Research USA

- 1957927** *A Broader View of Sea Level Rise: Using ISEFlow to Emulate Antarctic Ice Sheet Response Across CMIP6:* **P Van Katwyk**, B Fox-Kemper, K J Bergen
- 1926604** *A Machine Learning Emulator for Dissolved Oxygen in Earth System Models:* **Q Zhang**, T Ito, A Bracco
- 1957971** *A Novel Two-Step Machine Learning Emulator for Calibration of the Community Atmosphere Model:* **G Liu**, C Zarzycki
- 1883310** *Advancing Emulation for Understanding Nature-Society Interactions:* **N E Selin**, R Ferrari, S Bouabid, Y H H Chen, A M Fiore, G Flierl, P Giani, B Lütjens, S Paltsev, C A Schlosser, A P Sokolov, A Souza, C Tebaldi, C Womack
- 2002565** *Benchmarking modes of circulation variability in AI climate emulators:* **H Alizadeh Pahlavan**, I Baxter, T Shaw, P Hassanzadeh, K Rucker

- 2005237** *Statistically downscaled global SRM simulations in the cloud:* **O Chegwiddeen**, B Clark, T S Egbebiyi, D Visioni, J Freeman, H Sipra, S Talati
- 1926187** *Stratospheric Aerosol Injection Could Also Brighten Clouds:* **J J Gristey**, G Feingold
- 1874957** *Sulfur Exposure for Airplane Passengers from Low-altitude High-latitude Stratospheric Aerosol Injection:* **A Robock**, A Duffey, W Lee, L Wheeler
- 2003737** *The Need For Short Term Thinking In Climate Action Planning:* **G L Slater**
- 1897054** *Tracking Stratospheric Aerosol Particles with LAGRANTO: Toward Optimized SAI Deployment and Climate Model Evaluation:* **C J Kamguem**, D MacMartin
- 1985267** *Using the Community Earth System Model to Assess the Climate and Carbon Impacts of Individual and Combined Climate Interventions:* **P Lawrence**, M A A Morrison, D M Lawrence, T N Felgenhauer, PhD, MPA, S Tilmes, C M Barton, A Smith, C S Harrison, W Lee, K M Krumhardt, N S Lovenduski
- 1948788** *Diagnosing and Comparing Sources of Error in Emulators of Earth System Models:* **C Womack**, G Flierl, S Bouabid, A Souza, P Giani, S D Eastham, N E Selin
- 1868223** *Distilling Machine Learning-based Climate Emulators for Physical Understanding:* **S Van Loon**, M Rugenstein, E Barnes, W Chapman
- 1910646** *Emulating climate variability and extremes with a diffusion-based model trained on CESM2 and finetuned on ERA5:* **P Gentine**, V Launeau, M Vrac, L Lemordant
- 1989363** *Emulating E3SM's Global Storm-Resolving Model with Version 2 of the Ai2 Climate Emulator:* **F Rebassoo**, E Wu, B R Hillman, N D Keen, A S Donahue, W A Perkins, A Kwa, J C Golaz, C S Bretherton, P M Caldwell
- 1989224** *Emulating Natural Climate Variability with InVERT: Internal Variability Emulator for Regional Temperature:* **M Saenger**, N Lutsko, P Polonik, K Rieke
- 1973908** *Examining fast radiative processes using machine-learning-based emulators of weather:* **A Mahesh**, W D Collins, P Goddard, S Subramanian, B Bonev, T A O'Brien, S Zebaze, T Kurth, K Kashinath, C S Bretherton, O Watt-Meyer, S Clark, J Duncan, E Wu, M S Pritchard
- 1962215** *Fast and Accurate Global Climate Model Simulations with Coupled 3D Atmosphere and Ocean Emulators:* **J Duncan**, E Wu, S Dheeshjith, T Arcomano, S Clark, B Henn, A Kwa, J McGibbon, W A Perkins, A Subel, W Gregory, A Adcroft, W J Hurlin, O Watt-Meyer, L Zanna, C S Bretherton

- 1858671** *Forecasting the Future with Yesterday's Climate: Temperature Bias in AI Climate and Weather Models:* **J Landsberg**, E A Barnes
- 1992619** *How Can AI and Deep Learning Tools Be Used to Explore Unprecedented Future Climate and Weather Extremes?:* **T Wood**, T Matthews
- 1991354** *Improving ML Weather Prediction Through Physical Hydrostatic Balance Constraints:* **A Subramaniam**, D R Durran, D Pruitt, N Cresswell-Clay, W Yik
- 1937105** *Improving Reanalysis Datasets: A Generative AI Framework for Bias Correction:* **R Huang**, Q Yang, J Giezendanner, S Wang
- 1913787** *Interactive Atmospheric Composition Emulation for Next-Generation Earth System Models:* **M Erfani**, K Lamb, S Bauer, K Tsigaridis, M van Lier Walqui, G A Schmidt
- 1999714** *Interpretable Latent Structure of an AI Emulator of Stochastic Sudden Stratospheric Warmings:* **D Boscu**, D Hernandez, F Ventura, D S Abbot, A K Chattopadhyay, J M Finkel, P Hassanzadeh

252437

Advances in Food Energy Water Nexus Research (joint with SY)

Conveners: **Nicole Jackson**, Sandia National Laboratories; **Nalini S. Rao**, Electric Power Research Institute; **Deniz Berfin Karakoc**, Arizona State University

- 1857165** *A Multi-Dimensional Assessment of Energy Security Across the United States:* **F Gorginpaveh**, P Moghaddasi, H Moradkhani
- 1982238** *A Novel Water-Energy-Food-Ecosystems (WEFE) Nexus Modelling Tool to Bridge Data Gaps and Aid Decision-making in Water Scarce African Regions:* **K Y Asamoah**, I Spektorenko, B Diallo, M Khalfaoui, A Abiyu, A B Marful, S Jebari, M Kindu, D Gondhalekar
- 1901939** *Agricultural Water Shortage Exposure in the Western United States Due to Water Access Priority:* **M Y Naseri**, L Marston, M Schantz
- 1882632** *Compound Shocks to Agri-Food Supply Chain Transport and Trade in the United States:* **R Zhang**, A Arnav, D B Karakoc, M Konar
- 2003418** *Energy Use in Indian Agriculture: An Evaluation of the Potential for Abatement of Emissions:* **J Chatterjee**

- 1942012** *LUCIE-3D: A three-dimensional atmosphere climate emulator under forced responses:* **A K Chattopadhyay**, H Guan, R Maulik, T Arcomano
- 1885645** *MESMER-RCM: A Probabilistic Climate Emulator for Regional Warming Projections:* **H Pan**, L Gudmundsson, M Hauser, J Schwaab, Y Quilcaille, S I Seneviratne
- 1947938** *MESMERv1 and Beyond: Mapping the Climate Emulation Landscape for Generating Policy-Relevant Insights:* **S Schöngart**, L Gudmundsson, V Bauer, M Hauser, Y Quilcaille, C F Schleussner, S I Seneviratne
- 1941991** *METEOR (Multivariate Emulation of Time-Evolving and Overlapping Responses):* **M Sandstad**, B M Sanderson, N Steinert
- 1863151** *ModelEMU: an Earth System Emulator for Physical Climate and Carbon Cycle Projections:* **P Lerner**, A Romanou, N Leitmann-Niimi, J Mekus, G A Schmidt
- 1946408** *Neural models of multiscale systems: conceptual limitations, stochastic parametrizations, and a climate application:* **F Falasca**
- 1976906** *Recent Findings from NVIDIA Earth-2 on Using AI Across the Earth System Modeling Stack:* **M S Pritchard**
- 2004908** *Fluxes Linking the Water-Energy-Food Nexus Sectors: Knowns and Unknowns:* **R G Lawford**
- 1875284** *Groundwater Withdrawals, Depletion, and Infrastructure in Full Supply Chains of the United States:* **J Hanley**, M Konar, L Marston, A Mejia, S Sun
- 1935598** *Harvesting Water Vapor to Address Food Insecurity through a Nature-Responsive FEW Nexus Framework:* **L Kgatla**, M Charles
- 1927312** *How the Availability and Cost of Water could Influence the Future Buildout of the Electric Grid in the U.S.:* **V C Tidwell**, V Carag, S Cohen, T Gunda
- 1904442** *Integrating Floating Solar, Hydropower, and Hydroponics: A Hybrid System Approach to Energy, Water, and Food Security in the Western United States:* **Y Zhang**, U Lall
- 2001947** *Seniority and Scarcity: Modeling Water Rights, Agricultural Responses, and Global Trade Linkages in the Western United States:* **K Srikanth**
- 1941152** *Spatial and Temporal Dynamics of Land Availability for Bioenergy Production in India: Integrating High-Resolution Land Use and Land Cover Mapping with Species Distribution Modelling:* **A Kushwaha**, A Gawade, M Thangavel, D Jaiswal

249796

Advances in Modeling and Governing Interacting Shocks in the Anthropocene (*joint with SY*)

Conveners: Adam Wiechman, Princeton University; Nicolas Choquette-Levy, Princeton University; Mari Kawakatsu, University of Pennsylvania

1985698 *Cascading failures of institution and physical infrastructure: index insurance, maintenance cooperation, and levees in sustaining a small-scale community in Bangladesh:* **W S Oh**, K Sung, K Best, S Levin, D Rubenstein

251327

Advances in monitoring and measuring food system sustainability and resilience (*joint with B, GH, H, SY*)

Conveners: Kyle Davis, Columbia University of New York; Carole Dalin, Ecole Normale Supérieure; Landon Marston, Virginia Polytechnic Institute and State University; Marta Tuninetti, Politecnico di Torino; Marta Tuninetti, Politecnico di Torino

1968564 *Assessing The Wasted Water Embedded in Food Waste:* **S Banda**, M Webber, Y Glazer

1972333 *Assessing transitions between smallholder and commercial agriculture in Nigeria through automated field boundary segmentation:* **K F Davis**, R Abedi, H Abou Ali, O Adeluyi, T Alabi, T Chakraborty, B Khan, O Olayide, J Uponi, A Wasik, H Yin, L D Estes

1859260 *Balancing productivity, costs, and environmental trade-offs in global yield gap closure through irrigation and nutrient management:* **C Ren**, L Rosa

1896100 *Competing Tenure: The Intersection of Forests, Food, and Fuel at Indonesia's National Strategic Project in Merauke, South Papua:* **C Squire**, J Lou, M Schreier, T Hilde, L Lohff, K Parker, K Shah

1959214 *Cyclone Exposure and Dietary Resilience in Coastal Bangladesh: A Case Study from Salinity-Affected Regions:* **F Rahman**, M R Islam, L T K Purnata, S B Murshed, F A Mishu, M H Rahman, N Tabassum, Shampa, A I Chowdhury, S Haque

1915166 *Global Crop Trade Network Reveals Hidden Flows of Pollination Driven Vitamins and Minerals:* **A Datta**, S S Goyal, U Bhatia

1899293 *Global Food Twin: An Open Initiative for Modelling and Stress-Testing the Global Food System:* **G Braich**, K Bajaj, J Verschuur, C Kruse, Z Mehrabi

1908506 *Development of Integrated Ecosystem impact Assessment model for Climate change adaptation:* **C Seo**, E S Lee, M S Shin, J Lee, D J Kim, W Y Joo

1990845 *Understanding the impacts of trade policy shocks and uncertainty on energy technology costs and investments:* **H Yang**, W Peng, A Fawcett, J Green, G Iyer, H Luo, J Meckling, J Nahm, D G Victor

1990529 *Water Stress-Testing:* **J Sabuco**, N Ranger, J Yang

1856677 *AI, Wildfire Detection, and the Governance Gap in Climate Response:* **N Lehmer**, N Anguelov

2000615 *High-Resolution Climate Scenarios for Transhumant Pastoralism:* **T L Mote**, B Burke, J Tootle, F Fabré, P Manzano, S Reed, M Welch-Devine

1923122 *High-resolution, annual crop field boundary maps reveal the changing scales of African cropping systems:* **L D Estes**, S Xiong, W Li, S Khallaghi, P Hadunka, R Abedi, T Chakraborty, Y T Yao, P Rufin, A Chilenga, P Potapov, A Khan, G Delrossi, K Daum, K K Caylor, K Baylis

1978849 *How High Temperatures Affect Dietary Diversity in Children Across 4 African Countries:* **K Grace**, J Pinchoff, M E Brown, D Kristiansen

2004919 *Mapping the Expansion and Performance of Hazelnut Orchards in Oregon's Willamette Valley:* **K Griggs**

1884929 *Mitigating urban food waste along with China's dining transition:* **Y Song**, D Liu, X Zhang, M Xu, G Liu, B Gu, J Liu

1967841 *Modeling Climate-Fishery Interactions to Support Sustainable Marine Food Systems:* **A Ben Salah**, M El Amrani El Anjoumi, M Seaid, N El Mocayd

1956457 *Nutritional and Environmental Trade-offs of Redirecting Human-edible Livestock Feed Directly for Human Consumption:* **B Demeke**, M M Mekonnen

1979812 *Optimizing resilience of agricultural systems to weather stress across the conterminous U.S.:* **S Vishwakarma**, M Ashfaq, D Rastogi, P E Thornton

1917685 *Relative quantification of Dungeness crab larvae, *Metacarcinus magister*, in plankton and light trap samples using quantitative PCR:* **D Jackson**, Z Gold, S McAllister, S Grossman, B P Thoma

1870012 *Shocks to agri-food flows between counties in the United States from 2018 to 2022.:* **A Arnav**, R Zhang, D B Karakoc, M Konar

1962857 *The nutritional and sustainability benefits of biodiversity-based management of small-scale fisheries:* **S Heilpern**, V Mao, J Robinson, X Basurto, A Ferber, A Flecker, P B McIntyre, S Sethi, C Gomes, K Fiorella

1880493 *Toward a Multidimensional Livelihood Index for Targeting Food Insecurity: A Case Study from Prince Edward Island, Canada:* **S Sadri**, P Khorsand Golchin

251910

Reducing Uncertainty and Operationalizing MMRV for Soil Carbon and Nitrous Oxide on Working Lands (joint with B, SY)

Conveners: **Ames Fowler**, Michigan State University; **Ram Gurung**, Colorado State University Fort Collins; **Jocelyn Lavallee**, Colorado State University; **Lauren Gifford**, University of Colorado at Boulder

1994522 *A Multimodel Hybrid Framework (MHF) to Assess N₂O Emission Mitigation Potential of Regenerative Agricultural Practices Across the US Midwest:* **P Sharma**, B Basso, A Manuraj, T Tadiello, M Sharma

1958835 *Advancing Soil Organic Carbon Stock MMRV Rigor Via Quantification of Resampling Variability in Midwestern US Soils:* **M Farella**, A R Bacon, C Leber, M Navarrette, J Vu

1975111 *Analysis of Systematic and Random Errors Associated with Equivalent Soil Mass Sampling with Modeled Soil Core Datasets:* **H Goertzen**, E Slessarev

1993663 *Building Confidence in Soil Carbon Accounting Through Adoption of Causal Measure-and-Remeasure MMRV Approaches:* **M Bradford**, A Polussa, S Kuebbing, E Potash, E E Oldfield

1977139 *Building Market Confidence: Scalable, Science-Based Modeling of Soil Carbon Dynamics for MRV:* **H Dokoohaki**, C D Brummitt, A A Kumar, C Bowers

1972023 *Closing the Loop on BiCRS: Understanding Greenhouse Gas Emissions from Post-products of Biomass with Carbon Removal and Storage and their Interactions with Soil:* **A Mayer**, A Chew

1938358 *Estimating Soil Organic Carbon at National Scale Using EMIT Hyperspectral Data:* **N Chen**, S Wang

1989939 *From Framework to Field: Implementing MMRV in Agricultural Carbon and Natural Climate Solutions at Scale:* **N Tafti**, J Penner, P Lukumay, R Singh, H Sharma, S Wood

1995934 *Let's be honest about data limitations: the unknown uncertainties of projecting soil carbon models well outside of their calibration space.:* **J Sanderman**

1972984 *Using dynamic crop area maps to study agricultural production in Somalia and Zimbabwe:* **G J Husak**, S Peterson, S Shukla, F Davenport IV, PhD

1860304 *Leveraging Agentic Large-Language Models to Scale MRV Data Pipelines for Agricultural Modeling:* **R Genedy**, H Chen, Y Gao, C D Jones, G Gopalakrishnan, W Salas

1963819 *Priority areas for reducing uncertainty in MMRV for agricultural soil carbon storage and greenhouse gas emission reductions:* **J M Lavallee**, E E Oldfield, A M Raffeld, J Sanderman, A J Eagle, D R Gordon

1923598 *RangeStar: A Remote Sensing-Driven Process-Based Model for Estimating Rangeland Productivity and Carbon Dynamics:* **Y Xia**, J Sanderman, J Watts, A Mullen, J Duan, A Orfanou, A Endsley

1975348 *Reducing SOC MMRV Cost Via High-Performing and Novel Bulk Density Estimates:* **A Bacon**, M Farella, C Leber, M Navarrette, J Vu

1902375 *Reducing Uncertainty in Soil Nitrous Oxide Emissions using a Process-Based Model Ensemble in a Bayesian Framework:* **S M Ogle**, R B Gurung, J Rahimi, D Abalos, K Butterbach-Bahl, M F Cotrufo, E Haas, D R Kiese, D Kraus, C Scheer, S Spencer, Y Zhang

1995372 *Site-level measurements, monitoring, and data-model integration techniques for improved ecosystem carbon forecasting:* **J Field**, B Sloan, R Clark, M Krassovski, U Kalluri

1872469 *Spatiotemporal uncertainties in carbon budget estimation: assessing the impact of autocorrelation on the portfolio effect:* **M Dietze**, C Malmberg

1854237 *The Impact of Individual Choices on Robust Validation of Process-based Models for Quantifying Agricultural Greenhouse Gas Emissions:* **B Ziniti**, H Chen, K Winkler, C D Jones, W Salas, K D Aldenhoff, J Penner

1909691 *Uncovering Statistically Significant Changes in Soil Organic Carbon Stocks Across the Australian Agricultural Landscape:* **S Karunaratne**, M Farrell, L Stower, C Asanopoulos, C Pasut, F Hoyle, T O'Keeffe, B Armour, A Schapel, D Crawford, M McCaskill, G Brown, R Moreton, M Garrard, K Polain, B Wilson, M De Antoni Migliorati, S Reeves

249723

Advances in monitoring and mitigation assessments of greenhouse gas (GHG) emissions and sinks for the land sector (joint with A, B, IN, SY)

Conveners: Grant Domke, USDA Forest Service; Stephen Ogle, National Resource Ecology Laboratory

- 1944582** *Aligning forest carbon offsets with sustainable management: revisiting BMPs for fuel reduction, carbon forestry and biomass management in California:* **L Kaarakka**, A Benschling, A Golash
- 1965479** *Assessing Carbon Flux Variability in U.S. Corn Systems Across Homogeneous and Heterogeneous Climate Zones:* **C Igwenagu**, R Ray, T Tarkegn
- 1896148** *Carbon dynamics and the impact of biomass sourcing under the changing natural disturbance regime: a pilot study using a landscape model.:* **B Xu**, E Forster, M Young, A Newton, C Dymond
- 1941145** *Climate-Driven Instability of GPP-TER Coupling Threatens Terrestrial Carbon Sink Resilience:* **D Yang**, S Li
- 1910241** *Differences and uncertainties in land-use CO₂ flux estimates:* **W Obermeier**, C Schwingshackl, R Ganzenmüller, G Grassi, V Heinrich, I Luijckx, A Bastos, P Ciais, S Sitch, J Pongratz
- 1901568** *Evaluating Predictive Performance for Nitrous Oxide (N₂O) Emissions Using Bayesian Model Intercomparison of Three Process-Based Ecosystem Models:* **R B Gurung**, J Rahimi, S M Ogle, D Abalos, K Butterbach-Bahl, M F Cotrufo, S Williams, C Schwartz, E Haas, D Kraus, D R Kiese, C Scheer, C Weber, Z Wang, J Locatelli, Y Zhang
-

252806

Advances in the Integrated Water Continuum through Bridging Atmospheric-Terrestrial-Riverine-Coastal Systems (joint with A, B, H, NH)

Conveners: Lingcheng Li, Pacific Northwest National Laboratory; Zong-Liang Yang, Organization Not Listed; Li Dan, Institute of Atmospheric Physics, Chinese Academy of Sciences; Shiqin Xu, King Abdullah University of Science and Technology; Lele Shu, Chinese Academy of Sciences

- 1910637** *A Water-Carbon-Economic Model Coupling System Dynamics and InVEST for Wuhan's Sustainability Assessment:* **Y Diao**, J Xia, Q Dong, Q Zuo, M Xie, X Peng, L Jiang

- 1846456** *Hysteresis Correction of Relative Humidity Observations for Climate Monitoring:* **C Johansson**

- 1868910** *Improving Estimates of Carbon in Harvested Wood Products Using National Forest Inventory Data: A Case Study in the Northern Lakes States:* **J Nash**, G M Domke

- 1994221** *Nitrous Oxide Emission Intensity Change Across Global Croplands:* **P Sharma**, B Basso, N Millar, S Schiller

- 1957765** *Revisiting soil carbon estimation on forest land in the United States using strategic-level inventory data and auxiliary information:* **G M Domke**, B F Walters, L Nave, A Lang, M Pastore

- 1963946** *Spatially Explicit GHG Mitigation Assessments of Reforestation Strategies in Brazil's Mata Atlântica:* **B Zhang**, K Lan, F Yang, Y Xu, P Daniel, M Ashton, Y Yao

- 1994913** *Spatiotemporal Variability of Carbon Dynamics in Nepal: Implications for Carbon Sequestration and Ecosystem Sustainability:* **S Gurau**, S Chaudhary, G Tefera, B Tikuye, R Ray

- 1852175** *Species-level trends in individual tree growth and mortality rates across the coterminous United States:* **T Bytnerowicz**, G M Domke, J W Lichstein, J Dushoff

- 1969753** *Toward a tree-ring enhanced National Forest Inventory: Data assimilation approaches to estimate inter-annual variability in forest carbon and drivers:* **K Heilman**, A Dawson, M Dietze, E Scott, D Steinberg, B F Walters, G Domke, M Evans

- 1929528** *Variability in wood carbon concentrations influences our understanding of forest carbon stocks at national scales.:* **M Doraisami**

- 1908401** *Wetland Degradation and Carbon Emissions on the Qinghai-Tibet Plateau:* **F Deng**, P Ma

- 1960705** *Accounting for Salt Stress and Osmoregulation Improves the Predictability of Carbon, Water, and Energy Fluxes in Mangrove Ecosystems:* **A M Matheny**, M Ulatowski, S Perri, K W Krauss, R Reef, J E C Missik, G Bohrer, S A Cabraal, M Nakad, A Molini, A Nwokoye, M Detto

- 1992088** *Advances in energy and hydrological processes of the AVIM land surface model through Machine Learning and Data Assimilation:* **F Yang**, L Dan, Y Li, K Li, W Pan

- 1859983** *Advancing integrated continental scale hydrology through democratized data and ml-accelerated modeling.:* **R M Maxwell**, L E Condon

- 1948252** *Beyond Boundaries: Dynamically 2-Way Coupled Hydrology-Ocean Models for Coastal Hazard Forecasting Across the LEO Continuum:* **Z G Xue**, D Bao, X Zhao, J C Warner

- 1986251** *China National Water Model (CNWM): Revolutionizing Hydrological Forecasting*: **L Shu**
- 1885659** *Compound Flooding in Deltaic Landscapes: Lessons from Hurricane Ida with a Coupled Hydrological–Ocean Model*: **Y Wang**, Z G Xue, D Bao, X Zhao, Z Lei
- 1993903** *Direct and indirect effects of spring phenology on forest transpiration*: **L Wang**, D She, Y Yang, L Meng, J Xia
- 1985204** *Efficient Ensemble Subsetting of Seasonal Forecasts for Enhanced Hydrological and Ecohydrological Predictions across the Integrated Water Continuum*: **G Li**
- 1861453** *Enhancing SWAT with mechanistic plant hydraulics: development and application in the Hanjiang River Basin*: **L Li, PhD**, Q Zhang Sr, X Wei, B Zhang
- 1990948** *How does foliar litter affect land surface evapotranspiration in forest ecosystems?:* **S Qin**, C Fu, L Zhang, L Cheng

251823

Advances in Understanding and Predicting High-Latitude Earth Systems Changes and Their Associated Global Impacts (cosponsored by AMS: American Meteorological Society, EGU: European Geosciences Union, WCRP: World Climate Research Programme) (joint with A, B, C, OS)

Conveners: **Wieslaw Maslowski**, Naval Postgraduate School; **Georgina Gibson**, University of Alaska Fairbanks; **Julienne Stroeve**, University College London; **Hailong Wang**, Pacific Northwest National Laboratory; **Parvathi Madathil Kooloth**, University of Wisconsin Madison

- 1894053** *A New Configuration of E3SM to Understand Bio-Geo-Chemical Dynamics in High Latitude Marine Ecosystem and Metrics for Regional Model Validation.:* **G A Gibson**, M E Maltrud, N Jeffery, K M Smith
- 1942523** *Advancing earth systems research through NASA's multi-disciplinary Arctic Boreal Vulnerability Experiment (ABOVE) coordinated field campaigns: A brief synopsis of outcomes and lessons learned*: **S J Goetz**, C E Miller, P Griffith, L K Larson, E E Hoy, D J Hodkinson
- 1950675** *Antarctic Sea Ice Trends Across a High-Resolution Coupled Model Hierarchy*: **M Bushuk**, S M Griffies, D Bonan, M Winton, W Gregory, Y F Zhang, W J Hurlin
- 1993713** *Assessing New Process Representations in ELM at the Pan-Arctic Scale*: **N E Bruns**, F Yuan, B N Sulman, J Kumar, E Massoud, K E Bennett, S L Painter, F Hoffman, C M Iversen, PhD, P E Thornton
- 1899676** *Assessing Trends and Variability in Atlantic Water Transport with A High-Resolution Reanalysis*: **S A Eisner**, J Carton, L Chafik

- 1985652** *Integrating coupled hillslope hydrology and ecosystem modeling with multi-scale observations to understand tropical forest dynamics*: **L Li, PhD**, Y Fang, R I Negron Juarez, G Pastorello, N Higuchi, A J N Lima, N McDowell, L R Leung
- 1996609** *PV-driven water harvest alleviates water stress in national scale*: **J Zhang**, Y Chen
- 1988253** *The Role of Regional Ocean–Atmosphere Coupling in Simulating the 2020 Extreme Mei-yu Event*: **K Li**, L Zou, L Dan, H Zheng, Z Xu, J Tang, J Peng, PhD, F Yang, Z L Yang
- 1866631** *Uncertainty analysis of global meteorological drought in CMIP6 projections*: **Q Niu**, D She, J Xia, Q Zhang, Y Zhang, T Wang
- 1900178** *Changes in modes of variability important for Antarctic atmospheric rivers and precipitation extremes*: **C A Shields**, M MacLennan, N A Rosenbloom, J C Golaz
- 1976112** *Cloud Radiative Feedback as a Driver of Arctic Amplification: Insights from Cloud-Locking Experiments in E3SM-Arctic*: **Y Huo**, H Wang, B E Harrop
- 1891065** *Comparison of the Lorenz energy cycle in four reanalysis datasets*: **M K Kim**, J S Oh
- 1999789** *Drivers and Predictability of the 2020 Eurasian Heatwave*: **Y Wu**, L Vu
- 1930183** *Evaluating Arctic Spectral Outgoing Longwave Radiation Trends in E3SM using Satellite Observations*: **M Amma**, X Chen, S Zhao, H Wang, W Lin, X Huang
- 1934297** *Evolution of Extreme Sea Ice Loss Events Under Anthropogenic Climate Forcings in CMIP6 Models*: **C Y Chan**, M England, J Screen, T Bracegirdle, E W Blockley, C Holmes
- 1973588** *Examining processes contributing to Arctic air mass formation with remote sensing and reanalysis data*: **K S Mattingly**, S Shamsian, L Vieira da Silva, D S Henderson, T L'Ecuier, E McIlhatten, A Merrelli, C Pettersen, N Wood
- 1920073** *Identifying the origins and pathways of extreme western Greenland-Baffin Bay rainfall with disparate moisture tracking approaches*: **T Ballinger**, J Andreassen, Q Ding
- 1998496** *Impact of Boreal Fires on the Atlantic Meridional Overturning Circulation*: **C Hankel**, E Blanchard-Wrigglesworth
- 1916015** *Initial Condition Sensitivity of Polar Low Intensity and Location Determined using Ensemble Sensitivity Analysis*: **K Boyd**, Z Wang, J D Doyle

- 1892940** *Modelling Antarctic Young Ice: a Salinity-dependent Approach*: **F Cocetta**, M Mangatane, F de Santi, D Iovino, M Vichi
- 1917333** *On the Bering Strait's role in modulating the Pacific Arctic sea ice and ocean properties*: **J L Clement Kinney**, C Burgener, Y Lee, W Maslowski, R Osinski, A Craig, W Weijer
- 1882611** *Permafrost Thawing Unveils Hidden Hydrological Threshold Governing High Latitude Streamflow Evolution*: **Z Li**, H Liu
- 1940534** *Quantifying and Evaluating the Arctic Longwave Spectral Cloud Feedback in E3SM*: **S Zhao**, X Chen, M Amma, H Wang, W Lin, X Huang
- 1872235** *Recent Intensification of Extreme Precipitation over Antarctica Driven by Increases in Greenhouse Gases*: **S P S Chittella**, P Deb, A Orr
- 1972639** *Regionally Refined Coupled Model for Advanced Understanding of Arctic Land Surface Processes*: **Y Zhang**, A Piliouras, B Nijssen, G A Gibson, J L Clement Kinney, M E Maltrud, M Veneziani, D S Comeau, R Osinski, W Maslowski, Y Huo, H Wang, P Rasch, M W Seefeldt, W Weijer

251257

Advances in Urban Environmental Monitoring: Multidimensional information Extraction and Human-Environment Interaction Modeling
(joint with B, GH, NH)

Conveners: Bin Chen, Organization Not Listed; **Yuyu Zhou**, The University of Hong Kong; **Wu Shengbiao**,

- 1938326** *Allergic Disease Prevalence by Tree Species and Seasonal Characteristics: A Spatiotemporal Analysis Using NDVI and Generalized Additive Model*: **J SUN**, H Yoon
- 1844646** *Biodiversity and Mass Effects Co-regulate Urban Forest Drought Resistance in 116 Cities in Yunnan Province, China*: **X Wang**, B Chen, A Hughes, Z Gao, K Song, L Da
- 1951207** *Cloud cover and 3D structures reduce urban sunlight availability*: **W Shengbiao**, B Chen, J An, C Lin, P Gong
- 1861310** *Development of an AI Based Classification Model for Open-Air Cafeterias to Enhance Occupant Thermal Comfort in Educational Settings*: **N N Oyshi**, F Tasneem, L Jamal, M Mony, M P Moni, M N Uddin, M Hasan, J Hossain, M F A Shafik, D M Dipta, M Jakaria, M A H Mukib, M N Rahman, T U A Jengi
- 1939518** *From Images Alone: Estimating Visitor Incident Risk in Urban Parks with Remote Sensing and Deep Learning*: **Y Kim**, E Kim, J Lee, H Yoon

- 1991129** *Seasonal Stratospheric Cooling Increases Southern Ocean Mixing, Overturning & Ice Melt*: **J L Russell**, R Stouffer, P J Goodman
- 1951921** *Spatiotemporal Dynamics, Propagation, and Drivers of Major Arctic Marine Heatwave Events*: **B Zhao**, C Horvat, Q Sun
- 1940884** *The Role of Riverine Freshwater and Heat Fluxes in the Arctic Ocean-Sea Ice System*: **J H Park**, J H Kim, J Kam, Y Son, B M Kim
- 1916909** *Unraveling Drivers of the Recent Increases in Northern Hemispheric Circulation Waviness During the Cold Season*: **W Ma**, H Wang, S W Lubis
- 1863052** *Weakened Atlantic meridional overturning circulation diminishes Arctic amplification*: **W Liu**, Y C Lee, A V Fedorov, N Feldl, P C Taylor
- 1865981** *Increasing boreal fires reduce future global warming and sea ice loss*: **E Blanchard-Wrigglesworth**, P DeRepentigny, D Frierson
- 1930624** *Global Compound Urban Environmental Exposure, Inequality and Associated Health Impact*: **B Chen**, R Feng
- 1994917** *How Do Temperature Exposure Mechanisms Influence Public Heat Perception? A Global Analysis across 50 Countries*: **M You**, J S Ji, B He, S J Quan, L Yan, C Li
- 1935313** *Individual-level Building Height Mapping for Chinese Cities using GEDI and Multi-Source Remote Sensing Data*: **X Ma**, G Zheng, C Xu
- 1952976** *Mapping Urban Building Materials and Their Thermal Properties at the City-Scale Using Deep Learning*: **Y Wang**, L Zhao, X Li
- 1905773** *Modeling Human-Environment Interactions to Identify Critical Success Factors for Sustainable Urban Renewal*: **A M Reta**, Y H Chang, J S Chou
- 1937365** *Profiling and Mapping Uninhabitable Houses in Detroit Using Large Vision-language Models*: **X Yang**, A Tian, D Van Berkel, X Qiang, M Lindquist
- 1885317** *Super-Resolved and Spatially Detailed Urban Building Height Mapping at 10 m Resolution Using Multi-Source Sentinel Imagery and Deep Learning*: **X Li**, B Cai, B Chen, X Li, P Gong
- 1975765** *Understanding Bias in Large-scale Mobile Location Data: Insights from Expert Interviews*: **X Zhao**, A Recalde, X Yan

248780

Advancing Climate Science with Deep Learning

(joint with A, IN, NG, NH)

Conveners: Donald Lucas, Lawrence Livermore National Laboratory; Gemma Anderson, Lawrence Livermore National Laboratory; Vipin Kumar, University of Minnesota; Duncan Watson-Parris, University of California San Diego

1955024 *A Unified Deep Learning Framework for Modeling Vegetation-Desertification Dynamics via Reaction-Diffusion-Advection Systems:* **A Chatterjee**

1937243 *AI-based climate model evaluation through the lens of pseudo-global warming storylines:* **S Duan**, J Zhang, C Bonfils, G Pallotta, P Ullrich

1990353 *AIMIP Phase 1: An intercomparison of AI climate models:* **B M Henn**, O Watt-Meyer, S Clark, J McGibbon, T Arcomano, E Wu, J Duncan, W A Perkins, A Kwa, C S Bretherton

1931459 *Data-Driven Modeling of AMOC Variability in CMIP6 Simulations:* **B T Nadiga**, G Zhao, Z Liu, L P Van Roekel, W Xu, S Lee

1987964 *Diffusion-based downscaling of precipitation extremes highlights potential impacts of future climate scenarios with and without stratospheric aerosol injection:* **C Dong**, E Barnes, J Hurrell

1968106 *Discovery and Forecasting Critical Climate Thresholds for Early Warning Systems:* **J A Sleeman**, G J Brett, PhD, C Tang, J Millison, A Hillier, A Chen, J Boothby, M R Keller, A Gnanadesikan, C Amos

1964679 *Domain-Adaptive Geometry-Informed Neural Operators for Rapid Flood Forecasting:* **M Taghizadeh**, Z Zandsalimi, M A Nabian, J L Goodall, N Alemazkoor

1920092 *Evaluating a Deep Learning Weather Prediction Model with a Baroclinic Wave Test on an Aquaplanet:* **W Yik**, D R Durran

1946034 *Generate the Forest before the Trees--A Hierarchical Diffusion model for Climate Downscaling:* **D Curran**, S Hobeichi, H Saleem, F Salim, H Xue

1989646 *Generation of High-Resolution Precipitation Data using Unsupervised Domain Adaptation Technique, a Deep Learning Based Approach:* **N Rajouria**, T Sharma, S Jha, A Agarwal Dr

1901801 *Generative Deep Learning to Correct Weather Models with Station Observations:* **D D Lucas**, G J Anderson, C Jones, C Thompson

1866082 *Generative Lagrangian Data Assimilation for Ocean Dynamics Under Extreme Sparsity:* **N Asefi**, L Lupin-Jiminez, T Wu, R He, A K Chattopadhyay

1932548 *HydroLLM: Advancing Domain-Specific Language Models and Semantic Retrieval for Hydrological Science and Decision Support:* **I Demir**, Y Sermet, R Sajja, D Kizilkaya

1963197 *Node-Adaptive Graph Neural Networks for Enhanced Prediction of Localized Wildfire Dynamics:* **J Chen**, W Li, R Thomas, H M El-Askary

1992938 *Physically-Constrained Deep Generative Modeling:* **M Blanke**, Y Qu, S Shamekh, P Gentine

1959888 *RAINGAN: A Reliable Attention-Based Generative Adversarial Network for Extreme Precipitation Downscaling:* **M Murukesh**

1977107 *Simulating CERES Longwave Radiative Fluxes Using Machine Learning with AIRS and CrIS Hyperspectral Infrared Observations:* **R C Wilson**, M Z Hakuba, J Teixeira, M D Lebsock

1853187 *Spatiotemporal Methodologies for the Analysis and Prediction of Extreme Weather Events - Intersection of Extremes, Human Dynamics, and AI:* **M Yu**

1881830 *Surface temperature extremes produced by huge emulator-based ensembles of summer hindcasts:* **W D Collins**, M D Risser, A Mahesh, J North

1927458 *Teaching AI weather models to forecast gray swan extreme events via rare-event sampling and active learning:* **P Hassanzadeh**, A Lancelin, A Wikner, D S Abbot, J Weare, F Bouchet, L Dubus, W Stenglein, Y Q Sun

1979738 *Time-Series Analysis of Temperature on Jeju Island Using DTW-Based Clustering and LSTM Prediction:* **A Seol**, S K Lee

1950455 *WaveSim: A Multi-Scale Wavelet-Based Similarity Metric for Climate Field Comparison:* **G Accarino, PhD**, V Acquaviva, S Shamekh, D Watson-Parris

250366

Advancing Global Imaging Spectroscopy and Thermal Infrared Measurements, Including Results from ECOSTRESS, EMIT, SBG, and Others

Conveners: David Thompson, Organization Not Listed; Kerry Cawse-Nicholson, Jet Propulsion Laboratory, California Institute of Technology; Michelle Gierach, Jet Propulsion Laboratory, California Institute of Technology; Dana Chadwick, Jet Propulsion Laboratory, California Institute of Technology

1942698 *A Globally Applicable Mixture of Experts–Variational Autoencoder (MoE-VAE) Framework for EMIT to Retrieve Chlorophyll-a, Total Suspended Solids, and Colored Dissolved Organic Matter in Estuarine-Coastal Waters:* **J Li**, B Liu

1915982 *A Web-Based Interactive Viewer for NASA EMIT Surface Reflectance and Mineralogy Data:* **M K Emil**, M Sultan, H Raising, A Yildirim, A Alshakr, V Kattamuri

1983224 *Advancing Atmospheric Correction of Hyperspectral Imagery for Coastal and Inland Waters with AQUAVERSE:* **A Ashapure**, R E O'Shea, A Saranathan, W Wainwright, N Pahlevan

1962199 *Advancing our Understanding of Urban Heat Islands, Heatwaves, and Societal Heat Disparities with NASA Thermal Infrared Data:* **G C Hulley**, A Shreevastava, C Yoo, A Agatep

1973175 *Agriculture, Critical Minerals, Fire Fuels, Water Resources, Water Quality and Other Applications of Imaging Spectroscopy from the Surface Biology and Geology Mission:* **R O Green**, D R Thompson, K D Chadwick, P G Brodrick, R Eckert, U Bohn, K Luis

1897804 *An Open Retrieval Library for Trace Gases and its Application to Imaging Spectroscopy:* **P Somkuti**, L Ott

1920009 *Assessing Surface Temperature Retrieval Uncertainty for Landsat Next Using DIRSIG:* **R S Eon**, A Hassanzadeh, A D Gerace, M Montanaro

1885819 *Assessing the suitability of reconstructed high-resolution hyperspectral imagery from PlanetScope and EMIT for plant functional trait estimation:* **F Ji**, T Zheng, P A Townsend, M Liu, M Chen

1930044 *C.O.N.N.E.C.T–S.B.G.: Collaborative Nexus for Networking, Education, and Career Training in Surface Biology and Geology:* **G Shirkey**, M Pascolini-Campbell, A Agatep, K Cabrera, K Cawse-Nicholson, K D Chadwick, L Fu, G R Goldsmith, G C Hulley, R Joshi, C M Lee, M Kim, K Luis, R Stonebreaker, J B Fisher, J Meiseles, M Patterson, M Runkel, R Tanner

1919315 *Can hyperspectral reflectance predict the response of leaf photosynthesis, nutrients, and pigments to less frequency, larger magnitude rainfall pulses in a semiarid C4 grassland?:* **W K Smith**, X Wang, D Uni, J S Guo, J A Biederman, PhD, H Dashti, M Chen, B A Logan, F Zhang, N Pierce, S Reed, A Feldman, D L Potts, R Scott, D J Moore, W Zhang, J Blais

1980431 *Challenges with Distinguishing Benthic Green Macroalgae from Seagrass using PRISMA Hyperspectral Satellite Imagery:* **E Scrivner**, S Palacios, A Chlus, Q Vanhellemont, J S Turner, C Giardino, A Castagna, B Russell, H Dierssen

2003712 *EMIT Aquatic Spectral Library: Building a Global Imaging Spectroscopy Validation Database:* **K Luis**, C Ade, C M Lee, P G Brodrick, D R Thompson, U Bohn, E Greenberg, R Eckert, D Chadwick

1901347 *EMIT contributions to Rare Earth Element Detection over the Arabian and Nubian Shields:* **A Yildirim**, M Sultan, M K Emil, H Raising, A Alshakr, A T Mohammad

1975423 *EMIT Contributions to Red Sea Rifting, and Dune Sources, Sabkha Types, and REE mineralization in the Arabian Peninsula:* **M Sultan**, M K Emil, A Alshakr, A Yildirim, A T Mohammad

1982523 *EMIT Performance and Operations: Paving the Way for Global Imaging Spectroscopy:* **P Brodrick**, R O Green, D R Thompson, D Chadwick, A K Thorpe, E Brageot, R W W Coleman, E Greenberg, M Kiper, J Lee, Y Marchetti, N Rodriguez Cadenas, C Ung, V Jhalani, E Zarate

2003613 *EMIT Reveals Geophysical Impacts of Drought and Colorado River Management at The United States Two Largest Reservoirs:* **M R Fischella**, J B Sankey, R F Kokaly, A E East, A Kasprak, J Caster, B R Deemer, R Crow, S Mavor, E Byerley, D V Mallia, D J Topping

1980733 *Enhancing mineral band depth retrieval using fractional cover of green and non-photosynthetic vegetation:* **F Ochoa**, P G Brodrick, G S Okin, R N Clark, D R Thompson, R O Green

1995791 *Evaluating heat mitigation by urban canopy in New York City's public housing developments:* **O Steadman**, N C Steiner

1924171 *Exploration of the Urban Heat Island Effect in Cities in the Tropics using Earth Observation Data:* **B E E Hernández Sandoval**, M Kuffer, S Lwasa, R Griffin, E A Cherrington, E R Anderson, A S Limaye, M G Molina Masferrer

- 1980372** *Far horizons, dark backgrounds, adjacent mountains, and other considerations to produce more accurate L2 snow reflectance from spaceborne imaging spectroscopy measurements:* **B Wilder**, N Carmon, U N Bohn, E Bair, D R Thompson
- 1924804** *First Observations of Phytoplankton Functional Groups and Harmful Algal Blooms in Optically Complex Gulf Waters Using PACE and EMIT Hyperspectral Observations from an Unmixing Perspective:* **B Liu**
- 1973358** *First Results from the AVIRIS-5 Imaging Spectrometer:* **R Eckert**, M Bernas, P G Brodrick, J Chapman, A Chlus, M L Eastwood, S Geier, E Greenberg, D Keymeulen, E H Liggett, D Millsaps, S Nadgauda, L M Rios, C M Sarture, L A Shaw, P Sullivan, D R Thompson, Q P Vinckier, J Wang, R O Green
- 1977612** *Foliar functional traits from EMIT: large-scale mapping using spaceborne imaging spectroscopy:* **S LIU**, T Zheng, Z Ye, E Shafron, K R Kovach, Z Wang, R Yang, R Pavlick, P A Townsend
- 1928669** *Forest Thinning Impacts in Arizona: ECOSTRESS Evapotranspiration and Land Surface Temperature Estimates:* **T Sankey**, R Lewis, J Tatum, T Y Kyaw, L Ozment, T Kolb, G W Koch, H Poulos, PhD, A Barton, A Thode
- 1979514** *From Space to Soil: EMIT-Driven Predictive Mapping of Soil Mineralogy Using Bayesian Geostatistics:* **S van der Steeg**, E Slessarev
- 1995944** *Fusing VSWIR and TIR Hyperspectral Imagery for Enhanced Geologic and Mineral Investigations:* **F Rabuffi**, K Cawse-Nicholson, N Carmon, P G Brodrick, G C Hulley, S J Hook
- 1847125** *Ground Urban Heat Island: Strengthening the Connection Between Spaceborne Thermal Observations and Urban Heat Risk Management:* **L Hu**, C K Uejio
- 1858824** *Hydrosat: A new satellite constellation for global, daily, high-resolution thermal data:* **J B Fisher**, C A Famiglietti, W G Bastiaanssen, S Soenen, J L Huntington, C Pearson, C Morton, K Knipper, M Anderson, R G Anderson, W P Kustas, S Ha, J L Anderson, O Lewis, D Yang, J Park, S Serbin, BA, MS, PhD, G B Senay, M Friedrichs, G Parrish, J Dornbierer
- 1960597** *Hyperspectral Fingerprinting of Dune Sediments Across the Arabian Peninsula: Insights into Sediment Provenance and Transport Pathways from NASA EMIT Data:* **A Alshakr**, M Sultan, M K Emil, A T Mohammad, A Yildirim, N C Sturchio
- 2001476** *Intrinsic Dimensionality as a metric for beta biodiversity:* **K Cawse-Nicholson**, E Davis, Z Pierrat, N Stork, L Alves, K Grant, D R Thompson, P G Brodrick, M A Cho, A Ramoelo, P Tsele, N Majozi, C Masemola, S Ferrier
- 1917277** *Mapping Marine Invertebrate Populations in Coastal Salt Marsh Ecosystems Using Hyperspectral Imagery:* **C M Bachmann**, N B Nur, A C Tyler, W A Owens-Rios, S Goldsmith, T D Bauch, A Luby
- 1963452** *Mapping Spatial and Temporal Variation in REE Mineral Abundance Using EMIT Hyperspectral Imagery:* **O Kamps**, B L Ehlmann
- 1973412** *Mapping Surface Soil Moisture from EMIT Hyperspectral Observations via Physically-Based Inversion:* **N B Nur**, D R Thompson, P G Brodrick, N Carmon, C M Bachmann, R O Green
- 1986643** *Monitoring Surface Pollution from Space with the EMIT Imaging Spectrometer: Methane Point Source Emissions and Plastics:* **R Estrela**, A Aljurbua, D R Thompson, A K Thorpe, P G Brodrick, D Chadwick, R O Green, C Elachi
- 1941765** *Monitoring Vulcano Island (Italy): A Cal/Val Site for Next-Generation TIR Missions:* **M Silvestri**, F Rabuffi, J A Diaz, E Corrales, M Musacchio, M F Buongiorno
- 1957375** *Multi-surface atmospheric correction using ISOFIT: Retrievals of surface reflectance and atmospheric state across the land-water interface:* **E Greenberg**, U Bohn, P G Brodrick, J Montgomery, D R Thompson
- 1977685** *Multiscale Framework for Mapping Biocrusts with Hyperspectral Data Using the MICA Algorithm:* **S Herrmann**, W K Smith, R F Kokaly, M L Villarreal, S Reed
- 1959807** *NDVI-Guided Spatial Disaggregation of ECOSTRESS to 10 m Resolution for Remote Estimation of Evapotranspiration in Heterogeneous Forest Landscapes:* **A Atnurkar**, S S Panda, D Amatya, M M Aguilos, N Vergopalan, A C Oishi, G Sun, T L O'Halloran
- 1926109** *Operational Deployment of Hyperspectral Machine Learning Models for Methane Leak Detection at the United Nations:* **V Růžicka**, G Mateo-García, I Irakulis-Loitxate, M M San Martin, J E Johnson, A Allen, C Cifarelli, L Guanter
- 1917736** *PACE (Plankton, Aerosol, Cloud, ocean Ecosystem): Preliminary analysis of the consistency of remote sensing reflectance product over aquatic systems:* **R Paulino**, V Martins, C Caballero, T Lima
- 1969415** *Predicting Drought Outcomes for Riparian Woodlands Using Dense Seasonal Time Series of Fractional Cover and Land Surface Temperature:* **C McMahon**, D A Roberts, A T Trugman, J C Stella, M B Singer, K K Caylor

- 1987756** *REMIR (Reduced Envelope Multispectral Infrared Radiometer): integration, preliminary testing, and flight campaigns as an airborne demonstrator for future Sustained Land Imaging*: **M S Veto**, J Carroll, M Cowell, B M Farris, T U Kampe, PhD, L Ruppert, N Showalter, J Stephan, M Vildzius, C Walker, C S Weimer, D Weinstein, K Willett
- 1968294** *Sensitivity of Imaging Spectroscopy to Monitor Genetic Variation*: **E Czyz**, K Cawse-Nicholson, R Eckert, M Schuman, M E Schaepman, D Schimel
- 1929098** *SFMS: Spectral-based Flowering Monitoring System*: **Y Angel**, D Kathuria, E Lang, A N Shiklomanov
- 1967067** *Simultaneous modeling of water leaving reflectance and sun and sky glint contributions from imaging spectroscopy measurements*: **U Bohn**, E Greenberg, P G Brodrick, J Chapman, R Eckert, M M Gierach, R O Green, M König, J Kravitz, K Luis, J Susiluoto, D R Thompson

252826

The Flows of Energy Through the Climate System

(joint with A, OS)

Conveners: **Maria Hakuba**, ETH Zurich; **Seiji Kato**, NASA Langley Research Center; **Martin Wild**, ETH Swiss Federal Institute of Technology Zurich

- 1968683** *A Simple Model to Help Understand and Assess the Increase in the Earth's Energy Imbalance*: **C Taylor**
- 1940148** *Accessing the Angular Dimension of Earth's Radiative Energy Budget with Libera's Wide-Field-of-View Camera*: **S Schmidt**, J Gristey, P Pilewskie, H Chen, M Z Hakuba
- 1959273** *Anomalous Changes in Earth's Energy Imbalance During the Past Two Years*: **N G Loeb**, S Kato, T Thorsen
- 1885851** *Downward Heat Pump Due to Subtropical Extreme Thermal Events Lead to Global Deep Ocean Warming*: **J Zhang**, S Hu, J Sprintall
- 1978859** *Historical Trends in the Zonal Mean Energy Budget of the Coupled Climate System*: **A Donohoe**, H D Prince, K Armour
- 1973273** *Latitudinal Differences of Changes in Earth's Energy Budget in Historical (2003-2014) and Future Climate Projections (2014-2100)*: **L Hirose**, D Paynter, V Ramaswamy
- 1909805** *Measuring Earth's Energy Imbalance using spaceborne accelerometers*: **L R Busquets**, M Z Hakuba, D N Wiese, R S Nerem, C M McCullough
- 1928663** *Melting Glaciers and Warming Seas – Global Latent Heat of Fusion, Radial Momentum, and Impulse-Driven Step Increases in Global Mean Sea Level (GMSL)*: **N M Coleman**

- 1920663** *Spectral Variability of Earth's Desert Dust Source Regions Sampled from EMIT Reflectance Data*: **A Keebler**, B L Ehlmann, D R Thompson, P A Ginoux, P G Brodrick
- 1940205** *Surface Reflectance Retrieval Performance and Validation for Planet's Tanager-1 VSWIR Spectrometer*: **K L Roth**, C Henze, C Tai Udovicic, G Barentsen, K Wurster, A Annejohn, T McDonald, D R Thompson
- 1982477** *Tracking Forest Functional Traits with New Generation Spaceborne Hyperspectral Data*: **G Tagliabue**, C Panigada, B Savinelli, L Vignali, E Piaser, M Rossini
- 1982794** *Validation of the dust optical property parameterizations using EMIT mineralogical data*: **M Saito**, E Boakye Yiadom
- 1959287** *WISER - A FREE CUSTOMIZABLE, EXTENDABLE VISUALIZATION AND ANALYSIS TOOL FOR IMAGING SPECTROSCOPY DATA*: **J Garcia-Kimble**, R N Greenberger, D Pinkston, D Nea, B L Ehlmann
- 1848318** *Most Mid-Latitude Land is in Radiative-Convective Equilibrium*: **A Matthews**, K A McColl
- 1953468** *NERISSA: New Earth's Radiation Imbalance Study Using Space Accelerometry*: **K Maquaire**, M Rodrigues, B Christophe, L Schyns
- 1932372** *New evidence from climate emulation suggests that strong Northern hemispheric warming can break albedo symmetry*: **T Rendfrey**, M Rugenstein
- 2003111** *Predicting the Arctic Ocean's First Ice-Free Summer Using an Energy Balance Framework*: **D Beckelhymer**
- 1896477** *Temperature Change in Mode Water Source Regions*: **Y Song, PhD**, G Forget
- 1925522** *The Atmosphere's Substantial Role in Interannual Variability of Earth's Energy Imbalance*: **G C Johnson**, M Mayer, N G Loeb, J M Lyman, S Winkelbauer
- 1896861** *The Heating Mechanism of the Earth and its Energy Budget*: **M E Yousif**
- 1886471** *The Hidden radiative effect of clouds in clear sky across cloud regimes*: **E Eytan**, J J Gristey, I McCoy, G Feingold
- 1844824** *Theoretical Reference Estimate for the Components of the Global Mean Energy Flow System*: **M Zagoni**
- 1979406** *Towards filling gaps and supplementing the Earth Radiation Budget record with broadband fluxes derived from Spectral Radiances using Machine Learning*: **M Z Hakuba**, M D Lebsock, R C Wilson, J Teixeira
- 1904547** *Unrealistic simulation of cloud feedback lowers the climate sensitivity of the Community Earth System Model 2*: **S P Raghuraman**, B Medeiros

249048

Advancing Representation of Urban Processes and Dynamics in Models Across Scales

(cosponsored by AMS: American Meteorological Society) (joint with A, B, H)

Conveners: **TC Chakraborty**, Pacific Northwest National Laboratory; **Scott Krayenhoff**, University of Guelph; **Chenghao Wang**, University of Oklahoma; **Keer Zhang**, Princeton University; **Yifan Cheng**, Organization Not Listed

1987264 *A Dynamically Coupled Modeling Framework for Ultra-High-Resolution Simulation of Urban Turbulence for Urban Air Mobility (UAM):* **W Jung**, S H Lee

1984858 *A GIS-powered, community knowledge-informed framework for modeling urban-scale building energy usage:* **N Ma**, M Yan

1919217 *A synthetic microdata generation framework to power urban simulation models:* **A Correias**, N Kunz

1961947 *Advancements in Monitoring Urban Tree Canopy Height Using Very High-Resolution Imagery:* **M C D M Hirye**, F Wagner, G Carter, A Mullissa, S Hagen, D S Saatchi

1906409 *Advancing Urban Vegetation Mapping with Multi-Temporal Planet Scope Imagery and Machine Learning:* **A T Muleta**, J Bamah, O Kira

1941297 *An open-source, globally transferrable modeling framework for high-resolution urban heat and thermal comfort:* **R Engel**, K Cartier, E Wesley, H Joh, E Mackres

1867126 *Building Drag Parameterization Including Anisotropy and its Coupling with the Weather Research & Forecasting Model:* **Z Xie**, Y Tian, J Xie, B Jia

1955873 *Capturing Urban Heterogeneity at the Street Scale: A Multi-Layer Mixing-Length Turbulence Approach for Improved Urban Microclimate Modeling:* **D K Fytanidis**, H Tan, V R Kotamarthi, J Wang, A Martilli, P Muradyan, J R O'Brien, S M Collis, M C Negri

1977325 *Complete Trip: A High-Resolution Multimodal Mobility Dataset for Urban Process Modeling and Environmental Simulation:* **R Li**, W Luo, X Wu, C Xiong

1847422 *Cooling Effects of Urban Trees Across Diverse Urban Settings and Soil Moisture Levels, Assessed using an Urban Canopy Model with Trees Online-Coupled to WRF:* **Y H Ryu**, M S Park

1890538 *Coupling Residential Building Stock Turnover and Thermal Demand Modeling for Decarbonization and Energy Equity Analysis:* **S Nawawi**, P Vaishnav, A Mastrucci

1911937 *Development of an hourly machine learning model for spatially disaggregating urban moist heat stress:* **S Berk**, T Chakraborty, X Wang, A Hsu

1961933 *Differential Extreme Heat in Urban Cores and Newly Urbanized Areas in the U.S.:* **T Jiang**, J Li, T Chakraborty, Y Qian, R Leung

1989034 *Downscaling State-Level Building Electricity Data with Latent Gaussian Models: A Spatio-Temporal Bayesian Approach.:* **E A Ramirez Aguilar**, D Sailor

1945851 *Evaluating the Impact of Local Climate Zone (LCZ) Classification in WRF Modelling:* **A K Dubey**, P Srivastava, K Gupta

1925516 *Evaluating the Impacts of Large-scale Air-source Heat Pump Adoption Through Urban-resolving Earth System Modeling:* **X Li**, L Zhao, Z Luo, X Xie, K W Oleson

1942387 *Evaluating Urban Heat Mitigation Strategies through Microclimate Simulations for Doha, Qatar, under Present and Future Climate Conditions:* **O Abedrabbah**, C Fountoukis, T Al-Ansari, M R Alfarra

1985773 *How well is the urban effect represented in DOE's global storm resolving model?:* **Y Zhang**, J Zhang, Y Cheng, T SU, P Ghosh, Q Tang, L Zhao

1885583 *Impact of Urbanization on Extreme Precipitation: A Case Study of Delhi:* **A Agrawal**, V R, M Tewari

1912444 *Influence of Urban Subsurface Conditions on Atmospheric Dynamics: A PALM Modeling Study:* **P Glocke**, C C Holst, S Benz, P Krč, J Geletič, J Resler

1937313 *Integrating a physics-based urban tree module into the mesoscale Weather Research and Forecasting model for enhanced urban hydrometeorological simulations:* **Y Huang**, C Wang

1858238 *Integration of the Urban Radiation Model SPARTACUS-Urban into the Town Energy Balance and Evaluation Using a Monte-Carlo-based Reference Model:* **R Schoetter**, R Hogan, C Caliot, V Masson, C Montocchio, M Lipson, C Allouache, G Poujol, A Poyet

1905512 *Model Intercomparison Focused on Sensible Heat Transport processes in Urban Canopy Models and Trial of Improvement Methods:* **N Chiba**, M Nakayoshi

1916036 *Multiple sources and heterogenous canopy in a Lagrangian-stochastic dispersion model:* **E Fattal**, E Tas, H David-Saroussi, O Buchman, Z Klausner

1899396 *Probabilistic Super-Resolution of Urban Micrometeorology via a Schrödinger Bridge Framework:* **Y Yasuda**, R Onishi

1991308 *Quantifying Thermal Anisotropy Effects on Urban Surface Temperature Retrievals Using a Sensor View Model:* **S M Lee**, D L Lee, S H Lee

- 1902016** *Quantifying Urban Morphology-Induced Uncertainty in Urban Meteorology and Heat Stress Simulations in Southern California:* **H Hu**, X Zhang, C He, E Fertig, R Zarrin, S E Neyestani, J Zhang
- 1897940** *Remote Effects of Urbanization on Temperatures in Adjacent Cities: A Case Study in Utah:* **W Zhang**, H Gu, R R Gillies
- 1991963** *Simplified CFD Modeling of Tree Canopy Microclimate Using Geometric Abstractions and Sensor-Calibrated Radiative Properties:* **H K Asok**, A Ebrahimian, A S Leon
- 1947389** *Spatiotemporal Assessment of Coupling Urban Growth and Ecological Health in an Urban City in India through RSEI and Landscape Metrics:* **A S**, S Moharana
- 1891459** *Targeted Urban Afforestation Can Reduce Income-based Heat Gaps in U.S. Cities:* **L Hampton**, T Chakraborty

248443

Advancing Soil Moisture Research in the Context of Global Environmental Change (joint with A, B, H)

Conveners: Jiafu Mao, Oak Ridge National Laboratory; Yaoping Wang, University of Tennessee; Forrest Hoffman, Oak Ridge National Laboratory; Yaoping Wang, University of Tennessee

- 1924576** *A Multi-Scale UNet for Downscaling Soil Moisture Projections to 30 m Spatial Resolution:* **C Hashimoto**, A Dehghani, A Gori, N Vergopalan
- 1914661** *Development of a Daily Newhall Model for Improved Estimation of Surface and Rootzone Soil Moisture:* **M Lee**, V Merwade
- 1849469** *Estimating terrestrial carbon and vegetation variability using tree-ring based soil moisture reconstructions:* **B Cook**, E Weng, K Marvel, E R Cook
- 1900172** *Evaluating the Role of Land Cover in Varying Soil Moisture Impacts on Precipitation:* **R Ding**, S M Quiring
- 1877754** *Extracellular Enzyme Products Fuel Microbial Respiration upon Rewetting of Dry Soil:* **S Woo**, M Kim, K Min

251157

Advancing Sustainable Agriculture: Water Use, Irrigation, and Climate Change

Conveners: Hanan Abou Ali, University of Delaware; Piyush Mehta, University of Delaware; Endalkachew Abebe Kebede, University of Delaware

- 1891247** *Understanding the Influence of Urbanization on Rainfall in Sydney Using High-Resolution Modeling and Satellite Datasets:* **S Sharma**, J P Evans, A Pitman
- 1967811** *Unraveling Delhi's Air Pollution: Airshed-Based Source Contribution Using Trajectory Analysis and WRF-Chem Modeling:* **P**, A Siddiqui, H B S Kannemadugu, P Chauhan, R P Singh
- 1969777** *Urban development and adaptation effects on local climate in the lakeside city of Konstanz, Germany:* **S Choi**, E Samakinwa, D Rechid, G P Brasseur
- 1976459** *Urban land surface effects on summertime clouds and moist convection in Houston under different synoptic conditions:* **Y Liu**, Y Qian, C Kaul, B Gaudet, L Berg, Z Feng, A Varble, S L Tai, Z Yang, T Chakraborty, J Fast
- 1933187** *Mapping Hydrological Regimes: A Matrix Profile Based Approach:* **S N C**, PhD
- 1898754** *Mesoscale Rootzone Soil Moisture Modeling Using Land-Surface Water-Energy Fluxes:* **N Jahan**, V Sehgal, S D Conger
- 1972436** *Near-Real-Time Soil Moisture Prediction Using Thermal Remote Sensing And Machine Learning:* **A K K Kasaragod**, J Thomas, T Oommen, R Williams, R Dobson, M Cole, P Jayakumar
- 1881071** *Repurposing Pretrained Language Models for Forecasting Soil Moisture Dynamics:* **Z Yang**, W Li, Z Zhang, J Huang
- 1851820** *Soil moisture controls over carbon sequestration and greenhouse gas emissions:* **Y Hao**, J Mao, C M Bachmann, F Hoffman, G Koren, H Chen, H Tian, J Liu, J Tao, J Tang, L Li, PhD, L Liu, M E Apple, M Shi, M Jin, Q Zhu, S Kannenberg, X Shi, X Zhang, Y Wang, Y Fang, Y Dai
- 1865560** *Vegetation Rehydration-vs-Growth and Energy-Limited to Water-Limited Evaporation Regime Transitions Inferred from Shifts in the Dynamics of Surface Soil Moisture:* **D Entekhabi**
- 1990616** *A Data-Driven Typology for Environmental Assessment of Agricultural Practices in the Great Lakes Region:* **S Paudel**, P I Okoye, R McManamay
- 1920774** *A Spatial Water Balance Approach to Evaluate Groundwater Withdrawal and Irrigation Sustainability in the Upper Red River Basin, US:* **T Kennedy**, M U Akbar, K Khodkar, S Alian, S Datta Dr, S Taghvaeian, A Arshad

- 1925103** *Agro-hydrological Responses of Cotton Production to Regenerative Agricultural Practices and Climate Impacts: An EPIC Modeling Study in Altus, OK:* **N Saasan**, A Mirchi, K Khodkar, Z Xiang, M U Akbar, K Wagner, A Wootten, S Ale, L Doro
- 1992439** *Assessing Cotton Irrigation Scheduling in Pakistan under Various Cultivation Methods in Context of Canal Rotational Delivery System:* **I Sajid**
- 1994024** *Assessment of Agricultural Sustainability Under Current Practices Using an Integrated Water Footprint and Water Security Approach:* **A Koradia**, A Yadav, B Yadav, A Pandey, V M Chowdary, C K
- 1996721** *Comparative Assessment of Water Productivity and Rice Yield under Different Irrigation Water Management:* **S Shekhar**, C Pohshna, R Chandra Verma, S Khose, MTech, A Annu
- 1949972** *Enhancing Climate Resilience and Advancing Land Degradation Neutrality in a Sahelian Landscape: Spatial Modeling, Cross-Cutting Impacts on Agriculture, and Adaptive Responses in The Massili River Basin, Burkina Faso.:* **V Koala**
- 1978256** *Enhancing Maize and Soybean Crop Model Predictions in Iowa via Sensitivity Analyses of Crop and Drainage Parameters:* **J Guarin**, M Yang, A C Ruane, C Weatherwax, L Monhollon, T Nipp, C Rosenzweig
- 1987081** *Estimating the climate costs of rice intensification in Eastern India:* **L Arenas Calle**, H S Nayak, S R Sherpa, V Kumar, P Schmitter, A Urfels, P Shishpal, A Sarkar, A K Srivastava, A Kishore, C M Parihar, A K Nayak, A J McDonald
- 1997793** *Evaluating Polyhouse-Based Precision Irrigation and Fertigation Strategies for Tomato in the Semi-Arid Bundelkhand Region:* **S Shekhar**, V Kumar, M Kumar Singh, A Singh
- 1909291** *Evidence-Based Water Management for Revitalizing Amibara Irrigation Scheme in Ethiopia: A Water Accounting Approach:* **M T Geleta**, K Mekonnen, M Abdella, M Dessalegn, N M Velpuri, A Likassa, A Seid
- 1917341** *Geospatial AI and Machine Learning Techniques for Sustainable Agriculture in a Changing Climate:* **G P**, B Zaman, C Ram Sr, A Sharma, R Kushwah
- 1883535** *High-Resolution Mapping of Crop-Specific Green and Blue Water Demands in Italy with AIDA (Agricultural Irrigation Demand Analyzer):* **N Galli**, H Nanesha, A Tolazzi, D D Chiarelli, M C Rulli
- 1910482** *Improving Irrigation Efficiency in Semi-Arid Farms Using IoT and Modern Systems:* **I Khan**, S Maqbool, A Raza, S M Ahmad Fridi, N Saddique
- 1948652** *Improving Model Representation of Irrigation Using In-Situ Soil Moisture Data:* **A Driscoll**, K McGill, G Kelly, N D Mueller
- 1985293** *Integrated Climate-Crop Modeling to Advance Water Management in Rural and Drought-Prone Regions:* **P Khayatzaheh**, M Charles
- 1954596** *Integrated Hydro-Economic Modeling for Optimal and Sustainable Irrigation Decisions across Contrasting Aquifer Systems:* **B Tian**, A Brookfield, M Insley, D L Rudolph
- 1921422** *Integrating Ground Surveys and Remote Sensing to Monitor Adoption and Abandonment Dynamics of Climate-Resilient, Water-Efficient Direct Seeded Rice for Sustainable Irrigation Management in India:* **P Ghosh**, S Bakiwala, A Rana, A Swatantran, R Babu
- 1961052** *Integrating Seaweed Biostimulant and UAV-Based Sensing for Precision Drought Management in Groundnut:* **S M Ahmed**, M M Nesa, S Sen, A K Tuhin, M F Rahman, H M Abdullah
- 1983927** *Irrigation and Historical Reductions in Midwestern Maize Yield Variability:* **M Dharmapurikar**, P J Huybers
- 1942332** *Land Use Changes or Climate Change: Who Is to Blame for the Degradation of the Old Brahmaputra River?:* **K A Runa**, M G M Amin, K Mahmud, S R Singha
- 1934362** *Mapping the Command Areas of America's Largest Irrigation Dams:* **P DeBole**, W Tysinger, L Marston
- 1889324** *Modernizing Canal Command Areas for Sustainable Agriculture: A Field-Level Feasibility Study:* **S K Chourasia**, A K Gupta
- 1969795** *Quantifying Crop Water Productivity Gaps to Overcome Future Climate-Driven Losses in Indian Winter Wheat Systems:* **A Shayeghi**, N Bhattarai, N Pradhan, L Pan, X Xiao, X Chen, J Paudel, A K Srivastava, M Jain, T M Neeson, R A McPherson
- 1890461** *Rains Before the Monsoon Rains: Toward Climate-Resilient Irrigation Scheduling in Semi-Arid Agroecosystems:* **A Ghorai**, K Ghosh
- 2003272** *RAPTURE: A PRACTICAL TOOL FOR THE APPLICATION OF CLIMATE-SMART AGRICULTURAL PRACTICES:* **E Declama**
- 1964885** *Satellite-Based Groundwater and Soil Moisture Monitoring to Guide Climate-Resilient Agriculture in Indian River Basins:* **M Maheswari Anandapadmanaban**, M S M Vijayan, A K
- 1873101** *Unmasking India's Warming Deficit: A District-Level Assessment of Irrigation and Aerosol Forcing:* **K Kuemmerle**, P J Huybers
- 1987048** *Viticulture Under Climate Change: A Model-Based Analysis Across Two Mediterranean Sites:* **J Kandasamy**, V Maggioni, C Massari

251488

Advancing Understanding of Agricultural Irrigation in the AI and Cloud Computing Era

(joint with B, H)

Conveners: **Yanhua Xie**, University of Oklahoma; **Landon Marston**, Virginia Polytechnic Institute and State University; **Tyler Lark**, University of Wisconsin Madison; **Nishan Bhattarai**, University of Oklahoma

2003058 *Advances and Decision Making in Modern Agriculture: Targeted Irrigation System Upgrades in the U.S.*: **K Ramaswamy**, T J Lark, N Z Uludere Aragon, Y Xie

1949735 *An automated machine learning-based framework for monitoring monthly irrigated areas in the Limpopo River basin using Sentinel-2 imagery.*: **Z Kiala**, K Matheswaran, C Dickens, M Garcia, S Ghosh, F Ludwig

1915302 *Applications of OpenET for Quantifying Irrigation Water Use and Advancing Sustainable Water Resources Management*: **F S Melton**, A Purdy, C Doherty, L Johnson, W Carrara, A Guzman, C Pearson, S G Larsen, K Knipper, S C Zipper, M Friedrichs, R G Allen, A Kilic, J B Fisher, F Munoz-Arriola, A Ruhoff, G B Senay, Y Yang

1954699 *Assessing Economic Water Scarcity and Sustainable Irrigation Potential in Nigeria*: **B Khan**, J Uponi, H Abou Ali, O Adeluyi, T Alabi, O Olayide, K F Davis

1941509 *Design and Evaluation of an Automatic Control System for Hydroponics Cultivation of Mint*: **A Satpute**, N Patel, A K Mishra, D K Singh, V Chinnasamy, C Varghese, S Khose, M Tech

1912355 *From Ground Tests to Aerial Imagery: Redefining Irrigation Distribution Uniformity Assessments for California Almonds using Machine Learning*: **J Suneja**, E Edwards, A Gal, K Knipper, M Levinson, C Higgins, M Nocco

251172

AI-Powered Forecasting of Crop Yields Using Climate and Satellite Data (joint with B, IN)

Conveners: **Arit Prince**, Organization Not Listed; **Arya Prince**, American High School; **Arya Prince**, American High School

1984448 *AI-Powered Forecasting of Crop Yields Using Climate and Satellite Data*: **A Prince**, A Prince

1953333 *High-Resolution Global Mapping of Irrigated Areas Using Remote Sensing and Machine Learning*: **E A Kebede**, G Laboy, P Olaya, M Taufer, H A Michael, K Bhimani, K F Davis

1874398 *Irrigation Water Withdrawals for Fruits, Vegetables, and Tree Nuts in the Continental United States from 2008 to 2020*: **J Hanley**, M Konar

1932168 *Knowledge-guided automated mapping of center-pivot irrigation fields across the U.S.*: **J Chen**, Y Xie

1962867 *Leveraging Satellite and Climate Data with Machine Learning for Early Forecasting of Crop Irrigation Demand in Pakistan*: **H Aeman**, M Hafeez, U W Liaqat, S Munir, A Maqsood

1970231 *Machine Learning Approach to Irrigation Demand Forecasting in the Indus Basin Using Google Earth Engine*: **H Aeman**, M Hafeez, U W Liaqat, A Maqsood, S Munir

1970736 *Mapping irrigation change in conflict zones and areas with little ground truth: case studies in Ukraine and Ethiopia*: **S Baber**, Y Sadeh, S Nair, S Skakun, G Blasch, R Sahajpal, I Becker-Reshef

1980278 *Modeling Crop Irrigation Consumptive Use and Withdrawals for the United States*: **J Haynes**

1989467 *Physics-Guided Deep Learning Framework for Estimating Field-Scale Irrigation from Satellite-Observations*: **L Almendra Martin**, J Judge, A Rangarajan

1932201 *Pipe Dreams: Mapping Field-Scale Irrigation Water Use Across the Contiguous United States (CONUS)*: **J Rapp**, A D Kendall, J T Stid

1969281 *Quantifying Source-Specific Irrigation Contributions to Crop Cultivation Possibilities*: **L Rathore**, E Burchfield

1976232 *Reliable Irrigation Water Management for Smallholder Producers: Assessing the Information Needs and Barriers*: **N R Aloysius**, K Jegatheesan, M T Yatta, U Abeysinghe, M Doungous, T M Reinbott, K Karra, S Carter-Early, A King, S L Hunt

1904615 *sDRIPS: A Cloud-Based, Open-Source Python Package for Satellite-Informed Surface Water Irrigation Optimization*: **S Khan**, F Hossain

1954376 *Automated Wheat Spike Detection and Counting Using UAV-based Digital Imagery and Deep Learning*: **H Ghimire**, M Maimaitijiang, U Janjua, S K Sehgal

1955899 *Hierarchical AI in Space and Time: Big Data and Climate-Informed Prediction of Within-Field Yield, Temporal Stability and Productivity Dynamics in Canadian Prairies*: **K Nketia**, S Shirliffe, T Ha, H Fernando, S van Steenberg, P Galpern, C Morrissey, A Astleford, M Kandoth

- 1923581** *Identifying and Quantifying the Primary Drivers of Sub-Field-Scale Wheat Yield Variability in Drylands Using Interpretive Machine Learning:* **M Lamichhane**, S Mehan, K R Douglas-Mankin
- 1888738** *Multi-Source Data Fusion for Spatial Paddy Yield Estimation Using Support Vector Regression: A Case Study in Cauvery Delta Zone:* **N J**, S Saravanan
- 1851388** *Optimizing Cotton Yield Prediction Using UAV-Based Multispectral Imagery and SVM-RBF Across Reproductive Growth Stages:* **J Marfo**, S Ambinakudige, N Kodadinne Narayana, A Adeli, C Daniel McCraire, R Bheemanahalli

247278

An Opening Arctic: Maritime Access, Ecosystem Risks, and Socio-Political Dimensions

Conveners: **Weiming Hu**, University of Georgia; **Marzia Cremona**, Laval University; **Martina Calovi**, Norwegian University of Science and Technology

- 1936068** *An overview of Climate Change Effects on Humpback Whale Populations in Alaska:* **Z Cai**
- 1895868** *Analysis on the effectiveness of International Maritime Organization's 'Areas to be Avoided' policy on vessel traffic in the Bering Strait (2015–2022):* **I Block**, M Remer, K Kapsar, J Schmidt

250724

Applications of Climate Science in a Nonstationary Climate (joint with H, NH, SY)

Conveners: **Michael Cecil**, Retired; **Weston Anderson**, Columbia University of New York; **Abby Frazier**, Clark University; **Zhiying Li**, Dartmouth College

- 1972298** *A Comparison of Flood Frequency Methods under Climate Nonstationarity:* **N A Barth**, T M Over, S Levin
- 1896527** *A Game-based Experiment to Identify 'Boiling Frog' Bias in Climate Change Adaptation:* **L McGiven**, M Muller
- 1976916** *A Relative Sea Surface Temperature Index for Monitoring and Predicting the El Nino-Southern Oscillation:* **M L L'Heureux**
- 1875121** *A Review of Climate Normals for Drought Indices:* **J Lisonbee**, J W Nielsen-Gammon, B Trewin, B A Parker, G Follingstad
- 1922591** *Coupled air-sea interaction drove and sustained the 2013–2016 North Pacific Marine Heatwaves:* **Y Song**, PhD, W Jiang, G Forget, T W N Haine

- 1955184** *Predicting Wheat Grain Yield and Quality Using Multitemporal and Multispectral UAS Imagery with Transformer Models:* **K Poudel**, M Maimaitijiang, S Subedi, S Kaushal, S K Sehgal
- 1978695** *Satellite -Derived Yield Stability Maps and Nitrogen Response Modeling for Precision Management of Corn.:* **J Myers**, N Martin
- 1992672** *Temporal Fusion Transformers for Early Yield Prediction based on Satellite and Meteorological Data:* **G W Kim**, S Park
- 1967083** *Arctic marine mammal habitat suitability dynamics in response to metacoupled marine vessel traffic patterns in the Bering Strait region:* **A Viña**, K Kapsar, S Waloven, J Liu
- 1976631** *Drivers of change in patterns of Bering Strait vessel traffic in a metacoupled human-natural system:* **M Berman**, K Kapsar
- 1866993** *Mapping Sea Ice Trafficability from Space: Linking Optical Satellite Imagery to In Situ Travel Velocities Using Texture Measures:* **A Pinzner**, A R Mahoney
- 1975385** *Risk Potential for Increasing Rates of Introduced Species across the Arctic:* **M Remer**
- 1953049** *Tracking Arctic Maritime Activities and Environmental Impact through Big Data:* **W Hu**, M Calovi, M Cremona
- 1996191** *Understanding Vessel Traffic Interactions with Marine Mammals in a Changing Arctic:* **S Waloven**
- 1896526** *Defining extremes in a changing climate: lessons from the marine heatwave community:* **D J Amaya**, M Jacox, M R Fewings, PhD, V S Saba, M F Stuecker, R R Rykaczewski, A Ross, C A Stock, A Capotondi, C Petrik, S J Bograd, M A Alexander, W Cheng, A J Hermann, K Kearney, B Powell
- 1876030** *Developing climate-robust long-term ecological monitoring programs:* **M Burns**, D J Lawrence, D Thoma, K Nydick, J Reynolds, J Hickey, M Denn, K Sherrill, J Weinberg McClosky
- 1887279** *Drought assessment in a nonstationary climate:* **J S Mankin**, Z Li
- 2000364** *Exploring nonstationarity of ENSO teleconnections using state-of-the-art Linear Inverse Models:* **S Coats**, S Heller
- 1941906** *Extreme Heat Threatens Global Bridges in the Warming Climate:* **M Pan**, Y Wang, S Hu, D Gu, F T K Au
- 1870023** *Identifying the Timing of Regional Summertime Minimum Temperature Threshold Crossings and the Potential Subsequent Climate Evolutions:* **M Arcodia**, E Barnes

1899508 *Implications for Water Supply vs Environmental Recovery Under Stationary vs Non-Stationary Planning, A Case Study for Mono Lake:* **B Bass**, S Graves, L Huang, A Hall

1985166 *Nonstationarity in a US Rainfall Index Insurance Program: How Producers Have Adapted to Shifting Rainfall Patterns:* **M Cecil, PhD**, E Benami, J Ifft, J Yu, A Carroll

250709

Artificial Intelligence (AI) for Advancing Urban Systems Science and Solutions

Conveners: **Bhartendu Pandey**, Oak Ridge National Laboratory; **Deeksha Rastogi**, Oak Ridge National Laboratory; **Ifeanyichukwu Nduka**, Chinese University of Hong Kong; **Philippe Dias**, Oak Ridge National Laboratory; **Debvrat Varshney**, University of Maryland Baltimore County

1864832 *A Residual Convolutional Neural Network Model For Super-resolution Urban Microclimate Modeling By Fusing Climate Model, In-situ Station, And Remote Sensing Data:* **V K Nippulapalli**, O Aydin

1941341 *Advanced Road-Segment Greenhouse Gas and Air Pollution Estimation Using Vision AI Traffic Data Fused with Real-World Sensor Measurements:* **S Kim**, M KIM, H J Song

1907235 *Global Mapping of Individual Building Heights Using Machine Learning and Analysis of 3D Urban Morphology to Unveil Global Disparities:* **Y Che**, X Liu, X Li

253295

Bert Bolin Lecture

Conveners: **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **David Cairns**, Texas A & M University

251353

Building Resilience across Nature and Neighborhoods: Integrated Nature-Based Approaches (joint with GH, NH)

Conveners: **Andrea Gaughan**, University of Louisville; **Narcisa Pricope**, Mississippi State University; **Weiwei Mo**, University of New Hampshire Main Campus; **Fei Han**, University of New Hampshire Main Campus

1893297 *Reviving Rivercane: Integrating Genomics and Indigenous Traditional Ecological Knowledge for Nature-based Biodiversity Restoration:* **M Fedoroff**, M McKain

1982463 *Post-Little Ice Age Warming Reduces Ice-Jam Floods in the Lower Yellow River:* **S Y Yu**, X Yu

1975575 *Quantifying Snow Information in a Changing Climate:* **M Cowherd**, U Mital, S Rahimi, M Giroto, A Schwartz, D Feldman

1997429 *Using Quantile Mapping to Track Changes in Climate Distributions over Time:* **T Ivancic**, R Cirincione, B Ho, O Pfeiffer, E Hewitt

1984269 *High-Resolution Mapping of Urban Surface Height Using Multi-Sensor Satellite Data and Machine Learning Models:* **F Najafzadeh**, C Deng

1876445 *How Has AI Transformed Urban Observing, Sensing, Imaging, and Mapping?:* **Q Weng**

1865830 *Modeling Land Use Drivers of Urban Heat Islands Using Spatially Explicit Random Forest Model for Urban Planning and Remediation in the City of Saint Louis, Missouri:* **D James**, O Aydin

1981561 *Prediction of Building Energy Consumption in Urban Areas: Integrating Environmental and Morphological Context through Machine Learning:* **E Ji**, S H Kim, S Kim, D K Lee

1913299 *The Use of Artificial Intelligence to Identify Structures Across Antarctic Research Stations:* **B Jennings**, A G Klein

1950597 *Transfer learning for constraining urban climate projection:* **Y Zhang**, L Zhao

1978276 *WalkNet: A Vision-Based Framework for Mapping Urban Pedestrian Infrastructure:* **P B Pranto**, I Buo, A Middel

1875070 *Building Community Resilience through ENACTing Equity in Nature-based Solutions (NbS) Co-Design and Decision-making:* **A Abrash Walton**, W Mo, A E Gaughan, S Aytur, J Barthmeier-Payne, A Storey, A Butler, N Choih, F Han, M Jones

1923511 *Co-Producing Scalable Green Infrastructure Solutions by Bridging Remote Sensing Science and Local Action in Coastal Communities:* **N G Pricope**, L M Mayo, J N Halls, E G Dalton

1879626 *Does the type of design firm drive ecosystem service bundles in stormwater green infrastructure?:* **R Sharif**, M Pavao-Zuckerman

- 1982035** *From Community Roots to Systemic Reach: A Framework for Equitable Scaling of Nature-based Solutions Through Community Engagement and Hybrid Governance:* **H Decker**, A E Gaughan, K Venkatasubramanian, F R Stevens, A Storey, B Pardue, A Bridges, E Gurevich
- 1893765** *Global Building and Population Exposure to Sea Level Rise for Resilient Coastal Planning:* **A Zimmer**, D Adams, J Moehl, M Urban
- 1938238** *Integrating Disaster Preparedness and Social Empowerment: Cyclone Shelter Innovations for Climate-Resilient Refugee Settlements:* **T Khanom**

247503

Carbon Dioxide Removal at scale: Science, technology, policy, and market (joint with A, B, OS, SY)

Conveners: **Ning Zeng**, University of Maryland College Park; **Jessica Cross**, NOAA Pacific Marine Environmental Laboratory; **David Beerling**, Leverhulme Center for Climate Change Mitigation; **Dawson Fairbanks**, University of Arizona

- 1913096** *A Numerical Assessment of Ocean Alkalinity Enhancement Efficiency on a River-Dominated Continental Shelf—A Case Study in the Northern Gulf of America:* **Y Ou**, Z G Xue, X Hu
- 1981346** *Accounting for Carbon with an Objective Atmospheric Basis:* **A Ringsby**, K Maher
- 1850120** *Advancing Greenhouse Gas Accounting in Regenerative Agriculture: Evaluating the Benefits of Tier 3 Process-Based Modeling:* **H Chen**, Y Gao, B Ziniti, C D Jones, J Rogerson, S Herlihy, L Mateo Perrone, C Ko-Madden, G Gopalakrishnan, W Salas
- 1969015** *Bringing Effective and Durable Nature-Based Carbon Removal to Scale: Successes, Challenges, and Opportunities for Translating Research Findings into Action:* **J V Wilkenning**, R Huang, C Kilner
- 1966178** *Carbon Sequestration via Microbially Mediated Valorization of Industrial Waste:* **H Sun**, O E Jagoutz, T Bosak
- 1971367** *Carbonate chemistry observing and mCDR: new processes, new needs, and new systems:* **J N Cross, PhD**, E P Achterberg, D Atamanchuk, PhD, P J Bresnahan Jr, R Byrne, M DeGrandpre, K Fennel, B R Hales, S Loucaides, A Savoie, A Z Wang
- 1959236** *Clays as a Source of Iron for Ocean Fertilization:* **A Bjorklund**, J Mayo, B S Twining

- 1996406** *Making a Community Health Greenprint: Translating Greenspace Typology Evidence into Urban Forestry Practice:* **R A Yeager**, P Piuma, S Willis, A Bhatnagar, T Smith
- 1973062** *Mitigation of Green Gentrification Through Community-led Nature-based Solutions (NbS):* **M Stone**, A H Cuevas, E White Jr
- 1892883** *Partner-driven collaboration to inform nature-based climate solutions in Indiana with the best available science:* **K A Novick**
- 1911583** *Substantial Future Urban Afforestation Potential in Peri-Urban Areas:* **H Luo**, Y Zhao, Q Zheng
- 1977155** *Supporting Planning and Implementing Nature Based Solutions with Decision Making Under Deep Uncertainty-Based Methods and Tools:* **R J Lempert**
- 1845669** *Contrasting Reactivity of Ca^{2+} and Mg^{2+} in Olivine for Carbon Dioxide Removal:* **Z Shao**, Y Liang, G Jo, K Nakamura, T Tsuji
- 1947331** *Cooling the Cloud: Integrating Data Center Waste Heat with Carbon Removal:* **H Pilorgé**, H McKey, S Patel, G Cooney, M Damhorst, J Wilcox
- 1980168** *Direct Measurement of Soil Carbon Change at Commercial Scale: Implications for Soil as a CDR Solution:* **C D Brummitt**, H Dokoochaki, C Bowers, A A Kumar
- 1854964** *Distributed Bioenergy with Carbon Capture and Storage: Harnessing Marginal Lands for Place-Based Energy and Climate Strategies:* **N Salehi**, M Shafiee-Jood
- 1966244** *Establishing Safe Thresholds for Ocean Alkalinity Enhancement to Avoid Abiotic Precipitation of Calcium Carbonate:* **A M Savoie**, N D Ward, C Tostado, J N Cross, PhD, K Hinson, C Subban, Z Yang
- 1922167** *Feedstock–production synergies enhance biochar permanency in soil:* **Y Zhang**, J Lehmann, D Woolf, Q Quan, H Xu, C Feng, L Jiang, Y Luo
- 1980459** *From the Innovators to the Facilitators: How Cross-Sectoral Collaboration Can Drive Policies That Support the Scale-Up of Carbon Dioxide Removal:* **E C Pope**, D Angiello, J Wassermann, D Vine
- 1862635** *Global Carbon Removal Policy and Markets Overview*
 1862635 This paper surveys the global carbon removal landscape and identifies the key questions that need to answer where additional scientific evidence is most valuable. It discusses carbon accounting, integration into emissions trading systems, and applied research for open systems approaches.: **N Deich**
- 1981675** *Impacts of Different Carbon Dioxide Removal Futures on Global Air Quality and Health:* **M Bindl**, M Edwards, J Fuhrman, R Chadsey, J Sampedro

- 1875337** *Integrating Phase Equilibrium, Dissolution Modeling, and Logistics Optimization for Ocean Alkalinity Enhancement Using Alkaline Waste Materials:* **S Wang**, D Sanchez, W Yang
- 1969893** *Integration of Durable Carbon Removal Solutions Into Existing Infrastructure and Implications for Accurate GHG Inventory of Removal Sinks:* **A Khan**, B Woollen, G Kitch, L Simonelli
- 1966948** *Large-Scale Carbon Dioxide Removal Will Create Public-Health, Economic, and Climate Tradeoffs:* **P Javadi**, P R O'Rourke, J Fuhrman, D H Loughlin, S Doney, W Shobe, A Clarens
- 1870616** *Mapping and monitoring second-generation bioenergy crops in the USA:* **E Y Bezuayene**, X Gao, S Skakun, L P Chini
- 1875424** *Maximizing Total Carbon Sequestration across Forest Ecosystems and Wood Products in the United States:* **X Wei**, D Hayes, A Weiskittel, J Zhao
- 1966131** *Mechanistic evaluation of ocean sediment carbon sequestration as a carbon dioxide removal (CDR) strategy:* **S Rakshit**, J Y Luo, C A Stock
- 1921786** *Microalgal CO₂ Capture with Maximal Export to Seafloor — Accelerated and Optimized Marine Processes to Add Another 37 GtCO₂/yr of Atmospheric CO₂ Removal and Immobilization Capacity:* **M Routh**, R Fry, S Hughes, B Wroobel
- 1936816** *Natural Climate Solutions are Required for Biodiversity to Benefit from Climate Mitigation:* **X Gao**, J Levine, J Smith
- 1910722** *Potential Level of Adoption and Economic Impacts of Scaling up the Carbon Dioxide Removal Industry in Canada:* **N Merchant**, T Bushman
- 1879617** *Site Selection Framework for Carbon-Neutral Alkalinity Production for Open-Ocean Carbon Dioxide Removal:* **G Kirk Drayson**, J A Franke, M Duret, D Keith
- 1908028** *Standardization of Ocean Negative Carbon Emission and Carbon Neutrality Technologies—An International Collaborative Approach Based on the ISO/TC8/WG15 Mechanism:* **Y Lei**
- 1977059** *Technical, Economic, and Governance Pathways Toward Implementing Marine Enhanced Weathering at Scale:* **S Romaniello**, D O Edwards, Z Cockrum, T Dierze, A Matlija
- 1989083** *Temporary carbon dioxide removal to offset short-lived climate forcers:* **Y He**, K Riahi, M Gidden, S Piao, T Wang, T Gasser
- 1949872** *The Impact of Regionally Differentiated MMRV Costs on Global CDR Deployment Pathways:* **S Patel**, J Fuhrman, G Iyer, J Wilcox
- 1960378** *The Role of Carbon Dioxide Removal in the Nationally Determined Contributions and Long-Term Strategies:* **R Chadsey**, J Edmonds, M Gidden, M George, H C McJeon, D van Vuuren, S Joshi, V Krey, I Schmidt-Tagomori, J Fuhrman, Y Ou, C Harris, V Diaoglou, Y Pratama, O Rhalem
- 1845758** *Title: Carbon Casting for Durable Carbon Removal: A Scalable, Low-Energy Approach Using Biomass Residues:* **R Geygan**, H Murnen, H Deckman
- 1928734** *Transportation Isoemissions Identify Where Carbon Dioxide Removal Works and Who It Benefits:* **S Whiteaker**, A T O'Geen, C Kisliuk, J Sohng, M Ben Israel, R Schmidt, I P Montanez, J Pett-Ridge
- 1864608** *Updated air-sea gas exchange parameterizations specific to ocean alkalinity enhancement based on laboratory experimentation:* **N D Ward**, K Hinson, Q Morales Lumagui, J N Cross, PhD, M A M Friedrichs, N Mugofwa, C Hauri, I Ruiz, A Savoie, A Labossiere, P MacCready, R Pagès, P St-Laurent, C Subban, J Xiong, Z Yang
- 1869144** *What to Build First and Where: Quantifying the Climate and Environmental Health Opportunity Costs of Direct Air Capture:* **Y Kashtan**, J Pendleton, B Sousa, J K Domen, D Michanowicz, S B C Shonkoff, J Buonocore
- 1956279** *Advancing Weather and Climate Science in Mesoamerica and the Caribbean through Community and Storm-Resolving Modeling:* **K Núñez Ocasio**, L Xue, J T Bacmeister, M A A Morrison, E Dougherty, C Martinez
- 1989767** *African Easterly Wave Representation in CMIP6 Models:* **R Vargas Martes**, A Adames-Corraliza, V C Mayta, QJ Lin
- 1932033** *Analyzing Hurricane Maria's Change in Track, Intensity and Duration in a Future Weather Scenario:* **A Ruiz Núñez**, K N Ocasio, E Dougherty
- 1935806** *Caribbean Risks in the 21st Century: Science, Observations, and Services for Resilience:* **R S Pulwarty**, D A Farrell, L Nurse

248510

Caribbean Climate: Current and Impending Risks in a Changing World

Conveners: **Jhordanne Jones**, University of the West Indies Mona; **Veeshan Narinesingh**, Organization Not Listed; **Gabriel Rios**, Princeton University

- 1984617** *A Statistical Evaluation of Storm Detection Methods for Atlantic Tropical Cyclones:* **M Davis**, J D Campbell, M A Taylor, T S Stephenson, L Clarke, J Jones

- 1856560** *Caribbean SST-rainfall relationships: Have we entered a new era?:* **J Jones**, L Clarke, M Williams, T Edwards, T S Stephenson, M A Taylor
- 1913997** *Florida and Caribbean Heat Index Projections Using Bias Corrected, High Resolution Large Ensemble Data:* **V T Narinesingh**, K W Dixon, L E Ortiz, L Jia, N Muse, J Jones, G Rios, L Whittaker, C Karamperidou
- 1893991** *Mapping Urban Heat Vulnerability in Ponce, Puerto Rico:* **L Cabrera**, M Heredia-Morales, D T Rueda-Roa, F E Muller-Karger, T Munoz-Erickson, P Mendez-Lazaro, H Marin

247239

Climate Attribution Science, Litigation, and Loss and Damage (joint with SY)

Conveners: Emily Williams, University of California Merced; Kristina Dahl, Climate Central; Marc Alessi, Union of Concerned Scientists

- 1974804** *Even Small Companies Can Save Lives By Cutting Emissions:* **D Baldassare**, A C Lute, C Schwalm
- 1863526** *Assessment Of Climate-Induced Loss and Damage In Hydropower: Economic Loss And Damage Analysis:* **A Shrestha**, K R Kafle, T Ale

247460

Climate change, variability and impacts in Central and South America (joint with A, B, PP)

Conveners: Laia Andreu-Hayles, Columbia University; Mathias Vuille, University at Albany State University of New York; Bronwen Konecky, Cooperative Institute for Research in Environmental Sciences; Nathan Stansell, Northern Illinois University; Zhiqiang Lyu, SUNY Albany

- 1972551** ¹⁰Be Dating of Last Glacial Maximum Moraines and Subsequent Glacial Retreat in Chirripó National Park, Costa Rica: **C Okpala**, A B Farnell, M Cunningham, M A Kelly, A Quesada-Román, L Robbins, A Doughty, M R Kaplan, V E Halvorson
- 1919011** *A 960-ky Marine-Based Reconstruction of the Patagonia Ice Sheet:* **S C Bova**, J Hagemann, H Riechelson, B Keith, V J Clementi, Y Rosenthal
- 1929983** *A multicentury tree-ring chronology from Abies guatemalensis in Central America:* **A I Gonzalez Mendez**, K J Anchukaitis, D Pons, K Morino
- 1910607** *Changing Climate and Current State of Glaciers in a Catchment of Central Chile: Insights From Reanalysis Dataset and Machine Learning Methods:* **D Sharma**, A Fernández, B G Mark, A Haberlie, W Luo, T Shutkin, N Stansell

- 1935421** *Satellite-Derived Bathymetry and Early Sargassum Detection: Building Situational Awareness in Shallow Waters in the Dominican Republic:* **S Caceres Ferreras**, V L Ferrini, P Lopez, K Goodrich, C Goodrich
- 1868766** *The role of tropical cyclones on rapid hydroclimate transition events in the Caribbean between 1985 and 2024:* **D Herrera**
- 1916145** *The Thermodynamics of Marine Heatwaves in the Gulf of Mexico:* **S Bailey**
- 1846927** *Carbon majors and the scientific case for climate liability:* **C Callahan**, J S Mankin
- 1978267** *Climate Warming is Expanding Dengue Burden in the Americas and Asia:* **M Childs**, K Lyberger, M Harris, M Burke, E Mordecai
- 1990491** *Colonial Harm and Reparations: Climate Science and the Case for Polluter Responsibility in Puerto Rico:* **I M Cintron-Rodriguez**
- 1927204** *Impacts on Western US Water Attributable to Carbon Majors Emissions:* **E L Williams**, J T Abatzoglou, C Phillips, S Khan, S Sadai, O Chegwidan, S Shukla, N D Mueller, A S Fernandez Bou, L D Merner, P Ortiz Partida, B Ekwurzel
- 1985833** *Downscaling paleoclimate GCM data for use in glacier mass-balance modeling over the Junín Plain, Peru:* **S Turner**, N Stansell, T Shutkin
- 1853594** *Drying of the Panama Canal in a warming climate:* **S E Munoz**
- 1934571** *Exploring the last two Millennia of Climate & Environmental Change in Central Chile: Insights from Lago NN Tantauco (42.8°S), Isla Grande de Chiloe:* **G Ubit**, M O'Beirne, S Contreras, A Arandeda, J P Werne
- 1973649** *Forest Dynamics in South America Under a Changing Climate: An Analysis Using ModelE-BiomeE with ERA5:* **B Lynch**, S Liu, K Florence, E Weng
- 1904362** *Glacial Landforms on Active Andean Volcanoes: Holocene glacier reconstructions from Southern Chile:* **Y Orellana-Salazar**, S A Marcott, M M Tremblay, M Romero, P Moreno-Yaeger, S Stevens, E Mixon, A G Jones, A M Barth, PhD
- 1932237** *High Andean hydroclimate variability response under different boundary conditions: a comparison between the Holocene, MIS 7 and MIS 11:* **L Lopera Congote**, M O'Beirne, D T Rodbell, M B Abbott, J P Werne
- 1996468** *Holocene Maya Lowlands Climate Fluxes and Human Interactions through the lens of wetlands:* **T Beach**, S Luzzadder-Beach

- 1920996** *Hydroclimatic Variability and ITCZ Migration Over the Last Millennium Inferred from a New Speleothem Record in Northern Colombia using paleo data assimilation:* **D Appiah Kubi**, Z Lyu, V Ramirez, F W Cruz Sr, H Zhang, H Cheng, R L Edwards, M F Vuille
- 1949529** *Hydrological changes from Lake Tota (Colombia) during the last 20,000 years and its paleoclimatic implications:* **G A Rodriguez Abaunza**, B W Bird, J Escobar, B A Steinman, B L Konecky, A Mauceri, A Gammon, H Fonseca
- 1867610** *Influence of Precipitation-Induced Vegetation Changes on Heatwave Patterns in Semi-Arid Regions of South America:* **F Z Maina**, S V Kumar
- 1979247** *Insights on hydroclimate variability in Nicaragua over the Medieval Climate Anomaly and Little Ice Age from coupled carbonate clumped ($\Delta 47$) and triple oxygen ($\Delta^{17}\text{O}$) isotopes:* **B N Price**, N E Levin, N Stansell
- 1965685** *Investigating Moisture Sources and pathways for South American Rainfall with Variable-Resolution CESM: Mid-Holocene and Historical-to-Near-Future Perspectives:* **A Badarunnisa Sainudeen**, M Lofverstrom, D Thompson
- 1865755** *Investigating Seasonal Precipitation and Its Driving Mechanisms in Tropical South America Since the Last Deglaciation:* **B Zhao**, J M Russell, X Du, A Blaus, M B Bush
- 1879644** *Is Contemporary Glacier Retreat in Patagonia Unprecedented? Evidence from Cosmogenic Nuclide Measurements:* **E A Sagredo**, R L Soteres, F Riquelme, R I Hevia, M Puentes Nazal, C Guglielmetti, R Schwartz, J M Schaefer
- 1886776** *Looking to the Past to Better Plan Our Future: ODP Site 1234 Chilean Margin:* **C Latsha**, K Williams, L H Joseph
- 1969488** *Mid-Cretaceous Paleosols From Southern Patagonia: Past Climate Gradients From Mid-To-High Paleolatitudes:* **S Lizzoli**, M S Raigemborn, A Varela
- 1963115** *Orbital-Scale Hydroclimate Dipole in Tropical South America During the Last Deglaciation: Local vs. Remote Forcing:* **X Du**, J M Russell, Z Liu, B L Otto-Bliesner, C He, Y Bao
- 1925084** *Pacific and Atlantic Teleconnections Reduce Uncertainty in Multidecadal Projections of the South American Summer Monsoon:* **Z Lyu**, F Shi, Y Yang, A Dai, K Tyle, D Christie, M Morales, E Ferrero, M F Vuille
- 1983084** *Paleoenvironmental Shifts During Mayan Cultural Transition in Northern Belize:* **S Hart**, A L Hillman, R Rosenswig, M Masson
- 1977187** *RECONSTRUCTING LATE QUATERNARY HYDROCLIMATE AND VEGETATION CHANGE IN THE SOUTH-CENTRAL ANDEAN HIGHLANDS: EVIDENCE FROM FOSSIL RODENT MIDDENS:* **A Domic**, J M Capriles, S Ivory, O Plata, K Deardorff
- 1977701** *Regional variability in moisture transport and recycling in Central America:* **T Anderson**, K A McKinnon, A I Gonzalez Mendez, D Pons, K J Anchukaitis
- 1992383** *Stratocumulus trends and dynamics in the Southeast Pacific and the South Atlantic under present climate change:* **J Vicencio Veloso**, C Böhm, F Lobos Roco, V Espinoza, U Löhnert, J Schween, M Stengel, J F Meirink, S Crewell, M Schröder
- 1926801** *The Role of Central and South American Mountains in Pervasive Global Climate Model Biases:* **J W Baldwin**, D Meegan Kumar, A R Atwood, D Battisti, C Colose, G Elsaesser, J Sexton, G A Vecchi, J Wu
- 1895022** *The Role of Saharan Dust Deposition on the Paleoenvironment of Belize in the Holocene:* **A L Hillman**, S Hart, M F Vuille, Z Lyu, R Rosenswig
- 1932806** *The South American Monsoon System and Northeast Brazil Climatological Rainfall:* **V Arraes Rocha Felix**, D Porinchu, A Grundstein, T L Mote, D R Nelson
- 2002609** *Timing of Glacial Events at Paramo del Sol, Colombia using ^{10}Be Surface Exposure Dating:* **P Galloway**, M A Kelly, S A Restrepo-Moreno, G Bromley, J Wilner, S Noriega Sr
- 1896942** *Vapor Pressure Deficit Contributions to the Delayed Wet Season Onset in the Southern Amazon:* **A Chang**, R Fu
- 1875350** *Warming, Drying, and Forest Resilience: The Amazon under Quaternary Climate Extremes:* **E M Jorgensen**, B Zhao, J M Russell, C Li, M B Bush, A Blaus

251722

Climate forcing: quantifying the roles and responses of natural and anthropogenic drivers

(cosponsored by AMS: American Meteorological Society, CGS: Chinese Geophysical Society, EGU: European Geosciences Union, WCRP: World Climate Research Programme) (joint with A, C, H, OS)

Conveners: **Paul Durack**, Lawrence Livermore National Laboratory; **Vaishali Naik**, NOAA/ Geophysical Fluid Dynamics Laboratory; **Zebedee Nicholls**, University of Melbourne; **Thomas Aubry**,

1899359 *A global anthropogenic emissions inventory of reactive gases and aerosols (1750 – 2024): a new extended SLCF forcing dataset and updates to the Community Earth atmospheric Data System (CEDS):* **S Smith**, R M Hoesly

1985018 *Assessing 4×CO₂ Radiative Forcing under Prescribed SST and Land Temperatures:* **B Zhang**, B Soden, H He, R J Kramer

1945764 *Assessing the Influence of Volcanic Activity on the Projected Uncertainty in Large-Scale Atmospheric Flow Changes:* **O Hess**, R Chemke

1941674 *Attribution of Surface Air Temperature Changes in the Arctic during the 20th Century:* **T Aizawa**, N Oshima, S Yukimoto, M Ishii, H Hasumi

1979081 *Changes in Dense Water Formation and Arctic Circulation using Surface Water Mass Transformation Analysis:* **T Avila**, J Steinberg, J P Krasting, J E Tesdal, S M Griffies

1904577 *Changes in land surface air temperature annual cycle amplitude over the last millennium:* **J Duan**, Y Wang, C Xiao, Z Hao

1868472 *Climate Implications of Hydrogen Deployment Considering Changes in Emissions from Direct and Indirect Forcers:* **P R O'Rourke**, B Mignone, M Binsted, O Clifton, B Chapman, K Dorheim, P Kyle, S Smith

1961634 *Detectable Global Temperature Responses to Wildfires and Volcanic Eruptions:* **Y Li**, S Solomon, B D Santer, D W J Thompson, Q Fu

1968329 *Drivers of Tropical Upper Tropospheric Ozone Increases in 1995-2014 and Radiative Forcing Implications:* **X Yu**, A M Fiore, J R Scott, S D Eastham, J F Lamarque, R B Skeie, S Elkins

1870476 *Harmonized Historical and Future Land-Use Forcing for Global Carbon and Climate Models:* **L P Chini**, G C Hurtt, L Ma, K Klein Goldewijk, S Sitch, T M Rosan, I B M Brasika, D M Lawrence, J Pongratz, P Friedlingstein, J Chapman

1956142 *Historical stratospheric aerosol optical properties and volcanic sulfur emissions for CMIP7:* **T J Aubry**

1850323 *Improving direct human forcing for CMIP7 earth system modelling and ISIMIP4 climate impact attribution:* **D Paprotny**, L P Hawker, I Sauer, K Frieler, A Couasnon, D Versteeg, M Bondarenko, J Hilton, N Tejedor Garavito, E Noi, A Tatem

1891957 *Internal Variability and Forced Response of Antarctic Sea Ice from Multi-Model Large Ensembles:* **L Stulic**, G Liguori, D Iovino, Y Morioka

1896997 *Lightning NO_x and Isoprene Emissions Drive Intermodel Differences in Climate Response of Hydroxyl Radical (OH):* **G Chua**, S Bauer, K Tsigaridis, L M Polvani, PhD, K Mezuman

1943687 *Measurements and Modeling of the 1960s Stratospheric Aerosol Layer:* **G W Mann**, J Xu, S Dhomse, W Feng, C Tate, A Rap, Z Li

1984413 *Quantifying Forced and Internal Components of Observed Precipitation Change Over Land:* **S Vernon**, D B Bonan, R Patel, T Schneider

1967046 *Quantifying the tropospheric ozone radiative forcing from US air pollution controls:* **S Elkins**, A M Fiore, G J P Correa, J F Lamarque, S Smith, V Naik, PhD, Y Xu, R B Skeie, X Yu

1905655 *Reevaluating SST Gradient Trends Using ARX-Derived Internal Variability:* **A Sarker**, T M DelSole

1892280 *Robust 21st century hydrological trends in the Mississippi River basin from CMIP6: west-gets-drier, east-gets-wetter:* **C Hancock**, S Dee, M R Haider, J Doss-Gollin, F Lehner, K Murphy, S E Munoz

1861628 *The 2022 Hunga Volcanic Eruption Climate Impacts:* **Y Zhu**

1933397 *The Impact of Atmospheric CO₂ on the Chemistry-Climate Effects of Tree Restoration:* **R J Allen**, T Adkins, O Clifton

1851482 *The Socio-Ecological Impacts of Sand Extraction on Artisanal Fisheries of the West African Coastal Ecosystem.:* **P Nwaogu**

251040

**Coastal Agroecosystems Under Change:
Monitoring, Modeling, and Management** (*joint
with B, OS*)

Conveners: Peng Fu, Louisiana State University; **Yaping Chen**, Sun Yat-sen University; **Anthony Campbell**, Yale University; **Pinki Mondal**, Columbia University

1942188 *A Deep Learning Framework for Dynamic Monitoring of Sea-Level-Driven Coastal Ecosystem Transformation:* **S Dai**, R Wang, Y Chen

1847981 *Assessing Multidomain Ecosystem Services of Texas Gulf Coast Seagrass Meadows:* **H Kennard**, M Webber

1873480 *Options for Adapting to Rising Seas (OARS): Improving decision-making on salt-intruded farms on the Lower Eastern Shore of Maryland:* **A Schulenburg**

246696

**Coastal Sea Level Rise and Land Subsidence:
Mitigation, Adaptation, and Risk Management
Strategies** (*joint with G, H, NH, OS*)

Conveners: Yi Liu, Morgan State University; **Denis Felikson**, NASA Goddard Space Flight Center; **Nick Fang**, Univ of TX-Arlington-Civil Eng; **Leonard Ohenhen**, University of Delaware; **Shakirat Aliyu**, Morgan State University

1935589 *Agent-Based Modeling of Community Population Dynamics under Sea Level Rise in the City of New York:* **B Dao-Bai**, H Zhang

1950208 *Community Preferences for Sea Level Rise Mitigation and Adaptation at Connecticut Beaches:* **M Speretta**, R Nazarian, J Trudeau-Tham, W Vasquez

1863697 *Extratropical cyclone clustering and extreme sea level changes along the North Sea coast during 1940–2024:* **Z Li**, C Heuzé, A D Crawford, J Song, D Chen

1989353 *High Resolution Coastal Urban Inundation Studies with Satellite-Derived Digital Surface Models:* **E R Heijkoop**, B Hamlington, R S Nerem, M Willis

1987726 *High-Resolution Assessment of Land Subsidence and Associated Hazards in Reclaimed Coastal Regions:* **O Dasho**, M Shirzaei, L Ohenhen, M Reshadati, E O Oyedele

1908209 *High-resolution data-driven estimates show that coastal populations experience 6 mm/yr sea level rise today – twice the estimates due to climate:* **J Oelsmann**, R J J Nicholls, D Lincke, M Marcos, M Shirzaei, L Sanchez, L Ohenhen, D Dettmering, J Hinkel, B P Horton, F Seitz

1953137 *Projected Sea-Level Rise threatens Global Food Security and Economic Stability:* **Z Yuanyuan**

1926364 *Sea-level Driven Land Conversion Amplified by Coastal Agriculture:* **M L Kirwan**, G D Molino, Y Chen, G Levins

1851399 *The Benin Republic Mangrove Ecosystem: Benefits and Challenges to a Climate Change-Resilient Hotspot:* **O Alamu**, A A Mustapha, P E Ndimele

1910866 *Three-Decade Hydrogeochemical Evolution in Coastal Groundwater: Shifting Controls from Land Use to Climate:* **T L L Jokam Nenkam**, J Zhang, K Horikawa, W Fantong Yetoh

1974582 *Tracing Wetland-to-Cropland Conversion Across U.S. Coastal Margins: Implications for Agroecosystem Resilience and Ecosystem Services:* **D Moanga**

1855167 *INFLUENCE OF DATA LENGTH ON EXTREME WATER LEVEL PREDICTION:* **S Aliyu**, X Zhou, S Qian, Y Liu

2001869 *Insurance, Nature-Based Solutions, and Sea Level Rise in Imperial Beach, California:* **D Pinto**, T Corringham

1891861 *Investing in Wetland Migration: Cost-Benefit Analysis of a Future-Focused Nature-Based Solution:* **D Cardona**, T Neiva, R Bendo Paulino, A Lima, P J Ruess, C Ferreira

1950214 *Preferences for Coastal Management: A Discrete Choice Experiment from Uruguay:* **R Nazarian**, J Trudeau-Tham, W Vasquez

1884360 *ReTrEAT Cities: A Novel Framework for Equitable and Sustainable Coastal Infrastructure and Community Resilience Amidst Rising Seas:* **M Pramanik**, K Z Tun, M S Ababil

1931863 *Sinking Business Places on US Coastal Cities:* **W Zhai**, L Ohenhen

1892451 *Situating Nature-based Solutions Within Risk Management Strategies For Coastal Sea Level Rise and Land Subsidence:* **S Narayan**

1852678 *State-Level Policies and Compound Risk from Sea Level Rise and Fluvial Flooding: comparing decision making tools and identifying opportunity spaces:* **S Dewey**, D Felikson

1955198 *Unveiling the hidden impact of groundwater depletion on land subsidence in Lahore, Pakistan using PSInSAR techniques:* **M Sajjad**

1893635 *Variable Vertical Land Motion Over the 20th Century Inferred at Tide Gauges:* **S Dangendorf**, J Oelsmann, J X Mitrovica, T E Tornqvist, C G Piecuch, R Creel, W Coronel, P R Thompson, C J Ebinger, T Wahl

251531

Compound Climate Extremes and Vegetation Responses Across Time: From Instrumental Records to Paleoenvironments (joint with A, NH)

Conveners: Justin Maxwell, Indiana University Bloomington; **Grant Harley**, Organization Not Listed; **Karen King**, University of Tennessee

1883282 *Assessing the Nexus Between Land Use Change and Climate Extremes in Sirajganj Municipality, Bangladesh:* **S Siza**, S B Murshed

1886658 *Compound Climate Extremes Drive Biogeochemical Hot Moments in a Semi-Arid Grassland:* **J A Siggers**, A C Roberts, A Knapp, M D Smith

1999616 *Cyclonic Disturbance and Ecosystem Response: Insights from Vegetation Dynamics in Madagascar Under a Changing Climate:* **G Zhang**, L Tanglao, H Murayama, R Young

1943702 *Global Vegetation Responses to Compound Dry and Hot Events:* **M Chen**, Z Lin, H Li, X Liu

247258

Confronting Earth System Model Trends with Observations (joint with A, C, H, OS)

Conveners: Tiffany Shaw, University of Chicago; **Isla Simpson**, National Center for Atmospheric Research; **Robert Wills**, ETH Zurich; **Stephen Po-Chedley**, Lawrence Livermore National Laboratory

1898673 *Benchmarking Thermodynamic Trends and Extremes in AI Climate Emulator 2 and NeuralGCM Hybrid AI model:* **K Rucker**, I Baxter, P Hassanzadeh, T Shaw, H Alizadeh Pahlavan

1918185 *A global poleward shift of atmospheric rivers:* **Q Ding**, Z Li

1951185 *A Land-Sea Warming Contrast Signal in Observed Surface Temperature, Atmospheric Circulation, and Precipitation Trends:* **B O Johnson**, M Rugenstein

1955537 *Aerosol Emissions Dominate Observed and Modeled Hydrological Trends in Arid and Semiarid Regions:* **Y Zhang**, B H Samset, L R Leung, L Wilcox, D Westervelt

1930502 *Assessing the Variability of Earth's Energy Imbalance in the Early 21st Century with Two High-Resolution Coupled Models:* **Y T Chen**, T Merlis, T Dinh, S Griffies, J P Krasting, R Dussin, S Fueglistaler

1868296 *Attributing Trends of Lower Tropospheric Inversion Strength:* **S Van Loon**, M Rugenstein

1981626 *Investigating the Impacts of Compounding Stress on Thinned and Unthinned Pacific Northwest Conifer Forests:* **S Li**, T W Hudiburg, D Berardi, J Mathias, W R Wieder, N Jackson, N Koenig

1906292 *Legacy Effects of Short Compound Heat-Drought Events on Annual Tree Growth:* **E Feuer**, N Peleg, Y Mau

1894603 *Saltwater Intrusion Drives Ghost Forest Formation and the Loss of Old-Growth Bald Cypress in the Northeast Cape Fear Watershed, Wilmington, North Carolina:* **M Gerdes**, M Rother, A Hawkes, P J Bresnahan Jr

1943549 *The Year 2022 Marked an Extreme Hot Drought in the Western Himalayas in Over Four Centuries: Tree-ring Insights into Compound Climate Extremes and Vegetation Responses:* **P Pandey**, MA, M Ashfaq, D Lal, M Shekhar, B Singh, P S Ranhotra, P Chand, A Bhattacharyya

1971192 *Tree-Ring Anatomy Captures Boreal Tree Responses to Summer Heat Extremes and Atmospheric Drought:* **J Edwards**, K J Anchukaitis, F Molina, K Morino, L Andreu-Hayles, R D'Arrigo, G von Arx

1884776 *Climate models exaggerate the impact of greenhouse gases on recent interhemispheric sea surface temperature contrast and tropical climate:* **C He**, A C Clement, M A Cane, A O Gonzalez, Y O Kwon, J R Shi, J M Klavans, L M Goes

1890761 *Confronting atmospheric circulation trends in AI models with physics-based models and observations:* **T Shaw**, I Baxter, K Rucker, P Hassanzadeh

1995701 *Decadal Changes in Atmospheric Circulation Detected in Cloud Motion Vectors:* **L Di Girolamo**, G Zhao, G Zhang, Z Wang, A Mitra, J Loveridge

1884238 *Detecting the Forced Recovery of Antarctic Ozone Amid Internal Variability Using Coupled Chemistry-Climate Ensembles:* **P Wang**, S Solomon, B D Santer, D E Kinnison, Q Fu, K Stone, J Zhang, G L Manney, L Millan

1920957 *Deus ex machina long-term cooling of the eastern Pacific cold tongue in ocean reanalysis data:* **F Jiang**, R Seager, M A Cane

1899131 *Discrepancies in near-term projections of climate impacts due to persistent issues in simulated SST trends in GCMs:* **K Schwarzwald**, N Siegert, N J L Lenssen, R M Horton, P M Alexander

1891601 *Distinct Internal Tropical Pacific Sea Surface Temperature Patterns Drive Similar Uncertainty in the Hadley Circulation Trend:* **M Hasan**, S Larson

1964299 *Distinct land relative humidity trends in observations, reanalyses, and models explained by a theoretical wetness index:* **W Zhou**, R Leung, B E Harrop, Z Chen, C C Chang

- 1962047** *Drivers of historical Southern Ocean sea-surface temperature trends:* **D B Bonan**, D Battisti, W Cheng, K Armour
- 1918577** *Effects of Climate Change on Warming Trends in Coastal Regions Adjacent to Western Boundary Currents:* **R Pauly**, A Karmalkar
- 1976937** *Exploring the Impact of Winds on Southern Ocean Temperature Trends in CESM2 Large Ensemble:* **N Davis**, M Luongo, E Blanchard-Wrigglesworth, Z Espinosa
- 1920905** *How do future data gap scenarios affect assessment of models' Global and Hemispheric Energy Imbalance Trends?:* **M Richardson**, M Z Hakuba
- 1961157** *Human Influence on Recent Trends in Extratropical Low-Level Wind Speed:* **H H Chou**, T Shaw, G Zhang
- 2002932** *Investigating India's Anomalous Relative Humidity Trend in Observations and Global Climate Models:* **C Larson**, L Vargas Zeppetello, W R Boos
- 1911825** *Investigating the causes of the contemporary equatorial Pacific zonal SST gradient trend switch in CMIP6 subset:* **H Byrne**, J E Smerdon, R Seager
- 1976674** *Leveraging ForceSMIP and the Observational Large Ensemble to evaluate forced and internal components of multi-decadal trends in Earth System Models:* **C Deser**, R Jnglin Wills, P DiNezio, K A McKinnon
- 1959689** *Models and observations agree on fewer and milder midlatitude cold extremes even over recent decades of rapid Arctic warming:* **R Blackport**, M Sigmond, J Screen
- 1976867** *Observed and modeled amplification of the frequency, duration, and extreme heat impacts of the Pacific trough regime:* **J S Pérez Carrasquilla**, M J Molina, K J Mayer, PhD, K Dagon, J Fasullo, I Simpson
- 1986733** *Radar-derived Trends in Extreme Tropical Precipitation:* **E Mischell**, B Soden
- 1977179** *Record Warmth and Surge of Global Mean Temperature in 2023 and 2024 - Rarely Simulated in GCMs, Yet Highly Predictable in an Initialized Model, and Caused by ENSO Transition and Northern Hemisphere Absorbed Shortwave Anomalies:* **E Blanchard-Wrigglesworth**, R Bilbao, A Donohoe, S Materia

249732

Data and Methods for Understanding Effects of Climate Change on Global Agriculture (joint with

A, B, GH, SY)

Conveners: **Michael Foley**, Harvard University; **Peter Huybers**, Harvard University; **Deepak Ray**, University of Minnesota; **Jonathan Proctor**, Harvard University

- 1945443** *Regional impacts of the tropical Pacific SST trend discrepancy through atmospheric circulation:* **J Kang**, R Thomas, T Shaw, N J Dunstone, S M Kang, I Simpson, T Woollings, Y Yu
- 1999949** *Surface Water Balance in the Colombian Orinoco Basin Based on ERA5 Reanalysis and Observations:* **A Baquero-Bernal**
- 1870819** *Testing Modern Trends Against the Paleoclimate Records: Signal and Noise in the Landfall Seasonality of East Asian Tropical Cyclones:* **G Zhang**, K H E Lin, D Fu, T R Knutson, J Franke, W L Tseng
- 1875302** *The Exceptional Rise of Global Tropospheric Temperature over 2022-2024:* **S Po-Chedley**, M Zelinka, C W Thackeray
- 1964233** *The potential for emergent constraints on hydroclimate projections over the Southwestern U.S.:* **F Lehner**, A Dixit, H Kim, Y N Kuo
- 1985036** *The Signal-to-Noise Problem in the Simulation of Decadal Climate Modes:* **J M Klavans**, A C Clement, M A Cane, C He, L M Goes, P DiNezio
- 1921189** *Trend of tropical clear-sky spectral OLR and challenges to get the tropical upper troposphere right: confronting models and reanalysis with spectral and broadband observations:* **X Huang**, X Chen, N G Loeb, S Kato, S Zhao, C Fan, D Paynter, W Lin, H Wang
- 1989411** *Tropical mean-state biases mask Southern Ocean contributions to tropical SST trends:* **Y Dong**, K Lu, Y T Hwang, L Roach
- 1886728** *Tropical Pacific Trends: Model Biases, Mechanisms, and Impacts on Tropical Cyclones:* **A H Sobel**, S Camargo, M A Cane, A C Clement, B Fosu, M Hart, P Kelly, C Y Lee, R Lele, J Lin, K Reed, R Seager, G A Vecchi, Y Xia, J Zhuo
- 1995058** *Using wind nudging simulations to quantify the circulation contribution to observed regional humidity and temperature trends:* **I Baxter**, T Shaw, I Simpson, A M Varuolo-Clarke
- 1881919** *Amplified agricultural impacts from increasingly sequential heat events:* **C S Lesk**, C B Steinmann, R Hamed, Q Ma, E Broadman, D Balanzategui, K Kornhuber
- 1978482** *Analyzing rice-wheat cropping systems in Eastern India using remote sensing dataset and deep learning methods:* **D Rangarajan**, A J McDonald, H S Nayak, K Keranen, Y Sun

- 1986005** *Assessing the Adaptive Capacity of Aging and Small-Scale Farmers to Heat Stress in Japan:* **K Noguchi**, D Koji
- 1945982** *Climate Change and Sorghum Yield-WUE Dynamics in Maharashtra: Unveiling the Impacts of Temperature and Rainfall Variability on Crop Performance:* **M Srivastava**
- 1988182** *Climate Change Impacts on Crop Pattern: A Case Study of Pakistan:* **A Nazir**, A Ahmad, S Nazir, S Tarar, H Gilani, N P Hanan
- 1979785** *Climate Change Increases the Reliance of U.S. Corn on Irrigation:* **C Wang**, J Winter, A D Kendall, S Smidt
- 1987167** *Custom Waterproof Sensor Enclosures for Outdoor Applications with 3D Printing Techniques:* **M Bove**, A Vlahogiannis, S Cowan, E Morse
- 1944599** *Downscaling Agricultural Vulnerability: A Gridded Approach to Linking Climate Drivers with Crop Insurance Loss Ratios:* **E Senkardesler**, N Martin, E Ersoz
- 1945129** *Drought Monitoring through Composite Drought Index over the Bundelkhand Region:* **P Pandey**, H R Ahirwar, M K Nema
- 1914219** *Enhancing crop yield prediction through sub-grid mapping of C3/C4 solar-induced chlorophyll fluorescence (SIF) with deep learning:* **Z Luo**, O Kira, Y Sun
- 1989179** *Evaluating Climate Change Impacts on African Opportunity Crops Using Regional Simulation Data:* **J Jägermeyr**, J Guarin, M Yang, D MacCarthy, K Karl, A C Ruane, A Castellano, B Freduah, G Wesley, S Narh, E Mendez Leal, C Rosenzweig
- 1991113** *Evidence gaps and misestimations of cover crop in producer-managed croplands:* **Y Peng**, L Wang, PhD, P A Jacinthe
- 19874249** *Global Cropland is Now Shifting Towards Arid and Tropical Climates:* **L Gao**, X Lu, W B Anderson, C S Lesk, E Mazur, F Stolle, J Mao, L You, D K Ray
- 1988407** *Growing Resilient Agroecosystems: Diversified Crop Rotations as a Climate Change Adaptation Strategy:* **S Kennedy**, G Johnson, S Wells, R F Denison, J Strock, A Garcia y Garcia
- 1942684** *Harnessing Process-Based Modeling and AI for Climate-Smart Tomato Yield Management in Central India:* **P N Singh**, P K Srivastava, R Mall
- 1951947** *How Is Sub-Saharan Africa Experiencing Climate Change? Beyond Narratives and Fragmented Evidence:* **D G J M Hougni**, D Nyamayevu, J V Silva
- 1952953** *Improving the Quantification of Nitrogen Use Across Spatial and System Scales:* **X Zhang**, D Liang, A Elmore, A Collins, G MacDonald, T Zou, Y Wang, C Dai, J S Byun, S M Garvey, PhD, M Houser, E A Davidson, C Wagner-Riddle
- 1996378** *Intensification of Fertilizer Use Drives a Four-Fold Rise in India's Agricultural N₂O Emissions over the Past Five Decades:* **M Narayanan**, I Ilampooranan, F M Sahil
- 1915335** *Modeling Future Extreme Weather Impacts on U.S. Maize and Soybean Yields Using Machine Learning:* **D Chen**, M L Humber, K Mobley, T V Loboda
- 1896853** *Modeling Subnational Crop Yields in Data-Sparse Contexts: A Case Study from Zambia:* **C Henegan**, B G Peter, L Myzece, C J Kucharik
- 1921766** *Observational estimates of increasing maize yield variance due to climate change:* **W B Anderson**, I Becker-Reshef, K F Davis, S Ehrmann, R Flach, D Lee, C Meyer, J Proctor, D K Ray, L You
- 1896673** *Quantifying Weather, Policy, and Technological Impacts on U.S. Crop Productivity: A Spatiotemporal Framework Using Machine Learning and Multiscale Datasets:* **Y Wu**, Z Sun, C Liu, Y Wang, X Z Liang, W Gao
- 1966227** *Revealing Regional Variation in Climate-Crop Interactions Through Novel Subnational Data in Vietnam:* **S Gandhi**, M Foley, P J Huybers
- 1910339** *Socio-environmental Drivers of Small-Scale Farmers' Planting Date Decisions in sub-Saharan Africa:* **S Millay**, N Krell, J Marter-Kenyon, L Harrison, B Das
- 1944061** *Soil Moisture Downscaling and Agricultural Drought Assessment in a Vulnerable Indian Region:* **H R Ahirwar**, M K Nema, A K Nema
- 2002233** *Soil temperature dataset for Brazil under historical and future pathways:* **J Souza Sone**, B Aguiar, D Schwambach, A R D A Brandão, A Ballarin, E Wendland
- 1992265** *Spatially Explicit Quantification and Mitigation Modeling of Methane Emissions from Indian Rice Systems:* **I Ilampooranan**, M Narayanan, F M Sahil
- 1954932** *Subnational Agricultural Data Integration and Yield Response Analysis in Thailand (1980–2024): A Framework for Climate Impact Assessment and Policy Planning:* **G Zhao**, J Proctor, M Foley, T Elashuk, C Park, P J Huybers
- 1951126** *The Lasting Impacts of Typhoons on Provincial Agriculture Industries in the Philippines:* **L Tan**, M Foley, P J Huybers
- 1903401** *Understanding ENSO's Influence on Co-occurring Heat Events across Global Croplands:* **M Gurazada**, J T Abatzoglou, D Singh

251058

Data-driven approaches to improve climate impact accounting for nature-based carbon removal (joint with B)

Conveners: Connor Nolan, University of Arizona; Kimberly Novick, Indiana University Bloomington; Kyle Hemes, Stanford University; Trevor Keenan, Climate and Ecosystem Sciences Division, Lawrence Berkeley National Laboratory

1858363 *A data-driven framework to quantify nature -based carbon removal from historic silvoarable landscapes:* **F Brandolini**

1846736 *Accounting for Carbon in Forests Where Disturbance Is the Rule, Not the Exception:* **K A Duffy**, J Shannon, E Yackulic, D Diaz, S Gilbert, M Koontz

1923761 *Advancing Forest-Based Climate Solutions through Data-Driven Carbon Flux Estimation:* **M Barnes**, X Wang, S Hegde, K A Novick

1861132 *Beyond Models: A Strategic Framework for a Data-Driven Forest Carbon Decision-Making Ecosystem:* **C Woodall**, H Munro, J Atkins, B P Bullock, C Hoover, A Weiskittel, W Anderegg, K A Novick, B Poulter

1993927 *Data-Driven Modeling of Soil CO₂ Efflux in Urban Green Roofs Using Field-Based Monitoring Data:* **J Cho**, H Kim

1968368 *Ecosystem Carbon Balance and Economic Trade-offs of Extended Harvest Cycles in Temperate Forests:* **Z Qin**, C B Field, R Grant, B Cabiyo, C Nolan, M Liang

1994154 *From Embodied Emissions to Carbon Payback: Evaluating Rooftop Greening Systems in Cities:* **H Kim**, J Cho

1916453 *Global Estimates of Nature-Based Carbon Removal through Restoration of Riparian and Floodplain Ecosystems:* **J D Bolten**, M Hashemi, K Shaad, V Griffey, I N Mohammed, M Bezerra, S Sprenkle-Hyppolite

251092

Detection and Attribution of Anthropogenic Climate Change and Extreme Weather and Climate Events (joint with A, NH)

Conveners: Huanping Huang, Dartmouth College; Samuel Baugh, Penn State University; Davide Faranda, French National Center for Scientific Research; Daniel Gilford, Climate Central

1974195 *Attributing increases in the rate of emergency room visits for heat-related illness in the United States to climate change:* **K Dahl**, M Young

1939947 *Improving Forest Carbon Uptake Estimates by Integrating the Direct Effects of CO₂ Fertilization into MODIS Vegetation Productivity datasets over India:* **R Das**, S Karmakar, S Ghosh

1956014 *Low-Cost, High Carbon Reforestation of Low Yield Tropical Grazing Lands:* **V Griffey**, S Sprenkle-Hyppolite, B Griscom, I Hillman

1936855 *Recovering young forests dominate the current and future land carbon sink:* **Z Liu**, S Saatchi, S Cook-Patton, A Ballantyne, P Ciais, J T Randerson, N Robinson, Y Yang, F Wagner, L B Sagang Takougoum, R Dalagnol, C Creze, A Mullissa

1899423 *Scaling microbiome restoration for climate impact: Linking soil fungal diversity to tree growth and carbon accumulation in managed forests:* **D Fairbanks**, A Raiho, A Ketz, Z Werbin, D Willet, I Ware, C Yates, T Claxton, C Averill

1974216 *Testing the Carbon Storage Capacity, Community Resistance, and Community Resilience of a Nascent Ecosystem on Reclaimed Ultramafic Mine Tailings Under Extreme Climate Events.:* **K Kennedy**, A Asmaninejad, M Preston

1963076 *The Impact of Atmospheric CO₂ on the Biogeophysical Effects of Tree Re/afforestation:* **T Adkins**, R J Allen

1964284 *Towards High-integrity Carbon Crediting for Tropical Afforestation, Reforestation, and Revegetation (ARR):* **X Gao**

1858978 *Translating Science To Next-Generation Reforestation Standards: Lessons And Next Steps From The ABACUS Label:* **C Nolan**, K Hemes, C B Field

1927459 *Valuing Reversible Carbon Storage in a Zero-Emissions World:* **A Mayer**, J Dumortier, Z Hausfather, J Pett-Ridge, E Slessarev

1939868 *What spatial and temporal variation should exist in a useful and effective satellite-based aboveground biomass data product? A practical guide:* **J A Wang**, D J Moore, W Liang, J Lu, E Bullock, L Yang, W Anderegg

1941421 *Attribution of Thermodynamic and Dynamic Responses to Historical Extreme Precipitation Changes Over India:* **C S T**, K M Achutarao

1971767 *Changes in Extreme and Annual Precipitation under Global Warming:* **S Gaur**, L Nguyen, A Gronewold, P Reich, M Ombadi

1995115 *Disentangling Regional Climate Change: Assessing the contribution of global- and regional-scale anthropogenic factors to observed regional warming.:* **A Barkhordarian**

1887268 *Documenting and attributing flood damages:* **J S Mankin**, A Gottlieb

1880267 *Intercomparing Attribution Methods for Hurricane Milton's Intensity*: **D M Gilford**, R Toumi, N Sparks, S Bourdin, H Huang, M Ginesta, D Faranda, H Uppu, E Bercos-Hickey

1901001 *Large-Scale Circulation Patterns Regulate the Response of Extreme Atmospheric River Events to Global Warming*: **J Trok**, E Barnes, E M Gordon, F V Davenport, D L Swain, N S Diffenbaugh

1991877 *Multidisciplinary Insights from the Ennore Oil Spill in the Wake of Cyclone Michaung: Uncovering Ecological Risks and Community Vulnerabilities*: **I Nambi**, G Murugavel, R Sadhasivam, S Maheshwari, T Srinivas, B Patel, G Girish, P Roy

1844998 *On the Development of a Rapid Event Attribution System for Extreme Precipitation over Canada*: **M Surcel**, M Kirchmeier-Young

251737

Downscaling and Postprocessing at Weather and Climate Scales: Development and Evaluation of Methods, Products, and Applications (joint with A, H)

Conveners: **Samantha Hartke**, U.S. Army Corps of Engineers; **Daniel Feldman**, Lawrence Berkeley National Laboratory; **Jeffrey Arnold**, ERT Corp; **Ethan Gutmann**, NSF National Center for Atmospheric Research

1979335 *An AI/ML regional downscaling model based on CONUS404 dataset*: **L Xue**, Y Liu, H Chen, Z LI, S Yao, E D Gutmann

1978875 *Application of Downscaled Products for Water Resource Evaluations and Decision Making and How They Can be More Useful*: **A Schwarz**

1869314 *Assessment of changes in Mid-Century Near-Surface Wind Speed for the Northeast U.S.*: **T Zaman**, M Astitha, E D Gutmann, G Wang

1880140 *Can Machine Learning Produce Climate Invariant Downscaling?*: **X Yan**, A Saha, E Dougherty, S Ravela

1950606 *Comparative Assessment of LOCA2 and STAR-ESDM Downscaled Surface Temperature Over the Contiguous United States*: **L Sun**, K W Dixon, K Kunkel, X Sun, D Easterling

1986367 *Differentiable Bias Adjustment Model for GCMs Precipitation*: **K Sawadekar**, P Li, S A McGinnis, C Shen

1994868 *Downscaling Weather at Arbitrary Locations with Earth Observation Data*: **Q Yang**, J Giezendanner, D Salles Civitarese, J Jakubik, E Schmitt, A Chandra, J Vila, D Hohl, C N Hill, C Watson, S Wang

1992879 *Rapid attribution of heavy rainfall events in Japan*: **C Takahashi**, Y Imada

1957283 *Recent Advances in Rapid Attribution of Extreme Events*: **C Barnes**

1946656 *Regional Variations in Drivers of Extreme Reference Evapotranspiration across the Contiguous United States*: **B Zhao**, C Horvat, C Pearson, D Shah, H Gao

1905482 *Spatiotemporal patterns of precipitation variability in MENA Region at +2°C and +4°C Climate Scenarios*: **H Abdelmoneim**, S Kantosh, M Saber, V Nourani, A Tabataba Vakili

2003535 *Urban Waste and Collapsing Fisheries: Attributing Socio-Ecological Impacts of Climate and Sanitation Stressors in Makoko, Lagos Lagoon, Lagos, Nigeria*: **A Lawal**

1962981 *EMPIRIC-DS: Towards Fast and Transferable Climate Downscaling for Health Resilience in Pacific Island Countries*: **H Fagan**, C Horvat, B Zhao, E Winkelman, A Mannino

1855707 *GAN-Powered Downscaling: Capturing Regional-Scale Hourly Precipitation Patterns in the Canadian Prairies*: **H M Abdelmoaty**, S M Papalexiou, A Mamalakis, S Singh, V Coia, M Hairabedian, P Szeftel, P Grover

1865991 *Generative AI for Precipitation Downscaling: Enhancing Spatial Resolution and Physical Consistency*: **S Singh**, A Mamalakis, S M Papalexiou, H M Abdelmoaty, T Hartvigsen

1978825 *HiRO: A Diffusion-Based Downscaling Tool for the Ai2 Climate Emulator (ACE)*: **O Watt-Meyer**, W A Perkins, A Kwa, S Clark, G Dresdner, J McGibbon, B Henn, E Wu, J Duncan, T Arcomano, C S Bretherton

1976089 *Hybrid Dynamical-Statistical Downscaling of Wind and SST Using CNNs for Future Projections of Marine Heatwaves in the Peruvian Upwelling System*: **A Chamorro**, J Tam, R Mogollon Aburto, F Colas, V Echevin, S Giffard-Roisin, H Villavicencio, N Jorge, V Ccori

1964058 *Object-oriented evaluation of downscaled precipitation and temperature datasets: How well do they capture spatial features?*: **A J Newman**, N Lybarger, E D Gutmann, R R McCrary, A Wood, S Hartke, F Lehner

1907352 *Production of 1 km Resolution Climate Projection Data Based on IPCC AR6 GCMs Using the G-PRIDE Model*: **Y J An**, M K Kim, J Sang

1943587 *Statistical Downscaling of Daily Precipitation over South Korea Using the MS-PRISM Method: Influence Radius Sensitivity Analysis*: **Y Lee**, J Sang, M K Kim

- 1955617** *Statistically Downscaled CMIP6 Multi-Model Ensemble for the Great Salt Lake Basin:* **S Wolvin**, C Strong, M Kniffin, M Holland, S Smith, H Bai
- 1928334** *The Impact of Bias Correction Workflows on Multivariate Climate Indices: A Case Study of the Heat Index:* **K W Dixon**, W Xu, N Zenes, J R Lanzante

248674

Dynamics and Impacts of Hydrologic Intensification (joint with A, H)

Conveners: **Zhiying Li**, Dartmouth College; **Corey S. Lesk**, Dartmouth College; **Frances Davenport**, Stanford University; **Andrew Feldman**, NASA Goddard Space Flight Center

- 1853630** *Abrupt Transitions Between Dry and Wet Extremes in the Contiguous United States: Linkages with Corn Yield:* **T Yang**, Z Li
- 1928201** *Changes of Precipitation Intensity with Global Warming:* **A G Pendergrass**, J Han, H Kim
- 1945432** *Global-scale CO₂ Effects on Floods are the Strongest in Arid Regions:* **S Maebius**, H Kim, G Villarini, W Yang, I Mitevski, G A Vecchi
- 1957371** *Hydrologic intensification may render common drought indices inadequate in a warming world:* **D L Ficklin**, Z Li, J T Maxwell
- 1901438** *Investigating the Relationship between Hydroclimate Whiplash and Anomalous Atmospheric Moisture Pathways in the Mississippi River Basin:* **K Murphy**, S Dee, E Gebhart, C Hancock, M O'Donnell, J Doss-Gollin, N Vergopalan, S E Munoz

249498

Earth System Predictability Across Timescales for Societal Resilience: Grand challenges and recent advancements (joint with A, SY)

Conveners: **Jadwiga Richter**, National Center for Atmospheric Research; **Kate Brauman**, University of Alabama; **Annarita Mariotti**, NOAA; **Zhaoxia Pu**, University of Utah; **Gabrielle Brown**, University of Oklahoma

- 1987851** *Advancing Societal Resilience Across Scales: Lessons Learned and Opportunities Ahead:* **L Dilling**
- 1867249** *China's Largest Freshwater Lake Dynamics Since the Little Ice Age: Nature and Human Impacts:* **Y Hu**, Z An
- 1995874** *Delivering improved capabilities in global modeling to advance our understanding of Earth System Predictability:* **J Petch**, M D Fowler, J Richter, T Hauser, A R Herrington, B Medeiros, D Colegrove

- 1929132** *Translating Forecasts: Using Historical Observations to Contextualize Seasonal Forecasts:* **S L Blakeley**

- 1879066** *Uncertainty Propagation from Observation-Based Data to Statistically Downscaled Climate Projections:* **G Taylor**, K W Dixon, N Zenes, L Sun, S Hartke, A J Newman, F Lehner, E D Gutmann, R R McCrary

- 1866863** *Recent Changes in the Variability of Tropical Cyclone Precipitation Over the Contiguous United States:* **H Huang**

- 1859772** *Recent Increases in Missouri River Streamflow Driven by Combined Effects of Climate Variability, Land-Use Change, and Elevated CO₂:* **M P Dannenberg**, G J McCabe Jr, E Wise, M Johnston, D N Huntzinger, P Williams

- 1863291** *The Shifting of the Arid-Humid Divide in the South Central United States:* **Z Whitton**, H Huang

- 1899559** *Tides of Intrusion: Assessing the Impact of Climate-Induced Saltwater Intrusion (SWI) on Coastal Aquaculture in Indonesia – A Comparative Insight from Australia:* **N U Ain**, Z Batool

- 1850107** *Understanding Changes in Soil Moisture with Warming:* **K A McColl**, T Gallagher

- 1954196** *Understanding the influence of hydrologic intensification on meteorological drought using a new index:* **K Peter**, D L Ficklin, Z Li, J T Maxwell

- 1972331** *Why Penman-based approaches overestimate potential evaporation during water-limited conditions:* **T Chauhan**, S A Ghausi, A Hildebrandt, A Kleidon

- 1899228** *Developing an Open Source Meteorological Evaluation Toolkit within MELODIES-MONET:* **L Thompson**, R Schwantes, M Bruckner, P Lichtig, C H Hsu, J He, C Lyu, B C McDonald

- 1962306** *Diagnosing Sources of Seasonal Precipitation Skill derived from Cyclostationary Linear Inverse Model SST Forecasts:* **M Breeden**, A Hoell, W B Anderson, J Verdin, D Vimont

- 1932637** *Does dynamical downscaling improve multiyear prediction skill on the U.S. northeast continental shelf?:* **Y Guo**, A C Castillo-Trujillo, K Chen, Y O Kwon

- 1849230** *Evaluating Sources of Predictability on Subseasonal Timescales for Extreme Coastal El Niño Precipitation Events in Peru:* **G Brown**, K Pegion

- 1884949** *Evaluating the Role of Decadal Earth System Variability Modes in Modulating Drought, Heatwave, and Wildfire Risk:* **S Minallah**, S G Yeager, G Meehl, J Richter, M R Tye

- 1976897** *Exploring linear and non-linear relationships between wintertime tropical sea surface temperatures and U.S. Precipitation in S2S Predictions:* **M L L'Heureux**
- 1885772** *Extending MPAS-NoahMP Model Capability beyond Weather Timescale - Assessing Land-Atmosphere Interactions for Subseasonal-to-Seasonal Applications:* **Z Zhang**, C He, J Berner, A Jaye, C Liu, J Dudhia, K Huang, T S Lin, R Abolafia-Rosenzweig, J Kukulies, M D Fowler, J Richter
- 1996295** *Feasibility Assessment of Decadal Forecasts for Anticipating Disaster Impacts in the Sabel Region:* **N Omani**, S G Yeager, T M Hopson, E E Riddle, C A Shields, Z Zommers, G Puley, J Richter
- 1995254** *Forecasting effort based on a multi-scale approach for the Peruvian Andes climate regime:* **C M Carrillo**, A Ramos

251571

Fire-Ecosystem Interactions under Global Environmental Changes (joint with A, B, NH)

Conveners: **Huilin Huang**, University of California Los Angeles; **Nathan G McDowell**, Los Alamos National Laboratory; **Mingjie Shi**, University of California at Los Angeles; **Adrian Das**, U.S. Geological Survey, Western Ecological Research Center, Three Rivers CA; **Ye Liu**, Pacific Northwest National Laboratory

- 1978741** *3-dimensional forest structure, plant function, and live fuel moisture:* **C E Adams**, A M Matheny, A L Atchley, R Linn, S Sevanto
- 1979715** *A Look At Fire-Vegetation Models Across Scales Applied to Boreal Alaska: A Comparative Synthesis:* **S Vieira**, J S Littell
- 1987622** *Affected Populations from Spread of Ground Lead from TRI Facilities due to Wildfires in California:* **A Inmon**, A Hoffman-Hall
- 1902443** *Analyzing the Decline in Short-Term Post-Fire Vegetation Recovery in California's Sierra Nevada (2001–2021) Using Landsat:* **A Deshpande**
- 1929293** *Assessing the Influence of Disturbance History and Aboveground Community Structure on Microbial Community Metrics and Ecosystem Processes:* **P Goebel**, T Stephenson, D Berardi, K Bartowitz, J Mathias, T W Hudiburg, L Lynch
- 1893641** *Attributing rapid increases in western US forest-fire activity and above-ground carbon losses to climate change and natural variability:* **P Williams**, W Hansen
- 1973389** *Beyond Fire Severity: A Three-Dimensional Physics-Based Model for Predicting Fire-Soil-Ecosystem Interactions:* **T A Ghezzehei**, D Or

- 1880511** *Improving Simulation of Earth System Variability through Weakly Coupled Ocean Data Assimilation in E3SM:* **P Shi**, L R Leung
- 1976006** *Mother's Day Solar Superstorms: Estimating Predictability Weeks-to-months Ahead:* **M Dikpati**, A A Norton, K Jain, M Korsos, P Gilman, B Raphaldini, N E Raouafi, S W McIntosh, A S Teruya
- 1957606** *Validating Interannual to Decadal Weather Hazard Forecasting Across a Hierarchy of Methods:* **D B Kirk-Davidoff**, A J Newman, S E Haupt, J Lala, K Sha
- 1913431** *What does a relative ENSO index mean for projections?:* **E J Becker**, M L L'Heureux, M Tippett, I Gifford
- 1964735** *Xanthos-URSSIE: A unified runoff generation scheme for saturation- and infiltration-excess processes in global hydrological models:* **G W W Abeshu**, Y Hong, H Y Li, T B Wild, M Zhao, L R Leung
- 1978667** *Burned Area Projections for Boreal North America with Fire-Fuel Feedbacks: Ecoregional Variation in Climate-Fire Futures and Implications for Adaptation:* **A Spiers**, A Young, A Maguire, K Kurth, S Whipple, S Vieira, S T Rupp, J S Littell
- 1997227** *Climate on the Brink: How Droughts and Wildfires Threaten the Durability of Nature-Based Solutions:* **S S Saatchi**, M Hari, Y Yang, L Aragao, C Silva Junior, A Alencar, C A Nobre
- 1925558** *Divergent vegetation recovery responses to fire occurrence timings:* **Y Shen**, T Qiu, X Gao, H Chen
- 1867027** *Does Fire Increase Soil Selenium Mobility? Evidence from Thermal Alterations of Seleniferous Soils:* **A Roshan**, A Kumar, P Joshi, O Proux, H Neidhardt, A Biswas
- 1977134** *Downstream Effects of Post-Fire Debris Flows on Water Quality:* **D P Huber**, A Bergstrom, J L Pierce, J Enterkine, K Formigli, B Chaffee, G Killingstad
- 1971887** *Elevated forest canopy loss after wildfires in moist and cool forests in the U.S. forest:* **H Huang**, Y Liu, N G G McDowell, Y Chen
- 1882374** *Environmental drivers of forest resilience after Sierra Nevada wildfires:* **C L Kibler**, W Hansen, A T Trugman
- 1954111** *Evaluating Fire Impacts on Water Harvesting Earthworks (WHE) in Izta-Popo National Park:* **I Olajide**, M C LaFavor, C E Ramos-Scharron, T Oyesode, N Herrington
- 1968068** *Evaluating the Role of Water Harvesting Earthworks on Post-Fire Vegetation Recovery:* **T Oyesode**, M C LaFavor, C E Ramos-Scharron, I Olajide, N Herrington
- 1882379** *Fire-Induced Changes in Biomass and Pyrogenic Carbon Stocks in Western Cascade Forests:* **H Peter-Contesse**, Y Wang, C Winters Borcich, S Hjelstrom, M Dickinson, J Miesel, S Perakis, G Seyfried, J Bukoski

- 1918811** *Heating Soil Increases Metabolite Abundances: Implications for Post-Fire Biogeochemical Processes:* **J VanderRoest**, C Broeckling, A M McKenna, L Babcock-Adams, T Fegel, T Borch
- 1942287** *High-Resolution Global Ecosystem Mapping of Plant Water Content and Carbon Flammability Risk via Sentinel, ECOSTRESS, and ERA5:* **S Chatterjee**
- 1926336** *Impacts of Pinyon-Juniper Fuels Reduction Treatments on Wildfire Recovery in Southeastern Utah:* **R A Finger Higgins**, A Knight, B Osborne, T B B Bishop, K Young, M Duniway
- 1921377** *Interannual Variability of Aboveground Live Forest Biomass in Response to Fire Disturbances in the Western United States:* **Q He**, P Williams, C Hakkenberg, Y Li, J Hall
- 1889000** *Legacy effects of beneficial fire in drought-prone landscape: Using a memory-based framework to quantify tree growth in California mixed-conifer forest:* **Y Zhu**, J Sanders, Y Jiang, J Battles
- 1887673** *Low-Severity Prior Burns Reduce the Risk of Irreversible Forest Loss Following Crucial Wildfires:* **S Gui**, K Liang, B P Goldstein, K Zhu
- 1990999** *Monitoring Postfire Eco-Hydrological Recovery Using Remote Sensing and Ecological Modeling in the Appalachian Mountains:* **Y Zhang**, G Sun, W Li, P V Caldwell, C Tang, S P Norman
- 1893276** *Plant Physiology as the Bridge Between Fire Behavior and Ecosystem Effects:* **L T Dickman**
- 1926159** *Predicting Post-Fire Soil Burn Severity from Pre-Fire Conditions Using Machine Learning in the Northwestern United States:* **S Das**, M Dobre, R Lew, S Lewis, E S Brooks, P Robichaud, A Srivastava, M E Miller, A Watanabe, M Basso
- 1947264** *Predictive Indicators for Wildfire Suppression Difficulty using AHP:* **S Lee**, Y Kim, K Suh
- 1926881** *Previous prescribed burns saved thousands of ancient sequoias during historically unprecedented wildfires:* **D Dixon**, A Das, X Dong, A Latimer, D Soderberg, N Stephenson, Y Jin
- 1929313** *Projected fire danger rating system metrics for boreal Alaska in support of land management planning:* **A Maguire**, K Kurth, S Whipple, J S Littell, S Vieira, J Barnes
- 1957447** *Quantifying the impacts of megafire on aboveground biomass using high-resolution satellite imagery in temperate forests of South Korea:* **J Kim**, M Moon, H Lee, S Kim
- 1982626** *Satellite-Based Monitoring of Forest Recovery After Wildfires in California:* **A Torres**, X Lui, S McClelland, Y Yin
- 1997674** *Spatial and temporal variation in Fire Radiative Power (FRP) across the Western United States:* **N Hofford**, M Cook, J Balch
- 1902055** *Step change in boreal fire emissions? A Canadian case study:* **H M Worden**, J R Worden
- 1960262** *Temporal dynamics of post-fire crown scorch across three fire return intervals in a frequently burned pine savanna:* **J McDaniel**, R C Lowe, J O'Brien, D P Aubrey
- 1969875** *The Air Pollution Benefits of Low Severity Fire:* **I Higuera-Mendieta**, M Burke
- 1891406** *The Cascading Effects of Precipitation Fluctuations on Fire in a Grazing Ecosystem:* **M Donaldson**, M Anderson, J Donaldson
- 1921609** *The Effects of Fire and Ozone on Ecosystem Productivity (The FOE):* **J Drew**, S Kannenberg, J Mathias
- 1923801** *The Global Impacts of CO₂ Plant-Physiological Feedbacks on Wildland Fire Risk:* **A Cornish**, G J Kooperman, J Mao
- 1974812** *The opportunity cost of 2023 Canadian wildfires:* **S Liu**, B Lynch, K Florence, E Weng
- 1974234** *Understanding vegetation properties controlling pre-fire scenario and post-fire ecosystem recovery using vegetation demographic model ELM-FATES:* **F T Zahura**, X Chen
- 1965231** *Wildfire in the Southeastern U.S. – Drivers and Impacts on Forest Ecosystems:* **Z Wang**, X Yang
- 1918946** *Wildland Fire Spread Under +3°C and +6°C Warming: A Yellowstone National Park Case Study:* **W LIU**, S Rahimi, T W Juliano, B Wang

251439

eMRV- The Importance of Environmental and Ecological Monitoring, Reporting, and Verification to Build Trust and Confidence in Marine Carbon Dioxide Removal (*joint with B, OS, SY*)

Conveners: **Ken Buesseler**, Woods Hole Oceanographic Institution; **Karen Stamieszkin**, Bigelow Lab for Ocean Sciences; **Mattias Cape**, Woods Hole Oceanographic Institution; **Amanda Vieillard**, Carbon180; **Wokil Bam**, University of Southern Mississippi

252660

Environmental Changes and Human Migration: Advances in Modeling and Analysis (*joint with B, GH, NH, SY*)

Conveners: **Michael Puma**, Columbia University in the City of New York; **Rachata Muneeppeerakul**, Arizona State University; **David Griffith**, East Carolina University

1923642 *Adaptive human migration and rural land system dynamics:* **A E Gaughan**, R Warriar, J Salerno, F R Stevens, R B Boone

1933447 *Climate-smart Urbanization could Reduce Carbon and Nitrogen Emission in China:* **O Deng**, B Gu

1939393 *Cyclone-driven Physical-changes and Migration in the coastal corridor of the Bay of Bengal: A critical analysis using Geo-spatial techniques:* **M Das**

1909448 *Deforestation And Displacement: Assessing The Ecological Toll of Rohingya Refugee Camps in Bangladesh with the help of Geospatial Techniques:* **K M Ibtehal**, H J Kanica, M A Islam, M M Hoque

1904761 *Future Displacement Risk in Southeast Asia due to Coastal Flooding:* **S Manimaran**, D Wagenaar, I Kasmalkar, D Lallemand

1971169 *Income strongly mediates climate-driven migration:* **K Rieke**, P Polonik, J Wan, J Lunghi, I Grigoryeva, G Khanna

1987099 *Incorporating triadic network structures improves displacement model performance:* **W S Oh**

247247

Environmental, Socio-Economic, and Climatic Changes in Northern Eurasia (cosponsored by JpGU: Japan Geoscience Union) (*joint with A, B, C, H*)

Conveners: **Pavel Groisman**, Organization Not Listed; **Jiquan Chen**, Michigan State University; **Evgeny Gordov**, SCERT; **Shamil Maksyutov**, National Institute for Environmental Studies; **Alexander Olchev**, Institute of Geography, Russian Academy of Sciences

1930685 *Assessing the ecological impacts of direct ocean capture technology for marine carbon dioxide removal:* **Z Qi**, S N Chu, D Y Kim, N D Churches, I Jacobson

1956793 *Governance and permitting of mCDR field research: The next generation of ocean iron fertilization studies:* **K Buesseler**, P J Morris, F Chai, J Drysdale, K Ramakrishna, K Roche, PhD, S Smith, M L Wells, J E Yoon

1964042 *Land Cover Change and Environmental Impacts of Oil and Gas Development: A Longitudinal Study of the Permian Basin:* **N Abdoli**, N Bhattarai, Y Xie, T M Neeson, J Paudel, H Bedle

1997037 *Land Use Change and Migration in Coastal Bangladesh: A Community-Level Analysis:* **A Paul**, E Burchfield, H W Burns, K Donato, C Small, A Carrico

1956066 *Limited Migration from Tropical Cyclones in the United States:* **R Young**, M Oppenheimer

1964218 *Long-Term Projections of Climate-Constrained Migration to 2100: A High-Resolution RCP-SSP Scenario-Based Modeling Framework:* **T Sano**, D Murakami, H Seya, T Oki

1982379 *Reconstructing Climate-Driven Migration Cascades Across the Last Millennium:* **N Gauthier**, D Bird

1898161 *Rural labor out-migration's impact on agriculture and the environment in the Global South:* **A Arora**, P Mondal, R S DeFries, S S McDermid, K F Davis

1954757 *The Effects of Natural Disasters on Human Migration utilizing Network Metrics: Case Studies of Flood Exposure in Hurricanes Katrina-Rita, the 2016 Louisiana Floods, and Hurricane Harvey:* **J Rhodes**, M Valladares Castellanos, T Douthat, R Habans

1954551 *The Impact of Climate Change on Global Migration:* **S R Nair**, N Depsky, J Blumenstock, S M Hsiang

1990224 *Understanding Climate-Driven Internal Displacement Across the Globe using Geospatial Machine Learning:* **V Kurli**, A Carrico, Z Mehrabi

1907606 *A hybrid Remote sensing framework integrating Machine Learning and Decision models for sediment sampling suitability in support of OSL-based Geochronology in Karakum and Kyzylkum Sandy Deserts, Central Asia:* **S W Busho**, L Orlovsky, S Maman, D Blumberg

1941988 *Between common good and common hazard: Learning about the balance of frozen commons from dzud events in Northern Mongolia:* **M Kuklina**, A N Petrov, E A Sandag, N I Shiklomanov

- 1986805** *Climate Change and Human Impact on the Aeolian Desertification and Dust storm in Mongolia*: **T Wang**, J Liao, X Xue SR
- 1852760** *Emerging priorities in terrestrial herbivory research in the Arctic*: **B C Forbes**, I C Barrio, S Kamenova, H Network
- 1908256** *High-resolution land CO₂ Flux Estimates with a Global Inverse Model Based on Surface and Satellite Observations*: **S S Maksyutov**, L Raja Nayagam, R Janardanan Achari, T Oda, J Zeng, X Lan, M Sasakawa, Y Yoshida, T Matsunaga
- 1857082** *Present Status of Scientific Program "North Eurasian Future Initiative"::* **P Groisman**

251843

Exploring Synergies and Tradeoffs in Energetic Landscapes: Agrivoltaics, Ecovoltaics, and Other Multi-Use PV Solar Energy (joint with B, SY)

Conveners: Nesrine Rouini, University of Arizona; **Kai Lepley**, National Renewable Energy Laboratory Golden; **Holly Andrews**, University of Arizona; **Caroline Merheb**, Temple University; **Noah Krasner**, University of California Davis

- 1965837** *Advancing Agrivoltaic Modeling with ADAM*: **B Mirletz**, H Fields, T Hickey, K Lepley, J McCall, J Macknick
- 1970264** *Agrivoltaic Hot Spots and Hot Moments: Redistribution of Soil Moisture and Carbon within a Fixed-Tilt Agrivoltaic System*: **H Andrews**, I Holstrom, A Salazar, T H Neesham-McTiernan, D J Moore, G D Jenerette, G Barron-Gafford
- 1980684** *Agrivoltaic Tools and Resources for Colorado's Agricultural Landowners*: **T Hickey**
- 1974914** *Agrivoltaics in Maryland: Public and Farmer Perspectives*: **J Morash**, M Pavao-Zuckerman
- 1950674** *Assessing the Potential of Shape-Enhanced Aerodynamic Dust Removal (SEADR) Solar Panels*: **S Isaacs**, C Onyeador, D Wood, W Harris
- 1909623** *Bees, and Birds, and Bats – Oh My! Biodiversity Responses to Ecovoltaic Solar Energy Development in the Midwestern United States*: **L J Walston**, K Szoldatits, H M Hartmann, L Fox
- 1901542** *Can Agrivoltaics Work for California Farmers? A Modeling and Valuation Study*: **D Condon**, B Narwold, R R Hernandez

- 1894918** *Quality of drinking water in rural landscapes of the Northern Kazakhstan under climate change conditions*: **R Beisenova**, K Tussupova, E Alkhanova, A Orkeeva, A Zhupysheva
- 1892960** *Silk Road Cities and the Formation of the Urban-Rural Continuums (URC)*: **J Chen**, Z Liu, R John, N Mujahid, V Kolluru, P Fan, L Tian, L Zhao, Z Yang, S Saraf, W Fang, B Sat
- 1897449** *Study of Impacts of Climate Change on Riverine Communities in Northern Mongolia*: **A I Shiklomanov**, V A Alexeev, A A Proussevitch, R B Lammers, A L Kholodov, N I Shiklomanov, A N Petrov, M Rozanova-Smith, V Kuklina, M Kuklina
- 1931791** *Climate Shapes Asymmetric Biophysical and Economic Outcomes of Large-Scale Agrivoltaics*: **M Jia**, B Peng, K Guan, D M Lawrence, E H DeLucia, A Knapp, G Barron-Gafford, M Khanna, D Lombardozzi, M Sturchio, PhD, S Kannenberg, L Zhao, J McCall, J Tang, C Bernacchi, P Mwebaze, F Majeed, D Lee, A Time
- 1993868** *Ecological Perspectives on Solar Energy Land Use: Key Questions and Needs for Semi-Arid Regions*: **A Knapp**, M Sturchio, PhD, A Jacobi, M D Smith
- 1885301** *Effects of Photovoltaic Solar Farm on the Plant Diversity, Aboveground Biomass, Soil Water Content, and Carbon Flux in Representative Arid and Semi-arid Regions*: **J Zheng**, Y Luo, W Li, P Li, Z Liao, Z Li, R Chang, L Yu, R Gou, X Xia, X Gao, X Wang, Z Xu
- 2004842** *Electricity Farming in California's Central Valley? Comparing Central Planner and Land Manager Perspectives*: **J Baker**, E Yoder, C Wade, M A Jeuland
- 1899488** *Farmworker experiences reveal heat mitigation advantages of agrivoltaics::* **T H Neesham-McTiernan**, G Barron-Gafford
- 1924512** *Floating solar expansion and wildlife: Developing a machine-learning platform to monitor waterbird community dynamics*: **E Steele**, O Kursun, T E Katzner, T Conkling, E Kalies, R R Hernandez
- 1966309** *Initial Feasibility Analysis of Low GCR Agrivoltaic Designs to Integrate Large-Scale Agricultural Operations*: **B Mirletz**, J McCall, S Bryan, D Al Mukhaini, C Nguyen, S Anderson, S Weiler, J Macknick
- 1974225** *International Coordination to Support Agrivoltaics Research Prioritization and Researcher Collaboration*: **J Macknick**, J McCall, K Lepley, A Pascaris, H Fields, D M Thomas, T Hickey, B Staie
- 1935306** *Investigating plant-soil nitrogen dynamics in an energy-focused agrivoltaic cropping system*: **M Sturchio**, PhD, D Russell, A DiTommaso, S Grodsky
- 1983935** *Is California Unique for Agrivoltaics?:* **H Ashrafpour**, A Silverstein, S Kurtz

- 1903307** *Mitigating Dust Accumulation in Arid Photovoltaic Systems With Crops:* **O Lasley**, H Andrews, I Holstrom, G Barron-Gafford
- 1865281** *Moderation of Microclimate, Temperature, and Soil Moisture Within an Ecovoltaic Solar Facility in the Warm Mojave Desert, USA:* **J Pinos**, S M Munson, M Petrie
- 1875021** *Optimizing Hybrid Floating Solar and Hydropower Operations for Economic Performance: A Case Study of Lake Powell:* **Y Zhang**, U Lall
- 1978624** *Phenological Differences of Tomatoes and Watermelon under Different Shading Regimes:* **S Kurtz**, A Silverstein, J Salazar, H Ashrafpour, B Gonzalez, P Rajarathinam
- 1992742** *Photovoltaic Waste in India: Characterization and Reuse-Recycle Opportunities:* **A A Nabi**, A K Nema
- 1884693** *Property Value Impacts of Utility-Scale Solar and Agrivoltaics Across the Urban–Rural Gradient:* **P Akbari**, R Hall, Z Chen
- 1950379** *Small-scale Off-grid Agrivoltaics Enhance Seasonal Productivity Windows, Water-use Efficiency, and Crop Resilience.:* **C Merheb**, J Caplan, A Xu, J Macknick, S Ravi
- 1915376** *Soil Carbon Patterning Within Solar PV Systems: Comparison of a Three-Year-Old and Fourteen-Year-Old Site in the Southeastern U.S.:* **T Bacon**, A C Monlezun, N de Vries, K Paustian
- 1966222** *Soil Health and Ecosystem Services in Utility-Scale Solar Landscapes: Toward Standardized Assessment and Scalable Co-Benefits:* **M P Ricketts**, K Chaudoir, L Fox, A Hunt, L J Walston, H M Hartmann

247433

Exploring the role of methane in the Earth system using climate model simulations (joint with A)

Conveners: **Mark England**, Columbia University of New York; **Drew Shindell**, Duke University; **Yangyang Xu**, University of California San Diego; **Vaishali Naik**, NOAA/Geophysical Fluid Dynamics Laboratory

- 1964866** *An introduction to MethaneMIP: investigating the climate and health benefits of methane mitigation using Earth System Models:* **M England**, D T Shindell, F M O'Connor, C J Smith, Y Xu, C Feng, B Gaubert, T Ziehn, R Law, T Kleinen, V Naik, PhD, L Seland Graff, D Olivié, M Cussac, M Sigmond, G Faluvegi, A Herron, J J West
- 1970428** *Soil Sensors: A convenient Way to Measure Radiation in Agrivoltaics?:* **A Silverstein**, H Ashrafpour, S Kurtz
- 1947307** *Spatial Planning Strategies for Climate-Resilient Solar Energy under Forest Disaster Risk:* **M Cho**, C Park, Y Choi, J Choi
- 1999457** *Standing Root Biomass and Root Distribution within a Photovoltaic Array:* **J Gardner**, A Knapp
- 1900568** *Sunflowers Exhibit Morphological and Physiological Signs of Shade Acclimatization in Dryland Agrivoltaic Conditions:* **D Bute**, N Rouini, G Barron-Gafford
- 1974557** *Technical Potential and Suitability for Floating Photovoltaic Deployment on Reservoirs in the Water-Stressed Rio Grande Valley of Texas:* **S Bhattarai**, A Del Claro, S M F Abdullah, C L Cheng, J Benavides, R Almeida
- 1847590** *The NASA POWER Solar Data Based on CERES SYN1deg Hourly Data as well as Value -Added Products:* **T Zhang**, P W Stackhouse Jr, F P, B Macpherson, N Aluru, J C Mikovitz
- 1876204** *The potential for agrivoltaics and climate-smart crops within a megawatt scale photovoltaic facility: opportunities for continued food production and irrigation savings.:* **G Barron-Gafford**, H Andrews, N Rouini, A Salazar, P Murphy, I Holstrom, T H Neesham-McTiernan, D Bute, O Lasley, R Brogniart, J Macknick, C Lamanna
- 1961136** *The U.S. Agrivoltaic Shading Tool: A National-Scale Interface for Modeling Light and Shade Patterns in Ten Common Agrivoltaic Configurations:* **K Lepley**, S Ovaite, T Ford, K Doubleday, H Fields, B Mirlatz, J Macknick
- 1891055** *Chemistry-climate feedback of atmospheric methane in a methane-emission-flux-driven chemistry-climate model:* **L Stecher**, F Winterstein, P Joeckel, M Ponater, M Mertens, M Dameris
- 1876933** *Distinct Efficacy of Regional Emissions in Affecting Global Concentrations: A Modeling Study with Interactive Methane Chemistry and Emission Tags:* **C Feng**, Y Xu, M A Mirrezaei, B Gaubert, R Buechler
- 1911334** *Key Questions for Methane Modeling:* **G B Dreyfus**, J Miller, P Duffy, I Ocko
- 1979016** *Methane emissions data and insights from MethaneSAT mission 2024-2025:* **R Gautam**
- 1929549** *Modeling the Life–Cycle Impacts of Air Pollution on Global Methane and Ozone:* **C Wilson**, M J Prather
- 1912197** *Quantifying atmospheric methane emissions with satellite observations:* **D J Varon**, T L He, Y S Cho, S Kondragunta, L Estrada, D Zhang, M Payer Sulprizio, D J Jacob

252136

Eye Candy or Eye Sore? The Technical and Philosophical Challenges of High-Resolution Climate Data Product Development

Conveners: Stefan Rahimi, University of Wyoming; Alan Rhoades, University of California Davis; Melissa Bukovsky, University of Wyoming; Manuela Giroto, Universities Space Research Association; David Lafferty, University of Illinois Urbana-Champaign

1904378 *Advancing Downscaling with Artificial Intelligence for Next-Generation Earth System Projections:* **D Rastogi**, H Niu, S C Kao, L Passarella, S Mahajan, M Ashfaq, P Vahmani, A D Jones

1975115 *Aligning Projections with Reality: A Framework for Adjusting GCM Projections to Historical Climate Data:* **J H Thorne**, R Boynton, M A Stern

1956669 *Assessing the Impact of Emphasizing Rare Event Reproducibility in Bias Adjustment of Climate Datasets:* **S Watanabe**

251712

From Data to Decisions: Governing Water and Land Under Intensifying Aridification (joint with NH, SY)

Conveners: Narcisa Pricope, Mississippi State University; Roger Pulwarty, NOAA; Nichole Barger, University of Colorado; Sara Alibakhshi, University of Helsinki

1875608 *Assessing Drought Impact and Systematic Resilience in the Texas Colorado River Basin: A Geospatial Framework for Adaptive Water Governance:* **P Bose**

251208

From Pixels to Planetary Reasoning: Geospatial Foundation Models and Localized Distillation for Earth Science Applications

Conveners: Manikandan Padmanaban, IBM Research India; Jagabondhu Hazra, IBM Research India; Kamal Das, IBM Research; Campbell Watson, Organization Not Listed; Devyani Lambhate, IBM Research

2003202 *Assessing the Reliability of High-Resolution Climate Model Data in Southern Florida:* **R Gaal**, B P Kirtman, A C Clement, B Soden

1931093 *Deep Learning-Driven Downscaling of High-Resolution Precipitation and Temperature Projections for the Conterminous United States:* **H Niu**, D Rastogi, S C Kao, M Ashfaq

1980661 *Evaluating Vulnerabilities and Uncertainties of Hydroclimate Projections for the Great Salt Lake Basin Study:* **M Kniffin**, S Wolvin, H Bai, M Holland, C Strong, T Vasan, J Serago, L Vernon

1997505 *How Ready is AI Downscaled Meteorological Data for Hydrologic Applications?:* **X Chen**, S Yan, W Cui

1932366 *Integrating FourCastNet with RegCM for Extreme Weather Prediction: A Case Study of a Kona Low's impact on Hawaiian Communities:* **R Porter**, M Leung, M Moulton, T A O'Brien

1959879 *Observed Dependence of Rainfall Intensity on Spatial Resolution:* **A Rajeev**, A G Pendergrass

1953912 *Phase three of the North American Land Data Assimilation System – Advances, Limitations, and Future Needs.:* **S V Kumar**

1921929 *From Global Evidence to Local Action: Enabling Governance Pathways for Aridification Adaptation:* **N G Pricope**, S M Vicente-Serrano, A Toreti, A Ocampo, S Alibakhshi

1855187 *From theory to operational water forecasts in drylands:* **K Michaelides**, A E Quichimbo, D Asfaw, G Blake, M B Singer

1970135 *Rain Prayers Function as State-Level Indicators of Drought and Governance Stress:* **W Ouaret**, M E Brown, A Endsley, M Enenkel, T V Loboda

1847301 *The dilemma of global dryland management:* **L Wang, PhD**

1961365 *A Recipe for Improving Remote Sensing VLM Zero Shot Generalization:* **V Silverman**, Y Gigi, G Beryozkin, G Leifman, T Shekel, A Helmy, Y Refael, B Jaber, A Barzilai

1877352 *Enhancing Geospatial Chain-of-Thought Reasoning in Visual Question Answering Models for Multispectral Remote Sensing Data:* **S Shanker**, M Padmanaban, J Hazra, K Narayanam, K Das

1882978 *State-Based Multi-Agent LLM Frameworks for Earth Observation: Scalable Tools for Geospatial Understanding:* **A Saxena**, S Shanker, M Padmanaban, J Hazra, K Narayanam

251734

From Protocols to Practice: Lessons and Learnings from Implementing Methane Emissions Estimation Frameworks

Conveners: Srijana Rai, Organization Not Listed; **Nadia Tarakki**, St Francis Xavier University; **Nadia Tarakki**, St Francis Xavier University

1984054 *Applying Veritas and OGMP 2.0 to Gas Distribution Networks - Building Methane Emissions Inventories from Direct Measurements:* **S MacMullin**, F X Rongere

1899816 *Bayesian Reconciliation of OGMP 2.0 Level-4 and Level-5 Methane Emission Estimates at Midstream Natural Gas Facilities:* **A Raji**, A P Ravikumar, B Halchak, S Peters

251945

GeoAI for Ecosystem Services and Biodiversity: Innovations in Monitoring, Modeling, and Integration (joint with B, GH, IN, SY)

Conveners: Chang Zhao, University of Florida; **Nikolaos Tziolas**, University of Florida; **Jiangxiao Qiu**, University of Florida; **Corey Callaghan**, University of Florida; **Hao-Yu Liao**, University of Florida

1880076 *Advancing Scalable Biodiversity Monitoring with Partnerships and Edge Computing: NASA and California's 30x30 Mission:* **K Nomura**, I G Brosnan, G Bucciarelli, C A Bode, Z Miao

1957845 *Calibrated Multi-Model Ensemble with Dynamic Thresholding and Weighted Box Fusion for Robust Object Detection in Noisy Remote Sensing Datasets:* **M Diab**, C Zhao

1868495 *Do forest management strategies in the U.S. optimize ecosystem service supply?:* **H Karimi**, C L Staudhammer, M D Therrell, W Kleindl, L Mungai, A Amanambu, C N Jones

2000715 *EO4Biodiversity: Applying GeoAI to Improve Habitat Mapping for Biodiversity Net Gain:* **B Hofmann**, J Noble, S Abbott, Q K Harpham, M Roca Collell

2001919 *Filling the Gaps: Expert-Informed Multimodal Species Distribution Modeling for Data-Sparse Regions:* **L Klein**, E Sierra, T Haucke, S M Beery, C Watson

1961451 *Creating a measurement-informed inventory for the state of Colorado:* **J Brown**, M Moy, A L Hodshire, A Santos, D Zimmerle, E Rimelman, O Khaliukova, C Okenberg, W Daniels, D Hammerling

1917266 *Establishing Temporal Emission Profiles for Snap-shot Measurements in Oil and Gas Surveys:* **T Rufael**, M Harrison

1855172 *MEASUREMENT BASED INVENTORIES: PROTOCOLS COMPARED:* **M Harrison**, T Rufael

1899707 *Practical and intuitive uncertainty reporting for OGMP 2.0:* **I Yankovyi**, N Tajziyehchi, J Rutherford, T Fox

1979338 *Reconciling Reality: Implementing a Statistical Methane Emissions Inventory Framework for OGMP 2.0 Level 5 Methane Emissions Reporting:* **D Steeves**, N S Tarakki, M Lavoie

1870928 *Towards Reconciliation of Methane Emissions from China's Primary Oil and Gas Basins under the OGMP 2.0 Framework:* **M Gao**, Z Xing Dr

1873151 *Fire and Recreation in the U.S. West: Modeling Impacts of Wildfire and Prescribed Fire on Non-Material Contributions of Nature:* **K Manley**, S Wood, J Balch, C Evers, A Cale, H Nowell, A LoPresti, T McIntosh, L E Dee, K Siegel

1978815 *FoundationSoil: A GeoAI Framework for Mapping Soil Organic Carbon Stocks Using Foundation Models and Explainable Machine Learning:* **J Song**, C Zhao, W Shao

1946942 *GeoAI-Enhanced Decision Support System For Sustainable Natural-Resource Management.:* **C Masemola**

1896442 *Machine Learning Estimation of Soil Microbial Diversity Using Remote Sensing Data:* **S Aregbesola**, N Tziolas

1981246 *Mapping Cultural Ecosystem Service Flows from Crowdsourced Imagery: A Zero-Shot Learning Approach with the Vision-Language Model CLIP:* **H Y Liao**, C Zhao, C Koylu, H Cao, J Qiu, C Callaghan, J Song, W Shao

1938482 *MODELING FUTURE PLANT SPECIES OCCURRENCE USING MACHINE LEARNING TRAINED ON PALEO-CLIMATE TRENDS, eDNA, AND POLLEN DATA:* **D Lee**, H J Song, J Y Park, C E Lim

1976328 *Monitoring Forest Loss and Biodiversity in the Context of Large-Scale Land Acquisitions in Ethiopia: Integrating Remote Sensing, Ecological Field Data, and Household Perspectives:* **A Smith**, J Southworth, M Rahaman, C Muir

1962887 *SAV Detection Across Diverse Aquatic Systems Using Low-Cost Sonar and AI Image Segmentation:* **L Soong**, C Bodine, K Clauson, C DuVal, S Dohner, A C Trembanis

1999817 *Toward 30x30: How Effective Is Egypt's Protected Area Coverage from a GeoAI Perspective?:* **H Bedair**, V Radeloff

250083

**Geoengineering and Weather Modification:
Bridging Scientific Uncertainties for Climate
Resilience (joint with A, C, EP, NH)**

Conveners: **Chuanfeng Zhao**, Beijing Normal University; **Lili Xia**, Rutgers University; **Long Cao**, Zhejiang University; **Chao Liu**, Nanjing University of Information Science and Technology

1938756 *Could aggregation and sulfate coating alter the scattering and absorption efficiencies of SAI aerosol?:* **P Upadhyay**, T S Kapoor, R Chakrabarty

1986308 *Marine Low Clouds Detection Under Complex Cloud Vertical Structures Using Satellite Observations:* **C Liu**, S Teng

1871692 *Numerical Experiments of Atmospheric Temperature Changes due to Specific Land Surface Conditions:* **K Fukazawa**, S Suzuki, S Sakoda, Y Miyoshi, R Osugi, M Suemitsu

250065

**Geological, industrial and economic dynamics
of the cycles of natural resources (joint with NG,
SY)**

Conveners: **Nicola Gambaro**, Imperial College London; **Yves Plancherel**, Organization Not Listed; **Pablo Brito-Parada**, Imperial College London; **Rupert Myers**, Imperial College London; **Nicola Gambaro**, Imperial College London

1878149 *A physically grounded model for estimating energy consumption and cost of commodities production:* **O Vidal**, F Verzier, B Andrieu, H Le Boulzec, L Delannoy

1868413 *Assessing the potential effects of mineral commodity trade restrictions on the U.S. economy:* **N T Nassar**, D Pineault, S Allen, D McCaffrey, A J Padilla, J Brainard, M Bayani, E Shojaeddini, J Ryter, S Lincoln, E Alonso

1984103 *Bayesian Material Flow Analysis: A General Methodology with Application on Wood Life Cycles and Timber City Transitions.:* **J Wang**, A Yayla, K Ray, P Brito-Parada, Y Plancherel, A Mason, T Bide, J Mankelow, J Morley, S Van Ewijk, J Stegemann, R Myers

1920262 *Developing Geoscience-based targets for Critical Minerals Policies:* **S Ali**, T Hale

1909208 *Stratospheric Aerosol Injection: Managing Uncertainty through Learning Across Scales:* **D MacMartin**, D Visioni

1917315 *Sulfur, soot, and salt tracks: How good are ship tracks as analogues for marine cloud brightening?:* **M S Diamond**

1924235 *The Role of Water Vapor in Stratospheric Aerosol Injection: Uncertainty and Implications for Geoengineering Effectiveness:* **Y Wang**, Y Wang

1852237 *Using empirical data to assess terrestrial carbon storage impacts under SRM:* **B Clark**, D Visioni, M T Lerdau, S Kothari

1931056 *Weather Jiu-Jitsu: Climate Adaptation for the 21st Century:* **Q Huang**, M Liu, U Lall

1949593 *Weather Jiu-Jitsu: Toward Controlling Atmospheric Rivers with Deep Learning Foundation Models and Adaptive Perturbation:* **M Liu**, Q Huang, U Lall, Y Kwon, H H Kwon

1856738 *Development of a Novel, Continuous-Time Dynamical Modelling Paradigm That Integrates the Cycles of Natural Resources with Economics:* **N Gambaro**, P Brito-Parada, R Myers, Y Plancherel

1945855 *From Debris to Resource: Characterizing the Material Composition of Orbital Objects for a Circular Space Economy:* **B Jones**, W Mo

1953698 *Modeling byproduct and coproduct mine production with multidimensional supply curves: application to the Cu-Co-Ni system and beyond:* **J Ryter**

1962636 *Multi-sector demand for critical minerals and materials in energy system development:* **Y Qiu**, B Yarlagadda, G Iyer, N T Graham, M Binsted, M A Wise, P L Patel, A Fawcett

1935484 *Peak Oil vs. the IPCC: What 40 Years of Geological Data, Modeling Assumptions And Sociology Reveal About Climate Economics Today:* **F Catu**, C Tan, PhD, D Guan

1964971 *Scenario Analysis of Key Determinants Influencing US Iron and Steel Industry Competitiveness:* **S Durga**, B Yarlagadda, G Iyer, A Fawcett, J Edmonds

1959485 *The RING Model for Integrated, Cross-sectoral Analysis of Critical Mineral Supply Chains:* **S Inskeep**, D Sigler, V Putsche, J Bracci, K Aydogdu, N Guba, M Mann

252612

Geospatial Intelligence for Global Sustainability: Navigating Climate, Environmental, and Socioeconomic Transitions

Conveners: **Tong Qiu**, Duke University; **Siqin Wan**, University of Southern California; **Zhimeng Jiang**, The University of Hong Kong; **Nan Jia**, Michigan State University; **Xin Lan**, Michigan State University

1886275 *A Mask-Guided Dual-Encoder with Decoupled Attention for Mapping Spectrally Similar Crop Species from Satellite Image Time Series:* **Q Duan**, J Zhou

249682

Global Assessment of Distributed Energy Resources Using Community Mapping, Image Analysis, and Remote Sensing Techniques (joint with EP, IN, SY)

Conveners: **Edith Wilson**, Thriving Earth Exchange; **Ryan Kmetz**, IQSpatial; **Jose Pillich**, IQSpatial

252702

Global Change Impacts and Adaptation for Urban Resiliency (joint with IN, NH)

Conveners: **Nagendra Singh**, Oak Ridge National Laboratory; **Olufemi Omitaomu**, Oak Ridge National Laboratory; **Guanyu Huang**, Stony Brook University; **Fatemeh Shafiei**, Spelman College

2000523 *A practical approach to urban heat mapping for communities around the world.:* **R Waterman**, J Sill, D Pisut, S Breyer

1939593 *AN INVENTORY-BASED PLANNING FRAMEWORK TO MAINSTREAM URBAN CLIMATE RESILIENCE INTO KOREAN MUNICIPAL PLANS:* **C S Park**, H Jung, C Son

2000128 *Assessing the Cooling Potential of Los Angeles Using High-Resolution Urban Remote Sensing:* **Q Dehaene**, A Shreevastava, G C Hulley, H Druckenmiller

1885853 *Comparative Cooling Effects of High-Reflectivity Surfaces and Vegetation in Arid Urban Areas:* **J Parajuli**, L Hu

1989897 *Cooling the Suburbs: How Vegetation and Built Form Influence Urban Temperatures:* **S Sheikhfarshi**, H Razavi

1947337 *Developing Risk Maps for Compound Climate Hazards in Korea: A Sectoral Approach to National Adaptation Planning:* **J PARK**, H Jung, Y KIM, H Kim, K Sung

2004205 *Assessing Ecosystem Resilience in the Era of Global Sustainability Crisis Using Interpretable Machine Learning and Spatially Explicit Modeling:* **J Huang**

1995018 *Beyond Distance: Using GeoAI and GVI-Weighted 2SFCA for the Assessment of Multimodal Park Accessibility Inequities:* **W Luo**, R Tenzer

1849927 *Coordination and Conflict Between Three-Dimensional Urbanization and Ecological Environment in China's Urban Agglomerations from a Meta-coupling Perspective:* **Y Li**, N Jia, R Chen

2003618 *Impacts of losses in Ukraine's grain production on global trade due to the Russia-Ukraine war:* **X Yu**

1994597 *Modeling Unequal Outcomes of Conservation Programs in Nepal: A GeoAI Approach to Energy, Migration, and Education Decisions:* **R Cao**, X Wei

1975551 *Evaluating and Comparing Multimodal Large Language Models for Rooftop Solar Panel Detection:* **Y Wang**, L Zhu, L Zhang, K Sanders

1880524 *High-resolution Mapping of Technical and Deployable Rooftop Solar Potential across Chinese Cities:* **M Shi**, X Lu, M Craig

1907997 *Identifying Key Drivers of Community Resilience to Hurricanes: An Attention-based Bayesian Network Approach in the Guangdong-Hong Kong-Macao Greater Bay Area, China:* **X Zhang**, N Lam

1962415 *Made in the shade? Assessing bus stop shelter design during a heat wave.:* **S A Spera**, T R Lookingbill, C Gorby, L Khatcheressian

1965304 *Mapping Compounding Urban Climate Vulnerabilities and Risks Globally: Introducing the Global Urban EnvClim 500m Grid Dataset:* **X Xing**, D Thomson, L Barbieri, J F F Martinez, A Wannebo, L Hammett, S B Adamo, A Brown, M Bansal, K Reeve, K Alden, E J Liu, A Blei, C Tuholske, M Heaton, K MacManus, S Trazaska, C Hultquist, A M de Sherbinin

1980528 *Mapping Opportunity: A Global Framework for Estimating Heat-Resilient Infrastructure Potential in Cities:* **E Wesley**, E Mackres

1998428 *Measuring Cool Pavement Impact: S.C.O.T.T. a Device For Urban Climate Research:* **D Rubio**, E Figueroa, T Piechota

1961506 *Potential of green roof retention capacity under current and future climate conditions in Italy:* **E Cristiano**, R Deidda, M Grosse-Heilmann, D Pumo, F Boano, M Ippolito, F Viola

1915618 *Quantifying the Co-benefits of Urban Greening: Carbon Sequestration and Adaptation to Extreme Events:* **Q Li**, Q Wu, Y Zhong, T Gao, R Wang, A Raudzens Bailey, M Ombadi

- 1900733** *Shifting realities and expectations for urban water supply systems: Lessons from the 2025 Los Angeles fires:* **E B de Guzman**, G Pierce, M Mullin
- 1946654** *Spatiotemporal Analysis of Urban Green Space Dynamics Using Random Forest and Spectral Indices in Lubbock, Texas:* **S Azizkhani Shadish**, C Portillo-Quintero, G Perry
- 1950459** *Toward heat-resilient cities: Identifying global urban heat futures shaped by characteristics of extreme heat and urban form:* **J Yang**, L Zhao, N Nazarian, K C Seto
- 1911319** *Unequal Benefits of Urban Tree Diversity: Understanding Species Composition and Cooling Efficiency Across U.S. Neighborhoods:* **R Su**, Z Li, H Chen, Y Zhang, T Qiu

258582

Global Environmental Change: General Contributions

Conveners: **Ben Kravitz**, Indiana University Bloomington; **David Cairns**, Texas A & M University; **Erwan Monier**, University of California Davis

- 1894770** *Assessing environmental impacts through remote sensing using Landsat optical bands: case study of DRC Copper-Cobalt belt mines:* **D Otarod**, J Maurer, A O Kwame
- 1849616** *Climate Variability and Projected Changes in Walpole-Nornalup National Park:* **B Goodsell**

247443

Global Surface Warming Patterns: Mechanisms, Impacts and Projections (joint with A, OS)

Conveners: **Yue Dong**, University of Colorado; **Malte Stuecker**, University of Hawai'i at Mānoa; **Shineng Hu**, Duke University; **Sarah Kang**, Ulsan National Institute of Science and Technology

- 1891227** *A Gap-Filled Global MODIS Daytime and Nighttime Sea Surface Temperature Dataset:* **X Jiang**, M Zhao, B Huang
- 2002664** *Assessing the relationship between transient tropical Pacific warming patterns, the pattern effect, and equilibrium climate sensitivity in CMIP6 abrupt 4xCO2 simulations:* **N Burls**, S Knapp
- 1855226** *ColdBlobMIP: A Multi-Model Assessment of the Atmospheric Response to the North Atlantic Warming Hole:* **K B Karneuskas**, S Kramer, M Elling, L Zhang, D J Amaya, H Liu, Y Chen, L Nazarenko, W Yang, G A Vecchi, D Meegan Kumar, J W Baldwin

- 2000135** *Urban Green Infrastructure for Climate Change Adaptation and Mitigation: Roles, Innovations, and Challenges in Sustainable Cities:* **S Tateh**, S Khose, MTech, S Kumar, K Mondal, S Rawat
- 1977806** *Urban Soil Carbon and Nitrogen Sensitivity Under Microclimate Stressors in Tennessee:* **C Apraku**, R Archer, J Li, M Manu, L Gamage
- 1876531** *Urban Tree Canopy Dynamics: Resilience, Heat Mitigation and Equitable Benefits in the Orlando Metropolitan Area:* **D Cai**, L Hu, C K Uejio
- 1919825** *Evaluating the temperature dependence of the leaching characteristics of harmful heavy metals from soils and sediments:* **T Saito**, C T Oguchi, T Fujino, J A Vrugt, P Moldrup, T Komatsu
- 1856243** *Seasonal Performance Shifts in Himalayan Hydropower Under Future Climate and Land Use Scenarios:* **N Devkota**, PhD scholar, P K Bhattarai, S Lamichhane
- 1883730** *Spatial coupling and decoupling dynamics between butterflies and their host plants under climate change in tropical Asia:* **J Chen**
- 1903873** *Spatiotemporal Dynamics and Convergence Clubs of Greenhouse Gas (GHG) Emissions:* **J A Niangue**
- 1982948** *Temporal patterns of forest conservation in Colombia: the impact of collective lands:* **A Mejia**, V H Gutierrez-Velez
- 1992914** *Constraining the efficiency of the South-East Pacific teleconnection with cloud feedbacks and ocean heat uptake efficiency:* **M Rugenstein**, Y Zheng
- 1939374** *Continued increase in atmospheric carbon dioxide exacerbated the 2022-2024 global temperature spike:* **X Su**, H Shioyama, K Tachiiri, K Tanaka, PhD, A Ito, T Hajima, R Séférian, M Kawamiya, M Abe
- 1976603** *Contrasting Local and Deep Convective Control of Free Tropospheric Temperature in Reanalysis and Models:* **C McLeod**, J Bloch-Johnson
- 1943646** *Contrasting Tropical SST Warming in Two Climate Models: The Roles of Winds, Clouds, Evaporative Cooling, and Ocean Dynamics:* **M J Fu**, A V Fedorov
- 1963895** *Contribution of Individual Surface Forcings to Observed Southern Ocean Temperature and Salinity Trends:* **M Luongo**, K Armour, G C Johnson
- 1891656** *Delayed Emergence of El Niño-like Warming Under Improved Tropical Mean State:* **A Stoppelli**, C Éthé, J Mignot, J Vialard

- 1955477** *High-Resolution Modeling Confirms a La Niña-like Forced Sea Level Response in CESM:* **J Fasullo**, R S Nerem, C M Little, K B Karnauskas, S Coats, P Gent, A S Bellas-Manley
- 2002516** *Large-scale forced and unforced temperature variability set by meridional heat transport and time-varying radiative feedbacks:* **R Cleveland Stout**, C Proistosescu, G Roe
- 1904993** *Linking Antarctic sea ice expansion to high-latitude Southern Ocean surface cooling:* **W Liu**
- 1963462** *Linking Recent Trends in Shortwave Cloud Radiative Effects to Sea Surface Warming Patterns:* **C J Hsieh**, T Shaw, Y T Hwang
- 1845717** *Mean-State Biases Affect the Forced Response of the Tropical Pacific:* **J Zhuo**, C Y Lee, G A Vecchi, R Seager, A H Sobel, S J Camargo, I Mitevski, Y H Lin, B Fosu, K Reed
- 1926776** *Orographic Control of Pacific Mean State and Warming Pattern Biases in CESM1:* **X Chen**, J E Lee
- 1987391** *Perturbing the Surface Energy Balance to Emulate the Historical Pattern of Tropical Pacific Sea Surface Temperature Trends:* **T M Merlis**
- 1998036** *Relationship between local feedback at sea surface and the spatial pattern of SST change:* **C Zhou**, Y Liu, J Ma, X Huang, J Lu

248873

Global water cycle and upper ocean salinity process in a changing environment: observations, theories, and modeling studies
(joint with A, H, OS)

Conveners: Marybeth Arcodia, Colorado State University; Laifang Li, Pennsylvania State University Main Campus; Subrahmanyam Bulusu, University of South Carolina Columbia

248065

Greenhouse and Trace Gas Fluxes from Agricultural and Managed Lands

Conveners: Michael Rodriguez, Sigma Space Corporation; Benjamin Runkle, University of Arkansas; Nidia Rojas Robles, Arizona State University; Francesca Hopkins, University of California Riverside

- 1887716** *Responses of the Madden-Julian Oscillation to Global Warming: Impacts from Tropical Sea Surface Temperature Changes:* **H Bui**, Y X Li, W Zhou, P van Rensch
- 1972899** *Subpolar North Atlantic cooling reinforced by colder, drier atmosphere with a weakening AMOC:* **Y Fan**, D Chan, E E Clothiaux, P Zhang, L Li
- 1918958** *Subtropical Pacific Cooling Driven by Land Precipitation Response to CO₂ Forcing:* **K Lu**, Y Dong, G Chen, S Fueglistaler, C Deser
- 1981918** *The complex relation between global mean temperature and radiative fluxes due to internal variability:* **Q Yang**, S Fueglistaler
- 1961779** *Thermal Anomalies Rising: Future Projections of Heatwave Intensification in the Kashmir Himalayas under CMIP6 Scenarios:* **H Hamid**, S Samantaray
- 1990423** *Tropical impacts of the Southern Ocean underestimated due to the double-ITCZ problem:* **Y Dong**
- 1930331** *Understanding Improved Simulation of Recent Climate Trends in High-Resolution CESM:* **P Chang**, Q Zhang, X LIU, T Prochko, G Xu, F S Castruccio, G Danabasoglu, S G Yeager, Y Dong, L M Polvani, PhD, P DiNezio
- 1964915** *Warm Pool variability as a fingerprint of forced variability:* **C Proistosescu**
- 1960415** *Warm tropical SSTs warm more in both the past and projections:* **A Hogikyan**, M Jansen
- 1931328** *Advancing the West Coast Operational Forecast System (WCOFS): Influence of River Forcing on Near-Surface Salinity and Coastal Sea Level Variability:* **B Khazaei**, A L Kurapov, S M Durski
- 1853336** *Impact of Marine Heatwaves on Salinity Dynamics in the Northwest Atlantic:* **N Stamper**, S Bulusu, G Gopalakrishnan
- 1934185** *Carbon-water relations in California crops across different seasons and water allocations:* **K Suvocarev**, O Guerrero Medina, E C Ware, Y Xie, I F McDonald, G Marino, Y Guan, P Guzman, R L Snyder, K T Paw U
- 1875439** *Common agronomic adaptation strategies to climate change may increase soil greenhouse gas emissions in Northern Europe:* **D Grados Bedoya**, D Kraus, E Haas, K Butterbach-Bahl, J Olesen, D Abalos
- 1977949** *Comparing N₂O Emissions, NO₃ in Leachate, and Agronomic Metrics of Fall-Applied Anhydrous Ammonia and Controlled-Release N Fertilizer (CRNF):* **K Vittore**, D Schaefer, D Wasonga, D Lee, G Preza Fontes

- 1854260** *Airborne Remote Sensing of Volatile Organic Emissions from Concentrated Animal Feeding Operations:* **D M Tratt**, I Leifer, E R Keim, K N Buckland
- 1949763** *Automated Chamber Measurements of Greenhouse Gas Emissions in a Nova Scotian Rice Paddy:* **C Creelman**, M Taylor, H Maxner

- 1950853** *Deciphering Methane Emission Source Dynamics in California Dairies Using Isotopic Signatures:* **A Valdez**, N E Rojas Robles, F M Hopkins
- 1861156** *Effects of Compost, Recycled Water Use, and Baseline Soil Carbon on Urban Soil Greenhouse Gas and Nitrogen Trace Gas Emissions:* **Z Malone**, R Ryals
- 1896225** *Exploring the climate impacts of cover crops through a paired site study in Indiana:* **K Key**, K Novick, M Barnes, L Rasnake, X Wang
- 2000631** *Exploring the impacts of almond-derived biochar on soil health and greenhouse gas dynamics in an almond orchard system in California:* **E Perez-Agredano**, E Bischak, B Harrison, B dos Santos, T Stein, P Lum, S Lee, R Ryals
- 1880842** *Field-Scale Greenhouse Gas Emissions from Black Soldier Fly Frass: A 90-Day Comparison with Conventional Fertilizers in California:* **M Reyes**, W Samson, D Rodriguez Amezcuita, V Olivan, E Kubaski, J Kim, K Mauck, F M Hopkins
- 1958629** *Fluxes of CH₄ and NH₃ before and after dairy manure application to soils:* **N E Rojas Robles**, R G Anderson, F M Hopkins
- 1925586** *From Food Waste to Worm Food: Quantifying Greenhouse Gas Emissions from Vermicomposting:* **S Vergara**, J Saucedo Bucio
- 1974674** *Future Corn Production in Eastern Canada: Optimizing Yield and N₂O Emissions with Drainage and Fertilization:* **J Liu**, C A Madramootoo
- 2000649** *Impacts of Organic Amendment and Moisture Regime on Greenhouse Gas Fluxes in California Rangelands:* **S Duwadi**

247570

Harnessing Big Data, Remote Sensing, and GeoAI for Collaborative Agricultural Management

Conveners: Erin Bunting, Organization Not Listed;
Geoffrey Henebry, South Dakota State University

- 1912593** *Harnessing multi-temporal satellite imagery and historical yield monitor data to predict U.S. maize and soybean yield with machine learning:* **H Smith**, A Ashworth, D Bullock, L L Nalley, J Tullis, P R Owens, A Li

- 1886987** *Improved Fertilization Strategies Can Offset Climate-driven N₂O Emission Changes in the U.S. Corn Belt:* **L Ye**, K Guan, R F Grant, L Zhou, B Peng, J Tang, Z Jin, L LIU, W H Yang, E H DeLucia, C Wagner-Riddle, Z Li, W Eddy III, E Stuchiner
- 1901826** *Insights from a Novel Automated Chamber Flux System: CH₄, N₂O and CO₂ Dynamics in a Rice Field:* **R Ranniku**, B Moreno-Garcia, M Gomez-Prats, T Osoko, J R Hupp, R Vath, A Adviento-Borbe, M L Reba, B Runkle
- 1990278** *Investigating Methane Emissions from Cattle Feeding Operations within the Northeastern Colorado Front Range:* **K Steinmann**, M McCabe, J Juncosa, I Pollack, A Sullivan, E V Fischer, D Caulton
- 1950111** *Modeling paddy rice growth and fluxes of CH₄ and CO₂ using the ecosys model:* **R Qin**, K Guan, B Runkle, R F Grant, M L Reba, B Peng, J Till
- 1964532** *Quantifying Crop-Water Dynamics of the Water-Food Nexus: A Modeling Approach Using DSSAT:* **D Atta**, G Hoogenboom
- 1930056** *Quantifying the Cost of Method Choice: Static vs. Dynamic Soil Chambers for Measuring Greenhouse Gas Emissions from Organic and Conventional Cotton Systems:* **N Miyanaka**, B F Dogbey, S M U Salehin, S Pires, N Rajan
- 1853506** *Spatially explicit global cropland greenhouse gas emissions circa 2020:* **P Cao**, F Bilotto, C Gonzalez Fischer, N D Mueller, K Carlson, A Driscoll, J Gerber, P Smith, F N Tubiello, P West, L You, M Herrero
- 1995249** *Trace Gas Emissions in Goa's Coastal Landscape: Revealing Interactions Between Managed Ecosystems and Industrial Zones:* **J Arya**, R Patel, R K Chaturvedi
- 2003897** *Improving multi-scale almond yield prediction by integrating the explainable machine learning method and remote sensing imagery:* **L Tian**, S Rezaei Dr, X Liu, Y Jin
- 1982781** *Seeking Crop Phenologies in X-band: Analysis of the Umbra Spotlight SAR Data Record from the 2025 Growing Season:* **D Haller**, M Tomaszewska, G M Henebry
- 1893839** *Using Multi-Scale LiDAR Technology and Machine Learning to Advance Vineyard Yield Estimation:* **E Bunting**, P A Wernette, R Goodwin, M Rinke

252515

High-Resolution Regional Earth System Modeling: Hydroclimate Extremes, Impacts, and Technology-Driven Solutions (cosponsored by AMS: American Meteorological Society, AOGS: Asia Oceania Geosciences Society, EGU: European Geosciences Union, GSA: Geological Society of America) (joint with A, H, NH, SY)

Conveners: Zong-Liang Yang, Organization Not Listed; Min-Hui Lo, NTU National Taiwan University; Vasco Mantas, University of Coimbra, Portugal; Li Dan, Institute of Atmospheric Physics, Chinese Academy of Sciences; Sanjiv Kumar, University of Victoria

1876791 *A high-resolution parameterization scheme of land surface albedo components derived from long-term MODIS observations:* **D Wang**, A Jia

1935781 *A Machine Learning-based Prediction-to-Map Framework for Rapid and Accurate Spatial Flood Prediction:* **D Bao**, Z G Xue, M R Hiatt, K Xu, C K Harris, PhD, J C Trepanier

1929668 *A Pixel-Scale Monte Carlo Framework for Attributing Hydrological Changes to Land-Use Change:* **J Joseph**, S Kumar, V Merwade

1987203 *Advancing Drought Prediction in Midwest US using Remote Sensing, Machine Learning Models and Explainable Artificial Intelligence (XAI):* **M M T Mukarram**, M A Linderman Sr, Q U Rukiya

1957997 *ASSESSING FUTURE CONSECUTIVE DRY AND WET DAYS IN CENTRAL INDIA : A CMIP6 DOWNSCALING APPROACH:* **A Pathak**, B R Behera, K Shashikanth

1983876 *Assessing future U.S. convective extremes under global warming and stratospheric aerosol injection using a convection-permitting WRF model:* **L Sun**, J W Hurrell, K Rasmussen, B Summers, E Sherman, B Kravitz

1854356 *Complexity and computational challenges in generating high-resolution earth system projections with opportunities for machine learning and nonlinear dynamics:* **A R Ganguly**

1926923 *Decoupling of Temperature and Water Vapor in Terrestrial Monsoon Regions Due To Decreasing Ocean Evaporation At Low Latitudes:* **J Peng**

1971986 *Diagnosing the ability of k-scale Earth system models to capture sub-hourly urban rainfall extrema associated with landfalling tropical cyclones:* **C M Zarzycki**, K Dailey, P Ullrich

1938091 *Effects of Typhoons on Particulate Organic Carbon Transport in a Subtropical Estuarine- Coastal Ocean System: A numerical study:* **Y Feng**

1999057 *Enhancing Carbon-Water-Nitrogen Flux Simulations in Noah-MP Land Surface Model through Ground-Based Data Integration:* **S Chung**, C Yoo

1932213 *Ensemble Projections of Mississippi River Discharge Using a High-Resolution Land Surface Model:* **X Zhao**, Z G Xue, C P Johnson, P Miller, A Molini, M Vargas Godoy

1960224 *Evaluating a Regionally Refined Climate Model for Simulating Precipitation Extremes over the United States:* **R Saravanan**, C J Chen, X LIU, P Chang

1949166 *Evaluating Bias-Corrected CMIP6 Precipitation Products over Southern Africa Using In-Situ Observations:* **G Mengistu Tsidu**, A Alebie Addisuu, S Samuel, S Ageet, S Govere, A H Fink

1931243 *Evaluation of Convective-Permitting S2S Forecast Skill of Monsoon Precipitation Extremes in the Southwest U.S.:* **M D R L Mendoza Fierro**, H I Chang, C L Castro

1927524 *Extreme Precipitation Intensity Scaling with Surface Conditions Under Climate Change Scenarios:* **H Qin**, F M Alvee, X Sun, H Hu, R Leung, G Wang

1961649 *Growing Floods but Diminished Annual Runoff over the 21st Century in California's Sierra Nevada:* **L Su**, D R Cayan, M Pan, D W Pierce

1959626 *Hybrid Machine Learning Enhances Sub-Seasonal Extreme Heat Forecasts over the U.S.:* **Z L Yang**, J Alexander

1969076 *Integrating Multi-Scale Empirical Mode Decomposition to Elucidate Spatio-Temporal Changes of Extreme Precipitation in the Colorado River Basin, Texas:* **C C Lee**, Z L Yang, C Hu, Z Wu

1848588 *Mechanism Shift in Land-Surface Response to Compound Extremes in a Monsoon-Affected Low-Latitude Highlands:* **W Pan**

1871066 *Mechanistic Role of Regional Air-Sea Coupling in Modulating East Asian Summer Precipitation and Temperature: Insights from a New Regional Earth System Model (RIEMS v4.0):* **K Li**, L Dan, L Zou, J Tang, H Zheng, Z Xu, J Peng, PhD, F Yang, W Pan, Z L Yang

1849139 *Quantifying vegetation health exposure risk and spatial inequality along with their impact on vegetation:* **P Zhou**, J Chou, M Sun, W Zhao, Y Li, H Pei, H Jin, M Bilal

1844534 *Regional cooling potential from expansion of perennial grasses in Europe:* **X Zhang**, B Huang, N Rinke Dias de Souza, X Hu, F Cherubini

1998902 *Responses of Terrestrial Nitrogen Loss to Precipitation Variability in the Pearl River Basin Based on Noah-MP-CN:* **X Cai**, X Wu

1987292 *Study on Spectral Surface Albedo of Different Land Use Types in the Qinghai-Tibet Plateau:* **L Xing**

- 1933578** *The Impact of Westerly Wind Anomalies on Vegetation Growth Across Eurasia*: **L Liao**, L Dan, M Huang, Y Duan
- 1883713** *Toward High-Resolution Modeling of Human-Altered Terrestrial Water Cycles across Global River Networks*: **P Lin**, Z Yin, H Lin, F Zhang, J Guo

248478

Human-Nature system interactions under a sustainable future: Concepts, Modeling, and Application

Conveners: **Xin Zhao**, University of Maryland College Park; **Adam Daigneault**, University of Maine; **Eva Sinha**, Stanford University; **Christopher Reyer**, Potsdam Institute for Climate Impact Research; **Meng Luo**, Organization Not Listed

- 1857649** *A Global Quantitative Assessment of Biosphere Reserves' Contributions to Biodiversity Conservation*: **Y Yao**, Z Ouyang, Y Liu
- 1877952** *Achieving nature-positive net-zero pathways and a thriving agri-food industry in Australia without stressing water catchments*: **X Pan**, J Wang, M Hadjikakou, N Williams, C Archibald, F de Haan, N van Schoten, J Sanson, R Zyngier, R Marcos Martinez, J Navarro Garcia, L Gao, H Aghighi, B Bryan
- 1988574** *An Alternative Modelling Framework for Sustainable Futures*: **T Kanitkar**, T Jayaraman, L V P, S Mahato
- 1958983** *An Extensible Model of Coupled Governance and Watershed Connectivity in the Chesapeake Bay Using Hetero-functional Graph Theory*: **M Harris**, J C Little, A M Farid
- 1998017** *Assessing Climate Impacts on Forage Availability in the Somali Region of Ethiopia Using Remote Sensing*: **C Deng**, X Hao, J J Qu
- 1939716** *Beyond climate change: Urban heat islands in energy demand projections and their economic implications*: **Y Choi**, C Park
- 1897376** *Blue economy in a Multi-Sector Dynamic framework: agro-economic and earth system implications of seafood globalization*: **X Zhao**, Y Zhang, S Morris, J Edmonds
- 1930852** *E3SM-GCAM: Simulating Human-Earth Feedbacks in an Earth System Model*: **A V Di Vittorio**, E Sinha, D Hao, B Singh, K V Calvin, T Shippert, P Patel, B P Bond-Lamberty
- 1861818** *Enhancing the representation of cropland management practices in the Energy Exascale Earth System Model*: **Z Tan**, E Sinha, J Jian, B Drewniak, L R Leung

- 2001626** *Towards NoahMP-AI: Enhancing Land Surface Model Prediction with Deep Learning*: **M Mbarak**, N Sudharsan, M Singh, Z L Yang, Z L Yang
- 1912006** *Variation characteristics and driving factors of nitrogen concentration at key monitoring sections of the middle route of the South-to-North Water Diversion Project from 2018 to 2024*: **Z Li**, N Yang, R Liu, N Ma, Z Zheng, Z Han, Y Qi, Q Dai, Y Fang, B Ge, L Dan, T Zhao
- 1852694** *Environmental and forest management changes jointly sustain natural lands in the 21st century*: **M Luo**, A Daigneault, D Hao, X Zhao, A Favero, B P Bond-Lamberty, A Akihiko, S Kou-Giesbrecht, C Reyer, Q Zhu, B Sohngen, M Chen
- 1899936** *Evaluating Subnational Distribution of Future Air Pollution and Health Under Global Climate Mitigation Pathways*: **K Guo**, W Peng, J Shiwang, M Budolfson, N C Scovronick
- 1959424** *Fire-Induced Reorganization of Land-Atmosphere Coupling Across Ecosystems and Regions*: **H Liu**, Q Zhu, M Chen
- 1900379** *From Coastal Retreat to Seaward Growth: Emergent Behaviors from Paired Community Beach Nourishment Choices*: **J Lorenzo-Trueba**, A Janoff, O Thomas, D Jin, A D Ashton, P Hoagland
- 1862505** *Hydrological and Market-Mediated Spillovers from Sustainable Groundwater Management in South Asia*: **S Ray**, D S Grogan, I Haqiqi, T W Hertel
- 1878463** *Identifying Sources of Non-Passive Carbon Sequestered in Forests*: **B Sohngen**, R Kimura, J B Kim, A Golub, A Daigneault, E Davis
- 1939785** *Identifying Synergistic Pathways Between Carbon Peaking and Food Security: Insights from China*: **Q WANG**, S Li
- 1911775** *Increasing fragmentation of wildland-urban interface as its expanding on China's dryland landscape from 1990 to 2020*: **S Xu**, Y LIU SR, Y Zhao sr
- 1936494** *Integrating Systems Thinking into Nitrogen Management: Insights from the U.S. Nitrogen Budget (2012-2022)*: **Y Wang**, E A Davidson, B Gu, W Dennison, L Lassaletta, X Zhang
- 1893884** *Land-Atmosphere Coupling Modulates Bidirectional Feedbacks Between Human and Earth Systems*: **D Hao**, E Sinha, A V Di Vittorio, R Chadsey, B Singh, B P Bond-Lamberty
- 1878435** *Modeling Drivers of Crop Area Change in the Indus Basin for Improved Water Withdrawal Assessments and Projections*: **M Umer**, N Hanasaki, S Padiyedath Gopalan, T Oki

- 1980862** *Modeling regenerative pathways for multifunctional landscapes under increasing environmental stressors.:* **S Kotikot**, E A H Smithwick, S E Gergel, J Nankaya, R Abila
- 1955098** *Sensitivity of human-Earth feedback to different socioeconomic pathways and radiative forcing targets:* **E Sinha**, D Hao, A V Di Vittorio, R Chadsey, B Singh, B P Bond-Lamberty

250261

Hydroclimate and Extremes in the Western United States under a Changing Climate (joint with A, H, NH)

Conveners: **Wei Zhang**, Michigan State University; **Cenlin He**, Department of Atmospheric and Oceanic Sciences, University of California; **Park Williams**, University of California Los Angeles; **Daniel Swain**, University of California, Los Angeles; **Cody Ratterman**, Utah State University

- 1959448** *A Snow-Fire Bridge Mechanism for the California Wildfire in January 2025:* **S Liu**, S Hu
- 1972578** *A Thirsty U.S. Southwest: Long-Term Soil Drying in Recent Decades Linked to Global Warming and Natural Oceanic Variability:* **H Wang**, H Zhang
- 1904877** *Assessing Hydroclimatic Extremes in Southern California (1981–2024): Impacts on Vegetation Health, and Responses Across Land Cover Types:* **K Gonzalez**, A Farahmand, J Li
- 1911733** *Benchmarking precipitation datasets for post-wildfire hydrologic events.:* **T Partridge**, B A Ebel, S J Cho, Z Johnson, S F Murphy, J Marshall
- 1893125** *Characterizing the Influence of Heatwave Events in the Western United States Among Undisturbed Watershed Systems:* **N Januario**, B Hagedorn, L Huning, A Rhoades, D McEvoy, E Villasano
- 1942754** *Compound meteorological and agricultural droughts in California's changing climate:* **S S Swain**, L Su, M C Levy, D R Cayan
- 1875002** *Contrasting Southwest U.S. Summer Precipitation Responses to Extreme and Equilibrium Mean California Margin Temperatures in Long-Run Climate Simulations:* **O Lee**, M Rugenstein, B Johnson, S Van Loon
- 1898555** *Drought Cascading in Arizona: Exploring Propagation from Meteorological to Hydrological Stages using Ground-Based and Remote Sensing Data:* **S Vicario**, M E Garcia
- 1964517** *Evaluating the Predictive Skill of the Previous-Summer New Zealand Sea Surface Temperature Index for Snow Water Equivalent in the Western United States:* **S Mehta**

- 1911223** *Synergistic Pathways for CO₂ and Multi-Media Mercury Emission Control in China.:* **D Ouyang**, Y Sun, Q Wu, S Wang, Y Ou
- 1875482** *The Effects of Interannual Variability in Soybean Yields on Agricultural Outcomes:* **Y Wang**, T B Wild, X Zhao, S Morris, M Zhao, P L Patel, K Feng, L Sun
- 2003748** *Where to Plant Trees? Designing Landscapes that Sequester Carbon and Promote Public Health:* **M Charles**
- 2002007** *Extreme rainfall to intensify at much greater rate than extreme precipitation over Western U.S.:* **J Norris**, S Rahimi, L Huang, C W Thackeray, M D Zelinka, A Hall
- 1969138** *From bust to deluge: How unusual was the 2020→2021 North American monsoon swing:* **A M Varuolo-Clarke**, J Garcia-Franco
- 1931937** *Global warming and the Pacific Decadal Oscillation drive seasonally varying increases in extreme fire weather over the southwestern US:* **J Lou**, Y Joh, T L Delworth, A T Wittenberg
- 1975661** *How catchment water storage reflects and constrains hydroclimatic response to climate extremes in Western US:* **P D Brooks**
- 1981028** *Lagged Impacts of Atmospheric Rivers on Western U.S. Wildfire Characteristics and Emissions:* **J M Ryoo**, A Raman, T Park, J Yoo
- 1959408** *Mid-Tropospheric Circulation and Compound Weather Extremes in Western North America:* **A Lavery**, X Bai, S Bigalke, P C Loikith, D Singh
- 1925014** *Multi-year impacts of rain and snowmelt on baseflow in the Upper Colorado River basin: Insights from panel regression:* **J S Hecht**, D Rey, M A Walvoord, C T Green, M A Scholl, J Marshall
- 1895806** *Pacific Modes of Variability as Drivers of Hydroclimatic Extremes in the Western US:* **S Minallah**, S G Yeager
- 1897770** *Preceding Wet Years Historically Buffered La Niña Droughts in the U.S. Southwest, but Will Not in the Future:* **Y Jiang**, J E Smerdon, R Seager, B Cook, M Ting
- 1965095** *Precipitation uncertainty and planning challenges in the Great Salt Lake Basin:* **H Bai**, C Strong, S Smith, S Wolvin, M Kniffin
- 1891612** *Projected increase in ENSO-induced US winter extreme hydroclimate events in large ensemble simulation:* **J S Hong**, D Kim, H Lopez, S K Lee, A Mercer, N C Johnson
- 1924588** *Remote causes of extreme drought and precipitation in the western US:* **T Acrenson**
- 1980882** *Resolution Matters: the Magnitude and Statistical Significance of Trends in Precipitation Statistics are Scale Dependent:* **C Guilloteau**, E Foufoula-Georgiou

- 1975004** *Stratospheric Intrusions and Their Modulation of Fire Weather Conditions in the Western United States:* **J W Lee**, Y Wu, C Juang
- 1859084** *Strong Modulation of NPO on U.S. Winter Precipitation and Atmospheric Rivers:* **J Ryu**, B Vernon, W Zhang
- 1965505** *Strong Modulation of the Pacific Meridional Mode on Precipitation Phases in the Upper Colorado River Basin:* **S Shelton**, H Akbar, P Claire Gutierrez, W Zhang, S Ballav, L Conger, J Utley, G Farley
- 1996797** *The Dry Arizona Has Been Experiencing a Significant Decline in Water Availability due to Climate Change:* **A Gupta**, A Behrangi, Y Qiu, G Y Niu

252027

Hyper-resolution Land Surface Modeling: Innovations and Implementations for Global Environmental Challenges (joint with A, B, H, NH)

Conveners: **Lingcheng Li**, Pacific Northwest National Laboratory; **Donghui Xu**, Pacific Northwest National Laboratory; **Gautam Bisht**, Pacific Northwest National Laboratory; **Ming Pan**, Scripps Institution of Oceanography; **Yifan Cheng**, University at Buffalo

- 1967931** *Assessment of Hydrological Heterogeneity and Model Biases in Mediterranean Mountain Regions Using Ensemble Simulations with HydroBlocks LSM.:* **D Guyumus**, N W Chaney
- 1948616** *Developing Workflow for High, Mixed and Irregular Resolution E3SM Land Model Coupled with 3D Watershed Flow and Reactive-Transport Models:* **F Yuan**, E Coon, S L Painter, B N Sulman, D M Ricciuto, T O'Meara, P E Thornton

247705

Implications of climate change for global agriculture – impacts, adaptation, mitigation

Conveners: **Jonas Jägermeyr**, Columbia University of New York; **Christoph Müller**, Karlsruhe Institute of Technology; **Jonathan Winter**, Dartmouth College

- 1890131** *A Global Monitoring Framework for Soil Health Based on an AI-Integrated, Climate Change-Focused Data Infrastructure:* **Ö Belli**, T Akın, C Yıldırım, T Dipçin

- 1849614** *The escalating control of weather and climate extremes on wildfire outcomes in the western US:* **J T Abatzoglou**, M Sadegh, P Williams, A Cullen, E L Williams, C Kolden, M W Jones, J Balch, M Turco, A Hall
- 1950756** *The Large-Scale Trend Associated with Recent Drying over the Southwest US:* **B O Johnson**, M Rugenstein
- 1965092** *Upper Colorado River Snowpack Potentially More Resilient than Climate Models Suggest:* **A Dixit**, K N Musselman, N Addor, S Carr, E D Gutmann, L Huang, A J Newman, S Rahimi, J A Vano, F Lehner
- 1886887** *Using machine learning to evaluate climatic controls on wildfire severity across the western United States:* **T Johnson**, D E Touma, PhD, J P L P Johnson
- 1978141** *Warming with Reduced Diurnal Temperature Range Buffered Grasslands from Drought Impacts:* **J Valentine**, J Gregg
- 1860120** *Diurnal T/RH hysteresis and VPD dynamics revealed by hourly observations and 2km WRF simulations over montane forests:* **M H Lo**, C H Shih, R Y Gu, Y S Jang
- 1972502** *Enhancing Climate Monitoring: High-Resolution Albedo Estimation with Sentinel-2 using a Machine Learning Algorithm:* **V Tiwari**, H Alemohammad, PhD, C A Williams
- 1954319** *Improving Modeling of Surface Fluxes: Leveraging Anisotropy-Generalized MOST in CTSM:* **T Waterman**, I Stiperski, M D Fowler, M Calaf
- 1906725** *Multi-Satellite-Based Image Fusion Methods Using Deep Learning:* **D Han**, S Kim, Y Lee, J M Yeom
- 1879990** *Multi-scale Earth System Modeling Framework Reveals the Importance of Topographic Connectivity in Compound Flooding Dynamics at Actionable Scales:* **D Xu**, G Bisht, D Feng, Z Tan, D Hao, D Engwirda, J J Benedict, V Tran, M Kumar, V Y Ivanov, L R Leung
- 1883615** *Process Diagnostics of Snowmelt Runoff in Global Hydrological Models:* **P Lin**, X Lei, H Lin
- 1941894** *Quantifying the Benefit of High-Resolution Precipitation for Field-Scale Soil Moisture Modeling:* **V U Krishnan**, N Vergopalan, B Singh, K Lanka, J Indu
- 1974253** *Advancing Spring Phenology Modeling in Apple Under Climate Warming: A Regionally Calibrated Chill Overlap Approach:* **A Komeili Birjandi**, K Rajagopalan, L A Kalcits
- 1863360** *Climate Change May Render Healthy Diets Unaffordable for Hundreds of Millions:* **Y Jiang**, B Fu, P Ciais, J Jägermeyr, C Müller, X Suo, G Chen, Y Lai, Y Ou, X Wang, G Shen, B Li
- 1991626** *Climate Change Threats and Adaptation Strategies for Open-field Vegetable Production in China: A National-Scale Assessment of Chinese cabbage and Chili Pepper:* **R Tang**, R W A Hutjes, I Supit, F Zhang, X Chen, X Wang, X Chen

- 1952181** *Climate-driven Shifts in Rice Grain Metal Profiles: Evidence from Multi-season Field Observations:* **H Hannounsh**, L Ziska, R Singh, A Mitra, C Lucey, K Schilling
- 1921042** *Climate-Resilient Agriculture: Measuring and Modeling Greenhouse Gas Emissions and Soil Nutrients in Mixed Crop Systems:* **T Humbeeck**, G Clark, J F Adamowski, M Y Boh, C Kallenbach
- 1970567** *Crop Diversity Buffers Yield Losses Under Excessive Rainfall:* **S Ye**, W Liu, B Yi, C Lu
- 1961522** *Crop Model Performance and Projections in the Newly-Updated Community Land Model (CLM) Version 6:* **S S Rabin**, D L Lombardozi, W R Wieder
- 1916915** *Crop rotation effects on soil carbon and nitrogen:* **U M Sainju**
- 1880624** *Crop Switching as a Key Strategy for Climate Change Adaptation: Insights from Floodplain Rice Farming in the United States:* **Y Tu**, C Liao
- 1987158** *Cropland Changes in the Mississippi Delta: Panacea or Peril Amidst a Worsening Climate?:* **B Violet**, B Fosu, Y H Lin, J L Dyer, S Ambinakudige, B Williams, D Crockett, D Hardy, M Barra
- 1973697** *Digital Sovereignty Underpins National Food Security:* **W Ouaret**, M E Brown, M Enenkel, E R Carr
- 1936735** *Digital Tools for Enhancing Climate Resilience: Atlas for Climate Adaptation in South Asian Agriculture:* **P Aggarwal**
- 2003939** *Do Stronger Institutions Mitigate Climate Change Impacts? Evidence from Water Governance in Chile:* **M Garcia**
- 1992891** *Drought patterns and rainfall shifts undermine the resilience of Uganda's refugee integration model:* **E Negash**, C L Nakalembe, A B Asare-Ansah, J Van Den Hoek
- 2002692** *Dynamic Baselines and Multi-Model Ensembles to Assess Climate Benefits of Climate-Smart Practices in U.S. Croplands:* **B Basso**, T Tadiello, L Price, P Sharma, N Millar
- 1960055** *Economic losses from climate in US dairy systems revealed by 8 million cows:* **E Choi**, F V Davenport, Z Lin, A Ortiz Bobea, K Reed, N D Mueller
- 1906482** *Effects of Rhizobacteria on the Yield and Quality of Medicinal Plants under Elevated CO₂ at Various Soil Water Contents:* **W Yan**, C W W Ng
- 1911728** *Enhancing Climate Resilience: Regional-Scale Assessment of the SOC-N₂O Trade-Off in Rotational Systems with Cover Crops:* **A Attia**, P Woli, C R Long, F M Rouquette Jr, G R Smith
- 1852931** *Evaluating Observed and Modeled Wet-Bulb Temperature Trends over Global Croplands:* **K Nguyen**, E Coffel, J S Mankin
- 1945396** *Exploring the Adaptation Capacity of Aging and Small-Scale Farmers to Heat Stress-Induced Yield Loss in Japan:* **K Noguchi**, D Koji
- 1953601** *Extreme heat negatively impacts dairy milk yield, fat and protein:* **J Prieto**, Z Lin, K Reed, A Ortiz Bobea, C Wolf
- 1943237** *Future Projections of Processing Potato in India: Adaptation with shifting of sowing date:* **S M Singh**, R Mall, R K Dubey, R S Singh
- 1937541** *Global and Local Risks of Rising Water Scarcity to Food Production and Supply:* **E A Kebede**, T Ali, D D Chiarelli, S Hartman, M Kumm, P Mehta, B D Richter, M C Rulli, M Tuninetti, K A Brauman, Q Deng, J Jägermeyr, L Marston, M M Mekonnen, D K Ray, L Rosa, S Siebert, W Xie, K F Davis
- 1904821** *Grain yield efficiency of dry land wheat in Israel: a high-resolution coupled crop-climate modeling approach:* **E Strobach**, R Ben-David, A Ray
- 1997061** *Growing Against the Odds: Natural Hazards and the Fragility of Agricultural Systems:* **T Hossain**, R B Mostafiz
- 1945474** *How could maize genes move the needle on nitrogen cycling?:* **E Buckler**
- 1914225** *Hybrid Modeling for Estimating Climate Risk: Incorporating Process-Based Crop Model Outputs into Empirical Yield Analysis and Projections:* **M T Tahmid**, J Rising
- 1974816** *Identifying climate-vulnerable populations using satellite imagery:* **J Proctor**, L Sherman, J Tseng, S M Hsiang
- 1971711** *Impacts of Climate Change on Agriculture in Southeast Asia Measured by HarvestStat, a New Dataset of Subnational Crop Data:* **M Foley**, J Proctor, P J Huybers, G Eilerts, W B Anderson, W Alghabra, C Bhagawat, H Chang, S Gandhi, Z Geller-Alford, Z Huang, M Jain, A Patel, L Tan, G Zhao
- 1895579** *Impacts of climate change on potato yield, nitrous oxide emissions and nitrate leaching. Case study: Prince Edward Island, Canada:* **S Daniele**
- 1890276** *Impacts of Climate Change on the Potential Geographic Distribution of the Ectoparasite, Varroa Destructor in Ethiopia:* **H G Ngussie**, Y Gebrewahid, G Hadgu, D C de Graaf
- 1980141** *Implementing Waterlogging Stress Response in the CERES-Maize Crop Model:* **J Singh**, J Jägermeyr
- 1982013** *Improved Alternate Wetting and Drying Irrigation for Sustainable Rice Production:* **Y Bo**, F Zhou

- 1886034** *Improving phenology and soil nitrogen dynamics reduces yield simulation biases in LPJmL*: **Y Shi**, Y Liu, C Müller
- 2005748** *Integrating UAS-Based Multispectral Imagery and Ground Penetrating Radar for Predictive Modelling of Soil Organic Carbon in Perennial Grass–Annual Vegetable Intercropping Systems Using Machine Learning*: **N Agyei**, A Agbona, H Guzman, D Hays
- 1888015** *Integration of Remote Sensing Data into Damage Assessment of Agricultural Insurance as Adaptation to Climate Change - Comparison of Characteristics of Indemnity-based Insurance and Area Yield Index Insurance* -: **C Hongo**, T Iida, G Sigit, T Mori, E Tamura
- 1912609** *Intensifying compound drought and heatwave events increase greenhouse gas emissions and reduce crop yields in U.S. croplands*: **Y You**, H Tian, S Pan, Y Shi, N Pan, X Yu, W Hao
- 2002585** *Irrigated Crop Yields Reveal Distinct Influences of Heat and Moisture*: **P Hunter**, N D Mueller, A Driscoll, D Wei
- 1918961** *Keeping Coffee and Chocolate on the Table in a Warming World*: **N Grant**, A Robock, L Xia, J R Kiniry
- 1932377** *Linkages Between Climate Extremes, Cropland Expansion, and Deforestation in Sub-Saharan Africa*: **A Mack**, K F Davis, B Khan
- 1923143** *Long-term variation in rainfed Corn productivity in the Midwestern United States as affected by management and droughts*: **M Khorchani**, T Awada, M Schmer, V Jin, J Hiller
- 1989425** *Making sense of Process-based and Data-driven Simulations of Crop Yields in the Future and Past*: **A C Ruane**, J Jägermeyr, C Müller, C Rosenzweig
- 1936806** *Managing Vineyards for a Changing Climate: Current Practices and a Vision for the Future*: **L Parker**, S Ostojic, B Bailey, M Bartlett, C Lazcano, M A A Ponce de León, D Rippner, M Roby, G Facincani Dourado, M M Alsina, A Rumbaugh, E J Forrestel, K Gold, M Nocco, C Chen, M Cooper, N I Moonilall, I Slimani, A J McElrone
- 1997554** *Mapping Drought Impact on Maize Yields in Northeastern South Africa Using Google Earth Engine and Python-Based Remote Sensing*: **A Chandrupatla**
- 1927329** *Modeling Perennial Crop Viability Across the U.S.: A Noah-MP Assessment of Kernza® Under Climatic Variability*: **S Ghasemian**, N A Brunsell
- 1870002** *Oil Palm Empty Fruit Bunch Amendments and Irrigation Affected Crop Yield, Acrosol Properties and Greenhouse Gas Emissions*: **J B A Nyasapoh**, E O Danso, W Amponsah Dr, E Arthur Dr, E B Sabi Prof, P B Obour Dr, M N Andersen Prof
- 1871585** *Optimizing Saline Soil Management to Halve Nitrogen Losses and Boost Crop Production*: **W Wen**, B Gu
- 1894225** *Pathways towards climate and health co-benefits in global ruminant sector*: **S Ren**, Y Cao, Q Hu, R S Powell, M Windisch, Y Xi, X Liu, A Pellegrini, C Terrer
- 1953907** *Predictor choice controls divergent yield projections from statistical crop models*: **D Wei**, E Choi, P Hunter, N D Mueller
- 1858871** *Projecting Climate-Driven Changes in Agro-Ecological Suitability for Specialty Crops Using FAO ECOCROP and Earth Observation Data*: **A Britton**, I Pritchard
- 1934106** *Reclaiming abandoned croplands to adapt wheat production to a warmer world*: **L He**, C Ren, L Rosa
- 1982025** *Resource Use and Yield Potentials in Modern Intercropping Systems*: **Z Sims**, D Tilman, K K Caylor
- 1993438** *RETHINKING RICE WATER MANAGEMENT: MODELING SYSTEM SHIFTS FOR SUSTAINABLE IRRIGATION UNDER CLIMATE CHANGE*: **D R Sena**, K Bandyopadhyay, A K Sikka, G Amarnath, A Sarangi, A Behera
- 1848884** *Root Inputs and Soil Carbon Responses to Legume Inclusion and Fertilization in Subtropical Pasture*: **S Smith**, C Wilson, G Maltais-Landry
- 1938651** *Shifting Suitability: Assessing Historical and Future Chill Hour Changes for Temperate Crops Under Climate Change*: **J Fuery**, T Piechota, H Atamian
- 1957798** *The Potential Future of United States Crop Conditions*: **L Bundy**, V Gensini, W S Ashley, A Haberlie, D Changnon
- 1970245** *The Role of Climate in Shaping US Cropland Shifting and Crop Switching*: **A Sarwar**, K F Davis, B Khan
- 1895230** *The Role of Resilient Crops in Influencing Climate-Driven Deforestation in Nigeria*: **J Uponi**, B Khan, H Abou Ali, T Alabi, O Adeluyi, O Olayide, K F Davis

247704

Innovations in CO₂ Capture, Transport, Utilization, and Storage (CTUS) for Climate Change Mitigation (joint with H, SY)

Conveners: **Bailian Chen**, Los Alamos National Laboratory; **Nathan Moodie**, University of Utah; **Sahar Bakhshian**, University of Texas at Austin; **William Ampomah**, New Mexico Institute of Mining and Technology; **Bicheng Yan**, King Abdullah University of Science and Technology

1932977 *Permeability Estimation from Well Logs Using Core-Calibrated Models and Machine Learning: Application to the Uinta Basin:* **O Bakelli**, N Moodie, T Xiao, B J O L McPherson

1922112 *A conceptual and computational framework for assessing legacy well risks and attributing liability for basin-scale geologic carbon storage:* **J Wang**, N Mitchell, J Camargo, R M Dilmore, G Lackey

1851040 *An Inventory of Mafic Rock Resources for Carbon Mineralization in Arizona:* **L Thompson**, J Wade, A Sjolund, K S Lackner, J Patterson, C Grayson, R Stirling

1871004 *Can an Active Rifted Margin be used for Carbon Storage? Insights from the Seismic Data Inversion from Albertine Rift.:* **A Adedokun**, A B Katumwehe

1974834 *CO₂ Pipeline Transport Front-End Engineering Design (FEED) in SimCCS:* **M James**, M Velasco-Lozano, R Pawar, B Chen

1949648 *Data Assimilation of Seismic-Inverted CO₂ Maps to Reduce Uncertainty in the Modeling of Subsurface Carbon Storage:* **M Velasco-Lozano**, B Chen

1975185 *Deep Learning Framework for Optimization of CO₂ Injection Locations in Carbon Sequestration Sites:* **G Lopez Campos**, A Pachalieva, M Velasco-Lozano, B Chen

1963769 *Design and Economic Assessment of Optimal CO₂ Pipeline Networks for Carbon Capture and Storage in NW Colorado, USA:* **L T O Yildirim**, M Velasco-Lozano, B Chen

1982924 *Efficient Preliminary Site Screening for Large-Scale Geological Carbon Storage Using Deep Learning-Based Surrogate Modeling:* **H WANG**, H Ni, R Guo, S A Hosseini

1908083 *Environmental sustainability of CO₂ EOR over Water Flood EOR in the Indian context:* **R Srivastava**, Y Verma, U Singh, V Vishal, S Ganguly

1990248 *EPA Subpart RR for Geologic Sequestration of Carbon Dioxide: A Proven, End-to-End Workflow for Preparing Monitoring, Reporting, and Verification Plans That Unlock Section 45Q Credits for UIC Class II and Class VI Wells.:* **J L Fonquergne**, G El-kasee, C Cady, B Chen, A Amosu, H Khaniani, D Bui, J Simmons, D Ulmer-Scholle, T Biswas

1999935 *Geophysical Applications in CO₂ Geological Storage: A Perspective for Colombia:* **P Atapuma**

1971008 *Harmonized life-cycle and techno-economic analyses for disparate CO₂-to-fuels pathways:* **U Singh**, T R Hawkins, F Naaz, J Zhang, D Oke, K Hull

1873609 *High-Resolution Characterization of Carbonate Rocks for Geological Carbon Sequestration.:* **M A Elungat**, L E Beckingham

1928464 *Latent Score-Based Diffusion Model for Data Assimilation in Geological CO₂ Storage:* **S Jiang**

1892758 *Leveraging Machine Learning to Predict the Performance of Horizontal Wells Using Vertical Well Data for Subsurface Flow Applications:* **A Y Sun**, M Khalaf, A Kumar, H Siriwardane

1944358 *Multidisciplinary study of nonvolcanic CO₂ degassing in the southern Apennines: definition of the buried reservoirs and seeping mechanisms through geophysical survey:* **R Isaia**, S Carlino, S Ciarcia, C De Paola, D G Maria Giulia, F Pagliara, T Pivetta, A Troiano, S Vitale

1869888 *New Opportunities for CO₂ Storage along the US Atlantic Margin: Geopotential Modeling of the Great Stone Dome and Near-shore Diapiric Structures:* **J Turney**, D Goldberg, K J Tinto

1991915 *Pore-Scale Investigation of CO₂ Displacement and Storage Mechanisms in Continental Tight Sandstone Reservoirs Using a 2.5D Microfluidic Model:* **Y Liu**, W Li, Y Feng, D Wang, X Chen, Z Yang, W Qiu

1996047 *Soil Gas Sensor Analysis for Characterizing CO₂ Baseline Behavior at CarbonSAFE Site:* **S Buckhold**

1899685 *Storage-based carbon management in the Uinta Basin: opportunities and challenges:* **T Xiao**, G St Pierre, O Bakelli, M Liu, S N Lyman, N Moodie, M Free

1859098 *SURGIN: SURrogate-guided Generative Inversion for Geological Carbon Sequestration:* **Z Feng**, B Yan, F Zhang

1940014 *Tectonic Control on Natural CO₂ Degassing in the Sele River Valley (Southern Apennines): A Multidisciplinary Approach:* **S Vitale**, D G Maria Giulia, C Fabozzi, S Albanese, M Ambrosino, D Cicchella, C De Paola, F Iezzi, J Natale, R Isaia, F Pagliara, A Troiano, S Ciarcia

1849550 *Using New High-Resolution Aeromagnetic and Gravimetric Data to Identify Basinal Basalts for CO₂ Storage Along the Eastern US Coastline.:* **J Turney**, K J Tinto, D Goldberg

251696

Integrated SSP-RCP Scenarios for Modeling the Impacts of Climate Change and Land Use on Ecosystem Services in East Africa

Conveners: Edovia Dufatanye Umwali, University of Chinese Academy of Sciences; Xi Chen, Tsinghua University

250277

Low Earth Orbit (LEO) Satellite Missions and Their Contribution to Earth Science Applications (joint with A, C, NH, OS)

Conveners: Gary McWilliams, Science and Technology Corporation; Satya Kalluri, NOAA College Park; Lihang Zhou, NOAA/NESDIS/STAR; James Gleason, NASA Goddard Space Flight Center

1879884 *A Scalable and Interpretable Data-Driven Framework for Simulating Hurricane-Induced Compound Flooding in Western Coastal Louisiana:* **H Lee**, A Rostami, H H Wan, T L T Du

1983076 *Advanced Deep Learning Models for Generating Super-resolution AMSR2 Imagery in Support of Sea Ice Forecasting and Analysis:* **T J Greenwald**, V Didur, Y Liu

1987548 *Advancing Microwave-Based Tropical Cyclone Intensity and Structure Analysis and Forecast Algorithms with AI and SmallSats:* **G Chirokova**, M DeMaria, Z Ruan, K Schwartz, J L Franklin

1971472 *Advancing Satellite-Based 3D Cloud Products for Aviation Safety and Situational Awareness in Data-Sparse Regions:* **Y J NOH**, J M Haynes, C White

1997776 *Cloud-Enabled Environmental Intelligence: The Impact of NOAA Open Data Dissemination via Use Cases, Metrics and AI Acceleration:* **J Disson**, A Simonson, K Szura, J Brannock, O B Brown Jr, W C Straka

1984932 *Continuing Tropospheric NO₂ Monitoring: Enhanced Capabilities of NOAA-21 OMPS and Cross-Platform Consistency Across the JPSS Satellite Series:* **K Yang**, S Kondragunta, L E Flynn, Z Wei

1994754 *Leveraging HotSat High-Resolution Thermal Satellite Data for Environmental Insights: From Soil Moisture to Broader Applications:* **J O'Connor**, N Kuniewicz, M Sanabria, S S Kumar, PhD, S Dharmapuri

1961362 *Leveraging satellite observations in NOAA's wildfire smoke models:* **R Ahmadov**, H Li, J Romero-Alvarez, J Schnell, E James, S Bhimireddy, M Choi, S Kondragunta, F Li, C Xu, H Luo, B Allen, M Hu

1971974 *Future Sediment Dynamics and Risk Mitigation in the Awash River Basin: Insights from CMIP6 Ensemble Models:* **H Doko**, D Koji

1905743 *Integrated Modelling of Climate Uncertainty and Infrastructure expansion for long-term Water resource planning in the Blue Nile River Basin.:* **S B Sahlul**, G Corzo Perez, D Gold, Y A Bayissa, C Zevenbergen

1973611 *Lighting New Pathways in the Night with the VIIRS Day/Night Band:* **S D Miller**, J Hudson, Y J NOH, C Seaman, W C Straka, J M Haynes, J Turner, J McGlothlin

1986853 *NASA's Land, Atmosphere Near real-time Capability for Earth observation – supporting time sensitive decision making today and evolving to meet the needs of tomorrow.:* **J Hewson**, D Davies, K Michael, D R Lowe

1896293 *New Low Earth Orbit (LEO) Products to Support Weather Forecast Applications:* **L Zhou**, G McWilliams, S N Kalluri

1982832 *North to Alaska with NOAA's Low Earth Orbit (LEO) Technologies and Partnerships:* **J S Delamere**, J Cable, C Dierking, J Dabney, O Larson, H Chapman-Dutton, A Haas, G Veenstra, C Buffington

1890475 *Overview and Early Results of the Global Observing SATellite for Greenhouse gases and Water cycle (GOSAT-GW) and the Advanced Microwave Scanning Radiometer 3 (AMSR3):* **M Kachi**, R Shimada, E Yoshizawa, K Ohara, K AIDA, K Nakata, T Suzuki, K Inaoka, T Miura, Y Kojima, N Ebuchi

1882292 *Recent advances in monitoring the fuel moisture content over the U.S.:* **P A Jimenez**, J Schreck, T Brummet, M Eghdami, J C Knievel, E James

1941865 *The Impact of Non-Conservative Forces and Satellite Models on CubeSats POD:* **J Bemtgen**, P Shafiei, S Tabibi

1956615 *The Use of Limb Adjusted ATMS and ERA5 Reanalysis to Assess Performance and Stability of Microwave Sounder Small Satellites:* **M Goldberg**, S Mejia-Manrique, D Li, L Zhou, S N Kalluri

1901586 *Validation of JPSS CrIS and OMPS tropospheric ozone products against high frequency in-situ observations:* **K L Chang**, O Cooper, B C McDonald

1988758 *Validation of Satellite Precipitation Products from Instantaneous to Seasonal Timescales:* **M Arulraj**, V Petković, H Meng, R Ferraro

247287

Macro-Energy Systems: An Emergent Interdisciplinary Field (*joint with NH, SY*)

Conveners: **Edgar Virgüez**, Carnegie Institution for Science; **Erin Baker**, University of Massachusetts Amherst; **Morgan Edwards**, University of Wisconsin Madison; **Gabriel Mantegna**, Princeton University

- 1971779** *A reinforcement learning approach to energy transition planning under uncertainty:* **M Zhang**, M Edwards, A Carlino, F Kanyako, S Fletcher
- 1852075** *Agent-Based Infrastructure Planning to Better Understand Energy Transitions:* **R Macdonald**, Y Weng
- 1987123** *Analysing macro-economic effects of regionally differentiated climate and energy policies in the global integrated assessment model GCAM:* **C Bertram**, Y R Cui, A Fawcett, H McJeon, G Iyer, T Tibebe, C Guo, J Eom
- 1925023** *Assessing the Value of Pumped Storage Hydropower (PSH) in Appalachian Virginia to the U.S. Eastern Interconnection:* **M U Rahman**, J Quinn, J Qian, J Kern, E Loth
- 1964321** *Bridging the Modeling Gap Between Political Economic Systems and Macro-Energy Systems:* **M Davidson**
- 1895767** *Can We Sequester Carbon Fast Enough? Growing Disconnect Between Models and Reality:* **H Daigle**, A P Ravikumar
- 1897423** *Capacity Expansion Planning with Robust Alternatives: A Community Choice Aggregator Case Study:* **M Jaradat**, N Patankar
- 1856904** *Carbon Removal and the Uneven Burdens of Net-Zero: Justice and Risk in Macro-Energy Systems:* **C Bergero**, J Cheng, Q Zhang, Y Ou, H McJeon, D Nock, I Azevedo, E Brutschin, Z Nicholls, M Gidden, E Grubert, S Davis, M Edwards
- 1913559** *Consequential Social and Environmental Life-Cycle Assessment of Fusion Power Systems at Scale:* **Z Thomas**, M Edwards
- 1923558** *Coordinated Hydropower Dispatch Decisions in Interconnected Water-Energy Systems:* **H Eldardiry**, P Bunnak, S Galelli
- 1951364** *Coupling Integrated Assessment and Power System Models to Assess Grid Impacts of Economy-Wide Decarbonization: Insights from South America's Mercosur+ Region:* **J B Khalil**, A F M K Chowdhury, J Wessel, K Amo Offei-Akoto, T B Wild, Y R Cui, G Iyer, J Lamontagne

- 1981019** *Decomposing the impact of carbon dioxide removal deployment on the U.S. net-zero scenarios:* **F Kanyako**, M Edwards, M Craig
- 1928516** *Deep Learning-Based Projections of Baseline and Peak Electricity Demand for Enhancing Grid Resilience Under Climate Change:* **B Sahin**, M R Allen Dumas
- 1933479** *Effects of model choices and technology strategies on the assessment of air quality and health benefits from Net-Zero transition:* **J Shiwang**, W Peng, J Bistline, J Farbes, X Huang, G Iyer, J Jenkins, E M Knipping, N Mailloux, E Mayfield, A Venkatesh, Q Zhu
- 1860461** *Empirical estimates of cost of capital for industrial-scale green hydrogen projects:* **R Sota**, S Venghaus
- 1927158** *Enabling Sustainable Growth in Developing Regions through Grid Integration: A Case for ASEAN Power Grid:* **Z Feng**, H Eldardiry, P Bunnak, S Galelli
- 1876818** *Environmental Impacts and Trade-Offs for New Zealand's Energy Transition: A Life Cycle Assessment Perspective:* **F Astorga-Mendoza**, J Haas, R Peer
- 1869697** *Feedstock Sourcing Can Double GHG Intensity in US Plastic Supply Chains: A Geospatial Cradle-to-Gate Life Cycle Analysis of US Fossil-based Plastic Supply Chains:* **Y Zhu**, A P Ravikumar
- 1916196** *How to Minimize the Indirect Emissions from Electricity Consumption for Direct Air Capture:* **M Adam**, A Mohan, J Jenkins
- 1946052** *Increasing Electricity Demand: Challenges & Opportunities:* **T Gunda**, R Valdez, F Hasiuk
- 1880710** *Joint Impacts of Climate Change and Technology Diffusion on Future Uncertain Peak Electricity Demand:* **M Shi**, M Craig
- 1956577** *Liberating U.S. Energy Data: Addressing Shared Data Barriers in Macro Energy Systems Research:* **E Belfer**, D Xia
- 1882367** *Linking enhanced energy systems models to deliberative citizen juries to advance decarbonization in New England, USA:* **R Calder**, S Evans-Brown, R B Howarth, C Jackson, G Mavrommati, A Mortazavaghar
- 1988797** *Location-Based Power Planning with Aging Plant Sites for a Just Energy Transition: Coal Repurposing Opportunities in South Africa:* **Z Huang**, B F Hobbs, D Chattopadhyay
- 1853636** *Macro-Energy Systems: Governance and Strategies for a Just, Decarbonized Future:* **E Grubert**
- 1971706** *Mapping Wellbeing Outcomes Across Carbon Dioxide Removal Levels in Climate Pathways:* **C P Wejnert-Depue**, E Brutschin, M Andrijevic
- 1844618** *MAXIMIZING WIND TURBINE EFFICIENCY THROUGH ADAPTIVE BLADE PITCH CONTROL:* **R Singh**

- 1959026** *Mitigating Climate Change Induced Risk for Investment Pathways in the Bulk Power System:* **M Craig**, M Christino
- 2000012** *Modeling the Environmental and Health Impacts of Alternative Grid Configurations:* **J French**, J Potts, S Castellanos
- 1994763** *Modeling the North Carolina Carbon Plan Using GLIMPSE:* **T White**, N Kittner
- 1928432** *Multiple-scale Land-sparing Opportunities of Renewable Energy Transitions:* **X Li**, R R Hernandez, S M Jordaan
- 1891255** *Near-term opportunities to avoid blast furnace relining in the United States:* **M Atouife**, J Jenkins
- 1956867** *Optimal Charging Infrastructure Locations and Grid Upgrades for the U.S. Freight Electrification Transition:* **E Kontou**, R Zhang, M Hedrick
- 2001324** *Optimizing Renewable Energy Siting in New York State: A Scenario-Based Approach for Onshore Wind and Utility-Scale Solar Development:* **K Ganesamoorthy**, N Patankar
- 1977474** *Plant-by-plant strategies for decarbonizing hard-to-abate industries using clean hydrogen:* **L Peng**, J Liu, G He, J Lin
- 1967034** *Post-combustion fossil-fuel CCS in the US: impact of market and policy dynamics:* **K Bice**, L Gulden, C F Harvey

251281

Mapping Earth's Changing Surface and Overlying Vegetation Structure with Radar, Lidar, and Stereoimaging (joint with C, H, NH, T)

Conveners: **Andrea Donnellan**, Jet Propulsion Laboratory, California Institute of Technology; **Craig Glennie**, University of Houston

- 1960812** *A Comparative Study of Landslide Volume Estimation Using Optical and InSAR Velocity Data:* **E J Budukumah**, C Dai, B M Higman, Q Sui, Z Lu, I M Howat, S McColl
- 1949022** *Advancing Multi-Sensor Fusion for Vegetation Structure Mapping: A Physics-based Simulation, Processing, and Analysis framework for Spaceborne LiDAR and Optical Stereo Images:* **A Mkaouer**, D E Shean, S Bhushan, P Montesano, C S R Neigh, W Tan, T Yin, J P Gastellu-Etchegorry
- 1889775** *Balancing Science and Earth Science to Action: A SPHERE Approach to STV Applications Needs:* **P Milillo**, M Momen, A Vashishtha, A B Campos, J L Nueso-Bello, P Rizzoli, J Nilsson, J C Fernandez Diaz, S Parks, A Manconi, Y Wassie, D Kahl, C Giovando, J E Schubert, K Saito, B F Sanders, L Tango, L Mascolo, M Battipede

- 1880704** *Projected Increases in Cooling Energy Demand across Africa under Climate Change and Population Growth Scenarios:* **G Kondi Akara**, M B Sylla, W Ndifon
- 1983409** *Public support for decarbonization and green industrial development in the United States:* **H Buck**, P Shah, L Arpan, J Yang, T Young
- 1884490** *Representing Real-World Speed Limits to Low-Carbon Technology Deployment in Macro-Energy System Models:* **E Erickson**, X Huang, C Greig, E Larson, W Peng
- 1993345** *Sociotechnical Modeling of a Just Industrial Electrification Transition:* **R Ciez**, H Qin, A Nath, P Mukherjee
- 1965395** *The EARNest Consortium:* **E Virgüez**, I Azevedo
- 1915155** *The Impacts of Transmission Expansion, Long Duration Energy Storage, and Floating Offshore Wind Mandates on Resource Integration in the Western U.S. Grid:* **N Anglivié de La Beaumelle**, I Azevedo, J S Davis, J Dowling, D Saad, K Tehranchi
- 1890968** *Time of Emergence of Global Wind-Power-Potential Signals in CMIP6 Projections:* **H Pan**, L Liu
- 1945751** *Timelines and Delays in European Grid Expansion:* **D Alessi**, K Surana, B Zakeri
- 2002494** *Understanding the Impacts of Large-Load Growth on Generation Portfolio Requirements in Texas:* **J Potts**, S Castellanos
- 1972393** *Defining the NASA's Surface Topography and Vegetation Science Needs for the Cryosphere:* **T H Dixon**
- 1930035** *Generating High-Resolution Crop Canopy Height Information Using SkySat Stereopairs:* **B Ghansah**, S Jose L Landivar, M J Starek, M Bhandari, J Foster
- 1975944** *Mapping Melting Ice Beneath Antarctic and Greenlandic Grounding Zones with Lidar and DEM Data Fusion:* **B E Smith**, T Sutterley, P Milillo
- 1985471** *Multi-modal 3D satellite data processing, correction, and fusion approaches for STV:* **D E Shean**, S Bhushan, O Alexandrov, S T Henderson, A Gupta
- 1875625** *NASA Surface Topography & Vegetation (STV) Precursor Coincident Datasets: Open-source tools and analysis-ready data for contemporaneous, co-registered satellite and airborne elevation measurements:* **S Bhushan**, J Hayes, S T Henderson, D E Shean, C S R Neigh
- 1966168** *Refined Spatiotemporal Characterization of Rock Glacier Velocity and Alpine Permafrost Dynamics Using Tiered In Situ, Airborne, and Orbital Measurements:* **T Meng**, R J Michaelides, S Vivero, A Nguyen, M Siegfried, A Routt, E Ross, B H Hills, L McKaig, M Marquardt, B Vogt

1870619 *The Earth Dynamics Geodetic Explorer (EDGE) mission: A swath-imaging multifunction lidar for tracking the 3D structure of terrestrial ecosystems and surface topography of ice:* **H A Fricker**, J D Armston, J B Blair, S B Luthcke

252252

Methane Mitigation – Novel Approaches to Reduce Methane Emissions and Remove Atmospheric Methane (joint with A)

Conveners: **Sam Abernethy**, Spark Climate Solutions; **Lisa Stein**, University of Alberta; **Desiree Plata**, Massachusetts Institute of Technology; **Adam Boies**, Stanford University; **Sam Abernethy**, Spark Climate Solutions

1971388 *Adaptive Laboratory Evolution at Low Methane Concentrations Improves Cell Growth in a Methanotroph for Methane Mitigation Technology:* **J Groom**, S Stolyar, L He, O Rosenbluth, M Lidstrom

1920989 *Analyzing the Impacts of Emission Perturbations on Tropospheric Ozone (O₃) Budget Using an Idealized Chemistry-Climate Model:* **M Wright**, S Li, Q Zhu, A M Fiore

1947759 *Atmospheric Methane Removal Status: Methane Reactors and Atmospheric Oxidation Enhancement in Lab, Field and Models:* **M S Johnson**, C Brashear, A Feilberg, M Krogsbøll, N Fogde, M K Mikkelsen, L Pennacchio, T Röckmann, H Russell, M Rezaei, M van Herpen, N Weiss

1953606 *Catalytic Strategies for Environmental Methane Oxidation: Thermal and Photocatalytic Approaches:* **A M Tsopelakou**, S Tomlinson, S Fitzgerald, T M Onn, A Boies

1909879 *Chemical mechanism-based parameterization of chlorine production from iron-salt aerosols (ISA) using multiphase modeling:* **L Pennacchio**, M van Herpen, P Roldin, M S Johnson

1929933 *Chlorine Production from Photocatalysis of Iron Chloride as a Potential Methane Sink:* **J Yan**, M K Mikkelsen, L Pennacchio, M van Herpen, M S Johnson, M Wang

1875752 *Cl₂ measurements in the marine tropical troposphere from Puerto Rico and implications for methane oxidation:* **D Farmer**, J E Mak, E Pellerin, T Berg, K Richard, M Selby, J Marcantonio, B Sarangi

1857121 *Development of hydrogel bioreactors for methane removal and mitigation:* **L Y Stein**, N Deschner, M Iacobelli, J Van Oers, R Rieberger, D Sauvageau

1868640 *Volcano topography science and applications observation needs for a future Surface Topography Vegetation mission:* **P Lundgren**, A M Roman, M G Bato, E Lev, G Pedersen, M Watson, H R Dietterich, M Woodhouse, R Grandin, P A Mothes, L Córdova, P Milillo, A Donnellan

1982737 *Efficiencies, Products, and Economics of Dilute Methane Oxidation in a Chlorine Radical Photoreactor:* **M Kessler**, R Randall, R B Jackson, A Majumdar

2001259 *Energy and Economic Considerations in Low-level Methane Emissions Destruction via Thermal Catalysts:* **D L Plata**, E Martin, A Parker, H Price, W Sawyer

1972927 *Establish Machine Learning and AI Approaches for Rapid Catalyst Assessment for Ambient Methane Removal:* **M Swint**, A M Tsopelakou, A Boies

1943505 *Evaluating the scale of natural and mechanical airflows for surface-based atmospheric methane removal:* **S Tomlinson**, A Tsopelakou, T M Onn, S R H Barrett, A Boies, S Fitzgerald

1944642 *eVerse.AI's Hand-held, Portable Methane Cattle Enteric fermentation Methane Measurement Devices integrated with GreenCow dMRV Platform:* **A Sonkusare**

1972649 *Global Modeling of Iron-Catalyzed Chlorine Production Efficiency and Its Impact on the Atmospheric Methane Sink:* **Y Yao**, N M Mahowald, P G M Hess, D Meidan, J E Mak

1967361 *Identifying and Quantifying Gas- and Particle-Phase Tracers for Chlorine Oxidation in the Remote Troposphere:* **J H Kroll**, S Frey, H S Kenagy, Y Li, F N Keutsch

1943835 *Iron-Enhanced Multiphase Halogen Chemistry as a Novel Methane Sink: Insights from CAPRAM-SPARK Modeling:* **S H Bran**, M Aiyuk, A Tilgner, T Schaefer, H Herrmann

1950395 *Methane Capture and Utilization: Charting Pathways for Methane Use in the Energy System:* **N Wiens**, K Narayan, M A Wise

1967783 *Photoreactor Field Trial for Mitigation of Methane, Ammonia and Odor:* **M Krogsbøll**, M Rezaei, N Fogde, H Russell, N Weiss, A Feilberg, M S Johnson

1948998 *Plume-based enhanced atmospheric methane oxidation improves control and monitoring of environmental impacts:* **M S Johnson**, M van Herpen, L Pennacchio, M K Mikkelsen

1964892 *Scaling a Methane Eradication Photochemical System for Agricultural Applications:* **M Krogsbøll**, N Fogde, N Weiss, S Bager, A McConville, H Russell, M S Johnson

1911026 *Symbiotic Rumen Methane Conversion System (SRMCS) for reducing methane emissions from ruminant livestock:* **I Sonkusare**

- 1960556** *The Role of Hydroxyl Radicals in Atmospheric Methane Depletion:* **Y L Yung**, J Yang, J P Pinto, K F Li, C E Miller
- 1954058** *Tropospheric Hydroxyl Radical (OH) Sensitivity to Emission Changes Diagnosed from an Idealized Chemistry-Climate Model:* **S Li**, M Wright, Q Zhu, A M Fiore

252069

Mineral-Based Carbon Management and Removal Technologies: Emerging Research, Demonstrations, and Measurement Verification Methods (joint with B, MR, OS, V)

Conveners: **Peter D Warwick**, US Geological Survey; **Matthew Jones**, U.S. Geological Survey; **Gyami Shrestha**, Carboneers, LLC

- 1948022** *A Compilation of Mafic and Ultramafic Mine Tailings Data in the United States for ex situ CO₂ Mineralization Resource Assessments:* **M Sanders**, M M Jones, J Foepfel, D Levitan, C A DeVera, J Fisher, A M Wiens, M S Blondes, Z Jafari, J Nedzweckas
- 1874548** *A Mineralogically-Based Methodology to Assess CO₂ Mineralization and Associated Critical Mineral Resources of Mafic Mine Tailings in the United States:* **M M Jones**, A Wiens, M Sanders, N Becker, M S Blondes, S T Brennan, J Foepfel, D Levitan, M D Merrill, P D Warwick
- 2002916** *Assessing Commercial-Scale CO₂ Storage Potential in the Columbia River Basalt Group: Early Insights from the HERO CarbonSAFE Project:* **D Eakin**, J F McLaughlin, T Schaeff, S DiRaddo
- 1953709** *Chemical Weathering Acceleration Field Test at the King City Asbestos Corporation (KCAC) Joe Pit Mine:* **B Schmidt**, S Brown, K M Finstad, K K Mayfield, H Goldstein, M M Smith, G M Dipple, A M Doucet, B Ladd, C Myers, PhD
- 1945041** *CO₂ Mineralization in Basaltic Rocks: Challenges and Insights from Experimental Analyses:* **G Jo**, K Nakamura, Y Konishi, Y Shimano, T Hattori
- 1996969** *Critical minerals mobilized from the Columbia River Basalt after CO₂ injection:* **E Polites**, Q R Miller, N Lahiri, C H Stanfield, M Gibson, T Schaeff
- 1926246** *Development of an integrated process for critical minerals recovery and CO₂ mineralization:* **V Prigobbe**, V Brombin, O Jazani, S Liguori
- 1956123** *Direct Air Capture via Accelerated Aqueous Carbonation of Blast Furnace Slag with Concurrent Silica and Alumina Recovery:* **J Singh**, B Wang, R Anex

- 1950783** *Unpredictable OH Response to an Idealized ENSO:* **Q Zhu**, A M Fiore, R Pincus, J Guan, C E Singer, B Medeiros, P Giani
- 1925413** *Using oxygen-enriched water to reduce enteric methane in beef systems:* **J Vargas**, C Wharton, L Sitorski, E de Paula, C Brooke, T Engle, S Place
- 1998761** *Earth as a Reactor: Coupling Carbon Mineralization with Emerging Subsurface Energy and Critical Resource Technologies:* **Q R Miller**, M F Bartels, H Chopra, C T Depp, S DiRaddo, M Gibson, N Lahiri, V Lamberti, K Maier, M Murchland, E Nienhuis, E Polites, N Lopez Rivera, J Parisi, C H Stanfield, K Steup, Y Teng, M Villante, K Yan, T Schaeff
- 1946893** *Evolution of Permeability and P-Wave Velocity in Porous Ultramafic Rocks During Carbon Mineralization:* **A Prakash**, Y Teng, S Choi, Q R Miller, H Chopra, C H Stanfield, D Oyekunle, B Belzer, C McCarthy, P B Kelemen, J A M Leong, J Paz y Miño, M W Spiegelman, A Park, A Moment, M Fillion, R Rush, M Sauvé
- 1987019** *Five years of commercializing Enhanced Rock Weathering: What have we learned?:* **A Wolf**
- 1876459** *Geochemical and Petrophysical characterization of Kenya Rift Basalts for Geologic Carbon Storage:* **G Okoko**, C H Stanfield, M F Bartels, Y Teng, H Chopra, Q R Miller, N Lahiri, T Schaeff, L Olaka, C Nelson, D Goldberg
- 1945062** *Global Drivers of Cement Carbon Uptake: A Multi-Factor Attribution Analysis Across 76 Countries from 1975–2020.:* **Z Shao**
- 1926055** *High Dissolution Rate Engineered Glass Fibers for Net-Negative CO₂ Mineralization:* **B Gorman**
- 1927718** *In-Situ Measurement of Mineralization in Ultramafic Mine Wastes Using Eddy Covariance and Automated Chambers:* **S E Brown**, B Ladd, G M Dipple, K M Finstad, K K Mayfield, M M Smith, C Myers, PhD, B Schmidt
- 2000069** *Permeability Enhancement Through CO₂-Based Engineered Fluids in Ultramafic Intrusions:* **C H Stanfield**, Q R Miller, A Denny, J Silverstein, N Lahiri, Y Teng, E Ilton, T Schaeff
- 1997942** *Pore-scale Characterization and Multiphase Flow in Tamarack Olivine for CO₂-Enhanced Critical Mineral Recovery:* **Y Teng**, Q R Miller, M F Bartels, H Chopra, C H Stanfield, T Schaeff
- 1981174** *Quantitative Evaluation Pathways for Emerging Technologies in Reactive Reservoirs:* **C Sauve**, C H Stanfield, Q R Miller, N Lahiri, Y Teng, K Yan, M Gibson, H Chopra, T Schaeff

1925592 *Reactivity of asbestos mine tailings piles under ambient and elevated CO₂ conditions:* **K M Finstad**, M M Smith, C Turvey, S Wilson, G M Dipple, B Ladd, S Brown, K K Mayfield, B Schmidt

251012

Multi-Sector Dynamics: Geophysical Constraints of Climate Solutions

Conveners: **Jacqueline Dowling**, Carnegie Institution for Science; **Lyssa Freese**, University of California Irvine; **Michael Craig**, University of Michigan Ann Arbor; **Steven Davis**, Stanford University

1855191 *A prudent planetary limit for geologic carbon storage:* **M Gidden**, M Böttcher, S Joshi, E Brutschin, J Armitage, J Rogelj, A B Christ, C F Schleussner, K Riahi, A Koberle

1854288 *Advancing the Dual Aims of Climate Adaptation and Mitigation in the Built Environment: Challenges and Opportunities for Civil Infrastructure:* **T Kijewski-Correa**

1960908 *Assessing the reliability implications of dynamic line ratings under climate change for WECC:* **M Jones**, M Craig

1998692 *Decarbonizing U.S. Industry and Electricity Sectors Under Geophysical Constraints: Insights from a Multi-Sector Energy Model:* **A X Li**, J Jenkins

1893934 *Economic and Environmental Impacts of U.S. Place-Based Policies Promote Electric Vehicle Battery Supply Chain Security: Analysis of Lithium Supply Chains:* **A Cheng**

1980425 *Evaluating Costs and Sustainability of Mining Needed for the Energy Transition:* **J Cheng**, K Bhuwarka, P Busch, Q Zhang, S Davis

1976158 *Integrated Modeling for Circular and Resilient Food-Water-Energy-Waste Infrastructure:* **M Koutsopoulos**, K Lessard, A Ellis, H Zhongguo, T Mu, X Romeiko, S Siddiqui

248277

Multi-sector Dynamics: Modeling Earth System-Energy-Human Interactions in Urban Environments

Conveners: **Melissa Allen Dumas**, Oak Ridge National Laboratory; **Pouya Vahmani**, University of Southern California; **Matei Georgescu**, Arizona State University; **Timothy Jiang**, Pacific Northwest National Laboratory

1946044 *Validation and Verification of Mineral-Based Carbon Dioxide Removal Credits in the Voluntary Carbon Market:* **L Schacht**, T Hansen

1896000 *Integrated Modeling of Resilient Energy Systems:* **D Diaz**

2002152 *Leveraging Hydrogen Sector Coupling to Support End-Use Demand and Energy Storage Needs: Insights from the Texas Interconnection:* **J Potts**, S Castellanos

1884526 *Little to Lose: The Case for a Robust European Green Hydrogen Strategy:* **K van Greevenbroek**, J Schmidt, M Zeyringer, A Horsch

1960684 *Multisector Modeling of the Co-Production of Geothermal Energy and Direct Air Capture:* **J Fuhrman**, S Patel, G Iyer, J Wilcox

1978838 *Near-term Benefits from Investment in Climate Adaptation Complement Long-term Economic Returns from Emissions Reduction:* **K Caldeira**, L Duan

1931357 *Net-zero emissions heat:* **J Dowling**, D Saad, A Wongel, I Azevedo, K Caldeira, A R Brandt, S Davis

1964317 *Optimizing Land, Marine and Grid Impacts of High-Penetration Renewable Energy Systems:* **M Davidson**

1961434 *Pumped-Storage Hydropower at the Energy-Water Nexus: Demands, Potentials, and Tradeoffs in Decarbonized Energy Systems:* **R J P Schmitt**, R Almeida, X He, L Rosa, N Kittner

1958992 *Rising U.S. power grid vulnerability to extreme weather: a multi-decadal analysis:* **T Sun**, C M Zanocco, J A Flora, A Majumdar, R Rajagopal

1886027 *Systematic Spatial Planning for Aquifer Recharge and Agrisolar Boosts Water-Food-Energy-Ecosystems Sustainability:* **M Li**, X He

1912085 *The Potential of Using Cold Underground Thermal Energy Storage to Manage Data Center Cooling Load:* **Q Luo**, A Perera, J Jenkins

1951155 *Understanding the Geophysical Constraints of Renewable Energy with Confidence: From Resource Assessment to System Transitions:* **L Qiu**, M Howland

1944616 *Building resilience: Risks and opportunities for housing stocks in “gateway” cities under changing extreme temperatures and energy systems:* **T Chakraborty**, J N Rooney-varga, L A Agel, M A Barlow, L Cheney, S Gholamzadeh, A Louhghalam, J B Winbourne, A Gamache

1902872 *Cooling Effects of a Golf Course in an Arid Urban Environment:* **H Yu**, E Akinlabi, D Li

1992415 *Deconstructing Household Energy Use: A Machine Learning Approach:* **A Ramanathan**, T Ballard

1872881 *How Households Adapt in a Hot-Humid Climate with Energy Efficiency Interventions:* **K Wade**, D Nock

- 1993941** *How Wet Weather Affects Fatal Road Crashes in the United States:* **A Maloney**, Z Aslam, M Ashfaq
- 1923705** *Multi-outcome Assessment of Rooftop Photovoltaic Panel Configurations: Net Benefits Based on Long-term Simulations for North American Cities:* **H Yin**, S E Krayenhoff, R Saari, E Kichiy, D Sailor, K Siddiqui, A Aliabadi
- 1961842** *Multi-outcome Modeling of Urban Heat Adaptation Infrastructure:* **T Jiang**, S E Krayenhoff, A Martilli, N Nazarian, B Stone Jr, J A Voogt
- 1969301** *Participation Under Uncertainty: Community-Guided Objective Setting for Urban Adaptation:* **A Eyni**, B F Zaitchik, B F Hobbs, A Hadjimichael, A Spangler, A Richardson, M Bader

250883

MultiSector Dynamics: Advances in Modeling Adaptive Human Systems

Conveners: **Jim Yoon**, Stanford University; **Christian Klassert**, Organization Not Listed; **Jillian Deines**, Pacific Northwest National Laboratory; **Anne van Valkengoed**, University of Groningen

- 1922409** *Adaptive Capacity Disparities: Capturing Resiliency Inequalities in Socio-Hydrological Systems:* **M Preisser**, P Passalacqua
- 1867000** *Advancing the Representation of Human Actions in Macro-Scale Hydrologic Models:* **S Galelli**, S W D Turner, Y Pokhrel, J Y Ng, A Castelletti, M F Bierkens, F Pianosi, H Biemans
- 1905977** *Agricultural Fallowing Patterns Reveal Local Sensitivities and Inform Agent-Based Land-Use Modeling in California's Central Valley.:* **A Sharma**, J M Gilbert, J Medellin-Azuara
- 1888253** *Agricultural-Urban Water Transactions and Salinity: A Case Study in the Lower Arkansas River Valley:* **Y Uwineza**, M Rouhi Rad, J Suter, S Nozari, R Bailey
- 1871806** *An Integrated PMP-ABM Model of Adaptive Enforcement and Behavioral Spillover:* **N Bouzidi**, C J A Klassert, C D Perez-Blanco
- 1970468** *Assessing Machine Learning Methods for Predicting Hurricane Evacuation Behavior to Inform Simulation Models:* **S Peter**, W Kennedy, H Kavak, T Anderson
- 1993651** *Capturing Adaptive Human Responses to Extreme Weather Events with Large Language Models:* **Z Wang**, T Sun, C M Zanocco, J A Flora, H S Boudet, R Rajagopal, A Majumdar
- 1958731** *Carrots, Sticks, and Cattle: Modeling Tradeoffs and Synergies in Amazonian Conservation Policy Futures:* **N Choquette-Levy**, R Martins Moreira, A R Bell Dr, J Rodrigues Ribeiro

- 1924195** *The Diverging Indoor, Outdoor, and Power Implications of Different Rooftop Photovoltaic System Designs:* **E Hosseini**, E Bou-Zeid
- 1953412** *Toward a multi-sector urban modeling framework: Intertwined futures of urban morphology and water security in future Los Angeles:* **S Ferencz**, R McManamay, P M Reed, E Porse, L Lau, A Hadjimichael, J Yoon
- 1951859** *Transforming Buildings into Grid Flexibility Assets: Insights from the New England System:* **A Perera**, Q Luo, F Pecci, J Jenkins
- 1958341** *Competition Between Future Energy Development and Other Land Use Demands:* **E Orji**, R McManamay, C R Vernon, K Mongird, K Narayan
- 1993251** *Designing Multisector Systems for Climate-Resilient Nutrition and Food Security:* **A Ashraf**, M Basheer, M Etichia, J M Gonzalez, J J Harou
- 2004098** *Environmental Ethics in AI Alignment: A Missing Foundation for Sustainable Environmental Governance:* **J Washebek**
- 1914321** *Frameworks for integrating human decisions into hydrologic models for irrigated agriculture:* **T Partridge**, Y Cai, L Sanchez, A Escrive-Bou, J Medellin-Azuara, K S Perkins, J Traum, C Olson, J Marshall
- 1953667** *Household Decision-Making Under Water Scarcity: Modeling Coping Strategies and System Resilience in Karachi, Pakistan:* **H F Khan**, Z A Usmani
- 1918446** *Mapping a Spectrum of Global Reservoir Pathways: A Scenario Analysis of Integrated Energy-Water-Land Systems:* **M Zhao**, T B Wild, P L Patel, N T Graham
- 1927775** *Modeling Adaptive Human Decision-Making in Refugee Movement Using Dual Process Theory:* **M J Puma**, D Groen, E Wu, D Suleimenova Jr
- 1867648** *Modeling Adaptive Polycentric Infrastructure Governance Under Financial, Social, and Climate Uncertainty:* **A Wiechman**, A Deslatte
- 1980982** *Modeling and Assessing the Propagation of the Economic Effects of Extreme Events:* **A Gurgel**, J Caron, J M Reilly, J F Morris, S Paltsev
- 1949468** *Operationalizing the concept of socio-environmental tipping points in river basin management: an application in in land use, water quality, and conservation in Northern Finland:* **J E Shortridge**, H Marttila, A Räsänen
- 1922143** *Quantifying Uncertainty in Urban Water Demand Projections:* **A Verma**, J B Skerker, C J A Klassert, C Brelsford, S Fletcher

249433

**MultiSector Dynamics: Science and Modeling
Advances for Complex Adaptive Human-Earth
Systems**

Conveners: **Patrick Reed**, Cornell University; **Jennifer Morris**, Massachusetts Institute of Technology, Joint Program on the Science and Policy of Global Change; **Sai Veena Sunkara**, Cornell University; **Sai Veena Sunkara**, Cornell University

1963608 *A Coupled Agent-based and Life Cycle Assessment Model for Analyzing Trade-Offs in Resilient Energy Transitions:* **B Zhang**, M T Zaki, H Breunig, N K Ajami

1925182 *Convergent Anthropocene Systems-of-Systems: Overcoming the Limitations of System Dynamics with Hetero-functional Graph Theory:* **M M Naderi**, M Harris, J C Little, E Ghorbanichemazkati, A M Farid

1966663 *Cross-Sectoral Impacts of Biochar Deployment: Integrated Modeling for Energy and Agricultural Systems:* **M Weber**, M A Wise, M Gidden, P Lamers, G Yadav, G Avery

1925751 *Exploring Energy and Water System Impacts of AI-Driven Data Center Expansion:* **K Mongird**, K Z Akdemir, C D Burleyson, T Thurber, C R Vernon, J S Rice

1974909 *Global Temperature Variability Modulates Global Emissions in a Coupled Social-Climate Model:* **J G Larson**, P Keys, J Burkhardt

250235

**MultiSector Dynamics: Uncertainty
Characterization for Coupled Natural-Human
Systems**

Conveners: **Vivek Srikrishnan**, Cornell University; **Jonathan Lamontagne**, Tufts University; **James Doss-Gollin**, Columbia University; **Abigail Birnbaum**, Pacific Northwest National Laboratory

1881056 *A Machine-Learning based Framework for Evaluating Energy and Environmental Outcomes of Bioenergy Technology Uncertainties:* **A N Birnbaum**, M Weber, T Waite, Y Jiang, K Narayan, M A Wise

1989906 *Adaptive Stratospheric Aerosol Injection Strategies under Uncertainty:* **A Bauer**, D Keith, B B Cael

1957103 *Advancing characterization of and decision-making under uncertainty when adapting power systems to climate change:* **M Craig**

1958893 *Impacts of Data Center Demand Growth on Electric Grid Stress and Potential Mitigation Measures:* **K Z Akdemir**, C D Burleyson, K Mongird, K Oikonomou, T Thurber, C R Vernon, J S Rice

1971543 *Integrated Energy-Water flows in the United States over the 21st century:* **H Niazi**, K Mongird, J S Rice, K Semrod, J Homer

1981809 *Integrating overlooked connections at the water-energy-food-sediment nexus in global assessment models:* **R J P Schmitt**, A F M K Chowdhury, T B Wild

1940952 *Model linkages: A survey of practical and scientific challenges and solutions to integrating earth and human system models:* **J Szinai**, K A Jagannathan, N Devineni

2001334 *PCHES-ADAPT: Understanding Multistressor and Multiscale Drivers of Feedbacks, Cascading Failures, and Risk Management Pathways within Complex MSD Systems:* **R Nicholas**

1920421 *Redefining Retrofit Priorities for Non-Powered Dams through Performance and Robustness Metrics:* **V Yildiz**, M Kolenski, M Zaniolo

1848268 *The Fire We Made: Unraveling the Human Drivers and Impacts of Wildfires in the U.S.:* **M Sadegh**, J T Abatzoglou

1880943 *The multi-sector dynamic implications of future U.S. data center service growth:* **T B Wild**, M Zhao, S Walldhoff, P L Patel, M A Wise

1980552 *Translating Compound Hazard Risks into Electric Grid Investment Decisions:* **N D Jackson**, K Skolfield, R Alfant

1911088 *When Droughts Pollute: Assessing Carbon Emissions and Health Impacts from Hydropower Generation Losses in Southeast Asia:* **S Yan**, Z Liu, X He

1911079 *Identifying Key Global and Domestic Uncertainties Affecting the Future U.S. Liquefied Natural Gas Export Market:* **H Kim**, W Peng

1853725 *Leveraging Information Theoretic Sensitivity Analysis to Navigate Information-Action Feedbacks in Dynamic and Adaptive Infrastructure Investment Pathways:* **L Lau**, P M Reed

1982503 *Nature-Related Financial Risks for Global Systemically Important Banks (G-SIBs):* **J Sabuco**, N Ranger

1898615 *Neglecting Initial Population Uncertainty Leads to Biased Assessments of Flood Risk Outcomes:* **P Bhaduri**, A Pollack, J Yoon, H Wan, P R Chowdhury, B Daniel, V Srikrishnan

1987069 *Studying Deep Meteorological Uncertainty in the Context of Energy System Planning:* **S Sundar**, V Carag, S Cohen, G Buster

251995

MultiSector Dynamics: Understanding Extreme Weather, Compound Hazards, and their Impacts

Conveners: **Erwan Monier**, University of California Davis; **Nicole Jackson**, Sandia National Laboratories; **Deeksha Rastogi**, Oak Ridge National Laboratory; **Deeksha Rastogi**, Oak Ridge National Laboratory

- 1957113** *Armed conflict risk from hydroclimate volatility:* **T Bagwell**, S Dee, A Stravato, D Saikumar, F Viens, J S Mankin
- 1960286** *Assessing Future Agricultural Droughts and Crop Vulnerabilities Across the Contiguous United States:* **L Yao**, H Yan, N Sun, E Sinha, K Narayan, T Thurber
- 1978673** *Assessing Historical Wildfire Risk Indices in Midwest U.S. to Inform Electricity Resilience Planning:* **J Wang**, W Beck, A Dyreson, P Xue, M B Kayastha
- 1988144** *Can Graph-based Reservoir Computing Models Forecast Western U.S. Drought?:* **Z Strasberg**, W Chapman, J Smith, C Teeter, J Mott, L Scuderi, N Jackson
- 1944914** *Compound Extreme Hydrological-Nutrient Events in the Chesapeake Bay: Machine Learning Predictions Under Climate Change:* **A Jamaat**, A Grun, R Obringer, A Mejia, C Raj
- 1986204** *Impacts of extreme cold events on rice yields in China:* **J Fu**, F Zhou, G Tang
- 1966437** *Integrating Resilience Across Threats, System Attributes, and Performance Outcomes: Multi-Sector Insights from Extreme Drought on Water Shortages in Texas:* **R Valdez**, T Gunda, N Jackson

249350

MultiSector Dynamics: Using AI to Model and Manage Complex Adaptive Human-Earth Systems

Conveners: **Stefano Galelli**, National University of Singapore; **David Gold**, Utrecht University; **Jillian Sturtevant**, Baylor University; **Srishti Vishwakarma**, Pacific Northwest National Laboratory; **Jillian Sturtevant**, Baylor University

- 1935836** *Intensifying Compound Heatwave-Drought and Heatwave-Heavy Rainfall Events Under Climate Change:* **K Sung**, J Kim, T Kim, Y Chae
- 2000911** *Multiscale Analysis of Human Mobility Adaptations to Extreme Heat in the United States:* **H Cai**, H Tian, L Hu, Y Xu, L Zou
- 1888119** *Observational evidence of the heatwave amplification of extreme precipitation across the globe:* **Y Zhang**, Y Huang
- 1895135** *Positive Association Between Coastal Sea Surface Temperatures and Humid Heat Stress on Nearby Land:* **N Siebert**, R Horton
- 1893909** *Quantify the impact of compound droughts and hot extremes on soil moisture deficits:* **Z Hao**
- 1913358** *Quantifying and valuing wildfire smoke related mortality benefits from climate mitigation in the United States:* **M Qiu**, C Callahan, I Higuera-Mendieta, L Rennels, B Parthum, N S Diffenbaugh, M Burke
- 1903035** *Relying on a Climate-Dependent Grid: Evaluating Compound Climate Risks to U.S. Balancing Authority Electricity Supply:* **A Kollar**, C Grady
- 1882083** *Rising Temperatures Intensify Drought Propagation and Severity Across the Contiguous United States:* **H Yan**, N Sun, L Yao, T Thurber, J S Rice
- 1936567** *Spatio-temporal and demographic disparities of exposure to heatwaves and wildfire smoke:* **S Miao**, R Jing, L He
- 1912722** *Storm Regimes in Dam Overtopping Events: A Sub-Regional Atmospheric Analysis Across the Eastern U.S.:* **H I Orok**, D A Hence
- 1997468** *The Changing Landscape of Natural Hazards in the U.S.:* **R Frye**, M Ashfaq
- 1865019** *Trends and Multi-Sectoral Impacts of Extreme Climate Events in Southern Africa (2008–2024): A Regional Synthesis:* **L Chapungu**, G Nhamo
- 1913503** *Improving Adaptive Decisions by Learning Which Information Should Trigger Them:* **M Zaniolo**
- 1957433** *WaCSim: A GenAI-Integrated Cyber-Physical Simulation Platform for Water Distribution Systems:* **B Fishbain**, S Cohen, M Housh

251985

New learnings from early deployments in cross-pathway carbon dioxide removal (CDR) technologies

Conveners: Ella Holme, Isometric; Kevin Sutherland, Isometric; Xueya Lu, University of British Columbia; Michael Thorpe, NASA Goddard Space Flight Center; Marya Matlin-Wainer, Isometric

1993914 *Adaptable Field Mesocosms: Development and Validation of an In-Situ Customizable System for Aquatic Research:* **I Bahler**, K Christison, P Duke, B Foster, E Halfyard, B Trueman, S Sterling

1995836 *Bhumi Zero-Carbon: Universal Carbon Project Developer for Every Scale and Space:* **J Prakash**, R Singh

1989745 *Challenges and Opportunities of Using Steel Slag as a Feedstock for CDR Related to Counterfactual Quantification, MRV, and Scalability:* **H Olson**, S Naidu, G McClure, S McCauley, M Francis, D Maxbauer

1958769 *Dissolution and Sinking Behaviors of Alkaline Materials for Open-Ocean Alkalinity Enhancement:* **M Duret**, B B Cael, A Subhas, D Keith

1942769 *Field Evaluation of Self-Integrating Accumulators (SIAs) for Monitoring Enhanced Rock Weathering in Agricultural Soils:* **P Orenstein**, G Faria, T Michaelis, C Bisping, D Bell, W A Bischoff, A Schwarz, A McBride, M E Kelland, T Oehm

247208

New Technologies and Frameworks to Detect and Analyze Methane Emissions from the Oil and Gas Supply Chain: Methods, Data, and Insights (joint with A, H)

Conveners: Kathleen Smits, University Bonn; Daniel Zimmerle, Colorado State University; Ezra Levin, Colorado State University; Dorit Hammerling, Statistical and Applied Mathematical Sciences Institute; Navodi Jayarathne, Postdoctoral Researcher

1964798 *5-Minute Controlled Methane Release Study: Evaluating Gaussian Plume and Backward Lagrangian Stochastic Models in a Complex Oil & Gas Facility:* **K B Shonkwiler**, A Upreti, S Riddick, D Zimmerle

1980793 *Integrated Quantification of Methane Emissions Using Handheld Fast-Flow and Drone-Based Technologies Across the Oil and Gas Supply Chain for LDAR Validation and Testing:* **J D Lobo Neto**, T Jayasinghe, A Fan, Z Plante, J Ghiraldini, D S Baer

1922048 *Near-term Opportunities for BiCRS Pathways to Address the Wildfire Crisis: New Learnings from Early Geospatial Analyses and Field Deployments of Biomass Burial in the US West:* **L Clayton**, S Crotty

1996978 *River Alkalinity Enhancement as a Carbon Dioxide Removal Strategy: a Norwegian Case Study:* **S Sterling**, B Trueman, I Bahler, C Brenan, J Dale, P Duke, E Halfyard, A Lam, N Nelson, R Norrad, J Tucker, R D Vogt

1995846 *River alkalinity enhancement as a carbon dioxide removal strategy: a Nova Scotia case study:* **S Sterling**, B Trueman, I Bahler, C Brenan, A Broughton, J Dale, P Duke, M Einarson, E Halfyard, A Lam, R Norrad, J Sather, S Swim, J Tucker

1964785 *Statistical Method Development and Uncertainty Quantification for the Monitoring, Reporting, and Verification of Large-Scale Enhanced Rock Weathering Projects:* **E Xu**, E Chang, E Milliken, N Planavsky

1954404 *The Role of the Mining Industry in Scaling Up Carbon Dioxide Removal Via Mineral Carbonation and Enhanced Weathering:* **L Bullock**, J M Matter, M Duret, R H James, E Mervine, D A H Teagle

1982182 *Toward consistent temporal accounting in carbon dioxide removal deployment:* **Z Hausfather**, F Chay, K Hemes, K Fingerma

1955869 *A framework for validating and implementing quantitative plume metrics for satellite point source observations at scale:* **K O'Neill**, A Ayasse, D Cusworth, K Howell, J Kim

1867977 *Advanced Leak Detection Methods for Belowground Natural Gas Pipeline Leaks: Evaluation under Diverse Environmental and Operational Conditions:* **V R Gundapuneni**, J H Lo, D Zimmerle, K M Smits

2004776 *Advanced Methane Leak Detection: Real-World Performance of the Discover AMLD System Across Diverse Environmental Conditions:* **P Wehnert**

1926428 *Advancements in Aerial Gas Mapping LiDAR Technology to Support Emissions Monitoring of Global Oil and Gas Infrastructure:* **M Thorpe**, J Brasseur, S Kreitinge, C Dudiak, C Donahue, E Himes, R Weber, N Goldsworth, E Kamp, D Altamura

1914884 *Advancing the Design and Operation of Soil Aeration Systems for Belowground Natural Gas Leak Mitigation:* **N Jayarathne**, J H Lo, K M Smits

- 1969842** *ASSESSING THE DETECTION AND QUANTIFICATION CAPABILITIES OF CONTINUOUS MONITORING SOLUTIONS USING A FIELD-REPRESENTATIVE SINGLE-BLIND CONTROLLED TESTING PROTOCOL:* **F Cheptonui**, E Levin, R Day, C Ilonze, J Duggan, K Patterson, A Chakraborty, R Brouwer, D Zimmerle
- 1931229** *Blinded performance testing of distribution space-based remote leak survey technologies:* **A Corbett**, J von Fischer, J Bullen, Z Weller, E Martinez, K D Hajny, C Moore, T Jaroch
- 1886808** *Carbon Swarm: A UAV Swarm-Based System for High-Resolution CO₂ and CH₄ Plume Monitoring in Complex Environments:* **S A Nowicki**, T P Fischer, J C Ericksen, M Fricke
- 1928081** *Cause-Informed Framework for Risk-Based Methane Mitigation in Upstream Oil and Gas Operations:* **A Adekomi**, S Yang, S N Stokes, A P Ravikumar
- 1880142** *Comparing Methane Detection: Insights from Point Sensor Networks and Bridger Aerial Surveys:* **K D Hajny**, Y Roell, B Fosdick, C Moore
- 1986927** *Comparison of simulated and observed methane plumes at oil and gas sites in the Permian Basin using advanced dispersion, coupled mesoscale-LES atmospheric modeling, and scientific machine learning:* **A Fathi**, J L Sousa Almeida, L Klein, A Sundaram, M Zortea
- 1995622** *Controlled Testing and Field Demonstration of a UAV-based Technique for Quantifying Efficiencies and Methane Emissions of Gas Flares:* **S Festa-Bianchet**, M Mohammadikharkeshi, A Tanner, B M Crosland, G Kopp, M Johnson
- 1969094** *Detection and Quantification of Dispersed Methane Sources: Lessons from a Controlled Release Testbed:* **D A Risk**, P Buntov, R Iftakhar Hossian, Y Dudak, K El Hachem, C Hall, A Chepkova, T R Abichou
- 1867006** *EVALUATING THE FEASIBILITY OF USING DOWNWIND METHODS TO QUANTIFY POINT SOURCE OIL AND GAS EMISSIONS USING CONTINUOUS MONITORING FENCE-LINE SENSORS:* **M Mbua**, S Riddick, A L Hodshire, E Kiplimo, K B Shonkwiler, D Zimmerle
- 1911807** *Evaluation of a Commercial Portable Methane Analyzer in Flight Aboard a Research Aircraft and its Utility in Quantifying Airborne Eddy Covariance Methane Fluxes:* **I Pollack**, J B Leen, X Ren, N Saad, P Stratton, S Renton, I Stein, J Lau, N Malarich, C Warneke, S S Brown
- 1936723** *High Resolution Surveys Reveal Pitfalls of Using Regional Observations to Verify Oil and Gas Methane Emissions:* **A P Ravikumar**, E Sharafutdinov, R Helali Esfahani, S N Stokes
- 1887197** *Impact of Temporal and Spatial Variability in Oil and Gas Emissions for Understanding Mass Balance Estimates of Methane Emissions in Appalachian Basin:* **S N Stokes**, Q Chen, A P Ravikumar, D Allen
- 1964456** *Improving combustion efficiency through real-time, high-precision stack emission mapping:* **E L Wilson**, D Conley, R Engelhard, J Samples
- 1959591** *Leveraging Aerial and Ground-based Insights to Produce Reconciled, Measurement-Based Methane Inventories:* **M Johnson**, B M Conrad, S Wilde, D R Tyner, PhD
- 1950246** *Localized Methane Loss Detection and Quantification from Natural Gas Gathering Pipelines in the Permian Basin:* **R Gorantla**, S Wotus, M Reeder, N Pekney
- 1899193** *Long duration methane emission measurements at gathering and boosting sites in the Permian Basin:* **Q Chen**, B Abdulkadiroglu, D Allen
- 1954177** *Mind the Gap: On the General Importance of Spatiotemporal Coverage in Evaluating Sensing Systems in LDAR and Emissions Accounting for Oil & Gas Sites:* **D Bachman**, J D Albertson, F Hoehne, D Niederberger, A Obuljen, A Prabhu, A Schneuwly
- 1922413** *Models Models Everywhere: Can we get two models to agree on the same methane emissions dataset?:* **A L Hodshire**, J Brown, M Moy, E Rimelman, D Zimmerle, O Khaliukova, C Okenberg, D Hammerling
- 1928438** *Practical Considerations and Optimization Criteria for the placement of Continuous Monitoring Sensors on Oil and Gas Sites:* **T Sorensen**, S Kidd, W Daniels, D Hammerling
- 1988595** *Satellite Flyover Detection of Aboveground Controlled Natural Gas Releases:* **R Day**, B Rainwater, E Levin, T Bailey
- 1961487** *Turbulence Parameter Bias in Reanalysis Data: Implications for Methane Emissions Detection and Global Climate Standards:* **K B Shonkwiler**, M Moy, J Duggan, D Zimmerle
- 1976348** *Using Aerial Measurements to Inform Statewide Methane Emission Estimates:* **M Moy**, J Brown, A Santos, A L Hodshire, E Rimelman, O Khaliukova, C Okenberg, D Hammerling, D Zimmerle, W Daniels

251264

Next-Gen GeoAI: Scalable and Research-Driven Machine Learning Applications for Environmental Impact

Conveners: Biplov Bhandari, Woolpert, Inc; Zhuangfang Yi, Regrow Ag; Kshitiz Khanal, University of North Carolina at Chapel Hill; Sherrie Wang, Stanford University

1980917 *Advancing Satellite Imagery Preprocessing to Enable Scalable Monitoring of Marine Megafauna:* **L Connor**, K Goetz, C Khan, J Wall, M Sackett

2003294 *AI Enabled Decision Support System to Enhance Disaster Response in Smart Cities:* **L Thapa**, O Rodriguez-Espindola, P Albores-Barajas, K Aryal

1997721 *Breaking the Bottleneck: Emulating a Forest Growth Model for Scalable Carbon Analysis:* **N Giebink**, D Schmidt, A Rizayeva, N LaHaye, C R Levine, K Stagg

1928335 *Building the Foundation for Georeferencing: A Preprocessing Workflow for NEPA Map Images:* **H Wan**, A Devulapally, S Wagle, B Chauhan, M Taylor, A Acharya, A Bernat, S Munikoti, S Horawalavithana

1975282 *Cross-Modal Validation and Refinement for Scalable Digitization of NEPA Map Features:* **A Devulapally**, H Wan, C Davis, B Chauhan, M Taylor, A Acharya, A Bernat, S Munikoti, S Horawalavithana

250601

Nexus between Land Use Dynamics and Soil Health in a Changing Climate: Impacts on Tropical Agriculture and Forestry (joint with B, H)

Conveners: Noel Aloysius, University of Missouri; Elizabeth Asantewaa Obeng, Council for Scientific and Industrial Research; Reginald Guuroh, Council for Scientific and Industrial Research; Akwasi Duah-Gyamfi, Council for Scientific and Industrial Research

249525

Quantifying Nitrogen and Phosphorus Budgets for Sustainable Nutrient Management (joint with B, GH, IN, SY)

Conveners: Xin Zhang, Princeton University; Dennis Swaney, ; Peter Groffman, Cary Institute of Ecosystem Studies; Jana Compton, Environmental Protection Agency Corvallis; Meredith Brehob, Oak Ridge Institute for Science and Education

1985795 *Entering the “Agent Classroom”: building credibility for answers to geospatial queries:* **J A Cardille**, R Johnston, S Venugopalan, S Ilyushchenko, M P Brenner, K Azad, E Bergeron Quick, K Ahmed, N Jencz

2005172 *GeoAI Foundations for Broad-Area Change Monitoring with PlanetScope, Embeddings, and Large Language Models:* **A Hoover**, B Neuberg, M Klassen, R Nair, S Revankar, M Anderson, C Levit

1929793 *Global Field Boundary Delineation Model Zoo and Tooling:* **G Muhawenayo**, Z Fang, S Khanal, A Wollam, I Corley, C Robinson, M Mohr, C Holmes, J Marcus, L D Estes, N Jacobs, A Tárano, H R Kerner

1974081 *Machine Learning for Biodiversity Impact Assessment in Paper Mill Sourcing Regions:* **A Ly**, K Weldemariam

1979762 *Smart Irrigation Monitoring Using AI and IoT:* **A Gonzalez**, S Arámbula

1848139 *SAGE: A Scalable GeoAI Framework for Zero-Shot Mapping of Lithium Mines:* **C Sachs**, D Gounaridis, P Dhillon, J Newell

1854817 *Unsupervised Detection of Urban Drought: A Comparative Analysis in a Data-Limited Setting.:* **N Desai**, E Ferranti, S Greenham, J Vande Hey, A Quinn, S De Sabbata

1923947 *Deploying GeoAI Systems in Real-World Agricultural Applications:* **A M Tarano**, G Tseng, I Zvonkov, C L Nakalembe, A Elmustafa, T Grupp, I Becker-Reshef, H R Kerner

1947627 *Digital soil mapping of Soil Organic Carbon stocks in West Bengal: A Climate Change Perspective:* **P Mukherjee**

1949183 *Effects of Climate and Landuse on Soil Fertility Attributes in Different Agroecological Zones of Ghana:* **M Obeng**, R T Guuroh

1968417 *Variation in Soil Microbial Community Driven by the Addition of Exogenous Soil Amendments as Indicator of Soil Health in a Tropical Rainfed Dryland Agroecosystem:* **P Soni**, N Ghoshal

1849253 *Trajectories of Nitrogen Input and Output: Estimating Nitrogen Travel Time Across Suburbanizing Watersheds:* **C Ishimwe**, M D Shattuck, J Emerson, W M Wollheim, W H McDowell, A S Wymore

1854203 *Addressing Science-Policy Gaps to Halve Nitrogen Waste by 2030 through the International Nitrogen Network (iN-Net):* **C Ross**

1870100 *Addressing Uncertainties and Inconsistencies in Cropland Manure Nutrient Input Quantification:* **T Zou**, L Lassaletta, R Einarsson, A Dobermann, X Zhang

- 1872994** *Quantifying crop and livestock disconnection by tracing nitrogen flows at the regional scale:* **L Lassaletta**, A Sanz-Cobena, C Pinsard, S Spiegel, L Ma, A Rodríguez, Z Bai, P Reidsma, V Snow
- 1893177** *Estimating nitrogen budget components with natural abundance nitrogen isotopes in a tile-drained corn-soybean rotation:* **Y Hu**, Z Yu, L Gentry, G McIsaac, D Schaefer, C Mitchell
- 1894108** *Winter's Influence on Seasonal Nutrient Cycling in Agricultural and Forested Sites:* **M Winer**, A W Schroth, M Duffy, M Landsman-Gerjoi, C Adair
- 1896025** *Benchmarking Nitrogen Use Efficiency in Corn Fields through Proximal Sensing and Machine Learning:* **K Adhikari**, D R Smith, C Hajda, K C Flynn
- 1899448** *State and county-level phosphorus balances from 2002 to 2022 in Illinois using census and survey data:* **X Liu**, S Xu, O Zandvakili, M Guzel, A J Margenot, E Brevik, A Sadeghpour
- 1910249** *Bi-directional Ammonia Flux and Nitrogen Deposition Estimation across CONUS in an Integrated Agriculture and Atmosphere Modeling System:* **X Huang**, L Ran, K Ray, H Foroutan
- 1924081** *The Effects of Beaver Ponds on Nitrate Uptake in an Urban Stream:* **K Hoffman**, J Hamann, D Knights
- 1934218** *Integrated NPK Fertilization Strategies Informed by Big Spatiotemporal Data-driven Machine Learning to Enhance Sustainable Wheat Production:* **K Ren**, H Lan, M Xu, X Zhang, Y Duan
- 1934407** *Evaluation of IMPROVE PM_{2.5} Phosphorus Measurements by X-Ray Fluorescence (XRF) Spectroscopy:* **J Wang**, X Zhang, N P Hyslop, S Watanabe, G Schladow, I Chiedu, T L Dombek, A Conway, K Lindskog, W Cui, M Gollner
- 1937095** *Contribution of Digital and Omics Technologies to the Precision Management of Nitrogen in Cranberry Production:* **P Celicourt, PhD**, A N Rousseau, V Hebert, P Kabore, J Frotey, P Constant, T Missihoun, Y Petit-Homme
- 1943419** *Machine Learning-Based APEX Meta-Model for Assessing Agricultural Nutrient Runoff in South Korea Under Future Climate Scenarios:* **S Seok**, M Kim, J Jung, D Kim, S Kim, T Kim
- 1948886** *Seasonal nutrient sources, yields, stream concentrations, and their twenty-year trends quantified across the conterminous U.S.:* **N M Schmadel**, O Miller, S Ator, M P Miller, G E Schwarz, D M Robertson, A Sekellick, D A Saad, J Marshall
- 1956893** *Exploring the Role of Hydrometeorological Factors in Driving Phosphorus Exports across the United States:* **S S Borah**, K Karimi, I Onwuka, R L Muenich, D R Obenour
- 1957909** *Climate Extremes Drive Disproportionate Phosphorus Loss from Global Croplands and Potential Mitigation:* **M Li**, W Liu
- 1959955** *Groundwater Well Nitrate Trend Analysis in the Southern Willamette Valley:* **L Wang**, J Compton, J R Brooks
- 1963507** *N2.0: A Nitrogen Efficient Cropping System that Mimics Natural Nitrogen Cycles:* **M J Castellano**, L Brindisi, E A Ainsworth, B Emmett, M Baum, S Herr, S Kaeppler, N D Leon, D Northrup, C Hirsch, L Price, C Romain, C Messina, B Basso, R McGee, E Buckler, J Ojeda-Rivera, R Rellán-Álvarez, T Rooney, R Roston, A Schulz
- 1966308** *Tandem Evolutionary Algorithm Highlights Catchment and Watershed Attributes that Drive Resiliency and Vulnerability to Nutrient Inputs:* **S Markley**, M Weber, M Brehob, R D Sabo, M J Pennino, R A Hill, S Alford, J Compton
- 1968912** *Refining Phosphorus Budgets Through Improved Livestock Manure Estimates:* **B Rashid**, A Saha, R L Muenich
- 1971341** *Changes in Terrestrial P Inputs to and Riverine Outputs from Watersheds in the Mississippi Atchafalaya River Basin 2000-2022:* **G McIsaac**, D P Swaney, A Botero-Acosta, R Howarth
- 1973673** *Building a National Map: Integrating Soil Test Phosphorus Data Across the Conterminous United States:* **I Onwuka**, O Duckworth, N Nelson, D R Obenour
- 1979766** *Nutrient Budgets for a Changing Planet: Linking Land, Water, and Climate:* **K J Van Meter**, M Brehob, J Compton, G P Oelsner, R D Sabo, S M Stackpoole, D P Swaney, X Zhang, N B Basu
- 1980179** *Decarbonizing Ammonia in Agriculture: A Comprehensive Assessment of Renewable-Based Production in the US:* **Y Gao**, E A Davidson, X Zhang
- 1982852** *Advancing Nutrient Budgets in the Chesapeake Bay: Fertilizer Trends and Sanitary Sewer Exfiltration:* **J Delesantro**, T Butler, L C Linker, J Rigelman
- 1990595** *Optimal Phosphorus Management in a Transboundary Setting: A Dynamic Game Approach:* **C Cho**, N Schunk, Z S Brown, B Sohngen, J S Baker
- 1996744** *Development of a wetland geospatial framework to support nutrient management across the conterminous United States:* **S Alford**, R A Hill, S Markley, M Weber, J Compton, M Brehob, R D Sabo

1999806 *Modeling Temporal and Spatial Patterns of Non-Point Source Nutrient Loads with i-Tree HydroPlus Tools:*

L Zhang, T A Endreny

252428

Recent advances in geospatial data science applications for urban change studies

Conveners: **Ranjani Kulawardhana**, Jackson State University; **Sumantra Chatterjee**, Alabama A & M University; **Jiafu Mao**, Oak Ridge National Laboratory; **Marvin Lotsah**, Organization Not Listed

252094

Regional Climate: Modeling, Analysis, and Impacts (cosponsored by AMS: American Meteorological Society, EGU: European Geosciences Union, UGM: Union Geofisica Mexicana, WCRP: World Climate Research Programme) (joint with A)

Conveners: **Melissa Bukovsky**, University of Wyoming; **Rachel McCrary**, NSF National Center for Atmospheric Research; **L. Ruby Leung**, Pacific Northwest National Laboratory; **Stefan Rahimi**, University of Wyoming

1920338 *A large ensemble of kilometer-scale downscaled climate simulations for modernizing extreme precipitation guidance for the nation:* **A Thompson**, K M Mahoney, L Xue, A F Prein

1919723 *Analysis of the Effects of Spatial Resolution in Climate Models on Precipitation Values in the Mississippi River Basin:* **E Gebhart**, C Hancock, K Murphy, S Dee, J Doss-Gollin, S E Munoz

1943296 *Application of the Weather Research and Forecasting (WRF) Model for Short-Term Climate Vulnerability Assessment: East Coast of India:* **P Sarkar**, R Mall

1959582 *Comparing CESM climate modeling results with ERA-5 reanalysis for Middle Tennessee:* **M Witherspoon**, R Bennartz, A K DuVivier

1993039 *CORDEX Flagship Pilot Study URB-RCC: Urban Environments and Regional Climate Change – Where We Are and How to Proceed in the Spread of the RCM Urbanization:* **T Halenka**, G Langendijk, P Hoffmann, M Belda, N Machado-Crespo, A Villalba-Pradas

1979863 *Evaluating Climate Projections for Hydrologic Modeling: Comparison of Precipitation from CMIP5 and CMIP6:* **K M Mohib**, O I Abdul-Aziz

1922338 *Evaluating Ocean Model Products for Enhancing Climate Informed Stock Assessments for West Coast Groundfish:* **D Richie**, M Feddern, B Hawkins

1985875 *Evaluating Representation of Surface Winds along the Coast of Ghana:* **M Siwak**, B Jönsson, PhD

1985276 *Geospatial Assessment of Urban Heat Island Effect over Conterminous United States using Remotely Sensed Land Surface Temperature and Land Use Land Cover Products:* **R Kulawardhana**, PhD, S Chatterjee, M Lotsah, R Rathnayaka, J Mao, M R Allen Dumas, D Chand, S M Hagos, W Tadesse

1888494 *Prioritizing Ecological Restoration in Greenbelt Areas through a Connectivity Approach:* **S Son**, G Lee, S Lee, J Lee, J H Yoon

1995031 *Evaluating the Accuracy of CMIP6 Climate Models in Simulating Key Climate Variables Across Various Climatic Zones:* **M I Kamali**, M Bagheri Khaneghahi, R Nazari, M Karimi

2003434 *Evaluating Two-Way Nested WRF Simulations for Wet-Season Predictability in Southern Florida:* **R Gaal**, B P Kirtman, A C Clement, B Soden

1934129 *Evaluation of Atmospheric Icing Events in NA-CORDEX WRF Simulations:* **R R McCrary**, L Kessenich, M R Tye, M Gore, A Abdelaal

1853717 *Evaluation of Precipitation Event Construction in Downscaled Precipitation Products over CONUS:* **X Chen**, R Leung, P A Ullrich

1971597 *Examining the robustness of weakened orographic influence on precipitation in downscaled climate projections over the western US:* **N Siler**, M Koszuta, S Rahimi, J Norris, A D Hall, P Ullrich

1943079 *From Historical Trends to Future Extremes: A Localized Climate Analysis for Cumilla, Bangladesh:* **S Khadem**

1871716 *From Past Storm to Future Threat: Simulating Windstorm Intensification in a Warmer Climate:* **J H Christensen**, J Øelund, R Zeitzen, H Vedel, H Feddersen, D Matte

1893135 *How Far Can 12 km Take Us? Progress and Early Insights From NA-CORDEX Simulations:* **J Stuienvolt Allen**, T Eidhammer, R R McCrary, M S Bukovsky, S Rahimi, H I Chang, S A McGinnis

1964985 *Innovative Hybrid Deep Learning and MCDM Framework for Regional GCM Ensemble Selection in IDF Analysis:* **G Sankar**, S Ramasamy Dr, A Balu

1889573 *Investigating Extreme Fire Weather Risk in a Changing Climate over CONUS and California: Insight from NASA's NEX-GDDP-CMIP6 Models:* **M Jasper**, I Diallo

1886356 *Long-term hydroclimate modeling at 1.33 km resolution over the Rocky Mountains: development and initial results from RM1.3:* **P Adhikari**, B Geerts, S Rahimi, K Smith, L Xue

- 1926971** *Machine Learning for Efficient Climate Downscaling: Balancing Data Parsimony, Accounting for Time-Stationarity, and Ensuring Accessibility:* **K Singh**, S Rahimi, L Huang, C W Thackeray, B Bass, J Norris, A D Hall
- 1913413** *Precipitation modeling for community-scale flood resilience in Michigan watersheds:* **D Kluver**, W M Robertson, J T Allen, R W Lammers
- 1867207** *Reconstructing Monsoon Climate Variability and Extremes in Bangladesh Using Dynamical Downscaling of ERA5 Using RegCM5:* **S Biswas**, T Rashid Dr, N Ahsan Dr, B Sikder, M Kamruzzaman

250171

Remote Sensing for Sustainable Agriculture

(joint with A, B, H, IN)

Conveners: **Sheng Wang**, Aarhus University; **Sherrie Wang**, Stanford University; **Jillian Deines**, Pacific Northwest National Laboratory; **Kaiyu Guan**, University of Illinois Urbana-Champaign

- 1997609** *Adaptation and Mitigation in India's Wheat Belt: Tradeoffs Between Crop Yield, Agricultural Residue Burning, and Groundwater Depletion:* **M Jain**, V H Rohden Prudente, M V Deshpande, N Bhattarai, A Ishtiaque, B Singh
- 1942276** *AI for Small Scale Field Boundary Delineation in Africa.:* **C Muthee**, K Mwangi, T Grupp, F Stolle, J Jaoko
- 1878287** *AI-Powered Monitoring of Afforestation Using Multispectral Drones and Deep Learning:* **H Morgan**, A Elgendy, B Tran, H M El-Askary
- 1932428** *Assessing soybean growth and vegetation health across multiple planting dates using UAV-based time series imagery:* **A Timilsina**, A Chiluwal
- 1911298** *Assessing the Impact of Tillage and Non-Tillage Farming Practices on Winter Wheat Productivity and Water Use Efficiency in Oklahoma:* **A Kifle**, N Bhattarai, P Wagle, J Paudel, S Sharma, S A Woznicki
- 1997363** *Contextualizing Remotely Sensed Crop Yield with Landscape Metrics for Precision Conservation Applications:* **N Berkowitz**, D Uden, T E Franz
- 1882801** *Cross-scale Multi-task Deep Learning for Tillage Practice Monitoring using Multi-Source Remote Sensing Observations:* **Z Lin**, K Guan, S Wang, Q Zhou, X Wu
- 1945695** *Determining Plant Population post canopy merger from Unmanned Aerial Systems:* **M Saif**, R O Chancia, F Zhang, S P Murphy, S J Pethybridge, J V Aardt
- 1958462** *Do Off-Season Fields Tell a Story? Earth Observation Reveals the Status of Global Black Soil Croplands Between Harvest and Sowing:* **Y Cui**, J Dong, C Terrer, C Zhang, N Chen, S Ren, N You, R Liu

- 1909754** *Region-scale Projections of Future Temperature and Precipitation Trends Using CMIP6:* **S Okhravi**, Y Velísková, M Sokáč, M Garaj, M J Zareian, M Tanhapour
- 1964356** *The State of Climate Downscaling in Hawai'i and the Pacific Islands:* **A G Frazier, PhD**, K Sanfilippo, O Timm, T W Giambelluca
- 1972692** *Varying sources of uncertainty in risk-relevant hazard projections across the continental United States:* **D C Lafferty**, S Hartke, R L Sriver, A J Newman, E D Gutmann, F Lehner, P A Ullrich, V Srikrishnan
- 1889504** *Do Types of Abandoned Paddy Fields Affect Insect Diversity?: Remote Sensing and Field Survey Analysis:* **J Kim**, S Han, J Yun, S Lee, Y Song
- 1960233** *Domain Adaptation Approaches to Improve Leaf Trait Estimation by Reducing Error Propagation in Hybrid Modeling:* **P Farajpoor**, A Pourreza, M Narimani, M Fidelibus
- 1975923** *Efficient Corn Disease Monitoring via Polarized Imaging and Self-Supervised Deep Learning:* **G Vincent**, M Kudenov, R Dean, P Balint-Kurti, C Williams
- 1976063** *Essential Agriculture Variables for GEOGLAM: An International Community Effort to Create Common Definitions for Divergent Agricultural Applications of Satellite Data:* **A K Whitcraft**, S Gilliams, L Tits, M Marshall
- 1905794** *Exploring Crop Properties in Earth Observation Foundation Model Embeddings:* **H Alemohammad, PhD**
- 1934308** *Fusing Structural and Spectral Data for Yield Assessment in Peanuts: A LiDAR and Hyperspectral Imaging Approach:* **N J Niva**, L N Lacerda, G Vellidis, C Pilon, A Peduzzi, S Maktabi, S Payare, M Ardiguieri
- 1955297** *Harnessing Machine Learning and Super-Resolution Sentinel-2 Imagery to Accurately Map the Weed Kochia:* **S Shirliffe**, T Ha, K Nketia, J Sandhu, S van Steenberg, H Fernando
- 1936369** *High-Resolution UAV Monitoring of Soybean Using Multispectral and LiDAR sensors for Optimizing N Timing and Agronomic Decision Support:* **M Pandit**, A Chiluwal
- 1936045** *Improved Crop Yield Estimation by Integrating Surface Reflectance, Terrain Features, and Subsurface Soil Properties Using Machine Learning in a Terraced Agroecosystem:* **E Eskandari**, K Grote
- 1913441** *Integrating Remotely-Sensed Agricultural Management into Scalable GHG Modeling Workflows:* **S Kanee**, C Malmberg, K Rein, X Ji, M Kim, N Baxamusa, C Black, D LeBauer, M Dietze

- 1986989** *Integration of Lidar and Multispectral Remote Sensing Data in Geospatial Modeling Framework to Map and Monitor Crop Productivity of Cotton:* **J Rugandirababisha**, B Ghimire, R Kulawardhana, PhD, S Chatterjee, K Gibbons, R Xiao, E Hunt, W Tadesse
- 1881846** *Machine Learning-Based Mapping of Stem Water Potential in Walnut Orchards:* **S R Peddinti**, I Kisekka
- 1857768** *Monitoring agroecosystem dynamics in tropical Asia using remote sensing:* **X Luo**
- 1969923** *Monitoring Phenotypic Variation Across Diverse Cover Crop Species and Assessing Their Impacts on Subsequent Corn Production via Airborne-Satellite Cross-Scale Sensing:* **Z Jiang**, K Guan, S Wang, K Wong, K Hein, G C Bagnall, C N Topp
- 1924981** *Monitoring Rice Photosynthesis Under Contrasting Water Management Conditions with Near-Surface Hyperspectral Sensing:* **W P Richardson**, K Guan, M Reba, B Runkle
- 1974606** *Multimodal UAV-Based Modeling for Stage-Specific Biomass Estimation in Wheat (*Triticum aestivum*): Integrating Spectral, Textural, and Structural Traits:* **S Kumari**, I Flory, C Bishop, J Rathore, M Wright, O Walsh, M Gardezi
- 1939607** *Point Cloud Classification and Estimation of Leaf Area Index (LAI) of Croplands using UAV-based LiDAR datasets:* **A Yadav**, R Sinha
- 1968667** *Predicting Corn Grain Yield Using Vegetation Indices Derived from Multispectral Imagery and Field Spectroradiometer Measurements:* **R Awal**, A Valiya veettil, N A Ausaji, A Fares, B Thapa, A El Hassan, A Adem, A Rahman
- 1935844** *Quantifying the Impact of Direct Seeded Rice Adoption on Multiple Sustainability Metrics in Northwest India using Satellite Data and Ground Measurements:* **A Bhatta**, M Jain
- 1892312** *Real-Time U.S. Crop-Type Forecasting at 30 m Using Expert-Tiled Mixture Models:* **K Zhao**, K Guan, Y Huang, Z Lin, Z Chen, Q Zhou
- 1959285** *Remote Sensing for Fruit Tree Monitoring: BRDF Assessment and Angular Effect Correction in Sentinel-2 Data Using the HABA-CHIME Algorithm:* **C J Guerrero Benavent**, B Franch, I Moletto-Lobos, R de los Reyes, S Saunier, E Vermote
- 1970389** *Remote Sensing-Based Identification of Manure Application Events in Northern Ohio Agricultural Fields:* **L Miralha, PhD**, J Babatinca
- 1879489** *Seasonal Crop Type Classification Using Sentinel-2 Time Series and Machine Learning in Sindh, Pakistan:* **D Mohammadi**, A R Bell Dr
- 1939984** *Spatially Consistent Physics-Informed Spectral Transformer for Crop Parameter Retrieval from Hyperspectral Satellite Data:* **S Ambudkar**, J Kravitz
- 1891126** *Spatiotemporal Monitoring of Agroecosystem Carbon Fluxes by Integrating UAS Observations with a Crop Growth Model:* **X Guo**, B Bayat, C Montzka, H Vereecken
- 1899125** *Spatiotemporal Yield Estimation of Four Major Crops in Canadian Prairies using Remote Sensing and Environmental Data:* **H Chi**, K Guan, Z Lin, J Zhang, Q Zhou, S Wang, S Mezbahuddin, K Zhao
- 1920876** *Sub-Field Crop Yield Prediction Using Satellite-Based Machine Learning: A Multi-Year Analysis with USDA-ARS Ground-Truth Data:* **A Holguin**, E Cho, PhD, S Kraatz, J Chang, M Anderson, F Gao, D Johnson, H Zhao, R Cirone
- 1927293** *Time Series Analysis of Changes in Agricultural Systems in Sub-Saharan Africa: The First Step Toward Climate Impact Assessment:* **F Bologo**, P Jaramillo
- 1920417** *Using UAV LiDAR to Quantify Individual Stems of Perennial Bioenergy Crop, *Miscanthus × giganteus* :* **J Pirro**, S Meerdink, S K Taylor, A VanLoocke, B Petersen, H Schuhl, K Brown, E Seigel
- 1975289** *Wind farms boost farmer income without threatening agricultural security across the US Corn Belt:* **J T Stid**, A D Kendall, A Anctil, J M Deines

247045

Remote Sensing of Urban Change (joint with B, IN)

Conveners: **Adam Mathews**, Binghamton University;
Son Nghiem, Jet Propulsion Laboratory; **Thomas Pingel**, Binghamton University

- 1942477** *A feasibility study of light pollution evaluation using CE-SAT-IIB nighttime light images in central Tokyo:* **T Kiyono**, H Ninomiya

- 1943071** *A Synergy Between Urban Morphology and Subsidence Analysis for Infrastructure Monitoring in Mumbai Metropolitan Region using multiscale MT-InSAR Techniques:* **A Moolchandani**, C Ojha
- 1978055** *Assessing the Impact of Land Cover Changes on Particulate Matter Air Quality in the Dallas–Fort Worth Region:* **A N Ayyappankutty**, J Kanayankottupoyil, K John
- 1939651** *Assessment of Land Degradation in Apo District of Abuja Municipal Area Council Federal Capital Territory, Nigeria:* **F O Omada**, P Biswas Paul
- 1886176** *Consistent yet Divergent Global Urban Greening amid Extensive Urban Expansion:* **H Cheng**, Y He

- 1997879** *Decadal Trends in Urban Heat Across Indian Cities: Linking Local Climate Zones and Urban Growth to UHI Intensification:* **C Yoo**, G C Hulley, A Shreevastava, R Bardhan
- 1944407** *Evaluating Thermal Comfort Through LST and Bioclimatic Variables: Towards a Predictive Comfort Equation:* **A Kumar**, N Kumar, A Rashid
- 1869332** *Evaluation of spaceborne lidar for building height estimation in small and medium-sized cities:* **A Mathews**, S Akter
- 1926222** *Improving 3D Urban Thermal Models from UAV Imagery Using Emissivity Correction and Multispectral-Based Material Classification:* **A McKeon**, T Pingel
- 1953756** *Land Surface Temperature and Urban Heat Exposure Dynamics in Two Major Cities of Western India:* **A Korah**, Y Jamal, C C Murdock, R Baharia, R Sharma, K Vaishnav, D Vikas, V Kohli, A Mohanti, M Pascual, S Sharma, A Anvikar, M C Wimberly
- 1872280** *Land Use/Land Cover Changes and Urban Growth Assessment in Pensacola Metropolitan Area Using GIS and Remote Sensing:* **A Karki**, Z Hu
- 1976217** *Local Climate Zone Mapping and Its Quantitative Applications on Measuring Surface Urban Heat Island in China Cities:* **J Hu**, Y Zhou, Z Zhu

252535

Risk analytics for a warming world (joint with IN, NH, SY)

Conveners: **Oriana Chegwidan**, University of Washington; **Julie Vano**, Oregon State University; **Kristina Dahl**, Climate Central; **Oriana Chegwidan**, University of Washington

247467

Satellite Solutions: Agricultural Monitoring Through Remote Sensing (joint with B, H, NH, SY)

Conveners: **Mary Mitkish**, University of Maryland College Park; **Michael Humber**, University of Maryland College Park; **Cordelia Hiers Brady**, NASA Headquarters; **Keelin Haynes**, University of Maryland College Park; **Allison Bredder**, University of Maryland College Park

- 1989882** *A multi-modal learning approach for crop canopy volume estimation using satellite SAR and multi-spectral datasets, UAV images and representation learning:* **A Tiwari**, L Zhao, B Ghansah, S Jose L Landivar, J Landivar-Bowles, M Bhandari

- 2002307** *LULC Mapping in Urban Area Using a Multi-Resolution Approach:* **A Agrawal**, S K Katiyar Dr

- 1899065** *Modeling the Mechanics of Urban Heat Island Development Over Time: A Digital Twin Approach for Scenario Testing of Nature-Based Solutions:* **D Bidwai**, G V D Dool

- 1903554** *Monitoring Urban Dynamics with SAR: A Benchmark Dataset for Building-level Change Detection:* **A Potnis**, B Swan, I Kao, H L Yang

- 1943636** *NIGHT-TIME LIGHT DATA TO ANALYSE THE URBAN SPRAWL IN MAJOR CITIES OF SRI LANKA COMBINED WITH LULC AND POPULATION DATASET (2013-2022):* **I Jayathissa**, L Yu, J Zhu

- 1858321** *Thermal Remote Sensing of Diurnal Surface Temperature Variations Across Urban and Non-Urban Interfaces:* **H Shi**, C Barber, K L Sayler, C Mueller, R Dittmeier

- 1887538** *Unraveling Urban Heat and Moisture Anomalies Across the Continental U.S. Using Local Climate Zones and Earth Observation Data:* **A Gautam**, S Bhattarai, R Talchabhadel

- 1983361** *A Science-Informed Climate Risk Portal for North America: Making Climate Data Usable, Actionable, and Accessible:* **J L Vigh**, K H Nguyen, R R McCrary, L Kessenich, I Simpson, J Done, J Taganova, R Kumar

- 1979912** *Examining the Use of Risk Analytics in Climate Adaptation and Vulnerability Assessments:* **O M Doherty**, J Roman, H A Inda Diaz, W Krantz, V Ford, C Chen, A C Ordonez, Y C Tien, J Espinoza, M D Koenig

- 1983119** *From Awareness to Impact: Application of Causal Machine Learning for Climate Risk and Action:* **K Chung**

- 1888562** *A Phenology-Aligned Multi-Task Temporal Fusion Framework for Satellite-Based Seasonal Rice Yield Estimation in Southeast Asia:* **Z Lin**, K Guan, S Wang, Q Zhou

- 1927238** *Advancing Satellite-based Agricultural Practices Mapping using Scale Transfer with Pseudo-Labeling:* **Y Ma**, Y Shen, A Swatantran, C Kelly, D B Lobell

- 2001733** *Advancing Soil Organic Carbon Mapping Through Integrated Satellite Observations, Machine Learning, and Climatic Scaling: A Field-Based Study in Montana Agricultural Lands:* **S Felehgari**, PhD, P Nugent, J Souza, B Ghanbarian

- 2004995** *AI Foundation Models for Agricultural Mapping from Satellite Observations:* **S Liang**, W Li, H Fang, H Ma

- 1920099** *AI-Driven Rapid Crop Mapping and Damage Assessment in Sylhet, Bangladesh using Multi-Sensor Satellite and Drone Data:* **M F Perveen**, T Yamano, A A Mehadi, M Amin, M S Hossain, M Shawkat Ali
- 1967426** *AVIRIS4Acres-NY: Airborne Imaging Spectroscopy as a Path-Finder for Satellite-Based Health Monitoring in Specialty Crops:* **K Gold**, K D Chadwick, Y Jiang, P G Brodrick, M Trivedi, H Frye, S Baruah, P A Townsend, D Combs, N Janke, Y Lin, T Williams, T Bates, Y Yang, N Regnier, L Longchamps, C Kamal, L Gregory, H Grover, Y Sun, M Gore, L Pippi, H Walter-Peterson, J Russo, K Cox, S Emery, M Oravec, J Londo, C Schmith, C Smart, F Twinamaani, A Garcia, A Bredder, C Herzberg, H Olearczyk, M L Humber, A K Whitcraft
- 1997572** *Bayesian Autoencoder-Based Cotton Canopy Cover Estimation from Satellite Imagery Using UAV-Derived Latent Space Learning:* **L Zhao**, A Tiwari, S Sarkar, S Jose L Landivar, J Landivar-Bowles, M Bhandari
- 1957301** *Building Trust in Agricultural Data Sharing: Anonymization of Raster Time Series at Scale:* **V Kovalsky**
- 1985915** *Combining PACE Hyperspectral Observations and Crop Models for In-Season Yield Prediction:* **Y Sadeh**, M Wronkiewicz, N Kalecinski, R Sawahn, M A Q Khan, O Oliinyk, I Becker-Reshef
- 1932676** *Conterminous United States multi-annual crop field boundary delineation:* **L Yan**, D Roy
- 1923568** *Deep learning-based detection of rust disease in switchgrass using UAV-derived multispectral imagery:* **Y He**, Y Xu
- 1973404** *Deep-learning transformers for panoptic delineation and monitoring of smallholder agricultural fields across Uganda's refugee settlements:* **Z Fang**, J Van Den Hoek, F Li
- 1981213** *Early-season mapping of winter crops using transfer learning and remote sensing in drought-stressed agroecosystems:* **R Díaz Gómez**, M R L Mautner, C A Young, M Holland
- 1891960** *Enhancing Cropland Waterlogging Detection in the Prairie Pothole Region with Deep-Learning-based Large-Scale Segmentation of PlanetScope Imagery:* **K Zhao**, B Peng, K Guan, Z Jiang, Z Chen, S Wang
- 1929457** *Evaluating Conflict Effects in Sudanese Agriculture:* **A M Tarano**, G Tappan, H Blevins, C Nguyen, I Smith, B Pasztor, C Atsianzale Wakhanala, G Muhawenayo, A D Adebayo, I Becker-Reshef, K M Tabor, A McNally, H R Kerner
- 1986558** *Farmer-Led, NASA-Enabled: Building a Verified Digital Infrastructure for Agriculture Using Earth Observation Tools:* **D Roth**, F S Melton, B Tiller, M Cox, S C Zipper, F Khadim, T Dumler, A Kremen, L Hancock, S Metzger, T Janzen, M L Humber, A K Whitcraft
- 1936753** *Ground truth to orbit: Bridging remote sensing and regenerative agriculture at the Flickner Innovation Farm:* **R Flickner**, S Metzger, I Ciampitti, A K Whitcraft
- 2001447** *Harvest2Market: Tools for Contextualizing Agricultural Production and Food Security:* **M L Humber**, F Argueta, C J Justice, B Manikandan, X Chen, S Kim, B Munshell, J Keniston, B Barker, K Mobley, A Sanchez, M Mitkish, I Becker-Reshef
- 1944463** *Hybrid Smoothing of NDVI Time Series Using Whittaker and Moving Average Techniques for Agricultural Monitoring:* **A K Singh**, O Rosario Belfiore, G D'Urso, G Pugliano
- 1924225** *Improved NDVI Forecasting in Sub-Saharan Africa Using FLDAS Soil Moisture Forecasts and the Dynamic Agricultural Productivity Indicator Approach:* **M Le**, J D Bolten, W B Anderson, A Hazra, A McNally
- 1916593** *Improving Yield Forecasts at the Field Scale in Maryland: Integrating Remote Sensing and Crop Management to Uncover Yield Patterns:* **N Kalecinski**, S Skakun, R Sahajpal, W D Hively, A Thieme, S Kraatz, A K Whitcraft, M L Humber
- 1983366** *In-Season Crop Growth Forecasting Using Satellite Imagery and Context-Aware Deep Learning:* **R Heggadal Math**, S Agrawal, P Chalasani, A Tiwari, L Zhao, B Ghansah, S Jose L Landivar, J Landivar-Bowles, M Bhandari
- 1919494** *Long-term Changes in Irrigation Extent and Water Use in the Eastern Mediterranean:* **E Adrah**, L Brocca, H Yin
- 1976978** *Mapping Growth of Small-Scale Irrigation in Sub-Saharan Africa:* **C Bowden**, T Foster
- 1966052** *Monitoring Crop Nitrogen Status Across the US Corn Belt Using Airborne-Satellite Cross-Scale Sensing:* **Z Jiang**, K Guan, S Wang, E D Nafziger, I Ciampitti, A K Whitcraft, J John Jr, Q Zhou, Z Li, J Pike, D Schaefer
- 1944589** *Monitoring spatio-temporal dynamics of forage species using high-resolution satellite and UAV imagery under rotational stocking management strategy:* **S Sapkota**, J Foster, M Bhandari, S Jose L Landivar, E Reyes, H Saad, P G Lopez
- 1974961** *Multi-modal data fusion in Planet Fusion for enhanced land surface monitoring:* **J Nutini**, R Houborg

- 1970615** *NASA Acres and the Essential Agriculture Variables: Contributions and Collaborations toward a Globally-Consistent, Site-Relevant Agricultural Knowledge System:* **A K Whitcraft**, M L Humber, K Guan, R Sahajpal, G Shuai, N Kalecinski, A Thieme, W D Hively, L Yan, D Roy, A Bredder, S Gilliams
- 1952043** *NASA's Agriculture Program: a Retrospective:* **C O Justice**, B Doorn
- 1905546** *Progressive Early-Season Crop Mapping over the Contiguous United States Using Sentinel-2 Time Series and Historical Ground Data:* **H Li**, X P Song, B Adusei, P Potapov, M Hansen, F Gao
- 1893427** *Sequential Multi-Stage Gaussian Mixture Model for In-Season Cropland Mapping and Yield Forecasting in Russia Using MODIS NDVI:* **C Abys**, N Kalecinski, S Skakun
- 1964473** *The effects of lighting conditions on fractional vegetative ground cover estimation in winter cover crops:* **A N Thieme**, W D Hively, B T Lamb

251754

Scaling Enhanced Rock Weathering for CO₂ Removal in the (Sub-)Tropics: Innovations in MRV, Agronomy, and Community-Driven Deployment (joint with B)

Conveners: **Fatima Haque**, Organization Not Listed; **Benjamin Möller**, University of Tübingen; **Alison Marklein**, Terradot; **Shawn Benner**, Boise State University

- 1864401** *From fjord to field- demonstrating the effectiveness of Greenlandic glacial rock flour as a climate solution for Danish and European agriculture:* **D Oldcorn**
- 1951102** *Coordinated Research Approaches For Effective ERW Evidence Building:* **N Anderson**, A K Tune, N Olagaray, P Ghosh, R Marinos, T Thorlakson
- 1907525** *Delivering ERW in (sub)tropical regions: the importance of petrology and mineralogy in the universities:* **D Manning**
- 1930269** *Developing a rigorous, globally operable protocol for monitoring, reporting, and verifying enhanced weathering projects:* **K M Sutherland**, E Holme, M Matin-Wainer, M Thorpe, K Earl
- 1917329** *Enhanced Rock Weathering with Smallholder Farmers in India's Sub-Tropical Cotton Belt:* **S Kumar**, T Thorat, M Jain
- 1909993** *Enhancing Cabbage Growth and Soil Fertility with Volcanic Pyroclastic Materials: A Field Evaluation:* **S Tetsopgang**, F Fonyuy

- 1902322** *The Grape Remote Sensing Atmospheric Profile and Evapotranspiration Experiment in the Finger Lakes Region, New York:* **Y Yang**, W P Kustas, K Gold, J Prueger, L McKee, J G Alfieri, Y Jiang, T Li, W Duan, W A White, N Janke, A Russ, D Combs, F Gao, M Anderson
- 1987555** *The impact of biomass on the performance of remote sensing-based detection of cover crops in the Mid-Atlantic:* **Y Xu**, Q Zhou, K Guan, S Wang, W D Hively, A Thieme, Z Chen
- 1955976** *The Map Behind The Mask: Evaluating Downstream Impacts of Crop Mask Quality and Timeliness for Agricultural Applications:* **M Cecil, PhD**, E Benami, R Sahajpal
- 1918857** *User-Centered Earth Observation and AI Tools for Agricultural Resilience in Maui County:* **A M Tarano**, A Hess-Dunlop, S C Hodges, N van der Lee, L Nelson, S Kimokeo, T Blamey, R Romo-Valdez, S M Beery, H R Kerner
- 1848743** *Field-Scale Enhanced Rock Weathering for Agronomic Benefits in Western Kenya: Insights from a Commercial Sugarcane Plantation in Migori County:* **F Haque**, B Möller, C Odhiambo, S Sagina, S Davies, H Ondolo, N Thuo, P Otieno, J Kanyingi, K Kamau
- 1920379** *Field-Scale Quantification of Enhanced Rock Weathering and net CDR:* **A R Marklein**, J Mills, J Soong, G Baird, J Ojeda, M C Amorim Catunda, L de Assis Batista, W Larsen, J Harris, E Hagood, M Esper Neto, C Trentin, C Rafael Macon, S Benner Sr, S Fendorf
- 1913864** *From Weathering Arena to Groundwater: Carbon, Cation and Secondary Phase Dynamics Following Rock Dust Treatments in Agroecosystems:* **L Taylor**, E P Kantzas, M Lomas, B Palumbo-Roe, D J Beerling
- 1954694** *Harnessing Microbes to Weather Native Silicates in Agricultural Soils for Scalable Carbon Dioxide Removal:* **C R Lawrence**, T Timmermann, P Weyman, D Dores, Y Y Yang, G Fuenzalida-Meriz
- 1965949** *Large-Scale Field Trial of Enhanced Weathering in a Supply-Limited, Monsoonal Subtropical Region (Eastern Himalayan Foothills):* **S Agarwal**, S, U Khan, A Tilak, S Mondal, S Misra
- 1927495** *Mechanisms limiting carbon dioxide removal via weathering of basalt in tropical acidic soils:* **F Holden**, M I Bird, P Nelson
- 1913421** *Microbially Enhanced Rock Weathering for Carbon Dioxide Removal: Promise, Pitfalls, and Progress:* **H Niron**, T Corbett, I Janssens, T Calogiuri, R Poetra, L Rieder, A Singh, M Van Tendeloo, A Vienne, P Frings, L Steinwider, A Vidal, M Hagens, J W Van Groenigen, T Verdonck, J Hartmann, S E Vlaeminck, A Neubeck, I A Janssens, S Vicca

- 1997968** *Modeling Biophysical and Economic Suitability for ERW in Tropical Africa:* **A Fitzgibbon**, B Möller, N Thuo, H Ondolo
- 1872413** *Monsoon rainfall-driven silicate weathering during glacial-interglacial cycles and its implications for the global carbon cycle:* **D Zhao**, S Wan, X Huang, Z Lu, P D Clift, MA, PhD, DSc, D Li, X Liu, Y Yang, S Jiang, A Lin
- 1957397** *On the storage and transport of anthropogenic alkalinity in unsaturated soils:* **J Jordan**, M A Shadab
- 1871190** *Plot-Scale Enhanced Rock Weathering in Cameroon: Carbon Removal and Agronomic Response in Leguminous Green Bean and Tuberous Potato:* **S Tetsopgang**, V Lengouh, P Beucheh, F Haque
- 1951355** *Probing Sources and Pathways of Error in Enhanced Rock Weathering Field Monitoring: Impact of Plot Setup and Uncertainty Propagation:* **R Santos**, A Chacon, A Amidi, F S M Araujo, R Khalidy, R B Neumann, X Liu, MSci, MSc, PhD, K Skov

250607

Showcasing methodologies and datasets for tracking greenhouse gas emissions: a dialogue between fields

Conveners: **Ethan Kyzivat**, Yale University; **Wu Sun**, UCLA

- 1988218** *A Benchmark Dataset to Constrain Regional Inverse Model Emissions Using Oversampled Methane Observations from MethaneAIR:* **M R Sargent**, J V Pittman, J E Franklin, J Bushey, B Daube, J Hohl, L Downing, A R Nehrir, R Ottenheimer, Z Zhang, PhD, E Walker, S Roche, C Chan Miller, J S Benmergui, E Manninen, S C Wofsy
- 1907465** *Application of Combined Vermicompost and Rapeseed Cake with Inorganic Fertilization and Assessment of Nutrients Cycling, NH₃ and GHGs Emissions during Wheat-maize Rotation:* **S T Raza**
- 1845887** *Connecting observations to emissions: emulating atmospheric transport to enable near-real-time greenhouse gas flux inversions:* **A J Turner**, N Dadheech
- 1929198** *Contemporary Arctic-boreal Zone Carbon Dioxide and Methane Flux Budgets and their Radiative Impact:* **B Sutherland**, J Watts, L D Schiferl, B M Rogers, A Chatterjee, S Potter, E E Jafarov, J M Poe, R Commene, B Gaubert, J A Wang, C Schaedel, L Bruhwiler, B Poulter, Y Oh, S Miller, I Wargowsky, A Virkalla, D M Lawrence
- 1967223** *Downscaling of OCO-2 Target Mode Observations for Fine-Scale Analysis of CO₂ sources in Urban Areas:* **J F Dooley**, T Jones, R Goebel, L Hutrya, L Moldavchuk, L Carvalho

- 1909202** *Public Perceptions of Implementation Scenarios for Enhanced Rock Weathering in a Cross-Country Setting:* **C Baum**, L Fritz, B Sovacool, L Losi
- 1852113** *Reactive Transport Modelling of Carbon Dioxide Removal (CDR) in Agricultural Soils in Response to Liming:* **S A Bea**, D Su, J Mills, S Benner Sr, A Marklein, U Mayer
- 1997217** *Reactive transport simulations of enhanced weathering in Brazilian Oxisols:* **D B B Rogers**, K Maher
- 1869216** *Reduced Order Modeling of Carbon Dioxide Removal via Enhanced Rock Weathering:* **J You**, W Xiong, V Vasylykivska, E Clinkscales, R M Dillmore, V Romanov
- 1940777** *Towards Developing an Evidence-driven Policy Framework to Leverage Enhanced Rock Weathering in India:* **M Paul**, V Adak, N Mukherjee, P Lal
- 1889542** *Utilization of existing geochemical data from terrestrial and marine environments to scale up enhanced rock weathering efficiently:* **I A Mir**
- 1898801** *Global fine-resolution analytical inversion of TROPOMI methane observations enabled by the stretched-grid high-performance GEOS-Chem model:* **D Zhang**, D J Varon, M Payer Sulprizio, E W Lundgren, N Balasus, L Estrada, D J Jacob
- 1933357** *How Well Can High-Resolution Satellite Observations Constrain Emissions? Observing System Simulation Experiments Using the Integrated Methane Inversion (IMI):* **X Wang**, D J Jacob, N Balasus, J D East, L Estrada, S Hancock, J Bruno
- 1880241** *Identifying global dairy and beef cattle operations by combining disparate datasets with AI and remote sensing to improve GHG emissions estimates and monitoring:* **A Davitt**, E Boyda, P Tulloch, D Tesser, A Pawar, J Jilek, A Tulloch, V Sagan, L Sridhar, L Betz
- 1923486** *Improving source attribution within national to regional methane budgets using facility-level data and hyperspectral imaging spectrometers:* **T Scarpelli**, D Cusworth, R Duren, G Maxemin, D Bon, J Kim, R Wang
- 1973512** *Integrating Remote Sensing and Foundation Models to Improve Global GHG Emission Estimation:* **V Sagan**, D Tesser, A Haireti, A Pawar, O Al Akkad, J Jilek, A Davitt, E Boyda
- 1925847** *Integrating remote sensing physics with geospatial foundational models for global manure pond detection:* **A Pawar**, V Sagan, D Tesser, O Al Akkad, J Jilek, A Farbo, A Davitt
- 1970579** *Integrating the Global Lakes and Wetlands Database (GLWD v2) in global carbon studies:* **E Fluet-Chouinard**, M Anand, F Tan, B Lehner

- 1853032** *Production chain complexity drives emissions disparities across global chemical industry and products.:* **W Zhao**
- 1903759** *PyKGML: A Python Library for Efficient Development and Benchmark of Knowledge-Guided Machine Learning for Greenhouse Gas Modeling:* **Y Yang**, A Min, G McNicol, C Chen, Z Jin, V Kumar, L LIU

253375

Stephen Schneider Lecture

Conveners: **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **David Cairns**, Texas A & M University

252168

Stratospheric aerosol injection: assessing potential harms from limited deployment (joint with A)

Conveners: **B. B. Cael**, University of Chicago; **David Keith**, University of Chicago; **Ken Caldeira**, Carnegie Institution for Science

-
- 1888246** *Inequal Responses of Terrestrial Ecosystem Carbon Turnover Time to Stratospheric Aerosol Injection:* **S B Park**, C E Park

251721

Sub-Seasonal to Seasonal Forecasting for Hydrological, Agricultural, and Ecological Applications (joint with H, SY)

Conveners: **Nivedita Dubey**, Washington State University; **Kirti Rajagopalan**, Washington State University; **Samarth Swarup**, University of Virginia; **Subimal Ghosh**, Indian Institute of Technology Bombay; **Tejasvi Chauhan**, Max Planck Institute for Biogeochemistry

-
- 2005142** *Bayesian Neural Networks for Uncertainty-Aware Fog Detection and Forecasting:* **P Deshpande**, S Tripathi, A Bhattacharya

- 1981642** *Quantifying Chinese Coal Mine Methane Emissions Across Scales: Merging Underground, Flux Tower, Point Source and Wide-Area Remote Sensing Observations With Atmospheric Emissions Inversion Models:* **J B Cohen**, W Hu, Y Liu, B Zheng, F Lu, L Guan, S Wang, P Tiwari, L Lu, Q He, K Qin, X Tang

- 1997339** *Synergistic carbon and nitrogen emissions from soils treated with different rates of dairy manure indicate nutrient loss through biotic and abiotic controls:* **A C Ortiz**, T Thompson, W Willis, M Rhoads, J Koziel

- 1929826** *Risk analysis of Stratospheric Aerosol Injection on Polar Ice Melts:* **S Tripathy**, R Chakrabarty

- 1948798** *The Impact of the Complexity of the Upper Troposphere and Lower Stratosphere on Stratospheric Aerosol Injection Proposals:* **D J Cziczo**, X Shen, J Jacquot, Y Li, J Dykema, J V Pittman, J B Smith, F N Keutsch, K P Bowman, C R Homeyer, G P Schill, D Murphy

- 1955111** *Quantifying the risks of stratospheric aerosol injection termination shock:* **A Harding**

- 1971577** *A conservative, decision-relevant approach to identifying potential harms of SAI:* **K Ricke**

- 1987496** *Sulfur-Neutral Stratospheric Aerosol Injection:* **V Sapkota**, D Keith, B B Cael

- 1977599** *ForeSWE: An Attention Model for Forecasting SWE with Uncertainty Quantification:* **K Thapu**, S Savalkar, B Singh, K Rajagopalan, N Hoang, A Kalyanaraman

- 1954843** *Improving Sub-seasonal Monsoon Forecasts Over India with Machine Learning for Hydrologic Applications:* **A W Robertson**, E Esmaili, M A Ehsan, A Dey, S Joseph, S Fang, C Awasthi, J Hwang, S Arumugam

- 1991494** *Practitioner Perspectives on the Potential Utility of Seasonal Forecasts to Support Agricultural Decisions.:* **K Rajagopalan**, S Hall, G Yorgey, M Brady, S Savalkar, K Boone

- 1985862** *Streamflow Forecasting via Vision Transformer over Clustered Water Basins:* **M A Gharsallaoui**, L M Bui, B Singh, S Savalkar, N Hoang, K Rajagopalan, J R Doppa

- 1951492** *Title Transforming Sustainable Agriculture using AI ::* **M Marathe**

250622

**Sustainable Agriculture and Climate Change:
Towards Decarbonization of Agri-food Systems**
(joint with B, SY)

Conveners: **Bin Peng**, University of Illinois Urbana-Champaign; **Zhenong Jin**, Stanford University; **Jinyun Tang**, Lawrence Berkeley National Lab; **Kaiyu Guan**, University of Illinois Urbana-Champaign; **Jie Yang**, University of Illinois Urbana-Champaign

1857482 *A Representative Fields Approach for Estimating Agricultural Soil Organic Carbon and GHG Emissions at Scale Using DNDC:* **K Proctor**, C Hill, C D Jones, G Gopalakrishnan, W Salas

1992789 *Climate change mitigation benefits of crop residue retention are limited by livestock systems:* **R S Powell**, D Encarnation, T Morais, S McClelland, A Smerald, S Davis, D Wisser, G Tempio, A Pellegrini

1880306 *Cost-effective adaptations increase rice production while reducing pollution under climate change:* **Y Gao**, G Hoogenboom, B Gu

2001227 *Evaluating the Role of Cover Crops in Soil Carbon Dynamics in Dryland Farming Systems:* **P Soti**, A Racelis, D Zapsas, M Martinez, A Tabera-Cruz

1911272 *Generation of biochar-amended compost and its application to urban agriculture: assessing effects on compost quality, soil fertility, vegetable yields, and greenhouse gas emissions:* **D G Kim**, G Shimelis, F Yimer, M Tadesse

1895147 *Global Synthesis of Cover Cropping-Induced Soil Greenhouse Gas Emissions:* **Y Peng**, L Wang, PhD, P A Jacinthe

1894736 *Greenhouse Gas Co-Benefits of US Irrigated Agriculture:* **A Driscoll**, J Johnson, J Blumberg, A King, S Spawn-Lee, N D Mueller

1946483 *Harnessing Whole-Profile Soil Carbon Sequestration for Climate-Resilient Agriculture:* **Z Luo**

1952695 *Improving SOC Estimation in Paddy Fields by Modifying the RothC Model's Decomposition Rate Modifier for Moisture:* **S Joo**, J G Hyun, G Yoo

1972115 *Integrating Cover Crop and High-biomass Sorghum to Enhance Sustainability: Bioenergy Feedstock Production and Ecosystem Services:* **J W Lee**, C Jang, N Namoi, A Cook, R Chawla, W H Yang, D Lee

1934809 *Long-Term Observations of Nature-Based Climate Solutions Reveal Opportunities and Limitations:* **G Falvo**, G P Robertson

1937177 *Methane Production from Storage of Sugarcane Bagasse:* **A Mandalika**, M Dutta, A Arumugam, B Snyder, K Maiti

1867532 *Microbial and Metabolic Responses to Salinity Stress in Mesophilic Dark Fermentation of Food Waste:* **K S Cho**, G Kim, S Kang

1903557 *Minimal sampling, maximum insight: A deep learning BRIDGE framework for regional carbon assessment:* **Q Wu**, C Lou, Q Zhu, B Peng, K Guan, V Kumar, L LIU

1863192 *Mitigate Greenhouse Gas Emissions From Global Rice-based Ecosystems Through "Double-to-Single Dry-to-Wet" Management:* **H Song**, C Peng

1923808 *Modeling the major bioenergy crop Miscanthus in an agroecosystem model (Ecosys):* **Z Jiang**, K Guan, L Zhou, Z Li, R F Grant, R Qin, T Hartman, M Jia, B Peng, E Heaton, A VanLooke, C Bernacchi

1889749 *Nationwide Reduced-Fertilizer Cultivation Trials and Weather-Responsive Modeling of Nitrogen Mineralization from Composts for Sustainable and Climate-Smart Agriculture:* **N Koga**, K Mochizuki

1917723 *On-Farm Comparison of Water and Carbon Dioxide Exchange Between Regenerative and Conventionally Managed Alfalfa Systems:* **P Y Oikawa**, A Singh, J F Knowles, J G Verfaillie, D J Szutu, E Gamez, I Amitay, G C Liles, L Smith, S J Matiassek, J Brimlow, Z Brigham, C Daley

1893235 *Optical Web for Continuous Spatiotemporal Sensing of Agricultural N₂O:* **V I Sevostianov**, P Guiguizian, J Collins, M A Zondlo

1888780 *Salt-Driven Adaptation of Thermophilic Hydrogen Producers Revealed by Metagenomic Analysis:* **G Kim**, S Kang, K S Cho

2002802 *Sub-Field Optimization of Corn-Soybean Rotations with Variable Management of Cover Crops using a Bio-Economic Farm Optimization Model:* **A Hopf**, R Paudel, Y Lin, D Jones, L Mora

1909757 *Sustainable Agriculture Creates Both Trade-offs and Win-wins for Agricultural Productivity and Climate Change Mitigation: A Meta-analysis:* **D Encarnation**, R Powell, A Pellegrini

1953935 *Synergies and tradeoffs between ecosystem services and productivity of integrating anaerobic digestion technologies with agriculture:* **S Villarino**, E Severson, M D McDaniel, M Blauwet, L Schulte Moore, F Miguez

2001908 *The carbon budget of land conversion: sugarcane expansion and implications for a sustainable bioenergy landscape in SE US:* **E Blanc-Betes**, N Gomez-Casanovas, C Bernacchi, E Boughton, W H Yang, E H DeLucia

1998779 *The Impact of Various Tillage on Nitrogen Loss from Agricultural Fields: A Meta-analysis:* **Q Chen**, L Wang, PhD, Y Peng, B Peng

251786

The global water cycle: coupling and exchanges of mass and energy between the ocean, land, cryosphere, and atmosphere (cosponsored by AMS: American Meteorological Society, EGU: European Geosciences Union, WCRP: World Climate Research Programme) (*joint with A, C, H, OS*)

Conveners: **Paul Durack**, Lawrence Livermore National Laboratory; **John Reager**, Jet Propulsion Laboratory; **Francis Lambert**, University of Exeter; **Nadya Vinogradova Shiffer**, NASA Headquarters

1931834 *35 years of Scientific Progress through GEWEX Regional Hydroclimate Projects (GEWEX-RHPs):* **P J van Oevelen**, A Nazemi

1896936 *An Expendable Tandem Drifting Buoy System for Measurement of the Net Ocean Surface Heat and Freshwater Fluxes:* **J P Boyle**

1911014 *Atmospheric Signals of Water and Carbon Connectivity from the Amazon to High Andean Headwaters:* **D Murray**, J Pesántez, G Esquivel-Hernandez, M Jerves, R R Buchholz, A Staal, P Crespo, W H McDowell, A S Wymore

247727

The Third Pole Environment (TPE) under Global Changes

Conveners: **Shilong Piao**, Institute of Tibetan Plateau Research, Chinese Academy of Sciences; **Lonnie Thompson**, Ohio State University Main Campus; **Andreas Mulch**, Goethe University Frankfurt; **Fan Zhang**, Institute of Tibetan Plateau Research, Chinese Academy of Sciences

1888724 *Bridging the Gap: Ground-Based and Airborne Measurements of CO₂ and CH₄ over the Tibetan Plateau for Satellite Validation:* **Y Wang**, M Zhou, M Duan, J Gao, X Tian

1907765 *Characteristics of Dissolved Organic Matter in Tibetan Glaciers and Microbial Influences:* **B Guo**

1940809 *Climate Change in the Nepal Himalayas: Current Status, challenges and opportunities:* **B Dawadi**, S Acharya, G Adhikari Mr

1955404 *Diminished biophysical cooling benefits of global forestation under rising atmospheric CO₂:* **F Kan**, H Xu, S Tang, J Peñuelas, X Lian, C Roebroek, N Anniwaer, K Wang, S Piao

1891551 *Decomposing and demystifying tropical precipitation variability and its changes in a warmer climate:* **H Kawashima**, S Hu

1900865 *Diagnosing the Sources of Near-Surface Humidity During Mean and Extreme Heat Conditions in Modern and Elevated CO₂ Climates:* **C B Skinner**, M A Barlow, A Fallahmaraghi, S H Baek

1942626 *Greater Persistence in Observed than Simulated Interannual Rainfall:* **A L Albright**, P J Huybers

1954661 *Interdecadal variability of terrestrial water storage since 2003:* **B A Buzzanga**, B Hamlington, J Fasullo, F W Landerer, A Peidou

1915904 *Linking Groundwater Level Fluctuations to Hydrochemical Variability Using Remote Sensing Data:* **A Kunsakova**, V Samalavicius, G Žaržojus, J Arustienė

1944106 *Multivariate Global Water Year Estimates 1980-2020 and Their Implications:* **A Kunadi**, M Kallio, M Kummu

1874445 *Precipitation consolidation decreases terrestrial water storage:* **C S Lesk**, J S Mankin

1869098 *Projecting Regional Hydroclimate Using Observed Sea Surface Temperature Pattern Sensitivity:* **F Perlmutter**, J S Mankin

1952643 *Documenting Recent Climate Change and Reassessing the Chronology of 15 ky Ice Core Climate Records from Puruogangri Ice Field, Central Third Pole:* **L G Thompson**, T Yao, M E Davis, E Mosley-Thompson, Y Bao

1939736 *Environmental Isotopes and Hydrochemistry to Assess Seawater Intrusion in Groundwater Aquifers of Bhola Island, Bangladesh:* **R K Majumder**, A Zhao, M Moniruzzaman, M Q Bhuiyan

1903991 *Fate of carbon flows to physically delineated carbon pools as key challenges in modelling physical soil carbon fractions:* **D Liu**, Y Zhang

1982088 *Future Reductions in Snowmelt Runoff Exacerbate Water Resource Risks in the Asian Water Tower:* **Z Yutong**, X Yu, T Wang, C Xu

1912323 *How accurately does L band vegetation optical depth predict aboveground biomass?:* **Y Zhang**, P Ciais, W Jean-Pierre, J Chave, N Cong, X Li, Y Yang, S Saatchi

1949411 *Intensified Seasonal Droughts and Carryover Effects Amplify Negative Growth Anomalies in Eurasian Grasslands during the Past Four Decades:* **N Anniwaer**

1878360 *Open Data Governance and AI-Powered Digital Twins: Accelerating Earth System Science at the National Tibetan Plateau Data Center:* **X Pan**, X Li, X Nie, M Feng, Y Guo

- 1888796** *Paleo shifts in the upper range limit of trees across the Tibetan Plateau since the Last Glacial Maximum:* **X Wang**, J Xu, X Cao, E Liang, L Zhang, X Shen, T Wang
- 1907671** *Photodegradation Rivals Microbial Decay in High-Irradiance Ecosystems:* **J Ding**
- 1988041** *Precipitation-driven divergence in plant-derived versus microbe-mineral stabilized soil carbon pools across the Tibetan Plateau:* **Y Wang, PhD**, J Ding
- 1943918** *Projected Tibetan Plateau Surface Darkening Drives Amundsen Sea Cooling and Sea Ice Increase.:* **S Tang**, X Li, L Li, S Piao
- 1957518** *Projection of Mesoscale Convective Systems over High Mountain Asia:* **W Dong**
- 1861612** *Scientific Frontiers and Key Milestones of the International Decade of Action for Cryospheric Sciences (2025-2034):* **A Mishra**
- 1887656** *Spatial Distribution and Growth of Glacial Lakes in the Tien Shan Mountains: Implications for GLOF Hazards:* **D B Kattel, PhD**, M Daiyrov, W Wang

252590

Tracking Environmental Consequences of Armed Conflict Across Scales and Systems (joint with EP, NH, SY)

Conveners: **Jamon Van Den Hoek**, NASA Goddard Space Flight Center; **Emnet Negash**, Oregon State University; **He Yin**, Kent State University Kent Campus; **Iryna Dronova**, University of California Berkeley; **Corey Scher**, City University of New York Graduate Center

- 1952858** *Spectral Harbingers of Destruction: NDVI and NDBI-Based Assessment of Environmental Warfare in the Gaza Strip :* **T Hoheneder**, M W Palace, K Duderstadt, J Sowers
- 1958758** *Active InSAR monitoring of building damage in Gaza during the Israel-Hamas War:* **C Scher**, J Van Den Hoek
- 1950956** *AI-Enabled Low-Carbon Reconstruction in Conflict Zones: Integrating Remote Sensing, Machine Learning, and Circular Economy Strategies for Environmental Recovery in Gaza:* **Y Franci**, M Arora
- 1980666** *Bridging the Gap in Greenhouse Gas Emission Mapping: Assessing the Utility of Nighttime Lights, Synthetic Aperture Radar, and Fire Data in Conflict Zones:* **R Naithram**, T Oda, R Run, J Van Den Hoek, C Scher, S Chakraborty, D Bell, J Vicino, Z Wang, R M Shrestha, V L Kalb, M O O Román, B Weir, L Ott, H Suto

- 1944443** *Spatial variations and mechanisms for the temporal stability of carbon sink in the Tibetan Plateau:* **K Wang**, S Piao, Y He
- 1997058** *Spatiotemporal Drivers of Grassland Change on the Tibetan Plateau (1997–2019) Using a Bayesian Spatiotemporal Framework:* **S Yadav**, Y He, Y Li, J Ali, C Song
- 1845652** *The Chinese Glacier Inventory of Xinjiang in 2020 (CGI-XJ2020): Compilation, Features and Primary results:* **Z Li**, F Wang, C Xu, Y Jia
- 1995243** *The first complete rock glacier inventory of the Tibetan Plateau:* **M Feng**
- 1904637** *The Tibetan Plateau acts as a net greenhouse gas sink:* **T Wang**, X Ji
- 1885729** *Tracing Sediment Sources in the Upper Koshi River Using Sr-Nd Isotopic Compositions:* **K Karki**, F Zhang
- 1907626** *Trade-off between growing season length and herbaceous growth on the Third Pole:* **F Meng**
- 1943855** *Two Decades of Persistent Greening in China Despite 2023 Climate Extremes:* **S Wei**, X Li, K Wang, T Wang, S Piao
- 1989156** *Clandestine Airspace in Vaupés: Airstrips, Drug Trafficking, and Illegal Mining:* **L Duica-Amaya**, L A Gómez Gallego
- 1925116** *Conflict-Driven Urban Growth and Implications for Sustainability.:* **M Redana**, T P Pangali Sharma, N Kakar, A Saxena, A Keleman-Saxena, P Jantz, A Dutta
- 1934216** *Earth Observation for Humanitarian Support: Mapping Croplands in Northern Uganda's Refugee-Hosting Communities:* **A B Asare-Ansah**, C L Nakalembe, Y H Gadhiya, J Van Den Hoek
- 1897127** *Evaluating war-induced damage to agricultural land in the Gaza Strip since October 2023 using PlanetScope and SkySat imagery:* **H Yin**, L Eklund, J Van Den Hoek, D Habash, M Qumsiyeh
- 1849785** *From Soils to Systems: Tracking Conflict-Driven Heavy Metal and Phosphorus Contamination in Southern Lebanon Using Community Science and Remote Sensing:* **L Dirani**, R Zurayk, E Hamade, R Zayyat, N Faour, T Kanaan, R Jaber, M Barakat
- 1885489** *Gully erosion and sediment flux as impacted by the disruption of restoration interventions during the Tigray war: the case of Gumawra Village in Degu'a Tembien District, North Ethiopia:* **T G Asfaha**, S Annys, J Nyssen, H M Gebregergs, Z T Welemaram, A Frankl
- 1943361** *Integrated GIS and Geochemical Approach for Assessing Conflict-Driven Soil Contamination in Ukraine:* **O Melnyk**, M C Horton, D O'Connor Sr, N Cannon, M Solokha

1997642 *PANEL POPULATION SURVEY ANALYSIS OF POLITICAL INSTABILITY, AGRARIAN LIVELIHOOD CHANGE, AND INSTITUTIONAL FORUMS FOR DISPUTE RESOLUTION IN KENYA OVER TIME IN 2025:* **A M Linke**, J O'Loughlin, S Posner, J T McCabe, P Corbett

1981031 *The Impacts of Warfare on Soil Erosion and Landscape Disturbance: Establishing a Baseline from the Early Modern Period Strata:* **B Nordeen**, K Wiggins, E L Gulbranson, K Rodrigues, K Whittaker, W Tegel, M Dominguez-Delmás

251176

Transforming Agricultural Futures: AI, Remote Sensing, and Sustainability Science

Conveners: **Hanan Abou Ali**, University of Delaware; **Dongyang Wei**, Colorado State University; **Bhoktear Khan**, University of Delaware; **Endalkachew Abebe Kebede**, University of Delaware; **John Uponi**, University of Delaware

1962354 *AI Agricultural Field Boundaries for Sustainable Supply Chain Traceability:* **T Grupp**

1903944 *Crop Type Mapping Using Phenological Metrics from PlanetScope and Harmonized Landsat Sentinel (HLS) Data Products Through Machine Learning Models:* **S Shrestha**, D Liu

1879763 *Enhanced Corn Yield Prediction Using Multitemporal and Multispectral UAS data Combined with Machine Learning:* **N Sheikh**, Y Zhou, H Zhang, P Wagle

253300

Tyndall History of Global Environmental Change Lecture

Conveners: **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **Jonathan Jiang**, NASA Jet Propulsion Laboratory; **David Cairns**, Texas A & M University

248763

Urban Areas and Global Change (joint with A, B, H, SY)

Conveners: **Xinchang Li**, University of Illinois Urbana-Champaign; **TC Chakraborty**, Pacific Northwest National Laboratory; **Galina Churkina**, Institute for Advanced Sustainability Studies; **Burak Guneralp**, Texas A&M University College Station; **Hang Yin**, University of Guelph

1988279 *Tracking Forced Displacement in the Gaza Strip: A Novel Machine Learning Approach for Tent Detection in High-Resolution Satellite Imagery:* **K Karra**

1929895 *Tripling of Water Ponds in a Decade: Post-Conflict Cattle Infrastructure Expansion in the Colombian Amazon:* **P Murillo**

1993238 *Geospatial Modelling for Agro-Climatic Land Suitability Analysis of Horticultural Crops using Machine Learning techniques:* **M K Jha**, J Kalambukattu, S Kumar

1992664 *Mapping Crop Presence and Growth Stages in Hawai'i's Tropical Smallholder Farms Using PlanetScope Time Series and Machine Learning:* **S Somerscales**, Q Chen

1995368 *Monitoring and Modeling Greenhouse Gas Emissions from Organically Amended Agricultural Systems Using AI Techniques:* **A A Adem**, A Fares, R Awal, A Valiya veetil, M Celestine, S Islam, A Rahman

1893763 *Pest Forecasting and Management Using Multi-Sensor Data and Deep/Machine Learning for Smallholder Farmers in Asia:* **S Bakiwala**, P Wang, R Babu, A Rana, P Ghosh, A Swatantran

1994982 *Within-season, National-scale crop area estimation in Ukraine using Machine Learning and synergistic Sentinel-1 and Sentinel-2 satellite data without field surveys:* **M A Q Khan**, S Skakun, I Becker-Reshef

1887998 *A multiscale model-driven experimental (ModEx) framework for urban areas – a CROCUS approach:* **A Sharma**, M C Negri, V R Kotamarthi, S M Collis, J Wang, P Muradyan, D Niyogi, M Grover, J Stock, P Li, D K Fytanidis, S Wang, H Tan, J Fernando, S W Nesbitt, A Martilli, A Wadhwa, M B Berkelhammer, M A Gonzalez-Meler, A Cho, J R O'Brien, M Tuftedal, B Raut, R L Jacob, J Wang, J Lee, S Y Park

1930214 *Brighter nights, longer seasons: Artificial light reshapes plant phenology:* **L Meng**

1934246 *Do Urban Forests Cool Parking Lots in Summer? Insights from Field Sensor Data:* **X Li**, Y Chen, G Sun, D Young, S McNulty, W Sutton, A Chang, T Byl

- 1945945** *Examining Race and Class Disparities in Urban Heat in Germany: Towards Environmental Justice in Urban Planning:* **J Chawla**, P Keller, S Benz
- 1884872** *From Cells to Cities: Extending Kleiber's Law from Biology to Urban Systems:* **M Lu**, K Huang, J I Arroyo, C Wang, C Kempes
- 1936023** *Global Ensemble Forecasts Reveal Accelerating Urban Land-Cover Conversion and High Uncertainty:* **R Ahasan**, W Lin, B Guneralp
- 1956831** *Global urban-rural contrasts in vegetation amount, subtypes, structure and dynamics, modulated by background conditions:* **R Mukherjee**, T Chakraborty
- 1946126** *Healthier Cities or Cities for the Healthy? Exploring the Temporal Dynamics of Greenspace and Urban Well-being in Major East Asian Cities:* **Y Kim**, H Yoon
- 1962969** *Historical Increase of Urban Wastewater Availability Impacts on River Basin Hydrology and Agricultural Development:* **M Jampani**, C Deval
- 1892398** *Improving Comfort, Affordability, and Efficiency: Demand-Side Solutions for Heat Pump Operation in Cold Climates:* **S Nawawi**, P Vaishnav
- 1868852** *Life After Death: Diptera Diversity of Urban Cemeteries in Philadelphia, PA, USA:* **H Kostick**, D Ward, Z Glass

251062

Urbanization and the Environment: Data, Models, and Applications (joint with A, IN)

Conveners: **Peng Fu**, Louisiana State University; **Soe Myint**, Texas State University San Marcos; **Zhonghua Zheng**, Columbia University; **Yuyu Zhou**, The University of Hong Kong

- 1966971** *Assessing the Influence of Urbanization on Snow Precipitation over the Continental United States:* **K A Salvi**, M Kumar
- 1944628** *Community-Integrated Remote Sensing and Environmental Monitoring to Diagnose and Stimulate Ecological and Social Change in Legacy Mine Landscapes:* **Y Plancherel**, P Brito-Parada, R Herrington, E A Vallar, R Armstrong, A H Orbecido, A Beltran, M Pormentilla, P Schofield, A Jungblut, M Tabelin, C Tabelin, D Alonzo, I M Fernandez, M Prasow-Emond, S Rasheed, V J Resabal, A Santos
- 1862106** *Decadal Monitoring of Colonias Using Remote Sensing and Machine Learning:* **Y Zhang**, B R Scanlon, J P Pierre, B Porter, H Dashtian, M Singh
- 1933624** *Desert Cities Cool While Warming: Urban Development Effects on Temperature Across the Arabian Peninsula, 2000-2020:* **E Luo**, C Tuholske, A Zimmer, A Teyton, C Raymond, J Bailey, T Benmarhnia

- 1889713** *Managing solid waste to co-control carbon and nitrogen leakage in China:* **J Zhan**
- 1895825** *Metabolic Rate Plasticity and Resilience to Warming in Urban Seepage Spring Invertebrates: Characterizing the Likelihood of Changing Trophic Structure and Energy Flow in Springs Responding to Warming Waters.:* **S E MacAvoy**, D Fong, W Farmer
- 1863371** *Nested economies of scale in global city mass:* **K Huang**, M Lu
- 1868385** *Nonlinear patterns of carbon emission trajectories shaped by global urban form typology: unpacking the law of spatial directionality on urban expansion morphology and carbon emissions:* **C Li**, C Guan
- 1879806** *Parking Lots Disproportionately Amplify Urban Heat Island across U.S. Cities:* **H Li**, L Meng, H Baroud, T Chakraborty, A D Jones, J M Gilligan, X Lee
- 1878213** *Spatial patterns of exposure to extreme heat in Ogden, Utah.:* **D P Bedford**
- 1923257** *The Pervasive Role of Heterogeneities in Shaping Local to Global Urban Change:* **B Pandey, PhD**
- 2000935** *Understanding Spatially Varying Urban Heat Drivers Using Explainable GeoAI In Dhaka, Bangladesh:* **M Sultana**, B Johnson, M D Islam
- 1844940** *Examining Thermal Impacts along the Urban-Rural Continuum in Southeast Asia:* **S W Myint**, Y Zhu, J Chen, P Fan, K C Seto, A K Jain, J Qi, J Wang
- 1852367** *Exploring Surface Urban Heat Island Dynamics in Washington, D.C. Using Satellite Observations:* **Q Adamy**, P Krishnan
- 1903827** *Geospatial Assessment of Urbanization-Induced Environmental Stress in Dhaka Megacity:* **M N Islam**
- 1913878** *Global Lessons from Local Climate Change Actions in South Asia:* **S Islam**
- 1963227** *Global Uncertainty in Estimating Urban-Agricultural Land Competition Using Existing Land Use Datasets:* **X Qu**, Y Xie
- 1982141** *How Park Design Influences Health Through Use : A Structural Equation Modeling Approach:* **M Kim**, H Yoon
- 1986165** *Integrating GEDI and SRTM to Track Water Volume Changes in the Colorado River Basin: Climate Linkages Over the Past 20 Years:* **B Heidari**, S W Myint, Y Zhu
- 1919261** *Multi-Layer Perceptron Markov Chain-Based Artificial Neural Network for Modeling Future Land-specific Carbon Emission Patterns and Its Effects on Land Surface Temperature in Rajshahi City.:* **M M Billah**, M R Sakib, R Islam

- 1909277** *Quantifying the Impact of Anthropogenic Development on a Small, Tropical, Volcaniclastic Island Using a New GIS Based Metric.*: **J Yesensky**, T Browning
- 1971107** *Rising Aerosol Burdens in a Warming Desert: Hydroclimatic Linkages and Environmental Exposure Disparities*: **Y Zhu**, S W Myint, Y Li
- 1988166** *Sustainable Planning for Food-Efficient Cities: GIS and Spatial Analysis in Urban Agriculture*: **M I Kamali**, R Nazari, M Karimi
- 1917375** *Temporal and Spatial Analysis of Urban Feature Impacts on Temperature Variations*: **B J Park**, D K Lee, H Jung

260020

Global Environmental Change Student and Early Career GeoBurst Session

Conveners: **Ben Kravitz**, Indiana University Bloomington; **Erwan Monier**, University of California Davis

- 1910279** *Before We Dim the Sun: A Call to Indigenous Researchers on Climate Counter-Intervention and Justice*: **H Olivarez**
-

251491

Applications at the Intersection of Science, Practice, and Policy to Proactively Address Natural Hazard Risk (joint with A, GC, H, SY)

Conveners: **Colby Fisher**, Hydronos Labs LLC; **Elinor Benami**, University of California Davis; **Mona Hemmati**, Gallagher Re

- 1991924** *Operationalizing Flash Flood Guidance in South Asia: Integrating Science, Institutions, and Early Warning Systems.*: **H Bharwani**, R Saxena, M Kumari, M Mohapatra
- 1984239** *Targeting Field Data Collection for Effective Agricultural Monitoring and Disaster Relief with Earth Observation and Machine Learning*: **E Kirchner**, M Cecil, PhD, E Benami, I Becker-Reshef, J Wagner, R Sahajpal
- 1871814** *A Scalable Satellite Based Framework for Sub-National Yield Modelling to Strengthening Agricultural Risk Management in Africa*: **M Poretti**, S Coutu, J Wagner, J Dumelow
- 1858409** *Advancing science–practice interactions to manage complex risks*: **K J Mach**, B F Sanders

- 1859429** *Tracing trajectories and co-evolution of metropolitan urbanization in the United States, Europe, and China*: **M Huang**, S Zhao
- 1948786** *Urban Heat and Green Space Interactions in a Tropical Megacity: Insights from Bengaluru*: **R Singh**
- 1932046** *Urban Wetlands in Transition: A Comparative Study of Global Northern and Southern Cities*: **A A S Darshana**, Y Murayama, T Morimoto
- 1885536** *Urban-rural pattern determines soil antibiotic contamination in rapid urbanization areas*: **L Yang**
- 1953442** *Wildfire Severity and Hydroclimatic-Vegetation Index Linkages: Remote Sensing and Machine Learning Insights from the 2025 Los Angeles Fire*: **M M Mahmud**, S W Myint, Y Zhu, S Y Han, E Cho, PhD
- 1923891** *Climate models underestimate long-term changes in the precipitation intensity distribution compared to station observations*: **J Han**, A G Pendergrass
- 2001785** *Coastal Clouds and Temperature-Driven Variability in Southern California Water Deliveries*: **L Wicker**, R E S Clemesha, K Guirguis, J W Baldwin, M C Levy
- 1923255** *Could Stratospheric Aerosol Injection Reduce Coral Bleaching?*: **G Anil**, C S Harrison, J A Kleypas, D Holstein, T Oliver, K Roberts, V Garza
- 1992023** *After 10 Years: Toward an Integrated Climate Risk Framework for Three UN Post-2015 Agendas*: **M H Lin**, C P Tung
- 1999018** *Aftermath Response to Natural Disasters Using Alternative Means of Aviation*: **J Rakas**, J Kim, E Gaper, J M Fernandez, J Kim, K Nguyen, V D Le
- 1957316** *AI-Driven Global Parametric Flood Insurance: Synthesizing Satellite, Streamflow, and Rainfall Data with Hydrologic Models*: **B Tellman**, T Nair, S Chakrabarti, C Doyle, M Thomas, M R Ehsani, K Potapov, S Zwiap
- 1929937** *Applying the Swiss Cheese Model to Wildfire Risk Management in the Built Environment*: **K A Hereid**, M Hernandez Jr, PhD, E Kianirad, I Mezzina, E Sambuco, T Yanco
- 1978196** *Climate Change and Sovereign Debt: Estimating the Impact of Tropical Cyclones and Rising Temperatures on Credit Ratings and Borrowing Costs in Developing Countries*: **J Choi**, R Jing, C Callahan, M Burke, N S Dittenbaugh
- 1996907** *De-risking Energy Infrastructure and Improving Energy Resilience through Nature-based Solutions*: **S Bhattacharya**, R O'Neil, D Rucavado Rojas, N P Qafoku, M Heiland

- 1881924** *Developing Wildfire Susceptibility, Vulnerability, and Risk Maps for Maui, Hawaii:* **H Khoshkam**, S Janizadeh, S M Bateni, B Morioka
- 1847339** *Enhancing Disaster Resilience Through the Integration of Disaster Risk Reduction and Response in Environmental Impact Assessment:* **V Bhanwala**
- 1887570** *From Non-Extreme Stresses to Catastrophe: Amplifying Effects of Spatio-Temporal Vulnerability Coupling in Flood Disasters:* **S Qi**, R Li
- 1985755** *Homelessness, Adaptation and Vulnerability to Extreme Weather Events (HAVEN): A mixed-methods analysis of extreme weather events on unsheltered populations:* **S Shrivatsa**, K Osman
- 1967123** *Hydro-Stochastic Model to Inform the Design of Environmental Impact Bonds for Wildfire Resilience:* **L Mangney**, M W Brand, A Jong-Levinger
- 1934817** *Meter-Scale Hail Detection from Space:* **T Pu**, G Villarini, C Wang, I Arauz
- 1957941** *Myths and Misconceptions held by Hazard Scientists and Practitioners: Lessons from Co-production of Science:* **K A Jagannathan**, N L Freitas, A D Jones, Y Li, S Buddhavarapu, V Ford
- 1968691** *Open and Actionable: Building Natural Hazard Risk Tools for Widespread Use:* **C K Fisher**, M McHugh
- 1980615** *Operationalizing Risk Tolerance for Natural Hazards: A Framework Using Frequency-Number (F/N) Charts:* **I Kavvada**, Y Chong, V Loh, Y Oum

252004

Innovative approaches and applications for damage assessment in crisis settings (joint with GC, GH, SY)

Conveners: **Andrew Zimmer**, Oak Ridge National Laboratory; **Jamon Van Den Hoek**, NASA Goddard Space Flight Center; **Marie Urban**, Oak Ridge National Laboratory; **Viswadeep Lebakula**, Oak Ridge National Laboratory; **Andrew Zimmer**, Oak Ridge National Laboratory

- 1875840** *Assessing building damage and vegetation loss after the 2025 Eaton Fire using optical remote sensing:* **S L Antoine**
- 1914585** *Coherent Change Detection for Post-Tornado Damage Assessment:* **H G Pankratz**, A Molthan, A Melancon, J R Bell
- 1950533** *Cutting-Edge Fusion of Modeling, Machine Learning, and Remote Sensing to Map and Analyze Cyclone Remal Wind Damage in Coastal Bangladesh:* **M H Rahman**

- 1981669** *Pooling Rain and Risk: How Forecasts Affect Enrollment in Rainfall Indexed Insurance:* **A Carroll**, E Benami
- 1971489** *Post-Fire Flood Hazard Model Calibration for Assessing Downstream Financial Benefits of Wildfire Mitigation Intervention:* **H Jiang**, L Mangney, M W Brand, A Jong-Levinger
- 1979398** *Quantifying Readiness Gaps: A Multiscale Composite Index Framework for Flood Resilience in Mississippi:* **U Bhatta**, N G Pricope
- 1863055** *Research on the Algorithm for Identifying Seepage and Piping Hazards of Embankments by Coupling Thermal Infrared Remote Sensing and Deep Learning Technology:* **R Li**, S Qi, Z Wang Prof
- 1882153** *Sensing Mean Radiant Temperature in Arizona Public Gardens to Evaluate Human Thermal Exposure During Heat Waves:* **P Price**, A Middel, J Vanos, P Coseo
- 1876142** *Spatial Selection Undermines Flood Protection in U.S. Wetland Markets:* **I Roychowdhury**, F C Moore
- 1859152** *The resolution of risk: covariance-informed spatiotemporal clustering improves the detection of hazardous weather events:* **H C Quintal**, A Sebastian, M L Serre, W Jäger, M C de Ruiter
- 1942425** *Toward Developing Risk-Consistent Seismic Design Maps for Taiwan:* **H J Liu**, Y N Huang
- 1849787** *Towards Disaster-Responsive Environmental Impact Assessments:* **V Bhanwala**
- 1889212** *Do Less Predictable Tropical Cyclones Induce Larger Damages?:* **H V Y Fukuda**, M R Islam, Y Sawada
- 1899638** *Integrating GNSS Displacement Signals and Causal Machine Learning for Post-Earthquake Damage Assessment in Türkiye:* **M A Uge**, M Ozmen
- 1950538** *Intelligent Event Models:* **M Urban**, D Adams, A Zimmer, C Woody, B Swan, J Bowman, P Dias, J Moehl, D Lunga
- 1919509** *Multi-Scale Earthquake Impact Assessment Through Causal Diffusion Modeling:* **X Li**, S Gao, S Xu
- 1946781** *Post-Flood Damage Mapping without Ground Truth Data using Fully Polarimetric SAR and Interferometric Coherence:* **R Adhikari**, A Bhardwaj
- 1938376** *Scalable Structural Damage Detection Using Smartphone-Based Ambient Vibration Monitoring:* **U Kumar**, R M Allen, T Hutchinson, J Zhang, S Sorosh
- 1986238** *Smart Monitoring Framework for Subsurface Drainage in Landslide-Prone Terrain:* **C H Lee**, L Y Su, C C Fang, S Y Yang, C Y Hung

250544

Navigating Risk in the 21st Century: A New Resilience Paradigm (joint with GC, NG, SA)

Conveners: Ryan McGranaghan, NASA Jet Propulsion Laboratory; Auroop Ganguly, Pacific Northwest National Laboratory; Adam Sobel, Columbia University; Shanna McClain, NASA Headquarters

1952275 *Analyzing Climate Risks and Trade Barriers: A Stochastic Frontier Gravity Approach to Pakistan's Agricultural Trade with South Asia:* **Z Batool**, N U Ain

1868334 *Charting- a new paradigm to combine 'hard data' based risk quantification and 'soft data' anecdotal reports of hazard:* **S C Chapman**

1909009 *Comparing Community Resilience to Natural Hazards at Two Geographical Scales: A Case Study of Louisiana Using the Resilience Inference Measurement (RIM) Model:* **N Lam**, C Li, V Mihunov, K Wang, X Zhang

1907344 *CoNetCADE: A Variational-Diffusion Model for Co-Evolving Networks and Post-Disaster Household Adaptation:* **S Gao**, R Chen, X Li, S Xu

1901917 *Decision-focused Sensing and Forecasting for Adaptive and Rapid Flood Response: An Implicit Learning Approach:* **G Hulst**, Q Sun, S Xu

1988771 *Disentangling the complex drivers of and responses to heat-energy-housing problems:* **L Turek-Hankins**

252018

Advances in Achieving Food Security through Data Integration, Stochastic Techniques, Citizen Science, Google Earth Engine, and Interoperability (joint with GC, H)

Conveners: Amanjo Bhullar, University of Guelph; Sara Sadri, Princeton University; Nathaniel Newlands, Agriculture and Agri-Food Canada; Cheila Avalon Cullen, Cooperative Remote Sensing Science and Technology Center New York; Jumi Gogoi, University of Waterloo

1989515 *Floods, Failures, and Flexibility: Resilience of Boston's Multimodal Transit Network to Climate-Driven Disruptions:* **D Mansoor**, D Zhou, R Dave, A Ganguly

1935341 *How Deep is Your Resilience? Lessons Learned, Not Learned, and Paths Toward Risk Reduction:* **R S Pulwarty**, M Gordon

1972975 *Integrating Atmospheric Science, Fire Science, and Public Policy to reduce Wildfire Risk in Southern California:* **A D Hall**, J T Randerson, S Rahimi, N Elhami Khorasani, R Sukhdeo, K Singh, C W Thackeray, R Scholten, E Taciroglu, M Frediani, F J Szasdi Bardales, P Hadinata, T W Juliano, W LIU, R Uddien Shaik

1984192 *Quantifying global and sub-global socioeconomic transition uncertainty for climate management and risk analyses:* **J F Morris**, S K Rose, A Gurgel

1983711 *Redefining Vulnerability Through Personal and Household Characteristics:* **J Kaur**, S Clark, J Whittington, H Yue

1895248 *Resilience by Design: Decision-Centered Metrics for Wildfire Risk in Electric Infrastructure:* **C Chini, PhD**, J Yoon, T Saltiel, L Miller, A M Coleman

2003496 *Using the EVDT Framework to Assess the Utility of CYGNSS Satellite Earth Observations for Decision-Making Needs in the Gulf of Mexico and Caribbean Region:* **D Wood**, A Farrar, M S Islam, A Kruczkiewicz, C S Ruf, J Salas, R Balasubramaniam, P Chardon-Maldonado, J M Morell

1877651 *Climate-Induced crop losses: Lessons from Yam Traders and farmers' Adaptive Capacities and Barriers:* **R Olaitan**, A Ayanlade, I A Oluwatimilehin

1868052 *Disaggregating probabilistic seasonal precipitation and temperature forecasts using a stochastic weather generator for cover crop management in the southeastern U.S.:* **E Han, PhD**, A Ines, Z Wang, M A Ehsan

1995391 *Spatiotemporal Mapping of Crop Intensity in Panna, India Using Remote Sensing Time Series of Vegetation Indices on Google Earth Engine:* **D Verma**, S K Katiyar Dr

1860428 *Unleashing the Power of Street View with CROPSIGHT-US: An Object-Based Crop Type Ground Truth Dataset Using Street View and Sentinel-2 Satellite Imagery across the Contiguous United States:* **Z Zhou**, Y Liu, C Diao

HYDROLOGY

252560

Watershed Moments: Experiential Learning in Hydrologic Sciences (*joint with H, SY*)

Conveners: Kira Waldman, University of California Davis; Lauren Parker, University of California Merced; Andy Rost, University of Nevada Reno; Joshua Viers, Civil and Environmental Engineering, University of California; Kira Waldman, University of California Davis

1975369 *Building Capacity in Water Science Through Experiential Learning: A Decade of The Water Prediction Innovators Summer Institute:* **J Masterman**, E Clark, J S Read, S Cohen, L Nations, L Turner

251711

Illuminating Human- Hydrosphere Interactions Investigated with Hydrogeodesy (*joint with H*)

Conveners: Diana Carolina Hurtado Pulido, Tulane University; Zachary Young, Department of Geosciences, University of Montana; Grace Carlson, Virginia Polytechnic Institute and State University; Karen Luttrell, Louisiana State University and Agricultural & Mechanical College; Diana Carolina Hurtado Pulido, Tulane University

252369

Chemicals and Climate Change: Forecasting Contaminant Exposure Under Changing Global Hydrology and Hydrodynamics (*joint with EP*)

Conveners: Joshua Ahmed, Organization Not Listed; Kate Spencer, Queen Mary, University of London; John MacDonald, Department of Geoscience, National Taiwan University; Joshua Ahmed, Organization Not Listed

1890259 *Munitions dumped at sea – corrosion and degradation in response to climate change:* **J Beldowski**, A Jędruch, J Jakacki, PhD, S Popiel, J Nawala, A Gordon, M Brenner, P Vanninen, J Fabisiak

1896860 *Soil Salinity and Food Security in Sharanpur district: GeoHealth Impacts of Coastal Agriculture on Rural Communities:* **S Sahin**

1945806 *CAPACITY BUILDING PARTNERSHIPS TO CONNECT RIVERS, PEOPLE, & SCIENCE THROUGH IMMERSIVE FIELD-BASED EDUCATION:* **J Vonesh**

1955511 *Cultivating Collaborative Water Leaders: Lessons from the Climate Adaptation Science Academy:* **J Severson**, C Cliburn, B L Schumacher, K Waldman, D Rothberg, M Duran, M Hashemi, A Gomez-Cervantes, L Murdoch, L Parker, J H Viers

1953318 *Hydrology Scavenger Hunt: A Streamside Lesson to Identify and Journal Hydrological Features:* **J Keyantash**

1901599 *Long Term Influences of Participation in Youth Participatory Science:* **S Brock-Contreras**, D Snow

1994253 *STRUCTURE FROM MOTION IN GEOSCIENCE EDUCATION: INTEGRATING FIELD SURVEY AND PHOTOGRAMMETRY FOR STREAM ANALYSIS:* **C Kaylor**

1886431 *The NSF-NRT Water: Research to Operations (Water-R2O) – Experiential Learning in the U.S. and Abroad:* **H Holcomb**, L Davis, G A Tootle, W Gurgiser, S J Burian

1876247 *Assessing Groundwater Depletion in the Colorado River Basin: Identifying Key Controlling Factors:* **K Abdelmohsen**, J S Famiglietti

1957601 *Land level to water level from Interferometric Synthetic Aperture Radar (InSAR) for relative sea level hazard and water resources:* **S F Sherpa**

1944963 *Mapping Land deformation using Sentinel-1 InSAR in Rapidly Urbanized Guwahati City, Assam, India:* **A J Gogoi**, J Dutta, R Choudhury

1865319 *Threats of relative sea level rise in coastal communities: InSAR approach for the long-term vertical land motion trends north of Lake Pontchartrain.:* **D C Hurtado Pulido**, A Donnellan, T McGirt

1917733 *From Field to Fork: Satellite Remote Sensing Reveals Pesticide Hotspots in India's Agricultural Watersheds and Their Public Health Implications:* **S Sumayya**

1918466 *The Ganges Crisis: Tracking Antibiotic Resistance Genes in River Sediments and Their Threat to Human Health:* **S Sajid**

1920007 *Monsoon-Induced Hydrological Changes and Waterborne Pathogen Risks in Rural Indian Watersheds:* **A Ali**

1920888 *Monsoon-Driven Flooding in Uttarakhand: Hydrological Drivers and Socioeconomic Impacts in the Himalayan Region:* **F Baby**

1921895 *Evolution of Modelling Approaches for Assessing Potential Contamination from Dumped Chemical Munitions in the Baltic Sea:* **J Jakacki, PhD**, A Jędruch, M Muzyka, A Przyborska, J Beldowski

- 1942766** *Automobile-Induced Oil & Grease Contaminants in Water and Sediment of a Himalayan River*: **S Rohaun**, H V Kulkarni, A Giri
- 1972437** *Forecasting Future Contaminant Risk from Historic Coastal Landfill Sites in the UK*: **J Ahmed**, H Wang, L Eldridge, K L Spencer, S W D Grieve, B A Newman, J MacDonald

249477

Human Dimensions of Drought: Water, Health, and Community Vulnerability (joint with A, H, NH, SY)

Conveners: **Azar Abadi**, University of Alabama at Birmingham; **Mark Svoboda**, National Drought Mitigation Center; **Jesse Bell**, University of Nebraska Medical Center

- 1939184** *A Multi-Indicator Quantitative Analysis of Drought Effects on PM_{2.5} in the U.S.*: **H Li**, K Gribben, J D Berman, Y Gwon, A Abadi, B Wardlow, D Tong, J E Bell
- 1996248** *Climate Sensitivity of Invasive Fungal Sinusitis Mortality in U.S. Counties, 2003–2021*: **R Mohammadi, MPH, PhD (c)**, Y Gwon, K Kintziger, J Herstein, J E Bell
- 1865764** *Deaths associated with drought, wildfire smoke, and their concurrent added effects in the contiguous United States*: **Y Hu**, L Chu, P Wang, A Abadi, M Qiu, K Chen

252635

The Long Arc of Contamination: How Geological Histories Shape Geogenic Hazards in Modern Aquifers and Impact Human Health (joint with GC, H, PP)

Conveners: **Sean Kinney**, ; **Anirban Basu**, Columbia University of New York; **Clara Chang**, Lamont -Doherty Earth Observatory; **David Tibbits**, Rutgers University New Brunswick

- 2002999** *From Carboniferous cyclothems to modern contaminants: metal transport and fate in anthracite mine pools in Northeastern Pennsylvania*: **S Kinney**, D Tibbits, C Chang, M Hewitt, L A Hinnov, C J Lepre, R Hughes, A Basu

- 1980007** *The impact of sea-level and groundwater rise on indoor exposure to volatile organic compounds near contaminated sites in the San Francisco Bay Area*: **E Lasky**, K Hill, L Davar, L Dillon, C Pickett, S Sacoolas, K M Befus, J Jacobs, G Griggs
- 1990989** *Hydrogeochemical and Isotopic Evaluation of Groundwater in the Ganges-Jamuna Floodplain Aquifers, Bangladesh*: **M Moniruzzaman**
- 1996763** *Analyzing Storm Surge Vulnerability of Hazardous Material Sites with Simulated Storm Surge Data and Hurricane Forecasts*: **J Sollers**, A Hoffman-Hall
- 1924281** *Drought and Respiratory Outcomes: A Systematic Search Scoping Review*: **A Abadi**, A Najafghodousi, M Gribble, A Ghosh, H Moradkhani
- 1870638** *Drought, Food Security, and Coping Strategies: Characterizing the variety of household responses in Namibia*: **L Poole-Selters**, S Lendelvo, K Rathod, E Coughlan de Perez
- 1938416** *Human Health Risks from Groundwater Contaminants in Punjab, India: Lessons, Responses, and Recommendations*: **M Umar**
- 1968574** *Precipitation conditions as a predictor of nitrate contamination in private wells across Iowa*: **R V Remigio**, M Kamenetsky, S Munde, MSc, P Masi Fleytas, D W Kolpin, J E Bell, M Ward, L Beane Freeman
- 1926741** *Regional-level Associations of Drought with COPD Mortality in the United States*: **K Gribben**, K Afari, Y Gwon, H Li, B Jalalzadeh Fard, J D Berman, J E Bell
- 1886580** *Spatiotemporal Patterns of Drought and Extreme Weather Events and Their Influence on Agricultural Productivity in Agro-Climatic Zones of India*: **A Hasan**, R C Pandey Dr
- 1975637** *High-resolution elemental and isotopic mapping of redox gradients and uranium mineralization, Petrified Forest National Park, Arizona*: **D Tibbits**, S Kinney, C Chang, M DiMaio, A Marsh, P E Olsen, M F Schaller, A Basu
- 1984652** *How Metal Contamination Across Environments and Lifespans Contributes to Chronic Disease*: **K Schilling**
- 1950467** *Selenium, Aluminum, Lithium, and Uranium Accumulation in Plants from an Abandoned Uranium Mine*: **C Chang**, A Pillai, A Mitra, D Tibbits, S Kinney, A Marsh, G John, T Rock, A Navas-Acien, K Schilling, R Glabonjat, A Basu
- 1958668** *The Association of Drinking Water and Urinary Lithium Levels in the Strong Heart Study*: **E Bannon**, W Lieberman-Cribbin, A Basu, A Nigra, A Mitra, R Glabonjat, J M Ross, B Bostick, S Chillrud, A Navas-Acien, K Schilling

1929854 *The Colorado Plateau Coring Project as a "Source-to-Sink-to-Source" venue for integrated study of geogenic contaminants, remediation, and resources:* **P E Olsen**, A Basu, L Becenti, C R Bebo, C Chang, C Davis, P G Falkowski, J A Higgins, J C McIntosh, A Nigra, M R Osburn, K Patterson, T Rock, A RoyChowdhury, D Santiago-Ramos, B B Slibeck, C A Suarez, D Tibbits, C Vetriani, J Whiteside, S Kinney

251834

**Actionable Insights from Remote Sensing:
Advancing the Integration of Spatial Analytics,
AI, and Participatory Approaches with Water
Management Planning (joint with GH)**

Conveners: **Romina Díaz Gómez**, Stockholm Environment Institute; **Antarpreet Jutla**, University of Florida; **Marina Mautner**, Stockholm Environment Institute

1976654 *A Machine Learning Pipeline for Identifying Managed Aquifer Recharge Locations in Satellite Imagery:* **S Yu**, A Visser, I Chakraborty, G J Anderson, J Lerback

1922455 *A Remote Sensing Data Fusion Approach for Automatic Identification of Ancient Subsurface Water Systems:* **D Kumar**, H Kumar, B P Kambhammettu, S K Regonda, U B

2002111 *An interactive framework for quantifying the potential for future water conflicts in Indiana:* **L C Bowling**, K A Cherkauer

1924727 *Bridging Numbers and Narratives: Engineering Diplomacy for Actionable Water Insights:* **S Islam**

1938004 *Dielectric Permittivity Measurement Using a Soil TDR Probe and Vector Network Analyzer Across Multiple Frequency Ranges:* **S Tokuyama**, K Noborio, D Kobayashi

250702

**Advancement in Hydrologic Regime Analysis:
Applications in Ecohydrology, Modeling and
Trend Analysis (joint with B, EP, GC)**

Conveners: **Claudia Corona**, Colorado School of Mines; **Jeremy Diaz**, U.S. Geological Survey, Water Mission Area; **Mohamed Abdelkader**, University of Iowa; **Daniel Philippus**, Organization Not Listed

1881130 *Machine Learning-Based Assessment of Winter Dynamics Governing Snowmelt Partitioning and Streamflow Generation in the Northeastern U.S.:* **R Basijokaite**, A Mohammed, N L Young, S E Tuttle, M A Walvoord

2000564 *Understanding global geogenic groundwater contamination: connecting tectonics to cancer:* **A Mukherjee**

1915503 *Uranium Isotopes Reveal Redox-Driven Groundwater Uranium Cycling in Northern Plains Aquifers:* **A Mitra**, R Hughes Jr, T Zacher, R O'Leary, R Red Cloud, B Sbardellati, M Stahl, B Bostick, S Chillrud, A N Halliday, A Navas-Acien, K Schilling, A Basu

1845937 *Dissolved organic carbon in groundwater: a geospatial analysis in the lower Himalayan industrial region:* **U Rajput**, D Swami, N Joshi

2000153 *Exploring Vegetation Responses in an Amazonian Region Affected by Forest Fires, Based on ECOSTRESS and Satellite-Derived PM2.5:* **F Á Soria**

1986948 *Global Snow Attribute Mapping Tool (Global-SAM):* **N R Pradhan**, S Bhattarai, G Kloss, A M Wagner, R Talchabhadel, E J Deeb, J L Ryder, A Tavakoly, Z Courville, V Lakshmi, M Paquette, D Khona, M Lewis, G Carravone

1978408 *Impact of Hydropower on Flood Risk and Food Production – Insights from Satellite Observations and the new GRAIN Dataset:* **S Suresh**, F Hossain

1987513 *Refining Flood Forecasts with Remote Sensing and Machine Learning: A Case Study of Hurricane Ida in New Jersey:* **Z Rahimi**

1979819 *Remote Sensing and GeoAI-Based Predictive Analysis in Hydrology and Climate Models:* **A Tariq**, D Brian J, M B Junaid, R W Aslam, R Bokhari

1895524 *Remote Sensing Applications in Alfalfa Phenology and Irrigation Estimation:* **S K Sharma**, M M Mekonnen

1897168 *Spatial Identification and Dynamics of Groundwater-Dependent Ecosystems in the North China Plain: An Integrated Random Forest and Multi-Criteria Decision Analysis Approach:* **B Batsuuri**

1964849 *A Simple Model of Annual Shifts in Stream Thermal Regimes:* **D Philippus**, C R Corona, T S Hogue

1855439 *Challenges Implementing the Natural Flow Regime Concept: An Ecological Perspective:* **D Carlisle**, M J Cashman, T Woods

1960023 *Characterizing Seasonal Streamflow : A Hydrologic Signature and Entropy-Based Approach:* **K Mehar**, I R Thomas, V Sreeparvathy

1985254 *Co-designing Artificial Intelligence augmented Hydroclimatic Regime-shift Early Warning Early Action Lead System (AI-Hydro-REWEALS) in Transboundary Lake Champlain Basin:* **A Zia**, P D Oikonomou, P J Clemins, A W Schroth

- 1942979** *Drought-Driven Algal Bloom Dynamics in a Temperate River System:* **P S D R Fabian**, Y Cha, H H Kwon
- 1934157** *Enhancing Flood Resilience through River Restoration and Hydraulic Modeling: A Case Study of Zhonggua Stream, Taiwan:* **S C Chen**, Y F Chiu, W N Hung
- 1984628** *Establishing a Functional Flows Framework for the Great Salt Lake Basin:* **S E Null**, B A A Lane, F Nusrat, J Ostermiller, B T Neilson, P Thompson, N Patterson, M Stamp, M A Baker
- 1962728** *Evaluating Ecological Flows and Hydrological Droughts in the Brahmaputra River Basin Using CMIP6 Climate Projections:* **Z Tasnim**, A S Islam, K M A Rahaman, M A Hussain, I Sarkar, M Saiduzzaman, M S Sakib
- 1867941** *Historical Change in Environmental Streamflows Important to Diadromous Fish in Four United States Coastal Regions:* **G A Hodgkins**, M J Collins, V Ouellet
- 1855352** *Hydrologic Regimes of Southwestern North America:* **E R Vivoni**
- 1884880** *Improving Sensor-Derived High-Frequency Turbidity Data Using Ensemble Empirical and Variational Mode Decomposition:* **A Badrudeen**, D Sahoo, C Sawyer, J Pike
- 1941357** *Integrating LSTM-Based Streamflow Prediction with EFDC+ 3D Hydrodynamic Modeling at Claiborne Lock and Dam, Alabama River:* **I Sarkar**, A C Linhoss, R A Wright, D DeVries
- 1875471** *Leveraging large-sample hydrology and machine learning to predict post-fire flood regimes and drivers across the western US:* **H Canham**, B A A Lane
- 1887735** *Modeling Study on Runoff Reduction Effects of LID Facilities by Urban Land Use Type:* **J Choi**, J C Joo, PhD, S Y Moon
- 1902342** *Multi-Year Periodicity in Spring Discharge:* **L Cromwell**, J B Martin, L J Florea, A Pain, K M Deuerling, M J Cohen
- 1873496** *Multifaceted Changes in Water Availability with a Warmer Climate:* **B Gu**, S Zhou, B Yu, K L Findell, B Lintner
- 1897274** *Quantifying Changes in Ecosystem Service Resulting from Hydrologic Alterations in the Upper Brazos River Basin: 1940 to 2025:* **N Kumar**, R Ray, B Tikuye
- 1923261** *Quantifying Historical Drought Trends and Separating Climate and Land Use Impacts on Streamflow in the Kansas River Basin:* **S C Zipper**, A Howlader
- 1918775** *Quantifying River Hydrological Regimes through Hydrograph Power Spectral Density Analysis to Improve Flood Risk Understanding:* **A Castillo-lopez**, A Hutson, N J L Lenssen, P Plink-Bjorklund
- 1971205** *Quantifying the impact of changes in rain and evapotranspiration statistics on groundwater recharge in semi-arid environments:* **T Turkeltaub**
- 1894764** *Reconstructing Hydrologic Regimes from Tree Rings in an Intensively Managed Watershed in Northwest Ohio:* **A Bertucci**, L Miralha, PhD
- 1992572** *Research on Basin Ecological Regulation Strategy Based on Hydrological Process:* **S Cai**, C Wang, H Cai
- 2003545** *Snowmelt Impacts on Soil Moisture and Soil Strength at Sagehen Creek: Evaluating Predictive Model Performance in High Mountain Environments:* **I Torres**, S Hibbard, B Sion, J B Eylander
- 1992058** *Soil Moisture, Vegetation Greenness, and Governance Dynamics of an Ecosystem Service:* **S Laszewski**, S Jia
- 1993511** *Studying Hydrological Processes in the Upper Senegal River Basin Using SWAT Model:* **S M Boussabou**, S Taia, H Legsabi, B El Mansouri, L Erraoui
- 1940358** *Temporal Patterns and Hydro-Climatic Influences on Streamflow Dynamics in the Eastern India River Basin: Evidence from Multi-Site Analyses:* **S L Ray**, A P Sahu, J C Paul, S K Raul, P P Jena, S S Dash, D M Das
- 1890506** *Unraveling river hydrologic regimes: Global evidence from river discharge analyses:* **P Plink-Bjorklund**, A Castillo-lopez, N J L Lenssen, A Hutson
- 1917556** *Using Innovative Trend Analysis to Evaluate Long-Term Streamflow Pattern, a Case Study of Colorado River, Texas:* **D Sun**, H Zhou
- 1914499** *Water Quality Considerations in Environmental Flow Management: Emerging Challenges and Future Directions:* **K Malhotra**, A K Nema
- 1992191** *A Comparative Analysis of Riverbank Erosion between the Banks of a River: Case Study of Padma River, Bangladesh:* **M T Islam**, M S Hossain Talukder, M S Hossain Talukder, M H Riad
- 1962763** *A Concurrent, Gridded Implementation of WEPP for Scalable Erosion Modeling Demonstrated in the Upper Mississippi River Basin:* **M Ateeq**, R P McGehee

246682

Advancement in Watershed Modeling: Agricultural Systems, Erosion Control and Nutrient Balances

Conveners: **Haw Yen**, USDA Agricultural Research Service; **Xuesong Zhang**, Pacific Northwest National Laboratory, Joint Global Change Research Institute; **Latif Kalin**, Auburn University; **Raghavan Srinivasan**, Texas A&M University

- 1891168** *A Coupled Agent-Based-Water Quality Modeling Framework for Evaluating BMP Adoption in Susquehanna River Basin*: **M Thapa Chhetri**, Y C E Yang, C Y Lin
- 1935758** *A Web-Based Scenario Builder for Nonpoint Source Pollution Modeling in Small Watersheds*: **Q Feng**
- 1993839** *Assessment of Economic Water Productivity of Irrigated Vegetables Farming in Humera, Tigray, Ethiopia*: **K Mehari**, A Halefom
- 1897422** *Conservation Tillage and Cover Crop Interactions: Effects on Soil Health, Water Quality, and Crop Productivity in the U.S. Midwest*: **G T McCarty**, K Liang, X Zhang, K Zhao, F Gao
- 1910147** *Conservation tillage: Navigating trade-offs between soil health and water quality*: **X Zhang**, K Liang, G McCarty, K Zhao, F Gao
- 1999543** *Diagnostic Evaluation of Regional Models for Crop Yield and Nutrient Leaching in Agroecosystems*: **A Abhishek**, A Hadjimichael, E Sinha
- 1938102** *Differences in Phosphorus Fertilizer Recommendations Among Functional Models Based on Field Experiment Data*: **K Ren**, M Xu, X Zhang, Y Duan
- 1905545** *Evaluating Global Rainfall Erosivity Datasets Using High-Temporal-Resolution Rainfall Gauge Records in Oklahoma*: **M Chen**, J Schussler
- 1929012** *Evaluating Soil Erosion Susceptibility On Agricultural Fields With Integrated Physically-Based And Machine Learning Models In Southcentral Kansas*: **T I Oishee**, B Gelder, T Sklenar, R Cruse, A Y Sheshukov
- 1851134** *Evaluating the Multi-functional Impacts of Rainwater Harvesting and Reuse Strategies for Landscape Irrigation in a Changing Climate*: **Y Liu**, S Li, A Nguyen, L Zhou, Z Wu, Y G Her, M Al-Farsi, T Choi, X Romeiko, F Li, D Ren
- 1902892** *Field-Based Evaluation of the SCS-Curve Number Method under Different Tillage Practices to Improve Runoff Estimation and Modeling*: **U Javed**, J McMaine, K Blann, P Adalikwu, T Trooien, S Mehan, H Zhang
- 1941653** *Identification of Erosion Hotspots and Scale-Dependent Runoff Controls on Sediment Transport in an Agricultural Catchment*: **C Thoma**, B Szeles, M Bertola, E Schmaltz, C Krammer, P Strauss, G Bloeschl
- 1851843** *Identification of the response of soil erosion to global change in Central Asian Area*: **C Zhao**, X Dou, Z Shi
- 1857309** *Improvement of Simulating Wetlands in a Computer Model to Enhance Agroecosystem Sustainability*: **Z Wu**, Y Liu
- 1870207** *Improving Global Estimates of Nutrient Excretion: Advanced Approaches for Capturing Spatiotemporal Variability*: **T Zou**, L Lassaletta, R Einarsson, A Dobermann, X Zhang
- 1935131** *Informing Riparian Conservation through Watershed-Scale SWAT+ Simulation of Nitrate and Sediment*: **T R Pokhrel**, S Mehan, T Trooien, S Sellars, J Gilbertson, B Berg
- 1948498** *Integrating Biochemical Partitioning and Decomposition Processes into TASC-Forest for Enhanced Soil Carbon and DOC Modeling in Forested Watersheds*: **S Li**, S Dangol, R Gelda, R Mukundan
- 1923831** *Integrating Stakeholder Knowledge and Hydrological Modeling to Protect Water Quality and Support Climate-Resilient Agriculture Under Future Socio-Economic Scenarios*: **H Haas**, K Karl, M Madajewicz, J Jägermeyr
- 1865057** *Introduction of the WEPP-Comprehensive Operation Management Practice Assessment and Rotation Engine (WEPP-COMPARE)*: **H Yen**, D C Flanagan, C S Renschler, A Srivastava, M Williams
- 1970415** *Modeling Dynamic Land Use Change to Manage Water Quality in Integrated Agricultural-Urban Landscapes*: **A Bin Hannan**, W Pagan, A Hojjat Ansari, C Raj
- 1867514** *Modeling Forest Growth and Dissolved Organic Carbon in the Biscuit Brook Watershed, Catskill Mountains, New York, Using TASC-Forest*: **S Dangol**, R Mukundan, R Gelda, X Zhang
- 1897529** *MODELING HOW CLIMATE CHANGE AND FOREST THINNING INFLUENCE SOLUTE EXPORT AND WATER QUALITY IN MUNICIPAL WATERSHEDS OF THE PACIFIC NORTHWEST*: **G L Alawode**, W Burke, J C Adam, M Dobre, J Padowski, E J Hanan
- 1854439** *Modeling Nitrate Runoff and Hydrologic Impacts of Agricultural Expansion in the Straight River Watershed Using SWAT+*: **H K Dhaliwal**, L Ludtke, J L Nieber, J Magner
- 1853595** *WEPP-IPEAT: Automated Computational Platform for Soil Erosion Modeling and Uncertainty Analysis*: **V SP**, N K D, H Yen, C S Renschler, B A Engel
- 1918145** *WISER: A Two-Stage Attribution-Oriented Simulation-Optimization Framework for Weather-Resilient Watershed Management*: **Y Tang**, B A Engel

247120

Advancements in Physics-based, Integrated Hydrologic Modeling to Support Water Resources Management (joint with EP, GC, NH, SY)

Conveners: **Zhi Li**, Pacific Northwest National Laboratory; **Pin Shuai**, Texas A&M University College Station; **Lili Yao**, University of Central Florida; **Youngjun Son**, Georgia Institute of Technology; **Donghui Li**, RADL Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

1951132 *Development of a Hydroeconomic Optimization Model for Flood Risk Reduction in the Budhi Gandak Basin under Inter Basin transfer:* **K L Babu**

1925394 *A Hybrid Modeling and Digital Twin Framework for Field-Scale Water and Nutrient Dynamics of Tile Drainage Systems:* **J Fan**, K Guan, B Peng, L LIU, G E Hammond, X Chen, M Pan, Z Li, R Qin, Y Xiao

1997857 *A Hysteresis-Aware Hydrologic Routing Scheme for Efficient Flood Simulation Using National Water Model Forcing and Hydrofabric:* **D H KIM**

1895483 *A Three-Stage Partitioning Framework for Modeling Mean Annual Groundwater Evapotranspiration:* **F Zeng**, Y Zhang, J S Geurink, K Parajuli, L Yao, D G Wang

1973889 *Accuracy Evaluation of 3D Reconstruction Approaches for non-perennial stream riverbeds:* **J Bao**, Y Chen, PhD, V A Garayburu-Caruso, E Fluet-Chouinard, M Laan, J Smart, L Renteria, B K Forbes, K Markham, A E Goldman, J Stegen

1880199 *Advancing Global River Discharge Estimates: Integrating Remote Sensing, Modeling, and Monitoring for Sustainable Water Resource Management:* **T W W Meshesha**, C S Rousseaux, J B Clark

1922988 *An integrated hydrologic model to assess the impact of conservation practices and programs on groundwater resources for the Northern High Plains aquifer:* **J Traylor**, T Sohl, A Bishop, B Thornton, J Dornbierer, M Allen, T Roy, D Uden, L Spor Leal, D R Bhattarai

1995495 *Correcting model snow parameters in real-time through assimilation of airborne snowpack observations:* **D Gochis**, K M Sampson, L Karsten, J S Deems, T H Painter

1980569 *Development of a Globally Applicable High-Resolution Water Balance Model: Preliminary Design and Evaluation:* **K Tsuzuki**, T Tebakari

1968935 *Development of the Agriculture Land Information System (AgLIS):* **J M Erlingis**, P W Liu, R Bindlish, S V Kumar, M Yang, A C Ruane, S K Ahmad, L Monhollon, J V Geiger, Z Yang, G Feng, Y Huang

1986374 *Estimating Groundwater Travel Time Using Hydrologic Modeling and Metolachlor Ethane Sulfonic Acid (MESA)-Based Calibration in the Choptank River Watershed:* **Z Xiang**, R Bailey, M J White, C J Hapeman, W D Hively, A White, Z Smith, A Bertholon, R Dessiatoun, M Foroughi

1998635 *Evaluating Noah-MP Groundwater Schemes for Regionally Adaptive Low-Flow Simulation in the Continental U.S.:* **J Wang**, T Pavelsky, M F Jasinski

1948262 *Hydrological Impacts of Land Cover Change: A Probabilistic and Uncertainty Analysis Perspective:* **J Giovando**, M Shi, A N Birnbaum, G Konapala, C Bracken

1907319 *Identification of Time Delays in Hydroclimatic Variables: A Wavelet-Entropy Approach:* **R Panikkar**, R Srivastav

1925217 *Impact of Rainfall Distribution During the Rainy Season on Natural Replenishment of a Karst Aquifer in a Mediterranean Climate: A Case Study from the Western Mountain Aquifer, Israel:* **Y Livshitz**

1882614 *Impact of Soil and Sewer Trench Materials on Urban Sewer-Mediated Fluxes: A Hydrologic Modeling Study:* **I Md Azizul Islam**, A Kumar, K Zhang

1967323 *Improving Hydrological Process Representation for Streamflow Prediction in Ungauged Basins:* **E Hassanzadeh**, L Bwirabuciza-fakage

1915018 *Investigating Tile Drainage Impacts on Hydrological Connectivity and River Flashiness in Agricultural Watersheds of the U.S. Midwest by Integrated Surface-Subsurface Hydrological Modeling:* **H Yu**, B Peng, S S Rathore, S L Painter, P V V Le, M Jia, K Guan, Z Ma, Y Wang

1990211 *Managed Aquifer Recharge Evaluation using the Physics-Informed Deep Operator Network and Capture Map Approach:* **M Bajpai**, S Gaur, K Singh

2000733 *Modeling Wetland Water Holding Capacity Using Multispectral and LiDAR Remote Sensing Data and Physics Based Models: Insights from Historical Flood Events in North Carolina:* **M Anokye**, L H Beni

1918571 *Multiscale Modeling of Stream Oxygen Dynamics in River Networks:* **P V V Le**, S S Rathore, J Gomez-Velez, J Behrens, M J Kurz, S C Brooks, S L Painter

1986538 *Operationalizing Hydrology: Enhancing Flow Simulations with Water Management Infrastructure:* **S Bakar**, E Triana, E Ebrahimi, P Shuai

1932509 *Parsimonious and Transferrable Parameterization of Reservoir Operations: A Modular Approach for Large-Scale Modeling:* **D Li**, G Villarini

1943129 *Physics-Informed Calibration of Vadose Soil Parameters:* **C Saju**, S Singh

- 1941967** *Predictive assessment of dynamic groundwater balance changes in the Indian Ganga Basin:* **S Natarajan**, S Janardhanan, J Indu, G Tack
- 1993048** *Real-Time Scheduling Theory and Application for Large-Scale Water Diversion Projects:* **C Wang**, M Yang, K Xu, C Ji, S Cai
- 1969177** *Recent Progress in Quantifying the Uncertainties of Streamflow Simulation in the Upper Colorado River Basin under Modeling Framework:* **S Shelton**, H Gu, W Zhang, S Ballav
- 1985372** *Reservoir Evaporation Correction in Arid Climates:* **Z Lin**, X Shen, E N Anagnostou, Q Yang, G Sofia, S Zaidi, F Alzabari

246824

Advancements in the Fate, Transport, Transformation and Remediation of Contaminants in the Environment (joint with B, ED, GC, GH)

Conveners: **Dengjun Wang**, University of Florida; **Kenneth Carroll**, New Mexico State University Main Campus; **Bo Guo**, University of Arizona; **Mark Brusseau**, University of Arizona; **Bo Guo**, University of Arizona

- 1952234** *PFAS loading and stable water isotope spatial stream networks in a northeast catchment:* **R Vera**, S Hancox, Y Gamez, E Waldron, K Hughes, S McBeath, C D Guzman
- 2001153** *A Generalized Moving Least Squares Method for Lagrangian Simulation of Anisotropic Dispersion in Heterogeneous Porous Media:* **J Fang**, M Z Al-Hamdan, X Chao, Y Zhang
- 1994821** *A Kinetic-Equilibrium Model Portraying the On-Off Mobilization of Arsenic in Paddy Soils during Redox Oscillations:* **Y Liu**, Y Liu, L Zhang
- 1919022** *A Probabilistic Human Health Risk Assessment Framework for Chlorinated Solvent-Contaminated Groundwater Sites Incorporating Uncertainty in Transport Parameters:* **C P Liang**, H Suk, Z Y Liao, J S Chen
- 1900082** *A Simplified Approach to the Design and Operation of Soil Aeration for Methane Removal from the Vadose Zone:* **J H Lo**, K M Smits, N Jayarathne, D Zimmerle
- 1931346** *A Simplified Method for Modeling Groundwater Flow and Contaminant Transport Induced by Surface Loading:* **J Zhang**
- 1918353** *Adsorption characteristics of harmful heavy metals onto new undamaged and UV-damaged microplastics:* **T Saito**, I Nagasinghe, T Takemura, S Hamamoto

- 1959474** *The Complexity Paradox: When Advanced Evapotranspiration Models Underperform:* **M Kumar**, P Raghav, Y Liu, G Bisht
- 1887989** *Understanding and incorporating the role of humans to improve streamflow prediction in integrated hydrological models:* **S Arumugam**, J Kim, S Fang
- 1905047** *Unveiling the role of groundwater in hydrology and nitrate transport: insights from model structure intercomparison over an agricultural watershed in the U.S. Corn Belt:* **Y Wang**, B Peng, M Jia, Z Ma, Q Zhao, D B Abrams, J Yang, K Guan, Y Song
- 1846193** *Advancing Active Sampling of Airborne Microplastics: Insights into Influencing Factors and the Implementation of a Novel Method from a Forest Ecosystem Case Study:* **M Klein**, E Fischer
- 1946621** *Ammonia Removal from Wastewater by Sugarcane Peel - Comparative Performance Efficiency, Adsorption Kinetics and Isotherms:* **R Roohmoney**, S Chakma, R Kaur
- 1980842** *Analyzing the patterns of and relationships between PFAS concentrations in soil and groundwater across California:* **H Ming**, A Destefano, B Guo
- 1854719** *Analyzing the sorption of Zinc-Oxide nanoparticles on Tire wear particles and their toxicity to microalgae Chlorella Vulgaris: Investigating role of humics and understanding toxicity from toxicity models and physicochemical analysis.:* **Z Ganie**, G K Darbha, A Choudhary, M Talib, S Gucchhait
- 1940728** *Antagonistic Effects of Selenium on Mercury Methylation by Sulfate-Reducing Bacteria:* **H Fakhraci**, M S Sarker
- 1851168** *Antimicrobial Resistance in the Adyar River, India, and its Control using Electro-oxidation:* **T M V**, I Nambi
- 1945546** *Aqueous Complexation of Diclofenac Sodium with Humic-like Natural Organic Matter and Implications for Pharmaceutical Pollution in the Himalayan Environment:* **A Rajput**, H V Kulkarni, A Giri
- 1970102** *Assessing Nitrate Transport in the Vadose Zone During Agriculture-Based Managed Aquifer Recharge Using Integrated Field and Modeling Approaches:* **A Raj**, B Yadav
- 1886782** *Assessment of microplastic environmental and human health risks requires understanding of environmental exposure mechanisms:* **S Krause**, L Kelleher, U Schneidewind, I Lynch, H Nel, R L Runkel, A Kukkola
- 1899675** *Beyond A Grain Scale: Upscaling Colloid Transport Through Interception History:* **B Al Zghoul**, W P Johnson, L Ullauri, S Volponi, D Bolster

- 1989061** *Bioaccumulation of Lead in Earthworms from Soil Contaminated by Recreational Firearm Use:* **L Secord-Rider**, M Zierden, S Coykendall, D D Wright
- 1991565** *Biomass Waste as Sustainable Soil Amendments for Spinacia oleracea Growth and Bioremediation of Potentially Toxic Elements in Diverse Environmental Settings:* **A Biswas**, R Bhattacharya, G K Darbha
- 1909376** *Circular Solutions: Spectrum of Sewage Sludge-Derived Carbon Materials for Treating Contaminant Mixtures:* **A Foujdar**, N Khandelwal
- 1886305** *Co-occurrence of As along with elevated Fe and Mn in the groundwater of the Brahmaputra Floodplains of Assam, India and its impact on human health:* **S Medhi**, R Choudhury
- 1873980** *Collection, Extraction, and Examination of Microplastics in Groundwater and Surface Water from the Little Blue River Basin:* **C Mwaipopo**, J Cha, J Lee, J Y Lee, S San, A Custis, L Langford
- 1963595** *Combining Field Datasets and Mathematical Modeling to Quantify PFAS Leaching and Mass Discharge at an AFFF-Impacted Site:* **B Guo, PhD**, R Russell, J Zeng, M L Brusseau, C E Schaefer, S Shea, C Higgins, T P A Ferre
- 1979166** *Comparative Evaluation of Riverine Microplastic Sampling Techniques in Controlled Flume Conditions:* **J Perna**, H Johnson, V Ganti, L Thornton Hampton, A B Gray
- 1984721** *Cost-Efficient Generation of Environmentally Relevant Nanoplastics and Their Colloidal Stability in Aquatic Systems:* **J Karwadiya**, S Shylesh, M Talib, G K Darbha
- 1939814** *Coupling Field Monitoring with Hydrological Modelling to Assess Heavy Metal Pollution in Hindon Basin Waters:* **P Dwivedi**, B K Yadav
- 1949444** *Detection and Spatial Distribution of Per- and Polyfluoroalkyl Substances along the Trinity River in Fort Worth:* **P Asare**, G Kharel
- 1864728** *Development and Chemical Functionalization of Poultry Litter Biochar for Enhanced Organic Pollutant Removal:* **M N Uddin**, D H Kang
- 1971965** *Disposable Coffee Cups as a Significant Source of Micro- and Nanoplastics: Release Dynamics, Toxicity, and Implications for Contaminant Fate and Risk Assessment:* **Y Li**, O Irumva, M S Islam, K Hussain, H Dong, S Romanova, Y Lu
- 1949725** *Dissolved organic matter derived from photoaging microplastics promoted dark Hg(II) reduction:* **L Zhang**, W Xing, Y Shi, S Alotaibi, L Wei, X Guo, O Sadik, B Gu, X Liang
- 1888960** *Diversity Analysis and Ecological Risk Assessment of Microplastics in Stratified Agricultural Soils under Different Anthropogenic Influences:* **E Gupta**, V Mishra, P Srivastava
- 1884171** *Effectiveness of Thermal versus Iron-Based Activation of Persulfate for the Oxidation of Chlorinated Ethenes:* **Z Demiray**, G R Tick, N H Akyol, N K Copty
- 1924324** *Effects of Pathogen and Aquifer Heterogeneity on Multi-exponential Retention at the Field Scale:* **V Troelstra**, A Störiko, G Medema, B van Breukelen
- 1962125** *Electrooxidation for the Removal of Multi-pollutant Mixture: Sodium dodecyl sulfate, Sulfamethoxazole, and Carbamazepine:* **A Joshy**, S Goel
- 1864055** *Emerging Contaminants in Soil Systems: From Colloidal Behavior to Ecosystem Impacts:* **Y Yu**
- 1880643** *Enhancing TCE Complete Reductive Dechlorination through Co-injection of a Microbial Consortium and Lactate Dosing:* **H Kim**, H LIM, J K Hong, S B Kim, T K Lee, J Park, K Yoo
- 1893335** *Evaluating Pesticide Leaching and Water Transit Times in Deep Vadose Zones Under Agricultural Managed Aquifer Recharge:* **T Zhou**, G Brunetti, N Ruud, J Šimůnek, W Cui, A Liao, P Nasta, J Gao, E Levintal, C Prieto Garcia, H E Dahlke
- 1927138** *Evaluation of Bioreactive Material-Enhanced Hydraulic Fractures for Mitigating Back Diffusion of Halogenated Contaminants in Low-Permeability Clays:* **C Y Shih**, G Kumar, D Fan, N Durant, C Chen, A Danko, C J Werth
- 1990568** *Evidence of microplastics in the Brahmani River in Bhitarkanika Wildlife Sanctuary, Odisha, India:* **R Kumar**, M Manoswini Das, S Das, A Verma, G Valsan, A Tamrakar, A K Warrior, J Lamba
- 1951383** *Experimental and Modeling Investigation of PFAS Leaching and Transport in Sites Under Repeated Application of Biosolids:* **C Klevan**, U Garza-Rubalcava, K Pennell, L Abriola
- 1858879** *Fate and Assessment of Metal Contamination from Floating Solar Infrastructure in Aquatic Systems:* **M Akomea-Ampeh**, E A Atekwana, E Steele, B Narwold, R R Hernandez
- 1964747** *Fate and Transport Modeling Using HYDRUS-1D: Deterministic and Probabilistic Analysis Using IPSO, Monte Carlo Simulation, and GLUE:* **U Marasini**, H Cho, D Rajapakshe, R Li
- 2003298** *From Retention to Regeneration: A Novel Approach for Dealing with Activated Carbon Barriers in PFAS-Contaminated Groundwater:* **S Suehnholz**, J Beihnsner, G Wang, J Bosch, J Rinklebe

- 1915841** *From Soils to Streams: Characterizing the Spread of Chronic Wasting Disease Through Watersheds:* **A Li**, D L Karwan, S S Lichtenberg, N Lurndahl, I Callery, L Rose, P A Larsen, T M Wolf
- 1896792** *Geochemical Assessment of Element Mobility in a Coal Combustion Product Impacted Dolomitic Aquifer:* **S Monami**, A Ojeda, M K Lee
- 1936133** *Geochemical Insights into Nanoplastic–Mineral Interactions in Aquatic and Terrestrial Environments:* **A Choudhary**, G K Darbha
- 1980503** *Hanford Grout Modeling Framework: Current Approach:* **J Anderson**, X Song, Y Fang, K Spicer, M Asmussen
- 1985886** *Harnessing Data Analytics for Groundwater Quality Insights: Innovative Approaches to Contamination Assessment:* **J Mahlknecht**, A Mora, J A Torres-Martinez, C F Narvaez Montoya
- 1954066** *Heavy Metal Immobilization via Microbially Induced Carbonate Precipitation Using Groundwater-Enriched Microorganisms Under Ureolytic and Non-Ureolytic Conditions:* **Y Kim**, Y Roh
- 1847900** *Homogenization-informed convolutional neural network to predict effective properties in porous media:* **I Battiato**
- 1888682** *Hybrid Machine Learning-Driven Simulation of Nanoplastics Fate in Complex Environmental Matrices: Mechanistic Understanding via Explainable AI:* **M Talib**, A Choudhary, K Ghosh, G K Darbha
- 1993491** *Hydrogeochemical modeling on heavy metal contamination for the life cycle management of old mine tailings storage site:* **M HA**, M S Bae, J H Kim, S Lee
- 1937523** *Hydrological Controls on PFOS Transport in the San Antonio River Watershed Using SWAT+:* **H Basnet**, E Cho, PhD, D S Hwang
- 1851237** *Impact of Microplastics with Mineral-Contaminant Interactions across Natural Water Matrices:* **A Mandal**, A Sarkar, J Karmakar, S T, G K Darbha
- 1927122** *Impact of Particulate Carbon Amendments on PFAS Fate and Transport in Groundwater:* **Z Zheng**, S Park, M A Hesse, S D Richardson, C J Newell, C El Mohtar, C J Werth
- 1867439** *Impact of Sequential Aging of Microplastics on the Fate of Antibiotics (Tetracycline) in Aquatic Continuum:* **S T**, A Choudhary, A Mandal, Z Ganie, G K Darbha
- 1913223** *Impacts of Land-Use Change on the Fate and Exchange of Mercury in Terrestrial Systems: Insights from Global Modeling:* **Y Zhang**, T Yuan
- 1981911** *In Situ Sequestration of Arsenic Using Engineered Biogenic Magnetite Precipitation - Bench Test Results:* **N Durant**, D Fan, A Rolea, B Bostick, R Jakobsen, T Jørgensen, N Tuxen, J Flyvbjerg
- 1942881** *Integrating batch adsorption and image analysis to quantify dye transport in layered sand-clay media:* **S Jang**, M Yang
- 1865372** *Integrating Phenotypic Disturbance Metrics into a Data-driven Optimization Strategy for Groundwater Bioaugmentation:* **T K Lee**, J K Hong, S B Kim, J Park, H LIM
- 1883380** *Interaction and cotransport of an insecticide and chitosan in water saturated quartz sand: Sorption mechanisms and remediation implications:* **C V Chrysikopoulos**, E A Xenou, A A Malandrakis, V E Katzourakis
- 1994368** *Introduction to JIS A 1291 : Test method for adsorption performance of attenuation layer:* **M Nishikata**, T Kato, K Morimoto, Y Imoto, M Takada, T Katsumi, H Sakanakura, T Inui, T Yasutaka
- 1900163** *Investigating PFAS Leaching from Unsaturated Soils Near a Fluorochemical Facility in North Carolina Using Field Data and One-Dimensional Hydrus Modeling:* **G K Mohan**, L P Tatiparthi, K Mahinthakumar, T Campbell
- 1853092** *Iron Oxide Nanoparticles as a Cost-Effective Nano-Adsorbent for Arsenic Remediation: Addressing Environmental and Agricultural Contamination Challenges:* **P Rai**, S Sharma
- 1973052** *KELEA (Kinetic Energy Limiting Electrostatic Attraction) as a Life-Force Energy to Reduce Contamination in the Nation's Waterways by Enhancing Nature's Allostasis - Experience Using Kiko Processed Volcanic Rock Pellets Plus Biochar and Nutrient Solution:* **J Martin**
- 1846864** *Lab-Scale Phytoremediation of Industrial Wastewater Using Floating Aquatic Plants for the Removal of Emerging Contaminants:* **S Khan, PhD**, M Aleem, A Arshad
- 1934315** *Large-scale adsorption coefficient (Kd) prediction of Per- and polyfluoroalkyl substances in soil:* **M Kebede**, M M Mekonnen
- 1989021** *Lead Bioaccumulation and Biogeochemistry at the Gaines Highway Informal Shooting Range near Kinross, Michigan:* **S Coykendall**, M Zierden, L Secord-Rider, N Gordon, B Southwell, D D Wright
- 1944686** *Macrophyte-Assisted Vermifiltration for Antibiotics-laden Cattle Feedlot Wastewater: Performance, Comparison, and Life Cycle Cost Analysis:* **S Singh**, B K Yadav, R Singh

- 1852933** *Mechanistic Elucidation for Simultaneous Immobilization of Arsenic and Lead by Iron Phosphate and Vivianite via X-ray Spectroscopy:* **J H Park**, H Kim
- 1997375** *Mechanochemical Degradation of PFAS under Solvent-Free Conditions:* **Y Lu**
- 2002667** *Metallomes in Soil, Water, and Plant systems: Integrating Nutrition and Safety of Food Crops:* **W Zhang**, Q Cao, C Li, K Steinke, Z Hayden, H Li
- 1954279** *Microbial Biodegradation of Cyanide in Mining-Affected Sediments from Southern Ecuador:* **M Ruiz-Urigüen**, E Llumiquinga, D Endara, M C Reid
- 1866901** *Microbial Contaminants in Groundwater Arsenic Mitigated and Piped Community Drinking Water Supplies in Bihar, India: Implications on Water Security:* **A Roshan**, G E Clayton, M Arora, D A Polya, A Kumar, A Ghosh, S Reichmann, A M Glenn, M Sedighi, L A Richards
- 1916101** *Microplastics Distribution in Urban and Rural Freshwaters Detected by Laser Direct Infrared Spectroscopy:* **C W Oo**, M Lenczewski, M R M Brown
- 1853743** *Microscale Migration, Macroscale Impact: Polypropylene Transport in Amended Soil:* **M F Khan**, C S P Ojha
- 1930611** *Modeling Toxic Chemical Leaching from Microplastics with FVCOM-MP:* **Y Huang**, M Brown, E Kolodziej, T Wang, Z Yang, N Sun
- 1910039** *Multiresidue Monitoring of Pesticides and Emerging Contaminants in Groundwater from a Fractured Volcanic Aquifer in the Paraná 3 Basin, Brazil:* **B Amaral**, G Gomes, L Martens, N Toyama, D Tavares, J Souza, L Garcia, G Athayde, C Müller Athayde
- 1863001** *Multiscale Analysis of PFAS Transport in the Unsaturated Zone: Laboratory Experiments and Field Measurements:* **S Kolade**, A Ronen, K E Klint, C Tsakiroglou, O Dahan
- 1878443** *Nanobiocchar-Enabled Sorption Technology for the Remediation of Neonicotinoid Pesticides in Water:* **D Wang**, I Radwan, C Wang, X Kong, S Rice
- 1914476** *Novel Analytical Solution for Multispecies Migration of Degradable Contaminants in Rivers with Hyporheic Zones:* **J S Chen**, C P Liang, Z Y Liao, Y C Ho
- 1940598** *Occurrence of Emerging Contaminants in Urban Groundwater: A Preliminary Study in Guwahati City, Assam, India:* **J Dutta**, R Choudhury
- 1872070** *Occurrence of Perfluorinated Compounds in Vembanad Lake, a Ramsar Site in the Southwest Indian Subcontinent:* **S Vadakke Neelamana Kesavan**, M Mohan, S Krishna, S Soman, A Ramachandran
- 1914764** *Particulate Organic Contaminants in Southwest Florida Coastal Waters Following Hurricane Ian:* **I Kacprowski**, P L Adhikari, I C Romero
- 1972901** *Partitioning of PFAS and Other Organic Contaminants Between Water, Air, and the Water-Air Interface:* **I C Bourg**, A C Lemay, E Sontarp, J Willemsen
- 1942658** *Per- and Polyfluoroalkyl Substances (PFAS) in global soils, sediments and biosolids & their source:* **D M O'Carroll**, Y Gao, D Gilbert, K Da Costa Mongabure, M Lee, T C G Kibbey
- 1963427** *Polycyclic Aromatic Hydrocarbons in Southwest Florida Coastal Waters Following Hurricane Ian:* **L Shea**, I Kacprowski, P L Adhikari
- 1864554** *Predicting Heat Transport with Hydraulic Conductivity Distributions from Various Approaches in a Complex Groundwater Flow System:* **C Wang**, Z Ning, N Luo, Z Zhao, S Berg, W A Illman
- 1894547** *Quantifying Health Risks from Geogenic and Anthropogenic Groundwater Contaminants in a Mining-Affected Region of Northwest India and Demonstrating Effective Nano-Enabled Remediation.:* **B Swami**, M Kumar, N Khandelwal, R Kumar
- 2000292** *Recent Advances in Adsorption-Based Technologies for PFAS Removal: Evaluating Progress and Future Directions:* **H Vatankhah**
- 1938149** *Reliability of size fractionation by membrane filtration: Re-evaluating nominal pore size assumptions:* **Y Imoto**, T Yasutaka
- 1890170** *Remediation of Multiple Heavy Metals in Humus Soil Using Biopolymer-assisted Enzyme-induced Carbonate Precipitation Method:* **Y Bian**, Y Chen, L Zhan
- 1977605** *Sedimentary Signatures of Industrialization: A Geochemical Investigation of Trace Metals and Sedimentation in a Legacy Industrial Water Supply Reservoir:* **A Schneider**, D Bain, H Sinon, M B Abbott, Q Eisenberger
- 1966273** *Simulation of Pulsed Flow for the Improvement of Pump-and-Treat Remediation of Non-aqueous Phase Liquids:* **C Csikos**, D M Kahler
- 1871967** *Soil human pathogens in rapid urbanization areas: occurrence, distribution, and potential risk:* **M LI**
- 1928837** *Sorption Behavior of Perfluorooctanoic Acid (PFOA) in Agricultural Soils: Insights from Column Experiments and Modeling:* **R Matonding**, A Kokkinaki, E Wallace, H Chodavarapu, O Evbuomwan
- 1855216** *Sorption Behavior of Two Perfluoroalkyl Substances (PFAS) in Soils from the Prado Wetlands, Corona, CA:* **A Robinson**, M G Prokopenko, C Taylor

- 1915714** *Spatial Estimation and Identification of Soil Lead Concentration for Select Parks in New Orleans: S Mukherjee, M S Rahman, T Godebo, E Oral, D Harrington, A Stelly, D Wilright, S Cruise, A Katner*
- 1848866** *Spatiotemporal and Machine Learning Analysis of Heavy Metals in Surface Water: A Case Study of the Lower Passaic River: M S Islam, S Naveed, H Feng*
- 1874933** *Stable Isotopic Analysis of Per- and Polyfluoroalkyl Substances (PFAS) to Elucidate Sources and Transformations in the Environment: P Wojtal, D Portelli, B Davidheiser, C Lane, R N Mead*
- 1847604** *Stable Nitrogen Removal from Low-strength Wastewater in Oxidic Conditions by Anammox-containing Granules: A FU, M Wang, X Mao*
- 1851935** *Sustainable Adsorption of PET Microplastics from Water Bottles using Banana Pseudostem Biochar: Process Optimization and Mechanistic Study: K Mohan, V R Lakshmanan Sr*
- 1984089** *Ten-year post-disaster assessment of multiple pollutants in the Doce River estuary after the 2015 Fundão tailings dam collapse: R Neto, E Costa, R Costa, D Xavier, C Da Silva, E Hara, C Longhini, C de Almeida, R Cagnin, W Araújo, G Ferreira, F Sa*

247163

Advancements in Watershed Modeling to Support Water Management (joint with B, GC)

Conveners: **Matthew Miller**, USGS; **Noah Schmadel**, USGS Oregon Water Science Center; **Qian Zhang**, Johns Hopkins University; **Olivia Miller**, U.S. Geological Survey

- 1973762** *A Flexible Hybrid Flood Modeling Framework to Improve Computational Efficiency in Large Watersheds: R Ghorbani, S Saksena, S Dey, V Merwade, P Singhofen*
- 1895352** *A Hybrid Parallel Solver for Hillslope-Link Hydrologic Models with Extended Network Topologies: R Molina, F Quintero, N Velásquez, W F Krajewski*
- 1928723** *A Multi-model Hydrological Assessment of the Impacts of Future Climate Change on the Hay River Basin: C Gautier, K Keshavarz, M Moghairib, S Pokhrel, S Kashyap, E Riley, P Rokaya, A Pietroniro*
- 1963193** *A New Scenario Free Procedure to Determine Flood Peak Changes in the Harz Mountains in Response to Climate Change Projections: F Reinstorf, M Beylich, U Haberlandt*
- 1965223** *A Process-Based Model to Simulate Nitrate Concentrations and Transport During Hydrologic Events in Agricultural Watersheds: V Garcia Munera, L J Weber, R Molina, N Velásquez*

- 1932131** *The Impact of Soil Moisture and Manure Application on Elemental Composition of Agricultural Soil: J Kallas, R J Saracnlan, J K Coleman Wasik, B Hassanpour*
- 1869545** *The interception history paradigm: a different way of looking at colloid transport: D Bolster, W P Johnson, S Volponi, B Al Zghoul, L Ullauri*
- 1917066** *Tracing Cadmium in Texas Urban Gardens: Isotope Fingerprinting, Transport Modeling, and Bioavailability Assessment: L Kocian, B Mohanty, A Sharif*
- 1943172** *Uncovering the Hidden Burden: Pesticide Residue Mixtures in Subtropical Indian Soils: S S Shah, J van Dam, V Silva, A Singh, R Osman, D S Bundela, J B Mohrmann, R K Yadav, V Geissen, C Ritsema*
- 1942884** *Understanding the Interactions and Sorption Potential Between Pesticides and Beas River Sediments in Mid-Himalayas: D Kumari, H V Kulkarni, A Giri*
- 1885783** *Unsaturated 3D Pore-Scale Dynamics Reveal a Non-Monotonic Reactivity with Phase Saturation: S Farhat, G Sole-Mari, D Bolster*
- 1962058** *Zinc Removal using Nanoparticles (La₂O₃) Loaded Adsorbents: Kinetics, Isotherm, and Thermodynamic Analysis: A Singh*
- 1866419** *Accelerating Watershed Management Decisions Using Cloud-Based Soil-Water-Balance Modeling: P Inkenbrandt, MS, K Ladig*
- 1878276** *Advancing Hydrological Model by Integrating Dynamic Crop Area for Improved Water Withdrawal Estimates: M Umer, N Hanasaki, S Padiyedath Gopalan, Z Ali, T Oki*
- 1959146** *Advancing Hydropower System Modeling to Support Integrated Water-Energy Management: J Quinn, S Singh, J Kern, R I Cuppari, G W Characklis*
- 1973639** *Advancing the Representation of Groundwater in a Water Management System Model for Cache Valley, Utah: P Claire Gutierrez, P Shuai*
- 1968226** *Analyzing Spatial Variability in SWAT Performance Using Watershed Attributes and Machine Learning: M Galib, V Merwade*
- 1898910** *Application of a new prior-based model evaluation framework to efficiently assess watershed model configuration decisions and overcome existing process representation deficiencies: M Pleasants, M N Fienen, H Essaid, J Blomquist, J Marshall*
- 1985689** *Application of the Python Crop-Hydrological Agent-Modeling Platform (PyCHAMP) to Simulate Human-Water Dynamics Under Synthetic Drought Conditions in the High Plains Aquifer: F Khadim, M E Orduna Alegria, C Y Lin, W Ndlovu, L Marston, S C Zipper*

- 1850953** *Assessing groundwater stress in the Delaware River basin: Integrating national and regional models with water use and groundwater level data:* **F Felfelani**, A L Dugger, M Masbruch, W Zell, H W Reeves, M P Miller, H Essaid
- 1923843** *Assessing Nature-Based Solutions Using Hydrologic Connectivity and Landscape Resiliency in South Carolina Watersheds:* **A McClendon**, W S Currie
- 2001527** *ASSESSING RECHARGE DECLINE AND IDENTIFYING FLOOD RECHARGE POTENTIAL IN THE SANTA CRUZ BASIN:* **L Wagle**, C Maxwell, A Fernald
- 1952807** *Assessing sensitivities of streamflow with reservoir operations to watershed model parameters:* **J Dickinson**, J L McCreight, E Triana, N Knowles, J D Smith, S Foks, A R Bock, S Bakar, R Riggs, J A Engott, M Wieczorek, R McDonald, J Marshall
- 1845544** *Assessing the Effectiveness of Baseflow Separation Methods:* **A Halefom**, N Kumar Dr, A Poddar Dr, M Amare
- 1927719** *Assessing Water Availability and Acequia Resilience in the El Rito Watershed Using SWAT+ and Parameter Regionalization:* **H Shreesh**, A Azzam, H Cho
- 1990813** *Assessing Water Availability in the Semi-Arid Watershed of Maharashtra Using the SWAT Hydrological Model:* **M D Mhaskar**, P D Udmale
- 1926308** *Change In Storage Analysis for Tribal Water Governance in Southeast Montana:* **A Somana Gowda PATIL**, P Sarzaeim, G Bulltail
- 1848741** *Chasing Water in a Rapidly Changing World:* **B D Richter**
- 1877036** *Comparative Analysis of Optimization Algorithms for Enhancing DWAT Model:* **D Kim**, W Jang, J Yoon, C Jang, H Kim
- 1994586** *Comparative Assessment of Water Yield in a Wetland-Dominated Watershed Using SWAT+ and InVEST Model:* **F Hasan**, G Chen
- 1930563** *Development of WATAR (Wildfire Ash Transport and Risk) A Physically-based Ash Transport and Water Quality Module Integrated with WEPPcloud:* **A Watanabe**, M Dobre, P Robichaud, S Lewis, E S Brooks, A Srivastava, S Das, M Basso, J Neris, R Lew
- 1977007** *Dynamic Mixing with Unsteady Transit Time Theory Resolves Source-Specific Water Quality in a One-Water Reservoir:* **S V Bhide**, S B Grant, P Benettin, M Rippey, A Monofy, K E Furst, S Shelton, S Kaushal, S Misra, P J Vikesland, E R Hotchkiss, T Schenk, H E Post II, D Alvi, A Husic, PhD
- 1907987** *Effects of Different Climate Model Projections on Distributed Streamflow Simulations and Water Management Scenarios in the Colorado River Basin:* **N Kandalaft**, X Chen, S Ghimire, Z Wang, K M Whitney, N P Templeton, O Morfin, E R Vivoni
- 1899734** *Enhancing Regional Water Supply Planning using Water Demand Forecasts: A Case Study in the Brazos River Basin:* **K Singh**, Y Zhang, C Higgins, A Abel, N Fernando, S Fakhreddine
- 1949484** *Enhancing Wetland Process Representation using a Field-Scale SWAT+ Model for Nutrient Load Reduction in the Western Lake Erie Basin, USA:* **D Lee**, L Miralha, PhD, A Murumkar, M Kalcic, G Bohrer, J Paulson, M J White, J H Lee
- 1876998** *Ensemble Streamflow Forecasting with DWAT and Downscaled Climate Predictions in South Korea:* **J Yoon**, C Jang, D Kim, W Jang, H Kim
- 1871613** *Evaluating Recession Curve Models for Spring Discharge Prediction in a Fractured Aquifer of Northeast India:* **M Gogoi**, R Choudhury
- 1857578** *Evaluating the Use of Brackish Groundwater for Irrigation: Impacts on Crop Production, Soil Health, and Water Quality in the Texas High Plains:* **J QI**, Y Chen, R T Bailey, G Marek
- 1886843** *Evaluating Water Resource Sustainability under Climate Change in the R'Dom Watershed using SWAT+ and SDSM:* **A Abdennabi**, A Essahlaoui, M Ouarani, M Mohajane, A van Griensven
- 1898491** *Examining the Influence of Canopy Interception on Hydrologic Cycle Using TASC-Forest:* **S Dangol**, R Mukundan, R Gelda, X Zhang
- 1998717** *Fixing False Barriers in Digital Elevation Models for Improved Hydrological Analysis:* **K Glodzick**, M J Cohen
- 1924051** *From High in the Sky to Deep Underground: Coupling Remote Sensing with Integrated Hydrologic Modeling to Highlight how Groundwater Pumping Impacts Streamflow in the UCRB:* **N Jadallah**, R M Maxwell
- 1934476** *Hydrologic Modeling of Surface Water Flow in the Peace River Basin Using SWAT+:* **S Shaghaghi Khajehdehi**, G Golmohammadi, S M Biazar Seighalani, G S Tiwana, N Ghimire
- 1877154** *Hydrological Modeling and Streamflow Simulation Using SWAT for the Yettinabole Watershed in Western Ghats, India:* **R Honnasiddaiah**, R Inapakurthi, G Niveda, D C
- 1948334** *Hydrological Sustainability of Dam-based Water Resources system in a Mediterranean Basin Undergoing Climate Change:* **S Sirigu**, N Montaldo, R Corona

- 1965596** *HYGRID-M: A Grid-Based Water Balance Model for Drought Management at River Basin District Scale:* **H Aung**, B Sileo, M Fiorentino, S F Dal Sasso
- 1886072** *Improving SWAT+ Simulations of a Central New York Stream using the gwflow Module:* **K Hudiburg**, C R Grand, E A Baker
- 1860506** *Integrated Framework for Catchment Management, Erosion Control, and Ecosystem Preservation in the Nepal Himalaya: Implications for Sustainable Hydropower Development:* **S K Ghimire**, Y Lu, Y Wang, S Sharma
- 1944663** *Integrated Time Series Analysis of Hydroclimatic Variability in the Gunnison River Basin:* **O Owolabi**, B Sasanya
- 1961233** *Integrating Land Use Regulation and Riparian Restoration for Ecosystem Service Enhancement: Implications for Nutrient Retention and Coastal Eutrophication:* **M Valladares Castellanos**, R De Jesus Crespo, T Douthat
- 1980848** *Integrating Snow Processes and Land Use Transitions in Climate-Sensitive Upper Rio Grande Basin:* **A Apolinario**, E Ingol Blanco
- 1917913** *Investigating landscape-level drivers of road salt pollution on in-land lakes within the Lake Champlain Basin:* **M L'Hote**, B Wiltse
- 1904728** *Modeling Strategy-Driven Socio-Hydrologic Dynamics in Uncertain Watershed Systems Using Model Predictive Control:* **M Zhang**, T F M Chui
- 1869737** *Multi-year evaluation of spatially distributed snow water equivalent datasets to aid in operational streamflow forecasting:* **J Meyer**, C Moser, W P Miller
- 1906392** *National Agroecosystems Model: State-of-the-art physically based SWAT+ modeling framework to support water management - Development and Capabilities:* **N Čerkasova, PhD**, M J White, J G Arnold, K Thorp, J GAO, P M Allen, R T Bailey
- 1899876** *One size doesn't fit all: region-specific post-fire modeling for the Western Cascades:* **M Basso**, M Dobre, A Srivastava, R Lew, E S Brooks, P Robichaud, A Watanabe, S Das, B S Sheppard
- 1877106** *Performance Comparison Between DWAT and SWAT Models in the Han River Basin, South Korea:* **D Kim**, C Jang, W Jang, J Yoon, H Kim
- 1893247** *Predicting Event-Scale Runoff Coefficients Using Support Vector Regression:* **T Xu**, V Merwade
- 1862129** *Question-First Evaluation of National Watershed Nutrient Modeling Capabilities:* **A Appling**, S Ator, J Blomquist, K Eng, G Gorski, C T Green, L Koenig, J Kwang, W A McAliley, K Merriman, O Miller, D M Robertson, N M Schmadel, G E Schwarz, J Marshall
- 1986222** *Reservoir Surface Elevation Forecast Assessment in Puerto Rico: A Multi-Metric Framework:* **G Trossi**, J Munoz Barreto
- 1882329** *Spatiotemporal Changes and Driving Factors of Riverine Nutrient Export at HUC12 Scale in the Mississippi/Atchafalaya River Basin:* **Q Zhao**, B Peng, Z Ma, M Jia, G McIsaac, D M Robertson, M Pan, K Guan
- 1869879** *Statistical Analysis of Streamflow at Upper Mississippi River Basin:* **P F V Teng**, J L Nieber, S Neuman, L Salvato
- 1914006** *SWAT+: The Future of Open-Source Watershed Modeling:* **N Čerkasova, PhD**, J G Arnold, M J White, R T Bailey, J Jeong, O David, T Ugraskan
- 1946297** *The ALGE Contaminant Transport Model for Emergency Response:* **D W Werth**, V Turner
- 1980275** *Towards Scalable and Computationally Efficient Watershed Hydrology: A Framework for Coupling Specialized Physics-Based Flow Models:* **M B Meles**, A T M S Rahman, PhD, H Ajami, S A Bradford, J Šimůnek, A Stathos
- 1971939** *Water Availability Outcomes Under Statistical vs. Physical Climate Projections in California:* **S Mukhopadhyay**, L Su, M C Levy, D R Cayan
- 2001302** *Water for extreme weather management: implications for regional irrigation demand estimates and projections:* **M R A Khan**, R Nelson, M A Yourek, K Rajagopalan
- 1962984** *Watershed Dynamics Study to Determine Correlation with Fish Production in Chattahoochee River below Lake Sidney Lanier Reservoir:* **S S Panda**, A Kute, P Jat, S Sahitya, E Rout
- 1976988** *Will Future Water Security Be Threatened Under Climate Change in the Upper Main Catchment in Bavaria, Germany?:* **J Huang**, J Holzer, S Prakash, M Digiusto, T Gebrekidan, M Disse

251180

Advances in Critical Zone Hydrology through Integration of Novel Measurement Techniques and Modeling Approaches (*joint with A, B, EP*)

Conveners: Tobias Weber, European Geosciences Union; Efsthios Diamantopoulos, Soil Physics, University of Bayreuth; Yijian Zeng, University of Twente; Tobias Weber, European Geosciences Union

1876259 *A Field-Ready, Low-Cost, Evaporation-Free Passive Isotopic Rain Collector Fabricated by Epoxy Casting:* **A Hosford**, C Udell, J S Selker

1957731 *Assessment of Hydraulic Properties of Soil using Field-Installed Sensors in Comparison to Lab Measurements:* **T Singh**, L Cobos, L D Rivera, M Yost, B Barker

1903102 *Estimating soil bulk electrical conductivity from soil suction and physical properties:* **M I Mahmud**, R M Holt, L T Wodajo, C J Hickey, A M O'Reilly

1960523 *Estimation of Land Surface Model Parameters to improve Simulation of Land Surface Fluxes:* **H J Hendricks Franssen**, H Zhao

1948345 *Identification of Critical Nodes using Unsupervised Machine Learning Methods and their Linkage to Ecological Challenges in the Alaknanda River Basin:* **N Rajouria**, P Prajapati, S Jha

250998

Advances in Drought Monitoring and Risk Management: Integrating Remote Sensing, Stochastic Hydrology, Modeling, and Surveys (*joint with A, GC, SY*)

Conveners: Sara Sadri, Princeton University; Upmanu Lall, Columbia University of New York; Shraddhanand Shukla, UC Santa Barbara

1968839 *A Multivariate Drought Index for the Combined Influence of Snow and Antecedent Soil Moisture:* **M Sabin**, B Livneh, N R Bjarke

1941382 *A Non-Stationary Copula-Wavelet Framework for Diagnosing Drought Propagation Strength and Timing:* **M Park**, U Lall, N Devineni, H H Kwon

1951063 *Analyzing Future Precipitation Extremes Patterns in the Upper Amazon Basin Using CMIP6 Scenarios. Case Study: Ucayali River:* **J Guerrero-Gallego**, S Lazarus, N Velásquez

1876811 *Analyzing the Relationship Between a Meteorological Drought Indicator and Social Response to Drought:* **Y Kwon**, J Lee, H Jeong

1893979 *Investigating the Responses of Soil Hydraulic Properties to Land Cover and Land Use Change Using in Situ Soil Moisture Measurements and Inverse Modeling:* **A Chiang**, Z Freedman, A E Hartemink, J Huang

1958633 *Modeling Evaporation Fluxes of Cyanobacterial Biological Soil Crust using HYDRUS:* **I Escamilla Franco**, K Hurley, N Pietrasiak, M Nicholl, H H Bauser

1938135 *Oxygen and Hydrogen Isotopes and Water Concentrations in Soil and Xylem to Constrain the Water Cycle in a Montane Ecosystem (East River, Colorado):* **M Bill**, M Sprenger, R W H Carroll, L Li, B Gilbert, E Brodie, K H Williams

1973316 *StorAge Selection (SAS) transport modeling in a forested Piedmont catchment: Importance of uncertainty estimation for process understanding:* **M Simonsen**, E Xu Fei, S Putnam, C Cosans, C J Harman

1921015 *Tillage Effects on Soil Parameters Estimated by Brooks-Corey Equation in a Sandy Loam:* **J Jabro**, W B Stevens

1944811 *Using distributed hydrology models in digital soil mapping for precision agriculture:* **Z Libohova**, H E Winzeler, P Owens, K Adhikari, M Mancini, Q Read, N Sun, J M Blackstock, A Ashworth, D Beaudette, S Silva, N Curi

1860592 *Assessing Drought Vulnerability Under Climate Change Using Deep Learning Approaches:* **W Sun**, F J Chang, M Girotto

1912847 *Assessing Streamflow Droughts in the United States using Remotely Sensed Total Water Storage Data:* **A Dischner**, S R Adelsperger, S Robeson, D L Ficklin

1904423 *Assessing the Impact of Climate Change on Groundwater Resources in Taoyuan Using THMC Model:* **Y C Ho**, C W Liu, M H Wei, W L Chen, L H Chiu, T Y Chu, M H Lin, J S Chen

1940837 *Enhancing Flash Drought Detection Through Seasonal Hierarchical Ensemble Modeling in South Korea:* **S Kang**, H H Kwon

1963818 *Enhancing hydrological drought monitoring for USDM end users using NASA LIS and WRF-Hydro modeling systems:* **T Roy**, T M Lahmers, N Kumar, A H Mazrooei, T Haigh, A L Dugger, S V Kumar, C Poulsen, M D Svoboda

1952684 *Enhancing streamflow drought simulation through calibration for the US Drought Monitor:* **N Kumar**, T M Lahmers, A H Mazrooei, T Haigh, A L Dugger, S V Kumar, M D Svoboda, T Roy

- 1947121** *Evaluating National Water Model streamflow prediction bias during identified drought events in the Colorado River Basin:* **R van der Heijden**, A Dadkhah, D M Rizzo, E Ghazanfari, M M Dewoolkar, A Aghababaei, E Webster-Esho, X Li, G P Williams, N Jones, P Clement
- 1873944** *Evaluating the Accuracy of Evaporative Stress Index-based Flash Drought Detection in Global Reanalysis Data:* **P Raghav**, M Kumar
- 1993879** *Flash Drought Onset Dynamics Across India: Insights into the PET Approach Dilemma:* **A Pathania**, V Gupta
- 1902023** *Future Increase in Spatially Compounding Drought and Heatwave Events Over Global Breadbasket Regions:* **A K Mishra**, A Sabut
- 1939591** *Impacts of Flash Droughts on Crop Productivity and Yield in the Continental United States:* **H Yang Sr**, J Yang
- 1919808** *Integrated Machine and Deep Learning Approach for Mapping Agricultural Drought Zonation in Semi-Arid Tamil Nadu, India Using Multi-Source Remote Sensing Data:* **S Mondal**, A Prasad K
- 1914902** *Integrating Remote Sensing and Transformer Neural Networks for Drought Stress Impact on Water Use Efficiency and Cultivated:* **M Farhan**, T Wu
- 1977657** *Integrating Satellite Remote Sensing and Recurrent Neural Networks for Drought Stress Monitoring in Urban Vegetation Ecosystems:* **A Chatterjee**
- 2002928** *Interacting Water Sources Shape Vegetation Phenology Across Elevation Zones and Vegetation Types in the Cosumnes Watershed:* **Y Zou**, M Giroto, G Carlson

247634

Advances in ecohydrology of water-stressed environments

Conveners: **Lixin Wang**, Indiana University Indianapolis;
Sujith Ravi, Temple University

- 1884449** *Altered Precipitation Amount and Seasonality Reduce Productivity and Change Community Structure in two Semi-arid Grasslands:* **S L Collins**, T J Ohlert, M Patton, M D Smith, A Knapp, J Rudgers, L Song, W Luo, R F Brown
- 1861441** *Combining agro-hydrology and spatial statistics to explore water-food-conflict dynamics in water-scarce contexts:* **N Galli**, I Epifani, J Dell'Angelo, M Sardo, D D Chiarelli, P D'Odorico, M C Rulli
- 1926545** *Controls on Dryland Grassland Productivity:* **R L Scott**, J A Biederman, PhD, W K Smith, W Zhang
- 1913197** *Country-Wide Hyperresolution Ecohydrological Simulations for Climate Change Impact Assessment in Cyprus:* **A Paschalis**

- 1992762** *Monitoring Drought Impacts in Quasi Real-Time by Combining Hydroclimatic Data, Water Systems, And Socio-Economic Approaches:* **A Escrivá-Bou**
- 1865299** *Seasonal and Regional Variability in Hydrological and Drought Responses in the Great Lakes Region: Impacts on Baseflow, Total Flow, and SPEI:* **K A Clancy**
- 1985546** *Shifting Extremes in the American Southwest: A Non-Stationary GEV Ensemble Approach:* **O M Cabezas-Nivin**, E Ingol Blanco
- 1946614** *The U.S. Drought Impact Reporter at 20 Years: What We Have Learned:* **K H Smith**, M J Hayes, D Gutzmer, M D Svoboda
- 1971732** *Tracing Drought Propagation across Transboundary River systems in the 20th and 21st Centuries: A Case Study of the Nile River Basin:* **D Hegazy**, M Sultan, H Elhaddad, E Yan, H Karimi
- 1848558** *Tracking Drought Movement Over Time and Space:* **A K Mishra**, A Sabut
- 1980701** *Tracking Hydrologic Drought with the United States GPS-Based Drought Index (US-GDI):* **Z Young**, H R Martens, Z H Hoylman, W P Gardner
- 1935932** *Uncovering Stand-Alone Flash Droughts in India: An Elegant Framework and Its Agricultural Relevance:* **P Kumari**, V R
- 1935168** *Understanding drivers and spatial propagation of flash drought in the Contiguous United States using Deep Learning and Explainable AI:* **S Bakar**, H Kim, J B Basara, P A Beling, V Lakshmi
- 1880971** *Demystifying $\delta^2\text{H}$ offsets between plants and source waters:* **Y Li**, S P Good, L Wang, PhD
- 1990931** *Divergent Environmental Sensitivities of Grassland Structure and Function in Inner Mongolia:* **X Li**, Y Xu, X Liu
- 1882600** *Divergent Impacts of Dew on Productivity and Evapotranspiration Across U.S. Ecosystems Using NEON Data:* **M Sun**, L Wang, PhD, C Gerlein-Safdi, M B Berkelhammer, W Jiao
- 1879771** *Divergent Water Controls on Vegetation Productivity Across Drylands of the Continental United States Using NEON Observations:* **T Hua**, M Sun, L Wang, PhD
- 1961749** *Ecohydrological drivers of vegetation responses to water limitation:* **B E Morgan**, R Araki, K K Caylor
- 1882917** *Effects of natural forests and planted forests on soil water processes and storage after long-term vegetation restoration on the Loess Plateau, China:* **T Feng**, P Wang, L Wang, PhD
- 1939697** *Global drought thresholds frequently trigger two-stage responses in ecosystem water-use efficiency:* **S Chen**, Y P Xu, C Du

- 1942297** *Hydraulic Redistribution by *Caragana korshinskii* Alleviates Drought Stress in Understory Plants in the Mu Us Desert*: **L Liu**, L Yang, B Zhao
- 1948842** *Impacts of Droughts on Vegetation Productivity and Recovery Mechanism in a Changing Climate*: **C Wang**, J Chen, S C Lee, X Yu, S Tong, C Y Xu
- 1970826** *Interaction of Stream Channel Characteristics and Geology in Northern California Headwaters Watersheds: Geologic Dominance on Surface Water Appearance and Occurrence*: **J Bissell**, T W Biggs, H Loaiciga, H K McMillan, A Frazier
- 2004229** *Investigating Native and Invasive Riparian Species Under Varying Environmental Stressors in the Arid Southwestern United States*: **A Archie**, R Best, L Holeski

249323

Advances in Ecohydrology: Quantifying the Influence of Land-Use/Land-Cover Change on Hydrology and Climate (joint with B, GC, NH, SY)

Conveners: Ben Livneh, University of Colorado at Boulder; **Cynthia Gerlein-Safdi**, University of Michigan; **Gabrielle Boisrame**, California Delta Stewardship Council; **Shraddhanand Shukla**, UC Santa Barbara

- 1960738** *Disentangling Forest–Water Trade-offs in Nepal’s Middle Hills: Ecohydrological Modeling of Groundwater Recharge and Spring Resilience Under Land-Use Transitions*: **T Kandel**, L E Band, R Zhang, PhD
- 1916426** *A Spatiotemporal Assessment of Land Cover Changes over Decades in the Galapagos Islands, Ecuador*: **S Chaudhary**, S Gurau, R Ray, B Tikuye
- 1888553** *A STUDY ON LID MASTER PLANNING AND PERFORMANCE EVALUATION METHODS IN INDUSTRIAL COMPLEXES*: **S Y Moon**, J Choi, D Jang
- 1927247** *Assessment of Impacts of Climate Change and Land Use Land Cover Change on the Hydrological Water Balance in the Blue Nile Basin*: **S M A Berama**, A Sharma, PhD, N K Goel, P Patle
- 1967204** *Burn Severity, Terrain, and Storm Timing: Explaining Divergent Post-Fire Hydrologic Responses in the Southern Appalachians Using DHSVM*: **Y Song**, C Tang, A B Murray
- 1939961** *Can Land Restoration Sustain Summer Streamflow? Modeling Land-Use Transitions from Groundwater-Irrigated Agriculture*: **S Tiwari**, L Scantlebury, C Kouba, B A Yifru, L Foglia, T Harter

- 1871233** *Modelling Tree Groundwater Use in Water-stressed Landscapes: Advancing Ecohydrology for Sustainable Water Management*: **T Doody**, S Gao
- 1870363** *Phytoremediation-based Salinity Management in Water-limited Agroecosystems*: **A Garg**, S Perri
- 1963762** *Salinity-Induced Shifts in Soil Water Retention and Plant Water Availability in Arid Agricultural Soils*: **M Burke**, G Khatei, R S Van Pelt, S Ravi
- 1906881** *Soil Erosion Assessment Under Changing Climate Using CMIP6 GCMs Integrated with SWAT*: **P Choudhary**, N, A Azhoni
- 1884839** *Spatiotemporal variability of abrupt vegetation shifts and their relationships with rainfall changes across African drylands*: **N Qiao**, L Wang, PhD, F Li, Y Li
- 1912105** *Vegetation water limitation mitigated by the CO₂ physiological effect*: **P Kang**, S Zhou
- 1934201** *Characterization of streamflow changes caused by land cover change in a tropical catchment*: **A Mendoza**, M Arganis-Juarez, E Carrizosa
- 1896246** *Characterizing Increasing Hazardous Humid-Heat Exposure Across Africa’s Great Green Wall*: **C Tuholske**, C Ivanovich, E L Williams, R M Horton, S Shukla, C C Funk, K Andam, A Zimmer, N Brooks
- 1978325** *Climate smart agricultural management of guayule and its impact on water, energy, and carbon cycle: Insights from the parameterization of the dynamic guayule growth module in Community Land Model (CLM5)*: **T Hu**, Y Song, K Ogden, X Zeng
- 1984227** *Diverse Precipitation Responses to Irrigation Across the Asian and African Tropics*: **M Nielsen**, B Cook, K Marvel
- 1885214** *Downscaled Machine Learning and Geospatial Analysis Reveal Climate and Land Use Drivers of Groundwater Depletion in Urban Lahore, Pakistan*: **S Khan, PhD**, M M Noor, B Hassan, S Aftab, S M S Abbas, M U Akbar
- 1888857** *Effects of vegetation restoration on groundwater storage in Three-North Shelterbelt Forest region, China*: **L Wang**
- 1968749** *Exploring the Relations among Evapotranspiration Patterns with Land Use and Land Cover Changes in the Mekong Delta Region*: **E Valentini**, S Sapio, S V Nghiem, S H Kim, S Liburdi, A Taramelli
- 1924402** *From Peaks to Rainforest: Advanced Earth Observations to improve hydrological forecast in sensitive Andean ecosystems*: **M Narvaez**, P Kansara, B F Zaitchik, B F Ochoa-Tocachi, A Getirana
- 1983911** *Green or Grain: Hydrological Impacts of Cropland Expansion at the Expense of Forest Loss*: **Y Jiang**, J A Burney

- 1992392** *Impact Assessment of Land Use and Land Cover Dynamics on Water Quality Parameters in the Kangsabati River Basin:* **S Khose, MTech**, B S J Konathala, D R Mailapalli, S Tateh
- 1848509** *Impact of impervious surface on flood runoff and the simulation model:* **Y Chen**
- 1893606** *Integrated Assessment of Land Use Change and Groundwater Quality Degradation in Extensive Tropical Coastal Regions of Eastern India:* **A Muduli**, P Chattopadhyay
- 1940873** *Integrated Modelling of Climate and Land Use Change Impacts on Streamflow in the Pennaiyar River Basin, Tamil Nadu, India:* **A Balu**, S Ramasamy Dr, G Sankar
- 1917996** *Interactions between forest density and climate change shape fire regimes in a Sierra Nevada Watershed:* **E J Hanan**, W Burke, A Cale, G L Alawode
- 1859589** *Large wildfires cause local post-fire drying:* **X Liu**, P J Huybers
- 1851674** *Leveraging Remote Sensing, Machine Learning and Hydrologic Modeling to Assess Post-Fire Hydrologic Response in a Mountainous Watershed:* **B Acharya**, M E Barber
- 1848539** *Modeling Ecosystem Service Degradation in Malaysia's Johor River Basin Using InVEST and Remote Sensing:* **Y S Yong**, K D Kanniah
- 1973609** *Modeling the hydrologic impact of invasive plant removal in Hawai'i's Ala Wai Watershed:* **Y F Huang**, Y Tsang, J Fujikawa, N DeMaagd, L Bremer, S Smalley, E Yuen
- 1920923** *Modeling the Hydrological Impacts of Vegetation Regrowth Following Thinning in Ponderosa Pine Forests:* **L Gallegos**, Z Wang, E R Vivoni
- 1880766** *Modeling the Impacts of Climate and Land Use Land Cover Changes on Hydrological Process of Guder Sub Basin of Upper Blue Nile Basin, Ethiopia:* **S F Demessie**, Y D Taddele, T G Tarkegn, B Bedadi
- 1949071** *Monitoring Landscape Dynamics in Uddanam, India: Insights From 35 Years of LULC Change Using Landsat and GEE:* **R Chawla**, S Rawat, D R Mailapalli, N S Raghuwanshi
- 1997895** *Multi-Temporal Evaluation of land use and land cover change in Southwestern Coastal Region of Bangladesh:* **S Dam**, S B Murshed
- 1889060** *Non-Local Moisture Recycling Modulates Carbon-Water Trade-offs Under Future Land Use Change:* **C Zhang**, X Peng, S Ma, X He
- 1913383** *Observational Detection of Postfire Terrestrial Water Storage Change in the U.S. Pacific Northwest:* **A Arshad**, R Abolafia-Rosenzweig, C He, B Livneh
- 1884149** *Quantifying The Impact Of Vegetation Changes On Runoff In Alpine Basins Using The Budyko Framework Integrating Glacier Effect:* **Z Zhou**, W Huang, J Jin, L Yu, B Yong
- 1884468** *Quantifying the role of anthropogenic vegetation disturbances on evapotranspiration rates in the Amazon basin:* **S K Ahmad**, T R Holmes, S V Kumar, T M Lahmers, G Konapala, A Getirana, W Nie, P W Liu, C Hain, R Libonati, K Locke
- 1942185** *Rooted Explorations of the understudied Roro River Basin through Blended Vulnerabilities:* **A Sharma**, R Parajuli, N K Naik, C Murmu, S M Equeenuddin, D R Mishra
- 1960178** *Sediment-Hydrology-Nutrient Coupling in Shifting Cultivation and Forested Catchments: A Comparative Watershed-Scale Assessment from Mizoram-Eastern Himalayan Region (EHR), India:* **V Sailo**, A Nanda, D S Sen, B K Yadav
- 1858209** *Temporal shifts in streamflow and streamflow depletion caused by pumping-driven stream drying and altered hydrological connectivity:* **S C Zipper**, I Gambill, M Schmitt, C Kouba, L Scantlebury, T Harter, N Murphy
- 1961254** *The effect of historical land cover changes on water quality: implications for nutrient and sediment retention services in Puerto Rico:* **M Valladares Castellanos**, K Billbrew, R De Jesus Crespo, T Douthat
- 1900575** *Thirsty Thickets: Isotopic Insights into Ecosystem Water Use in a Yaupon-Encroached Savannah:* **J Anderson**, J B West, B P Wilcox
- 1938555** *Tracking Two Decades of Land-Use Transition in a Climate-Stressed Coastal Delta: A Machine Learning-Based Remote Sensing Study from Gabura, Bangladesh (2001–2025):* **M S Hossain**
- 1874540** *Upwind irrigation sustains rainfed crops in India through atmospheric moisture recycling:* **A Koppa**, F Bassani, J Keune, V Deman, D Insua-Costa, D G Miralles, S Bonetti

247938

Advances in Ecosystem Studies for Natural and Managed Landscapes (joint with B, EP)

Conveners: Thanos Papanicolaou, University of Tennessee; **Hong-Yi Li**, University of Houston; **Renato P. M. Frasson**, Ohio State University Main Campus; **Timothy Filley**, University of Oklahoma Norman Campus

- 1903091** *A Cross-Scale Perspective on Ecosystem Sensitivity from the Lens of Soil Moisture:* **B Mohanty**, D Mishra
- 1904861** *A High-Resolution, Observation-Based Biomass Map over the Contiguous U.S.:* **X Yang**, L Li, D M Ricciuto, H Y Li
- 1914493** *A Multi-Model Framework for Simulating Soil Carbon and Nitrogen Dynamics in U.S. Agricultural Systems:* **Y Xia**, A C Ruane, B Basso, C Rosenzweig, E Mencos, G Hoogenboom, J Jeong, J Osorio Leyton, J G Arnold, J Deng, J Jägermeyr, K Zhao, L Doro, M Yang, N Kozłowski, N Čerkasova, S Archontoulis, S J Del Grosso, S M Ogle, T Nipp, X Zhang, Y Yuan, L Ran, E Steglich
- 1974621** *A New Modeling Framework for Estimating Ecosystem Respiration Under Different Land Uses:* **B Chun**, B Mohanty, A Ines, S Slack
- 1863140** *Agent based simulation for analysis of impact of atmospheric changes on pollination service:* **K Miki**
- 1874422** *Agroecosystem Model Improvement for USDA NRCS Conservation Assessment:* **L Ran**, J Jeong, E Steglich
- 1998083** *Assessing the Impact of Agricultural Practices on Surface Energy Balance in Central Texas:* **D Mishra**, R Singh, B Chun, N Gollakota, S Calabrese, B Mohanty
- 1970882** *Assessing the potential of in-field and edge-of-field practices to reduce nitrate loading in tile-drained catchments:* **H Huang**, P Cao, B Yi, D I Green, G Johnson, T M Isenhardt, W G Crumpton, C Lu
- 1890456** *Climate-induced sediment budget transitions in dryland catchments: insights from landscape evolution numerical experiments across timescales:* **Y Shmilovitz**, M W Rossi, V Gensini, W S Ashley, A Haberlie, A C Michaelis, G E Tucker
- 1928933** *Connections among topography, erosion, and soil carbon dynamics: insights from agricultural landscapes in the Midwestern United States:* **I J Larsen**, E Thaler, J S Kwang, C Hogan, E Marder, T Cook, R Hestrin, A Keiser, H Naughton, M Winnick
- 1890752** *Coupling Diurnal Water Use Efficiency with Environmental Stress: Implications for Climate-Driven Ecosystem Responses:* **S Moharana**, P Kbn Prof
- 1987846** *Crop Water Stress is Independent of Surface Soil Moisture in the U.S. Corn Belt:* **B K Hornbuckle**, E Safranek, T Hartman, G Aslan Sungur, A VanLoocke
- 1860026** *Ecosystem Processes at the Watershed Scale: Learning from the forest to design restoration of managed landscapes:* **L E Band**, R Zhang, D Pelletier
- 1972682** *Effects of Large Woody Debris on Endangered Coho Salmon (*Oncorhynchus kisutch*) Spawning Locations:* **J Bissell**, T W Biggs, H Loaiciga, A Frazier, H K McMillan
- 1949953** *Evaluation of the Impact of Permeable Inline Structures on Watershed Sediment Delivery:* **B Abban**, C Thompson, K B Lininger, J Sholtes, Y Lai
- 1874432** *Expanding the Agro-IBIS model to examine the environmental impacts of rotational and continuous grazing:* **H Mackin**, C J Kucharik, R Jackson
- 1902809** *Field-scale analysis of carbon flux dynamics in agricultural ecosystems of southern Texas using Eddy Covariance Measurements:* **B Tikuye**, R Ray, B Deegala, K Nirmal
- 1846440** *Forestry's effect on European species richness: a meta-analysis using primary forests:* **C Volle**, K Blennow, A Ahlström
- 1870280** *From Infiltration to Soil Erosion: A Modeling Framework for the Complete Process Chain:* **L Chen**, S Wu
- 1966565** *Global Marginal Land Mapping and the Impact of Agricultural Management Practices on Marginal Land Soil Organic Carbon:* **X Liu**, F Taheripour, Q Zhuang, L Benavidez
- 1962222** *Global pastureland changes from 2001 to 2020:* **S Chen**, F Taheripour, U L C Baldos, Q Zhuang, Y Yuan, L Benavidez
- 1879396** *Global Patterns of Urban Vegetation Resilience in the Face of Climate Change and Urbanization:* **Z Guo**, G Forzieri, M Esperon-Rodriguez, Y Feng, J Wu, N McDowell, Y Zhao, G Song, X Zeng, P Gong, Y Zhou, J Wu
- 1952615** *Land-Use Change and Water Management in Transforming Landscapes: An IWRM-ABM Approach in Vista Hermosa, Colombia:* **A Preziosi-Ribero**, M C Arenas, M Otalora Low, N Carrillo, N Chicacausa, M Gonzalez
- 1859698** *Machine Learning and Proximal Sensing for Predicting Biophysical Function of Managed Ecosystems:* **D Drewry**, J Cross, S Z Shirazi, S Gaur, K Mallick Sr, G Aslan Sungur, A VanLoocke
- 1859816** *Multitemporal Assessment of Oil Spill Impacts on Vegetation in Nigeria's Niger Delta:* **F Akinluyi**, G Adeleke Jr

- 2003608** *Precision Conservation to Optimize Profitability, Climate Mitigation, and Landscape Multifunctionality in the U.S. Midwest Cropland:* **B Basso**, L Price, N Millar, F Lodato, A Fowler, N Haddad
- 1955849** *Predicting Fish Passage in a Fragmented Riverscape to Inform Freshwater Mussel Reintroduction:* **M DiNicola**, B A A Lane, J Perkin, J Barrett
- 1930271** *Productivity Dynamics of Agroecosystems Under Sustainable and Prevailing Management Practices Across the United States.:* **O Obisesan**, J D Wood, J Chen, T J Griffis, M Khorchani, C Phillips, B Wilke
- 1917025** *Quantifying the Uncertainty in Terrestrial Carbon Storage Response to Historical Land Use Land Cover Changes:* **R Singh**, S S McDermid, B Cook
- 1895018** *Six years of gross primary production measurements from eddy covariance flux towers at the Central Plains Experimental Range in relation to contrasting grazing management regimes:* **M Hiestand**, D Augustine, J Derner, L M Porensky, D Smith, E Peirce, D L Hoover
- 1902181** *Targeting agricultural management practices to reduce nitrogen loading: A Data-informed modeling assessment:* **C Lu**, H Huang, S Ye

252474

Advances in innovative soil moisture monitoring across hierarchical scales

Conveners: **Andre Daccache**, University of California, Davis; **Nunzio Romano**, University of Naples Federico II; **Trenton Franz**, University of Nebraska Lincoln; **Michael Cosh**, USDA-ARS; **Laura Almendra Martin**, University of Florida

- 1872258** *Accuracy of soil moisture estimates from gamma radiation: comparison of bulk and energy-resolved measurements:* **S Akter**, J A Huisman, H R Bogen
- 1999698** *Assessing the GeoWATCH System's Accuracy in Forecasting Soil Conditions Across Seasonal and Environmental Variabilities:* **S Hibbard**, I Torres, S E Staley, S Houseman, B Sion, J B Eylander
- 1867606** *Assessment and Forecasting of Topsoil Water Regimes Using Cosmic-Ray Neutron Sensors (CRNS) and TDR: A Case Study in Ireland:* **K Shishkin**, O Fenton, P Murphy, T Hochstrasser, K Finkel
- 1865705** *Bridging the Soil Moisture Monitoring Scale Gap: An Evaluation of Cosmic Ray Neutron Detectors (CRNDs) Using Point Sensors, Neutron Probes, and Gravimetric Data:* **S A Azizi**, B M Wyatt, A Patrignani, M H Cosh, T E Ochsner
- 1924903** *Comparative Analysis of Soil Moisture Sampling Strategies Using an Automated UAV Payload System in Agricultural Fields:* **H N Dakshinamurthy**

- 1968589** *The drivers of the trend in vegetation productivity in western US rangelands:* **N Dubey**, H Noorazar, M C Reeves, K Rajagopalan
- 1891880** *The USDA ARS National Program 211: Water Availability and Watershed Management Research Project:* **T Tsegaye**, C S Renschler, M Locke, M H Cosh, C Baffaut, A Nelson, P Heilman, T Papanicolaou, K Mankin, G Birru
- 1868752** *The Use of Physico-Chemical and Haemato-Biological Indices as Metrics for Assessing the Ecosystem Integrity of Lagos Coastal Water.:* **O O Lawal**, P E Ndimele
- 1867133** *Unraveling the capacity of willow afforestation to sustain long-term soil organic carbon sequestration:* **D K Woo**
- 1989176** *Variability of Annual Carbon Budgets in a Cool-Season Grazed Pasture: Based on a Long-Term Eddy Covariance Observation in the Central Great Plains:* **X Sun**, A E Suyker, G Erickson, R McDermott, M Khorchani, Y Xiong, M Schmer, V Jin, T Awada
- 1936898** *Comparative Evaluation of Environmental Influences on Cosmic Ray Neutron Measurements Across Diverse Landscapes:* **J Jeong**, S Kong, H Kimm
- 1877304** *Connecting Scales of Soil-Moisture Measurements by Cosmic Rays Neutron Sensing:* **E Gazzola**, S A Ferraris, D Gisolo, A Gentile, S Bechis, M Biddoccu, G Capello, F Ragazzi, S Obber, C Ronchi, R Cremonini, S Gianessi
- 1874047** *Establishing the Irish Soil Moisture Observation Network (ISMON) through Inter-Institutional Collaboration:* **K Finkel**, M P Bruen, K A Byrne, T Cummins, E Daly, D T Delaney, R Fealy, O Fenton, P Flattery, S Green, S Higgins, N Hunter Williams, C Jarman, P M Johnston, H Karbala Ali, G Lanigan, T McCarthy, T McCormack, P E Mellander, P Murphy, O Nicholson, C Nugent, K Richards, M J Saunders, B Tobin, P Tuohy, S Varghese, T Hochstrasser
- 1900497** *Evaluating the CYGNSS Version 3.2 Soil Moisture Product Across Scales Using Remote Sensing and In-Situ Observations:* **D Bai**, C S Ruf
- 1935894** *Exploring the Sensitivity of UAV-Based Gamma-Ray Signals to Soil Moisture in Semi-Arid Rangelands, Texas:* **J Liu**, E Cho, PhD
- 1906182** *Fusing time-lapse geophysics and in-situ sensing to create a 4D model of hillslope hydrology in a Mediterranean catchment.:* **N Romano**, G Cassiani, P Nasta, C Mazzitelli, M Censini
- 1932323** *GSSM-10 (Global 10-m Surface Soil Moisture) Derived from Multi-Sensor Data and Ensemble Machine Learning:* **N Xu**, A Daccache, A Ahmadi

- 1928558** *High-Resolution Multi Depth Soil Moisture Mapping Using CNN-LSTM: A Fusion of Satellite Observations and Soil Survey Data:* **S Rabiei**, E Babaeian, S Grunwald
- 1966887** *Magnetic Induction Localization for UAV-based Radar Swarms via a Hybrid LSTM-Optimization Method:* **A Farhadian Boroujerdi**, S Eskandari, M Moghaddam
- 1987563** *NISMEX-FL: Calibration/Validation experiment for High-Resolution Soil Moisture from NISAR for Agricultural Fields in Florida:* **L Almendra Martin**, J Judge, S Daly, M Prieto-Sanchez, M Abdelkarim
- 1880483** *On the value of machine learning for addressing spatial-temporal soil moisture network inconsistencies:* **J D Bolten**, M Le, M H Cosh
- 1945461** *Pushing the Limits of Cosmic-Ray Neutron Sensors for Monitoring and Exploration of Near-Surface Water:* **M Schrön**, D Altdorff, M Köhli, L Hertle, S Landmark, P Dietrich, S E Oswald, S Attinger, S Zacharias
- 1879134** *Quality assuring soil moisture data records with machine learning approaches on in situ data:* **M H Cosh**, V A Walker
- 1965419** *Revealing Principles of Hydrological Response –The Schäfertal Approach:* **F Reinstorf**

250632

Advances in Integrated Hydrologic Modeling

Conveners: **Nick Jadallah**, Princeton University; **Danielle Tijerina-Kreuzer**, University of California Berkeley; **Jesus Gomez-Velez**, Oak Ridge National Laboratory; **Nick Engdahl**, Colorado School of Mines; **Nick Jadallah**, Princeton University

- 1875203** *300-Year Transient Simulation of Water Table Dynamics across North America from 1800 to 2100 CE:* **M Haghiri**, K L Callaghan, R Creel, J Austermann, A D Wickert
- 1956075** *MODFLOW-IDC (MF-IDC) – A new tool for linking science and policy for water resources management:* **R Namvar**
- 1917472** *Building Confidence in Integrated Surface/subsurface Hydrologic models: Experience with the ATS Code:* **S L Painter**, E Coon, S S Rathore
- 1876934** *Can satellite data be used for structural validation of socio-hydrologic models?:* **M K Dey**, R Singh
- 1914303** *Compound Flood Risk Assessment for Coastal Wastewater Treatment Plants in Southern New Jersey under Current and Future Climate Scenarios:* **R Chowdhury**
- 1945674** *Soil moisture measurements based on Cosmic-Ray Neutron Sensing – current status and open questions:* **M Köhli**
- 1909668** *Spatiotemporal Variability of Soil Moisture: Multi-Sensor Observations at the Eoseom Korea Hydrometeorological Observatory:* **D Kim**, S Cho, S Lee, M Choi
- 1985431** *Surface soil moisture estimates at 200m resolution using the PALSAR-2 and post-launch NISAR data:* **S Kim**, X Huang, R B Lohman, M H Cosh
- 1955278** *Time-Series Ratio Algorithm for NISAR Soil Moisture Retrieval: Preliminary Results and Initial Validation:* **J T Johnson**, J Park, R Bindlish, D Horton, M Al-Khalidi
- 1933069** *UAS-based GNSS-R, LiDAR, and Multispectral Data Fusion for Field Scale Soil Moisture Estimation:* **M E Karim**, V Senyurek, M A S Rafi, J Ball, A Gurbuz
- 1971315** *UAV-Based Remote Sensing of Soil Moisture Across Diverse Land Covers: Validation and Bayesian Uncertainty Characterization:* **R Zhang**, I Aziz, T Ford, D Houtz, Y Zhao, A Watts, M Alipour
- 1883933** *Using point scale soil moisture sensors to estimate regional groundwater recharge:* **B Osei**, B M Wyatt
- 1909054** *Vertical Variability of Soil Moisture Observed by Watermark Sensors:* **J Chen**, J C Wen
- 1964586** *Developing the next generation US integrated hydrologic model: recent progress and the path forward to a complete terrestrial hydrology digital twin:* **L E Condon**, R M Maxwell
- 1911798** *Diagnosing the role of groundwater dynamics in terrestrial water storage forecast using GRACE and GRACE FO data:* **B Li**, A Hazra, A McNally, K Slinski, S Shukla, W B Anderson
- 1903645** *Effects of soil capillarity on multidimensional, integrated surface-subsurface hydrology at different spatial scales:* **M A Shadab**, N Jadallah, R M Maxwell
- 1916911** *Enhancing Hydrological Model Calibration Using Particle Swarm Optimization and Genetic Algorithm in the Duck River Basin, USA:* **K A Hossain**, S Dey, A S Arian, A D Ricky, S Dey
- 1892713** *Evaluating Structure-Informed Floodplain Roughness in WRF-Hydro: A Case Study in the Willamette River Basin:* **G Barinas**, S P Good, Z J Butler
- 1959937** *Integrating FourCastNetv2-small and WBiLSTM for Flood Early Warning System:* **A Mohanty**
- 1873561** *Integration of Head, Temperature and Concentration Data for Subsurface Delineation Using the Pilot Point Method: Synthetic and Laboratory Studies:* **Z Ning**, W A Illman

- 1851390** *Is the Steady-State Approximation a Fallacy? An Investigation of Transient Travel Time and Residence Time Distributions in a Headwaters Catchment.*: **N Engdahl**, A Ghasemi
- 1870478** *Making Useful to Usable: GRACE-Derived Groundwater Storage in Regions with Deep Water Level.*: **J Panthi**
- 1907084** *Modeling the Impact of Prolonged Drought on Wetted River Network Dynamics.*: **Y Li**
- 1954237** *Quantifying snow dynamics in mountainous watersheds using SWAT, earth observation, and stable isotopes: a case study from the High Atlas of Morocco.*: **S Taia**, H Berrouch, I El Bouazzaoui, N Rhoujati, O Attar, M C Peros, M Hssaisoune, L Bouchaou, Y Ait Brahim
- 1916416** *Quantifying the Impact of Tile Drainage and Bioenergy Feedstock Production on Water Budget with Integrated Surface-Subsurface Hydrological Modeling.*: **H Yu**, B Peng, S S Rathore, S L Painter, P V V Le, M Jia, J Fan, K Guan, C Bernacchi, E H DeLucia, M D Masters
- 1903366** *Regional Groundwater as Mediators of Forest Resilience to Compound Disturbances in Mixed Conifer Forest Ecosystem.*: **A Ibkar**, Y Zhang, B E Ewers, A Parsekian, X Tai
- 1846094** *Representation of River-Groundwater Interaction in Land Surface Model.*: **S Wakamatsu**, D Yamazaki
- 1963079** *Simulating Solute Generation in a Carbonate-Dominated Catchment using a Coupled Integrated Hydrologic and Reactive Transport Model.*: **W Tatge**, S Shaheen, F Sun, R Rioux, W Miller-Brown, Q Zacharias, J E Saiers
- 1929581** *Streamlining Integrated Hydrologic Modeling at Continental Scale: A Workflow for Quasi-Real-Time ParFlow-CLM Simulations over CONUS.*: **R L Sandoval Pabon**, A Defnet, G Artavanis, R M Maxwell, L E Condon
- 1854985** *Temporal and spatial scaling of stream network expansion and contraction dynamics.*: **S Rathore**, J Gomez-Velez, E Herndon, S L Painter
- 1904868** *The slowdown of increasing groundwater storage in response to climate warming in the Tibetan Plateau.*: **B Jia**, L Wang
- 1946789** *Understanding irrigation-induced stress in a real-field aquifer and designing sustainable solutions through meshless groundwater modeling.*: **K G Singh**, T Pathania
- 1957292** *Understanding the hydrologic effect of tile-drained systems.*: **F Quintero**, L J Weber, K Young, R Molina, J Gomez Velez
- 1944976** *Upgrading CyberWater with Python 3 and Enabling VIC model Integration into E3SM through Data Exchange Service.*: **A Sheba**, D Feng, D Bieger, S Wolfgang, S Aly, J S Lin, F Song, Y Liang, X Liang
- 1942821** *What Could Go Wrong with Long-Term Hydrological Simulations in the High Alpine Environment?:*: **X Fan**
- 1932648** *Assessing Graph Connectivity for Spatiotemporal Groundwater Level Forecasting in Graph Neural Networks.*: **X X Liang**, R M Maxwell
- 1933393** *CARE-SST: context-aware reconstruction diffusion model for sea surface temperature.*: **M Choo**, S Jung, J Im, D Han
- 1976031** *Data-driven model-agnostic evidence for Nonlocal Geomorphic Transport laws across geomorphic regimes.*: **A Tejedor**, M Engsig, A Singh, O D Kose, Z Sun, E Foufoula-Georgiou, Y Shen
- 1946194** *Deep Learning-Based Regional Assessment of Rainfall Predictability in India.*: **D J**, S Singh
- 1961226** *Deep-learned additive data assimilation for improving weather forecast skill.*: **C Miller**, M Bender, J DaRosa, M Ridhwaan Alam, N Krall, K Lieberman, N Silverman, N Brenowitz, L Slivinski, S Frolov
- 1972694** *Development of an AI Agent for Hydrologic Modeling.*: **S Yan**, Z Li, S Zhu, Y Wen, M Zhang, M Chen, J Cao, Y Hong

249942

Advances in Machine Learning for Earth Science: Observation, Modeling, and Applications

Conveners: **Siyu Zhu**, University of Oklahoma; **Yixin Wen**, University of Oklahoma Norman Campus; **Guoqiang Tang**, University of Saskatchewan; **Phu Nguyen**, University of California, Irvine; **Mengye Chen**, University of Oklahoma Norman Campus

- 1898297** *16-day Cloudless and Shadowless Composite of Harmonized Landsat Sentinel (HLS) Data for Red, NIR, SWIR1, and SWIR2 Bands.*: **Z Liu**, M Hansen
- 1989631** *A Pretrained Foundation AI Model Reveals Global Landscape Dynamics and Human-driven Ecosystem Deviations.*: **J Liu**, C Shen, C Xu, Y Bian, M McDill, N R Kraabel
- 1988479** *Advancing Proglacial Soil Moisture Prediction in the Arctic Using LSTM Networks.*: **D Liljestrand**, R C Johnson

- 1908764** *Development of HiDRED (Himawari Data Rainfall Estimation using Deep learning), a real-time satellite rainfall product for Southeast Asia, and an investigation of its applicability to rainfall-runoff analysis:* **K Fujimoto**, T Tebakari
- 1937352** *Diffusion-Based Learning of Discharge Distributions Across Global Basins:* **Q Duan**, B Huang, W Li
- 1950301** *Efficient Kilometer-Scale Precipitation Downscaling with Conditional Wavelet Diffusion:* **H Yang**, C Yi, W Qian, Y Wen, M Yu
- 1925339** *Enhancing Geospatial Label Accuracy with Prompt-Based Zero-Shot Segment Anything Model: A Retrogressive Thaw Slump Case Study:* **A Agarwal**, Y Yang, M Bartkus, H Rodenhizer, S Potter, G Fiske, B M Rogers
- 2001543** *Enhancing Wind Energy Forecasting via Solar Covariates and Language-Based Pattern Mining: A Chronos-Based Study in Texas:* **Y Fan**, C Huang, M Zhang, U Lall
- 1967646** *Evaluating Machine Learning Methods for River Flow Time Series Modeling in U.S. Midwest Agricultural Watersheds:* **M Khodadadi**, B P Grudzinski, M J Vanni, E Widom, V Samadi
- 1994263** *Evaluating Machine Learning-Based Estimation of Mangrove Vegetation Indices from Integrated SAR and Optical Remote Sensing:* **M M Winey**, N Chowdhury, J A Samin, F F Khan, S B Murshed, Shampa
- 1979987** *Forecasting Landscape Changes with ConvLSTM Trained on Simulated Landscapes:* **S Basnet**, A Hassanzadeh Bavojdan, A Tejedor, E Foufoula-Georgiou, A Singh
- 1930653** *Forecasting Wind and Solar Energy Potential Using Time-Series Foundation Models: A Case Study in Texas:* **C Huang**, Y Fan, M Zhang, U Lall
- 1855923** *Fusion of Multi-Source Precipitation Records via Coordinate-Based Generative Models:* **S Sun**, B Pan, L Li, X Li, E Foufoula-Georgiou, Y Lin, C Nai
- 1955631** *Global CO₂ Retrievals Using Aerosol Estimates Modeled on OCO-2 Observations:* **A Zhang**, V Natraj, J Yang, S Chen, Y L Yung
- 1961405** *High-Resolution Climate Data for Arid Regions: A Generative Correction Diffusion Approach for Hydrological Applications in Arizona:* **A Bennett**, H Yousefi Sohi, A Behrangi
- 1902128** *Leveraging Passive Microwave Data (MiRS) With U-Net Architecture for Satellite Rainfall Estimation in High-Latitude Regions: A Case Study over Alaska:* **V Dao**, M bolboli Zadeh, K L Hsu, P Nguyen, S Sorooshian
- 1980356** *Machine learning-based analysis of oil and gas methane emissions in the Gulf of Mexico using publicly available satellite data:* **P de Melo**, D J Varon, N Balashov, R M Stauffer, D K Henze, L Bruhwiler
- 1850164** *Mapping and Monitoring Reservoir Dynamics with a Fine-Tuned Foundation Deep Learning Model and Time-Series SAR Data:* **Y Pu**, H Liu, S Wang, H Su, L Wang, M C LaFevor
- 1993346** *Modeling Flood Susceptibility Through Explainable Artificial Intelligence Techniques: Case study in Beni Mellal Region of Morocco:* **H Legsabi**, S Taia, S M Boussabou, N Nejaoui, B El Mansouri, L Erraioui
- 1902728** *NeRF for 3D Scene Construction from Satellite Imagery of Polar Regions:* **A Ozdener**, E Van Kints, N O'Hare, D R Mishra
- 1869254** *Neural Radiance Field (NeRF) for 3D Reconstruction from Drone Imagery:* **E Hammam**, N O'Hare, D R Mishra
- 1901253** *Performance of Satellite-Derived Precipitation Products over the Santa Ana River Basin for Reservoir Operations at Prado Dam:* **P Nguyen**, K Subedi, S Sorooshian
- 1913158** *Physics-informed bias correction using a convolution-based multivariate Gaussian process:* **T Kim**, C Wang, G Villarini, J Done, D Johnson, A F Prein
- 2002654** *Predicting present and climate change impacts on groundwater nitrate pollution and risk in India at high resolution.:* **P Senapati**, S Sarkar, A Mukherjee
- 1988825** *Prediction of Local Scour Evolution Beneath a SubmergedCylinder by U-Shaped Fourier Neural Operators:* **H Nazari**, C E Ozdemir, M Tyagi
- 1867120** *Sedimentological Characteristics Using Machine Learning Ensembles for Rock Avalanche Susceptibility Modelling of Skardu Basin, Northern Pakistan.:* **S S Jagirani**, I A Zardari, M H Agheem, W Liu
- 1971999** *Self-Organizing Maps to define Wet Season Onset over the Amazon Rainforest and Analyze Long-term Trends in Atmospheric Radiation and Precipitation:* **S Gupta**, E Ledres, D WANG
- 1986794** *Smartphone Rain Gauge:* **R Kaneko**
- 1902623** *Spatial Assessment of Two Satellite Rainfall Products Using Quality Controlled Ground-Based Interpolation in Saudi Arabia: Revealing the Need for Regional Bias Correction:* **N Aljehani**, P Nguyen, S Sorooshian
- 1951841** *Surface Soil Moisture Prediction Using AI/ML Techniques:* **A C A**, S Singh
- 1894489** *Synthetic Storm Event Generation Using Stable Diffusion to Improve Power Outage Prediction:* **M Azizi**, X Zhang, D Song, D Cerrai, E N Anagnostou

- 1872916** *Temporal Transfer Learning for Out-of-distribution Generalization in Climate Downscaling:* **S Wang**, N Yadav, A Ganguly
- 1919372** *Toward an Improved Understanding of Flood Generation Mechanisms Using Explainable AI:* **T Gao**, M Ombadi
- 1954155** *Transfer Learning with Recurrent Neural Networks of Fuel Moisture Content: Extending from 10h fuels to 1h and 100h:* **J Hirschi**, J Mandel, A Farguell

252074

Advances in Machine Learning for Geochemistry: Data Analysis, Reactive Transport Modeling, and Related Applications
(joint with GC)

Conveners: **Dejene Driba**, Auburn University; **Md Fahim Salek**, Auburn University; **Zhuofan Shi**, Auburn University; **Hasan Khan**, University of Illinois at Urbana-Champaign

252674

Advances in Modeling Surface Water-Groundwater Interactions During Hydrological Extremes: Integrating Process-Based, Numerical, and Machine Learning Approaches

Conveners: **Kabir Rasouli**, University of Saskatchewan; **Abi N Geykli**, Indiana State University

- 1928834** *Leveraging Expert Knowledge for Automated Baseflow Dominance Detection Across the Continental United States:* **A Aghababaei**, X Li, N Jones, G P Williams, E Webster-Esho, P Clement, R van der Heijden, D M Rizzo
- 1977635** *Application of the Water Accounting Plus (WA+) Framework for Groundwater Balance Assessment and Its Implications for Water Resources Management in a Semi-Arid Region:* **D Chatterjee**, D Singh, D B Das, P K Singh Asso
- 1848710** *Going Beyond Snow Drought to Explain Decreasing Streamflow in a Warming Headwater Basin of the Colorado River:* **R W H Carroll**, B Gordon, E R Siirila-Woodburn, C Varadharajan, C Albano, J D Lundquist, K H Williams
- 1903246** *Integrating Machine Learning and Statistical Analysis to Monitor Water Resource Management Related to Karst System Deformation:* **J Heo**, J Engels, C Lim

- 1868863** *Uncertainty in Soil Elemental Prediction Using Machine Learning and Hyperspectral Remote Sensing:* **X Ma**, A Chen
- 1920506** *Understanding and Predicting Flash Flood Impact Locations Using Machine Learning and Radar Rainfall Data:* **P Peiravani**, Y Tian, T Pei, S Kim, J U Yu, N Devineni
- 1855412** *Lessons from modeling flood inundation using process integration, computational flexibility and deep learning:* **V Merwade**, S Saksena, J Joseph, N K D
- 1903436** *Machine Learning Approaches for Monitoring Brackish Water Quality/Resources and Mapping Karst Susceptibility for Environmental Decision-Making:* **J Heo**, E Iyere
- 1874314** *Modeling Groundwater Dynamics in a Snow-Dominated Cold Region Aquifer Under Variable Recharge, Pumping, and Climate Conditions:* **H Mahmoud**, T H Mahmood, S F Korom
- 1957287** *Modeling groundwater storage, flow, and predicted deformation signatures during a precipitation whiplash event in the Cosumnes River Basin:* **G Carlson**, M Giroto, E R Siirila-Woodburn, S DeSousa, S Werth, N Sadhasivam
- 1939601** *Mountainous bedrock hydraulic characteristics based on groundwater level observations:* **H Kotani**, T Uchida, T Inoue
- 1961133** *Nationwide Daily Baseflow Estimation in India (1980–2020) Using Temporal Fusion Transformers and Process-Informed Clustering:* **V Tripathi**, A Shaw, M P Mohanty
- 1946508** *Optimal strategies for assigning prior boundary settings in Hydraulic Tomography Analysis:* **X Su**, T C J Yeh
- 1939698** *Prediction of Groundwater Level Using ANFIS-FFA Approach: A Case Study:* **C Biswakalyani**, S Samantaray, D P Satapathy

250522

Advances in Predicting Hydrologic Extremes: Engineering Tools and Products to Strengthen Infrastructure and System Resilience (joint with A, GC, NH)

Conveners: **Yonas Demissie**, Washington State University; **Hongxiang Yan**, Portland State University; **Jeremy Giovando**, Pacific Northwest National Laboratory; **Jeffrey Arnold**, ERT Corp

- 1848249** *Do We Understand the Resilience of California's Water System to Drought Extremes?:* **P M Reed**, R S Gupta, S Steinschneider
- 1968083** *Co-Developing CONUS-Wide Projections of Weather and Water Extremes to Support US Agency Management and Planning Initiatives:* **A W Wood**, M Askarzadehfarahani, N Mizukami, G Tang, C Mueller, C Frans, M McGuire, B Thames
- 1970019** *Curbing overconfidence in infrastructure design: Bayesian inference for rainfall return level estimation:* **O Emamjomehzadeh**, D Qureshi, L Cook, O Wani
- 1890124** *Deep Learning Models in Gumbel Estimation: Robust Performance under Data Scarcity:* **J Lee**, S H Choi, Y O Kim
- 1877168** *Developing a two-fold machine learning model to predict catchment-scale 3-day rainfall one week in advance using weekly ensemble forecasts:* **S Aihara**, T Yoshida, H Minakawa, A Takada
- 1923002** *Hybrid LSTM-Kalman Filter Framework with Uncertainty Quantification for Enhanced Dam Inflow Forecasting:* **J Kim**, T Tran

250720

Advances in Real-time Monitoring and Forecasting of Water quality (joint with GC, IN)

Conveners: **Noel Aloysius**, University of Missouri; **Neil Fox**, Univ Missouri; **Moussa Yatta**, University of Missouri Columbia

- 1938568** *A Hysteresis Analysis of Water Salinity Using High Frequency Datasets Under Storm Events in the Upper Red River Basin:* **K Khodkar**, A Mirchi, K Wagner
- 1873132** *A Multitask LSTM Framework for Estimating Daily Nitrogen, Phosphorus, and Suspended Solids in CONUS Rivers:* **D Feng**, P Ramtel

- 1949279** *Improving extreme streamflow estimates across the CONUS Using Physics-Informed ML and Synthetic Rating Curves:* **S Guchhait**, L Pal, M S Riasi, S Dey, L Yeghiazarian, S Saksena
- 1977554** *Improving Hydrologic Predictions in Arctic Regions through Enhanced Snow Parameterization:* **Z Duan**, H Yan, M S Wigmosta
- 1847659** *Modeling of Unobserved Historical Variability in Atmospheric Rivers in the Pacific Northwest and Implications for Flood Resilience:* **E D Gutmann**, N Mizukami, J Harrell, M Warner, B Kruiyt, A Wood, B Nijssen
- 1875355** *No Free Lunch? Improving LSTM Flood Predictions With Minimal Loss in Overall Skill:* **M Talbot**, F V Davenport
- 1887822** *Quantifying Potential Future Shifts in Intensity-Duration-Frequency (IDF) Curves for Precipitation, Wind, and Their Compound Extremes in U.S. Coastal Regions:* **T Song**, K A Reed
- 1934397** *Regional Variability in the Projected Changes in Sub-daily Precipitation IDF Curves across the Contiguous United States:* **N J S**, G Villarini, S Misra, K White
- 1960303** *Shoreline Change Analysis of Oswego County, NY on Lake Ontario: A Remote Sensing and GIS-Based Study:* **A Coronato**, A Ahmad, A Baki, T J Smith
- 1975315** *Testing a new DHSVM representation of soil temperature and permafrost dynamics in the Arctic environment:* **H Yan**, M S Wigmosta, Z Duan
- 1996432** *Transformer-Based Reinforcement Learning for Flood-Resilient Reservoir Operation:* **S Tofighi**, F Gurbuz, R Mantilla, S Xiao
- 1882260** *Two New Prototype Plugins for the Community Hydrologic Prediction System (CHPS) to Improve the Hydrologic Ensemble Forecast Service (HEFS) in Short-to-Medium Ranges:* **S Kim**, D J Seo
- 1884773** *A Spatially Balanced ML Framework for Cost-Efficient PFAS Groundwater Monitoring in New Hampshire:* **F Hanif**, K Asadifakhr, W Mo, F Han
- 1878326** *Absorbance-Based Spectral Sensors for Detecting Dissolved Organic Carbon: Can We Improve Their Accuracy in the Field?:* **N Lugg**, S Allen, D M Hannah, PhD, K Khamis, G Watts, S Krause
- 1917321** *Acoustic Estimation of Suspended Sediment Grain Size in the West Pearl River Using Multi-Frequency Echo Sounders:* **L Altamirano**, M Razaz, B Phrampus, S Dohner, C Pederson
- 1923805** *Developing Standardized Benchmark Datasets for Testing Quality Control Algorithm Performance for Aquatic Sensor Data:* **E Kahrizi**, J S Horsburgh

- 1965234** *Development of a Process-Based Nitrogen Cycle Module in the Hillslope-Link Model (HLM) to Forecast Nitrate Concentrations in Tile-Drained Basins:* **V Garcia Munera**, L J Weber, R Molina, N Velásquez
- 1943202** *Development of Turbidity Estimation Models for Low-Turbidity Conditions in the Tennessee River Using Remote Sensing and Machine Learning:* **A A A Hossain**, N Kuntzman,, H Qin
- 1958777** *Earth Observation-Based Assessment of Water, Land, and Environmental Resources in Small Transboundary Tributaries of the Syrdarya River Basin: Opportunities for Nexus Policy and Innovation:* **S Kenjabaev**, N Eshboev, Z Gafurov
- 1950737** *From Sensors to Insights: Real-Time EWQI Forecasting using IoT and Cloud-Based Machine Learning for Sustainable Water Quality Management:* **V V B S Kola**, A Raj, B Yadav
- 1946576** *Integrated hydrogeochemical assessment and contamination transport modelling in critically stressed region of the Mid-Ganga Basin, India:* **M Kumar**, B Swami, K G Singh, T Pathania
- 1944609** *Long-term trends in groundwater nitrate-nitrogen concentration associated with changes in agricultural practices in Korea:* **J Jang, PhD**, J Y Lee

251224

Advances in Remote Sensing, AI, and Modeling for Hydrology and the Terrestrial Water Cycle (joint with A, GC)

Conveners: **Hyunglok Kim**, USDA ARS; **Venkataraman (Venkat) Lakshmi**, University of Virginia; **Kristen Whitney**, NASA Goddard Space Flight Center; **ManhHung Le**, NASA Goddard Space Flight Center; **Ehsan Jalilvand**,

- 1863573** *Flood Risk Assessment with Remote Sensing and Multi-Criteria Decision-Making Models: Case Studies from Antalya and Ankara, Türkiye (2022):* **V Lakshmi**, E G Kir
- 1962617** *Validation of Swot Derived Reservoir Water Levels in the Upper Paraná River Basin:* **E Dose**, A Getirana, J D Bolten, E Collins, V Lakshmi
- 1879046** *A Data-Driven Approach for Estimating Groundwater Irrigation for Major Agricultural Basins of the Western United States:* **M F Hasan**, R Smith, F V Davenport, S Majumdar
- 1941432** *A Generalised Two-Stage Precipitation Merging Framework Using Signal-to-Noise Ratio Optimisation (SNR-opt):* **S Shah**, Y Liu, S Kim, A Sharma
- 1851737** *A global scale drought study using high resolution satellite soil moisture data:* **B Fang**, V Lakshmi

- 1916892** *Multi-Day Ahead Predictions of Harmful Algal Blooms Using Deep Learning Models:* **J Neupane**, D Sahoo, S Waickowski, I Busari, J L Ryder
- 1888202** *Non-stormwater Discharge Detection and Source Discrimination using Cluster Analysis (CA) with Sensor Captured Data:* **H Tang**, T F M Chui
- 1871732** *Numerical simulation of saltwater intrusion considering future sea level rise in the Mekong River Estuary:* **R Masuyama**, T Tebakari
- 1943249** *Physicochemical and microbial characterization of domestic water sources in Mefou and Afamba Division, Centre Region Cameroon:* **N M Felicia**
- 1975735** *Post-Processing HAB Forecasts: A Bias Correction and Elasticity Assessment Using Ensemble and Machine Learning Methods:* **R Bano**, A Zia, P J Clemins, P D Oikonomou, P D Isles, N Beckage, A W Schroth, M I Morales Velazquez, S Turnbull, D M Rizzo, K Hannoun
- 1977864** *Watershed Models as Tools for Identifying Causes and Sources of Pollution and for Developing Water Quality Improvement Plans:* **N R Aloysius**, A Balha, M T Yatta, K Fryer, U Abeysinghe, A Dommo, S L Hunt
- 1935292** *A two-step iterative data assimilation and calibration approach for improving large-scale hydrological processes in the Ganga basin:* **S Tiwari**, B R Nikam, V Garg, M Schumacher
- 1888112** *AI Improves the Accuracy, Reliability, and Economic Value of Continental-Scale Flood Predictions:* **V Tran**, T Kim, D Xu, H Tran, M Le, T N D Tran, J Kim, D B Wright, T Tran, V Y Ivanov, P Restrepo
- 1934382** *AI in Water Resources; AI-driven Geospatial mMapping System to Assess Susceptibility in Florida:* **G Golmohammadi**
- 1909582** *AMSR2SMAP: Converting AMSR2 soil moisture data to L-band format using image-to-image translation:* **G Lee**, J Lee, J Im
- 1906652** *Assessing Chlorophyll Concentration in Using Geostationary Ocean Color Imager Satellite and Deep Learning approach: Case study of Reclaimed Areas of Saemangeum Watershed:* **Y Lee**, S Kim, D Han, J M Yeom
- 1940329** *Assessing Seasonal Soil Moisture–Evapotranspiration Coupling Strength and Its Drought Implications Using Triple Collocation Analysis:* **E Choi**, S Kim, Y Kwon, H Kim
- 1858317** *Assessing Sectoral Water Demand and Climate Vulnerability in a Strategically Industrialized River Basin:* **A Kir**, V Lakshmi, M Kitis

- 1904928** *Assimilating High-Resolution Snow Water Equivalent Observations into Noah-MP to Improve Seasonal Streamflow Prediction in the Colorado River Basin:* **X Huo**, Y Qiu, F W Hung, G Y Niu, A Behrangi, J S Famiglietti
- 1970889** *Benchmarking Precipitation Forcings and Assessing Incremental Runoff Contributions with the NASA LIS-HyMAP Model in the Yacyreta Catchment:* **E Dose**, A Getirana, J D Bolten, S V Kumar, L Chamorro, J B Eylander, V Lakshmi
- 1882042** *Can terrestrial water storage improve S2S hydrologic forecast skill in data-sparse regions to support early warning systems?:* **S Shukla**, W B Anderson, B Cook, A McNally, K Slinski, A Hazra, B Li
- 1861727** *Capturing Fleeting Snow: High-Resolution Monitoring of Intermittent Snow Cover Dynamics with Deep Learning and PlanetScope Imagery:* **Z Wang**, J Baskar, M Sarma, B Svoma, E R Vivoni
- 1876917** *Coupling ParFlow with the Common Land Model through a Hybrid Physical-Surrogate Framework:* **C Yang**, A Sun, S Zhang, Y Dai, S J Kollet, R M Maxwell
- 1963141** *Data-Driven Streamflow Prediction Using CYGNSS-Based Surface Water Maps and Neural Networks for Applications in Ungauged Basins:* **A Valcarcel**, T Pu, C Gerlein-Safdi
- 1958058** *Data-Driven Framework for Quantifying Dryland Water Storage Patterns and Near-Future Projections:* **H Karimi**, M Sultan, H Elhaddad, M K Emil, K Abdelmohsen
- 1981818** *Deep Learning-Based Prediction of GRACE-Derived Terrestrial Water Storage Anomalies in the Nile Basin (2003–2024) Using a CNN-LSTM Approach:* **B Tefera**, J Southworth, M Safaei, N S Kawo
- 1948243** *Deep Learning-Based Surrogate Modeling for the Evaluation of Land Data Assimilation Schemes:* **S Kim**, Y Kwon, H Kim
- 1990383** *Distinct Hydrologic Response Patterns and Trends Worldwide Revealed by Physics-embedded Learning:* **H Ji**, Y Song, T Bindas, C Shen, Y Yang, M Pan, J Liu, F Rahmani, A Abbas, H Beck, K Lawson, Y Wada
- 1869235** *Expanding the Observational Record for Multidecadal Land Reanalysis: A Multi-Sensor Data Assimilation Framework:* **A M Fox**, R H Reichle, Q Liu
- 1862348** *Forecasting Operational and Non-Operational Flows in River Diversions using a Hybrid Neural Network:* **C Turner**, M R Hiatt
- 1958112** *Fusing Operator Learning, Adversarial Training, and Physics for High-Fidelity Precipitation Nowcasting:* **M K Golkar**, L Alves de Oliveira, M Firouzeh
- 1972853** *Fusion of Sentinel-1 and Sentinel-2 Data for High-Accuracy Mapping of Rice Field Spatial Distribution in Bangladesh:* **M A G Fardin**, S Nowreen
- 1899057** *GERD's Hydrological Footprint: Multimodal Remote Sensing & Anomaly Detection for Anthropogenic Signal Attribution in the Nile Basin (2019-2025):* **M Renshaw**, L A Magruder
- 1949045** *Global Dominance of Seasonality in Shaping Lake-Surface-Extent Dynamics:* **D Long**, L Li, Y Wang, I Woolway
- 1913399** *Groundwater Level Imputation Using Machine Learning in the Transboundary Karst Region of Lithuania and Latvia:* **V Samalavicius**, J Bikše, G Žaržojus, I Retike, I Zaslavsky, A Kunsakova, J Arustienė
- 1925475** *Groundwater Level Prediction in the Pra Basin, Ghana: Evaluating the Temporal Generalization of Ensemble and Deep Learning Models:* **E Manu**, S Majumdar, M De Lucia, E Obuobie, A Lutz, M Kühn
- 1876022** *Hypernetworks for deep learning-based hydrological prediction:* **M S Jahangir**, S Fazli, J Quilty, S Steinschneider
- 1937762** *Improved Snowmelt Flood Simulation through GRACE/GRACE-FO Data Assimilation in Noah-MP:* **E Cho**, E Cho, PhD, B Li, C Vuyovich, J M Jacobs
- 1992924** *Improving Global Soil Moisture Retrieval with Enhanced Dielectric and Surface Roughness Models Using GCOM-W/AMSR2 Observations:* **K Tsujimoto**, T Ohta
- 1863137** *Integrating Temporal and Spatial Strengths: Advancing High-Resolution Global Soil Moisture Gap-Filling through POBI and NSTI Synergy:* **V Lakshmi**, Z Zhu, H Kim, J B Eylander, S Crisanti
- 1857684** *Interpreting Upstream Influence on Downstream River Discharge Forecasting: Insights from ConvLSTM and SHAP Analyses Across Spatial Scales and Temporal Horizons:* **Z Zhu**, M Saeedi, R Xu, J B Eylander, V Lakshmi, S Crisanti
- 1924737** *Leveraging Remotely Sensed Soil Moisture for Improved Hydrologic Simulations in Heterogeneous Watersheds:* **J Qi**, A Risal, R Karki
- 1929214** *Machine Learning-Based Soil Moisture Downscaling from Integration of SMAP and MODIS Observations and Soil Maps:* **S Rabiei**, E Babaeian, S Grunwald
- 1964166** *Mapping Soil Moisture using a Machine Learning Method:* **A Hosseinizadeh**, Z Sheng
- 1990255** *Mapping waterways worldwide with deep learning:* **Z Mehrabi**, M Pierson, C Kruse, K Fankhauser

- 1851609** *Operational Hydrological Modeling in Data-Scarce Regions: Assessing the Impact of Fine-Resolution Soil Moisture Assimilation:* **S Marshall**, T N D Tran, M Le, B Q Nguyen, B Fang, H Elhaddad, J B Eylander, S Kantosh, S Crisanti, J D Bolten, V Lakshmi
- 1946363** *Performance of Artificial Intelligence-Machine Learning Based Hydrological Models under Climate Change: A Review Study:* **M Ucun**, S Bakar, V Lakshmi
- 1909288** *Predicting the Spatial Distribution of Stable Isotopes in Surface Water and Precipitation Using a Machine Learning Approach: A Comparative Assessment Between the Indus and Ganga River Basins:* **A Jahan**
- 1972926** *Radiance-Based Evaluation of Land Surface Temperature in the HydroBlocks Land Surface Model:* **J Cai**, N W Chaney
- 1912574** *Runoff nonlinearities drive inter-seasonal variations in agricultural drought susceptibility:* **W T Crow**

247541

Advances in River Morphology Science, Tools and Datasets: Improving Our Understanding of Rivers (joint with EP, IN)

Conveners: **Venkatesh Merwade**, Lyles School of Civil Engineering, Purdue University; **Taher Chegini**, Purdue University; **Sayan Dey**, Purdue University; **Marian Muste**, IIHR—Hydroscience and Engineering

- 1956404** *A CONUS-scale Synthetic River Bathymetry Generation Workflow:* **T Chegini**, V Merwade
- 1911599** *A Machine Learning Approach to Global Calculation of At-a-Station Hydraulic Geometry (AHG) Parameters:* **J Brooks**, E Beighley, K Pieper, C N Jones
- 1926599** *Advancing Suspended Sediment Distribution Measurements in River Systems Using Down-looking Acoustic Doppler Current Profilers (ADCPs):* **S A Khan**, J Boldt, L G Dominguez Ruben, R N Szupiany, M Wood, J A Czuba
- 1967048** *Assessing River Alteration Through High Flow Characteristics:* **S Karthiraj**, S Karthiraj, H Franklin, K Periaswamy, A Aavudai
- 1941488** *Assessing the accuracy of different Open-source Digital Elevation Models (DEMs) in morphometric analysis of Kanchi River basin:* **V Lakshmi**, A Mondal, S Kundu, A Pandey
- 1880465** *Automated Basin-Scale River Reach Segmentation using Morphologic Attributes Derived from Sentinel-1 SAR and SAM2 Deep Learning Foundation Model:* **T Mandal**, H Liu, S Cohen, D Tian, L Wang

- 1951523** *Selecting Precipitation Inputs for Hydrological Modeling in Data-Scarce Catchments: Gridded Precipitation versus Machine Learning Output:* **M N Nasimi**, N Zaim
- 1956365** *Some reality checks on the ML-physical model integration in practice:* **S V Kumar**
- 1901679** *Spatial patterns of hydroclimatic controls on groundwater storage change in Central and Southern Arizona:* **B Mohajer**, J S Famiglietti, H A Chandanpurkar, F Hung
- 1911156** *The Fast and the Flowing: Rapid Delineation of Drifting Waterways with SAM-2:* **Z Herbert**, D Aragon
- 1858532** *Toward Improving Groundwater Estimation: Assessing Surface Water Storage in the La Plata River Basin:* **M L Jover**, A Getirana, J B Eylander, S Crisanti, V Lakshmi
- 1962109** *Turning Streams into Rain Gauges: Leveraging Long-Term Streamflow Data to Recover Historical Precipitation:* **M Saeedi**, H Kim, J D Bolten, M Rodell, J B Eylander, S Crisanti, V Lakshmi
- 1882341** *Automated Extraction of River Channels and Morphological Attributes from SAR Imagery Using a Fine-Tuned Deep Learning Foundation Model and Computer Vision Post-Processing Algorithms:* **H Liu**, T Mandal, L Wang, D Tian, S Cohen, S Shu
- 1926064** *Bankfull and Beyond: Identifying persistent reach-scale river corridor features from high-resolution topography:* **N Patterson**, J Castejon Villalobos, A Lee, B A A Lane, R M Diehl, C B Phillips
- 1999098** *Capturing the short-term evolution of complex river channel morphology with repeat lidar point clouds:* **M D Nelson**, T A Goudge, D C Mohrig
- 1938806** *Development of a Sine Function-Based Vertical Velocity Profile Model Capable of Representing the Velocity Dip:* **K Inoue**, T Tebakari
- 1999533** *Entropy-Based and Traditional Velocity Distribution Equations for Open Channel Flows: Adverse Channel Bed Slope Analysis:* **G Singh**, R Khosa
- 1929914** *Evaluating SWOT Data for Estimating River Bathymetry:* **S Chaulagain**, V Merwade, J T Minear
- 1986607** *Evolving Bathymetry, Emerging Errors: How Changes in River Bathymetry Impact Uncertainty in Flood Forecasting:* **S Dey**, T Chegini, A Cox, V Merwade, V Sagan
- 1920226** *Exploring the application of SWOT satellite data for monitoring river dynamics over Bangladesh:* **S Sharma**, N K Biswas, S Sarker
- 1936771** *Flow-Network Topology and Hydroconditioning for Restoring Managed Wetlands:* **U Ashrani**, Z Hilgendorf, A D Wickert

- 1957567** *Impacts of DEM resolutions on channel network topology-based hydrological modelling:* **S Rana**, S R Chavan, R S Rehal
- 1946633** *Leveraging SWOT Data for Improved Avulsion Probability Estimation in the Upper Koshi River:* **C Koppe**, B Wang, J Gearon, D A Edmonds
- 1969549** *Longitudinal Bed Material Changes on the Atchafalaya River, Louisiana from 1932 to 2020:* **T A Dahl**, K Harris, B Myers
- 1920328** *RIMORPHIS – A platform for discovering and processing river morphology data:* **V Merwade**, A Cox, I Demir, J T Minear, M Muste
- 1974847** *Substrate Distribution and Channel Morphology in the Delaware River Before and After USACE Main Channel Deepening Efforts (2013–2020):* **C Hughes**, J Madsen, D Fox
- 1987431** *SWOT Discharge performance, error budget, timeline and science use cases:* **M T Durand**, C J Gleason, K Larnier, P O Malaterre, S P Coss, Y Zhang, H Oubanas, T Pavelsky

247372

Advances in Tracer Methods and Modeling of Hydrological Processes, Chemical Weathering, and Hydrochronology

Conveners: **Ate Visser**, Lawrence Livermore National Laboratory; **Jory Lerback**, University of California Los Angeles; **Jennifer Druhan**, University of Illinois at Urbana-Champaign; **Minseok Kim**, Johns Hopkins University; **Jory Lerback**, University of California Los Angeles

- 1899678** *A Conceptual Model of Fracture Flow in the Milk River Aquifer under Transverse Hydraulic Gradients:* **A Date**, B Mayer, P Humez, R Purtschert, R Nagare, R Yokochi, N C Sturchio, S Wheatcraft
- 1994148** *Advancing Preferential Flow Modeling: A Comparative Evaluation of Non-Equilibrium Approaches and a Way Forward:* **Y KIM**, M Kim
- 1954579** *Assessing Deep Aquifer Resilience Using Stable and Noble Gas Isotopes in an Arid Endorheic Basin:* **A EL Azhari**, Y Ait Brahim, F Barbecot, D L Pinti, M Hssaisoune, A Ayaou, F Raibi, T El Ghali, A Hadri, L Bouchaou
- 1855631** *Developing seasonal isoscapes of precipitation in the Upper Colorado River Basin using multi-model statistical methods:* **C T Green**, M A Scholl, C Bern, M A Walvoord, J Barclay, S Foks, D Rey, J S Hecht, J Marshall
- 1939398** *Enhancing breakthrough curve analysis via automated curve fitting-based spectral deconvolution:* **F Quichimbo**, S Yoon, J Barry, A Scott, P K Kang

- 1875200** *Terrain-Based Tools to Represent River Corridors Across Scales:* **B A A Lane**, C B Phillips, G B Pasternack
- 1916743** *The Evolving Structure of Landscapes: Linking Basin Morphology and Energy Efficiency:* **S Raina**, D Borse, PhD Candidate, B Biswal
- 1940772** *Toward a Transferable Framework for Analyzing Flood-Driven River Morpho-dynamics Using Remote Sensing, Hydraulic Modeling, and Machine Learning: A Case Study from the Padma River, Bangladesh:* **A F Aishi**, MS
- 1856225** *Toward an Open-Source Toolkit for ADCP-Based Hydrodynamics and Sediment Transport Analysis: From Field Data to Reproducible Insight:* **M T H Tuhin**, C Mudersbach, R Hinkelmann
- 1900544** *What controls river pothole formation? A global analysis reveals the role of geometry and lithology:* **M N Singh**, S Tooth, H Griffiths
- 1980476** *Evaluation of Surface Velocity Measurement Using Optical Flow PIV in Steady and Unsteady Open-Channel Flows.:* **R Najafi**, B K Sahu, J Imran, M Elkholy
- 1960317** *Groundwater and Surface water Interactions using Multi-tracer Method in the Phu Sai River Watershed, Rayong, Thailand:* **M Saito**, S Kurihara, A Watanuki, M Tsujimura
- 1854477** *Hydrogeological Investigation and Conceptual Model Development of Groundwater Resources in Tequila Village, Jalisco, Mexico:* **S Kurihara**, O Ortiz Enriquez, M Saito, A Watanuki, T Tokunaga
- 1981379** *Identifying Hydrologic Connectivity Changes Controlling Nitrate Concentrations and Transport in Agricultural Tile Drainage Waters:* **E Johnson**, L R Welp, G Michalski, E Bauer, J Haken, W Brown, T Katsaros
- 1981579** *Investigating Nutrient Dynamics of the Allegheny Reservoir Using Stable Isotopes of Nitrate:* **E Hall**, E M Elliott
- 1884354** *Open Canal Evaporation in An Arid Urban Environment:* **R Qubaja**, M Ferguson, E R Vivoni, D E Pataki
- 1999587** *Short-Record Tritium and Radiosulfur Constrain Dynamic Groundwater Transit Times of Cold Springs in California's Cascades:* **E Grande**, J C Lerback, J E Moran, J Harm, L Tolley-Mann, D Goodman, T Blaschak, A Visser

1971089 *Subsurface Production of ^{39}Ar in a Sub-Alpine Fractured-Rock Aquifer:* **P P Gardner**, C West, N E Thiros, F Neumann, W Aeschbach, M Oberthaler, K H Williams

1954105 *Tritium-based monitoring of groundwater that contributes to streamflow in the Colorado River headwaters region:* **C Bern**, B C Jurgens, M Ruckhaus, K Johnson

254754

Advances in Understanding Seawater-Groundwater Interactions within Coastal Aquifers and Continental Shelf Systems: Consequences for Water Quality and Ecological Sustainability

Conveners: **Xiaolong Geng**, University of Delaware; **Xiaolang Zhang**, Florida Atlantic University; **Brandon Dugan**, Colorado School of Mines; **Amir Haroon**, University of Hawai'i at Mānoa; **Dini Adyasari**, University of Bremen; **Mark Person**, New Mexico Tech

1970461 *Assessing saltwater intrusion and shoaling groundwater levels in rural coastal North Carolina, USA.:* **S Nicholson**, D C Barber, C Hoeun

1894560 *Assessment of Coastal Groundwater Dynamics in Galveston Bay, Texas:* **A A S Rianda**, D Adyasari

1904719 *Detecting Regime Shifts in Coastal Groundwater through Electrical Conductivity Time-Series Analysis:* **E Heo**, J Park

1884152 *Evaluation of Groundwater Quality around Sewage Farm in the Coastal Aquifer of Kerala, South India using Water Quality Index Approach:* **J Varghese**, J DS

1931264 *Field Investigation of Swash-Induced Seawater-Groundwater Interactions Along the Beaches of O'ahu, Hawaii:* **L Krasnoff**, X Geng, H Zhang

1915276 *Geochemical Shifts in Spring and Shallow Groundwater After Hurricane Helene on the Florida Gulf Coast:* **D Adyasari**, A A S Rianda, X Zhang

1897286 *Hydrogeological Controls on Freshwater Preservation in a Coastal Sand-Dune Aquifer in part of the Mahanadi delta, Eastern India:* **B Moharana**, A K Mohanty, D Kumar, B K Kumar, R M Kuraklava

1876911 *Identification and Mapping Potential Zones of Submarine Groundwater Discharge along West Coast of India between Mangalore and Udupi:* **R Honnasiddaiah**, S K P S

1967723 *Uncovering Groundwater-Surface Water Interactions in a Mountainous Catchment: Insights from Radon and Environmental Tracers:* **D O'Ryan**, E Grande, R K Bibby, T Blaschak, N Corline, D Goodman, J Harm, J C Lerback, A Lukk, R Lusardi, V Muenker, R Nearhood, L Tolley-Mann, A Visser, J E Moran

1975338 *Understanding the Benefits of Floodplain Restoration to Groundwater:* **A Visser**, J Harm, J Lerback, E Oerter, H Ferriz, S Gaffney, A Booth, I Acevedo

1912694 *Water Quality and Residence Time of Artesian Groundwater Wells in Northwest Indiana:* **M T Moore**, H J Pollard, K Christian, D C Lampe

1853126 *Impact of Glacial-Interglacial Cycles on Freshened Groundwater in the Lofoten-Vesterålen Continental Margin Since the Last Interglacial:* **S ten Hietbrink**, B Dugan, H Patton, B Szymczycha, A Sen, A Lepland, J Knies, J H Kim, N C Chen, W L Hong

1921035 *Integrated Geophysical and Hydrochemical Approach to Map Submarine Groundwater Discharge:* **A Keshariya**, B K Yadav, D Mitra

1914746 *Integrating Electrical Resistivity Tomography (ERT) with Density-Dependent Groundwater Modeling to Assess Seawater Intrusion (SI) in Coastal Alabama:* **M Daneshvar**, N Dimova, P Clement, X Zhang, S Anderson

1854897 *IODP³-NSF Expedition 501: Offshore Freshened Groundwater in the New England Continental Shelf:* **B Dugan**, R S Robinson, K Johannesson, J Everest

1999631 *Machine Learning Predictions of Groundwater Levels and Fresh Submarine Groundwater Discharge Along Florida's Coast:* **M Beantha Haque**

1937291 *Modeling of Wave-Driven Groundwater-Surface Water Exchange in Sandy Coastal Aquifers:* **H Zhang**, X Geng

1887173 *Monitoring of Saltwater Intrusion Along the Eastern Coast of Ghana Using Time-Lapse Electrical Resistivity Tomography (ERT) and Physicochemical Analyses:* **E Hovor**, C Boateng, D Wemegah, T Dwomoh

1929052 *Preliminary analysis of continental shelf freshwater sand permeability on the New England Continental Shelf Offshore Martha's Vineyard and Nantucket, Massachusetts USA:* **M A Person**, B Dugan, R S Robinson, K Johannesson, J Everest

1891334 *Quantifying Mechanisms of Elevated Iron and Manganese Concentrations in Coastal Multi-Layer Aquifers via Numerical Modeling:* **S Xiao**, Y Wang

1932666 *Quantifying the Effects of Dynamic Salinity Fronts on the Transport of Adsorbing Chemicals in Coastal Aquifers:* **M Schaefer**, A H Sawyer, P Clement, S Chang, D Gonzalez-Duque

- 1941225** *Seasonal fluctuations of nutrient characteristics and interfacial fluxes in mangrove intertidal groundwater:* **Z Liu, K Xiao**
- 1939516** *Seasonal submarine groundwater discharge drives coastal carbon cycling and modulates buffering capacity:* **W Wang, Q Wang, H A Michael, Z Liu, Z Wang, T Wang, Y Gao, M Luo, H Li**
- 1856770** *Submarine Faults Strongly Impact Age and Salinity Distributions in Offshore Freshened Groundwater Systems:* **Y P Zhang, B Kurylyk, A Paldor**
- 1861090** *Submarine Groundwater Discharge of Circulated Seawater as a Modulator of Atmospheric CO₂ Over Glacial–Interglacial Cycles through Alkalinity Fluxes:* **Y Kiro**
- 1859024** *Systematic Quantification of Nearshore and Offshore Submarine Groundwater Discharge along Florida coasts:* **R Howlader, X Zhang**

252475

Advances in Ungauged Flood Prediction: Modeling Approaches, Infrastructure Impacts, and Climate Risks (joint with GC, NH)

Conveners: **Chandramauli Awasthi**, North Carolina A & T State University; **Mona Hemmati**, Gallagher Re; **Nancy Barth**, USGS Wyoming-Montana Water Science Center; **Nasser Najibi**, University of Florida; **Jeongwoo Hwang**, NC State University

- 1979499** *Assessing Regional Flood Hazards Using Synthetic Flood Catalogs: Insights on Population Flood Exposure and Transportation Infrastructure Disruption:* **L Torres-Torres, G Perez**
- 1934955** *A Comparative Study of Flood Inundation Mapping using Coupled Hydrologic-Hydrodynamic Modelling and Microwave Remote Sensing Approaches in the Kabul River Basin, Pakistan:* **M Adnan**
- 1885463** *A novel S2S streamflow forecasting framework for ungauged stations within catchments in Peninsular India:* **V Harini, R Das Bhowmik**
- 1964422** *Advancing Flood Hazard Modeling Across Diverse Storm Types Using 2D Hydrodynamics and Remote Sensing Precipitation:* **M F Mitu, R Lazin, W Y Wu**
- 2003631** *Application of Synthetic Stage-Discharge Rating Curves for Flood Inundation Mapping:* **N Choi, M Null**
- 1952806** *Bridging Discretization Scale and Routing Parameters for Accurate Peak Flow Prediction in Distributed Model:* **S Martinez, N Velásquez, W F Krajewski**
- 1986742** *Data-Driven Resilience Insights through Network Analysis:* **A Jin, S Chung, D Sardak, M Smith, I Linkov**

- 1895692** *Tracking Diverse and Episodic Water Sources in Lake Pontchartrain and the Mississippi Sound: Evidence for Multiple Submarine Groundwater Discharge Sources:* **A M Shiller, A Moody, M Gilbert, S Mize, R Magbitang, K Ledezma, D Schneider**
- 1885264** *Understanding Sustainability and Reliability of Submarine Groundwater Discharge as a Water Source:* **H Dulai, C Lipo, T L Hunt, G Pakarati**
- 1925001** *Using ²²⁴Ra/²²⁸Th Disequilibrium in Sediments to Quantify Benthic Fluxes Across the Sediment-Water Interface from Near Shore to Offshore Environments:* **D Schneider, W Bam, PhD, K Maiti, M W Bowles**
- 2000471** *Wind Events Drive Major Episodes of Nutrient-Rich Submarine Groundwater Discharge Kilometers Offshore in Continental Shelves: Field Observations from the South Atlantic Bight:* **A M Wilson, J Vincent**
- 2000768** *Diffusion-Based Convolutional Learning and Multi-View Data Fusion for Flood Inundation Mapping:* **A Agrawal, B Raman, A Khan**
- 1949764** *Evaluating Machine Learning Metamodels for Predicting Flood Inundation Extents:* **D Siddiqui, D Aragon**
- 1982993** *Evaluating the passive microwave remote sensing on daily streamflow forecast in the CONUS:* **A Saito, S Fang, S Arumugam, J Hwang**
- 1991194** *Evaluating the Reliability of Flood Inundation Mapping in Ungauged Locations Using Observed, Modeled, and Machine Learning-Based Hydrologic Data:* **J Song, R Saleh Alipour, S Naser Neisary, M S Alam, J Halgren, S J Burian**
- 1857956** *Flood Hazard and Susceptibility Mapping of the Melamchi River basin in Nepal by Using Analytical Hierarchical Process and GIS Applications:* **S Duwadi, P D D P Adhikari, P D M R Dhital, M R Kathariya**
- 1985357** *Impact of Data Uncertainty on Remote Sensing-Based Flood Forecasting Under Data Scarcity: Case Studies of the Naryn River Basin in Kyrgyzstan and the Chikuma River Basin in Japan:* **Z T Tun, M Sakai Prof, A E Phyu, T Yamajuku, H Okumatsu**
- 1988744** *Improving Extreme Flood Predictions with a Regional Peaks-over-Threshold Approach:* **K Bae, S Arumugam**
- 1985549** *Improving Flood Predictions in Ungaged Basins with a Local-Likelihood Spatial Extremes Framework:* **C Awasthi, S Arumugam**
- 1939574** *Integrated Web-Based Framework for Risk Simulation and Visualization of Potentially Dangerous Glacial Lakes in The Indian Himalayan Region:* **S Saha, R Deopa, PhD, A K Gupta, S Rao, M P Mohanty**

1991029 *Integrating GeoSWMM and GeoGLOWS for High-Resolution Flood Extent Delineation in Ungauged Watersheds of Gazipur City, Bangladesh:* **T Mahjarin**, Z T Haque, P Roy, S Akter

1990606 *NADI: Automated Network Analysis and Data Integration Framework for Streamflow Data Quality and Hydrological Modeling:* **T Steissberg**, G Atreya, P Ray

1937046 *Predicting Annual Maximum Outflow from Reservoirs in Ungauged Basins Using Bayesian Hierarchical Modeling Approach:* **I Ansari**, C Awasthi, S Arumugam

1941929 *Reproducing the Frequency Distribution of Observed Flood Peaks in Southern Italy Using the Q_T -DREAM Distributed Hydrological Model:* **F Mesto**, A Gioia, R Bonelli, S F Dal Sasso, L Giuzio, M Lombardo, S Manfreda, M R Margiotta, B Sileo, P Perrini, V Totaro, V Iacobellis, M Fiorentino, V Corbelli

247957

Advances in Water Phase Transitions in Porous Media: Bridging Scales and Physics to Understand Hydrological Systems Evolution (joint with C, GC, NS)

Conveners: **Chao Zhang**, Colorado School of Mines; **Xiaoqing Fu**, California Institute of Technology; **Thomas Petersen**, University of Southern California; **Yi Dong**, IRSM Institute of Rock and Soil Mechanics, Chinese Academy of Sciences

1908478 *Characterizations of Interlayer Ice and Pore Structure in Clays: An In-situ GISAXS Study:* **Y Dong**

1989246 *Decoding Water Content and State from Martian Soil IR Spectra:* **S Hu**, C Zhang, B Ji

1900034 *Experimental study of freezing infiltration through a layered porous medium:* **N Jones**, X Fu

1857397 *Failure Mechanisms of Permafrost Bluffs: A Case Study in Utqiagvik, Alaska:* **L Gou**, M Xiao, M Hallissey, C Park, M Dogan, D Nicolsky, A Garland

1965452 *Fractionation Due to Soil-Water Interactions Is an Important Omission in Global Isotopic Evapotranspiration Partitioning:* **C Zhang, PhD**, S Hu, L Li, D Or, N Lu

248845

Advances in Water Quality Prediction

Conveners: **Jared Smith**, Cornell University; **Janet Barclay**, United States Geological Survey; **Joel Blomquist**, U.S. Geological Survey; **Dylan Blaskey**, University of South Carolina

1979026 *SCENARIO-BASED IDF CURVES FOR RESILIENT INFRASTRUCTURE: THE DOD EXTREME PRECIPITATION ASSESSMENT CAPABILITY:* **C Polatel**, K White, M Dice, C Cook

1996078 *Short Term Forecasting of Stage and Discharge in Hysteretic Rivers using Deep Learning:* **R Dumars**, E House, E A Meselhe, M Muste, I Demir

1948766 *Using Gauged-Site Flood Records with Routing to Improve Regional Flood Quantile Estimators at "Ungauged" Locations:* **J R Stedinger**, K Eng, J Moukarzel

1998194 *Very Short Period Forecasting of Streamflow for Missouri Using Rainfall Radar Nowcasting Input to the National Water Model:* **N I Fox**, M Templeton, E Travis

1978079 *Influence of Microplastic Contamination on Soil Water Retention and Plant-Available Moisture:* **A Bakhshae**, F Jazaei, M Hamza

1994925 *Measuring Fracture Toughness of Clayey Soils in Wide Suction Range:* **Y Yang**, C Zhang, PhD

1971892 *Microstructural Evolution of Icy Regolith Under Dry Conditions:* **J J Baglino**, A Moure, X Fu

1900593 *Modeling Subglacial Hydrology Transients with Meltwater Inputs:* **V C Tsai**

1899437 *Modeling the Thermal Evolution in Frozen Soils with Macropores: A Dual-Permeability Thermo-Hydraulic Modeling Approach:* **T Heinze**, H Khanahmadi Bafghi

1902933 *On the shape of air bubbles trapped in ice:* **A Sauret**, V Thiévenaz, J Meijer, D Lohse

1907274 *Optical Signatures of Water Vapor Clusters by Nanopore Evaporation:* **Y Zhang**, Y Dong

1950643 *The Effective Permeability of Permafrost:* **T Mills**, P B Flemings, K You, D A DiCarlo, D Fukuyama

1999989 *Unified Differentiable Modeling of Thermodynamic Constitutive and Elastic Properties in Porous Media:* **Y Ren**, Z Liu

1974652 *A Dynamic SPARROW Model to Assess Wetland Connectivity Impacts on Total Phosphorus Loads in the Canadian Side of Lake Erie Basin:* **O Al Balasmeh**, A Okoli, A Neumann, G B Arhonditsis

1995273 *A Machine Learning-Based Environmental Forensics Framework for Predicting Fecal Contamination in Texas Coastal Waters:* **J Walker**, I Yoosefdoost, A Navarro, N Vermeersch

- 1868785** *Building a Data Driven Model to Predict Water Quality Impairments in Rivers Caused by Combined Sewer Overflows:* **R Blasiak**, A J Rabideau
- 2001719** *Data-Driven Modelling of Heavy Metal Contamination in Groundwater Using Supervised and Unsupervised Machine Learning Algorithms.:* **A Krishna K R**, R P N, S K V
- 1931063** *Geospatio-temporal Analysis of Trends and Patterns of Salinity in Hagatna Basin, Guam, USA:* **Y Wen**
- 1879518** *Hybrid Machine Learning Models for Forecasting Nitrate Concentrations at Watershed Scale – Case Study of the Delphos Watershed, Ohio:* **M Kordani**, F Babaian, A Murumkar, H Raymond, V S Shedekar
- 1876276** *Identifying Natural and Anthropogenic Drivers of Groundwater Salinization across Contiguous United States Using Generative Adversarial Networks-based Conditional Feature Importance:* **Q Longyang**, G Liu

252218

Advancing Critical Zone Science Across Sites, Scales, and Systems (cosponsored by EGU: European Geosciences Union, GSA: Geological Society of America) (joint with B, GC, SY)

Conveners: **Elizabeth Boyer**, Pennsylvania State University; **Delphis Levia**, University of Delaware; **Bhavna Arora**, Lawrence Berkeley National Laboratory; **Jeffrey Munroe**, Middlebury College

- 1935035** *Scaling Insights Across Critical Zone Interfaces in Intensively Managed Landscapes: Findings from the Critical Interface Network (CINet) Project:* **P Kumar**, A E Goodwell
- 1906974** *A ModEx Framework for Watershed Subsurface Investigation with Limited Geophysical Data Using Machine Learning and Hydrologic Modeling:* **H Chen**, C Chou, R Thibaut, Y Wu
- 2001758** *Accelerating Critical Zone Science with an International Network of Networks:* **J S Munroe**, B Arora, E W Boyer
- 1959083** *Assessing Stem Diameter Variations as a Result of Changes in Atmospheric Moisture and Stemflow Dynamics: Application of a Novel Dendrometer Device to Monitor Internal and External Bark Swelling:* **M Arnold**, C M Siegert, A Polinko, A Dowtin

- 1996243** *Influence of Hydrological Variability and Wetland Connectivity on Total Phosphorus Loads in Lake Erie- a Hierarchical SPARROW Modelling Approach:* **A Okoli**, O Al Balasmeh, A Neumann, G B Arhonditsis
- 1984463** *Modeling Detroit Reservoir water quality sensitivity in response to climate-driven change projected for Willamette Valley:* **E J Summers**, J L Ryder, T A Dahl
- 1961688** *Prediction of Groundwater Quality Using a Regression Machine Learning-based Framework for an Agricultural Watershed:* **A Elsayed**, J Levison, A D Binns, M Larocque, P Goel
- 1995384** *Spatio-temporal and dynamic prediction of water quality changes (turbidity, chlorophyll-a and colour dissolved organic matter) using multi-sensor data fusion: satellite, UAV, and cloud-based modeling:* **A Galodha**, M Peppia, S Wilson, S Anees Assi, B Lall Prof, S Z Ahammad Prof
- 1992712** *Why Should Models Talk to Each Other? Ensemble Modelling as an Operational Framework to Guide Adaptive Water Quality Management Across Scales:* **G B Arhonditsis**, A Javed
- 1845944** *Atmospheric controls on methane flux estimates in northern peatlands using eddy covariance and multi-site LSTM modeling:* **R J Hess**, H Shekhar, X Comas, D Ntarlagiannis, L D Slater
- 1975363** *Biogeochemical nutrient cycling in the critical zone: insights from giant sequoia trees and neodymium isotopes:* **S Oni**, C S Riebe, S M Aarons, C E Lukens, E S Rego, Y W Liu, E Ling
- 1988096** *Contrasting Patterns of Redox and Oxygen Dynamics at Terrestrial-Aquatic Interfaces:* **F Machado Silva**, R Bittencourt Peixoto, M N Weintraub, N D Ward, P Regier, P Megonigal, S J Wilson, B P Bond-Lamberty, S C Pennington, R Rich, E J O'Loughlin, K M Kemner, K O Doro, S B Pushpajom Thomas, E Phillips, E Grammenidis, K F Patel, K A Rod, T O'Meara, B N Sulman, E Fluet-Chouinard, I Forbrich, V L Bailey
- 1967967** *DELUGE - Disturbance and Ecohydrological Legacies in Upland Great-lakes Ecosystems: An Ecosystem Scale experiment to study coastal critical zone :* **I Forbrich**, P Atiti, K O Doro, A Malhotra, E Fluet-Chouinard, R Bittencourt Peixoto, F Machado Silva, R Rich, M N Weintraub, P Megonigal, V L Bailey
- 1986611** *Disrupted Pathways: Stemflow Loss and Groundwater Biogeochemistry in Ghost Forests:* **R C O'Halloran**, S Chittakone, R Kim, E W Boyer, H A Michael, Y P Chin, D F Levia Jr
- 1931766** *Estimating Hydrogeological Parameters for Determining the Water Storage and Discharge of a Bofedal Wetland in the Peruvian Central Andes:* **C Mosolino**, J Cambeiro, J Oshun, M M Lang, K Keating

- 1926503** *Global (A)synchrony in Riverine Nutrient Dynamics: K Johnson, K Jankowski, J Carey, L Sethna, D J Conley, J Corman, E Elmstrom, L Koenig, N M M Fernandez, Z Wang, T Wen, P L Sullivan*
- 1991181** *Greater Sensitivity of Picea engelmannii (Engelmann spruce) than Populus tremuloides (Aspen) to Climate Variability over Six Decades: R Yilangai, H R Barnard*
- 1944244** *Historic and anthropogenic soil legacies shape contemporary and future critical zone biogeochemistry: S P Inamdar, E Moore, M Peipoch, J Kan, M M Rahman, M G Sena, B Joshi, A Yaculak, D Merritts, R C Walter, J G Galella*
- 1862057** *Imaging the Structure and Wet-Season Water Content of the Brazilian Cerrado Using Geophysics: J Maimoni Ferro, K Keating, C Reis Costa Mattos, J Cambeiro, A Ospina Parra, A P da Silva Faggiani, M Hirota, Y Fan*
- 1913747** *Measuring loess's impacts on Critical Zone hydrology, geochemistry, and topography: R E Breunig, K Ferrier, M A Cardiff*
- 1915409** *Mechanisms Underlying Near-Universal Export Patterns of Dissolved Carbon from Land to Rivers: B Stewart, L Li*

248196

Advancing flood characterization, modeling and communication

Conveners: **Keighobad Jafarzadegan**, Oklahoma State University; **Brett Sanders**, University of California Irvine; **Ebrahim Ahmadisharaf**, FAMU-FSU College of Engineering; **Stacey Archfield**, U.S. Geological Survey

- 1961576** *A Deep Learning Emulator for High-Resolution Rapid Flood Mapping: R Lazin, G Pallotta, C Bonfils*
- 1881762** *Advancing Flood Susceptibility Mapping Assessment Using Multi-Criteria Analysis and Machine Learning Models: M Rashid, M Parise Sr, S Haider, S Ullah*
- 1986107** *Advancing Mixed Population Flood-Frequency Methods for Large-Scale Implementation: M Mika*
- 1882585** *Advancing Physics-Informed Compound Flood Modeling through a Newton-Guided Deep Learning Model: S Radfar, H Moftakhari, H Moradkhani*
- 1887030** *An Integrated Modeling Framework for Sediment Dynamics During Urban Flooding: Application to Hurricane Harvey in Houston: D Feng, Z Tan, D Xu, L Li, PhD, G Bisht*
- 1917425** *An Interactive Web-Based Platform for 3D Flood Simulation in NYC Using HEC-RAS: Supporting Urban Vulnerability and Infrastructure Risk Analysis: N Law, M Benetti, Y Miura*

- 1956248** *Modelling basin-scale hydrological impacts of replacing summer fallow with continuous cropping in a cold, water-limited region: L Guo, W Helgason, Z He, X Fang*
- 1844976** *On the Factors that Determines Buffering Effect of Mountainous Forested Catchments: An Analysis on the Multiple Catchments across Japan: H Momiyama, T Kumagai, T Shimizu, T Abe, H Ikuhiko, S Iwagami, S Iida, N Kabeya, T Kubota, U Kurokawa, T Oda, S Sawano, K Tamai*
- 1924482** *To what extent does preferential flow regulate soil organic carbon depth distributions and processing across diverse environments?: C Mayernik, M Sprenger, B Li, S A Billings, R Keen, M Unruh, K M Jarecke, D Hirmas, H Ajami, A N Flores, J B Nippert, K Singha, L Li, P L Sullivan*
- 1864972** *Welding bark ecology and stemflow hydrodynamics for smarter, bark-contemplative green infrastructure: D F Levia Jr, G G Katul, A Meydani, K Nanko, C Yuan, PhD, Y Zhang, P Llorens, B Keshavarz, M P Bruen*
- 1935793** *Anthropogenic and Climatic Drivers of Urban Flash Floods in Pakistan through a Geospatial AI Framework: M U Akbar, S Alian, M Farooq, A Iqbal, A Mirchi*
- 1944051** *Assessing National Flood Interest through News Media Big Data and Explainable AI: E Lee, Y You, Y Jung, J Kam*
- 1951912** *Assessing Vulnerability and Flood Risk in Coastal Alabama, USA Using Remote Sensing and Climate Projections: A Alejandro Alvarez Reyna, F C O'Donnell, A Ojeda, C Beisher*
- 1993524** *Automated Extraction of Hydrographs from Streamflow Records for Event-Based Hydrological Assessment: N Velasquez, J Guerrero-Gallego*
- 1855298** *Capturing Rapid Vertical Flow Dynamics in the Texas Flash Flood of 2025 Using the Adaptive Hydraulics model (AdH). A Non-Hydrostatic Approach to Risk and Resilience.: L Ndlovu, R Talchabhadel*
- 1893600** *Characterizing Flood Inundation Dynamics During Rain-on-Snow Extremes: D Hao, D Xu, G Bisht*
- 1942323** *Co-Development Approaches in Flood Risk Modeling: Comparative Lessons from Three Case Studies: L Lee, N Davis, A Rellinger, R Collini*
- 1983536** *Community-level Spatiotemporal Flooding Emulation using Convolutional and Recurrent Neural Networks: L Xu, S Kim, S Spence*
- 1913564** *Compound Flooding in Tidal River Networks: A Joint Probability Approach with Climate Change Considerations: M Ghanbari, M Maimone, S Malter*

- 1918639** *Comprehensive Probabilistic Assessment of Dam Breach and Flood Modeling in Data-Scarce Environments:* **A M Nemnem**, E Kurter, S Khan, J Imran
- 1967692** *Controlled Levee Breach as a Method for Reducing Flood Stages:* **E Kurter**, I A I Al-Hafidh, M Calamak, H Chaudhry, J Imran
- 1881860** *Convolutional Neural Network Surrogate Modeling of Flood Inundation Predictions for the United States Operational Hydrological Forecasting Framework:* **S Dhital**, A Baruah, P Nikrou, S Cohen
- 1983568** *Cross-Examining Property-Level Flood Risk Assessment Frameworks: Comparing Systems Model Requirements and Systematic Literature Review Findings:* **M Hillis**, M Olson
- 2004138** *Developing an Equation-Based Model for Accurate Flood Risk Prediction:* **J Onuh**
- 1984005** *Development of an Open-Source Framework for Automated Quality-Control of HEC-RAS Hazard Models:* **T Williams**, J Bates
- 1857413** *Enhancing Compound Flood Forecasting Mapping Through Multi-Model Atmospheric Forcing and Machine Learning-Based Boundary Conditions:* **F J Gomez**, H Moftakhari, H Moradkhani
- 1954657** *Flash Flood Damage Duration Curves: A Multi-level Bayesian Approach to State-Level Analysis and Uncertainty Quantification:* **F Yavari**, M Abdelkader, N Devineni
- 1859451** *FloodUnet: a Rapid Spatio-temporal Prediction Model for Flood Evolution Based on an Enhanced U-Net:* **T Chen**, J Tian, J Sun, Z Zhang, B Lin
- 1967268** *Fragmented Knowledge: A Synthesis of Post-Hurricane Floodwater Quality Research:* **E Fidan**, S Fandino
- 1985709** *From Inputs to Impact: What Drives Skill in Operational Forecasts of Extreme Flood Events?:* **K van Werkhoven**, S Carney
- 1973172** *High-Resolution Asset-Level Flood Risk Modeling for Climate-Aware Infrastructure Planning:* **R Ghorbani**, G Remias, M S Riasi, L Pal, W Chilton, L Yeghiazarian, S Saksena
- 1913769** *Hydrodynamic Simulation and Validation of Coastal Flooding in Galveston County, Texas: 2008 Hurricane Ike Case Study and 100-Year Flood Map Development:* **M S M I Momin**, E Cho, PhD, E Cho, S Das
- 1932543** *Immersive and Game-Based Technologies for Flood Risk Communication, Education, and Collaborative Environmental Simulation:* **I Demir**, Y Sermet
- 1902242** *Influence of Storm Temporal Position on Critical Design Storm Hydrographs:* **D A Zeweldi**, J Keith, K Koch
- 1892194** *Mapping Shifts in Future Flood Hazards Across the Conterminous United States: A Multi-Model, Regional L-Moment Approach:* **G R Ghimire**, S C Kao, S Gangrade, S DeNeale, M Christian, B Brickhouse
- 1981406** *Mixed Populations and their Impacts to Flood-Frequency Estimation within the Puget Sound Region:* **M Bartles**
- 1968735** *Monte Carlo-Based Building Damage and Emission Functions for Assessing Flood Risks:* **S Rowan**, F Han, R Permenter, W Mo
- 1948923** *Multi-threshold Bayesian Estimation for the Peaks-Over-Threshold Flow Frequency Model:* **S Lawson**
- 1913844** *On the application of the extended generalized Pareto distribution for flood frequency analysis across the contiguous United States:* **H Kim**, P Naveau, G Villarini
- 1954775** *Peaks Over Threshold Modeling for Mixed Population Flood Frequency Analysis:* **A Breveman**
- 1875712** *Pluvial Flood Vulnerability on Military Bases:* **A Rake**
- 1990549** *Predicting Future Flood Vulnerability Zones in Texas Using Explainable GeoAI: A Deep Learning Framework for Long-Term Risk Assessment and Emergency Preparedness:* **M Shahrier**, A A Kafy, M M T Mukarram
- 1924895** *Projecting Compound Pluvial, Fluvial and Coastal Flood Inundation in Coastal Watersheds under Future Climate: The Importance of Wind and Value of 2D Rain-on-Grid Hydrodynamic Models:* **H Tansar**, S Kaiser, E Ahmadisharaf
- 1966958** *Real-Time Hydrological Monitoring and Model Calibration Using an LLM-Based Intelligent Agent:* **Z Lu**, G Ni
- 1902064** *Reimagining FEMA flood maps with an asset-level, CONUS-scale framework for design food risk estimation:* **S Guchhait**, L Pal, M S Riasi, S Dey, L Yeghiazarian, S Saksena
- 1947035** *Reliability-Based design for flood walls under climate change:* **N Devineni**, M Ghosh
- 1993139** *Resilience Component Evaluation of Urban Blue-Green-Grey Drainage Systems Based on Flood Defense Index:* **D Park**, N Lee, J Jang, S KIM, S Shin, J Kim
- 1885728** *Rise of the Guadalupe River: A Multifaceted post-event Analysis of the July 2025 Texas Flood event:* **A Baruah**, D Munasinghe, S Cohen, D Devi, Y Chen
- 1881484** *Storm surge trends along the U.S. coastline and the role of tropical cyclones:* **T Wahl**, J Morim, F Calafat, P M Mahanthe Gamage, S Dangendorf, K P Sah
- 1991158** *Streamlining Calibration in Spatially Resolved Event-Based Hydrologic Modeling: A Parsimonious Two-Layer Curve Number Framework:* **C Farmakis**, A Langousis, E N Anagnostou, S Emmanouil

1942532 *Temporal and Social Dimensions of Flood Vulnerability: Integrating Seasonal Water Depth Extremes and Composite Social Indices in Coastal Urban Cities:* **M Debnath**, N Alamdari

1993945 *Transforming National Flood Assessment Through Scalable Probabilistic Modeling of Gaged and Ungaged Watersheds:* **K J Neff**, C Lindemer, W Lehman

247259

Advancing Hydrologic Modeling and Prediction Using Large-Domain Meteorological and Hydrologic Datasets (joint with A, EP, GC)

Conveners: **Guoqiang Tang**, University of Saskatchewan; **Hongli Liu**, University of Saskatchewan; **Martyn Clark**, National Center for Atmospheric Research; **Andy Wood**, NSF National Center for Atmospheric Research

1952025 *Advancing 9-Month Hydrologic Forecasts for Large Transboundary Basins: A Case Study in the Great Lakes Region:* **Y Hong**, M Parent, D Jones, L Fitzpatrick, L M Fry

1946783 *Albatross: A Scalable Climate Service for Seasonal Precipitation and Inflow Forecasting:* **G Palcic**, M Giuliani, G Ascenso, C Ehbrecht, N Hempelmann, A Castelletti

1880725 *Applying the FAIR eWaterCycle for Multi-Model Any-Catchment Climate Change Impact Assessments with CMIP and CAMELS/CARAVAN data:* **R Hut**, B Schilperoort, W R Berghuijs, M Melotto, N Van De Giesen, C A Hall

1857265 *Assessing Temporal and Spatial Water Availability and Future Projections in Ethiopia's Awash River Basin: A WEAP Model Analysis:* **M M Feleke**

1849820 *Can More Detailed Geological Maps Improve the Parameterization of Hydrological Models in Large-Sample Studies?:* **T V Medeiros do Nascimento**, J Rudlang, S Gnann, J Seibert, M Hrachowitz, F Fenicia

1923955 *Catchment Specific Controls on Streamflow Simulation in Multi-Model Hydrological Assessments:* **K Bhardwaj**, P Khedun, A K Mishra

1939388 *Comparative Evaluation of Meteorological Forcing Data for WRF-Hydro Simulations in a Semi-Arid Australian Catchment:* **M Wickramarachchi**, I Y Yeo, S C Han, M Khaki

1894047 *Comparing Multi-Model Approaches to Simulate Streamflow Across the Contiguous USA:* **C Thebault**, W Knoben, N Addor, M P Clark

1928148 *Enhancing Land Surface Fluxes in Hyper-resolution LSMs with Satellite Land Surface Temperature:* **O G Şahin**, A Dehghani, O Gündüz, N Vergopolan

1963924 *Unraveling Flash-Flood Environments: An Ingredients-Based Examination of Heavy Rainfall Events:* **M G Albright**, E Bower, M Chenard, M Klein

1929163 *Unsteady Flood Hydraulics and the Variability of the Stage-Inundation Relationship on Agricultural Floodplains in the East Fork White River, Indiana:* **S Leach**, S A Khan, M Alif, J A Czuba, D A Edmonds

1987383 *Enhancing rainfall-runoff simulation through integrated multi-source rainfall data and network design:* **W Wang**, Z Wang, L Ni, Z Yang

1962585 *Evaluating Future Hydrologic Drought Projections Through Ensemble Modeling of Structurally Distinct RCMs:* **Y Son**, C Bracken, G Konapala, N Voisin, V Tidwell, C Aghili, N Mann

1984524 *Evaluating the Influence of Precipitation Forcing and Vegetation Dynamics on Hydrologic Simulations in Semi-Arid Snow-Dominated Catchments Using Noah-MP and RAPID:* **S Moghisi**, A Behrangi, A Gupta, M Farmani, B Svoma, G Y Niu

1867313 *Evaluation of High-resolution Meteorological Data Products using Flux Tower Observations Across Brazil:* **J Brown**, R Rosolem, R A Woods, D R Roberti, H R da Rocha

1971836 *Evaluation of Temperature Trends Simulated by Reanalysis Data at Observations Sites in the Continental United States:* **P Raghav**, K A Salvi, M Kumar

2002495 *From Buoy to Forecast: Enhancing GFS and ERO Accuracy for Improved Precipitation Prediction:* **I Sanchez Viruet**, A Reiss, A Mehra

1899969 *From Gauged to Ungauged: A Probabilistic Approach to Regionalize Hydrological Model Parameters:* **N Vasquez**, C Thebault, I Aguirre, D Eythorsson, W Knoben, M Moghairib, K Keshavarz, A Wood, M P Clark

1925882 *Functional Classification of 80,000 Catchments: A Framework for Hydrologic Model Use and Regionalization:* **A Ameli**, H Sharif, J McDonnell

1920678 *High-Resolution Flood Inundation Forecasting Using GPU-Accelerated Hydrologic-Hydrodynamic Modeling: Application to Houston, Texas:* **M Binjolkar**, R Amorim, D Li, T Pu, A Michalek, G Villarini

1942221 *Hydrological Cycle in a Warming Climate: A Continental-Scale Case Study Across Europe:* **V Thakur**, **MEngg**, Y Markonis, O Rakovec

1865463 *Identifying Dominant Hydrologic Processes Across Continental Landscapes Using Hydrologic Signatures:* **R Araki**, A Holt, J C Hammond, A Husic, PhD, H K McMillan

- 1936978** *Integrating Diverse Meteorological Inputs for Machine Learning-Based SWE Estimation in Complex Catchments:* **E Golitzin**, R Johnson, D Liljestrand, E Ritchie, K Meyer, A Ames
- 1949234** *Integrating Gridded Meteorological Data in Hydrologic Modeling: Innovations in Data Processing and Gap-Filling Techniques:* **T Brauer**
- 1886531** *Intensifying Flood Occurrence in the Nile Basin Under 21st-Century Climate Variability:* **H Elhaddad**, M Sultan, E Yan, T N D Tran, H E Torres-Urbe, H Karimi
- 1854974** *Leveraging Emergent Constraints to Reduce Uncertainty in Future Compound Drought and Heatwave Events Across Mainland China:* **Q Zhang**, M Wu, D She, J Xia
- 1873116** *Machine Learning-Based Reconstructions of Historical Daily and Monthly Runoff: A Case Study of the Laurentian Great Lakes Basin:* **R S Gupta**, S Wi, S Steinschneider
- 1972879** *Modeling Streamflow in Fire-Impacted Watersheds across the CONUS using LSTMs:* **C Corona, PhD**, C Moon, T S Hogue
- 1849157** *Predicting runoff across 4641 small catchments using the improved HBV-PML model constrained with remote sensing evapotranspiration:* **Y Zhang**, H Wei Sr, Z Xu, Q Huang
-
- 250130**
Advancing Hydrologic Processes to Improve Flood Prediction
Conveners: **Amar Tiwari**, Michigan State University; **Nanditha J S**, University of Iowa; **Anukesh Krishnankutty Ambika**, Oak Ridge National Laboratory; **Saran Aadhar**, Indian Institute of Technology Jodhpur; **Alka Tiwari**, University of Texas at Austin
-
- 1970928** *A Copula-Based Statistical Framework for Compound Pluvial–Fluvial Flood Risk Assessment:* **A Singh, PhD**, S Shukla, P J Sharma
- 1956993** *Advancing Continental-Scale Hydrology Model Calibration Using Large-Sample Emulators across a Range of Model Complexity:* **A W Wood**, G Tang, M Askarzadehfarahani, N Mizukami, S C Swenson, C Mueller, C Frans, M McGuire, B Thames
- 2002791** *Analyzing the June 2024 Flood Event in Northwest Iowa: Challenges and Opportunities for Improved Warning Lead Times:* **H J Vergara, PhD**, M Abdelkader, V Robledo, S Henao Gomez, F Quintero
- 1877098** *Refining the Assessment of the “Dry Gets Drier, Wet Gets Wetter” Paradigm Using a Budyko-Based Approach with Global Hydrological Simulation Data:* **K Yamamoto**, K Yoshimura, M Kachi
- 1876484** *Spectral variance and phase transformation of hydroclimate predictors enhances seasonal flood forecasting across European catchments:* **Z Jiang**, S Thapa, A Sharma
- 1966687** *The First Step in Nationwide Flood Risk Modeling with Stochastic Storm Transposition: A National Transposition Domain Dataset:* **B FitzGerald**, D B Wright, L Yan, A Sebastian, M Webber, D Rosa, G S Karlovits
- 1850678** *Time-Varying Streamflow and Nonlinear Dynamics Dataset for the United States:* **K Raczynski**, J H Cartwright, K Grala
- 1928876** *Understanding the Impact of Large-Scale Climate Patterns on Interannual Summer Streamflow Variability in the Southeastern United States:* **S Gasca**, E Zorzetto, T Little
- 1854599** *Using Causative Classification of Streamflow Events to Diagnose Limitations of Regional Hydrological Models:* **L Tarasova**, Z Wang
- 1936985** *Variation in water supply prediction among mountain watersheds of the western US and corresponding differences in moisture pathways:* **J Barroll**, B Livneh, A C Winters
- 1878244** *What Controls Global Runoff Sensitivity?:* **P Xue**, D Spracklen, J Holden
- 1974992** *Assessing the Impact of Hydro-Enforced Digital Elevation Models on Flood Inundation Mapping in Alabama Watersheds:* **A Davies**, L Davis, J Song
- 1909266** *Drivers of Flash Flood-Producing Extreme Precipitation Events:* **N Dilip K**, V Mishra
- 1958645** *Drivers of heterogeneous rainfall-runoff responses and flood generation across the Hawaiian Islands:* **Y Tsang**, Y F Huang
- 1871338** *Evaluating the effects of climate change and cascade dams on flood frequency in the Mekong River basin using annual-maximum-series and peak-over-threshold methods:* **B Q Nguyen**, S Kantosh, T N D Tran, A D Tiwari, M Farag Ahmed, B V Doan, V Lakshmi
- 1868370** *Foreseeing Rivers Prone to Extreme Floods from Everyday Hydrologic Dynamics:* **S Basso**, H J Wang, C Haugen, R Merz, L Tarasova
- 1861293** *High-Resolution Flood Assessment and Forecasting in the Great Lakes Basin using Hydrological-Hydrodynamic Models and Socioeconomic Indicators:* **A D Tiwari**, Y Pokhrel, A Fujisaki-Manome, Y Hong, L M Fry, A Rafieeiniasab

- 1917394** *How Storm Types Shape Rainfall: A Watershed-Scale Analysis of Dam Overtopping Events in the Eastern U.S.:* **H I Orok**, D A Hence, C A Bieri
- 1978748** *Hydroclimatic Signatures and Process Attribution in Large Floods of the Brahmaputra River Basin:* **G Vangala**, V Mishra
- 1988927** *Quantifying the Effects of Climate Change on Hydrological Extremes Using Coupled High-Resolution WRF-WRF-Hydro Simulations in South Korea:* **Y Lee**, B Kim, J Choi, Y Hiraga, J A Hokson, S J Noh
- 1912546** *Sedimentation Threat to Flood Control Capacity in Indian Reservoirs: Insights From Remote Sensing and Empirical Analysis:* **D Mani**, V Mishra
- 1866893** *Simulating Flood Dynamics with Agricultural and Grey Infrastructure in Japanese Watersheds:* **J E Boulange**, H Minakawa, S Aihara, T Yoshida

253725

Advancing Hydrological and Earth System Insights from GRACE and GRACE-FO Missions

Conveners: **Karem Abdelmohsen**, Western Michigan University; **John Reager**, Jet Propulsion Laboratory; **Bridget Scanlon**, University of Texas at Austin

- 1924571** *Sustainable utilization of the Rabat Volcanic Field Aquifer, Saudi Arabia: Inferences from field, GRACE, and Precipitation data.:* **R Mansouri**, M Sultan, H Elhaddad, H Saleh
- 1964994** *A Computational Workflow for Enhancing GRACE and GRACE-FO Data in Groundwater Storage Estimation and Uncovering the Forcing Role of Subsurface Permeability in Groundwater Level Variations:* **A Karunakalage**, R Sharma, M Sharma, M T Daqiq
- 1849772** *Analysis of changes in terrestrial water storage and water budget in the Hai River basin over the past twenty years:* **C Zhang**, H Shen Sr, Y Pan
- 1902393** *Assessing Groundwater Storage Change in the Great Salt Lake Basin Using GRACE Data with Leakage Correction and In-Situ Well Validation:* **H Teklu**, N Jones, G P Williams, J Nelson
- 1858604** *Assessing Hydrological Impacts of Land Use/Land Cover Change in the La Plata River Basin Using GRACE and GLDAS:* **M L Jover**, A Getirana, S Crisanti, J B Eylander, V Lakshmi
- 1942807** *Estimating Spatially Distributed Changes in Groundwater Storage in the Mahanadi Basin using GRACE Mission:* **S Yadav**, B R Nikam, P K Gupta
- 1960994** *Evaluating the Sensitivity of GRACE/GRACE-FO in Detecting Potential Saline Water Intrusion Zones:* **M N Jahan**, L D Yarbrough, Z Ghaffari, H Yasarer, T Oommen, R Counts

- 1940227** *The Effectiveness of Dams in Flood Mitigation Under Climate Change in India:* **U Vegad**, V Mishra
- 1878078** *Towards a global ML-based framework for uncovering flood drivers and enhancing flood prediction in data-limited environments:* **L J Slater**, B Zhang, Y Liu, M Wortmann, S Moulds
- 1940278** *Unified flood modeling with generative physical distillation neural network under data scarcity:* **X Cao**, Y Yao, H Qin
- 1887858** *Using Rainfall-runoff Simulation Errors to Infer Bedrock Influence on Flood Response in Japanese Mountainous Catchments:* **S Fugami**, Y Ichikawa
- 1868078** *Utility of Flood Typing to Enhance Flood Frequency Analysis in the United States:* **U Bandara**, G Mascaro
- 1872230** *Examining the impact of COVID-19 on groundwater resources in South-Indian river basins by integrating machine learning techniques with GRACE satellite datasets:* **T Prashanth**, S Ganguly Dr, B N R Komali Mr
- 1872525** *From Space to Sub-Basin: Machine Learning Downscaling of GRACE-TWS for HRU-Level Groundwater Assessment in the Ganga Basin:* **R Kumar**, S Gaur, A Ohri, P Soni
- 1927679** *Global high-resolution terrestrial water storage anomalies from robust and generalizable machine learning:* **X Li**, Y Sun, L J Slater
- 1907484** *High-Resolution Estimation of Groundwater Storage Changes in the Korean Peninsula Using Statistical Downscaling of GRACE:* **S Lee**, H C Jung, H Jeong, A Getirana, H Lee
- 1922651** *Hydrogeological Assessment of Groundwater Storage and Recharge Dynamics in Gopalganj District, Bangladesh: Insights from Satellite and Subsurface Modeling:* **M M Billah**, R Islam
- 1900414** *Improving Local Groundwater Monitoring with High-Resolution Downscaling of GRACE Data in Phoenix, Arizona Using Machine Learning:* **M Rayhan**, K Abdelmohsen, H Chandanpurkar, J S Famiglietti
- 1982897** *Integrated Analysis of Major Aquifer Groundwater Changes Based on GRACE and Hydrological Modeling:* **D Feng**, K Tanaka, T Khujanazarov, K Yoroazu, Y Touge
- 1865173** *Integrated GRACE and Model-Based Analysis of Hydrologic Systems in Present and Future Climates:* **M Sultan**, H Elhaddad, H Saleh, H Karimi, D Hegazy, R Mansouri, K Abdelmohsen, H Save, M K Emil
- 1926275** *Integrating GRACE-Informed Root-Zone Storage Capacity into Noah-MP to Enhance Drought and Ecophysiological Simulations:* **M McKinney**, B Li, Q Niu, L Li, PhD, S V Kumar, A M Smith, M Zhao

- 1914831** *Inter-basin Signal Leakages in Gravimetry-derived Water Storage Variations: Insights from the Mu Us Region:* **J Gou**, Z Zhang, Y Hu, Y Xiong, J Qiu, L Crocetti, E Boergens, C Gong, W Feng, N Sneeuw, B Soja
- 1879412** *Interpretable high-resolution mapping of terrestrial water storage dynamics on the Qinghai–Tibet Plateau based on deep learning:* **J Chen**, S Wu, L Wang, C Chen, J Sun
- 1953279** *Machine Learning Based Dynamic Integration of Grace-Based Water Storage into Global Hydrological Models:* **F T Wolkeba**, M M Mekonnen, H Moradkhani, M Kumar
- 1905057** *Mass Change Index for Characterizing Hydrological Extremes Every Few Days from Satellite Gravity Measurements:* **S C Han**, M Tang, L Yuan, X Yang, I Y Yeo, M Rodell, B Li, E Lee, Z Jiang
- 1897461** *ML-driven geospatial downscaling of GRACE for high-resolution groundwater storage estimations in Shelby County, USA:* **F U Haq**, F Jazaei, A Arshad, M F Aslam

251453

Advancing Integrated Modeling of the Water-Energy-Food-Environment (WEFE) Nexus under a Changing Climate (joint with ED, EP, GC, SY)

Conveners: Mohsin Hafeez, International Water Management Institute; Bassel Daher, Texas A&M University College Station; Afreen Siddiqi, Massachusetts Institute of Technology, and Harvard Kennedy School

- 1935704** *Foresight Analysis of Climate Change Impact on Water Resources: Implications for The Hydropower and Agriculture Sectors in the Karnali River Basin of the Himalayan Region:* **S Nepal**, S Pradhananga, S Kamal, M Hafeez
- 1958819** *From Models to Impact: Leveraging Quality Data for WEF Nexus Solutions – Lessons from Central Asia:* **B Holmatov**, Z Gafurov, S Kenjabaev
- 1967226** *Harnessing the WEFE Nexus: Innovative Digital Solutions for South Asia's Water Crisis:* **M Hafeez**, A Naseer DR, M A Tahir, I Akram, M J Cheema, S Siddiqui, S Davies, H Bodla, M Ashraf, B Holmatov, M McCartney
- 1939035** *Integrated Assessment of Evaporation Reduction and Energy Generation from Floating Photovoltaics in Lake Mead:* **A Subedi**, A S Akanda, L Thiem

- 1996141** *Monitoring long term Groundwater Storage Change from Gap-Filled GRACE/GRACE-FO terrestrial water Storage anomaly in Major River Basins of Peninsular India:* **S Choubey**, S Chander, R Kumari
- 1865146** *Satellite and AI-Based Estimation of Groundwater Levels in Desert Regions of the Southwestern U.S.:* **M Jang**, D M Saftner, M M Arienzo, A Lutz, I Kim
- 1986174** *Seasonal cycles in terrestrial water storage observed by GRACE and GRACE-FO:* **M M ONeill**, M Rodell, B D Loomis
- 1977987** *The Role of Seasonal Wind Regimes in Modulating Precipitation and Aquifer Recharge in the Red Sea Hills, Saudi Arabia:* **S AlQamshouai**, K Abdelmohsen, F Alshehri, J S Famiglietti
- 1952286** *U.S. Geological Survey national groundwater assessment using groundwater water levels and GRACE:* **B Linhoff**, M L Cherry, Z Johnson, G Gorski, J Marshall
- 1857181** *When 23 Years of GRACE Observations Outweigh 25,000 Years of Simulated Climate:* **A Rateb**, B R Scanlon, A Y Sun
- 1979956** *When rare rains matter: How aquifers in arid regions respond to extreme precipitation events:* **H Saleh**, M Sultan
- 1944521** *Integrated Hydrologic Modelling for Sustainable Resources Management within Water-Energy-Food Framework:* **A K Sikka**, D R Sena, M F Alam, A Behera, S Chaudhary, R Sharma, N Chandu, M Hafeez, M McCartney
- 1908928** *Modeling Interactions Across the Water-Energy-Food Nexus in Reservoir-Driven Systems:* **A N Sharma**, R Singh, S Malekpour, C Allen
- 1948656** *Regional crop modeling using DSSAT-Pythia framework for Soybean Yield Prediction in Bundelkhand, India:* **S Choubey**, D Patnaik, K Kothari, A Pandey, A K Gupta
- 1972784** *Severity Based Assessment of Water-Food-Energy Nexus Trade-offs Under Drought Using SPI in Semi-Arid Northern Cyprus:* **A H Payab**, U Turker
- 1940599** *Technical and socioeconomic impacts of solar powered irrigation system in a rural area in Niger: case of Kara village.:* **I Konate**
- 1916895** *Towards Climate Resilient Farming: A WEFE Nexus Based Assessment in Souss-Massa Plain, Morocco.:* **A Chaaou**, H Ait-Ichou, M Hssaisoune, M El Hafyani, S Taia, A Chakir, Y Ait Brahim, L Bouchaou
- 1943861** *Update of the Design of a Multifunction Water Supply System for Climate Change Adaptation in the Village of Dar Es-Salam in Niger.:* **M Gado Karimou**, I Boubacar
- 1991201** *Water-Energy-Food Nexus in Punjab: Interlinkages between Green Revolution, Climate Change, and Anthropogenic Activities:* **A K Paswan**

249966

Advancing Measurements and Modeling of Invisible Components of Water Budget:

Challenges, Opportunities, and Applications

(joint with B, GC)

Conveners: Nishan Bhattarai, University of Oklahoma;

Pradeep Wagle, USDA-ARS; Pushpendra Raghav,

University of Alabama; Afshin Shayeghi, University of

Oklahoma

1908985 *An analytical thermodynamic framework to explain daily variations and decadal trends in the diurnal air temperature range:* **S A Ghausi**, K A McColl, E Zehe, A Kleidon

1970007 *Assessing the Impacts of Irrigation on Land-Atmosphere Interactions: Progress and Challenges:* **P L Parker**, J A Santanello Jr

1872946 *Can Satellite-Derived ET Data Substitute Reported Irrigation Records in Groundwater Modeling?:* **M Turjo**, J Panthi

1955347 *Consumptive use and water budget of a commercial sod (grass) field in a rapidly urbanizing high desert landscape: in-situ measurements to scaled-up models:* **M Kukal**, K Kaiser, C Robison, N McKellip

1876241 *Coupling Eddy Covariance and CubeSat Observations with Machine Learning Models to Improve Satellite-Based Evapotranspiration Estimates:* **M U Akbar**, A Mirchi, P Wagle, A Mansaray, M Farooq, A Iqbal

1933366 *Developing a Historical Daily Reservoir Evaporation Dataset and Assessing Long-term Trends for Water Management in Texas:* **Y Zhu**, A Yadav, D Shah, B Zhao, N Fernando, J Zhu, H Gao

1999281 *Dynamic, High-Resolution Retrievals of Transpiration, Evaporation, and Carbon Exchange:* **N Bhattarai**, X Xiao

1954858 *Estimation of Water Losses and Recharge in Agricultural Water Balance Modeling using in-situ Field-Installed Sensors:* **T Singh**, M Yost, B Barker, S B Jones, G Campbell, L D Rivera

1993756 *Evaluating Satellite-Based Evapotranspiration Estimates Using Eddy Covariance Observations Across the Indus Basin Irrigation System of Pakistan:* **U W Liaquat**, M Hafeez, F Ahmad

1980409 *Evapotranspiration Dynamics in Juniper-Encroached Rangelands: A Comparison of Estimated and Measured Values:* **R Shipley**, C G Ochoa, M Iglesias-Thome, D Gómez, D Godwin

1958101 *Evapotranspiration Partitioning in Himalayan Forested Catchments Using Remote Sensing based Approaches:* **P Verma**, A Nanda

1958538 *From Sensors to Simulations: Understanding the Field Water Balance in Irrigated Agriculture Using In-Situ Data and HYDRUS 1D Modeling:* **V Panhwar**, T Kelleners, G B Paige, J Cook

1945736 *HyGBR-Baseflow: A Hybrid Machine Learning-Based Approach for Baseflow Separation Across Major Indian River Basins (1961–2021):* **R Singh**, H Solanki, V Mishra

1904716 *Improving Drought-Time ET Estimates Using Plant Hydraulics Coupled with MODFLOW Groundwater Modeling:* **L E Hoeltgebaum**, Y Liu, H W Reeves, L Li, PhD, M Zhao

1915806 *Monitoring Field-Scale Crop Water Use and Productivity in Oklahoma Using an Optimized Evapotranspiration (ET) Modeling Framework:* **R Shrestha**, N Bhattarai, P Wagle, S Sharma, R A McPherson

1895193 *Quantifying Open-Water Evaporation from the Amazon River through the Integration of Remote Sensing and Modeling:* **A Yadav**, H Gao

1991186 *Quantifying temporal trends in net inflow: A key step in assessing the future of heavily pumped aquifers:* **G Liu**, G Bohling, B B Wilson, D O Whittemore, J J Butler Jr

1961131 *Reconstructing Monthly Groundwater Depth Dataset in India (2002–2021) using Cluster-Based Machine Learning and Temporal Disaggregation Approach:* **T Samaiya**, H Singh, M N Naik, R Singh, H Solanki, V Mishra

1914329 *Soil Moisture as a Superior Calibration Target for Groundwater Recharge Estimation: Evidence from the Chongwe River Catchment, Zambia:* **M Taie Semiromi**, B Karthikeyan, C Merz

1880548 *What Drives Day-to-Day Changes in Evapotranspiration? Partitioning the relative importance of radiative, atmospheric, and surface conditions:* **B Wang**, K A McColl, D Gianotti, D Entekhabi

254740

Advancing Subsurface Energy Systems through Underground Storage for Enhanced Energy Resilience and Geothermal Resources (joint with DI, EP, GC)

Conveners: **Nicolas Huerta**, National Energy Technology Laboratory; **Shaowen Mao**, Los Alamos National Laboratory; **Kewei Chen**, Oak Ridge National Laboratory; **Mohamed Mehana**, Los Alamos National Laboratory; **Jeff Pepin**, U.S. Geological Survey; **Shadi Salahshoor**, GTI Energy; **Hongbin Zhan**, Texas A&M Univ; **Renjie Zhou**, Texas A&M University College Station

1986907 *Beyond Bench-Top: Core-Calibrated, Log-Based Thermal Conductivity Mapping of the Wilcox Group for Geothermal Assessment:* **S Bhattacharya**, I Olariu

1975129 *Assessing Aquifer Thermal Energy Storage and Production in the Louisiana Red River Aquifer using Numerical Simulations:* **R Budiman**, I Gupta, C Falcon

250134

Advancing the Use of Hydroclimatic Forecasts for Water Resources Decision-Making (joint with SY)

Conveners: **Majid Shafiee-Jood**, University of Virginia; **Paul Block**, University of Wisconsin Madison; **Hamid Moradkhani**, Portland State University; **David Watkins**, Michigan Technological University

1917704 *Using Gaussian Inference to Predict Colorado River Streamflow on Time Scales of Decades:* **K Perera**, G Rhee

1959789 *A Framework for Multi-Time Scale Forecast Integration: Compensating for Uncertainty and Enhancing Forecast Utility:* **M Shafiee-Jood**

1879680 *A Hierarchical Bayesian Approach to Evaluate Operational Forecast Skill: Characterizing Improvement in Hydrologic Ensemble Forecast Service (HEFS) Skill Over the Last Decade:* **M C Allen**, S Steinschneider

1953543 *A Multi-Indicator Approach to Seasonal Streamflow Forecasting in Snow-Dominated Watersheds of the Intermountain West:* **R Morovati**, D G Tarboton

2000109 *Advanced precipitation post-processing integrating enhanced representation of extreme events for more reliable forecast-informed reservoir operations:* **G H Park**, Y Zhang, N Attar, C Turnipseed

1889007 *Analysis of the status and level of LID facility application in Korea's green building certification system (G-SEED):* **D Jang**, S Y Moon, J Choi

1904845 *Comparative study of geothermal fluids of Northern Pakistan and Southeast China to exploit the hydrothermal resources of N-Pakistan. An integrated method constrained by the hydrochemistry and geothermal fluid modelling:* **W Akram**, L Chenglin, A Iqbal

1921499 *Environmental Impact Assessment of Aquifer Thermal Energy Storage Using Coupled Thermo-Hydro-Mechanical Modeling:* **J Zhang**, H Zhan

1998203 *Feasibility of Geothermal Cooling in Hot-Arid Regions Using Thermally Optimized Subsurface Materials:* **N Mahabadi**, M Rambothu, E Kavazanjian

1929185 *Feasibility of Underground Hydrogen Storage in a Louisiana Saline Formation:* **M Abdelaal**, I Gupta

1872581 *Modeling of Stray Hydrogen Migration into the Shallow Subsurface from Underground Hydrogen Storage:* **R Samala**, G Lackey

1885329 *Towards Sustainable Ultra-Low Power Generation From Naturally Occurring Self-Potential:* **A Babi**, J Vinogradov, S Lineykin

1976635 *Underground Gas Storage in Natural Gas Infrastructure: Gulf Coast Insights:* **D Chandler**

1925719 *Benchmarking the Predictive Skill of Streamflow at Subseasonal Timescales across the Contiguous United States with a Deep Learning-based Ensemble Streamflow Prediction Approach:* **L Zhang**, Y Wang, T Yang

1867795 *Beyond Information Production: Understanding the Complex Drivers of Climate Information Use in Water Management:* **C Kirchhoff**

2004124 *Determining Reservoir Tolerance to Forecast Errors in the Southwest U.S. in Support of the Forecast-Informed Reservoir Operations (FIRO) Screening Process:* **E J Shearer**, R R Weihs, T Roberts, E Yeates, J Forbis, C Albano, C Talbot, M Ralph

1949376 *Developing a Community Testbed for Seasonal Water Supply Forecasting in the Western U.S.:* **J Sturtevant**, A Wood, C Frans, I M Ferguson

1954948 *Developing the Hydropower Drought Severity Index: Nonparametric Seasonal Assessment for Water-Energy Resource Adequacy:* **G Konapala**, N Voisin, C Bracken, Y Son, V Tidwell

1900569 *Development of machine-learning models characterizing and predicting dengue cases in Colombia to guide anticipatory actions:* **Y Xu**, M Beal, P Block

1936119 *Enhancing Interannual Water Supply Forecasts of Colorado River Basin Using National Multi-Model Ensembles and Machine Learning Techniques:* **C Jerez**, B Rajagopalan, E LaJoie, M Rosencrans, S A Baker, S Shanahan, W P Miller, E A Zagana

- 1857258** *Enhancing Reservoir Operation and Water Availability by Advancing Inflow Forecasting in the Nueces River Basin, South Texas:* **M G Tedla**, H Zhang
- 1907693** *Forcing the CTRIP River Routing Model with a Seamless Forecast Ensemble to Simulate Hydrological Drought Indicators for Decision-Making in France:* **S Munier**, A Jeantet
- 1861262** *Forecast Informed Reservoir Operations (FIRO) for the future: Exploring climate extremes and evolving forecast skill with large-sample synthetic forecasting:* **Z Brodeur**, M Erfani, K Semmendinger Raney, C Delaney, J D Herman, S Steinschneider
- 1880131** *From reservoir inflow prediction to increasing hydropower generation: a Machine Learning-based FIRO strategy in Southern Africa:* **M Giuliani**, W Hao, W Arnold, A Ficchi, A Castelletti
- 1903324** *Hydroclimate Projection Methods at Multiple Time Scales for Sustainable Water Resources Management on Colorado River Basin:* **B Rajagopalan**, C Jerez, D Woodson
- 1942159** *Improving reservoir operation through SEAS5 seasonal forecasts and stochastic dynamic programming:* **A Cancelliere**, F Dell'Aira
- 1952094** *Leveraging season-ahead forecasts triggered by the Aleutian Low pressure system to advance hydrologic disaster preparedness:* **K Southard**, P Block, J Bazo
- 2000538** *Prioritizing Sites for Forecast Informed Reservoir Operations (FIRO) Within the US Army Corps of Engineers: Results of the FIRO Screening Process to Date:* **C A Talbot**, E Yeates, J Forbis, E J Shearer, C Barber, N Rodman, A O'Donnell
- 1998302** *Quantifying the Local and Economic Value of Hydrometeorological Forecasts in Support of Forecast-Informed Reservoir Operations (FIRO):* **D Pinto**, T Corringham, F M Ralph, S Ogle, C Talbot, E Yeates, D R Nelson, M Shepherd
- 1880650** *Reservoir Operation for Drought Mitigation Using Sub-Seasonal to Seasonal Forecasts:* **A Vora**, X Li, X Cai
- 1924285** *Reservoir Storage Forecasting in the Southern United States Using Machine Learning:* **D Shah**, S Zhang, S Shukla, N Fernando, J Zhu, X Ma, D P Lettenmaier, H Gao
- 1960043** *Revisiting the Runoff Puzzle: Integrating Seasonal Forecasts and Hydrologic Data to Explore Improvements in Colorado River Water Supply Forecasts:* **W R Currier**, D L Jackson, P Kormos, E LaJoie, M Rosencrans, A G Goodbody, M Abel
- 1969187** *Seasonal Streamflow Forecasting in Colorado's Yampa River Basin Using WRF-Hydro with LSTM Enhancement:* **Q Cao**, P Weil, A Rossi, E Lowell, M Xiao, Y Yang, L Su, M Pan
- 1926949** *Winter climate trends and predictability to support utility and emergency management planning:* **P J Block**, F Boeing
- 1862762** *Controls From Above and Below: Snow, Soil, and Steepness Drive Diverging Trends of Subsurface Water and Streamflow Dynamics:* **D Kerins**, A Knapp, F Liu, V Smykalov, M Berzonsky, A Vierbicher, K Sadayappan, B Stewart, E M Andrews, P L Sullivan, H R Barnard, J Seibert, L E McPhillips, K Singha, L Li
- 1964504** *Dynamic Water Storage Influences Soil CO₂ Production and Its Partitioning in Complex Mountain Terrain:* **A Bozza**, J F Knowles, S J Matiassek, P L Sullivan
- 1976999** *Quantifying Spatial and Temporal Variability of Mountain Aquifer Recharge Across the Western US:* **E Wineteer**, H Ajami
- 1982987** *Quantifying Water Budgets in Northern California's Cascades to Assess Climate Vulnerability of Major Springs:* **V Muenker**, E Grande, A Visser, J E Moran, L Tolley-Mann, D O'Ryan, J Harm, T Blaschak, D Goodman, J Lerback, R Nearhood, R Lusardi, N Corline, A Lukk
- 1943404** *Regional to hillslope-scale patterns of critical zone structure, topography, above ground biomass, and drought vulnerability in the Sierra Nevada, California:* **J A Whiting**, S T Allen, S Sayyadi, S Basant, C Richardson, G Boisrame, D Dralle, C B Kratt, B Flinchum, A Harpold

248110

Advancing understanding of mountainous critical zones through observations, numerical experiments, and large-scale synthesis (joint with B)

Conveners: **Ravindra Dwivedi**, University of Arizona; **Hoori Ajami**, University of California, Riverside; **Dana Lapides**, USDA-ARS

- 1896433** *Constraining Deep Mountain Block Recharge in Integrated Hydrologic Models: Revisiting Depth-Decay Assumptions of Fractured Bedrock Hydraulic Properties:* **J S Acero Triana**, H Ajami, S Armengol Vall
- 1919411** *A Field-based, Hillslope-scale Numerical Modeling Approach to Identify Controls of Water Storage in Headwater Stream Catchments:* **S D'Arcy**, J Hyman, A Navarre-Sitchler
- 1983794** *Characterizing Seasonality of Mountain Block Recharge in the Missoula Valley, Montana:* **M Bollag-Miller**, P P Gardner

1978133 *Understanding Hydrologic Pathways in High Elevation Mountain Systems: A Study from the Central Himalayas*: **S Ramesh**, A J West, C M Chen, A Atwood, D Chamlagain

248236

Advancing Water Quality Monitoring and Management through Remote Sensing and Artificial Intelligence

Conveners: **Nasrin Alamdari**, Colorado School of Mines; **Elmira Hassanzadeh**, Polytechnique Montreal; **Marzieh Azarderakhsh**, The City University of New York; **Dongmei Feng**, Northeastern University

1889611 *Advancing Virtual Water Analytics through Remote Sensing and Artificial Intelligence for Sustainable Agricultural Water Management*: **S Khan, PhD**, M Aleem, H He, A Javaid, M Aleem Dr

1910236 *AI-Enabled Remote Sensing for Continuous Monitoring of Groundwater Quality Dynamics*: **I Khan**, N Saddique, S Maqbool, A Raza, S M Ahmad Fridi

1980212 *Beyond Proxies: A Data-Driven Framework for Mapping Nitrogen and Phosphorus in Surface Waters*: **J Thomas**, T Oommen, J Taylor, M T Moore, G R Davidson, L D Yarbrough

1861460 *Cloud-Based Water Quality Mapping with Landsat-8/9 and Sentinel-2 on Google Earth Engine*: **J Men**, H Liu, E Miliutina, L Wang, Y Lu, H Su, D Tian, Y Pu

1874330 *Deep Learning Based Prediction of Chlorophyll-a Using Environmental Variables and GRU-D in a Freshwater Ecosystem*: **E Wasehun**, L H Beni

1882129 *Evaluating the Generalizability and Transferability of Water Quality Remote Sensing Models Calibrated with Drone-Based Hyperspectral Imagery and Dense in situ Measurements from an Autonomous Surface Vehicle*: **A Premasagar**, H Liu, E Miliutina, J Men, Y Lu, A Palaparthi, T Mandal, D Tian, Y Pu

1913451 *From Space to Shore: Tracking Microbial Contamination Using PACE Hyperspectral Imagery*: **A S Jutla, PhD**, S Kumar, B Magers, K Deliz Quinones, R R Colwell

1895608 *Integrated Assessment of Water Quality Dynamics in the Western Mississippi Sound Using Field Observations, Remote Sensing, and Coupled Hydrodynamic-Watershed Modeling*: **H Ahmad**, P Dash

2000389 *Integrating GLORIA Hyperspectral Data with Mixture Density Networks for Chlorophyll-a Prediction in Chesapeake Bay*: **N P Kamaraj**, S V Balasubramanian, S Werth, M Shirzaei

1972475 *When is a Pore a Bore and When is it More? Reconsidering Water Storage in the Montane Critical Zone*: **A A Harpold**, S Sayyadi, J A Whiting, B Flinchum, C B Kratt, S Basant, C Richardson

1991989 *Integrating Sentinel-1 and Sentinel-2 Data for TDS Monitoring in Arid Regions: A Case Study of the Dez River*: **M Atakhorami**, M Shourian, A Sharifi

1965161 *Long-Term Modeling of Physiochemical and Nutrient Parameters in a Regulated Coastal Basin Using a Spatially-Distributed Long Short-Term Memory Model*: **X Sun**, E Ahmadisharaf, M Ye

1948568 *Minimizing the impact of atmospheric correction processes on satellite-derived estimates of Chlorophyll-a using domain adaptation*: **A Saranathan**, R O'Shea, M Werther, A Ashapure, N Pahlevan

1923246 *Modeling Harmful Algal Blooms in Surface Water Bodies Using Sentinel-2 Images and Machine Learning*: **S Mahato**, D Feng

1997293 *Multi Modal Learning for Forecasting Maximum Chlorophyll Index and Peak Height in Lake Champlain*: **M Adil**, P J Clemins, A W Schroth, D M Rizzo, P D Oikonomou, P D Isles, N Beckage, S Wshah, A Zia

2004662 *Physics-informed Gaussian Process models for spatiotemporal groundwater contaminant characterization*: **R Zheng**, H M Wainwright

1946595 *Reducing bias of ensemble tree-based regression algorithms in environmental modeling*: **S H Rabby**, E Ahmadisharaf, M Ye

1918014 *Remote sensing applications for riverine water quality monitoring and management: Opportunities and lessons learned*: **J Gardner**

1882807 *Remote Sensing-Based Mapping and Monitoring Salinity and Dissolved Oxygen in Mobile Bay and Coastal Alabama Using Deep Learning and Sentinel-3 OLCI Data*: **A Palaparthi**, H Liu, D Tian, Y Lu, S Cohen, N Purushothaman, L Wang

1875398 *Self-Supervised Deep Neural Networks for Predicting Cyanobacterial Bloom Events Using NASA's PACE Satellite*: **M Nasr Azadani**, S U Imtiaz, N Alamdari

1937643 *Space-Based Tools for California's Water Quality Challenges: Linking Satellites to Solutions*: **E L Hestir**, C M Lee, A Lopez, D Avouris, B Lopez Barreto, L A Berberian, S Khanna, F Kasaj, M Beutel

1854428 *Sustainable Wastewater Microbiome Management through Deep Learning-Driven Phenotypic Monitoring and Diagnostics*: **Z Wang**, Y Yan, I Han, J Lee, G Li, P He, A Onnis-Hayden, N Tooker, D Wang, Z Meng, M Miller, K McCullough, S Klaus, F Sabba, J Jimenez, C Bott, C deBarbadillo, A Giometto, K Weinberger, A Z Gu

1964655 *Synthesizing Cross-System Algal Bloom Research and Long-Term Trends in River Algal Concentrations Using Satellites*: **G Zuccolotto**, S Sillen, E M Elliott, J Gardner

248844

Advancing Water Science Through Artificial Intelligence: Lessons, Strategies, and New Frontiers

Conveners: **Xiaofeng Liu**, University of Michigan Ann Arbor; **William Currie**, University of Michigan Ann Arbor; **Tiantian Yang**, University of Oklahoma Norman Campus; **Yi Hong**, Cooperative Institute for Great Lakes Research (CIGLR) University of Michigan; **Alyssa Schubert**, University of Michigan Ann Arbor

1933681 *A Deep State Space Model for Daily Reservoir Release Simulation Over the CONUS*: **J Zhang**, M Basirifard, J Cao, T Yang

2003516 *Accelerating Continental-Scale Differentiable Modeling with Sensitivity-Constrained AI Surrogates*: **L Lonzarich**, A Behroozi, D Aboelyazeed, D Kifer, C Shen

1951766 *Advancing Streamflow Prediction in Ungauged Basins of the Great Lakes Region Using LSTM*: **M Parent**, D Jones, L M Fry, Y Hong

1937462 *Adversarial Robustness and Internal Linearity of LSTM Rainfall-Runoff Models*: **Y Yang**, J Janssen, M Bayati, H Gupta, T F M Chui

1854441 *Arctic erosion accelerates non-uniformly: retrogressive thaw slump erosion and sediment transport analyzed with traditional and machine learning techniques*: **E Dethier**, C M Erikson

1861844 *Assessment of Urban River Water Quality in Dhaka, Bangladesh Using Geographic Information System (GIS) and Machine Learning (ML)*: **M H Islam**, M Hasan, A U Husna, M S Sheikh, M T Hasan, J Hossain, T A Khan, G M Rahad

1939796 *Comparative Analysis of ML and DL Models for Reservoir Outflow Prediction: Hyperparameter Tuning and Feature Selection Across 441 CONUS Dams*: **M Basirifard**, J Zhang, J Cao, T Yang

1965222 *Evaluating Hybrid Models for Sediment Yield Prediction and Watershed Process Understanding*: **T Atilaw**, Y Song, S Temple, J Taaki, H Chen, X Liu, PhD

1992005 *Evaluating LSTM Model Adaptability to Input Perturbations*: **T Tasnim**, K Andreadis

1882078 *From Predictions to Patterns with AI: A Differentiable SPARROW Framework for Improved Water Quality Prediction and Attribution*: **Q Zhao**, B Peng, Z Ma, C Shen, M Pan, J Yang, M Jia, K Zhao, P Zhao, J Zhang, Z Lin, X Wu, Q Zhou, Y Song, K Guan

1968799 *Hydrologic Connectivity-Based Descriptors for Capturing Spatial Heterogeneity in Large-Sample Hydrologic Modeling*: **F Dell'Aira**, C I Meier

1859615 *Identifying trustworthiness challenges in deep learning models for continental-scale water quality prediction*: **X Liu, PhD**, X Xia, J Liu, K Fang, L Lu, S Oymak, W S Currie, T Liu

1852559 *Improved Water Quality Prediction Using a Foundation Model*: **X Liu, PhD**, X Xia, M Chakraborty, K Fang, W S Currie, S Oymak

1992193 *Knowledge-guided Machine Learning: Harnessing the Potential of AI for Accelerating Geosciences by Incorporating Scientific Knowledge*: **A Karpatne**

1977151 *Neural Networks Think like Geomorphologists*: **J jOmartin@coloradOedu**, G E Tucker

1865486 *River Stage Detection using Machine Learning and Image Segmentation for Flood Monitoring*: **D Loftis**, V Bhaskaran, S Katragadda, R R Lotspeich

1888403 *Text-Enhanced Hydrological Forecasting: Embedding Vectors for Improved Watershed Characterization*: **S Xu**, W Ouyang, Y Chai, H Ma

1904324 *The applications of general AI models in urban flood observation*: **S Zhou**, H Lyu, Z Wang, F Zhang

1944296 *The response of Coreius guichenoti early resources in the lower Jinsha River to the variation of environmental characteristics*: **R HAN**, H Yang, L Zeng

1855085 *Toward Scientific Foundation Models for Aquatic Ecosystems*: **A Neog**, M Sawhney, K S Mehrab, S Fatemi, M E Lofton, A Dutta, A Pradhan, B J McAfee, E Marchisin, R Ladwig, A Daw, C Carey, P C Hanson, A Karpatne

1873352 *Using Entity-Aware LSTM to Enhance Streamflow Predictions in Transboundary and Large Lake Basins*: **Y Park**, X Liu, PhD, Y Zhu, L M Fry, Y Hong

1960661 *What Helps to Detect What? Explainable AI That Illuminates Drivers in Multi-sensor Semantic Segmentation*: **S Ebrahimi**, D Sanyal

249828

Advancing Watershed Science Through Hybrid Machine Learning and Physical Modeling

(cosponsored by AMS: American Meteorological Society, EGU: European Geosciences Union, ESA: Ecological Society of America) (joint with B)

Conveners: **Dipankar Dwivedi**, Lawrence Berkeley National Laboratory; **Alison Appling**, USGS; **Olufemi Omitaomu**, Oak Ridge National Laboratory; **Hoshin Gupta**, University of Arizona; **Soumendra Bhanja**, Indian Institute of Technology Kharagpur

1875994 *A Hybrid Differentiable Land Surface Model for Improved Land-Atmosphere Flux Predictions:* **N Kalauni**

1973566 *A Hybrid LSTM-SNOW17 Framework for Enhanced Snow Water Equivalent Prediction:* **A R Lamichhane**, A Bennett

1988433 *A Hybrid Physics-Remote Sensing-Machine Learning Modeling Framework for Scalable Flood Mapping:* **M Shaheen**, M Alobaidi, O Seidou

1974521 *A Stream-Aligned Modeling and Visualization Framework to Evaluate Stream Perenniality Under Climatic and Ecological Disturbances:* **C Liu**, M E Newcomer, S Molins, C Varadharajan, D Dwivedi

1928322 *Accelerating Continental-Scale Hyper-Resolution River Routing with Physics-Informed Neural Operators:* **A Dehghani**, O G Şahin, M Wortmann, N Vergopalan

1865437 *Accelerating Noah-MP Calibration: A Physically-Informed Surrogate Model for Machine Learning Integration:* **M Farmani**, A Behrangi, H V Gupta, G Y Niu

1900245 *Addressing Runoff Data Scarcity in Ephemeral Streams through Transfer Learning Technique for Hydrological Modeling:* **A Kaghazchi**, A Mirchi, K Khodkar, J M Sadler, K Wagner, C Zou

1971672 *Advancing Dominant Hydrologic Process Identification in Watersheds Through Hydrologic Models and Sensitivity Analysis:* **J Shi**, H Liu, H K McMillan, R Araki, M P Clark

1990861 *Aligning LSTM with Hydrological Theory to Model Extreme Events:* **E Moges**, S Jankowfsky, A Kumar, K Otta, K Yilmaz, S Li, A Hilberts

1931095 *An Encoder-Decoder Framework for Context-Aware Environmental Modeling:* **V Kumar**, A Renganathan, Z P McEachran, R Ghosh, M Steinbach, J L Nieber, C Duffy

1967473 *Beyond the Surface: Improving Subsurface Lake Temperature Prediction via Simulation-Based Pre-training and Adaptive Ensembling:* **X Lan**, L Luo, Y Deng, P N Tan, Z Xu, N Jia, Z Jiang, Z Zheng

1922309 *Climate-Driven Snowpack Loss Threatens Ecological Water Supply as Revealed by Physics-Informed Deep Learning in a California Catchment:* **S Maharjan**, W Li, R Thomas, S Fazli, H M El-Askary

1852982 *Combining Machine Learning and Physically-based models to Identify Stream Intermittency in Mountainous Headwaters:* **C Varadharajan**, Y H Wang, C Liu, N Falco, D Dwivedi, R W H Carroll, D O'Ryan, C Beutler, A Shirley, M Sprenger, K H Williams

1932792 *Comparing Snow Water Equivalent Estimations from Long Short-Term Memory Networks and Physics-Based Models in the Western United States:* **M Burns**, R M Maxwell

1869542 *Deciphering Watershed Transport Process: A Differentiable Hybrid SAS Function Approach:* **P Jiang**, C J Harman, S Niroula, Z Li, X Chen

1851644 *Differentiable high-resolution hydrologic and water quality simulations transform global hydrologic research:* **C Shen**, H Ji, F Rahmani, T Bindas, Y Song, Y Wada

1911463 *Distributed Differentiable Routing on the CONUS Hydrofabric:* **T Bindas**, N J Frazier, L Lonzarich, Y Song, H Ji, J Liu, C Shen

1877500 *Downscaling 2D Shallow Flow Models Using Machine Learning:* **T Umino**, T Inoue

1926744 *Downscaling Surface Inundation Produced by Integrated Hydrologic Models Using a Random Forest Model:* **A Peebles**, E Leonarduzzi, L E Condon, R M Maxwell

1906503 *Enhanced framework for spatio-temporal bias correction of ECMWF rainfall forecasts using geographically weighted regression and deep learning networks:* **R S Mohanty**, C Chatterjee, B Sahoo

1943934 *Explainable AI for Regional Hydrological Modeling: Interpreting Hyperparameter-Optimized Deep Neural Networks in Flashy Catchments:* **F Hosseini, PhD**, C Prieto, C Álvarez Díaz

1875501 *From Data to Process: Learning Global Catchment Storage-Discharge Functions Through Interpretable Deep Models:* **M Bayati**, A Ameli

1993343 *GAN-PO: An Adversarial Surrogate-Based Parameter Calibration Framework for Distributed Land Surface Models:* **S Barbhuiya**, V Gupta

1972208 *Global assessment of seawater intrusion under uncertain climate scenarios using machine learning:* **S Jiang**, D Dwivedi

1859939 *Global calibration and locally-informed regionalization of hydrological model parameters using AI-based large-sample emulators:* **G Tang**, A Wood, C Shen, Y Song

- 1996167** *Harnessing Knowledge-Guided Machine Learning (KGML) for Thermal Modeling of Agricultural Water Environments: Applications to Paddy Fields and Agricultural Reservoirs:* **M Kimura**, W Xie, Y Matsuno
- 1901305** *High-Dimensional Calibration of Hydrologic Models Using Simulation-Based Inference (SBI):* **M J Sawma**, A Triplett, A Bennett, P Melchior, L E Condon, R M Maxwell
- 1850509** *High-Resolution Precipitation Estimation in Mountainous Regions Using Physics Constraints and Machine Learning:* **S Kurihara**, Q Siutkowski, P Cervantes, D Lyamzin, E Arriaga
- 1876890** *Hybrid Flood Forecasting Models Combining a Rainfall-runoff Simulation Model and Deep Learning Networks:* **K S Jun**, J G Lee
- 1982746** *Imputation, Uncertainty Quantification, and Anomaly Detection for Meteorological Data:* **C Anand**, T Roy, R Mahmood, W Sorensen
- 1895004** *Integrating Hybrid Machine Learning to Enhance Total Phosphorus Prediction in the North Shore Streams of Lake Superior:* **A Kumar**, K Zhang
- 1982631** *Interpretable and Transferable Machine Learning for Managed Aquifer Recharge Planning in Sandy Catchments:* **V Fernandes**, P De Louw, C Ritsema, R Bartholomeus
- 1923401** *Knowledge-Guided Graph Machine Learning Enables High-Resolution Nitrogen Transport Modeling in the Upper Mississippi River Basin:* **J Yang**, B Peng, Y Wang, X Jia, Z Ma, Q Zhao, L LIU, Y Song, M Jia, V Kumar, M Pan, J L Nieber, Z Jin, K Guan
- 1883072** *ML-Enabled Physically Interpretable Catchment-Scale Rainfall-Runoff Modeling: Toward Hydro-Mass-Conserving-Perceptron (Hydro-MCP) Approaches for the CONUS-Wide Large-Sample Investigation:* **Y H Wang**, Y Yang, F Ciulla, H V Gupta, C Varadharajan
- 1897789** *Modeling Spatial Distribution of Snow Water Equivalent using Transfer Learning across Mountainous Basins:* **L El Halabi**, U Mital, D Dwivedi
- 1958347** *Physics-Guided Deep Learning Integrated with 1D-2D Hydrodynamic Modeling for Urban Pluvial Flood Prediction:* **H Woo**, B Kim, H Choi, Integrated Master's and PhD Program, S J Noh
- 1871764** *Physics-Informed and Interpretable LSTM for Hydropower Reservoir Release Modeling Under Climate Variability:* **Z Zhang**, A Kawasaki, A Moiz
- 1929634** *Physics-Informed Inputs to Enhance LSTM-Based Streamflow Predictions in Snow-Affected Catchments:* **M M Fathi**, M Kumar, K A Salvi, S J Burian
- 1974888** *Scalable Surrogate Modeling of Coastal Groundwater and Salinity Dynamics under Sea-Level Rise:* **D Dwivedi**, S Jiang, Y Zhang, C Liu, D M Tartakovsky, B Abylkhani
- 1998298** *Testing the robustness of deep learning-based rainfall-runoff models using a climatologically derived perturbation experiment:* **A Tapia Araya**, L E Condon, A Bennett
- 1867264** *Toward a hybrid physics-AI framework enabling robust national-scale hydrological modeling for operational applications:* **N N T Huynh**, P Garambois, F Colleoni, B Renard, M Ettalbi, H Roux, P Javelle, J Demargne
- 1890880** *Towards a Better Understanding of Flow Duration Curves: Machine Learning and Feature Importance Analysis:* **J Yongchan**, M Kim
- 1909987** *Using Machine Learning to Diagnose and Bias-Correct NextGen Framework Limitations:* **S Naser Neisary**, J Cunningham, M S Alam, R C Johnson, J Halgren, S J Burian

247629

African Hydrology: Bridging Data, Models, and Innovation for Sustainable Solutions (joint with GC, NH)

Conveners: **Adeyemi Olusola**, York University; **Moctar Dembele**, University of Lausanne; **Christiana Olusegun**, Michigan State University; **Meron Teferi Taye**, Katholieke Universiteit Leuven

- 1946115** *Advancing Water Security in Africa through the IWMI Africa GeoPortal:* **A Owusu**, T Perera, L Maduskanka, M D Leh, K Mekonnen, K Akpoti, P Tinonetsana, A Seid, N M Velpuri
- 1926762** *Aquifer Insights at the Yaoundé Pilot Site:* **A Ribodetti**
- 1985195** *Assessing Ghana's Hydroclimatic Vulnerability: A Level II Climate Risk Informed Decision Analysis (CRIDA) Case Study:* **S Rana Magar**, M Mowafy, S Tan, K M J Verbist, P Ray, M Boateng
- 1944969** *Assessing Livestock Impacts on Water Budgets in Agricultural Catchments: Insights from Water Accounting Analysis in Eastern Uganda:* **M D Leh**, G Fernando, N M Velpuri, M T Taye, G Y Ebrahim, A Nicol
- 1875810** *Assessing Total Renewable Water Resources in the Nile Basin: Insights from an Integrated Basin-Wide Model:* **M Deribe**, B B Kidanewold, A M Melesse
- 1887222** *Characterizing West African Monsoon with Large-Scale Indices:* **A Olatunde**, L V Carvalho
- 1992668** *Climate Change Impacts on Crop Production in Africa:* **S Gebrechorkos**, R Stuart-Smith

- 1945138** *Data-Driven Hydrological Discharge Simulation in the Limpopo River Basin for Transboundary Water Management:* **J Tlhomole**, M Garcia, K Matheswaran, E Borgomeo
- 1978116** *Drivers and Trends of Root-Zone Soil Moisture at Wet Season Onset across Sub-Saharan Africa:* **C Chalmers**, Y Zhang, A J Rigden
- 1985306** *Enabling Urban Flood Models and Flood Early Warning Systems in Kigali city-Rwanda: A Review and Audit of Hydrometeorological Data and Models:* **E Zuetell**, F Tetero, M Busogi, H Bizimana, A Umutoni
- 1906317** *Equitable flood risk management through transdisciplinary knowledge generation in marginalized communities of East and West Africa:* **M T Teye**, Y Umer, H L Belay, M Dessalegn, S O Ansah, O Lino, E Dyer
- 1928428** *Evaluation of Potential Evapotranspiration Forecasts and Their Potential for Use in a Hybrid SPEI Product:* **G J Husak**, C C Funk, W Turner, S Shukla, L Harrison, D C Alaso, R Saldivar
- 1942729** *From Rainfall to Runoff: Cascading Uncertainty Using Top-Down and Bottom-Up Rainfall Products in Three West African River Basins:* **R Yonaba**, F Tazen, G Ngonga, A Belemtougri, A Kiema, L A Mounirou, H Karambiri
- 1945624** *Geophysic insights for the volcano-shist aquifers of the Sanaga Shear Zone and river valley basins:* **M Yem**
- 2000829** *Groundwater in a Changing Africa: Integrating Climate, Ecology, and Remote Sensing for Smarter Water Management:* **A H Shabbir**, J Knouft
- 1938717** *Hybrid Object Detection and Generative AI Framework for Automated River Gauge Plate Reading and Discharge Estimation:* **K Vigneswaran**, H Retief, M Garcia, H Tennakoon
- 1927918** *Hydrological Implications for Sustainable Irrigation Development in the Lake Chad Basin under Climate Change:* **M Dembele**, N Amdar, M Smilovic, K Akpoti, S Zwart
- 1850571** *Hydrological simulations in a High Performance Computing environment from the comfort of your own browser: First experiences from Africa with the eWaterCycle platform:* **N Van De Giesen**, M Melotto, F O Annor, R Hut
- 1938442** *Limpopo River Basin Digital Twin: Enabling Sustainable Water Management with the Open Data Cube Framework.:* **A Afham**, H Retief, P Silva, Z Kiala, C Dickens, S Ghosh, M Garcia
- 2000497** *Moisture Recycling in the Upper Nile Basin and Its Influence on the Neighboring Regions:* **Y Chen**, A Y Shamseldin
- 1925919** *Proliferation of alternative drinking water systems in the city of Niamey: Case study of two communal districts of Niamey (III and IV):* **I Boubacar**, R Cheffou Mairoukoundoum Sr
- 1850602** *RootSense: Bridging In-situ and Earth Observation Data for Agricultural Drought Resilience in Sub-Saharan Africa:* **C L Nakalembe**, A D Adebayo, M Cosh, K Mwangi, S Mourice, D Okello
- 1948564** *Satellite-Surface-Area Machine-Learning Models for Reservoir Storage Estimation: Evaluation and Operational Deployment at Loskop Dam, South Africa:* **H Retief**, K Vigneswaran, S Ghosh, M Garcia, C Dickens
- 1875433** *Spatiotemporal Dynamics of Water Quality and Trophic State of the African Great Lakes using Sentinel-3 OLCI Observations:* **E Miliutina**, H Liu, J Men, S Shu, R Beck
- 1927283** *Stories of Sub-Saharan Africa Water: Exploring the Changes in Inland Surface Water Extent:* **N O Djan**, P Jaramillo
- 1928357** *Supporting Advancements in Lake Malawi Water Resources Management:* **R Hoops**, A Gronewold, A Gossard, M Mulumpwa, L Mtilatila, G Chavula, E Chaima, L Fiwa, J Chitete, D Kambuku, T Nyasulu, K Andreah
- 1962203** *Temporal variability of groundwater levels and flow system dynamics in the semi-humid tropical volcanic highlands of Ethiopia:* **F N Abera**
- 1857727** *THE RAINFALL REGIME OVER THE RIFT VALLEY LAKES OF EAST AFRICA AND THEIR CATCHMENTS:* **S Nicholson**
- 1942952** *Three Decades (1995–2024) of Continental African River Discharge Across 650 000 + Reaches: Unveiling Trends from Headwaters to Major Dams:* **K Akpoti**, N M Velpuri, N Mizukami, R Koduah, E Mortey, M D Leh, A Owusu, P Thilina-Prabhath, K Mekonnen, L Maduskanka, T Perera, A Seid, G B Senay, S Kagone
- 1858289** *Understanding drought in East Africa through Earth observation, models, and machine learning for decision support:* **C Ruiz Villena**, R Parker, R Maidment, T L Quaife, Y Douanla Alotse, M B Sylla, G Kondi Akara

248537

AI Advances in Subsurface Hydrology and Energy (cosponsored by CGS: Chinese Geophysical Society, CGU: Canadian Geophysical Union, EGU: European Geosciences Union, GSA: Geological Society of America) (joint with EP, NG, NS, S)

Conveners: **Behzad Ghanbarian**, University of Texas at Arlington; **Maruti Mudunuru**, Pacific Northwest National Laboratory; **Alexandre Tartakovsky**, University of South Florida; **David Barajas-Solano**, Pacific Northwest National Laboratory

1911944 *An Intelligent Regression Method Integrating Geographical Context Similarity for Sparse Geothermal Parameter Prediction:* **J Zhu**, Z Zhang, S Wu, Z Du

1990516 *Assessing shallow geothermal potential by spatiotemporal geostatistics: a case study in Hsinchu, Taiwan:* **H L Yu**, S C Hsu, J L Wang, H Tseng

1969773 *Combining neural operators and conservation laws for prediction of electrical transport properties in porous media:* **B Chang**, M Prodanovic

1888420 *Comparing MLP, GCN, and Residual-GCN PINNs for Groundwater Flow Modeling:* **T Nagasato**, K Tanaka

1912581 *Comparing Physics-Based and Machine Learning Approaches for Sustainable Aquifer Management in Emilia-Romagna (Italy):* **I Delfini**, D Zamrsky, A Montanari

1982205 *Differentiable Physics-constrained subsurface inversion with Latent Diffusion model:* **H Du**, Q He

1934429 *Discrete Spatial Diffusion Framework and Assessment Metrics for Rock Image Generation:* **Q Zhou**, J E Santos, A Marcato, M Prodanovic, M Pyrcz

1952874 *Geospatial Artificial Intelligence Analyses for Evaluating the Prospectivity of Geological Resources:* **V M V Vesselinov**, T L Kliphuis

1934865 *Integrating In-Situ Sensor Networks and AI for Real-Time Subsurface Hydrological Monitoring and Forecasting:* **H Zhao**, H M Wainwright

249974

Anthropogenic Impacts on Hydroclimate Processes and Extremes in Cities (joint with A, GC, NH)

Conveners: **Xinxin Sui**, University of Texas at Austin; **Ruby Leung**, Pacific Northwest National Laboratory; **Aubrey Dugger**, National Center for Atmospheric Research; **Jessica Eisma**, Purdue University

1982388 *Latent-Space Surrogate Model for Fast Time-Lapse ERT Inversion:* **Y Wang**, G E Hammond, T C Johnson, A M Tartakovsky

1996237 *Multiscale Inversion of Subsurface Heterogeneity Using Hierarchical Geostatistics and Deep Learning:* **F Moeni**, C Zhan, Z Dai, K C Carroll, R Soltanian

1939482 *Physics-informed machine learning for estimating permeability and dispersivity distributions in three-dimensional sandbox experiments:* **H Yoon**, J H Lee

1940373 *Physics-Informed Neural Networks for Watershed-Scale Groundwater Flow Modeling:* **Y Choi**, S Lee

1931807 *Resolution-invariant surrogate modeling for systems with spatially heterogeneous inputs via variational encoder-decoders:* **D A Barajas-Solano**, S Venkatasubramanian

1851568 *Sensitivity-Constrained Neural Operators for Forward and Inverse Problems in High-Dimensional PDEs:* **C Shen**, A Behroozi, D Kifer

1857004 *Simulator-in-the-Loop: Differentiable, Simulation-Driven Learning for Heterogeneous Storage Reservoir Characterization:* **H U Rashid**, A Pachalieva, D O'Malley

1878069 *The development of an AI-based tool for tracer selection and test design in geothermal energy applications:* **L Vucinic**, M I Freitas da Silva Vucinic, D O'Connell, H Mezali, S de Volder, A Poulain, F Ajia, C Coxon, L Gill, D Savic

1909598 *Transforming Subsurface Hydrocarbon Recovery Forecasting with AI: Case Study on Polymer-based Chemical Enhanced Oil Recovery:* **A Madhumaya**, S Maiti, S D Kulkarni, A Vyas

1873686 *Uncertainty-Aware Area of Review Assessment via Probabilistic Committee Machine Learning: Application to Large-Scale Carbon Storage Reservoirs:* **A Y Sun**, C Y Shih, H Siriwardane

1994511 *VAE-DNN: Energy-Efficient Trainable-by-Parts Surrogate Model for Groundwater Flow Modeling and Parameter Estimation:* **A M Tartakovsky**, Y Zong, Y Wang

1887694 *Advancing Transparency in Urban Flood Risk Mitigation Planning Through Community-Based Risk Trajectories:* **K Serafin**, J R Koseff, J Suckale, D Ouyang

1874125 *Assessing Historical and Future Stormwater Runoff in the Dallas-Fort Worth Metroplex through Hydrological Modeling Enhanced by Machine Learning-Based Soil Moisture Downscaling:* **P HassaniFakhrabadi**, S Mahat, D Li, N Z Fang

1880743 *Characterization of Reservoir Impact on Urban-induced Warm Season Convection:* **B Johnson**, M D Williams, K Venable

- 1938634** *Drivers of Intensifying Tropical Cyclone Precipitation in South China: Storm Changes and Rapid Urbanization:* **C Hu**, F C Y Tam, X Sui, K K W Cheung, Y Li, Z L Yang
- 1970538** *Investigating the Influence of Rural Soil Moisture on Urban Rainfall Patterns in Dallas Using Satellite Observations:* **S Khojeh**, X Sui, A A Tavakoly, Z L Yang
- 1864709** *The Urban Rainfall Effect Is Confirmed. What's Next?:* **M Shepherd**
- 1906778** *Under the shadow: observational evidence of tropical cyclone rainfall enhancement outside urban cores:* **Y Shen**, H Huang, P Lu, Q Li, Y Yang, L Yang

249689

Applications in Snow Hydrology (joint with C)

Conveners: **Laurie Huning**, California State University, Long Beach; **Melissa Wrzesien**, NASA Goddard Space Flight Center; **Daniel McEvoy**, Desert Research Institute; **Elizabeth Burakowski**, University of New Hampshire Main Campus; **Eunsaem Cho**, NASA Goddard Space Flight Center

- 1999492** *Modeling streamflow effects from changing precipitation snow fraction in a mountainous watershed:* **J Turner**, J P McNamara, A N Flores, A R Hedrick
- 1923617** *A Machine Learning Approach to Water Supply Forecasting and Quantifying the Role of Snow Water Equivalent in Seasonal Streamflow Variability across the Western U.S.:* **H Yue**, Y Wang, L Zhang, T Yang
- 1996692** *A multi-dataset evaluation of orographic precipitation enhancement and its role in shaping seasonal snow across the western U.S.:* **G Gallagher**, B Livneh
- 1926693** *An Investigation into the Impact of Heatwaves on Snowpack in the Western U.S.:* **R Gale**, S He
- 1955561** *Assessing Impacts of Incorporating Atmospheric Profile Information in Rain-Snow Partitioning Parameterizations with Implications for Snowpack Modeling:* **S Shi**, C He, B F Zaitchik
- 1955861** *Assessing the Accuracy and Scalability of Using Lake Water Pressure to Measure Snow Water Equivalent:* **E Schreier**, E A Sproles
- 1892304** *Assessing the Impact of Snow Data Assimilation on Water and Energy Fluxes in Europe with the eCLM-PDAF Framework:* **B Guan**, L Strebel, J Keller, H J Hendricks Franssen, G J M De Lannoy, B S Naz
- 1977579** *Benchmarking the Accuracy of Existing Gridded SWE Datasets and Their Relative Value for Seasonal Runoff Prediction:* **E Ritchie**, A Wood, J Sturtevant, A M Marshall, E LaMena, R C Johnson, D Liljestrand, E Golitzin

- 1891121** *Urban geomorphological and hydrological transformation in Milan (Italy): flooding impacts and mitigation strategies along the Seveso River:* **E Hamidova**, A Bosino, M De Amicis
- 1864030** *Urban signals in local precipitation regime: asymmetry and heterogeneity:* **J Xiong**, Y Yang, D Yang
- 1897357** *How Texas Cities Alter Warm-Season Storms?:* **X Sui**, J W Nielsen-Gammon, Z L Yang, D Niyogi
- 1871666** *Changes in duration and intensity of snow droughts and their hydrological impacts in the Snowy Mountains (Australia):* **J I López**, J N Callow, S M Vicente-Serrano, S Bilish
- 1956059** *Climate Seasonality Effects on Current and Future Runoff Patterns and Snow Storage:* **J Lee**, N Reaver, H Klammler, J W Jawitz
- 1971844** *Comparative analysis of seasonal water supply forecasting performance in cold/seasonal vs. warm/ephemeral snowpack watersheds:* **R Dwivedi**, P D Broxton, C Zhang, X Zeng, G Y Niu, W J D Van Leeuwen
- 1900265** *Coupling iSnobal-HRRR and Sac-SMA in the Upper Colorado River Basin: Validation and Assessment:* **M Muxworthy**, J M Hu, S M Skiles
- 1882027** *Decoupling of Precipitation and Runoff: Explaining the Post-2000 Hydrological Shift in the Colorado River Basin:* **X Chen**, E R Vivoni, Z Wang, S Ghimire, U Lall
- 1868274** *Diagnosing Potential Drivers of SWE Biases in the Noah-MP Land Model Across the Western U.S.:* **R Abolafia-Rosenzweig**, C He, C Liu, T S Lin, M J Barlage, L Xue, K Rasouli, Y Zhang, A J Newman, T Schneider
- 1895661** *Drivers of Spatial and Temporal Variability in Post-fire Snow Phenology:* **W Keenan**, S K Kampf, D McGrath, D Barnard
- 1948606** *Driving Role of Snow Cover on Soil Moisture Storage and Vegetation Dynamics in the Himalayan Catchments:* **A Bharti**, D Varade, A Nanda
- 1891983** *Dynamic Lapse Rate Corrections Improve Snowpack Modeling Across Mountain Regions Critical for Water Supply:* **K M Whitney**, S V Kumar, D M Mocko, J M Pflug, J D Bolten, F Z Maina, M Wrzesien, C Hain
- 1902712** *Effects of Wildfire on the Magnitude and Timing of Snowmelt Runoff Following the 2020 Cameron Peak Fire in Northern Colorado:* **S Tiwari Chhetri**, S K Kampf, D McGrath

- 1923549** *Evaluating A New Approach For Streamflow Estimation Using Remotely Sensed Snowmelt Area:* **B Mirza**, E E Small, M S Raleigh
- 1873594** *Evaluating changes in winter snowpack conditions and impacts on Alaskan communities:* **K N Musselman**, N M Herman-Mercer, D V Ebanks, J Bacon, A Minium, A Challamel, P Thomas, R Toohey, D Blaskey, S Neitlich, Y Cheng, A J Newman
- 1919501** *Event-based Classification of Cold-region Fluvial Flooding in the Contiguous United States:* **M Vardaman**, J M Jacobs
- 1956605** *Extreme Snowfall at High Elevations: A Historical Analysis of Elevation-Dependent SWE Trends in a Warming Climate:* **S Ryu**, S Casirati, M Giroto
- 1937564** *From Snowpack to Streamflow: Assessing the Impact of SWE Dataset Choice on Runoff Simulations in Canadian Watersheds:* **C Sun**, H Liu, J Nafziger
- 1932876** *Global Products for Cold-Region Hydrological Modeling: Precipitation Phase Partitioning and Frozen Ground Status Prediction:* **D Li**, G Villarini, A Michalek
- 1929169** *How Will Changes in Future Snowpack Affect Western U.S. Drought Prediction?:* **K Bishay**, B Livneh
- 1876716** *Hydroclimatic Shifts and Flux Dynamics in a Cold Region Agricultural Basin:* **T H Mahmood**, S Wainty
- 1897475** *Hydrograph Spread Increases as Snow Declines Across the Western U.S.:* **A M Marshall**, S M Smith, K Bazlen, A Koshkin
- 1876215** *Impacts of Climate Variability and Tillage Practices on Snow Observations and Hydrologic Responses in a Cold Region Agricultural Basin:* **T Jeannotte**, T H Mahmood, S Wainty
- 1979966** *Influence of Snowpack Pattern Repeatability on Streamflow Forecast Skill:* **L Nyblade**, M S Raleigh, E E Small
- 1863451** *Interannual Variations in Spring Snowmelt Timing of Alaskan Black Spruce Forests Using a Bulk-Surface Energy Balance Approach:* **H Ikawa**, T Nakai, Y Harazono, H Iwata, H Nagano, K Saito, M Ueyama, H Kobayashi
- 1942374** *Isotope based snowmelt routing and transit time dynamics in the Suru and Shyok Basin, Western Himalaya:* **S Lone, Msc, PhD**, G Jeelani
- 1890287** *Machine Learning and Data Assimilation for Enhanced Snow Estimates:* **D R Dunmire**, L Boeykens, H Lievens, M Bechtold, G J M De Lannoy
- 1852496** *Modeling Northeastern Snowpacks for Snowmelt and Ground Frost Applications:* **H Kim**, A Mohammed, S E Tuttle, A Grunes
- 1971206** *Objective Rainfall-Runoff Separation in Snow-Affected Basins via an Enhanced DMCA-ESR Method:* **J Shi**, H Liu, A Smith
- 1953978** *Partitioning snowmelt contributions to Lake Superior water level changes with water isotopic tracers:* **B G Kopec**, A C Adolph, F Liu, T J Vick-Majors, A Dyreson, H Henderson, A Hakim, K M Shafi, D Wallis, D W Watkins Jr, P Xue, J M Welker
- 1955394** *Post-Fire Flood Risks in Wildland-Urban Interfaces on the Eastern Slope of the Sierra Nevada:* **K Rasouli**, T Chaney
- 1962526** *Quantifying Snowmelt Contribution to Streamflow and Water Balance Uncertainties in a Snow-Dominated Watershed Using WLDAS and Multi-Source Datasets:* **F Cooverji**, E Cho, PhD, B Li, C Vuyovich, J M Jacobs, E Cho, S E Tuttle, E A Sproles
- 1898678** *Snow Droughts Are Expanding And Deluges Are Shrinking: The Importance Of Spatial Extent In Snow Drought And Deluge Evaluation:* **A Koshkin**, A M Marshall, A Toomey, E Wiles, B Livneh
- 1981402** *Snow Modeling Method Comparison using HEC-HMS:* **M Bartles**, W Reis, J Giovando, T A Dahl, A Breverman
- 1997188** *Statistically Downscaled High-Resolution NLDAS-2 Datasets Improves the Snow Water Equivalent over the Western US:* **A Gupta**, A Behrangi, M Farmani, G Y Niu
- 1893700** *The 'Snowflake Design': A New Experimental Plot Layout for Quantifying the Effects of Snow Capture on Soil Water and Crop Performance:* **S Fordyce**, P Carr, S A Ewing, S E Tuttle, E A Sproles
- 1926495** *The Importance of Rain-on-Snow to the Contiguous United States:* **W Reis**, J Giovando, M Bartles, T A Dahl
- 1875555** *Timing Versus Magnitude: First-order Drivers of Water Availability Across Snow-Dominated, western North America:* **K Hale**, W R Berghuijs
- 1928961** *Toolbox for Low-Cost In-Situ Measurements of Evaporesublimation:* **K T Scheidt**, R Barella, R Pimentel, V Premier, C Marin, M J Polo, C Notarnicola
- 1996589** *What causes variability in how the fraction of precipitation that falls as snow impacts streamflow in the rain-snow-transition-zone?:* **J P McNamara**, A R Hedrick

250934

Applications of Machine Learning in Large Scale Hydrology and Water Quality Modeling (joint with IN)

Conveners: **Luisa Vieira Lucchese**, University of Pittsburgh; **John Gardner**, University of Pittsburgh; **Dongmei Feng**, Northeastern University; **Admin Husic**, University of Kentucky; **Shuyu Chang**, University of Illinois at Chicago

1925382 *A Hybrid Hydrological Modelling and Machine Learning-Based Framework for Improved Water Quality Predictions:* **H Haas**, A Khan, K Karl, A C Ruane

1921356 *A Scalable Deep Learning Approach for Daily Stream Temperature Prediction Across Unmonitored U.S. River Reaches:* **M A B B Siddik**, S W D Turner, J Gomez-Velez, A H Tanim, S C Kao

1954641 *AI-Driven Climate Impact Assessment with hydrological modeling over a South Asian Transboundary River Basin: LSTM vs. SWAT hydrological modeling for the Upper Meghna:* **K M A Rahaman**, A S Islam, M A Hussain, G T Islam, Z Tasnim

1912338 *Analysis of Concentration-Discharge Relationships Across CONUS Using Self-Organizing Maps:* **A Marin-Ramirez**, D T Mahoney

1852630 *Application of the LSTM model for streamflow forecasting in the Great-Lakes region:* **É T É M Gaborit**, G Sasseville, V Fortin, M Dimitrijevic

1926686 *Can Shallow Machine Learning lead to Robust Predictions of Stream Dissolved Oxygen?:* **O I Abdul-Aziz**

1989419 *Combining climate reanalysis and remote sensing data to predict river discharge using a generalizable, distributed, deep learning model:* **T Langhorst**, C J Gleason, K Andreadis

1967382 *Controls on Streamflow Generation and Surface Water Quality Using ML and Streamflow Sensitivity of Fraction of Young Water:* **T Nsubuga**, R Vera, Z Womber, V Sandu, J Oke, C D Guzman

1960085 *Deep Learning Advances Arctic River Water Temperature Predictions:* **S Y Chang**, J P Schwenk, K Solander

1957455 *Deep Learning Reveals the Bursty and Seasonal Nature of Continental-Scale Sediment Transport:* **A Husic, PhD**, N Sigdel

1992581 *Developing a semi-automated technique of surface water quality analysis using GEE and machine learning: A case study for Sundarbans:* **S F F F Sowrav**, M K Das

1946337 *Do Neural Networks Dream of Electric Hydrographs? Reproducibility and Robustness in Hydrologic Machine Learning:* **K Andreadis**

1883864 *Dynamic Modeling of Daily Nitrogen Flux Reveals Soil Moisture as a Key Driver and Climate-Induced Risks to Polarized Seasonal Patterns:* **H Ai**, K Zhang, S Yang, E Barcelos, R French, H Zhang

1926326 *Evaluating Multi-Sensor Imagery for Flood Segmentation Using Deep Learning:* **B Cox**, J Sullivan, B Tellman

1902788 *Event water fraction increases across the conterminous United States under climatic and anthropogenic change:* **C Chen**, A Husic, PhD

1957213 *Forecasting Alaskan River Temperature to Assess Salmon Viability:* **C Moy**, K Solander, R Crumley, J P Schwenk, A Khandelwal, E Schoen, R Fiorella

1864225 *Global River Suspended Sediment Flux from Space using Highly Scalable Deep Learning Models:* **L Vieira Lucchese**, R Daroya, T T Simmons, P Prum, T Pavelsky, S Maji, J Gardner, C J Gleason

2000219 *Groundwater salinity potential in Mexico: insights from unsupervised and supervised learning:* **C F Narvaez Montoya**, J A Torres-Martinez, J Mahlkecht

1934794 *High-Resolution Groundwater Pumping Estimation in New Jersey Using a Three-Stage Machine Learning Ensemble:* **Y Kassem**, Y Ma, L Gallagher, R M Maxwell

1874689 *High-resolution surface and rootzone soil moisture over US cropland: A novel framework assimilating multi-source remote sensing data, machine learning, and the Layered Green and Ampt Infiltration with Redistribution model:* **S Cai**, Y Xu, Z Yang, W Crow, Z Zhang, J Shang, J Liu, P La Follette, C Reberg-Horton, H Schomberg, S Mirsky, B Davis, S Seehaver, A Correia, A Basche, A Waggoner, C Ellis, D Park, D Campbell, D Treadwell, D Presley, E Henriquez Inoa, H Darby, J Adam, J Miller, J Haymaker, J Wallace, J Gaskin, K Balkcom, L Ruhl, M Reiter, M Ruark, M Flessner, C Sias, P Davis, P Tomlinson, R Smith, N Warren, R Dierking, S D Armstrong, T Almeida, J Huang

1919097 *Hybrid Machine Learning Modeling with an Enhanced Preprocessing Framework for Streamflow Forecasting:* **A Samadi Koucheksarace**, X Chu

1911698 *Integrating Deep Learning and MILP for Efficient CPWL Function Fitting in Hydropower Optimization Models:* **Q M Ploussard, PhD**, M Pavicevic, Y Ao

1954524 *Leveraging Deep Learning and Thermodynamic Models for Projecting Hydro-thermal Dynamics of Lakes on the Tibetan Plateau:* **Y Wang**, D Long, L Li

1920682 *Leveraging Machine Learning to Uncover Nutrient Trends and Drivers across the Contiguous United States:* **Q Zhang, Qian Zhang**, R D Sabo

1890774 *Machine Learning Prediction of Oxygen-18 in Shallow Lithuanian Groundwater:* **G Žaržojus**, V Samalavicius, S Gadeikienė, S Gadeikis, I Lekstutytė, J Arustienė

- 1951549** *Machine Learning-Based Long Term Future Streamflow Prediction Under CMIP6 Climate Change Scenarios for the Brahmaputra River Basin:* **M Mobarrat**, D M M Ali
- 1946969** *Mapping baseflow age across the conterminous United States using process-based modeling and machine learning:* **W Zell**, P E Stackelberg, W E Sanford, K Belitz, J Marshall
- 1954919** *Modeling Microbial Contamination in Private Wells Using Satellite Precipitation and Machine Learning:* **E Bartuska**, E Beighley, K Drewry, K Pieper, R Jamshidi, F Ghoreishi, R Wang, C N Jones
- 1987569** *Near-term Water Quality Forecasting and Uncertainty Analyses in Freshwater Ecosystems using Machine Learning:* **R Shukla**, M E Lofton, A Breef-Pilz, C Carey, Q Thomas
- 1904836** *Performance Comparison of Deep Learning Models Based on Bayesian Optimization for Hydrological Forecasting:* **J Lee**, H Kim, H Lee
- 1922347** *Physics-Guided Hybrid CNN-BiLSTM Model for Streamflow and Water Quality Prediction in River networks using Spatiotemporal Features and Watershed Connectivity.:* **H Mohammed**
- 1938415** *Probabilistic predictions of lake water temperature with mixture density networks:* **K Li**, J L Ryder, M B Hausner, M M Arienzo, B Kruger
- 1891831** *Progress toward the coordinated development of machine learning water quality models at the CONUS extent:* **G Gorski**, J Diaz, J D Smith, A Appling, S Oliver, K Eng, L Koenig, W A McAliley, K Compare, J Barclay, E White, J A Zwart, C T Green, J Kwang, S Ator, J Marshall
- 1951887** *Scalable Nested Deep Learning Framework for Real-Time Water Quality Forecasting Across Tributary Networks:* **S Swami**, K Underwood, D M Rizzo, S D Hamshaw, P J Clemins, J N Perdrial, A W Schroth, H Myers
- 1850732** *Scaling Hyper-resolution Hydrologic Modeling and Applications with AI:* **N Vergopolan**, A Dehghani, C Hashimoto, O G Şahin, F Saavedra, L Tarasova
- 1984691** *Spatiotemporal Turbidity Prediction in River Systems using Graph Neural Networks:* **G Myers**, A Hayes, S Swami, A W Schroth, J T Kemper, D M Rizzo, S D Hamshaw, K Underwood
- 1951411** *STREAM: a Comprehensive High-Frequency Sensor Database of Water Quality in Rivers in the United States:* **S K Kuntla**, S Speir, A Husic, PhD
- 1931996** *Toward Generalizable and Interpretable Water Quality Modeling with AI-Augmented HSPF:* **X Pu**, C Shen
- 1918044** *Toward Hyper-Resolution Transient Groundwater Modeling at Continental Scale Using Physics-Guided Machine Learning:* **Y Ma**, D Tijerina-Kreuzer, A Defnet, G Artavanis, L E Condon, R M Maxwell
- 1918092** *Towards an Integrated Water Quality Forecast in South Florida:* **M E Arias**, D Kaplan, Q Zhang, H Nguyen, S Soleymani Hasani, E Orozco Lopez, S Lee, M Olabarrieta
- 1937616** *Towards Global Estimation of Riverine Suspended Sediment Flux Using Deep Learning:* **P Devkota**, D Feng, A Gupta, J Gardner, L Vieira Lucchese, P Prum
- 1948405** *Towards global scale continuous streamflow prediction in ungauged basins using contextual deep reinforcement learning:* **A Abbas**, H Beck
- 1909297** *Uncovering the Impact of Soil Moisture Patterns on Nitrate Transport at the Catchment Scale Using Explainable AI:* **F Saavedra**, N Vergopolan, A Musolf, R Merz, C Winter, Z Wang, L Tarasova
- 1920811** *What Controls River Turbidity? Uncovering the Roles of Climate, Land Use, and Landscape Heterogeneity with a Deep Learning Model:* **A Vierbicher**, D M Rizzo, K Underwood, B S Lee, E C Seybold, J N Perdrial, L Li
- 2001987** *When Stream Temperature Meets Streamflow: A Scalable Approach to Modeling Climate-Sensitive Groundwater Recharge:* **F Rahmani**, C Shen, A Appling, Y Song, H Ji, J Liu, K Lawson, Y Wada
- 1900284** *Impact of Small Reservoir Construction to Induce Aquifer Recharge in a Highly Connected Groundwater-Surface Water Systems:* **S Ismaili**
- 1919685** *A spatially explicit framework for place-based green infrastructure planning to enhance urban flood resilience:* **A Shrestha**, T McPhearson, C Kennedy, A Kramer, D Iwaniec, A Mustafa
- 1953488** *Assessing Carbon-Free Synthetic Fuels Impacts Through the Water-Energy-Food Nexus Approach:* **F Capone**, N Galli, M C Rulli, G Manzolini

249895

Assessing Adaptation Strategies in Water Systems: Modeling Tools for Planning, Tradeoffs, and Implementation (joint with GC)

Conveners: Marina Mautner, Stockholm Environment Institute; Erin Derrington, Local2030 Islands Network; Patrick Ray, University of Cincinnati; Romina Diaz-Gomez, Stockholm Environment Institute

- 1995205** *Development of a Nexus-Oriented Regional Hydrological Platform to Support Water Policies and Investments in the Amazon River Basin:* **S R Santos da Silva**, F Miralles-Wilhelm, F Moreda, R Payet-Burin
- 1959755** *Evaluating the Stress Testing Effectiveness of Stochastically Generated Climate Change Scenarios Versus General Circulation Model (GCM) Scenarios:* **M Galusha**, C Brown, B Francois, C Eluwa, L J Barrett
- 1888009** *Flood Mitigation with Lateral Weir Design Optimization in Distributed Offline Detention Basins:* **J Choi**, S Kim, J Ryu, E Jang, U Ji
- 1919631** *From Awareness to Adoption: A Participatory Socio-Hydrological Agent-Based Model of Nature-Based Solutions for Nuisance Flooding in Lewes, Delaware:* **J P De Leon**, Y Hu
- 1960834** *Increasing Resilience in a Terminal Lake through Public Consultation and Advanced Water Management Tools:* **R G Lawford**
- 1960211** *Institutional Dependencies Shape the Adaptation Pathways of US Water Utilities Responding to Climatic Stressors:* **A Milman**
- 1961096** *Integrating Climate Projections and Decision-Making in Water Management: A Case Study of Kootenay Lake:* **M Maharjan**, M Chernos, R MacDonald, C Brown
- 1862074** *Leveraging a new binationally coordinated regulation and routing model to produce Lake Ontario water level change scenarios for coastal resiliency:* **A Abed-Elmdoust**, L M Fry, N Gervasi, Y Fan, J Potthoff, C Pattullo, M Padilla, P Cocca

249407

Beyond the 100-year Return Period: Hydrologic Mega Disasters

Conveners: **Aaron Alexander**, University of Wisconsin Madison; **Daniel Wright**, University of Wisconsin-Madison; **Joshua Roundy**, University of Kansas; **Samantha Hartke**, University of Wisconsin Madison

- 1922933** *A 300-year record of hydrologic extremes from the French Broad River (TN) yields new insights into recent extreme floods and droughts:* **L Davis**, R Lombardi, M Gage, G A Tootle, T M Rittenour, C Quimby
- 1988262** *Analyzing Extreme Rainfall Events and Trends in Climate Models in Kerr County, TX:* **Z Miller**, M Flanner
- 1875510** *Hydrometeorological Characteristics of High-impact Flood Disasters:* **F V Davenport**, N Keeney, M Talbot

- 1967544** *Multiscale hydrologic modeling enabled by high-resolution climate projections:* **Z P McEachran**, S Liess, A Farris, D Coffman, M Tomczik, R D Harp, B Blue, B Gordon, H A Roop
- 1989351** *Optimizing the Selection of Detention Pond Size and Location to Mitigate Impacts of Increased Runoff Due to Urbanization:* **S Mahat**, A Paudel, K Greenwood, D Li, N Fang
- 1855642** *Overcoming Challenges of Model Structure and Stakeholder Confusion to Model Nature-based Solutions Effectively:* **K A Brauman**
- 1880185** *Technology-driven adaptation for equitable and resilient water management:* **M Giuliani**, W Arnold, V Piuri, A Castelletti
- 1902765** *Transdisciplinary strategy development for sustainability in the Sacramento-San Joaquin Delta, California, USA:* **S J Deverel**, M Olds, N Christen, S Hass
- 1851897** *Valuing Water Services and Trade-offs in Multi-Purpose Dams: Insights from Mohmand Dam:* **B Iftikhar**, A Anwar, A Zafar
- 1975108** *Water Connects Us: Building a FAIR Collaboratory for Equity in Water Allocation:* **N Thomas**, J Fantauzza, T Grantham, E Danner, W Medema, Y H Kuo

- 1904517** *Influence of Warming on Rainfall Characteristics of Recent Hurricanes in the Gulf Region of Continental United States:* **I J Dollan**, K Reed, D Y Li
- 1977221** *Re-evaluating Probable Maximum Precipitation Estimates: Sensitivity to Storm Transposition, Maximization, and Rotation Using Modern Datasets:* **G Perez**, S DeNeale, S C Kao, F Quintero
- 1919953** *The 1000-year context of extreme precipitation in the Central United States from a novel blend of observations and climate model simulations:* **A Thompson**, J Hutchings, B L Konecky
- 1957954** *Weather Whiplash: Abrupt Transitions from Prolonged Dryness to Extreme Wetness:* **A Hoell**, K M Mahoney, M Abel, W R Currier, J L Bytheway, J Lisonbee, T Erin, J Gerlich, R S Pulwarty, V Deheza

248985

**Catchment and Critical Zone Science –
Understanding Ecosystems through Monitoring,
Analysis, and Experimentation (joint with B)**

Conveners: **Jonathan Duncan**, Pennsylvania State University Main Campus; **Stephen Sebestyen**, USDA Forest Service; **James Shanley**, USGS New England Water Science Center, Vermont; **Salli Dymond**, Northern Arizona University; **Robert Rioux**, Yale University

1873854 *Friends of the Rouge Chloride Monitoring in the Rouge River, Michigan: Helping to Guide Management Action.:* **L Eaton**, S Petrella, S Davis, K Arnold

1876284 *Assessing the Effectiveness of Forest Road Erosion Reduction Practices: Results from a Large-Sample Catchment Study with Auxiliary Experiments:* **C H Luce**, A D Alvis, T Black, J Dieu, E Istanbuluoglu, J Black, Z Holden, C Polley

1874534 *Assessing the Significance of Non-Rainwater Source Influences on Stemflow Variability:* **B Noren**, K Stuble, J van Stan II

1949499 *Chemical Weathering of Ultramafic Rocks at the Rio Cupeyes NEON Site in Southwestern Puerto Rico:* **A A Olsen**, W H McDowell, T Korstanje

1951998 *Common and Chesapeake Logperch Responses in the Ohio and Susquehanna River Watersheds:* **A Stylianides**, A Bucha, E W Boyer, J Stauffer Jr

1936059 *Exploring how climate and land use alter processes that control stream biogeochemistry:* **S R Warix**, K Johnson, K Singha, A Navarre-Sitchler, K Swift Bird

1884293 *From Forests to Streams: Landscape-Scale Watershed Restoration in the Starkey Experimental Forest and Range:* **A N Price**, A Bergstrom, R Callahan, Y Gebrai, J Lee, S M Wondzell, R Wells, K Formigli, J Morejon

1953524 *Global analysis of riverine silicon concentration-discharge relationships reveals shifts in biogeochemical processes and ecosystem function:* **L Sethna**, K Johnson, S A Bush, J Carey, K Jankowski, P L Sullivan

1895936 *Groundwater Hysteresis Decouples Flowing Network Length from Streamflow, Especially as Rain Replaces Snow:* **A A Harpold**, E Boardman, N M M Fernandez, M S Wigmosta, J A Whiting

1948983 *Has the nitrate C-Q relationship under stormflow condition in a disturbed forest catchment changed over the past 35 years?:* **M Katsuyama**, R Kumon

1937453 *High-Frequency Nitrate Monitoring Reveals Distinct Rain-on-Snow vs. Snowmelt Export Processes in the Sagebrush Steppe:* **M Eck**, A Mueller, A Bergstrom

2001668 *How hard is it really raining? An intense look at rainfall intensity:* **J B Shanley**, A L Riscassi, S Matt, N K Lany, A Bailey, M Green

1988829 *Hydrochemical Insights into CO₂ Removal and Alkalinity Transport during Watershed-Scale Enhanced Rock Weathering:* **F Sun**, R Rioux, W Tatge, Q Zacharias, W Miller-Brown, T J Suhrhoff, J B Shanley, N Planavsky, P A Raymond, J E Saiers

1956796 *Influence of depth-to-bedrock on non-perennial streamflow patterns:* **J C Morgan**, K J McGuire, J P Gannon, PhD

1927111 *Influence of Redox Conditions on Elemental Concentrations in Riparian Sediment and Groundwater:* **M G Sena**, B Joshi, M M Rahman, M Peipoch, J Kan, E Moore, M Z Afsar, Y Jin, D Dwivedi, E K Peck, PhD, S P Inamdar

1873305 *Investigating Bark Influences on Fungal eDNA Transport in Stemflow:* **B Valdman**, D Burke, S Carino-Kyker, C Bashian-Victoroff, J van Stan II

1947798 *Investigating the controls on silicate weathering and solute export using watershed reactive transport modeling:* **S Shaheen**, W Tatge, C T Driscoll, S Molins, X Chen, P A Raymond, J E Saiers

1905285 *Linking Climate and Physical Landscape Characteristics to Dominant Hydrologic Processes:* **A Lessing**, H K McMillan

1910406 *Making teaching models easy - web apps for hydrologic modeling in classrooms:* **J P Gannon, PhD**, J Seibert

1872749 *Nutrient Loading from Headwater Streams in the Lake Champlain Basin: Quantifying High-Flow Events:* **A Amann**, C Fuss

1961386 *Patterns of Nitrogen Export from a Forested Watershed: Quantifying Critical Zone and Non-perennial Streamflow Controls:* **J M Duncan**, M Marsh, N Anderson, E W Boyer

1996895 *Plant Water Use Strategies and Water Movement in Shallow Desert Soils of a Piedmont Site in High Temporal Resolution.:* **A Dagda**, O Ramirez-Valle Sr, L Jin, L Ma, A Darrouzet-Nardi, M Engle, H A Gutiérrez-Jurado

1998472 *Quantifying Spatial and Temporal Variability of Biogenic CO₂, CH₄, and N₂O Emissions in a Suburban Catchment of Baltimore, Maryland:* **G Pezich**, J M Duncan, L E McPhillips, P Groffman

1981778 *Simulating Production and Loss of Nitrate at Pore Scale in Non-Irrigated Grassland Soils:* **S K Fogg**, S A Ewing, A M Reinhold, R A Payn, C Krause, Y Hastings, S Warnat, N Ahmed, W Kray

1926644 *Spatial variability in subsurface storage shapes stream biogeochemistry:* **P L Sullivan**, K Johnson, S A Bush, J Ortega, Z Perry, K Jankowski, J Carey, L Sethna, C Segura

- 1964457** *Strategies for producing reusable environmental monitoring data products that fully archive scientific workflow and data provenance:* **R A Payn**, V Bayrd
- 1874489** *The role of seasonality and discharge on spatial patterns and representative scales of stream chemistry across three arctic mesoscale catchments:* **A Grewal**, J P Zarnetske, A Grose, A Rec, B Abbott, W B Bowden, J A O'Donnell, A J Shogren
- 1914247** *Tombstone Waters Observatory: Unveiling Critical Zone Processes in Rapidly Changing Permafrost Catchments:* **S K Carey**, E K Skierszkan, M Lindsay, A J Szeitz, A Grewal, E Nicholls
- 1962255** *Trace Metal Mobility in a Metal-Rich Tropical Watershed:* **T Korstanje**, A A Olsen, W H McDowell
- 1902964** *Using Geochemical Characteristics of Natural Springs to Determine Groundwater Flowpath Length and Stream Permanence in a Semi-arid Landscape:* **R Wells**, A Price, A Bergstrom

248408

Causality, Connectivity, and Complexity in the Geosciences (joint with B, NG)

Conveners: **Allison Goodwell**, University of Colorado Denver; **Peishi Jiang**, University of Illinois at Urbana Champaign; **Leila Hernandez Rodriguez**, Lawrence Berkeley National Laboratory; **Mohammed Ombadi**, Lawrence Berkeley National Laboratory; **Rebecca Herman**,

- 1913615** *A Novel Multiscale Dynamic Causal Inference Framework for Resolving Climate–Nutrient Feedbacks in River Systems:* **H Bae**, Y Oh, S T Yun
- 1904141** *Causal Insights into the Dynamics of Atmospheric and Oceanic Variability across Multiple Timescales:* **S He**, E K M Chang, C Zheng, S Yang, J Lee, X Yang, D Chen

250833

Challenges and Solutions for Hydrologic Scaling Across Multiple Processes and Scales

Conveners: **Antonio Alves Meira Neto**, Colorado State University Fort Collins; **Hannes Bauser**, HGS MathComp; **Minseok Kim**, Johns Hopkins University; **Esther Xu Fei**, New Mexico Institute of Mining and Technology

-
- 1985925** *Developing a Conceptual Model to predict river Intermittency from Hydroclimatic Parameters:* **N U S Fraz**, A Alves Meira Neto

- 1903235** *Using trace element patterns and strontium isotope ratios in woody and grass plants to understand water and nutrient uptakes at a grass prairie ecosystem impacted by woody encroachment:* **L Ma**, P L Sullivan, R Keen, M F Kirk, J B Nippert
- 1992474** *Variations in stream water nitrogen concentrations across forested Adirondack headwater catchments:* **C Fuss**, A Amann, M Lesser
- 1948964** *Winter Is A Hot Moment Of Nitrate Export In The Mountains Of Northern New England:* **A Hedges**, J B Shanley, M Duffy, D M Rizzo, K A Ryan, C Adair, A W Schroth
- 1901357** *Winter streamflow event partitioning in two semi-arid headwater catchments with ephemeral snowpack:* **E Ellis**, S Dymond
- 1928283** *Hydrologic Structure and Consistency Performance Evaluator (HYDROSCOPE):* **M Ghosh**, A Anshuman, M Kumar
- 1960667** *Information-Theory Insights into Land-Surface Causality and S2S Predictability:* **M Askarzadehfarahani**, A Wood
- 1974774** *Multivariate Non-Stationary Time-Series Predictions using Transformer-based Models:* **H Shah**
- 1984464** *Towards Robust Causal Discovery in Earth Systems: A Subsample-Based Perspective on Link Stability:* **E Eldhose**, A Ganguly, S Ghosh
- 1884550** *What Would Have Happened If...?: Counterfactual Explanations of a Hydrological Graph Neural Network using a Generative Adversarial Network:* **A Moronfoye**, P Kumar
- 1859639** *Developing Mass-Conserving-Perceptron-Based Neural Networks for Physically Interpretable and Parsimonious Catchment-Scale Rainfall-Runoff Modeling:* **Y H Wang**, Y Yang, H Gupta
- 1938207** *Development of a Three-dimensional groundwater flow model for application to large scale problem:* **Y Miura**, K Yoshimura
- 1964725** *Hitting The Road: What controls inundation in low-order streams traversing transportation networks?:* **B Kilicarslan**, O Emamjomehzadeh, O Wani
- 1952244** *How do you quantify a subsurface moisture deficit at the basin scale?:* **D A Lapides**, W J Hahm, D M Rempe, D Dralle
- 1903896** *Hydrological impacts of nitrogen fertilization in a tile-drained watershed under climate change and varying spatial scales:* **M KIM**, J Lee, R Bhattarai, H Jeong

1847949 *Interpretation of the Budyko Framework for Monthly Evapotranspiration Prediction of Individual Basins:* **H Sun**, X Wang, Y Qu, J Lyu, H Cai, X Zhang

253102

Climate change impact on water pollution and air pollution

Conveners: **Jingyu Wang**, CUNY Graduate Center; **Gary Hemming**, CUNY Queens College

2005781 *Climate change impact on air pollution and water pollution in New York City:* **J Wang**

251968

Coastal Hydrology: Observation, Modeling, and Prediction of Surface and Subsurface Processes and Patterns (joint with EP, NH, OS)

Conveners: **Soheil Radfar**, University of Alabama; **Hamed Moftakhari**, University of Alabama; **Frank Tsai**, Louisiana State University; **Annalisa Molini**, Tulane University

1977097 *Advancing Hydrologic Modeling for Coastal Texas: Capabilities and Limitations of 2D Routing in HEC-HMS:* **B Devkota**, S Mahat, A Paudel, A Kiaghadi, M S Islam, R Neupane, D Moore, D Li, N Fang

1970137 *Causal Relationships Between Water-Column Dynamics and Bottom Dissolved Oxygen:* **R Badpa**, K M M Lwiza

1952106 *Cold season hydrological and temperature dynamics in coastal wetlands across the northeastern US:* **E Boles**, M E Eagle, J Tamborski, J Guimond

1880063 *Compound Effects of Evolving Climatic and Coastal Drivers on Shallow Aquifers:* **X Wang**

1868997 *Controlling Drivers of Wave-Driven Ripple on Interfacial Fluid and Solute Exchange in Coastal Hyporheic Zone:* **C Y Chen**, J Zhang, H A Michael, T J Hsu

1869156 *Coupling Coastal River-Subsurface Seawater Intrusion with a Modified Darcy-Brinkman Framework:* **T J Nieh**, F T C Tsai

1954117 *Decadal Variability of Mixed-Layer Depth and Wind Forcing on Surface Chlorophyll-a Distribution in the Bay of Bengal:* **S U M B Chowdhury**, K M A Chowdhury, N U M K Chowdhury, A Moontahab, A Karmakar

1873699 *Designing the Coastal Subsurface Monitoring System for Southeast Florida:* **M C Sukop**, K Lau, H Eschenburg, A Loyola

1981711 *Influence of Seasonal Groundwater Fluctuations on VOC Intrusion via Sewer Systems in the San Francisco Bay Area:* **E Lasky**, K Hill

2001616 *Micro2Macro: Using Climate-Informed Microbial Source Tracking Data and Modeling to Guide Nature-Based Water Solutions in Tropical Watersheds of Florida and Trinidad:* **R Bridgemohan**

1890697 *Equivalence and Impact of Inland Boundary Conditions on Seawater Intrusion Modeling in Stratified Coastal Aquifers under Sea-Level Rise:* **Y Liu**, J Luo, S S Rathore

1920193 *Exploring the Hydrologic Dichotomy of Saltwater Intrusion Events in the Lower Mississippi River Basin.:* **R Shah**, J L Sabo

1958733 *Exploring the Link Between Salt Tolerance, Plant Hydraulics, and the Resilience of Coastal Wetlands:* **E Ozioko**, A Nwokoye, C Berger, B Kleiss, A Molini

1891276 *Flood Inundation and Suspended Sediment Flux Projections Indicate Significant Toxic Metal Inputs in the NE Gulf of Mexico as a Result of Hurricane Impacts:* **S Anderson**, N Dimova, J M Frame, H Moftakhari

1964328 *Freshwater and Saltwater Interactions Drive Coastal Aquifer Salinization:* **G Nordio**, P J Dennedy-Frank

1947835 *From Local to Regional: Seawater Intrusion into Coastal Aquifers via Preferential Inundation Pathways:* **J Luo**, C Lu

1900757 *Hydrogeochemical Processes Driving Elevated Arsenic and Fluoride in the Texas Gulf Coast Aquifer:* **P Knappett**, H Goodwin, R Buskirk, T Roh, D K Nordstrom, F Marcantonio

1868171 *Hydrologic controls on Surge Induced Salinization in Coastal Forest-Marsh Gradient:* **A Noori**, S Fagherazzi

1854064 *Impact of Future Rainfall and Sea-Level Rise on Groundwater-Surface Water Interaction and Salinity in South Florida:* **M A Gebremedhin**, A S Elshall, M Ye, S Tsegaye, R R Rotz, S Krueger

1889075 *Introduction of Japanese river's suspended particles during river-flood into coastal water increases dissolved ¹³⁷Cs:* **H Takata**, Y Wakiyama

1977976 *Multivariate Analysis of Sea Surface Salinity, Sea Surface Temperature, and Chlorophyll-a in the California and Pacific Northwest Coastal Regions using Satellite Derived Data:* **B Prim**, A R Perez, J Vazquez, L Baskaran, J T Roberts, M Giraldo, A Halaby, J Spier

- 1871166** *Numerical Analysis of Wind-Wave-Current Interactions during Tropical Cyclones in the South China Sea using COAWST:* **Y Shi**, Y Low, Y P Li
- 1861508** *Numerical Investigation of Storm Surge Effects on Nitrogen Cycling in Nearshore Aquifers:* **W Song**, C Lu, J Luo
- 1891837** *Quantifying Impact of Extreme Events and Typhoons on Sediment Transport in Japanese River Systems at High Temporal Resolution:* **D Sehgal**, D Yamazaki, K Udo
- 1976336** *Reconstructing nearshore tidal surface water elevation from SWOT to simulate coastal wetland biogeochemistry:* **E Fluett-Chouinard**, B N Sulman, T O'Meara, J R Holmquist, S J Wilson, N D Ward, P Matte, M Simard, S C Pennington, V L Bailey
- 1985594** *Refining Sea Level Trends at the Coastal Interface: Insights from an Evolving Altimetry Record:* **B Hamlington**
- 1966257** *Regional assessment of climate variability with links to streamflow and groundwater fluxes in Southcentral Alaska:* **J Jenckes, PhD**, A Russo, W Matyas, D F Boutt, L Munk
- 1947895** *Revealing the Influence of Tidal Forces on Surface Current and Mesoscale Eddies in the Northern Bay of Bengal: A Modeling Approach:* **T Sumaia Khan**, K M A Chowdhury, A Moontahab, T A Capuano, N U M K Chowdhury, S U M B Chowdhury
- 1861416** *River Deltas Under Change: Integrating SWOT Observations and Graph Theory to Predict the Response of Deltas to Climate and Human-Induced Change:* **P Passalacqua**, E G Henson, M S Daniller-Varghese, J P Schwenk, A Piliouras
- 1971916** *Saltwater Intrusion in Coastal Freshwaters Under Changing Ocean and Hydrologic Conditions:* **S Mukhopadhyay**, L Kim, M C Levy, M A Merrifield, S Giddings

248166

Compound Flooding in Coastal Urban Areas: Integrating Sea Level Rise, Tidal, Groundwater, and Stormwater Dynamics (joint with NH)

Conveners: **Valentina Prigione**, University of Padua; **Amrutha Suresh**, University of Padua; **Mahla Tajari**, University of Padua

- 1923522** *Seasonal Salinity Hysteresis in Estuaries: Governing Role of System Response Time and Hydrologic Forcing:* **M Yavary Nia**, A Canestrelli, H Klammler, M D Annable, D Pinton, J W Jawitz
- 1874942** *Simulating Groundwater Tidal Interactions in a Coastal Forested Wetland Using MODFLOW: A Case Study from the Santee Experimental Forest:* **A Sadeghi**, C J Allan
- 1946912** *Simulation of the thermohaline structures in the Northern Bay of Bengal:* **A Moontahab**, T Sumaia Khan, T A Capuano, K M A Chowdhury
- 1880853** *Surface-Subsurface Hydrological Connectivity and Salinity Dynamics in a Back-Barrier Marsh:* **N Flaherty**, M R Hiatt, J R White
- 1949366** *Tight coupling of groundwater and sewer models for compound flood modelling in coastal urban areas:* **V Prigione**, K L Jahn, J Hughes, A Suresh, M Tajari, L Herdman, B Bayraktar, K Masterson
- 1869912** *Time-Series Analysis of Potential Mining Impacts in Southeast Georgia:* **H Slaughter**, A Milewski
- 1934957** *Title:3-Dimensional Groundwater and Surface Water Interactions Modeling in Urban Coastal Miami Dade to Understand Urban Flood Drivers Using MODFLOW 6, and Delft3D with DISV Discretization to Capture the Complex Geometry of Coastal and Urban Hydrologic Features.:* **M Cardona**
- 1924295** *Tracing Coastal Groundwater Change: Data-Model Synthesis under Sea-Level Rise and Climate Change:* **M Yavari Nia**, H Klammler, M D Annable, A Canestrelli, J W Jawitz
- 1863693** *Understanding Extreme Coastal Sea Levels: Insights from Causal Inference Modelling:* **Q Jiang**, Y Low, X He
- 1920526** *Assessing Compound Flood Impacts on Groundwater Levels in Coastal Urban Communities:* **F L Santiago-Collazo**, A Bunker
- 1872867** *Assessing Groundwater Level Variations in Response to Compound Flooding: A Case Study of Tybee Island, GA.:* **C Majeni**, A Milewski
- 1989494** *Benefit-Cost Analysis of Green and Gray Infrastructure Solutions for Sea-Level Rise Adaptation in a Confined Estuary:* **S M Zapp**, M W Brand, T Yusuf, P Bacopoulos, J Schmitt, M A McKeon, H Diefenderfer, C Janousek
- 1852105** *Block-Scale Flood Depth Simulations During Hurricane Irma:* **B P Jangid**, S Lazarus, W Pringle, N Velásquez
- 1949853** *Altered morphology as a possible cause of increased tidal regimes in Biscayne Bay (FL): insights from a reduced-complexity model.:* **E Moresco**, N Tambroni, S A Talke
- 1967802** *Anticipated Compound Flooding in Miami-Dade Under Extreme Hydrometeorological Events.:* **A Gumbs**, A Shanko, A M Melesse, J Obeysekera

- 1954837** *Compound Flood Risk Under Future Climate: A Storyline Approach to Extreme Precipitation and Lake Levels in Chicago, Illinois*: **Z Zhou**, P Xue, Y Chen, A Li Walker, E S IM
- 1992065** *Global Assessment of Fluvial Flooding Amplification in Coastal Megacities Driven by Sea Level Rise*: **P Modi**, Y Hirabayashi, D Yamazaki
- 1962424** *Investigating the contributions of inland runoff, coastal, and compound processes to flood hazard and exposure during tropical cyclones.*: **M M Rashid**, R Uddin Ahmed
- 1856423** *Large discrepancies between event- and response-based compound flood hazard estimates*: **S Santamaria-Aguilar**, P M Mahanthe Gamage, A R Enriquez, T Wahl
- 1900607** *Machine Learning-Powered Flood Intelligence: A Scalable Sentinel-1 SAR Pipeline for Near-Real-Time Inundation Mapping and Disaster Informatics*: **R Amer**
- 1979747** *Measured and Computed Compound Flooding along Two Heavily Urbanized Rivers, West-Central Florida, USA*: **E Royer**, P Wang

252105

Compound, Concurrent, and Cascading Hazards in a Changing Climate: Identifying Drivers, Impacts, and Risk Implications (joint with A, GC, NH)

Conveners: Vinnarasi Rajendran, Indian Institute of Technology Roorkee; **C. T. Dhanya**, Indian Institute of Technology Delhi; **Shushobhit Chaudhary**, Indian Institute of Technology Dhanbad; **Usman Mohseni**, Visiting Researcher

- 1873676** *Uncovering Multi-Scale Drivers of Hydroclimatic Whiplash over India (1951-2020) using Machine Learning-Augmented Dynamic Causal Networks* : **D Bhattacharjee**, C T Dhanya
- 1854340** *Weather Jiu Jitsu: A 21st century paradigm to leverage nature's power to mitigate some Compound, Concurrent, and Cascading Weather Hazards in a Changing Climate*: **U Lall**, M Liu, Q Huang, H H Kwon, A Nayak, Y Kwon, M Zhang
- 1954887** *A Mile of Devastation: Documenting the June 2025 Beitel Creek Flood in San Antonio*: **A Bose**, E Eid, H O Sharif
- 1972204** *Are Coincidental Compound Extremes Escalating across the Himalayan Region under Climate Change?:* **A Singh, PhD**, S Barbhuiya, P J Sharma, V Gupta, A Sharma, PhD

- 1919911** *Multivariate Flood Hazard Assessment for Coastal India*: **U Mohseni**, A Khouakhi, V R
- 1959745** *Representing Fast (Surface) and Slow (Subsurface) Threats to Below-Ground Water Infrastructure in Integrated Urban Coastal Hydrologic Modeling*: **A K Farnum**, O Erukubami, C B Voter, H A Michael, P T Imhoff, T Barber, L Trout, C Overcash
- 1899432** *Simulating the Impacts of Green and Grey Solutions for Compound-Driven Nuisance Flooding: Tides, Wave Runup, and Non-Tidal Residual*: **T Yusuf**, M W Brand, P Bacopoulos, S M Zapp, J Schmitt, M A McKeon, H Diefenderfer, C Janousek
- 1937068** *Temporally Downscaled Compound Coastal Flooding Scenarios for an Urban Watershed in New York*: **A Hjelmstad**, A A Tavakoly, A Byrd, N Memarsadeghi, V Roland, PhD, A W Sisco, A AghaKouchak
- 2002486** *Understanding Compound Flood Hazards: An Interactive Web Application*: **L Herdman**, K Masterson3, R Welk, R Glas, K L Jahn, S Cook, J Barclay, J Finkelstein
- 1941248** *Changes in Compound Events under a CO2 Removal Scenario using CESM1*: **Y Shin**, K H Seo
- 1935567** *Compound Wildfire and Heatwave Events in the U.S. Under Climate Change*: **T R Dan**
- 1919746** *Compounding Effects of Climatic and Non-Climatic Events*: **A AghaKouchak**
- 1865052** *Global Emergence of Hot and Dry Compound Extremes and the Predictability of Mosquito Habitat Suitability in the CESM2-LE*: **A Dwyer**, E A Barnes, J W Hurrell
- 1903838** *Global Trends and Emerging Gaps in Multi-Hazard Flood Risk Research: A Bibliometric Synthesis (2010–2024)*: **A N Geykli**, E Gul
- 1955069** *Modeling compound drought impacts on vegetation in the southeastern U.S. using vine copula*: **P Khedun**, S Dhamala, A K Mishra
- 1931385** *The Changing Characteristics of Extreme Heat Events and Their Effects*: **L Huning**, N Januario
- 1853825** *Unravelling Localized Hotspots and Spatiotemporal Patterns of Compound Dry and Hot Extremes in Maharashtra, India*: **S M Rajesh**, U Mohseni, A S
- 1920625** *When Day Meets Night: Unravelling the Hotspots of Compound Heat Stress in India*: **U Mohseni**, V R

250494

Conservation Ecohydrology (joint with B)

Conveners: **Christopher Kibler**, University of California Santa Barbara; **Bryn Morgan**, Massachusetts Institute of Technology; **Conor McMahon**, University of California Santa Barbara; **Conor McMahon**, University of California Santa Barbara

- 1961606** *Analyzing Depth to Groundwater in Relationship to Ecological Traits for Habitat Restoration:* **K Neupane**, C Maxwell, T Caplan, Y Yuan, K Perez, K C Carroll, A Fernald
- 1849196** *Ecohydraulic Modeling of Hydropeaking Effects on Fish Habitats of European Grayling and Brown Trout in a Regulated River:* **J Chen**
- 1948109** *Ecohydrological Assessment of Groundwater Overdraft and Nitrate Legacy in the Indo-Gangetic Plain: A Case Study from the Hindon Basin:* **D Bodana**, V R, S Kumar Jain
- 1857831** *Ecological Drought Impacts on Forest and Grassland: Response Patterns and Ecosystems Resilience Assessment:* **Y Han**, Y Qu, T Jiang, X Zhang, J Lyu, X Su
- 1920069** *Experimental Study on Flow Behavior through Finite and Continuous Vegetation Patches in an Narrow Open Channel:* **S N Kashyap**, B Barman
- 1873081** *Exploring the Hydraulic Stress and Growth Responses of Forest Thinning in Mixed Species Forests Across the US with Ecohydrological Modeling:* **J Knighton**, R T Fahey
-

250090

Critical zone as a mediator of hydroclimate-ecosystem (a)synchrony (joint with B, GC)

Conveners: **Galen Gorski**, U.S. Geological Survey; **Zhaozhe Chen**, University of Wisconsin Madison; **Alexandra Contosta**, University of New Hampshire Main Campus; **Desneiges Murray**, Brown University

- 1848044** *Critical Zone States, Gates, and Hidden Weights: Machine Learning to Understand Temporal Dynamics Based on Sparse or Intermittent Stream Chemistry data:* **A E Goodwell**, T Agrawal, J Wang, P Kumar, J L Druhan
- 1928863** *Evaluation of the Spatio-temporal Matching between the Forest and Grassland Vegetation Pattern and Blue-green Water Resources in the Inner Mongolia Plateau:* **Z Liao**, Y Long, J Jin, G Li

1940382 *HEC-RAS 2D Simulation of Vegetated Flows with Centerline Patches:* **L F S Haque**, E Jang, Y Park, U Ji

1967364 *Hydrological and ecosystem impacts of in-stream artisanal mining in central Rwanda:* **A Spiller**, I Lars Lonsmann, M Bendixen, P Habinema

1969426 *Integrating tree-ring and remote sensing indicators to assess drought response in dryland riparian woodlands:* **J C Stella**, Y Zhao, R Pentico, J E Drake, S Voelker, K K Caylor, D A Roberts, M B Singer

1900766 *Measuring Groundwater Depletion by Invasive Plants using Low-cost Physiological Sensors: Case Studies from Desert to Rainforest:* **M W Burnett**, T Dudley, K K Caylor, H S Young, L D Anderegg

1882427 *Past, Present and Future Ecohydrology of Florida Lakes and Fringing Wetlands: Stochasticity, Engineered Alterations, and Water-Withdrawal Policies:* **T Whitmore**, M Riedinger-Whitmore, C Letts

1966328 *Potential Ecohydrologic Impact on a Wetland Canopy Tree Species (*Taxodium distichum*) by Impoundment of Water for Managed Aquifer Recharge:* **G R Davidson**, J Granger, C Lahiri, L D Yarbrough, R Counts

1968257 *Predicting Hydrological Dynamics of Isolated Depressional Wetlands to Prioritize Habitat Conservation:* **J W Riley**, M Roth, R Burner, A Kelly

1849322 *Using Woody Biomass for Passive Ecohydrological Restoration in the Post Oak Savannah:* **B Dominici**, P A Leite, R Combs, B P Wilcox

2003442 *Exploring Hydrologic Process Interconnections with a Transfer Learning Approach:* **A Bennett**, A R Lamichhane, A Tapia Araya, N Kalauni

1907241 *Global Tree Growth Responses to Seasonal Asynchrony Between Precipitation and Evaporative Demand in a Changing Climate:* **E Feuer**, Y Mau

1882146 *Leveraging Information Theory to Investigate Evapotranspiration-Hydroclimate Synchrony under Changing Hydrologic Regimes:* **Z Chen**, M Zimmer, E C Seybold, K E Kaiser, J M Mallard, L Lowman, L Larsen, D Murray, G Gorski, N J Gubbins, A Contosta, A Tashie, S Dymond, A Price

1874893 *Shallow Snowpack and Early Snowmelt Constrain Critical Zone Nitrogen Cycling in Northern Hardwood Forests:* **S Caron**, C T Driscoll, J Campbell, P M Groffman, B Leonardi, A Reinmann, L Rustad, G Wilson, P H Templer

250885

Critical Zone Response and Resilience to Wildfires (*joint with B, GC*)

Conveners: **Andres Sanchez**, University of Southern California; **Jon Chorover**, University of Arizona; **Adrian Harpold**, University of Nevada Reno; **Tirthankar Roy**, University of Nebraska-Lincoln

247927

Data-Driven Ecohydrology: Monitoring, Modeling, and Mitigating Seawater Intrusion, Compound Flooding, and Soil Salinization in Coastal Wetlands (*joint with B, EP, IN, NS*)

Conveners: **Yao Hu**, University of Delaware; **Ying Zhao**, JLU Jilin University; **Wenhong Li**, Duke University; **Jingyi Huang**, University of Wisconsin Madison

1966041 *Assessing spectra and potential applications for understanding temporal trends in coastal wetland plant traits:* **G Silva**, D A Roberts, J Y King

1931436 *Coupled Tide-Aquifer Modeling Guides Nature-Based Flood Mitigation in Lewes, Delaware:* **Z Xu**, D Golbaz, C He, Y Hu

1980498 *Designing a Saltwater Intrusion Monitoring Network in Coastal Delaware: Identifying Vulnerable Areas and Addressing Critical Monitoring Gaps:* **R Ibrahim**, R W McQuiggan, K Buell-Fleming, B Scarborough, M Grabowski, L B Ball, B J Minsley, H A Michael, K Brinson

2001532 *Drainage Ditch Mapping for Wetland Restoration and Climate Resilience:* **G Yang**, K Warnell, J Fay, L P Olander

1880974 *Estimating groundwater salinity using global remote sensing products and random forest modeling in a restored coastal floodplain:* **E Heberlein**, N D Ward, P Regier, E Fluett-Chouinard

251260

Digital Solutions for Hydrological Process Observations and Water Resource Management (*joint with A, C, EP, IN*)

Conveners: **Petteri Alho**, University of Turku; **Hannu Marttila**, University of Oulu; **Bjørn Kløve**, University of Oulu

1938903 *A tale of two fires: Comparison of post-fire hydrologic recovery in the Upper Russian River watershed:* **S Ogle**, M Ralph

1952846 *Identification of Tipping Points of Forest Fire Occurrence in the Western Himalayan State:* **N Jindwal**, A Nanda

1980482 *Quantifying Post-Wildfire Changes in Peak Flow Dynamics:* **F Jalili Pirani**, P D Coulibaly

1862368 *Slope-Aspect Governance on Ecohydrological Wildfire Recovery:* **A Kellogg**, R Webb, F Nippgen

1972675 *Hydroclimatic factors affecting salt marsh survival and carbon burial during sea level rise in Eastern North Carolina, USA:* **C Hoeun**, D C Barber, S Nicholson

1870451 *Hydrologic Insights from SPRUCE Warming for Data-Driven Wetland Modeling:* **X Shi**, D M Ricciuto, J Warren, T O'Meara, J Mao

1963099 *Mapping Climate-Driven Septic System Vulnerability on Virginia's Eastern Shore:* **F Hesamfar**, T Culver

1951031 *Mapping Inundation Frequency using Sentinel-1 as a Potential Driver of Coastal Freshwater Forest Mortality:* **I Arauz**, T Pavelsky, C Wang, A Sebastian

1974231 *Projecting Soil Salinity Dynamics in the Southwest Coastal Bangladesh:* **M J Hossain**, E A B Eltahir

1939359 *Quantifying Seawater-Retreat Dynamics under Declining Permeability in Reclaimed Coastal Aquifers:* **J Zhang**, C Lu, Y Hu

1915928 *Revealing the Seawater-freshwater Interface Dynamics from Estuary Water Column Temperature Observations:* **I Matic**, V Srzic, J Čarija, M Milin

1972707 *Salinity Dominates Moisture Content in Soil Water Potential at Marsh-Forest Boundaries:* **T R Junayed**, D Pratt, R Leff, K Gedan, H A Michael

1975137 *The Role of Coastal Wetlands Vegetation in Mitigating Hurricane-Induced Storm Surge Flooding in South Carolina: A SCHISM Model Analysis:* **S Bao**, H Wang, M Tarullo, L J Pietrafesa

1911296 *Untangling Dynamic Drivers of Salt Marsh Migration:* **D Pratt**, J Guimond, T Messerschmidt, J G D Jobe IV, M L Kirwan, K Gedan, S Fagherazzi, H A Michael

1889552 *Climate Change and River Regime Alterations in Arctic Region: Trends, Impacts, and Hydrological Implications:* **A Tehseen**, P Alho, E Kasvi

1993564 *Enabling Water Resource Management Through a Cloud Based Platform for Modeling and Monitoring of Hydrogeological Processes using Time Lapse Electrical Resistivity:* **R J Versteeg**, R Soltanian, S Kacur, G Partridge, D V Johnson, T Turner, M van der Werf, M de Kleine

1845613 *Environmental impacts of peat extraction site rewetting – Can we make a digital replicate from the restored peatland?:* **H Marttila**, A Lohila, M Liimatainen, A K Ronkanen, H Postila, M Aurela, X Lu, T Aalto, J Rinne, O Peltola, H Aaltonen, T Liedes, J Kinnunen, A Isoaho, M Niiranen, A Räsänen, K R Mustonen, T Muotka

1941705 *Hydrodiversity: Advancing a Framework to Understand River System Resilience in a Changing Climate:* **P Alho**, V Kankare, H Marttila, E Kasvi

249867

Drought risk in changing climate – diagnosis, modeling, and management (joint with ED, GC, NH, SY)

Conveners: **Chandra Rajulapati**, University of Manitoba; **Arpita Mondal**, Indian Institute of Technology Bombay; **Sudarshana Mukhopadhyay**, Scripps Institution of Oceanography

1970774 *Emerging Global Patterns of Persistent Drying: Unraveling the Roles of Climate Modes and Anthropogenic Forcing:* **A Samara**, R Seager, J E Smerdon

1912937 *A Data-Driven Framework for Streamflow Drought Typing and Driver Identification:* **C Bowers**, J D Smith, J C Hammond, H Essaid, J Marshall

1916559 *A drought reimagined: Projecting hydrologic shifts of a past drought under future conditions:* **C A Penn**, K Merriman, J D Smith, H Essaid

1961495 *A Global Probabilistic Framework for Meteorological Drought Risk Assessment Using Self-Calibrating PDSI and Stochastic Simulation:* **C Liang**, Z Flamig, J P Kossin, E J Kearns

1919747 *A Pan-European Water Table Depth Anomaly Dataset from 1950 to Present:* **Y Ma**, C Montzka, B S Naz, S J Kollet

1867037 *Accelerating Drought Vulnerability in India: Vegetation Water Stress Under Climate Change:* **S Tiwary**, A Mondal

1909927 *Anthropogenic Climate Change Intensifies Synchronous Droughts Across Indian Rivers:* **D S Chuphal**, V Mishra

1887828 *Aridification Distorts Drought Monitoring and Relief Efforts:* **Z Li**, R Seager, J E Smerdon, J S Mankin

1867504 *Aridity-based consistency evaluation of drought indices under climate change:* **F C Varghese**, S Mitra

1872594 *Assessing Reservoir Storage Impacts on Multi-Scale Drought Propagation Using an Upstream-Downstream Framework:* **A Gupta, PhD**, M K Jain, R P Pandey, D M Hannah, PhD

1990165 *The Inverse Predictor-Corrector Data Assimilation method for discharge estimation in rivers (IPCDA): development, sensitivity analysis and application:* **D Poblete**, R Meneses, V Madrid

1951021 *VR and AR-Based Visualization of Water Table Dynamics:* **S Woo**, M Kim

1955658 *Bivariate modeling of drought severity and duration in a warming climate using copula:* **P Khedun**, S Dhamala, K Bhardwaj, A K Mishra

1884801 *Climate-Induced Disparities in Drought Resilience Across the Divided Korean Peninsula in the Context of Socioeconomic Differences:* **W H Nam**

2001344 *Contrasting CESM and ECMWF for Predictive Modeling of Spatial Heterogeneity of Drought Indices Across Two U.S. Hydroclimates:* **N Choudhari**, Y F Elshorbany, B Jacob, J Collins

1904158 *Contrasting responses of terrestrial water fluxes to drought dominated by transpiration:* **Z He**, S Zhou

1908588 *Data Bottlenecks and Algorithmic Lag in AI for Droughts: A Review of 20-Years Worth of Trends:* **G Ascenso**, M Giuliani, J Pérez-Aracil, S Salcedo-Sanz, G Camps-Valls, C Bertini Dr, P Bonetti Dr, N Linscheid, M Merlo, M Á Fernández-Torres, G Palcic, M Reichstein, A Ficchi, A Toreti, A Castelletti, M Restelli, E Walt

1969709 *Decoding Drought Dynamics: A Multi-Method Intercomparison for Event Characterization Across Spatio-Temporal Scales:* **L Nguyen**, Q Li, M Ombadi

1963305 *Drought Assessment Using Spectral Remote Sensing Indices in the Central Rift Valley Lakes:* **M T Gedefa, MSc**

1899061 *ENSO-Modulated Escalation of Global Drought: How ENSO Drives Drought Occurrence and Severity:* **T N D Tran**, V Tran, A Arshad, B Goffin, S K Do, K H Tran, J B Eylander, J D Bolten, S Crisanti, V Y Ivanov, V Lakshmi

1903641 *Escalating Global Drought Hazard: Evidence from Onset to Rebound:* **T N D Tran**, V Tran, S K Do, J B Eylander, K H Tran, S Crisanti, J D Bolten, V Y Ivanov, V Lakshmi

1901413 *Evolution of Water Balance, Cost and Stress in the Maipo River Basin During the 21st Century, Chile.:* **M Puentes Nazal**, F Lambert, R Calvo-Gallardo

1851138 *Global Assessment of Compound Meteorological-Soil Moisture Droughts: Trends and Climate Mode Influences:* **S Marshall**, T N D Tran, V Lakshmi

1866870 *Global Droughts in an Interconnected World: A Network-Based Assessment of Regional Risk and Vulnerability:* **K J Duhaylungsod**, K H Ahn, M A Nayak

- 1902215** *Global Flash Drought Risk Under Climate Change: The Role of Definitions in Impact Assessments:* **F Ong'ondo**, M Zhao
- 1941236** *Historical and future changes of global soil moisture drought characteristics in CMIP6 models:* **A Wang**, X MA
- 1944382** *Historical Droughts over CONUS through the Lens of a Stationary Data-driven Stochastic Emulator:* **M Ghadamidehno**, S Kravtsov, C Peterson
- 1933232** *Hydroclimate Variability Influences on Drought Evolution: A Meteorological-Hydrological Analysis:* **X Zhang**, J Wu, G Wang, W Wu, D Zhang, T Lan
- 1936308** *Observed Decreases in Seasonal Drought across the Northeastern United States:* **J Winter**, J Wargo, E C Osterberg, J S Mankin
- 1950274** *Patterns and Trends of Drought Forms in the Southeastern United States:* **S A Lawal**, R Scheller, F Koch, J K Costanza
- 1997737** *Rainfall Signals and Drought Development and Recovery in the Nile Basin:* **M B Melesse**, Y Demissie
- 1952408** *Reconciling Climate Data with Individual Insights of Climate Variability in Uganda's Cattle Corridor. A New Strategy to Effective Adaptation:* **F Nalwanga**, J Nanteza, P I Mukwaya
- 1912663** *Soil moisture-atmosphere interactions intensifies the spatial propagation of drought:* **J Liang**, S Zhou
- 1931471** *Spatial and Temporal Drought Patterns Derived from Long-term High-Resolution Daily SPI Dataset Over CONUS Using Unsupervised Machine Learning Clustering Algorithms:* **O P Prat**, I Eldho, D Coates, S Wilkins, R Leeper, B R Nelson, M Shaw, S Ansari
- 1921797** *Spatial Assessment of Seasonal Hydrological Drought Risk in Northwestern Bangladesh and Their Implications:* **G Morsad**, M Salehin
- 1941782** *Spatiotemporal Evolution Characteristics of Meteorological Drought in the Yangtze River Basin from A Three-Dimensional Perspective:* **X Yang**, Y Yan, P Fu
- 1980083** *Spatiotemporal Modeling of Drought in the Texas Colorado River Basin, USA:* **P Bose**
- 1900452** *Spatiotemporal Propagations of Subseasonal Droughts over the Contiguous United States:* **S Kumar**, D Tian
- 1895814** *Still Dry After the Drought: Modeling Soil Moisture Recovery in the Colorado River Basin:* **F Hozven**, S Stevenson, C Pfleger, D E Touma, PhD, G Persad
- 1946537** *Streamflow Drought in CONUS, 1951-2024: Characteristics, Trends, and Human Influence:* **A Henny**, T Pavelsky
- 1980228** *Streamflow trends and extremes in Patagonia:* **S E Null**, L B Epele, N Osés, A Bushman, C Gray
- 1886790** *Structural Shifts in Future Drought Risk under Climate Change: A Multi-Dimensional Assessment Using the Integrated Drought Risk Index (IDR):* **J Ahn**, J Kim, M H Lee
- 1956551** *Sub-Seasonal Correlations Between Drought and Temperature Extremes:* **K Miller**, S Jurado, J H Matthes, J Marlon
- 1887973** *The role of reservoir storage and groundwater withdrawals on drought recovery and mitigation at seasonal-to-interannual time scales:* **S Arumugam**
- 1908761** *Tracking Drought Over Time from Remote Sensing Data: A Comparative Index-Based Study in Bundelkhand Region, India:* **H Sahu**, P K Garg, S Vijay
- 1930977** *Tropical Cyclones Unevenly Influence Soil Moisture Droughts:* **J Kam**, A A
- 1886411** *Understanding Flash Drought Dynamics with Surface-Root Zone Soil Moisture and Vegetation Impacts:* **M S I Khan**, Y Zhou, J Christian
- 1980061** *Understanding the Mechanisms Underlying Vegetation Response During the Early Stage of Flash Drought Development Based on CLM5:* **K Mohammadi**, J Teymoori, G Wang, K W Oleson, P E Thornton, M Thornton, S C Kao
- 1910548** *Unlocking the drought resilience potential of underutilized agroecological systems: A systematic review:* **D G Kim**, B Eichler-Löbermann, S Porembski, F Roda, C Ngosong
- 1889726** *Unraveling Drought Propagation Rates and Uncertainty Across Forested Biomes:* **L U C Vo**, L Huning
- 1879474** *A data derived workflow for simulating reservoir operations in global hydrologic models:* **J Steyaert**, E Sutanudjaja, M F Bierkens, N Wanders
- 1911904** *A Random Forest Model to Estimate Water Table Depth Over Brazil:* **M Fleury**, Y Ma, R M Maxwell
- 1874152** *Applying Backcasting with Machine Learning at Lake Mead: What are the drivers of high water temperatures at Hoover Dam?:* **E Ledres**, B Stemple Dr, H H Bauser, D Hannoun Dr

248932

Early Career Researchers Advancing Hydrology with AI and Big Data

Conveners: **Yalan Song**, Pennsylvania State University University Park; **Frederick Cheng**, Colorado State University; **Wei Zhi**, Hohai University; **Zach Perzan**, University of Nevada, Las Vegas; **Shuyu Chang**, University of Illinois at Chicago

- 1855917** *Explainable Deep Learning Reveals Climate Change Impacts on River Discharge across Gulf Coast Watersheds:* **A Shrestha**, D Tian
- 1873231** *Flood Forecasting in Data-Scarce Basins Using Event-Based Records and Multi-Paradigm Modeling with Similarity-Based Transfer:* **Y Chai**, W Ouyang, L Ye, S Xu, X Chen, Y Peng
- 1950243** *How Does Water Quality Vary in Time and Space Across the United States?:* **S A Ebrahimi**, N Fernandez, D Dai, J Lee, L Cromwell, L Wan, J Krause, L Schauer, S Soleymani Hasani, A A Ali, D Presswood, A Oliveira, L Vieira Lucchese, K Maher, A S Ward, M Arias, A Musolff, J Blaszcak, A J Shogren, H Klammler, J Gardner, M J Cohen, J W Jawitz
- 1851370** *Predicting headwater streamflow: challenges from local to global scales:* **L Wang**

249163

Earth System Science and Applications Based on a Decade of NASA Soil Moisture Active Passive (SMAP) Satellite Mission Science Data Products (joint with A, B, C, GC)

Conveners: **Dara Entekhabi**, Massachusetts Institute of Technology; **Simon Yueh**, JPL; **Mark Garcia**, JPL/CalTech; **Jared Entin**, NASA Headquarters; **Rajat Bindlish**, U. S. Dept. of Agriculture

- 1991717** *A Decade of SMAP Data Distribution at the NASA National Snow and Ice Data Center DAAC:* **L Herwehe**, E Jimenez, S Brasher, A Gilliland, S J S Khalsa
- 1979702** *A Decade of SMAP Use and User Support at the NASA National Snow and Ice Data Center DAAC:* **A Gilliland**, L Herwehe, L Booker
- 1915736** *A multi-decadal high-resolution soil water content product based on the SMAP climatology.:* **T Frederikse**, A Geers, A Mulder, A de Nijs
- 1957883** *A Multi-Sensor Framework To Generate Large Scale Spatio-temporal Vegetation Optical Depth Map for Ground-Based Validation of Spaceborne Missions:* **M E Hoque**, A Ghosh, K A Mahmud, M Kurum
- 1984713** *An Analytical Approach for Joint Retrieval of Soil Moisture and Vegetation Parameters from SMAP Observations:* **J Lee**, J Im, C H Park, H Kim
- 1915691** *Assessment of an AI-based model-free merging approach for producing continuous daily passive microwave-based soil moisture:* **H Ouattiki**, A Chehbouni, C El Hachimi, B Ait Hssaine, D Entekhabi

- 1897256** *Scalable, Uncertainty-Aware Streamflow Prediction in Snow-Dominated Catchments Using Evidential Deep Learning and CLM5 Ensembles:* **K Silwimba**, A N Flores, L R Hawkins, C Becker, K Dagon, D J Gagne II, I Cionni, J Mead, P L Sullivan, D Hirmas, S A Billings, H Ajami, L Li, J B Nippert, A Wood, G Tang, S Akor
- 1955008** *Surface Quantitative Precipitation Estimates (SQUIRE) from ARM's Scanning Precipitation Radars:* **J R O'Brien**, R C Jackson, M Grover, S M Collis, A Theisen, Z Sherman, B Raut
- 1929923** *Understanding Nevada's Groundwater using Geospatial Data and Machine Learning: Developing Student Pathways into Earth Science Research:* **S Majumdar**, J Payne, B Padilla, I de la Garza-Gibson, E Smith, R Putnam, M Collins
- 1991248** *Why and Where Physics-Machine Learning Integration Matters for Hydrologic Modeling:* **D Feng**
- 1968959** *Beyond Fluxes: Leveraging the Covariance of Soil Moisture and Diurnal Soil Temperature Range to Reveal Evapotranspiration Regime Dynamics:* **S Paul**, A Feldman, H Hsu, P Lal, K Lanka
- 1991888** *Comparing VOD from GNSS-T with Tower-Based Radiometry and Tree Water Status at the Plot Scale:* **M Browne**, K Schellenberg, T Jagdhuber, J D Wood, Y Yao, C Frankenberg, V Humphrey, J Du, A G Konings
- 1860201** *Deep Learning of Seasonal Peak Snow Water Content of Global Boreal Forest and Arctic using Spaceborne L-band Radiometry:* **D Kumawat**, A Ebtehaj, S V Kumar, A Colliander
- 1987452** *Deep Learning-Based Radio Frequency Interference Detection for SMAP Radiometry Using Semi-Synthetic Time-Frequency Representations:* **A M Alam**, M Kurum, A Gurbuz
- 1991133** *Enhancing Satellite VOD for Monitoring LFM Dynamics:* **J Du**, A G Konings
- 1852663** *Estimating Contrasting Soil Moisture-Precipitation Feedbacks Across Global Landmass Using Data from the Soil Moisture Active Passive Satellite Mission:* **J Taylor**, G Salvucci
- 1983096** *Estimating Soil Moisture Memory Using Conditional and Marginal Distributions Derived using GPM and Validated with SMAP:* **T Furuya**, M E Soyly, E Arnone, R L Bras
- 1911876** *Evaluating SMAP 400 m Soil Moisture Accuracy Across Diverse South Indian Micro-Watersheds: Insights from the REWARD Program:* **A P S**, V Gupta, B Fang, V Lakshmi, S Muddu
- 1928291** *Global Shifts in Soil Moisture Dynamics Driven by Land Cover Change:* **R Zhang**, M Zhao

- 1968011** *High-Fidelity Synthetic VOD Training Data: Enhancing Satellite Validation with a Physics-Based Radio Wave Propagation Model:* **M E Hoque**, A Ghosh, M Kurum
- 1895317** *Nonlinearity in the Soil Moisture Loss Function Captures the Global Vegetation-Water Dynamics Under Water Stress:* **R Araki**, B E Morgan, H K McMillan, K K Caylor
- 1948039** *On the relationships between antecedent precipitation and soil moisture in inland watersheds:* **P Dahal**, E Ahmadisharaf
- 1915675** *Performance and Validation of TEC Measurement from the SMAP L-band Microwave Radiometer:* **J Peng**, J R Piepmeier, G Liu, R Bindlish

249410

Advancing Geological Realism in Groundwater Hydrology: Building on the Work of Graham Fogg
(joint with B)

Conveners: Christopher Green, USGS; Yong Zhang, The University of Alabama; Jan Fleckenstein, UFZ; Nick Engdahl, Colorado School of Mines

- 1845639** *Advancing Thermodynamically Constrained Inverse Geochemical Modeling of Water–Rock Interactions: A Comparative Study from the Birimian and Voltaian Supergroups, Ghana:* **E Manu**, Y S A Loh, M De Lucia
- 1884232** *Advancing Groundwater Modeling of the Lower Mississippi–Gulf Aquifer Systems Using Realistic Hydrostratigraphy and Parallel MODFLOW 6 with Unstructured Grid:* **M Elkharakany**, M Attia, F T C Tsai
- 1862676** *Backtracking non-Fickian pollutant transport in alluvial aquifers: Model development, application, and parameter predictability:* **Y Zhang**
- 1935961** *Combining Aquifer Tests, Dye Tracing, and Hydraulic Tomography for Characterizing Solute Transport in a Fractured Aquifer:* **P Lima**, W Barrash, A Runkel, C Langevin, P K Kang
- 1845720** *Combining Physics and Machine Learning Models to Evaluate Seawater Intrusion in Baldwin County, Alabama:* **H Gholizadeh**, Y Zhang
- 1878253** *Constraining Discrete Fracture Network (DFN) Model with Observed In-situ Flow Rates: A Poissonian Approach for Improving Flow Predictions:* **M Xiao**, C Darcel, Q Courtois, P Davy, O Bour, M Klepikova
- 1882114** *Enhancing geological realism in alluvial aquifers through the geostatistical indicator and ordinary interval kriging methods:* **Y Song**, F T C Tsai, B J Minsley, W H Kress

- 1914423** *Radio Frequency Interference Trends as observed by the SMAP Radiometer:* **P N Mohammed-Tano**, J R Piepmeier, R Bindlish, L Perry
- 1975715** *Recent Advancement in SMAP Algorithm for High Resolution Soil Moisture:* **S H Yueh**, X Xu, H Huang, M Chaubell, D Entekhabi, T Wang, R Bindlish
- 1855289** *Remotely sensed freeze-thaw state from SMAP as a constraint on the modeled northern-hemisphere terrestrial carbon cycle:* **C S Potter**, K A Endsley, S Pass
- 1971567** *SMAP to NISAR: Bridging Spatial and Temporal Scales for Heterogeneity-Informed “any scale” Soil Moisture Product:* **B Mohanty**, D Mishra
- 1928655** *SMAP-Informed Forecasting of Earthquake-Induced Landslides:* **A Farahani**, M Ghayoomi
- 1846818** *Evaluation of Groundwater-Surface Water Interactions Using Machine Learning Models in Southern Alabama, USA:* **B KarimiDermani**, Y Zhang
- 1954416** *Geologic Heterogeneity and Groundwater-Surface Water Interactions – How much Detail do we need?:* **J H Fleckenstein**, G Laube, G Nogueira, C Schmidt
- 1943973** *Geologic Realism, Heterogeneity, and Uncertainty at the Groundwater-Agriculture Nexus: Does It Matter?:* **T Harter**, L Scantlebury, C V Henri, G Kourakos, S Jordan, H Blair
- 1984727** *Impact of Subsurface Heterogeneity and Hydrologic Fluctuations on PFAS-DOC Cotransport under Surface Water–Groundwater Interaction:* **Z Guo**, S Wan, D Zhao
- 1846841** *Integrated SEAWAT Modeling and Hydrogeochemical Assessment of Seawater Intrusion in the Southern Baldwin County Coastal Aquifer, Alabama:* **O Oluwaniyi**, Y Zhang
- 1881881** *Integrating hydrogeologic, geophysical, and environmental tracer data to characterize an elusive geologic reality: The depth of mountain groundwater circulation:* **A H Manning**, L B Ball
- 1985736** *Investigating Conduit Activation and Flow Dynamics in a Karst Aquifer Through Integrated Field Investigation and Modeling:* **J Huang**, C Soucey, J Barry, C Langevin, P K Kang
- 1862533** *Multiscale Transport and Biogeochemical Dynamics in Riparian Floodplain and Compound Bar Systems:* **R Soltanian**
- 1845750** *Quantifying Human Intervention and Climate Variation Impacts on Streamflow in Alabama, USA Using a GIS and Process Based Modeling Approach:* **M R Arefin**, Y Zhang
- 1897843** *Spatiotemporal Patterns of Groundwater Depletion in the Southeastern United States and Its Relationship to Water Usage:* **F Saedi**, M Kumar, P Clement

- 1941116** *The MADE Site at 40: How One Field Site Redefined Contaminant Transport Modeling:* **C Zheng**, Z Guo
- 1849684** *The Role of Heterogeneity in Shaping Transport Behaviors Through a High-Alpine Headwaters Catchment:* **A Ghasemi**, N Engdahl
- 1904142** *Transient Hydraulic Tomography Inversion in Fractured Aquifers using Sequential Gaussian Mixtures: A Laboratory Study:* **P Muraharirao**, P Kbn Prof
- 1924859** *Uncovering Aquifer Interactions: A Multi-Method Characterization of Southwest Georgia's Claiborne and Upper Floridan Aquifer Systems:* **H Hubert**, A Milewski

250193

Connecting Science and Communities: Co-Created and Integrated Approaches for Understanding and Addressing Water Hazards in a Shifting Hydroclimatic Landscape (joint with A, GC, NH, SY)

Conveners: **Emad Habib**, University of Louisiana at Lafayette; **Liz Skilton**, University of Louisiana at Lafayette; **Mohamed ElSaadani**, University of Louisiana at Lafayette; **Steven Burian**, University of Alabama; **Selena Hinojos**, Pennsylvania State University Main Campus

- 1962229** *Mapping the Forgotten Floods: Historical Urban Flood Events and Exposure Disparities in Jackson, Mississippi:* **M M H Chowdhury**, B Herbert
- 1978913** *The End of the Road: Present and Future Chronic Flood Risk Along Coastal Roadways and Impacts to Community Livability:* **R McCUNE**, K Anarde, A Sebastian, J P Collins, L E Grimley, E E Hamidi, M Hino, C Dietrich
- 1932207** *Aligning Earth Observations with Climate Perception: Evaluating Drought and Flood Identification Methods in Nepal's Chitwan Valley:* **T Bango**, N Choquette-Levy, S Redicker, D Ghimire, U Sharma
- 1886086** *Assessing Infrastructure Vulnerability and Evacuation Routes to Flooding Using Spatial Database Management: A Case Study of City of Mobile, Alabama:* **M M Haque**, W Shao, S Dhital, D Li
- 1865464** *Assessing Social Vulnerability and Land Use Change Interactions Across the Gulf Coast: A Spatiotemporal Analysis in Alabama, Louisiana, and Mississippi:* **A Tabassum**, W Shao
- 1958408** *Assessing the Climate Resilience of Rainwater Harvesting Systems (RWHS) in Southwest Coastal Bangladesh:* **M M Patwary**, S A Hasan, M Hasan, S Mukherjee, M R Ali, M F Talukder, D M A Islam
- 1891795** *Braiding Local, Indigenous, and Scientific Knowledge for Resilient Water Futures:* **C Schuster-Wallace**

- 1988065** *Using High-Resolution Head Profiles and Improved Stratigraphy to Evaluate the Hydrostratigraphy of the Dakota Aquifer System in Iowa and Kansas:* **J R Meyer**, S Das, B Cramer
- 1982321** *Vertical Hydraulic Gradients in the Modeling of Stratified Sedimentary Aquifer Systems:* **Y Pasner**, G E Fogg, T Harter, H E Dahlke
- 1973072** *Why Geology Is Critically Important Even When Your Geophysics is Great:* **G E Fogg**
- 1957222** *Co-Developing Community-Driven Tools to Improve Access to NOAA's National Water Model for Resilience Planning:* **I Garousi Nejad**, A Castronova, D Cowan, K Raub
- 1974864** *Co-Producing Knowledge for Equitable Climate Mitigation in Gulf Coast Communities:* **M Lindquist**, E Wills, A Osland
- 1924058** *Coastal Cascades in America: How Identifying Integrated Systems can Bridge Science and Stakeholder Needs:* **R Jiang**, M M Gierach, R Shah, K Luis
- 1988873** *Comparative Analysis of the Use of Local Knowledge in Climate Action Plans in the U.S.:* **D Lee**, M Van Maasackers, R Skelton
- 1975742** *Comparison of 1D and 2D HEC-RAS for Dam Breach Analysis:* **V Merwade**, A Griggs, S Dey, D Wilson
- 1868555** *Democratizing Earth Science Data for Community-Based Water Hazard Assessment: A Co-Production Platform for Hydrologic Intelligence:* **S Bhattarai**, R Talchabhadel, S Bista, S Poudel, D Jones, S Terrett
- 1900148** *Developing a Composite Flood Vulnerability Index for Puerto Rico Using a GIS-based Multi-Criteria Decision-Making Approach:* **R Khanbilvardi**, E Osuide, T Lakhankar
- 1918798** *Disparities in the Identification of Vulnerable Communities Due to Design Storm Methods and Spatial Scale Selection: A Case Study in the Vermilion River Watershed, South Louisiana, USA:* **C Orgeron**, M ElSaadani, S Hinojos, E Habib, R Skelton
- 1883714** *Evaluating the Economic Impact of Flood Risk on Housing Prices in the U.S. Gulf Coast Using Spatial and Machine Learning Models:* **M Ceragene**, T Douthat, N Bushra, F Akhter
- 1901135** *Evaluating Two Decades of Volunteer-Led Water Quality Monitoring: Insights from the Cooperative Lakes Area Monitoring Project (CLAMP):* **S K Taylor**, S Meerdink, M Skopec, L Holdt, D Heimdal, M Vigdal, J Shuttleworth

- 1899595** *Evaluation of Projected Changes in Daily Precipitation Frequency Estimates from CMIP6 Climate Models Across Three U.S. Gulf States:* **M Nasser**, E H Habib, M Morsy, E Habib
- 1952527** *Flood Risk Perception, Institutional Trust, and Lived Experience Shape Household Preparedness in Urban Coastal Communities:* **K Larson Mohr**, B F Sanders, D Houston, S Lindemann, J Niemann, J E Schubert, M C Sukop, E M Martin, S Wang, I Tavaréz, K J Mach
- 1967358** *Flood risk reduction logics and politics in South Central Louisiana:* **S Domingue**, M Ruiz
- 1920192** *From National Social Vulnerability Index Tools to Place and Hazard-Relevant Indices: A Co-Produced Flood Hazards Social Vulnerability Index Across Southern Louisiana:* **S Hinojos**, E Habib, R Skelton
- 1948377** *From Projections to Planning: A Modular Framework for Climate-Smart Flood Risk Modeling Using R2D, BRAILS, and IN-CORE in Coastal Louisiana:* **N Bushra**, T Douthat, R B Mostafiz, F Akhter, M Ceragene
- 1949099** *From Scientific Experts to Applied Users and Everyone in Between: Implementing an Engagement Strategy for Modernizing NOAA's Probable Maximum Precipitation Estimates that Serves All Users:* **B Smith**, S Luce, K M Mahoney, E Mutkoski, J F England Jr, B McCormick, W Silva
- 1848667** *How do Californian farmers address climate resilience? Profiling narratives on climate change awareness, perceived impacts and adaptive capacity:* **S Ricart**, A Escrivá-Bou, A Castelletti
- 2000216** *It's what you say AND how you say it: how effective communication improves flood response:* **T Fanara**
- 1963627** *Last Flood of a Lifetime: Causes and Consequences of the Exceptional 2020 Flood in the Peace-Athabasca Delta, Canada:* **J M Davis**, T Pavelsky, W Dolan, A M Gomez
- 1941052** *Living on the Waterfront: A Household Flood Vulnerability Assessment of Riverine Communities in Assam, India:* **P Borthakur**, K Goswami
- 1900908** *Modeling Compound Flood Risk in Coastal Guyana: Impacts of Rapid Urbanization under Shifting Climate:* **G Williams**, M Morsy, E H Habib, E Habib
- 1939134** *Participatory Mapping in Guyana: An Inclusive Approach to the Co-Design and Exploration of Integrative Nature-Based Solutions:* **C Danaher**, L Kirkpatrick, A Norville, A Collins, O F Kasim, J F Adamowski, C A Madramootoo
- 1887315** *Predictor-Corrector Based Heterogenous Routing Model for Operational Forecasting:* **J Imran**, J F Jamal, H Chaudhry
- 1967314** *Selective Narratives, Persistent Risks: How Competing Stories Shape Flood Risk Management in Chiplun, India:* **A Borate**
- 1970486** *Student Coursework as Collaborative Science: Development of a Flood Modeling Course to Educate Future Engineers and Support Local Stakeholders:* **P J Ruess**, A Lima, D Veronez, D Cardona, Z Khalid, A Mullen, C Ferreira, L Nichols, A Fox, J L Kinter
- 1859997** *The role of models in community-engaged approaches to flood-risk mitigation:* **J Suckale**, K Serafin
- 1902531** *The Role of Participatory Science in Community Co-Production of Flood Risk Assessment in Michigan, USA:* **M Syrette**, W M Robertson, R W Lammers, D Kluver, J T Allen, B Raubenheimer
- 1931142** *Toward improved flood hazard mapping: Lessons from mountainous flood-prone settings:* **B C Wemple**, J Balerna, A B Prescott, D Baude, M I Morales Velazquez, K Underwood, R M Diehl, E M B Doran, N Zegre, R Nicholas, E Chase
- 1916043** *Understanding fluvial flood and environmental justice by using historical and current GIS-related data: A case study in Dayton, Ohio, USA:* **C Y Wu**, D Chase, M Hansen
- 1929873** *Understanding Hydrologic Variability and Extremes in Rhode Island Through Community Science:* **S Levin**, K M Cobb, T Di Lorenzo, A Goblick, S Preira, B Jaswelll, I Yang, C M Leonard, E Garcia, J Delgado, L Urena Jaquez, A Pereira, X K Wang, L Bryce
- 1957781** *What areas of Louisiana have the highest and lowest risks to marginal changes in flood depth: A sensitivity analysis of household damages based on flood depth and continuous return periods for Louisiana's 64 Parishes:* **F Akhter**, N Bushra, T Douthat, M Ceragene, M A Rahim, C J Friedland, R B Mostafiz
- 1968659** *Who is to blame? The normative influences on blame in the wake of extreme hydroclimatic events:* **M Majszak**, O Wani
- 1899824** *"What we really need is..." A framework for cross-institutional partnership to co-create community-scale tools for enhancing capacity for flood resilience in Michigan watersheds.:* **W M Robertson**, R W Lammers, D Kluver, J T Allen, M Syrette, W J Beasley

249591

**Environmental Vadose Zone Hydrology:
physical and biogeochemical processes across
scales**

Conveners: **Yves Meheust**, University of Rennes;
Charlotte Garing, University of Georgia; **Felix
Ogunmokun**, Tennessee State University; **Lazaro
Perez**, Oregon State University

1955848 *A Novel Evaporation–Imbibition Method for Characterizing Soil Water Retention and Unsaturated Hydraulic Conductivity Functions:* **B Nam**, B Poudyal, P Clement

1846737 *Coupled Effects of Evaporation and Solute Concentration on Saturated–Unsaturated Flow and Stability of Tailings Dam:* **M Anbarestani**, H Sadeghi

1967309 *Evaluating Groundwater Recharge Potential Across Soil Textures and Vegetation Under Ponded Conditions:* **N Strom**, T P A Ferre, N Gupta

1915415 *Evaluation on the performance of advection-dispersion equation-based solvers to solve the Richards equation:* **J Talukdar**, B Nam, B Poudyal, P Clement

246632

**Evapotranspiration (ET): Advances in In Situ ET
Measurements and Remote Sensing-Based ET
Estimation, Mapping, and Evaluation**

(cosponsored by AMS: American Meteorological Society, ASA: American Society of Agronomy, CSSA: Crop Science Society of America, EGU: European Geosciences Union) (joint with B, EP, GC)

Conveners: **Gabriel Senay**, USGS; **Naga Manohar Velpuri**, ASRC Federal; **Pamela Nagler**, USGS Southwest Biological Science Center; **Anderson Ruhoff**, ; **Kul Khand**, ASRC Federal Data Solutions, Contractor to the U.S. Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center; **Arun Bawa**, Texas A&M University

1893781 *A High-Performing 1 km Daily Gridded Evapotranspiration Dataset for CONUS Based on Surface Flux Equilibrium Theory:* **F T Wolkeba**, M Kumar, P Raghav, H P Thakur

1914187 *A multi-scale thermal sharpening algorithm for global evapotranspiration estimation:* **L Laipelt**, G B Senay, A S Fleischmann, A Ruhoff

1889267 *A simple two-feature-point method for evapotranspiration estimation: algorithm development, global validation, and comparative analysis:* **L Yang**, S Shang

1974927 *Hydrological Forcing, Soil Stratigraphy, and Microbial Pathways Drive Depth-Dependent Redox Dynamics in the Vadose Zone:* **A Sedaghatdoost**, B Mohanty, D Dwivedi

1969103 *Influence of Fine Content on Unsaturated Soil Hydraulic Properties:* **B Poudyal**, B Nam, J Talukdar, P Clement

1890011 *Modeling evaporation dynamics from soils with major chlorides and high salinity:* **Z Xu**, X Mao, S Chen, U Nachshon

1929752 *Modeling Nitrogen Transformation Pathways and Their Hydro-biogeochemical Drivers in Reducing Riparian Zone Using PFLOTRAN:* **B Joshi**, D Dwivedi, M G Sena, M M Rahman, E Moore, M Peipoch, J Kan, P T Imhoff, S P Inamdar

1855701 *Reactive transport of nitrogen associated with water table fluctuations in floodplain aquifers: Column experiments and numerical models:* **A H Sawyer**, F Willert, C Roumelis, M Scaccia, S Bernal, R S Gabor, J Petchamé-Guerrero, J Carrera, A Folch, S A Welch

1928675 *The accuracy of the instantaneous profile method in the axis-translation induced soil desaturation experiments:* **M Kozyra**, K Lamorski, C Sławiński

1920204 *A Systematic Review of Five Evapotranspiration Partitioning Methods Across NEON Sites:* **H Chen**, S P Good, K Matos, S T Allen, K K Caylor, R Fiorella, L Wang

1881496 *Assessing the Accuracy of OpenET Satellite-Based Evapotranspiration Estimates Using Field Measurements in Central Kansas:* **P Deshpande**, G Jha, U Debangshi, S Metzger

1962077 *Assessing the impact of evaporative demand on mature cacao in a rainforest mesocosm using novel, low-cost technology:* **J Beslity**, J Deleeuw, S Kizer, J Beslity, M O'Neill, M van Asselt, N Le, L Rasmussen, C Udell, J L M Van Haren

1941035 *Assessing the influence of leaf area index on evapotranspiration estimation within SWAT-T for representative land cover types in West Africa:* **M Disse**, F Merk

1977587 *Benchmarking and Advancing Evapotranspiration Estimates with AmeriFlux Observations: A Priestly-Taylor Jet Propulsion Laboratory (PT-JPL) vs. Penman-Monteith (PM) Synthesis:* **A W Nab**, M Jawad, A Behrangi, G Y Niu

- 1981464** *Best Practices on the Use of sUAS for the Estimation of Evapotranspiration and ET Partitioning Using the Two-Source Energy Balance Model: Examples from Vineyards, Almonds, Urban Green Areas, and Other Crops in the Western US and World's Arid Regions:* **A F Torres-Rua**, M Duran, S Alvarez, K Meza Capcha, R Gao, A Nassar, M Aboutalebi, S Ortega Farias, L Ramos, E Tunca, N E Bambach, M D M Alsina Marti, H Nieto, L Hipps, N Agam, C Coopmans, I Gowing
- 1848331** *Bridging Remote Sensing Estimations and Ground Observations of Evapotranspiration to Advance Sustainable Irrigated Agriculture and Consumptive Water Use Estimates:* **I Z Goncalves**, C Neale, S Akasheh, A E Suyker, D R Roberti, M Anderson, C Hain
- 1858669** *Deep-Learning Enhanced UAS-Sap-Flow Method to Partition Evapotranspiration in Semi-Arid Footprints:* **H A Moreno**, S N Marquez, M Mauritz, H Howlader
- 1979479** *Disentangling the Contributions of Precipitation and Irrigation to Evapotranspiration in Agriculture Using OTTER (Open Tool for Tracking Effective pRecipitation):* **C Doherty**, A J Purdy, A Guzman, L Johnson, F S Melton, R Fishman, J Spota, W Carrara
- 1847216** *Dryland Plant Community Water Use based on Vegetation Phenology in the Sonoran and Mojave Deserts:* **P L Nagler**, E Jimenez-Hernandez, A Barreto-munoz, J Duberstein, K Didan
- 1972525** *ECOSTRESS Evapotranspiration Estimates Across Temporal and Spatial Scales in Arid and Semi-Arid Southern Arizona:* **R Lewis**, T Sankey
- 1895200** *Enhancing the Landscape Water Requirement Satisfaction Index (L-WRSI) using remote sensing-based actual evapotranspiration:* **S Kagone**, G B Senay, G Parrish, M E Budde, S Cochrane
- 1931046** *Evaluating a Novel Approach for Determining Dynamic Zero-Plane Displacement Height to Improve Remote Sensing-Based Estimation of Latent and Sensible Heat Fluxes over Corn Fields:* **D H Tuli**, J L Chavez, M Giri
- 1963316** *Evaluating Energy Balance Closure in Diverse Agro-Ecological Zones of the Indus Basin: Insights from a Coordinated Flux Towers Network:* **M Hafeez**, U W Liaqat, M Naveed
- 1927526** *Evaluating OpenET Under Drought Conditions in the Sacramento-San Joaquin Delta:* **E C Ware**, O Guerrero Medina, R D Pyles, Y Xie, K T Paw U
- 1971233** *Evaluating Two-Source Energy Balance Formulations for Evapotranspiration Partitioning in Vineyards Considering Advective Conditions Using Small Uncrewed Aerial Vehicles:* **S Alvarez**, A F Torres-Rua, N Agam, A Karnieli, L Hipps, H Nieto, R Gao, S Ortega Farias, D de la Fuente Saiz, C Coopmans, I Gowing
- 1894850** *Evaluation of ECOSTRESS Collection 2 Evapotranspiration Products: Strengths and Uncertainties for Evapotranspiration Modeling:* **Z Pierrat**, A J Purdy, G H Halverson, J B Fisher, K Mallick Sr, M Pascolini-Campbell, Y Ryu, M Anderson, C Villanueva-Weeks, M Johnson, B Hatch, E Davis, Y Yang, K Cawse-Nicholson
- 1906176** *Exploration of Global Urban Evapotranspiration Dynamics: Driver Analysis Based on Multi-Source Remote Sensing Data Fusion and Surface Process Attribution:* **C Li**, J Xiong, J Han, Z Tu, Z Liu
- 1990501** *Field-scale Evapotranspiration (ET) patterns driven by land use changes in California's Imperial Valley:* **M Bribiesca Rodriguez**, M K Gebremichael, PhD
- 1914342** *Flux-tower and Satellite Based Evapotranspiration Reveal Potential of Cover Cropping from Local Orchards to California Almond Industry:* **Y Guan**, Y Jin, K T Paw U, R D Pyles, M Flynn, I F McDonald, J T Anika, L Bhajan, K Suvocarev
- 1850739** *Global Basin Water Balance Evapotranspiration Prediction Using Machine Learning:* **K B Khand**, J Dornbierer, G B Senay
- 1921875** *Hybrid Biophysical – Machine Learning for Diurnal Estimation of Agricultural Surface Energy Fluxes Through Proximal Sensing:* **J Cross**, K Mallick Sr, G Aslan Sungur, A VanLoocke, D Drewry
- 1859085** *Leading Satellite-based Evapotranspiration Products Insufficiently Capture Interannual Variability: Evidence from GRACE/FO and In-Situ Observations:* **Y Zhao**, L E Hoeltgebaum, M Kukal, M Zhao
- 1901061** *Long-Term Ecohydrological Trends in the US-Mexico Borderlands: Vegetation and Water Use in Arid Biomes:* **E Jimenez-Hernandez**, P L Nagler, A Barreto-munoz, J Duberstein, K Didan
- 1977977** *Machine Learning-Enhanced Reference Evapotranspiration Modeling for Irrigation Resilience in Humid Louisiana:* **T Hossain**, S D Conger, R V Rohli, R B Mostafiz
- 1884505** *New global constraint on evapotranspiration from high resolution remote sensing measurements:* **R Qubaja**, D Yakir, D Jenerette, J B Fisher, E R Vivoni, D E Pataki
- 1915054** *Partitioning Evapotranspiration in Coastal Wetlands Using Flux Variance Similarity: Multi-Year Insights into Drought, Hydrology, and Vegetation:* **A C I Tang**, P Raghav, I Forbrich
- 1896351** *Performance evaluation of empirical, mechanistic and underlying water use efficiency approaches for evapotranspiration partitioning in Maize crop:* **G Danavath**, S Chintala, P Kbn Prof, V Jatoth
- 1853132** *Physically-Based Evaluation of the Surface Flux Equilibrium Method for Evapotranspiration Estimation.:* **G Muzaffar**, T Apurv

- 1897055** *Quantifying Biocrust Evaporation in Arid Lands by Combining Thermal Imaging and Lysimeter Measurements:* **H H Bauser**, R Magness, N Pietrasiak, H M Kevin, M Berli
- 1898341** *Quantifying intercrop energy fluxes using a Three-Source Energy Balance (3SEB) model:* **A Gal**, N E Bambach, V Burchard-Levine, K Meza, K Fenn, K Knipper, W P Kustas, A J McElrone, M Nocco
- 1853008** *Regional Disparities in Crop Water Requirements and Climate-Responsive Irrigation Planning across Punjab, Pakistan:* **S Qamar**, F Jazaei, M Hamza, H Ashraf
- 1943155** *Satellite-Driven Estimation of Seasonal Evapotranspiration in Wheat: Comparison of GLEAM, SEBAL, and FAO-PM:* **P Singh**, K Kothari
- 1851283** *SEBAL-Based Evapotranspiration and Remote Sensing Integration for Groundwater Recharge Estimation in Semi-Arid Moroccan Watershed:* **A Hadri**, A El Farchouni, M Ouarani, Y Fakir, A Kchikach
- 1901545** *Soil water potential contributes more than vapor pressure deficit to evapotranspiration downregulation in a subalpine conifer forest:* **M Worsham**, H M Wainwright, B Dafflon, M B Berkelhammer, L M Kueppers
- 1879777** *Spatially explicit mapping of agricultural irrigation water use with blue water evapotranspiration estimation across the conterminous United States:* **L Ji**, G B Senay, M Friedrichs, S Kagone
- 1986506** *Spectral Unmixing and Multi-Year Remote Sensing to Improve Evapotranspiration Modeling in Semi-Arid Regions:* **E Bledsoe**, S A R Payne, D E Horton, D M Ciruzzi
- 1939069** *SSEBopET+: An Open-Source QGIS Plugin for Processing On-Demand SSEBop Evapotranspiration Data:* **K Matheswaran**, T Kothalawala, S Puvanthirajah, P Thilina-Prabhath, N M Velpuri

250067

Extreme Flood Dynamics in a Changing World: Catchment Responses, Modeling, Mapping, and Management

Conveners: **Arianna Borriero**, Munich Re; **Stefano Basso**, Norwegian University of Science and Technology - NTNU; **Pallav Kumar Shrestha**, University of Potsdam; **Vinh Tran**, Organization Not Listed

- 1949496** *Advancing Operational Flash Flood Forecasting Through Efficient Deep Neural Networks:* **A Jamaat**, A Mejia, C Raj
- 1880038** *Flood Inundation Mapping within Operational Hydrological Forecasting: the July 4 Texas Flooding Case Study:* **S Cohen**, A Baruah, D Munasinghe, D Devi

- 1848519** *sUAS-Based modeling of LAI, Evapotranspiration and E/T Partitioning in Commercial Almond Orchards across California's Central Valley:* **M Duran**, A F Torres-Rua, W P Kustas, J Alfieri, L Hipps, J Prueger, A J McElrone, N E Bambach, C Coopmans, K Meza Capcha, M Nocco, I Gowing, K Knipper, A Gal, I R Wright, P Tolentino, S Castro Bustamante, R Gao
- 1847883** *The category is water, water everywhere, and with it arrives the Variance-bOwen Ratio Terrestrial Evapotranspiration flux (VORTEX) network:* **T Wang**, G B Senay, J G Verfaillie, D J Szutu, B Runkle, W P Richardson, M Reba, X Chen, H Liu, Q Zhang, Y Ryu, M Kang, S Knox, Z Nesic, D Trejo-Cancino, C Rey-Sanchez, D Ng, MSc, A Arias Ortiz, A Busquets Rubiés, P Y Oikawa, K A Novick, K Kasak, M Pindus, A Ruhoff, L Laipelt, C Bernacchi, M C Benson, J H Matthes, G Campbell, C Campbell, D R Cobos, D D Baldocchi
- 1954688** *Time integration of evapotranspiration between Landsat revisits: Is linear interpolation useful, and to what extent?:* **M Kukal**, P Blankenau
- 1971978** *Toward a Framework for Ensuring Evapotranspiration Data Quality Amid Expanding Use and Availability:* **C Jarman**, A Klaasse
- 1896609** *Triple Collocation Validates CONUS-Wide ET Using the Surface Flux Equilibrium Method:* **E L McCormick**, L Sanders, K A McColl, A G Konings
- 1939589** *Unraveling Transpiration and Soil Evaporation with Heat Pulse Sensors and the Thermal Properties That Guide Them:* **K DeLong**, B K Hornbuckle, D Drewry, A VanLoocke, R Horton
- 1961539** *Variability in Potential Evapotranspiration (PET) Products: Root Causes and Alternate Priestley-Taylor Formulation:* **A Hassan**, I C Prentice, X Liang
- 1908675** *Flood mitigation effects of utilizing storage facilities within river basins, including agricultural facilities, and probabilistic evaluation of those effects under various rainfall patterns:* **H Minakawa**, S Aihara, T Yoshida, A Takada
- 1939874** *Flood risk in the Alps under rising temperatures: catchment morphology as a key amplifier:* **G Evangelista**, I Monforte, P Claps
- 1920715** *Floods at the Crossroads of Climate and Human Impact: A Process-Based, Explainable AI Framework for Indian Catchments:* **V Tripathi**, S Karmakar, A AghaKouchak, M P Mohanty, L Stein
- 1894356** *Forecasting and Beyond: LSTM and Stochastic Approaches for Streamflow Simulation:* **S M Papalexiou**, K Andreadis

- 1910707** *Landmark: A Terrain-Informed Framework for Unifying Lumped and Distributed Catchment Models:* **S Orlandini**, G Moretti, S Pizzileo
- 1849954** *NeuralSWWM Python Package: A Hybrid Hydrologic-Machine Learning Algorithm for Stormwater Management:* **N Zafarmomen**, V Samadi, E Borgomeo
- 2002071** *Pathways to Resilience: FORTIFIED® Elevated Manufactured Homes for Affordable Housing in Hazard-Prone Regions:* **R B Mostafiz**, A S Al Assi, M A Rahim, N M Khan, I Nahmens, R V Rohli, L Ikuma, M Hamza
-

248475

Forest Evapotranspiration and Ecohydrology Under a Changing Environment: Processes and Quantifications (joint with AE, B)

Conveners: **Ge Sun**, US Forest Service Raleigh; **Ning Liu**, Murdoch University; **Maricar Aguilos**, North Carolina State University Raleigh; **Yun Yang**, College of Agriculture and Life Sciences, Cornell University; **Paul Seibert**, Organization Not Listed

- 1844717** *Challenges and future directions in quantifying forest evapotranspiration:* **K Yi, PhD**
- 1854061** *Coastal Forest Ecohydrology: Venturing to the Edge:* **G W Moore**, C Pell, E Crutchfield, K Byers, B Miller
- 1929952** *Drought Effects on Forest Evapotranspiration in a Temperate Pine-Oak Forest: Results from a 7-year Precipitation Manipulation Experiment:* **S Zuckerman**, M A Vadeboncoeur, M B Monteiro JR, Z Zhou, H Asbjornsen, C McIntire
- 1941286** *Early Season Controls on Transpiration in Coniferous Forests in the Sierra Nevada : Can warmer winters drive earlier transpiration?:* **S Basant**, I Aguirre, W Knoben, A Harpold
- 1944043** *From Oak to Pine: Multi-Scale Quantification of Water and Energy Fluxes and Their Hydro-Climatic Implications in the West-Central Himalayas:* **J R Mohanty**, J Khanna, M Kumar, D Daniel, MTech, D S Sen
- 1955936** *Hydrologic Impacts of Biotic Disturbance: A Satellite-Based Analysis of Southern Pine Beetle (Dendroctonus frontalis) Outbreaks in Mississippi:* **A Schulz**, Y Yang, H LIU, S Goodnow
-

249289

From Data to Decisions: Shaping Asia's Future through Smart Food and Water Solutions (joint with B, IN)

Conveners: **Alok Sikka**, International Water Management Institute; **Naga Manohar Velpuri**, ASRC Federal

- 1877182** *Probabilistic Flood Mapping via a Simulation-Learning Framework: Evidence from the Lower Mekong Floodplain:* **G V Nguyen**, M Yeon, G Lee
- 1998339** *Sensitivity Analysis of an AI Hydrologic Emulator under Ensemble Climate Projections:* **S J Noh**, Y Lee, H Woo, B Kim, H Choi, Y Hiraga
- 1965049** *The Anatomy of a Hydrologic Extreme:* **M S Bartlett Jr**, E Cultra, A M Porporato
- 1952338** *Impacts of Land Use and Cover Change on Evapotranspiration in China:* **C Li**, Y Zhang
- 1873232** *Modeling Evapotranspiration Dynamics Across Southeastern U.S. Ecosystems Using Flux Data and Machine Learning:* **M M Aguilos**, G Sun, N Liu, J Zhang, M Belgado, S McNulty, J S King
- 1927044** *Restoration Thinning Saves Water in Semi-Arid Ponderosa Pine Forest:* **T Y Kyaw**, T Sankey, T Kolb, G W Koch, H Poulos, PhD, J Tatum, A Barton, A Thode
- 1982747** *Riparian ecohydrologic drivers of streamflow across LULC types:* **C McNabb**
- 1916734** *Seasonal effects of deforestation on water yield: a global synthesis:* **G Sun**, N Liu, A Aguilar, D M Amatya, J Boggs, P V Caldwell, S Ferraz, Y Hou, J Jones, T Oda, B Rau, P Richardson, C Segura, A Wei, L Zhang
- 1901475** *Simulating and partitioning interception, evaporation, and transpiration by vegetation type in a semi-arid montane watershed in the southwest using HYDRUS-1D:* **E Ellis**, S Dymond
- 1983226** *Simulating evapotranspiration and gross primary productivity across various ecosystems at subdaily scales:* **Y Zhang**, S He
- 1929224** *The Impact of Relative Humidity and Soil Moisture on Foliar Water Uptake:* **R Price**, L Lowman, S Gotsch, S Hartzell
- 1926672** *Tree Trunk as a Dynamic Reservoir: ERT-Based Insights into Water Storage and Hydrological Drivers in Ponderosa Pine:* **V Wojahn**, A Alves Meira Neto, D Barnard, S M Gleason
- 1954033** *Trends in Surface Energy and Water Fluxes and the Impacts of Land Use Change in Brazil's Biomes:* **C Caballero**, T W Biggs, N Vergopolan, A Ruhoff
- 1942839** *An AI-driven River Salinity Forecast and Advisory System for Climate Resilient Agriculture in Coastal Bangladesh:* **K Matheswaran**, A Behera, D R Sena, M Jampani, M R Hasib, M K Mondal
- 1943696** *Assessment of Antimicrobial Resistance in Urban and Peri-Urban Rivers for Informed Decision Making:* **S Yadav**

1963987 *Deriving Similitudes from Remote Sensing-based Turbidity and Observed Salinity Trends in Coastal Bangladesh for Agricultural Development:* **M Jampani**, K Matheswaran

1895682 *Development of a Smart Irrigation Scheduling System Using a Crop Growth Model for Wheat Cultivation in North-Western Indian Region:* **D Garg**, H Kumar

1986825 *Enhancing Sustainable Groundwater Governance through the Groundwater Management Information System (GMIS): A Case Study of Punjab, Pakistan:* **K Ullah**, M Hafeez, N Iqbal, M J Cheema, S Siddiqui, H Aeman, H Zafar, H Bodla, M Ashraf

1946534 *Estimation of Water Ponding Depth in Paddy-Dominated Landscape: A Remote Sensing-based Approach:* **S Pandey**, S Mahapatra, N M Velpuri, L Arenas Calle, P Schmitter, A K Sikka, A J McDonald, L Maduskanka, P Thilina-Prabhath

1883975 *Improvising Flood Risk Assessment Using Coupled Machine Learning- Hydrodynamic Approach:* **S Duwal**, Y Bhattarai, D Liu, P M Pradhan

246927

From Source to Tap: Understanding and Enhancing Water Security Across Scales (joint with GC, IN, NH, SY)

Conveners: **Anoop Valiya veettil**, Prairie View A & M University; **Goutam Konapala**, NASA Goddard Space Flight Center; **Ali Fares**, Prairie View A & M University; **Sourav Mukherjee**, USDA Forest Service

1960162 *Assessment of Participatory Water Governance in Drinking Water Supply Options in Southwest Costal Bangladesh:* **S Ahammad**, M M Patwary, M Hasan, M R Ali, M F Talukder, D M A Islam

1971384 *Assessment of Water Availability in the United States and Puerto Rico 2010-2020: Regional Perspectives:* **J R Degnan**, M J Cashman, K Powlen, M L Erickson, PhD, PE, A Martinez

1856046 *Enhancing resilience of spring dependent rural water supply and their governance in mid-hill, Western Nepal:* **G Pokhrel**, M Rjjal

249965

Frontier AI Models Transforming Water Science

Conveners: **Jiangtao Liu**, Pennsylvania State University University Park; **Chaopeng Shen**, Pennsylvania State University Main Campus; **Dan Lu**, Oak Ridge National Laboratory; **Yalan Song**, Pennsylvania State University University Park; **Yuan Yang**, Princeton University

1944264 *Multi-Product Water-Balance Assessment in the Arabian Peninsula and Downstream Reservoir Environmental Flows:* **N M Velpuri**, K Akpoti, R Bakuri, M D Leh, P Thilina-Prabhath, N Mizukami, S Kagone, M Khalifa, K Mekonnen, A Owusu, L Maduskanka, K Matheswaran, T Perera, G B Senay, Y Brouziyne

1890400 *SukhaRakshak AI: Harnessing Anticipatory Intelligence for Proactive Drought Risk Management in India:* **G Amarnath**, S Kapoor, D Bhatpuria, S K Padhee, K V Rao, P Schmitter, M Garcia, A K Sikka

1903313 *Towards Sustainable Water Resources Infrastructure and Management in South Asia:* **B Rajagopalan**

1963719 *Unlocking Farmer-Driven Irrigation in Southeast Asia: A Geospatial Assessment in Cambodia and Laos:* **M D Leh**, D Wickramasinghe, N M Velpuri, T Minh, P Pavelic, M Kamal, T J Krupnik

1861023 *Water-Energy-Food Nexus Tradeoffs in Managed Asian Landscapes:* **Y Pokhrel**, J Qi

1892461 *From Definitions to Decisions: How Methodological Choices Shape Global Water Scarcity Estimates:* **M M Mekonnen**, F T Wolkeba

1924456 *Hydroclimate Impacts of Large-Scale Climate Oscillations in South Carolina:* **K Bhardwaj**, P Khedun, A K Mishra

1987073 *Integrated Scenario Analysis of Hydrologic and Water Quality Responses to Land Use and Climate Change in the Occoquan Watershed, Northern VA:* **V Shah**, L Pal, M M A Chowdhury, A Baran, J Post, M Rippey, S B Grant, N Goulet, S Saksena

1918657 *Representing Human Decisions in Coupled Models of Groundwater Futures:* **J Yoon**, S Ferencz, C J A Klassert, T Thurber

1863087 *Understanding Groundwater Quality Challenges in Low Income Settlements of Coastal Ghana:* **C Wheaton**, J Reyman, J Zume

1968829 *Urban Water Security and Flood Risk:* **N Dhakal**, J M J Jeff

1979693 *A Cross-Basin, Attention-Based LSTM to Enhance Streamflow Prediction in Ungauged Basins:* **S Poudel**, S Steinschneider

1955137 *AI-Augmented Floodplain Management: Integrating Conversational Agents, Adaptive Training, and Multi-Agent Decision Support for Resilient Water Resource Planning:* **I Demir**, Y Sermet, R Sajja, V Pursnani

1967185 *AI-Hydro: An Open AI-Powered Platform for Hydrology Research:* **M Galib**, V Merwade

- 1990405** *Applying LSTM Networks to Estimate Hydrographs in Ungauged Intermittent Streams in the Pacific Northwest:* **H Steele**, M Davis, M S Raleigh
- 1968999** *Beyond Lumped Inputs: Transformer Models and Spatially-Explicit Data Integration for Streamflow Forecasting in Arizona:* **K Dahal**, S Kumar, L Bokati
- 1980361** *Dam level forecasting for water supply management via advanced time-series analysis: Colombia's Andean region case study:* **A Preziosi-Ribero**, M C Arenas, P C Bogotá Parra
- 1968788** *Design of An LLM-based Agentic Framework for National Water Model Data Access, Insight Generation, and Decision Support:* **S C Mondol**, D P Ames
- 1975119** *From Text to Insight: Enhancing LLM Accuracy in Hydrology with Hybrid Retrieval and Knowledge Graphs:* **A Sharma**, M U Ullah, J Gong, S J Burian, T Loof
- 1954827** *Improved Multi-Domain Environmental Forecasting Through Landscape-Based AI Modeling:* **N R Kraabel**, J Liu, Y Bian, D Kifer, C Shen
- 1959748** *Scalable and Accurate Global River Streamflow Forecasting with Transformers:* **J Li**, H Ushijima Mwesigwa, K L Hsu, S Sorooshian
- 1995199** *The Role of Uncertainty Quantification Algorithms in Deep Neural Network Models for Flood Prediction:* **M Saberian**, V Samadi, T Wagener, I Popescu
- 1875887** *A Deep State Space Model for Rainfall-Runoff Simulations:* **Y Wang**, L Zhang, A Yu, N B Erichson, T Yang
- 1904436** *A Unified Multi-Basin Runoff Forecasting Framework with Multi-Source, Multi-Scale Factor-Integrated BA-LSTM-Seq2Seq and Explainable Factor Analysis:* **H Ma**, L Ye, W Ouyang, Y Chai
- 1894120** *AGFormer: Adaptive Spatiotemporal Graph Learning for Enhanced Multi-Reservoir Inflow Forecasting:* **M Fan**, P Hu, D Lu, H Kang, PhD, W Zhang
- 1866228** *Cloud Dynamics to Soil Moisture: AI-Enabled Shortcuts in Hydrologic Prediction:* **J M Frame**, S Naser Neisary
- 1921204** *Deep learning algal bloom mapping using 30-m Harmonized Landsat-Sentinel at global nearshore waters:* **T Lima**, V Martins
- 1888672** *Deep Learning and Reinforcement Learning for Reservoir Storage Forecasting Enhanced by SWOT: A Comparison with NWM-ESP:* **X Ma**, A Liu, D P Lettenmaier
- 1867232** *DualFormer-RT: A Dual-Encoder Transformer Architecture for Global Medium-Range Streamflow Forecasting:* **D Lee**, K H Ahn
- 1861467** *Enhancing Interpretability in Hydrological Modeling: Explainable AI for Pan Evaporation Prediction in Kerala using Ensemble Machine Learning:* **S Babu**, B Thomas
- 1900224** *Exploring the Potential and Limitations of Machine Learning for Forecasting Groundwater Recharge from Meteorological Time Series:* **F Lam**, S Damm, A Fischer, T Heinze
- 1914818** *From Dual-Transformer to Dual-Structure: A Deep Learning Framework for Forecasting Hydroclimatic Dynamics in the Great Lakes:* **Y Chen**, P Xue
- 1945768** *Hybrid Lake Model (HyLake v1.0) for Quantifying Long-Term Response and Lake Ecosystem Resilience to Climate Extremes:* **Y He**, X Yang
- 1947922** *Inclusion of Blockage Effects for Scour Depth and Width Prediction using Machine Learning:* **P Williams**, M Marrocco, R Balachandar
- 1864378** *Integrated Probabilistic Forecasting Framework for Long-Term Reservoir Outflow through Dynamic Coupling of Meteorological-Hydrological-Engineering Processes:* **J Tan**, B Xu, J Zhu, P A Zhong, R Mo, J Li, Y Dong, X Qin, J Jiang, H Wang, L Zhu
- 1938172** *Learning Data-Driven Hydrological Signatures from Daily Runoff with Contrastive Learning:* **Y Yang**, Y H Wang, H Gupta, S Luo, T F M Chui
- 1936639** *One to Three-Day Ahead Streamflow Forecasting Using Multi-Head Attention with LSTM:* **H Solanki**, A S Aravinthakshan, S Gupta, V Mishra
- 1869466** *Overcoming a hurdle in probabilistic deep learning for hydrology:* **J Quilty**, M S Jahangir
- 1938471** *Prediction of Suspended Sediment Concentration Using Images and Machine Learning Models:* **J G Duan**, S R Nookala
- 1891825** *Probabilistic Diffusion Models Advance Extreme Flood Forecasting:* **Z Ou**, C Nai, B Pan, Y Zheng, C Shen, P Jiang, X Liu, Q Tang, W Li, M Pan
- 1898313** *A comprehensive framework for determining the role of habitat drought in amphibian population declines:* **J Z Drexler**, C Bowers, J W Riley, M Adams, C Pearl, R Fisher, B Halstead, P Kleeman, M A Stern
- 1886541** *A Differentiable Ecosystem Modeling Approach: A Machine Learning - Physics Hybrid for Simulating Plant Water and Carbon Fluxes:* **D Aboelyazeed**, C Xu, F Rahmani, C Shen

249729

Frontiers in Ecohydrology (joint with B, GC)

Conveners: **John Knowles**, USDA-ARS, Southwest Watershed Research Center; **Bryn Morgan**, Massachusetts Institute of Technology; **Chieh-Ying Chen**, University of Delaware; **Achla Om Prakash Jha**, Texas A&M University

- 1920091** *Amazonian Ecohydrology: The Critical Role of Lateral Groundwater Flow in Regulating Water Table Depth, Runoff, and Evapotranspiration at the Kilometer-Scale:* **Y Fang**, G Bisht, V Mahadevan, H Qiu, L Li, PhD, L R Leung
- 1930594** *Co-occurring salinity adaptations and their impacts on water use and productivity:* **S R Hartzell**, J Gottlieb, D Turley
- 1952442** *Comparison of Machine Learning-Based Pedotransfer Functions Using High-Resolution Soil Water Retention Data for Improved Ecohydrological Modeling:* **A Crookshanks**, L R Hawkins, D P Beverly, K A Novick, R P Phillips, T Gress, P Gentine, M Crookshanks
- 1936462** *Continental Scale Decreases in Leaf-level Water Use Over Four Decades:* **S P Good**, M Haagsma
- 1948546** *Coupled soil temperature and moisture responses vary across different rainfall events and canopy densities:* **G Luo**, L Chang, D M Hannah, PhD, S Krause
- 1855337** *Ecohydrologic insights for water resource management in agroecosystems:* **S Ruehr**, M Bassiouni, Y Kang, Y Socolar, T Magney, T Keenan
- 1901673** *Flash Droughts, Wet Spells, and Ecosystem Stability in Grassland and Juniper Woodland:* **T Zhang**, C Zou, J Yang
- 1871212** *Groundwater Dependent Ecosystems: Advancing Ecohydrological Understanding in Semi-arid Rain-Snow Transition Zones:* **T Doody**, J P McNamara, N Ashmead, S Gao
- 1978492** *High-Resolution Evidence of Plant Water Use of Shallow Groundwater in a Colorado Headwaters Catchment:* **H Stone**, R M Maxwell, W Kohler, B Beers
- 1944434** *How beech phenology shapes forest water fluxes: contrasting throughfall during leafless and leafed seasons in a temperate forest:* **A Ilek**, N Ławicki, A Kasztelan, J Lasota, E Błońska
- 1853041** *Hydrological impacts on the discrepancy between potential evapotranspiration and pan evaporation:* **E Lee**, D K Woo
- 1887454** *Impact of water diversion in upstream water source on hydrologic cycle and its resultant vegetation changes in downstream wetland:* **T Nakayama**, T Murata, S Nohara
- 1956988** *Is foliar water uptake a universal process? Insights from a meta-analysis and targeted lab experiment.:* **P Seibert**, Z Li, C Gerlein-Safdi
- 1874100** *Machine Learning for Crop Water Use Estimation Across Contrasting Agroecosystems:* **S Z Shirazi**, G Aslan Sungur, A VanLoocke, D Drewry
- 1957545** *Modeling connections between vegetation and hydrology in mountainous topography:* **D Tijerina Kreuzer**, E R Siirila-Woodburn, Y Fang, P J Dennedy-Frank, M Worsham, L M Kueppers
- 1920695** *Modelling of River Surface Light Availability Using a Simulated Hemispherical Area Approach:* **Y Kobayashi**, G H Allen
- 1921454** *Nitrogen on the Move: Seasonal Hydrological Fluctuations Regulate Vertical and Lateral Nitrogen Dynamics in a Forested Intermittent Stream:* **A G Colón**, A Argerich
- 1894231** *Plants control the changing relationship between evapotranspiration and potential evapotranspiration:* **M Reitz**, J Marshall
- 1950249** *Species matter: contrasting rainfall redistribution by red-oak and Douglas-fir monocultures in a temperate experimental forest:* **J Behnke-Borowczyk**, J Tokarz, A Kasztelan, E Błońska, J Lasota, M Szostek, A Ilek
- 1952154** *The role of plant trait acclimation in the representation of future water, energy and carbon fluxes:* **D S de Alcantara Araujo**, A Paschalis, B J Enquist, A Frazier, C Merow, P Roehrdanz, G Moulatlet, L Song, D Cui, C Hinojo, J M Krieger, B S Maitner, E I Nikolopoulos
- 1925619** *Variability in soil hydraulic properties across the rain-snow transition zone: Implications for plant water uptake:* **E Toulou**, J P McNamara, D Huber, Q Niu, T Doody
- 1943497** *Wetting, Drying, and Memory: Improving our understanding of hysteresis in ecophysiological processes:* **A M Restrepo Acevedo**, S Kannenberg, D M Johnson, J E C Missik, D P Beverly, K Morris, J Hu
- 1949159** *You Can Lead a Horse to Water, but it Might be Salty: Monitoring Water Use by Feral Horses in a Changing Coastal Environment:* **M Sirianni**, J Rizzolo, S Stuska, H Sirianni, M A O'Driscoll, S P Charles

251833

Frontiers in Stormwater Modeling, Measurements, and Management (joint with GC, GH, NH, SY)

Conveners: **Omar Abdul-Aziz**, West Virginia University; **Debankur Sanyal**, University of Arizona; **John Ramirez-Avila**, Mississippi State University; **Walter McDonald**, Marquette University

- 1967301** *A Modeling Assistive Stormwater Sampling (MASS) Framework for Strategic SCM Prioritization in a Complex Urban Watershed:* **S M Banihashem**, D Li, N Fang
- 1870132** *A Physics-Informed Machine Learning Approach to Soil-Plant-Stormwater Interactions in a Rain Garden:* **T Z Li**, A S Stillwell
- 1977206** *Bayesian Optimization for Effective Design of Integrated Gray-Green Stormwater Drainage Systems:* **Y Zhang**, J Yu

- 1959644** *COMPARATIVE EVALUATION OF URBAN DRAINAGE SIMULATION TOOLS FOR PLUVIAL FLOOD MODELING: A SWMM BASED APPROACH:* **D Ranapathi Arachchige**, S Tong, X Chen
- 1967607** *Data-Driven Performance Forecasting for Green Stormwater Infrastructure:* **M Rahman**, V B Smith, B Wadzuk, X Jiao, P Kremer, A Amur, R Wang
- 1845206** *Determining Flow Rates and Flow Sources in Pipes using Temperature Data:* **O Hegazy**, W McDonald
- 1879164** *Equifinality in Urban Stormwater Modeling: Improving Calibration and Uncertainty Assessment:* **Z Dong**, P Goel, C E Robinson
- 1883198** *Evaluating Remotely Sensed Precipitation Data for Urban Drainage System Analysis Using SWMM:* **S Jeong**, M Choi, H Jeon
- 1963724** *Global Mapping of Rainfall Seasonality: A Harmonic and Threshold-Based Analysis of Long-Term Satellite Data:* **M D Leh**, D Wickramasinghe, N M Velpuri, A Seid
- 1964443** *Highway Overpass as Critical Source of Urban Runoff Pollution: Field Evidence from Milwaukee, WI:* **M Sakib**, B Bodus, W McDonald

252794

Frontiers in Water Quality (joint with B, GC)

Conveners: **Admin Husic**, University of Kentucky; **Matthew Cohen**, University of Florida; **Erin Seybold**, University of Kansas; **Admin Husic**, University of Kentucky

- 1917856** *Seeking to Define Blackwater Stream Hydrologic Systems:* **E Weyl**, R Emanuel
- 1999353** *Unmanned Drone for Water Quality Profiling in the Berkeley Pit Mine: Innovations in Hazardous Site Water Sampling:* **Z Henderson**, C Marchand
- 1914301** *A Data-Driven Framework for Efficient Water Quality Monitoring Using Spatiotemporal Autocorrelation and Value of Information:* **S A Ebrahimi**, N Fernandez, L Schauer, A Oliveira, H Klammler, A Musolff, A A Ali, A J Shogren, J W Jawitz, M J Cohen
- 1883092** *A Machine Learning-Driven Water Quality Assessment Framework for Advanced Management of Nutrient-Rich Effluent from Land-Based Aquaculture:* **H Kim**, K Yoo
- 1932289** *A Multiscale Machine Learning Framework for Suspended Sediment Concentration Prediction across the Contiguous United States:* **X Pu**, Y Song, H Ji, S Y Chang, D Aboelyzeed, F Rahmani, C Shen
- 1880889** *A Year-Long Time Series of Radon in Well Water: Wake County, NC:* **M Hale**, C A Arendt

- 1930379** *Impact of Climate Variability on Probabilistic Water and Pollutant Dynamics in Stormwater Ponds:* **K Y Lee**, J C Finlay, B Janke, A Parolari, X Feng
- 1880565** *Optimizing Sensor Placement in Urban Storm Sewers: A Data-Driven Sparse Sensing Approach:* **Z Ding**, K Zhang
- 1944413** *Performance Evaluation of Stormwater Drainage System Subjected to Multiple Flood Drivers:* **P R Pradhan**, S N Kuiri
- 1980357** *Potential Increases in Extreme Climate and Stormwater Events in Subcoastal Urban Environments:* **K M Mohib**, O I Abdul-Aziz
- 1845202** *Remote Sensing and Machine Learning for Green Stormwater Infrastructure Condition Assessment:* **O Hegazy**, W McDonald, A S P Pamula
- 1963001** *Tetris-based Sewer Network Generator: A Virtual Benchmarking Dataset for Evaluating I&I, Design, and Monitoring Models:* **K Blanco**, G Perez
- 1888369** *Tracing technique review: Contamination in municipal separate storm sewer systems (MS4s):* **C Xiong**, T F M Chui
- 2003766** *ClearWater-Riverine: 2D Water Quality Modeling for Complex Aquatic Systems:* **I Mudge**, T Steissberg
- 1951782** *Detecting Long-term Freshwater Salinization Trends and Chronic Chloride Exceedance with a Deep Learning Model:* **D E Marín**, C Chen, S B Grant, A Husic, PhD
- 1920647** *Drivers of Stream Particulate Quantity and Quality Across the Continental United States and Puerto Rico:* **Z Loveless**, A J Shogren, J Benstead, D Manning
- 1978677** *Effects of Wind-Driven Waves on Nutrient Cycling and Phytoplankton Transport in a Large Shallow Lake:* **S Soleymani Hasani**, M Arias
- 1889846** *Enhancing Wastewater Treatment Efficiency Through Recirculating Media Filters for Agricultural Reuse:* **R Chaudhari**
- 1885082** *Evaluating Multisource Drinking Water Quality in a Climate-Vulnerable Coastal Region of Bangladesh: Insights for Health and Sustainable Water Use in Dacope:* **S Biswas**, J Joardar Dr, S Islam Md, B Sikder
- 1937788** *Evolution of Freshwater Salinization in a Suburbanizing Watershed:* **M Jannat**, M D Shattuck, J Potter, W H McDowell, A S Wymore
- 1879421** *GLOWlib: A Library of GLObal Models based on Machine Learning for Inland and Coastal Water Monitoring:* **S Cooray**, R Paulino, V Martins, N Wijewardane

- 1875771** *Hydrologic Pathways and Geochemical Controls on C-Q (Concentration-Streamflow) Relationship in Northern Great Plains Agricultural Landscapes*: **M H Ahmmed**, T Jeannotte, T H Mahmood
- 1991575** *Influence of Corn-Soybean Spatial Patterns on Nitrate Predictions in the Upper Sangamon River Using Graph Neural Networks and Counterfactual Reasoning*: **A Moronfoye**, P Kumar
- 1952483** *Investigating the impacts of increasingly dynamic winter hydrology and spatially variable deicing product application on winter chloride loading*: **S Berlucchi**, K F Stepenuck, C Adair, M Vaughan, J B Shanley, M Duffy, A W Schroth
- 1913753** *Lake and Climate Processes Influencing Coldwater Fish Habitat Variability Across Lake States and Types*: **E Blackford**, P Block, G Hansen, L Knoll, H Rantala
- 2001223** *Leveraging Big Data and Big Models to Expand Process Understanding and Water Quality Predictions*: **J T Kemper**, K Underwood, S D Hamshaw, J B Shanley, P J Clemins, P D Isles, A W Schroth
- 1956509** *Location, Timing, and Implications of Water Quality Sampling in US Rivers*: **N Fernandez**, G Zuccolotto, L Vieira Lucchese, V Slevin, G Godavarthy, J Gardner, M J Cohen, J W Jawitz
- 1902088** *Longitudinal Patterns in N:P Stoichiometry across U.S. River Networks*: **L Cromwell**, L Wan, J Krause, L Vieira Lucchese, J Blaszcak, M J Cohen, J Gardner, K Maher, A J Shogren, J W Jawitz
- 1992275** *Observational changes in groundwater quality across Indus Basin Irrigation System (IBIS)*: **S Khan, PhD**, Y Abbas, A Arshad
- 1949231** *Partnering Across Intelligences: Interdisciplinary Approaches to Water Quality and AI*: **J N Perdril**, E C Seybold, L Li, K Underwood, D M Rizzo, B S Lee, I U Haq, S Swami, I Ahlstrom, A Vierbicher, C Hatley, B Stewart, S Mah, L Lowman, B Wemple, D Ramirez-Harrington, M Scarborough
- 1847642** *Population Structure and Feeding Ecology of Sompot Grunt {*Pomadourys jubelini*, Cuvier, 1830} and Flathead Mullet {*Mugil cephalus*, Linnaeus, 1758} from Douala Coastal Lagoon Complex, Cameroon*: **O P Atewogboye**

247610

Global Change and Water Security: Upstream-Downstream Challenges in Asian Mountains (joint with C, GC)

Conveners: Iulii Didovets, Potsdam Institute for Climate Impact Research; **Timo Schaffhauser**, Technical University of Munich; **Markus Disse**, Technical University of Munich; **Fred Hattermann**, Potsdam Institute for Climate Impact Research

- 1867708** *Predictive understanding of stream salinization across the Conterminous U.S. using machine learning*: **J D Smith**, K Eng, W A McAliley, K Compare, L Koenig, G Gorski, J Marshall
- 1917482** *Solute Persistence and Stability in a Coastal Plain Watershed: Insights from Nested Synoptic Sampling in the Southeastern United States.*: **A A Ali**, Z Loveless, A J Shogren
- 1913282** *Spatial Assessment of Trace Metal Bioavailability Across Different Headwater Streams*: **C Albert-Black**, J Moore, M E Newcomer, D Kincaid, J Gerson, T Schmidt, D Costello, A Peace, E Herndon
- 1983402** *Spatiotemporal Coverage and Trends in Surface Water Quality Monitoring Across the Continental United States*: **K Ondris**, H E Dahlke
- 1991402** *SPATIOTEMPORAL DYNAMICS OF MICROPLASTIC: AN EMERGING POLLUTANT IN ATLANTIC OCEAN, GULF OF AMERICA AND FLORIDA KEYS*: **A S Razzaque**, A M Melesse
- 1964924** *Spatiotemporal Patterns and Driving Factors of Event-scale Nitrate Concentration and Discharge Relationship in the Upper Mississippi River Basin*: **H LIU**, B Peng, Z Ma, L Li, K Guan, M Pan, M Jia
- 1909098** *Status and Drivers of Dissolved Oxygen in Regulated Rivers of Sweden*: **M Cunico**, N J Singh, E R Patro, PhD, R Jansson, Å Widén, J Ahonen, B Malm-Renöfält
- 1849727** *The Burden of Small Scale Fisheries in Coastal Communities in Ghana: Addressing Widespread Illegal, Unreported and Unregulated Fishing*: **F Agala**
- 1916058** *Using multi-solute concentration-discharge (CQ) responses to document interacting drivers of change*: **A Shogren**, C Atkinson, N Marzolf, C Smith, S Plont, S Golladay
- 1940543** *Water quality in forested catchments in the face of increasing stress and disturbances*: **C Winter**, M Weiler, K Stahl, T Kattenborn, F Schnabel
- 1956647** *Why Are Some Watersheds More Sediment-Productive Than Others?:* **S Shrestha**, A Husic, PhD
- 1962707** *Climate Impact Assessment in the Karadarya Catchment*: **L Alcamo**, T Schaffhauser, J Huang, M Disse
- 1971956** *Downstream Impacts of the Planned Medog Megadam on the Ganges-Brahmaputra Delta*: **M J Hossain**, M S Steckler, S L Goodbred Jr, A Chadwick, M H Jaman, M M A Chowdhury
- 1859019** *Geospatial Breakthrough in India's Himalayan Foothills: AHP-Driven Dam Site Suitability Mapping Strikes Back against Water Scarcity.*: **D Aulakh**

1855961 *Impact of Climate Change on Hydrological Processes in the Tianshan Mountains, Central Asia:* **Y Chen**, G Fang, Z LI

1850822 *Seasonally Frozen Ground and Permafrost across the Himalayas: A Look at the First In-Situ Network for Monitoring the Land Surface at High Elevation:* **K Y Kim**, D Sherpa, R B Kayastha, H Rajaram, V Lakshmi

249252

**Global river modeling in the Anthropocene:
Advancing model intercomparison and remote
sensing data integration for societal benefits**
(joint with SY)

Conveners: **Peirong Lin**, University of Texas; **Augusto Getirana**, Earth System Science Interdisciplinary Center, University of Maryland; **Cedric David**, NASA Jet Propulsion Laboratory; **Guy Schumann**, ImageCat, Inc.

1906907 *Advancing Global Hydrological Assimilation: First Applications of CTRIP-HyDAS with Real SWOT Observations:* **S Munier**, K Verma, A A Boone

1922458 *Damming the flow: Quantifying seasonal impacts of reservoirs on global streamflow and sediment transport dynamics:* **A Huang**, G Gao, Y Pokhrel

1953828 *Estimating global river cross-sectional channel geometry leveraging SWOT and multi-source data:* **Z Yuan**, P Lin

250886

**Global Water Risks: Advances in Large-Scale
Flood and Drought Risk Assessment and
Management for a Resilient Future** (joint with
NH)

Conveners: **Margaret Garcia**, Tufts Univ Civil & Environ Eng; **Oliver Wing**, SSBN Ltd; **Ashish Shrestha**, Urban Systems Lab, The New School University, New York; **Noemi Vergopolan**, Rice University; **Annika Hjelmstad**, Organization Not Listed

1926372 *Homo juridicus, homo heuristicus, and homo anticipans: a sociohydrological study of operator behavior and flood-drought tradeoffs in reservoirs:* **S Gautam**, S Park, D J Yu, M E Garcia, M Sivapalan, H C Shin

1912475 *Shifting Water Flows: Climate Change and the Future of Hydropower potential in Central Asia:* **I Didovets**, F Hattermann, B Fallah, M Javed, H Koch, G Umirzakov, A Nurbatsina

1964417 *Uncertainty in Water Balance Closure Across Central Asia's Headwaters: Evaluating Gridded Meteorological Products:* **T Schaffhauser**, M Disse, H Lee, L Alcamo, J Huang, F Merk, B Marti, T Siegfried

1941122 *Global Reach Scale Hydrology: Progress and Challenges:* **M Pan**, Y Yang, P Lin, H Beck, C Shen, D Yamazaki, D Feng, M Heberger, Z Zeng, A Abbas, C H David, M T Durand, T Pavelsky, R P M Frasson, G H Allen, C J Gleason, H Lu, K Yang, Y Hong, Q Wu, W Hu, A Sengupta, L Delle Monache, B Guo, R Hartman

1929987 *How reliable are global river discharge simulations?:* **Y Yang**, M Pan, H Beck, D Feng, A Getirana, C Shen, D Yamazaki, C J Gleason, P Lin, C H David

1861283 *Leveraging Multi-Sensor Observations for Global Reservoir Monitoring:* **E Collins**, A Getirana, S V Kumar, Y Yoon, C H Huang, H Gao, F Yassin

1942715 *Making streamflow data usable: Matching gauging stations to river networks with machine learning:* **S Moulds**, Y Liu, L J Slater, M Wortmann, B Zhang

1892588 *Modeling dissolved organic carbon in managed U.S. rivers:* **H Y Li**, L Li, G W W Abeshu, X Yang, J Tang, Z Tan, C Liao, D Feng, P E Thornton, R Leung

1949966 *Spatial Decoupling of Streamflow and Precipitation Centroids Across Hierarchical River Networks:* **Z Yin**, P Lin, D Yamazaki, H Lin

1985991 *Understanding the Role of Spatial Resolution in Global River Hydrodynamic Model Simulations:* **P Modi**, D Yamazaki, Y Hirabayashi, M Revel, X Zhou

1886137 *Assessing Drought Vulnerability in Global Hydropower Reservoirs:* **S Upadhyay**, A M Marshall

1924461 *Drought and Cascading Impacts: Insight, Opportunities, and Challenges:* **L Huning**

1962528 *Drought prediction at multiple time scales based on enhanced deep learning model:* **H Hamid**, S Samantaray, A Sahoo, D P Satapathy

1920884 *Drought to Flood to Drought: What are Whiplash Events?:* **J Engstrom**, E Mullens

1951278 *Insights into Global Flood Regulation Patterns from a Systematic Modeling Approach:* **K Zheng**, P Lin

1975749 *Predicting Reservoir Drought from Antecedent Meteorological Conditions Across the United States:* **J Zhang**, L Zhang, J Cao, T Yang

1920742 *Understanding the linkages between climate and hydrological whiplash across the Contiguous United States:* **S H Kim**, H H Kwon, C H Ribeiro Lima, N Devineni

247040

Groundwater-Surface Water Interactions in Mountainous, Riverine, and Coastal Environments

Conveners: **Anner Paldor**, University of Tennessee; **Barret Kurylyk**, McMaster University; **Yi-Peng Zhang**, University of Tennessee; **Julia Cantelon**, Dalhousie University

1958903 *Understanding the Multiple Drivers of Shallow Groundwater Variability in Flat Coastal Areas:* **H Borstlap**, L E Band

1853439 *A Groundwater Dataset for Investigating Groundwater–Surface Water Interactions Across Brazil:* **J G S M Uchôa**, P T S Oliveira, A Ballarin, D Gastmans, J A A Anache, B R Scanlon, C Camacho, V J Freddo Filho, E Wendland

1893814 *A metric to select appropriate coupling schemes between land surface and groundwater processes for the multiscale improvement of national scale models:* **J Traylor**, J Dickinson

1929284 *Characterizing River–Aquifer Interaction in the Hyporheic Zone Using Cross-Sectional Measurements and MODFLOW-USG:* **D Mahmoodzadeh**, J Yin, J Li

1943204 *Characterizing the Spatial and Temporal Salinity Variability on Shackleford Banks, NC: Implications for Freshwater Availability and Barrier Island Habitat:* **J Rizzolo**, M Sirianni, M A O'Driscoll, S P Charles, H Sirianni

1886763 *Community-based methods tip the scales for watershed-wide monitoring of groundwater-surface water interactions: Case study of the Xwulqw'selu watershed:* **K Disney**, T Gleeson

1929083 *Contribution of the Anti-Atlas highlands to sustaining groundwater resources in southern Morocco's arid Landscapes: Hydrochemical and Environmental isotope approaches:* **A Khettouch**, Y Ait Brahim, M Hssaisoune, L Bouchaou

1978858 *Effects of canal seepage on subsurface flow and thermal processes in a canal-aquifer-river system:* **C Stephenson**, P Shuai, B T Neilson

1884161 *Estuary-Groundwater Interactions Under Hyper-Tidal Forcing, Dike Realignment, and Sea-Level Rise:* **B Kurylyk**, H A Tackley, C Lake

1958362 *Evaluating Water Table Ratio and Catchment Clustering for Assessing Groundwater Contributions to Massachusetts Streams:* **J Huba**, D F Boutt, B Moran, D Hare, M Winnick, G Olland

1896107 *Factors controlling variable patterns of riverbed seepage: integration of hydrologic, geologic, and geophysical data and implications for surface water–groundwater modeling:* **E Yan**, A T Fisher, E Rojas, W A L Chapman, S Oswald, A Dunlavy

1876092 *Glacial Melt Contribution to Stream Discharge and Baseflow in an Alpine Watershed:* **S Weirens**, M McDonough, S P Anderson, S Ge

1909155 *Groundwater Monitoring Analysis Using Satellite Remote Sensing Data in Iraq.:* **R Albarakat**, V Lakshmi, R Alqurashy

1926448 *GWBASE: A Scalable Framework to Quantify Groundwater–Baseflow Correlations Using Paired Well and Streamflow Observations:* **X Li**, N Jones, G P Williams, A Aghababaei

1901868 *HydrOHS – An Optimized Hydrograph Separation Algorithm for Baseflow- and Quickflow Estimation from High Resolution Streamflow and Specific Conductance Data:* **E Villasano**, B Hagedorn, N Januario

1881560 *Hydrologic connectivity controls metal(loid) fate and transport in an alpine, snowmelt-dominated stream:* **K Singha**, K Swift Bird, A Navarre-Sitchler

1868966 *Influence of Microtopography and Soil Heterogeneity on Salinization in Changing Coastal Environments:* **C Y Chen**, A Paldor, D Pratt, H A Michael

1910362 *Integrating Groundwater Hazards in Coastal Risk Assessment: A Test Case for a Community Within the Greater Boston Area:* **D Gonzalez-Duque**, N A Chaudhry, A H Sawyer, A J Whittle, M V Martello, J M Cervenec, J F Knott, D F Boutt, K Hereid

1904056 *Integrating Hydrologic and Biogeochemical Models to Predict Nitrogen Dynamics in a Costal Lagoon Watershed:* **S Kim**, J C Joo, PhD, S Park, H S Moon, K Shi

1864342 *Investigation of future variability in groundwater-surface water interactions using SWAT-MODFLOW 6 and CMIP 6 projections:* **S Lee**, I H Cho, S S Lee, K K Lee

2003253 *Isotope geochemistry and physical hydrology of sulfidic springs in two Italian catchments:* **R Housego**, K Dawson, J L Macalady, M Ingalls, I Fendley, K H Freeman

1973005 *Linking Surface Features to Groundwater Chemistry in North-Central Texas:* **E Owusu**, O R Harvey

1953859 *Multi-Scale Assessment of Bedform Hyporheic Exchange: Pore-Scale Insights into Volume-Averaged Model Accuracy:* **T Erickson**, G Shen, J Yuan, M S Phanikumar

1972308 *On the Role of Tidal Network Characteristics in Salinity Intrusion and Denitrification: Insights from High-Resolution 3D Density-Driven Flow and Reactive Transport Modeling:* **S Rathore**

- 1920133** *Oxidation of Sulfide Minerals in Volcanic Sediments Reduces the Mass Flux of Dissolved Inorganic Carbon in the Aguas Zarcas River, Costa Rica:* **M Rahman**, R Buskirk, P Knappett, J K Brumbelow, A P Smith
- 1989444** *Process-guided Deep learning model for wetland-influenced groundwater level prediction:* **L Huang**, J L Sabo
- 1873797** *Quantifying variations in groundwater contribution to pan-Arctic river discharge:* **M Mosteller**, S G Evans
- 1966329** *Recovering Sub-daily Periodicity in Groundwater Discharge: Heat Tracing and Recursive Estimation Approaches Provide Process Insight:* **D Rey**, M A Briggs, F D Day-Lewis, J Marshall
- 1926662** *Spatial mapping of surface-groundwater interactions:* **A Bertagnoli**, A Tranmer, C Luce, D Tonina
- 1990311** *Spatiotemporal Sampling Requirements for Groundwater-Surface Water Monitoring Using High-Resolution Temperature Measurements:* **B Ledesma**, C I Meier
- 1887966** *Spatiotemporal Variations and Assessment of the Baseflow Index Across Major River Basins in South Korea:* **J M Lee**, J H Oh, H S Moon
- 1968095** *Storm Wave Damping in Inundated Beach Sands During Hurricane Helene:* **L Eggensberger**, N Stark, M Gardner, M Olabarrieta, J Mueller, B Phillips

252647

Harmonizing Water Quantity, Quality, and Infrastructure Data for Water Resource Management (joint with GC, IN)

Conveners: **Carly Hansen**, Oak Ridge National Laboratory; **Michael Meyer**, USGS WMA Observing Systems Division; **Kyle Onda**, Organization Not Listed

- 2002351** *Extended Hydrofabric: A Standardized Geospatial Database Integrating Water Management Infrastructure Data for Reproducible Water Management Modeling:* **P Shuai**, E Ebrahimi, S Bakar, E Triana
- 1918694** *Arizona Water Observatory: Scaling Up Water Data Access to Power Sustainable Water Management in Arizona:* **V Hobbins**, F Sternlieb, E R Vivoni, K Onda, C Stormer, D Storey
- 1882188** *Constructing geospatial database to support licensing and permitting for non-powered dams:* **H Wan**, K Tamaddun, S Barrows, J Gallego-Calderon

- 1966875** *Subsurface Heterogeneity Controls Nonstationary Dynamics of Snowmelt-Driven GW-SW Exchanges:* **A Ameli**, M Taherian
- 1977944** *The freshwater squeeze: time-lapse electrical resistivity tomography reveals migrating freshwater discharge to a high-latitude coastline:* **A Russo**, J Munk, J Jenckes, PhD, W Matyas, D F Boutt, S Shenk, L Munk
- 1853229** *The Importance of Groundwater Contributions to Streamflow and Salinity Loading in the Upper Colorado River Basin:* **M P Miller**, O Miller, P C Longley, D R Wise, M McDonnell, N M Schmadel, J R Alder
- 1995855** *The Influence of Septic Systems On Streambed Groundwater Quality:* **S Choudhri**, M Jones, K Bendall, S Rogers, A Ojeda
- 1914942** *Using coupled surface water and groundwater models to investigate current-bedform fluid exchange in an estuary driven by oscillating tidal currents:* **N Movahedi**, M Griesel, L Zheng, J Heiss
- 1962211** *Using the Propagation of Water Level, Electrical Conductivity, and Temperature Signals to Characterize a Karst Flow System:* **A J Luhmann**, M Noble, E Lam, J A Gochenour, M D Covington, H B Woo, M Flint, S L Bilek, R Grapenthin, J B Martin
- 1970523** *Validating a Pollution Potential Model for Failing Septic Systems:* **M Jones**, S Choudhri, K Bendall, S Rogers, A Ojeda
- 1991521** *Multi-Criteria Geo-Spatial Evaluation System for Managed Aquifer Recharge Site Selection Using Subsurface Dams: From Screening to Site-Specific Assessment:* **M S Bae**, S Lee
- 2003102** *Scalable Water and Sanitation Monitoring Across Africa via AI-Driven Satellite and Survey Data Integration:* **A Lahlou**, O Echchabi, N Talty, J M Manto, K L Lam
- 1914364** *Sedimentation impacts to United States water storage and water resiliency:* **M A Foster**, A Eckland, A Hurst
- 1938328** *SWAT-Salt Calibration for the Upper Red River Basin Aided by Transfer Learning and Continuous Water Salinity Observations:* **K Khodkar**, A Mirchi, R T Bailey, K Wagner
- 1921829** *Synthesizing Infrastructure and Environmental Data for U.S. Reservoirs to Identify Innovations and Gaps in Sediment Management:* **A Chu**, C Hansen, J Lee, M Musa

251580

Headwaters Come First: Advancements in the Science and Practice of Measurement, Protection, and Restoration of Headwater Catchments (*joint with EP, SY*)

Conveners: Sarah Ogle, Scripps Institution of Oceanography; Emily Iskin, Boise State University; Anna Marshall, University of Tennessee; Elissa Yeates, University of Georgia

1864639 *Evaluation of Baseflow Resilience Across the Delaware River Basin Headwaters:* **M A Briggs**, D Rey, P Goodling, J Fair, A Tucker, B Fleming, D H Doctor, J Benton, D Bonville, S Carullo, C Gazoorian, D Phillips, C Besteder, J Marshall

1976553 *Hydrological Impacts of Forest Harvest on Streamflow and Valley Peatland Water Storage in the Canadian Rockies:* **E Ireland**, C Westbrook

1999701 *A Spatiotemporal Deep Learning Approach for Daily Prediction of Ground–Surface Water Connectivity Signal and Key Spatiotemporal Feature Attribution:* **M R Mazarei Behbahani**, D Rey, M A Briggs, A C Bagtzoglou

1880781 *Accurate predictions of perennial streams in temperate, forested, headwaters: The challenge is real:* **K L Jaeger**, J Burnett, S Johnson, S M Wondzell, J Dunham, B Staab, M Brown

1927738 *Beaver Dam Analogs in Headwater Streams: Effects on Stream–Aquifer Connectivity and Hydrologic Signal Propagation to the Mainstem in the Valley Floor:* **B A Yifru**, L Scantlebury, S Tiwari, C Kouba, L Foglia, T Harter

1918677 *Benchmarking Conceptual Models for Headwater Streamflow Simulation Using the MARRMoT Toolbox and Hydrologic Signatures:* **F Kondum**, R M Nur, A Thapa, D T Mahoney, C Barton, K L Sena, J Christensen, H E Golden, C R Lane

1864875 *Evaluating the Longevity of Large Wood Restoration Services for Juvenile Coho Salmon Overwinter Habitat: A 2D Modeling Approach:* **M M Maffia**, C Segura, C Lorian, D Warren

1881914 *Evidence of declining ecologically available water and low resilience in headwater systems across the western United States:* **N Kolarik**

1919055 *Forecasting Stage-0 restoration's impact on late summer flows at Meadow Creek, OR.:* **Y Gebrai**, A Price, S M Wondzell

1878553 *From Flashy to Functional: Evaluating Beaver Dam Analogs for Restoring Water and Sediment Retention in a Human-Impacted Headwater Stream:* **S Fathel**, D E Ressler, M J Wilson

1949353 *Headwater Contributions to Downstream Discharge Vary Across Space and Time: Insights from A Process-Based Model:* **R M Nur**, D T Mahoney, J Christensen, H E Golden, C R Lane, G Evenson, C Barton, K L Sena, F Kondum, A Thapa

1864439 *Headwater Streams: What We Do and Don't Know:* **E Wohl**, K Larkin, S Triantafyllou

1872617 *Investigating Precipitation Phase Control on Flow Paths in Forest Headwaters:* **P J Dennedy-Frank**, M Sprenger, A Wanstall

1969065 *Linking Forest Management Practices to Summer Streamflows: Implications for Salmon Sustainability and Community Resilience in the Pacific Northwest:* **N C Cristea**, S E Dickerson-Lange, M Taylor

1881261 *Modeling How Rivers Respond to Changes in Macro-Roughness: Implications for Headwater Stream Restoration:* **C Shobe**, D Scott

1912869 *Modeling the Effects of Grazing-Driven Compaction on Soil Piping Discharge and Channel Head Development:* **O Richardson**, E Wohl

1961629 *Monitoring the Effects of Land Development on Stream Dynamics Across the Greater Dayton Area:* **L Claas**

1970104 *Observation to Prediction: Toward a National Infrastructure for Headwater Science & Forecasting:* **A S Ward**, J S Selker, G E Grant, S Tyler, J McDonnell, D W Hyndman, M F Bierkens, D J Gochis, W E Dietrich, J Bales, H E Golden, J Christensen, H K McMillan, M Zimmer, K L Jaeger, A Husic, PhD, E C Seybold, C N Jones

1884302 *Quantifying how subsurface properties modulate groundwater contributions to headwater streamflow using a model-data integration approach:* **V Oladoja**, L Wang, S R Waris

1956681 *Synthesizing Drivers of Beaver Dam Sediment Storage Across Headwater Systems:* **J Scamardo**, K B Lininger, J Rees

1874982 *Temporal Patterns of Biogeochemical Processes and Stable Isotope Dynamics in an Oligotrophic Headwater Lake:* **M Tajwar**, J C Ayers

1929406 *The Fate of Western Headwaters: Climate Controls on Base Flow in Headwater Systems:* **C Mroczek**, A E Springer

1919677 *Watershed-scale residence time before and after stream restoration in a 6 km² urban forest watershed (Reedy Creek, North Carolina Piedmont) from a five-year isotope record:* **D S Vinson**, D N Petitt, S Clinton, T Chen, W Tang

250011

Hydrogeophysics: Subsurface characterization and Monitoring Using Geophysical methods, remote sensing, and hydrogeological methods

Conveners: **Deqiang Mao**, New Mexico Institute of Mining and Technology; **Nimrod Schwartz**, Université Catholique de Louvain; **Xiangyun Hu**, Institute of Geophysics and Geomatics, China University of Geosciences; **Shujuan Mao**, Peking University; **Hang Chen**, Lawrence Berkeley National Laboratory

2001282 *A Dynamic Decadal Survey in Riverbed Morphology and Bioclogging and Implications for Water Resources Management:* **M E Newcomer**, J C Underwood, C Ulrich, S R Maples, T Schram, S Xin, D Ravulapalli, J Im, R C Naranjo

1892373 *A/B Testing for Groundwater: An Integrated Approach to Aquifer Potential Mapping with Geophysics and Remote Sensing:* **N C Idowu-Anifowoshe**, B Ojo, P J O Amigun, M Adeniran

1861779 *Ambient seismic-noise monitoring of confined fractured volcanic aquifers: from seismic velocity-groundwater level correlations to storage estimation:* **B Vittecoq**, A Burtin, J Fortin

1920746 *Application of Physics-Informed Neural Network to Solve for a Relationship Between Electrical Resistivity and Sediment Type in the Presence of Variable Salinity and Water Content:* **R Prentice**, R J Knight

1933858 *Applications of Nuclear Magnetic Resonance for Hydrogeologic Characterization in a Sand and Silt Column:* **J Awuku**, G Liu, S Knobbe, S C Zipper, J J Butler Jr

1902285 *Assessment of Deep Seated Aquifer Using Geophysical Methods:* **S Khanal**, M Burr SR, H Ghimire, U C Bhusal, N K Ganesh

1868434 *Assessment of Surface Lineament-Subsurface Fracture Correlations Through Electrical Resistivity Tomography and Computational Modeling Techniques.:* **K Asiedu**, C Garing, D Markewitz

1995335 *Capillary Barrier Effects on Soil Moisture Retention and Saltwater Intrusion Monitored via Electrical Conductivity:* **E Pezeshki**, S M Moyses

1941582 *Characterization of Permeability Architecture of Crystalline Hard Rock Formations using Geophysics and Borewell Logging:* **K GM**, M Ramadas, S Jena

1999439 *Comparison of Field-Measured Hydraulic Conductivity Values in Stratified Limestone, Meramec River Valley, St. Louis, Missouri:* **K A Johnson**

1992276 *Complex conductivity simulation and experiment gain insights into the microstructure of clay minerals:* **Y Qi**, Y Wu, C Tournassat, H Lisabeth, W Dong, C I Steefel, M Whittaker, B Gilbert

1897588 *Coupled Poroelastic Analysis of Fluid-Induced Deformation in the Delaware Basin, USA:* **V Karanam**, Z Lu

1984258 *Deformation in Dhaka Induced by Changing Water Levels Above and Below the Ground Surface:* **C M deFabry**, J Chen, K M Ahmed, M Khan, P Knappett, M B Cardenas

1961457 *Detailed gravity observations at the north western part of Lake Nasser to delineate the preferred path ways for groundwater flow:* **K Zahran**, M Sultan

1922033 *Does Soil Heterogeneity Promote Seasonal Changes in Salinity along Forested and Agricultural Marsh-to-Upland Transects?:* **C Terra**, R J Hess, D Pratt, T R Junayed, H A Michael, L D Slater

1939241 *Estimating Mechanical Parameters of Red-Bed Landslide Slip Surfaces Using Multi-Azimuth Tri-electrode Resistivity Measurements for Hazard Prevention:* **Z Liu**, R Liu, M Sun

1999114 *Evaluating Groundwater Storage Changes in Kathmandu Valley Using GRACE (Gravity Anomaly Data) and GLDAS (Hydrological Parameter Data):* **B Shrestha**, I Lamsal, P Luitel, N Bishwokarma, N Pandey, S Dhakal, N Maharjan, K Sedhain, K Nepal, R R Baral

1904387 *Evaluation of relative permittivity estimation of ground surface under crop cultivation using multi-channel ground penetrating radar (GPR):* **R Ohno**, H Saito, K Oikawa, M Yamada, T Motobayashi

1906028 *Geophysical Investigation of Shallow to Deep Aquifers Using Resonance Acoustic Profiling in Bagmati Province, Nepal:* **S Khanal**, H Ghimire, U C Bhusal, P Thapa, M Burr

1927112 *Geophysical Mapping of Groundwater Fens in the Valles Caldera, New Mexico:* **T Tracy**, M Diaz, M S Islam, R Nanda, I V Ordonez, M Ramirez, J Ward, P Bedrosian, J F Ferguson, S Kelley, O Azevedo, E Smith

1882226 *Geostatistical subsurface characterization reveals the Quaternary evolution of the Mississippi River Valley alluvial aquifer:* **Y Song**, F T C Tsai, B J Minsley, C Wu, E Heggy

- 1919133** *Groundwater Level Monitoring, Data Consistency And Graphical Representation Routines In Fractured Volcanic Aquifer In The Southern Brazil: An Essential Tool For Water Resources Management:* **D Ribeiro Lange**, C Müller Athayde, R Guimarães Sr, L Garcia, M Olivi, G Athayde
- 1992219** *How Fast, How Deep, and How Much?—Seismic Sensing of Groundwater Recharge from the 2023 Atmospheric-River Storms:* **S Mao**, W L Ellsworth, Y Zheng, G C Beroza
- 1943534** *Identification of Groundwater Potential Zones in Dehradun using GIS and AHP-Based Multi-Criteria Analysis:* **S Yadav**, I, A D Deshmukhe
- 1947558** *Impacts of Stream Restoration on Floodplain Groundwater Residence Times:* **R Hasan**, A Alves Meira Neto, R R Morrison, D E Oliveira Silva, C Patterson-Markowitz, C Rhoades, T Fegel, E D Pawlowski
- 1907703** *Integrating ERT and Machine Learning to Model Climate-Groundwater Interactions in the East River Watershed:* **W Guo**, H Chen, C Chou, Y Wu
- 1864952** *Integrating NMR Logging with Hydraulic Tomography for Improved Mapping of Heterogeneous Hydraulic Conductivity Fields:* **C Wang**, W A Illman
- 1930249** *Is One Frequency Enough? Multi-Frequency Oscillatory Hydraulic Tomography Improves Multi-Scale Aquifer Heterogeneity Imaging:* **J Patterson**, M A Cardiff
- 1993952** *Low Cost, High Impact: Compact Broadband Seismometers to Study Upper Mississippi Embayment Groundwater:* **N S Carpenter**, F Rodriguez Cardozo, A Araji, J Braunmiller, J Schmidt, E W Woolery
- 1922306** *Measuring Seismic Attenuation in California's Central Valley Using Ambient Noise Coda:* **D J Miller**, E Berg, C Downs, A Darrah, L A Preston

249380

Hydrologic Extremes in South and Southeast Asia: Challenges and Opportunities (joint with NH)

Conveners: **Sanjib Sharma**, Howard University; **Sangam Shrestha**, Asian Institute of Technology; **Ganesh Ghimire**, Oak Ridge National Laboratory; **Jeeban Panthi**, Kansas State University, Biological and Agricultural Engineering Department; **Sunil Bista**, Jackson State University

- 1849059** *Monitoring Water Dynamics during Drywell Infiltration Using Time Lapse Electrical Resistivity Tomography:* **Z Moreno**, L Netzer, T Kamai, D Kurtzman, U Nachshon
- 1871219** *Quantifying Regolith and Fractured Bedrock Contributions to Streamflow using Geophysics-Informed Hydrologic Model and Particle Tracking:* **C Xiong**, H Chen
- 1919876** *Simulation and inversion of seismic envelope data to characterize aquifers in the Central Valley, California:* **A Darrah**, L A Preston, C Downs, D Miller, E Berg
- 1945664** *Spectral induced polarization response of bacteria growth and decay in soil column experiments:* **Y Song**, X Shi, A Revil, X Du, A Ghorbani
- 1883785** *The Importance of Understanding the Highland Lakes of Central Texas Through the Use of Sonar Technology and Sedimentary Analysis.:* **E Esquivel**, M Soloman, A Orf, J A Austin Jr, D Duncan, M B Davis
- 1958856** *Understanding subsurface water flow in Phinaya, Perú using geophysical methods:* **L Forster**, J Cambeiro, C Mosolino, K Keating, L Liriano Perez, M Lang, J Oshun
- 1897393** *Unraveling fractured volcanic aquifers through hydrogeophysical and geological analysis:* **G Athayde**, C Müller Athayde, L Garcia, M Olivi
- 1958131** *Using Dynamic High-Resolution Head Profile Responses to Recharge and Pumping to Assess Changes in Vertical Hydraulic Conductivity:* **H Frederick**, E Arnaud, B L Parker, J R Meyer
- 1886664** *Using Frequency Domain Electromagnetic Induction and Hydrologic Monitoring to Investigate Salinity Dynamics and Drainage Interactions in an Agricultural Field of Coastal North Carolina:* **A K Manda**, B King, M Sirianni, E Pezeshki, S M Moysey, E Kancharla
- 1933636** *Using Microgravity to Investigate the Hydrogeology of the Hueco Bolson Aquifer in the El Paso-Juarez Border Area:* **M Garcia**, M S Karplus, O Dena
- 1959873** *A Cloud-Based Framework for the Modeling and Prediction of Post-Wildfire Hydrologic Response in Diverse Catchments Across Nepal:* **B Khadka**, B S Thapa, P K Bhattarai, S Khanal
- 1945955** *A Refined Avulsion Risk Framework Using SWOT and Field Data:* **B Wang**, C Koppe
- 1850488** *Advancing Water Risk Assessment with Satellite Data and Flood Models in Data-Limited Regions:* **A Watanuki**, T Sayama, S Abe, Y Nakamura
- 1921639** *Assessing Agricultural Vulnerability to Extreme Floods in Bangladesh: An Integrated Modeling Approach:* **M N Kadir**, H Abdullah, M M H Oliver

- 1846269** *Assessing Climate Change Impacts on Hydrology of the Gandaki River Basin through Multi-Site SWAT Model Calibration.*: **S Lamichhane**, S Shrestha, S Khanal
- 1994163** *Assessment of Imputation Methods for Filling Gaps in Daily Meteorological Time Series*: **A Gautam**, H Adhikari, S Dangol, V P Pandey
- 1973802** *Attribution of Contemporary Streamflow Variability to Climate, Dams and Land Cover Change in the Irrawaddy River, Southeast Asia*: **S R Phy**, M Arias, E Lee, S Jayasinghe, M Laverde-Barajas, R D Koster
- 1930638** *Climate-Driven Landslide Susceptibility and Population Exposure Modeling in the Nepal Himalaya Using Machine Learning Tool and CMIP6 Scenarios*: **T R Bhattarai**, N P Bhandary, K Pandit
- 1992716** *Dependence of Ganga Basin Rainfall on Evaporative Moisture Fluxes and Transport from the Bay of Bengal*: **R Kumar**
- 1915529** *Evaluating the Applicability of SWOT and SWORD for Nepal's Water Monitoring: Building a Scalable National Database*: **B Dahal**, S Bhattarai, P K Bhattarai, R Talchabhadel
- 1918916** *Evaluating the Utility of CORDEX Regional Climate Models for Climate Impact Studies in the Mekong River Basin.*: **R Shah**, Y Tsai, J L Sabo
- 1941092** *Flood Risk Assessment of Temples in Bangkok Metropolitan Area Based on Modified Elevation Data and Satellite-based Inundation Data*: **M Sakabe**, K Tsuzuki, Y Kawamura, T Tebakari
- 1870371** *From Clouds to Contaminants: Episodic Hydrochemical Perturbations Driven by Monsoonal Extremes in the Brahmaputra River Basin*: **S Kumar**, M Manga, A M Nair
- 1878009** *Future Hydro-Meteorological Responses in the Barak River Basin under CMIP6 Ensemble Scenarios*: **M Turjo**, M H Nahian
- 1848074** *Future Hydropower Variability in Himalayan Snow-Fed and Spring-Fed Rivers under Climate and Land Use Change Uncertainty*: **P K Bhattarai**, N Devkota, PhD scholar, S Lamichhane
- 1883981** *Future Projections of Flood Hazards in the Karnali River Basin Using LSTM-HEC-RAS Modeling*: **H Lakhe**, S Shrestha, R Talchabhadel
- 1947174** *Hillslope Hydrological Extremes under Changing Monsoon Patterns and Land Use Dynamics*: **D Roy**, J Indu
- 1990982** *Indicator-Based Assessment of Disaster Risk Reduction and Community Resilience in Noakhali and Surrounding Districts of Southeast Bangladesh*: **M M Hasan Saikot**
- 1991756** *Integrating hydrologic and climate modeling in urban water supply and sanitation systems resilience assessment frameworks: A case study in Bangkok, Thailand*: **M A Ancheta**, S Shrestha, T Koottatep, M S Shanmugam
- 1910378** *Mapping Climate-Sensitive Zones in the Brahmaputra Basin: A Historical and Future Assessment Using High-Resolution Observations and CMIP6 Projections*: **H M**, S A Kartha
- 1913827** *Precipitation Temporal Disaggregation for Event-Based Hydrological Modeling in the Kathmandu Watershed, Nepal*: **R Talchabhadel**, S Bhattarai, N R Pradhan
- 1905509** *Projecting Urban Flood Risks in a Changing Climate: A Modeling Framework for Dhaka, Bangladesh*: **F Akther**, S B Murshed, S Alam
- 1982228** *Realistic Flood Modelling Framework for Kathmandu Valley in the Face of Rapid Urbanization and Changing Climate*: **K R Regmi**, I Joshi
- 1877516** *Shifting Precipitation Extremes in Nepal: Diverging Patterns and Emerging Climate Risks*: **B Pokharel**
- 1955528** *Spatiotemporal analysis of monsoon characteristics in Nepal under future climate scenarios*: **D Kuinkel**, S Kuinkel, H K Paudel, B Pokharel
- 1916637** *Spatiotemporal Assessment of Urban Heat Island and Heatwave Dynamics in Densely Populated Nepalese Cities: Evaluating Nature-Based Cooling Strategies*: **R Talchabhadel**, S Bhattarai, A K Prajapati, B Karn, B Bhattarai, R Yadav, P K Bhattarai
- 1853003** *Uncovering Non-Stationary Climatic Extremes in a Tropical River Basin of Peninsular India: Trends and Variations*: **S Dixit**, K Pandey, R Tripathi
- 1956722** *Urban Flood Risk Assessment in Hanumante Watershed: A Multi-Criteria Decision Approach with Real Scenario Validation*: **S Duwal**, R Prajapati, R Talchabhadel, T R R Adhikari

252254

Hydrology as a Physical Science in the Age of Machine Learning: Toward Theory-Driven Discovery (joint with NG)

Conveners: **Jonathan Frame**, University of Alabama; **Jasper Vrugt**, UC-Irvine; **Tadd Bindas**, Pennsylvania State University Main Campus

- 1871411** *A Physics-Enhanced Conservation-Augmented Net (PECAN) for distributed hydrologic modeling*: **Y Wang**, L Zhang, N B Erichson, T Yang
- 1845005** *Augmented Information Physical GeoIntelligence*: **R A P Perdigão**

- 1974712** *Building a Streamflow Reanalysis Dataset using Deep Learning-Based Geostatistical Signal Separation:* **Q Lee**, J Halgren, S Lama, P Chaudhari, H Lemons, J Cunningham
- 1915544** *Demonstrating the Feasibility of DL-Based Pluvial Flood Mapping in Urban Settings:* **K Tavakoli**, S Seyvani, A Smith, M Saberian, M Abdelkader, J M Frame, M Temimi
- 1979006** *Developing a Machine Learning Framework for Seasonal Lake Level Forecasting of the Great Salt Lake:* **S Breuckman**, S A Koriche, S J Burian
- 1925177** *Do Process-Based Models Really Fall Short? Rethinking Channel Routing to Bridge the Gap with Machine Learning Models:* **E Sarkar**, A Kadu, B Biswal

258551

Hydrology Student, Postdoc, and Early Career Flash Talks (joint with A, NH, SY)

Conveners: **Matthew Preisser**, University of Texas at Austin; **Kathryn Moore**, Colorado State University

- 1880813** *A Diagnostic Framework and Data Inventory to Analyze and Identify Missing Human Interventions Impacting Streamflow:* **A Vora**, X Cai
- 1912821** *Addressing Non-Steady State Challenges: Reinterpreting the Budyko Framework for Monthly Evapotranspiration Prediction:* **H Sun**, X Wang, Y Qu, J Lyu, H Cai, X Zhang
- 1997937** *Application of Kapur Entropy Concept for Discharge Estimation: An Experimental Investigation in a Laboratory Flume:* **G Singh**, R Khosa
- 1886601** *Care-ful(l) hydrogeology: studying a watershed, not a study site:* **K Disney**, T Gleeson

249444

Hydrometeorologic extremes: prediction, simulation, and change (joint with A, GC, NH)

Conveners: **Erin Dougherty**, Significant Opportunities in Atmospheric Research and Science; **Manuela Brunner**, University of Zurich; **Laurie Huning**, California State University, Long Beach; **Naresh Devineni**, NOAA Center for Earth System Sciences and Remote Sensing Technologies (CESSRST); **Larisa Tarasova**, Helmholtz Centre for Environmental Research UFZ Halle

- 1967709** *Hydrological Extremes and Evolving Flood Risk in the Ghaghra River, Ganga Basin :* **S Singh**, R Sinha
- 1958154** *A Generalized Error Model for Capturing Extremes in Coupled Hydrological Models:* **K Basnet**, J Quinn, A Aryal, J Lamontagne, R Sinha, V Lakshmi

- 1975758** *Explaining and Predicting the Model Performance via Convex Hull Analysis of Internal States of LSTM based NWM Surrogate:* **D Fernando**, J M Frame, C Mba
- 1968062** *Extracting Hydrological Information from LSTM Models Using Cell State Analysis:* **C Mba**, D Fernando, J M Frame, J Halgren
- 1958132** *Historical Streamflow Reconstruction Using Hydro-Transformer Models with High-Confidence Gage Estimates:* **T Akinrele**, P Chaudhari, S Lama, Q Lee, J Halgren, S Rahimi
- 1982689** *Neural Operator for Subsurface Soil Moisture Imputation:* **V Singh**, A Singh, PhD, K Gaurav
- 1940909** *The North American Water Model (NAWM): Bridging the gap between hydrologic theory and actionable water predictions across large geographical domains.:* **M P Clark**
- 1913533** *Ecosystems Resilience Assessment of Forest and Grassland Subjected to Ecological Drought:* **Y Han**, Y Qu, T Jiang, X Zhang, J Lyu, X Su
- 1956016** *Hydrology Flashtalk — Modeling Precipitation and Groundwater with Vector Autoregression: Irrigation-Driven Sensitivity of Deep Aquifers in Minnesota:* **G Kaplan**, A Yourd
- 1886376** *Investigating Snow Water Equivalent Dynamics in High Mountain Asia and the High Andes Using a Land Surface Model:* **B Mahzabin**, P Houser, M Zambrano-Bigiarini, Y Xue, A Rahman, V Maggioni
- 1928835** *Regional Base-Flow Analyses with Machine Learning:* **C Mroczek**, A E Springer
- 1957464** *Testing sequential wetting and drying in non-perennial headwater streams:* **J C Morgan**, K J McGuire, J P Gannon, PhD
- 1900534** *Vapor Pressure Deficit Contributions to the Shortened Wet Season in the Southern Amazon:* **A Chang**, R Fu
- 1857529** *A Spatio-Temporal Bayesian Hierarchical Model for Estimating Precipitation Extremes at Unmonitored Gauges Across the CONUS:* **A Takallou**, N Samal, H Moradkhani
- 1995233** *Assessing the Efficacy of Common Probabilistic Distributions for Modeling of Streamflow Peaks in the US:* **L Pal**, S Guchhait, S Saksena
- 1910629** *Assessment of Future Streamflow Variability in the Duck River Basin, USA under CMIP6 Climate Projections using HEC-HMS Model:* **S Dey**, S M T Zahid, S Dey, M J Ahamed
- 1969061** *Atmospheric Circulation Patterns Associated with Rapid Soil Moisture Fluctuations over the Mississippi-Atchafalaya River Basin:* **R D Harp**, A Hoell

- 1972745** *Characterizing The Spatial Coherence Of Low-Flow Events Over The Conterminous United States And Its Interannual Variability.:* **A Subedi**, E Zorzetto, M I Brunner
- 1945514** *Characterizing Ultra-Extreme Precipitation Events in 100 Global Major Cities:* **Y Jeong**, A F Hamlet, K Byun
- 1971181** *Developing Future Projected IDF Curves for the Mid-Atlantic: The Impact of CMIP6 Projections and Non-Stationarity on IDF Curve Adjustment Factors:* **E Zuetell**, D Rounce, A T Degaetano
- 1974645** *Enhancing the Computational Efficiency of Stochastic Storm Transposition (SST)-Based Flood Hazard and Risk Modeling Techniques Using Importance Sampling:* **P Bajracharya**, S Jain, M Kc, H Smith, M Dircksen, D Rosa, C Lindemer
- 1937002** *Extreme-Range Precipitation Probability Across Global Weather Systems:* **S Duan**, W M Tsai, F Ahmed, J D Neelin
- 1872635** *From Hourly to Sub-Hourly Rainfall: A Stochastic Downscaling Method Based on Bartlett-Lewis Modeling:* **M F Caruso**, M U Khan, M Marani
- 1988311** *From Rainfall to Risk: How the MJO Shapes Fire and Drought Conditions in Hawai'i:* **A Nash**, G Torri, A Rovithakis
- 2004851** *Future Changes in Hydro-Meteorological and River Flow Extremes in a South American Transboundary Basin Under CMIP6 Climate Projections.:* **J I Montenegro Gambini**, **MSc**, J W Cabrera Cabrera
- 1937587** *Global-to-Regional Climate Signal Extraction for Climate-Conditioned Projection of Hydrologic Extremes:* **J Esler**, A Nayak, U Lall
- 1976664** *How Basin Size, Shape, and Orientation Modulate Rainfall Intensity-Duration-Frequency Curves:* **A M Oishi**, G Perez, D B Wright
- 1952911** *Hydraulic Modeling of Flow Extremes and Sedimentation on the Lower Missouri Through the End of the 21st Century:* **M O'Donnell**, D M Hall, PhD, A J Catalano, C Wiman, S Dee, J Doss-Gollin, S E Munoz
- 1919206** *Improving Multi-Scale Frequency Analysis in Mountainous Terrain with Stochastic Storm Transposition:* **G S Karlovits**
- 1930156** *Improving Simulation of Extreme Streamflow in Northern Chile using High-Resolution Ensemble Precipitation Forecasts:* **M D R L Mendoza Fierro**, H I Chang, C L Castro, R Valdés-Pineda, C B Risanto
- 1892554** *Incorporating varied datasets and methods into estimation of extreme precipitation events for U.S. infrastructure: an arid southwest case study:* **S Hartke**, A Verdin, J F England, A Avance, K J Neff
- 1895025** *Land Surface Dryness as a Predictor of Low-Level Jet Intensification and Extreme Precipitation in South America:* **F Dominguez**, C C Chen
- 1901776** *Mapping beatwave drivers to sector specific impacts:* **C Shen**, M Zaniolo
- 1955776** *Mapping the Motion of Historical Extreme Rainfall Events Across CONUS: A Dataset on Storm Tracks, Speed, and Structure:* **D Osorio**, G Perez, D B Wright, Y Liu
- 1963655** *Modeling Future Heat Extremes in Milwaukee Wisconsin Using Extremes-Preserving Psuedo-Global Warming Methods:* **A Alexander**, E Dougherty, D B Wright, C B Voter, S P Loheide III, C Vanorio, M Ozdogan, A Schneider
- 1936706** *Modern Estimation of Probable Maximum Precipitation (PMP)-magnitude Extremes Using Dynamical Model-based and Data-Driven Methods:* **Y Hiraga**, W Dilshan, D B Wright
- 1896503** *Modernizing Probable Maximum Precipitation Estimates over the Gila River Basin:* **N D Lybarger**, A J Newman, J F England, S Hartke, M Warner
- 1966237** *No More ARFing Around: Can We Move on from Areal Reduction Factors?:* **A Verdin, PhD, PH**, J F England, S Hartke, H Smith
- 1964022** *NOAA Atlas 15 - Preliminary Precipitation Frequency Estimates for CONUS:* **J Hanrahan**, S Perica, K Kunkel, L C Trabachino, M Lago, D Martin, S Pavlovic, F R Salas
- 1913729** *One model to fit them all: On the use of the Compound Poisson Extended Generalized Pareto Distribution for IDF Curves across Time Scales:* **T Kim**, P Naveau, G Villarini
- 1996178** *Point precipitation observation extremes in the world and Japan:* **M Kiguchi**
- 1879245** *Precipitation Forecasting Using Hybrid Data-Driven Modeling:* **K Kadkhodaei**, S Moghim
- 1900051** *Predictive Modeling of Drought Propagation in Heterogeneous Hydrologic Systems:* **E B Zeleke**, C J Chawanda, A M Melesse
- 1914516** *Projected Changes in Peak Discharge Globally across Different Future Scenarios:* **H Kim**, G Villarini, J McCollum, S Maebius
- 1884049** *Rainfall Frequency Analysis Across Scales in Complex Terrain Using Normalized Stochastic Storm Transposition and Multiscale Storm Selection:* **L Yan**, D B Wright, B FitzGerald, A Sebastian, M Webber, D Rosa, G S Karlovits
- 1942173** *Selection of CMIP6 Climate Model Candidates Based on the Evaluation of Seasonality and Extreme Precipitation:* **Y S Kim**, H H Kwon, S Jeong
- 1946313** *Spatiotemporal Dynamics and Trend Analysis of Compound Hot-Dry Extremes in Northern India:* **A Verma**, K Pandey

- 1993376** *Suitability of Stochastically Generated Rainfall for Derived Flood Frequency Analyses:* **U Haberlandt**, A Brandt
- 1881205** *Synthesizing multi-dimensional drought trends across the United States:* **S A Archfield**, S Lindsey, C Simeone, J C Hammond, J Marshall
- 1935072** *Temporal Clustering of Extreme Precipitation Events and Hydrologic Response in Southeast Texas:* **R Ananthula**, P Passalacqua, G Persad
- 1885208** *Towards Early Warning for All: Scalable Urban Flood Warning Systems in Ethiopia:* **R Imhoff**, J P M Aerts, T Bovenschen, M Yasir, F O Annor, A Teklesadik, M Zaroug, M Kwant, D Lugt
- 1995785** *TxRain: A Bayesian framework for integrating historical observations and model projections to develop nonstationary IDF curves:* **J Doss-Gollin**, Y Lu, J W Nielsen-Gammon, W J Baule, S Koka

249397

Precipitation and Hydrometeorological Processes Through the Eyes of Machine Learning and Advanced Statistics (joint with A, IN)

Conveners: **Veljko Petković**, Cooperative Institute for Climate and Satellites University of Maryland; **Pierre Kirstetter**, University of Oklahoma Norman Campus; **Shruti Upadhyaya**, Indian Institute of Technology Hyderabad; **Shruti Upadhyaya**, Indian Institute of Technology Hyderabad

- 1866771** *3DRU-Net: An Efficient 3D CNN-based Framework for Global Sub-seasonal to Seasonal Precipitation Post-processing:* **G H NOH**, S H Yoon, K H Ahn
- 1956254** *A Global High-Resolution Convective-Stratiform Precipitation Type Dataset from IR Observations:* **D Watters**, P E Kirstetter, J Tan
- 1931033** *A Machine Learning Approach to Quantifying the Error of Airborne Radio Occultation in Atmospheric Rivers:* **N Barton**, J S Haase, B Cao
- 1883178** *A Novel Fuzzy Ensemble Clustering Approach Using Latent Gaussian State Space Models for Demarcating Homogeneous Precipitation Zones:* **D Sengupta**, V Sreeparvathy

- 1932398** *Uncertainty of slope-area peak-flow measurements: a simulation-informed roadmap:* **J S Hecht**, T O Hodson, T Kenney, J Marshall
- 1911956** *Uncovering the Spatiotemporal Dynamics of Hydrological Whiplash Events Across the Contiguous United States:* **Y Yang**, G Villarini, L Yang
- 1928966** *Unequal Waters: Contrasting Floods in Natural and Managed Watersheds and Implications for Social Vulnerability:* **N Singh**, C R Jackson, R Emanuel
- 1933551** *Unveiling the Evolving Spatiotemporal Dependence of Flood Extremes under Climate Change:* **P C L Posa**, C Wasko, R Das Bhowmik, W Wu
- 1901397** *Utility of Precipitation Generating Mechanisms to Model Extremes in the United States:* **D Bhattacharyya**, K Kunkel, G Mascaro
- 1929704** *Vine Copula based Regional Frequency Analysis of Extreme Rainfall for the urban Northeast United States Under Climate Change:* **J U Yu**, H H Kwon, N Devineni
- 1867934** *Advancing Satellite-Based Precipitation Phase Classification with Deep and Bayesian Neural Networks:* **V Petković**, M Orescanin, B Manfre, D Duvio, L Ji, R Ferraro, H Meng
- 1900494** *An Incremental-Learning Framework for Artifact Detection in Precipitation Data.:* **A Monsalve**, H A Moreno, C D Kummerow
- 1930804** *Effects of Training-Dataset Source (JMA and NOAA/NWS Weather Prediction Center) on AI Weather-Front Detection Patterns:* **T Matsuda**, S Shige, K Aonashi
- 1865581** *Evaluation and Improvement of Precipitation Products in Arizona Supporting Water Resources Planning and Management:* **B Parajuli**, G Mascaro, A Moiz
- 1928994** *Explainable transformer-based deep learning improves hourly precipitation estimates in observation-sparse regions:* **D Tian**, F Wang
- 1888321** *Regional Kilometer-Scale Data-Driven Precipitation Forecasting over the Western United States Using Artificial Intelligence (AI):* **N Rouzegari**, V Afzali Goroooh, P Nguyen, K L Hsu, S Sorooshian, A Sengupta, L Delle Monache

247908

Impacts of global change and extreme events on hydrological and biogeochemical systems

(joint with B, GC)

Conveners: Nitin Singh, Auburn University; Mohammed Ombadi, Lawrence Berkeley National Laboratory; Charuleka Varadharajan, Organization Not Listed; Sarah Godsey, Idaho State University; Brittany Lopez Barreto, University of California Merced

1906449 *Anatomy of recent droughts in Switzerland and their ecohydrological impacts:* **P Buri**, M J McCarthy, S Fatichi, Á Ayala, D Karger, P Brun, L Chen, F Pellicciotti

1970443 *Contrasting Organic Carbon Pulses to Changing Climate Extremes in Climatically-Distinct Watersheds in Asia:* **R Septiani**, A S Akanda, C B Mouw

1906571 *Diverging hydrological and hydrochemical drought responses in a forested pre-alpine headwater catchment:* **C Winter**, J Knapp, J W Kirchner

1921203 *Do lagged ecosystem feedbacks to hydroclimate extremes promote resilience of forest watersheds?:* **R Zhang, PhD**, L E Band, T Hwang

1870257 *Identifying the impacts of Heatwave on Snowmelt Rate and Streamflow in the West United States:* **H Guo**, S He

1880590 *Long-term spatiotemporal trends in the biogeochemistry of Southern Rocky Mountain headwater lakes reveal complex patterns and drivers:* **M Farruggia**, T Fegél, C Rhoades, I Oleksy

1948852 *Mechanisms of Forest Soil Phosphorus Cycling and Its Response to Nitrogen and Phosphorus Additions:* **X Zhang**, S Liu Ms

1924333 *Model-Guided Fieldwork: a Framework for Designing Hypothesis-Driven Watershed Disturbance Field Campaigns:* **P Regier**, J Cavaiani, V A Garayburu-Caruso, A E Goldman, N McDowell, S Niroula, L Renteria, H S Song, J Stegen, J Zheng

250039

Improving Agricultural Water and Soil Moisture Monitoring with Earth Observations and Machine Learning: Innovations in Data-Driven Approaches (joint with IN)

Conveners: Sushree Swagatika Swain, Scripps Institution of Oceanography; Akash Koppa, Ghent University; Somnath Mondal, Northeastern University; Ashutosh Sharma, Pennsylvania State University Main Campus; Sudhanshu Kumar, Auburn University

1925134 *Mountain stream ecosystem metabolism and nitrogen cycling responses to hydroclimatic volatility:* **K Loria**, H Lowman, L Genzoli, J Krause, A Harpold, S Chandra, J Blaszcak

1974975 *Operational Impacts of Water and Climate Research in Pakistan: A Systematic Review:* **R Saleh Alipour**, N Wasankar, D Aziz, D Naeem, S Ahmad, M A Chaudhry, M E Barber, S J Burian

1875340 *Paired storms approach reveals amplified postfire floods and drivers:* **H Canham**, B A A Lane

1845611 *Post-Drought Rehydration Induces Divergent Shifts in Soil Microbial Communities: A Comparative Study of Fungal and Bacterial Responses:* **L Wang**, Z Yu

1972176 *Post-Wildfire Dynamics of Cyanobacterial Harmful Algal Blooms in California Lakes: Integrating Burn Severity and Sediment Loading with Satellite Remote Sensing:* **B Lopez Barreto**, A M Kinoshita, E L Hestir, C M Lee

1933641 *Resilience to Climate Variability and Drought is Greater in Agricultural Catchments than in Forested Catchments of Peninsular India:* **A Singh**, A Sharma, PhD

1876616 *Spatial Clustering of Climate-Sensitive Groundwater Systems Reveals Regional Vulnerability Patterns in South Korea:* **S B Kim**, T K Lee

1982844 *The Impact of Pluvial Flooding on Septic Systems in Major Drinking Watersheds of the Washington Metropolitan Region.:* **J Winey**, A Lima, M M Kuppá, C Ferreira, K E Furst

1855117 *The Long Burn: Quantifying Multi-Year Water Quality Degradation and Resilience after Wildfire:* **B Livneh**, C Brucker, F Rosario-Ortiz, F Yao, P Williams, S K Kampf, B Rajagopalan, W Becker

1906511 *A Comparative study on SSMP Model developed Soil Moisture and SMAP Level 4 Root zone Soil Moisture data over agriculture dominant region of Cauvery basin:* **S N**, M Pal

1922807 *A Contrastive Self-supervised Learning Model for Soil Moisture Retrieval from P-band PolSAR:* **S Khallaghi**, A Fluhrer, T Jagdhuber, H Alemohammad, PhD

1896055 *Advancing Real-Time Soil Monitoring Through Machine Learning and Sensor Networks: The Missouri MoHIC Initiative:* **V Kumanan**, Z Leasor, M Sunde, B Gyawali

- 1877008** *Analysis of the Impact of Soil Moisture Distribution on Microwave Radiometer Soil Moisture Products by AMSR2, SMAP, and SMOS in JAXA's Validation Site, Mongolia:* **K AIDA**, M Kachi, N Hirose, J Asanuma, I Kaihotsu, E Batbayar
- 1939144** *Automated Machine Learning Framework for Daily Soil Moisture Modeling Across Depths Using Remote Sensing and In Situ Observations:* **B Gyawali**, M Sunde, Z Leasor, V Kumanan
- 1940678** *Calibrating a Python-Based Water Balance Model (pyWBM) with Machine Learning and Multi-Source Data:* **T Alam**, D Lafferty, T Ford, R L Sriver
- 1946888** *Combining a Modified Water Cloud Model with Random Forest for Soil Moisture Estimation in Wheat Fields: A Ranchi District Case Study:* **P Murmu**, K Lal
- 1981923** *Daily 30 m Soil Moisture Estimation Using Thermal Inertia from Downscaled GOES Land Surface Temperatures:* **J A Zollweg**
- 1876969** *Detecting Irrigation Signals from SMAP L3 and L4 Soil Moisture: A Case Study in California's Central Valley:* **X Huang**, Q He, N Hanasaki, R H Reichle, T Oki
- 1981833** *Early monitoring of rice distribution under climate variability using transfer learning, Random Forest, and spectral index time series in California:* **R Díaz Gómez**, M R L Mautner, C A Young, M Holland
- 1869300** *Estimation of Soil Moisture Content in Wheat Fields Using UAV Imagery and Machine Learning Algorithms:* **S K Vishwakarma**, K Kothari, A K Gupta
- 1857877** *Evaluation of Soil Moisture Products of SMAP, SMOS, and AMSR2 in a 50 km Study Area on the Mongolian Plateau:* **I Kaihotsu**, K AIDA, J Asanuma, N Hirose
- 1889058** *Exploring the Heterogenous Nature of Irrigated Agricultural Fields using Remote Sensing Data:* **R Pommerenke**, R Smith, J D Niemann, N Hansen
- 1954024** *Farm-Scale Retrieval of Subsurface Fluxes Using Joint Assimilation of Land Surface Temperature and Soil Moisture:* **E Mashayekh**, L Farhadi
- 1919591** *Forecasting Soil Tension from Weather Data Using LSTM for Agricultural Water Monitoring:* **M Maskey**, S Chatterjee
- 1866815** *Hydrological Back-casting in Data-Scarce Regions: A Physics-Guided Machine Learning Approach for Historical Groundwater Level Reconstruction:* **D Banerjee**, S Ganguly Dr
- 1928866** *Identifying Optimal Timing and Sensor Integration for Predicting Soil Moisture and Electrical Conductivity using UAV Remote Sensing, Terrain, and Geophysics with ANN Models in Terraced Fields of the U.S. Midwest:* **E Eskandari**, K Grote, J Schott
- 1891952** *Investigating the Drivers of Site-Level Forest Soil Moisture Dynamics:* **J Cohen**, Y Xia, J Duan, H Guo
- 1879485** *L-Band SAR Outperforms C-Band for Soil Moisture Retrieval Under Dense Vegetation Canopies: A Machine Learning-Driven Comparative Analysis:* **B Shah**, R P McGehee
- 1894952** *Monitoring Agricultural Irrigation through Drone Imaging and Machine Learning Methods:* **Y Zhang**, J Dean
- 1995435** *Monitoring agricultural water use and linking crop evapotranspiration with yield:* **A Schreiner-McGraw**, M Anderson, K Sudduth, C Ransom
- 1951961** *Multi-Temporal Machine Learning Approach for Assessing Groundwater-Agriculture Nexus Using Remote Sensing Indices and GRACE Data:* **I Naz**, H Fan, R W Aslam
- 1972265** *Optimizing Irrigation through a Novel Framework Combining Physical Processes with Model-Based Deep Reinforcement Learning:* **K Panthi**, V Samadi, C Toxtli
- 1991913** *Physics-Informed Bayesian Downscaling of SMAP Soil Moisture to Hillslope-Scale Hydrologic Response Units:* **S Maksud**, B W Asfaw, D R Fuka, Z M Easton
- 1939552** *Reducing Uncertainty in SMAP L4 Soil Moisture Retrievals through ANN-Based Modelling: Watershed-Scale Insights from Eastern India:* **A Atnurkar**, M Ramadas, S S Biswal
- 1969219** *ROOTS: A Harmonized Open-Source Global Soil Moisture Database for Drought and Hydroclimate Analysis:* **A Samara**, S Cropper
- 1967251** *Soil moisture prediction with deep learning and machine learning in semi-arid cropping systems:* **P Bista**, R Ghimire, S Shaky, O Adebayo
- 1908811** *Unveiling thriving small-scale irrigation in Sub-Saharan Africa using geospatial foundation models:* **A Boser**, J Coldiron, K Lai, J Luo, M Rao, K Baylis, K K Caylor
- 1847080** *An AI-Based Dynamical System Framework for Early Warning of Flash Drought Onsets:* **D Tian**, F Wang
- 1848941** *High Resolution SMAP Soil Moisture in Agriculture: Interactions Between Evapotranspiration, Precipitation, and Soil Moisture:* **A Turman**, B Fang, R Smith, V Lakshmi, S Blecker

249205

Improving Water Quality Requires Understanding Processes at Groundwater-Surface Water Interfaces: Implications for Sustaining/Restoring/Maintaining Aquatic Ecosystem Health (cosponsored by EGU: European Geosciences Union) (*joint with B*)

Conveners: **Yan Zheng**, Columbia University of New York; **Stefan Krause**, University Claude Bernard Lyon 1; **Audrey Sawyer**, The Ohio State University

1972387 *Complex groundwater source to seep dynamics drive variability in per- and polyfluoroalkyl substances (PFAS) loading across groundwater/surface-water interfaces:* **D Rey**, M A Briggs, H Lind, A Tokranov, P Scordato, R Iery, H Moore, L D Slater, D R LeBlanc, A L Collins, J Marshall

1954434 *Enhancing urban wastewater treatment through nature-based solutions: the role of biofilm-plant development in subsurface retention of multiple solutes:* **M Ribot**, A H Sawyer, S Castelar, A Casacuberta, D Nadal-Sala, G Carballo, O Ballester, F Sabater, S Sabaté, R Gil-Solsona, P Gago-Ferrero, A Sorolla, E Martí

1887892 *Experimental Investigation on River Channel Evolution Induced by Subsurface Flow:* **Y Tang**, X Liang, Z Yin, Y K Zhang

1905278 *Integrating Groundwater-Surface Water Interactions Into a Systems Perspective of Watershed Hydro-Biogeochemical Function and Ecosystem Health:* **M J Kurz**, S C Brooks, R Brown Dr, J Gomez-Velez, N Griffiths, E Herndon, A Johs, P V V Le, S L Painter, S S Rathore

1873034 *Investigating the Impact of Hyporheic Exchange on Stream Oxygen Dynamics and Its Implications for Metabolism Assessments:* **J D Gomez-Velez**, S S Rathore, M J Cohen, S L Painter

248634

Innovating across Boundaries for Operational Uptake of NASA Earth Observations (EO) by the Western US Water Community (*joint with A, C, NH, SY*)

Conveners: **Sean Fleming**, Meteorological Service of Canada; **Sharon Ray**, Jet Propulsion Laboratory; **Mark Davidson**, NASA Jet Propulsion Laboratory; **Perry Oddo**, Pennsylvania State University Main Campus

1978773 *A Science Enterprise for Natural Resource Management. Supporting a Culture of Innovation at NASA for Sustainable Earth System Studies:* **D L Wegner**

1971807 *Linking Groundwater to Surface Water Quality in the Estero Bay Watershed, Southwest Florida, USA:* **S Sanderlin**, R R Rotz, P L Adhikari, D Duke, J B Martin

1923114 *Mitigation of Per- and Polyfluoroalkyl Substances (PFAS) Contamination Entering Fish Rearing Ponds across a Groundwater-Surface Water Interface:* **L D Lemke**, I Marquez

1865113 *Opportunities to Link Understanding of Hydrologic Dynamics, Water Quality, and Public Health in Urban Systems:* **A I Packman**, J Noriega Giménez, E Saavedra Cifuentes, A Vincent, R Poretsky, A Shrestha

1921152 *Per-and Polyfluoroalkyl Substances (PFAS) Variation across the Groundwater-Surface Water Interface at a Fish-Rearing Pond in Northern Kent County, Michigan:* **J Moleski**, L D Lemke

1914351 *Salinity driven mobility of phosphorus and metal(oid)s at groundwater surface water interfaces:* **G Hodgins**, J W Roy, C E Robinson

1984638 *Spatial Heterogeneity and Policy Impacts on PFAS Contamination in Urban Groundwater and Surface Water Systems:* **A Janelle**, H Siegel, G Castle, M O Gary, T M Shanahan, T McKinney, J Banner

1999415 *Stormwater Nitrate Pulses at the Groundwater-Surface Water Interface: Implications for Edwards Aquifer Recharge and Water Quality Management in a Rapidly Urbanizing Karst Watershed:* **Y Gao**, M McMahan

1864959 *Subsurface Flowpath Heterogeneity Drives Dissolved Oxygen Dynamics in a Spatially Intermittent Headwater Stream:* **J Krause**, A S Ward

1916543 *The influence of cultivated land change in the inland lake basin on nitrate accumulation at groundwater-surface water interfaces:* **Y Long**, Z Liao, Y Wang

1937854 *VARIABILITY OF POC DECOMPOSITION IN A MOUNTAIN HEADWATER STREAM:* **C Knutson**, A S Ward, J Krause, S M Wondzell

1874664 *Continuous monitoring through remote sensing finds enhanced watershed functions coincident with reduced wildfire severity within treated areas:* **J Shannon**, K A Duffy, E Yackulic, S Gilbert, T Hoecker, D Perrot

1923229 *Differential Impacts of Colorado River Water Shortages on Cropping Patterns and Water Use in Central Arizona:* **Z Wang**, S Sharma, A N French, E C Wisniewski, R Houborg, P C Guillevis, E R Vivoni

1938233 *Integrating NASA observations to provide snowpack and streamflow information tailored for Colorado water managers:* **E E Small**, M S Raleigh, C Wobus, K Jennings, J Sturtevant

1857157 *Leveraging Airborne Lidar for Water Supply Forecasting: Evaluating ML derived Long-Term High-Resolution Snowpack Data as Predictor Variables in M4:* **A Woodill**, M Titus, J R Watson

1947192 *Quantifying the Value of Earth Observations for Seasonal Water Supply Forecasting: A Colorado River Sub-Basin Case Study:* **N L Silverman**, D Gorelick, C Lewellyn

251111

Innovations in Water Resources Planning and Management – Monitoring, Modelling, and Stakeholder Engagement

Conveners: **Zhenxing Zhang**, University of Illinois at Urbana-Champaign; **Daniel Abrams**, University of Illinois

1893454 *A Remote Sensing Approach for Estimating Cotton Lint Yield and Trade-Off Between Water Use Efficiency and Groundwater Extraction in the Texas High Plains.:* **A Chaiyana**, K Jagadish, A Kumari

1911548 *Agro-Pastoral Resource Monitoring Network: A Data-Driven Framework for Water Resource Planning and Herder-Farmer Conflict Mitigation in Open Grazing Systems:* **P Mba**, D Uyeh, A Chesang, J Adamu

1880859 *AI-Driven Forecasting of Lake Ontario Water Levels: A Comparative Analysis of Univariate and Multivariate Approaches:* **A Ahmad**, S Mahdi, T J Smith, A Baki

1982258 *Analytical Estimation of Cross-Sectional Velocity Distribution Using Index-velocity acquired with Horizontal Acoustic Doppler Current Profilers (H-ADCP):* **K Kim**, M Muste, A Hauet

1962094 *Assessment of Surface Water Interactions Between the Upper Floridan and Claiborne Aquifers During Historical Hydrologic Extremes:* **R Khatakho**, R Karki, D E Stooksbury, E W Tollner, A Milewski, N Gaur

1894330 *Developing a Framework to Expand Stream Gage Network: Gage Gap Analysis and Prioritization in Missouri:* **H Dhital**, B C Seo, PhD, S Corns, R R Holmes Jr, J Burken

1973593 *Developing a Modern Watershed Simulation Framework: Multi-Model Insights into Water Quantity and Quality in the Occoquan Watershed:* **V Shah**, L Pal, A Baran, M Rippey, S B Grant, N Goulet, S Saxena

1998503 *HydroBench: Evaluating LLMs on Hydropower Domain-specific Knowledge:* **W Shan**

1909453 *Improvement of urban climate change adaptation resiliency based on integrated urban water monitoring system:* **J Tamás**, Z Z Fehér, I Boczonadi, S Kun, A Nagy

2003027 *Snowledge is Power: A Practical Guide to Earth Observations in Deep-Learning Streamflow Forecasting:* **A K Sampson**, A Gontar, S Topp, P Butcher, D Lambl, M Elkurdy, A Suarez, L Read

1950085 *The Application of VIC over the Rio Grande River Basin for Water Resources Management:* **H M E Geli**, V Mishra

1958222 *Integrating Scientific Modeling and Environmental Financing for Urban Resilience:* **K Bilbrew**, T Douthat, C S Willson, J Rhodes, T Horton

1980561 *Land Use vs. Climate: What Drives Irrigation Water Demand in California's Central Valley?:* **K I Islam**, J M Gilbert

1915211 *Mapping the AI Footprint: A Geospatial Assessment of Energy-Water Stress in U.S. Data Centers:* **H H Bokhari**, J Pillich, E Feusi, F Corsi, C J Vörösmarty

1902271 *Multiscale Dynamics of Groundwater Recharge in a Fractured Volcanic Aquifer in Southern Brazil:* **R Aguilar Guimarães**, C Müller Athayde, L Limberger Ms, L Garcia, M Olivi, G Athayde

1960225 *Navigating conflicting demands: An institutional logics perspective on water utility decision-making:* **A Milman**, T Albrecht

1884110 *Novel Methodology for Prioritizing Wells for Groundwater Monitoring in the Arkansas Headwaters Basin:* **E Fahrney**, D C Mays, C Newman

1972145 *Overcoming Data Limitations in 303d Lists: Spatiotemporal Trends in Stream Water Impairment Across Georgia Sub-Basins:* **K Bendall**, M Jones, A Ojeda

1994735 *Physically Based Distributed Hydrologic Modeling of a Recent Catastrophic Flood in the Upper Guadalupe River, Texas:* **A El Hassan**, R Awal, A Fares, C Furl, R Griffin

1905674 *Quantitative Assessment of Flood Risk Reduction Benefits from Nature-Based Solutions: A Case Study of the Jangdong District, South Korea:* **Y Kang**, J Seo, J Lee, S Baek, H S Kim

1889849 *Shared Vision Model for Drought Management: Application to the Geum River Basin, Korea:* **S H Choi**, J Lee, J Lee, Y O Kim

1913239 *Water-Energy-Carbon Nexus: Assessing Water Availability for Power Generation and Carbon Capture under Climate Variability:* **Z Zhang**

1957904 *Water-Energy-Token Nexus: Emerging Sustainability Questions in the Age of Large Language Models and Agentic AI:* **W Li**, H Zheng, R Thomas, H M El-Askary

250531

Innovative Approaches to Understanding Infiltration Processes Across Scales and its Applications in Real Life Engineering Hydrological Projects Conforming to UN's Sustainable Development Goals (joint with NS)

Conveners: Aparimita Priyadarshini Naik, Colorado School of Mines; **Amrutha Suresh**, University of Padua; **Sreeja Pekkat**, Indian Institute of Technology Guwahati; **Sreedeeep Sekharan**, Indian Institute of Technology Guwahati; **Amrutha Suresh**, University of Padua

250777

Innovative measurement technologies, characterization methodologies and modeling techniques for emerging contaminants (joint with NS)

Conveners: Raghavendra Suribhatla, Organization Not Listed; **Bo Guo**, University of Arizona; **Dimitrios Ntarlagiannis**, Rutgers University Newark; **Lee Slater**, Rutgers University-Newark; **Tahereh Moghtaderi**, Rutgers University Newark

1961267 *Analytical Improvements Using Orbitrap-IRMS to Measure Solutions of Per- and Polyfluoroalkyl Substances (PFAS) for Stable Isotopic Ratios:* **B Davidheiser**, P Wojtal, C Lane, R N Mead

1949095 *Characterizing PFAS Retention and Saturation Effects in Vadose Zone Soils with Spectral Induced Polarization:* **T Moghtaderi**, D Ntarlagiannis, C E Schaefer, L D Slater

252384

Integrating trends in surface and subsurface water quantity, solutes, and temperature of inland waters (joint with B)

Conveners: Zachary Johnson, US Geological Survey; **Tim Stagnitta**, USGS New York Water Science Center Troy; **Tim Stagnitta**, USGS New York Water Science Center Troy

1961326 *30 Years of Local Drainage and Upstream Watershed Nutrient Mass Balances Provide Key Insights into Managing Surface and Ground Water Quality:* **S Markley**, M Weber, M Brehob, R D Sabo, M J Pennino, R A Hill, S Alford, J Compton

1859454 *Advances in Numerical Modeling of Infiltration Processes Across Scales.:* **J Simunek**

1932114 *Estimation of Infiltration-Driven Irrigation Supplied for Non-Paddy Crops using Observations of Hydrologic Variables and Water Balance Modelling:* **A M Issac**, N Misra, A Mishra, K Chandrasekar, N Balaji

1856251 *Methods and approaches for the assessment and understanding of infiltration processes at different scales.:* **G Cassiani**, L Perruzo, M Pavoni, I Barone, A Carrera, J Boaga, A Ghirotto, V Cioffi, M Censini

2001498 *Numerical Simulation of Combined Infiltration Trench and Vadose-Zone Well System for Enhanced Stormwater Recharge and Hydraulic Performance:* **Y Xiao**, H Zhan

1978334 *Circular Economy-Driven Remediation of Manganese-Contaminated Wastewater Using Natural and Acid-Activated Bentonite:* **Y Khawassek**, M H Taha, A E M Hussein, G M Hussein

1926191 *Designing a Water Quality Monitoring System to Measure Contaminant Transport and Nutrient Loss from Agricultural Fields:* **E Sanford**, J K Coleman Wasik, B Hassanpour

2001164 *Identifying Sources and Estimating PFAS Loading Mass in a Midwestern Wastewater Treatment System.:* **J Hartrick**, B F O'Leary, C J Miller, K Tangen, G Schmidt, A Gazal, E Bradley, K Gopalakrishnan

1973725 *Nanoplastic Detection in Water with Fluorescence Spectrophotometry:* **M Fitzgerald**, D M Kahler

1986357 *Probabilistic Assessment of Pfas Contamination Into Groundwater by Analytical Model with Monte Carlo Simulations:* **R Gong**

1960642 *Using Macroinvertebrate Bioaccumulation to Assess Low-Level PFAS Contamination in a Moderately Developed Colorado Watershed:* **A Chessman**, A Fayram, D Bonsall, T Bohling

1873163 *As above, so below? A framework for integrating surface and subsurface long-term water quantity trends across the United States:* **Z Johnson**, M A Walvoord

1932745 *Creating long-range scenarios of stream temperature dynamics in a heavily regulated river basin:* **A H Tanim**, S W D Turner, M A B B Siddik, J Gomez-Velez, S C Kao, C Montgomery, M P Massey

1898556 *Freshwater salinization in carbonate critical zones:* **E A Hasenmueller**, T Baraza, A Montgomery

1919889 *Mississippi and Atchafalaya River Basin 1990-2023 Streamflow and Riverine Nitrate-N Trends for Mainstem Sites, Major Tributaries and The Gulf.:* **A Botero-Acosta**, G McIsaac, E Gilinsky, R E Warner, J Lee, L Kammin

250712

**Integrative Approaches to Urban Flooding:
Modeling, Monitoring, and Mitigation Strategies**
(joint with A, NH, SY)

Conveners: **Ahmad Payab**, Drexel University; **Franco Montalto**, Drexel University; **William Solecki**, City University of New York - Hunter College

- 1944893** *Climate-Proofing Urban Drainage through Stress Testing and Decision Spaces: A Case Study in Vilnius, Lithuania:* **A Reder**, L A Gomez Mogollon, L Napolitano, K Viršilaitė, G Rianna
- 1995128** *Integrated Stormwater and Shallow Recharge Modeling for Urban Flood Mitigation in West Tennessee:* **P Reyes-Garcia**, X Su, B A Waldron
- 1856959** *A Deep Learning Approach for Real-Time Urban Flood Inundation Forecasting at Metropolitan Scale:* **A Samadi**, H Moradkhani
- 1932697** *A Temporal Graph Convolutional Network Approach for Leveraging Spatial and Temporal Features for Street-Scale Urban Flood Forecasting:* **J Jeong**, J L Goodall
- 1949136** *AI-Driven Camera Monitoring and PCSWMM Modeling of Current and Future Urban Flood Risk in Marlton, Camden, NJ:* **N Adhikari**, A H Payab, M Tedesco, F A Montalto
- 1964032** *An Interactive GIS-Based 3D Flood Simulation Tool to Support Resilient Community Design:* **D Pisut**, D Djokic, N Shephard
- 1907532** *Assessing Ecosystem Service Delivery of Nature-Based Solutions in Urban Water Management:* **M G Di Chiano**, G Becciu
- 1944144** *Assessing Flood Risk Inequality in Global Railway Systems under Climate Change and Demographic Transitions:* **C Liang**, M Guan
- 1882855** *Assessment of Threshold Rainfall and Urban Flood Tolerance Index in India's Smart Cities:* **A Kumar**, A Rashid
- 1957706** *Deep Learning-Based Urban Flood Hazard Mapping Using Multivariate Geospatial Data:* **S Saumya**, S S R, S K Regonda
- 1877658** *Development of an Optimal Monitoring and Operational Framework for a Deep Stormwater Drainage Tunnel in Seoul, South Korea:* **S Yoon**, S H Hwang, H Choi Dr, M S Kim, J D Kang
- 1877545** *Development of Climate-Responsive Maintenance Standards for Rainwater Gutter Systems in Seoul, South Korea:* **H Choi**, S Yoon, S H Hwang, M S Kim, J D Kang

- 1941792** *Enhancing the Efficiency of Refined Urban Flood Simulation Based on the Combination of Finite Volume Method and Cellular Automata:* **B WANG**, Y Yu, X Cao, H Qin
- 1945915** *Enhancing Urban Flood Monitoring with Machine Learning: River Stage Estimation Using Surveillance Camera Imagery:* **Y Shibuo**
- 1983705** *Evaluating a Multivariate Data Assimilation Framework for Urban Flood Forecasting : From Synthetic Tests to Real-World Application:* **B Kim**, Y Lee, S Lee, S J Noh
- 1956117** *From rainfall to risk: An integrated hydrologic-hydraulic modeling approach in a data-scarce Himalayan city:* **N S Basnet**, P Upreti
- 1900595** *From Space to Street: Satellite-Driven Urban Flood Intensity Mapping:* **A Haider**, R Khanbilvardi, A Mondal, N Devineni
- 1925748** *From Stormwater Management to Flood Mitigation: A Decade of Flood Susceptibility Trends in Tianjin Under China's Sponge City Initiative:* **H Tian**
- 1982304** *Hydrologic Modeling Meets Community Voices: Advancing GSI in Northeast Wilmington:* **R Zobel**, E Rodden, V Tripuraneni, V Perez, C B Voter
- 1887348** *Importance of High-Resolution Wind Gust Modeling to Improve Urban Flood Risk Assessment:* **N A Srivastava**, M Chester, G Mascaro
- 1858851** *Improving Urban Flood Detection with a New Remotely-sensed Index Developed on Canal Cities:* **Q Euler**, C Gerlein-Safdi
- 1990453** *Informing Compound Flood Mitigation Strategies Across Scales: Blurring the Lines Between Hydrologic and Hydraulic Models.:* **E Coon**, S S Rathore, M K Wang, S Barbosa, K Lieberknecht, P Passalacqua
- 1948874** *Insights on the Value of Nature-Based Solutions for Pluvial Flood Mitigation from a Case Study in New York City:* **S Annis**, M G Badas, G Mascaro
- 1900075** *Integrating Hydrodynamic Modeling, Remote Sensing, and Machine Learning for Urban Flood Simulation and Prediction in New York City:* **S Kamali**, R Khanbilvardi
- 1953464** *Investigating near future flood risk in Harris County, Texas:* **N Choi**, K Powlen, N Pasley
- 1886211** *Machine Learning Surrogate Modeling to Improve Urban Flood Predictions:* **A Bhandari**, Y Bhattarai, S Sharma, R Talchabhadel
- 1859757** *Mitigate Urban Floods Caused by Extreme Rainfall Using Green Stormwater Infrastructures Integrated with the Existing Drainage System at City Scale:* **N She**

- 1851148** *Modeling Coastal Flooding and Assessing the Effectiveness of Nature-Based Solutions for Improved Urban Flood Resilience*: **M S Rahman**, P Biber
- 1955086** *Modeling Compound Flood Risks in New York City: Insights for Resilience Planning under Future Storm Scenarios*: **M Benetti**, G Nolde, M Pilotti, Y Miura
- 1956212** *Modeling the Hydrologic Impact of Technosol Rain Garden Design on an Urban Watershed in Houston, TX Using the Soil Water Assessment Tool (SWAT)*: **D Williams**, B M Wyatt
- 1997462** *Optimizing Green Infrastructure and Nature-based Solutions for Urban Flood Mitigation*: **S Nam**, M Kim
- 1873484** *Physically-Informed Deep Learning Model for Floodwater Depth Estimation in Urban Areas using Remote Sensing*: **J Blay**, T Gebre, L H Beni
- 1966546** *Physics-Informed Deep Learning Urban Flood Forecasting Under Climate Change and Urbanization across the Dallas–Fort Worth Metroplex*: **A Tamadoni**, H Qiu, D Hyndman
- 1977753** *Process-Based Hydrologic Modeling of Urban Runoff Dynamics under Climate and Land-Use Change: Application to the Dallas–Fort Worth Metroplex*: **H Qiu**, A Tamadoni, D Hyndman
- 1920271** *Prototyping a Vision-Based Flood Extent Sensor with On-Device Image Processing*: **V L Sobral**, Y Wang, J L Goodall
- 1895474** *Quantifying Sensitivity and Uncertainty in 1D/2D Urban Flood Models: A Case Study from Harrison Avenue, Camden, NJ*: **A H Payab**, T Feeney, L Bivona, S Schreiber, F A Montalto

249314

Intelligent River Basin Management: Advances in Monitoring, Modeling, and Managing Water Resources

Conveners: **Manabendra Saharia**, Organization Not Listed; **Bhagu Chahar**, Indian Institute of Technology Delhi; **Balaji Rajagopalan**, University of Colorado Boulder; **Rajib Bhattacharjya**, Indian Institute of Technology Guwahati; **Ishita Afreen Ahmed**, Department of Civil Engineering, Indian Institute of Technology Delhi

- 1848253** *Open-Source Water Systems Modeling Coupled with Deep Learning to Advance Water Availability Assessments in the Delaware River Basin*: **P M Reed**, T Amestoy, C Y Lin
- 1941687** *A framework for operational medium-range flood inundation forecast for India*: **P Deka**, V Prakash, N K Kondapalli, M Saharia
- 1930884** *Rapid Evaluation of Nature-Based Solutions for Urban Drainage System Resilience Using Machine Learning Surrogates*: **S Xi**, Y Hu
- 1899756** *Scaling Effects of Prairie Restoration as a Flood Mitigation Strategy in Fort Bend County*: **E Siemens**, T Furrh, P B Bedient
- 1945573** *Simulating Urban Floods in Data-Scarce Regions Using a Minimalist Approach*: **R Singh**, R Das Bhowmik
- 1959761** *Spatio-temporal evolution of extreme rainfall and urban flooding in Indian Cities*: **P A Laksman**, H Solanki, K Gaurav, V Mishra
- 1933226** *The Eco-Economic Effects of Perennial Coastal Flooding in Lagos State, Nigeria*: **P E E Ndimele**, A E Ojewole, O T Ayodele, F C Ndimele, J A Shittu, K M Ositimihin
- 1881323** *Transitions in Urban Flash Flooding: A Multi-factor Analysis of Changing Climate and Human Impacts on Flood-Prone U.S. Inland Cities (1996-2023)*: **Y Y Wu**, A Madson
- 1888545** *Transportation and Stormwater Infrastructure (TSI) Planning Integration in an Urbanizing Region near the Dallas-Fort Worth Metroplex*: **K Greenwood**, S Mahat, A Paudel, D Li, S Abolmaali, J Cotter, M Lepinski, N Fang, Y Zhang, F H Jaber, E Rophael, J Neal, K Zielke, S Alvarez
- 1938994** *U-RNN high-resolution spatiotemporal nowcasting of urban flooding*: **X Cao**, B Wang, Y Yao, H Qin
- 1941545** *A Gauge-based Adaptive Localization Approach for Improved Ensemble Data Assimilation in Hydrological-Hydrodynamic Models*: **V Prakash**, M Saharia
- 1870125** *Applying Computer Vision Approaches to Stream Gauging and Hydrological Monitoring*: **D Ritter**, N Hutley
- 1955429** *Assessing the Impact of Climate Change on Brahmaputra River Streamflow Using GCMs and Machine Learning*: **S Shukla**, V Kumar, K Luxmi, R K Bhattacharjya
- 1944249** *Causal Attribution of Flood-Generating Mechanisms behind Severe Floods in India*: **I A Ahmed**, M Saharia
- 1885379** *Flood Inundation Mapping Using Multi-Temporal SAR Data and Sequential Nature-Inspired Optimization of XGBoost for Intelligent River Basin Management*: **I Ansari**, A Rahman
- 1935457** *Graph Neural Network-based Post- Processor for Ensemble Streamflow Over the Narmada River Basin*: **A P**, M Saharia

- 1939107** *High-Resolution CMIP6 Downscaled Precipitation And Temperature Dataset Over South Asia:* **N Bhattarai**, M P Clark, M Saharia
- 1945116** *High-Resolution Flood Event Database for Fluvial Floods Across the Indian Subcontinent.:* **T Parashar**, S Chakma, M Saharia
- 1925046** *Integrated Riverine Flood Warning System Coupling River Stage Predictions with Hydraulic Modeling:* **N Rastogi**, B Rajagopalan, T M Hopson, J T Minear
- 1964789** *Integrating Aquatic Drone, Autonomous Surface Vehicle, and Unmanned Aerial Vehicle Platforms for 3D Flow and Water Quality Mapping in Riverine Systems:* **J Seo**, E Miliutina, B Akinade, B Alexander, J Balthasar, M C Gyves, A Song, H Liu, R R Lotspeich

249217

Interplay between Fault Architecture and Coupled Processes in Carbon Sequestration, Hydrogen Storage, and Geothermal Energy (joint with GC, MR, S, V)

Conveners: **Lluís Saló Salgado**, Massachusetts Institute of Technology; **Hannah Lu**, Stanford University; **Josimar Silva**, ExxonMobil Technology and Engineering Company; **Lydia Bailey**, University of Arizona; **Jimin Zhou**, ExxonMobil Technology and Engineering Company

- 1957251** *Analytical/Streamline Simulations for Enhanced Geothermal Systems:* **K L Kuhlman**, T LaForce, F T Good, R Leone, W M Kibikas
- 1948804** *Comparative Study of Pore Pressure Response to Earthquakes with and without Fault:* **S Horikawa**, T Sasaki, K Kusunose, T Hashimoto, R Hashimoto
- 1919984** *Constraining Reservoir Deformation and Stress Evolution in Brawley Geothermal Field Using Well Operation History, InSAR Observations, and Poroelastic Modeling:* **G O Shodunke**, J Jiang, S Bodunde
- 1917081** *Decoupling Hydraulic Communication and Flow Dimensionality in Well-Test Analysis:* **M Becker**, E Martinez
- 1991038** *Detecting Changes in Seismic Source and Fracture Network Morphology With Unsupervised Machine Learning on Synthetic Wavefields:* **A Barth**, B K Holtzman, E Beauce, T Mittal, S Saltiel
- 1846006** *Detecting Seismic Events in Continuous Waveform close to a Proposed Carbon Capture and Sequestration Site in Coastal Texas:* **S M Rinty**, A A Delorey, T Goebel

- 1940127** *Locally Relevant Streamflow from Large Hydrological Ensembles: A Deep Learning Based Post-Processing Approach:* **B Magotra**, M Saharia
- 1939257** *Modeling Future Streamflow Dynamics Under Climate Change Scenarios Using SWAT in the Western Himalayas: Implications for Adaptive Water Resource Management:* **A Rahman**, I Ansari
- 1939405** *Quantifying Riverbed Clogging in Recharge Systems: Parameter Sensitivity and Model Comparison:* **M Tripathi**, A M Tahir, A R Khan, P K Yadav, B R Chahar, T Grischek
- 1937257** *Rapid Flood Inundation Mapping and Flood Hazard Zonation using Sentinel-1 SAR data, a Case Study of Kopili River in Assam, India:* **K S**, D J Sarmah, R K Bhattacharjya
- 1887394** *Development of Carbon-Sequestering Permeable Blocks using CO₂ Micro-Nano Bubbles, Red Mud, and Cement:* **J C Joo, PhD**, D J Kim, I H Hwang, Y W Cho, S Kim, S C Kwon, J Park
- 1945834** *Dual Permeability Micromodels to Visualize Mechanical Displacement and Capillary Entry at Reservoir-Caprock Interfaces for Hydrogen Storage:* **I Beine**, G Zhang, A R Kavscek
- 1941114** *Effect of Phase Change of CO₂ on Injection-Induced Fault Slip in Granite:* **Y Dong**, L Lin, G Zhang, X Yan, H Yu, Y Dong
- 1945679** *Energy Balance of Fluid-driven Frictional Rupture in Fractured Rocks:* **A K Sarma**, D Garagash, B T Lecampion
- 1905134** *Evaluating CO₂ Leakage Risks with THMC Software: A Multiphase Flow and Heat Transport Approach:* **Z Y Liao**, J S Chen, G T Yeh
- 1926462** *Failure Criterion Selection for Predicting Clay-Rich Fault Rupture in Geologic CO₂ Sequestration:* **M Cao**, Y Guglielmi, J Rutqvist, A Cihan, S Glubokovskikh, G Guo, M T Reagan, P D Jordan, J Birkholzer
- 1980245** *Finite volume discretization methods of capillary-dominated multiphase flow in highly heterogeneous and fractured porous media:* **A Alali**
- 1969954** *Fracture and its electrical signature in saturated Yates Amphibolite:* **T F Hager**, T Mandolini, W Zhu
- 1966599** *Fracture Mechanism Evolution of AE Signals in Laboratory Hydraulic Fracturing:* **Z Yuan**, C Gu, Y Zhong, P Wu
- 1913896** *Geology, Mechanics and Technology: The Three Dimensions of Subsurface Flow Modelling:* **T Manzocchi**
- 2002858** *Geospatial Web-Tools for Underground Hydrogen Storage Site Selection and Risk Mitigation:* **B Mendoza**, A H Kohli, A R Kavscek, S Saltzer

- 1955727** *Hot and Cold Water Mixing in Fault-Controlled Hydrothermal Systems:* **Z Zhang**, Q Niu
- 1938617** *Integrated Machine Learning and Seismic-Well Data Workflow for Lithofacies Prediction and Reservoir Risk Characterization at the Illinois Basin-Decatur Carbon Storage Site, USA:* **T Khalifa**, X Chen, S C Williams-Stroud, A Chaveste
- 1998577** *Integrating Digital Rock Physics and Discrete Fracture Networks for Fracture Flow Upscaling:* **M Giakoumi**, H Almajed, B Chang, M Prodanovic
- 1885240** *Lessons from the field: Impact of CO₂-filled fault zones and multiphase flow effects on CO₂ plume flow patterns and reservoir pressure evolution:* **I Bukar**, A H Muggeridge, R E Bell, S C Krevor
- 1891733** *Linking Fracture Formation and Geometry to Structural and Seismic Anisotropy:* **K Han**, L Carleton, L J Pyrak-Nolte
- 1926207** *Modeling Slip on Rate-and-State Faults Induced by Off-Fault Fluid Injection:* **W E Chen**, N Lapusta, X Fu
- 1938368** *Monitoring of Fault Activation and Earthquake Rupture Experiment at Bedretto Underground Research Laboratory, Switzerland with Novel Three-dimensionnal/6 Component Strain/Stress/Displacement Sensors:* **F Soom**, Y Guglielmi, P J Cook, Y Tanaka, A Lambiase, M Hertrich, M A Meier
-
- 247304**
Investigation of Fracture Intersection Evolution for Subsurface Fluid Flow (joint with NS)
Conveners: Erin Heilman, Los Alamos National Laboratory; **Laura Pyrak-Nolte**, Purdue University; **Hari Viswanathan**, Los Alamos National Laboratory; **Stephen Laubach**, University of Texas at Austin
-
- 1994805** *Seismic Reflection Imaging of Reactivated Precambrian Shear Zones Beneath Steamboat Springs, Colorado:* **J Berglind**, P Chandler, R Fischer, K Mariko
- 1985741** *Bridging Geophysics and Observation: Linking Acoustic Emission to Real Fracture Geometry in a Mesoscale Experiment:* **A Fujimoto**, T Danjo, T Ishida, T Yokoyama, H Fujii, T Takeuchi, R Inoue
- 1964176** *Characterization of fracture zones from P-wave anisotropy using azimuthal AVO (AVAZ) analysis:* **L S Pelluri**, S Nittala
- 1918792** *Characterization of transport properties of fractured Yates Amphibolite from EGS Collab testbeds at SURF:* **T Mandolini**, T Hager, M Martinchick, M Ryan, W Zhu
- 1847988** *Multiphysics processes in fractured geothermal reservoirs:* **I Berre**, J Both, O Duran, V Lipovac, M B Oguntola, E Keilegavlen
- 2002742** *Novel seismic imaging of subsurface faults and fractures and inference of fluid permeability in geothermal fields:* **Y Zheng**, L Huang
- 1910574** *Numerical modeling of the effect of permeability evolution induced by thermal decomposition from seismic slip on subsurface fluid storage stability:* **C H Jang**, B D So, K Lee, H N Kim
- 1868941** *Permeability tensor evolution by stress-induced crack geometry changes:* **R Moncada Lopez**, E Vitali
- 1943378** *Quantitative Modeling of Thermo-Hydraulic Transport in Geothermal Fractures: A Diffuse Interface Perspective:* **F Epp**, N Prajapati, M Reder, A Kumar, B Nestler
- 1992044** *Seismo-Acoustic Monitoring of Hydro-Thermal-Mechanical Processes in Fractured Rock Analogs:* **C Yuan**, S Saltiel, T Mittal, A Barth, E Beauce, B K Holtzman
- 1900226** *Sensitivity Analysis and Surrogate Modeling for Lithological Controls on Fault Permeability:* **H Lu**, L Saló Salgado, R Juanes
- 1982589** *Effect of stress on rock fracture permeability: Theory and numerical simulations:* **K Sawayama**, B Ghanbarian
- 1875322** *Fracture and Fault-Controlled Seafloor Seepage Pathways in the Northern Gulf of Mexico:* **A Arogundade**, W Yeboah, N Dawers
- 1848112** *Inertial Flow Transitions in 3D Intersecting Rough Fractures: Impact of Geometry and Roughness on Non-Darcy Regimes:* **G Ifrene**, K Singh, R Schultz, N Nagel, P Pothana
- 1908155** *Learning Weathering-Induced Fracture Permeability Evolution via Physics-Informed Generative AI:* **J Qiao**, X Tang, X Hua, S Xu
- 1859572** *Scale-invariance in Connectivity of Fractal-Fracture Networks: A Node-based Analysis:* **A Roy**, B Sahoo, R Biswas
- 1971556** *Seismic Wave Interaction with Idealized Intersecting Mineral Veins:* **A Clark**, L J Pyrak-Nolte
- 1916837** *Structural Control by Faults and Fractures on the Localization of Geothermal Systems in Ourense, Longroiva, and Gerês (NW Iberian Peninsula):* **F Martin-Gonzalez**, P Araujo, J A Cid, M Hernandez, R Marrero, N Heredia

249512

Lake-Atmosphere Interactions in Cold Regions: Measurements, Modeling and Analysis (joint with A, GC)

Conveners: Alisa Young, Organization Not Listed;
Christopher Spence, Environment Canada Saskatoon;
John Lenters, University of Michigan Biological Station

1917756 *17+ Years of Eddy Covariance Monitoring within the Great Lakes Evaporation Network:* **A H Young**, C Spence, J D Lenters, P Blanken, L M Fry, F Seglenieks, N Hedstrom, E Nicholls, D M Wright, K Beadle, S A Ruberg, H Henderson

1868146 *Advancing Great Lakes Modeling: Harnessing 3D Hydrodynamics and Deep Learning for Future Insights into Coupled Lake-Atmosphere Systems:* **P Xue**, Y Chen, M Kayastha, C Huang, Y Qian, J Wang, R Hetland, W Pringle, Z Yang, T Chakraborty, X Zhou

1956494 *Evaluating HRRR and GLCFS Model Performance Using Case Studies of GLEN Heat and Moisture Flux Observations:* **A Bartlett**, A H Young, D M Wright, Y Hong, A Hutson

246731

Lakes and Inland Water Bodies (joint with A, B, GC, SY)

Conveners: Samar Minallah, University of Michigan Ann Arbor; **Sally MacIntyre**, University of California Santa Barbara; **Marguerite Xenopoulos**, Trent University

1895513 *Application of hydroacoustic and marine geophysical methods for mapping the distribution of nearshore sediments near Ashtabula Harbor in the Lake Erie Central Basin, Ashtabula County, Ohio, USA. :* **D R Blake**

1946401 *A Remote Sensing and Machine Learning-Based Approach for Monitoring Decadal Algal Bloom Trends in New York, USA Inland Lakes:* **J Greene**, L Metlitsky, R Blake, H Norouzi

1849712 *A water level prediction method based on data augmentation and Physics-Informed Neural Networks with imbalanced data:* **L Lu**, T Yan, Y Chen, H Wang, T Yang, Z Liu

1894763 *Assessment of Degradation Level of Freshwater Wular Lake, Northern India, and Its Possible Impact on Human Health: A Multiproxy Approach.:* **M H Ahmad**, J A Ganai, S A Rashid, N Absar

1869088 *Coupling RRFsv1 and FVCOM-CICE for Operational Weather Forecasting in the Great Lakes Region:* **A Bhattacharya**, C Jablonowski, U U Turuncoglu, D M Wright, A Fujisaki-Manome, D Titze, B Mroczka, E J Anderson, A Yeo, G Mann

1952579 *Interactions Among Lake Superior Ice Cover, Evaporation, and Water Temperature: A New Look at an Old Problem:* **J D Lenters**, P Blanken, N Hedstrom, E Nicholls, C Spence

1867824 *Intraseasonal Variation of the Latent Heat Flux Bulk Transfer Coefficient for Lakes Based on Eddy Covariance Measurements:* **G Luko**, P Torma

1913513 *Nonlinear Dynamics of Lacustrine Amplification of Global Climate Change in the Laurentian Great Lakes:* **A Drugorub**, S Kravtsov, P Roebber, C Peterson

1935428 *Predicting DO in lakes based on the atmospheric conditions using 3D simulations in MITgcm and Statistical Models:* **M Carrizalez**, L Menicali, S Jane, S Jones, S Castruccio, D H Richter, D Bolster

1905553 *Role of Wind Speed and Temperature on the Western Coastal Snowfall Structure on the Korean Peninsula by Using Quasi-Realistic Numerical Simulations:* **H Kim**, E C Chang

1901104 *The Lake Erie Snow Machine: Influences of Lake Ice Cover on Lake-Effect Snowfall in Western New York:* **C Nelson**, S M Evans, E K Thomas, R Topness

1969715 *Deep Learning Approach for the Prediction and Historical Reconstruction of Spatial Ice Cover in the Laurentian Great Lakes:* **J Norris**, H Abdelhady, D Cannon, J A Kessler, A Fujisaki-Manome, D Jones

1998393 *Distinguishing Lentic and Lotic Global Inland Waters with an Automated-Data-Efficient-Morphometric Approach:* **A Sharma**, M Narayanan, I Ilampooranan

1927794 *Diving into the Metalimnion: AUG Insights into Vertical Carbon Metabolism in Lake Superior.:* **P Gunawardana**, N Pearce, J A Austin, T Hollenhorst, J C Hoffman, M A Xenopoulos

1985145 *Environmental DNA Reveals Biodiversity at the Terrestrial-Aquatic Interface and Supports Community-Based Conservation in a Threatened Neotropical Lake, Laguna de Olomega, El Salvador:* **C Viers**, J Arach Hernandez Espinal, S Otterstrom, R Meyer, J H Viers

1998418 *Explaining the 2022 Record Low Great Salt Lake Volume:* **S Bigalke**, P C Loikith, N Siler

1862481 *GLWaterlevel-Analyst: An Open-Source Remote Sensing Toolbox in QGIS for Global Lake Water Level Analysis and Prediction:* **S Shu**, H Liu, L Wang, J Seo, D Tian, R Beck, H Su, S Wang

1919352 *Great Lakes Decadal Science Plan: The Science We Need for the Lakes We Want:* **M A Xenopoulos**, J V Klump, G Krantzberg, B Mattes, S Qadir, J F Bratton, M Child

- 1909834** *High-Resolution Surface Water Detection in the Korean Peninsula Using Compact Advanced Satellite 500:* **S Cho**, W Kim, H Jeon, M Choi
- 1975215** *Hydrodynamic Controls on Hypoxia and Hydrogen Sulfide Emissions in a Shrinking Endorheic Lake:* **I B Arzeno-Soltero**, M Freilich, D Centeno, A Lopez, B O'Shea
- 1923025** *Hydrological Variability in Permafrost-Affected Arctic Lakes and Lagoons Across an Infrastructure Gradient in Utqiagvik, Alaska:* **V Ekimova**, M Nelson, H E Epstein
- 1934285** *Interactive Effects of Dissolved Organic Carbon, Temperature, Ice Phenology, and Lake Morphometry on Hypolimnetic Dissolved Oxygen in Boreal Lakes:* **S Prowell**, S Higgins, M Paterson, M A Xenopoulos
- 1927082** *Internal Wave-Driven Variability of Dissolved Oxygen in a Large Dimictic Lake:* **L Shi, PhD**, M G Wells
- 2001363** *Investigating the Controls of Methane Oxidation in Stream and Lake Sediments from Stordalen Mire, Sweden:* **C Oti**, C Jones, S Bosman, C Guillot-Wallace, E M Burkett, A Perry, F Fahnestock, R M Younge, J Ellenbogen, M Kuhn, F Li, J Chanton, H Holland Moritz, J G Ernakovich, R K Varner, PhD
- 1937318** *Leveraging Machine Learning to Reconstruct High-Frequency Buoy Observations and Estimate Ecosystem Functions in Lake Erie:* **J Kelley**, M A Xenopoulos
- 1965888** *Long-Term Changes in Fish Community across the Lake Erie Basin:* **L Wang**
- 1947998** *Long-Term Intensification and Spatial Heterogeneity of the Great Lakes Temperature Extremes:* **H Abdelhady**, A Fujisaki-Manome, D Cannon, A Gronewold, J Wang
- 1978966** *No evidence of long-term eutrophication of three lakes in Glacier National Park (Northern Rocky Mountains) despite ongoing environmental changes:* **B Bain-White**, A Ballantyne, C Gushulak, P Leavitt, J Elser
- 1959082** *Phosphorus Sorption and its Role in Maintaining Bioavailable Phosphorus in Lakes:* **H K Pant**
- 1967936** *Potential Contribution of Differential Cooling to Winter Mixing and Reoxygenation in Deep Oligotrophic Lakes:* **J Critchfield**, S A Valbuena, A Forrest, A Cortes, G Schladow
- 1855940** *Satellites Reveal Complex Trends and Hotspots of Global Lakeshore Zone Utilization Changes:* **Y Zhao**, X Zhang, X Duan, H Zou, D Liu
- 1956595** *Sediment, Water, and Satellites: Evaluating Post-wildfire Phosphorus Loading at Willow Creek Reservoir, Colorado, USA:* **J Peterson**, R B Wanty, L A Bearup, A Navarre-Sitchler
- 1983414** *Sensitivity of water clarity to drawdown in reservoirs across the climatic 100th meridian:* **S M Powers**, J T Scott, M Macleod, C Robbins, M Sako, J Jatko
- 2002534** *Simulated potential impacts of a warming climate on wetland systems over the Canadian Western Boreal forest:* **D Dai**, Z Li, C He, V Harriman, L Bortolotti, Y Li
- 1957935** *Synchrony between Arctic-boreal land and aquatic vegetation expansion:* **E D Kyzivat**, D E Butman, T Howard, L C Smith, R G Spencer, M Kurek
- 1908664** *The Thermal Response of the Lakes Along the Dead Sea Rift to Cyclic Environmental Forcing:* **G Tau**, Y Enzel, N G Lensky
- 1868123** *The Water Hyacinth Threat: A Look at the Prospects of an Invasive Aquatic Macrophyte.:* **C Nwankpa**
- 1969819** *Toward a Coupled Earth System Model for the Great Lakes: Advancing Hydrodynamic Simulations with MOM6-SIS2:* **M Raju**, D Cannon, P Alsip, H Wang, J Wang, J A Langan, M Rowe, T Morrison, R Hallberg, C A Stock
- 1919004** *Water quality improvements track the redox gradient within a restored treatment wetland:* **M Bogard**, P Ayala Borda, V Cyriaque, S Wiseman, L B Flanagan, X Zhou, I Janvier, M Denny, C Mi, M Wright, J Comte
- 1957376** *Wave characteristics and shoreline erosion for the Laurentian Great Lakes:* **J John**, L Sushama
- 1958749** *Wetland Memory: The Lasting Impacts of Lost Waterscapes:* **K J Van Meter**, T B Hampton, D Scharton, E Cheriegate, N B Basu
- 1928057** *Wind Effects on Inline Lakes under Compound Flooding: A Case Study for the St. Johns River, Florida:* **L Iannone Tarcha**, F L Santiago-Collazo
- 1886881** *Winter Limnology – Contribution of Heat Flux and Double Diffusion to Circulation under the Ice:* **S MacIntyre**
- 1964051** *Xanthos-Lake: Advancing Lake Representation in Global Hydrological Models:* **G W W Abeshu**, H Y Li, T B Wild, M Zhao

252285

Landscape Strategies to Support Water Capture and Recharge in Dryland Regions (joint with SY)

Conveners: **Neha Gupta**, Organization Not Listed; **Temuulen Sankey**, Northern Arizona University; **Tianfang Xu**, UIUC-Civil Engineering; **Giuseppe Mascaro**, Arizona State University; **Ryan Lima**, Northern Arizona University

1913367 *An Extensive Statistical Characterization of High Flow Volume in Arizona to Explore the Feasibility of Flood-MAR:* **S Tiwari**, G Mascaro

1968138 *Designing Agrisolar Landscapes to Enhance Groundwater Recharge in Southwest Kansas:* **J Bingaman**, J T Stid, A D Kendall, S C Zipper, H Szydlowski, A Anctil, C Deng

252845

Let's do that again! Hydrological Research Reproduced

Conveners: **Rolf Hut**, Department of Water Management, Faculty of Civil Engineering and Geosciences, Delft University of Technology, Delft, the Netherlands; **Caitlyn Hall**, Arizona State University

252968

Machine Learning, Data Analytics and Data Assimilation for Earth System Modeling and Discovery

Conveners: **Peyman Abbaszadeh**, Portland State University; **Hamid Moradkhani**, Portland State University; **Harrie-Jan Hendricks Franssen**, Agrosphere Institute (IBG-3), Forschungszentrum Jülich; **Xin Li**, Institute of Tibetan Plateau Research, Chinese Academy of Sciences

1976377 *Adaptive Data Assimilation Framework for Robust Discharge Estimation in Gravity-Driven Sanitary Collection Systems:* **A Mahdipour**, P Abbaszadeh

1857076 *Coping with Data Scarcity in Extreme Flood Forecasting: A Deep Generative Modeling Approach:* **A Sattari**, H Moradkhani

1874199 *Coupling the E3SM Land Model (ELM) with Evolutionary Data Assimilation to Improve the Representation and Modeling of Land Surface Processes:* **A Gholinia**, F Gholizadeh, H Tran, Y Fang, L R Leung, P Abbaszadeh

1857229 *Enhancing Physics-Based Streamflow Prediction through Evolutionary Particle Filter Data Assimilation:* **F Rezaei Aderyani**, H Moradkhani

1856981 *Ecosystem Management and Protection for Groundwater Enhancement in Southern Arizona: Critical Considerations and Uncertainties:* **F Bromley**, C Zhang, P D Broxton, H Richter, W J D Van Leeuwen

1897603 *Evaluation of Managed Aquifer Recharge Suitability in the Upper Santa Ana Valley Groundwater Basin using Multi-Criteria Decision Analysis (MCDA) and Regional Water-Balance Modeling:* **J L Pensky**, G Cromwell, D Zamora-Reyes, C Rosenberg, S Neuhaus

1928153 *State-wide Analysis of Areas Suitable for Opportunistic Recharge Enhancement Along Mountain-front Roads and Hillslopes in Arizona:* **R Lima**, A E Springer, T Sankey, N Gupta

1975805 *Advancing reproducible and transparent research with practical skills in data and code management:* **A Bogan**, L Platt

1944217 *Enhancing Quantile Mapping Bias Correction of Land Reanalysis Products:* **A Nazemi**, A Zokaei

1870050 *Enhancing Snow Simulation in the E3SM Land Model (ELM) over the Western U.S. using Ensemble-Based Data Assimilation:* **F Gholizadeh**, A Gholinia, H Tran, Y Fang, L R Leung, P Abbaszadeh

1857040 *Explainable Deep Transfer Learning for Spatiotemporal Runoff Prediction at the Continental Scale:* **S M Mosavat**, E Foroumandi, P Ghaneei, H Moradkhani

1868917 *Exploring the Benefits of Assimilating the USGS NGWOS Streamflow Observations into a Distributed Hydrology Model:* **F Shirkhanloo**, A Rafieeinasab, A Stonewall, S Wherry, C Simeone, P Abbaszadeh

1857126 *Integrated Hydrologic-Routing Data Assimilation in a Semi-Distributed Model for Enhanced Streamflow Prediction:* **E Foroumandi**, H Moradkhani

1923625 *Inverse Machine Learning for 3D Subsurface Characterization and Pumping Estimation in CONUS-Scale Models:* **L Pawusch**, A Bennett, P Melchior, L E Condon, D Tijerina-Kreuzer, R M Maxwell

1919059 *Machine-Learning Based Prediction of Water Surface Elevation Using SWOT Satellite Data and USGS Observational Data:* **A Islam**, S Wherry, A Stonewall, C Simeone, P Abbaszadeh

- 1903686** *Modeling Depth-to-Water (DTW) Across the Contiguous U.S. Using Environmental, Remote Sensing and Human Drivers:* **Q Dai**, K Abdelmohsen, J S Famiglietti, T Xu
- 1952449** *Modeling of Storm Surges using Deep Learning and Transfer Learning:* **M Nagaraj**, A R Enriquez, T Wahl
- 1857337** *NLP and BERT Deep Learning-based Approaches for Improved Impact-based Forecasting and Disaster Management:* **A Singhal**, M Karimiziarani, H Moradkhani

249442

Machine Learning, Physics, and Generative AI for Hydrologic and River Modeling

Conveners: **Hernan Moreno**, University of Wyoming; **Chaopeng Shen**, Pennsylvania State University Main Campus; **Praveen Kumar**, University of Illinois at Urbana Champaign; **Laura Alvarez**, University of Texas at El Paso; **Leila Hernandez Rodriguez**, Lawrence Berkeley National Laboratory

- 1887074** *A Comparative Study of Physics-Informed and Data-Driven Neural Networks for Compound Flood Simulation at River-Ocean Interfaces: A Case Study of Hurricane Irene:* **D Feng**, Z Tan, H Du, D Xu, C W Yu, Q He
- 1876789** *A hybrid Approach for River Flood Forecasting by Combining a Hydrodynamic Flow Simulation Model and Deep Learning Networks:* **K S Jun**, J G Lee
- 1927926** *A Hybrid SWAT-Machine Learning Framework for Streamflow and Sediment Simulation in the Big Sandy River Basin, Kentucky:* **D Oli**, B Gyawali
- 1963066** *A Modular Physics-Inspired Hybrid Machine Learning HBV Model with Dynamic Parameter Selection for Streamflow Prediction:* **R Madathi Parambath**, J Rajasekharan
- 1930875** *Accurate and Efficient Hourly Streamflow Downscaling or Prediction with Diffusion Model:* **W Yang**, H Ji, C Shen
- 1850765** *Autonomous Scientific Reasoning for Hydrological Model Configuration: An AI Agent Approach to Iterative SUMMA Optimization:* **D Eythorsson**, M P Clark
- 1940418** *Enhancing Parameter Calibration in Land Surface Models Using a Multi-Task Surrogate Model within a Differentiable Parameter Learning Framework:* **W Xie**, H Li, K Yoshimura
- 1932419** *Estimation of Saturated Hydraulic Conductivity from Environmental Covariates: Machine Learning Approach:* **B Sinshaw**, S Nandi, T A Ghezzehei, J H Viers, M Safeeq

- 1953562** *Peeking into Complex Hydrologic Dynamics: Inferring Storage-Stormflow Relationships with a Copula-State Space Model Framework:* **H Weierbach**, M Bayati, J Janssen, A Ameli
- 1880209** *Reformulation of geostatistical approach on non gaussian prior inverse problem:* **B Li**, J Luo
- 1894242** *Streamflow-Informed Correction of Radar Rainfall Biases for Improved Flood Forecasting:* **Z Li**, R Molina, N Velásquez, X Zhu, W F Krajewski, J Portwood
- 1849681** *Synergistic Role of Land and Ocean in Earth System Predictability Inferred from E3SM with Weakly Coupled Land and Ocean Data Assimilation:* **L R Leung**, P Shi
- 1971049** *Forecasting Hydrological Extremes in the Fraser River Basin using a Hybrid LSTM-GRU Deep Learning Model:* **M Uzun**, S Bakar, V Lakshmi
- 1923131** *Hybrid Deep Learning Models for Streamflow Prediction and Hydrologic Understanding in Small Watersheds: A Case Study of the Rivanna River, Virginia:* **A Aryal**, V Lakshmi
- 1953366** *Indirect Parameter Optimization of Hybrid Flood prediction Models Using SHAP-Based Explainable AI:* **F Darroudi**, M Danesh-Yazdi
- 1974043** *Interpretable Equations for Reservoir Temperature Prediction Using Symbolic Machine Learning:* **I Suaza Sierra**, H A Moreno
- 1875924** *Introducing Knowledge Distillation for Deep Learning-Based Hydrological Prediction:* **M S Jahangir**, J Quilty, S Steinschneider, J F Adamowski
- 1865067** *KAN-Matrix: Visualizing Nonlinear Pairwise and Multivariate Contributions for Physical Insight:* **L De la Fuente**, H A Moreno, L Alvarez, H Gupta
- 1947219** *Leveraging Large-Scale Meteorological Geospatial Information to Predict Snow Water Equivalent with Machine Learning:* **S Naser Neisary**, J M Frame
- 1973603** *Long Short-Term Memory Model to Forecast River Ice Breakup Throughout Alaska USA:* **J Kumar**, R Limber, F Hoffman, J P Schwenk
- 1928124** *Machine Learning-Based Streamflow Simulation for Large-Scale River Networks: Enhancing Data-Driven Channel Routing with Physics-Based Data Augmentation:* **X Zheng**, A Basu, K Chinnayakanahalli, K A Sawicz, H Chowdhary
- 1888429** *Modeling Groundwater Levels by Latent Space Gaussian Process Regression with Physics-Informed Constraints from InSAR Data:* **A Pradhan**, Z Liu
- 1883749** *Physical-informed Graph Learning for Networked Water Systems Flow Monitoring:* **X Fan**, L Luo
- 1865106** *Scoring Rule-Based LSTM Models for Flow Forecasting:* **M Farmani**, A Oliazadeh, PhD, H Tamiru, F Yavari, A Amanambu, J M Frame

1864395 *Soil Moisture as an Alternative Approach Towards Better Water Management in Scarce Data Regions:* **K Ait Naceur**, E M El Khalki, L Brocca, A Hadri, O Jaffar, M E Saidi, V Simonneaux, S Gascoin, M Rachdane, A Chehbouni

1940166 *Spatiotemporal Super-Resolution of Urban Flood Predictions using Multimodal Deep Learning:* **H Choi**, **Integrated Master's and PhD Program**, H Woo, D Rhee, H Ryu, S J Noh

251710

Microplastics in Aquatic Ecosystems: Sources, Abundance, Dynamics, and Prediction (joint with B, GC, GH)

Conveners: **Omar Abdul-Aziz**, West Virginia University; **Abul Baki**, Clarkson University; **Maryam Salehi**, University of Missouri Columbia; **Beizhan Yan**, Lamont-Doherty Earth Observatory

1983897 *A Multifaceted Thermal Desorption–GCMS Approach for Simultaneous Profiling of Phthalate Leachates and Polymer-Specific Fragments from PET and PVC:* **S Farias**, K McGuire-Diemer, A Arredondo, J Gonzalez Estrella

1931642 *A Two-State Flocculation Framework for Modeling Microplastic–Floc Interactions in Coastal Waters:* **Y Huang**, N Wu, Z Yang

1922599 *Arctic Ocean-Sea Ice Exchange of Microplastics in the CESM2:* **L Li**, A Jahn, D Bailey

1954811 *Assessing microplastic abundance and type across a gradient of human interference in a reference prairie ecosystem:* **A Vincent**, S Querubin, A Barb, W M Miller, U Larson, M Lopez-Salazar, T Meizoso Regueira, K J Gnaedinger, E Williams, A I Packman

1852967 *Atlas of Ocean Microplastics (AOMI): a Comprehensive Multilevel Database of Microplastic Abundance in the World's Upper Oceans:* **P Kian**, A Isobe, N Tamiya Hase, H Nakano, A Sakai

1860478 *Characteristics of microplastics in bedrock groundwater of Seoul Metropolitan city, Korea:* **E Jeong**, J Y Lee, J Jang, PhD, H Y Jeon

1952065 *Characterizing the temporal trends in the concentration and composition of microplastics over the last ~125 years in the Eastern Shore, Virginia:* **K Finch**, T Dura, A Gray, J DePaolis, T Docev, B Hatcher, M Mottershead, D R Corbett

1920437 *Comparative Evaluation of Castor and Olive Oils for Microplastics Recovery from Complex Landfill Matrices:* **A Lodh**, S Goel

1866236 *Sub-Pixel Soil Moisture in Arid Ecosystems: From Data-Driven Models to Interpretable Equations:* **S N Marquez**, H A Moreno

1985791 *The power of many: machine learning ensembles to improve hydrologic predictions:* **C Varadharajan**, J Willard, Y H Wang, F Ciulla, P Ren, M Mahoney

1922325 *Decoding Plastic Pollution Pathways: Insights from Medium-Term Monitoring of the Arno River (Italy):* **L Solari**, M Mancini, L Innocenti, A Dali, M Becucci

1902718 *Detection and distribution of Micro- and Nanoplastics in Antarctic Snow:* **C MA**, H Deng, K Nguyen, C Canela, M E Raymo, M Tedesco, W Min, B Yan

1857338 *Developing Low-Cost Digital Imaging Methods for Improved Surface Water Microplastic Concentration Measurements:* **E P Thompson**, J Elliott

1886153 *Dynamic Behavior of Microplastics in Riverine Systems:* **A Baki**, U Ijaz

1916656 *Elucidating Microplastic Transport Dynamics Across a River to Lake Transition at High Spatiotemporal Resolution:* **R Moran**, S Ghobrial, B A McKee

1979976 *Fate of Microplastics in Biosolids Treated by Anaerobic Digestion, Lime Stabilization, and Incineration in the USA and Canada:* **M Hamza**, F Jazaei, S Oza, J Norton Jr, K Bell, A K da Silva, M F Aslam, A Bakhshae, S Qamar

1937193 *Geographic and temporal distribution of microplastic concentration through the Boise River and beyond:* **R Headley**, R Acharya, M Petrisevac, B Poudel, F Rivera, J Sanchez

1939417 *Immobilization of Nanoplastics (NPs) by Calcite Crystallization: Mechanistic Insight into Environmental Sequestration:* **S Guchhait**, A Choudhary, G K Darbha

1890979 *Impact of logs on microplastic deposition and infiltration into a gravel bed via hyporheic exchange:* **S H Huang**, E Zadehali, J Q Yang

1952251 *Impacts of Marine Heatwaves on Microbial Community Structure of Ocean Plastic Islands and Associated Ecological Risks:* **L Wang**

2001831 *Invisible Threat, Visible Solutions: Microplastics in Southeast Asia:* **M Lenczewski**, C W Oo

1918641 *Laboratory testing of microplastic transport in a sandy aquifer:* **S San**, C Mwaipopo, M Wyssmann, J Lee, J Cha, J Y Lee

1918119 *Linking Particle Characteristics and Hydrodynamics to Quantify Microplastic Transport in Gravel-Bed Streams:* **H Yang**, K Strom, H Foroutan

- 1915934** *Microplastic and Nanoplastic Characterization in New York City's Tap Water by Stimulated Raman Spectroscopy*: **H Deng**, G De Loia, E El Khoury, K Nguyen, N Qian, W Min, B Yan
- 1914535** *Microplastic Loading and Polymer Composition in Urban Coastal Stormwater from Southeast Florida*: **M Ogudo**, A Ebrahimian, L Scinto, P Gardinali
- 1851347** *Microplastic Pollution in Coastal Environment: Eco-Economic and Socio-Cultural Implications*: **F Adelere**, O L Eboh, V N Akani
- 1863883** *Microplastic pollution in Pearl River networks: Characteristic, potential sources, and migration pathways*: **H WANG**, T Zhu, J WANG, Y LIU
- 1927431** *Microplastics in Drinking Water Treatment: Tracing Fate and Removal in a Full-Scale Plant*: **M Shahariar**, A Baki, T Holsen
- 1990696** *Microplastics in Freshwater Fishes: Leveraging Natural History Collections for Retrospective Pollution Assessment*: **J Stauffer Jr**, E W Boyer, O Mina, A Bucha, A Stylianides
- 1863159** *Microplastics Mapping in the Chattahoochee River: A Community-Engaged Research Project*: **A Lin**, Y Guo, Q Shao, M Huang
- 1920556** *Pathway-specific microplastic dynamics in an urban lake: Insights on how continuous rainfall shapes microplastic patterns*: **M Shafi**, K Muzamil, S Goel
- 1983478** *Removal of Microplastics by Bioretention Systems in a Suburban Setting: Comparison of Two Rain Gardens of Different Ages*: **E Forgiione**, K Good, PhD
- 1906046** *Runoff-driven transport of tire wear particles (TWP) on impervious surfaces*: **H Hapich**, T H M van Emmerik, K Waldschläger, A B Gray
- 1916953** *Satellite-Based Marine Microplastic Detection Using Machine Learning Algorithms*: **A M I Ibna Hafiz**, E Ahmadisharaf, M Salehi, D Feng
- 1893434** *Simulating Microplastics Transport in Saturated Porous Media Using an Optimized Eulerian-Lagrangian Multiphase Modeling Framework*: **F Alqrinawi**, Z Chen, U Schneidewind, S Comer-Warner, S Krause, B Fraga
- 1886828** *Studying Vertical Distribution of Microplastics in the Water Column: Informing Reliable Sampling Techniques*: **M Salehi**, A Beheshtimaal, R Xu, B Wang
- 1884394** *The Effect of Biofouling on Global Microplastic Distribution*: **Z E Tseng**, Y Wu, C S Ruf, Y Pan
- 1959356** *The release of microplastics into ground and surface waters from landfill and wastewater treatment facilities in the UK*: **N Grassineau**, L O V Eldridge, A Quan, M Waddell
- 1976779** *Thermal Oxidation Alters Leaching Potential of Dissolved Organic Carbon from Microplastics*: **K McGuire-Diemer**, S Farias, A Arredondo, J Gonzalez Estrella
- 1987063** *Thermal Oxidation, Ultraviolet Radiation, and Mechanical Abrasion - Understanding Mechanisms of Microplastic Generation and Chemical Transformation*: **A Arredondo**, D Gallardo-Owens, S Farias, J Scott, X Wang, W Cochran, E El Hayek, M Minghetti, J M Cerrato, J Gonzalez Estrella
- 1854565** *Tracking Microplastics from River to Aquifer: A Multi-Source Study in the Ganga Basin, Haridwar*: **M F Khan**, C S P Ojha
- 1907459** *Transport mechanism of microplastics and mesoplastics under high flow conditions suggests alternative approaches to load estimation*: **M Tanaka**, Y Nihei
- 1921907** *Trapped in the Beaufort Gyre: Is the Arctic Ocean Becoming a Plastic Sink?*: **C Weaver**, A Jahn, L Li, J E Lenetsky
- 1935046** *Assessing Subsurface Variability and the Performance of Single- and Multi-Domain Spatial Markov Models for Water Age Prediction in Watersheds*: **M Carrizalez**, N Engdahl, D Bolster
- 1853420** *Bacterial chemotaxis in porous media*: **A A Pahlavan**
- 1998478** *Closure for Microscale Fluctuations in Solute Mixing Fronts*: **J Heyman**, T Le Borgne, D R Lester
- 1906057** *Computing bilinear optimal control of advection-dispersion-reaction equations with state constraints*: **Z Li**, F de Barros, K Savla
- 1881333** *Effects of Fracture-Matrix Flow Interactions on Biofilm Formation in Rough Fractures*: **X Li**, W Lee, X Yang, P K Kang

248670

Mixing, Reaction, and Microbial Processes in Subsurface Porous Media (joint with B)

Conveners: **Lazaro Perez**, Oregon State University; **Judy Yang**, University of Minnesota Twin Cities; **Jayde Aufrecht**, Pacific Northwest National Laboratory; **Nick Engdahl**, Colorado School of Mines; **Jayde Aufrecht**, Pacific Northwest National Laboratory

- 1852672** *3D pore-scale quantification of heterogeneity and saturation impact on anomalous transport*: **L Jimenez**, C Shaffer, M Yakovlev, M L Rivers, D Wildenschild, L J Perez

- 1981282** *Effects of surface water and groundwater mixing on microbial N₂O production in karst aquifers:* **S Yoon**, C Oh, J B Martin
- 1884892** *Electric Fields for Cleaner Lithium Recovery: Micromodel Insights into Subsurface Extraction:* **D Metanias Carvalho Hallack**, V Brundula-Ilija, C Harvey, N Morris, K Pugh, X Peng, D Jiang, B Zhao
- 2000815** *Electrochemical Flow through Charge-Patterned Wavy Nanochannels:* **T Petersen**, P Golchin, J Im, F de Barros
- 1942068** *Enhanced mixing in dynamic multiphase flow through 3D porous media:* **K Pierce**, M Lamblin, T Le Borgne, J Heyman, G Linga
- 1859297** *Enhanced Transverse Mixing Induced by Bacterial Chemotaxis in Subsurface Stratified Flows:* **D J Gonzalez Dominguez**, L J Perez
- 1968187** *High-Fidelity Computational Fluid Dynamics (CFD) Simulations of Multispecies Biofilm Dynamics and Interactions:* **Y N Yao**
- 1968313** *Improving Biocementation Homogeneity of Porous Media by Inducing Precipitation Delay using Acetic Acetate Buffering in MICP:* **R Joshi**, D N Arnepalli
- 1855472** *Lagrangian And Eulerian Solutions Are Not The Same For Reactive Transport: How Do I Choose?:* **D A Benson**
- 1930469** *Least Resistance Paths in Heterogeneous Aquifers with Long-Range Correlations for Solute Transport:* **B Li**, F de Barros, M Sahimi

248724

Monitoring, Prediction and Mitigation of Harmful Algal Blooms (HABs)

Conveners: **Ebrahim Ahmadisharaf**, FAMU-FSU College of Engineering; **Sven Kranz**, Organization Not Listed; **Xiuming Sun**, FAMU-FSU College of Engineering; **Mark Rains**, University of South Florida

- 1976151** *Adapting CyAN Framework to Hyperspectral Data: Enhanced CyanoHAB Detection and Monitoring Using NASA's PACE Satellite:* **A Kumar**, C Maniyar, B Grunert, N Tesfayi, I Fiorentino, K Herweck, E Hyland, B Liu, B Bartelme, D R Mishra
- 1933284** *An interagency framework to advance algal bloom monitoring/forecasting capabilities:* **N Pahlevan**
- 1959901** *Decision Trees for Monthly Harmful Algal Bloom Prediction:* **U Kim**, S J Choi, S Kang, J Lee
- 1967465** *Deep Causal Inference for Predicting Cyanobacterial Blooms in CONUS Inland Waters:* **S U Imtiaz**, M Nasr Azadani, N Alamdari
- 1871100** *Detecting Harmful Algal Blooms in Freshwater Lakes in Turtle Mountain Reservation:* **A Ramaseri**, I Shah, M Allery

- 1976183** *Linking Redox Fluctuations, DOM Chemistry, and Microbial Potential Across Dynamic River Corridor Environments:* **M Naber**, R Soltanian, A Rowe, J Stegen, V A Garayburu-Caruso
- 1910959** *Modeling Desiccation Avoidance in Soil Microbes:* **D B Olaitan**, A M Porporato
- 1901049** *Pore-Scale Mechanisms of Oxygen Depletion and Anoxic Microzones Formation in the Hyporheic Zone:* **B Al Zghoul**, C Graddy, J Vargas Lara, K Roche, H Khoshtarash, H Ahadiyan, J Pena, V L Morales
- 1895670** *Real Rock Microfluidics Investigation of Biofilm-Mediated Processes in Fractured Porous Media:* **E Albalghiti**, B R Ellis
- 1989565** *Riddles in the Dark: Microbial Community Dynamics in a Serpentinite-Hosted Aquifer:* **L M Seyler**, K Dobitz, C Valenzuela, M D Kubo, D Cardace, M O Schrenk
- 1884901** *Spatial Poincaré Sections as a Tool to Reveal Advective Structure and Chaotic Behavior:* **B Fager**, R Neupauer, D C Mays
- 1923221** *Unraveling the abiotic and biotic controls on the Birch effect:* **B Stewart**, O Crofts, L Serrano Laguna, S Andren, A Moure, W W Fischer, X Fu
- 1886182** *Vorticity and Advective Deformation of Mixing Fronts in 3D Unsaturated Porous Media:* **S Farhat**, G Sole-Mari, D Bolster
- 1994988** *EVALUATING SURFACE WATER QUALITY IN LAKE OKEECHOBEE THROUGH SENTINEL-2 IMAGERY:* **M Kiwanuka**, M S Balaji Bhaskar
- 1964689** *Forecasting Harmful Algal Bloom (HAB) Presence in Florida Bay using Statistical Models and Remote Sensing Analysis to Inform Conservation and Management:* **A Valcarcel**, G Markell, L Doroshov, J Cheesman, K Miller
- 1928714** *Have Florida's red tides increased over the past 40 years? Bridging CZCS to MODIS observations:* **Y Yao**, C Hu, B B Barnes, K Hubbard, C Xue, J P Cannizzaro
- 1903643** *High-Frequency Satellite-Driven Early Warning System for Harmful Algal Blooms in Freshwater Lakes:* **M Q Bhatti**, N Nazemi, F Dadgostari, K Geraili
- 1952144** *Hyperspectral remote sensing of biogeochemical parameters and inherent optical properties in inland and coastal waters from PACE/OCI:* **R O'Shea**, A Ashapure, A Saranathan, N Pahlevan, C Maniyar, A Kumar
- 1958049** *Impact of winter cold fronts on phosphorus flux from coastal estuary and implications for summer harmful algal blooms:* **L Potter**, J R White

- 1976789** *Integrating a Hydrodynamic and Lagrangian Particle Tracking Framework for HAB Dynamics in Western Lake Erie*: **B Saint Louis**, S Memari, E J Anderson, A Gronewold
- 1941649** *Integrating Nutrient Load Dynamics and Real-Time Sensing for Harmful Algal Bloom Prediction in the San Francisco Bay using an Ensemble Model Architecture*: **S Chatterjee**
- 1960005** *Lake and Catchment Characteristics Alter Toxic Algal Bloom Risk from Anthropogenic Nutrient Inputs across the Conterminous United States*: **M Reynolds**, A Handler, M Dumelle, J Compton, M Weber, L Jansen, M Brehob, R D Sabo, M J Pennino, R A Hill
- 1851681** *Machine Learning Forecasting of *Karenia brevis* Harmful Algal Blooms (HABs) and Associated Economic Impacts in Florida Coastal Waters*: **A He**, K Liu
- 1931731** *Machine learning framework for red tide monitoring in Charlotte Harbor, West Florida Shelf*: **W Mao**, E Ahmed S Sr, M Ye, M A Bremedhinb, M Parsons, C Fleischer
- 1961283** *Modeling *Karenia brevis* Bloom Occurrence in the US Gulf Using Historical Observations and Machine Learning Approaches*: **X Sun**, E Ahmadisharaf, V Gao
- 1871389** *Morphometry of Reservoirs and Lakes Reveals Differences in Algae Blooms*: **T Shi**, Y Chen, Z Liu, H Zhang, H Wang
- 1900321** *No Half Measures: Florida's Science-Based Approach to Integrated HAB Reduction and Mitigation*: **S Davis**, M C Rains
- 1887918** *NUTRIENT-DEPENDENT ALGAL GROWTH AND ITS SUPPRESSION BY QACS-COATED BENTHIC MEDIA IN SIMULATED URBAN WATER CIRCULATION SYSTEMS*: **K I Chae**, J C Joo, PhD, I H Hwang, S Y Park, S Y Moon, J Choi
- 1892367** *Operational Forecasting of Harmful Algal Blooms in Florida Lakes Using a Two-Stage Bayesian Model*: **G H Park**, N Reynolds, J Holt, K Matthews
- 1888095** *Prediction and Early Warning of Harmful Algal Blooms Based on Machine Learning*: **P Han**, W Wang, C Zhang
- 1979143** *Quantifying Input-Driven Variability in Monthly Harmful Algal Bloom Forecasts: A Forecast Elasticity Approach*: **R Bano**
- 1948722** *Salinity thresholds drive nonlinear cyanobacterial toxin responses*: **I F Creed**, K Erratt, K Nwokeocha, C Trick, D Beach, L Zamlynny
- 1947912** *Sediment archives link salinity shifts to cyanobacterial and toxin surges*: **K Erratt**, I F Creed, D McMullin, L Rego, J Feng
- 1963425** *Simulating Harmful Algal Blooms in Lake Erie with an Advanced Physical-Biogeochemical Numerical Model*: **M Rowe**, K J Flynn, H Powley, R Torres, C M Godwin, P Xue, S Gardner, C Zhao
- 1994016** *The HABscope_{TM} 2.0 project: Continuing to Improve Community Science Tools and Image analysis software*: **B A Kirkpatrick**, R Currier, G Craig, K Hubbard, A Hoeglund
- 1857197** *Understanding the links between climate, watershed biogeochemistry, and Cyanobacteria growth in Lake Springfield, IL*: **A Mendoza**, K Blount
- 1874471** *Using Algal Pigment Field Data to Validate Remote Sensing and Initialize Numerical Modeling for Prediction of Future Harmful Algal Blooms*: **M M Baustian**, E Lain, B Liu, S Bargu, J Cheng, S Mize, F Messina, R Myers, I Y Georgiou

254752

Navigating AI in Water Management (joint with A, GC, NH)

Conveners: **Alyssa Dausman**, The Water Institute; **Tiantian Yang**, University of Oklahoma Norman Campus; **Ali Nazemi**, Concordia University; **Chiyuan Miao**, Beijing Normal University; **Jessica Henkel**, The Water Institute; **Ximing Cai**, University of Illinois at Urbana Champaign; **Chung-Yi Lin**, Clemson University

- 1939472** *Comparative AI Techniques for Reservoir Outflow Prediction: Hyperparameter Tuning and Large-Scale Validation across 441 Dams in CONUS*: **M Basirifard**, J Zhang, J Cao, T Yang

- 2002329** *Cooling Challenges from Booming AI and Implications for Global Riverine Water Resources*: **M Pan**, Y Yang, R Xu, Z Zeng, A D Ziegler, L Brown, J Holden, D Spracklen, P Lin, T Dong, D Chen, Y Zeng, Y Chen, H Ming, D Zhang
- 1918237** *Enhanced Reservoir Management Representation Using LSTMs: A Contiguous United States Evaluation*: **D Broman**, N Voisin, J Giovando, F T Wolkeba
- 1881027** *GDROM v2: An Inventory of Operation Variable Time Series and Rules for 2,017 Large Reservoirs across the CONUS*: **Z Zheng**, X Cai, L Zhang, J Li, Y Chen
- 1857054** *Identifying Research Gaps in Hydrology Using Large Language Models and Knowledge Graphs*: **A A Ramirez Molina**, S Zand, J Gong
- 1885368** *LLM-Assisted Hydropower Operation via Domain Adaptation and Agent Design*: **S Hu**, J Zhao, W Luo, B Xu, D Liu, W Shan, X Yu, Y Li, Y Xiao, R Zhang

1949807 *Modeling Regional Water Yield and Its Environmental Drivers: A Machine Learning Approach for the Southeastern United States:* **B Dixon**, H Karimi, J Halgren, A Tabassum, R Zarrabi

252712

New Developments and Future Directions in Community Water Resources Modeling – Synergy at the Interface of Process Understanding, Artificial Intelligence, Computer Science, Operations, and Decision Making

Conveners: **Steven Burian**, University of Alabama; **Martyn Clark**, National Center for Atmospheric Research; **Katie van Werkhoven**, Research Triangle Institute; **Jordan Read**, Consortium of Universities for the Advancement of Hydrologic Science, Inc.; **Louise Arnal**, European Centre for Medium-Range Weather Forecasts (ECWMF)

1949014 *A BMI-Compliant Python Framework for Hillslope-Link Hydrologic Modeling:* **R Molina**, H Dhital, B C Seo, PhD, F Quintero

1982549 *A Decade of Impact: The Water Prediction Innovators Summer Institute:* **S Cohen**, E Clark, J S Read, J Masterman, L Nations

1909356 *A Generalized KGE Metric for Improved Training (information Extraction) and Evaluation of Dynamical Systems Models:* **M Jawad**, H Gupta, A Behrangi, G Y Niu

1983374 *A Modular High-Performance Computing Framework for Forecast Skill Assessment of Cyanobacterial Harmful Algal Bloom Prediction Systems:* **N Beckage**, P J Clemins, P D Oikonomou, R Bano, S Turnbull, A Zia

1967332 *A Path Forward for Integrated Hydro-Terrestrial Modeling:* **K Skalak**, D P Lesmes, N Voisin, P M Reed, Y Fan, Y Li, A L Dugger, T Schneider, J Marshall

1928016 *A Tiled Calibration Framework for Hydrological Models Using Land Use and Land Cover Variability:* **M S Alam**, S A Koriche, P La Follette, A J Khattak, F L Ogden, S Naser Neisary, M Kumar, S J Burian

1974152 *Accelerating Coastal Modeling in the Cloud: Lessons from the NOAA/ NOS Coastal Modeling Cloud Sandbox:* **K M Moore Powell**, T C Vance, M Lalime, Z Willis, M Wengren, M Alvis, P Tripp, B Vanderplow, J Ducker

1937433 *Adaptive Reservoir Operations in a Snow-Dominated Basin Using Direct Policy Search:* **A Moiz**, K Semmendinger Raney, J Kalansky, T Brandt, M Pan, R Hartman, T Dixon

1994617 *Supporting Ethical Decision Making when utilizing Artificial Intelligence and Machine Learning in Product Development for Water Management:* **S B Jones**

1937985 *What AI is good at, what it's not so good at, and what we should probably not ask it to be good at:* **P A Ray**

1959725 *Advancements in Coastal Community Modeling on the Cloud: Development and Implementation of the National Water Model Total Water Level Retrospective Run:* **J Ducker**, T Flowers, Z Willis, M Alvis, K Moore Powell, M Ho, M Lalime, T C Vance, P Tripp, M Wengren, B Vanderplow, B A Cosgrove, C George, J Zhang

1975543 *Advancing Hydrological Modeling: CIROH's NextGen In A Box (NGLAB) and Enhanced Tools for Community-Driven Research:* **B Duvvuri**, A Patel, J Halgren, Z Willis, B Lee, J Laser, MA, M Singh, J Cunningham, E G Romero Bustamante, S Lamont, N Minor, T Patel, S J Burian

1953146 *Advancing t-route Toward Flexible and Scalable Flow Routing to Support Open Streamflow Data Access:* **S Lama**, J Cunningham, J Halgren, Q Lee, B Alexander

1965976 *Advancing the National Water Model from Research to Operations through Strategic Partnerships and Community Modeling:* **T Flowers**, B A Cosgrove

2001651 *AI-Assisted Voice Enabled Computing Framework for Hydrological Analysis:* **C Erazo**, I Demir

1894809 *AI-enhanced Gamification for Flood Resilience Literacy:* **H Markin**, Q Duan, Y Yang, Y You, A Ulumben

1920023 *An Intercomparison of Hydrologic Model Performance for Small Stream Flooding Prediction Using NOAA-OWP's NextGen Framework:* **H Davis**, S M Reed

1966894 *Are AI/DL models' performance in streamflow simulation comparable to the skills of operational hydrologic model in River Forecast Centers' real-world setting?:* **H Yue**, J Zhang, W P Miller, J Lhotak, S A Baker, T Yang

1928964 *Assessing AORC Gridded Forcing Datasets for Streamflow Prediction:* **M M Fathi**, M Kumar, K A Salvi, S J Burian

1879876 *Assessing the use of Physics and AI-Driven Precipitation Forecasts for Streamflow Prediction Using the NextGen In A Box (NGLAB) National Water Model:* **J Bravo**, M Temimi

1893783 *Assessment of Channel Routing Methods in the NextGen National Water Model:* **M Saiduzzaman**, B C Seo, PhD, I Demir, D Kim

1922128 *Attribution of Compound Flooding Drivers Using the Coupled NextGen NWM and SCHISM Model and SHAP-based Explainable AI: A Case Study of Hurricane Matthew in Winyah Bay:* **H Wang**, S Bao, L J Pietrafesa

- 1994232** *Automating Model Configuration for NexGen with the Model Setup Workflow Manager:* **J Wade**, S Greene
- 2000794** *Building a Community Testbed for Hydrologic Prediction: Examples from CIROH Benchmarking Protocols:* **J Sturtevant**, A Wood, E Ritchie, T S Hogue, K van Werkhoven, M Denno
- 1971599** *CIROH DocuHub and Portal: Knowledge Management System for Collaborative Water Resources Research:* **M Singh**, A Patel, E G Romero Bustamante, N Minor, J Halgren, D P Ames, S Cohen, S J Burian
- 1969148** *Cloud infrastructure for NextGen Water Resources Modeling : CIROH's R2OHC Cloud Platform:* **H Vemula**, A Patel, J Halgren, B Lee, M Singh, N Minor, P Bangalore, J Carver, S J Burian
- 1893241** *Decision Points and Implications of Hydrologic Model Benchmarking Approaches:* **S Foks**, T O Hodson, K Doore, K Kolb, A Laws, T M Over, C A Penn, H Podzorski, F Redoloza, C Simeone, L Staub, R J Viger, J Marshall
- 1898190** *Dependence of Peak Discharge in Non-Cohesive Dams on Soil Properties:* **A Mashreghi**, M Torkomany, H Chaudhry
- 1963191** *Enabling Community Research with the Next Generation National Water Modeling Framework on through Streamlined Workflows:* **A Nassar**, D G Tarboton, F Baig, A Patel, A Castronova, J Halgren, J Cunningham, I Garousi Nejad, B Lee, B Duvvuri
- 1961603** *Evaluating Machine Learning Hydrologic Modeling under Future Climate Scenarios:* **M Maharjan**, C J Gleason, B Nijssen, C Brown
- 1970872** *Evaluating the Usability of Flood Inundation Maps Through Experimental Testing:* **M A Kenney, PhD**, S Kandel, S Sainjoo, D R Vallee, K Abshire
- 2000305** *Filling the Gaps: Enhancing Climate Data Completeness in American Samoa Using Gradient Boosting Machine Learning Models:* **L McLatchy**, C K Shuler, C TeBeest, R Johnson, W Hua-Hsien
- 1974663** *From Calibration to Prediction: Enabling Large-Scale Hydrologic Modeling through Formulation and Parameter Regionalization in NextGen:* **Y Liu**, M Deshotel, J Wade, K Larkin, S Lawson, M Woodbury, E Welles, R Barnhill
- 1980985** *High-Performance Computing Infrastructure for NextGen Water Resources Modeling: CIROH's R2OHC HPC Platform:* **T Patel**, A Patel, J Halgren, N Minor, J Carver, P Bangalore, S J Burian
- 2002389** *How AI Partnerships Work in Hydrologic Simulation?:* **V Samadi**, S Tabas, M Saberian, A Neupane, N Zafarmomen, K Panthi
- 2002299** *HydroBlox: AI-Assisted Visual Programming Framework for Enhanced Scientific Reproducibility in Hydrology:* **C Erazo**, I Demir
- 1897276** *Hydrologic Process Synthesis across Diverse Landscapes 1: Hierarchical Classification of Hydrologic Provinces across North America:* **W Knoben**, H K McMillan, Y Fan, P Wagener, I Garousi Nejad, J Masterman, J S Read, S Carney, K van Werkhoven, M P Clark
- 1899715** *Hydrologic Process Synthesis across Diverse Landscapes 2: Hierarchical Development of Perceptual Models across North America:* **H K McMillan**, W Knoben, Y Fan, P Wagener, I Garousi Nejad, J Masterman, J S Read, S Carney, K van Werkhoven, M P Clark
- 1976989** *Hydrologic Process Synthesis across Diverse Landscapes 3: Operational Forecasting Perspectives to Inform Perceptual Model Design across North America:* **S Carney**, K van Werkhoven, W Knoben, H K McMillan, Y Fan, M P Clark, P Wagener, I Garousi Nejad, J Masterman, J S Read
- 1854516** *HydroSensorNet: An Open-Source Python Package for Optimal Hydrological Monitoring Network Design:* **J Oh**, M D Bartos
- 1964579** *Improving Streamflow Predictions in Reservoir-Influenced Basins Using Machine Learning:* **P Banjara**, C Brown, B Francois, C J Gleason, K Andreadis
- 1963531** *Including preferential flow in the Next Generation Water Resources Modeling Framework:* **P La Follette**, A J Khattak, F L Ogden, Z P McEachran, N J Frazier, A A Raney II, S Horvath, S A Koriche, M S Alam, J L Nieber
- 1892666** *Investigation of Spatial Scale Effects on Hydrologic Modeling Based on the Hillslope Link Model:* **H Dhital**, B C Seo, PhD, U Kim, F Quintero, R Molina
- 1893590** *Large-Scale Retrospective Streamflow Performance Comparison of the National Water Model v3.0 and v2.1 Across CONUS:* **A Ojha**, H Yue, T Yang
- 1918622** *Multi-Objective Assessment of the Multi-Model Performance Within the Next Generation Water Resources Modeling (NextGen) Framework:* **X Feng**, F L Ogden
- 1979828** *Next Generation AI-Enabled Precipitation Estimate Workflows for River Forecast Centers:* **P J Clemens**, S Wshah, N B Beckage
- 1957657** *NextGen In A Box (NGLAB) and DataStream Visualizer: A Containerized Web Application for Interactive Geospatial and Temporal Visualization and Analysis of Hydrologic Model Outputs:* **E G Romero Bustamante**, A Patel, J Halgren, M Singh, S J Burian, Z Wills, J Laser, MA, S Lamont, J Cunningham, T Patel, N J Frazier, N Minor, B Lee, N R Swain, D P Ames
- 1912965** *NextGen Research DataStream: Community Contributions Towards Improved Hydrologic Predictions:* **Z Wills**, J Laser, MA, N Frazier, A Patel, J Halgren

1930778 *Optimizing Hydrological Predictions in the NextGen Framework: A Systematic Evaluation of Hydrofabric and HRU Discretization:* **S A Koriche**, M S Alam, F L Ogden, A J Khattak, M Kumar, J Cunningham, P La Follette, H Liu, J Halgren, S J Burian

1855720 *The Coastal Coupling Community of Practice: Contributing to the Modeling Community:* **R A Luettich Jr**, R Atkins, C George, D Kidwell, C Massey, H Moftakhari, M L Palmsten, C Urizar, D R Vallee, D Welch

247876

Non-Perennial and Variably Inundated Ecosystems: Interdisciplinary Investigations of Temporary Waterways

Conveners: **Sara Warix**, University of Utah; **Julianne Scamardo**, University of Vermont; **Vanessa Garayburu-Caruso**, Washington State University; **Peter Regier**, Pacific Northwest National Laboratory; **Delaney Peterson**, University of Alabama

1928086 *Does streamflow regulate water chemistry in intermittent streams?:* **K Sadayappan**, K M Jarecke, R Keen, S P, M F Kirk, P L Sullivan, J B Nippert, E C Seybold, W K Dodds, L Li

1976021 *Emulating Process-Based Models to Identify Multi-Scale Drivers of Stream Intermittency:* **S Niroula**, P Jiang, Z Li, X Chen

1891561 *Evaluating Vernal Pool Drying Rates to Identify Climate Resilient Amphibian Habitat:* **K Fitzgibbon**, A Wolf, P Z Klos

1881093 *From Mountains to Drylands: Spatiotemporal change in dissolved oxygen throughout a stream network experiencing seasonal network expansion and contraction.:* **D Presswood**, J Blaszcak

1911785 *Informing non-perennial stream models with in-situ sensing:* **C B Brinkerhoff**, P A Raymond, B Shrestha, M Li

251384

Nonpoint Source Pollution Dynamics, Impacts, Management, Control and Regulatory Efforts in Groundwater and Vadose Zone Systems (joint with B, GH, SY)

Conveners: **Sushant Mehan**, South Dakota State University; **Thomas Harter**, University of California; **Nandita Basu**, University of Waterloo

1882362 *Toward Improving Short to Medium-Range Ensemble Streamflow Forecasting: Dissective Analysis of Predictive Skill for the Hydrologic Ensemble Forecast Service (HEFS):* **S Kim**, D J Seo

1864536 *Towards Representing Pluvial Flooding within NOAA's NextGen Modeling Framework:* **Y Bhattarai**, S Dhital, S Sauda, M Abdelkader, J M Frame, M Temimi

1994042 *Unifying Advances in Differentiable Modeling for High-Performance Operational Streamflow Forecasting:* **L Lonzarich**, Y Song, T Bindas, F Rahmani, J Liu, A Behroozi, D Aboelyazeed, C Shen

1900241 *Mind the Gaps in Flow – Antarctic glacial meltwater stream ecosystems are defined by their intermittency and maintained by their hyporheic zones:* **M N Gooseff**, D M McKnight, A Wright, L Zeglin, J Collins, J G Singley

1913423 *River corridor structure drives hydrologic function in non-perennial networks in the southeastern US:* **D Peterson**, C N Jones, S Plont, K Zarek, C Atkinson, S Godsey

1920532 *Seasonal Shifts, Subsurface Stories: How Hydrologic Fluctuations Drive Carbon Cycling in Riparian and Hyporheic Zones of an Intermittent Stream:* **A G Colón**, S Fischer, A Argerich

1925459 *Spotted Turtle (*Clemmys guttata*) Presence and Absence in Seasonal and Permanent Wetlands at Six Locations in the Chesapeake Bay Area and South Carolina:* **E Labone**, T Tuberville, D L Haskins, X Xu, A Johnson, K Liles

1952648 *The problem of intermittent data for intermittent streams:* **D A Lapides**, J K Pearl

1896571 *The valley and its stream: Linking geomorphology, hydrology, and downstream function along the river corridor using hydrogeomorphic features:* **C N Jones**, D Peterson, A Kirker

1982112 *Understanding the Hydrological and Biogeochemical Dynamics in a Non-Perennial Headwater Stream at the Susquehanna Shale Hills Critical Zone Observatory in Central Pennsylvania, USA:* **E Freiman**, J M Duncan, J P Kaye

1964139 *Variability of stream and river inundation across scales:* **G H Allen**, M Li, D Go

1948608 *A General Method to Quantify Stream and Groundwater Vulnerability to Contaminants from Distributed and Non-point Sources Using Integrated Hydrologic and Particle Tracking Models.:* **C Y Wang**, M Soriano Jr, R M Maxwell

1961574 *Co-transport and retention of nitrate-phosphate in biochar-mediated saturated porous media:* **R Kumar**, J Lamba, S Adhikari, H Allen Torbert

- 1866052** *Community-Based Monitoring Network Design to Identify Nitrate Mobilization by Managed Aquifer Recharge (MAR) in the rural San Joaquin Valley, California, USA:* **Y Nuñez Bolaño**, T C Harmon, L Classen Rodriguez, A Gurevitz
- 1889833** *Deciphering Groundwater Nitrate Origins in a Hypersaline Inland Wetland through Isotopic Fingerprinting:* **M Jakhar**, P Sanyal
- 2002376** *Estimating Pre-Agricultural Groundwater Salinity in the California Central Valley:* **K Grobowsky**, T Harter
- 1899521** *From Orchard to Aquifer: The Cost of Groundwater Nitrate Compliance in the U.S. Nut Farming:* **Z Cao**, B Bhaduri, G Kourakos, T Harter
- 1916434** *Hydroclimatic Drivers on Groundwater Nitrate Variability in Western Wisconsin:* **A Matson**, J K Coleman Wasik, K A Clancy
- 2001695** *Irreversible Sorption and Dynamic Partitioning of PFAS in Wetland Sediments:* **E Cookson**, R L Detwiler, Z Han, A Adeleye
- 1926946** *Modeling Fate and Transport of Legacy Agricultural Nitrate in Central Arizona's Pinal Basin:* **B Bhaduri**, G Kourakos, S Megdal, I Kisekka, T Harter
- 1977566** *Modeling Soil Water and Nitrogen Dynamics for the Sustainable Management of Agricultural Managed Aquifer Recharge (Ag-MAR):* **W Cui**, T Zhou, N I Moonilall, C Prieto Garcia, E Levintal, I Kisekka, H E Dahlke

249905

Nutrient transport and mitigation in agricultural landscapes

Conveners: Bahareh Hassanpour, Organization Not Listed; Jill Coleman Wasik, Organization Not Listed; Erin Berns-Herrboldt, University of Wisconsin - Green Bay; Christian Guzman, University of Massachusetts Amherst; Kathryn Hofmeister, Michigan Technological University

- 1939805** *Assessing manure nitrogen balance and recycling potential with a structured framework for current and future conditions:* **Y Wang**, S Spiegel, E A Davidson, X Zhang
- 1969442** *Assessment of Agricultural Phosphorus Leaching Using Soil Block Mesocosms:* **L Yang**, H Loper, C G Tenesaca, M J Helmers, W G Crumpton, S Hall, W Huang
- 1969345** *Attribution of Changes in Concentration-Load-Discharge Relationships:* **J W Jawitz**, N Fernandez, J Lee
- 1875165** *Decadal Dynamics of Reactive Nitrogen (N_r) Losses in Corn-Soybean Rotations in Iowa:* **T Papanicolaou**, I Wanithunga, P O'Brien, A Spradlin, S Geer, B Emmett, A Chatterjee, N Rogovska, T Parkin
- 1883274** *Persistent Groundwater Quality Degradation in a Small Watershed with Different Agricultural Intensities:* **J Zhou**
- 1882841** *PFAS-impacted brackish groundwater treatment with boron nitride (BN) photocatalysis:* **M Sima**, M Wong, P Alvarez, Y Chung, J Donoso, G Oh
- 1940116** *Real-Time Soil Nitrate Monitoring for Adaptive Nitrogen Management in Irrigated Agriculture:* **C Bonfil**, I Kisekka
- 1993572** *Redox-related Carbon and Nitrogen Cycling in Agricultural Soils:* **R J Saracanlao**, E Connelly, J K Coleman Wasik, B Hassanpour
- 1898057** *The Impacts of Flooding, Purging, and Aquifer Type on Microbial Well Water Composition Following a Major Hurricane:* **A Webb**, C N Jones, K Pieper, A Pruden, D Dai, T S Bruce, Z Oremland, T Beach, B White, J Maynard, E Bailey, M Edwards, S Ghosh, M Brouse
- 1979683** *Understanding Patterns in Pesticide Detection Across a Non-Irrigated Agricultural Landscape:* **C Krause**, S A Ewing, R A Payn, B Heitshusen, J Verreth, S Fordyce, T Seipel
- 1982915** *Water Storage and Sustainability: Monitoring Water Quality and Methane Emissions in On-Farm Reservoirs:* **M Mondragon**, M L Reba, J H Massey, A Adviento-Borbe, J Nowlin, A Pieri
- 1926887** *Developing ESMC's Pollution Load Estimation Tool (PLET) for Agricultural Water Quality Credit Generation:* **P Meyer**, T Babu, S M Saia, H Ferriby, T Tomlinson
- 1886975** *Does Integrating Goat-grazed Pasture Rotations in Organic Cropping Systems Reduce Nitrate and Phosphorus Leaching Over Seven Years?:* **B Baral**, S Lucas, A Chiluwal
- 1925606** *Ecophysiological Assessment of Nitrate Dynamics and Management Strategies Under Future Climate Scenarios in the Des Moines River Basin:* **R Mamidala**, L Liu, PhD
- 1880896** *Effects of Nitrogen Fertilization on Silage Corn Yield and Water Quality in Florida:* **G S Tiwana**, G Golmohammadi, S M Biazar Seighalani, S Shaghghi Khajehdehi, N Ghimire
- 1970353** *Evaluating Nitrogen Cycling Using CONUS EPIC with Enhanced N Pathways at a Long-term Experiment Site with Different Management Scenarios:* **K Ray**, L Ran, X Huang, V Jin, M R Schmer, H Foroutan
- 1929842** *Evaluating Phosphorus Retention Effectiveness in A Saturated Riparian Buffer:* **M Waid**, G Johnson, D Eads, W G Crumpton, T M Isenhardt, W Huang

- 1959847** *Evaluating Vegetation Feedbacks on Daily Oxygen and Nutrient Concentration Signals in an Agricultural Headwater Stream:* **M Eshbaugh**, N G F Reaver, K Parrish, K King, J M Hood II, A H Sawyer
- 1990191** *Flat But Not Equal: Understanding The Impact Of Microtopography As A Driver Of Nutrient Loss In Midwestern Agroecosystems:* **C Gibson**, T Becker, S Raglin, D Gucker, F Rademacher, E Rademacher, L Dallas, A Kent
- 1954371** *From Data to Decisions: Stakeholder-Guided Watershed Modeling for Nutrient Reduction in Ohio's Agricultural Watersheds, USA:* **A Murumkar**, M Kalcic, J Martin, A Apostel, K King, V S Shedekar, M Tapas
- 1945815** *Global Agricultural Phosphorus Losses from Croplands and Grasslands: Integrated Assessment and Management Implications:* **P Cao**, Y Wang, M Bai, B Yi, F Bilotto, M Herrero
- 1993654** *Livestock Manure Maturity and Its Impact on Water Quality in Agricultural Catchments:* **S Nam**, M Kim
- 1970501** *Microbial Acid Resistance Pathways Mediate Nitrogen-Driven Soil Acidification Through Coordinated Ammonium Cycling:* **H Butler Robbins**, E Schwartz, P Dijkstra, S Blazewicz, J Pett-Ridge, M Hayer, R L Mau

250496

On Parsimonious Mathematical Frameworks: Advancing Process-Based Understanding of Terrestrial Systems

Conveners: **Shashank Kumar Anand**, Texas A&M University; **Xue Feng**, University of California Berkeley; **Orencio Duran Vinent**, MARUM - University of Bremen; **Kaighin McColl**, Harvard University; **Sara Cerasoli**, Princeton University

- 1898505** *A General Model for Population Growth, Overshoot, and Collapse:* **S Perri**, C Kempes, S Levin, A Garg, G West
- 1906494** *A Stochastic Partial Differential Equation Model for Soil Moisture Dynamics:* **S Togo**, K Unami, M Fujihara
- 1924371** *Deducing Scaling of Shallow Storage from Streamflow Elasticity: Implications for Continental Moisture Recycling and Scale-Dependence of Evapotranspiration:* **A G Hunt**

252257

Optimizing Natural Resources for Agricultural Sustainability: Technological Advances and Applications (joint with B, GC, IN, SY)

Conveners: **Racha Elkadiri**, Western Michigan Univ; **Henrique Momm**, Organization Not Listed

- 1917126** *Nitrate Dynamics in Floodplain Channels of the East Fork White River, Indiana:* **M Scarborough**, J A Czuba, D A Edmonds, S Leach, A Altenburg, S A Khan, M Alif
- 1916377** *Phosphorus Transport Dynamics Along the Wisconsin Riverbank: Insights from Field Observations, Machine Learning Models, and Transient In Situ Column Experiments:* **V Le**, S Daley, C Karsten, D Hart, A Workman, E Berns-Herrboldt, C Zahasky
- 1872971** *Relationship between Soil Moisture Patterns and Nitrate Leaching Potential in Corn Production Systems: A Case Study in Wisconsin:* **S Cai**, M Wodrich, X Zhu-Barker, M Ruark, C J Kucharik, Y WANG, J Andrews, J Huang
- 1938969** *Salinity and Flooding Impacts on Coastal Agricultural Soils: Risks and Management Strategies:* **H Bayabil**
- 1937182** *Temporal Patterns of Nitrate Leaching Risk and Denitrification Potential across Soil Profiles under Different Land Management Practices in Southern Wisconsin:* **Y Deng**, X Zhu-Barker, J Mirabella, M Wodrich, A Zhang
- 1993443** *Ecohydrological Controls on Convective Organization Across Heterogeneous Landscapes: Land-Surface Feedbacks and Long-Term Impacts on the Hydrologic Cycle:* **N J S**, E Cultra, J Yin, A M Porporato
- 1874452** *Geometric constraints on distribution networks:* **V R Voller**
- 1896842** *On the relation between rainfall intermittency and physical aridity: Insights from a scaling-based framework:* **M R Vargas Godoy**, G Villarini, A Molini
- 1966492** *Prediction horizon in river channel evolution: theoretical limits due to chaos and noise:* **O Wani**, B Noh
- 1934683** *Quantifying loop topology in coastal river channel networks:* **J Silvestre**, J Telushi, A Winn, E Katifori, J Shaw
- 1863036** *Transient States in Landscape Evolution: Branching, Overshoot, and Lasting Reorganization:* **A Hassanzadeh Bavojdan**, S K Anand, A Singh
- 1964428** *Why drying fronts should tend to catch wetting fronts in vertical infiltration.:* **E Jackson**, A G Hunt
- 1929755** *Advancing Revised Universal Soil Loss Equation, Version 2 (RUSLE2) Development: Integrating Cutting-Edge Science and Cloud-Based Innovations for Transformative Soil Erosion Modeling and Land Management:* **C J G Darnault**, M Ghorbani, G Genc Kildirgici, B Ghimire, C Sisk, K Cunningham, J Calhoun, H Momm, D C Yoder, D Vieira, R Bingner, M Locke, R Wells, G Ferruzzi

- 1911315** *Assessing the Impacts of Agricultural Practices on Soil Water Dynamics in Occitanie (France) Using Eddy Covariance Data and a Land Surface Model:* **M Tauveron**, A A Boone, J P Sarthou, T Tallec, A BRUT
- 1928427** *Forecasting Future Soil Erosion Risk in Agricultural Landscapes of the Southern United States: Integrating Machine Learning, Environmental Change Scenarios, and Biophysical and Chemical Predictors for Sustainable Land Management:* **M Ghorbani**, C J G Darnault, S Shojaezadeh, M Al-Wardy, M Nikoo, S Campbell, M Parlange, H Momm, D C Yoder, G Ferruzzi
- 1888598** *HEC-RAS 2D Sensitivity Analysis of DEM, Mesh Resolutions, and Breaklines for the Roundaway Bayou-Quiver River Watershed in the Mississippi Delta:* **K Greenwood**, B Devkota, A Paudel, S Mahat, D Li, E Langendoen, L Heintzman, M A Locke, M T Moore, R Bingner, N Fang
- 1928882** *Identifying Threshold Conditions for Ephemeral Gully Formation in Agricultural Watersheds:* **K Moore-Freeman**, H Momm, T Seever, R Wells, R Elkadiri, R Bingner
- 1984044** *Impacts of Cropping Systems and Cover Crops on Soil Water Dynamics and Crop Water-Use Efficiency:* **M Soni**, A Y Sheshukov, J Aguilar

249821

Partially miscible interfaces in porous media

(joint with MR, NG, V)

Conveners: **Yashar Mehmani**, Pennsylvania State University Main Campus; **Benzhong Zhao**, McMaster University

- 1880977** *A theory for multicomponent Ostwald ripening in porous media:* **N Bueno**, L Ayala, Y Mehmani

248344

Plastic and Plastic Associated Chemicals in the Hydrosphere: From Source to Sink (joint with SY)

Conveners: **Jason Davison**, Aquanty, Inc.; **Monica Arienzo**, Desert Research Institute; **Aleksandra Karapetrova**, University of California Riverside; **Rachel Kozloski**, Desert Research Institute

- 1894878** *A Case Quantifying Beach Tourism Generated Plastic Litter Using AI:* **M Weirich**, H Rothman, M W Brand
- 1926522** *A Comparison of Plastics Debris and Plastics-associated Leachates at Four U.S. Rivers:* **B Maurer**, Z Yang, C L Lincoln, A Chamas, A Cuthbertson, W Cowger, R Branch, A B Gray, M C Benfield, K Somers, E F Granek, S M Brander, Y Huang, N Sun

- 1948076** *Integration and optimization of urban water resources in agricultural systems:* **J Tamás**, A Nagy, A Szabó

- 1963237** *LIMITATIONS OF IMPROVED AGRICULTURAL TECHNOLOGIES ADOPTION IN UGANDA:* **D Kisitu**

- 1926685** *Modeling Ephemeral Gully Susceptibility in Agricultural Watersheds:* **G Hosford**, R Elkadiri, H Momm, T Seever, R Wells, K Moore, R Bingner

- 1958068** *NeuralFAO56: Leveraging Neural Network for data driven FAO56-Based Irrigation Demand Estimation:* **A Neupane**, N Zafarmomen, V Samadi

- 1951985** *Quantifying Spatio-temporal Soil Erosion using RUSLE model: A Case Study in the Meghna River Basin:* **M S Hossain**, S Khadem, S A Toufiq, G M S A Helal

- 1855681** *Systematization of agricultural information for rational crop monitoring in a context of sustainable agriculture:* **L R E Asie**, P Celicourt, PhD, A N Rousseau

- 1921799** *The Annualized Agricultural Non-Point Source (AnnAGNPS) watershed pollution model:* **H Momm**, R Bingner, R Elkadiri, K Moore

- 1914333** *The Water Footprint of a Growing Livestock Industry:* **M Bairouti**, A Mansaray

- 1848903** *Influence of Pore-Scale Convection on Sea Ice Melt Rate:* **X Fu**, J Liu

- 1881472** *Ostwald Ripening in Underground Gas Storage:* **B Zhao**, M Salehpour, T Lan, M Z I Laku, N Bueno, Y Mehmani

- 1881539** *Predictive modeling of Ostwald ripening in porous microstructures:* **M Z I Laku**, M Salehpour, T Lan, B Zhao, Y Mehmani

- 1902456** *Role of miscibility and heterogeneities in determining supercritical CO₂ invasion patterns in sandstone:* **A L Herring**, R Huang, A Sheppard, M Saadatfar

- 1883158** *A Review on Microplastic Contamination in the Ganga River System: Sources, Distribution, and Environmental Implications:* **J Rao**, F Ahteshyam

- 1874948** *Advancing Microplastic Monitoring in Urban Watersheds: A High-Resolution, High-Throughput Methodology:* **A Menezes**, R Olawumi, A Sanchez de Boado, R Murphy, J H Davison, PhD

- 1928193** *Bridging Physical and Numerical Modeling: Transport Drivers of Macro-plastic in Overland Systems:* **N Oruc Baci**, F L Santiago-Collazo, J Jambeck

- 1946711** *Co-Contamination Index Reveals Microplastic and Heavy Metal Hotspots in Deepor Beel, an Urban Ramsar Wetland of Northeast India:* **S Chaudhuri**, S S

- 1965084** *Detection of Litter Windrows off the Southeast Florida Coast: Preparing for an Ocean Lidar Campaign:* **E Goldsmith**, M Cowell, C P Ward, V Chirayath, M Behrenfeld, Y Hu, D Streett
- 1971028** *Geospatial Analysis of Microplastic Contamination in the Mississippi River: Sources, Distribution, and Environmental Impact in Illinois:* **S Rahman**, M Hasan
- 1947165** *Microplastics as Vectors of Bioavailable Trace Metals in Estuarine Sediments of Chandragiri and Kavvayi Backwaters, Kerala, India:* **S Nathan**, P Palanichamy, R Subramani
- 1918209** *Microplastics in Freshwater Bivalves of the Allegheny River Watershed:* **N Warner**, K Pankratz
- 1962826** *Modeling Microplastic Flux and Storage within an Urban Estuary:* **C Murphy-Hagan**, A B Gray, M W Brand, H Hapich
- 1922445** *Modeling the Fate and Transport of Tire Wear Particles in the Delaware River Basin:* **Z Li**, Y Huang, N Sun, Z Yang
- 1891404** *Plastic Marine Litter Detection Using X-Band SAR Data:* **G Anconitano**, M Polcari, C Bignami, M Locritani, F Muccini, S Merlino, M Bianucci, F Nunziata
- 1912449** *RiSIM: River Surface Image Monitoring Software for Quantifying Floating Macroplastic Transport:* **T Kataoka**, T Yoshida, K Sasaki, Y Kosuge, Y Suzuki, T H M van Emmerik
- 1990912** *Sea Spray Transfer of Aged and Biofouled Microplastics: Toward Environmentally Representative Insights into Aquatic-Atmospheric Connectivity:* **N Pokhrel**, C Carpenter, J Sipe, R Hanlon, D G Schmale III, M Wiesner, H Foroutan

248221

Practical AI Solutions for Hydrological Forecasting (joint with C, GC, IN, NH)

Conveners: **Ziheng Sun**, George Mason University Fairfax; **Nicoleta Cristea**, University of Washington Seattle Campus; **Annie Burgess**, Earth Science Information Partners; **Justin Pflug**, University of Colorado

- 2001256** *Assessing the Accuracy of AI Models in SWE Prediction:* **B Huang**, J Sun, R Gao, Z Sun
- 1993316** *A Machine learning Approach for CMIP6-based Streamflow projections in Peruvian Andean Basins:* **N Velasquez**, J Guerrero-Gallego, L Villaordoña
- 1891421** *Advancing Seasonal-to-Subseasonal Predictions of Net Basin Supply Components in the North American Great Lakes Using Machine Learning:* **L Fitzpatrick**, D Jones, M McAnear, Y Hong, L M Fry

- 1890332** *Sea, Sand, and UV: Impact of accelerated beach weathering on non-compostable and compostable plastic bags:* **P B Ramesh**, V W C Chang, S Shukla, T Adyel
- 1964962** *Shoreline Plastic Pollution in Lake Champlain: Abundance and Characteristics:* **N Begum**, A Jefferson, A Stumpf, A Degrenier, G Massa, A Morrow, T B Mihuc, D Garneau
- 1862832** *Solid waste management practices in riparian communities are a key driver of microplastic concentrations in the Mekong River, Cambodia:* **R Kozloski**, M M Arienzo, S Chea, D M Saftner, K L Minatre, S Chandra, Z Hogan
- 1907032** *Stirred from the Bottom: Resuspension Dynamics of Degraded Macroplastics on Different Riverbeds:* **M Mancini**, S Francalanci, J Colomer, T Serra, L Solari
- 1878397** *The Effect of Biofilm Growth and Particle Concentration on Microplastic Transport Mechanisms in Saturated Porous Media:* **K Li**, F Alqrinawi, C Li, Z Chen, R Dehbandi, U Schneidewind, I Lynch, S Comer-Warner, S Krause
- 1925033** *Transport of Microplastics through the Saturated Porous Media: Influence of Particle Density and Sediment Grain Size:* **S Yadav**, B K Yadav, S Krause
- 1999421** *Transport-informed management of watershed microplastics:* **A B Gray**, H Hapich, J Perna, H Johnson, C Murphy-Hagan, S Singh
- 1869820** *Trash or Data? Tracking Litter Movement Via Receipts:* **E Finan**, E Lui, A Menezes, R Kiriazes, W Cowger, J Davison
- 1928605** *Democratizing Weather Prediction: A Blueprint for Operational AI-based Forecasting to Address Real World Challenges:* **A Marchakitus**, K Kowal, C Aitken, M Gupta, R Masiwal, W R Boos, A Jina, P Hassanzadeh
- 1857190** *Generative postprocessing of HRRR QPF for improved flash-flood forecasting:* **N Karki**, N Samal, H Moradkhani
- 1982324** *Hybrid Model for Rainfall-Runoff Prediction: A Combination of Time Series and Non-Time Series Architectures:* **M Chen**
- 1932084** *Improving Deep Learning Streamflow Forecasts by Explicitly Training with Real-world Precipitation Forecasting:* **W Ouyang**, Y Luo, L Ye, S Xu, Y Chai
- 1922105** *Incremental Learning for Probabilistic Forecasts of Water Levels at Virginia Beach, Virginia:* **D McSpadden**, C Kumar, A H Mohammed, M Schram, A Udomvisawakul, S Katragadda, A Kasparian, K Rajput, M Hasan, B Roy, Y Wang, J L Goodall, H Richter

- 1998602** *Integration and Evaluation of Operational Machine Learning Hydrological Forecasts in Reclamation Regions:* **L K Read**, C Frans, L A Bearup, M Feen, M Elkurdy
- 1982287** *LSTM-Enhanced Streamflow Forecasting for California-Nevada Region: a Post-Processing Framework for CHPS and WRF-Hydro:* **M Xiao**, M Pan, Y Yang, Q Cao, T Dixon, G Lewis, L Su, R Hartman, M J Defflorio, J Kalansky, L Delle Monache, M Ralph
- 1867574** *Machine Learning Generated Streamflow Drought Forecasts for the Conterminous United States (CONUS): Developing and Evaluating an Operational Tool to Enhance Sub-seasonal to Seasonal Streamflow Drought Early Warning for Gaged Locations:* **P Goodling**, J C Hammond, J Diaz, H Corson-Dosch, A Heldmyer, S D Hamshaw, R McShane, J Ross, R R Sando, C Simeone, L Staub, W D Watkins, M Wiczorek, K Wnuk, J A Zwart, J Marshall
-
- 252540**
Promoting Water Resilience in the Western U.S. Through Measurement, Management, and Markets Approaches (joint with B, GC, SY)
Conveners: Lauren Parker, University of California Merced; Sarah Null, Utah State University; Josue Medellin-Azuara, University of California Merced; Alexander Fernald, New Mexico State Univ; Kira Waldman, University of California Davis
-
- 1861225** *Advancing adaptive decision-making to support an Environmental Water Manager's ability to enhance the ecological resilience of Western U.S. river systems:* **Z Brodeur**, S V Sunkara, G Penny, P M Reed
- 1901657** *Advancing Utah's Secure Water Future: Irrigation Organizations and Water Market Uptake:* **B L Schumacher**, M Yost, J Schad, B Barker, S E Null
- 1918597** *Agricultural Land Use Optimization with Water Constraints in Tule and Kaweah Sub-Basin, California: Cache Valley, Utah and Mesilla Valley, New Mexico:* **L Wu**, J Medellin-Azuara
- 1928572** *Agricultural Non-Consumptive Water Use Estimation and Water Management Performance Assessment Through a Remote Sensing-Based Water Balance Under Different Climate Conditions Across Utah Irrigation Canal Companies:* **K Osorio-Diaz**, A F Torres-Rua, A Austin, J Jedlicka, C Miller, M Aveek, J Zimmerman
- 1931988** *Agricultural Water Conservation Solutions for the Great Salt Lake Basin:* **M Hashemi**, M Yost, S Morrison Sr, B Barker, L Ahmadi, D S Stock, D Mitchell sr, L Vernon
- 1988005** *Machine-Learning Approach to Predict the timing of Spring Breakup of River Ice:* **M Ayyad**, M Temimi, B Cherif
- 1989676** *Physics-Informed Graph Neural Network for SWE Forecasting:* **Z Sun**, K Zhou, B Cui, N C Cristea, A B Burgess, M Liu
- 1872653** *Temporal Super-Resolution for Flood Forecasting using Deep Learning in Norfolk, Virginia:* **C Kumar**, D McSpadden, M Schram, H Richter, Y Wang, B Roy, J L Goodall
- 1982054** *Assessing Disparities in Water Reliability and Economic Impact for California's Water Users over the 21st Century:* **A Konialian**, A Escrivá-Bou, J Medellin-Azuara, K Dobbin, Y Cai
- 1917103** *Ecological Benefits of Water Markets:* **G T Sancho-Juarez**, S E Null
- 1974065** *Estimating Resilience Benefits from Regional Green Infrastructure Scenarios for Local Water Systems in the Sacramento Valley, California, USA:* **C Kouba**, Y Pasner
- 1899241** *Evaluating System Robustness in the Western U.S. Networked Water Supply System:* **K Kim**, M E Garcia
- 1997196** *Evaluating the Effect of Winter Cover Crops on Soil Water Dynamics in a Pistachio Orchard in California's Central Valley:* **C Chen**, M Roby, A Sapkota, I Kisekka
- 1929074** *Evaluation of Economic Benefits from Managed Aquifer Recharge (MAR) Strategies in California's San Joaquin Valley: The Tule and Kaweah Sub-Basins Case Study:* **E Trujillo**, J A Morande, J Medellin-Azuara, T C Harmon
- 1916724** *Great Salt Lake Vulnerability Analysis with CMIP6 Climate Scenarios:* **S Pineda Castellanos**, S E Null
- 1868442** *Impact Assessment of California Agri-Environmental Programs: Limited Reductions in Consumptive Water Use and Crop Productivity Tradeoffs:* **C Wong**, W Sklarin, M Mauter, D B Lobell
- 1971329** *Integrating Forecast-Informed Reservoir Operations and Fallowing Payments for Improved Drought Management in the Colorado River Basin:* **J Quinn**, S Singh, S K Sharma, K Hietpas, M M Mekonnen, P Block, P Debaere, B D Richter
- 1981656** *Intermittent Groundwater Recharge Strategies on Alfalfa for Sustainability and Water Conservation:* **K M Bali**

- 1922169** *Parametric Financial Risk Mitigation for Water Districts Facing Hydrologic Variability*: **D Li**, H B Zeff, G W Characklis
- 2002536** *Prioritizing floodplain reconnection in the Pacific Northwest to support municipal drinking water management post-wildfire*: **E Smoot**, R L Flitcroft, M Santelmann, T Shukla, D D Tullis, S Lancaster
- 1869064** *Stakeholder-Informed Land Repurposing for Groundwater Sustainability: Evaluating Agricultural, Economic, and Environmental Trade-offs in Overdrafted Subbasins of California's San Joaquin Valley*: **T C Harmon**, Y Nuñez Bolaño, H Flores Landeros, J A Morande, J Medellín-Azuara, E Trujillo

251688

Quantifying Groundwater Impacts on Inland Lakes, the Great Lakes, and Coastal Oceans: Advances in Modeling and Observations (joint with B, OS)

Conveners: **Mantha Phanikumar**, Michigan State University; **Eric Anderson**, Colorado School of Mines; **Saeed Memari**, Colorado School of Mines; **Andrew Gronewold**, NOAA-Great Lakes Environmental Research Laboratory; **Saeed Memari**, Colorado School of Mines

- 1985945** *Analyzing Groundwater–Lake Interactions and Their Influence on Summer Circulation and Thermal Structure in the Great Lakes*: **M Bilal Zafar**, S Memari, E J Anderson, A Gronewold, M S Phanikumar
- 1966754** *Beneath The Basin: Advancing Laurentian Great Lakes Groundwater Modeling*: **M Sigler**, A D Kendall, B P Heerspink

248317

Quantifying Uncertainty in Hydrologic Models

Conveners: **Lijing Wang**, Stanford University; **Juliane Mai**, Helmholtz Centre for Environmental Research-UFZ; **Peishi Jiang**, University of Illinois at Urbana Champaign; **Niklas Linde**, University of Lausanne; **Lijing Wang**, Stanford University

- 1865550** *A Solution for Ensemble Mean and Variance of Drawdown for Radial Flow in a Heterogeneous Confined Aquifer*: **B Malama**
- 1918795** *Advancing a fine-resolution global lake-river modeling framework*: **Y Ma**, M S Sikder, J Wang
- 1998032** *Applications of Analytical AI in Geosciences*: **A Koshulko**, O Koshulko

- 1985958** *The Cost of Climate-driven Water Scarcity for Irrigated Agriculture*: **S Bahramu**, M Rouhi Rad, R A Hrozencik, G Perez-Quesada, R Nayga
- 1899813** *The role of social norms and regulatory measures in shaping water allocation: An agent-based approach*: **A Ghorbanpour**, I Kisekka
- 1893468** *Water Management Strategies and Yield Response in Pecan Orchards: A Comparative Analysis of Irrigation Systems*: **J Preciado**, S Bawazir, A Fernald, R Heerema
- 1904801** *Water markets, curtailment, and the Colorado River Compact*: **P J Womble**, S M Gorelick, B Thompson, J S Hernandez Suarez
- 1997481** *Water Rights Policy Implications on Agricultural Resilience in a Warming Western United States*: **Y Demissie**, M Melesse, E Dalsbo, A M Avalos
- 1890664** *Groundwater's Role in Modulating Ice Formation and Thermal Stratification in the Laurentian Great Lakes*: **E J Anderson**, S Memari, M S Phanikumar, A Gronewold
- 1993797** *Predictive Hydrogeological Modeling of Lake Beseka's Expansion Driven by Anthropogenic Activities Using MODFLOW USG*: **F Oseyemi**, W M Seyoum, E Gebremichael, J Awuku, Z Demissie
- 1891033** *Revealing Groundwater Connectivity and Flux Dynamics in the Laurentian Great Lakes Using SWOT Mission Observations and Multi-Source Data Integration*: **G Singh**, M S Phanikumar, N N Das, K Andreadis
- 1933869** *The hidden role of groundwater in the functioning and migration of saltmarshes*: **H A Michael**, J Guimond, D Pratt, E Grande
- 1947506** *Young, fast, and salty: Observations of groundwater age, flow and chemistry in Lake Huron's submerged karst features*: **S A Ruberg**, B A Biddanda, E J Anderson, K K Solomon, W Mace, S Gandualla
- 1867149** *Assessment and Uncertainty Quantification of Terrestrial Water Storage Projections Under Climate Change Using Large Ensemble Simulations of Global Hydrologic Models*: **J Kim**, K H Ahn
- 1856870** *Baseflow Data Assimilation to Improve Hydrologic Modeling through Enhanced Representation of Groundwater–Surface-Water Interactions*: **P Ghaneai**, E Foroumandi, H Moradkhani
- 1976619** *Calibrating Geologic Texture Fields in a GW–SW Model with AEM Data Using PEST-IES*: **L Scantlebury**, T Harter
- 1847360** *Differentiable Physics-Informed Machine Learning Enhances High-resolution Hydrologic Modeling*: **Y Song**, C Shen, H Ji, T Bindas, L Lonzarich, J Liu, N J Frazier
- 1850247** *Get your monies worth: Systematic targeting of hydrologic model uncertainty reduction*: **J D Smith**, S Foks, J Dickinson, J Marshall

- 1957818** *Incorporating Empirical Hazard Uncertainty into HEC-FDA:* **D Ho**, R Nugent Jr I, E Heisman
- 1977876** *Numerical Modeling and Uncertainty Quantification of Groundwater Pumping Tests in a Heterogeneous Subsurface to Guide Field Campaigns:* **J Im**, K F Walker, S Mishra, D Dwivedi, L M Lui, M De Raad, H Lesea, D Joyner, J Marquis, Y Wang, J Zhou, T Northen, M W Fields, A P Arkin, T Hazen, M E Newcomer
- 1847494** *Process-oriented Global Hydrological Assessment: Leaf-Area-Index Impact on Terrestrial Water Balance:* **C Ardilouze**, G Narváez
- 1943878** *Quantifying Key Parameter Sensitivities for Water Table Depth in Hydrological Schemes of CoLM-PSUADE:* **T Wu**, S Zhang, C Yang, Z Wei, H Yuan, W Dong, X Yang, Y Dai
- 1932562** *Quantifying Pesticide Transport Pathways Using a PWC Model and Global Sensitivity Analysis: A Case Study of Chlorothalonil in South Florida:* **W Mao**, M Cecil, E Ahmed S Sr, M A Bremedhinb, P Babushkin, M Ye

247640

Reactive Transport and Chemo-Mechanical Processes in Porous Media (cosponsored by EGU: European Geosciences Union, GS: Geochemical Society, GSA: Geological Society of America) (*joint with MR*)

Conveners: **Vitalii Starchenko**, Oak Ridge National Laboratory; **Charlotte Garing**, University of Georgia; **Anne Menefee**, University of Michigan Ann Arbor; **Peter Kang**, Korea Institute of Science and Technology

- 1968975** *3D Identification and Quantification of Reactive Mineral Phases for Modeling Hydrogen-Induced Geochemical Evolution in Sandstone Reservoirs:* **P Asadi**, M Kariminasab, D Driba, L E Beckingham
- 1906084** *Beyond Empiricism: A Coupled k - τ - ϕ Model for Predicting Acid Mine Drainage in Reactive Waste:* **W Cao**, M Edraki Prof, H Hofmann Asso, A Scheuermann Prof
- 1977732** *Characterization of Noble Gas Adsorption and Diffusion in Subsurface Geologic Materials:* **G Wang**, E Denis, A J Carman
- 1845869** *Chemical Transient Analysis for Fracture Characterization in Rocks:* **W M Kibikas**, J N Kruichak, B Seaburn

- 1884181** *Satellite-based Precipitation and Model Uncertainty Quantification for Deep Learning-based Streamflow Prediction:* **K Peng**, D B Wright, L Yan, A Alexander, Y Derin
- 1939157** *Toward Accurate and Scalable Riverine and Coastal System Characterization:* **J H Lee**, P Rivera Casillas, Z Zody, S Dutta, M Farthing
- 1922329** *Uncertainty Modeling and Detection of Dynamic Shifts in Rating Curves to Improve the Reliability of Streamflow Records:* **S V Kona**, R Das Bhowmik, M C Peel, A W Western
- 1857090** *Understanding Simulation Uncertainty in Compound Floods: Sensitivity to Forcing and Model Parameters:* **C Wang**, F J Gomez, S M Mosavat, S Radfar, H Moftakhari, H Moradkhani
- 1956713** *Coupled hydrologic and reactive transport modeling reveal influences of porosity change and resulting geochemical distinctions across brine-to-freshwater transitions:* **S V McKnight**, L Munk, X Chen, G E Hammond, D F Boutt, M Winnick, Z Li, P Jiang, F T Zahura, B Li, T Ahmadullah, S Niroula, J Fan, Y Xiao
- 1958588** *Crystallization Pressure: Nucleation and Growth of Sodium Sulfate:* **L M Anovitz**, S Wong, L Lin, D Erdman III, M Martinez, A G Stack
- 1906038** *Effect of CO_2 -water-rock interaction on andesite permeability revealed by hydrothermal flow-through experiments at 200 °C:* **N Nishiyama**, M Sorai, K Masuoka, M Shiga
- 1890515** *Effects of Pore Fluid Chemistry on Cataclastic Compaction of Porous Rocks.:* **F Lazari**, G Meyer, A Pluymakers, M Violay
- 1887740** *Estimating Mineral Reactive Surface Areas Using Combined XCT, SEM, and BET Data:* **M Kariminasab**, M Abbaspour, M F F Salek, H K Senthil Kumar, A A Nahian, N Lopez Rivera, O Williams, J Newsome, L E Beckingham
- 1976177** *Ex-Situ CO_2 Mineralization in a Flow-Through Reactor with Mafic Mine Wastes:* **E Chowdhury**, R M Pollyea, P Chanda
- 1994779** *Experimental Evaluation of the Influence of Geochemistry and Mineralogy on Permeability Evolution during Geologic CO_2 Storage:* **J Hughes**, A H Menefee

- 1861213** *Imaging Fluid Mixing and Precipitation in Rocks Using Neutron and X-ray Facilities:* **F Renard**, B Cordonnier, T Le Borgne, J Mathiesen, G Linga, A Pluymakers, A Kaestner, P Shafabakhsh
- 1857357** *Impact of hydrochemical conditions on the efficiency of mineral replacement: insights from a pore network model:* **T Szawelfo**, P Szymczak
- 1908568** *Impact of Mineral Coating Structure on the Rates of Coupled Dissolution-Precipitation Reactions in Hydrogeological Systems:* **S Emmanuel**, M Eliyahu
- 1974991** *Impact of Mineral Dissolution on Sandstone Reservoir Properties:* **R Aderoju**, C Garing
- 1995319** *Impact of Mineral Spatial Distribution on CO₂ Dissolution Rates in Multimineral Carbonate Rocks:* **O Adedipe**, Y Al-Khulaifi, S Foroughi, Q Lin, M J Blunt, B Bijeljic
- 1885994** *Influence of Geochemical Reactions on Fracture Permeability Using an Intermediate-scale Field Experiment and Reactive Transport Simulations:* **A Kirshen**, K Swager, J A Burghardt, J Hyman, A Navarre-Sitchler
- 1966902** *Localization of reaction-induced fracture and hydration due to reaction softening: insights from numerical simulations:* **J McElwee**, I Wada, K Yoshida, H Shimizu, A Okamoto
- 1980993** *Measurement of Calcite-calcite Interface Evolution as a Result of Pressure Solution using in-situ X-ray Nanotomography:* **A Bhattacharjee**, H Lisabeth
- 1985527** *Microfluidic Experiments for the Selective Crystallization of Salts from Multicomponent Saline Brines:* **K Green**, I Battiato
- 1973092** *Mineral dissolution in two-phase flow condition: Insights from core-flooding experiments and X-ray micro-CT imaging:* **L Olawale**, C Garing
- 1969763** *Modeling surface heterogeneity effects on nucleation:* **V Starchenko**, S Wong, K Yuan, A G Stack
- 1969738** *Multi-scale neutron imaging: from the fm to the cm:* **D S Hussey**, J LaManna, M C Daugherty, E Baltic, D L Jacobson, K Yuan, R Zhang, L M Anovitz
- 1907362** *Multiscale Dynamics of Partially Miscible Gas/Brine Flow in Heterogeneous Porous Media:* **M Boon**
- 1878605** *Optical Thermometry for Dynamic Imaging of Heat Transport in Analog Porous Media:* **A Rashed**, B Fond, S Borisov, Y Méheust, M Klepikova
- 1901609** *Oscillatory Flow Leads to Sustained and Enhanced Mixing-Induced Mineral Precipitation in Porous Media:* **W Yang**, T Szawelfo, C Neil, P Szymczak, P K Kang
- 1918102** *Pattern Formation in Karstic Solution Pipes: Insights From Australia and the Mediterranean:* **D Wos**, P Szymczak, M Lipar, M Waligórska, M Kurek
- 1938795** *Pore scale analysis of reactive transport in a natural limestone:* **H Yoon**
- 1926029** *Pore-Scale Heterogeneity and Its Impact on Porosity-Permeability Relationships in the Lower Tuscaloosa Formation for CO₂ Sequestration:* **A A Nahian**, N Lopez Rivera, J Huff, L E Beckingham
- 1900651** *Quantifying Uncertainties of Radionuclide Sorption in Argillaceous Formations – A Global Sensitivity Analysis for the Example of Uranium in the Opalinus Clay:* **T Hennig**, J Birkholzer, L Zheng
- 1926388** *Quantitative Evaluation of Calcite Accessibility in 3D-Printed Reactive Rock Analogs Using Image-Based Analysis:* **J Huff**, A A Nahian, L E Beckingham
- 1933978** *Radiocesium sorption onto weathered mafic minerals: Implications for the migration of nuclear waste:* **H Hagiwara**, Y Watanabe, H Konishi, H Funaki, T Nakanishi, K Fujiwara, K Iijima
- 1868656** *Reaction-driven crack propagation in carbon mineralization:* **R Feng**, J W Rudnicki, P Asem, E Detournay
- 1910925** *Temperature and pH Effects on Gypsum Dissolution Kinetics in the Context of Geologic Carbon Sequestration:* **Z Shi**, J Newsome, L E Beckingham
- 1966144** *Timelapse CT Flow-Through Experiments for Studying the Effects of Carbonate Mineralization on the Physical Properties of Mafic Rocks:* **J Simpson**, M Pec, H O OGhaffari, PhD, J Elkhoury
- 1855461** *Unraveling Elemental Mobilization and Mineral Transformation in Lateritic Weathering: Insights from Experiments, Spectroscopy, and Reactive Transport Modeling:* **D Harbola**, G Mathew

252162

Reactive Transport in Subsurface Systems: Recent Advances in Experiment, Simulation and Theory

Conveners: **Yaofa Li**, Montana State University; **Hang Deng**, Princeton University; **Bowen Ling**, Institute of Mechanics, Chinese Academy of Sciences; **Ran Hu**, Earth Science Division, Lawrence Berkeley National Laboratory

1933889 *A coupled fluid flow and reactive transport model to study the role of geometry and flow variation on mineral precipitation in fractures:* **M F F Salek**, L E Beckingham

1994926 *A Novel Sigmoid Dispersivity Model for Multispecies Reactive Transport in Porous Media:* **K Rishabh Gupta**, P K Sharma

1927163 *Calcite Dissolution Rates Across Experimental Parameters: Implications for Upscaling:* **K Swager**, A Navarre-Sitchler

1886583 *Characterizing the effects of fracture-mediated flows on the formation of mixing-driven reaction hotspots:* **L J Perez**, J Hyman

1913048 *Determination of Stress-Dependent Kozeny-Carman constant of Low-Permeability, clastic sedimentary rocks:* **J J Dong**

1938067 *Diffusioosmosis in a reactive microchannel:* **T Ladd**, S Zhang, H Chu

2003277 *In-Situ Capillary Pressure Measurement in Porous Media Using Multiplex Microfluidic Pressure Sensors:* **N Raventhiran**, P Garcia, E Johnson, Y Li

1968754 *Influence of Diffusion-Induced Local pH Gradients on Carbonate Precipitation in Water-scCO₂ Systems: A Microfluidic Study:* **R Krasnoff**, T Shen, E Nienhuis, C H Stanfield, T Schaefer, S Kelly

248646

Recent Advances in Large-Scale Hydrologic and Flood Modeling: Assessing and Predicting Extreme Floods (joint with NH)

Conveners: **Sudershan Gangrade**, Oak Ridge National Laboratory; **Ganesh Ghimire**, Oak Ridge National Laboratory; **Shih-Chieh Kao**, Oak Ridge National Laboratory; **Mario Morales-Hernandez**, Oak Ridge National Laboratory

1846177 *A Deep Learning-Based Framework for Automated Characterization of Probability Distribution Tails:* **S Kaur**, S R Chavan

1906233 *Interpretation of groundwater pathways around low permeable rocks from drill core analysis:* **T Hennig**, M Kühn, M Bonitz, A M Schleicher

1963624 *Mineral precipitation in fractures: From high-resolution simulations to a scalable continuum model:* **R L Detwiler**, R Chen, M J Abdolhosseini Qomi

1901647 *Multi-scale reactive transport in fracture rock: challenges and advancements for predictive modeling in subsurface energy systems:* **A Navarre-Sitchler**, J Hyman, K Swager, A Kirshen, G E Hammond

1888446 *Preferential Flow and Nutrient Release from Floodplains under Distinct Drivers of Inundation: Insights from Field Experiments and Reactive Transport Simulations:* **Z Perzan**, K Boye, J Bargar, K Maher

1966771 *Quantifying Interactions of Drying and Pore Flow in Dual-Porosity Micromodels Using Micro-PIV:* **M A Habib**, Y Li, B Guo

1967169 *Quantifying Pore-Scale Mineral Dissolution Using Calcite-Based Porous Micromodels:* **Y Li**, G Blois, F Kazemifar, M Kim

1846990 *Regulation of Fluid Flow Behavior in Porous Media Based on Particle Migration:* **P Yan**

1913873 *Toward Transformation-Enabled Hybrid Models for Multiscale Contaminant Transport in Porous Media:* **M Tripathi**, A Köhler, A R Khan, P K Yadav, R Liedl, P Grathwohl, P Dietrich

1945911 *Trapping CO₂ in Deccan Basalts: insights from reactive transport modelling from the Killari-1 Borehole:* **S Adak**, S Sarkar, J Mallik

1982375 *Wettability Alteration of PDMS Surfaces via Carbonate Compound Integration for Reactive Fluid Transport in Porous Media:* **M Kim**, A Ratanpara, D Guerrero, Y Li

1957732 *A hierarchical Bayesian approach to understanding recent flash flood trends in the USA:* **F Yavari**, M Abdelkader, H Moradkhani, N Devineni

1983244 *A Novel Global Flood Modeling Framework Powered by Cloud-Scalable HEC-RAS 2D Engine and Advanced Climate Forcings:* **J Kim**, M Maneta, M Gomez, A Al, M Kim, B Adhikari, M Lammers, M Novo Villar, H Hsieh, K Bryant, A Pouyaei, C Liang, T L Hsieh, Z Flamig, M Amodeo, E J Kearns

1968937 *A Scalable Approach for Maximizing Global Flood Model Resolution:* **H Hampson**, E Perry, J Pucciarelli, C McNicholas, M Woelfle, J Rogers

1976844 *Advances in Continental-Scale Flood Inundation Mapping and Prediction:* **C Pruitt**

- 1993766** *Advancing NOAA's Near Real Time Flood Inundation Mapping Capabilities with Ripple1D and Flows2FIM*: **A R Siddiqui**, M Deshotel, S Lawson, S Lawler, B Bates, R Gonzalez-Pita
- 1971403** *An Attention-Guided Deep Learning Model for High-Resolution Flood Inundation Prediction – A Proof of Concept*: **F Nur**, S Gangrade, G R Ghimire, S C Kao, A J Kalyanapu
- 1954265** *Application of a Real-Time Data Assimilation System to Enhance Flood Forecasts in Japan*: **Y LIU**, K Yoshimura, M Revel, Y Zhu
- 1910179** *Assessing Culvert Vulnerability to Floods and Flood induced Erosion and Debris Flow*: **S Mukherjee**, D M Amatya, S S Panda, M Dobre, R Lew, A M Jalowska, J Grace
- 1981094** *Beyond the Rain: A Scalable Framework for Urban Flood Risk Modeling and the Role of Drainage Infrastructure under Intensifying Storm Events*: **K Boukin**, K M Strzepek, R Kirchain
- 1995309** *Compound Flood Hazard Modeling: A Comparative Study of CPU-Based and GPU-Accelerated Hydrodynamic Models for Emergency Response*: **A Khalid**, P Panakkal, M Narayanaswamy
- 1940874** *Control-to-Inundation Neural Network: A Surrogate Model for Real-Time Response to Distributed Control in Urban Flooding*: **B WANG**, X Cao, H Qin
- 1863122** *Detecting Spatially Consistent Trends in Sub-Hourly Extreme Rainfall Using a Neighborhood-Based Method*: **N Kifle**, N Peleg, C I Meier
- 1912598** *Enhancing Flood Sustainability in Florida through Explainable AI-Based Susceptibility Mapping*: **S M Biazar Seighalani**, G Golmohammadi, K Mohammadi Dr, B Voram, G S Tiwana, S Shaghghi Khajehdehi, N Ghimire
- 1926538** *Enhancing Fluvial Flood Inundation Mapping Through Stochastic Rating Curve Representation*: **N Soheili**, S Balachandran, M Erfani, M Erfani
- 1994191** *Enhancing NOAA's National Flood Inundation Mapping Evaluation System with Scalable Container Orchestration*: **D B Lee**, A R Siddiqui, F Aristizabal, K Spurrier, R Gonzalez-Pita, B Bates
- 1895931** *Enhancing Riverine Flood Inundation Predictions with Artificial Intelligence*: **Y Bhattarai**, G R Ghimire, R Talchabhadel, S Sharma
- 1965055** *Entangled Currents: A First Step Towards Quantum Routing of Shallow Water Flows*: **N Kandel**, H Cho
- 1889609** *Event-based flood risk assessment based on a large ensemble climate dataset under climate change: A case study in the Tokachi river basin*: **T Ito**, H Okachi, S Hasegawa, T Hoshino, T Yamada
- 1852383** *Flood Impacts Across Scales: A tale of a Multi-Method Approach*: **G Villarini**, R Amorim, M Binjolkar, H Kim, T Kim, R Amorim, S Maebius, A Michalek, T Pu
- 1877684** *Flood Inundation Mapping for Levee Breach Scenarios Using a Deep Learning Surrogate Model*: **M K Hong**, Y Kim
- 1850803** *Future Flood Characteristics in the Western United States*: **F Felfelani**, A J Newman, A Wood, A Stone, K Holman, S Hartke, K Walker
- 1975049** *Global Sensitivity Analysis of Hydrodynamic Urban Flood Inundation Mapping and Modeling in a Coastal River Basin in the South United States*: **R Saleh Alipour**, J Song, S Gangrade, J Halgren, S J Burian
- 1982762** *HEC-RAS 2D Emulation Using Sparse Gaussian Process Regression – Benchmarking New Approaches to Reduce the Computational Demand of Probabilistic Flood Modeling.*: **S Lawson**, R Passarelli, R Cyriac, M Ghaneezad, S Jain, M Pakdehi, J Elsey, D Wilusz, M Mampara, S Kalikivaya, D Rosa, H Smith
- 1909533** *High-Resolution Climate-Hydrodynamic Modeling Considering Wetland Functions for Extreme Flood Events in the Passaic River Basin*: **S Jamrussri**, T Tanaka, K Ishida, Y C E Yang
- 1983824** *High-Resolution Flash Flood Forecasting in New Jersey: Bridging Prediction and Preparedness*: **E I Nikolopoulos**, S Rasiya Koya, Y Wang, Y Wu, J Gong
- 1935028** *High-Resolution Flood Inundation Mapping of U.S. Tribal Nations Under Current and Future Conditions: The Case of the Santee Sioux Nation*: **T Pu**, G Villarini, R Amorim, D Li, S Gangrade, M Durr, B Janssen
- 1911782** *High-resolution flood inundation maps across the contiguous United States under historical and pseudo-global warming scenarios*: **A Michalek**, R Amorim, D Li, M Binjolkar, T Pu, G Villarini, J Done, S Gangrade
- 1922005** *High-Resolution Hydrodynamic Reconstruction of Hurricane Helene (2024) Flooding in the Southeastern United States*: **S Gangrade**, S C Kao, G R Ghimire, M Morales-Hernandez, M Kelleher, Y Kim, M Khanam, M R Norman
- 1976409** *Impact of Compound Flooding under Climate Extremes: A Case Study of East Boston*: **S Shokrana**, K Boukin, K M Strzepek
- 1920657** *Probabilistic Dam Break Flood Risk Mapping Using a Copula-Based Framework and GPU-Accelerated Hydrodynamic Model*: **S Balachandran**, S Gangrade, G R Ghimire, S C Kao, J Imran
- 1933727** *Probabilistic Flood Mapping for Idaho Under Precipitation Uncertainty Using a Computationally Efficient 2D Hydrodynamic Model*: **T Huang**, B Daniel, X Li

- 1927683** *Quantification of the Role of Internal Variability in Flood Inundation during Hurricane Ida*: **R Amorim**, G Villarini, A Michalek, S Menemenlis, G A Vecchi
- 1875259** *Rapid flood mapping using low complexity terrain-based techniques*: **S Bista**, S Poudel, R Talchabhadel
- 1876719** *Real-time Flood Extent Forecasting Using an Encoder-decoder ConvLSTM Integrated with Data Assimilation*: **Y Li**, H Lee, T L T Du, A Rostami, H H Wan
- 1976129** *Solutions of Diffusion Wave Equation Using Meshless Radial Basis Function Collocation Method for Flood Routing*: **I Karakan**, J F Jamal, H Chaudhry, J Imran
- 1998791** *Spatiotemporal Assessment of Flood Susceptibility Using Remote Sensing Indices and Random Forest Classification in Sunamganj District, Bangladesh*: **M R Hasan**, S Paul, F Sultana, S N Shara, S R Shuvo, H Saha

249767

Recent Advances in Remote Sensing and Modeling of Flood Inundation

Conveners: **Sagy Cohen**, University of Alabama; **Lori Schultz**, University of Alabama in Huntsville; **Arjen Haag**, Organization Not Listed; **Anupal Baruah**, University of Alabama

- 1865271** *A Comparative Analysis of Operational Multi-Method Flood Inundation Mapping: Quantifying Fidelity–Accuracy Tradeoffs*: **M S Sakib**, M Mowafy, H Wang, F Maghsoodifar, S Cohen, Y Tsang, D F Muñoz, P Ray, F Lei, H Moftakhari
- 1898079** *A Framework for Large-scale Flood Inundation Mapping and Evaluation over an Extensive Benchmark Database.*: **D Devi**, A Baruah, S Dhital, D Munasinghe, D Tian, S Cohen, Y Chen
- 1927783** *A Next-generation Flood Mapping System (RAPID v2.0): the 1-dimentional PDF Matching Outperforms 0-dimensional Threshold Comparison*: **X Shen**, M Xu, Q Zhang, W C Straka, J Torres, M Murphy
- 1931182** *Advanced Flood Detection Using Dual-PolSAR Decomposition and AI-Based Classification Models*: **S M Bateni**, S Kim, J Lee, S Janizadeh, D Kim, C Jun
- 1968375** *Benchmark Flood Inundation Mapping Using RGB Aerial Imagery and a Sub-Matrix Convolutional Neural Network*: **S Seyvani**, D Munasinghe, P Nikrou, S Cohen
- 1874149** *Bridging Return Period Gaps in Flood Inundation Mapping Using a Hybrid Deep Learning Approach*: **F Maghsoodifar**, M S Sakib, M Mowafy, H Wang, S Cohen, Y Tsang, H Moftakhari, D F Muñoz, P Ray, F Lei
- 1943723** *Capturing Peak Flood Conditions with Satellite Imagery*: **A Anders**, D Sidiropoulou-Velidou, J Ardila, A Joshi, K Jensen

- 1936135** *Sub-Kilometer Simulation of Pluvial and Fluvial Flooding Events Using E3SM-RDycore*: **G Bisht**, D Xu, J Johnson, J Brown, M Knepley, M F Adams, D Feng, D Hao, J Wolfe, Z Tan, M Kumar, P Bogenschutz, J Zhang
- 1922664** *Tiger-HLM: A GPU-Accelerated Distributed Hydrologic Model*: **M Binjolkar**, A Michalek, R Amorim, D Li, S Maebius, T Pu, A Biswas, S Ethier, G Villarini
- 1880033** *Toward Robust Large-scale Evaluations of Flood Inundation Predictions*: **S Cohen**, D Devi, D Munasinghe, A Baruah, D Tian, S Dhital, H Liu
- 1969616** *Transferable Flood Inundation Mapping Using Deep Learning Trained on LISFLOOD-FP Outputs and Synthetic Hydrographs*: **P Nikrou**, S Cohen
- 1865572** *Coastal Building Height Models from High-Resolution SAR Stereo Images for Hurricane Impact Modeling and Assessment*: **S Beninati**, S Frasier
- 1870446** *Commission Error Analysis and Correction in Remote Sensing Flood Maps Using an Object-Oriented, Hydrologically Informed Approach*: **D Tian**, H Liu, S Cohen, L Wang
- 1958792** *Deep learning for flood mapping using spatial, spectral, and temporal features*: **J Caineta**, M G Tulbure
- 1849233** *Deep learning to improve satellite-based flood mapping: a better VIIRS algorithm and insights using Geospatial Foundation Models on Planetscope, Sentinel-1, and Sentinel-2*: **B Tellman**, S Kaushik, PhD, A Saunders, Z Zhang, F S Policelli, D A Slayback, J Giezendanner, R Mukherjee, R Zhang
- 1848715** *DeepSARFlood: An Automated Platform for SAR-based Flood Inundation Mapping using Vision Transformers and Development of a Comprehensive National Database*: **M Saharia**, N Sharma, S S, M Saquib
- 1892978** *Enhanced Flood Mapping Through Coherent and Incoherent Change Detection: A Sentinel-1 SAR Time-Series Analysis*: **M Motagh**, S Hotaki, M Haghighi
- 1943281** *Enhanced Framework for Urban Flood Mapping: Fusion of Synthetic Aperture Radar Flood Extents with Auxiliary Data*: **A Khadka**
- 1949577** *Enhancing Large-Scale Flood Inundation Mapping through Process-Based Classification*: **D Baude**, R M Diehl, I U Haq, K Underwood, A B Prescott, B Wemple, B A A Lane, C B Phillips
- 1875760** *Enhancing River Channel Geometry Estimation for Bankfull Conditions in Iowa Using Machine Learning*: **M Rojas**, D Gilles, N Young
- 1930301** *Evaluating the Impact of Streamflow Nonstationarity on Flood Inundation Using Remote Sensing and Deep Learning*: **J Joseph**, N K D, V Merwade

- 1927264** *Evidence of chronic flooding from a global 10-meter flood-occurrence dataset:* **R Mukherjee**, T Chakraborty
- 1972276** *Examining Spatial Consistency of the Synthetic Rating Curves and Improvement in the Calibration Procedure:* **R Jamshidi**, E Beighley, K Pieper, C N Jones
- 1965765** *FastPLN: High-resolution GPU-accelerated Rapid Flood Mapping at Scale:* **B Alexander**, J Song, J Halgren
- 1973988** *Flood extent enhancement using terrain information for the OPERA Harmonized Landsat Sentinel-2 Dynamic Surface Water eXtent (DSWx-HLS) products:* **S K Do**, S Cohen, J B Eylander, S Crisanti, V Lakshmi
- 1910806** *Flood Hazard Mapping in A Selected Reach of Teesta River in India Using 2-D Hydrodynamic Model BRAHMA-FM:* **A K Sarma**, J Kashyap, A Handique, A Baruah, S Kalyani, K Kalita, A Kalita, R Choudhury
- 1942635** *Flood Mapping from GNSS Reflectometry: A CYGNSS-Based Deep Learning Product for Monitoring Inundation Events:* **R Alarcia Perez**, P T Setti Jr, S Tabibi
- 1887634** *FSM-GEE: An Open-Source Flood Susceptibility Mapping Toolkit:* **L Nguyen**, G Lee
- 1894751** *GEE-FMF: A Google Earth Engine-Based Machine Learning Framework for Efficient Regional Flood Mapping:* **S Zand**, H Moftakhari, E E Hamidi, H Moradkhani
- 1949588** *Generation of High-Resolution Flood Inundation Maps from Airborne Imagery Using Supervised Machine Learning:* **D Munasinghe**, S Cohen, D Tian, H Liu, A Baruah, D Devi
- 1877335** *Improving Flood Inundation Mapping Using SAR Imagery and Deep Learning Models:* **M K Hong**, J Seo, H Seo, Y Kim
- 2002747** *Improving HAND-Based Water Depth Estimates with Machine Learning-Derived SAR Water Extent Maps:* **M Jo**, A Albayrak, B Osmanoglu, F J Meyer, L A Schultz
- 2001275** *Improving NOAA-OWP HAND Flood Depth Estimation with Machine Learning-Based Surrogate Modeling:* **P Sidhu**, D Devi, A Baruah, S Cohen
- 1957497** *Integrating Diverse Flood Inundation Datasets into a Harmonized Database and Visualization Framework for Enhanced Decision Support:* **P Wagle**, J Nelson, R Hales, L Rosas, I Demir
- 1941584** *Integrating High-Temporal X-band SAR Imagery with HEC-RAS 2D Simulations for Enhanced Flood Analysis:* **Y Cho, PhD**, R Tan, J Noh
- 1991358** *Integrating Hydraulic Models and Sentinel-1 Observation for Flood Mapping in North Carolina:* **Y Li**, E Beighley, K Pieper, C N Jones
- 2003743** *Investigating the Usefulness of Terrain-Based Flood Mapping for Probabilistic Flood Inundation:* **S Henao Gomez**, H J Vergara, PhD, M Abdelkader, C Szpilka, K M Dresback
- 1961803** *Multimodal Post-Flood Water Extent Mapping With SAR and Incomplete Multispectral Data Using a Spatially Masked Adaptive Gated Network:* **H Lee**, W Li
- 1876583** *Operational flood inundation detection from Sentinel-1 GRD time series using Bayesian change point analysis:* **N Tsutsumida**
- 1857175** *Physics-guided super-resolution downscaling for national urban FIM:* **S Bryant**
- 1925808** *Predicting the Accuracy of Flood Inundation Forecasts from Terrain Variability:* **J Castejon Villalobos**, A Lee, N Patterson, R M Diehl, B A A Lane, C B Phillips
- 1914776** *Probabilistic High-Resolution Flood Maps from Ensembles of Downscaled Compound Flood Inundation in Southeast Texas:* **M K Wang**, P Passalacqua, E Coon, S S Rathore, G Perez
- 1989666** *SAR-Based Flood Inundation and Crop Damage Mapping in the 2024 Feni River Basin: Overcoming Optical and Ground Truthing Challenges with DEM Integration and Remote Sensing Proxies:* **M M Hasan Saikot**, M I Islam, S M S Sian, B Roy, A S Forhadun Nabi
- 1893968** *Satellite-Based Flood Inundation Mapping Using Sentinel-1 and Land Cover Data: A Case Study of Hurricane Florence:* **Y J Choung**, S J Burian, D R Vallee
- 1954354** *Seeing the Flood: Sensor Accuracy across Landscapes:* **E Vail**, M G Tulbure, R Composto, V Tiwari, J Caineta, M Gaines
- 1922081** *Sensitivity of Terrain-based Flood Inundation Model (OWP HAND-FIM) Predictions to Channel Geometry: Insights from Bathymetric Adjustments of Rating Curves:* **R Zarrabi**, S Cohen, C Pruitt, A Baruah, G Petrochenkov, R McDermott
- 1969582** *Stage-Specific Intercomparison of Five Flood Inundation Models Across the Rising and Falling Limbs of a Flood Event:* **P Nikrou**, S Seyvani, S Gangrade, J L Gutenson, D Tian, A Baruah, M L Follum, S C Kao, S Cohen
- 1894564** *Urban Flood Mapping: Are Satellite- and Process-Based Methods Aligned?:* **R Composto**, M G Tulbure, M Gaines, V Tiwari, J Caineta, E Vail

249161

Remote Sensing of Rivers, Lakes, Reservoirs, and Wetlands (joint with EP, G, GC, NH)

Conveners: **Ethan Shavers**, Organization Not Listed; **George Allen**, Virginia Tech; **Jérôme Benveniste**, European Space Research Institute; **Jessica Fayne**, University of Michigan Ann Arbor; **Ann Scheliga**, University of California Berkeley

1874955 *A Novel Approach Integrating Satellite Data and Geometry-Based Hypsometric Relationships to Enhance Reservoir Storage Estimates:* **N T Nguyen**, H Lee, T L T Du, H Y Li, D D Bui, H C Jung

1852998 *Analysis of the Mechanisms Involved in Glacial Lake Outburst Flooding in Nyalam, Southern Tibet, in 2018 Based on Multi-Source Data:* **W Jiang**

1946485 *Analyzing Coastline Variations in Taiwan Using Multi-Temporal SAR Data:* **T Y Lai**, K H Tseng

1909489 *Assessing Freshwater Lake Decline in Pakistan Using Multi-Temporal Remote Sensing and Hydrological Data:* **N Saddique**, I Khan, A R Islam, M Aleem, S M S Abbas, S Aftab, M Ahmad, H Arshad

1924382 *Assessment of Sediment Dynamics in Lake Powell, Glen Canyon Dam Colorado using Remote Sensing:* **R Haiju**, S Rupper, R R Forster

1908685 *Automated and Accurate Surface Water Delineation: Dynamic Threshold Discovery via Iterative Random Forest and Spectral Indices:* **M Hosseinipoor**, A M Kafi, F Ghaffari, M Tajrishy

1892134 *Bridging the Data Gap: Global Mapping of Small Water Reservoirs and Estimating their Storage Capacity:* **S Govindaiah Narayanaswamy**, M Aminzadeh, K Madani, N Shokri

1871047 *Constructing a High-Resolution Reservoir Dataset Across the Contiguous United States Using Sentinel-1 SAR Imagery:* **S Wang**, H Liu, Y Pu, H Su, L Wang, S Shu, D Tian, J Seo, M C LaFavor

1858138 *Daily CYGNSS Water Maps Reveal Inland Water Hot Spots and Hot Moments, from Wetlands to Floodplains:* **T Pu**, C Gerlein-Safdi, K Stephens, Q Euler

1883133 *Declassified and historical Remote Sensing data for reconstructing fluvial landscapes submerged by dams in climate-sensitive regions:* **R S Azzoni**, L Forti, A Brenna, A Zerboni

1985656 *Derivation of Full-Depth Velocity Profiles across River Channels by using Drone-based Particle Imaging Velocimetry and Entry-based Velocity Distribution Model:* **L Wang**, H Liu, J Seo, D Tian, S Shu, S Cohen

1897350 *Detecting and Mapping Alpine Peatlands with Satellite Remote Sensing:* **S Silvestri**, Q Li, A Pollo, E Tomassone, R Di Paolo, M C Siniscalco

1938031 *Development of a Reservoir Operation Module Integrating Optical Satellite Imagery from Google Earth Engine with a Watershed Model:* **Y Cho, PhD**, Y G Park, J Yi

1894594 *Does drought intensify algal blooms in global lakes?:* **T Kim**, H Lee, S Yang, Y Cha

1978985 *Estimating Lake Storage Variations using a Fusion of SWOT and Dynamic Surface Water Extent (DSWx):* **M Tom**, M Bonnema

2002106 *Evaluating Evaporation Data Products Over Colombian Reservoirs for Improved Water Balance Assessments:* **J V Fayne**, A M Gomez

1922575 *Evaluating the Accuracy and Consistency of Satellite-Derived Lake Surface Water Temperature Across Multiple Missions:* **S Zhang**, D Shah, C H Huang, H Gao

1915247 *Exploring Atmospheric Correction Methods for PACE-Based HAB Retrieval:* **N Tesfayi**, A Kumar, C Maniyar, I Fiorentino, D R Mishra

1955018 *Flood Inundation Mapping from Space: Overview of a Novel Approach for Tracking River Inundation Extent Over Time:* **N Pasley**, A Whaling

1994069 *Global Large River Observatory: What River Geomorphic Dynamics Could Be Monitored Today, but Still Aren't:* **S Bizzi**, N Surian, E Bozzolan, A Brenna, M Cecchetto, E Taffetani, E Matteligh, F Vanzani, P Carbonneau

1898598 *Global Patterns of Post-Drought Recovery Times in Lakes and Reservoirs:* **C H Huang**, D Shah, H Gao

1954191 *Global Stream Roughness Coefficient Dataset:* **E J Shavers**, M Harlan, D M Bjerklie, G Md Iftakher Morshed

1927986 *Hydrological Assessment of Transboundary Water Resources Dynamics in the Rio Grande River Basin Using Google Earth Engine:* **D Dayal**, S S Palmate, R Sanchez

1970213 *Identifying and characterizing lake ecosystem tipping points with ESA's Climate Change Initiative (CCI) satellite data products:* **A Scheliga**, D Odermatt, E Calamita, C Binding, I Woolway

1928309 *Impact of optical satellite imagery spatial scale on methane emission estimates from small water bodies:* **M Gaines**, M G Tulbure, M Ardon, V Perin, V Tiwari, R Composto, J Caineta

1962404 *Impact of Urbanization and Precipitation Change on Discharge in Bangkok, Thailand:* **G Bowen**, J Fayne

- 1882911** *Integrating SLAM and UAV-LiDAR to Establish a Tree Height-DBH Power law model and UAV - Based Carbon Stock Estimation for Willow Stands in a abandoned paddy wetlands:* **G Jekal**, Y Yang, S Lee, Y Song
- 1884307** *Integrating UAV-Based Remote Sensing and In-Situ Monitoring for High-Resolution Water Quality Assessment in North River and Lake Tuscaloosa:* **G Sunday**, A Premasagar, E Miliutina, G J Tapat, B Gutierrez, J Seo, H Liu
- 1894474** *INTEGRATION OF MULTI-SENSOR REMOTE SENSING FOR ENVIRONMENTAL MONITORING: ASSESSMENT OF WETLAND DEGRADATION IN SEMI-ARID ECOSYSTEMS:* **R W Aslam**, I Naz, Z Afzal
- 1879814** *Investigating Lake Ice Phenology in Arctic Wetlands using Planet and Sentinel-2 Imagery:* **N Jacobs**, S W Cooley
- 1934066** *Long-term trends of surface temperature and evaporation in the largest South America lakes revealed by remote sensing:* **J B Rossi**, A S Fleischmann, L Laipelt, B C C de Andrade, J B Fisher, I Woolway, R S do Vale, R A S D Santana, J Tota, A Ruhoff
- 1960507** *Monitoring Chlorophyll-a Dynamics in the Tennessee River Through Spatio-Temporal Analysis with Google Earth Engine:* **A Sherrill**, A A A Hossain
- 1860236** *Monitoring Dynamic Shifts in Dissolved Organic Matter (DOM) Using Satellite Remote Sensing at a Large River Confluence:* **Y Lu**, H Liu, S Chen, E Miliutina, A Premasagar, M Xu, H Su, J Men
- 1883330** *Monitoring Inland Water Bodies from Old and New Generation of Satellite Radar Altimetry Missions:* **S Roohi**, S Dinardo, J I Oliva, Y T Song
- 2003267** *Monitoring monthly groundwater level variation in the Nebraska Sandhills using remote sensing:* **N Shrestha**, T Gilmore, A Mittelstet, A Young, M Joeckel R
- 2001001** *Morphometric Analysis and Geomorphic Indices of Active Tectonics in the Wabash Valley Seismic Zone:* **S Parajuli**, R Counts, A Bhandari
- 1951844** *Multi-Decadal Aquatic Vegetation Dynamics in a Regulated River System Using Remote Sensing Records:* **C Hansen**, K Stewart, P Matson
- 1957037** *Multitemporal Variations in River Width Distributions and Hydraulic Geometry in the Platte River Basin:* **D Go**, G H Allen
- 1998462** *Near Daily Ice Cover Records from 100,000 Lakes Using Optical Satellite Imagery:* **A N Thellman**, T Pavelsky, X Yang
- 1940289** *Quantitative analysis of the impact of drought on reservoir operations at the Global Scale:* **N K Biswas**, S V Kumar
- 2001072** *Recent Updates on ICESat-2 Inland Water Products of Global Lakes, Reservoirs, Rivers and Coastal Waters:* **M F Jasinski**
- 1846996** *Reducing Error in Image-Based River Velocity Estimation: The Role of Ground Control Point Positioning and Camera Orientation:* **S Mandipe**, P Rameshwaran, A Wade, N Everard
- 2004874** *Remote sensing data for peatland monitoring: applications of multi-temporal SAR interferometry for surface motion analysis:* **C Bignami**, C Tolomei, L Beccaro, S Salvi, G Lopez Saldana, M Bechtold, K Tansey
- 1921716** *Remote Sensing Derived Spring Ice-Jam Flood Extents to Inform Environmental Flow Assessments for the Peace-Athabasca Delta Ecosystem in Western Canada:* **D L Peters, PhD**, N Van Nieuwenhuizen, S Beltaos, G Siles
- 1997709** *Remote Sensing of Carotenoid Pigments in Transient Hypersaline Lakes in Western Australia as an Indicator of Environmental Change Through Time:* **T Plattner**, B Schmidt, P Lange, S M Som, B Klempay, E R Paris, M M Weng, J S Bowman, N M M Fernandez, E Skoog, H T Jamison, E D Ingall, P T Doran, M Birmingham, J Weber, A T Schartup, S Buessecker, E Quartini, L Fisher, C Sephus, C Pozarycki, A Odenheimer, M Towner
- 1988815** *Remote Sensing of Discharge through Critical Flow Theory: Sensitivity Analysis:* **I Bae**, E Yager, B Fasth, D White, C Leonard, G E Grant
- 1959138** *Remote Sensing of Inland Water Quality for the Contiguous United States:* **T King**, S Ducar, D Avouris, K Wnuk, T Stagnitta, B Wakefield, M F Meyer, W Salls, J Eggleston, J A Hansen, T Bergamaschi, J Marshall
- 1937142** *RiverScope: High-Resolution River Masking Dataset:* **R Daroya**, T Rowley, J A Flores, E Friedmann, F Bennitt, H An, T T Simmons, M J Hughes, C Kluetmeier, S Kica, J D Velez, S Esenther, T Howard, Y Ye, A Turcotte, C J Gleason, S Maji
- 1945205** *Sedimentation and Storage Capacity Assessment of Reservoirs Using Remote Sensing Techniques:* **A Tiwari**, A Mishra, K Kothari
- 1873878** *Shrinking lakes, Shifting color: Long-Term Surface Reflectance Trends Linked to Lake Shrinkage in Great Basin Saline Lakes:* **H Meier**, M F Meyer, B Steele, N Taylor, J A Wang
- 1969317** *SWOT Reveals a Spectrum of Seasonal Backwater Dynamics on Large, Coastal Rivers:* **J H Gearon**, T Pavelsky, J Wang
- 1882231** *Temporal bias in the Landsat-derived surface water record:* **E Webb**, S W Cooley, E Levenson

1967264 *The Case for Calibration: A Remote Sensing Tool for Wetland Monitoring in the Prairie Pot-hole Region:* **M Church**, K Kemink, S Gowravaram, T Riecke, J L O'Connell

1880462 *The Influence of Flow Regime and Channel Planform on Natural Floodplain Heterogeneity in the U.S.:* **E Iskin**, E Wohl

1895555 *The Mercurial Bay: A Remote Sensing Assessment of Dynamic Surface Water Mercury Concentrations after Atmospheric Rivers in San Francisco Bay:* **N Taylor**, K B Byrd, M C Marvin-DiPasquale, J Fleck, B A Bergamaschi, J Agee, E T Richardson, C W Cheang, E Kakouros, N Wilson

1893847 *Tracking River Flow Dynamics Using LSPIV: Insights from July 16, 2024, Flood in Black Creek, Toronto, Canada:* **A Olusola**

249666

Remote Sensing of Soil Processes (joint with A, B, GC, NH)

Conveners: **Vinit Sehgal**, Louisiana State University; **Noemi Vergopolan**, Rice University; **Andrew Feldman**, NASA Goddard Space Flight Center

1947267 *Advancing the Understanding of Agroecosystem Soil Process with Integrated Earth Observations and Process-based Modeling:* **K Guan**, B Peng, S Wang, Z Ma, Q Zhou, L Ye

1906168 *Assessment of Soil Moisture Relationship with Gross Primary Production Using Remote Sensing:* **P Momenian**, V Sehgal

1933313 *Can we estimate (dynamic) active root zone depth using remote sensing data?:* **D Mishra**, V Sehgal, B Mohanty

1950364 *Dynamic Regulation of Critical Soil Moisture Thresholds and Land-Atmosphere Interactions Across Biomes:* **A Khandare**, V Chandel, K Lanka, S Ghosh

252495

Research to operations for water resources (joint with A, GC, NH)

Conveners: **Cameron Bracken**, Portland State University; **Andrew Verdin**, University of Colorado at Boulder; **Kathleen Holman**, Bureau of Reclamation Denver; **Chris Frans**, Univ of Washington

1867210 *A Hybrid Empirical and Conceptual Model for Improving Reservoir Representation in Hydrological Models:* **Y Chen**, Y Zheng, X Cai

2000445 *Using Remote Sensing to map the presence and abundance of Manoomin (Wild Rice) in the Great Lakes region:* **K A Cherkauer**, A Adepeju

1971631 *Using Sentinel-1 data to assess the impact of hydroclimatic extremes on water reservoirs:* **N Wielgocka**, P Boguslawski, D Teodorczyk, Z Cai, R Stodolak

1944319 *Using the SWOT Satellite to Assess Global Models of Individual Rivers:* **C J Gleason**, P D Bates

1956244 *Validating SWOT River Observations in Remote and Ungaged Basins Using In Situ and ADCP Measurements:* **M Harlan**, D M Bjerklie, D Feng, J A Andriambeloson, M Mukendoyi

1958254 *Water Color Variation in Texas Reservoirs Across Wet and Dry Years: Linking Remote Sensing with Public Water Data:* **M Macleod**, L Pinheiro-Silva, X Yang, S M Powers

1953961 *Estimation of Rootzone Soil Moisture Dynamics Under Indian Summer Monsoon Conditions:* **A Y Naidu**, S Singh, B Mohanty

1896471 *From soil water to soil water potential: challenges and opportunities across the soil-plant-atmosphere continuum:* **J K Green**, A Ballantyne, K Novick, Z H Hoylman, D Ketchum, D P Beverly, A Crookshanks, M G Schaap

1933783 *Landsat-based Multi-decadal Mapping of SOC Stocks Variability in Salt Marshes of Coastal Georgia:* **R Sharma**, D R Mishra

1876744 *Remote Sensing-based Soil Moisture Estimation in the Irrigation District by Integrating Crop-Specific Differences through a Hybrid Deep Learning-based Approach:* **S Du**, Y Zha, Y Ji, Y Wang, X Xu, Y Liu, M Zheng, Y Zhang, S Wu, T Yang

1937166 *Soil Moisture Estimation Using Hyperspectral Data: A Case Study Using FSSCat Mission:* **F O Omada**, P Biswas Paul, S R Singha

1966348 *Using InSAR to analyze subsidence and sinkage in the Blue & White Golf Course:* **M Marquez**, R Housego, R Bussard, C Wauthier

1867441 *Actionable ensemble hydrometeorological modeling and uncertainty quantification for partners and users:* **A J Newman**, N Lybarger, S Hartke, A Wood, E D Gutmann, A Stone, K Holman, J F England, M Warner, C Mueller, F Lehner

1904936 *AWSOM-2: A Climate-Informed Decision-Support Tool for Hydropower Operations in Samoa:* **H Marley**, J Sturman, A Porteous, B Miville, K Fa'asau, T E Fau'olo

1977939 *Balancing Hydroelectricity Generating against Evaporative Losses in Arid Regions: An Operation Strategy Analysis:* **R Zeng**, F W Hung

- 1974631** *Co-design as an Approach to Facilitating R2O Transitions in Water Management: an Example From the Great Lakes:* **N Hernandez**, R Ravary, L M Fry, Y Hong, D Jones
- 1932521** *Data-Driven Models for Steady Levee Breach Flows:* **S Balachandran**, E Elalfy, M Erfani, E Goharian, H Chaudhry, J Imran
- 1906142** *Definition of Operational Resilience in Pumped Storage Hydropower Systems:* **D H KIM**, S O Lee
- 1961916** *Expanding the Representation of Hydrologic Uncertainty to Better Understand Risks to Endangered Salmon in California's Central Valley:* **J M Gilbert**, R Sherrick
- 1845695** *EXPERIMENTAL AND NUMERICAL MODELLING OF FLOW OVER CASCADE OF STEPS IN SKIMMING FLOW:* **R Mishra**, C S P Ojha
- 1969355** *Flood Risk at Scale: Evaluating resilience of 8000 large culverts Across New York State:* **O Emamjomehzadeh**, O Wani
- 1952006** *Framework for CONUS-wide Operational Seasonal Hydropower Forecasts:* **G Konapala**, C Bracken, N Voisin
- 1996702** *From the Margins to the Mainstream: Repositioning Water in Global Climate Governance Through the Baku Water Dialogue:* **S Hammond Antwi**

247973

River Water Temperature: Patterns, Processes, Impacts and Management (cosponsored by CGU: Canadian Geophysical Union, EGU: European Geosciences Union, ESA: Ecological Society of America)

Conveners: **Christa Kelleher**, Duke University; **David Hannah**, University of Birmingham; **Lorrayne Miralha**, Ohio State University Main Campus; **Andras Szeitz**, McMaster University

- 1894847** *Air and Stream Water Temperature Signals Identify Management and Watershed Characteristics Influencing Thermal Sensitivity:* **F H Mejia**, M Synder, D Hockman-Wert, J Dunham, C Hirsch, V Wilson
- 1956259** *Cooler Waters, Reconnected Valleys: Restoration Gains from Milldam Legacy Sediment Removal:* **S Y Chang**, R C Walter, M Aaronson, T Feng, M Rahnis, D Merritts
- 1848687** *Decadal trends in seasonal and annual streamflow and stream temperature across the United States:* **T Stagnitta**, B A Ebel, Z Johnson, J Ayers
- 1896832** *Does Stream Temperature Display An Upper Bound In Regions Across the United States?:* **A McElroy**, R Snyders, C Kelleher

- 1911218** *Glen Canyon Dam and the Post-2026 EIS: Navigating Operational Uncertainty and Hydropower Impacts:* **Q M Ploussard, PhD**, M Pavicevic, Y Ao
- 1969461** *Incorporating Inflow Uncertainty into Reservoir Optimization: A Case Study of the Colorado River Storage Project and Aspinall Cascade:* **M Pavicevic**, Y Ao, Q M Ploussard, PhD
- 1994909** *Modular Physical Hydraulic Models for Improving Deep Stormwater Tunnel Operation:* **S Woo**, C Son, J Park, W Na, M Kim
- 1918992** *Operationalization of hydroclimate research within Great Lakes adaptive management: recent successes, challenges, and science priorities:* **L M Fry**, F Seglenieks, D Fielder, S Steinschneider, D Cannon, D Jones
- 1948106** *The role of behavioral preferences in multi-stakeholder water emergency decision-making:* **J Huang**, Y Zhang, W Mo
- 2001183** *Using FIRO to Understand Reservoir Operational Resilience Under Variable Hydrometeorological Conditions at Howard A. Hanson Dam in Washington State:* **M Warner**, J Kalansky, D R Cayan, J Harrell, P Yao, L Su, M Pan, C Castellano, R Luna Niño, M Ralph, C Talbot
- 1868719** *Using Social Science Research to Help Improve Forecast Product Design, Delivery and Accessibility to Support Decision-Making:* **K Semmens**, R H Carr, K Maxfield, B Montz, P Painter
- 1862558** *Evaluating the Causes and Future Frequency of Extreme River Temperatures in Alaskan Rivers:* **D Blaskey**, M N Gooseff, Y Cheng, A J Newman, K N Musselman
- 1919465** *From viable to valuable: Iterative advancements in national stream temperature modeling:* **J R Barclay**, L Koenig, J Diaz, S Oliver, M Bresee, Y Fan, X Jia, A Appling, G Gorski
- 1902983** *How Far is Too Far? Varying Roles of Groundwater Source Temperature Modulation in Salmon-Bearing Streams:* **T Brigino**, K Rains, E Wilson, P Spellman, S Bentz, L Sutton, M C Rains
- 1926657** *Identifying the drivers of riverine thermal regime alterations downstream from large United States dams:* **E A Ellis**, G H Allen, C E Torgersen, C Kelleher, R Riggs
- 1978347** *Large-Scale Analysis of Post-Wildfire River Water Temperature with Ungaged Modeling:* **T S Hogue**, D Philippus, C R Corona
- 1968131** *Leveraging Multiple Temporal Scales for Probabilistic Stream Temperature Forecasting:* **A Badithela**, V Kumar, A Renganathan, W A McAliley, J A Zwart
- 2000329** *Long-term Water Temperature Warming and Hydroclimatic Change in Montane Streams of the National Park Service Network:* **T Kuhn**, H R Barnard, A Birch, E W Schweiger

1973317 *Modeling Mid-century River Temperature Changes Using Different Atmospheric-Land Surface Models Across Southeast Alaska, USA:* **C Gilbert**, T Eidhammer, A J Newman, P B Kirchner, K N Musselman

1925645 *Modeling River Temperature Dynamics in Regulated Basins Using Combined Machine Learning and Physics-Based Approaches:* **S W D Turner**, A H Tanim, M A B B Siddik, J Gomez-Velez, S C Kao, C Montgomery, M P Massey

1847617 *Population Parameters, Exploitation Rate, and Diet of Crevalle Jack {*Caranx hippos*, Linnaeus, 1766}, Red Snapper {*Lutjanus camepechanus*, Poey, 1860} and African Thread Fin {*Polydactylus quadrifilis*, Cuvier, 1829} From Porto-Novo Lagoon, Benin Republic:* **H Ajao**

252233

Root-Soil-Water Nexus: Integrating Perspectives Across Scales and Disciplines (joint with B)

Conveners: **Sara Cerasoli**, Princeton University; **Sara Bonetti**, University College London; **Salvatore Calabrese**, Texas A&M University; **Bryn Morgan**, Massachusetts Institute of Technology; **Shashank Kumar Anand**, Texas A&M University

1883433 *Assessing agroecosystem resilience with a novel approach for vegetation-accessible water-storage capacity.:* **N Romano**, C Mazzitelli, P Nasta

1929305 *Engineering the Underworld: Reimagining Roots as Drivers of Soil System Function:* **X Takver**, M Dumont, R Yilangai, A H Ahkami, H R Barnard, S A Billings, W Chrisler, R K Chu, C Clendinen, J Fulcher, E B Graham, N Munoz, K Singha, P L Sullivan

1928999 *Exploring the Potential of Coupling Data-Driven Root-Distribution Estimation with Process-Based Hydrological Modeling for Improved Water-Balance Simulations:* **B Li**, H Ajami, D Hirmas, S A Billings, J B Nippert, K Singha, M Amato, A N Flores, L Li, P L Sullivan

250070

Runoff Generation Processes: Exploring Thresholds, Sources, and Pathways from Plot to Continental Scales (joint with B, NH)

Conveners: **Aliva Nanda**, Indian Institute of Technology Mandi; **Nitin Singh**, Auburn University; **Kevin McGuire**, Virginia Polytechnic Institute and State University; **Bryn Stewart**, California Institute of Technology; **Ryoko Araki**, University of California Santa Barbara

1868480 *A Fill-and-Spill Framework for Modeling Urban Surface Runoff:* **L Techapinyawat**, H Zhang

1929042 *Riverine heatwaves on the rise, outpacing air heatwaves:* **K Sadayappan**, L Li

1918595 *Storage Regulates Stream Temperature Response to a Mixed Severity Fire in Mountainous Headwaters:* **Z Perry**, C Segura

1864978 *Stream Energy Balance Variability Across Four sub-Arctic Headwater Catchments in Yukon, Canada:* **A J Szeitz**, S Carey

1896885 *Understanding Longitudinal Change of River Temperatures:* **R Snyders**, A McElroy, C Kelleher

1995353 *What Controls the Spatial Variation in Thermal Sensitivity in a Cascades River Basin?:* **S Milburn**, H Chang, M Krochta

1975389 *Gauging Salinity's Impact on Root Water Uptake and Testing for Hydraulic Redistribution in Pecan (*Carya illinoensis*):* **D Turley**, S R Hartzell

1955693 *Hydrologic Sustainability of a Dryland Tree-Grass Ecosystem in the Mediterranean Region Under Climate Change: the Role of the Rock Moisture:* **N Montaldo**, S Sirigu, R Corona

1987524 *Root System Architecture and Resource Allocation Strategies Under Heterogeneous Soil Moisture: Divergent Adaptations of Co-Dominant Temperate Trees:* **S J Tumber-Dávila**, J Burks, T Muratore, L Roelofs, S G Welsh

1947415 *Root Water Uptake Strategies of Contrasting Wheat Genotypes Revealed by Electrical Resistivity Tomography:* **N Schwartz**, E Akaerue

1989751 *Sugarcane Water Source Use and the Importance of Deep Water in Both Wet and Drought Years in a Water-Abundant Agroecosystem:* **P Ellsworth**, P White

1899185 *What Drives Soil Structural Development and Water Flow in Soils with Shallow Lithic Contacts?:* **V Varikuti**, M Bronnikova, D Hirmas, H Ajami, J Pachon, J B Nippert, P L Sullivan, L Li, S A Billings, A N Flores

1942978 *A Physically-Based Scalable Hillslope Runoff Module for Large-Domain Hydrologic Modeling:* **T Sayama**, Y Sugawra Dr

1966262 *Application of the SCS-CN Method for Runoff Estimation using Google Earth Engine in the GBM Basin of Bangladesh:* **M H Nahian**, S M T Zahid

1854591 *Causative Classification of Streamflow Event Generation Processes: a Tool for Understanding Hydrometeorological and Water Quality Extremes:* **L Tarasova**, F Saavedra

1977108 *Climate-Driven Transformation of Rainfall-Stormflow Relationships Worldwide:* **F Jalili Pirani**, A Ameli

- 1951801** *Controls on regional variations of inter-annual rainfall-runoff relationship: A quantitative framework based on coevolution:* **X Chen**, M Sivapalan, G Bloeschl
- 1903167** *Effects of Hillslope-Channel Network Connectivity on Runoff Response to Rainfall:* **M Li**, H Beria, H Seybold, I van Meerveld, J W Kirchner, P A Raymond
- 1976895** *Interpreting Runoff Responses in Tropical Watersheds Using Soil Moisture Profile Gradients:* **Y W Pan**, Y Tsang
- 1881804** *Mapping hydrologic processes at continental to global scales:* **H K McMillan**

250890

Saline Lakes: From Science to Solutions (joint with GC, SY)

Conveners: **Isabella Arzeno-Soltero**, University of California at Los Angeles; **Mara Freilich**, Brown University; **Diego Centeno**, University of California Los Angeles; **Alejandra Lopez**, Brown University

- 1998087** *Advancing Hypersaline Lake Modeling by Coupling Salt Cycling and Evolving Bathymetry: A Case Study of Lake Urmia:* **A Habibi-Komeni**, A Safaie

251643

Science in Action: NASA Earth Observations Enabling Advances in Water Management (joint with SY)

Conveners: **Erin Urquhart**, Oak Ridge Institute of Science and Education; **Craig Ferguson**, Atmospheric Sciences Research Center; **Jared Entin**, NASA Headquarters; **Perry Oddo**, Pennsylvania State University Main Campus

- 1957531** *A Collaborative Human-Centered Design Approach Towards New NASA Products for Satellite Snow Monitoring:* **A Marziliano**, Y C Lin, E Metcalf, C Frans
- 1998736** *Applications of Machine Learning in Enhancing Evaporation Estimation for Small Reservoirs: A Case Study in Semi-Arid South Texas:* **S M F Abdullah**, C L Cheng, J Benavides, R Almeida, J Ho
- 1956777** *Applying EVDT framework to assess socioeconomic vulnerability and drought severity using SMAP satellite data to support decision-making needs:* **M S Islam, PhD**, Y Kuwayama, D Entekhabi, C Lu, K M Turner, Z Joao, V Filipe Pereira, O Porto, L Lupedia, I Rodrigues, D Wood

- 1935987** *Role of entrapped pore air pressure in soil layer and bedrock layers in rainfall-runoff processes in small headwater catchment:* **S Iwagami**, S Noguchi, T Oda, T Kubota
- 1943892** *Seasonal variations in stable water isotopic compositions along an elevational gradient in a high-mountain Alpine catchment:* **N Islam**, T Gribbin, J Mallalieu, N Barrand, D M Hannah, PhD
- 1994572** *Using Hydrologic Signatures to Detect Changes in Dominant Hydrologic Processes Throughout the Year:* **K Hinke**, H K McMillan
- 1982014** *Watershed-Scale Soil Classification from Hillslope Infiltration Data for Flash Flood Modeling:* **R Beyer**, D D Cadol, T A Dahl, I E Floyd
- 1933506** *Forecasting Hydrogen Sulfide Emissions Using Satellite-Derived Water Quality Metrics and Machine Learning at the Salton Sea, California:* **A Lopez**, M Freilich, I B Arzeno-Soltero
- 1892488** *From locals to labs: Community science reveals seasonal phytoplankton patterns in the Salton Sea:* **A Aguayo**, M Freilich, A Lopez, A Palomino, R G Sinclair, I B Arzeno-Soltero, A Krinos, J Taboada
- 1886942** *Mixing Dynamics in Eutrophic, Hypersaline Mono Lake, CA, during Meromixis:* **S MacIntyre**, J M Melack, R Jellison
- 1981922** *ET workflows and analytics for Maize water footprint and productivity estimates in arid to semi arid irrigation districts in Mexico:* **S Jimenez-Jimenez**, M Marcial-Pablo, E Sifuentes-Ibarra, F Munoz-Arriola
- 1985926** *Evaluating Climate Vulnerability of Groundwater Dependent Ecosystems in Western U.S. National Parks using Earth Observations:* **A C Brooks**, E Jensen, S Rice, D J Lawrence, S Majumdar, J Umek, T Gilkerson, M B Hausner, J L Huntington
- 1970837** *Forecasting Major Flood Events in the Sudd Wetlands of South Sudan: Leveraging Satellite Datasets and Earth System Models for Science-Based Decision Support:* **K Slinski**, M S Pervez, J P Verdin, A Hazra, A McNally, K M Tabor, L Harrison, S Shukla, C C Funk, C Shitote, M E Budde
- 1998056** *From Demand to Use: Evaluating Forecast-Based Reference Evapotranspiration and Satellite-Derived Evapotranspiration in California Agriculture:* **R Mitra**, A Daccache, A Montazar, M K Gebremichael, PhD
- 1902111** *From Pixels to Operational Forecasting: Assessing a Distributed Process-based Snowmelt Model informed by Remotely Sensed Snow Albedo Across the Upper Colorado River Headwater Basins:* **J M Hu**, J Meyer, S M Skiles

- 1959508** *Global Riverine Flood Inundation Maps for the GEOGLOWS River Forecast System Using ARC and Curve2Flood with Ensembles of DEMs:* **L Rosas**, R Hales, J Nelson, P Wagle, M L Follum, J L Gutenson, A L Gutierrez
- 1967702** *Global SAR-Based Inundation and Crop Yield Forecasting System for Decision Support:* **C Gangodagamage**, R M Tshimanga, S Lamont, T E Adams III, K Matta, S Venukanthan, I Randila Bandara Kandegedara, L Dilshan, C M Birkett, R Dulnath, M T Durand, P Palihena
- 1957835** *Groundwater Depletion Amid Recharge Efforts in the San Luis Valley, Colorado: Insights from In-Situ and Satellite Data:* **A Al Fatta**, R Smith, S Vajedian, W Schreuder, J J Butler Jr
- 1960878** *How does climate influence evaporation suppression efficiency in shallow water reservoirs covered with floating elements?:* **E Mashayekh**, M Aminzadeh, D Or, H R Safavi, N Shokri, L Farhadi
- 1923432** *Identifying Drivers of Hydrological Change to Support Adaptive Water Management Under Mega-drought in Santiago, Chile:* **K Cullen**, M Mills-Novoa, M Giroto, S Vicuña, R B Lammers
- 1970601** *Integrating Metadata into US Irrigation Remote Sensing Products for Enhanced Usability:* **J Rapp**, A D Kendall
- 2000926** *Investigating the Utility of Satellite Earth Observations to Characterize Mesoscale Convective Systems for Actionable Flash Flood Forecasts:* **H J Vergara, PhD, V Robledo**
- 1994454** *Less is more: Strategic snowpack observations outperform basin-wide mapping for water supply predictions across the western U.S.:* **M S Raleigh**, E E Small, E Bair, C Wobus, K Rittger
- 1934478** *Lessons from Implementing a Root-Zone Soil Moisture Data Assimilation System for Vineyard Irrigation Management:* **F Lei**, Q Uthman, C Hain, Y Yang
- 1984809** *Linkage of OpenET with irrigation decision support systems in the Western U.S.:* **A Kilic**, L Johnson, M Cahn, T Peters, A Andales, S Ortega-Salazar, T Martin, R G Allen, M Shyaka, W Yilma
- 1854184** *Reaching ARL 9: Advancing a Nasa-Driven Operational Water Resources Tool with the New Mexico Office of the State Engineer:* **S Davidoff**, R Stonebreaker, H Hatch, R Joshi, J Valdez, M Nelson, G H Halverson, M Pascolini-Campbell, S Cooley, J B Fisher
- 1939885** *RECLAIM: A Machine Learning Approach to Estimating Reservoir Storage Loss from Sedimentation:* **S Minocha**, F Hossain
- 1935175** *Remote sensing of the mountain snowpack under hydrologic extremes: transformative information at the nexus of science and stakeholders:* **N P Molotch**, L Lestak, E Tyrrell, K Rittger
- 1952929** *ReVap: Monitoring and Forecasting Daily Reservoir Evaporation in the Western U.S.:* **H Gao**, A Yadav, B Zhao, C Pearson, K Holman, G H Allen, T Ott, K A McQuillan, Y Zhu, J L Huntington
- 1923488** *Revisiting the Application of the Variable Infiltration Capacity (VIC) Model in the Colorado River Basin using NASA Earth Observations:* **Z Wang**, S Ghimire, K M Whitney, T Bohn, M Xiao, H Yue, G Mascaro, E R Vivoni
- 1946926** *Satellite Remote Sensing for Strategic Reservoir Operations Toward Effective Riverine Ecosystem Outcomes:* **G Darkwah**, F Hossain
- 1979365** *Seasonal Water Resource Allocation Informed by Co-Produced Climate Data: Insights from the Florida Water and Climate Alliance:* **T Asefa**, H Wang, S Erkyihun, V Misra, J Judge
- 1885456** *Sediment Plumes and Blooms: Using Earth Observations and Modeling to Forecast Post-Fire impacts to Reservoir Water Quality:* **M E Miller**, R Watkins, M Billmire, L Buller, M Sayers, N Dobson, S Lewis, P Robichaud
- 1955152** *Snow Today: Scalable Characterization of Snow for Use in Water Supply Forecasting and Management:* **K Rittger**, R Palomaki, N P Molotch, A Windnagel, M S Raleigh, E Bair, M C Serreze, L Stephenson, U Bohn, C Frans, J Lhotak, D Streubel, W P Miller, C Moser, J P Conway, P Kormos, D Casson
- 1979708** *SWIFT-Barge: Satellite-Based Deep-Learning Framework for Near-Real-Time Barge Detection on the Mississippi River and Its Application to Drought-Related Navigation Impacts:* **Z Deng**
- 1998831** *Towards a Global High-Resolution Flash Flood Climatology: Leveraging Simulation and Multi-Source Validation:* **V Robledo**, M Abdelkader, A Kruczkiewicz, H J Vergara, PhD
- 1938858** *Utilizing NASA datasets to understand causes of river flooding in near-natural watersheds:* **E Ahmadisharaf**, P Dahal, E Jalilvand, PhD, S V Kumar, N N Das

248767

Sources, Fate, and Transport of Metals, Metalloids, and Rare Earth Elements in Fresh Waters (joint with B)

Conveners: **Robert Runkel**, USGS Colorado Water Science Center Boulder; **Johanna Blake**, ; **Ben Colman**, University of Montana; **Karen Johannesson**, University of Massachusetts Boston; **Sara Warix**, University of Utah

1974194 *Uranium and Iron Speciation Changes in Microbial-Simulated Reduced Environments During Oxidative Enhanced Flushing Experiments:* **C Pettinger**, N Venable, R H Johnson, E E Roden, C J Paradis, E Majumder

1866503 *Assessing the impact of dredged material storage on groundwater chemistry; geochemical characterization and opportunities for critical metal recovery:* **A Goodman**, J F Ranville, A Bednar

1905884 *Climate Change Driven Acceleration of Weathering of Trace Metals and Rare Earth Elements in an Alpine Mineralized Watershed Overtakes Impacts from Outflows of an Abandoned Mine:* **D M McKnight**, M Thomas, A Bolin, A Odorisio

1965528 *Copper partitioning and speciation in tropical estuarine systems: The role of natural organic matter:* **P Chakraborty**, S Chatterjee

1853387 *Critical Minerals and Rare Earth Elements in the Boulder Creek Watershed: Mass Loads, Sources, and the Potential for Geochemical Prospecting:* **R L Runkel**, S F Murphy, P L Verplanck, E Stets

1941709 *Diagnosing Performance Barriers in Electrochemical Rare Earth Elements Recovery from Acid Mine Drainage:* **H Fakhraci**, P Kushwaha, B Subedi, M Kinsel

1881741 *Does the Neodymium Oceanic Residence Time Paradox Really Exist?:* **S Goldstein**

1846112 *Ecological Risk Assessment of Heavy Metals in Sediments of some Inland Water Bodies (Baiyeku, Ologe and Badore) in Lagos State, Nigeria:* **R H Anwan**

1908221 *Electrochemical Performance of a Portable Single-Chamber Microbial Fuel Cell for Cobalt Detection Using *Pichia fermentans*:* **V Trivedi**

1918921 *Enhanced Role of Science in Abandoned Mine Remediation Projects: The Legacy of Ed Hathaway at the Elizabeth Copper Mine Superfund Site, Vermont:* **R R Seal II**, N M Piatak, J Hammarstrom, M Kierstead, B Butler, L Dunnington

1859523 *Geochemical Characterization and Spatial Distribution of Heavy Metals in the Sediments of River Ganges, India: Occurrence, Contamination Sources, Seasonal Variations, Toxicity Assessment, and Ecological Risk Evaluation:* **A Debnath**, P K Singh, Y C Sharma

1845941 *Health Risk Assessment of Heavy Metals in Nigerian Tonguesole (*Cynoglossus browni*, Chabanaud, 1949) from Lomé Lagoon, Togo:* **L O Ewenla**

1877181 *Heavy Metal Contamination in Groundwater and Its Health Risk Assessment in the Southern Brahmaputra Floodplain, Assam, India:* **L Borgohain**, R Choudhury

1969055 *Heavy Metal Fallout from the World's Largest Lithium-Ion Battery Fire: A Case Study of Contaminant Mobilization in Coastal Wetlands:* **I W Aiello**, M Grand, K Wasson, W Heim

1897198 *How Flow Conditions Affect Metal Sequestration in Iron-(oxyhydr)oxides Found in Acid Mine Drainage:* **O Painter**, D Singer

1947295 *Hydrogeological Characterization of Groundwater Contamination in the Northern Indo-Gangetic Plains:* **A Girap**, S Bhagat, M Kumar, C Ojha

1977948 *Hydrologic drivers of rare earth element flux from mineralized coastal watersheds:* **A Russo**, J Jenckes, PhD, W Matyas, S Regan, S Umanzor, K Johannesson, P Ho, L Munk

1912972 *Investigation of Hydrologic Mechanisms Influencing Potential Transport of Mine Waste at the Kanab North Mine Site, Grand Canyon, USA:* **K S Perkins**, C T Green, C H Conaway, C Walter, B Andraski, R Kauble, Z Hood, J Marshall

1888519 *Latitudinal gradients of snow contamination in the Rocky Mountains associated with anthropogenic sources:* **M M Arienzo**, K Gleason, G A Sexstone, M S Gustin, M Schwan, N Choma, S M Dunham-Cheatham, J R McConnell, P Weisberg, A Z Csank

1954379 *Mercury Exposure in Two Indigenous Amazonian Communities of Ecuador:* **M Ruiz-Urigüen**, E Llumiquinga, D Escobar-Camacho, D Rosero-Lopez, J Daza, K Barragán, A Encalada, N Carpintero-Salvador, A Aldous, S Benitez, T Tear, P Jimenez Prado, G Celi

1966644 *Multivariate Statistical Analysis, Geo-spatial and Pollution Indices of Heavy Metals in Sediment of Buriganga River in Bangladesh:* **M Hasan**, M Choudhury, S Rahman, M Abdul Baten

1940321 *Occurrence and transport of sedimentary arsenic and iron from the Himalayas to the plains in the Beas River basin:* **R Dhiman**, D Kumari, T Varner, A Giri, S Datta, P Knappett, V Chembolu, H V Kulkarni

- 1950693** *Sorption of Lanthanides onto Natural Colloids and the Contribution of Indigenous Subsurface Microorganisms in the Groundwater System of Sedimentary Rocks:* **Y Amano**, H Beppu, K Nemoto, T Sato
- 1887079** *Sources of Molybdenum and Arsenic in Sulfide-Bearing Dolomitic Aquifers of Eastern Wisconsin:* **S Finley**, A Nghiem
- 2003397** *Stratification Enables Severe Underestimation of Methylmercury Contamination in Peruvian Amazon Mining Ponds: Implications for Bioaccumulation and Ecosystem Risk:* **S Plunkett**, E S Bernhardt, J Angel Amaya, S E Janssen, C M Vega, A J West, H Hsu-Kim
- 1971136** *Stream sediment and biofilm geochemistry in critical mineral exploration: A case study in the Upper Clark Fork River, Montana:* **J Blake**, M Foster, T Schmidt, C Zampetti, M Fillion

249681

Space-Based Precipitation Observations:

Innovations for Science and Applications

(cosponsored by AMS: American Meteorological Society) (joint with A)

Conveners: **Sarah Ringerud**, CSU; **George Huffman**, NASA Goddard Space Flight Center; **Yagmur Derin**, University of Wisconsin–Madison; **Daniel Watters**, NASA Marshall Space Flight Center

- 1933675** *A New Approach to Identifying and Analyzing Precipitation Events and Their Typical Lifecycles over Conterminous United States:* **S Zhu**, G Tang, S Yan, Y Du, Y Xu, M Zhang, M Chen, H Li, Y Hong
- 1851317** *A Novel Hybrid CNN-LSTM Approach to Dynamically Parameterize the Soil Water Balance for Improved and Self-Calibration of Global Rainfall Estimation:* **M Saeedi**, Z Zhu, H Kim, J D Bolten, M H Cosh, V Lakshmi
- 1904451** *Characterizing vertical motion in global precipitation using EarthCARE–GPM coincidence dataset:* **S Aoki**, T Kubota, J J Turk
- 1938338** *Enhance satellite-based precipitation product through diffusion models in ungauged regions:* **K Peng**, H Ushijima Mwesigwa, T Y Dai, J Tan
- 1988315** *Evaluating Passive Microwave Precipitation over Complex Terrain: Insights from Multi-Frequency, Multi-Sensor Satellite-based Observations:* **M Arulraj**, V Petković, L Ji, S Seyyadri, H Meng, R Ferraro
- 1981139** *Evaluation of IMERG Precipitation Estimates over Oklahoma Using Mesonet Station Observation Data:* **S Nakano**, M K Gebremichael, PhD, G Ciach
- 1868797** *Evaluation of Precipitation Estimate from TROPICS Constellation:* **Y Ma**, Y You

- 1988189** *Tracing Boron Sources in Urban Streams:* **A Deshaee**, D Bain, B O'Neill, M Divers, E M Elliott
- 1924761** *Tracking Acid Seeps in the Arctic from Subsurface Source through Stream Transport:* **J C Koch**, J A O'Donnell, M Carey, B A Poulin, C A Baughman, T Evinger, R J Frei, K Hill, A Mohammed, S Neitlich, J Conaway
- 1930585** *Uranium Source Apportionment in the Headwaters of the Scioto River Basin, Ohio: Insights from a Spatial-Temporal Analysis:* **M Khodadadi**, E Widom, D C Kuentz, M Lytle, W B Lyons, C B Gardner, B P Grudzinski, J A M Leong
- 1954746** *GPM Observational Structure and Physical Features of Tropical Precipitation Systems:* **D Wang**, Y Chen
- 1919167** *Harmonizing Global Geostationary Imagery with Deep Learning for Near Real-Time Precipitation Tracking:* **Y Choi**, H Ryu, K M Myung, S Choi, J Park, Y J Moon
- 1932753** *ICESat-2 Lidar Estimates of Clear-Sky Precipitation over the East Antarctic Plateau:* **S P Palm**, Y Yang
- 1864714** *IMERG V08 and Thoughts for the Next Generation of Global Precipitation Products:* **R Joyce**, G J Huffman, D T Bolvin, E Nelkin, J Tan
- 1940831** *Machine Learning-Optimized Estimation of Global Rainfall Erosivity Using IMERG Precipitation Data:* **A Zou**, S Gao
- 1966737** *Optimizing Channel Selection for Passive Microwave Precipitation Measurement: A GPM Study:* **S Ringerud**, C Kidd
- 1908538** *Point Rainfall Extremes from an Ensemble of Coarse-scale Satellite and Reanalysis Precipitation Estimates: Application and Testing in Northeastern Italy:* **M Marani**, C A Sánchez Peña, F Marra
- 1930935** *PUNet-CDR: A Deep Learning Framework for Reconstructing High-Resolution Global Precipitation Climate Data Records:* **P Nguyen**, V Dao, T Ung, M bolboli Zadeh, C Jimenez Arellano, N Rouzegari, K L Hsu, A AghaKouchak, S Sorooshian, F M Ralph
- 1959269** *Resolving discrepancies in spaceborne precipitation radar data to improve estimates of precipitation variability:* **M Hirose**, V M Mantas
- 1941828** *Rmerger: An Open-Source Framework for Multi-Source Precipitation Data Merging:* **S Shah**, Y Liu, S Kim, A Sharma

- 1892339** *Snowfall Regime Classification: Application of a Machine Learning Classifier to Passive Microwave Observations.*: **L Milani**, V Petković
- 1950344** *The Global Precipitation Measurement (GPM) Mission Mentorship Program: Advancing Use of GPM Data and Forming a Framework to Communicate and Help Address Data Needs*: **A M Portier**, V M Mantas
- 1892595** *The Missing Precipitation Challenge in the World's Mountains – Resolving the Severe Underestimation of Orographic Rainfall Extremes Globally*: **M Liao**, A P Barros
- 1940634** *The Newly Released GPCP V3.3 Daily and Monthly Products and the Future Plans*: **A Behrangi**, G J Huffman, R F Adler, Y Song, PhD, K K Kumah, D T Bolvin, E Nelkin, G Gu

250488

Stable Isotopes in the Critical Zone: Methods, Applications, and Process Interpretations (joint with B)

Conveners: **Christian Guzman**, University of Massachusetts Amherst; **Matthias Sprenger**, University Freiburg; **Julie Weitzman**, Pennsylvania State University Main Campus; **Caitlin Mayernik**, Oregon State University; **Kyle Gerard Brennan**, University of Utah

- 1946248** *Analysis of Calcium Isotopes in Heuveltijes*: **M Mellum**, A Satkoski, J C Lassiter, T M Gallagher, A Reinhardt, C Clarke, M Francis, T Nel, J McAuliffe, D Breecker
- 1906925** *Analysis of Dissolved Nitrate Stable Isotopes Using the One-step Ti (III) Reduction Method and Elementar EnvirovisION System*: **C Preece**, K W R Taylor, S Barker, R Berstan, M Seed
- 1982813** *Benchmarking Biogeochemical and Hydrological Controls on Nitrate Oxygen Isotopic Signatures from Soil Nitrification*: **M Sha**, Z Yu
- 1928362** *Finding New Uses for Old Isotopes: Estimating Plant Traits through Process Based Model Calibration to Isotopic Datasets*: **J Knighton**
- 1856508** *Hydro-Isotopic Evidence for Landscape-Mediated Buffering of Wildfire Effects on Baseflow and Subsurface Flow Dynamics*: **C Segura**, L Klein, Z Perry, J Klaus

- 1850100** *Transfer Learning of Global Precipitation from Reanalysis Data to Satellite Observations*: **B Subedi**, M Garshasbi, A Ebtehaj, L Bogerd, L Milani, N Utsumi, G J Huffman
- 1992147** *University of Arizona – High-latitude Infrared-based Precipitation Analysis Version 2 (UA-HIPA)*: **S Pfreundschuh**, O Zandi, K K Kumah, A Behrangi
- 1954414** *Validation of the Global Precipitation Measurement Mission (GPM) Data: Issues and Insights*: **Y Gorokhovich**, S Blackman, C Adjei, V Chavez, R Ray, G Tefera
- 1917208** *Impact of clay mineralogy on lithium isotope fractionation during rock weathering*: **N Jemison**, E J Ramos, S Muñoz, D E Ibarra, M Torres, H Choi, M Winnick, K H Williams
- 1863325** *Lithium Isotopes as Tracers of Silicate Weathering Intensity and Clay Formation in the East River Watershed, Colorado*: **H Choi**, M Torres, E J Ramos, D E Ibarra, M Winnick, K H Williams, N Jemison, H Tompkins, C Mock
- 1927302** *Potassium and Rubidium Isotope Fractionations during Chemical Weathering and Implications for Global Cycling*: **Z Lin**, Z Zhang, N Nie, S M Aarons, R L Rudnick
- 1872058** *Spatio-temporal dynamics of dissolved inorganic carbon in the Ganga River: Implications for global carbon export from large river systems*: **A Kumar**, P Sanyal
- 1994294** *Sulfate multiple S and O isotopes of pyrite oxidation pathways*: **B Killingsworth**, J Hayles, I E Kohl, T Sun, A Bouyon, D Hoppe, R R Seal II
- 1928492** *Tracing Seasonal Recharge and Flowpath Connectivity Using Water Isotopes in a Forested Catchment of New England, USA*: **T Dar**, D F Boutt, J Huba, M Winnick
- 1988902** *Understanding environmental controls on cold spring carbonate accretion using stable isotopes and geochemistry: Willow Creek Spring, Nevada*: **A Lillie**, L K Rademacher, Y Ibarra, B P Hedlund
- 1874124** *Where Water Divides and Connects: Ecohydrologic Cycles and Resilience Across Nested Scales in the Mississippi River Basin*: **K G Brennan**, G J Bowen, R Smith, S Brennan, J R Brooks, S P Good

250053

**Subseasonal to Seasonal to Interannual
Predictability and Land-Atmosphere Coupling**

(joint with A, EP)

Conveners: **Aaron Boone**, CNRM-GAME; **Qi Tang**, Lawrence Livermore National Laboratory; **Yuhei Takaya**, Meteorological Research Institute; **Retish Senan**, European Centre for Medium-Range Weather Forecasts; **Megan Fowler**, Cooperative Institute for Research in Environmental Sciences

1872606 *Concurrent Heat Extremes in Relation to Global Warming, High Atmospheric Pressure and Low Soil Moisture in the Northern Hemisphere:* **D Nasong**, S Zhou, K Kornhuber, B Yu

1967758 *Deep learning for flash drought prediction and interpretation:* **Q Zhao**, X Tan, X Zhang, P Gentile, Y Liu

1985787 *Diagnosing Parametric Controls on CLM Ecohydrology Using Machine Learning Emulators:* **S Ryu**, L R Hawkins, K Dagon, S Kumar, I Lu

1932345 *Different responses of atmospheric circulations to the thermal anomaly over Tibetan Plateau in winter and late spring:* **S Li**, Y Zhang, Y Xue

1909003 *Enhancing Subseasonal to Seasonal Predictability through Improved Snow Data Assimilation over the Tibetan Plateau:* **R Senan**, Y Orsolini, P de Rosnay, M Wegmann, D Fairbairn, E Vorobeva

1935855 *Impacts of Irrigation on Atmospheric Boundary Layer and Precipitation: A WRF-Model Based Assessment:* **S T B Haider**

1847943 *Influence of soil moisture on surface air temperature in monsoons:* **Y Takaya**, Y Kosaka, N Ganeshi, X S Liang, T Sato

1889817 *Influence of Spring Land Surface Temperatures over the Rocky Mountains and Tibetan Plateau on Global Summer Precipitation: A Case Study of the 1998 Drought/Flood Event:* **H P Nayak**, Y Xue

1889222 *Intercomparison of Regional Climate Models for Interannual Variability in China from GEWEX/LS4P Phase I simulations:* **M Yu**, W Wang, J Tang, Y Xue

1857632 *Land Temperatures in the Tibetan Plateau and Rocky Mountains and S2S Predictability of East Asian and North American Hydroclimate Extreme Events – GEWEX/LS4P-II Approach and Highlights:* **Y Xue**, A A Boone, T Yao, Q Tang, Y Takaya, W K M Lau

1911398 *Land–Atmosphere Coupling and Deep Soil Memory over the Tibetan Plateau: Impacts on Regional and Downstream Climate at S2S Timescales:* **H Chen**, H Zhang, X Z Liang, Y Dai, H Xu

1889898 *Land–atmosphere coupling processes controlling near-surface temperature over the Tibetan Plateau:* **S Sugimoto**, C Lin, J Tang, K Yang, X Z Liang, Y Ma, T Sato, Y Xue

1986738 *Predicting on the Extreme Precipitation in East and Southeast Asia during Summer 2022 from the Antecedent Soil Temperature Anomaly over the Tibetan Plateau:* **X Kong**, A Wang, Y Xue, N Wei, H Zhang

1912686 *Propagation of drought through changed atmospheric circulation induced by land surface energy flux anomalies:* **S U Kim**, F Dominguez

1921246 *Quantifying the Influences of Thermodynamic vs. Dynamic Fields on Afternoon Precipitation Events in the Southern Great Plains Using ERA5 Reanalysis:* **A Rosen**, R Fu, Y Zhuang, Y H Kuo

1903105 *Reemergence of Late Spring Cold Atmospheric Anomalies in Summer over the Tibetan Plateau: Potential Mechanisms and Impacts:* **Y Jiang**, S Li

1954444 *Revisiting Soil Moisture Impacts on Convective Afternoon Precipitation Through Direct Ground-Based Observations:* **A Nwokoje**, A Molini

1853140 *Role of Land Surface conditions on Evolution and Propagation of Heatwaves in India:* **J A Dar**, T Apurv

1861556 *Role of orographic drag process on seasonal precipitation forecast:* **J Xie**, Q Tang, Y Xue, H P Nayak

1988335 *Significant May-to-June Persistence of Precipitation in the Inner Tibetan Plateau: Memory Effect of Local Soil Moisture:* **H Zhang**

1897861 *Springtime Soil Moisture Teleconnections Drive Summertime Warming in the Western United States:* **L Zhang**, D Battisti

1891675 *Teleconnection Influences and Forecast Skill of NMME Models in Seasonal Drought Prediction over the Arabian Peninsula:* **M A A Ehsan**, E Esmaili, A W Robertson, M Zampieri, T Luong, M S Saharwardi, I Hoteit

1911261 *The butterfly's shadow: how subtle surface forcing elicits remote atmospheric responses:* **J Nam**, J H Yoon

1920273 *The Evaluation of the ENSO- and PDO-related SSTa Effect on the CONUS Spring Soil Hydrology via the E3SM:* **B Y LU**, R Torn

1989935 *The Interplay of Vegetation and Land-Atmosphere Feedbacks in Flash Drought Prediction:* **M Osman**, B F Zaitchik, P Lawston Parker, J A Santanello Jr, M Anderson

1909296 *Unraveling the 2025 Early Monsoon Onset: Role of land surface temperature:* **H P Nayak**, K N Reddy, X Yongkang, U C Mohanty, V Vinoj, A Srivastava

1995154 *Unraveling the Role of Tibetan Plateau Heating and Its Remote Impacts on Tropical Africa Precipitation: I Diallo, M Jasper, J Bagarino, M S Drame*

253048

System approach and human-water feedbacks: Sustainable Urban-Rural Water and Wastewater Infrastructure in Achieving related Sustainable Development Goals

Conveners: Kamshat Tussupova, Kazakh National University of Water management and Irrigation; **Ronny Berndtsson**, Lund University

1932252 *Analysis and Modification of the Drainage System in Dhamrai Municipality, Bangladesh: A Sustainable Approach with LID Implementation: M J Ahamed, F Shahriure, S Dey, M J Islam*

1952258 *Antimicrobial Evaluation of La-Doped Li-Mn Ferrite Nanoparticles ($\text{Li}_{0.10} \text{Mn}_{0.80} \text{Fe}_{2.10-x} \text{La}_x \text{O}_4$) against Multidrug-Resistant Bacteria in Wastewater: A Mahmood, O R Khan, M Ibrahim*

1992021 *Developing a conceptual framework for AI-based decision support tool for managing access to drinking water and sanitation services in rural Kazakhstan: K Kaltay, R Berndtsson, Y Kabiye Dr*

252281

The Future of Groundwater Sustainability Through Managed Aquifer Recharge

Conveners: Caroline Smith, Stantec Consulting Ltd; **Nycole Sharma**, Stantec Consulting Services, Inc.; **Rick Cowles**, Stantec Consulting Ltd

1990897 *"Groundwater Recharge Mapping in a Resilient Forest Community Using Integrated Geophysical Methods: A Humanitarian Initiative in Sadhana Forest, India": R Dahiya, T Arora, S Pathan, A Shakas, A Rozin*

1981866 *Ambient and Induced River Contributions to Groundwater Associated with the USDA Groundwater Transfer and Injection Pilot Project in the Mississippi River Valley Alluvial Aquifer: K Allen, G R Davidson, A M O'Reilly, D G Wren*

1954568 *Aquifer Storage and Recovery in Bangladesh: A Nature-Based Barrier for Contaminant Transport During Groundwater Recharge: M S Hossain, S Khadem, S Nowreen, M Moniruzzaman*

1997765 *Can the decline in groundwater storage in California's Central Valley be reversed or stabilized using Managed Aquifer Recharge (MAR) practice?: B Mirzendehtdel, A D Kendall, J T Stid, D W Hyndman*

1981886 *Vegetation Response to Extreme Rainfall in Spring 2023 Across the Western U.S.: Z Cao, Y Xue, H P Nayak*

1937274 *Wildfires Exacerbate Post-fire Hydroclimate Extremes Through Land-Atmosphere Interactions: S Wang, Y Yu*

1961146 *Ending Inhuman Practices: Transforming Existing Sewerage System into Innovative Rotating Sieve Pipe System: N T R, D Sengupta*

1988652 *Evaluating the Coherence of Kazakhstan's Rural Water Supply Programs within the Framework of Sustainable Development: A Zhupysheva, R Beisenova, A Mashaeva*

1934769 *Evolution of Nature-based Solutions for Livestock Wastewater Treatment: I Alababneh, A Mansaray*

1976137 *Household Satisfaction and Drinking Water Quality in Rural Areas: A Comparison with Official Access Data: K Tussupova, R Sharapatova, Z Bolatova, Y Kabiye Dr, R Berndtsson, K Kaltay*

1992787 *Implications of Drinking Water Programs in Rural Areas in Developing Countries: Y Kabiye Dr, A Taishiyeva, K Tussupova*

1937106 *Technical and Economic Feasibility of a Solar-Powered Sludge Drying System: A Hadian, F Khorashadi Zadeh Dr*

1899888 *Demonstration of a Micro-scale Managed Aquifer Recharge (μ MAR) project in California's Central Valley: Design, Construction and Monitoring: J A Morande, H Flores Landeros, Y Nuñez Bolaño, D Royer, T C Harmon*

1915403 *Enhancing Groundwater Sustainability through Targeted Agricultural Managed Aquifer Recharge in the Phoenix Active Management Area, Arizona: A Aljanabi, P Fox, M E Garcia*

1997356 *Evaluating Physical and Chemical Clogging Mechanisms in Ag-MAR Systems Using Treated Wastewater: A Column Experiment Approach: A Kumar, B Yadav*

1902343 *Evaluating the long-term behavior of drywell recharge in a deep vadose zone using geoelectrical monitoring: G K Osterman, S Sasidharan, MS, PhD, S A Bradford, A Stathos*

1994314 *Geospatial Multi-Criteria Decision Analysis for Identifying Managed Aquifer Recharge Zones in a Megacity Under Climate Stress: The Case of Istanbul: O Ozcan, S Akay, Ö Ekmekçioğlu, İ Yolcubal, Ö Yıldız Yüksekol, E Yavuz, M Yün*

1989986 *Impact of Managed Aquifer Recharge (MAR) using Reclaimed Water on ambient shallow groundwater: D Han, G Cao*

- 1928481** *Linking drainage area and stormwater runoff analyses to managed recharge suitability mapping to assess regional potential for project development:* **W A L Chapman**, A T Fisher
- 1986295** *Mojave Water Agency West Victorville Groundwater Banking Pilot Test:* **S J Turnbull**, W Massoll, K Coulibaly, D Barnes, B Sadri
- 1923586** *Optimizing Managed Aquifer Recharge (MAR) Strategies at a Hillslope Scale Under Multiple Hydroclimatic Conditions:* **X Ling**, H Ajami
- 1887382** *Performance of MAR projects that improve groundwater supplies and quality, using stormwater runoff as part of a recharge net metering program:* **A T Fisher**, A Serrano, V Bautista, E Kam, E Rojas, S Oswald, K Camara, D Hermstad

247656

The MacGyver Session: Novel, Exciting, Self-Made, Hacked, and/or Improvised Sensors, Data Acquisition, and Data Transmission Solutions to Understand the Geosphere (Poster) (joint with IN, NH, NS, SA)

Conveners: **Chet Udell**, Oregon State University; **Austin Madson**, University of Wyoming; **Rolf Hut**, Department of Water Management, Faculty of Civil Engineering and Geosciences, Delft University of Technology, Delft, the Netherlands; **Andrew Wickert**, University of Minnesota

- 1977678** *A Low-Cost and Rapid Deployment Flood Level Observation System:* **I Gul**, S Diaz, P Udenze, J Balthasar, L Davis, D Li, C Wilson, R R Lotspeich
- 1974431** *An Affordable and Open-Source PIV System for River Velocimetry Enabled for IoT and Designed for Citizen Science:* **S K Do**, K Corcoran, B Poudyal, R Johnson, L Pu, A Stokes, C Wilson, R R Lotspeich, V Lakshmi
- 1998706** *Colocated Testing of Low-Cost Open-Source and High-Cost Proprietary Environmental Sensing Systems:* **P Marchetto**, PhD, K Kuehl, S Selbe
- 1894210** *Development of an Integrated Underwater Imaging System for Real-Time Bubble Characterization and Flow Measurement:* **B Wang**, X Ying
- 1874403** *Evaporimeter: A Low-Cost, Open-Source, Load-Cell-Based Device for Collecting Rainfall and Evaporation Data:* **D Nguyen**, E Hockert, M Muzaffarov, Z Vania, C Udell, J S Selker
- 2002353** *From Breadboard to Product: The Journey of an Environmental Sensing System from Finding Need to Purchasable Product:* **S Selbe**, J Lewallen, B Gawthrop, P Marchetto, PhD, L Starke, S Allen, K Kuehl, P Gupta

- 1994237** *Planning the Analytics for Injection, Mineral Extraction, Water Production and Monitoring Wells:* **T Guidry**
- 1924202** *Spatial Analysis of Aquifer Response Times and Optimization of Well Field Operations: A Case Study of the Memphis Aquifer:* **M F Aslam**, F Jazaei, M Hamza, F U Haq
- 1971204** *Toward an Integrated Framework for Sensing, Monitoring, and Big Data Analysis in Managed Aquifer Recharge Systems:* **T Turkeltaub**
- 1994629** *Understanding Long-Term Recharge Dynamics in Heterogeneous Vadose Zones through Flood Managed Aquifer Recharge:* **S Poppenhouse**, Z Perzan
- 1874182** *μMAR: Micro-Scale Managed Aquifer Recharge in Shallow Hydrogeological Units:* **H Flores Landeros**, Y Nuñez Bolaño, J A Morande, T C Harmon
- 1857755** *High Precision Zero-friction Magnetic Dendrometer:* **N Le**, L Rasmussen, M Zamora Re, D Zheleva, J L M Van Haren, J S Selker, C Udell
- 1862671** *Open Source Arduino Weather Station; Meet WeatherChimes:* **E Zimmer**, C Jacklyn, R Graham, S Thiruppathi Ahila, W Richards, A C Johnson, J S Selker, C Udell
- 1856827** *Openly Published Environmental Sensing (OPENs) | Advancing Open Environmental Instrumentation:* **C Udell**, J S Selker
- 1891809** *Scalable Surface Water Monitoring Using a Low-cost Stilling Well with Embedded Sensors and LoRaWAN Integration:* **C Finney**, A K Manda, S M Moysey, B Dessimond
- 1874709** *SmartRock - Accurate and Low Cost Water Quality Monitoring Sensor Suite:* **T Slaght**, C Milford, B Truong, C Udell, J S Selker
- 1944153** *The Güralp Rapid Deployment Kit ("RDK") and Güralp Data Centre ("GDC") - a turnkey solution for seismic and geophysical data acquisition:* **N Watkiss**, J Lindsey, P Hill, F Restelli
- 1944479** *The Open Digital Environmental Lab:* **E Levintal**, T T Nguyen, E Freiman, D S Orozco, T Norman, R A Kahsu, A Altman
- 1895585** *The Portable Common Sensor Platform Prototype:* **C M Calvelage**, D Mann, M Staats, C Pyatt, A Scire, K Arnell, G Chavez, W W Gallaher, N Bayou, W Johnson, G Karslioglu, G S Mattioli, E Makarewicz
- 1968389** *Think Differently: Exploring Non-Proprietary Hardware Solutions for Remote Data Collection:* **E Morse**, S Cowan, A Vlahgiannis, M Evans, M O'Leary, R Lieblappen

1889106 *Three-globe thermometer for accurate air temperature measurements without radiation shield:* **A Maruyama**, K Kimura

251771

The Role of the Unsaturated Zone in the Sustainability of Groundwater resources

Conveners: **Maria Clementina Caputo**, CNR Water Research Institute; **Giorgio Cassiani**, University of Padua; **Valentina Prigione**, University of Padua

1905698 *Analyzing the Impacts of Unsaturated Zone Geological Materials on the Relationship Between Rainfall and Groundwater Level with THMC Software:* **T K Chang**, J S Chen

1887728 *Contaminant Mobilization in the Unsaturated Zone During Managed Aquifer Recharge: Implications for Groundwater Sustainability:* **K Waldman**, C Prieto Garcia, E Levintal, S Fakhreddine, H E Dahlke

1916873 *Geophysical Investigation of Hydrologic Transitions on a Subalpine Forest-Fen Hillslope:* **L Schwebs**, A Parsekian, N Tarasewicz, K N Musselman

1883201 *Hydrogeophysical Characterization of Vadose Zone Soil for Managed Aquifer Recharge in Hard Rocks:* **S S Phadnis**, S Sonkamble, A Enatula

251285

The Surface Water and Ocean Topography (SWOT) Mission: New Frontiers in Hydrology

Conveners: **Tamlin Pavelsky**, University of North Carolina at Chapel Hill; **Hind Oubanas**, INRAE G-eau; **Simon Munier**, CEMAGREF; **Merritt Harlan**, University of Massachusetts Amherst

1990365 *An Assessment of the Value of SWOT River and Lake Data for Hydrologic Modeling Using Physics-embedded Learning:* **P Li**, C Shen, C J Gleason, T Langhorst, K Andreadis, C Brown

1914611 *Application of SWOT Derived Data for Estimating Discharge-Depth Relationships and Improving Rating Curves in Texas Rivers:* **S Timilsina**, P Passalacqua

1957001 *Assessing and Comparing SWOT River Discharge Performance Between Fast Sampling and Science Orbits:* **H Oubanas**, E Friedmann, C J Gleason, C Cazals, M T Durand, S P Coss, J A Flores

1895980 *Community repository for SWOT discharge data:* **A Piliouras**, X Guo, S Lyster, S P Coss, M Harlan, M T Durand

1865643 *Wisp: Smoke Taint Sensor:* **S Emmons**, A Hosford, D Crocker Jr, A Chebrolu, J S Selker, C Udell, E Tomasino

1926281 *Impacts of Irrigation Practices on Green House Gas Emission and Groundwater Recharge in Organic Paddy Fields:* **S Y Hsu**, Y C Liao, Y Z Tsai, Z W Yang

1846357 *Integrating Hydrology and Remote Sensing Data to Enhance Understanding of Water Infiltration in Heterogeneous Karst Formations:* **K Mahmud**, PhD, R Remie, R K Ghose, M Kaspar, J Price, A B Katumwehe, M O Gary, B Vauter

1968343 *Optimization of managed aquifer recharge sites through coupled hydrogeophysical imaging:* **S Uhlemann**, C Ulrich, M E Newcomer, J Maceiro, A Massoudieh, Y Kouwonou

1864920 *Quantifying Aquifer Recharge Through the Unsaturated Zone: Preferential Flow, as a Major Component, Requires Changes in Methodology and Outlook:* **J R Nimmo**

1927832 *Quantifying Controls on Recharge Travel Time and Vadose Zone Water Flow Dynamics:* **J Wang**, PhD, A Casillas, S E Boyce, M Sadeghi, T Harter

1974581 *Vadose Zone Analytical Algorithm (VZAA): A Novel Approach to Modeling Groundwater Recharge:* **S E Boyce**, M Sadeghi, C Dogrul, G Huang, L Liang, U Bandara, C Altare, T Hatch, S A Bradford

1947784 *DeltaFLOW: A Python Framework for Processing and Analyzing SWOT Data in Deltas and Wetlands:* **F Miron**, Z Florin, F Tatui, E Anthony

1995458 *Development of a Geospatial Database for Flood Inundation Mapping Using SWOT Satellite Data:* **B Kiran**, I R Thomas, V Sreeparvathy

1925474 *Evaluating SWOT elevation retrieval on inland water ice cover along Tanana River, Alaska:* **X Yang**, S Yoon, C Klutmeier, C D Arp, A C Bondurant, M Nolan, T Pavelsky

1971741 *Evaluating the Accuracy of the Surface Water and Ocean Topography (SWOT) River Products Over the CONUS:* **R Jamshidi**, E Beighley, K Pieper, C N Jones

1957748 *Evaluating the potential of Surface Water and Ocean Topography (SWOT) satellite data for assessing backwater dynamics at river confluences:* **T H Meem**, B L Rhoads, J Wang

1879570 *Evaluation of SWOT-Derived Lake Products and Development of Lake Hypsometric Rating Curves through the Integration of SWOT, Satellite Altimetry, and Satellite Imagery:* **J Seo**, H Liu, S Shu, L Wang, D Tian, M C LaFevor

1898263 *Exploring the Effect of River Spatial Variability on SWOT Discharge Accuracy:* **Y Zhang**, M T Durand, S P Coss, R P M Frasson, E M Prior, C J Gleason

- 2003136** *Field Evaluation of SWOT Observations Using Ground and Airborne Measurements:* **M Abdelkader**, V Robledo, C Yerdelen, E Eris, G Ay, S Henao Gomez, H J Vergara, PhD, T Aksallı, M Şen, T Tokatlı, M S Kartal
- 1915724** *Field Validation of SWOT-Derived Reservoir Water Levels in the Southeastern U.S.:* **M C LaFevor**, H Liu, J Seo, Y Pu, S Wang, S Shu
- 1920202** *From Flow to Still, SWOT Enables Precise Dissection of Lake-River Continuum (LARIC) Zones and Characterization of Backwater Dynamics:* **X He**, J Wang, B L Rhoads, H Gao, G H Allen
- 1902648** *Global hydropower potential of world rivers revealed by the SWOT Mission:* **J A Flores**, C J Gleason, J Wang, C Brown, R Daroya, F Bennitt, E Friedmann, D Feng
- 1963094** *Global Riverbank Slope Patterns Inferred from SWOT-Derived Hypsometry Curves:* **J D Velez**, T Pavelsky
- 1893807** *Global-Scale Analysis of River Slope Monthly Variation Based on the SWOT River Vector Data Product:* **Y Chen**, S Dhital, S Cohen, A Baruah, D Devi
- 1960304** *Harmonizing River Discharge and Lake Storage Changes Globally with SWOT Satellite Measurements:* **H Thurman**, G H Allen, K A McQuillan, R Riggs, T T Simmons, J Wang, H Gao, A Yadav
- 1867273** *Hydrology-Hydraulic Model-Based Inversion of Discharge and Channel Parameters at River Network Scale from SWOT Altimetry:* **P Garambois**, K Larnier, L Pujol, N N T Huynh, N B Nguyen, M Ettalbi, A Berkaoui, M Saadi, H Roux, J Monnier
- 1930545** *Impacts of Ice and Snow on SWOT River and Lake Measurements:* **Y Ye**, L C Smith, T Howard, C Stuurman
- 1997095** *Improved SWOT Observation Filtering and Area-Elevation Relationships for Surface Water Storage Monitoring:* **E Levenson**, S W Cooley, E Webb, C Kluetmeier
- 1858492** *Improving Machine Learning Framework for SWOT-Based Discharge Estimation Using Integrated Static and Dynamic Features:* **H An**, C J Gleason, T Langhorst
- 1900755** *Inversion of Riverbed Elevation and Fragmentation Impacts from Multi-Temporal SWOT Water Surface Elevation Observations:* **Y Rong**, P D Bates, J C Neal
- 1939729** *Investigating the Impact of River-Groundwater Exchange on SWOT-Based River Discharge Estimations:* **J H Lee**, R P M Frasson, M Farthing
- 1965669** *Lake Response to Hydroclimate Extremes Across Europe with SWOT:* **M J Hughes**, T Pavelsky
- 1944774** *Lake Shoreline Morphometry Influences the Accuracy of SWOT-Derived Water-Level Estimates:* **D Lindao Caizaguano**, F Jaramillo
- 1930445** *Monitor the global water cycle in the Anthropocene: Limitations and potential opportunities of SWOT through a case study of South Korea:* **J Kam**, K Lee, S Han
- 2004334** *Multi-Wavelength SAR Analysis for River Width Detection: Comparing Sensor Performance Across Vegetation Gradients:* **J Johnson**, J T Minear, K F Tiampo
- 1897412** *Narrow river detection with SWOT High Rate hydrology products: An evaluation over the conterminous United States:* **F Bennitt**, C J Gleason, C B Brinkerhoff, T Pavelsky, J A Flores, E Friedmann
- 1978356** *Societal Benefits of the Surface Water and Ocean Topography Mission:* **M Bonnema**, A R Rodriguez
- 1909707** *SWOT for Indian Hydrology: Insights and Challenges:* **J Indu**, G Patidar, M K Soman, S Karmakar, F Hossain, M M Srinivasan, H Oubanas, A Paris, B Ramakrishnan
- 1942451** *SWOT-Assimilated Riverine Flood Inundation Modelling: A Temporal Persistence Analysis:* **M K Soman**, J Indu
- 1967148** *Tracking Glacial Lake Flood Geobazards with SWOT:* **S F Sherpa**, L C Smith, B Wang, C Stuurman
- 1952822** *Understanding Geographically Isolated Wetland Hydrology with NASA SWOT: A Validation Study from the Dougherty Plain, GA:* **S Chatterjee**, F C O'Donnell, J M Beck, S T Brantley, K Perkins
- 1945193** *Understanding operation modes and hydrological impacts of cascade reservoirs on major rivers through SWOT observations:* **M Ding**, J Wang
- 1955378** *Understanding SWOT discharge accuracy: Exploring typological drivers of SWOT discharge performance:* **S P Coss**, M T Durand, C J Gleason, T Pavelsky, H Oubanas, P O Malaterre, K Larnier
- 1952657** *Using SWOT and ICESat-2 satellite observations to assess the vulnerability and resilience of global water towers:* **F Yao**, L C Smith, T Howard, S Muñoz, S F Sherpa, K Yang, PhD, Y Ye
- 1944511** *Using SWOT to Observe Water Level Variations of Ponds and Reservoirs in Taiwan:* **C H Wang**, K H Tseng
- 1960589** *Water level and extent variability in wetlands from SWOT:* **S Kica**, T Pavelsky
- 1864458** *Water Surface Elevation, Slope, and Inundation Extent Validation of SWOT in the Yukon River Basin, Alaska:* **C Kluetmeier**, T Pavelsky, T Rowley, W Tooley, A Turcotte, F Bennitt, A N Thellman, S W Cooley

252798

Toward a hybrid era of physical and machine learning model in simulating and predicting extreme events.

Conveners: **Zeyu Xue**, Pacific Northwest National Laboratory; **Wenli Zhao**, Columbia University; **Shiheng Duan**, University of California Davis; **Ye Liu**, Pacific Northwest National Laboratory; **Yusuke Hiraga**, Tohoku University

1900921 *Deep Learning Atmospheric Models Reliably Simulate Out-of-Sample Temperature Extremes, and Blocking Frequencies:* **Z Meng**, G J Hakim, W Yang, G A Vecchi

1874392 *Enhanced Soil Moisture Prediction at Subseasonal-to-Seasonal Scales Using a Deep Learning-Physics Hybrid Approach:* **M Zhang**, X Yuan, W Zhao, T Keenan

1991254 *Global High-Resolution Hydrologic Simulation to Enhance Predictions in Ungauged Regions with Hybrid Differentiable Models:* **D Feng**, Y Yang, H Beck, C Shen, M Pan

248102

Transport and interactions among biotic and abiotic components in aquatic ecosystems across scales

Conveners: **Zi Wu**, Tsinghua University; **Arvind Singh**, University of New Mexico - Gallup; **Xiaoying Zhang**, Jilin University; **Man Zhang**, Tsinghua University; **Shuolin Li**, Columbia University

1920121 *Hydrologic and Nutrient Controls on Biofilm Dynamics in Tropical Freshwater Systems:* **A Garcia**, Y N Yao, J K Brumbelow, A P Smith

1912478 *A New Model for Near-Bed Velocity Profile and Bed Shear Stress in Vegetated Flows:* **Y Xu**, Q He, H M Nepf

1867344 *Assessing Spatiotemporal Dynamics of Water Bodies, Vegetation, and Land Use in a Large Floodplain Wetland with Conservation Strategy Formulation for Wintering Waterbirds:* **C Tang**, H Zhen, S Zhang

1877391 *Bed roughness effects on horseshoe vortex dynamics and soil erosion mechanisms in vegetated overland flows:* **H Zhang**

1866805 *Biom mineral Flocculation of Cohesive Sediments: The Role of Microalgae Under Turbulent Conditions:* **M Lin**, X Shen

1892482 *Changes in Dissolved Organic Matter Composition across the Lotic to Lentic Boundary in a Reservoir Longitudinal Gradient:* **D Howard**, A Breef-Pilz, W M Woelmer, D Scott, C Carey

1850000 *Harnessing Large Language Models to Reason About Extreme Weather Conditions:* **N Zafarmomen**, V Samadi

1929449 *High-Resolution Ensemble Forecasting of Extreme Weather Using a Stretched-Grid AI Weather Model:* **Y Nie**, A Sengupta, J Baño-Medina, D Steinhoff, P Mulrooney, L Delle Monache

1870705 *Hurricanes as the Butterfly in Physical and Machine Learning Simulations: Tracing Forecast Busts of Midlatitude Weather to Tropical Cyclone Genesis:* **G Zhang**

1952075 *Prediction of Peak Breach Discharge of Non-Cohesive Earth Dams Using Gradient Boosting and Ensemble Methods:* **M A Anwar**, M Torkomany, E Elalfy, A Downey, H Chaudhry, J Imran

1977293 *The AI-surpassing Physics-embedded AI model for Capturing Unseen Extreme Flood Events and Climate Change Impact Assessment:* **Y Song**, C Shen, K Sawadekar, H Ji, W Yang, L Lonzarich

1909045 *Comparative Performance Evaluation of Bank Erosion Models in the Middle Yangtze River: New Dynamic Model vs. HEC-RAS:* **S Deng**, L Dong

1906826 *Comparative Study of Integrated Framework versus Biotic Integrity Indices: A Case of Health Assessment in Chishui River:* **C Jiang**, W Miao, Q Wu, L Cao, S Zhang

1962118 *Coupled Effects of Nutrient Flow and Hydrodynamic Processes on Methanotroph-Mediated Methane Mitigation in Surface Aquatic Ecosystems:* **X BAI**

1885721 *Decoupling Biotic and Abiotic Drivers: How Sediment Load Modulates Phytoplankton's Environmental Response Across River-Reservoir Gradients:* **Y Ding**, B Pan

1864513 *Dynamics of Anomalous Bedload Transport from Stochastic Processes to Macroscopic Continuum Equations:* **Z Li**, H Sun

1903603 *Effects of Microbial Fe(III) Reduction on Aggregation and Colloid Stability of Fe-rich Smectite:* **J AHN**, I Kang, T H Koo, J Kim

1863787 *Effects of Sand-adhering on the Settling of Yangtze Sturgeon (Acipenser dabryanus) Eggs:* **Y Zeng**

1942688 *Effects of secondary currents on migration and distribution of Microcystis colonies in turbulent open-channel flow:* **L Zeng**, Q Leng, N Cao, Z Gong, B Wang, R Han, Z Wu

1859962 *Examining the surface and hyporheic flow in stepped channels through refractive index matching experiments:* **C Zhang**, M A Hassan, L Cao

1966264 *Factors Affecting the Nutrient Uptake Efficiency of Giant Kelp in the Santa Barbara Channel:* **S Chavis**, T J DeVries, N Tournebise

- 1895346** *Godunov-type scheme for contaminant fate and transport in transient pipe flows:* **T C Che**
- 1852040** *Grain-size distribution and diffusivity of non-uniform sediment in the channel with submerged vegetation:* **L Yang, Z Yang**
- 1852909** *Harnessing IoT and Cascaded ML to Predict Coupled Soil Moisture-Salinity Dynamics in Estuarine Wetlands:* **Y Yi**
- 1867180** *Hydro-Environmental and Ecological Effects of Drop structure in Urban River System:* **D Zhu**
- 1864116** *Hydro-Morphodynamic Responses to Typical Instream Vegetation Succession: A Flume Experiment Study:* **P Wang, Q Kong**
- 1852490** *Hydrodynamic Responses of Fish Community Dynamics in Large-Scale Morphologically Complex River Systems:* **J Qiu, S Yuan, H Tang, Y Deng**
- 1861104** *Impacts of Sediment Dynamics on Key Water Quality Indicators in the Xiaolangdi Reservoir:* **M Yi, L Li**
- 1856206** *Improved Gravity-Theory Model for Sediment Concentration in Vegetated Flows with Vertical Blockage Effects:* **J Zhang**
- 1850594** *Influences of water level fluctuation on water exchange and nutrient distribution in a bay: Evidence from the Xiangxi Bay, Three Gorges Reservoir:* **W He**
- 1863597** *Landscape Pattern Evolution and Driving Forces in the Downstream River of a Reservoir: A Case Study of the Lower Beijiang River in China:* **H WANG**
- 1909474** *Long-distance recovery of nonuniform suspended load in the Middle Yangtze River owing to upstream damming:* **M Zhou**
- 1867468** *Machine Learning Application for Evaluating River Plume Spreading: Identification and Modeling:* **Z Li**
- 1940027** *Modeling Seasonal Dynamics of Carbon and Phosphorus in a Cold-Region River from 2000 to 2021:* **G Yang, W Zhang**
- 1870874** *Multi-scale analysis of contaminant transport in the ice-covered channel flows with bed absorption:* **F Wang, H Li**
- 1978699** *New storm tide-substance model based on advanced wind and sediment modes:* **Z Li, W Ni, Z Sun, Y Li, K Ding**
- 1911554** *Nonlinear Interaction Between Salinity- and Sediment-Induced Stratification in Highly Turbid Estuaries and Coastal Seas:* **W Zhang, J Zhou**
- 1870457** *Numerical Investigation of Multiscale Sediment Transport in Vegetated River Flows Using CFD-DEM Simulations:* **D Xu, X Chen, S Zong**
- 1864047** *Numerical Simulation of Hydrodynamics for Self-Organized Structures of Mussels:* **Y Xu, Q Hou**
- 1854602** *Nutrient Replenishment by Turbulent Mixing in Suspended Macroalgal Farms:* **T Bo**
- 1892388** *Phosphorus Cycling in Lake Sediments in Response to Algal Bloom Events: Phosphorus Transformation and Mechanisms:* **Y Ding, C Li, V Passaro, W Xing, M Li, L Zhang**
- 1994276** *Quantification of Long Term Hysteresis Patterns in Sediment and Nutrient Concentrations in the Maumee River, USA:* **N Manning, C Cosgrove**
- 1854461** *Quantifying Vegetation Drag and Canopy Effects: High-Resolution Data Resolving Flow Structure and Wave Dissipation in Marshes:* **X Zhang**
- 1886573** *Remobilization and Movement of Phosphorus Contamination in Grand Bay NERR:* **J Patel, J DeBose, A D Skarke**
- 1872404** *Response of Sandy Beach to Extreme Coastal Ocean Dynamics:* **Z Wu**
- 1880762** *Risk Assessment Framework of Coastal Dredging Sediment Plumes Based on K-means Clustering.:* **C He, F De Leo, A Stocchino, A J Abascal**
- 1939793** *Simulation of Supersaturated Total Dissolved Gas Transport in Compound Vegetated Channel:* **Y Yuan**
- 1863553** *Synchronous Measurement of Suspended Sediment Concentration and Particle Size Using Multi-Frequency Ultrasonic Attenuation:* **Q Zhong, D Han, Y Jin**
- 1870963** *The Mechanism of Velocity Distribution of Flow Through Submerged Vegetation and the Threshold for Associated Sediment Transport:* **W J Wang, H Q Z Zhao, Y X Xu**
- 1845437** *The Multiscale Impacts of Biofilms on Particle Transport and Geomorphology:* **J Q Yang**
- 1913106** *The Role of Microalgae in the Settling Process of Flocculated Cohesive Sediment:* **Y Xu, Y Zhang, Q He**
- 1864408** *The Utility Function of the Sustainability Performance of the Watershed System:* **C Liu, E Jiang**
- 1860612** *Thermal Density Currents as a Mechanism for Hypoxia Mitigation in Stratified Reservoirs:* **B Sun, Y Zhang, X Gao, X Liu**
- 1937893** *Tracking River Health from Origin to End: What Diatoms and Sediments Reveal About Reviving the Gomati River:* **P Tiwari, J N Vyas, P Chandra, N Kumar, B Thakur**
- 1882574** *Transport Characteristics and Source Analysis of Dissolved Organic Carbon in the Upper Yellow River Cascade Reservoirs:* **C Li, J HU, Y Yi**

246857

Undergraduate Research on Water Quality and Resources (joint with B, C, ED, GC)

Conveners: **Joel Singley**, Roger Williams University; **Sara Warix**, University of Utah; **Dylan Blaskey**, University of South Carolina; **Brooke Hunter**, Appalachian State University; **Brooke Hunter**, Appalachian State University

1884826 *Measuring Impacts of Varying Agricultural Land Use Types on Water Infiltration Rates of Two Soil Series in Northwest Missouri: Implications for Drought Resilience:* **B Buckbee**, A Zander, A Taylor

2002941 *SYNODONTIS MULTIPUNCTATUS:*

THE ULTIMATE DECEPTION IN PARENTAL CARE.: **A Acosta**, J Clayborn, A Mora

1965115 *A Budyko Based Assessment of Runoff Elasticity in the Mississippi River Basin Under 3 Future Climate Scenarios:* **C Hulse**, M T Durand, S P Coss

1884270 *A Tale of Two Creeks: Analyzing Water Quality in Two Tributary Streams of the Mohawk River:* **H Mirales**, E A Baker

1997396 *Community Perceptions and Water Quality Risks from Biosolids in Southwest Missouri:* **J Hembree**, I Patrick, J Kenlee, K Gibson, D Elmore, B Kenlee

1929041 *Ecoroof Runoff Mitigation Comparison by Photosynthetic Pathway in Three Species of Interest:* **H Thomson**, S Hartzell

1940407 *Evaluating Household Rainwater Harvesting Potential in Nepal:* **R Kaphle**, S Dahal, U Marasini, H Cho, V P Pandey Dr, H Holmes

1990008 *Evaluation of Lead and Potential Toxic Element Leeching and Subsequent Ground Water Contamination in High Permeability Soils From Recreational Firearm Usage:* **L Secord-Rider**, N Gordon, S Coykendall, M Zierden, B Southwell, D D Wright

1870179 *FABulous or Frightening? Exploring the Rise of Filamentous Algal Blooms in Mountain Lakes:* **P Guzman Tinoco**, I Oleksy, K Gannon, A Ross

250461

Underground Hydrogen Storage: Numerical, Analytical, and Laboratory Investigations (joint with GC, MR, SY)

Conveners: **Ipsita Gupta**, Louisiana State University; **Zachary Evans**, DarkVision; **Mohammad Zamehrian**, Louisiana State University

1873119 *Hydroclimatic and Ecological Controls on Dissolved Organic Carbon Fluxes in North Florida Forests:* **A Lebowitz**, M J Cohen

1885767 *Investigating Trends in Seasonality of Flow Timing and Flashiness Across the Northeastern US.:* **G Gazza**, J Sigal, C Kelleher

1885758 *Investigating Trends in the Frequency and Magnitude of High Flows Across the Northeastern US:* **J Sigal**, G Gazza, C Kelleher

1884855 *Land Use Effects on the Determining Factors of Water Holding Capacity within Two Common Soil Series in Northwest Missouri Agricultural Fields: Implications for Drought Mitigation:* **A Zander**, B Buckbee, A Taylor

1874751 *Nutrient Cycling in a Beaver-Impacted Urban Wetland:* **J Hamann**, D Knights, K Hoffman, E Kops

1975153 *Title: Observations of Transient Stream Drawdown Due to Groundwater Pumping in a California Central Coast Aquifer.:* **D Singer**, B Malama

1898708 *Tracing Anthropogenic Gadolinium Along the San Juan River, NM: A Geospatial Approach:* **D Samuel**, A Sethuraman, J Hoover

1874018 *Unmasking Hidden Drought and Irrigation Dependence with an Energy-Water based Index:* **V Manikandan**, A Saha, R Keen

1919032 *Urban Encroachment Jeopardizes Traditional Stone Waterspouts in Kathmandu:* **S Byanjankar**, S Deshar, S Lama, R Pudasaini, P Shrestha, Y Pokhrel, S SRaut, M Abrar Aalam, V P Pandey Dr, H Holmes, S Dahal

2003511 *Water quality analyses in Andean watersheds:* **J Cambeiro**, Z Castañón, K Keating, M M Lang, J Oshun, A N Paukert Vankeuren

1869245 *Water Quality and Habitat Assessments in Old River Park at the University of Dayton:* **M Hansen**, M Bradbury, Z Piso

1956158 *Water Quality Sampling Across US Census Tracts:* **C Aragon**, N Fernandez, J Epstein, J W Jawitz, M J Cohen

1903522 *Where's My Water? A GIS Analysis of the Location and Seasonality of Groundwater Discharge into Salmon-Bearing Streams in the Kenai Peninsula Lowlands, Alaska.:* **E Wilson**, K Rains, T Brigino, M C Rains, L Sutton

1976551 *A Numerical Study Of Hydrogen Generation And Mobility In Subsurface:* **M Prodanovic**, C Landry, R Ramanathan

1951352 *Characterization of hydrogenotrophic bacterial biofilm formation in underground hydrogen storage units:* **C Castleberry**, R Pei, M Kelso, K Maiti, A Roy, A Arumugam, M Braden, I Gupta, C Johnson

1863407 *Experimental Assessment of Geochemical Stability in Reservoir and Caprocks for Underground Hydrogen Storage in the Otway Basin, Australia:* **L Zeng**, R Sander, N Lupton, D Heryanto, J Ennis-King, R Harris, J Sutton, P Ryan

1882952 *Exploring co-injection dynamics and geochemical interactions during underground hydrogen storage in sandstone formations through experiment and simulation:* **A Verma**, M Pal

1926753 *Geochemical Reaction Experiments of Hydrogen-Brine-Rock Systems for Underground Hydrogen Storage:* **R Pei**, I Gupta, K Maiti, A Roy, C Johnson, A Arumugam

2000858 *Geomechanical behavior of cement plugs exposed to hydrogen:* **A Kamali Asl**, L Li, A R Kovscek

1939531 *Kinetics of Hydrogen-Mediated Pyrite Dissolution and Pyrrhotite Formation: Experimental and Simulation Study:* **D Driba**, L E Beckingham

249093

Understanding and Quantifying the Human Impacts on Water Cycle (joint with GC, SY)

Conveners: **Shahryar Ahmad**, Goddard Earth Sciences Technology and Research; **Timothy Lahmers**, University of Arizona; **Sujay Kumar**, NASA GSFC; **Joshua Roundy**, University of Kansas; **Timothy Lahmers**, University of Arizona

1859338 *Advancing field-resolution irrigation disaggregation to support agricultural water management and conservation:* **S C Zipper**, F K Khadim

1890920 *An evaluation of the model representation of natural and anthropogenic land surface fluxes for contrasting sites from the LLAISE field campaign:* **A A Boone**, M Best, B Marti

1949299 *Analysis of Well Depths from 1920-2023 for the Major Aquifers of Texas:* **H Davis**, M B Cardenas

1868396 *Assessing Human Impacts on the Water Cycle using Satellites, Modeling, and Monitoring Approaches:* **B R Scanlon**, A Rateb, S Fakhreddine, D Pool

1919319 *Assessing Sectoral Water Demands and Identifying Water Stress Hotspots in Indian River Basins:* **A P Kushwaha II**, V Mishra

1847144 *Attribution Analysis of Runoff Evolution in the Yellow River Basin During 1956–2022: A Perspective from Water Discharge into the Sea Variability:* **H Zhu**

1867070 *Changing Hydrology Under Climate Extremes: Quantifying Climate and Human Drivers in Large River Basins:* **S A Shah**, A T Ogunrinde, R Alharbi, X Xue Sr, A Q Butt, Y Nasurallah Jr

1908622 *Machine Learning Proxy for Rapid Prediction of Ultimate Hydrogen Recovery in Depleted Gas Reservoirs:* **M Chae**, T W Kim, Y Ahn, B Min

1973876 *Measurement of Hydrogen relative permeabilities for underground storage in the Simpson group formation - Anadarko basin:* **I Aldana**, S Baek, L Zhong, N J Huerta, PhD

1899393 *Modeling Microbial Sulfate Reduction and Methanogenesis During Underground Hydrogen Storage in Porous Media:* **J S Gallotti**, MSc, B N Hupp, P Berger, A M Wiens, M L Buursink, M M Jones, S T Brennan

1918908 *Structural Complexity of Salt Domes and Caprock as a Control on Energy Storage Feasibility and Volumetric Assessments:* **C N Schuba**, L G Moscardelli

1958271 *Historical and projected multisectoral monthly water demands for the contiguous United States:* **C Bracken**, H Niazi, T Thurber, K Mongird, N Voisin, N Sun, J S Rice

1894502 *Human contributions to evapotranspiration mitigate swings in dry to wet year transitions:* **Z Pierrat**, R Gustine, A Boser, S Ruehr, C M Lee, J T Reager II, K Cawse-Nicholson

1997076 *Hydrological Modelling for the Resilient Agriculture-Water-Community Systems Initiative:* **M Pokhrel**, H Cho

1898964 *Irrigation Influence on the US Great Plains Flash Drought of 2012: A Modeling Study:* **S Labhane**, M Osman, B F Zaitchik, N Parazoo

1955338 *Modeling Precipitation and Groundwater with Vector Autoregression: Irrigation-Driven Sensitivity of Deep Aquifers in Minnesota:* **G Kaplan**, A Yourd

1944157 *Modeling water management actions with SWAT+ and evaluating their impacts on model performance and streamflow regime:* **A Sánchez-Gómez**, A Pedrero-Redondo, J M Rodríguez Castellanos, E Molina-Navarro

1944236 *Observational evidence of increased afternoon rainfall downwind of irrigated areas:* **P Greve**, A Schmitt, D G Miralles, S S McDermid, K L Findell, A García-García, J Peng

2004489 *Quantifying Topographical Change Using Historical KH-9 Imagery Derived Digital Elevation Models:* **C Coakley**, M Munro-Stasiuk, J Tyner, S Kimsroy, S Rice

2005289 *Unraveling Climate and Human Influences on Streamflow Extremes in North America:* **S Bhattacharyya**, M A Hassan

1908219 *Unveiling Dam-Induced Hydrological Alterations in Mainland Southeast Asia:* **S Galelli**, D T Vu, S Fatichi, H Eldardiry, S S Mahto

1987888 *Using Integrated Hydrologic Modeling to Investigate the Spatiotemporal Characteristics of Droughts in Catchments with Human Water Management:* **B West**, L E Condon

251653

Understanding Distributed Sensing

Instruments for Scientific Discovery: A Guided

Tour through the Tools of Earth Science (joint

with A, IN, NS, S)

Conveners: **Haokai Zhao**, Massachusetts Institute of Technology; **Cian Dawson**, US Geological Survey; **Vidya Samadi**, University of South Carolina

248352

Upscaling of Multiphysical Transport in Porous

Media: Advancements in Analytical, Numerical,

Data-Driven, and Symbolic Computational

Methods for Scale Translation (joint with NG, NS)

Conveners: **Ilenia Battiatto**, San Diego State University; **Kyle Pietrzyk**, Lawrence Livermore National Laboratory; **Ziyan Wang**, Tsinghua University

1944544 *Advancing Methane Leakage Modeling in Shallow Aquifers with Wettability-Driven Capillary Heterogeneity Scaling:* **S Khandoozi**, S Gautam, C Dietsch, M Sahimi, D R Cole, R Soltanian

1859972 *Anisotropy in Multifractal Porous Media: A Simulation Approach:* **R Biswas**, B Sahoo, A Roy, D S Tripathy

1948662 *From Points to Polygons: Mapping Hydraulic Conductivities of Ohio's Aquifers:* **A Lanier**, M Potucek, M Scaccia, C Nelson

1896980 *Interception History: A Paradigm Shift for Particle Transport in Porous Media:* **B Al Zghoul**, W P Johnson, D Bolster, L Ullauri, S Volponi

1940093 *Macroscale Modeling of Microbial Reactions in Underground Hydrogen Storage Through Automated Symbolic Upscaling:* **M Ard**, I Battiatto

1931026 *Multi-domain reactive transport modeling of GHG cycling in macroporous agricultural soils with a focus on N₂O hotspots and hot moments:* **M Jia**, D R Lapen, D Su, U K Mayer

1881570 *When Conflict Meets Climate: Satellite-Based Assessment of Water Stress in the Sarsang Reservoir During the 2023 Blockade:* **I Raja**

1876784 *SkyMapper: A Global, Decentralized Network for Planetary and Atmospheric Science:* **F Marchis**, T Esposito, G Cid, S Vervaeet, S Pilorz, A Graykowski, J Hanus, R Lambert

1969266 *Techniques to compare and cross-calibrate DAS and seismometer data:* **G S Bainbridge**, S Karimi, Y Li, N Pelyk

1934275 *Wired, Winged, and Walking: Multi-modal Distributed Sensing Capabilities for Energy and Environmental Systems:* **Y Wu**, L Luo, J Wang, C Chou, H Chen

1991951 *Multi-scale Adsorption Behavior and Flow Mechanism of Capsule Polymers in Porous Media:* **B Wei**, Y Liu, J Hou

1955329 *Permeability Scaling Relationships from Core to Field Scale Measurements:* **D D Lucero**, S M Bourret, J P Ortiz, B Fritz, M Bodmer, J E Heath, K L Kuhlman, H Boukhalfa, S Otto, S M Ezzedine, B L Roberts, R Choens, M A Person, P H Stauffer

1854251 *Predicting multiphase flow and tracer transport for an underground chemical explosive test:* **J P Ortiz**, D D Lucero, E Rougier, E E Knight, S M Bourret, M Bodmer, B Fritz, J E Heath, C Neil, H Boukhalfa, K L Kuhlman, S M Ezzedine, B L Roberts, S Otto, R Choens, G Zyvoloski, P H Stauffer

1875714 *SKB Task Force GWFTS: Pragmatic Validation of Models for Flow and Transport in Fractures at the Simplified Network Scale:* **B Gylling**, P Trinchero, M Kröhn, S Choi, J Hyman, P K Chen, T T Wang, J Jankovec, A Frampton, B Stock, M Hokr, S Finsterle

1916079 *Solute Mixing Under Unstable Miscible Two-Phase Flow in Heterogeneous Media:* **E Pescimoro**, M Dentz, J J Hidalgo, M Icardi

1925912 *Upscaling Nonlinear and Coupled Transport Systems in Heterogeneous Porous Media:* **K Pietrzyk**

1883875 *Upscaling Two-phase Flow with Capillary Heterogeneity Effects Using Optimization and Convolutional Neural Networks:* **A Rabinovich**, S Dhar

254726

Urban Ecohydrology in a Changing Climate: People-Plant-Water Dynamics in the Built Environment

Conveners: Kyle Blount, Colorado School of Mines; Yujiu Xiong, Sun Yat-Sen University; Cynthia Gerlein-Safdi, University of Michigan; Claire Welty, Center for Urban Environmental Research; Zhaowu Yu, Fudan University; Jinhui Jeanne Huang, Nankai University; Elizaveta Litvak, University of California Irvine; Guo Qiu, Peking University; Zhe Shi, Peking University; Kun Zhang, University of Minnesota Duluth

1971702 *From Groundwater to Garden Beds: VOC Exposure and Attenuation in Urban Residential Landscapes:* **B F O'Leary**, S Black, B Gordon, G R Hood, C J Miller, S Miller, L Palliyil, G Szewc, K Tangen, L Thompson, T Tran, Y Wager, Q Wang, E Wiese, J A Westrick

1961092 *Adaptive Responses and Thresholds of Carbon and Water Fluxes in Urban Forests Under Drought and Heat Stress:* **J J J Huang**, T Chen

1885476 *Beyond Hydrological Control: Assessing the Thermal Performance of Permeable Pavements under Varying Rainfall Conditions:* **B Chen**, T F M Chui

1969289 *Biogenic and Anthropogenic Carbon, Water, and Energy Fluxes in Urban Systems Using COS, SIF, Net Ecosystem Exchange, and Multiscale Ecosystem Observations:* **M A Gonzalez-Meler**, A Cho, M B Berkelhammer, F Rios Bolivar, P Muradyan, B Raut, S Pal, R Matamala, M C Negri

1993113 *Can small-scale green elevation provide significant thermal comfort benefits in space-constrained cities?:* **A Borah**, A Datta, A Kumar, U Bhatia

1861475 *Capturing Pollution Pulses in an Urban Stream Network Using High-Frequency Water Quality Sensors:* **J Noriega Giménez**, A Vincent, A I Packman

1950339 *Cities and Their Cool Roofs:* **R Saher**

1965712 *Decoupling Data Center Growth from Water Stress through Strategic Innovation:* **L Marston**

1970945 *Ecohydrologic Controls on Vegetation Cooling in Arid Urban Environments:* **M C Levy**, Z Fang

1900293 *Enhancing Urban Water Conservation in Inland Southern California Through Smart Plant Selection and Autonomous Irrigation:* **A Verdi**

1985999 *Evaluating the Effectiveness of Low Impact Development Using Legislated Hydrological and Environmental Vulnerability Indices in Korea:* **H Kim**, H Lee

1977515 *Evaluating the Effects of Varying Urban Irrigation Levels on Groundwater Recharge and Surface Runoff at the Parcel Scale:* **Z Amiri**, A Bhaskar, C B Voter

1852868 *Evapotranspiration Could Significantly Slow Down the Regional and Global Warming:* **G Y Qiu**, C Yan, Z Shi

1882548 *From Plots to Cities: Using Multiple Methods to Improve Our Understanding of Heat-Water Interactions Across Scales in the Built Environment:* **K Blount**, G Pignotti, K B Moffett

1874472 *Hot urban green spaces: from heat sink to downwind cooling benefit:* **N E Rojas Robles**, A Neumann, K N Mitu, E R Vivoni

1933275 *Hydraulic Diversity and Infrastructure Inequality Shape Urban Forest Vulnerability:* **D M Ciruzzi**, J G Singley

1922323 *Impacts of Nature-Based Solutions on Hydrology and Extreme Heat within Coupled Land-Atmospheric Simulations:* **A Alexander**, C B Voter, D B Wright, S P Loheide III

1892845 *Large streamflow differences between forested and urbanized watersheds in the eastern United States: The role of evapotranspiration and impervious surfaces:* **G Sun**, Z Bian, K B Khand, P V Caldwell, J Boggs, C Wang, Y Chen, N Liu, Y Zhang, X Chen, G B Senay, S McNulty

1918536 *Modeled Land-Atmospheric Interactions from Widespread Rain Garden Implementation in Contiguous U.S. Cities:* **L Gray**, L Zhao, A S Stillwell

1869710 *Multi-objective optimization of heat-water-carbon trade-off induced by urban irrigation:* **T Xia**, Z Wang, Y Wang

1991805 *Reclaiming Urban Lakes as Blue-Green Assets: A Science-Based Restoration Model for Urban Lakes in Rapidly Urbanizing Regions:* **H B Valleru**, I Nambi, R Sadhasivam

1927721 *Sewers, Streams, and Planning Green: Understanding Sanitary Sewer I&I and Nature-Based Mitigation in Baltimore:* **D Pelletier**, R Zhang, PhD, L E Band

1945327 *Smart diagnostics for sustainable water management: perspectives from the Birmingham Urban River Observatory:* **D M Hannah, PhD**, L Kelleher, K Khamis, I Lynch, J C White, W Buytaert, T Yasmin, B Howard, S Krause

1920952 *Spatial Identification and Characterization of Critical Source Areas in Urban Watersheds Using Process-Based Modeling and Geostatistical Analysis:* **A Ebrahimian**, A Yahyavi Rahimi

1871772 *Spatiotemporal Pattern of Greenspaces Evapotranspiration in major Chinese cities:* **J Jiang**, W Zhao, W Yan, G Y Qiu, Y Xiong

- 1888906** *Species Co-occurrence and Distribution Probability in Urban Mangrove: A Case Study of Futian Mangrove, Shenzhen Bay:* **H Guo**, R LI, X Shen, M Xu, L Zhang
- 1884068** *Structured Integration of Runoff Management into Challenging Soil Ecosystems – A Comprehensive Assessment in Southeast Coastal Texas, USA:* **Q Qian**, T Selvaratnam, L Haselbach, Y Zhang, W Shuster
- 1944175** *Study on Reference Vegetation Temperature Simulation and Evapotranspiration Estimation Using the Three-Temperature Model:* **L Mantik**, N Xuan

252085

Urban Forest Dynamics: Integrating Geospatial Data and Process-Based Models

Conveners: **Rubab Saher**, Purdue University; **Brady Hardiman**, Purdue University; **Daniel Aliaga**, Purdue University

- 1884954** *Correcting Urban Canopy Area Estimates for Management and Planning:* **C Pawlak**, M Ritter, G S Okin, G A Fricker, J Yost, T W Gillespie
- 2002927** *Evaluating the Long-Term Ecosystem Service Benefits of Trees using i-Tree Eco and Determining Student Willingness to Pay (WTP) at The University of Texas Rio Grande Valley:* **J Gonzalez**, A Racelis, A Bostic

253310

Walter B. Langbein Lecture

Conveners: **Venkataraman (Venkat) Lakshmi**, University of Virginia; **Venkataraman (Venkat) Lakshmi**, University of Virginia; **James Famiglietti**, Global Institute for Water Security, University of Saskatchewan

252843

Water and food security: discovery and engineered solutions for a changing world (cosponsored by AMS: American Meteorological Society) (joint with GC, NH, SY)

Conveners: **Francisco Munoz-Arriola**, University of Nebraska Lincoln; **Anna Wilson**, Center for Western Weather and Water Extremes (CW3E), Scripps Institution of Oceanography, UC San Diego; **Michael Dettinger**, Scripps Institution of Oceanography

- 1876331** *A Review of Water Security: Definitions, Indicators, and Emerging AI & ML Applications:* **K Baburaj**, A Aavudai, P Natarajan, D Sundar

- 1914859** *Trees as stormwater infrastructure: diverse canopy traits of different species have implications for rainfall partitioning to stemflow, throughfall, and interception:* **K E Mueller**, J van Stan II, S Blair, C Wischmeyer, T Swanson, J Bastock, N Lewis

- 1876752** *Understanding Urban Park Cooling: Linking Vegetation, Microclimate, and Surface Temperature:* **K N Mitu**, N E Rojas Robles, E R Vivoni

- 1942957** *Urban ecohydrology, flood risk, and equity along the Pearl River, Mississippi:* **G M Kondolf**, D Shields, B Herbert

- 1939715** *HIGH-RESOLUTION URBAN ABOVE-GROUND BIOMASS MAPPING USING GEDI AND SENTINEL DATA: A CASE STUDY OF GYEONGGI-DO, KOREA:* **J Lee**, S Kim, C Park

- 1863108** *Novel LiDAR Indices Reveal Scale-Dependent Vertical Structure and Typologies in a Temperate Forest:* **S Lee**, U Ha, H Lee, H Kim, Y Song

- 1877737** *Quantifying the Air Pollution Mitigation Function of Urban Forests: Evaluating NO₂ Impacts via Machine Learning-Based Integration of Satellite and Ground Observations:* **H D Sou**, D Y Chang, Y Cho, J Woo, Y Hahn, C Kim, J Jeong, S Choi, C R Park

- 1899975** *The Influence of Tree Canopy Cover Data Choices on Urban Ecosystem Accounting:* **L Sweet-Breu**, G Cermak, L Corro, P C Ibsen, M P Heris, R Atal, R McManamay, J Diffendorfer, K Bagstad

- 1860550** *Building Resilient Water and Healthy Food Systems in the Hilly Regions of Bangladesh: A Transdisciplinary Approach Integrating Hydroclimatic, Landscape-based Analysis, Community Realities, and Expert Insights:* **N Dey**, G Rasul Shohan OR, G A Singh Sr, L Ghose OR, J Malakar Sr, T Habib JR, S Saha SR

- 1959215** *Drought effects on soybean yield and economics in Brazil:* **G Parisoto**, F Munoz-Arriola, F G Pilau

- 1966105** *From Projections to Practice: Visualizing Climate Data for Agricultural Resilience in Africa:* **M Perera**, M D Leh, N M Velpuri, G Fernando, S Ekanayake, K Mekonnen, K Akpoti, A Owusu, L Maduskanka, P Thilina-Prabhath, T Perera, A Seid

1900481 *Innovative, Low-Energy “High Performance Biodigester–Downflow Hanging Sponge (HPBD–DHS) System” for On-Site and Decentralized Blackwater Treatment:* **A Tomar**, V Tyagi, A Rajpal, A A Kazmi

250109

Water and Society: Emerging Digital Solutions to Transform Governance of Coupled Human-Water Systems and interconnected urban infrastructure in the Anthropocene

Conveners: **Marta Zaniolo**, Duke University; **Newsha Ajami**, San Francisco Public Utilities Commission; **Alvar Escriva-Bou**, Public Policy Institute of California; **Andrea Cominola**, Technical University of Berlin; **Marie Philine Gross**, Technische Universität Berlin

1921172 *A Bayesian hierarchical framework for utility water demand reconstruction:* **C Moore**, M E Borsuk, B Rachunok, M Zaniolo

1907406 *A Generalizable and Adaptable Sociohydrological Model: A Modular Framework for Coupled Human–Water Systems:* **S S Kamble**, J Lee, H Jeong

1868623 *Accelerating Insights into the Safe Operating Spaces of Adaptive Water Supply Investment Pathways through Scalable High-Performance Computing Workflows:* **L Lau**, P M Reed

1988527 *Dynamic Failure Mapping: Integrating System Dynamics Modeling and Fault Tree Analysis for Drinking Water System Resilience and Public Health Risk Assessment:* **S Kheirinejad**, T Bixler, W Mo

1863247 *Expecting the Unexpected: Hydro-Economic Multi-Sector Modeling for Resilience Against Emerging Rural-Urban Water Scarcity Risks:* **C J A Klassert**, T Carvalho, J Yoon, A Wang, J Heilemann, S Werner, M Nagpal, B Klauer, E Gawel, S M Gorelick

248836

Water and Society: Innovations in Transboundary Water Resources Management

Conveners: **Ali Mirchi**, Oklahoma State University; **Amir AghaKouchak**, University of California Irvine; **Dalal Najib**, National Academy of Sciences; **Daniel Placht**, National Academy of Sciences; **Kasra Khodkar**, Oklahoma State University

1876328 *A Dynamic DRASTIC Framework to Analyze the Spatio-temporal Impacts of Human and Climate-Related Drivers on Groundwater Sustainability in the Transboundary Indus Basin:* **M U Akbar**, A Mirchi, A Arshad, A Mansaray, K Madani, A Saif Ullah

1889621 *Explainable AI Reveals Time-Varying Effects of Media Coverage on Household Water Savings During a Drought:* **E Lee**, S Choi, S Lee, H Yoon, N K Ajami, X He, J Kam

1909074 *From Households to Governance: Highlighting Urban Water Equity Trade-Offs in a Megacity:* **H F Khan**, Z A Usmani

1871619 *Quantifying Discretionary Authority in United States Water Reservoir Management: A Comparative Analysis by Agency, Climate, and Reservoir Purpose:* **P Wasswa**, M Doyle

1846783 *Quantifying the Impact of Climate Change on Household Water Use in Mega Cities: A Case Study of Beijing, China:* **Y Zhang**, Y Zhu, H Li, L Wang, L Zhang, H Ding, H Wang

1897707 *The Coupled Hydrology-Human Activity Information (CHHAI) Dataset: A Global Benchmark Dataset for Model Comparison and Evaluation:* **A Boschee**, A AghaKouchak

1883264 *Towards a pan-European socio-hydrological model for flood adaptation under climate change:* **D Paprotny**

1866525 *Using human social sensing to understand public perception of the water environment:* **J Lee**, M KIM, J KIM, H Jeong

1982217 *Validation of an Agent-based Model for Price and Income Elasticity of Demand Simulation:* **B Vizanko**, A Shelley, L Ormsbee

1974113 *A Global Assessment of Water Resource Vulnerability and Coping Capacity:* **D Y de Oliveira**, A Hjelmstad, C A Love, D Najib, D L Feldman, A Mirchi, D Placht, A AghaKouchak

1908174 *Assessing the Effectiveness and Limitations of Modelling Downstream Impacts on Nile Hydropower Dams:* **M Ramah**, E Heggy, E Hanert

1924521 *Assessment of Springs as Rural Water Resources in the Fergana Valley of Southwest Kyrgyzstan:* **S Orunbaev**, A E Fryar, B Asanov, G Jalilova, K Rignall

1917234 *Bridging Nexus and Diplomacy: Integrating the Water-Energy-Food Nexus in Transboundary River Governance:* **Y Khajavigodellou**, E F Moran, J Qi, J Chen, Z Zarrin

1929335 *Building Trust in Data Sources Used to Govern Transboundary Aquifers:* **D Manshardt**, C Kirchhoff

- 1871224** *Climate-Driven Hydrological Changes and Transboundary Water Security Across the Asian Water Tower*: **S Aryal**, Y Pokhrel
- 1948605** *Coordinating and Advancing Multinational Monitoring and Modeling Systems for Global Transboundary Water Resources Management*: **A Gronewold**, H Abdelhady, R Athreya, P Bye, A Gossard, R S Gupta, R Hoops, M Ombadi, V Rueda, B Saint Louis, S Steinschneider, Y Ming
- 1881716** *Crop Water Requirements in the US side of the Rio Grande-Bravo Basin*: **S Dhakal**, B D Richter, E Prunes, L Marston
- 1960075** *Evaluating Transboundary Water Cooperation in Central Asia: From Rapid Assessment to Template Development*: **B Holmatov**, J Lautze, M McCartney, I Abdullaev, B Abdurakhmanov
- 1881859** *Geo-web downscaling tool for GRACE/GRACE-FO: Advancing global groundwater monitoring & management in observation-constrained transboundary aquifers*: **A Arshad**, A Mirchi, C He, R Abolafia-Rosenzweig, A AghaKouchak
- 1856802** *Impact of Transnational Land Acquisitions on Transboundary Waters*: **P D'Odorico**, J Dell'Angelo, M C Rulli
- 1922428** *Inclusive Hydroclimatic Modeling and Debt Relief Can Resolve Disputes on Transboundary River Resources in Developing Nations*: **E Heggy**, M Ramah, E Hanert, A Farag
- 1914627** *Is Water Security Achievable? Evaluating High Resolution Hydrologic Interbasin Dynamics in the Western United States*: **T Piechota**, J Fuery, L Kauer
- 1890260** *Modeling Hydropolitical Risk under Large-Scale Dam Development in the Yarlung Tsangpo–Brahmaputra Basin Using AI-Based Geospatial and Hydrological Analytics*: **J Zhao**, Y Tan
- 1989077** *Navigating The Water Footprint of AI Data Centers in Transboundary River Basins: Risks, Governance, and Per-Workload Footprint Analysis*: **A Dogra**, A Mehran
- 1871023** *Policy Analysis of Transboundary Agreements in the Mano River Basin*: **A Mansaray**, A Mirchi, A Barrie, M Juanah
- 1886453** *Quantifying Renewable Groundwater in Transboundary Groundwater Conflicts using Numerical Models*: **N Wasankar**, P Clement
- 1954168** *Remote Sensing-Based Analysis of Long-Term Surface Water Spread in the Indus River Basin, India*: **A Sharma**, C K Singh
- 1985797** *Social Network Analysis of Transboundary Water Governance in the Kura-Aras Basin*: **S Erfan**, S Jafarzadeh
- 1847639** *Sustainable Demand Management of Transboundary Water Resources using Multicriteria Approach*: **S Kumar**, B R Chahar, C T Dhanya
- 1846260** *Teaching confidence-building in resolving transboundary water disputes to public officials – from theory to practical application: a case study in Tanzania*: **D L Feldman**
- 1855135** *The Benefits of State-Aware Reservoir Operating Policies in Transboundary Water Systems: Exploring Input Selection and Policy Architecture Under Hydroclimate Uncertainty*: **C Swanson**, S Steinschneider
- 1919428** *The Shrinking Caspian Sea: Ecological Destabilization under Compound Human and Climate Stressors*: **J Duku**, A AghaKouchak
- 1899682** *Transcontinental Climate Data Collection and Sharing: A decade of progress with Trans-African Hydro-Meteorological Observatory*: **J S Selker**, N Van De Giesen, F O Annor
- 1855430** *Using Water Conflict and Cooperation Events to Illuminate the Impact of Management Interventions in Transboundary Watersheds*: **K A Brauman**, M McCracken, S Schmeier, A Wolf, P Beames, S Wallace, P Nadel
- 1922372** *Water Weaponization? Evaluating the Impact of Indus Waters Treaty Suspension on Pakistan's Water and Food Security*: **B Iftikhar**, A Anwar, A Iftikhar, B W Arif, U Saeed, A Ullah, I Abid
- 1938625** *An Integrated Remote Sensing and Computer Vision Techniques for Automatic Detection of Ancient Subsurface Water Systems*: **D Kumar**, D Tikare, P Kbvbn, U B, S K Regonda
- 1983577** *Bridging Human Perception and Disaster Risk Management: The Role of City-Scale Digital Twins in Urban Resilience*: **M Haraguchi**
- 2004033** *Climate-adjusted probability of default model: A framework for integrating physical climate risk for residential mortgage*: **S Ma**, Z He, C Craig, J Porter

250048

Water and Society: Translating new digital solutions and modeling advancements into improved water management and decision making (cosponsored by EGU: European Geosciences Union) (joint with IN, SY)

Conveners: Julie Shortridge, Virginia Polytechnic Institute and State University; Hannu Marttila, University of Oulu; Marko Keskinen, Aalto University

- 1975997** *Developing a Climate-Smart Decision Support System for Water Allocation in the Upper Syr Darya Basin under Climate Change:* **J Huang**, I Rocabado, J Coma, B D'Haeyer, L Alcamo, T Schaffhauser, G Baviskar, P K Rai, R J Hogeboom, H Paeth, M Disse
- 1942462** *Hydroclimatic Extremes in a Warmer World: A Storyline-Based Assessment of the 2024 Valencia Flash Floods:* **J J Leal Rojas**, A Chandrasekar, S Muller, M Kelbling, V S Lüdke, A Marx, S Thober
- 1866840** *Leveraging Digital Tools for Inclusive and Sustainable Rural Water Management: Lessons from Kerala's Jalandibi Initiative:* **S Babu**
- 1955047** *Linking Parametric Uncertainty to Ecosystem Service Outcomes in a Decision-Support Groundwater Model:* **L Swenson**, S C Zipper, C Wardropper, N Afzal, A Zwickle
- 1845641** *Modelling nature-based solutions for nitrogen and phosphorus reduction in northern agricultural catchment: SWAT+ model and digital tools to help decision making:* **H Marttila**, J Bhattacharjee, N Aga, M H Taki, P Valkama, J Aroviita, K Rankinen

247777

Water and Society: Water Resources

Management and Policy in a Changing World

(joint with GC, NH, SY)

Conveners: **Antonia Hadjimichael**, Organization Not Listed; **Matteo Giuliani**, Politecnico di Milano; **Christine Kirchhoff**, Pennsylvania State University Main Campus; **Rafael Schmitt**, Stanford University

- 1892920** *Exploratory Modeling to Better Understand How Changing Drought Extremes May Shape Water Supply Vulnerabilities in the Delaware River Basin:* **T Amestoy**, P M Reed
- 1973689** *GIS-Based Screening Framework for Green Infrastructure Prioritization in Flood-Prone Urban Neighborhoods: A Case Study from Cherry Hill, Baltimore:* **X Zhou**, J Atayi, J G Hunter
- 2004328** *A Collaborative Risk Informed Decision Analysis Vulnerability Assessment Framework for the Trinity River Basin:* **J Harrell**, S Benson, G Mendoza, M Bridgers, L Ostadrahimi
- 1977488** *A Holistic Modeling Framework for Resilient Water Management in the Colorado River Basin:* **B Tezcan**, S Danekar, M E Garcia
- 1873792** *A Human-Water Systems Perspective on Vegetation Cooling and Water Constraints in Arid Regions:* **M C Levy**

- 1954158** *National-scale modeling tools support the United States National Integrated Water Availability Assessment:* **E Stets**, A Archer, M L Erickson, PhD, PE, G Gorski, A Martinez, L Medalie, M A Scholl, J Marshall
- 1861075** *Progress toward regular National Integrated Water Availability Assessments for the Nation: Trends in water supply components from 1983–2021:* **G Gorski**, O Miller, E Stets, A Archer, M A Scholl, A Martinez, B Linhoff, M F Meyer, S A Archfield, J Marshall
- 1847531** *Sustainable Water Governance and Digitalization: Status and Needs of Public Sector Actors in Finland:* **A Malmström**, M Lantto Klein, M Pihlajamäki, M Keskinen
- 1878744** *The Chesapeake Global Collaboratory: Implementation and Case Studies:* **V Coles**, R R Hood, K Rose, J M Testa, R J Woodland
- 1870687** *Water Scarcity Attribution in the Western U.S. using Interpretable Machine Learning Emulators of Process-Based Hydrologic Models:* **Y Luo**, D S Grogan, S Zuidema, R B Lammers, J Zheng, M Lisk, K Fisher-Vanden, S Olmstead, V Srikrishnan
- 1880851** *A Regional-to-Local Scale Framework for Water Security Assessments:* **A N Birnbaum**, C Chini, PhD, T B Wild
- 1961853** *Advances in Decision Support to Aid Participatory Colorado River Basin Water Management:* **J R Kasprzyk**, E A Zagana, C Jerla, J R Prairie, A Butler, R Smith, N Bonham
- 1850603** *Advancing Clean Energy and Environment Resilience through CSR in Lakhra's Coal Mining Region, Pakistan:* **A L Junejo**
- 1894969** *Assessing and Managing Interrelated Water Supply and Financial Risks in the Colorado River Basin – a Dynamic Basin-scale Approach.:* **I Burnett**, G W Characklis, P M Reed, S V Sunkara, T Thurber
- 1865058** *Assessing Climate Impacts on Agricultural Water Requirements in the Upper Colorado River Basin through a Stochastic Weather Generator:* **A B Thames**, A Hadjimichael, J Quinn
- 1857940** *Can large language models replicate human decision-making in water system management?:* **W Arnold**, J D Herman, M Giuliani, A Castelletti
- 1863072** *Clarifying How the Drivers of Future Water Shortages Change across Regional to User-level Scales in Colorado's West Slope River Basins:* **S V Sunkara**, D Gold, P M Reed
- 1980813** *Climate Extreme-Induced Economic Impacts on California Crops, Livestock, and Communities:* **J Medellin-Azuara**, S Kishore, A Escrivá-Bou, A Konialian, J M Gilbert, J T Abatzoglou, J H Viers

- 1979053** *Co-adapting Drought Indicators and Management to Shifting Hydrologic Conditions:* **K Willebrand**, S Vicuña, J A Gironas, O Melo, D Sallis, S Fletcher
- 1904258** *Collaboration between science and law to contribute to Japan's new flood management policy:* **T Tebakari**
- 1914045** *Combating riverine saltwater intrusion with reservoir operations: combining machine learning and multi-objective reinforcement learning:* **E Heidtman**, A Hadjimichael
- 1868228** *Community-Engaged Modeling of Urban Flood Adaptation Pathways for Baltimore:* **A Spangler**, A Hadjimichael
- 1878110** *Dam Heightening as a Climate Adaptation Strategy in the Italian Alps:* **M Merlo**, M Giuliani, R Boes, F Di Marco, D Avesani, B Majone, A Castelletti
- 1987205** *Decision rules for salt -feedback loops in One Water systems and their implications for collective management:* **M Rippy**, B Roston, S Misra, S B Grant, T Schenk, T A Birkland, S Kaushal
- 1931378** *Dynamic Flood Adaptation Pathways: A Data-Driven Framework for Strategic Infrastructure Planning Under Climate Uncertainty:* **J Oh**, M D Bartos
- 1884015** *Dynamic Modeling of Livestock Water Use: Integrating Machine Learning and Physiological Variability:* **H T Dagne**, M M Mekonnen
- 1967732** *Dynamic Optimal Reservoir Control in the Panama Canal:* **J Prieto**, S Galelli, A Ortiz Bobea
- 1983994** *Exploration for High-Strength Ammonia Removal in Recirculating Aquaculture Systems using Microbial Consortium:* **G Lee**, K Yoo, H Kim
- 1961046** *Exploring Alternative Formulations of Multi-Objective Reservoir Operations Using Borg-RiverWare:* **J R Kasprzyk**, E A Zagona, D Neumann, P Lynn
- 1895840** *Exploring Irrigation demand response of the post-2026 Colorado River Operations Alternatives:* **F Hung**, B Mohajer, J S Famiglietti, Y C E Yang
- 1899464** *Freezing the Socio-Environmental Footprint of Hydropower on Rivers:* **R Almeida**, C Arantes, S Bhattarai, S Cardoso, A F M K Chowdhury, A Del Claro, C R D C Doria, E Fluet-Chouinard, S Galelli, K Garrett, S Heilpern, G A Herrera-R, R Kelman, J Laufer, Z Li, P B McIntyre, R McManamay, I Miqueleiz, M Miranda, J Opperman, F Pacheco, T V Royer, R J P Schmitt, S Sethi, S Thomas, Y Upadhyay, T B Wild, A C Wilcox, A Valerio, C Gomes, A Flecker
- 1937961** *From Grande to Chico: 125 Years of Human-Driven Water Discharge Decline in the Lower Rio Grande/Bravo:* **A Casillas**, T Y Dong, J Benavides, S Dee
- 1949089** *Future Dynamics of Water Availability and Hydropower Potential at Existing US Reservoirs:* **C Hansen**, C J Bastidas Pacheco, J Gallego-Calderon, G R Ghimire, S Gangrade, S C Kao
- 1907795** *Global Mapping of Forecast Uncertainty Constraints on Reservoir-Supported Managed Aquifer Recharge Potential:* **H Chen**, X He
- 1974459** *Humans and Hydroclimate in the US: Tackling Complex and Evolving Water Problems in the Anthropocene:* **T Schneider**, S A Tessendorf, P J van Oevelen, A L Dugger, K Skalak, Y Li, C Kirchhoff
- 1987025** *Hydro-Social Analysis of Micro-Watershed Sustainability in Coastal Bangladesh:* **J Alam**, S B Murshed
- 1912054** *Hydropower Efficiency Is Declining. By How Much, and How Can We Adapt?:* **V Yildiz**, N Voisin, M Zaniolo
- 1905331** *Impacts of Climate Change on Domestic and Industrial Water Demand: Focusing on Regional Socioeconomic Vulnerability:* **E Kim**, H Yoon
- 1878512** *Integrating Deep Learning and Thermal Control into Water Management Modeling of the Delaware River Basin to Better Capture Stream Temperature and Salt Front Dynamics:* **C Y Lin**, T Amestoy, J A Zwart, G Gorski, P M Reed
- 1861339** *Integrating Quantitative and Qualitative Approaches to Address Saltwater Intrusion and Sea Level Rise Impacts on Coastal Forestry in Maryland:* **J Sharapi**, E White Jr
- 1903632** *International Approaches to Freshwater Ecosystems: the Noce River, Italy and Yuba River, California, USA:* **S Triantafillou**, J Rees, J Hampton, K Alford, L Bouzan, K Evans, M Hallmark, J Israel, L Murdoch, E Pandrin, B Riddle, K Waldman, N Pinter, S M Yarnell
- 1906546** *Long-Term Socio-Hydrological Responses to Governance Design and Climate Change in Agricultural Drainage Systems:* **J Kim**, P Ranjan, D J Yu, R Bhattarai, H Jeong, K Kim
- 1911692** *Macroeconomic Impacts of a Changing Water Cycle: Evidence from Global and Chinese Subnational Data:* **Q Tang**, Y Ren, M Kotz, G Leng, S Sun, L Rosa, G Zhao, D Chen
- 1959316** *Modeling With Expert Stakeholders: Building Audience and Improving Usability of Scientific Models:* **B C Anderson**, D M Hall, PhD, S R Adelsperger, D L Ficklin
- 1998991** *Modeling Freshwater Inflows to Estuaries under Climate Change: A Physically-Based Approach:* **H Ji**, Y Song, T Bindas, C Shen

- 1962821** *Optimizing Reservoir Operation Under Changing Climate in the Central Himalayas*: **R Baniya**, Y S Neupane, R Talchabhadel, S Sharma, J Panthi, G R Ghimire, S Bista, R Prajapati, B R Thapa
- 1980127** *Re-designing reservoir operations for a decarbonizing grid under climate change*: **S Singh**, J Quinn, J Wessel, J Kern, J D Herman, R I Cuppari, G W Characklis
- 1850845** *Scalable Estimation of Reservoir Dynamics Using Remote Sensing, Machine Learning, and Geospatial Analytics*: **H Eldardiry**, S S Mahto, J D Herman, S Galelli
- 1954805** *Simulating Community Dynamics in Rural-Urban Water Transfers through an Integrated Agent-Based and Input-Output Modeling Approach*: **E Beyer**, M Amaya, L Marston, B Franklin
- 1866927** *Spatiotemporally Explicit Energy Storage Deployment Strategy for a Resilient, Decarbonized Power System in Mainland Southeast Asia*: **Z LI**, Z Liu, R J P Schmitt, X He
- 1922038** *Structural uncertainty in the representation of reservoir management in hydrologic models*: **A Sánchez-Gómez**, J D Herman, H Eldardiry, S Galelli

249722

Water and Society: Interdisciplinary approaches toward sustainable infrastructure across the water-energy-food nexus (joint with GC, NH)

Conveners: Rafael Schmitt, Stanford University; **Rafael Almeida**, The University of Texas Rio Grande Valley; **Caroline Arantes**, West Virginia University; **Alexander Flecker**, Cornell University

- 1857006** *Assessing Drought Impacts on Agricultural Systems Through a Water-Energy-Food Nexus Lens in the U.S. Deep South*: **P Moghaddasi**, A Roy, H Moradkhani
- 1991288** *Assessing the impacts of climate-induced freeze-thaw cycle variations on water line service connection failures: A case study in Alberta, Canada*: **K Sundarapuram Jayabalan**
- 1912055** *Assessing Water Security Indicators under Climate Changing Scenarios in the Semiarid Region, Brazil*: **P G da Silva**, M Benso, G Baviskar, J Galvencio, M Krol, E M Mendiondo
- 1916038** *Balancing Environmental Flow and Hydropower Generation for Sustainable Reservoir Operation in a Himalayan River Basin, Dudhikoshi*: **Y S Neupane**, R Baniya, M R Kafle, R K Regmi

- 1975191** *The human right to water in a changing climate: Shifting government roles and responsibilities in water allocations for human health and safety*: **J L Rempel**, K Dobbin
- 1856800** *To What Extent Are Carbon Sequestration Programs Relying on Indigenous Land and Water Resources?*: **P D'Odorico**, B Reade Malagueno, L Ricciardi, M Muller, M Tathego, M C Rulli
- 1969833** *Trends in Water Quantity, Quality, and Use in the Conterminous United States: Assessing Changes in Water Availability for Human and Ecosystem Use (1980-2023)*: **O Miller**, E Stets, G Gorski, T Partridge, A Martinez, A Archer, S A Archfield, M J Cashman, A Dondero, M L Erickson, PhD, PE, B Linhoff, L Medalie, M F Meyer, J Peschman, K Powlen, S Lindsey, M A Scholl, M E Shoda, T Stagnitta
- 1906154** *Understudied and Overlooked: A Global Scan of Water Research Gaps Across River Basins*: **S Alsharari**, J C Adam, M Liu, K Rajagopalan
- 1891230** *Using GIS for Spatial Assessment of Saltwater Intrusion of DAF Installations*: **A Kincaid**, C Chini, PhD
- 1898726** *Vulnerability of Urban Water Systems to Changing Droughts: The Case of Santa Rosa, California*: **S Vicario**, M E Garcia
- 2003504** *Bridging waters: Transboundary stakeholders on freshwater conservation in the Western Amazon*: **J Laufer**, A Buitrago, N Marin, M Lujan, F Briceño, S Athayde, P Olivas, C Jenkins, E Anderson
- 1863384** *Building Beyond the Costs: Estimating Overlooked Benefits of Water Infrastructure in the Ohio River under Low Flow Conditions*: **T Odunola**, E Emery, G Atreya, J Kucharski, P A Ray
- 1991375** *Equitable Low-Carbon Transition via Multisector Infrastructure Planning*: **A Ashraf**, M Basheer, J M Gonzalez, E A Martinez, M Etichia, E Obuobie, A Bottacin-Busolin, J F Adamowski, M Panteli, J J Harou
- 1869269** *Hydropower and the Sustainable Development Goals*: **E Hite**
- 1910789** *Hydropower Resiliency, Regulated Rivers, and Climate Adaptation: Project RE-HYDRO*: **E R Patro, PhD**, J Ahonen, C K Nakigudde, M Cunico, P Andreasson, G Hellström, A Andersson, A Soikkeli, A Torabi Haghighi, N J Singh
- 1980652** *Implications of hydrological change in floodplain ecosystems – from the Southeastern U.S. to the Amazon and beyond*: **S Correa**
- 1871674** *Incorporating Streamflow Dynamics into Clean Energy Transition for Sustainable Energy and Riverine Biodiversity in Mainland Southeast Asia*: **Z Liu**, X He
- 1998789** *Infrastructure Readiness for Floating Photovoltaics Development in US Reservoirs*: **R Zeng**, A Blair

- 1916673** *Lost Power, Lost Value: Economic Costs of Hydroelectric Dam Water Bypass*: **Y Ao**, M Pavicevic, Q M Ploussard, PhD
- 1968632** *Opportunities for Microgrids in the Built Agricultural System*: **C J Bastidas Pacheco**, K G Cafferty, M Sun
- 1876895** *Performance Analysis of Small-Scale Reverse Osmosis-Based Desalination Plants in Coastal Bangladesh*: **S Das Sowmya**, S B Murshed
- 1970803** *Projecting Future Global and Regional Hydropower Expansion Considering Human and Earth System Interactions*: **G J Kim, PhD**, Y Zhang, M Binsted, H Niazi, A F M K Chowdhury, M Zhao, T B Wild, J Lamontagne
-
- 248324**
Water Quality and Watersheds: From Scientific Innovations to Actions (joint with B)
Conveners: Heather Golden, US Environmental Protection Agency; **Emine Fidan**, University of Tennessee; **Tim Covino**, Colorado State University; **Qian Zhang**, Johns Hopkins University
-
- 2004059** *Projecting the Distribution of Aquatic Species of Greatest Conservation Need in the Mid-Atlantic United States*: **C Arantes**, A Lawrence, H Dertli, B Murry, C Rota, P Mazik
- 1891483** *The Spatial Organization of Animal Farms and Water Quality Outcomes in the Western Lake Erie Basin*: **L Ramsey-Sapp**, L Miralha, PhD
- 1849892** *The Nonpoint Source Challenge: Obstacles and Opportunities for Meeting Nutrient Reduction Goals in the Chesapeake Bay Watershed*: **Z M Easton**, K Stephenson, B Benham, J K Bohlke, A R Buda, A Collick, L Fowler, E Gilinsky, A J Miller, G B Noe, L Palm-Forster, L A Shabman, T Wynn-Thompson
- 1925368** *Water Quality Variability in the Chimehuín River (2000–2025): Insights from Long-Term Monitoring in Northern Patagonia*: **M Pepe**, A B Prieto, T J Kennedy, A Tallarico Esteve, F Morrone, J Melo, M Cahuin Baigorria, E Tolosa, H Revolero Rubilar
- 1998665** *Advancing Predictive Skill of a Cyanobacterial HAB Integrated Early Warning System in Northeastern Lake Champlain Toward Operational Implementation*: **P D Oikonomou**, A Zia, P J Clemins, R Bano, M Adil, N Beckage, S Turnbull, K Hannoun, P D Isles, A W Schroth, D M Rizzo
- 1887381** *Anthropogenic Signatures in Groundwater: Systematic Hydrogeochemical Monitoring of a Fractured Volcanic Aquifer in South America*: **C Müller Athayde**, B Amaral, R Guimarães Sr, P Nascimento, L Garcia, M Olivi, G Athayde
- 1910118** *Promoting Water, Energy, and Food Synergy and Livelihood Improvement in Remote Areas through Siphon-Based Micro-Hydropower Technology*: **T H Lin**, J C Wen
- 1913623** *Strategizing Renewable Energy Transitions to Preserve Sediment Transport Integrity*: **X He**, B Xu, Z Liu, S Yan, R J P Schmitt
- 2004531** *U.S. FISHPAD (FISH Passage At Dams) dataset to support river network sustainability studies*: **R McManamay**, E M Prior, K Garrett, A Corry Roberts
- 1849172** *Water Infrastructure Development in Tropical River Basins: Hydro-Ecological Implications and Emerging Challenges*: **Y Pokhrel**, D Kramer, H Dang, S Sainjoo
- 1963761** *Fecal Pollution Sources in Mobile Bay, AL Identified by eDNA and Nutrient Indicators*: **P Demetriades**, A Brown, J Jones, R H Carmichael, S Ni Chadhain, B Kiel Reese
- 1971158** *Following the Flush - Novel Time-Integrated Isolation and Quantification Method for Sediment-Associated Fecal Indicator Bacteria in Small Catchments*: **E A Elliott**, C Baroni, M Elliott
- 1859001** *Hydrologic Connectivity Is a Key Driver of Biogeochemical Function in Headwater Wetlands*: **A N Kirker**, C N Jones, D Peterson, J Morejon, L Molina Serpas, C Tatariw, E Rice, R Wells, J E Nettles, X Chen, B Mortazavi, J Stegen
- 2001589** *Molecular Diversity of Dissolved Organic Matter Reflects Macroecological Patterns in River Networks*: **M E Newcomer**, E Freeman, M K Mudunuru, R Gonzalez-Pinzon, K Feeser, S Krause, E McClure, J Pena, C Ward, E Bottos
- 1879830** *Nationwide Assessment of Long-Term Nutrient Trends and Flow-Driven Concentration Changes Across U.S. Watersheds of Varying Social Vulnerability*: **C Oates**, K Grieger, N Nelson
- 1874670** *Response of Stream Metabolism to Hurricane Helene and other Stormflow Disturbances*: **J Adams**, M J Kurz
- 1934405** *Scenario-Driven Mitigation of Water Quality Hotspots in Hydrologically Sensitive Coastal Watersheds*: **S Tsegaye**, M G Kebedew, A James Dr, A Bottcher Dr, K K Albrecht, R R Rotz
- 1957237** *Seasonal Patterns in Stream Solute Concentrations Across the Continental United States*: **D Dai**, J Lee, S Soleymani Hasani, A Oliveira, D Presswood, H Klammler, J Blaszcak, A Musolff, M Arias, J W Jawitz, M J Cohen
- 1951479** *Sediment fingerprinting for unmonitored basins using machine learning*: **A Percich**, A Husic, PhD

1879981 *Spatiotemporal Nitrate Trends under Agricultural Management: Quantifying the Influence of Climate, Hydrology and Humans:* **L Yang**, K Khamis, J Knapp, J R Larsen

1848986 *The reliability of confidence intervals for annual river loads by WRTDS:* **A Tada**, K Tanaka

2004114 *Tradeoffs between ecological services versus impacts with wastewater-based flow augmentation in semi-perennial streams:* **J Jatko**, R McManamay, J Back

246837

Water Resources, Ecohydrology, Ecological Restoration and Management in Cold and Arid Regions

Conveners: **Rong Liu**, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; **Qi Feng**, Key Laboratory of Ecological Safety and Sustainable Development in Arid Lands, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; **Meng Zhu**, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; **Zhenliang Yin**, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences

1929386 *Performance Challenges and Optimization Strategies for Constructed Wetlands in Cold Climates: A Systematic Review and Meta-Analysis:* **M Shahmohammadmirab**, W Sohn, T Quillinan

1845295 *A Novel Integration of Self-Organizing Maps and NETPATH Inverse Modeling to Trace Uranium and Toxic Metal Contamination Risks in West Mecsek, Hungary:* **M H E Hemida**, M Viktoria, P Szucs

1850637 *Advancing Clean Energy and Environmental Resilience Through CSR in Lakhra's Coal Mining Region, Pakistan:* **A L Junejo**

1908878 *Analysis of Groundwater Storage Changes Using Satellite Data and Ground Observations in the Semi-Arid Region of the Lower Chenab Canal:* **N Saddique**, M H Ali, M Aleem, M Miaohua, I Khan

247177

Water Use and Impacts of Emerging and Challenging Economic Sectors

Conveners: **Christopher Chini**, ; **Landon Marston**, Virginia Polytechnic Institute and State University

1850155 *Using Correlation of Dissolved Nitrogen and Phosphorus to Total Dissolved Solids as Pollution Indicators in Agricultural Watersheds:* **M Z Iqbal**, Z Harper

1969382 *Water Quality Baseline Monitoring in Coastal Alabama:* **O Pickett**, N LaBon, F Allison, J C Lehrter

1866885 *When It Rains, It Pollutes – Investigating Fecal Indicator Bacteria Loads from Improper Wastewater Disposal in Rural Alabama Creek:* **H Tandy**, E A Elliott, M Elliott, C Baroni, T Hester, R Behzadnia

1906043 *Analysis of Spatiotemporal Evolution and Driving Forces of Land Desertification in Typical Semi-arid Regions of China: An Explanation Based on Interpretable XGBoost-SHAP Machine Learning Model:* **Z Wang**, S Feng

1887560 *Assessment of Riverine Wetland Degradation and Health Using the Pressure-State-Response Framework:* **J Seo**, H Lee, J Lee, Y Kang, S Baek, S Kim, H S Kim

1887662 *Attribution of Climate and Human Impacts on Water Conservation Capacity in the Yellow River Source Region Using a Multi-Indicator Hydrologic Framework:* **Q Duan**, R Sun

1850188 *Hydraulic Properties within the Complete Moisture Range of Hydric Soil on the Tibetan Plateau:* **R Liu**, X Wang Dr

1876598 *Impact of Freeze-thaw Process on Soil Hydrological Process in An Alpine Region of Northeast Qinghai-Tibet Plateau:* **L Yang**

1957722 *Integrated Environmental and Hydrogeochemical Study of the Orkhon River and Its Tributaries:* **T O Soyol-Erdene**, M Davaadorj, E U Batkhuyag, J Zhang, W Ouyang, J Chen, A Sharkhuu

1889334 *New alternative dryland state maintained by human water subsidies: pattern, resilience, and sustainability:* **A Li**, B WANG, M Zhu, C Xu, L Wei, F QI

1897957 *SOIL MOISTURE PRODUCT VARIABILITY: STATISTICAL INTERCOMPARISON OF SEVEN DATA ASSIMILATION MODEL AND SATELLITE REMOTE SENSING DATASETS ACROSS NEW YORK STATE:* **A Monroe**, T Ault

1938391 *Soil Salinity Management in Cold Regions: A Meta-Analysis of Field Studies:* **L Prasad**, Y Vats

2006775 *Integrating Emerging Demands into Regional Water Supply Planning: A Watershed-Scale Assessment of Data Centers' Water Use.:* **A Seck**, C L Schultz, S N Ahmed, MSc in Civil Engineering

2000119 *Cooling Systems in Data Centers: A Technical Review of Water-Based Methods, Emerging Alternatives, and Environmental Considerations:* **K Tamaddun**, T Goldber, P DeStephano, K Mongird, D Goodman, V Tidwell

- 1878632** *Future water use associated with U.S. data center service growth:* **T B Wild**, S Waldhoff, M Zhao, P L Patel, M A Wise
- 1969965** *Mapping the Nexus of Data Centers and Water Resources Using Remote Sensing: A Case Study in China:* **S Bakar**, V Lakshmi, P A Beling
- 1986214** *Scenarios and Drivers of Future Data Center Water Consumption:* **E Masanet**
- 1864424** *Understanding the evolution of urban water use in the context of coupled nature-human systems (CNHS):* **H Dave**, X Cai, D Stipanović

250566

**Water, agriculture, and conservation:
Sustaining agricultural production and healthy
watersheds (joint with B, GC, GH, SY)**

Conveners: **Bin Peng**, University of Illinois Urbana-Champaign; **Kathleen Bailey Boomer**, Smithsonian Institution; **Kaiyu Guan**, University of Illinois Urbana-Champaign; **Ming Pan**, Scripps Institution of Oceanography; **Yaji Wang**, University of Illinois at Urbana-Champaign

- 1870052** *Abiotic Stress Impacts on Soil-Plant-Microbe Agroecosystems in Soybean Production:* **L Fultz**, E Han, PhD, A Sadeghpour, C Chang, M A Hassan, D Timlin, D Fleisher
- 1846098** *Agricultural Hydroinformatics: Rethinking agricultural systems management using a sociotechnical approach:* **P Celicourt**, PhD, A N Rousseau, S Gumiere, M Camporese
- 1942086** *Agriculture Systems as Coupled Human-Water Systems: Bidirectional Feedbacks and Emergent Phenomena:* **M Sivapalan**, P Medeiros, X Chen, F Tian
- 1885701** *Assessing economic and hydrological effects of water-saving irrigation using a coupled SWAT–MODFLOW–AquaCrop model:* **S Hu**, Y Ding, S Cui, Y Li, J Zhao
- 1975219** *Assessing the Efficacy of Agricultural Conservation Practices in Improving Watershed Hydrology and Water Quality under Various Alternative Scenarios:* **S Srivastava**, T Roy, A Basche, Y Yuan, E Traylor
- 1870899** *Balancing Agricultural Expansion and Ecosystem Service Preservation in a Warming Northern Canada:* **Y Zhong**
- 1849076** *Biochar as a soil amendment applied to agricultural non-point source pollution control:* **C Fan**, Y Z Huang, C J Lin, T S Tan
- 1994932** *Cover cropping and tillage impact soil health and root-zone water quality in a humid region:* **M Dhakal**, M Locke, K Reddy, M T Moore, J Krutz, W Steinriede Jr

- 1922336** *Understanding the Growing Energy-Water Nexus of Data Centers:* **E Sjöstedt**, K F Fowler, R Rushforth, B L Ruddell
- 1946277** *Water Footprint of Digital Infrastructure Amid Climate Uncertainty in Pakistan:* **T Siddiqui**, H Khan, M Awais, A Muhammad
- 1922726** *Water Resource Challenges in CO₂-Based Sustainable Aviation Fuel Production:* **M M Wu**, K H Baek, L Tao, Y Li, J Zhang, Z Huang
- 1945914** *Data-driven Assessment of Crop Water Productivity and Energy Productivity for Optimal Resource Use in India:* **A K Sikka**, S Mahapatra, M Radhakrishna, U Amarasinghe, M Perera, R Sharma
- 1901044** *Deciphering Water-Well Hydrographs: From Meteorologic Extremes to Agricultural Crises:* **J J Butler Jr**, G Bohling, S Nozari, B B Wilson, D O Whittemore
- 1918335** *Developing a Targeted Conservation Framework for Nitrogen Loss Reduction Based on Watershed Typology in the Upper Mississippi River Basin:* **Y Song**, B Peng, Q Zhao, Z Ma, M Pan, K Guan, Y Wang, J Yang, M Jia
- 1993816** *Early-Season Mapping of Crop Types and Irrigated Areas Using High-Resolution Satellite Data and Machine Learning:* **M Farhadi**, B Leib, Q Wu, H Herrero, D C Yoder
- 1909061** *Effects of vegetation recovery in slope failures and removal of the headworks on agricultural water withdrawal — Case study of large-scale slope failures caused by the 2018 Hokkaido Eastern Iburi Earthquake, in Japan —:* **K Tanaka**, A Tada
- 1984064** *Enhancing the Application of Seasonal Weather Forecasts for Regional Crop Modeling and Irrigation Management:* **Q Su**, S Ale, S Himanshu, J Singh, V P Singh
- 1877035** *Evaluating Maize Grain Yield and Carbon Dynamics under Nonstationary Climate Conditions:* **M Yeon**, G Lee, D Woo
- 1963158** *Evaluating the role of integrated agricultural-reservoir systems on water quality: Opportunities for improved management:* **D Villarreal**, R L Muenich, T Liu, T Steissberg
- 1916457** *Evaluating Water Use Efficiency in Diverse Field Crops in Arid Environments:* **E Vizuite**, N E Rojas Robles, A Haros-Verdugo, A Rial, R Barzin, L Gaesser, V Hobbins, M Johnson, W Bills, K Merrigan, E R Vivoni
- 1920287** *Event size and antecedent drought index govern hydrologic impacts of tile drainage in agricultural watersheds:* **S Rathore**, B Sloan, S L Painter

- 1947707** *From Deficits to Storage: Data-Driven Tools for Agricultural Water Management:* **A Owusu**, N M Velpuri, M E Adamseged, M D Leh, K Akpoti, K Mekonnen, P Schmitter
- 1941194** *From Field to Basin: Reconciling Irrigation Efficiency With System-Level Water Governance In Arid Environments:* **A Mazzoni**, E Delpiazzo, L Napolitano, A Borgo, G Rianna, M Debolini, A Trabucco, S Mereu
- 1976449** *Groundwater at Risk: Modelling U.S. Crop Yields Under Aquifer Depletion and Climate Extremes:* **C Bowden**, S Tyagi, T Foster
- 1965919** *Harnessing agrisolar PV to address water scarcity in irrigated regions:* **A D Kendall**, J T Stid, J Bingaman, A Anctil, S C Zipper, H Szydlowski
- 1848953** *High Resolution SMAP Soil Moisture to Identify Irrigation and Overwatering in Agriculture:* **A Turman**, B Fang, R Smith, V Lakshmi
- 2001328** *Impact of Agricultural Ponds on Regional-Scale Hydrology:* **D Yang**, L C Bowling, K A Cherkauer
- 1968947** *Impacts of agricultural conservation practices on hydrology based on modeling of Northern High Plains watersheds.:* **L Spor Leal**, T Roy, D Uden, K Schoengold, T Mieno, D R Bhattarai, R Khadka
- 1868388** *Impacts of Irrigation on Water Resources in the United States:* **B R Scanlon**, A Rateb, D Pool, T Votteler
- 1962919** *Integrating Reanalysis and Satellite Data to Reconstruct Historical Crop Water Requirements and Yield of Open Field-Grown Tomato:* **A Pelosi**, A Aprile, O Rosario Belfiore, G D'Urso, G B Chirico
- 1888336** *Managing cropland nitrogen-phosphorus limitations for global water quality:* **Y Chen**, B Gu
- 1905614** *Modeling watershed nitrogen loss responses to cover cropping in the Upper Mississippi River Basin:* **Y Wang**, B Peng, Y Song, Z Ma, Q Zhao, J Yang, K Guan, M Jia
- 1962831** *Multi-Model Ensemble Forecasting of Irrigation Needs for Precision Irrigation Management:* **G B Chirico**, A Aprile, O Rosario Belfiore, G D'Urso, A Pelosi
- 1941327** *Nature-Based Hydrological Interventions for Food Security in the Coastal Zone of Bangladesh:* **J Alam**, S B Murshed
- 1879491** *Near-real-time crop mapping to support return flow estimation and water allocation in California's Central Valley:* **M R L Mautner**, R Díaz Gómez, C A Young, J Choi, M Holland
- 1961056** *Performance Evaluation of Lined Farm Ponds for Water Conservation and Irrigation in Semi-Arid Regions of Maharashtra:* **M More**, S Khose, MTech, K Khating
- 1913546** *Regionalizing the ACEA Model with Remote Sensing for Water Footprints in the Upper Syr Darya Basin:* **G Baviskar**, T Foster, R J Hogeboom, M Krol, H Su
- 1880218** *Saltwater Intrusion Vulnerability Assessment of Aquifers in Maryland using the GALDIT Framework:* **K Pumphrey**, A Voropaeff, J Orser, K Mobley, M L Humber, A Bredder
- 1857849** *Soil Contribution to Buffering Agroecosystems Against Climate Change:* **Q He**, L Li, Y Shi, P Feng, K Liu, S Zhang
- 1928163** *Sub-Watershed Scale Agro-hydrological Responses and Global Sensitivity Analysis of Regenerative Agricultural Practices Using APEX in the North Fork Red River Basin, USA:* **N Saasan**, A Mirchi, A Kaghazchi, S Alian, K Wagner, S Ale
- 1989852** *The Agricultural Imprint on Watersheds and Water Quality in the United States:* **E W Boyer**
- 1953875** *The effects of regenerative agricultural practices on the hydrological behaviour of the cold, water-limited Prairie landscape:* **L Guo**, C Spence, C J Whitfield, W Helgason
- 1871769** *The Impact of Cropland Transfer on Rural Household Income in China: The Moderating Effects of Education:* **X Ji**, Y Wang, L Yang, C Li, L Chen
- 1858139** *Timely adaptation mitigates heat stress but increases to excessive Rainfall: a case study for global barley:* **L Li**, K Liu, Q He
- 1977068** *Tracking agricultural regime transitions across the United States using historical data:* **S Vishwakarma**, M Ashfaq, J Kumar, F Hoffman
- 1950106** *VPD-induced yield loss in U.S. cotton and potential for its mitigation:* **R Qin**, K Guan, B Peng, R F Grant, J Tang, E A Ainsworth, X Xu, W Zhou, Y Yang

251459

Wetlands to Wetlandscapes: Wetland Hydrologic and Biogeochemical Functions Under Natural and Human Disturbances (joint with B, GC)

Conveners: **Frederick Cheng**, Colorado State University; **Kimberly Van Meter**, Organization Not Listed; **Amy Hansen**, University of Kansas; **Frederick Cheng**, Colorado State University

1980739 *Assessing the Impact of Acute Saltwater Intrusion on Wetland Gas Concentrations, pH, Redox Potential, and Salinity in Mineral and Organic Soil Freshwater Wetlands:* **I Melton**, M Mashiyat, E Fromenthal, C L Stagg, J Villa

1896044 *Assessing the Natural and Future Resiliency of Key Wetland Ecosystem Services in the face of Natural Changes, Disturbances, and Growing Populations:* **A Hinson**, C J Hapeman, G Mccarty, X Zhang, L Du, M Rabenhorst, K J Van Meter

1874478 *Assessment of Landscape Fragmentation in Loktak Wetland Complex to Guide Restoration and Management Efforts:* **A Vlk**, R Sinha

1895647 *Beaver-Induced Groundwater-Surface Water Interactions in Southern New England Wetlands: A Model-data Integration Approach:* **Y Kim**, L Wang, M A Briggs, A Argiro

1978217 *Combining satellite data and water balance modeling to evaluate the hydrological connectivity of geographically isolated wetlands in the Prairie Pothole Region:* **J K Golla**, S Bansal, K Mcfarlane, M Zavarin

1924728 *Denitrification Potential in Coastal Deltas Increases with Residence Time Despite Reduced Hydrologic Connectivity:* **E G Henson**, P Passalacqua

1881125 *Dredged Canals, Wetland Loss, Legacy in Louisiana:* **R E Turner**, E Ohimain, G McClenachan

1898411 *Evaluating water level and sediment dynamics in agricultural and forested geographically isolated wetlands (GIWs):* **S Rauén**, S Chatterjee, F C O'Donnell, O S Stuber, S T Brantley

1881144 *From Gatekeepers to Last Defenders: Downstream Wetland Drainage Fuels Chlorophyll-a in Lake Winnipeg Lakes:* **M Dallosch**, I F Creed

1905649 *Global wetland area projections under climate change: Evaluating evapotranspiration formulations and soil moisture constraints:* **D Kim**, E Kim, S Im

1963357 *Hydrodynamics-informed remote sensing monitoring of restoration in the transboundary Sundarbans wetlands:* **A Devda**, T Albrecht, J L O'Connell

1929627 *Hydrological controls on wetlandscapes net primary productivity:* **S Shrestha**, PhD, J Epstein, E Lee, K Glodzik, M J Cohen

1987299 *Impact of Floating Wetlands on Nitrate and Phosphate Reduction in Urban Waterways: A 5-Year case study of the North Branch Canal, Chicago:* **D Chukwudi**, E W Peterson

1920826 *Inundation Dynamics of Depressional Wetlands Modulates Annual Catchment Water Cycle in a Large Portion of Prairie Pothole Region:* **J Rahmani**, A Ameli, P Badiou, I F Creed

1867043 *Inundation frequency as a driver of soil organic carbon accumulation in a temperate riverine floodplain:* **J Jo**, M Yeon, D K Woo

1876907 *LANDSCAPE IMPEDANCE AND HYDROLOGICAL PATHWAYS IN WETLAND ECOSYSTEM: A MULTI-YEAR CONNECTIVITY ASSESSMENT OF BAKHIRA WETLAND, INDIA:* **A Pandey**, M Rawat, B Yadav, P K Gupta

1923035 *Modeling Wetlandscape Stage and Connectivity Dynamics with the Advanced Terrestrial Simulator (ATS):* **S Shrestha**, J W Jawitz, M J Cohen

1963955 *Remote Sensing of Depressional Wetland Albedo and Land Surface Temperature, with Implications for Global Climate Change:* **M Podolinsky**, T L O'Halloran, J L O'Connell

1892270 *Spooky Swamps: How methane emission rates and their spatial variability differ between the Great Dismal Swamp and the Alligator River:* **K Pham**, K Paredero, S Hughes

1949908 *Stand, Wetland, and Catchment Water Yield Responses to Forest Management in a Coastal Plain Wetlandscape:* **M J Cohen**, J Maze, K Glodzik, E Lee, S Shrestha, PhD, S M M Sadeghi, A Deljouei, D L McLaughlin, J Epstein

1966046 *Surface Ponding as a Missing Link in Earth System Models: A scheme for the NOAA GFDL Land Model:* **L T Torres Rojas**, PhD, S Malyshev, E Shevliakova, N W Chaney, M Lee

1914923 *Understanding the Role of a Terminal Wetland in Regulating Excess Nitrogen:* **E Hassanzadeh**, A Nazemi

1973207 *Wetlandscape Configuration and Structure as Predictors of Watershed Hydrologic Signatures:* **F Y Cheng**

1847802 *Year-Round Modelling of Peatland Hydrology from Water Table Depth or Near-Surface Peat Water Contents and Soil Temperature:* **D D Dimitrov**, J Warren, D M Ricciuto, X Shi

249241

Where Flood Connects Us: Integrating Physical Models, Social Dimensions, and AI Innovations

(joint with A, EP, NH, SY)

Conveners: **Alka Tiwari**, Organization Not Listed; **Zhi Li**, University of Oklahoma; **L. Ruby Leung**, Pacific Northwest National Laboratory; **Scott Collis**, Argonne National Laboratory

- 1926148** *Weather Jiu Jitsu: Adaptive Chaos Control with Deep Learning of Atmospheric Dynamics to leverage the power of the atmospheric circulation with nudges to move or defuse storms and avert catastrophic flooding:* **U Lall**, Q Huang, M Liu, H H Kwon, Y Kwon
- 1900584** *A Machine Learning-Enabled Socio-Economic Vulnerability Assessment Integrated with the SYNXFLOW Hydrodynamic Flood Model in the UK Context:* **J Jain**, X Xia, D Khare
- 2002172** *A Multisensor Framework for Understanding Hybrid Flood Events from Hurricane Helene (2024):* **A Tiwari**, D Niyogi
- 1902919** *Advancing Flood Susceptibility Prediction with Deep Learning in North Fork Kentucky River Basin, Eastern Kentucky:* **S Pahari**, N D Gani
- 1987208** *AI-Powered End-to-End Simulation for Projecting Downscaled Extreme Precipitation, Flooding, and Infrastructure Resilience:* **A Posch**, R Dave, A Haley, A Chaudhary, A Ganguly
- 1913323** *Bridging the Global Warning Gap for Flash Floods: A Generalizable AI Framework for Real-Time Forecasting:* **O Zlydenko**, R Mayo, I Zemach, D Cohen, O Gilon
- 1913552** *Chronicle – a Gemini constructed dataset of real world flood events from news:* **O Zlydenko**, R Mayo, I Zemach, M Bootbool, D Cohen, O Gilon
- 1970149** *Depth-Based Urban Flood Modeling for Road Network Accessibility Analysis:* **S Priyadarshi**, S Priyadarshi, A Sinha
-

250043

Wireless Data Networking for Distributed Sensing in the Earth Sciences: Connecting the Sciences (joint with B, IN, NH, NS)

Conveners: **Cian Dawson**, US Geological Survey; **Vinit Sehgal**, Louisiana State University; **Stijn Wielandt**, Lawrence Berkeley National Laboratory; **Peng Fu**, Louisiana State University; **Vinit Sehgal**, Louisiana State University

- 1893382** *FLAI: An AI-Powered Platform for Flood-Risk Communication:* **S Li**, M Zajac, A A Ramirez Molina, J Gong, F Juarez, C Barbaccia, C Kulawiak, N Hubbell, C Erickson, S Hanegan, J Garcia
- 1997114** *Flood Severity AI: Bridging Community Intelligence and AI for Flood Resilience:* **C Reed**, J K Drapkin
- 1990753** *Hydrologic and geochemical Impacts of Mountaintop Mining on Flood Severity in Eastern Kentucky:* **M Kibria**, E Harris, A McKinney
- 1868697** *Intersecting Social Vulnerability and Compound Flooding in Coastal U.S. Communities:* **M F Mitu**, G Sofia, E S Ouimet, E N Anagnostou
- 1926089** *Social Learning and Flood Adaptation via a Bayesian Agent-Based Model:* **E Amini**, M Madajewicz, V Srikrishnan
- 1947477** *Toward disability-inclusive flood solution: a systematic literature review:* **J Huang**, W Mo, F Han
- 1959371** *Twin Monsoon Floods of 2024–2025 in Eastern Bangladesh: Integrating Forecasting Models, Local Impacts, and Regional Data Gaps:* **M K Das**, M A Hossain, S F F F Sowrav, D M S Hossain, S Karmakar, P Biswas Paul, J U Khan, M F Methila, A S Islam, M S H Bhuyian, F Akter, F Abdullah, S R Singha, M M Hoque, T Terao, A R Shawon, S T Ovi, N Biswas, K M Ibtehal, S Bhowmik, S T B Haider, M R Hasan
- 1890152** *Urban Flood Intelligence in Forecasting, Mapping, and Resilience: A Synergetic Framework:* **J Zhao**, Y Chen, Q Xu, A Reimuth, X X Zhu
- 1990528** *Using Natural Language Processing to Reveal Coordination Gaps in Multi-Scale Government Flood Adaptation:* **I Tavarez**, A C Clement, B F Sanders, S Lindemann, K Larson Mohr, E M Martin, J E Schubert, M C Sukop, K J Mach
- 1917453** *Where Floods Connect Us: A Decade of Progress in Urban Flood Modeling and Water Infrastructure Advancements in Chicago, Illinois:* **M H Garcia**, S Y Park, D A Hence, S W Nesbitt
- 1977321** *Data Mobility for Field Science: Towards a future where science users are first class customers supported by research and engineering networks:* **A Wiedlea**, S Wielandt, C Dawson
- 1933303** *Design Methods for Remote Solar-Powered LoRaWAN-based Sensor Network Infrastructure:* **S Selbe**, J Lewallen, S Allen, V Zaunbrecher, V Deblauwe
- 1905878** *Empowering Undergraduate Research Through LoRaWAN-Enabled Sensor Networks: A Coastal Salt Marsh Case Study from the FS3 Critical Zone Summer Program:* **M Field**, A K Manda, M Sirianni

1962848 *Expanding access to environmental monitoring through a distributed sensing approach using LoRaWAN:* **B Dessimond**, A K Manda, S M Moysey, R Howard, C Finney

1895783 *LaCADIAN: An Integrated Architecture for Field-Scale Environmental Sensing and Telemetry in Louisiana:* **M N A Agyiri**, V Sehgal, S D Conger

253315

Witherspoon Lecture

Conveners: **Venkataraman (Venkat) Lakshmi**, University of Virginia; **Venkataraman (Venkat) Lakshmi**, University of Virginia; **James Famiglietti**, Global Institute for Water Security, University of Saskatchewan

249339

Subsurface Processes for Energy Production and Storage, Carbon Mitigation, and Waste Disposal (cosponsored by GSA: Geological Society of America, JpGU: Japan Geoscience Union, MSA: Mineralogical Society of America, SEG: Society of Exploration Geophysicists) (*joint with H, NG, NS*)

Conveners: **Behzad Ghanbarian**, University of Texas at Arlington; **Cheng Chen**, Stevens Institute of Technology; **Bo Guo**, University of Arizona

1870405 *Application of 3D-printing technologies in the construction of well-controlled heterogeneous permeability fields to study their role on solute dispersion in porous media:* **B Adeyemi**, C Chen, M Esmailpour, R Guo

1864184 *Characterisation of solute transport and retention properties in the crystalline bedrock in north-east of Taiwan:* **P Trinchero**, F Grandia, M López, G Roman-Ross, J Sammaljärvi, M Siitari-Kauppi, J Y Shen, P Y Chuang, C C Ke

1991555 *Characterization of potentially permeable intervals in a highly fractured granitic rock mass using wireline logs:* **Y Jo, PhD**, M Kim, C Lee

1929942 *Chemical Characterization for the Cooperation in Cement Degradation Research for Geological Disposal:* **C M Lopez**, A C Sanchez

1939548 *Effects of Hydrothermal Alteration on the Long-Term Performance of Natural Barriers in Mesozoic Granite from South Korea:* **S Jung**, N K Kim, J M Choi, K W Park

1955643 *Evaluating the impact of spatial variability on uranium diffusion in the three main facies of the Opalinus Clay at Mont Terri (CH):* **T Hennig**, M De Lucia, M Fabbri

1948032 *Many Hands Make Light Work: a Mathematical Justification for Distributed Sensing Systems in Environmental Measurement:* **P Marchetto, PhD**, A Kroo, S Selbe

1985659 *Fundamentals of Particulate Amendment Transport in Artificially-Induced Hydraulic Fractures for Effective Remediation in Low-Permeability Clay:* **O Elagab**, Z Ding, D Fan, N Durant, A Danko, C J Werth, C Chen

1941438 *Hydrogeochemical Assessment for Deep Geological Disposal of Radioactive Waste in Granitic Formation: A Preliminary Case Study:* **H Choi**, H R Kim, S Park, H Kim, Y B Jung

1885564 *Laboratory Investigation of the Performance of Electrically Conductive Proppants under High-Temperature and High-Pressure Conditions in Enhanced Geothermal Systems:* **S Wang**, C Chen

1906834 *Pore Water or Groundwater Chemistry: What Governs Uranium Migration in Opalinus Clay?:* **T Hennig**, T Schöne

1872816 *Predicting mineral reaction rates in subsurface energy systems:* **L E Beckingham**

1998247 *Rethinking Carbon Sequestration Plume Stability and Trapping in the Context of Heterogeneous Formations and Directional Multiphase Flow Properties:* **R Larson**, S M Benson, Director Precourt Institute, and Professor, Stanford University

1950264 *Simulations of CO₂ storage in selected structures of the Negev Jurassic aquifer:* **R Rosenzweig**, P Kumar, Y Sagy, O Bar, R Calvo

1870595 *Stress- and Temperature-Regulated Pressure Solution and Ion Exchange in Bentonite-Carbonate Mixtures: Implications for Geological Disposal of Nuclear Waste:* **M Goli**, Y Wang, C Chen

1873500 *Temperature-regulated Element Leaching and Hydrogen Generation During Basalt-CO₂-Brine Reactions:* **M Zeng**, M Ji, Y Cheng, C Chen

1942275 *Transient permeability in ductile rocks: the competition between deformation and healing:* **M Violay**, G Meyer, F Lazari

1901637 *What Does Control Neptunium Migration in Opalinus Clay? A Step-wise Approach Using Reactive Transport Simulations:* **T Hennig**, M Stockmann, C Joseph, V Brendler, T Reich, M Kühn

251241

Bridging Advances in Physics, Mathematics, Information Technologies and Complex Systems Intelligence across the Earth and Space Sciences (*joint with A, H, IN*)

Conveners: **Rui Perdigão**, Meteceanics Institute for Complex System Science; **Julia Hall**, Vienna University of Technology (TU Wien)

252317

Extreme Variability, Scales and Complexity: from Theory to Computational Techniques, from Urban Systems to Climate and Pandemics (cosponsored by AOGS: Asia Oceania Geosciences Society, EGU: European Geosciences Union, JpGU: Japan Geoscience Union) (*joint with A, GC, GH, NH*)

Conveners: **Daniel Schertzer**, Organization Not Listed; **Anastasios Tsonis**, Hydrologic Research Center; **Shaun Lovejoy**, McGill Univ; **George Sugihara**, Scripps Institution of Oceanography, University of California San Diego

1896618 *Multifractals and Artificial Intelligence:* **D J M Schertzer**, H Zhou, I Tchiguirinskaia

250101

Multi-Hazard Flood Modeling: From Inland to Coast (*joint with EP, H*)

Conveners: **Felix Santiago-Collazo**, University of Georgia; **David Muñoz**, Center for Complex Hydrosystems Research; **Francisco Peña Guerra**, Galt Group Inc.; **Avantika Gori**, Rice University

1993946 *Physics-Based Models for Simulation of Compound Flood Events: Navigating Consistency, Complexity, and Computational Demands:* **M Narayanaswamy**

1936608 *A Machine Learning Approach for Mapping Compound Inundation in Coastal Watersheds:* **O Vilorio**, F L Santiago-Collazo

1970292 *Bivariate Design Storms Don't Work: A theory-driven investigation and stylized case study:* **N Geldner**

1916365 *Effectiveness of Prairie Restoration to Reduce Compound Flooding in the Lower Brazos River Basin, TX:* **M Gueriot**, A Gori, T Furrh, P B Bedient, J Blackburn

1846167 *MXene-Graphene Hybrid Films as Tunable Smart Materials for Subsurface Environmental Sensing:* **C Abuoudah**, M KM

1955407 *System-of-Systems for Multi-Hazard Risk Intelligence Networks (SoS4MHRIN): from Theory to Operation:* **R A P Perdigão**, J Hall

1898482 *Scaling energy storage and scaling energy transport: the Half-order Energy Balance Equation and temperature projections to 2100:* **S Lovejoy**, D Lebiadowski

1907635 *Physically Grounded Origins of Precipitation Intermittency Beyond Universal Cascades:* **S Andria**, E Zorzetto, G G Katul, M Marani

1909186 *Resilient-by-Intermittency Principle:* **D J M Schertzer**, I Tchiguirinskaia, G Drouen

1930554 *Correcting Boundary Bias in Climate Networks: A Comparative Evaluation of Surrogate-Based Methods:* **B Ghanbarian**, V Oladoja, K Bosikun, T Jamali, J Kurths

1944215 *Generalized Categorical Physical Intelligence (GCPI): Deciphering Non-Ergodic Nonlinear Nonlocal Multiscale Spatiotemporal Neo-Systemic Complexity and Predictability:* **R A P Perdigão**

1978652 *Self-Affine Scaling of Earth's Islands:* **M Oline**, B B Cael, M Silber, J Hoskins

1917642 *Enhancing Coastal Flood Hazard Modeling with Synthetic Event Design:* **S Mahmoudi**, D Rounce, M Weathers

1953097 *Evaluating Shifts in Riverine-Coastal Flood Transition Zones Under Changing Environmental Conditions:* **K Serafin**, A Recalde, R Jane, T Carasella, T Wahl

1891163 *Evaluating the Role of Storm Characteristics, Sea-Level Rise, and Land Use Change on Compound Flood Impacts in Jackson County, Mississippi:* **M Weathers**, D Rounce, S Mahmoudi, I Y Georgiou, M Bregman

1879075 *Fast Riverine Flood Modeling with SFINCS: Case Studies in Texas, North Carolina and Washington State:* **T Leijnse**, K Nederhoff, R de Goede, M Van Ormondt, K van Asselt, A Van Dongeren

1892245 *Generating Synthetic Storm Events for Compound Flood Modeling in a Tri-variate Probabilistic Framework:* **P M Mahanthé Gamage**, S Santamaria-Aguilar, T Wahl, R Jane, S Dangendorf, H Kim, G Villarini

- 1894591** *Geospatial Frequency Analysis of Transition Zones in a Multi-watershed ADCIRC Model*: **K Wu**, A Kiaghadi, M Loveland, S Cai, C Wichitrunthed, E Valseth, C Dawson, Y Zhang
- 1969667** *Improving Compound Coastal Flood Forecasting with Graph-Based Deep Learning along the Southeast U.S. Coast*: **S Sauda**, M Yu
- 1937605** *Modeling Compound Flood Hazards in the Fraser River Estuary Using SFINCS: A Multi-Hazard Approach for Coastal British Columbia*: **T De Jong**, S Weijs, E Murphy
- 1961264** *Multi-Driver Coastal Flood Hazard Mapping for India Using Indicator-Based Approach*: **S Singh**, A Chakraborty, R Ranjan, S Karmakar
- 1993798** *Probabilistic Flood Risk Assessment of Road Transportation Networks Under Coastal and Compound Flooding*: **P Panakkal**, A Khalid, M Narayanaswamy

247024

Advances in Understanding and Mitigating Induced Seismicity in Geo-Energy Systems (joint with H, MR, NH, T)

Conveners: **No'am Dvory**, University of Utah; **Katie Smye**, University of Texas at Austin; **Yves Guglielmi**, University of California Berkeley; **Ryan Schultz**, ETH Zürich

- 1845690** *An Extended Uenishi and Rice Criterion for the Onset of Depletion-Induced or Cooling-Induced Seismicity in Slip-Weakening Faults With Interacting Peaked Shear Stresses*: **J D Jansen**, B Meulenbroek
- 1867955** *Basin Architecture and Rock Mechanical Properties Govern Depth and Magnitude of Induced Seismicity*: **M B Magnani**, G Volpe, M Mauro, M M Scuderi, C Collettini
- 1915972** *Basin-Scale Simulation of Pore-Pressure Evolution in the Delaware Mountain Group and Implications for Induced Seismicity*: **J Leng**, J P Nicot, J Ge, A Calle, D Hoffman, K M Smye, P Hennings
- 1948152** *Comparative study of earthquake detection and location methods based on phase identification and waveform stacking: Taking injection-induced earthquake in Lu County, Sichuan as an example*: **W Tian**, H Yu, F Tan, G Jiang
- 1929361** *Coupled flow and geomechanics modeling of ground deformation and fault stability at the Wilmington Field, CA, 1936-2020*: **L Saló Salgado**, J Silva, A Plesch, J H Shaw, R Juanes
- 1957648** *Cycled Fluid Injection Limits Maximum Earthquake Size by Controlling the Cadence of Seismic Moment Release*: **Z Geng**, D Elsworth, B Liu

- 1953649** *Reducing the Coastal/Inland Divide, how USACE's HEC and CHL are Working Together to Model Compound Flooding Hazards*: **W Lehman**, T C Massey, G S Karlovits, M Carr
- 1939631** *Standardizing Performance Evaluation for Compound Flooding: Challenges and Recommendations*: **M Nujhat**, H Moftakhari, F Maghsoodifar, H Moradkhani
- 1955817** *Statewide screening of the compound flood hazard*: **R Jane**, T Wahl, G Villarini
- 1967504** *Tackling the Triple Threat: An Integrated Modeling Approach to Assess Compound Flood Risk in Coastal Cities*: **K Boukin**, S Shokrana, S Ravela, K M Strzepek
- 1913062** *Understanding Climate-Driven Compound Flood Risk: The Role of Hurricane Evolution and Relative Sea-Level Rise in Hurricanes Harvey (2017) and Beryl (2024)*: **W Lee**, A Y Sun, B R Scanlon, A Rateb
- 1979759** *Deep Learning-Enhanced Catalogue of Induced Microseismicity at Preston New Road-1z, UK: New Insights into Spatio-Temporal Patterns and Structural Control*: **C Lim**, S Lapins, G Rodriguez Pradilla, J Holmgren, J Verdon, A Butcher, M Segou, M J Werner
- 1905802** *Enhanced Detection of Fluid-Triggered Seismicity Using Combined Array Beamforming and Machine Learning Techniques: Application to Oklahoma Dense Nodal Arrays*: **R Asirifi**, T Chen, X Chen, K Gao
- 1939841** *Fault Reactivation Potential in the Californië Area, Netherlands: Implications for Seismic Hazard Assessment*: **S Akter**, M Kruszewski
- 1874345** *Fault Stability Under Reservoir Loading: Coupled Effects of Cyclic Loading and cohesion loss in Pumped Hydro Systems*: **E Parastatidis**, O Chowns, M Hildyard, S Pytharouli
- 1974988** *Forward-Looking Red-Light Thresholds to Manage Hydraulic Fracturing Induced Seismicity Risk: A Case Study from Middle Magdalena Valley, Colombia*: **M Weingarten, PhD**, S Diacono-Losada, R Schultz
- 1943086** *Fracture Mechanics Model for the Maximum Magnitude of Depletion-Induced Earthquakes in the Groningen Gas Field*: **Q Shi**, K IM, A Sáez, J P Avouac
- 1876410** *Gutenberg-Richter or Safer? On the Magnitude-Frequency Distributions of Induced Seismicity*: **L Li**, K IM, J P Avouac
- 1879238** *Hawkes Point Process and Generalized Nearest-Neighbor Distance Modeling Applied to Induced Seismicity*: **R Shcherbakov**, M Sedghizadeh
- 1893958** *High-Resolution Induced Seismicity Risk Heatmap of the Permian Basin: An Automated Workflow*: **S Dutta**, S A Hussenoeder, W J Curry, R Cornell

- 1906811** *How injection rate modulates fault slip behavior with implications to hazard mitigation of induced seismicity:* **C Wang**, P Wang, K Xia, P Bhattacharya, H S Bhat, A Schubnel
- 1899742** *How to Explain Induced Seismicity on Non-Optimally Oriented Faults:* **C Mei**, P Segall, A Aguilar Suarez
- 1945966** *Hydraulic Fracturing-Induced Shallow Seismicity and Its Potential for Triggering Deep Fault reactivation in Shale Gas Field of Western Hubei, China:* **Z Jiang**, R Chu, M Sheng
- 1894038** *Improving Microseismic Event Detection, phase Picking, and Moment Tensor Inversion Using a Fine-Tuned PhaseNet Model:* **Q Liu**, M H Khosravi, G Grasselli
- 1886994** *In-depth analysis of induced seismicity, excess pore-fluid pressure, and velocity structure in the Xingwen shale gas block using waveform cross-correlation data:* **U Anyiam**, H Zhang, J Qian, Y Tan
- 1879432** *Induced Seismicity in Southeastern New Mexico, USA:* **J L Rubinstein**, J U Woo, S Detweiler
- 1990876** *Insights into Earthquake Nucleation Driven by Diurnal Stress from Earth Tides and Seasonal Stress from Gas Production at The Geysers, California:* **H Guo**, G Wang, J Cheng, J P Avouac, Z E Ross
- 1914944** *Integrated Deep Learning and Failure Criterion Approaches for Fault Slip Assessment in Enhanced Geothermal Systems:* **X Zhang**, N Z Dvory
- 1919344** *Integrating Geologic Mapping and Stress Data to Mitigate Induced Seismicity in Enhanced Geothermal Systems:* **J E Lundstern**, J Birdwell, J B Workman, S Johnstone
- 1869915** *Investigating the impact of operational controls on induced seismic sequences:* **K Kroll**, E S Cochran
- 1868683** *Laboratory Investigation of Shear Fault Reactivation under Fluid Injection with Injection Rates and Viscosity:* **J Y Song**, L Liu, C Arson, G C McLaskey
- 1976634** *Mitigating post-injection induced seismicity in Enhanced Geothermal Systems (EGS): Influence of pressure-dependent hydraulic diffusivity in stimulated fractures:* **Y Tian**, R N Horne
- 1893118** *Modeling Fluid-Induced Earthquake Swarm-to-Mainshock Transition at the St. Gallen Geothermal Site:* **S Jeong**, J Jiang
- 1984024** *Modeling the Evolution of Pore Pressure from Shallow Wastewater Injection in the Midland Basin, Texas:* **J Ge**, J P Nicot, D Hoffman, J Leng, K M Smye, A Calle
- 1928836** *Nucleation and rupture of induced earthquakes in Groningen confined to the gas reservoir due to lithological variations:* **Y van Dinther**, M Li, A Niemeijer, F C Vossepoel
- 1895301** *On the partition between elastic and inelastic deformation in compacting reservoirs: Geodetic detection and modeling.:* **M Acosta**, Y Li, K Sirorattanakul, J P Avouac
- 1913124** *Picking-free microseismic event location with downhole DAS and geophones:* **A Lellouch**, E Shimony, U Wygodny, X Zhang, N Dvory
- 1983265** *Probabilistic Forecasting of Induced Seismicity Rates and Frequency-Magnitude Distributions with an Interpretable Deep Learning Model:* **Z Bi**, N Nakata, R Nakata, C Varadharajan, M Mahoney
- 1943307** *Rapid Seismic Response to Hydraulic Fracturing at Intermediate and Long Distances: A Case Study from Luzhou, China:* **D Zha**, H Yu, D Li, B Wang, J Xu, S Zhou
- 2000261** *Seismic Characterization and Innovation for Geothermal Exploration in El Paso County, TX:* **S Ayala Cortez**, A A Velasco, H Sun, M S Karplus
- 1982932** *Seismicity Analysis, Fracture Characterization and Stress Communication during Enhanced Geothermal System development at the Cape Modern Geothermal Field, Utah:* **N Nakata**, H Chang, Z Bi, F Soom, C Hopp, A Nayak, A Titov, S Dadi
- 1894373** *Separating the physical mechanisms driving seismicity in the Salton Sea Geothermal Field:* **R Abrar**, M Acosta
- 1875093** *Simulating Injection-Induced Seismicity in Enhanced Geothermal Systems Using Models of Fluid-Induced Seismic Slip with Permeability Enhancement and Rate-and-State Friction:* **N Berrios-Rivera**, S Ozawa, E M Dunham
- 1913254** *Slip and Fluid Flow: Seismic Source Analysis to Assess Role of Multiple Slip Patches in Fault Permeability:* **M E M Nurshal**, J Wang, P Yu, T Mittal, D Elsworth
- 1969614** *Spatiotemporal evolution of fault slip prior to injection-induced earthquakes:* **X Cui**, C Cattania
- 1934512** *Stress Interactions Across Scales: A Physics-Based Model of the 2016 Pawnee Earthquake Sequence:* **S K Y Lui**, R Mandal
- 1952718** *Temporal Smoothing and Hysteresis in Fluid-Induced Seismicity: Insights From Numerical and Analytical Studies in the Peace River Region, Alberta, Canada:* **K Akitaya**, D W S Eaton, R O Salvage, H Gilbert
- 2002065** *The importance of small earthquake magnitude accuracy in regional networks:* **J I Walter**, P Ogwari
- 1996314** *Title: Enhanced Nodal Array Detection of Induced Seismicity in the Southern Midcontinent Using Fine-Tuned Machine Learning Models:* **H Xiao**, J I Walter, P Ogwari

- 1972968** *Tracking the Decline of Reported Seismicity Near Cornell's Earth Source Heat Site using Machine Learning Tools:* **D Kuzovkova**, H Zhu, C D M Friedman Alvarez, G A Abers, A N Ferris, J O Gustafson
- 1989952** *Triggering Mechanisms of Earthquake Swarms in the Alberta Oil Sands Regions: Insights from a Local Seismic Array:* **S Palmers**, W Sun, Y J Gu

249008

Leveraging Distributed Fiber-Optic Sensing for Energy and Security Monitoring

Conveners: **Loïc Viens**, Earthquake Research Institute, University of Tokyo; **Glenn Baker**, Air Force Research Laboratory; **Robert Porritt**, University of Southern California; **Michal Chamarczuk**, Rice University

- 1885516** *A Hybrid Earthquake Detection Method for Distributed Acoustic Sensing Array Data and Its Application to the 2022 Menyuan Earthquake Sequence:* **G Zhang**, Z Song, H Lv
- 1985192** *Automated Detection of Mining-Induced Seismicity Using Back-Projection Imaging on Dense Underground DAS Array Data:* **A Ankamah**, J A Hole, A Tourei, E R Martin, D J Chambers, J Beale
- 1850940** *Characterization of road construction explosions recorded along an ocean-bottom fiber with Distributed Acoustic Sensing:* **L Viens**, B Delbridge, J Beckett
- 1976308** *Characterizing Natural and Anthropogenic Signals Using Dual DAS Interrogators at the EarthScope Primary Instrument Center:* **E Bahaelou Horeh**, G Karslioglu, C M Calvelage
- 1923757** *DICE: DAS Interrogator Comparison Experiment:* **C Stanciu**, G A Ichinose, C Donahue, G Karslioglu, C M Calvelage, R W Porritt, PhD, J Aerts, M Bodmer, K M Hodgkinson, L Viens, N T Maier, E E Rodriguez, G W Slad

NEAR SURFACE GEOPHYSICS

249684

Studies on the Coupled Multi-Physical (THBCM) Behavior of Geomaterials and Geosystems (joint with MR, NG, NH, NS)

Conveners: **Shahrazad Roshankhah**, University of Utah; **Hiroki Sone**, University of Wisconsin; **Wenfeng Li**, Los Alamos National Laboratory

- 1895327** *Turnkey Hydromechanical Modeling for Fault Slip Risk in CO₂ Storage:* **X Zhang**, R Dupree, C Cagle, N Z Dvory
- 1988293** *Usefulness of the cost and time-friendly techniques to assess the seismic hazard of the Kathmandu Valley, Nepal, for future scenario earthquake:* **J Bahadur Chand**, P Gaire, L B Adhikari
- 1849329** *What is the State of Stress on my Fault?:* **D R Schmitt**
- 1899476** *Distributed Acoustic Sensing Data Denoising with Deep Learning:* **J T Lin**, G A Ichinose, A C Aguiar
- 1888357** *Leveraging Autonomous Driving Curve Detection AI for Move-Out Analysis on DAS Seismic Data:* **I Kurosawa**
- 1998641** *Locating Moving Seismic Sources with Synthetic Waveforms and Back-Projection:* **E W Conley**, R W Porritt, PhD, M G Baker, J Frederick, M Wong, P Yeh, R Frederick
- 1932685** *Modeling of Distributed Acoustic Sensing (DAS) Recordings of Scattered Waves from a Hydraulic Fracture:* **E Sotelo**, G Jin, R L Gibson, Jr
- 2003274** *Moment Magnitude Calculation (M_w) Using Distributed Acoustic Sensing:* **R Gok**, W R Walter, J Barno
- 1867178** *New Observations of Diverse Acoustic Sources with a Purpose-Built DAS Array: Results from NORFOX:* **A F Baird**, A Wuestefeld, A Köhler, B Dando
- 1954736** *Quantitative baselines for seismic monitoring with Ocean Bottom Distributed Acoustic Sensing:* **B Delbridge**, L Viens, J Beckett
- 1850977** *Real-time distributed acoustic sensing for earthquake monitoring and early warning:* **E Biondi**, G Tepp, J K Saunders, E Yu, N Artiaga, Z Zhan, A L Husker
- 1966952** *Real-time Threat Detection And Localisation Using Existing Cables: An End-to-End ML Workflow:* **A Goyal**, A Verma
- 1903482** *Utilizing Low-Frequency DAS to Evaluate Cement Quality for Horizontal Wells:* **S Jin**, G Jin
- 1885651** *Assessing the Seismogenic Potential of Critically-Stressed Faults during Pore Pressure Oscillations Using In-Situ micro-CT Imaging and Acoustic Emissions:* **Y LIU**, Q Zhao, W Shu
- 1894046** *Evolution of Crustal Permeability as a Coupled Seismo-THMC Process:* **D Elsworth**, P Yu, J Wang, A Eijsink, M E M Nurshal, M Roseboom, X He, H Klinghammer, Q Gan, Y Guglielmi, S Liu, C Marone, T Mittal, J Riviere, P Shokouhi, A Mali
- 1991078** *Nucleation in Microchannels under Solute Gradients: Inferring Allen-Cahn Reaction Kinetics for Enzyme-Mediated Calcite Growth:* **P Vyas**, T Petersen, C C Nweke

1996505 *Modeling Poromechanical and Geophysical Processes in Energy and Environmental Geo-Systems*: **S Roshankhah**, S Shandilaya

248963

Advances in Active Remote Sensing for Hydrology and Terrestrial Ecosystems (joint with C, GC, H, NH)

Conveners: **Jessica Fayne**, University of Michigan Ann Arbor; **Roger Michaelides**, Stanford University; **Jingyi Chen**, Stony Brook University; **Elizabeth Wig**, Stanford University

1946585 *Advancing flood mapping and forecasting in New Zealand with GNSS-R airborne observations from Rongowai*: **K Andreadis**, D Moller

1998511 *Application of InSAR for Levee Deformation Detection in Flood-Prone Regions*: **M Pokhrel**, H Cho

1994093 *Aquifer Depletion, Land Subsidence and Desertification: Insights from a Multi-Decadal Satellite Survey in Iran*: **M Motagh**, M Haghighi

1900424 *Assessing Lake-River Connectivity During Extreme Drought: Use of SWOT for Understanding the Dynamics of Amazonian Ria Lakes and Their Interaction With the Amazon River*: **K Yamato**, J Wang, J Best, A S Fleischmann

1992604 *Assessing Peat Surface Motion using Interferometric Synthetic Aperture Radar (InSAR) in The Great Fen Area of Cambridgeshire, UK*: **A Khouakhi**, A Patil, I Holman, N Girkin

1977133 *Assessing the Relation between Groundwater Depletion Induced Land Subsidence and Flooding in the Southern San Joaquin Valley, California*: **S Pant**, R Smith, R R Morrison

1862136 *Beyond Public Reports: Harnessing Multiphase Lidar to Improve Evaluation of Sinkhole Occurrence Rates*: **D Cunningham**, J Zhu

1967724 *Extending Multi-Functional Airborne Fluorescence Ocean Lidar to Inland Targets: Snow, Water Bodies, and Vegetation*: **M Cowell**, Y Hu, M Behrenfeld, C P Ward, V Chirayath, D Streett, C S Weimer

1899306 *GNSS-R for Surface Hydrology: Product Development and Applications*: **C Gerlein-Safdi**, T Pu, Y Xiong, K Stephens, A Scheliga, A Valcarcel, E A Kort, A A Bloom

1979301 *High-Resolution Mapping and Temporal Analysis of Tidal-Driven Mangrove Stress in The Gambia Using Sentinel and SWOT Observations*: **B Jahateh**, J Fayne

1925993 *High-resolution UAV-SAR Interferometry at L-band and S-band: Assessing Interferometric Performance Across Terrestrial Ecosystems and Geomorphic Settings*: **C L Werner**, O Frey, T H Dixon, E J Deeb, S Leinss, T Sadeghi Chorsi, A LeWinter

1970982 *How well do CYGNSS surface water data of reservoir extent improve machine-learning streamflow predictions?*: **A Scheliga**, T Pu, C Gerlein-Safdi

1989898 *Hydrology Land Use and Climate Change 2025: Advancements in Remote Sensing for Hydrology and Terrestrial Ecosystems*: **J V Fayne**, K Bakian Dogaheh, D Jurayj, R Bowers, Y Zhong, B Jahateh, G Bowen

1878614 *Impact of Climate Change on the Precipitation Pattern of Punjab, Pakistan Using Multispectral Remote Sensing and GIS*: **D A Abbasi**, M Amin, Q Ul Ain

1974027 *Improved Scaling Relationships between Vegetation Optical Depth and Vegetation Water Content Reveal Higher-Than-Expected Vegetation Water Storage*: **D Jurayj**, J Fayne

1920882 *Improving Inland Wind Speed Estimating Using CYGNSS and SWOT Observations over Lakes with Complex Geometries*: **Y Zhong**, J Fayne

1941307 *InSAR-Derived Seasonal Dam Deformation and Hydrometeorological Factors Interdependencies on Embankments and Gravity Dams in California, USA*: **D Verma**, S Vijay, F Munoz-Arriola

1910879 *L-Band SAR Backscatter from Subsurface Soil Moisture Weaker than at C-Band*: **R Biessel**, R B Lohman

1956692 *Leveraging Rongowai Polarimetric GNSS-R Observations for Advanced Soil Moisture and Hydrologic Investigations*: **D Bai**, C S Ruf, D Moller

1866033 *Modeling, Prediction, and Retrieval of Surface Soil Moisture from InSAR Closure Phase*: **Y Zheng**, H Fattahi

1975306 *Polarimetric SAR Imagery to Quantify the Role of Vegetation in Spatial and Temporal Variation of the Carbon Fluxes over the Wetlands in the Great Lakes Region*: **K Bakian Dogaheh**, J Fayne

1975525 *Post-Flood Sediment Deposition Analysis Using SAR Interferometry: A Case Study of the 2020 Flood of Jamuna River, Bangladesh*: **M A G Fardin**, A A Jahib

1995567 *Quantifying Vertical Displacement of Localized Sediment Nourishment Sites Using Sentinel-1 InSAR*: **S Ayling**, E Carter, B Harris, J Shawler

1897748 *Remote Sensing based Hydrodynamic Modeling in Data-Scarce Regions: Integrating ICESat-2, Sentinel-2, and SWOT for Coastal Monitoring in Langebaan Lagoon, South Africa:* **A R Payandeh**, M Simard, A Campbell, D Jensen, H van Deventer

1907897 *Skill of Satellite Snow Products for Multi-Objective Calibration of a Conceptual Hydrological Model:* **M Tanhapour**, J Parajka, M Vreugdenhil, G Schwaizer, S Kohnova, K Hlavčová, R Výleta, J Szolgay, S Okhravi

1907514 *Synergistic Use of ROSE-L and Sentinel-1 Data for Soil Moisture Retrieval over Agricultural Terrains:* **G Anconitano**, E Arabini, A Patacchini, M A Acuña, N Pierdicca

1983422 *Three years of the Rongowai GNSS-R airborne mission: The data archive and products:* **D Moller**, C S Ruf, M Al-Khaldi, K Andreadis, D Bai, F Döweler, A Quirk

251305

Advances in Critical Zone Geophysics (joint with B, H)

Conveners: **Matthew Sirianni**, Organization Not Listed; **Kristina Keating**, Rutgers University Newark; **Jorden Hayes**, Univ Wyoming; **Yonesha Donaldson**, Organization Not Listed; **Joaquin Cambeiro**, Rutgers University Newark

2003227 *Assessing Moisture Content Variability in Tropical Soils and Trees at the Luquillo Experimental Forest (LEF) Using Multi-Frequency Ground-Penetrating Radar Surveys:* **D Nering**, S Adams, M R Islam, I Newton, X Comas, C D M Valle Rodriguez, X Xu, M Uriarte, T Wood, C Koven, X Yang

1972005 *Beyond Bulk: High-Resolution Geoelectrical Imaging of Water Retention and Drying:* **H Moore**, V Cioffi, L Martino, S Uhlemann

1997821 *First Seismic Attenuation Model of the Critical Zone Reveals Fracture and Fluid Structure in Weathered Bedrock:* **T Zhu**, D Kim, G Xing

1924484 *From Bedrock to Soil: Assessing Critical Zone Transformation through Integrated Geophysical and Geochemical Analysis:* **D Burgett**, S Holbrook, S P Bemis, C S Riebe, B Eppinger

1909549 *Tracking Snow Cover/Moisture Change with GNSS-R:* **M R Keller**, D Truesdale, T Moore

1893002 *Use of Both InSAR Co- and Cross-polarized Data Reveals Short Spatial Scale Displacement Rate Variability and mm/yr-scale Biases:* **O C Paschall**, R B Lohman

1911076 *Using Sentinel-1 SAR Data to Map Grain Size in the North Fork Toutle River Valley, Mount St. Helens, USA:* **S Mann**, C R Thorne, A Novellino, S Feehan, E Hussain, S Grebby, S Marsh

1955204 *Using SWOT, UAVSAR, and Sentinel-1 SAR Backscatter to Retrieve Vegetation Optical Depth from Multiple Frequencies over Harvard Forest:* **R Bowers**, J Fayne

1913022 *Geophysical Monitoring of Oak and Pine Trees Under Varying Mortality in a Marsh-Forest Upland Transect:* **D Pesonen**, R J Hess, K Gedan, C Terra, H A Michael, L D Slater

2000659 *Impact of Cover Crops on Spatiotemporal Variation in Evapotranspiration and Root-Zone Electrical Conductivity in A Young Pistachio Orchard:* **G K Osterman**, S Ehosioke, M Roby, P Neugebauer, N E Bambach

1884280 *Lateral Variability in Soil Depths and Tree Root Distribution in Yosemite's Mariposa Grove of Giant Sequoias:* **A Gupta**, S Holbrook, B Flinchum, S P Bemis

1881499 *Multi-scale drivers of intra-catchment variability in drought response: Linking remote-sensing, geophysical, and ecohydrological data:* **K Singha**, A Tucker, M Dumont, J G Singley, N J L Lenssen, R P Callahan, A M Marshall, L L Jacobsen

1954133 *Revealing Hidden Controls on Montane Groundwater Flow and Solute Transport via Geophysics-Informed Modeling:* **X Kang**, P L Sullivan, B J Minsley, M Dumont, L Li, K Singha

1999825 *Revolution from Above: SkyTEM Diamond Leads to a New Era in Near-Surface Environmental Exploration:* **C Lubanowski**

1950031 *Signals beneath the surface: Unlocking landscape-scale change in the Anthropocene.:* **P L Sullivan**, S A Bush, M Dumont, K M Jarecke, K Johnson, X Kang, R Keen, K Sadayappan, L Sethna, X Takver, H Ajami, S A Billings, J Carey, A N Flores, D Hirmas, K Jankowski, L Li, B J Minsley, J B Nippert, K Singha

256924

Advances in Fiber-Optic Sensing for Near-Surface Imaging and Geohazard Assessment

(joint with H, NH, S)

Conveners: **Feng Cheng**, University of Rochester; **Jonathan Ajo-Franklin**, Rice University; **Ettore Biondi**, California Institute of Technology; **Eileen Martin**, Stanford University; **Ahmad Tourei**, Virginia Tech

- 1973436** *High-resolution Near-surface Imaging of the Southern San Andreas Fault in Mecca Hills, California, Using Multiple Geophysical Techniques Applied to Distributed Acoustic Sensing Data:* **K Cannon**, B Cox, A K Ault
- 1986879** *Case study of deep learning-based DAS monitoring data phase picking for safety monitoring in the Southeastern Korea Peninsula:* **J PARK**, C Lee, M Kim, K G Park
- 1907847** *Characterizing Reservoir Seiches Using Ultra-Low Frequency Record by Distributed Acoustic Sensing:* **H Kou**, B Luo, H Meng, Z Guo
- 1897656** *Coastal Aquifer Hydrostratigraphic Characterization Using Distributed Fiber Optic Sensing: Insights from Post-Pump Test Recovery:* **H Fitzpatrick**, M Becker, B Partington, M Santillan, V Robino
- 1867448** *DAS Acquisition Optimization for Monitoring Low-Frequency Dynamics:* **J P Morten**, Y Cubuk Sabuncu, V Hjorleifsdottir, O H Waagaard, K Jonsdottir
- 1955581** *Dike/Levee Stability Monitoring System for Rainfall Events Based On Fiber Optics Based Distributed Temperature System:* **J P Aguilar-López**
- 1883053** *Distributed Fiber-optic Sensing Captures Tidal Dynamics along the Qiantang River:* **F Cheng**, K Zhao, H Sun
- 1857532** *Distributed Temperature Sensing On A Dark Seafloor Telecommunications Fiber Reveals Seafloor Temperature at the Beaufort Sea Between 2023-2025:* **J M Frederick**, C Stanciu, E W Conley, M G Baker, R E Abbott, K R Jones
- 1886911** *Evaluating DAS and Seismometer Signals from Active Sources at the UNR Farm Fiber Test Area, Reno, NV:* **A Kim**, S Sayyadi, C B Kratt, M B Hausner, E Martin, H Glover, A Harpold, T Little

- 1996165** *Experimental Observations of Highly Variable Strain Sensitivity Along Single-Mode Fiber Optic Cable with Distributed Acoustic Sensing:* **M Ahmed**, J Vantassel
- 1915345** *Ground Resonance Induced by Large Wind Turbine Arrays:* **F Yin**, J Ajo-Franklin
- 1921722** *High-Resolution Imaging of Shallow Sub-Surface in a Dense Urban Environment Using DAS and Ambient Noise Tomography to Identify Potential Hazards and Monitor Groundwater flow:* **T Fushille**, L April, A A Velasco, M S Karplus
- 1993105** *Laboratory simulation of rainfall-triggered landslides using distributed acoustic sensing:* **P Wu**, C Gu, Y Zhong, Z Yuan, J He, C Fan
- 1885790** *Linear dense array ambient noise attenuation tomography and application to permafrost monitoring in plateau regions:* **R Wu**, F Cheng
- 1884924** *Monitoring Seismo-Acoustic and Thermal Signals in Geyser Eruptions Using Fiber-optic Sensing:* **P Caraccioli**, A Yates, J Pätz, C Munoz-Saez, S Saltiel, F Suarez, C Caudron
- 1970037** *Multi-scale spatiotemporal subsea monitoring using 5-10% smartly sampled DAS data:* **A Verma**, A Goyal, A Micallef, PhD
- 2000723** *Permafrost characterization with passive cryoseismic DAS events in Utqiagvik, Alaska:* **A Tourei**, E R Martin, G Rocha dos Santos
- 1922565** *Quantitative Comparison of Seven DAS Interrogators from an Active Source Field Experiment at the UNR Farm Fiber Test Area, Reno, NV:* **S Sayyadi**, C B Kratt, M B Hausner, E Martin, H Glover, A Harpold
- 1950443** *Seeing Without Eyes: Deep Learning and FOS-DTS based method for Dike Desiccation Crack Detection:* **J P Aguilar-López**, L Duarte-Campos Sr
- 1918405** *Tracking riparian subsurface flow with fiber-optic sensing and differentiable modeling:* **H Sun**, F Cheng, J Xia
- 1893181** *Unveiling type of fiber and coupling conditions effects on DAS measurements:* **V Carrillo-Barra**, D Mercerat, V Bremaud Sr, A Sladen, O Sèbe, C Madelaine, A Vallage, J P Ampuero
- 1996735** *Urban Snowstorm Monitoring and Traffic Impact Assessment using Distributed Acoustic Sensing:* **Y Zhong**, C Gu, P Wu, Z Yuan, J He, C Fan

249772

Advances in Induced Polarization: Theory, Applications, and Data Processing (joint with B, H, MR, NG)

Conveners: **Raymond J. Hess**, Rutgers University; **Klaudio Peshtani**, Pacific Northwest National Laboratory; **Adrian Flores Orozco**, TU-Vienna; **Dimitrios Ntarlagiannis**, Rutgers University Newark; **Donald Pesonen**, Rutgers University

1903413 *Induced Polarization of Geomaterials: From Micro-, through Meso-, to Macro-scales:* **Y Qi**, Y Wu

1892176 *Induced Polarization Signatures at Former Fire Training Areas Contaminated with Aqueous Film Forming Foam (AFFF):* **A Avelar**, D Ntarlagiannis, D D Werkema, C E Schaefer, L D Slater

249925

Advances in Near-Surface Applications of Electrical Methods (joint with B, H, NH)

Conveners: **Christopher Terra**, Rutgers University; **Judy Robinson**, Rutgers University; **Kennedy Doro**, University of Toledo; **Michael Kiflai**, AGI USA

2002457 *Application of Ground Penetrating Radar for Detection and Characterization of Buried Drainage Pipes:* **M Bhagwat**, Y Gao, N Bhagwat, X Zhou

1865157 *Application of Towed Transient Electromagnetic (tTEM) Data to Define Fluid Escape Features in the Near Surface: A Potential Tool for Geologic Hydrogen Exploration:* **J Mika**

1975532 *Assessing the effects of varying soil moisture and organic matter on induced polarization in variably saturated mineral soils:* **E D Emmanuel**, L D Slater, M N Weintraub, P Megonigal, K Rod, N D Ward, V L Bailey, K O Doro

1972503 *Assessing The Relationships Between Hydraulic Conductivity and Electrical Polarization Using Soil Cores:* **N Livecchi**, P Olabode, J M Martin-Hayden, K O Doro

1959036 *Characterizing Biochar in Soil: Insights from Spectral Induced Polarization Measurements:* **J Estrada**, L D Slater, D Ntarlagiannis

1850415 *Comparing Electromagnetic and Electrical Resistivity Methods in Complex Geological Settings: Implications for Accurate Imaging of Subsurface Resistivity Structure:* **E Smith**, B Carr, K A Lohse

2003033 *Detection of Subsurface Voids in Earth Dams Using Electrical Resistivity Imaging:* **M F Khan**, S Khan

1858925 *Integrated Induced Polarization, Resistivity, and SP Imaging of Fault-Displaced Sulfide Veins in the Rugged Terrain of Kirazoren, NE Turkey:* **M A Uge**, O Tezel

1968757 *Predicting Hydraulic Conductivity Using Electrical Polarization: Are We There Yet?:* **P Olabode**, N Livecchi, W Becker, J M Martin-Hayden, K O Doro

1883507 *Relationships Between Intrinsic and Apparent Spectral Induced Polarization (SIP) Relaxation Times of Electron-Conducting Targets:* **N Oncul**, J Kingman, L D Slater

2005533 *Transforming In Situ Subsurface Remediation Monitoring by Decoding Spectral Induced Polarization Data:* **H Emerson**, K Peshtani, Z Vincent, J N Thomle, C Zeng, N P Qafoku, J Robinson, H Gohel, R Mackley, L D Slater

1894020 *Documenting Subsurface Resistivity in a Previously Unexplored Hilly Forested Terrain of Bangladesh: Toward Standardization for Future Studies:* **S Khadem**, M S Hossain, S Nowreen, F R Himel, S Sayed

1926871 *Electrical Resistivity Measurements on Fractures: Flow Path Tortuosity & Constrictions:* **E Christoforidou**, A Bobet, L J Pyrak-Nolte

1855722 *Expanding the use of airborne electromagnetic surveys for regional-scale studies: Acquisition, methods research, and application to groundwater and mineral resource studies:* **B J Minsley**, S R James, B Hoogenboom, W H Kress, L B Ball, P Bedrosian

1979434 *Exploring the relationship between soil electrical conductivity and phosphorus sorption capacity:* **W Becker**, P Olabode, J M Martin-Hayden, K O Doro

1933963 *Field-Based Comparison of Wenner and Schlumberger Arrays for Aquifer Mapping in the Bluff Hills/Loess Plains of Goodwin Creek, Mississippi, USA: Insights from Monitoring Well-Constrained Field Data.:* **A Lawal**, M S Alim, L T Wodajo, A M O'Reilly, M I Mahmud

1938582 *General Surrogate Model Based on Neural Network for Large-scale Stochastic Electromagnetic Inversion:* **Z Liu**, J Caers, D Z Yin

1849838 *Geoelectrical Evaluation of Aquifer Protective Capacity and Soil Corrosivity in a Basement Complex Terrain of Southwestern Nigeria:* **D D Awosika**, O D Adebisi, A I Odudu, A B Babinisi, I O Olabisi, A Ikusika

1919414 *Geophysical Anomalies in the vicinity of Karstic Main Barton Spring and Determination of Groundwater Flow Path into the Barton Springs Pool, Austin, Texas:* **M Saribudak**, N Hauwert

1980076 *Global Resistivity Cut-offs for Fresh, Saline and Saturated Groundwater from ERT: A 20-Study Meta-analysis.:* **S Pal**, A K Pal, MTech

- 1880275** *Integrated Electrical Methods for Mapping Paleochannels and Aquitard Breaches in Urban Settings: A Case Study from Shelby County, Tennessee:* **M S Islam**, C H Cramer, B A Waldron, M Hasan
- 1935089** *Microfluidic Induced Polarization and Spectroscopic Mapping of Apatite Precipitation for Subsurface Remediation:* **K Peshtani**, R Felsted, Z Li, V Aguilera-Vazquez, J M Torgeson, J Robinson, J N Thomle, L D Slater, N P Qafoku, H Emerson
- 1848099** *Quantifying Uncertainty in Electrical Resistivity Imaging to Assess Soil Moisture Dynamics in Arid Environments:* **Y Y Donaldson**, A Milewski, A Parsekian
- 1937676** *Resistivity and Induced Polarization Responses Linked to Biogeochemical Processes in a Hydrocarbon Plume:* **N V Filippone**, D Ntarlagiannis, E A Atekwana, S Rossbach, M Parsell, K Mejia, N Rabideaux, L D Slater

249502

Advances in Understanding Fault Systems through Scientific Drilling (joint with MR, S, T, V)

Conveners: **Chris Carr**, Los Alamos National Laboratory; **Jennifer Wilson**, Sandia National Laboratories; **Brett Carpenter**, University of Oklahoma Norman Campus; **Brandon Crawford**, Los Alamos National Laboratory

- 1852465** *Advancing Deep Borehole Seismic Source Characterization Using a 2-km Vertical Hybrid DAS/DTS/Geophone System Deployed in an Active Fault Zone:* **C Stanciu**, R W Porritt, PhD, J Harding, T Luckie, M Bodmer, R E Abbott, R Turley, J Pine, K Passmore
- 1943993** *An abnormal temperature depth profile in a scientific-drilling borehole in the volcanic region surrounding the Aso Volcano, Japan:* **W Lin**, S Shibutani, S Feng, N Kamiya, K Ishitsuka, Y Shigemitsu, X Yang, K Sado
- 1925695** *Challenges, Successes, and Lessons Learned: Deep Core Drilling in a Previously Unconstrained Fault:* **A Miller**, J Pine, C Freimuth, I Whittaker, K Gaynor, W R Walter, C M Snelson, R E Abbott, J Falliner, E Alger, D Smith, C Jewell, C Callahan
- 1902125** *Comparing Borehole Breakout Directions to Local Stratigraphy: Implications for Stresses Near the San Andreas Fault System in Central California:* **H Hackenmueller**, J R Davis, S Titus
- 1849256** *Effect of in-situ stresses on seismic sources of the RV/DC events:* **C S Larmat**, B Euser, Z Lei, R Modrak
- 1964745** *Forward Modeling of Fracture-Induced Elastic Anisotropy with Image Log in the Damaged Rockmass Around the Alpine Fault, New Zealand:* **D Schmitt**, O Zhang

- 1943797** *Sensitivity-Based Optimization of ERT Surveys for Landfill Monitoring Using a Mixed-Dimensional Approach:* **L Panzeri**, A Fumagalli, L Longoni, M Papini, L Formaggia, D Arosio
- 1936482** *Subsurface Geological Characterization Using 2D Electrical Resistivity Tomography (ERT) for Feasibility Assessment of the Kasuwa Khola Hydropower Project, Nepal:* **N Pandey**, N Pandey, B Shrestha, N Khadka, N Pandey
- 1889546** *Using contact resistance for quality control in time-lapse electrical resistivity tomography:* **J Liu**, M Leopold, S Gelsinari, A Van De Ven, S E Thompson
- 1845086** *Geomechanical Parameters for Characterizing Seismic Sources in Rock Valley:* **W M Kibikas**, J E Wilson, C Downs, S Broome, J Jaramillo
- 1946796** *Integrated Xscan-CT Workflow for Characterizing Intrinsic Physical Properties of Gulf of Cádiz and Alborán Basin Sediments:* **X Xu**, Y Sakai, K Ishitsuka, W Lin
- 1902101** *Preliminary Analysis of the Cenozoic Section from Core Drilled in the Rock Valley Fault Zone, Nevada National Security Site:* **M Dietel**, C Freimuth, N Downs, A Miller, J Larotonda, H Montano, D Smith, J E Wilson, E Swanson
- 1926588** *Preliminary Observations from Corehole Drilling in an Active Fault Zone in Rock Valley, Nevada:* **C Freimuth**, M Dietel, N Downs, A Miller, M Aittama, C Carr, J E Wilson, G Datlof, E Swanson
- 1852573** *Single-Borehole 3D Full-Waveform Tomography of SPT-Generated Seismic Wavefields:* **K Tran**, B Yang
- 1909069** *Structural characteristics of the Upper Prism in the Japan Trench suggested by physical and magnetic properties:* **N Kamiya**, Y Hamada, H Okuda, K Nakamoto, T Uchida, H Hosono, Y Hashimoto, T Toki, Y Kubo
- 1921631** *The Development of the Rock Valley Direct Comparison (RV/DC) Testbed:* **C M Snelson**, E Alger, W R Walter, R E Abbott, I Whittaker
- 1929443** *The Rock Valley Direct Comparison - An Experiment to Improve Explosion Versus Earthquake Identification:* **W R Walter**, C M Snelson, R E Abbott, I Whittaker, M L Pyle, C Carr, M Bodmer, J Pine, E Alger, J A Kintner, J Falliner, M E Scalise

247029

Cryogeophysics: Innovations and Discoveries Through Geophysical Observations of Cold Region Environments (*joint with C*)

Conveners: Riley Culberg, Cornell University; Grace Barcheck, University of California Santa Cruz; Danney Glaser, Engineer Research and Development Center; Rodrigo Correa Rangel, University of Wyoming

1850479 *Application of AVO Analysis for Subglacial Lakes Detection:* **L Changwoo**, W K Kim, J Ha, W Chung, H Ju, J Lee, S G Kang, Y J Choi, J I Lee

1900561 *Assessing Antarctic GHF models using radar observations of subglacial lake candidates and wet sediments in the South Pole Basin, East Antarctica:* **M Kerr**, D A Young

2003707 *Crustal and uppermost mantle structure beneath the southern Transantarctic Mountains and Pensacola-Pole Basin:* **S Dong**, H Wu, W Shen

1985426 *Distributed Sensing of Ice-Wedge Cracking in Utqiagvik, Alaska:* **G Rocha dos Santos**, T Zhu

1871242 *East Antarctic Tectonic Basin Structure and its Implications for Ice-Sheet Modeling and Sea-level Projections:* **S E Hansen**, E L E Emry

1976876 *Electrical Hysteresis in Frozen Soils: Laboratory Insights and Field Observations from the Arctic Coastal Plain:* **D R Glaser II**, A Garcia, T Sullivan, R J Versteeg

252682

Geological Modeling from Geophysical Data for Water Resources Investigations: Integrating AI, Machine Learning and Predictive Modeling (*joint with GC, H, NH, S*)

Conveners: Kisa Mwakanyamale Gilkie, University of Calgary; Donald Keefer, University of Illinois at Urbana Champaign

250447

Geothermal Energy from Deep Basins and Hot Rocks: The Earth is Always On (*joint with EP, SY*)

Conveners: Edith Wilson, Thriving Earth Exchange; Marit Brommer, International Geothermal Association; Malcolm Ross, Eavor Technologies Inc.; Taylor Mattie, Project InnerSpace

1972216 *3-D Magnetotelluric Images of the Hydrothermal and Magmatic System Beneath Montserrat:* **A Redanz**, M J Unsworth, A Williamson, G Ryan, B Williams, J Blundy, M Kendall

1924622 *Evaluating GPR-derived Permittivity for Snow Density Estimation under Wet Snow Conditions:* **M Kang**, A Hunsaker, M Moradi, D R Glaser, J M Jacobs

1873147 *Ice Sheet Polarimetry from Archival Radar Data:* **N Holschuh**, P Klisiwecz

1917548 *Investigating the Geothermal Energy Potential and Permafrost Structure in Nunavut with Magnetotelluric Data:* **A Williamson**, M J Unsworth, Z E Vestrum, P Cosalan

1849420 *Mapping Variations in Crustal Structure beneath Greenland using P- and S-wave Receiver Functions:* **B Liberato**, S Hansen

1958659 *Noninvasive Monitoring of Discontinuous Permafrost with Distributed Acoustic Sensing:* **L Cass**, C Coclin, H Turner, M C Quinn, A Doran, PhD

1963412 *Revealing the hidden water beneath the South Pole:* **H Wu**, W Shen, A Kumar

1981803 *Seismic Evidence for Widespread Active Magmatism in Eastern Marie Byrd Land, Antarctica:* **E Lucas**, A Nyblade, D Wiens, R C Aster, T J Wilson

1850227 *Spatiotemporal Variability in Seasonal and Interannual InSAR-derived Excess Ground Ice Content Retrievals:* **A Nguyen**, R J Michaelides

1952735 *Textural Controls on Freeze-Thaw Driven Complex Conductivity Hysteresis in Soils:* **A Garcia**, D R Glaser

2004021 *A Knowledge-Driven Method for Generating Multiple High-Resolution Geologic Models from HTEM, Core, Wireline, and ERT Data:* **D A Keefer**, K E Mwakanyamale Gilkie, J Thomason, S Young, T Larson, F Jørgensen

1979875 *The Use of Airborne Electromagnetic Data to Inform Sustainable Groundwater Management in California:* **R J Knight**, S Kang, M Goebel, R Prentice, J Mells, S Zhang, W Neely

1960977 *Combining statistical and machine learning approaches to delineate geothermal potential in the Great Basin, Nevada:* **R Abrar**, S M Gupta, M Acosta

1874019 *Deciphering Fault-Controlled Geothermal Systems: MT-Based Resistivity Mapping at Ihimbo, Western East African Rift:* **D Duah-Boakye**, A B Katumwehe, K L Mickus, L Emishaw, T Halihan

1972464 *Development and Analysis of an Enhanced Geothermal Systems Project Database: 50 Years of Progress:* **A Seligman**, J Lipton

1937497 *Exploring Geothermal Resources in India: Current Scenario and Future Prospects:* **L Ray**, V P Maurya, K Rama Mohan, N Kumar

- 1885961** *Extracting Geothermal Energy Using GenaSysTM: Required Conditions and Expected Power:* **S Karimi**, B D Marsh
- 1938934** *Gravity-Based Structural Characterisation of the Tatapani Geothermal Province, Central India:* **N Kumar**, K N D Prasad, L Ray
- 1939493** *Insights into thermal properties and subsurface thermal structure of the Tattapani Geothermal Province, central India:* **L Ray**, N Chopra, M Fatima, B M Nidharshan, P Mohapatra, N Podugu, S K Uddandam, S K Prajapati, A Dutta, S Chandrapuri
- 1952756** *Integrated 3-D magnetotelluric and geoscientific analysis for geothermal potential assessment: Case study from the Ulaanbaatar region, Central Mongolia:* **B Erdenechimeg**, A Grayver, C Odonbaatar, A Kuvshinov, B Ganbaatar, T Shoovdor, E Bayartogtokh, M Sangidalai, N O Tumen

249408

High-resolution Imaging and Monitoring in Environmental, Urban, and Energy Contexts through Seismic, Remote Sensing, and Electromagnetic Methods (joint with EP)

Conveners: **Ettore Biondi**, California Institute of Technology; **Shujuan Mao**, Peking University; **Jingyi Chen**, Stony Brook University; **Qifei Niu**, University of Kansas

- 1946513** *2D Acoustic Full Waveform Ambient Noise Interferometry: Methodology and Application to a Himalayan Glacier:* **A Mahesh**, A Datta, B Shekar
- 1908515** *A multi-messenger approach to assess geothermal resources in two southern Italy regions:* **V Giampaolo**, M Balasco, M Blasone, P Capuano, V Cataldo, G De Martino, L Martino, G Mungiello, F Napolitano, S Panebianco, A Perrone, V Serlenga, T A Stabile, O Amoroso
- 1897066** *Assessing Aquifer Permeability Using Tube Wave Attenuation in Groundwater Monitoring Wells: Insights from a DAS Field Survey and Slug Tests:* **R Zhu**, J Ajo-Franklin, J Patterson, V Sobolevskaya, Y MA, Q Shi
- 1891806** *Critical Zone Subsurface Structure Characterization of a Mountainous Catchment Using Seismic Refraction and Drone-based Electromagnetics:* **J Kietzmann**, S Wu, J Sun, Q Niu
- 1969591** *Decoding Fault Zones in Coastal Plain Settings: Python-Driven Analysis in Memphis Aquifer Using High-Resolution Airborne EM Imaging:* **K Karki**, D Larsen
- 1950389** *Enhancing Spatial Resolution in Surface Wave Imaging Using Multi-Station 6-Component Seismometers and Active Sources:* **Z Zhou**, Z Huang, Y Chen, Z Li

- 1939448** *Near-surface electrical prospecting for a geothermal system in Central India:* **V P Maurya**, A Mishra, L Ray, N Srinivas, N Podugu
- 1981306** *Numerical Modeling to Investigate the Potential for combining Geothermal Energy and Lithium Extraction from Brines in the Great Salt Lake Desert:* **H Gatz-Miller**, P Peirce, J Frederick, C Munoz-Saez, F Hasiuk
- 1855543** *Opportunities to use enhanced geothermal systems for electricity or industrial heat in the United States:* **D S Cohan**, C Chen
- 1968402** *Unlocking Geothermal Potential in the Texas Gulf Coast: Play Fairways for Conventional and Next-Generation Systems:* **S Bhattacharya**, B Young, I Olariu, C Uroza, K Mawa, R C Arasada, P Eichhubl
- 1972947** *What's Locked in the Basement? Imaging and Understanding Basement Faults at the Utah FORGE EGS Site Using DAS Datasets:* **J B Ajo-Franklin**
- 1870919** *Geophysical Characterization of the Near Surface in Periglacial Landscapes with Interferometric Synthetic Aperture Radar (InSAR):* **R J Michaelides**, T Meng, V Follingstad
- 1945972** *High-Resolution Multi-Frequency Seismic Inversion Using a Hybrid CNN-Transformer Network:* **Y Qi**, S Yang, T Yang, B Ren, Y Su
- 1937578** *Long-Term Near-Surface Monitoring of Seismic Attenuation in Coastal and Inland Singapore Using Traffic-induced Signals:* **P Wang**, Y S Li
- 1971307** *Physics-Informed Neural Network enabled Radar Sensing for Continuous Subsurface Material Characterization:* **I Aziz**, M Alipour
- 2005432** *Searching for unmarked burials in historic African-American cemeteries in Houston, Texas using airborne drone imaging:* **M N Bugti**, M Allison, R R Stewart, C Clapsaddle
- 1928852** *Seismic Ambient-Field Monitoring of Geological Carbon Sequestration at the Illinois Basin - Decatur Project (IBDP):* **H Li**, S Mao, W L Ellsworth
- 1944335** *Study on underground structure model and site amplification factor based on microtremor array observations at seismic stations in Japan:* **S Senna**
- 1932276** *Subsurface Structure and Water Stores Beneath Giant Sequoias:* **B Eppinger**, S Holbrook, D Grana, S P Bemis, S M Gupta, D Burgett, A Gupta, C E Lukens, C S Riebe
- 1944093** *Surface Manifestation of Hydrocarbon Indicators: A Case Study:* **P Sivaraj**, C Jalluri, S Yeggina, J Kravitz
- 1972659** *Temporal and Spatial Characterization of Groundwater Aquifers Using Ambient Noise Tomography: Integration of Velocity Structure and Azimuthal Anisotropy:* **L W Chen**, N Nakata

1882741 *Temporal Velocity Variations of Shallow Subsurface Structure and Seismicity Triggered by Reservoir Impoundment at the Baihetan Reservoir, Southwest China:* **T Sun**, H Yao

251155

Near-Surface Geophysics for Natural Hazard Insight & Mitigation (joint with H, NH)

Conveners: **Sebastian Uhlemann**, Lawrence Berkeley National Laboratory; **Sina Saneiyan**, Binghamton University; **Xavier Comas**, Florida Atlantic University; **Angela Perrone**, CNR National Research Council

1894676 *3D Deep Geoelectrical Tomography of the Pantano Ripa Rossa Segment of the Irpinia Fault (Southern Italy):* **M Zambrano**, P P Bruno, T Volatili, G Ferrara, S Mazzoli, N Lucci

1993963 *A Novel Probabilistic Framework for Assessing Global Shrink-Swell Subsidence Hazard:* **E Perry**, H Scannell, J Pucciarelli, J Rogers

1887539 *CNN-BASED STRATIGRAPHIC CLASSIFICATION FROM BOREHOLE LOGS FOR ENHANCED MITIGATION OF SUBSURFACE CONTAMINATION HAZARDS:* **S Jeong**, J Shin, S H Hwang, D Yoon

2004155 *Comparison of lithological controls on vegetation patterning in sub-tropical and boreal peatlands.:* **S Adams**, D Nering, I Newton, M R Islam, X Comas, H Moore, A S Reeve, L D Slater

1874795 *Geophysical Insights Into the Subsurface Hydrological Structure of Biscuit Basin Post Hydrothermal Explosion:* **A Peterson**, A Parsekian, A Miller, K W W Sims

2002122 *Infrastructure Risk Assessment using ERI and MASW for Slope Stability Evaluation:* **M F Khan**, S Kibria, S Khan, I La Cour

252752

Open-Source Tools in Near-Surface Geophysics (joint with GP, H, MR)

Conveners: **Seogi Kang**, Stanford University; **Lindsey Heagy**, University of California Berkeley

1872377 *Comparative Evaluation of Open-Source Tools for Seismic Refraction Analysis:* **L Khawlhrring**, L Tlau, Z Ralte

1865813 *Comprehensive User-Tutorials for Geophysical Forward Simulation and Inversion with SimPEG:* **D Cowan**, S Soler, L J Heagy

1943673 *The Long-Term Impact of Industrial Fluid injection on Regional Geomechanical Properties: Time-Lapse Seismic Velocity Monitoring in the Montney Play, Western Canada Sedimentary Basin:* **D Zha**, H Yu, S Mao

1900827 *InSAR Time Series Analysis of Small-Scale Sinkholes in Riyadh Region, Saudi Arabia: Filtering Strategies and Observations:* **A Aljurbua**, Z Albesher, C Elachi, M Simons

1992769 *Integrated Geophysics and Data Science for Soil Moisture Characterization and Hydrogeological Risk Assessment in Urban and Peri-Urban Areas:* **L Martino**, G Calamita, G De Martino, E Gueguen, T Lacava, V Cioffi, I G Lando, S Uhlemann, F Canora, A Perrone

1854576 *Integrated Logging-Based Borehole Stability Assessment for Deep Seismometer Deployment in Earthquake-Prone Regions of Korea:* **J Shin**, J Choi Sr, S H Hwang, S Jeong, K Kim

1949017 *Investigation of the Subsurface Structure of the Chestnut Hill Reservoir Earth Embankment Dam Using Ground Penetrating Radar (GPR):* **J Ebel**, V Olawoyin, E Petschek

1872120 *Reevaluation of Seismic Microzonation in the Taipei Basin and Surrounding Areas:* **Y J Chen**, C H Kuo, V B Phung

1880311 *Seismic Microzoning and Surface Hazard Characterization for a Strategic Facility in Southeastern Oman:* **I W El Hussain**, A Deif, A Mohamed, Y Al-Shijbi, A Ansari, M Al-Saifi

1968614 *Subsidence and Microseismicity: Subsurface Disturbances in the Western Area of Mexico City through a ERT Study:* **C Arango-Galván**, R E Chavez, A Tejero, A García-Serrano, A Lopez-Gonzalez, G Cifuentes, A Caccavari-Garza, M Ortiz-Osio, J P Aguirre-Díaz, X Flores-Soto

1940827 *Vs30 at Jasper Ridge Biological Preserve, San Mateo County, California, From Active Source Seismic Data:* **D Samuel**, R Catchings, M Goldman, J H Chan, R R Sickler, C Criley

1876354 *EConflux: A Python Library for informing geophysical surveys using complementary electrical methods:* **C Terra**, J Thompson, H Moore, R J Hess, D Pesonen, H Shekhar, D Ntarlagiannis

1958438 *Extending NautiloPy: A Framework for Bathymetric Data Processing, 3D Visualization, and Seafloor Interpretation:* **T Guilment**, G Morra, H Bouillion, A R de Assis, E Luzzi, M D'Emidio, L Macelloni

1856342 *Interpolating full tensor gradiometry data with neural fields:* **A Kamath**, S Thiele, H Ugalde, B Morris, R Gloaguen

1902364 *PyHydroGeophysX: An Extensible Open-Source Platform for Bridging Hydrological Models and Geophysical Measurements*: **H Chen**, Q Niu, Y Wu

248759

Planetary near-surface geophysics (cosponsored by AAS: American Astronomical Society, GSA: Geological Society of America, SEG: Society of Exploration Geophysicists) (joint with EP, MR, P, S)

Conveners: **Juan Lorenzo**, Louisiana State University; **Katherine Mesick**, Los Alamos National Laboratory; **Paul Bremner**, University of Florida-Geological Sciences; **Han Byul Woo**, NASA Marshall Space Flight Center

1846334 *Active Seismic Exploration of Planetary Subsurface via Terrestrial Analog Studies*: **J Wang**, N C Schmerr, N McCall, E Bell, J A Richardson, P Whelley, J Giles, S Kruse, V Lekic, R C Porter, J D West

1921511 *Analysis of Moonquake Waveform Characteristics During Apollo 17*: **S Guruvayurappan**, F Civilini, N C Schmerr

1918202 *Field Validation of Planetary Geophysical Methods in Mars-Analog Environments*: **D E Stillman**, D E Kowalewski, C L Dinwiddie, R Hoover, A Wilcoski, J Radebaugh, E Oladeji, E Gosselin, C M Phillips-Lander, PhD, D Wendt, M Flores, D Parmenter, R E Grimm

252126

Recent Advances in Near-Surface Geophysics (General Contributions) (joint with B, H, MR, NG)

Conveners: **Raymond J. Hess**, Rutgers University; **Elnaz Pezeshki**, Organization Not Listed; **Emmanuel Oladeji**, University of California Davis; **Klaudio Peshtani**, Pacific Northwest National Laboratory; **Siena Oswald**, University of California Santa Cruz

1889252 *3D Joint Inversion of Multispacing Magnetic Data*: **G Kim**, H Rim

1932858 *Characterizing Hanford Vadose Zone Sediments Using Nuclear Magnetic Resonance*: **C Caro Cano**, M Figueroa, K Keating, J Robinson

1941598 *A new small coil transient electromagnetic (TEM) instrument and cases imaging the critical zone*: **E Auken**, P Maurya

1943737 *Archaeo-geophysical area survey in the Amazon rainforest of Bolivia*: **J Fassbinder**, L Lambers, S Hahn, R Torrico, C James Betancourt

2001746 *Assessing Effectiveness of Modern Smartphone Magnetometers for Mapping Buried Utilities*: **M Ahmed**, A Innes

1954614 *Rooted in data: Updates to the Geophysical Survey (GS) data standard & GSPy toolbox*: **S R James**, B J Minsley, N L Foks

1892566 *Geophysics of the Lake Tüttensee meteorite crater ensemble (Chiemgau impact strewn field, Germany)*: **K Ernstson**, J Poßkel

1993499 *Gravitational Attenuation During the 2023 Annular Solar Eclipse in Colombia*: **P Atapuma**, L H Ochoa Gutierrez, L D Jimenez

1854299 *Identification of Thermal Boulder-quakes and Their Possible Source Locations in the Apollo 17 Lunar Seismic Profiling Experiment Data*: **Y Tamama**, F Civilini, A L Husker, J M Jackson

1953484 *Real-Time Autonomous Seismic Detection for Planetary Missions*: **F Civilini**, D Leshchev, A L Husker, A Thompson, N McCall, N C Schmerr, J Hooks, A Husker

1904407 *Rotation seismology for planetary subsurface: From Mars results with SEIS/InSight to Lunar perspectives on Rovers*: **P H Lognonné**, L Fayon, T Kawamura

1846478 *Tracking Seasonal Dynamics Using Geophysical Methods at an Euxinic, Methane- and Saline-Rich Spring*: **L Nell**, J Thompson, C A Hodges, D Storms, I Apalara, K Sluder, M Elwood Madden, A S Elwood Madden, B Moehnke, S Saneiyen

1884706 *Closed-form Expressions of Gravity and Magnetic Responses due to an Elliptical Cylinder*: **H Rim**, G Kim

1869132 *Delineating Groundwater-Surface Water Interactions in a Flow-Through Glacial Lake Down-Gradient of Crude Oil Spill Plumes*: **H Moore**, L D Slater, N Terry, B A Bekins, J F Devlin, I Cozzarelli, D Ntarlagiannis

1864066 *Enhance Near-Surface Imaging Accuracy with Kernel FCM Clustering-Constrained Inversion of Ambient Noise Surface Wave Data*: **Z Shi**, X He

1896400 *Evaluating a novel electromagnetic induction array for high-resolution magnetic susceptibility mapping in igneous environments*: **P De Smedt**, B Dousteysier, J Guillemoteau, F X Simon, V Van Parys, A Vauthier, L Claeys

1911043 *Interpreting Subsurface Disturbances Using Ground Penetrating Radar and Modeling of a Historic Urban Setting in Austin, Texas*: **L Lemmons**, S Hernandez, M Gowens, R Dees, M E Everett

1969533 *Near-Surface Seismic Analysis of the Bliss Creek Lineament, West-Central Mississippi*: **R Failing**, J B Harris

1891647 *Scale Analysis of Atmospheric Flow over Vegetation Canopy: a Wind Tunnel Study*: **G Chen**, C H Liu, F Li

1852137 *The Kimal Converter Substation - The Challenges of Geoelectric Modelling in a Desert Environment:* **P F Freire**, B Abarca, N Meqbel, B Sergio, J Calderon, F Adaro, T Wei, W Jianzhong

1893364 *Towards a more quantitative comparison of electromagnetic induction surveys for regional nutrient loss assessments of agricultural fields:* **J Thompson**, D Ntarlagiannis, A R Buda, L D Slater

248831

The MacGyver Session: The Place for Novel, Exciting, Self-Made, Hacked, or Improved Sensors and Software Solutions to Understand the Near Surface Environment (joint with ED, H, OS, SY)

Conveners: **Rhett Herman**, Radford University; **Burke Minsley**, U.S. Geological Survey; **Brian Moyer**, University of Maryland College Park; **Ryan Stewart**, Virginia Polytechnic Institute and State University

247547

Transforming Groundwater Science and Management with Remote Sensing and Geophysics (joint with G, H)

Conveners: **John Lane**, USGS Hydrogeophysics Branch; **Susanna Werth**, Arizona State University; **Ryan Smith**, Missouri University of Science and Technology; **Meredith Goebel**, Stanford University

2002339 *An Integrated ML and Remote Sensing Framework for Groundwater Potential Zones Mapping and Subsidence Monitoring in Haryana, India:* **S Bhagat**, C Ojha

1954585 *Assessing the Performance of Reanalysis and Satellite Precipitation Products in a Data-Scarce Semi-Arid Basin in Morocco:* **A EL Azhari**, I Karaoui, Y Ait Brahim, M Azhar, L Bouchaou

1894443 *Bedrock Aquifer Storage and Hydraulic Diffusivity Constrained by Space Geodesy:* **M Swarr**, D F Argus, H R Martens, Z H Hoylman, Z Young, A A Borsa, N Lau, W P Gardner

1905245 *Downscaled GRACE/GARCE-FO revealed rapid groundwater storage decline driven by irrigation expansion in the Upper Red River Basin, United States:* **A Arshad**, A Mirchi, M U Akbar, J M Sadler, S Datta Dr, H Basagaoglu, A AghaKouchak

2003694 *Electrical Resistivity Tomography at Frozen Lake: Investigating Water Availability for Mount Rainier National Park in an Alpine Environment:* **D Dunn**, T Gilkerson, T Kenyon

1856786 *Using Near-Surface Geophysics to Estimate Water Storage From a Porosity Model of the Hillslopes in a High-Altitude Andean Watershed:* **J Cambeiro**, K Keating, J Oshun, J L Hayes, M Lang, O Walbert

1974103 *Gravity techniques for site characterization: Homemade and bespoke algorithms:* **W B Levandowski**, D O'Connell, L Steele, M Mirzanejad, L Clyne

1983146 *Monitoring Surface Processes of Alpine Water-Harvesting Earthworks Using a Multi-Instrument Sensor Network:* **M C LaFevor**, C E Ramos-Scharron, I Olajide, T Oyesode, N Herrington

1878456 *Fault-Aquifer Interaction in the Salt Lake Valley of Utah Inferred from Multitemporal InSAR Deformation and Poroelastic Models:* **Z Kang**, J Jiang

1863453 *Geodetic insights into water-driven poro-elastic response, aquifer flow and land deformation dynamics in Delhi NCR, India:* **P Dalal**, S Sahoo, M Hari, D K Tiwari, PhD, B Kundu, V M Tiwari

1903752 *Groundwater Trapping and Surface Uplift Controlled by Faulting within Greater Osaka:* **S Fukunishi**, J Kearse, Y Kaneko, S Barbot

1976487 *Hybrid Deep Learning for 3D Interpolation of Lithologic and Geophysical Resistivity Data:* **D Rastad**, R Smith, K Bratzler, S Nozari

1905355 *Improving Subsidence Estimates from Groundwater Extraction by 3D Poromechanical Deformation Modeling of Clay Interbeds:* **Y Yu**, E M Dunham

1902203 *Integrated Aquifer Characterization in the Parowan Valley with Drillers' Logs and a Towed Transient Electromagnetic System:* **K Bratzler**, R Smith

1864274 *Integrated GIS and Machine Learning Approach for Groundwater Potential Mapping in an Arid Region of Morocco:* **A Zbiri**, A Kchikach, J Moustadraf, H Ibouh

1935075 *Integrating GRACE downscaling and hydrologic modeling to improve groundwater assessments in Bolivia:* **M R L Mautner**, Z Cao

1922213 *Integrating InSAR-Derived Land Subsidence with Groundwater Level Trends Across Utah:* **T Shreve**, P Inkenbrandt, MS, T Knudsen, K Ladig, G Gavin, S Bowman

- 1865199** *Integrating Long-term InSAR monitoring into Local Groundwater Management: Insights from the Hollywood Basin, California:* **Y Zheng**, M Simons
- 1927393** *Leveraging Remote Sensing Data and National Hydrologic Models to Enhance Groundwater Models:* **S Nozari**, R Smith, D Rastad, E R Mueller, R T Bailey
- 1963034** *Monitor Old Works groundwater flow with Anisotropic and 3-deminsional electrical geophysical method:* **Y Gao**
- 1976016** *Monitoring Ground and Aquifer Water Using Gravimetry and Gravity Gradiometry on the Path to Quantum Sensing:* **A Sgarabotto**, N Metje, D Sedlak, M Holynski, A Faramarzi, X Xia, D M Hannah, PhD, S Krause, D Boddice, P B Wilkinson, B Dashwood
- 1960185** *Quantifying Past and Present Groundwater Changes in the Central Valley, CA Using InSAR Time Series and a Viscoelastic Groundwater Model:* **M Zebker**, D T Sandwell, A A Borsa, Y Bock

250956

Exploration Geophysics (cosponsored by SEG: Society of Exploration Geophysicists)

Conveners: **Efemena Emmanuel**, Organization Not Listed; **Georgios Tsoflias**, The University of Kansas; **Julia Correa**, Lawrence Berkeley National Laboratory; **Majid Khan**, IGG Institute of Geology and Geophysics, Chinese Academy of Sciences; **Christopher Terra**, Rutgers University

- 1941557** *3-D Elastic Source Wavefield Reconstruction Using Piecewise Cubic Hermite Interpolation for Memory Optimization on GPU:* **W Cai**, P Zhu, Y Yuan, Z Li, Z Xu
- 1897575** *3D attribute-assisted seismic characterization of Miocene to Pliocene reservoirs in deep offshore, Niger Delta basin, Nigeria: implications for carbon dioxide storage:* **D Beatty**, U Anyiam
- 1940682** *3D Electrical Structure of the Bayan Obo REE-Nb-Fe Ore Deposit:* **W Song**, W Chen, Y Zhu
- 1875841** *Integrating Multispectral and Geophysical Data to Predict Gold Mineralization in Northern Togo Using Machine Learning:* **K A J Agbodemegbe**
- 1871174** *A Distance-regularized Level Set Inversion Method with Magnetic Data: Application to Cu-Ni Deposit in Jinchuan, China:* **J Liu**, S Xiong, W Wang
- 1845107** *A method for predicting 2D grain size distribution of formations from borehole geophysical data:* **M Wang**, W Yan, L Yin, Q Zhou

- 1845377** *The Essential Role of Modern Geophysical Methods in Developing Rural Groundwater Supplies in Africa:* **P Bauman**, L Woods, C Miazga, E Ernst, E Johnson, M Layton
- 1856974** *Tracking baseflow supply dynamics using SWOT data from small groundwater dominated lakes in permeable terrain:* **M A Briggs**, M Harlan, D Rey, D R LeBlanc, D Hare, D F Boutt, M N Gooseff, J Marshall
- 2000672** *Using InSAR to Quantify Groundwater Storage Changes in the San Gabriel Valley in Response to Atmospheric Rivers:* **X Jian**, Y Zheng, E Mishra
- 1940284** *Water for Wafers: Groundwater Extraction at a Semiconductor Plant Leads to a Decade of Surface Deflation Observed with Multi-Track InSAR:* **Z Hurewitz**, A A Borsa, T M van Dam
- 1860832** *Advanced Multi-Disciplinary Technologies: Integration of Geo-Chemical Index with Petrophysical Flow-Index in conjunction with Advanced Geophysical Attributes for Optimal UBCTD Gas Well Placement:* **Y Alghamdi**, T Sodagar SR, W Wang Sr, S Dass Sr
- 1962649** *Airborne Geophysical Investigation of Alkali-Porphry Systems in the South-Central U.S.A.: Implications for Critical Mineral Exploration:* **S Ayala Cortez**, M S Karplus, A A Velasco, M R Baker, P Goodell
- 1967207** *An Extension to Differential Effective Medium Theory: Linking Pore Geometry And Elastic Moduli in Carbonate Rocks:* **K H Singh**, S A Pandit
- 1908995** *Analytical Study of Time-Domain 1D Borehole-to-Surface Electromagnetic Fields: Theory, Modeling, and Sensitivity Analysis:* **Y Zhu**, W Chen, W Song
- 1941501** *Annealed Static-constrained Early-arrival Waveform Inversion for Near-surface Velocity Estimation:* **Z Li**, P Zhu, Y Yuan, Z Xu, W Cai
- 1934928** *Application of Magnetotelluric Methods in Geothermal Exploration and Investigation of Geological Structure: A case in Tatun Volcano Group, Northern Taiwan:* **W J Huang**, L C Nguyen, C C Chen, C H Chen, C S Yen, L T Tong, Y H Li, H Y Yen
- 1952348** *Classification and determination of lithofacies using Machine Learning methodologies based on Well Log Data in the Grupo Real of the Middle Magdalena Valley Basin - Colombia S.A.:* **A F Gonzalez Jr**, L H Ochoa Gutierrez, A Sarmiento Sr
- 1845595** *Detection of Buried Subsurface Anomalies Using Magnetic and GPR Surveys:* **W K Kim**, L Changwoo, J Ha
- 1980098** *Distributed electromagnetic surveys for enhanced mineral exploration:* **S Kang**

- 1910711** *Effect of preprocessing on the mode sensitivity in surface wave dispersion imaging:* **S Adari**, T Naskar
- 1974505** *ENHANCING UNSUPERVISED MACHINE LEARNING FOR FLUID DETECTION THROUGH AVO ATTRIBUTE INTEGRATION:* **R Sahin**
- 1984323** *Environmental Geophysics Signal Simulation Space (EGS³): A field research and teaching facility for advancing the use of geophysics for Near-Surface applications.:* **K O Doro**
- 1890357** *Expanding 3D ERT Capabilities for onshore CCS Exploration and Monitoring:* **V Sapia**, V Romano, G Morelli, F Fischanger, S Del Ghianda, S Bigi, G Ravidà
- 1960217** *Exploring the Depths of an Enormous Layered Intrusion: ICDP Drilling in the Bushveld Complex:* **S J Webb**
- 1865836** *Forensic Geophysics: Field Investigations Using Ground Penetrating Radar (GPR) to Search for Human Remains:* **A Brown**, S Kruse, M Hernandez, S Summers, D Manifold, E Clark, J Sohl, D Cawley
- 1906969** *Geometry of the Lampang Basin based on Gravity Data Analysis and 2D Modeling: Implications for Cenozoic Rift Tectonic in Northern Thailand:* **J Muenjaem**, N Mankhemthong, R Fongngern, W Sakapa, S Chantprasert, T Kunpitaktakun
- 1902593** *Geophysical investigation using Electrical and Seismic methods for Groundwater Exploration in Gandaki Province, Nepal:* **N K Ganesh**, M Burr SR, S Khanal, H Ghimire, U C Bhusal
- 1965141** *Geophysical modelling and groundwater potential of the Río Vichada structure, a possible meteorite impact crater in eastern Colombia:* **J J Valenzuela**, O Hernandez
- 1856312** *Gravity basement structure in the Yashio mineral spring area, Gunma Prefecture, Japan:* **Y Morifuji**
- 1941555** *HIGH-RESOLUTION 3D SEISMIC IMAGING OF SHALLOW SUBSURFACE GEOLOGICAL STRUCTURES IN THE EAST SEA, OFFSHORE KOREA:* **Y Yoon**, Y J Kim, B Yi, Y Choi, M Kang, K O Kim
- 1931218** *High-Resolution Passive Seismic Imaging with Nodal Arrays: A Case Study in Southern Louisiana:* **B Sadler**, P Persaud
- 1947381** *Hydrocarbon Potential, Trapping Mechanism and Environment of Deposition of Unpenetrated Reservoirs in the Deep Offshore Niger Delta Basin: Using AVO and Attribute-Assisted 3D Seismic Interpretation:* **M Hughes**, U Anyiam, E Uzuegbu, O Anyiam, D Beaty, M Yaqoob
- 1939919** *Integrated approach to reveal subsurface structural features and reservoir characterization in Eastern Sulaiman Fold and Thrust belt, Pakistan:* **M T Hussain**, A Ali
- 1849600** *Integrating Thorium Normalization and Radiogenic Heat Production to Distinguish Reservoir and Source Rocks: First Application to Carbonate Rocks in Egypt:* **M Saleh**, I Al-Alfy, A Ghoneimi, M Nabih
- 1964011** *Mapping Groundwater Discharge Zones in the Western Lake Erie Basin Using Thermal Infrared and Electrical Resistivity Imaging:* **P Ossai**, A P Aizebeokhai, J M Martin-Hayden, R Becker, K O Doro
- 1926016** *Novel Reanalysis of Legacy Gulf of Mexico Data Using AI Methods for Salt Segmentation:* **S Reichert**, S Fomel, Y Chen
- 1943816** *On the Suitability of Diffusion Models for Downward Continuation of Gravity Data:* **A Jain**, P Bharadwaj, C S Seelamantula
- 1930243** *Searching for Lost Subterranean Qanat Systems in Iraqi Kurdistan Using Seismic Tomography:* **C Zhang**, M Soroush, S Park, J Rector, H Morin
- 1963189** *Thermophysical and Geophysical Characterization of Legacy Mine Tailings in Central Arizona:* **B McKeeby**, D Chapline, A Koeppel, C S Edwards, D Riley
- 1967547** *Uncertainty Analysis in 3D Magnetic Inversion: Implications for Mapping Reservoir Volumes for Geologic Hydrogen Exploration and Carbon Mineralization:* **R C Arasada**, S Bhattacharya
- 1904463** *Upscaling mapping of methane gas dynamics in the Everglades using drone-based ground-penetrating radar (GPR) and multispectral imagery:* **X Comas**, N Terry, C Zhang, F Benzi, S Adams, D Nering, I Newton, M R Islam

248420

Planetary geology from the synthesis of compositional and geophysical observations

(cosponsored by EGU: European Geosciences Union, GSA: Geological Society of America) (joint with EP, MR, NS, V)

Conveners: **Suniti Karunatillake**, Louisiana State University; **Alain Plattner**, California State University Fresno; **Juan Lorenzo**, Louisiana State University; **Katherine Mesick**, Los Alamos National Laboratory; **Carlos Gary Bicas**, Louisiana State University

1847605 *Assessing the Feasibility of Fiber-Optic Sensing for Lunar and Planetary Seismic Monitoring: Observations, Modeling, and Laboratory Experiments:* **Q Zhai**, I Stubailo, G Glesener, E Biondi, A L Husker, Z Zhan

1889723 *Atypical Volcanism in the Mare Australe Region of the Moon: Insights From Mineralogy Using M³ Onboard Chandrayaan -1:* **N Panwar**, T Kapadia, S Bose, N Srivastava

OCEAN SCIENCES

249787

Accelerating Exploration and Research of the Deep Sea to Inform Decision Making (joint with B, SY, V)

Conveners: **Beth Orcutt**, Bigelow Laboratory for Ocean Sciences; **Julie Huber**, Marine Biological Laboratory; **Russell Shomberg**, University of Maryland College Park; **Samuel Soule**, University of Rhode Island; **Russell Shomberg**, University of Maryland College Park

1901971 *Accelerating research in seabed mineral science:* **A Gartman**, K Mizell, A W Demopoulos

1954221 *Baseline Environmental Assessments at Seamounts in Advance of Deep Sea Mineral Extraction: An Integrated Approach for Exploration, Resource Characterization, Impact Assessment, and Decision Support:* **T McClinton**

1951314 *Cassini RSS Bistatic Radar Observations of Titan's Solid Surface: progress update and most recent results:* **V Poggiali**, G Brighi, A Hayes, D Lalic, M Mastrogiuseppe, M Zannoni, P Tortora

1985544 *Intense Chemical Weathering of Large-Scale Silicic Volcanic Deposits as a Window into Early Martian Crustal Evolution:* **B Ye**, J Michalski, R Hazen

1914829 *Modeling Clay Mineral Hydration and Amorphous Phase Abundances in Gale Crater, Mars:* **S Czarnecki**, C J Hardgrove, E B Rampe, P J Gasda

1865922 *Paleoseismic Activity in the Taurus-Littrow Valley on the Moon:* **N C Schmerr**, T R Watters

1894405 *Photometric Modeling of Mastcam-Z Observations at Van Zyl Overlook, Jezero Crater:* **B Margara**, J R Johnson, A Hayes, M T Lemmon, W M Grundy, J F Bell III, PhD

1848466 *The Farside Seismic Suite: What we hope to learn from a new seismic mission to the far side of the Moon:* **C Nunn**, M P Panning, S Kedar, N E Bowles, S B Calcutt, M Drilleau, B Fernando, R F Garcia, A C Horleston, T Kawamura, P H Lognonné, D Mimoun, W T Pike, S De Raucourt, R C Weber

2001957 *The geochemical context of geophysically derived nearside-farside Lunar mantle variations:* **N Frankenberg**, N Wagner, H C P Lau

1999138 *Characterization of (Sub)Seafloor Microbial Communities at Octopus Nurseries Associated with Low-Temperature Hydrothermal Vents at La Pampa Submarina, Costa Rica:* **G Ramirez**, J A Huber, B Orcutt, O Almacén, R Akiba, T D'Angelo, A T Fisher, R M Lauer, O Garcia Prado, H Lutz, S Sadeghpour, M Serres, A Sutherland, F Vasquez Fallas, J R Voight, C Wheat, T Zhivkova, J Cortés

1872757 *Characterizing Deep-Sea Seafloor Habitats and Communities off the U.S. West Coast:* **M Mercado**, S Goode

1911258 *Charting the Unknown: How NOMEAC Accelerates Deep-Sea Exploration for Informed Decision Making:* **R R Thiel**, B Evans, W Mowitt, A Netburn, J Danielson, A W Demopoulos, R Medley, MS Geoscience UMASS, Amherst; MS Ocean Mapping University of New Hampshire (UNH) CCOM, Durham, NH, M Rasser, M Westington, J Wozencraft, E Brush, J Gronich, A Smith

1958501 *COBRA Master Class Delivers Collaborative and Effective Deep-Sea Expedition Leadership Training to Early Career Researchers:* **R Sylvan**, R Rotjan, J A Huber, B Orcutt, A T Fisher, C Wheat, K Croff Bell, K Barnhill, R Shomberg, L Van Audenhaege, J Weston

- 1899372** *Combining multi-vehicle operations, autonomous sampling, and environmental 'omics for surface to seafloor biodiversity assessments of the Geologists Seamounts:* **A Govindarajan**, J Fahy, E Hayden, L A Mayer, C Roman, V E Schmidt, N Yang, D Yoerger
- 1940454** *Current Knowledge, Future Work, and Data Needs for Environmental Assessments of Infaunal Communities in the Clarion Clipperton Zone in Anticipation of Deep-Sea Mining:* **T Washburn**
- 1990741** *Exploration and Discovery at the Mariana Arc, Back Arc, and Remnant Arc: Findings from the NA171 "Mattingan" Expedition:* **J W Beeson**, W Chadwick Jr, V Tunncliffe, D Sowers, D Wagner, L Davis, S Landreth, B Jordan, E Allison, J Tomer, E Stewart, S Macduff, K McClellan
- 1972894** *Habitat Complexity and Niche Differentiation Structure Deep-Sea Coral Assemblages Across the Blake Plateau:* **J Fillion**, B Kennedy
- 1975962** *Heat Flow Measurements Reveal Hydrothermal Circulation Between a Newly Characterized Outcrop Pair on the Cocos Plate:* **R M Lauer**, R Perrin, A T Fisher, R Akiba, J Cortés, B Orcutt
- 1951181** *Historically Siloed but Mutually Inspired – Opportunities for Present and Future Collaboration and Advancement Between the Deep-Sea Oceanographic and Planetary Science Communities:* **E M Spiers**, M Jakuba, A Michel, C R German
- 1903239** *Identifying Trace Metal Sources to the Australian-Antarctic Ridge Phytoplankton Bloom During a Suspected Hydrothermal Eruption:* **H Jerris**, P L Barrett, T Baumberger, P Monreal, J E Davis, C Schine, K R Arrigo, R M Bundy, J Resing
- 1961336** *Improving eDNA Tools For Deep-Sea Stewardship: Reference Databases, Primer Design & Volume-Optimised Sampling:* **S Herrera**, PhD, L McCartin, A Govindarajan, M Sengthep
- 1932992** *Integrating Real Time Multibeam and In Situ Methane Measurements for Seep Hunting: A Case Study from the Chilean Margin:* **A Michel**, S Wieman, J Beeson, A D Skarke, S Youngs, J Kapit, J J Marlow
- 1873565** *Knowledge Gaps for Commercial Leasing for Marine Minerals in American Samoa:* **B Orcutt**, D Amon, S Auscavitch, K Croff Bell, J Drazen, C Du Preez, V Finlayson, C R German, A Govindarajan, S Herrera, J A Huber, B Kennedy, L A Levin, R Rotjan, S Soule, J B Sylvan
- 1993913** *Maximizing Ocean Data Utility: A Unified Data Repository Approach:* **S Johnson**, T Solangi
- 1967509** *Metagenomics of Developing Complex Hydrothermal Microbial Communities:* **A S Holmes**, J B Sylvan, C L Moyer, H Fullerton
- 1896484** *Microbes and Mining: Potential Impacts of Nodule Mining on Microbial Ecosystem Services in the Deep Sea:* **J A Huber**, B Orcutt, E Bolton, T Bowman, N Erazo, A P Gajigan, M Harris, F Janssen, R Jones, M Molari, J J Marlow, S Murdock, M Pachiadaki, G Ramirez, M Semedo, A Smith, A Sweetman, J B Sylvan
- 1868600** *Multivariable analysis of pelagic fauna distribution in the Blake Plateau region:* **A Ensign**, A Copeland, A Marranzino
- 1960947** *NOAA Ocean Exploration partnerships for seabed mineral decision-making in the Pacific region:* **A C Elmore**, W Mowitt, A A Soule, A Gartman, J Potter
- 1888432** *Rapid Response to the April 2025 East Pacific Rise 9° 50'N Eruption Through an Education-Science Partnership:* **V Preston**, S K Cooper, V Bennett, L H Joseph, R Parnell-Turner, A D Skarke, K van der Hoeven Kraft, L D White
- 1880995** *Tectonomagmatic Setting of Mid and Western Pacific Seamounts within the US Economic Exclusive Zone:* **K Konrad**, A Balbas, C Brown, P Crawford, V Finlayson, N Foresta, M G Jackson, A A P Koppers, T A Morrow, R A Pockalny, D Wagner
- 1863795** *The Dark Oxygen Research Initiative (DORI) project - Investigating Dark Oxygen Production in the deep sea:* **A Sweetman**, J J Marlow, F Geiger
- 1853246** *The Orpheus AUV: An Ultra-Scalable Tool for Deep Ocean Exploration:* **J Russell**
- 1953503** *Thermophilic Endospores Throughout a 1.7 Ma Sediment Column at the Mid-Atlantic Ridge:* **B Hrymoc**, D K Ferguson, W Bach, C R J Hubert
- 1900347** *A Coupled Coastal-Inland Modeling Framework with AI-Enhanced River Inputs:* **S Li**, C Chen, A A Proussevitch, Q Xu, L Wang, T Shyka, T S Kakumanu
- 1886476** *A Hybrid AI-Driven and Static Flood Modeling for Real-Time Peak Storm Surge Inundation Mapping:* **J W Lee**, H Yang, A U Santos Cruz

248058

Advances in Flood Prediction and Risk Assessment in Coastal, Inland, and Transition Zones (joint with GC, H, NH)

Conveners: **Fariborz Daneshvar**, University of Michigan; **Albert Cerrone**, University of Notre Dame; **William Pringle**, Argonne National Laboratory; **Saeed Moghimi**, NOAA National Ocean Service; **Atieh Alipour**, University of Alabama

- 1968559** *A Performance Assessment of STOFS 2D Global using Direct Lunar-Solar Traction Forcing and In-Line Self Attraction and Loading Terms:* **J J Westerink**, D Wirasaet, A Cerrone, A Tejaswi, S R Brus, E P Myers III, S Moghimi, G N Seroka, Y Funakoshi, L Tang, C Massey, M B Owensby
- 1974904** *A subgrid scale parameterization for resolving coastal flooding in the Energy Exascale Earth System Model:* **S Brus**, D Wirasaet, C Blakely, M Titterton, M R Petersen, D Engwirda, J J Westerink
- 1943773** *Advancing Global Coastal Hazard Assessment Through non-stationary Multivariate Extreme Value Analysis:* **L Mentaschi**, I Federico, M H Bahmanpour, A S Wadalkar, M I Voutsdoukas, S Causio, G Coppini, N Pinardi
- 1933205** *Automated Mesh Generation for Cross-Scale Compound Flood Modeling: Applications in STOFS-3D-Atlantic:* **F Ye**, F Cassalho, H Ju Yoo, Y J Zhang, H Yu, S Mani, Z Yang, F Daneshvar, G N Seroka, S Moghimi, E P Myers III
- 1993799** *Demonstrating the Next-Generation Great Lakes Operational Forecasting System:* **M Mattwig**, D Cannon, B Odstrchel, D Titze, Y Hong, J C Feyen
- 1976646** *Dimensionality Reduction and Error Characterization in Storm Surge Surrogates for Probabilistic Hazard Assessment:* **C Frantzis**, J L Irish, Y Shao, M Bensi, M Carr
- 1947464** *Enhanced Cumulative Likelihood of Potential Impacts using synthetic tropical cyclones for coastal flooding, a case study applied to Mobile, Alabama:* **J Robles Camacho**, C Massey, S Radfar, H Moftakhari, H Moradkhani
- 1978693** *Hybrid Machine Learning Emulation of Coastal Flooding: Mesh-Wide Water Level Prediction and Wet/Dry Classification Using GPU Acceleration:* **S Han**, D Hill, C Howe, D Honegger, C Williams, P Ruggiero, M C Haller
- 1916809** *Impact of Wave-Current Interaction on Storm Surge Simulation for Hurricane Ian:* **S C San**, Y Liu, S John, H Xu, K Qiao
- 1916965** *Impacts of Bathymetric Uncertainties on Storm Surge Inundation Extents and People Exposure in Coastal Lagoon Systems:* **Z Al-Attabi**, S Narayan, A Campbell, A Wuppukondur, D Babanawo, N M Thomas, Y Xu, D Lagomasino, T Fatoyinbo
- 1909853** *Improved Storm Surge Estimation Using a Revised Myers Equation and Variational Data Assimilation: Application to Recent Typhoon Cases in Japan:* **J Yoshino**, Y Kobayashi, T Kobayashi
- 1897317** *Improving 24-Hour Coastal Sea Level Forecasts with Transformer Models and Mesoscale Wind Forcings:* **D Kataraihya**, S Wdowinski
- 1923064** *Introducing NeurOCAST: A Neural Operator-Based Model for Bias Correction in Forecast Guidance:* **A Alipour**
- 1899994** *Large-scale Drivers and Properties of Storms leading to Coastal Flooding in North East coast of the United States:* **P Chabert**, E Di Lorenzo, PhD, B Fox-Kemper, J M Pringle
- 1869985** *Modeling Global Oceans: Sensitivity to Physical Processes and Atmospheric Forcing:* **A Tejaswi**, A Cerrone, D Wirasaet, J J Westerink
- 1865036** *Modeling Water Level Propagation with Sparse Gauges using Enhanced Deep Learning and Spatiotemporal Transfer Learning Approaches:* **S Daramola**, D F Muñoz, M S Sakib
- 1966761** *Numerical Investigation of Wave Forces on Coastal Housing Arrays During Flood Events Using VOF Modeling:* **S Biondi**, D Slinn
- 1901896** *Overview of Compound Flooding in Coastal Virginia: Drivers, Impacts, and Mitigation:* **X Wang**
- 1920982** *Probabilistic Prediction of Tropical Cyclone Driven Coastal Flood Extent and Timing:* **F Daneshvar**, W Pringle, S Mani, A Alipour, E P Myers III, S Moghimi
- 1989495** *Relative composition of nuisance flooding by astronomic tides, meteorology, oceanographic currents and stochastic residuals:* **P Bacopoulos**, T Yusuf, M W Brand
- 1962315** *Remote Sensing of Flood Dynamics in Salt Marshes in Sea Level and Davis, NC:* **A Smith**, T Pavelsky, C Wang
- 1926624** *Sensitivity Analyses of a 2D Rain-on-Grid Hydrodynamic Model for Simulating Extreme Compound Coastal Flood Events:* **H Tansar**, S Kaiser, E Ahmadisharaf, B Nazari, G Londa
- 1973492** *Skill Assessment of NOAA Storm Surge Models During 2024 Hurricanes:* **J E J Reeves Eyre**, A Alipour, S Moghimi, T Saillour, P Mavrogiorgos, G N Seroka, F Cassalho, S Mani, F Daneshvar, L Shi, Y Funakoshi, Z Yang
- 1859694** *Spatial Delineation of the Compound Flood Transition Zone Using DeepLearning:* **F J Gomez**, F Yarveysi, H Moftakhari, H Moradkhani
- 1903476** *Spatiotemporal Graph Neural Network-Based Surrogate for Compound Flood Forecasting:* **Z Zandsalimi**, M Shafiee-Jood, N Alemazkoor
- 1967961** *Streamlining a Grid Refinement Approach Based on Offshore and Coastal Bathymetric Features to Improve Storm Surge Inundation Modeling:* **S Vagamare Ganapati**, Z Al-Attabi, S Narayan, D Lagomasino
- 1927836** *Surrogate models to predict wave dynamics and their time series over evolving landscapes and climate forcings:* **M Ahmadi Gharehtoragh**, D Johnson

- 1940017** *The Role of Tide and Storm Surge Properties on the Timing, Magnitude, and Duration of Coastal Flooding Events*: **M S Sami**, K Serafin, S A Talke
- 1921842** *Towards a Digital Twin Framework for Coastal Ocean Modeling*: **C Dawson**
- 1929396** *Tropical Cyclone Impacts on Compound Flooding in the Lower St. Johns River, Florida*: **S Sabrina**, K Serafin

246578

Advances in Understanding Global Meridional Overturning Circulation from Past to Future: Insights from Multiple Approaches (joint with A, C, GC, PP)

Conveners: Feng He, University of Wisconsin Madison; **Kelly Kilbourne**, University of Maryland Center (UMCES) for Environmental Science; **Maureen Walczak**, University of Washington; **Madeleine Youngs**, University of Maryland College Park

- 1923326** *20th Century Weakening of North Atlantic Meridional Heat Transport*: **S Chen**, M Osman, F Muschitiello
- 1872022** *AMOC Weakening Shapes Ocean Heat Content Patterns under Strong Idealized Warming*: **C Ventrucci**, F Fabiano, O Mehling, K Bellomo, P Davini
- 1927732** *Arctic Sea Ice Meltwater as a Forcing and Feedback on the Atlantic Meridional Overturning Circulation*: **C Hankel**, W Cheng, C M Bitz
- 1846292** *Atlantic Meridional Overturning Circulation slowdown modulates wind-driven circulations in a warmer climate*: **M S Mimi**, W Liu
- 1996095** *Atlantic 'cold blob' is caused by ocean heat transport change, not surface fluxes*: **R Gou**, S Rahmstorf, J Jendrkowiak, L Cheng, H Björnsson
- 1930526** *Atmospheric and oceanic energy transport during North Atlantic freshening events: Influences of moisture transport and hydrologic cycle feedbacks*: **S H Baek**, J M Lora, C B Skinner, M J Fu, J Zhu
- 1942055** *Atmospheric Conditions Over the North Atlantic Ocean During the Recovery of the Atlantic Meridional Overturning Circulation in the TraCE-21K-II Simulation*: **S Y Lee**, Y S Lin, F He, Y G Chen
- 1986135** *Benthic Foraminiferal $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ Traces Southeast Indian Ocean Water Mass geometry Across the Last Deglaciation*: **N Umling**, E L Sikes
- 1847515** *Conceptual Models of Overturning Circulation in the Presence of Ice*: **T W N Haine**, T Verma, P Blaser
- 1856863** *Direct Observational Estimates of the Southern Ocean Meridional Overturning Circulation*: **A R Gray**, D Balwada

- 1977182** *Variable resolution spatial mode-splitting in MPAS-Ocean*: **C Blakely**, S R Brus, V Mahadevan, I Grindeanu
- 1963991** *Wave Height Hindcasting and Extreme Return Level Estimation via Attention-Based Ensembles*: **Z Ren**, N Ravishanker, M De Vos, N Pais, J O'Donnell
- 1972318** *Downgradient Flow in the Global Overturning Circulation*: **L D Talley**
- 1873660** *Estimating the global meridional overturning circulation based on a high-resolution hydrographic dataset*: **F Gomez**, S K Lee, D Kim, H Lopez, D Volkov, S Dong
- 1978427** *Evolving Southern Ocean overturning in warming climates*: **T Zhu**, W Liu
- 1879537** *Inferring deglacial Atlantic circulation change from the large temporal lags between paleoceanographic records*: **B Hamilton**, G Gebbie
- 1951579** *Is Indian Ocean overturning different? Testing the anomalously old deep Indian Ocean radiocarbon (^{14}C) ages during the last glacial maximum*: **P A Rafter**, M Walczak, F Primeau, J Yu
- 1878342** *Meridional Overturning Circulation in a Warmer World: Insights from the Early and Middle Miocene*: **T Naik**, A M De Boer, H K Coxall, N Burls, C Bradshaw, Y Donnadieu, A Farnsworth, A Frigola, M Huber, N Herold, P Karami, G Knorr, A N LeGrande, G Lohmann, Y Li, D J Lunt, M Prange, Y Zhang
- 1946061** *Millennial Variability, Regime Shifts, and Equilibrium States of Global Ocean Meridional Overturning Circulation in Long Climate Simulations*: **A V Fedorov**, P Curtis
- 1872959** *Multi-centennial internal variability in the North Atlantic drives additional warming over Europe*: **A Al-Yaari**, D Swingedouw, P Bracconot, L Boyall, O Marti, P Lincoln, T Caley, T Extier, C Martin-Puertas
- 1988338** *Oceanic heat content variability and its drivers in the Nordic Seas*: **S Molodtsov**, W Weijer, D DeSantis, A K Jonko, M Veneziani
- 1871631** *Phase Shift of AMOC and Multidecadal Global Mean Surface Temperature Under Anthropogenic Forcing*: **H Bi**, X Chen, X Li, K K Tung
- 1961965** *Projected Dynamic Sea Level Changes Along the U.S. East Coast Due to 21st-Century Atlantic Meridional Overturning Circulation Weakening*: **L Huang**, D Volkov, S Dong, S K Lee, D Kim
- 1982198** *Reconstructing Historical AMOC Variability with Machine Learning Framework Trained on a CMIP6 Earth System Model Ensemble*: **A Medvedev**, H Wei, K Srinivasan, K Armour, A Stewart, G E Manucharyan

- 1864237** *Sources and Paths of the Lower Branch of the Abyssal Overturning Circulation:* **X Yang**, P Cessi, B Blanke
- 2002144** *Unravelling the mystery: The key role of tides in strengthening AMOC during the Bolling-Allerød:* **Y Chen**, P Song, Y Sun, X Chen, G Lohmann
- 1968197** *Warming-Induced Slowdown of Vertical Circulation Sets Pattern of Projected Pacific Deoxygenation:* **B A Taylor**, Y Eddebbar, Y Takano, L D Talley

247838

Advancing Deep Sea Discovery: Science, Technology, and Data at Depth (joint with IN)

Conveners: **Vicki Ferrini**, Lamont Doherty Earth Observatory; **Christina Haskins**, Biological & Chemical Oceanography Data Management Office; **Corinne Bassin**, Schmidt Ocean Institute; **Nicole Raineault**, Ocean Exploration Trust

- 1893985** *Flow-Aligned Frameworks: Linking Benthic Currents to Cold-Water Coral Mound Development Using In-Situ 3D and ADCP Data:* **C Boolukos**, L H De Clippele, P Holloway, L Macedo de Oliveira Dr, G Summers, A Lim Dr
- 1935872** *Integrating the Deep: MGDS Services for Access, Discovery, and Integration of Submersible Data:* **V L Ferrini**, J J Morton, A M Goodwillie
- 1986956** *Strengthening the Data Lifecycle at Sea: Community Strategies for Usable, Shareable, and Impactful Submersible Data:* **C Haskins**, V L Ferrini, C J Bassin
- 1874748** *Advancements in Fiber Optic Microtethers for Ocean Exploration and Sensing:* **B Phillips**, J Noel, J Owens
- 1981301** *Brine pools in the Gulf of America: rare exceptions or widespread features? High-resolution AUV data reveals new sites:* **A Rubim de Assis**, E Luzzi, L Macelloni, T Guilment, M D'Emidio, S D Howden
- 1977234** *Cabo Verde Digital Deep: Preliminary Results and Analysis of Geophysical Data Collected to Support Advanced Ecosystem Modeling:* **H C Drennon**, E Heffron, L Sousa, R Kirchell, N Augustin, M Rodrigue, Y Rodrigues

250416

Bathymetry Through Time: Advances in Modern Mapping, Paleo-Reconstruction, and Oceanographic Applications (joint with PP, T)

Conveners: **Arghya Goswami**, Northwest Missouri State University; **Anand Gnanadesikan**, Johns Hopkins University

- 1899849** *Weakened Atlantic Meridional Overturning Circulation Causes the Historical North Atlantic Warming Hole:* **K Li**, W Liu
- 1857473** *Wind forcing can blur the surface temperature fingerprint of the Atlantic meridional overturning circulation:* **K McMonigal**, S Larson, M Gervais, J M Klavans, C He, M A Cane, S Corti, K Bellomo
- 1893353** *Community-based Deep Sea Discovery in the Pacific Ocean with E/V Nautilus: 2025-2026 Highlights, Innovations, and Future Explorations:* **D Sowers**, D Wagner, N Helder
- 1979629** *Designing for the environment: scaling underwater vehicles with ocean processes:* **S Oliveira Santos**, A Ghazi Nezami, E M Spiers, P Gunnarson, K M Soderlund
- 1987267** *Discovery at Depth: Scientific Progress and Emerging Priorities in the Deep Ocean:* **J M McDermott**
- 1880537** *Increasing scientific inquiries using remote science and operations:* **N Raineault**, Z Mirmalek
- 1928791** *Ocean-Bottom Seismology: Next-Generation Technology Solutions for Marine Monitoring:* **M Laporte**, T Somerville, G Bainbridge, M Jusko, M Perlin
- 1978149** *Pipeline Development for Semi-Automatic Creation of Data Serialization Files to Streamline Publishment of FAIR NDSF Vehicle Data to Marine Geoscience Data System:* **C Graver**, J Garcia, C Haskins, V L Ferrini
- 1918879** *Rapidly Deployable Coastal Observatory Enabled with Distributed Sensing:* **K Burrows**, J Becker, B Phillips
- 1990826** *Second generation Wide Swath Subsea Lidar (WiSSL2) for 1-cm-scale bathymetric mapping in the deep ocean:* **D W Caress**, E J Martin, C D Kech, J B Paduan, M Risi, G Troni, J A Hamilton, M Candeloro
- 1893725** *Stewardship & Lifecycle of Data Generated by Publicly Funded Deepsea Research:* **G O'Donnell**, A Lienesch, A Copeland
- 1857035** *The 2025 Outlook for the Future of US Oceanography using Deep Submergence Autonomous Science Vehicles:* **M Tominaga**
- 1982636** *Unveiling Complex Seafloor and Subseafloor Features Via AUV High Resolution Mapping on the Louisiana Outer Shelf:* **A Rubim de Assis**, E Luzzi, M D'Emidio, L Macelloni, T Guilment, G Meyers
- 1865434** *Assessing the Viability of using NOAA Oceanographic Operational Forecast System Nowcasts to Reduce the Frequency of Conductivity Temperature Depth Casts on Autonomous Surface Vehicles:* **N Cook**, V E Schmidt, J Kelley

- 1909265** *Bathymetry and Tectonic Controls on Sediment Accumulation in the Northwest Bay of Bengal: Pre-Himalayan Roots from Gondwana Breakup to Present:* **A Goswami**
- 1978813** *Current advances and future outlook of bathymetry prediction utilising SWOT altimetry and machine learning:* **B Nilsson**, B Phrampus, F Salajegheh, B Liu, Y Yu, D T Sandwell, H Harper, O B Andersen, W H F Smith, P Elmore, J Kirby, J Beale, J Roberts, L Altamirano
- 1871298** *Formation Mechanism of Seafloor Gas Seeps and Pockmarks at Active Continental Margins: Insights from the Gulf of Oman:* **M Ali**, A Abdelmaksoud, A H Al-Suwaidi, O Aldhanhani

251436

Bridging Scales to Advance Ocean-Based Carbon Dioxide Removal (joint with B, GC)

Conveners: **Shihan Li**, Dalhousie University; **Devon Cole**, Georgia Institute of Technology Main Campus; **Mohammed Hashim**, University of Southern California

- 1926645** *A Novel Approach to Ocean Alkalinity Enhancement via Ion Exchange Resins:* **M Liu**, M Hashim, S John
- 1980189** *Assessing the Impacts of Olivine Dispersal, an Ocean Alkalinity Enhancement Method, on the Buoyancy and Viability of Planktic Foraminifera:* **J S Fehrenbacher**, L Haynes, S Baxter, A Helfand, K Langston, E Miller, M Reed-Horn, A Rucker, A Shinzato, L Blanco-Bercial, A E Maas, PhD
- 1981639** *Biotic Calcification Feedbacks and Their Impact on Marine Carbon Dioxide Removal Additionality in Global Ocean Alkalinity Enhancement Simulations:* **R Jin**, K Kearney, K M Krumhardt, B Carter, D Pilcher
- 1850778** *Coastal systems for carbon dioxide removal and support of resilient communities:* **M Fakhraee**, N Planavsky
- 1961979** *Costs and greenhouse gas implications of seaweed-based carbon removal and conversion pathways:* **U Singh**, T Hawkins, F Naaz, M B Higgins, J Zhang, X Zhang, Y Liu
- 1901177** *Determination of Seasonal and Annual Carbon Cycling using Mobile and Stationary Eddy Covariance in San Diego Bay and a Nearshore Coastal Ocean:* **A Duenas**, W C Oechel
- 1970796** *Development of a coastal ocean modeling framework for quantification of marine CO₂ removal through olivine weathering:* **C Mikolaitis**, Z Liu, S Romaniello, S K Manoharan Chennakkattu, D B Cole, G Andrews, J C Lehrter
- 1924634** *Evaluating Ocean Alkalinity Enhancement Efficiency in the Gulf of Alaska using a Regional Coupled Model:* **R Pagès**, C Hauri, N D Ward

- 1978335** *Mind the Gap: Innovative Mapping Techniques for the Ultra-Shallow Coastal Zone:* **G Otto**, MS, J Greco, S Alpert, A C Trembanis
- 1931609** *Novel approaches for consistent Ocean Basin Detection Using Graph Theory:* **M Bogumil**, C R Lithgow-Bertelloni, T Mittal
- 1865453** *Spectral Approaches to Synthetic Bathymetry Generation for Seafloor Mapping Applications:* **E Adediran**, G Rice, F Corpuz, K Lowell, C Kastrisios
- 1845272** *Validation of Ocean Color Satellite Products (Sentinel-2) over the Banana River AERONET-OC Site:* **K N Okigwe**
- 1915047** *Exploring Ocean Alkalinity Enhancement in the Arctic Ocean:* **M Zhou**, M L Timmermans, E A Yankovsky
- 1960053** *Extending the Open-Source Oceananigans Code with Finite-Rate Carbonate Chemistry: Progress Towards Small-Scale Verification of Ocean Alkalinity Enhancement Models:* **A Pauls**, C Towner, P Hamlington, K Souders
- 1956573** *Global ocean geochemical box model study of seaweed-based carbon dioxide removal:* **Y R Yi**, M Hain, D M Sigman, H A Ren, B Von Herzen, M B Higgins
- 1960549** *Hierarchical Modeling Approaches for Quantification of Marine CO₂ Removal Across Scales:* **S Bachman**, A Karspeck, M C Long
- 1952423** *Increased geologic carbon flux to the ocean alongside seafloor volcanism after the last ice age:* **P A Rafter**, M Hain, K Thirumalai, E Arellano-Torres, E Tappa, T J DeVries, M L Machain-Castillo, I L Hendy, J C Herguera, M Soto-Jimenez, W R Gray, R A Green, F Pavia, J W B Rae, J R Southon
- 1974786** *Leveraging Mangrove Restoration for Durable Carbon Dioxide Removal:* **N Theunissen**, T Bryce, G Kitch, I Chiaravalloti, M Fakhraee, P A Raymond, N Planavsky
- 1922232** *Multi-resolution regional modeling to investigate variability in the carbon uptake efficiency of ocean alkalinity enhancement and implications for prediction:* **E A Yankovsky**, J Cohen, A Wyatt, S Bachman, A Karspeck, M C Long
- 1939168** *Numerical assessment of hypothetical large-scale river-based alkalinity modification scenarios in the Northern Gulf Coast:* **X Zhou**, A Bracco, T Ito, C T Reinhard
- 1901932** *Ocean iron fertilization trade-off between climate benefits vs. ecological costs:* **J Yu**, J K Moore, F Primeau, K M Krumhardt, M Levy, K T Lindsay, A Martiny
- 1868163** *Quantification of CO₂ Removal by Enhanced Rock Weathering Using Acid Mine Drainage and the MRV Requirements: A Case Study of Real-Scale Implementation:* **R Sato**, F Nakamura, M Rawangphai, Y Takahiro, K Tanaka, S Yoshii, T Sato

- 2003819** *Quantifying mCDR for Project Macoma in the Salish Sea: a case study for regional simulations of Ocean Alkalinity Enhancement, upscaling, and implementing impulse response functions.:* **J M Vance**, M Ringham
- 1891000** *Reversing Coastal Acidification through Estuarine Alkalinity Enhancement: Field Evidence from a Lagoon Trial:* **Y Zheng**, M J Hopwood, J Ye, Y Tian, Z Li, B Yang, R Bai, Y Liang, L Ma, S Jiang, Y Yang, X Wen, X Tuo, J Liu, B Xu
- 1879169** *Site Selection Framework for Carbon-Neutral Alkalinity Production for Open-Ocean Carbon Dioxide Removal.:* **G Kirk Drayson**, J A Franke, M Duret, D Keith

251398

Characterizing and Interpreting Marine Plankton Biogeography Using Different Lenses

Conveners: **Yubin Raut**, University of Southern California; **Nathan Williams**, University of Southern California; **Stephanie Dutkiewicz**, MIT

- 1938887** *A Multi-Year Study of Microeukaryote Phytoplankton Community Composition Reveals Highly Variable Succession Patterns Across the Antarctic Peninsula (61S-68S):* **A Cusick**, A Smith, M Mascioni, N Yanek-Chrones, C C James, H Zheng, C Johnson, R A Reynolds, A Pinokintr, A E Allen, P J S Franks
- 1856587** *A simple conceptual model to represent phytoplankton size in oceans:* **S Krishna**
- 1961595** *Assessment of Harmful Algal Distribution Along the U.S. West Coast via Microscopy:* **T Hart**, A Shuler, J Maucher Fuquay
- 1946553** *Biogeography of Phytoplankton Functional Types in the Pacific, Atlantic, and Indian Ocean from a Global Ecosystem Model and In-Situ Amplicon Sequencing:* **Y Raut**, N Williams, O Jahn, S Dutkiewicz, J A Fuhrman, M J Follows
- 1997262** *Can patterns of physical and planktonic patchiness provide insight into underlying ocean biogeochemistry?:* **P C Gray**, E Boss, G Bourdin, Y Lehahn
- 1947548** *Coccolithophore biogeography in the context of diverse lineages that leverage distinct genes for temperature response:* **A Krinos**, S Shapiro, S Haley, R Hamilton, S Dyhrman, M J Follows, H Alexander
- 1998395** *Decreasing Chlorophyll-a Trend in the Arabian Gulf and Associated Climate Variables:* **M Shafeeque**, A A Saleem, A V S Chaitanya, S Lateef, J Albert, L M Alhems
- 1931468** *Distribution and Ecological Role of B Vitamins in Regulating Microbial Dynamics Across the World Oceans:* **Y Shang**, R Rugama-Montenegro, A Tovar-Sánchez, L Gomez-Consarnau, S Sañudo-Wilhelmy

- 1970884** *Testing the Waters: Evaluating Direct Ocean Capture Marine CDR from the Lab to the Ocean:* **S N Chu**, Z Qi
- 1970096** *The Impact of Ocean Alkalinity Enhancement on Globigerinoides ruber Growth and Calcification:* **L Haynes**, J S Fehrenbacher, S Baxter, A Helfand, K Langston, E Miller, M Reed-Horn, A Rucker, A Shinzato, L Blanco-Bercial, A E Maas, PhD
- 1975247** *The Role of Geochemical Carbon Dioxide Removal Approaches Under the Sustainability Informed Shared Socioeconomic Pathways:* **P Javadi**, Y Pratama, P R O'Rourke, J Fuhrman, S Doney, W Shobe, A Clarens, E Brutschin
- 1962947** *Effects of Short-term Carbon Dioxide (CO₂) Perturbation on Phytoplankton Growth and Mortality in a Subtropical Estuary:* **K Barnette**, J Cameron, J Lehrter, K Hoadley, A Robertson, J W Krause
- 1996205** *Field-validated inter-comparison of Sentinel-2 MSI and Sentinel-3 OLCI images to identify Micro and macro algae speciation in the Indian River Lagoon, Florida:* **M Woodman**, E Widder, W Falls, J D Ortiz
- 1878054** *Intercomparison of Chlorophyll-a from Himawari-8/AHI and Sentinel-3/OLCI Satellites with Diurnal Variability Analysis: Preparing for MTG Ocean Color Products:* **Q T Bui**, S Saux-Picart, J Vidot
- 1905843** *Limitations on Ocean Color Satellite Data Availability Due to Airborne Dust Over the North Atlantic:* **M Romm**, M Behrenfeld, L A Remer, Y R Shi, T Westberry, H Yu, H Plaas, D Hamilton, D S Hamilton
- 1930062** *Microbial Assemblages in the Context of Basin-Scale Variability Across the North Atlantic:* **E Hu**, A Krinos, M Freilich
- 1860493** *Oxygen Minimum Zone Mediated Behavioral Patterns of Deep Scattering Layer-Associated Mesozooplankton in the Arabian Sea:* **N J Arackal Jose Sebastian**, M Gauns, G S, S Karapurkar
- 1989858** *Phytoplankton Community Dynamics in the Hypoxic Zone of the River-Delta Coastal System in the Northern Gulf of America Using Bio-Optical Observations and PACE-OCI.:* **C Emeghio**, B Liu, C Glaspie, E J D'Sa, C Theriot
- 1924539** *Phytoplankton Distribution Dynamics Across the Northern Pacific Gyre: Preliminary Findings from a Team of STEMSEAS Scholars:* **M Braswell**, A Subramaniam, T Barrueta
- 1859878** *Seasonal cycles drive temporal niche partitioning in pelagic prokaryotes:* **F Li**, D M Karl, A Burger, J Eppley, E DeLong

1965488 *Spatiotemporal Analysis of Chlorophyll-a Distribution Regimes Using Self-Organizing Maps: A 22-Year Study (2000-2022):* **A T Mahmud khan**, M J Uddin, M E Hoque, A Hakim, M K Das

251960

Connecting Students and Faculty to Ocean Sciences and Career Pathways Through Seagoing Experiences (joint with ED, SY)

Conveners: **Sharon Cooper**, Lamont Doherty Earth Observatory; **Jonathan Lewis**, Indiana University of Pennsylvania Main Campus; **Lisa White**, University of California Berkeley; **Shondricka Burrell**, Morgan State University; **Nicole Murray**, University of Illinois at Urbana Champaign

1930966 *Seagoing Science in the Southern Ocean: Expanding Opportunities and Awareness in Inland Classrooms and Communities:* **K Preheim**, R S Robinson

1938217 *All Aboard STEMSEAS: Casting 2YC Faculty to Make Waves for Student Success:* **R P de Jesus**, J Drummer, K Perlas

1929838 *An Impactful STEMSEAS Journey Around Alaska:* **S Gatuz**, G Pansera, M Wieck, C Bentley

1862586 *At Sea Together: Polar STEAM Collaborations that Illuminate Polar Research and Careers:* **J Ivory**, M Barker, J Risien, J Hutchings, K S Bernard

1868834 *Bringing the Ocean Ashore: Building Scientific Identity Through Land-Based Core Training:* **M Cash**

1954731 *Building bridges for undergraduates to Earth and marine sciences through effective partnerships with HBCU Faculty on Seagoing Experiences—A STEMSEAS model of collaborative partnership:* **S Burrell**, J C Lewis, S K Cooper, L D White

1977988 *Building Workforce Excellence in Seafloor Mapping Through Expanded Opportunities to Engage Undergraduate Students:* **H Cabaniss**, J Wallace

1895699 *Experiential Education at SEA: The Impact of Shipboard Research Experiences and Immersive Ocean Science:* **S Kingston**, O Scott Price

1971103 *First-Generation College Student's Experiences & Observations: OCEAN CORE Academy 2025:* **C Latsha**, K Williams

1934696 *Fostering Engagement in Geospatial Sciences through Ocean Science Experiences: Insights from the STEMSEAS Program:* **R Archer**, PhD, GISP

1977044 *Submesoscale Eddy Dispersion Affects Community Composition and Biogeochemistry Beyond the Coastal Upwelling Zone:* **M Freilich**, É Beaudin, S Gangrade, L Ruiz Seitz, D Capone, S Lang, M Omand, K Luis

1972076 *Transient Overyielding in Ocean Microbial Communities:* **C Charles**, M Freilich

1967976 *From Students-at-Sea to Mentors-on-Shore: Two students journeys to mentorship united by STEMSEAS:* **O Adams**, B Redman

1998003 *Gaining hands on experience using a multibeam sonar system while discovering and mapping shipwrecks on Lake Ontario:* **S Majkut**, H P Pettus

1946797 *Inclusive Field Programs Provide Launchpads for Non-Traditional Students:* **J Valenzuela**

1999387 *Introducing Undergraduates to Oceanographic Fieldwork and Life at Sea: Two Reflections from Two Different STEMSEAS Experiences:* **J Solorzano**, A Andrews

2002528 *Learning at Sea: How the Lake Ontario Expedition Shaped My Skills and Career Path:* **A MR**, H P Pettus

1940308 *Nurturing Two-Year College Faculty to Lead Effective STEMSEAS Cruises:* **T S Weathers**, C Bentley, C Cardona, W Ray, S Turner

1999409 *SeaSec: An Experiential Approach to Maritime Cybersecurity Education:* **E Marquez**, J Race, R Genova, K Garcia, R Lorentine, C Bobino

1990762 *STEMSEAS Addresses the Marine Technology Workforce Shortfall: A Model of Immersive Learning and Professional Development:* **L D White**, J Yopez, C Wideman, T Muro

1937901 *STEMSEAS forges new workforce readiness partnerships and pathways on the sea:* **S K Cooper**, J C Lewis, L D White, S Burrell

1971398 *Students and Shipwrecks: Fostering Connection Between Students and the Blue Economy Through Seagoing Experiences in Lake Ontario National Marine Sanctuary:* **H P Pettus**, J Fahy

1969906 *The 2023 JR Academy: Inspiring the Future of Geoscience:* **A Ocampo**

1994769 *Turning Science into Action: Building a New Plastics Economy:* **M Byers**

1975139 *Undergraduate Shipboard Experiences as a Mechanism for Scientific Workforce Development and Retention:* **R Vaswani**

1940813 *We're all in the Same Boat: Exploring STEM Careers and Systems Thinking through Crew Collaboration Aboard the R/V Marcus G. Langseth:* **E Wood**, B Williams, V Bennett

251576

Discoveries from the SWOT Mission: Insights into Ocean Dynamics, Marine Gravity, the Cryosphere, Deltas, and Estuaries (joint with C, G, H)

Conveners: **J. Thomas Farrar**, Woods Hole Oceanographic Inst; **Sahra Kacimi**, NASA Jet Propulsion Laboratory; **Ole Andersen**, Technical University of Denmark - Space; **Yao Yu**, Scripps Institution of Oceanography

1908149 *Analysis of Sea Level Variability and Spatial Characteristics in the East, Yellow, and South Seas of the Korean Peninsula Using Sentinel-3A, Sentinel-3B, and SWOT Satellite Data:* **D Hwang**, H C Jung, K Shin, K H Tseng, H Lee

1928137 *Chaotic spreading detected in SWOT gravity records Pacific plate reorganization:* **J Joergensen**, M Seton, D Müller

1997775 *Characterizing Submesoscale Ocean Dynamics from SWOT with the Scattering Transform:* **J Skinner**, A Lawrence, J Callies

247884

Dynamic Coastlines amidst Changing Sea Levels: Advancements in Understanding of Coastal Hazards and Climate Change Impacts (joint with EP, GC, NH, PP)

Conveners: **Jennifer Walker**, Rowan University; **Andra Garner**, Rutgers University New Brunswick; **Isabel Hong**, Villanova University

1913374 *A Multi-Method Approach for Estimating Attributable Sea Level Rise and Extreme Water Levels Worldwide:* **D M Gilford**, K Dahl, Y Lin, A J Pershing, R E Kopp, B Strauss

1899901 *Acceleration of western Gulf coast sea level rise influenced by river discharge:* **R Creel**, C G Piecuch, K Creel, C Ummenhofer

1936207 *Advancing sea-level rise projections in the Gulf to inform coastal adaptation strategies:* **D Rounce**, M Weathers, S Mahmoudi, E Y Larour, C Davis, R B Lammers, R Collini, I Y Georgiou, N Tebyanian, J Fischbach, A Rellinger, Q Williams

1870266 *An explainable machine learning prediction system for early-warning of heat stress on Florida's Coral Reef:* **M Arcodia**, R Karp, E Barnes

1925746 *Evaluation of SWOT Performance and Accuracy in Estuaries and Deltas:* **A Christensen**, M Simard, M W Denbina, P Matte, D Purnell, N Rabenkogo, E Mambela

1858339 *High-Resolution Eddy Dynamics in the Gulf of Mexico: Insights from SWOT and PACE:* **S Bulusu**

1981105 *Illuminating Arctic Sea Ice Dynamics with SWOT and ICESat-2:* **R Fischer**, S L L Farrell, K Duncan, K Lange

1985871 *Influence of Sea Level Rise and Tidal Dynamics on Estuarine and Upstream Flooding as Observed by the Surface Water and Ocean Topography (SWOT) Satellite Mission:* **M R Kolster**, R S Nerem, J T Minear

1978772 *SWOT in the Cryosphere: Promise, Progress, and Challenges:* **T Snow**, C Stuurman, S Fleury, M Dabboor, L Padman, S L Howard, Z Katz, S F Sherpa, E Abrahams, M Siegfried, I Garlick, R Willatt, F L Müller, A Bonaduce, A F Thompson, C Klutmeier, P Rampal, S Kacimi, J T Minear, K Bakhtiari Asl

1945309 *The DTU25MSS Mean Sea Surface and the Effect of the SWOT Diamond-shaped Observation gaps:* **O B Andersen**, B Nilsson, P Knudsen

1879315 *The SWOT Revolution in River Deltas and Estuaries Has Begun:* **M Simard**, A Christensen, A R Payandeh, P Matte

1892944 *Anthropogenically-Caused Sea-Level Rise has Tripled the Likelihood of Coastal Extremes since 1900:* **S Dangendorf**, Q Sun, P M Mahanthe Gamage, T Wahl, M Marcos, B Marzeion

1961491 *Assessing Storm Event and Decadal Shoreline Change in Northern Assateague from Satellite Imagery:* **J Cyr**, J Greco, C Bodine, A C Trembanis

1872781 *Barystatic Sea-Level Uncertainty Induced by Geocenter Motion in Satellite Gravimetry:* **W Zhang**, F Yang, Z Luo

1963871 *Bioturbation in Salt Marshes in Southern New Jersey: Implications for Foraminifera as Sea-Level Proxies:* **S Venverloh**, B Wos, J S Walker

1854932 *Climate-Driven Depopulation of a Low-Elevation Coastal Zone:* **T E Tornqvist**, B Castro, J Keenan, J M Mehta, Z Shen

1948174 *Coastal Landscape Change Product Applications to Evaluate Coastal Asset Risk and Vulnerability:* **E E Lentz**, E A Pendleton, K White, M Barlett, J Heslin, K Weber

1966391 *Coastal sea level connectivity to continental shelf, slope, and open-ocean variability: using high resolution ocean simulations and ocean bottom density to improve predictions across timescales:* **J Steinberg**, J P Krasting, C G Piecuch, S M Griffies

- 1926603** *Common Era Sea-level Change on the Western Coast of Southern New Jersey (Delaware Bay):* **F Z Nishi**, J S Walker, K Miller, A X Rodriguez, D C Barber, N Cahill, D R Corbett, M Brain, M Christie
- 1854636** *Delta in Flux: Multi-Decadal Morphodynamic Transformations and Forcing Mechanisms in the Indian Sundarbans:* **D Dwivedi**, M Murali, P Mishra
- 1961016** *Evaluating Collection Methods Used for Monitoring Elevation Change in the Grand Bay National Estuarine Research Reserve, Moss Point, MS:* **J Yesensky**, J L Pitchford
- 1920728** *Evolution of Global Sea-level Rise Projections and Their Uncertainty:* **A J Garner**, A Appollina, J Slotter, G Garner, A Slangen, R E Kopp, B P Horton
- 1948047** *From Subway Cars to Seascapes: Long-Term Insights into the Lifecycle of Anthropogenic Reefs:* **O Hines**, A C Trembanis, G Otto, MS, C DuVal
- 1908051** *Geographic and socioeconomic inequalities of sea-level rise since 1900:* **J Oelsmann**, S Dangendorf, J X Mitrovica, P R Thompson, R E Kopp
- 1925675** *Global Coastal Hazard Perspectives: Insights from the 2025 Advanced Studies Institute Graduate Training Program on Multidisciplinary Coastal Zone Hazards in Java, Indonesia:* **L J Gezovich**, M Koch, M Weathers, H Henry, J Grossman, T Thelen, T Lynn, S McNamara, S Entner, C Hauser, E Gonzalez-Lugo, S Gopal, C Regalla, A Wirasatriya, M Helmi, A Ismanto, M F Khairillah Almunawir, M Shulhan, M N Al Fajrin, S Surya, H I Wahyuni, A Harijoko, G Marliyani
- 1908768** *Hybrid Reconstruction of Monthly Sea Level at Dokdo in the East Sea (1993–2023) Using Tide Gauges, Altimetry, and Machine Learning:* **M M Han, PhD**, H S Lim
- 1898684** *Hydrogeologic Controls on the Position of the Marsh-Forest Boundary in the Mid-Atlantic:* **A McGraw**, D Pratt, H A Michael
- 1953582** *Improving Coastal Sea Level Projections with High-Resolution Models:* **M Becker**, M Karpytchev, S Flavoni, A Hu, W Han
- 1919897** *Investigating the Effects of Glacial Isostatic Adjustment on Global Ocean Tides:* **L Pan**, H Wang, O V Sergienko, R Hallberg, M Harrison
- 1915696** *Long-term records of wetland change on the Gulf Coast: a paleo perspective:* **D A Willard**, M Jones, K Krauss, B Middleton, C Rosse-Sands
- 1860487** *Marine Heatwaves and Modified Lagoons: The 2024 Coral Bleaching Event in Kavaratti, Lakshadweep Archipelago:* **A P Kumar**, A Gopinath
- 1949545** *Microfossil diatoms as indicators of hurricane overwash deposits in southwest Florida mangroves:* **I Hong**, K Joyse, A Nogueira, J S Walker, K Radabaugh
- 1984499** *Modeling the Sediment Transport under Tidal Flow in an Intertidal Salt Marsh:* **J Lee**, K Cao, M A Y Lam, M J Torres, M Malej, A Sheremet
- 1983282** *Modeling the Wave Dissipation and Sediment Dynamics over Oyster Reefs:* **K Cao**, M A Y Lam, M J Torres, M Malej, A Sheremet
- 1861547** *Observational and Modeling Insights into Storm-Driven Coastal Boulder Transport (Aran Islands, Ireland):* **H Spero**, T Reisch, M A Berke, A Tejaswi, J J Westerink, M Bourke, M J Starek, N Cullen, J Berryhill, J Herterich, A B Kennedy
- 1910429** *Probabilistic Estimates of Prolonged Sea-Level Change Hotspots:* **E Robson**, S Dangendorf
- 1949893** *Public policies and littoral sustainability in the Caribbean region of Honduras: A propositive analysis in the face of the triple threat:* **J Güity**, P Arenas, O Perez
- 1974721** *Sand in Motion: Mapping Morphology and Beach Nourishment Response of Northern Assateague Island:* **J Greco**, A C Trembanis, G Otto, MS, S Alpert
- 1930141** *Sea Level Rise and the Future of California's Beaches: Tourism and Recreation Losses by 2050 and 2100:* **V Espinoza**, B A Buzzanga, C M Lee, B Hamlington
- 1953681** *Sediment transport in a large marsh channels: field observations from Cat's Paw, Florida.:* **A Sheremet**, K Cao
- 1854566** *Shifting Shores: Integrating Remote Sensing and In-situ Observations to Understand Embayed Beach Dynamics under Climate Change along Central West Coast of India:* **P Mishra**, M Murali, D Dwivedi, S A Hossain, S K Sakthivel, S Francis, R Rai
- 1982329** *The Sea-Level Fingerprint of Committed Mountain Glacier Change:* **L Lewright**, J Austermann, W Yang, J Schaefer, S Rupper, A Mackintosh
- 1953322** *Topographic Change of Anthropogenic Mixed Sand and Gravel (MSG-A) Beaches: UAV-based Assessment of Annual Variation and Storm Response:* **Y Wang**, M D Hurst, J MacDonald, L A Naylor
- 1962805** *Tracking the terrestrial to salt-marsh coastal ecosystem transition in southern New Jersey:* **K Szymanski**, S Venverlo, J S Walker
- 1918112** *Wave Interaction for a Quadrant Front-Face Pile-Supported Breakwater: A Numerical Study:* **M S Afzal**, S Firoj

248559

El Niño-Southern Oscillation and Pantropical Climate Interactions: Mechanisms, Predictability, Impacts, and Projections (*joint with A, GC*)

Conveners: **Sen Zhao**, University of Hawaii at Manoa; **Malte Stuecker**, University of Hawai'i at Mānoa; **Antonietta Capotondi**, University of Colorado; **Soong-Ki Kim**, Yale University; **Matt Luongo**, University of Washington

- 1944096** *A Unified Data-Driven Framework for Skillful Seasonal Climate Forecasting: Case Study on Hawaii Wave Prediction:* **S Zhao**, N Li, F F Jin, K F Cheung
- 1979951** *Amplified Impacts of Multi-year La Niñas on Soil Moisture Compared to Single-year La Niñas:* **T Zhu**, J Y Yu, M H Lo
- 1921142** *An interpretation of the tropical Pacific and Atlantic interactions from pacemaker experiments:* **Y Liu**, M Newman, A Capotondi, E Di Lorenzo, PhD
- 1866709** *Can the Recharge Oscillator Framework Separate Forced and Internal ENSO Changes?:* **S Han**, J Vialard, A V Fedorov
- 1995212** *Unusual growth of the 2023-24 El Niño against the odds of Indo-Atlantic warming:* **Q Peng**, S P Xie, A Miyamoto, C Deser, P Zhang, M Luongo
- 1944864** *Changing ENSO by Climate Engineering: CESM2 Stratospheric Aerosol Injection Experiment:* **J Lee**, H Kim
- 1859175** *Climate change and the 2023-24 El Niño Boost Global Mean Surface Temperatures to a New Record 1.5°C Above Pre-industrial Levels:* **M J McPhaden**, N Jiang, C Zhu, T Lian, Z Z Hu, C Zhou, D Chen
- 1909866** *Comparison of the Spatio-Temporal Variability and Long-Term Warming Trends of Sea Surface Temperature in the North Indian Ocean - Bay of Bengal and Arabian Sea (2000–2019):* **S Saha**, A Mukherjee
- 1976298** *Detecting nonlinear causal relationships between El Niño and soil moisture in tropical forests:* **K Florence**, S Liu, B Lynch, C Roesch, J Nathaniel, E Weng
- 2001609** *Diagnosing the Mechanisms Limiting ENSO Predictability with Interactive Ensemble Release Experiments:* **C Martinez**, **MS**, B P Kirtman, S Larson, N Perlin, R Payne
- 1904524** *Diversity of developing El Niño events and its relationship with the zonal contrast SSTA mode in summer:* **R Wang**, H L Ren, M Liu
- 1899829** *Dynamics and Impacts of Coastal El Niño Events in Global Climate Models:* **G Rivera Tello**, C Karamperidou

- 1979935** *ENSO Modulation of Fire Weather Across the Contiguous United States: Observed and Modeled Relationships in ERA5 and CESM2:* **L Willett**, S Minallah, S G Yeager, P Lawrence
- 1909017** *ENSO teleconnections with the NAE sector during December in CMIP5/CMIP6 models: impacts of the atmospheric mean state:* **D Sabatani**, S Gualdi
- 1931616** *Evaluating the GFDL SPEAR global coupled GCM using the CLIVAR ENSO Metrics Package:* **J Lou**, A T Wittenberg
- 1945422** *Extreme El Niño boosted by a boreal spring western Pacific salinity pattern:* **S Liu**, S Hu, M J McPhaden
- 1962608** *Global patterns in OHC, their relationship to ENSO, and the implications for tropical cyclones:* **R Forney**, P Miller, T Smith
- 1898198** *How Noise Shapes ENSO: The Role of Seasonal Timing in Event Development:* **A Vizcarra**, D Vimont, M Newman, E Thomas, M Breiden
- 1910676** *Interdecadal Change in the Relationship Between Northeast Pacific Sea Surface Temperature and El Niño-Southern Oscillation:* **J Chen**, J Shi, Y Zhao, A Capotondi
- 1936544** *Machine Learning Forecasts of Sea Surface Temperature Anomalies and Their Role in the 2025 Alexandria Flooding Event:* **H Elsafty**
- 1855104** *Multidecadal Variability of the IOD-ENSO Connection Modulated by Pacific Walker Circulation Strength in the Last Millennium Ensemble:* **A Scheffler**, C Ummenhofer
- 1985038** *On the Rationale of Low-Order Model for Seasonal Prediction of ENSO and Beyond:* **L Geng**, F F Jin, S Zhao
- 1998319** *Opposing contributions of the tropical Pacific to recent burned forest area trends in Eastern Australia and the Southwestern United States:* **T W P Jacobson**, R Seager
- 1991623** *Physical Mechanisms behind Triple-Dip La Niñas (a Prediction Perspective):* **Y H Tseng**, **PhD**, H C Chen, J H Huang
- 1947134** *Remote Impact of the Central-Pacific ENSO on the Tibetan Plateau Precipitation in Boreal Spring:* **H L Ren**, R Wang, M Liu
- 1891610** *Remote versus Local Tropical Controls on Atlantic Sea Surface Temperature Variability:* **M Hasan**, K McMonigal, S Larson, M W Buckley, Y O Kwon
- 1963806** *Robust influence of equatorial Atlantic SST on the El Niño Southern Oscillation:* **N S Keenlyside**, P G Chiu
- 1961182** *Sensitivity of Month-to-Month PNA Pattern Probabilities to ENSO Amplitude and Model Mean State:* **R Payne**, S Larson, E J Becker

- 1846689** *Shifted Relationship between the Pacific Decadal Oscillation and Western North Pacific Tropical Cyclogenesis since the 1990s*: **C Zhou**, L Wu, C Wang, J Cao
- 1856544** *Stationarity of Indo-Pacific basin interactions across past and future climates*: **S Wang**, A Capotondi, K B Karnauskas, S C Sanchez, D Oppo, C Ummerhofer
- 1866663** *Subsurface Ocean Turbulent Mixing Enhances Central Pacific ENSO via Positive Feedback*: **C Liu**, F Wang, C Wang, A Koehl, K J Richards
- 1878169** *The Contribution of Subsurface Ocean Heat Content on Multi-year ENSO Predictability*: **Y Chen**, X Chen
- 1942512** *The impact of extreme El Niño on atmospheric CO₂ concentration*: **Z Zhang**, Y Chen, J Peng
- 1874785** *Title: Bridging the Model Hierarchy: A Physics-Guided Machine Learning Framework for High-Resolution Climate Simulation Enhancement*: **C Moser**, P Behnoudfar, S Cheng, N Chen

258540

General Topics in Oceanography

Conveners: **Robert Chant**, Rutgers University;
Angelicque White, University of Hawaii; **Randelle Bundy**, University of Washington

- 1923907** *Observations of the Falkland / Malvinas Current along the southern Argentine margin*: **N C Slowey**, J R Petre, J Wright, J I Isola
- 1968284** *Understanding Immediate Impacts of Major Baltic Inflow Events on Manganese Cycling*: **M McGrory**, J Necker, E Ryberg, T G Ferdelman, C Burmeister, S D Wankel, H Schulz-Vogt, M Voss, V Mohrholz, C Hansel
- 1936956** *A Twin-model Approach for Understanding the Climatological Mean Impact of Unresolved Mesoscale Eddies on Large-scale Circulation*: **H Chen**, F Primeau
- 1854404** *Advancing Image-Based Deep Learning Methods for Classification of Marine Species Vocalization*: **W K Kim**, M J Kim, J Lee, Y Cho, J Park, H S Bae
- 1961906** *An efficient surrogate model for uncertainty quantification of fish population dynamics*: **N Lachhab**, M El Amrani El Anjoumi, N El Mocayd, M Seaid
- 1894524** *An Investigation of Near-Inertial Oscillations (NIO) and Dynamic Forcing Mechanisms Offshore of Mobile Bay, Alabama Using Short-Term Mooring Data*: **B Brockamp**, S D Howden
- 1996476** *Analyzing Otolith Microchemistry of Red Snapper (*Lutjanus campechanus*) to track exposure to Heavy Metals and Hypoxia along the Louisiana-Texas Shelf*: **D Robinson**, J Miller, L Thornton, E Osborne, M Martinez-Colon, S L Morey, R Long

- 1903081** *Transient ENSO Strengthening under Greenhouse Warming*: **P Tuckman**, D Yang
- 1992595** *Understating and Quantifying Pan-tropical Climate Interactions and Predictability in the XRO Framework*: **F Jin**
- 1909972** *Unravelling the Independent Roles of ENSO and IOD in Australian Spring Climate via EOF-Filtered and Climatology-Nudged Simulations*: **Y L Liu**, L Alexander, J P Evans
- 1896277** *Why Did the Marginal La Niña of 2024/25 Bring Greater Expected Winter Impacts than the Strong El Niño of 2023/24?*: **N C Johnson**, M L L'Heureux, E J Becker, T Di Li Liberto
- 1871449** *Why El Niño contracts the tropics while global warming expands it: A thermodynamic perspective*: **T Kohyama**, H Miura, K Yamazaki
- 1983715** *Will the 2026-7 El Niño be larger than that of 2023-24?*: **R J Leamon**
- 1960936** *Assessing changes in iron bioavailability across a natural biogeochemical gradient in the northern Equatorial Pacific*: **E Novobilsky**, P Monreal, K R Cain, F Ribalet, T Mellett, R M Bundy
- 2004049** *Assessing the Relationship Between Macroalgae and *Phallusia nigra* in Southeast Florida*: **H Harrison**, K Takagi
- 1866799** *Characterizing in-stream turbulent flow in Cook Inlet, Alaska using a coastal ocean model*: **Z Yang**, M Deb, T Wang
- 1956408** *Comparison of measurements from pressure-recording inverted echo sounders, moored ADCP, and ocean reanalysis products in the North Equatorial Current region of the northwestern Pacific*: **C Jeon**, Y Jang, I Chang, Y H Kim, J H Park
- 1988386** *Decoupled Productivity in the Northern Arabian Sea: CbPM Based Wintertime Suppression Despite Elevated Chlorophyll*: **R Kalita**, A Lotliker
- 1905907** *Deep Arctic Warming During Past Decades*: **X Chen**, R Song
- 1911566** *Development and Validation of a High-Resolution North Pacific Ocean Model (NPAC)*: **W T Li**, D S Ko, I H Lee, S F Lin, T H Hou
- 1943462** *Differences in Spectrum of Sea Level Variations across the Shelf: Implications for Predictability of Sea Level Changes in the Future*: **M Karpytchev**, M Becker, A Hu
- 1904064** *Drag Coefficient of Membrane Structures Underwater (Part 3) - Determination of Drag Coefficient for Structures Based on Realistic Environmental Conditions*: **S Suzuki**, Y Imanaka, A Oyakawa

- 1961624** *Field and Remote Sensing Evaluation of Nutrient Dynamics and Water Quality Patterns in Bahía Grande, Texas:* **S T Islam**, M Hwangbo, J Benavides, T Y Dong, J Kim
- 1892220** *First Implementation of Coupled SCHISM-CGEM Model in Coastal Estuarine Ecosystems: A Case Study in St. Andrews Bay, Florida:* **S K Manoharan Chennakkattu**, Z Liu, J Lehrter, B Dzwonkowski, D Lee, L Kalin, C Anderson
- 1972468** *Glider-Based Detection of an Intrathermocline Eddy in the Northwestern Gulf of Mexico:* **C Sustayta, MS**, A M Mestas-Nunez
- 1969245** *Habitat Preferences of Hard Clam and Other Infaunal Invertebrates in Charlotte Harbor Estuary, Florida:* **M May**, J Alberty, G Nelson, P L Adhikari, E C Milbrandt, J Douglass
- 1974858** *High-Resolution Surface Current Mapping from UAS Video: A Continuous Flight Mission Approach:* **L Vason**, A Smith, V Bheeroo, K A Chang, S A Socolofsky
- 1986401** *Hypoxia Risk Mapping in Eastern U.S. Estuaries Using Extreme Value:* **R Badpa**, K M M Lwiza
- 1970775** *Identification of Resonant Tidal Frequencies in Bahía San Quintín, Baja California, México: Models and Observations:* **A L Flores Morales**, V D Solorza Rodriguez, A F Parés Sierra, R Hernández Walls, M W Santiago Garcia, S A Rodríguez Melgarejo, K G Chacón Anguiano
- 1977629** *Improving Modeled Representations of Shelf-break Eddies in the Gulf of Alaska:* **Z K Erickson**, E Lemagie, W Cheng, A J Hermann
- 1940246** *Intense and Prolonged Marine Heatwaves in the Bay of Bengal: Characteristics and Biogeochemical Impacts:* **R K Nayak**, B Sadhukhan, R Nayak, A Chakraborty
- 1980933** *Investigating the Impact of Rising Sea Surface Temperature on Hurricane Behavior along the Gulf Coast:* **N M Khan**, R B Mostafiz, M A Rahim
- 2000676** *Lagrangian characterization of the circulation in the Magdalena-Almejas Bay lagoon system:* **S A Rodriguez Melgarejo**, A F Parés Sierra, A L Flores Morales, V D Solorza Rodriguez, K C Anguiano
- 1998798** *Marine Heatwaves in the Georgia Coastal Ecosystems Long-Term Ecological Research Site:* **P F Mazzini**, N Shunk, R Utzig Nardi, R M Castelao, D Di Iorio, C Pianca, R K Walter
- 1907747** *Marine Hypoxia Enhances The Aerobic Microbe-Mediated Reactive Oxygen Species Production:* **Y Han**, K Tang, C Hou
- 1978615** *Modeling Tidal Circulation in a Mexican Coastal Lagoon Complex: Ojo de Liebre – Guerrero Negro:* **V D Solorza Rodriguez**, A F Parés Sierra, A L Flores Morales, S A Rodríguez Melgarejo, K G Chacón Anguiano
- 2001206** *New Methods to Estimate Spectral Fluxes in Quasi-geostrophic Flows:* **B Pearson**, C Wagner, R M Samelson, P Carlip, B Fox-Kemper
- 1876425** *Organic Sulfur Partitioning in Marine Phytoplankton:* **S Yang**, K Lee, K Park
- 1987007** *Prediction of the floating Sargassum horneri in the Yellow and East China Seas to the Korean Coast:* **S Seo**, Y G Park, K Kim, K O Kim
- 1876982** *Projected Intensification of Extreme Wave Events in a Boreal Marginal Sea of Northeast Asia under CMIP6 Wind Forcing:* **J Yoo**, A Bayhaqi, C J Jang, D Son, M Han, M S Bang
- 2002553** *Review of the Texas Shelf Coastal Currents Using High Frequency Radar Surface Currents Data:* **U Nwankwo**, S F DiMarco, A H Knap, D Nechaev
- 1953925** *Santa Ana winds, a forcing that induces water exchange of a bay with the adjacent ocean:* **M W Santiago Garcia**, A L Flores Morales, R Castro Valdez, A M Romero, A Romero Guevara
- 1931589** *Spatial Diversity and Physical Mechanisms of the Marine Heat Waves in the Gulf of Mexico:* **T Lu**, J Du
- 1905032** *Stratigraphic organization of late Quaternary deposits in a tide-dominated shelf setting: An example from the eastern Yellow Sea:* **D G Yoo**, G S Lee, S H Hong, G Y Kim, B R Lee, S K Jung Dr, J H Cho
- 1991529** *Temporal variability of material transport through the Korea Strait originating from the Taiwan Strait:* **S T Lee**, Y Y Kim, Y J Tak, S Chae, Y K Cho
- 1870013** *Testing and Enhancing Mass Conservation in Ocean Modeling: Benchmarking and Improving Hybrid FEM-FVM Schemes:* **Z Liu**, J C Lehrter
- 1951525** *Testing the Hypothesis of the Loop Current Forced Upwelling on the West Florida Shelf Using the Long-Term Moored Observations:* **L Dudley**, Y Liu
- 1976702** *The Impacts of Acute Crude Oil Exposure on Naïve and Chronically Exposed Populations of the Seagrass Ruppia maritima:* **N Culligan**, M Parsons, A Catusus
- 1975161** *The southern boundary of the Antarctic Circumpolar Current and thermohaline mixing revealed by seismic oceanography:* **G M Ferrante**, F Accaino, V Kovacevic, L Ursella, M Bensi, L De Santis
- 1945211** *Tidal mixing and Antarctic Bottom Water production and export:* **N Lucà**, P Castagno, Y Cotroneo, M Bowen

1909543 *Uncovering the Spatial and Temporal Distribution of Vertical Freshwater Intrusion Using an Unsupervised Machine Learning Approach:* **A K Sasidharan**, P Kumar, B Rohith

248525

Global Data Synthesis in Marine Geology and Geophysics

Conveners: **Maureen Walton**, US Naval Research Laboratory; **Warren Wood**, NRL; **Adrianna Le**, US Naval Research Laboratory; **Nicky White**, University of Cambridge

1986392 *GMRT: A Curated Bathymetric Synthesis for Scalable, Data-Driven Marine Geoscience:* **V L Ferrini**, J J Morton, A M Goodwillie

1902221 *A Global Evaluation of Sediment Porosity and Compaction in the Oceans:* **H Svadlenak**, R Parnell-Turner, M A Morris

1971927 *Advancing Global Marine Data Synthesis at the OSU-MGR with FIESTA:* **R Minnett**, A A P Koppers, J S Stoner

1895081 *Automated BSR Detection Using Synthetic-Augmented Machine Learning Methods:* **A Mohamed**, H Daigle, C Admin

1929751 *Compression Trends in Common Marine Sediment Types using Scientific Ocean Drilling Data:* **V Towoju**, J S Reece, L B Childress

248192

Improved observational and modeling skills to understand tropical cyclones and winter storms and their impacts in the coastal zone

(joint with NH)

Conveners: **Meng Xia**, University of Maryland Eastern Shore; **Brian Dzwonkowski**, University of Maine; **Jayaram Veeramony**, U.S. Naval Research Laboratory (NRL); **Yonggang Liu**, University of South Florida; **Nishat Farzana Nimni**, University of Maryland Eastern Shore

1985457 *Discovery of a Threshold-Dependent Response in *Exaiptasia diaphana* to Repeated Hyposalinity Stress Simulating Hurricane-Driven Coastal Conditions:* **J Kim**, N Shah

1887870 *Unmanned Surface Vehicle for Autonomous Hypoxia Monitoring in the Seasonal Hypoxia Zone in the Northern Gulf of Mexico (America):* **S D Howden**, G Chang, R Currier, C Grant, B A Kirkpatrick, F Spada, M Kim, N Simon

1939353 *Why Anaerobic Ammonium Oxidation Can Predominate Nitrogen Removal in Deep-Sea Sediments?:* **E Tan**, Z Shen

1920722 *Database of Extracted Earth Profile Velocities (DEEPVEL): A Standardized Global Compilation of Published Marine Seismic Velocity Models:* **J Renzaglia**, M Walton, W T Wood

1902295 *Expedition Mohole 64 Years On: Unlocking New Insights from Legacy Marine Sediment Cores in Scripps Institution of Oceanography's Core Collection:* **M A Morris**, H Feichtner, S Barrows, R Parnell-Turner, A Hangsterfer

1969136 *MGDS: A Trusted Data Repository for Curated Marine Geology-Geophysics Data:* **A M Goodwillie**, V L Ferrini, J J Morton, R A Weissel

1955736 *Rescuing a Legacy Marine Active-Source Seismic Reflection Dataset: The Atlantic-Traversing IPOD Line:* **E LaPrime**, M A L Walton, B Shuck, T R Lee, J Renzaglia, M J Hornbach, W T Wood

1984551 *Scientific Data Collection for the Global Scientific Community – Challenges and Successes through the Eight Countries and 15,000+ Nautical Miles of the OceanX-OceanQuest Around Africa Expedition:* **E Heffron**, H C Drennon, R Mayer, K Acosta, V L Ferrini, N Augustin, M Rodrigue

1978006 *Enhancing Hurricane Wave Modeling in the Gulf of Mexico using Statistical, Parametric, and Weather Research and Forecasting Model:* **H Oladejo**, D Bernstein, M K Cambazoglu, D Nechaev, J D Wiggert, A Abdolali

1943427 *Evaluation of Maximum Possible Storm Surge via Track Ensemble Simulations of a Bomb Cyclone along the East Coast of Hokkaido, Japan:* **J Yoshino**, K Goto, T Kobayashi

1873666 *From Regional Insights to Global Use: A Systematic Review of ADCIRC Applications in Storm Surge Modeling:* **S Khanal**, C Massey, T C Lackey, R Talchabhadel

1924632 *Hurricane Ida (2021): Coastal Ocean Thermal Structure, Coastal Ocean Circulation, and the Effects TC-induced Mixing on the Coastal Bio-geochemistry of the Western Louisiana Shelf Region:* **S Tsei**, C T Hayes, S D Howden, A R Diercks, K M Martin, MS

- 1920524** *Impacts of Hurricane Francine on the shelf and shallow microtidal regions of Coastal Louisiana:* **J George**, M R Hiatt, O Boushehri, M F Geonova, Z G Xue, C S Willson, S Khalil
- 1859044** *Impacts of moisture disequilibrium on coastal ocean-atmosphere interactions from three tropical cyclones during the fall transition of 2017 in the Mississippi Bight:* **B Dzwonkowski**, S Fournier, R Carwithen, G Lockridge, J Coogan, K Park, Z Liu, D R Mohan Rao, U Nwankwo
- 1908828** *Modeling the Sea Level Response of the Northern East China Sea to Different Types of Extratropical Storm Systems:* **D Mo**, Y Hou, P Hu
- 1857703** *Observations and Research on Western North Pacific Typhoons from The Experiment on Typhoon Intensity Change in the Coastal Area (EXOTICCA):* **R F Rogers**, J C L Chan, P W Chan, Y Dai, J Tang, W K Wong, H Yu, Z Yu
- 1977069** *Operational Prediction of Waves, Storm Surge, Inundation, Morphology Change and Damage from Tropical Cyclones:* **R A Luettich Jr**, Z Cobell, N Pieu, J C Dietrich, N Mumtaz, M V Bilskie, M Amini, D T Cox, A R Papandreou, I Ginis, T Hara, B Blanton, S Bunya
-
- 248244**
Integrating Perspectives on Carbon Cycling Across the Marine Continuum. (joint with EP, GC)
Conveners: **Wokil Bam**, University of Southern Mississippi; **Puspa Adhikari**, Florida Gulf Coast University; **Fei Da**, Virginia Institute of Marine Science
-
- 1923211** *Absorption-Based Wavelength-Resolved Hyperspectral Primary Productivity Algorithm for the Northern Gulf of Mexico:* **M I J Mili**, S E Lohrenz
- 1997614** *An Oxygen-Based Inverse Model for Constraining the Global Biological Carbon Pump:* **K Mitchel**, F Primeau
- 1938056** *CARBON ISOTOPE VARIABILITY IN FIORDLAND: INSIGHTS INTO PHOTOSYNTHETIC PRODUCTIVITY AND WATER MASS MIXING IN SOUTHERN NEW ZEALAND COASTAL WATERS:* **D Kim**, M Illing, D Mucciarone, R B Dunbar
- 2001318** *Changes in the Oceanic Carbon Storage due to Anthropogenic Carbon Input over the Past Three Decades:* **V Zemskova**, F Hong
- 1850544** *Contribution of the Deep Chlorophyll Maximum to Primary Production in the Atlantic Ocean:* **H Zhao**, B Brewin, J J Viljoen, PhD
- 1856879** *Projection of Lake Michigan Circulation Dynamics under the influence of Winter Ice:* **M Xia**, B Sahoo, PhD, A Fujisaki-Manome
- 1869969** *Shelf Water Mixing from Cape Hatteras Coastal Region: Tropical Cyclone and Winter Storm Effect on Destratification:* **V Nguyen**, H Seim
- 2001857** *Simulation and Evaluation of Wave Fields Generated by Hurricane Milton - One of the most Rapidly Intensifying Storms on Record:* **S Nayak**, C Xu, V Panchang
- 1927479** *Storm Surge and Coastal Inundation Nowcasts/Forecasts During Hurricanes Helene and Milton:* **H Xu**, Y Liu, K Qiao, S John, S C San, R H Weisberg, J Chen, PhD, L Zheng, S Gilbert, S A Murawski, G T Mitchum, T Frazer
- 1985764** *Storm Surge and Waves in the Built Environment: Adding Infrastructure to Hurricane Models:* **D Slinn**, D Sanderson
- 1907176** *Uncertainty Analysis of Storm Surges and Wave Heights Induced by Typhoons with Varying Tracks under Environmental Factors:* **W C Huang**, W C Liu, H M Liu
- 1950626** *Drivers of Compound Change in Biogeochemical Conditions in the Northern California Current System:* **Y Zhu**, S Siedlecki, F Soares, P MacCready, D Hingmire, S R Alin, R A Feely, F Chan, C Risien, J Waddell, J A Newton, PhD
- 1967399** *Effects of Major Tropical Storms on the Coastal Carbon Cycle: Remineralization and Fate of Terrestrial Dissolved Organic Matter after Hurricane Ian:* **P L Adhikari**, M Smith, H Chen
- 1846394** *EVIDENCE OF NATURAL ALKALINITY ENHANCEMENT IN THE YELLOW AND EAST CHINA SEAS:* **K Lee**, C H Lee, J Lee, I S Han, K Y Jeong
- 1923338** *Experimental Determination of Stoichiometric Dissociation Constants of Carbonic Acid in Non-Standard Seawater Solution Composition:* **C Richardson**, J Uchikawa, R E Zeebe
- 1892892** *Exploring the Ocean's Biological Carbon Pump on a "Muddy" Margin:* **C T Hayes**, L Altamirano, A Govindarajan, N Yang
- 1892891** *Future Warming, Freshening, and Acidification in the Gulf of America: Dynamic Downscaling of CMIP6 Projections:* **O Adeagbo**, Y Ou, Z G Xue
- 1870675** *High-Frequency Correlations Between Winds and pCO₂ Change CO₂ Sink/Source:* **R Song**, T J DeVries, R Li, A J Sutton, U Send, H Frazao
- 1938047** *Influence of Settling and Microbial Activity on Particle Flux and Carbon Export in the North Atlantic Ocean:* **F Jannar**, X Zhang, K Mojica

- 1930705** *Marine Radiocarbon Proxy Data Compilation: Expanding Availability of Modern Radiocarbon Measurements through Marine Calcifier Data:* **R R Mukherjee**, B Williams, A Zhang, H Seo, W Fu, F Primeau
- 1868581** *Multiyear Particle Flux Dynamics along the Northeastern Atlantic Slope: Patterns, Pathways and Implications:* **W Bam, PhD**, E Trudnowska, E Ceballos-Romero, J Drysdale, K Buesseler
- 1895448** *Novel advancements in the use of cavity-based optical absorption analyzers to measure stable carbon isotopes in dissolved inorganic carbon:* **J R Hupp**, M Scaboo, D Lynch, A Leclerc, W J Cai
- 1994582** *Quantifying uncertainty in the contribution of mesopelagic fishes to the biological carbon pump in the Northeast Atlantic Ocean:* **H McMonagle**, J Llopiz, A E Maas, PhD, D K Steinberg, A Govindarajan, T E Essington
- 1861572** *Reconstructing Marine Carbon Cycling Dynamics from the $\delta^{13}\text{C}$ of Dissolved Inorganic Carbon in the Northern California Current:* **B N Hupp**, J S Fehrenbacher

250732

Mesoscale Air-Sea Interactions: Bridging Fine-Scale Processes to Climate-Relevant Effects (joint with A, C, GC)

Conveners: **Yanxu Chen**, Woods Hole Oceanographic Institution; **Luna Hiron**, RSMAS/University of Miami; **Juan Crespo**, University of Michigan Ann Arbor; **Benjamin Barr**, Woods Hole Oceanographic Institution; **Marco Larranaga**, Florida State University

- 1977996** *Advancing Extreme Wave Modeling in the Gulf of Mexico by Improving Boundary Layer Interactions and Wave Breaking Physics:* **H Oladejo**, D Bernstein, M K Cambazoglu, D Nechaev, J D Wiggert, A Abdolali
- 1962898** *Coastal Air-Sea Interactions, Heat Fluxes and Their Implications in the Northern Gulf of Mexico:* **D N Bernstein**, B Armstrong, A Razavi Arab, H Oladejo, M K Cambazoglu, J D Wiggert
- 1968059** *Direct and indirect feedbacks from mesoscale eddies to the atmosphere and sea surface waves:* **M Larranaga**, L Renault, D Pelaez-Zapata, N Rasche, F Ocampo-Torres, P Osuna, G Marechal
- 1918294** *Exploring the Correlation Between Coastal Low-level Jets and Temperature Advection During WFIP-3:* **A Iyer**, T Myers, D D Turner, R Delgado

- 1885486** *Shelf water lateral carbon transport from the Atlantic and Pacific Eastern Boundary Upwelling Systems: a satellite-based estimation:* **F Benassi**, N Pinardi, S Siedlecki, L Mentaschi, S Bianconcini, I Federico
- 1958688** *Spatial Variability in Particulate Carbon Export Across the Ross Sea Marginal Ice Zone:* **K Hall**, K Maiti, W Bam, PhD, A Leventer, P J Bart
- 1876102** *Testing Assumptions in the Modeling of Radiocarbon in Ocean Biogeochemical Models:* **N Tournebise**, T J DeVries, K Yamamoto, H D Graven, N Mamnun
- 1883740** *Unraveling the Organic Matter Cycling in Estuarine Environments using FT-ICR MS/MS: Algorithm Development and Biogeochemical Implications:* **C Zhao**, D He
- 1980637** *Variability of Coral Reef Community Metabolic Processes on a Shallow Coral Reef in Palau:* **A Khrizman**, E Boles, J Hamilton, D Mucciarone, S G Monismith, R B Dunbar
- 1922267** *Wintertime Export Fluxes in the Labrador Sea using ^{234}Th - ^{238}U Disequilibria:* **M A Parker**, K Maiti, J Liang, E A Laws, W Bam
- 1873952** *Wood Carbon Burial on the Iberian Margin During the Messinian:* **D Baidya**, M Teixeira, F J Hernández Molina, E Ducassou, F J Rodriguez-Tovar, F J Sierro, R Flecker, T Williams, S J Feakins
- 1876498** *From Ocean to Atmosphere: Preliminary In Situ Observations of GSSA Fluxes From the Near Air-Sea Interface Through the Lower Marine Boundary Layer.:* **K Ackerman**, A D Nugent, D H Richter, E Melvin, M Miller, A Nash
- 1923321** *Growth and energy dissipation in breaking waves at high wind speeds:* **N Scapin**, J Wu, J T Farrar, B Chapron, S Popinet, L Deike
- 1850820** *Impact of Ocean Resolution on Navy ESPC Forecast Skill:* **C A Reynolds**, W Crawford, P G Thoppil, S Rushley, M Janiga, J McLay, N P Barton
- 1857519** *Impacts of Surface Waves on Air-Sea Flux and Marine Boundary Layer Processes:* **C Sauvage**, H Seo, B Barr, J B Edson, C A Clayson
- 1952662** *Investigating Turbulence and Surface Stresses Across Developing Wave Fields in a Laboratory Wind-Wave Tank:* **S Metoyer**, S Matt, I Savelyev
- 1973583** *Linking Air-Sea Interactions to Mesoscale Developments within Extratropical Cyclones and Atmospheric Rivers:* **J Crespo**, C M Naud, J F Booth, D J Posselt
- 1922062** *Long-term Analysis of the Sea Breeze Characteristics in a Rapidly Warming Environment — The Arabian/Persian Gulf:* **R Kawiya**, J L Largier, I C Faloona

- 1987041** *Mesoscale Meridional Heat Transport Inferred from Sea Surface Observations*: **Y Chen**, L Yu
- 1984947** *OBSERVATIONS OF MESOSCALE AIR-SEA INTERACTIONS DURING GULF HURRICANES*: **L K Shay**, B Jaimes de la Cruz, S Akin, J Zhang
- 2001951** *Observations of surface waves modulated by mesoscale currents in the Icelandic Basin*: **J Stadler**, J B Girton, B B Ma
- 1897605** *REMOTE SENSING OF BOUNDARY LAYER CLOUD BASE HEIGHT USING SHADOW GEOMETRY: APPLICATIONS OVER LAND AND OCEAN*: **L Mukherjee**, D L Wu
- 1897278** *Submesoscale Thermal Feedback and the Surface Flux of Available Potential Energy*: **J O Wenegrat**, I Uchoa, L Renault, C Conejero, L Lenain, L W O'Neill, A Kinsella, I Leyba

248471

Methane Cold Seep Processes, Dynamics, and Impacts (joint with B, NH, NS, PP)

Conveners: **Adam Skarke**, Mississippi State University; **Samantha Joye**, Univ Georgia; **Sunita Shah Walter**, University of Delaware; **Davide Oppo**, University of Louisiana at Lafayette; **Gracie Babineaux**, University of Louisiana at Lafayette

- 1861897** *A 1.46 Million Year Record of Methane Migration and Hydrate formation in Mahanadi Basin Sediments; Indian Margin, NW Bay of Bengal*: **G Gibb**, S C Clemens, K Thirumalai, D Oppo, C D Ruppel, S Phillips
- 1953618** *Antarctic Methane Seeps: Spatiotemporal Patterns, Drivers, and Ecosystem Impacts of the Very Cold Seep Microbiome*: **A Thurber**, S Seabrook, J Wynne, L Tait, D Davis, S Alvarez Zepeda, P Santiago Padua, L Cleveland
- 1914411** *Benthic Calcareous Foraminiferal Occurrences in the El Quisco and Mocha Island Methane Seeps, Chile*: **G L Babineaux**, D Oppo, J Beeson, A D Skarke, K Thirumalai
- 1886606** *Bubble Characteristics and Bubble-Induced Turbulence at the Bush Hill Cold Seep Site in the Gulf of Mexico*: **X Ying**, B Wang
- 1977251** *Clumped Isotope Signatures of Methane Track Anaerobic Oxidation in Cold Seeps*: **J Liu**, E D Young, K Homola, T Treude
- 1852200** *Controls on Fluid Discharge at Cold Seep-Hydrate Systems: 4D Seismic Monitoring of Woolsey Mound, Gulf of Mexico*: **D Oppo**, F Cilenti, L Macelloni
- 1975298** *Cryptic Methane Cycling in the Oceanic Mixed Layer*: **S B Joye**, H Choi, E Tuttle, T D Peña-Montenegro, K Hunter

- 2001873** *The Effect of Upper Ocean Freshwater on the Rapid Intensification of Hurricane Lee*: **K Laws**, A O Gonzalez, Y Chen, L Yu, R B Neale
- 1961407** *The theory of wind work on ocean mesoscales*: **S Rai**, J T Farrar, H Aluie
- 1989501** *Understanding the influence of air-sea interaction across western Arabian Sea on the Indian summer monsoon rainfall distribution*: **K Nunna**, K K Osuri, T U Bhaskar, P R R P Eluri, M S H Pindiprolu, B N T M Dr
- 1938286** *Upper-ocean Diurnal Salinity Changes in the Seychelles-Chagos Thermocline Ridge during the Austral Fall of 2023–2024: Relationship with Atmospheric Freshwater Fluxes and Climate Variability*: **S Nam**, J Park, H Na
- 1963081** *Deep Learning Based Automated Detection of Seafloor Gas Seeps: Depth-Dependent Performance and the Role of Temporal Context*: **S Manjur**, A D Skarke, A Gurbuz
- 1905603** *Demonstration and EPR/COP evaluation of continuous methane gas recovery from a methane plume seeping from a seafloor in Sea of Japan*: **H Watanabe**, T Takenouchi, T Mochinaga, T Sasaki, C Aoyama
- 1922498** *Detection and Geophysical Characterization of Methane Seeps and Associated Fluid Migration Processes on the Chile Margin*: **A D Skarke**, J Beeson, D Oppo, G L Babineaux, L Villar-Muñoz, S Wieman, J J Marlow
- 1957407** *Discovery and Spatial Analysis of Methane Seeps on the U.S. Atlantic Margin with Very High-Resolution AUV Multibeam Water Column Data*: **G Lane**, A D Skarke, H Baxter, D Oppo, S R Shah Walter, S B Joye
- 1904484** *First Discovery of Pockmarks and Fluid Migration Features in the Taiwan Strait*: **Y P Chen**, H H Hsu, T T Chen, S P Chang, Y X Lin, A Mirza, C C Su, S C Chen, Y J Lin
- 1903975** *Fluidity of air bubbles to membrane surface in water-Comparison with methane hydrate particles in marine experiments -*: **Y Kishimoto**, M Kato, S Suzuki, Y Kawagishi, T Takenouchi, H Watanabe
- 1959822** *Global Rates of Anaerobic Methane Oxidation at Marine Cold Seeps Constrained by Carbonate Clumped Isotopes*: **S Wieman**, W Guo
- 1898449** *Identification, Characterization, and Interpretation of Pockmark-Associated Methane Seeps on the U.S. Atlantic Margin*: **H Baxter**, A D Skarke, G Lane, D Oppo, S R Shah Walter, S B Joye

- 1991121** *Methane Seep Exploration Along the Chile Margin: Integrating ROV Video, Multibeam Seafloor Mapping, and In-Situ Methane Sensors for Comprehensive Seep Characterization:* **J W Beeson**, A D Skarke, D Oppo, G L Babineaux, L Villar-Muñoz, S Wieman, A Michel, J Kapit, J J Marlow
- 1905415** *Modeling and simulation of motion of methane bubbles with hydrate film seeping from a seafloor: Interaction between methane bubbles and membrane structure:* **H Watanabe**, T Takenouchi, H Kondo, Y Kawagishi, C Aoyama
- 1879393** *Modeling the Formation and Evolution of Focused-Fluid Escape Systems Along Continental Margins:* **K You**, L Baksmaty, R Ratnakar, S A Socolofsky
- 2003719** *Nanoscale extracellular S(0) structures in a sulfur-oxidizing biofilm:* **F Anstey**, A Manrique Hernández, M Karagiannis, J Panehal, D Schmidt, H Leapaldt, R Ort, J L Macalady, K H Freeman
- 1978522** *Responses of Methane-Seep Foundation Species to Changes in Seep Dynamics:* **E Cowell**, A Stabbins, E E Cordes

251414

Natural Gas Hydrate Systems: Occurrence and Dynamic Behavior

Conveners: **Alejandro Cardona**, University of Texas at Austin; **Ann Cook**, Ohio State University; **Tanner Mills**, University of Texas at Austin

- 1944329** *Critical Pore Size of Preferred Flow Channels in Hydrate-Bearing Samples:* **Z Xu**, Y Konno
- 1947092** *Determination of Methane Hydrate Particle Size in Triaxial Compression of MHBS Using the Discrete Element Method:* **Y Nakamura**, T Sato, N Tenma
- 1878510** *Extreme Variability in Hydrate Stability Zone Thickness across the northern Gulf of Mexico:* **A Kumar**, A Cook, A Portnov, J Hillman

251441

Physical and Biogeochemical Processes on the Warm Antarctic Continental Shelves (joint with C, GC)

Conveners: **Peter Sedwick**, Old Dominion University; **Kiya Riverman**, Pennsylvania State University Main Campus; **Robert Sherrell**, Rutgers University; **Andrew Thompson**, Caltech; **Madeline Mamer**, Georgia Institute of Technology

- 1848161** *Sediment loading as a key driver of episodic methane seepage in the Gulf of Mexico over last 130,000 years:* **D Feng**, X Wang, D Oppo, A Sajjad, M Wang, T Y Chen, J Peckmann, H Cheng, R L Edwards, D Chen
- 1932833** *Trends and Controls on the Distribution of Focused Fluid Flow Features in the Gulf of Mexico:* **M Lawal**, A Cook, A Portnov, A Kumar
- 1958333** *U.S. Atlantic Margin Seep Characterization: Integration of High-Resolution Geophysical Datasets to Link Seafloor Gas Seeps to Subsurface Structures:* **R Kalski**, A D Skarke, D Oppo, S R Shah Walter, S B Joye
- 1994749** *Uncovering the Microbial Ecology and Metabolic Activity of Chilean Methane Seeps:* **E Frates**, P Bae, A Semler, P Schroedl, D Mankel, J J Marlow
- 1853062** *Unveiling a Protracted Episode of Past Methane Seepage Events: Chemosynthetic Imprints in Sediments from a Recently Discovered Cold-Seep Site off the Mannar Basin, East Coast of India:* **A Ghosh**, A Mazumdar, A Peketi, M Sadique, A S Zatale, K Sivan
- 1862662** *Geologic controls on gas hydrate saturation, based on log and core data from the Alaska Gas Hydrate Production Test Site:* **S S Haines**, T S Collett, W Waite, S Phillips, R Boswell, N Okinaka, Y Nakatsuka
- 1950526** *Geomechanical and Petrophysical Response of Hydrate-Bearing Sediments During Gas Production:* **A Cardona**, Y Konno, P B Flemings
- 1902267** *Helium Retention and Residence Time Estimates in Natural Methane Gas Hydrate from the Gulf of Mexico:* **R Coyte**, D L Thatcher, PhD, A Cook, S Phillips
- 1885124** *Incremental Hydrate Digital Cores for Capturing Dynamic Morphology Evolution in Physical Experiments:* **J Weng**, T He
- 1983749** *Overview of Methane hydrate core drilling at Offshore Shima peninsula, Japan.:* **T Imai**, T T Aung
- 1971903** *Sedimentation Rates and Gas Hydrate occurrence within the Terrebonne Basin:* **S Martin**, A Cook, J E Johnson, M Purkey Phillips, S C Phillips
- 1952225** *Mapping iron ligands and revealing molecular signatures of iron limitation in the Southern Ocean by coupling LC-ICPMS and LC-HRMS analysis:* **A Timilsina**, N R R Coffey, I Streanga, J Li, D Repeta, R Boiteau
- 1983654** *A Quarter Century of Net Primary Production in the Amundsen Sea: Interannual Trends and New Insights into Coastal Current Dynamics from Satellite Observations:* **C Schine**, S E Stammerjohn, G van Dijken, P St-Laurent, P L Yager

- 1852904** *Accelerated Anthropogenic CO₂ Accumulation and Ocean Acidification in the Ross Sea: Influence of Amundsen Sea Processes*: **K Park**, A Mo, T W Kim, J Park, J O Choi
- 1986678** *Air-Sea Exchange of Inorganic Mercury and Dimethylmercury in the Amundsen Sea During the U.S. GEOTRACES GP17-ANT Cruise*: **Y He**, M Despins, C H Lamborg, R P Mason
- 1870852** *Assessment of the Influence of Natural and Anthropogenic Lead (Pb) in the Amundsen Sea, West Antarctica*: **Y Kim**, T Bellitto, J N Fitzsimmons, E A Boyle, F Marcantonio
- 1996497** *Atmospheric Precipitation Estimates in the Amundsen Sea from Tritium*: **M Passacantando**, A Seltzer, W J Jenkins, B Loose
- 1865182** *Biology dominates seasonal carbon uptake at high latitudes along the West Antarctic Peninsula*: **J S Turner**, D R Munro, A R Fay, S E Stammerjohn, H H Kim, O Schofield, H M Dierssen
- 1919016** *Changing, fast and slow: Oceanographic trends and interannual variability from three decades of observations along the west Antarctic Peninsula*: **C F Moffat**, M Cappola, S E Stammerjohn, M P Meredith, H J Venables, O Schofield
- 1955948** *Climate-sensitive Carbon Cycling Adjacent to a Melting Ice Shelf in West Antarctica*: **P L Yager**, J Vassy, C Schine, S E Stammerjohn
- 1880433** *Dissolved Iron, Manganese and Aluminum in the Amundsen Sea, Antarctica: Results from the GEOTRACES GP17-ANT Expedition*: **P Sedwick**, J A Resing, B M Sohst, T Williams, I Kapinos
- 2000293** *Dissolved Trace Metal Distributions and Soluble/Colloidal Partitioning in the Amundsen Sea, West Antarctica: Results from the U.S. GEOTRACES GP17-ANT Expedition*: **J N Fitzsimmons**, T Bellitto, T Conway, S John
- 1977454** *Distribution of Novel Hydrophilic Iron-Binding Ligands in the Amundsen Sea*: **N R R Coffey**, A Timilsina, J LI, I M Streanga, D Repeta, R Boiteau
- 1916533** *Estimating Atmospheric Dust and Iron Fluxes Along the GEOTRACES GP17-OCE Transect, Integrating Lateral Transport of Thorium through Water Masses*: **K Ojuade**, C T Hayes, A Leal, R F Anderson, M Q Fleisher, R L Edwards, J Shaikh
- 1997585** *Increasing Antarctic meltwater hastens Southern Ocean change by decades in 21st-century projections*: **M J Hoffman**, I Vankova, D S Comeau, S F Price, X Asay-Davis, C B Begeman, J D Wolfe
- 1971325** *Investigating Proxies for Biological Productivity from Seafloor Surface Sediments, Amundsen Sea Embayment, West Antarctica*: **C Byrne**, R L Totten, C D Hillenbrand, M G Heberlein, J Helgeson, J Smith, J Wellner, R D Larter
- 1983651** *Investigating ventilation in the Amundsen Sea, Antarctica using an eddy-permitting regional ocean model*: **L Kowalski**, Y Nakayama, B Loose
- 1967252** *Iron Sources and Biogeochemistry in the Amundsen Sea, West Antarctica: Ice Shelf Processes and Glacial Meltwater*: **V Chinni**, J Steffen, L Herbert, H Oliver, S E Stammerjohn, P St-Laurent, J Wellner, P L Yager, T Conway, J N Fitzsimmons, R M Sherrell
- 1979543** *Labile particulate trace metal distributions on the GP17-ANT cruise in the Amundsen Sea*: **P J Lam**, J M Lee
- 1936912** *Linkage of Primary Productivity to Spatial Patterns and Composition of Suspended Particles in the Amundsen Sea (US GEOTRACES GP17-ANT)*: **T V Le**, P J Lam, J M Lee, D Mallick, D C Ohnemus
- 1915245** *Mercury Methylators in the Amundsen Sea*: **R Jin**, M Despins, C H Lamborg, R P Mason, S E Newell
- 1897659** *Mid-Century Projections for the Amundsen Sea Polynya (Western Antarctica)*: **P St-Laurent**, R M Sherrell, P L Yager, S E Stammerjohn, T Maksym, M S Dinniman
- 1958941** *Particulate Iron Delivered by the Meltwater Pump is Bioavailable to Amundsen Sea Phytoplankton: Characterizing pFe Speciation and Elemental Stoichiometry of Natural Particles*: **K Mateos**, A Laubach, P J Lam
- 1959457** *Particulate Iron Delivered by the Meltwater Pump is Bioavailable to Amundsen Sea Phytoplankton: Effect on Phytoplankton Community Composition*: **K Wang**, K Mateos, P J Lam, A Laubach
- 1930862** *Rare Earth Element seawater systematics on the Amundsen Sea Ice Shelves, West Antarctica*: **G de Souza Franco**, W Ding, X Y Zheng, F Melia, M Bizimis
- 1952383** *Siderophore production in the Southern Ocean under high and low iron conditions*: **R M Bundy**, K N Buck, B D Jenkins, P D Chappell, D Repeta, A Sterling, L Z Holland, S Yang, L Mahieu, L Moore
- 1866694** *Sniffing Out Polonium: Aerosol ²¹⁰Po/²¹⁰Pb Ratios Trace Volatile Emissions from the Amundsen Sea Polynya*: **Z Wei**, K Cochran, M P Stephens, PhD, W Bam, PhD, K Maiti
- 1963324** *The characteristics of organic iron-binding ligands over the warm ice shelf of the Amundsen Sea (U.S. GEOTRACES GP17-ANT)*: **L Mahieu**, K N Buck, R M Bundy, L Moore, S Caprara, J Resing, P J Lam, R M Sherrell, P Sedwick

- 1967441** *The Marine Sedimentary Record of the Abbot Ice Shelf Since the Last Glacial Maximum, West Antarctica:* **M G Heberlein**, R L Totten, C D Hillenbrand, C Byrne, M Hansen, J Helgeson, F O Nitsche, J Smith, J Wellner, L M Miller, R D Larter, K Hogan, A G Graham, J B Anderson
- 1877764** *Thwaites Eastern Ice Shelf Cavity Observations Reveal Multi-year Sea Ice Dynamics and Deep-Water Warming in Pine Island Bay, West Antarctica:* **C Wild**, T Snow, T Segabinazzi Dotto, P E D Davis, S Tyler, T A Scambos, E C Pettit, K J Heywood

253330

Rachel Carson Lecture

Conveners: **Charles Greene**, University of Washington Seattle; **Janet Sprintall**, Scripps Institution of Oceanography; **Charles Greene**, University of Washington Seattle

249727

Satellite and In Situ Observations in Support of the Prediction of Coastal Hazard Impacts for Enhancing the Resilience of Coastal Communities (joint with GC, NH, SY)

Conveners: **Vassiliki Kourafalou**, University of Miami; **Paul DiGiacomo**, NOAA College Park; **Joaquin Tintore**, Balearic Islands Coastal Observing and Forecasting System (SOCIB); **Aletta Yñiguez**, Marine Science Institute, University of the Philippines; **Ivan Federico**, CMCC Foundation - Euro-Mediterranean Center on Climate Change

- 1878929** *Addressing Global Coastal Challenges with Adapted Tools: the CNES Know-How:* **V Lonjou**, A Carbonniere, E Bergsma, C Germaineaud, S Artigues, F Soulat
- 1999643** *An Ocean Color Instrument for Geostationary Orbit:* **T McCracken**, L Aycock, J L Carr, H Cutlip, G Booren, M Cowell
- 1909514** *CoastPredict and GlobalCoast: Advancing Coastal Resilience through Integrated Observation, Prediction, and Cloud-Based Solutions in the Global Coastal Ocean:* **V Kourafalou**, N Pinardi, G Coppini, T Joaquin, A Yñiguez, E Heslop, M O'Donovan
- 1872387** *Data-driven forecasting of compound coastal-fluvial floods in urban environment:* **A I Olbert**, S Moradian, A AghaKouchak
- 1943059** *Enhanced Coastal Oil Spill Risk Assessment through Digital Twin Integration: Connecting WITOIL and SURF in EDITO:* **I Atake**, J Ramos, S Bravo, F Trotta, G Mannarini, I Federico, G Coppini

- 1996624** *Tracing 'Net' Elemental Fluxes Using Element-Meteoritic Water Relationships in the West Antarctic Peninsula:* **T Bellitto**, R M Sherrell, M P Meredith, A L Annett, J N Fitzsimmons
- 1901591** *Tracking Glacial Meltwater and Circumpolar Deep Water Distribution in the Western Amundsen Sea using Stable Oxygen Isotopes:* **A Bains**, A J Wagner, C L Wiederwohl, E L Sikes
- 1956788** *What is the Potential for CO₂ Outgassing from the Buoyant Upwelling of Modified Circumpolar Deep Water in the Amundsen Sea Polynya?:* **J Vassy**, S E Stammerjohn, P L Yager

- 1980584** *Enhancing Coastal Resilience in New England through the Northeastern Regional Association of Coastal Ocean Observing System's Water Level Sensor Network:* **A Simpson**, T Shyka, H E Baranes, J Carter, D Dumont
- 1977026** *Evaluating ECOSTRESS Land Surface Temperature Data Over Coastal Waters with In-Situ Buoy Observations:* **J Meiseles**, C M Lee, J B Fisher, I A Callejas, J Longenecker, G C Hulley
- 1927588** *Evaluation of coastal sea-level variability in NASA GMAO Ocean models:* **A Nambiathody**, A R Rodriguez, M R Mazloff, D Menemenlis, B Hamlington
- 1976434** *High Tide Flood Detection Using Multi-Satellite Remote Sensing data and In Situ Flood Sensors:* **E E Hamidi**, K Anarde, C Wang, A Smith, R McCUNE, T Pavelsky
- 1860815** *Integrating Earth Observations and Local Knowledge for Predicting Coastal Hazards and Strengthening Nature-Based Resilience:* **C Onwubiko**, D Worlanyo
- 1991173** *Marine Heatwaves in the Philippines: Implications for the Marine Environment and Coral Reefs:* **C L A Repollo**, R Francisco, R M Luciano, L J Tupaz, M V B Rodriguez
- 1945823** *Modular digital twin solutions for coastal hazards, ecosystem monitoring, and resilience:* **J Soriano-González**, M König, L Zoffoli, P Almeida, À Fernández-Mora, K Stelzer, J M Braud, L Figueiredo, M Juza, C Lebreton, C Cecilio, A Català-Gonell, F Criado-Sudau, E Sánchez-García, D Pais, E Reyes, PhD

1910067 *OceanVar2.0: an Open-Source Variational Ocean Data Assimilation Scheme. Sensitivity to Altimetry Sea Level Anomaly Assimilation:* **P Oddo**, E Clementi, M Adani, A Cipollone, A C Goglio, F Carere, E Jansen, A Aydogdu, I Epicoco, J Pistoia, F Mele, N Pinardi, S Masina

1889657 *Predicting wave parameters on unstructured grids using a Graph Neural Network:* **F Benassi**, L Mentaschi, N Pinardi, S Causio, D Holmberg, I Epicoco, I Federico

1942203 *ProtoCoast: the new advancements of the prototype of GlobalCoast Cloud for coastal resilience:* **G Coppini**, N Pinardi, M O'Donovan, M Hoxhaj, D Elia, A Chiffi, V Piermattei, F Antonio, G Tramonte, I Federico, J Pearlman, P Nassisi, R P Signell, M C Llorens, G La Rocca, V Ardizzone, A Cristofori, F G Perez

1936501 *Red Tide Early Detection System Using Satellite Images:* **S M Biazar Seighalani**, A Gaddam, B Voram, G Golmohammadi, N Ghimire, S Shaghaghi Khajehdehi, G S Tiwana

250016

Seabed substrate mapping based on machine learning using MBES data

Conveners: **Jeongmin Seo**, Pukyong National University; **Jaegu Bae**, Pukyong National University; **Doi Lee**, Pukyong National University; **Seonghyeok Lee**, Pukyong National University; **Soryeon Park**, Pukyong National University

247612

Seafloor/Sub-Seafloor Processes in Polar Regions (joint with C, V)

Conveners: **Masako Tominaga**, Texas A & M University College Station; **Kurt Panter**, Bowling Green State University; **Ingo Pecher**, Texas A&M University Corpus Christi; **Hao Yu**, Texas A&M University Corpus Christi; **Jyun-Nai Wu**, National Taiwan University

1900509 *A Quantitative Assessment on Ice Conditions and their Scalability to Sea-Ice Prediction Models by Ground Truthing Sea-Ice Evolution During the NBP25-01 Expedition from February-April 2025.:* **M Small**, M Tominaga, J N Wu, K S Panter, H J Buenger, L Petersen

1989922 *Assessing Volcanic and Climatic Influences Offshore the Getz Ice Shelf, Antarctica from Recent THOR Sediment Records:* **J Helgeson**, R L Totten, L Miller, C D Hillenbrand, J Wellner, S Smart, M G Heberlein, C Byrne

1953556 *RENOVATE: An innovative Approach for Marine Habitat Restoration:* **M Marcelli**, S Bonamano, G Coppini, S Scanu, I Federico, S Causio, A Madonia, D Piazzolla, G Sarà Sr, N Pinardi, G Ceccherelli, A Falace, P Del Negro, G Fersini Sr, F P Mancuso, L Mentaschi, M Del Mar Bosch Belmar, D Varghese, V Piermattei

1916847 *Satellite based estimation of inter-tidal topography for improved coastal inundation modelling: An application of SWOT interferometric observations:* **N Agarwal**, R Ramakrishnan, S M, A Choudhary, R Ranjan, R Sharma

1863629 *Timely and Accurate Vessel Detection and Identification Using Satellite Imagery in KCGSA for Maritime Safety:* **Y KIM**, S H Kim, H Sim, M H Jeong, O Jung, Y Jung, N H Seong, S H Song

1985405 *Towards a Coastal Operational Forecasting System for the Philippines: Integrating National and Pilot Initiatives:* **A L del Rosario**, E M Nuevas, C L A Repollo, A Yñiguez, C Villanoy

1894902 *Understanding Compound Extreme Events: Sea Surface Temperature and Chlorophyll-a in the Arabian Sea and Persian Gulf:* **M Mohamed**, M Hamdeno, O Ibrahim, H Nagy, B Mohamed

1953991 *Improved benthic geologic mapping using acoustic data with object-based and machine-learning classification techniques:* **T McClinton**

1863242 *Integrated acoustic survey of seafloor sediments conducted onboard the R/V Tambae III:* **Y J Kim**, J G Choi, B Yi

1953983 *Comparison of Geothermal Gradients from Seafloor Measurements and BSR Depth in the Ross Sea, Antarctica – First Results from Nathaniel B. Palmer Voyages NBP 2402 and 2501.:* **I A Pecher**, N L Bangs, Y Azeez, F Neumann, R Negrete-Aranda, H Yu, R B Coffin, W H Jeffrey, L Prothro, A R Halberstadt, M Tominaga

1866000 *Dynamics and Magma Genesis of the Davey Bank Seamount in the southwestern Ross Sea, Terror Rift Volcanic Field, Antarctica:* **K Shanks**, K S Panter, M Tominaga, C Berthod, J N Wu, K Konrad, R O'Conke, J M Kalemba, J Preine, M Cannat

1870322 *Fire and Ice: Volcanic Activity Under Glacial Cover; evidence from flat-topped seamounts, Western Ross Sea, Antarctica:* **J Kalemba**, K S Panter, M Tominaga, C Berthod, M Cannat, K Shanks, J N Wu, M Small, J Preine, R O'Conke, K Konrad

1962262 *Geo-bio-chemical signatures around Feather Top seamount, western Ross Sea, Antarctica:* **W H Jeffrey**, M Tominaga, J N Wu, K S Panter, M Small, E Hayden, L Hayes-Guastella, B Kiel Reese

- 1874737** *Heat flow Distribution of Terror Rift in Western Ross Sea, Antarctica, Evidence of Segmented Rift Propagation:* **J N Wu**, M Tominaga, M Tivey, F Neumann, K S Panter, R Negrete-Aranda
- 2002768** *High-Resolution Benthic Habitat Mapping and Monitoring: Insights from a Portable Multimodal Imaging System in Monterey Bay and the Beaufort Sea:* **S Rodriguez**, G Troni, E J Martin, K Barnard, J Fuentes-Guñez, P Roberts
- 1866093** *Investigating Spatial, Temporal, and Geochemical Trends in the Terror Rift Volcanic Field, Antarctica; Implications for Origins of Volcanism.:* **R O'Conke**, K S Panter, K Shanks, J M Kalemba, M Tominaga, K Konrad, C Berthod, M Cannat
- 2002358** *Organic matter and composition in the central Ross Sea, Antarctica during the Last Glacial Maximum:* **H Organ**, H Yu, L Prothro, R B Coffin
- 1916688** *Pliocene-Pleistocene accumulation rate patterns in polar deep-sea contourite systems from International Ocean Drilling Program (IODP) expeditions in the Scotia Sea and Fram Strait constrained by paleomagnetic stratigraphy:* **B T Reilly**, I Bailey, S Brachfeld, K Fenton-Samuels, A Gonzalez-Lanchas, R G Hatfield, S R Hemming, C E Jasper, O Libman-Roshal, S Khamitov, R Lucchi, L Monito, S OConnell, M E Raymo, B Redman, T Ronge, K K St John, J S Stoner, Y Suganuma, L Tauxe, J Warnock, T Williams, Y Zhong

253063

Strategies for Combining Innovative Monitoring and Modeling Systems in Coastal Environments

Conveners: **Mustafa Cambazoglu**, The University of Southern Mississippi; **Gero Nootz**, University of Southern Mississippi; **Mahdi Razaz**, The University of Southern Mississippi; **Brandy Armstrong**, University of Southern Mississippi; **Zafer Defne**, USGS Coastal and Marine Science Center Woods Hole

- 1855645** *Algal Bloom Prediction Using Machine-Learning Models in the Mississippi Sound:* **G Hesketh**, D Bernstein, J D Wiggert
- 1960188** *Assessing Multidecadal Estuarine Shoreline Change Using a Remotely Sensed Spectral Index:* **Z Defne, PhD**, N K Ganju, B Couvillion, B T Lamb
- 1869555** *Assessing the Sensitivity of Daily Hindcast and Forecast Modeled Freshwater Plumes in the Mississippi Sound and Bight:* **B Armstrong, MS**, M K Cambazoglu, J D Wiggert
- 1943652** *Best Practices on the Coupling Between Biogeochemical and Higher Trophic Level Models.:* **C Thoma**, C Piroddi, A Stips, L Polimene, N Serpetti, N Ferreira-Cordeiro, E Garcia-Gorri, D Macias-Moy

- 1955167** *Preliminary findings on methane biogeochemical processes in shallow sediments of the gas-hydrate deposit region in the Ross Sea:* **H Yu**, I A Pecher, H Organ, J Rossilli, Y Azeez, A Hofmann, L Salel, V Rivera, R B Coffin
- 1888556** *Repeat 1-m-Scale Mapping mapping of Thermokarst terrain and Active Mud Volcanos using AUVs on the Canadian Beaufort Sea Continental Margin:* **D W Caress**, C K Paull, J B Paduan, E M Lundsten, K Anderson, R Gwiazda, M J Duchesne, S Dallimore, J K Hong, Y K Jin, Y G Kim, J Obelcz, M A L Walton
- 1938073** *Stress controls on seepage activity in Eastern Fram Strait: Insights from three-dimensional in-situ stress regime via Anelastic Strain Recovery:* **Y Sakai**, W Lin, A A Plaza-Faverola, Y Yamamoto, R Lucchi, K K St John, T Ronge
- 1850284** *The Architecture of Seafloor Volcanics in the Icy Landscape within Western Ross Sea, Antarctica:* **M Tominaga**, J N Wu, K S Panter, M Small, C Berthod, J Preine
- 1867671** *Widespread Sampling of Antarctic Mantle by Explosive Seafloor Volcanism, Western Ross Sea, Antarctica:* **K S Panter**, C Berthod, M Tominaga, M Cannat, C Prigent, J Preine, A J Cross
- 1963778** *Combining Monitoring and Modeling Systems in the Marano and Grado Lagoon, Italy:* **I Scroccaro**, L Aveytua Alcaraz, F Brunetti, A Lanzoni, C Laurent, C Solidoro, S Spada, A Teruzzi, D Canu
- 1987577** *Developing a Dungeness crab (Metacarcinus magister) meat quality forecasting management tool:* **J Lara Navarrete**, S Siedlecki, I Kaplan, E L Norton, F Soares, J A Newton, PhD, A J Hermann, S R Alin, C Matassa, K Corbett, T Buell, M George, C Biggs, J E Schumacker
- 1928157** *Development of an Autonomous Environmental DNA (eDNA) Sampling System for In Situ Filtration and Preservation:* **K White**, K S Ali, B P Thoma, A A E Humos
- 1845264** *Empirical Modelling of Effect of Wave-Breaker Types on Longshore Current Velocity: Case Study of Ibeno Beach, South-East Coast of Nigeria.:* **S Udo-Akuaibit**
- 1978804** *Enhanced Underwater Fish Tracking via ByteTrack Using Image Quality Assessment for Hyperparameter Optimization:* **I A Ebu**, M M Nabi, C Shah, J Prior, F Wallace, M Grossi, T Rowell, R Moorhead
- 1919105** *Evaluating Bulk Air-Sea Drag Parameterizations at Near-Shore and Offshore Sites Using Buoy-based Eddy Covariance Measurements:* **D Marcial**, M Jacques, J M Covert, J M Freedman, R Krishnamurthy, S D Miller

- 1979982** *Evaluating the Impact of Bonnet Carré Spillway Operations on Estuarine Circulation and Salinity in the Mississippi Sound Using Scenario-Based Hydrodynamic Modeling:* **A E Koruk**, M K Cambazoglu, B Armstrong, J D Wiggert
- 1928276** *Hydrodynamic-Sediment Transport Model in Galveston Bay during Hurricane Harvey:* **R Du**, K Xu, D Bao, Z G Xue, Z Du, C K Harris, PhD, T M Dellapenna
- 1928473** *Infragravity Wave influence on nearshore circulation around a submerged detached breakwater:* **B Gomez**, T Gallien, J A Angel Escobar
- 1975496** *Large-Scale Underwater Multi-Class Multi-Fish Tracking using OC-Sort Algorithm:* **M M Nabi**, I A Ebu, C Shah, J Prior, R Moorhead, F Wallace, T Rowell, M Grossi
- 1854467** *MODULAR SHIP-BASED SYSTEM FOR RAPID SOLIDIFICATION AND DISPOSAL OF HIGH-MOISTURE MARINE PLASTIC WASTE:* **J Zhang**
- 1917308** *msbCOAWST-Based Evaluation of Discharge Redistribution and Coastal Water Quality Impacts of Neptune Pass:* **M K Cambazoglu**, M Lopa, B Armstrong, M Diard, J D Wiggert, D Bernstein
- 1947692** *Observation Based Analytical Framework for the Neretva Estuary Salt Wedge Upper Layer Salinization Risk Assessment:* **J Čarija**, I Matić, V Srzić
- 1903206** *Passive Acoustic Monitoring as a Tool to Inform Biodiversity, Habitat Use and Restoration Outcomes on Oyster Reefs in Coastal Louisiana:* **N Sidorovskaia**, T Davenport, M La Peyre, S Griffin, B A Stauffer
- 1993613** *Prioritizing Ocean and Coastal Acidification Monitoring Needs in the Northeast:* **A Pugh**

251719

Sustained observations of the global-scale ocean interior: elements of the Global Ocean Observing System

Conveners: **Lynne Talley**, University of California San Diego; **Stephen Riser**, University of Washington; **Todd Martz**, University of California San Diego; **Brendan Carter**, NOAA Pacific Marine Environmental Laboratory

- 1948098** *A True Public-private Partnership: OneArgo:* **E A Smith**
- 1969112** *Determining Variation in the Indian Ocean Respiration Quotient:* **E Mally**, A Martiny
- 1937623** *Evaluation of Impacts of GOOS on ocean and coupled predictions using SynObs international multi-system OSEs:* **Y Fujii**, S Kido, A Peterson, J Waters, E de Boisseson, J Zhu, Y H Kim, H Lee, E D Remy

- 1869044** *Processes to production: monitoring the processes that drive production and ecological response in the San Francisco Estuary:* **D R Haught**, T Violette
- 1950852** *Remote Sensing and CROCO-NChlPZD Model Based Identification of Potential Fishing Zones in the Northern Bay of Bengal:* **S Sadi**, K M A Chowdhury, M A Ullah, E H C Albin
- 1978766** *Sampling High Density Gradient Coastal Waters, using an Oceanscout Glider:* **K M Martin**, MS, S Tsei, O Braswell, S D Howden
- 1962928** *Satellite-Based Assessment of Seasonal and Long-Term Sewage Plume Dispersion from Marine Outfalls:* **H Mamidisetti**, R Vijay
- 1947303** *Spatiotemporal Variation and Size of Upwelling Zones in the Northern Bay of Bengal utilizing Coastal and Regional Ocean Community Model (CROCO) and Available Datasets:* **E H C Albin**, K M A Chowdhury, M O Faruk, S Sadi, K Karmaker
- 1985634** *Towards the development of a highly resolved coastal California surface salinity data product using a variety of approaches and available datasets:* **R M Spratt**
- 1942517** *Trend Analysis of Wave and Wind Climate in the Gulf of Mexico Using Multi-Scale Innovative Approaches with the WW3 Model Results:* **M K Cambazoglu**, A E Koruk, G S Chinnathambi
- 1979444** *Wave-Hydrodynamic Modeling of the Columbia River Mouth Using One-Way Coupling Between SCHISM and WAVEWATCH III models on Unstructured Grids:* **L Fernandez**, C M Seaton, M C Haller
- 1960455** *Informing Great Lakes Observing System Design with Convolutional Gaussian Neural Processes:* **D Jones**, N Bernot, E Redding, R Miller, S Brunner, J Smith, S Ruberg
- 1957483** *Mixable Layers: A Potential Energy-Based Estimate of an Ocean Surface Layer That Is Prone to Easy Mixing:* **J Pope**, A Fagerheim, D Balwada
- 1971105** *Observing Shifting Transient Gas Disequilibria in the Surface Ocean:* **D Sandborn**, B R Carter, M J Warner, Z Erickson
- 1950083** *Probabilistic Reconstruction of Dissolved Oxygen in the North Atlantic Upper Ocean Using Diffusion Model:* **H Gu**, J Qi, Y Chen, S Wu, Z Du
- 1991419** *Quantifying the Potential Impacts of Reduced Argo Investment and a Framework for Designing Cost-Efficient Autonomous Ocean Observing Systems:* **P Chamberlain**, M R Mazloff, S T Gille, L D Talley, F Kalkin, A Severinghaus

- 1962438** *Refined Estimates of Global Ocean Deep and Abyssal Decadal Warming Trends:* **G C Johnson**, S G Purkey
- 1858689** *Stirring the Weddell Sea: Eddy-Driven Salt and Heat Flux Beneath the Ice:* **C Hancock**, M A Janout, O Boebel, G Finucane, K Speer
- 1928223** *The potential role of seismic ocean tomography in constraining interior warming:* **S Zhang**, S Peng, H L L Ervik, Z Shen, W Wu, Z Zhan, J Callies
- 1882320** *Tracer-based Rapid Anthropogenic Carbon Estimation (TRACE):* **B R Carter**, J Schwinger, R E Sonnerup, A J Fassbender, J D Sharp, L Dias, D Sandborn
-

254564

The Blue Economy: Cultivating Collaboration, Innovation, Financing and the Next Generation Workforce (joint with ED, SY)

Conveners: **Liesl Hotaling**, Eidos Education; **Liesl Hotaling**, Eidos Education; **Ted Janulis**, Investable Oceans; **Nick Rotker**, MITRE Corporation Bedford; **Zack Baize**, NOAA; **Millicent Pitts**, Ocean Exchange; **Vanessa Scott**, Scripps Institution of Oceanography; **Josh Kohut**, Rutgers University New Brunswick; **Travis Miles**, Rutgers University; **Oscar Schofield**, Rutgers University

- 1912213** *Accelerating Innovation to Operations: An Update on the NOAA Small Business Innovation Research (SBIR) Program:* **M C Kruk**, M Pollard, F M C Horsfall
- 1852711** *Developing a Marine Energy Workforce Pipeline:* **A Cardinal**, B Stratton
- 1916751** *Frameworks for Public-Private Partnerships in the Weather Enterprise:* **M C Kruk**, J Stewart, F M C Horsfall
-

250117

The MacGyver Session: The Place for Novel, Exciting, Self-Made, Hacked, or Improved Sensors and Software Solutions to Understand Ocean Environments (joint with H, NS, SM)

Conveners: **Stephen Moysey**, Clemson University; **Ryan McCune**, North Carolina State University; **Lindsay Wentzel**, University of North Carolina Coastal Studies Institute; **Katherine Anarde**, Rice University

- 1959539** *Tracking Arabian Sea High-Salinity Water Intrusion into the Bay of Bengal and its Interannual Variability: Insights from Ocean Glider Observations:* **S Sabu**, MSc, A Chatterjee, N Sureshkumar, T V P, A Lotliker, P R R P Eluri
- 1966191** *Transformation of the Deep North Atlantic Ocean Through the Eyes of GO-SHIP: Cooling, Freshening, Pathways & Propagation:* **L Chomiak**, D Volkov, L Barbero, R C Perez
- 1928697** *Updates to the 'Best Vertical Section Data' Collection from the JOA Suite:* **J H Swift**, A Barna
- 1864070** *Mapping the Depths: An African Ocean Biodiversity Atlas for Sustainable Blue Economy Development.:* **P T Busumprah**, BS
- 1878777** *Northwestern Michigan College's Marine Technology Program: A Workforce Model for the Blue Economy:* **J Lutchko**
- 1913716** *Partnerships develop new training practices for the future blue economy workforce:* **O Schofield**, S M Glenn, T M Grothues, J T Kohut, T N Miles, D Munroe, G Saba, A Lopez
- 1855688** *Preparing the Blue Economy Technical Workforce:* **L A Hotaling**, J T Kohut, H VanSumeren
- 1850009** *Strengthening the U.S. Blue Economy Through Early Career Leadership and Community Building:* **C Myers**, E Johnson, M Grima, H Toerner
- 1849363** *The Ocean Enterprise Interchange - Powering Innovation and Economic Growth in the Blue Economy:* **H VanSumeren**
- 1963254** *The US Department of Energy's Role in Advancing the Blue Economy Through Marine Energy Innovation:* **C Schmaus**, F Driscoll, K Morrice
- 1896321** *A low-cost, open source, large volume in situ pumping system for marine and freshwater sampling:* **M P Stephens**, PhD
- 1966571** *Developing a Low-Cost, Modular Sensor Platform for Marine Energy Integration and Aquaculture Monitoring:* **L Wentzel**, P Taylor
- 1899895** *Novel Phosphate Sensors Based on Soft Matter Devices Deployed in Marine Samples:* **C T Hayes**, M Gilbert, S Yu, X Sun, T N Ng, V C Pierre, Z Yu, A H Flood, D Gupta, J D Azoulay, P Mahalingam, S Ishii

250212

Understanding Gulf Ocean Systems: Advances in Improving Ocean Circulation Forecast Skill

(joint with NH)

Conveners: Eileen Hofmann, Old Dominion University; Xiao Ge, Texas A&M University College Station; Marco Larranaga, Florida State University; Justin Cooke, University of Rhode Island

1974158 *A Machine Learning Framework for Estimating Ocean Horizontal Currents from Autonomous Glider Observation:* **S Mahmud, PhD**, A N M N Abeer, S F DiMarco, X Ge, A H Knap, T N Miles, S M Glenn

1959333 *Adaptive Sampling to Improve Prediction of the Loop Current System in the Gulf of Mexico:* **S L Morey**, E Chassignet, S F DiMarco, A S Bower, S M Glenn, T N Miles, M C Tenreiro, L K Shay, S Mahmud, PhD, E Pallas Sanz, P F J Lermusiaux, R J Ramos, M Feldman

1853521 *Advancing Ocean Front Detection with Satellite Observations and Machine Learning: A Gulf of Mexico Case Study:* **E Cruz**, S Bulusu

1951116 *Analyzing the Impact of Mesoscale Eddies on Coral Reefs in the Florida Keys Using Satellite Observations:* **C Moon**, H L Roman-Stork

1967214 *Characterization of cyclonic eddies that drive the detachment and separation of Loop Current eddies:* **M Larranaga**, E Chassignet, J Jouanno, L Renault

1971821 *Co-evolution of Hurricanes Helene and Milton with a Cyclonic Eddy, and the formation Loop Current Eddy Edison:* **S M Glenn**, T N Miles, M J Smith, L K Shay, B Jaimes de la Cruz, H S Kim, P Hogan, H H Furey, P F J Lermusiaux, B D Cornuelle, G Gopalakrishnan, R J Ramos, S Mahmud, PhD, M C Tenreiro, E Pallas Sanz

1885950 *Comparisons of UAS-based near-surface ocean current measurements with hydrodynamic model output in and around Galveston Bay, TX:* **V Bheeroo**, M J Lee, K A Chang, S A Socolofsky

1916482 *Enhancing Ocean Model Accuracy with Neural Network-Informed K-Profile Parameterization:* **J Yuan**, J Liang, E Chassignet, A Bozec, A J Wallcraft

1960481 *Evaluating ocean models with glider observations from the 2024 Mini Adaptive Sampling Test Run (MASTR):* **X Ge**, S F DiMarco, E Chassignet, A S Bower, A H Knap, S Mahmud, PhD, S M Glenn, T N Miles, M C Tenreiro, E Pallas Sanz

1939502 *Free-Running Ocean Dynamics in the Gulf of Mexico: A GPU-Accelerated Simulation with Oceananigans:* **I Jahan**

1977709 *Future weakening of the AMOC may lead to a significant reduction in upwelling off the West Florida Shelf:* **D Kim**, S K Lee, F Gomez, A Ross, J G John, C A Stock

1996231 *Hypoxic zone in the northern Gulf of Mexico in the 21st century:* **J Liang**, B Li, C Deutsch

1979676 *Identification of Ocean Fronts and Coastal Dynamics in the Gulf Region Using Clustering and Trend Analysis from Satellite Data:* **J Spier**, A Halaby, J Vazquez, M Giraldo, L Baskaran, J T Roberts, A R Perez, B Prim

1994966 *Impact of Bottom Drag on Eddy Kinetic Energy and Loop Current Eddy Dynamics in the Gulf of Mexico:* **I Ma**

1930777 *Impacts of Sea Level Rise on Tidal Dynamics in the Gulf Stream Region:* **A Wei**

1921288 *Improving Loop Current forecasts via assimilation of APEX float profiles and deep velocities:* **A Smith**, D R Watts, K A Donohue, C D Rowley, P G Thoppil

1949432 *International Partnership To Understand Ocean Transport Through the Yucatan Strait Using High Frequency Radars, Underwater Buoyancy Gliders and Near-Surface Far Horizon Surface Drifters.:* **A H Knap**, S F DiMarco, U Nwankwo, S Mahmud, PhD, X Ge, D A Salas de Leon, R Monreal Jiménez, E Pallas Sanz, M C Tenreiro, T N Miles, S M Glenn, R J Ramos, M J Smith

1852398 *Loop Current Frontal Eddies (LCFEs) and their Influence on Chlorophyll-a in the Gulf of Mexico:* **P Lee**, L Hiron, G Gopalakrishnan, S Bulusu

2001853 *ML-Based Classification of Loop Current/Loop Current Eddy Regimes and Application to Forecast:* **R Ramos**

1891460 *Multi-Model Ensemble Forecast for the Loop Current System with a Physical-Informed Deep Learning Ocean Emulator:* **T Wu**, R He, L Lupin-Jiminez, A K Chattopadhyay, M Gray

1959663 *Observation Resolution Implications to Data Assimilation in Ocean Prediction:* **G A Jacobs**, C N Barron, M Carrier, J M D'Addezio, R W Helber, V A Montiforte, J Osborne, M Yaremchuk

1895357 *Ocean prediction and the Gulf of Mexico:* **E Chassignet**

1978647 *On the role of the Loop Current and local winds in driving interannual ocean-biogeochemical variability in the West Florida shelf:* **F A Gomez**, S K Lee, P Rajendran, D Kim

1912343 *Real-Time Ocean State Monitoring and Loop Current Forecasting with CNAPS2 Regional Ocean Data Assimilative Forecast System:* **Y Deng**, T Wu, R He

- 1964549** *Results of the Mini Adaptive Sampling Experiment: Water Mass Transport thru the Yucatan Channel, Adaptive Sampling, and Implications to Ocean Prediction:* **S F DiMarco**, S Mahmud, PhD, X Ge, A H Knap, S M Glenn, T N Miles, M J Smith, R J Ramos, J S Storie, M C Tenreiro, E Pallas Sanz, P F J Lermusiaux, P J Haley Jr, C Mirabito, D A Salas de Leon, R Monreal Jiménez, V K Contreras, J van Smirren
- 1977508** *Spatial and Temporal Enhancement of UAS Imagery Using Dual Oblique and Infrared Imaging:* **M J Lee**, V Bheeroo, K A Chang, S A Socolofsky
- 1965043** *The Cycles of the Gulf of America Loop Current and Their Temporal Variations:* **A Nickerson**, Y Liu, R H Weisberg

248781

Variability and Predictability of Indo-Pacific Ocean Circulation and Climate (joint with A, B)

Conveners: **Dongliang Yuan**, First Institute of Oceanography; **Tomoki Tozuka**, University of Tokyo; **Jong-Seong Kug**, POSTECH; **Thomas Pohlmann**, Hamburg University; **Xueli Yin**, Organization Not Listed

- 1932145** *An overlooked aspect concerning the effect of the spatial pattern of zonal wind stress anomalies on El Niño evolution and diversity:* **X Fang**
- 1933917** *Assessing Three Decades of NMME Hindcasts: Evaluating Model Accuracy and Forecast Skill for the Indian Ocean Dipole (IOD):* **L Shaaban**
- 1922141** *Depth-Dependent Decoupling of Marine Heatwaves and Low-Oxygen Events in the Coastal Subsurface Ocean:* **N Wang**, S Stevenson
- 1981171** *Direct influence of the Indian Ocean Dipole on Tropical Cyclone Formation in the Southern Tropical Indian Ocean:* **S Pei**, T Shinoda
- 1941198** *Dynamical prediction of ENSO based on Indo-Pacific Ocean circulation precursors:* **H Jiang**, S Zhang
- 1936347** *Factors Determining the Frequency of El Niño:* **D Z Sun**, Z Gu
- 1855526** *Global climate mode resonance due to rapidly intensifying El Niño-Southern Oscillation:* **M F Stuecker**, S Zhao, A Timmermann, R Ghosh, S S Lee, T Semmler, F F Jin, T Jung, J Y Moon
- 1944549** *Initial error in zonal current that has the greatest impact on predicting the 2024 La Niña event:* **H Chen**, L Tao
- 1989169** *Intra-seasonal Variability of the Full-Depth Currents in the Southern Philippine Basin Driven by the Remote Wind:* **Q Xu**, L Zhang

- 1941527** *The Flow Through the Gulf of Mexico: 25 years of the CANEK Mooring Array:* **J Sheinbaum**
- 1943115** *The impact of loss of balance on Loop Current Rings morphology:* **T Meunier**, M Bessiere
- 1902926** *The roles of Submesoscale Dynamics on Nutrient and Biogeochemical Variability in NGOM:* **B Li**, J Liang
- 1914642** *Topographic Rossby Waves between the Mississippi Fan and the Sigsbee Escarpment:* **J Yan**, K A Donohue, S L Morey, D R Watts
- 1914711** *What Differentiates the Best and Worst Members of an Ensemble Forecast? A Deep Perspective:* **J Cooke**, K A Donohue, C D Rowley, P G Thoppil, D R Watts
- 1949076** *Long-term Variability in Chlorophyll-a Concentration in the Northern Bay of Bengal and Its Relationship with ENSO and IOD:* **A Moontahab**, K M A Chowdhury, T Sumaia Khan, N U M K Chowdhury, S U M B Chowdhury, K Karmaker
- 1960253** *Monsoonal mixed layer heat budget of the Indian Ocean: Understanding the biases in coupled forecast models.:* **A Anitha Reghunathan**, B Webber, A J Matthews, D Copsey, J M Rodriguez
- 1939691** *Observations of Biweekly Ocean Bottom Pressure Variability Associated with Mixed Rossby-Gravity Waves in the Equatorial Indian Ocean:* **H J Min**, H Na, S Nam, E Lee, P Dasgupta
- 1936088** *On the nonlinear instability and submesoscale turbulence for western boundary currents and undercurrents:* **X Chen**, J Gan
- 1951448** *Predictability of Tropical Pacific Decadal Variability is Dominated by Oceanic Rossby Waves:* **X Wu**, S G Yeager, C Deser, A Capotondi, A T Wittenberg, M J McPhaden
- 1911061** *Recent Progress in the Observational Studies of the Indonesian Throughflow:* **X Yin**, K Wang, X Li, Y Li, Y Yang, C Corvianawatie, A Kusuma Wardana, D Surinati, A Purwandana, M F A Ismail, A S Budiman, A Bayhaqi, P Avianto, E Kusmanto, P D Santoso, D Dirhamsyah, Z Arifin, D Yuan
- 1887437** *Regime transition of rotating circulation in a large marginal sea in response to decadal climate variability:* **L Zheng**, Z Cai, J Gan, Q Yang, Z LIU
- 1879269** *Response of Indian Ocean Sea Surface Salinity to the 2019 Strong IOD and Monsoon Forcing:* **E S Nyadjro**
- 1930979** *Sea level anomalies in the southeastern tropical Indian Ocean as a potential predictor of La Niña beyond one-year lead:* **X Zhao**, D Yuan
- 1935108** *Seasonality of the intraseasonal variability in the upper equatorial western Pacific Ocean currents:* **L Song**, Y Li, J Y Lee, F Wang, J Wang

- 1987539** *Spatiotemporal Features and Generation Mechanisms of Submesoscale Processes in the Low-latitude Western Pacific Ocean*: **Y Hui**, L Zhang
- 1915189** *The expanding Indo-Pacific fresher water pool and changing fresher water pathway in South Indian Ocean*: **W Han**

251375

Enhancing and Building Public-Private Partnerships Paving the Future for Ocean Discovery (joint with ED, OS)

Conveners: **Oscar Schofield**, Rutgers University; **Travis Miles**, Rutgers University; **Liesl Hotaling**, Eidos Education

259433

Enhancing and Building Public-Private Partnerships Paving the Future for Ocean Discovery

Conveners:

252555

Explosive Eruptions at the Land-Sea Boundary: Improved Understanding Through Multidisciplinary Oceanographic Studies (joint with NH, OS)

Conveners: **Sharon Walker**, NOAA/PMEL; **Cornel de Ronde**, GNS Science-Institute of Geological and Nuclear Sciences Ltd; **Fabio Caratori Tontini**, Organization Not Listed; **Richard Henley**, The Australian National University; **Sean McAllister**, University of Washington

- 1887299** *Deep Crater Excavation and Sustained Heat Flow Following the 2022 Hunga Eruption*: **C E J de Ronde**, S L Walker, F Caratori Tontini, S A Henrys, D H N Barker, S Davidson, A Bagnasco
- 1990014** *Eruptive flux drives atmospheric lightning rates and submarine hydroacoustic signals during the 2021 Fukutoku-Oka-no-Ba eruption*: **K F McKee, PhD**, K E Fauria, J Caplan-Auerbach, J D Assink, M Louis, T Mittal, F Maeno, M Ichihara, D Metz, C Vagasky

- 1892738** *The role of zonal advective feedback in depicting the deficiency of ENSO diversity in CESM2*: **D Pang**, X Fang, L Wang
- 1965183** *Thermodynamic and dynamic effects of sustained multi-decadal surface wind forcing on tropical Pacific ocean*: **A Hogikyan**, M Jansen
- 1860594** *Time-varying heat storage in the Indian Ocean shaped by heat fluxes and the throughflow*: **Y Li**, F Wang

- 1972016** *Persistent hydrothermal discharge more than 2 years post-eruption at Hunga volcano, Tonga*: **S L Walker**, C E J de Ronde, V K Stucker, N Palmer, T Baumberger, A M Antriasian, G Xu, S McAllister, P Tuakafu
- 1905663** *The role of shock waves in the climactic volcanic eruption of the Hunga (Tonga) volcano, 15 January 2022*: **P J Hazell**, T S Pham, R Henley
- 1941443** *Tracing the journey of volcanic ash in the marine environment: Using the January 15, 2022, Hunga eruption as a case study*: **M Chaknova**, T Giachetti
- 1909733** *Tracking the Growth and Deformation of Fissure Phreatomagmatic Eruptions: Insights from the ~3.9 ka Nisida Eruption at Campi Flegrei Caldera*: **J Natale**, E Cascella, S Vitale
- 1916983** *Widescale Recent Submarine Pyroclast Production During NE Lau Basin Eruptions at 1-3 Km Water Depth and Resultant Volcano Morphology*: **K H Rubin, PhD**, W Chadwick Jr, R Embley, S G Merle, D A Clague

PALEOCEANOGRAPHY AND PALEOCLIMATOLOGY

246881

Advanced Understanding of Tropical-Subtropical Hydroclimate Changes During the Pleistocene, Holocene, and Anthropocene

Conveners: **Na Wang**, University of California Santa Barbara; **Chuan-Chou Shen**, National Taiwan University, Research Center for Future Earth; **Kaustubh Thirumalai**, University of Texas, Institute for Geophysics; **Liangcheng Tan**, IEE Institute of Earth Environment, Chinese Academy of Sciences; **Na Wang**, University of California Santa Barbara

1904039 *Synchronous growth rate changes in MIS3 speleothems from the tropical South Pacific: Evidence for a 10,000 year disruption of the SPCZ?:* **D J Sinclair**, G Holden, S Al-Hafid, A Borsato, S Frisia, J C Hellstrom, R M Sherrell, R A Mortlock, C Y Huang, C C Shen

1987472 *A 25,000 Year Reconstruction of Subtropical Eastern Australia Hydroclimate: Insights from Brown Lake (Bummiera), North Stradbroke Island (Minjerribah):* **M Lehnert**, S Bautista, L Hartmetz, J Tibby, M Mariani, H Cadd, T M Shanahan

1849759 *A LATE GLACIAL AND HOLOCENE MULTI-PROXY PALEOCLIMATE SEDIMENTARY RECORD FROM AFRICA'S LARGEST AFRO-ALPINE ECOSYSTEM, THE BALE MOUNTAINS IN SOUTHEASTERN ETHIOPIA:* **S G Chernert**, C De Jonge, L Bittner, M Bliedner, G Gil-Romera, B Lemma, R Zech, B Glaser, T Bromm, W Zech, M Zech

1948823 *Abrupt Climate Change Impacts on Nutrient Fluxes in the Mozambique Channel:* **M Hassan**, J C Latimer, C Yost

1914066 *An Emerging Consensus on Paleo ENSO: Is More Extreme Variability on the Horizon?:* **P DiNezio**

2005267 *Changes in ENSO Influence during the 4.2ka Event:* **S Dang**, X Zhang

1864450 *Changes in Global Monsoon Precipitation During the Last Deglaciation:* **M Parish**, X Du, J M Russell, J Hu

1920615 *Changes in Texas Rainfall Characteristics During the Deglaciation in Speleothem Proxies and Water Isotope-enabled Model Simulations.:* **J Yin**, S Dee, J Abella-Gutiérrez, D Breecker, A Janelle, N R Miller, S L Loewy, J Banner, C He

1979298 *Congolese Rainforest Stability Despite Hydroclimate Variability Over the Last 1.1 Ma:* **A Mason**, J M Russell

1965584 *Decomposing the Roles of Earth's Axial Tilt and Orbital Eccentricity on Tropical Precipitation Seasonality and Associated Atmospheric Overturning Circulations:* **T J Meem**, J Chiang

1891236 *Delayed Holocene rainfall maximum relative to monsoon intensity revealed by stalagmite Sr isotopes in northwestern monsoonal China:* **H M Hu**, H Wu, L Tan

1849066 *Environmental Magnetic and Sedimentological Records of Monsoon Seasonality and Hydrographic Variation in the Southeastern Arabian Sea: A 50 ka Chronicle.:* **A Renny**, M Kawsar, M C Manoj, S Bikkina, B Phartiyal, J K P, R Mishra, B Thakur

1977961 *Evidence for a Mid-Millennium Shift in the Eastern Equatorial Pacific Thermocline: A Multi-Species and Multi-Proxy Water Column Reconstruction:* **K DeBellis**, K V Van Pelt, G T Rustic

1922539 *Has Industrial-Era Warming Already Triggered Thermodynamic Amplification of Indian Summer Monsoon Intensity?:* **A Dhar**, K Thirumalai, J W Partin, P Ghosh, R Subba, S C Clemens, H M Hu, S Belmecheri, B Rajagopalan, C C Shen

2002085 *Holocene Hydroclimate variations from Analyses of Lake Cores across South to North Transect of Pakistan:* **A Jehangir**, M B Abbott

1938015 *Indian monsoon Induced Runoff and Associated Productivity Changes During the Past 30 kyr from the Andaman Sea:* **R Fathima**, R Saraswat, Y Rosenthal, K Thirumalai

1986485 *Last Glacial Maximum Surface and Subsurface Conditions in the Central and Eastern Equatorial Pacific:* **M Ngo**, G T Rustic, J Slotter, K DeBellis

1998432 *Late Holocene East Asian Hydroclimate Change: The Tug of War Between Tropical and Polar Controls:* **Z Shen**, S Y Yu, L Zhou, R Geng, C Kong

1868511 *Late Pleistocene Stratigraphic Architecture in a Bahamian Karst Lake: Facies Associations and Chronology:* **A Posey**, P J van Hengstum, J P Donnelly, A Tamalavage, R Sullivan, P L Fall, E J Wallace, N A Albury

1913677 *Latitudinal leaf wax gradients offer constraints on past shifts in storm tracks:* **T Bhattacharya**, R Feng, J Zhu, C B Rubbelke, A Thompson

1858585 *Limits and Limitations of ITCZ Influence on Tropical South American Precipitation Since the Last Glacial Maximum:* **B L Konecky**, A Mauceri, B W Bird, G A Rodriguez Abaunza, J Escobar, B A Steinman

1867583 *Major Hydrographic Shift During Termination II (MIS 6/5 Transition): Evidence from Planktic Foraminiferal Assemblages and $\delta^{18}\text{O}$ Records at Site U1475, Agulhas Plateau:* **D Verma**, P Govil

- 1935115** *Millennial-to-orbital-scale registers of hydroclimate in archeologically important Oriental Basin of Mexico since the last glacial and influences of possible AMOC modes:* **P D Roy**, O A García-Arriola, J L Sánchez Zavala, P Girón-García, S Selvam
- 1986349** *New Analysis of 1.1 Ma Lake Bosumtwi Drill Core, Ghana, western Africa:* **L Streib**, S J Armitage, T Bhattacharya, C A Scholz
- 1889890** *Precession-driven Periodic "wetting" across Different Low-latitudes Regulated by Shifting Perihelion:* **H Yang**, X Shi, X Wang, L Qingsong, Y Zhong, Y Sun, X Liu, Y Cai, G Lohmann, M Werner, Y Hu, H Cheng, Z Jian, D Chen

248968

Advances in Speleothem Science: New Records, Methods, and Applications

Conveners: **Elizabeth Patterson**, Lafayette College;
Benjamin Tiger, Massachusetts Institute of Technology;
Sayak Basu, National Institute of Oceanography;
Cameron de Wet, University of California Davis; **Calen Rubin**, Boston College

- 1908711** *2,500 years of NAO-driven westerly shifts, storminess, and hydroclimate extremes recorded in a Scottish coastal speleothem:* **K Xie**, M R Lee, C Persano, J Faithfull, H Cheng, H Zhang, J H Lacey, T Lawson
- 1962452** *A 34-ka Speleothem Record of Orbital and Suborbital Climate Variability in Northwest Africa:* **K Azennoud**, Y Ait Brahim, J A Wassenburg, F Lechleitner, F W Cruz Sr, L Bouchaoua SR, H Cheng
- 1913622** *A Northwestern Canadian speleothem calcite $\delta^{18}O$ and TEX86 record from interglacial Marine Isotope Stage 11:* **M Wittmer**, D McGee, J D Shakun, P K Swart, A Martinez-Garcia, R Braun, A B Jost, J D Woodhead, N Sekhon
- 1981187** *Application of IBIS [Integrated Bayesian approach for unique Initial thorium corrections and age-depth models in U-Th dating of Speleothems] to Hato Cave, Curaçao stalagmites:* **C W Kinsley**, J Carter, J L Oster, B Lodge, B Belanger, I W Bolden, E M Niespolo, W D Sharp
- 1966755** *Forecasting California Coastal Precipitation Using Speleothem Reconstructions from Past Warm Periods:* **B Nirula**, S White, T Blackburn
- 1940983** *Hydroclimate-vegetation feedbacks drive Holocene temperature variability in Southeast Asia:* **S Basu, PhD**, E W Patterson, M L Griffiths, A Martinez-Garcia, K R Johnson, A Timmermann, F S R Pausata, D McGee, A Wolf, M Schmitt, S Tiwari, G M Henderson, J A Wassenburg

- 1846404** *Reconstructing Hydroclimate Variability from Heavy-Metal Discharge at the Majuro Atoll, Marshall Islands:* **J Hernández-Morales**, D Thompson, M Weerabaddana, E Reed, F Edwards, J Zigray, A Zilch
- 1958693** *Sabaran Greening as a Driver of South American Monsoon Drought:* **V Todd**, T M Shanahan, P DiNezio
- 1930493** *Speleothem constraints on Mainland Southeast Asia hydroclimate dynamics:* **K R Johnson**, E W Patterson, M Elizarraras Botello, H Yang, R J León, M L Griffiths, D McGee, G M Henderson, A B Jost, A Wolf, J Sae-Lim, PhD, T Bolger, Q Đỗ-Trọng, T Bui, M Xuân, J White
- 1938035** *Stalagmite-Inferred Terrestrial Silicate Weathering in Southern Monsoonal China from 145 to 115 Thousand Years Ago:* **C C Shen**, M Zhang, X Jiang, F Tong, Y Y Wang, Y Xiao
- 1858767** *Improving paleo-rainfall estimates using a Bayesian proxy system model of calcium isotopes in stalagmites:* **S Pederzani**, G J Bowen, C B de Wet, E M Griffith, E Scarpitti, J L Oster, I P Montanez, Y Burstyn, E A Atekwana, M T Hren, Z Wang, A Zyba
- 1944269** *Interglacial Temperature Instability in East Asia Over the Past 450,000 Years:* **D M Cleary**, J A Wassenburg, K N Jo, A Timmermann, M Schmitt, S Basu, PhD, N Sinha, J Fiebig, Y Krüger, S Baek, H Vonhof, L Pasqualetto, R L Edwards, V Verjans, N Meckler, A Martinez-Garcia
- 1886390** *Multi-phased Response of Western U.S. Hydroclimate to HS 4:* **I P Montanez**, Y Burstyn, J Cziko, E A Atekwana, K Wendt, C B de Wet, S Macarewich, G J Bowen, E M Griffith, M T Hren, J L Oster, S Pederzani, Z Wang, A Zyba
- 1914257** *Paleotemperatures in midcontinental North America during MIS 3/2:* **J A Dorale**, D Stamatis, D M Cleary
- 1985731** *Precessional Forcing and East Asian Monsoon Dynamics: Insights from Isotope-Enabled GFDL Modeling:* **J E Lee**
- 1958575** *Prolonged and Wet Interglacials in Mesoamerica:* **M S Lachniet**, G Lucia, T Heming, Y Asmerom, V J Polyak
- 1864675** *Reconstructing MIS 5c Paleotemperatures from the Midcontinent: A Terrestrial Perspective on Climate and Hydroclimate Variability in North America:* **D Stamatis**, J A Dorale, D M Cleary, A Martinez-Garcia, B Elliott, H White, A E Tripathi, A Zyba, J L Oster, T Huth, J Hutchings, B L Konecky
- 1873844** *Speleothems reveal staggered freshwater pulses and solar-ocean coupling shaped the Younger Dryas structure:* **Y Ait Brahim**, K Azennoud, F W Cruz Sr, J A Wassenburg, L Bouchaou, H Cheng

1941661 *Stable isotope anomalies in a Southern Caribbean stalagmite formed during the Common Era:* **B Lodge**, C W Kinsley, J Carter, W D Sharp, B Belanger, C Rocha Lima, S R H Zimmerman, I Bolden, E M Niespolo, A J Menicucci, J L Oster

251129

Advances in Understanding the Causes, Mechanisms, and Impacts of Quaternary Abrupt Climate Changes and Their Implications for the Future (joint with C, OS)

Conveners: **Chijun Sun**, Organization Not Listed; **Sophia Macarewich**, University of Michigan Ann Arbor; **Allison Lawman**, University of Texas at Austin, Institute for Geophysics

1921112 *A ^{10}Be Chronology of Moraine Construction in Lysefjorden, Southwest Norway, During the Late-Glacial Cold Reversal:* **K Westbrook**, A E Putnam, T Hall Collins

1972995 *A ^{10}Be Surface-Exposure Glacier Chronology from Lysefjorden, Southwestern Norway: Evidence for Scandinavian Ice Sheet Behavior During the Last Deglaciation and the Late-Glacial Climate Reversal:* **T Hall Collins**, A E Putnam, K Westbrook

1986103 *A Well-Preserved MIS 4 Paleoforest Offshore of Alabama Contains Evidence of Abrupt Climate Change:* **K L DeLong, PhD**, G L Harley, K Xu, A Reese, J Obelcz, K Moran, E Bergan, K Fontenot, B Owens, M E Vardy, Z Shen

1906519 *Baltic Ice Lake Outbursts and Their Modeled Influence on Abrupt Global Climate Change:* **N Stansell**, E S Klein, J M Licciardi, L Atkinson, S Turner, L Boccignone, N Cipra

1848183 *Climate multistability and its robustness against the Milankovitch cycles for the last 1 Myr:* **L Moinat**, C V  rard, D Goldberg, J Kasparian, T Gerya, M Brunetti

1984866 *Deciphering Two-Phase Global Hydroclimate Patterns During Heinrich Stadial 1: Insights from Model Simulations and Proxy Records:* **Z Zenker**, C Sun, B L Otto-Bliesner, J Zhu, S Macarewich, A E Lawman

1934259 *Global ocean oxygen variations on millennial timescales: toward a more quantitative picture?:* **Y Wang**, F Qian, K Costa, S Nielsen

1999788 *Stalagmite Dead Carbon Proportion Records Rainfall Variability in Central Vietnam:* **T Chung-Swanson**, K R Johnson, E W Patterson, G Santos, J R Southon, Z Wang, H Martinez De La Torre

1895092 *Substantial Holocene Hydroclimate Variations across Southern Mexico:* **T Heming**, M S Lachniet, Y Asmerom, V J Polyak

1977908 *Local variability and regional coherence in biomarkers during rapid warming events across Siberia since the Last Glacial Maximum:* **G Otiniano**, E K Thomas, J Brendryen, I Casta  neda, H Haflidason, D S Kaufman, S Mark, L Marshall, N McKay, M Melles, J Rodriguez, J M Salacup, J I Svendsen

1854865 *Millennial-scale Hydroclimate Variability in Northern Africa during the Last Glacial Period: Evidence from Tunisian Stalagmite $\delta^{18}\text{O}$:* **Y C Chung**, H Dhaouadi, C C Shen, H Sepp  , A P Kaakinen, C Sp  tl, E Sbei, H B Ouezdou, A Demeny, I Hegyi, S Kele

1852795 *Modulation of Milankovitch scale climatic variation by global soil carbon sequestration:* **G Retallack**

2000992 *Ocean and climate impacts of southern expansion of the Cordilleran Ice Sheet:* **M H Walczak**, A C Mix, J R Alder, S K Praetorius, J S Stoner, B Reilly, J E O'Connor, K Stelling, S K Cargill, J T Donnenfield

1882471 *Prologue to a Drier Future in the Tropics: Lessons from Heinrich Stadial 1:* **P DiNezio**, T M Shanahan, T Sun, C Sun, X Wu, A E Lawman, D Lea, M Kageyama, U Merkel, M Prange, B L Otto-Bliesner, X Zhang

1977405 *Resumption of the California Current during the Bolling-Aller  d following a collapsed glacial state:* **S K Praetorius**, J Tierney, J A Addison, A Condron, L Bramschreiber

1895042 *Southern Ocean response to a rapid retreat of the West Antarctic Ice Sheet:* **J Schnaubelt**, C R Tabor

1931281 *Stromatolites Provide a Window into Interannual Climate Oscillations During the Early Eocene Climatic Optimum: From the Mineralogical Perspective:* **J Cheng**, H Xu, T Hill, M Baddouh, J Ji

1940005 *The Ocean Heat Valve: An Updated Framework for Global Oceanic Coupling of Glacial Abrupt Climate Change:* **C Buizert**, A Abe-Ouchi, G Vettoretti, X Zhang, Y Kuniyoshi, S Shackleton, S Rasmussen, E D Galbraith, T F Stocker, J Pedro

1877486 *The "900 Kyr Event" as an Ecological Tipping Point: Multi-proxy Evidence from the Southwestern Australian Margin:* **A Arrigoni**, W E Piller, B Petrick, B Mamo, B A Christensen, G Auer

1903916 *Tracking Global Carbon Cycle Variations Using Deep Pacific Benthic $\delta^{13}\text{C}$ Stack: Evidence for Exogenous Carbon Input During the MIS 5a - MIS 4 Transition:* **B Buyurgan**, J Lynch-Stieglitz, S Kirtland Turner

1896762 *Upper water column structure in the Indian sector of the Southern Ocean since the Last Glacial Maximum:* **M A Uy**, M A Berke, E L Sikes, N Umling, R Glaubke, J Cresswell, C Stirpe, Z Chase, S M Sosdian, R Williams

247502

Advancing Paleoclimatology by Combining Data, Models, and Theory (joint with A, C, OS)

Conveners: **Shouyi Wang**, Woods Hole Oceanographic Institution; **Rebecca Cleveland Stout**, University of Washington; **Charlie Marshall**, Rice University; **Brynnydd Hamilton**, Organization Not Listed

1977392 *A Bayesian Carbon Isotope Calibration for Benthic Foraminifera and its Application to Reconstructing Paleo Carbon Cycling:* **W Bagniewski**, M Osman, F Muschitiello, M A Aquino-López, A Rathburn

1981569 *A framework for proxy-model comparison of lacustrine carbonate clumped isotope thermometry records to variable climatic, tectonic, and lacustrine boundary conditions: A case-study from the Miocene Bidabochi Formation, Arizona, Navajo Nation, USA:* **E Heitmann**, T Kukla, K W Huntington, E J Cassel, H Germeau

1891018 *A GreenDrill Story: Stability and Response of Prudhoe Dome, Northwest Greenland to Holocene Climate and Implications for Future Sea Level Projections.:* **D Mangini**, C Walcott-George, A Balter-Kennedy, C Britt, J P Briner, J M Schaefer, B A Keisling, R Deconto

1892800 *Arctic warming during the past century was comparable to the largest millennial-scale events following the Last Glacial Maximum:* **C Hancock**, N McKay, M Erb, D S Kaufman, E K Thomas

1956843 *Assessing fluid inclusions in halite as a direct archive of ancient atmospheric $p\text{CO}_2$: A theoretical and experimental approach.:* **M N Hudgins**, J G Park, M F Schaller

1975811 *Assessing the Sensitivity of Paleoclimate Data Assimilation on the Great Barrier Reef Using Synthetic Coral Proxy Records of Sea Surface Temperature:* **H Hughes**, G L Foster, D Thompson, D M Surge, D Chan

1879887 *Constraining future global temperature projections using observational and paleoclimate analogues: a pixel-level analysis:* **A Al-Yaari**, D Swingedouw, V Portmann, T Caley, T Extier, C Martin-Puertas

1910269 *Constraining palaeotemperature-precipitation regimes in monsoonal Eastern Himalayas using glacier geomorphology and melt modelling:* **S Nitundil**, P Hughes, A Stone, C Darvill, D Fink

1974337 *Constraining the Cenozoic Silicate Weathering Feedback with an Idealized Bayesian Model:* **R Knight**, B B Cael

1922257 *What are the climate factors that determined when the Laurentide Ice Sheet grew or retreated?:* **K Koepnick**, J Zhu, M J Fu, E Tziperman

1862830 *Continuous Sediment Sourcing and Changes in Weathering during the PETM in the Salisbury Embayment:* **W Rush**, J C Zachos, T Blackburn, P Pogge von Strandmann

1901167 *Coupled Seasonal Data Assimilation of Sea Ice, Ocean, and Atmospheric Dynamics over the Last Millennium:* **Z Meng**, G J Hakim, E J Steig

1926813 *Deglacial Changes in the Northern Hemisphere Atmospheric Circulation Recorded by Tehuantepec Gap Wind Upwelling:* **J W Baldwin**, S C Sanchez, K B Karneuskas, D Meegan Kumar, F J Pavia, P A Rafter

1931584 *Detecting Nonlinear Solar-Climate Linkages over the Holocene with Convergent Cross-Mapping:* **J Landers**, J Emile-Geay, A James, S Munch, D Khider

1920726 *Evaporative carbonates record insolation driven melting in Antarctica:* **N Brigham**, J Giardino, T Blackburn, S M Tulaczyk, G Piccione, Postdoctoral Research Associate, S Kodama, C S Siddoway, J Gagliardi

1874176 *Expanding the Ecological Niches of Bacterial Tetraether Lipids and Implications for Paleoproxies:* **J Robare**, F Schubotz, G M Boyer, E Shock

1978399 *Explaining Variability in Shell-Based Oxygen Isotope Ratios in the Western North Atlantic Using a Proxy System Model:* **S Remaili**, N Whitney, B Williams, C Ummenhofer, A Biastoch, T Martin, A D Wanamaker, D L Thatcher, PhD, J Berg, A Hauser, H Sun, M Mette, A Walton, E Powell, R Mann, E E Hofmann, J M Klinck II, PhD

1878763 *Monsoonal Extremes Along the Eastern Tethys Margin During the Paleocene-Eocene Thermal Maximum.:* **A Crouse**, W Rush

1959275 *Multi-centennial spatial coherency among Atlantic tropical cyclones from simulated and reconstructed storm records:* **E J Wallace**, R Sullivan, S Dee, G A Vecchi, W Yang, K Emanuel

1955135 *Paleoclimate data assimilation of coral $\delta^{18}\text{O}$ indicates intensification of hydrological cycle over the 20th century:* **S C Sanchez**, F Zhu, C Saenger, D Thompson

1926362 *Paleoclimate data assimilation of the Pacific Walker Circulation:* **K J Anchukaitis**, J R Marlon, S Dee, M Tessler, A I Gonzalez Mendez, J Zhu

1923541 *Paleoclimate Data Assimilation Produces a Holocene Thermal Maximum:* **M Tessler**, J R Marlon, C Colose, A N LeGrande, G Elsaesser, E W Patterson, M L Griffiths

- 1869838** *Proxy/Model Synthesis of Streamflow in the Mekong River Basin Over the Past Millennium: A* **Bhattarai**, H T T Nguyen, PhD
- 1885944** *Quantitative Mid-Holocene Constraints on Future Arctic Winter Sea Ice Extent: C* **Y Fu**, M Osman, M A Aquino-López
- 1922755** *Reconstructing Bottom Water Temperature Distributions on the Mid-Atlantic Continental Shelf: N* **Sprague**, E E Hofmann, J M Klinck II, PhD, S Dangendorf, E Powell, R Mann, N Whitney, C Ummenhofer
- 1977513** *Reconstructing Bottom Water Temperatures in the Mid-Atlantic Bight During the Late Holocene Using Bivalve Shell Growth: N* **Whitney**, R Mann, E E Hofmann, E Powell, J M Klinck II, PhD, C Ummenhofer, S Dangendorf, N Sprague, M Spencer, A Watkins
- 1984295** *Reconstructing the carbon isotope composition of Phanerozoic atmosphere: Insights into global carbon cycling and secular proxy fidelity: D* **Harper**, G J Bowen, I P Montanez
- 1974603** *Reducing uncertainties in future climate projections using paleoclimate-informed model weighting: M* **Osman**, M A Aquino-López, B B Cael, C Y Fu, C M Brierley, P Martínez-Sosa
- 1935813** *Shifting mechanisms of climate stabilization across the Phanerozoic: R* **J Graham**, B B Cael, M J Fu, D S Abbot

248990

Applying Machine Learning to better reconstruct and understand paleoclimates and paleoecology (joint with B)

Conveners: **Dan Lunt**, University of Bristol; **Junxuan Fan**, Nanjing University; **Xin Ren**, University of Bristol; **Tianyi Chu**, Nanjing University

- 1973513** *Applying machine learning to unravel state-dependent vegetation feedback in deep-time climate simulations: T* **Chu**, D J Lunt, J Fan
- 1926612** *Automated Robot Prototype with Probabilistic “Decision-making” for Foraminifera Identification and Selection for Geochemical Analysis: W* **Zeng**, W Si, T Lee, S Long, A Hu, A Dasari, T Herbert
- 1911676** *Detecting Anomalous Grains in Scientific Ocean Drilling Legacy Cores – Potential and Pitfalls of a New Machine Learning Based Detection and Classification Approach: G* **Auer**, D De Vleeschouwer, A J Drury, A Seki, Y Kubo, M Ikehara, J Kuroda, O Bialik, B A Christensen, J Lyu, T Nohl, T Hechemer, N Okutsu, A S Lee, W E Piller, X Puentes-Jorge, J Yoshioka

- 1911515** *Steadier and Faster Global Warming Since 1850 from Integrating Instrumental Data, Proxies, and Simple Theory: D* **Chan**, G Gebbie, P J Huybers
- 1975281** *Testing the Role of Eccentricity-paced Seasonality in Tropical Ocean Productivity: A Model–Data Comparison: L* **Beaufort**
- 1932302** *The Evolving Boundaries and number of Oceans Basins Since the Late Cretaceous: M* **Bogumil**, T Mittal, C R Lithgow-Bertelloni
- 1851055** *The Holocene Seasonal Temperature Conundrum: Z* **Liu**, J Cheng, Y Zheng, H Liu, W Zhang, H Wu, J Zhu, S Xie
- 1948939** *The Response of ENSO Diversity and Asymmetry to Mid-Holocene Climate: Revealed by Proxy Records and Model Simulations: G* **Sato**, X Du, J Zhu, P DiNezio, B Molina
- 1859713** *Top-of-atmosphere radiation fields over the last millennium reconstructed from proxies: D* **Stiller**, K Armour, G J Hakim
- 1943469** *Ultra-High Spatiotemporal Resolution Reconstruction of the Climate around Japan with a Large Ensemble of Climate Simulations and Old Documents: A* **Okazaki**, Y Tajiri, K Ito, S Watanabe
- 1999901** *Zonal hydroclimate dipole in Central US controlled by North Atlantic Subtropical High over the last 20,000 years: C* **Sun**, D Fastovich, T M Shanahan, T Bhattacharya, S Jackson, J M Russell, J W Williams
- 1857712** *Extracting Paleoweather from Paleoclimate: Deep Learning Approaches to Reconstructions of Atmospheric Blocking and Related extremes.: C* **Karamperidou**
- 1880459** *High-Resolution Paleoclimate Fields via Diffusion-Based Downscaling: D* **Khider**, A Kemanian
- 1857702** *Learning from the Past: Climate Model Emulators and Paleo Constraints for Efficient Climate Simulation: D* **Watson-Parris**
- 1849266** *Machine Learning-Based Lithological Distribution Modeling for Evaluating Paleoclimate GCMs: L* **Chen**, P J Valdes, A Farnsworth
- 1862750** *New insights into reconstructing past wildfires: calibrating fire biomarker proxies in marine sediments using random forest models: N* **A O'Mara**, P deMenocal, K T Uno, J E Tierney, G Winckler, J Marlon, P J Polissar
- 1964923** *OneStratigraphy Database: Enabling curation of large proxy datasets and precise calibration to geological timescales: J* **Fan**, J Yang, X Ma, Y Shi, X Hou
- 1985208** *Ordovician Latitudinal Temperature Gradient Evolution Revealed by Calibrated Isotopic Proxy Records: X* **Ma**, J Fan

248905

Arctic and Antarctica: Geochemical and Geophysical Insights into the Geological Evolution and Climate Feedbacks in Polar and Sub-Polar Regions (joint with C)

Conveners: **Fabio Florindo**, INGV National Institute of Geophysics and Volcanology; **Livio Ruggiero**, CNR National Research Council; **Alessandra Sciarra**, Istituto Nazionale di Geofisica e Vulcanologia

1886955 *A Biomarker-Based Reconstruction of Holocene Sea Ice, Productivity, and Terrestrial Inputs in the Southern Chukchi Sea:* **K Jin**, A de Vernal, R S Pickart, M Chen, G Otiniano, T J Porter

1975106 *Antarctic Geologic Evolution (AGE): SCAR Science Program Planning Group to Unveil the 4D Lithospheric Architecture and Dynamics of Antarctica:* **G M Ferrante**, J Jacobs, F Ferraccioli, A Läufer, L Crispini

1981534 *Do Polar Marine Sediments Hold a Record of Anthropogenic Climate Change?:* **M Keogh**, E Eidam

1954468 *Forcings of East Antarctic Ice Sheet Expansion and Stabilization during the Miocene:* **J Nirenberg**, T Herbert

251639

Carbonate Sediments Through Time: processes of deposition and diagenesis (joint with B, EP, GC)

Conveners: **Mingfei Chen**, Lawrence Berkeley National Laboratory; **Mohammed Hashim**, University of Southern California; **Miquela Ingalls**, University of Colorado at Boulder; **Julia Wilcots**, Organization Not Listed; **Julia Wilcots**, Organization Not Listed

1845546 *Carbonates through Time, Through Time: A Database of Published Carbonate U-Pb Ages from the Last Decade and Beyond:* **M Cantine**, S Kainz, S Jones, A Gerdes

1932556 *How Has Fabric-Selective Diagenesis Impacted The Chemistry Of Shallow Water Carbonates In Early Cretaceous Anoxic Events?:* **C Rodriguez**, M D Nadeau

1950801 *Investigating the Role of Water-rock Alteration and Solid-state Bond Reordering on Siderite Clumped Isotopes (Δ_{47}):* **R He**, M K Lloyd, B Currie, M Ingalls

1884054 *Mg isotopes revealing dolomitization during dynamic redox conditions above the Great Unconformity:* **X Wang**, L Dong, C Li, Z Lu

1908428 *Methane Fluxes Spatialization from Chamber Measurement to UAV and Sentinel-2 in the Alaskan Arctic Tundra Environment.:* **S Ponti**, V Chaturvedi, F Caccia, F Grifoni, C Casiraghi, R Fulweber, C Edgar, D Ieffa, L Tonin, G Terzoli, A Longhi, F Malfasi, N Cannone, M Guglielmin

1940037 *Paleoclimate of the Antarctic Peninsula from the Late Cretaceous to the Eocene:* **D Sepulveda**, H Tandy, S Marensi, R Eagle, A Aragon, A E Tripathi

1893373 *Permafrost dynamics in Taylor and Wright valleys, McMurdo Dry Valleys, Antarctica:* **L Ruggiero**, A Sciarra, G S Wilson, A Mazzini, F Florindo, C Mazzoli, J Anderson, G Leonard, T Brakering, J Beagley, R Hardie

1904613 *Reconstructing Lower Circumpolar Deep Water Variations During Glacial-Interglacial Periods with Ferromanganese-Coated IRDs from the Drake Passage:* **S CHU**, K Yoo, H Hwang, K Yang

1992204 *Seismic and Greenhouse Gases Monitoring in the Lower Taylor Valley (McMurdo Dry Valleys, Antarctica).:* **S Hailemichael**, P Baccheschi, A Sciarra, G S Wilson, F Florindo, J Beagley, C Mazzoli, L Davidson, L Ruggiero, C Berquist

1947497 *Petrographic and Isotopic Analysis of the late Cambrian Steptoean Positive Carbon Isotope Excursion (SPICE): Testing Facies as an Alternative to Global Carbon Cycling:* **S Brown**, M Saltzman, E M Griffith, C Pederson, J L Oster

1917864 *Platonic forms of ideal stalagmites - analytic solutions of the Franke model, with implications for isotope fractionation:* **T Ladd**, P Szymczak

1936677 *Revisiting the Paleogene Carbonate Paradigm in the Offshore Indus Basin, Pakistan: Biostratigraphic Framework, Facies Architecture, and Depositional Evolution:* **H A R Hassan**, K Liu, G Coletti, J Liu, L Twinomujuni, A Mohamed

1884733 *Spatially Resolved Deconvolution of Texture Formation and Initial Diagenetic Mechanisms in Carbonate Dendrolitic Microbialites:* **V Cassady**, V A Petryshyn, J M Bernhard, A Celestian, M Liu, A McCormack, K Perez, W Berelson, D J Bottjer, F A Corsetti

1910026 *Time-Capsule Concretions: Decoding the Diagenetic History of Carbonate Concretions in the Rohtasgarh Limestone, Vindhyan Supergroup, Sonbhadra District, India.:* **D Singh**, M Sharma, S K Pandey, B Pandey, N Dubey

1943217 *Triple Strontium Isotope Variations Reveal Environmental Changes in the Early Tonian:* **H Guo**, Y Song, J Wang, F Huang, J Hao

248401

Changing Oxygen in the Past, Present, and Future Ocean (joint with OS)

Conveners: Catherine Davis, North Carolina State University Raleigh; Rachel Alcorn, North Carolina State University; Alexis Berger, George Mason University Fairfax; Adina Paytan, University of California Santa Cruz

- 1901538** *A global perspective of Paleocene Eocene Thermal Maximum ocean deoxygenation using thallium isotopes:* **B Johnson**, F Qian, Y Wang, K Rodriguez, K Costa, S Nielsen
- 1901119** *A Multi-proxy Investigation on the Gulf of California Oxygenation During the Last Interglacial:* **K Rodriguez**, Y Wang, C Davis, F Qian, B Johnson, R Alcorn, L Tang
- 1983333** *Assessing the spatial and temporal extent of marine deoxygenation during the Late Devonian mass extinctions:* **T Putri**, M LeRoy, B C Gill, J Goodin, J D Owens, G J Gilleaudeau, M Remírez
- 1854571** *Changing O₂ and CO₂ in the Deep Northern Indian Ocean Since the Last Glacial Maximum:* **S Naik**, N Panigrahi
- 1945981** *Connection between Karenia brevis Blooms and Hypoxia over the West Florida Shelf: A Case Study of 2005:* **L Zhang**, M Li
- 1870826** *Global oceanic oxygen changes during the Penultimate Glacial Cycle:* **F Qian**, Y Wang, K Costa, S Nielsen
- 1856367** *Holocene climatic anomalies and their impact on oxygen deficient zone in the Bay of Bengal:* **M Salman**, R Saraswat, R N
- 1953005** *Magnetofossil proxy reveals Indian Ocean oxygenation and carbon storage changes since the Last Glacial Maximum:* **R Huang**, L Chang
- 1868588** *Northward Expansion of Tropical Atlantic Oxygen Minimum Zones: Biogeochemical Processes and Ecosystem Impacts:* **K Acosta**, L Frühe, J Kamau-Weng, M Rodrigue, V Pieribone, E Heffron, C Chang, L Sousa
- 1898447** *Ocean deoxygenation and reoxygenation between the last glacial interval and the Holocene: a global synthesis:* **C Davis**, R Alcorn, Y Wang, C J Somes, B Hoogakker, A Auderset
- 2002705** *Ocean Oxygenation and the End-Cretaceous Mass Extinction:* **Z Rao**, Y Liu, E R Kast, T Westerhold, C Deutsch, P Mateo, G Keller, S Moretti, M R Petrizzo, G H Haug, A Martinez-Garcia, D M Sigman

- 1971331** *Oxygenation and water column structure in the Gulf of California since the Last Interglacial:* **R Alcorn**, C Davis, Y Wang, K Rodriguez, M Wade, C Cook
- 1948945** *Paleoredox Reconstructions from the Deep Equatorial Atlantic Ocean across Eocene Thermal Maximum 3:* **C Pallone**, D McGee, S Kirtland Turner
- 2000359** *Plio-Pleistocene Evolution of the Eastern Tropical North Pacific Oxygen-Deficient Zone Recorded by Foraminifera-Bound Nitrogen Isotopes:* **M Lacerra**, J R Farmer, S Akiba, E Cruickshank, X T Wang, PhD, B Brown, S Oleynik, A S Studer, A Martinez-Garcia, G Haugh, D M Sigman
- 1909635** *Quantifying Sulfur and Oxygen isotope fractionation of sulfate transmembrane transport by SRB:* **L Chen**, Z Wang, Y Peng
- 1970325** *Reconstructing primary productivity and ocean anoxia in the southern sector of the California Current: a new opal and bulk geochemistry record from Tanner Basin:* **J A Addison**, S K Praetorius, B Caissie, J R Alder, C Smith, A J Wagner, B Finney, L Bramschreiber
- 1951831** *Redox Evidence for Pliocene Pacific Meridional Overturning Circulation (PMOC):* **A Hess**, M Remírez, J T Abell, N Burls, L A Hinnov, G J Gilleaudeau
- 1909247** *Reproductive Regime Shift in Response to Environmental Instability During the Little Ice Age in Santa Barbara Basin, California.:* **A Hamm**, L Jackson, N Kumar, I L Hendy, S Kahanamoku, D K Pak
- 1866762** *Simulated Ocean Oxygen under Miocene Boundary Conditions:* **J Berg**, K J Meissner, D K Hutchinson, B Pasquier, M Holzer
- 1903669** *Spatiotemporal Dynamics and Drivers of Coastal Dead Zones: Insights from Global and northern Indian Ocean Perspectives:* **F Yang**, L Resplandy
- 1883090** *The Grand Mirror of Isotope Anomalies:* **H Bao**
- 1927712** *TONIC - Transport of Oxygen and Nutrients in the California Current System: The Characterization of Biogeochemical Dynamics in the Southern California Bight:* **T Finn**, M G Prokopenko, A Cordova, T Arculli
- 1968856** *Tracing Oxygen Variability in the Northeast Pacific Over the Last 25,000 Years:* **E Cruickshank**, K Costa
- 1945789** *Vertical Expansion of the Oxygen Minimum Zone in the Eastern Arabian Sea During MIS 3 (32–48.66 kyr BP): A Multiproxy Approach:* **M Ansari**, A Ansari, R Mishra, C R Löscher, K Prasanna

250519

Climate and Environmental Evolution of the Last 5 Million Years (joint with C, OS)

Conveners: **Christo Buizert**, Oregon State University; **Ayako Abe-Ouchi**, AORI, University of Tokyo; **Peter Clark**, Oregon State University; **James Rae**, University of St Andrews; **Romilly Harris Stuart**, LSCE Laboratoire des Sciences du Climat et de l'Environnement

- 1970578** *A Basin-by-Basin Approach to Understanding Antarctic Ice Sheet Hysteresis Through the Plio-Pleistocene:* **A Gregory**, C Buizert, A Hudak, J Garbe, R Winkelmann
- 1902742** *A Multivariate Gaussian Process State-space Model for a Simultaneous Reconstruction of the Global Ice Volume and Regional Sea Surface Temperatures in the Early Pleistocene:* **T Lee**, W Si, T Herbert, S C Clemens, C Lawrence
- 1955165** *CO₂ explains most orbital-period variability and inter-hemispheric phasing during the late Pleistocene:* **J D Shakun**, P J Huybers
- 1889560** *Distinguishing Orbital-scale Parameters Impact on Temperature Variations through the Last 3.6 Ma:* **J Millot-Weil**, P J Valdes, A Farnsworth
- 1959473** *Eccentricity controls the magnitude and pacing of the early, middle, and late Pleistocene glacial cycles:* **S Kodama**, T Blackburn
- 1895584** *Environmental Change in the Zarqa Valley (Jordan) During the Plio-Pleistocene Climate Shift:* **J C Cerqueira**, G Scardia, C Prud'homme, F Ladeira, F Parenti, A Lamb
- 1951229** *Ice Sheets Without Dynamic Topography:* **B Parazin**, N A Gomez, F Richards, M J Hoggard, S Coulson, J X Mitrovica
- 1882528** *Increased and Varied Radiation during the Sun's Encounters with Cold Clouds in the last 10 million years:* **M Opher**, J Giacalone, A Loeb, E P Economo, A C Cummings, J L Middleton, C Zucker, J Miller, A Nica, M Hatzaki
- 1992613** *Isotopic Imprints of Eccentricity-Forced Coccolithophore Blooms Over the Past Million Years:* **J Dauvier**, L Beaufort, C Sonzogni, J C Mazur, C T Bolton, K Tachikawa, Y Lichterfeld, N Thouveny, W Rapuc, L Vidal
- 1891403** *Major Shift in Orbital-Scale Variability in the Western South Atlantic Thermocline:* **M V L Kochhann**, K Meier, M Campos, R Nascimento, T Santos, A Bahr, C M Chiessi
- 1966579** *Paleosols of volcanic island chains record intense weathering during peak interglacial climatic conditions:* **N D Sheldon**, F Hevia-Cruz, A Hildenbrand
- 1860646** *Palynological Constraints on the Pliocene–Pleistocene Boundary and Paleoenvironmental Change in the East Sea:* **S Yi**, Y Kim, D G Yoo, S H Hong, G S Lee
- 1940132** *Pleistocene to late Miocene ice core records of climate and atmospheric composition from Allan Hills, Antarctica:* **E J Brook**
- 1924729** *Potential of 10Be to trace the heliosphere's encounters with dense interstellar clouds in the last 10 Myr:* **A Nica**, M Opher, J Miller, J L Middleton, C Zucker, C Levy
- 1882975** *Records of Northern Hemisphere Glaciation and Warm Pool Expansion in Early Pleistocene Carbonate Sediments from the Magellan Seamounts:* **H KIM**, C Routledge, S KIM, Y Lee, K Yang
- 1967663** *Southern Ocean Sea Surface Temperature Gradients, the Southern Hemisphere Westerly Winds, and the Carbon Cycle:* **L Bayless**, B Markle, T M Marchitto Jr, U Ninnemann
- 1915506** *State Dependence of Millennial-scale Climate Variability from Multiple Datasets:* **T Shimokobe**, A Abe-Ouchi
- 1902907** *Stochastic Resonance Explains Why Ice Ages Appear and Disappear in a Changing Climate:* **T Xu**, G G Katul, S Hu
- 1926396** *Terrestrial Atmospheric and Climatological Responses to Recent (within 10 Mya) Encounters with Dense Interstellar Clouds:* **J Miller**, M Opher, M Hatzaki, N M Pedatella, S Misios, A Nica
- 1948871** *Towards a Global Scale Temperature Reconstruction for the Marine Isotope Stage 11 "Super-Interglacial":* **E Kraus**, M Osman, L C Sime, M Prange, X Zhang, F Neumann, E Capron, F Parrenin, P C Tzedakis
- 1919391** *Tracking Antarctic Ice Sheet Variability During the Mid-Pleistocene Transition Using Ice-Rafted Debris (IRD):* **N Athanasopoulos**, K Goode, L Bradtmiller, K Billups
- 1928018** *Triple isotopes of atmospheric oxygen as a proxy for carbon dioxide in altered Early Pleistocene ice core samples:* **A Banerjee**, E J Brook, C Buizert, T Sun, J Morgan, J P Severinghaus, R Beaudette, E Legrain, J A Higgins, S Shackleton, J Marks Peterson
- 1922884** *Using CESM2 Wind Simulations and Paleowind Direction Proxy Data to Examine the Consistency of Large-Scale Atmospheric Circulation in Different Climate States:* **A Wallin**, J L Conroy, S Levenhagen, C Karamperidou
- 1982556** *Vegetation Evolution in the Loess Plateau since 880 kyr: Responses to Hydrothermal Conditions Based on Evidence from Carbon Isotopes and n-Alkanes:* **B Zhou**, X Zhou, Y Lu, M Meadows

Climate of the Common Era

Conveners: **Sloan Coats**, University of Hawaii at Manoa; **Elizabeth Wallace**, Rice University; **Julie Edwards**, University of Arizona; **Kelsey Murphy**, Organization Not Listed

- 1927768** *A 500-Year Tree-Ring Reconstruction of Tropical Cyclone Precipitation in Peninsular Florida:* **G L Harley**, J T Maxwell, J C Bregy, R Thaxton, K King, C Tucker, M Rother, J Altman
- 1895038** *A 60-Year Reconstruction of Sea Surface Temperature Variability from a Central Red Sea Fossil Coral:* **H Baker**, S A Murty, I Plummer, A Johnson, K Rooney, K A Hughen
- 1902515** *A Bayesian Method for Computing Uncertainties of Tree-Ring Widths in Dendrochronological Studies:* **G Rhee**, D L Thatcher, PhD, G L Harley
- 1981482** *A Comprehensive Assessment of Superposed Epoch Analysis for Estimating Global Patterns of Volcanic Impacts in Climate Field Reconstructions:* **I Sugiura**, J E Smerdon, E Tejedor, M F Vuille, L M Polvani, PhD
- 1884134** *A five-hundred-year record of winter storms from treeline forests in coastal Alaska describe sudden shifts in North Pacific Decadal Variability:* **B Gaglioti**, D H Mann, S Mark, E R Cook, L Andreu-Hayles, G C Wiles
- 1921295** *A New R Implementation of Process-Based Models for Simulating Tree-Ring Widths And Densities:* **F Wang**, K J Anchukaitis, E Wise, A Friend, B Yang, J Edwards, X Jiang, M P Dannenberg
- 1927665** *A Paleo Perspective of Precipitation Extremes in the French Basque Country:* **J Tootle**, T L Mote
- 1916794** *Central Tropical Pacific Mean State and Decadal Variability Over the Common Era From a Lagoonal Ostracode $\delta^{18}\text{O}$ Record:* **S Lusk**, J L Conroy, B B Curry
- 1923631** *Constraining Paleostorm Frequency Using Resampling Statistics:* **K McKeon**, J P Donnelly, C G Piecuch
- 1875588** *Contemporary Wet Extremes in the Middle East in the Context of the Last Millennium:* **N Hartigan**, S Dee, K Murphy, N J Steiger, C Hancock
- 1892169** *Correcting the heartwood-sapwood transition in blue intensity measurements with change point detection methods:* **H T T Nguyen**, PhD, R Abernethy, R Wilson, D Druckenbrod, K Allen, B Buckley, E R Cook, R D'Arrigo, J G Palmer
- 2000835** *Deciphering Gulf of Mexico Variability Using Corals From Veracruz, Mexico:* **G Dolou**, C C Shen, K L DeLong, PhD
- 1947602** *European beech latewood density as a new proxy for temperature reconstruction:* **V Trouet**, L Verschuren, V Matskovsky, J Van den Bulcke, V Trouet
- 1994132** *Evaluating Temperature Signals in Wood Anatomical Properties of Siberian Pine and Larch in North-central Mongolia:* **C Leland**, N K Davi, L Andreu-Hayles, A Pacheco-Solana, J Edwards, B Nachin, R D'Arrigo
- 1923434** *Extremes in Tropical Cyclone Precipitation are Increasing across the Southeastern US: A Comparison between Coastal and Inland Locations:* **J T Maxwell**, J C Bregy, A Ezzati, G L Harley, M Ferriz Nunez, M Karvarinasab, M Rother, K King, S Robeson, J Altman, C Tucker, J Huffman
- 1879691** *Glacier Equilibrium-Line Altitude Change Across Alaska Indicates a Cold, Dry Little Ice Age and Weaker Aleutian Low:* **L J Larocca**, D S Kaufman, N McKay, M Erb, T Schultz
- 1919301** *Gulf of Alaska summer SSTs are supersensitive to past and present climatic drivers:* **J E Tierney**, S K Praetorius, B J L Jensen
- 1860756** *Hidden in the beams: Millennium-Long hydroclimate reconstruction from historical deadwood in Mediterranean Spain:* **E Tejedor**, D Mallen, M Dominguez, M Marín, L A Longares, M Á Saz, G Benito
- 1887417** *Hydroclimate2k: A New PAGES Database of Hydroclimate Proxy Records for the Common Era:* **G Falster**, N McKay, A R Atwood, C Hancock, B J Henley, M Jones, N Kaushal, M Morales, A Orsi, S Shah, L Smyth
- 1982164** *Hydrological Response and Temporal Instability in Climate-Growth Relationships in a New Tree-Ring Network Across Kentucky, USA:* **J Sharp**, M Rochner, N Pederson, J T Maxwell, A Heichelbech
- 1881511** *Independent validation of climate fields via forward modeling of borehole and documentary data:* **J Emile-Geay**, A Shang, T Gondhalekar, F Cuesta-Valero, H Beltrami, G J Hakim
- 1975709** *Instrumental Period QWA Climate Response of Picea engelmannii and Pinus alicaulis in the Greater Yellowstone Ecoregion:* **Z Foley**, G L Harley, K King, M Rochner, S A Collins-Key, M F Bekker, G von Arx
- 1913183** *Integrating Sedimentary Archives and Hydraulic Modeling to Reconstruct Past Flooding in New England:* **C Wiman**, M O'Donnell, S Pendleton, S E Munoz
- 1959219** *Investigating Drought Response and Paleoclimate Potential of a New Network of White Oak Chronologies in Western Kentucky, USA:* **A Heichelbech**, J Sharp, M Rochner
- 1867315** *North Atlantic Subtropical High Variability During the 16th To 19th Centuries and Its Relevance to the Transatlantic Slave Trade :* **G Walker**, S Coats, G Falster

- 1924511** *Pacific Decadal Variability drove decadal hydroclimate extremes across Pan-Pacific landmasses in the 21st century and over the last millennium:* **A H Cheung**, J E Smerdon
- 1887338** *Paleoclimate-informed model simulations to test the link between tropical Indo-Pacific SST variability and mid-latitude megadroughts:* **G Falster**, N J Abram, S Wong
- 1915536** *Reconstructing ENSO Variability in the Central Equatorial Pacific Throughout the Last Millennium:* **T Conklin**, A R Atwood, K M Cobb, H Sayani, D Gebregiorgis, PhD, J R Southon, A Doggett, N Mobasher, R L Edwards
- 1904321** *Reconstructing Summer Monsoonal Hydroclimate Variability Over Mainland Southeast Asia Using Proxy-Constrained Isotope Data Assimilation During the Last Millennium:* **J Sae-Lim**, PhD, K R Johnson, M L Griffiths
- 1882915** *Reconstruction of Japan's Cold-Season Climate in the Past Several Hundred Years Using High-Resolution Multi-Proxy:* **N Hasegawa**, K Yasue, T Mikami, H G Takahashi, M Zaiki, H Yonenobu, J Hirano, F Kumon, N Hatano, G Katata
- 1850351** *Resolving Drought Drivers and Multidecadal Variability in East African Hydroclimate:* **S Russett**, J E Smerdon
- 1865857** *Sensitivity of the Last Millennium Reanalysis to Enhanced Proxy Networks:* **T Gondhalekar**, J Emile-Geay, D Khider, A Shang, N McKay, D Edge, G J Hakim, Z Meng
- 1871095** *Southeast Pacific Climate Variability since 1850 AD from a Multi-Colony Coral $\delta^{18}\text{O}$ Record from Easter Island/Rapa Nui:* **M Illing**, D Mucciarone, R B Dunbar
- 1965928** *Subtropical High Patterns During the North Atlantic Hurricane Season Since the 14th Century: Implications for the Bermuda High Hypothesis:* **J C Bregy**, J T Maxwell, E J Wallace, G L Harley, S Robeson, V Trouet
- 1920696** *The first streamflow reconstruction using Blue Intensity of tropical tree-rings from Vietnam:* **R Oelkers**, H T T Nguyen, PhD, B Buckley, H M Phung, B Q Nguyen, O T Nguyen, N C Le
- 1911209** *THE SUB-SAHARAN DROUGHT ATLAS (SSDA): A NEW PRODUCT FOR INVESTIGATING THE HISTORY AND CAUSES OF AFRICAN HYDROCLIMATIC VARIABILITY OVER THE LAST MILLENNIUM:* **E R Cook**, M Biasutti, B Fosu, B Buckley, J E Smerdon
- 1989396** *The utility of resin ducts in reconstructing extreme climate events:* **S A Collins-Key**, M F Bekker, S Germain, M Rochner, G L Harley, G von Arx
- 1889348** *Towards a Tree-ring Reconstruction of Precipitation in Zambia:* **S Maxwell**, M F Bekker, J Speer, N Zampieri, J Ngoma, C Mulenga, P Ng'andwe, F Munalula, P Krusic
- 1939038** *Tracking the Evolution of the Mid-Atlantic Bight Cold Pool Using a High-Resolution Ocean Model:* **A Watkins**, N Whitney, C Ummenhofer, S Ryan, A Biastoch, T Martin, E Powell, R Mann, E E Hofmann, J M Klinck II, PhD, N Sprague, M Spencer
- 1981378** *Understanding long-term hydrologic regime shifts in the French Broad River, Tennessee (USA) from a 1,500-year annual tree-ring reconstruction of streamflow:* **R Lombardi**, G A Tootle, L Davis
- 1921461** *Water isotopes in tree rings track neotropical climate dynamics:* **A I Gonzalez Mendez**, K J Anchukaitis, D Pons, K Morino, T Anderson, L Andreu-Hayles
- 1957552** *Astronomical Forcing in Aptian Carbonate Successions: Cyclostratigraphic Insights from the Brazilian Pre-Salt Province:* **G Fazio**, N B dos Santos, D R Franco, C G Leandro, R M Rocha, M Candido, J Willy Lopes Afonso Dr, E Paiva do Nascimento, B Moka Maffessoni, A Wiermann Dr, J Alejandro Moreno Alfonso Dr, J Cagliari, J F Savian, R I Trindade, A N Gomes Rodrigues
- 1987124** *Contrasting modes of cyclicity, variability and noise in contrasting Triassic-Jurassic basin contexts correlate with pCO₂ levels: Eastern North American Rift Basins vs. Colorado Plateau alluvial plain.:* **P E Olsen**, J H Whiteside, M F Schaller, J Stine, C J Lepre, D Tibbits, F Apen, C Chang, S Kinney

255233

Cyclostratigraphy and Astronomical Forcing of Earth's Paleoclimate System

Conveners: **Hamdi Omar**, ; **Linda Hinnov**, George Mason University; **Alex Villa**, MARUM - University of Bremen; **Yuxin Zhou**, Georgia Institute of Technology; **Hamdi Omar**,

- 2002416** *Analysis of cyclicity in the Paleocene Porters Creek and Nabeola formations of the Mississippi Embayment in the context of Paleocene hyperthermals:* **B F Platt**, J Murray

- 1991765** *Development of a Python-Based Tool for Cyclostratigraphic Analysis Focused on Exploratory Basin Studies:* **D R Franco**, J Alejandro Moreno Alfonzo Dr, A Wiermann Dr, C Ponte Neto, G Vanzan, R M Rocha, E Cristallini, V Mello Cunha, C Rodrigues, G Fazio, N B dos Santos, C G Leandro, M Fontana Michelin SR, M Candido, G da Silva Oliveira, P Paiva Chini, J Willy Lopes Afonso Dr, J Cagliari, T Santos, R I Trindade, J F Savian, A N Gomes Rodrigues
- 1960325** *Enhancing Chronostratigraphic Resolution in a Carbonate Succession Through an Integrated Cyclostratigraphic Approach:* **N Braun dos Santos**, G Fazio, D R Franco, C G Leandro, R M Rocha, J Willy Lopes Afonso Dr, M Candido, A Wiermann Dr, J Alejandro Moreno Alfonzo Dr, J Cagliari, M R Regado, J F Savian, R I Trindade, A N Gomes Rodrigues
- 2005233** *Gone with the Tilt: Obliquity-Modulated Monsoon Pulses in East Asia From the Triassic to the Neogene:* **S M Zhang**, V A Kravchinsky, R Zhang, L Sagnotti, Y Li, L Zhang, J Ferraro
- 1970398** *High-Resolution Age Model for Mid-Cretaceous Paleoclimate Events Using Cyclostratigraphy in the South Atlantic:* **C G Leandro**, J F Savian, D R Franco, R M Rocha, L R Tedeschi, M D R Bruno, G Krah, H C Jenkyns, S Robinson, A J Dickson, C Bottini, E Erba

247655

Drought, deluge, fire and heat - integrating proxy and model approaches to paleoclimate in the Western US (joint with A, B, GC)

Conveners: Sarah Feakins, University of Southern California; **Jessica Oster**, Vanderbilt University; **Yunlang Zhang**, University of Southern California

- 2003922** *Climate Variability and Ecological Response Across the Late Pleistocene and Holocene at Rancho La Brea: From Millennial Trends to Abrupt Shifts in Temperature and Precipitation:* **J George**, G M MacDonald, R Dunn
- 1987691** *A multi-proxy stalagmite record of climate change during Termination II in northern California:* **B Belanger**, W D Sharp, C W Kinsley, J L Oster
- 1950636** *Abrupt Climate Variability Across Late MIS 4 to Middle MIS 3 Captured within Leaf Wax Lipids from Fish Lake, Utah:* **J Vornlocher**, M O'Beirne, J P Werne, D W Marchetti, L Anderson, A Brunelle, J Morris, V Kraklow, M J Power, G E Lasher, M B Abbott

- 1966769** *Integrating Prediction Error Filter Analysis and Wavelet Transform in Cyclostratigraphy: A Multi-Method Approach Applied to Cretaceous Carbonate Wells:* **R M Rocha**, G Fazio, D R Franco, C G Leandro, J Alejandro Moreno Alfonzo Dr, J Willy Lopes Afonso Dr, N B dos Santos, M Candido, A Wiermann Dr, M Fontana Michelin SR, J Cagliari, J F Savian, R I Trindade, A N Gomes Rodrigues
- 1855679** *Launching TIMES: A Time-Integrated Matrix for Earth Sciences:* **J Kasbohm**, T Westerhold, A R Lam, B Hoenisch
- 1859865** *New Insights, Astronomical Solutions, and Insolation Forcing for Astrochronology, Cyclostratigraphy, and Paleoclimate Modeling:* **R E Zeebe**
- 1945782** *ORBITAL CYCLES RECORDED IN THE MIDDLE MIOCENE PEBAS WETLAND (WESTERN AMAZONIA):* **L Rigon Carneiro Duarte**, K G D Kochhann, M V L Kochhann, F Trentin, L M Leandro, C D'Apolito, J Villegas-Martín, R G Oliveira
- 1947354** *Orbitally resolved temperature and vegetation records from Lake Baikal, Russia, over the past 450 Ka:* **J Novak**, E R Lindemuth, A Prokopenko, J M Russell, M Pedrazzini, P Polissar
- 1953663** *Pliocene-Pleistocene Weathering Intensity in North China: Links to Temperature and Arctic Ice Volume:* **M Cao**, Z Wang, D B Kemp, R Zhang, Z Zhang
- 1862556** *Atmospheric River Activity During the Late Holocene Exceeds Modern Range of Variability in California:* **C Knight**, L Anderson, L Presnetsova, M Champagne, D Wahl
- 1994995** *Comparison of fire weather index (FWI) from transient climate model simulations with sedimentary charcoal records from the western US since the LGM:* **C B de Wet**, P Harring, A Pape
- 1957506** *Controls on Western US Interior Water Cycling over the Holocene: Investigating Water Isotope Trends in iCESM and Ferricrete Proxy Data:* **E Nigro**, S Macarewich, J Zhu, C P Chamberlain
- 2002584** *Converging seasonal hydroclimate trends during the Holocene across the central Rocky Mountains detected by leaf-wax hydrogen isotopes:* **B N Shuman**, J Raberg, J McFarlin, L Curtin, I Stefanescu, A Muscott, D J Larsen
- 1952889** *Evolution in Water Provenance of West Coast Atmospheric River Events:* **A N LeGrande**, H Bong, C M Naud, C Ordaz
- 1888701** *Extending Drought Risk Assessment Through the Past Millennium: Machine Learning Integration of Paleoclimate PDSI and Modern USDM Data:* **D Medlin**

1917714 *Glacial Lake Mojave core sedimentology, chronology, and initial lake state interpretations.:* **M Kirby**, H Dickey, J Stephen, M Gibertoni, A Daneshmand, A Ruiz, G Piccione, Postdoctoral Research Associate, D E Ibarra, D Quiroz, K Mai

1900287 *Increased Moisture in Northern California During Heinrich Stadial 4:* **C Arney**, E Scarpitti, H Jiang, B Belanger, L Pendergrass, J L Oster, W D Sharp

1859191 *Intra-Ring Stable Isotope Analysis of Trees Growing in Wet Environments: An Ideal Comparison for Fossil Trees:* **I Pal**, R Hood, B Schubert, A H Jahren, W E Lukens, E Habib

1915028 *Isotopic Evidence of West Coast Hydroclimate Change During the Last Interglacial:* **A Thompson**, T Bhattacharya, S Bullinger, L Weisbeck, H Atkins

253350

Emiliani Lecture

Conveners: **Jessica Oster**, Vanderbilt University; **Matthew Kirby**, California State University Fullerton; **Sylvia Dee**, Rice University; **Christopher Kinsley**, Berkeley Geochronology Center

248041

Extreme Events and Hydrological Hazards During the Holocene and Common Era (joint with A, EP, H, NH)

Conveners: **Joshua Bregy**, Clemson University; **Emily Elliott**, University of North Carolina at Chapel Hill; **Clay Tucker**, University of Southern Mississippi; **Ray Lombardi**, University of Memphis; **Lexie Thornton**,

1990036 *Assessing geomorphic controls on paleotempestite reconstructions to calibrate spatial and temporal records of tropical cyclone intensity along the Gulf Coast and eastern United States:* **L Thornton**, E Elliott, J C Bregy, E J Wallace

1962011 *Climate Change, Land-Use, and Flooding in the Midcontinental U.S.: Paleo-Perspectives and Future Implications:* **D Gibson**, B W Bird, M Wright

247755

Global Environmental Changes and Increased Biological Complexity in the Neoproterozoic and Paleozoic (joint with B, EP, GC, P)

Conveners: **Trent Thomas**, NASA Jet Propulsion Laboratory; **David Catling**, Arizona State University; **Mary Droser**, University of California Riverside; **Robin Wordsworth**, Harvard University; **Trent Thomas**, NASA Jet Propulsion Laboratory

1958548 *Paleohydrologic Analysis of Glacial Lake Mojave using Shoreline Tufa and Ostracod Valve Geochemistry:* **Y Cabrera**, G Piccione, Postdoctoral Research Associate, A Torres, A Dubey, N Chang, J Stephen, K Mai, A Daneshmand, M Kirby, D E Ibarra

1866145 *Plant wax record of hydroclimate over the last two glacial cycles at Bear Lake and Great Salt Lake, Utah:* **R So**, D E Ibarra, J Tierney, E Jagniecki, T K Lowenstein, A B Jost, K Olson, D McGee, S J Feakins

1960974 *The Role of the North Pacific in Shaping Western US Hydroclimate Across Past Climate States.:* **T M Shanahan**, V Todd, J M Klavans, P DiNezio

1953862 *Tracking Shifts In The Westerlies At Baboon Lakes, Central Sierra Nevada, California Over The Last 12,000 Years:* **M Spoth-Ascencao**, A F Diefendorf, J L Gill, B L Hall, A E Putnam, M C Corcoran, S A Mensing, D P Boyle, S Bassett

1923499 *Discriminating marine and terrestrial sediment signatures in Texas coastal wetlands: a multi-proxy and UAV-guided investigation of hurricane impacts:* **Q Yao**, K B Liu, L Flanagan, C Smith, D Sievers, H Williams

1909076 *Manganese-rich calcite layers in a western Scotland speleothem record storm-driven hydroclimatic changes during the Little Ice Age:* **K Xie**, M R Lee, C Persano, J Faithfull, H Zhang, H Cheng, D Fleitmann

1874952 *Seasonal Paleoflood Analysis Using Tree-Ring Wood Anatomy and Partial Duration Series of Stage Height Data in the Southeastern USA:* **M Mirzakhani**, M D Therrell, L Davis, A Amanambu, C N Jones, S St George

1881887 *Sedimentological Evidence of Tropical Cyclones Events From the Changjiang (Yangtze River) subaqueous delta and its distal muds:* **F He**, C Xue, C Xu, J Jia

1930903 *Bilaterian Origins Re-examined Through the Lens of the Deuterostome Fossil Record:* **K Nanglu**

1963213 *Discovery of the Oldest Fossils of the White Sea Assemblage from the Mackenzie Mountains, Northwest Canada:* **S Evans**, E A Sperling, K V Lau, J V Strauss

2001245 *Ediacaran time-averaged ultralow field and the Avalon explosion:* **J A Tarduno**, J Schneider, W Huang, M Ibañez Mejia

- 1896815** *Enhanced Chemical Weathering during the Termination of the Ediacaran Ice Age: A Possible Fuse of Early Animal Evolution?*: **R Wang**, B Shen
- 1903711** *Hyalophane: An overlooked sedimentary barium mineral and its implications on past seawater sulfate concentration and paleo-productivity*: **T Han**, Z Lu, H Bao
- 1958093** *Neoproterozoic Biomarker Records: Secular Trends and Local Environmental Impacts*: **A Rizzo**, A Bekker, Y Xiong, K E Karlstrom, F Macdonald, S W Poulton, G D Love
- 1929146** *New Genomic Data Challenges Purported Evidence for Neoproterozoic Animals*: **T Brunoir**, D A Gold
- 1873383** *Repeated Snowball-bothouse cycles within the Neoproterozoic Sturtian Glaciation*: **C Minsky**, R Wordsworth, D Johnston, A H Knoll

252727

Informing future prediction with paleoclimate information – lessons from Cenozoic warm intervals

Conveners: **Ran Feng**, University of Connecticut; **Tripti Bhattacharya**, University of California Berkeley; **Harry Dowsett**, USGS; **Heather Ford**, University of Cambridge

- 1904135** *A new Eocene to Oligocene stable isotope record from the Southwest Pacific — climate, productivity and intermediate water ventilation at IODP Site U1553, Campbell Basin, New Zealand*: **I L Hendy**, D Mendoza Mares
- 1959767** *Comparing Low- and Mid-Latitude Seasonal Amplitudes Using Clumped Isotopes as recorded in Plio-Pleistocene *Mercenaria* spp.*: **G Braniecki**, D M Surge, E Hyland
- 1864150** *DeepMIP-Eocene Phase 2: Experimental design and impact of new paleogeography and vegetation*: **D J Lunt**, N Wright
- 1913268** *Dynamic Mechanisms Govern Pliocene Climate in Northwestern South America*: **L C Pérez-Angel, PhD**, J M Russell, I Tribe, M F Almanza, W Avellaneda
- 1863100** *Early Pliocene Sea Surface Temperature*: **H J Dowsett, PhD**
- 1894337** *Effect of Early Eocene Paleogeography on Large-scale Atmospheric Circulation*: **F D Kelemen**, R Lohmann, J Zhu, B Ahrens
- 1916168** *iCESM1.3 contributions to Pliocene Model Intercomparison Project 3*: **R Feng**, B L Otto-Bliesner, H J Dowsett, PhD, A C Sarr, J Schnaubelt, J Zhu

- 1935464** *Seafloor Weathering Explains the Disparate Durations of Neoproterozoic Snowball Earth Glaciations*: **T Thomas**, F Macdonald, D C Catling
- 1956342** *Seasonal O₂ Availability Impacted the Emergence and Diversification of Ediacaran Fauna*: **É A Laffèche**, R N Bryant, B P H Metzger, S L Olson
- 1929714** *Snowball Earth: Surface Controls on Ice Thickness and Photosynthesis*: **V Martiny**, A R Khuller
- 1897870** *The C₃-Plant Proxy: A Step-By-Step Guide for Determining Paleo-CO₂ from the Carbon Isotope Value of Terrestrial Organic Matter*: **B Schubert**, A H Jahren
- 1975731** *The Great Oxidation Event (GOE): Biogeochemical Feedback and Tipping Points*: **A P Ingersoll**
- 1908445** *Is There A Systematic Mismatch For Warm and High CO₂ Cenozoic Climates Between Mid To High Latitude Temperatures Reconstruction And Simulation?*: **G Ramstein**, N Tan, F Fluteau, Z Zhang, P O Hopcroft, N Burls
- 1891189** *Past warm climates inform the future South Asian summer monsoon*: **L He**, T Zhou, Z Guo
- 1927392** *PLIO-CLEM: A Statistical Pliocene Climate Emulator for Simulating Transient Climate Response and Ice Volume Variability*: **T Deneau**, C R Tabor
- 1872136** *Pliocene Asian Monsoon: Continental and Marine Perspectives*: **H Lu**
- 1863202** *Quantitative Reconstruction of Climate and Environmental Conditions in the East Asia Monsoon Marginal Zone during Pliocene*: **H Zhang**, C Chen, J Yu, M Wu, S Jiang, X Zuo, H Lyu, C Zhao, H Lu
- 1970343** *Resolution and State Dependence of Atmospheric River Activity in Response to CO₂ Forcing*: **S Macarewicz**, B L Otto-Bliesner, J Zhu, E C Brady, R Feng, C R Tabor, J M Lora, C Sun, J E Tierney, F S Castruccio
- 1981088** *Super-Interglacial Period Offers Evidence of Perturbed Nitrogen Cycle in the Southwest Indian Ocean*: **M Robinson**, R S Robinson, N Storozhynska, R P Kelly
- 1926243** *The PETM is not that hot in TEXAS: Reconstructing hyperthermals with a proxy system model for tetraether lipids*: **R Rattanasriampaipong**, J Tierney, F Elling, G N Inglis
- 1864523** *The Role of Palaeogeography, CO₂, and Ocean Circulation in the Simulation of Early and Late Pliocene Climate*: **A Haywood**, J Tindall, S J Hunter
- 1959986** *Tropical Indian Ocean Variability from the Pleistocene to the Pliocene: Evidence from Ninety-East Ridge*: **R Glaubke**, K Thirumalai, H L Ford

1891661 *Understanding Indonesian Throughflow dynamics during the Late Miocene and Early Pliocene using multiple SST proxies: A new record from IODP Site U1482:* **B Petrick**, A Holbourn, J Joehneck, W Kuhnt, F Elling

251246

Integrating Past Environmental Changes within the Context of Human Evolution through Proxy and Modeling Frameworks

Conveners: **Sayak Basu**, National Institute of Oceanography; **Elke Zeller**, University of Arizona; **Jasper A. Wassenburg**, Pusan National University; **Kevin Uno**, Harvard University

1868024 *Closing the Proxy-Model Gap for the African Humid Period by Accounting for Vegetation Feedbacks:* **F S R Pausata**, S Tiwari, A N LeGrande, M L Griffiths, P O Hopcroft, H Beltrami, A de Vernal

1854923 *Environmental Niche of Late Pleistocene Humans in Africa:* **E Hallett**, M Leonardi, A Manica, E Scerri

1942339 *Fraction Woody Cover from n-Alkane Distributions and their Carbon Isotopes: Validation Using Modern Soils and Applications to the Hominin Fossil Record:* **K T Uno**, R Tweedy

1975827 *Influence of Lake Alkalinity on $\delta^{13}\text{C}$ Values of Aquatic Biomarkers:* **K Doiron**, S C Brassell, D E Colcord, A Shilling, I G Stanistreet, H Stollhofen, J K Njau, K D Schick, N P Toth

255219

Miocene climate dynamics: from poles to tropics and land to sea (joint with B, C, GC, OS)

Conveners: **Xiaoqing Liu**, Purdue University; **Anta-Clarisse Sarr**, University of Oregon; **Imogen Browne**, University of South Florida St. Petersburg; **Anna Ruth Halberstadt**, University of Texas at Austin; **Samantha Bombard**, University of Massachusetts Amherst

1993784 *A wetter middle Miocene Mediterranean climate enhanced by seasonality and orography in higher spatial resolution simulations:* **L Doyle**, R P Acosta, N Burls, M J Pound

2001633 *Bayesian application of integrated stratigraphy to generate probabilistic age models for the Miocene section of a latitudinal transect of North Atlantic sites (558, 563, 608, and 982):* **W Schmeltz**, R Keating, K Miller, J Wright, M Lyle

1951489 *Nibewan paleolake evolution and sediment provenance revealed by end-member modelling of size-shape distributions:* **P Stark**, M A Prins, C Beets, R van Balen, A P Kaakinen

1973729 *Reconstructing Malaria Dynamics in Ancient Athens through Paleoclimatic Modeling, Ancient DNA Analysis, and Interdisciplinary Insights: Implications for Historical Disease Burden and Future Climate-Driven Health Risks:* **J A Uelmen Jr**, F He, J Wilson, J Horn, J Littleton

1995068 *Reconstructing the Landscape of Olduvai Gorge: An Evaluation of Organic Geochemical Proxies:* **J D Smolen**, K T Uno, Z Chearavanont, T Ferland, B Mitsunaga, A Benito-Calvo, J K Njau, I de la Torre

1873266 *Site specific paleoenvironmental reconstruction in southern Africa by nitrogen and carbon isotopes of ostrich eggshell organics:* **M Dai**, E M Niespolo, G Dewar, J T Faith, V Hare, S Kivisto, A Kudriavtseva, J Pargeter, J Sealy, B A Stewart, D M Sigman

1869602 *Southeastern African Hydroclimate and Vegetation Change during the Mid-Pleistocene Transition: Initial Results from IODP U1474:* **C B Rubbelke**, M A Berke, N Burls

1962537 *The Paleoenvironmental Context for Homo sapiens Evolution and Development in Northwest Africa: Moroccan Hydrology, Vegetation, Fire, and Temperature Dynamics in the Late Pleistocene:* **B Mitsunaga**, A Dellinger, D McLean, J D Smolen, E Schefuß, H Kuhlmann, V Smith, N Barton, K T Uno

1863227 *Decoupled Tectonic and Climatic Signals across the Miocene in North China: Insights from the Cenozoic Evolution of the Weihe River Basin:* **H Zhang**, H Lu, Z Chen, H Lyu, W Lai, Y Zhou, F Lyu, S Li, J Chen

1983018 *Does Long-term Hydroclimate Evolution Drive Landscape Opening in Miocene Northwest Africa?:* **A Schartman**, P Polissar

1881551 *Evaluating Early Miocene Hiatuses in the Atlantic Deep-Sea Sedimentary Record:* **N Freedman**, J Kasbohm, E C Sibert, G Antell, A Auderset, I M Browne, MSc, PhD, J R Farmer, A Hess, A R Lam, K Matsuzaki, J A Smith, A Swain, A Woodhouse

1920808 *Global and Regional Benthic $\delta^{18}\text{O}$ Responses to Astronomical Forcing throughout the Miocene:* **L E Lisiecki**, B Hobart, S R Meyers, Y Zhou

1910164 *How did coral reefs survive the Miocene Climatic Optimum? Coral reefs survival and collapse in a warmer world.:* **B Petrick**, L Reuning, O Bialik, L Schwark, M Pfeiffer

- 1858779** *Is the grass greener in a high-CO₂ world? Paleobotanical analysis of Miocene terrestrial primary productivity:* **T Reichgelt**, C K West
- 1921481** *Miocene mega-wetland of western Amazonia: a climate and environmental outlook:* **F Trentin**, K G D Kochhann, L Rigon Carneiro Duarte, R G Oliveira, L M Leandro, J Villegas-Martín, M V L Kochhann, C D'Apolito
- 1919991** *Multi-proxy evidence of an active Atlantic Meridional Overturning Circulation in the Middle Miocene:* **W Si**, F Zhu, S Hines, K Thirumalai, J Zhu, J R Toggweiler, T Herbert
- 1924813** *Neogene Southwestern U.S. Temperatures Paced by Global Temperature Change:* **R Bernstein**, D Koning, A Maloney, S Spaur, K Hobbs, G Sanchez Ortiz, A Mulch, K Methner, D E Ibarra, K E Snell, J K Caves Rugenstein
- 1858831** *Plant biomarkers detect Messinian vegetation, climate and transport on the Iberian margin:* **Y Zhang**, X Feng, Z Liu, S Warny, G Jimenez-Moreno, M Teixeira, F J Hernández Molina, F J Rodriguez-Tovar, F J Sierro, S C George, M A Berke, R Flecker, E Ducassou, T Williams, S J Feakins
- 1933191** *Pollen-Based Climate Reconstructions Across a West Pacific Transect During the Miocene Climatic Optimum:* **K Izumi**, Y Yang, S Li
- 1883319** *Pollen-Based CREST Reconstructions of Miocene Rainfall on the Western Portuguese Margin:* **S Warny**, G Jimenez-Moreno, M E Gibson, S J Feakins, Y Zhang, R Flecker, E Ducassou, T Williams
- 1860060** *Reconstructing Mio-Pliocene Gulf Stream Movement Using Δ_4 -derived Ocean Temperatures and $\delta^{18}\text{O}_{\text{water}}$ Values:* **E Kim**, S V Petersen, H J Dowsett, PhD

252669

Modeling and Reconstructing Vegetation-Climate Interactions in the Past.

Conveners: **Elke Zeller**, University of Arizona; **Jed Kaplan**, The University of Hong Kong; **Anta-Clarisse Sarr**, University of Oregon; **Sophia Macarewich**, University of Michigan Ann Arbor; **In-Won Kim**, IBS Center for Climate Physics

- 1871874** *A Novel Isotopic Approach to Reconstruct Past Tree/Grass Ratios in Terrestrial Sediments:* **Z Wang**, X Zhou, B Zhou
- 1989296** *A Transient Simulation of Vegetation Dynamics from the Last Glacial Maximum to the Present:* **D Zhu**, J Zhou

- 1909671** *Sapropels lasting >700kyr in the Messinian Alborán Sea:* **S J Feakins**, Z Li, S C George, I Wulandari, F J Rodriguez-Tovar, S Warny, F Raad, D Baidya, Y Zhang, P Standing, B Balestra, M A Berke, T Williams, Y Li, E Ducassou, F J Hernández Molina, F J Sierro, R Flecker
- 1983256** *Spatiotemporal Variability of C₄ Grassland Expansion in the Central and South-Central Andes:* **I Azmi**, E Hyland, J M Cotton, S Hauswirth, A Ghosh, S Littleton, R Kellis, N Insel, M S Raigemborn, D Tineo
- 1955322** *Terrestrial paleotemperature and paleobotanical records point to late Miocene cooling and wetter Neotropical climates:* **E Stiles**, K W Huntington, C Garziona, C A E Strömberg, C Montes, J Escobar, C Jaramillo, A F Vanegas, C Perdomo, A J Schauer, Z Wang, D E Góngora, L Li, F Moreno, D L Dettman, L C Pérez-Angel, PhD, R López Camacho, A F Torrejano
- 1952486** *The Early Miocene: Investigating a Transformative Time for Marine Biota and Environments:* **A Hess**, J Kasbohm, G Antell, I M Browne, MSc, PhD, J R Farmer, A R Lam, K Matsuzaki, E C Sibert, J A Smith, A Swain, A Woodhouse
- 1967284** *The Miocene of the Western Ross Sea, Antarctica: The MCO and MMCT of DSDP Site 273:* **S Bombard**, R M M Leckie, D M Harwood, I M Browne, MSc, PhD, A Shevenell, PhD, F Stanchak
- 1871704** *The onset of the modern Antarctic Circumpolar Current:* **D Evangelinos**
- 1972346** *The Role of CO₂ and Orbital Configuration on Modulating the South American Monsoon System During the Miocene Climatic Optimum:* **H N Nadoya**, C R Tabor
- 1995717** *Using Regional Climate Models to Simulate Neogene Climates and Tectonic Mechanisms of Uplift in the Altai Mountains of Central Asia:* **J Sexton**, J W Baldwin, R P Acosta, F J Pazzaglia, J Galewsky, J Rugenstein
- 1980047** *An Analysis of the Environmental Drivers of C₄ Grassland Expansion in the Late-Miocene:* **G Hernandez**, J E Lee, F Zhu, J Zhu
- 1979243** *Assessing the Relationship Between Leaf Physiognomy with Climate and Primary Productivity of African Low-Latitude Floras:* **V Munyaka**, A Baumgartner, C Strömberg, K T Uno, R Kinyanjui, M Eamma, T Reichgelt, D J Peppe
- 1956954** *Biome.jl: A Flexible Package for Mechanistic Biome Simulations:* **C Lechartre**, V Boussange, J Kaplan, P Brun, N E Zimmermann
- 1893199** *Building Open Data Systems to Support Research into Past Vegetation-Climate Interactions at Local to Global Scales:* **J W Williams**, J Blois, A Dawson, S Dominguez Vidana, D Fastovich, S J Goring, S Wiles

- 1852499** *Climate responses to varying vegetation configurations during the Mid-Pliocene Warm Period.:* **E Zeller**, S Macarewicz, J Kaplan, A C Sarr, F Zhu, J Zhu, B L Otto-Bliesner, D E Amrhein, J W Baldwin, C Poulsen, M Tessler, J Tierney
- 1927045** *Drivers of Vegetation Change and Carbon Accumulation Over Land During the Last 130,000 Years:* **M Duque-Villegas**, T Kleinen, M Claussen, A Dallmeyer, V Brovkin
- 1900025** *Global Wetland Dynamics Since the Last Glacial Maximum Reveal Wetter Glacial World and Regionally Distinct Patterns of Change:* **M M Chikomo**, K L Callaghan, A D Wickert, J Austermann, Y Fan
- 1991054** *Holocene Radiative Forcing from Land Cover Change: Forest Cover Shifts and their Capacity to Modulate Climate:* **A Dawson**, J W Williams, B Blakely, R Morillo, S J Goring, B Pirzamanbein, J Lindstrom, J Lamoureux, M J Gaillard
- 1859469** *Impact of Complex Topographical Features and Local Climate Interactions on Vegetation Coverage in the Yarlung Zangbo Grand Canyon in the Qinghai-Xizang Plateau:* **B Zhao**, L Yang

254785

New and Developing Paleoproxies in Biomineralizers (joint with OS)

Conveners: **Shannon Doherty**, Allegheny College; **Shannon Doherty**, Allegheny College; **Laura Haynes**, Columbia University of New York; **Zan Stremler**, University of California Santa Cruz; **Zan Stremler**, University of California Santa Cruz

- 1943109** *Globorotalia truncatulinoides: towards quantifying a proxy for export productivity in the Gulf of Mexico:* **A Manoogian**, K Thirumalai
- 1927076** *A Multiple Genera Assessment of Coral Sr-U Paleothermometry in the Galápagos Islands, Ecuador:* **N Mobasher**, A R Atwood, J E Cole, L Rodriguez
- 1918671** *A New Coral Diagenesis and Physiology Framework for Improving Coral $\delta^{18}\text{O}$ Paleoclimate Reconstructions:* **L Rodriguez**, A R Atwood, K M Cobb, H Sayani, P R Grothe
- 1871728** *Crystallographic orientation of coccolith calcite as a key trait for phylogeny of the fossil and living Coccolithophores:* **M Utsunomiya**, K Hagino Dr, T Kogure Dr, J M Self-Trail
- 1901978** *Development of a Raman spectral proxy for tracking calcite saturation state in marine biogenic calcification:* **K Conner**, G Stauring, J Uchikawa, T M DeCarlo, P Dera, N J Hawco, S Sharma, C L Sabine, R E Zeebe

- 1883016** *Multiproxy Signals of Vegetation Dynamics, Wildfire activity, and Climate Change across the Permian–Triassic Boundary in the Mahanadi Basin of Lower Gondwana, India:* **D P Mishra**, S Murthy, D Uhl, V P Singh, R P Mathews, B Pandey
- 1864475** *Predicting floral composition with climate: Testing climate models with plant distributions:* **I C Romero**, S Macarewicz, S L Wing, J Y Park, F Zhu, J Zhu, B L Otto-Bliesner, C Jaramillo
- 1877445** *Unveiling the Late Paleozoic Climatic and Floristic Rejuvenation in the West Bokaro Coalfield, India: A Multi-Proxy Insights into Ecosystem Evolution:* **A Mishra**, U K Shukla, P Kavali, O Saha
- 1907664** *Unveiling the Late Paleozoic Climatic and Floristic Rejuvenation in the West Bokaro Coalfield, India: Multi-Proxy Insights into Ecosystem Evolution.:* **A Mishra**, P Kavali, U K Shukla, O Saha, G G P, S Bikkina
- 1960859** *Water transport traits modulate plant-climate interactions and icehouse and hothouse ecological transitions.:* **D J Peppe**, W J J Matthaues, J McElwain, S Macarewicz, D J Lunt, J D White, I P Montanez, W Jones, J P Wilson
- 1958767** *Establishing a geochemical-morphological proxy for calcification in an ecologically important marine mussel species:* **V Vriesman**, R Carlson, M Lewis, P Hounsel, A Samson
- 1982131** *Evaluating oxygen isotope temperature calibrations from Tridacna derasa and Hippopus hippopus to identify trends in sea surface temperature and regional hydroclimate:* **S Christiansen**, A Andrews, M Gannon, H Kostick, M E Mann
- 1908165** *Experimental oxygen isotope exchange in aragonitic coral skeletons: Implications for paleoenvironmental proxies:* **J Stolarski**, D Cisneros-Lazaro, A Adams, K Janiszewska, A Meibom
- 1898927** *Growing deuterium-labeled samples for visualizing the presence of water in coral skeletons:* **S Wheeler**, A M Gothmann, E Roth, B Ellis
- 1971933** *Influence of Coral Vital Effects on Geochemical Proxies During Environmentally Induced Coral Stress Events:* **M Deigan**, D Thompson, E Reed, M Weerabaddana, J Lough, N E Cantin, G Frank, D McGee, E Kabua-Tibon, F Edwards, D L Dettman, L Vetter, J Kirk
- 1979614** *Influence of Salinity on Trace Element Incorporation into Benthic Foraminifera Found in the Potomac River and Chesapeake Bay Estuary:* **A Burgess**, B N Hupp, T Nelson, M Brown, P Klug, J S Fehrenbacher
- 1873901** *Investigating the Genetic Response of Corals to Skeletal Manganese Labeling:* **E Roth**, A M Gothmann, J Porterfield

- 1940612** *Otolith Isotope Records Reveal Life-History-Specific Responses to the Deepwater Horizon Spill in Gulf of America Snappers*: **Z Stremler**, N Prouty, A W Demopoulos, A Paytan
- 1971064** *Planktic foraminifera distribution through the California margin Oxygen Minimum Zone*: **R Alcorn**, C Davis, L Ramos, J M Bernhard, K Wishner, S D Wankel, F Gomaa
- 1909454** *Preservation of molecular protein proxies in modern and fossil otoliths revealed by micro- and nanoscale imaging*: **A Owczarek**, L M Otter, D Cisneros-Lazaro, M Wojtas, M Mazur, A R Vieira, U Radwańska, J Stolarski
- 1969088** *Quantifying Diatom Silicification Rates During a Southern Ocean Spring Bloom*: **K Kimble**, I Dove, R P Kelly, L Bowman, M A Brzezinski, R S Robinson

252140

New Results in Scientific Ocean Drilling from the South Atlantic Ocean (joint with B, GP, OS, V)

Conveners: **Chris Lowery**, University of Massachusetts; **Rosalind Coggon**, University of Southampton; **Julia Reece**, Stanford University; **Jason Sylvan**, University of Southern California

- 1948468** *Automated Characterisation of Ocean Crustal Cores Using Computer Vision: A Case Study from the South Atlantic Transect*: **L Grant**, J Lington, E Carter, A Evans, D A H Teagle, T Belgrano, R M Coggon
- 1945287** *Carbon Uptake During Ridge Flank Hydrothermal Cementation of Breccias Across the South Atlantic Transect*: **R M Coggon**, E Carter, L Grant, A Evans, C Lowery, D A H Teagle, P D Kempton, M J Cooper, C Routledge, E Albers, J D Estep, G L Christeson, M Harris, T Belgrano, J B Sylvan, J S Reece, E R Estes, T Williams
- 1866922** *Changes in Deep-sea Sediment Sources over the past ~60 Ma in the Subtropical South Atlantic Ocean*: **S KIM**, M Aizawa, M R Kaplan, L Tamborrino, K Yang
- 1961889** *Eocene-Oligocene carbonate preservation and planktic foraminiferal assemblage changes at IODP Site U1558 in the western South Atlantic*: **C Lowery**, P Standing, C Borrelli, C Routledge
- 1962485** *Evidence for Cryptic Sulfur Cycling in Oxidic Sediments of The South Atlantic Transect*: **W Gilhooly III**, J Kallmeyer, T Treude, T Wilbrandt, J B Sylvan, B Kiel Reese, Y Wang, M Y Tsang, W Leavitt
- 1944681** *Evolution of Carbonate Burial in the Western South Atlantic from the Hot Eocene to the Cool Oligocene (and beyond)*: **C Borrelli**, C Lowery, C Routledge, A McIntyre, S F Pekar, L Matt, A R Lam, R K Koorapati, Y Jiang, R Hladyniuk

- 1912603** *Revisiting B/Ca and other anion element proxies in synthetic and biogenic carbonates: Insights from a unified framework and its implication for paleo-reconstructions*: **W Guo**
- 1898570** *Testing the ability of scleractinian coral skeletons to retain intra-skeletal water using deuterium labeling experiments and TGA-FTIR*: **A M Gothmann**, C Saenger, K Mikkelsen, E Ernst, P Wilson, Y Yang, J Patterson-LaBaw
- 1903768** *Tracing Deep-ocean carbonate dynamics in the North Atlantic since the mid-Pliocene using foraminiferal microstructure from IODP Site U1564*: **S Lee Takeda**, S Iwasaki, K Kimoto, R Horiuchi, N Harada, S Expedition 395
- 1900696** *Using Foraminiferal Ba/Ca to Characterize the Effects of Export Productivity on Seafloor CaCO₃ Preservation in the Pacific*: **S Conde**, K Costa
- 1919049** *Geomechanical Properties of Ocean Sediments Along the South Atlantic Transect and Implication for Overpressure Development*: **M Thompson**, J S Reece, S KIM, K Yang, B Lenz, N C Slowey
- 1933248** *High-resolution palynological reconstruction of the PETM interval in the southwestern Mediterranean Tethys (Rif Chain, Morocco)*: **S Aboutofail**
- 1921212** *Microbial Community Structure in Deep Sea Sediment Beneath the South Atlantic Gyre Revealed by 16S rRNA Gene Sequencing*: **M Stokes**, L Hayes-Guastella, M A Rodriguez-Pilco, B Kiel Reese, J Labonté, T D'Angelo, J B Sylvan
- 1979121** *Productivity driven changes to sediment deposition along the southern Argentine Margin during the Quaternary*: **R Keating**, R A Mortlock, N C Slowey, L Pendergrass, J Wright
- 1886834** *Reconstructing Reactive Iron Geochemistry Along the South Atlantic Transect: Implications for Iron Delivery and Ocean Productivity*: **T Wilbrandt**, W Gilhooly III, C Lowery, C Borrelli, C Amadori, M R Kaplan
- 1865772** *Resolving the age progression of a Walvis Ridge hotspot seamount: IODP Expedition 391, Hole U1578A*: **D E Heaton**, T W Höfig, R A Duncan
- 1974931** *Seismic Constraints on Sediment Transport and Bottom Current Activity Along the Southern Argentine Continental Slope*: **M Abbasian**, J Wright, G S Mountain, J I Isola, N Slowey
- 1971301** *The Influence of Atlantic Gateways on Miocene Deep Water Circulation in the South Atlantic Ocean*: **J D Wright**, N C Slowey, J I Isola, M Abbasian, K Miller, W Schmelz, G S Mountain

1954965 *The Paleocene–Eocene Thermal Maximum (PETM) Interval In The Southwestern Mediterranean Tethys At Morocco: New Data From A High-Resolution Study Of Dinoflagellate Cysts And Palynofacies In The Rif Chain:* **S Aboutofail**

1916575 *The Role of Biostratigraphy and Magnetostratigraphy in SciOD Legacy Expeditions:* **B A Christensen**, C Figus, H Jones, D King, D Tanguan, J Young, S Bombard, J Girard, E Hanson, R K Koorapati, C R Riesselman, L B Childress, G Auer, A J Drury, T Westerhold, U Roehl

249028

North Atlantic Paleoclimate: Sedimentary Archives of Climate, Ocean Circulation, and Ice Sheet Interactions (joint with C, GP, OS)

Conveners: **Celeste Pallone**, Columbia University; **Claire Jasper**, Columbia University; **Gryphen Goss**, Yale University; **Samantha Cargill**, Oregon State University

1904247 *A 0.5-Million-Year Benthic Stable Isotope Record of Climate and Deep North Atlantic Circulation at the Iberian Margin:* **M Matthews**, J F McManus, C Pallone, A Arellano

1894436 *Abrupt weakening of deep Atlantic circulation at the last glacial inception:* **Y Zhou**, J F McManus, C Pallone, T C Kenna, G A Weinstein, H Garcia

1965824 *Approximating the Onset and Intensification of AMOC and Implications for Northern Hemisphere Glaciation using changes in Bottom Current Strength at “Little” Björn Drift IODP Site U1563, Expedition 395C:* **E Van Benschoten**, S OConnell, M Dawes, C E Jasper

1962891 *Bi-hemispheric Iceberg Discharge Events in the Early Pleistocene from North Atlantic Site U1564 and Scotia Sea Site U1537:* **C E Jasper**, T Sharan, M E Raymo, S R Hemming, B Reilly, M Sinnesael, B T Karatsolis, S Expedition 395

1921771 *Biostratigraphic and Paleoecological Remarks from Calcareous Nannoplankton Assemblages at IODP Site U1610 (EXP 401):* **F O Amore**, C Argenio, S Chin, F J Hernández Molina, E Ducassou, R Flecker, T Williams, B Balestra

1959618 *Changes in Deep Circulation in the Eastern North Atlantic Ocean Across the Mid-Pleistocene Transition:* **J F McManus**, C Pallone, A Arellano, M Mathews, M Alonso-Garcia, E R L M Molina, E Kim, Y Kinney, B Harrison, I Plower, A Pryor, R Brzezicki

1993452 *Thriving in Scarcity: Examining the role of fungi in carbon cycling within the oligotrophic subsurface sediments beneath the South Atlantic Gyre:* **B Kiel Reese**, L Hayes-Guastella, M A Rodriguez-Pilco, M Stokes, T D'Angelo, J Labonté, J B Sylvan

1959177 *Visualizing Earth System Science Data from IODP 390/393 South Atlantic Transect: Continuing the Outreach, Shifting the Audience, All with Quilts:* **L A Guertin**

1880453 *Where Is the Origin of Terrigenous Sediment Found in the Subtropical South Atlantic Ocean?:* **M R Kaplan**, S Grandison, A M Franzese, S R Hemming, S L Goldstein, L Bolge

1853432 *Evidence that regional geomorphic events and local tectonic influences were first order controls on sedimentation rates at Svyatogor and Vestnesa Ridges (IODP Sites U1620 and U1619) Since ~3 Ma:* **K K St John**, R Lucchi, T Ronge, J Gruetzner, B Reilly, A Gonzalez-Lanchas, Y Sakai, J E Johnson, A A Plaza-Faverola, C Gebhardt, Y Rosenthal, M Barcena, S De Schepper, L Duxbury, G Goss, N Greco, L Haygood, K Husum, M Iizuka, I Kapuge, A R Lam, O Libman-Roshal, Y Liu, L Monito, Y Suganuma, S AV, Y Zhong

1967297 *Glacial-Interglacial Variability of the Past ~1 Myr from the Physical Sedimentology of NW Greenland Continental Slope Records (IODP Exp 400):* **F S Tahirkheli**, B Romans, J Venino

1872857 *Grain Size-Specific Glacial-Interglacial Shifts in Sediment Provenance at the Eirik Ridge: Insights from a Three-Component Mixing Model:* **P Olarte**, E E Martin, R G Hatfield

1898059 *Holocene Changes in the East Basin of the Deep Atlantic Ocean:* **A Sturley**, J F McManus, A Arellano

1902472 *Impacts of Weathering during Glacial Retreat on North Atlantic Nd Isotopic Records:* **T Salinas Reyes**, E E Martin, J B Martin

1983257 *K'/Ar Provenance Analysis of Bermuda Rise Sediment during Termination I:* **G Brown**, S R Hemming, J F McManus, S Cox

1921104 *Millennial temperature variability in the North Atlantic began at ~2.72 Ma:* **T Herbert**, D A Hodell

1966112 *Millennial scale variability in seawater osmium isotopes during the Late Pleistocene:* **L Nana Yobo**, J Kuroda, S Kaboth-Bahr

1992506 *North Atlantic Contourite Sedimentation and the Influence of the Iceland Mantle Plume:* **D Palmer**, N White, I N McCave

1960903 *Oceanographic Conditions on the Central West Greenland Margin from Late MIS 3 Through the Holocene: Preliminary Faunal Assemblage Analysis from the Disko Trough Mouth Fan:* **K Stelling**, A E Jennings, M Walczak, J Davies, E Gregory, R G Hatfield, S Klotzko, A C Mix, L Monito, B Reilly, J S Stoner

1942539 *Pulses of Exceptional Diatom Productivity in the Western North Atlantic Over the Last 45,000 Years:* **I M Gil**, J F McManus, F F G Abrantes, L D Keigwin

1873571 *Reconstructing Deep Ocean Circulation in the Eastern North Atlantic Since the Last Glacial Maximum:* **A Arellano**, J F McManus

249204

Nutrient and Carbon Cycling in the Cenozoic

(joint with B, GC, OS)

Conveners: **Xingchen Wang**, Max Planck Institute for Chemistry; **Ying Cui**, Pennsylvania State University Main Campus

1904829 *Downstream Production Limits the Impact of Southern Ocean Upwelling on Atmospheric CO₂ During Interglacials: Evidence from the Chilean Margin:* **G Mann**, S C Bova, Y Rosenthal, H Riechelton, J Hagemann, T Hayduk

2004477 *Dynamics of the marine nitrogen cycle during the Paleocene-Eocene Thermal Maximum: Insights from an isotope-enabled Earth System Model:* **Y Cui**, C J Somes, X T Wang, PhD, S Jiang, K J Meissner, A Oschlies

1990302 *Nitrogen isotopes from modern and fossil Myctophidae otoliths track changes in nutrient dynamics in the Caribbean Sea since the Miocene:* **J Lueders-Dumont**, A O'Dea, S Oleynik, B de Gracia, D M Sigman, S Finnegan

247491

Paleo- and Historical Perspectives on Fire in the Earth System (joint with B, GC)

Conveners: **Nicholas O'Mara**, Brown University; **A Karp**, Yale University; **Richard Vachula**, College of William and Mary; **Andrea Mason**, Brown University

1952947 *A 300,000-YEAR FIRE HISTORY FROM CHEW BAHIR, ETHIOPIA: CLIMATE, VEGETATION, AND POSSIBLE HUMAN INFLUENCE:* **B Lemma**, L Beil, M H Trauth, M L Fischer, W D Gosling, P E Tarasov, F Kobe, V E Foerster, F Schaebitz, S Kaboth-Bahr

1914456 *A late Cretaceous paleo fire record and its implications for fire regime evolution.:* **C Welch**, T Cullen, R S Vachula, M S Bhat, D Evans

1923194 *Reconstructing the Northward Flow Dynamics of Mediterranean Outflow Water Over the Last 600,000 Years from IODP Site U1588 in the West Iberian Margin:* **C A Alvarez Zarikian**, F Llerena, H H M Huang, F F G Abrantes, J Wu, S Kaboth-Bahr, D A Hodell

1947124 *Unraveling the European contribution to North Atlantic IRD during Heinrich events:* **D Leblanc**, A Condron

1896823 *Using Stable Isotope Analysis of Foraminifera to Reconstruct Past Climate and Ocean Circulation on the Deep Iberian Margin (110 – 140 ka):* **M Uddin**, A Arellano, J F McManus

1970954 *Ocean iron fertilization by sea-level enhanced mid-ocean ridge volcanism:* **T Kong**, X Ruan, J R Farmer, H A Ren, T C Lee, T H Lin, D M Sigman, Y Ming, X T Wang, PhD

1859471 *Quantifying effects of high atmospheric CO₂ altered bathymetry and a reduced PO₄ inventory on Miocene nitrogen and oxygen dynamics:* **C J Somes**, Y Cui, A Oschlies, M St Pierre, S Jiang, F Zhu, J Zhu, T X Wang

1870059 *Reconstructing Organic Carbon Burial over the Mid-to-Late Pleistocene in a Tropical Arc-Continental Collision Zone:* **F Liu**, F Macdonald, V Galy, L Li, M R Raven, G Li, G Li

1940124 *Revisiting the Oceanic N cycle during the Holocene:* **X Xu**, L Robinson, S Hattori, J Stewart, T Y Chen, Q Liu, T Li

1877854 *Standardizing hydrochloric acid pretreatment protocols for organic carbon isotope and content measurements: method development and recommendations:* **J Chen**, S Zhao, Y Zhang

2003807 *The Miocene-Pliocene paleoenvironmental conditions of the IODP 395 U1562 C, Björn Drift site:* **J Mayala Nsingi**, Q Wu, Y Cui

1893788 *A New History of Amazonian Biomass Burning Deposition on the Northern and Southern Andean Glaciers of Peru.:* **E Beaudon**, R Sierra Hernandez, E Mosley-Thompson, L G Thompson, D V Kenny, M E Davis, S Kutuzov, W Sanchez-Rodriguez

1935125 *Assessing fuel type through microcharcoal in the Late Miocene C₄ grass expansion from Ocean Drilling Site 1146:* **S Barney**, R S Vachula, A H Cheung, C Welch

1913043 *CMIP6 Biomass Burning Emissions Underestimate 1850 to 1980 Wildfire Change Observed in Ice Cores:* **N Liguori Bills**, C Scott, K S Carslaw, S Hantson, N M Kehrwald, S Kaspari, D S Hamilton

- 1932333** *Ecosystem-Specific Fire Regime Responses During Heinrich Stadial 1 in California:* **Z Wang**, M T Hren, C R Tabor, I P Montanez, J L Oster, Y Burstyn, C B de Wet, A Zyba, E A Atekwana, G J Bowen, E M Griffith, J D Smolen, S Pederzani
- 1857238** *Entire Holocene fire activity in the White Mountains, NH reconstructed through sedimentary charcoal:* **V Moore**, S Pendleton, L Doner, G Talon, E Hastings, O Doiron, A Hynes, M Coleman
- 1973723** *Holocene Paleofire Record in Northwest Canada: Insights from using a Multi-Proxy Biomarker Approach:* **M Chen**, T J Porter, M A Phillips
- 1904983** *Holocene Vegetation and Fire Regime Variability in the Klamath Mountains of Northwestern California:* **J Chimezie**, B Nauman, J Han, M Kirby, G M MacDonald
- 1893627** *Neotropical Woody Species Produce Charcoal Particles With a High Aspect Ratio Which Can Be Distinguished by Morphometrics and Morphotypes:* **D Kroehling**, J Cordeiro, N Billor, B Souza, C Hansen, J J L L Souza, L Goertzen, R S Vachula

254020

Paleoceanography and Paleoclimatology: General Contributions Poster

Conveners: **Yi Wang**, University of Michigan Ann Arbor; **Tyler Huth**, University of Utah; **Christopher Kinsley**, Berkeley Geochronology Center

- 1939891** *Remote Sensing-Guided Paleobiological Exploration in the Amazon Basin:* **E Podest**, K C McDonald, J Tejada, R Huneini
- 1904415** *A 23 ka record of dust provenance changes from Jeju Island, South Korea:* **S H Kim**, E Byun, J Ryu
- 1963517** *A spatial field reconstruction of warm-season maximum temperatures for eastern North America: a new paleoclimate data product for evaluating temperature-hydroclimate relationships over the late Holocene:* **K King**, E R Cook, G L Harley, J T Maxwell, K J Anchukaitis
- 1903855** *Bottom Current Control on REY Enrichment in Surface Sediments of the Northwestern Pacific:* **E Lee**, K Hyeong, M G Kim, I Seo
- 1963469** *Coastal Ocean Responses to the Paleocene-Eocene Thermal Maximum:* **X Zhang**, J C Zachos
- 1938675** *Decoupling of Ocean Acidification and Carbonate Saturation State during geological Hyperthermal Events:* **S Li**, S Zhang
- 1932002** *Diatom-based reconstruction of Holocene relative sea-level change in the middle to lower Nakdong River Basin, South Korea:* **J Kim**, J Ryu

- 1927617** *Quantifying environmentally persistent free radicals (EPFRs) in charcoal: a function of fire conditions:* **V S Sivapalan**, W C Hockaday
- 1926459** *Reconstructing Holocene Wildfire Activity in the White Mountain Region Using Paleolimnology:* **M DelBove**, L Doner, S Pendleton, O Doiron
- 1921809** *Sedimentary charcoal records poorly preserve the stratigraphic signal of grassland fire as informed by the 2024 Windy Deuce Fire, Texas Panhandle:* **M Harris**, B Carlson, A J Moodie, T Y Dong, R Vachula, W Struble, B Cordova
- 1872717** *Spatiotemporal Patterns of Holocene Fire Activity in the Contiguous USA: Disentangling Ecological, Climatic, and Anthropogenic Drivers:* **A Tsalickis**, R S Vachula, A Karmalkar, N Balascio
- 1964095** *FACIES-DEPENDENT COMPOSITIONAL VARIATION IN K-BENTONITES FROM LAGOONAL TO LITTORAL ENVIRONMENTS (PERMIAN-TRIASSIC TRANSITION, SOUTHWESTERN CHINA):* **小 Jin**
- 1943745** *Glacial Advances and Retreats in North Sikkim Himalaya: A Chronology Based on Combined Luminescence and Cosmogenic ¹⁰Be Dating:* **P Arora**, S N Ali, P Kumar, P V Kumar, M P, M Meyer
- 1896428** *Glass droplets from the Aegean Sea: Volcanic origin or Tektites?:* **T Ronge**, G Kletetschka, T H Druitt, S Kutterolf
- 1914313** *High precision stable isotope analysis of carbonate and water samples for paleoclimate applications using the Elementar iso DUAL INLET:* **K W R Taylor**, C Preece, M Seed, S Barker, W Price, R Berstan
- 1859210** *MACHINE LEARNING-BASED DETECTION OF HURRICANE LANDFALL DEPOSITS: A PERFORMANCE COMPARISON OF UNSUPERVISED AND SUPERVISED MODELS:* **A Y Kim**, J Ryu, S Kim
- 1874028** *Migration of the Brazil-Malvinas Confluence and changes in western South Atlantic bottom currents since the Last Glacial Maximum:* **M Umar**, R da Costa Portillo-Ramos, C M Chiessi, T Bickert, K Heinz Baumann, E Miramontes
- 1859208** *MULTI-PROXY INVESTIGATION OF COASTAL SEDIMENTARY FINGERPRINTS A SEMI ENCLOSED EMBAYMENT:* **S Kim**, J Ryu, A Y Kim

- 1997898** *Nutrient dynamics and stratification of central Lake Tanganyika based on micro-XRF scanning and diatom record during the Common Era*: **S Adhikari**, J Stone, J C Latimer, M M McGlue, L Domingos Luz
- 1927693** *Ocean Basin Variability of Zirconium Isotopic Compositions in Ferromanganese Crusts*: **L Huang**, S M Aarons, R F Anderson, M Q Fleisher, H Chen, J Hein, A N Halliday
- 1977812** *Paleoenvironmental Reconstruction of the Southeastern Atlantic Coastal Plain Using Microfossils and Mollusca from Clark Quarry, Georgia*: **Z Metz**, R L McLachlan, J Clark, K Clark
-
- 248252**
Paleoecological Perspectives on Past Climates
(joint with GC)
Conveners: Andrea Mason, Brown University; **Meredith Parish**, George Mason University Fairfax; **Bryce Mitsunaga**, University of California, Los Angeles, Dept. of EPSS
-
- 1997364** *Evidence for A Mosaic of Tundra and Boreal Forest at Southern Laurentide Ice Margin and Rates of Plant Migration Northward*: **D M Peteet**, M Alt, C Orr
- 1916003** *A Paleo Mercury Cycle Model for Deep-Time*: **L Li**, Y Zhang, Y Hu, X Hua
- 1964606** *Arid zone dendrochronology of the widespread and ecologically critical Mulga tree*: **H A Haines**, A Ford, D Falster, W Hiscock, M Letnic
- 1987463** *Calcareous Nannoplankton Response to the Cenomanian–Turonian Oceanic Anoxic Event (OAE 2) in the eastern Tethys: evidence from southern Tibet*: **Y Wang**, J J Pospichal, H Su, Y Cui, S Jiang
- 1881863** *Climatic Forcing of Deep-sea Benthic Ecosystem*: **H H M Huang**, M Yasuhara, C A Alvarez Zarikian, T M Cronin, C A Deutsch
- 1995548** *Correlated pollen and geochemical proxies reveal mid-to-late Holocene climate variability and rapid vegetation responses in southwest Greenland*: **B N Shuman**, J McFarlin
- 1999982** *Dietary and Environmental Information from Phytoliths in Dental Calculus of Dinosaurs During the mid-Cretaceous Revolution*: **E Hyland**, E Heiges, S Finch, E Cross, I Azmi, C Tsogtbaatar, R Tucker, L Zanno
- 1868464** *Ecosystem transformations in subtropical North America driven by millennial-scale climate, megafauna, and fire*: **J W Williams**, A Perrotti, Q Asena, N Schlenker, J Lam, M Siedelmann, J M Russell, A R Ives
- 1926939** *Proxy-based reconstruction of global ice volume in the Late Pleistocene using Kalman filter and Gaussian process modeling*: **S Samy**, T Lee, W Si, C Lawrence, T Herbert
- 2003433** *Tracing Paleoenvironmental Change Using Zr/Hf Ratios in the Agardhfjellet Formation, Svalbard*: **J Park**, H Stein, J Hannah, S Georgiev, G Yang
- 1979158** *~1,500 Years of Gardiner's Clay Varves Extend the Record of Laurentide Ice in Southern New England to Before the Last Glacial Maximum*: **G Giampietro**, N Johnson, D E Ibarra, K Robertson, L Reynolds, E B Hodgins, E H H G Cooperdock, T Parsons, G Piccione, Postdoctoral Research Associate
- 1947062** *Floral Trends, Conifer Physiognomy, pCO₂, and Hydrological Proxies Track "Climatic Whiplash" During CAMP Volcanism at the End-Triassic Mass Extinction*: **J H Whiteside**, P E Olsen, M F Schaller
- 2003211** *Forest Canopy Collapse and Recovery Across the K–Pg Boundary Revealed by Fossil Leaf Cell Morphology*: **R Dunn**, A Bercovici, J Pittermann, A Baer, E Curraon D, J L Gill, T Lyson, E Sessa
- 1939113** *Fossil isotope evidence for trophic simplification on modern Caribbean reefs*: **J Lueders-Dumont**, E M Dillon, A O'Dea, B de Gracia, C H Lin, S Oleynik, S Finnegan, D M Sigman, T X Wang
- 1904952** *Holocene History of Mangrove Population Spread along the Northern Gulf of Mexico Coast*: **K B Liu**, Q Yao, M Cohen, É Rodrigues, J Ryu, A Aragón-Moreno
- 1965155** *Onset of Abrupt Warming and Functional Megafaunal Extinction Prior to Heinrich Stadial 1 in Arctic Alaska*: **D Yeo**, Y Huang, R Vachula, F Guo, J A O'Donnell, K J Wang, A Andreev, U Herzsuh, J M Russell
- 1980071** *Paleoecological Drivers of the Great American Biotic Interchange: The Grass was Greener on the Other Side of the Isthmus of Panama*: **F Moreno**, C Garzione, C Jaramillo
- 1978322** *Palynological History of Perch Lake in the Western Catskill Mountains, Andes, New York*: **A Menegay**, D M Peteet, W J D'Andrea
- 1973786** *Plant Macrofossil Radiocarbon Constraints on the Paleocological Chronology of Laurentide Deglaciation from Budd Lake, NJ*: **A Puga**, D M Peteet
- 1860214** *Reconstructing Late Oligocene Paleoelevation and Paleoclimate in the Lunpola Basin: Evidence from Sporopollen Records*: **J Deng**, X Fu
- 1963665** *Reconstructing Mid–Late Holocene Palaeoecological Dynamics in the Upper Brahmaputra Valley of Assam, Northeast India, Through Non-Pollen Palynomorph (NPP) Analysis*: **A Pandey**, S Tripathi, H Singh

- 1963011** *Taxonomy and Paleocology of Foraminiferal Assemblages from Baffin Bay (IODP Site U1607):* **L Murdy**, R Bryant, A Garciano, E Jo
- 1887163** *Terrestrial Plant Wax Isotopes from Turkana Basin Reveal a Wetter, C3 Environment During the Late Cenozoic:* **R Tweedy**, N de los Rios, M Saslaw, G A Henkes, D R Green, G E Stinchcomb, W E Lukens, A Minya, S Shedroff, K T Uno

248337

Reconstructing past sea level and ice sheets over glacial cycles (joint with C, EP, G, GC)

Conveners: **Tamara Pico**, Harvard University; **Roger Creel**, Woods Hole Oceanographic Institution; **Holly Kyeore Han**, Jet Propulsion Laboratory; **Juliet Sefton**, Tufts University

- 1946153** *A >1 km-thick Grounded Ice Shelf in Baffin Bay Buttressed the Greenland, Laurentide, and Innuitian Ice Sheets During the Last Glacial Maximum:* **S Klotsko**, R G Hatfield, B T Reilly, A E Jennings, A M W Newton, E Gregory, A C Mix, J S Stoner, M Walczak, L Lewright, J Austermann
- 1950161** *A 500,000-Year Record of Laurentide Ice Sheet Cover from New York Speleothems:* **C Rubin**, J D Shakun, M L Griffiths, A B Jost, D McGee
- 1858135** *A New 200-year High-Resolution Microfossil Database for Mean Sea-Level Studies:* **S Williams**, L P Jackson, F Hibbert, E Garrett, W R Gehrels
- 1925501** *An empirically-grounded reconstruction of glacial lakes during Laurentide Ice Sheet deglaciation:* **B Stoker**, J Austermann, N E Young
- 1887177** *Another Piece to the Puzzle of Pleistocene Glaciation in the Arctic Ocean: Identification of Submarine Glacial Landforms from Multibeam Echo Sounder on the Chukchi Shelf:* **C Smith**, B Coakley, L M Farquharson, A Aschwarden
- 1958883** *Boulders in odd places – possible terrestrial evidence for grounding of an Arctic Ocean iceshelf along the Beaufort Sea Coast of Alaska:* **I Overeem**, R S Anderson, A E Jennings, S P Anderson, M N Repasch
- 1950655** *Continental Levering Explains up to ~30% Variation in Magnitude of Pennsylvanian Sea Level Cycles Observed in Cyclic Stratigraphy:* **S Coulson**, R Leary
- 1919866** *Diagenetically biased benthic $\delta^{18}\text{O}$ records have produced flawed estimates for ice-volume and sea-level estimates spanning the last glacial cycle:* **R K Poirier**, C Borrelli, M Fung, M F Schaller, C Rosse-Sands
- 1873862** *Disappearance of the Laurentide Ice Sheet on Glacial-Interglacial Timescales:* **N E Young**, G H Miller, J M Schaefer

- 1864764** *The impacts of Phanerozoic climate change on paleobiogeography:* **D J Lunt**
- 1936843** *Triple Oxygen and Clumped Isotope Analyses as Potential Tools to Constrain Aridity and Temperature in the Morrison Formation (Bighorn Basin, WY):* **E Lee**, N E Levin, L N Weaver, H Fulghum, A L Waller
- 1857806** *Episodic Eastern Canadian Arctic Holocene snowline decline and the aborted onset of continental glaciation ~1960 CE:* **G H Miller**, N E Young, J Raberg, S Pendleton, M K Raynolds, H Bültmann
- 1894392** *Exploring the Sensitivity of “Classic” GIA Observations to Three-Dimensional Mantle Viscosity Structure Using Adjoint Methods:* **N Valencic**, D Al-Attar, A Lloyd, K Latychev, A Kim, J X Mitrovica
- 1951164** *Fingerprinting Melt Contributions During the Last Interglacial Period:* **J Austermann**, B Dyer, A Rovere, R Creel, N Barlow, O A Dumitru, S Dean, C Cerrone, O Pollard, N A Gomez, M R Sandstrom, S Chester, A Hollyday, W J D'Andrea, A Dutton, K Latychev, M E Raymo
- 1892617** *Geologically-constrained simulations of Pliocene ice sheet cyclicity:* **A R W Halberstadt**, C Britt, E Gasson, D Pollard, R DeConto, J Marschalek
- 1876648** *Geomorphic Influences on Ice-Sheet Evolution During the Last Deglaciation:* **Z Xie, PhD**, J Qida
- 1947584** *GLAmachine: a community-driven rescue and recovery initiative for legacy sea level and glacial isostatic adjustment modeling data:* **R Creel**, S Kodama, J P Tulenko, R Steffen, H Steffen, R Riva, J Quinn, J P Briner
- 1881625** *Holocene and Late Pleistocene Surface Accumulation History at the Southern Flank of Dome A, East Antarctica:* **S Yan**, T J Fudge, M Koutnik, D A Young, S Singh, D Li, D D Blankenship
- 1881162** *Holocene response of major marine-terminating outlet glaciers in Greenland:* **J Anderson**, N E Young, A Balter-Kennedy, B L Graham, J Charton, J P Briner, J M Schaefer
- 1983948** *HOLSEA Databub: An Open-Source Web Portal for Global Relative Sea-Level Data since the Last Glacial Maximum:* **N Khan**, Y F Gu, R Creel, A Nordsvan, U Mukherjee, H Yu
- 1854954** *Ice Sheet and Glacier Reconstructions for Data-Model Comparison in Southeast Alaska:* **A J Lesnek**, J P Briner, J K Cuzzone, L Caron, H K Han, B Capone, S Narine
- 1975444** *Improving the Accuracy of Radiocarbon-Based Chronologies from Antarctic Continental Shelf Sediments:* **T M King**, A Leventer, R Venturilli, A Shevenell, PhD, B E Rosenheim

- 1958847** *Isotopic and mineralogical fingerprinting of late Pleistocene iron oxide “Rattle Stones” in southern New England and implications for a potential Last Glacial Maximum sea-level highstand:* **N Johnson**, I Olds-Campanile, E B Hodgkin, D E Ibarra, K Robertson, J Pahigian, J Chen
- 1891085** *Meteoric Beryllium-10 to understand Antarctic and Patagonian Ice Dynamics:* **Y Yokoyama**, A Sproson
- 1903939** *Mind the gap : Why would oxygen isotopes underestimate global mean sea level during Marine Isotope Stage 3 (MIS 3)?:* **T Pico**, S Shackleton, J R Farmer, R K Poirier, B Markle, L E Lisiecki
- 1873313** *Net Land Subsidence and Sea Level Rise in Aappilattoq, Northwest Greenland since the last deglaciation:* **K Prince**, J P Briner, O Bennike, L Caron
- 1878036** *New constraints on post-glacial relative sea-level changes from NW Scotland – implications and interaction with the Minch Ice Stream:* **J M Lloyd**, A Simms, L Best, T Bradwell, T Puckette, S Bradley, D Small
- 1957228** *Northern Hemisphere Ice Evolution Through Pliocene Glacial-Interglacial Cycles:* **C Britt**, A R Halberstadt, R DeConto, E Gasson, D Pollard
- 1973856** *Provenance of Iceberg Rafted Detritus during Termination 2 at Site U1537 in Antarctica’s Iceberg Alley:* **M Gallagher**, T Williams, S R Hemming, C E Jasper, H Mossell, T Ronge
- 1858703** *Radiocarbon analyses from recently exposed landscapes on Baffin Island reveals heterogeneous and intermittent Holocene glacier fluctuations:* **S Pendleton**, G H Miller, N E Young, N A Lifton, J R Southon
- 1970073** *Rapid deglaciation of the Laurentide Ice Sheet from the High Peaks Wilderness, Adirondack Mountains, New York, USA during the Allerød Warm Interval:* **K Barker**, A M Barth, PhD, J K Cuzzzone, A J Hidy
- 1973134** *Reconstructing Holocene alpine glacier lengths to address model-data disagreement:* **A G Jones**, J Brooks, S A Marcott, N A Lifton, A M Barth, PhD, M Romero, Y Orellana-Salazar, S Stevens, A Soruco, V Jomelli, B Menounos, M Caffee
- 1940801** *Reconstructing the Demise of the Patagonian Ice Sheet During the Last Deglaciation:* **M Romero**, S A Marcott, J K Cuzzzone, M M Tremblay, A G Jones, M Caffee
- 1991141** *Revisiting the last Juan de Fuca Lobe maximum using radiocarbon dating of sub-fossil logs across the Olympic Peninsula, northwest Washington:* **G Ali**, R Creel, M McKenzie, H T T Nguyen, PhD
- 1930922** *Role of evolving precipitation lapse-rate in sea-level fluctuations during the Last Interglacial:* **C Vigilia**, B A Keisling
- 1947103** *Sediment Records From The Amundsen Sea Continental Rise Reveal Major West Antarctic Ice Sheet Retreats During Late Pleistocene Interglacial Periods:* **C D Hillenbrand**, W U Ehrmann, Y K Park, J Kim, S Bohaty, R P Scherer, PhD, J Ruggiero, J Wellner, K Gohl, R L Totten, R D Larter, J Mastro, P Simoes Pereira, J Smith, J P P Klages, K Horikawa, S Passchier, J Marschalek, C S Siddoway, S R Hemming, T Frederichs
- 1932532** *Seeking a unified mantle viscosity model using observations of paleo sea level, seismic slab structures and the geoid: the importance of 3D viscosity:* **T Yuan**, S Zhong, G A Milne, D dePolo
- 1901927** *Sub-ice and ice-marginal records of Holocene and Pleistocene Northeast Greenland Ice Stream change: updates from the GreenDrill project:* **C Walcott–George**, A Balter-Kennedy, J P Briner, N E Young, N Brown, E Moravec, T Kuhl, Z Courville, R DeConto, S Anandakrishnan, B Keisling, J M Schaefer
- 1933716** *Synthesizing Far-Field Sea-Level Records to Constrain Global Ice Volume Since the Last Glacial Maximum:* **B P Horton**, T Li, N Khan, U Mukherjee, T A Shaw, M Vacchi
- 1945401** *The Holocene deglaciation of the Lincoln Sea Ice Stream and the North Greenland Ice Sheet with a high-resolution 3D ice sheet model:* **J Barnett**, F Holmes, J K Cuzzzone, H Åkesson, M Morlighem, M O'Regan, J Nilsson, N Kirchner, M Jakobsson
- 1985975** *Toward Improved Holocene Sea-Level Reconstructions for Singapore:* **A J Meltzner**, F Y Tan, J Quye-Sawyer, N S Tan, L T Aung, T Li
- 1961492** *Viscoelastic Evolution of Lithospheric Stress and Melt Migration Beneath Mt. Waesche During Glacial Cycles:* **P Mohite**, J B Naliboff, F Richards, J Hazzard, S Coulson

249616

Sedimentary records of Holocene climate and environmental change

Conveners: **Gerard Otiniano**, University of Toronto Mississauga; **Kelly McKeon**, Woods Hole Oceanographic Institution; **Leah Marshall**, Northern Arizona University; **Redmond Stein**, Lamont-Doherty Earth Observatory, Columbia University

1866904 *Westerly Jet Influence on Holocene Hydroclimate in Jeju Island, Korea: Highlighting the 4.2 ka Event:* **A Cho**

1857488 *A ²¹⁰Pb-based Age Model and Hg Record of Industrial Impact from Lake Wononscopomuc, CT:* **J Lebolt**, K Teske, L McCully, O Salas Romero, M Greaney, D Kaur, R Higgins, A Collazo, L Chavez, M Sanchez, D S Jones, A M Martini, T C Ku, C Oostenink

- 1910986** *A Multi-Proxy Perspective on Temperature Reconstructions for the Pleistocene-Holocene Transition from Sky Pond, New Hampshire*: **K Gerstler**, A W Burdick, W W Oswald, B N Shuman, J Stroup, M A Kelly, A Randall, N Kitchel, Y Axford, J McFarlin
- 1957682** *Alkenone-Based Temperature Record from Lake Lauvdalsvatnet, Lofoten: Understanding Human-Climate Interactions*: **K Leclercq**, L Curtin, N Balascio, R S Anderson, S Wickler, W J D'Andrea
- 1888086** *An anomalously weak Aleutian Low pressure system during the Middle Holocene: a new record of North Pacific dynamics from Parrot Lake, Dall Island, Southeast Alaska*: **S Mark**, K Prince, E K Thomas, C Walcott-George, J P Briner
- 1891935** *Chironomid-inferred Holocene summer temperature changes from alpine lakes in southern Spain*: **G Jimenez-Moreno**, N Prat, O Heiri, A García-Alix, R S Anderson, F J Jiménez-Espejo, J Camuera, C López-Blanco
- 1942622** *Climate Controls on Mercury Distribution in Arctic Sedimentary Records: from Marine sediment to Permafrost*: **M Uchida**, K Mantoku, A Yamakawa, C L Ping, G Iwahana, H Kumata, H Kajita, M Itoh, S Nishino
- 1878960** *Comparison of the Environmental DNA Signatures of the Overwash Deposits from the 1962 Ash Wednesday Nor'easter and the Hurricane of 1821*: **A Horton**, W Yap, J S Walker, D C Barber, K Susman, L Brennan, M E Mann
- 1900783** *Effects of Basin Morphology, Water Quality, and Land Use on Ancient Environmental DNA Signals from Aquatic and Terrestrial Plants in Lake Sediments*: **I G Espinoza**, E Stanton, B Lehman, K Cameron, M J Vander Zanden, J Hyman, J W Williams
- 1899399** *Estuarine Sediments as Archives of Socioenvironmental Change: Insights from South Carolina's Historic Rice Landscapes*: **E Li**, R Goodman, Z Shen
- 1914334** *Examining Past Rainfall Variability and Climate Extremes in Central America: Biomarker Explorations from Laguna Lachuá, Guatemala*: **P Havener**, B L Konecky, J Hutchings, J Obrist-Farner
- 1928742** *Geochemical Variation in a Large Marl Lake: Understanding Productivity, Climate and Anthropogenic effects*: **M Linck**, M Greaney, D Weisgerber, M Sanchez, J Lebolt, K Molloy, T C Ku, A M Martini
- 1898552** *High-resolution diatom fossil record reveals the past two centuries' nutrient dynamics in Lake Tanganyika*: **S Adhikari**, J Stone, M M McGlue, J C Latimer, K Westover
- 1945794** *Holocene climate variability and vegetation dynamics in monsoon sensitive ecosystem of Northeast India: A multiproxy record from Majuli Island, Assam*: **A Pandey**, S Tripathi, H Singh
- 1966324** *Holocene Climate Variability in Northeast Greenland from Sedimentary Leaf Wax Hydrogen Isotopes*: **A Cermak**, R Stein, B Perren, R S Bradley, N Balascio, J Bakke, W J D'Andrea
- 1864193** *Holocene human impact and hydroclimate variability recorded at the edge of the Earth Critical Zone: a geoarchaeological approach*: **A Zerboni**
- 1878630** *Holocene hydrology and productivity from a small nonglacial lake, Germania Land, Northeast Greenland*: **S Acharya**, E K Thomas, J P Briner, K Prince
- 1883709** *Holocene Pacific Northwest Hydroclimate and Columbia River Discharge from Continental Margin Sediments*: **J T Donnenfield**, M Walczak, A C Mix, J S Fehrenbacher, J R Alder, J Padman, A Ross
- 1928247** *Holocene Vegetation and Fire History in Western Yellowstone National Park Indicates Forest Resilience to Climate Change*: **K A Busch**, M Alt, D B McWethy, C Schiller, C L Whitlock
- 1935544** *Investigating aquatic mosses as a proxy for lake water isotopes in NE Greenland*: **G Gibb**, R Stein, A Cermak, W J D'Andrea
- 1890384** *Latitudinal Variability In Early Holocene Monsoon-Westerly Dynamics Across The NW Himalaya: Insights From Multi-Proxy Lake Records From Spiti, Kashmir, And Ladakh*: **D NAG**, B Phartiyal, S Verma
- 1945716** *Linkages between modern benthic foraminiferal assemblages and environmental conditions at continental slope depths: from Baffin Bay to the Labrador Sea*: **J Davies**, A E Jennings, A Carter-Champion, W J D'Andrea, C Fritz, E Gregory, D Harning, R Kelleher, A C Mix, K Stelling, J S Stoner, M Walczak, S Klotsko, R G Hatfield, B Reilly
- 1878569** *Magnitude of Warming at the Pleistocene-Holocene Transition in New England (USA) and Atlantic Canada Inferred from Chironomids in a Network of Seven Lakes*: **A W Burdick**, K Gerstler, J Stroup, A Randall, W W Oswald, L C Cwynar, A Dieffenbacher-Krall, J McFarlin, M A Kelly, N Kitchel, Y Axford
- 1984739** *Mid-to-Late Holocene Indian Winter and Summer Monsoon Dynamics: Insights from Marine Sediments in Northeast and Southwest Sri Lanka*: **T Wijewardhane**, MPhil, P N Ranasinghage, K Ratnayake, S U P Jinadasa, J P Donnelly
- 1886657** *Ostracod Assemblages Reveal Holocene Hydroclimatic Succession in a Tufa-Depositing Stream in Central Europe*: **Q Wang**, J Franke, P Frenzel
- 1956099** *Paleoflood Chronology for the West Branch of the Susquehanna River Using Abandoned Chute Channel Sediments, Pennsylvania, USA*: **J VanLuven**, L Curtin, E P Chamberlin, R C Kochel

- 1911133** *Post-glacial ecological and landscape change in the Eastern Himalayas: Insights from a multi-proxy cirque sediment record:* **S Nitundil**, A Stone, C Darvill, D Fink, P Hughes, W Fletcher, F Doessel, B Bell, M Tomkins
- 1907663** *Present And Upper Quaternary Evolution Of Hydro-Environments Of Burdur Lake (Turkey):* **E Gibert-Brunet**, A Noret, A Tudryn, N Ozgür, J P Kalay Kut, I Gülle, E Koşun, P Tucholka, S Kapucu
- 1857465** *Reconstructing Anthropogenic Activity Using Elemental Proxies in Sediment Cores from Lake Wononscopomuc, CT:* **M Greaney**, D Kaur, L Chavez, J Lebolt, A Collazo, R Higgins, D S Jones, A M Martini, T C Ku, K Teske, L McCully, O Salas Romero, M Sanchez
- 1945889** *Reconstructing climate and vegetation changes over the last two millennia in Southwestern Morocco:* **S Tadoumant**, I Bouimetarhan, A Baqloul, M Hssaisoune, L Bouchaou
- 1987748** *Reconstructing Holocene Hydroclimate Variability in the Southeast Pacific:* **R Stein**, W J D'Andrea, N L Balascio, R S Bradley, L Curtin, D M Peteet, A Seelenfreund, R Rapu
- 1948779** *Reconstructing Storminess of Atlantic Canada in Merritt's Harbour, Newfoundland, Canada Over 6000 Years Using Sediment Cores:* **K Gross**, E J Wallace, T S Winkler, R Sullivan, J P Donnelly, K McKeon, L Barnett, M Starr, A Hawkes, C Maio, M Toomey

250294

Shallow Marine Areas as Archives of Global Change (joint with B, GC)

Conveners: **Gerald Auer**, University of Graz; **Benjamin Petrick**, University College London; **Jody Webster**, University of Sydney; **Chelsea Pederson**, University of Southern Mississippi; **Anna Arrigoni**, University of Graz

- 1949885** *Epiphytic Foraminifera in the Gulf of Mannar from Rameswaram Island, India as Bioindicators of Environmental Stress and Species Distribution Patterns:* **S Nathan**, P Palanichamy, G Veeramalai
- 1941756** *Foraminifera Assemblages as a Tool for Guiding Marine Protection in Emerging Tourist Hotspots at Southern Maldives Archipelago:* **H Baroliya**, T Anagnostoudi, S Oron, E Sala, A Freidlander, B Goodman-Tchernov

- 1921977** *The Present as a Guide for the Past: Using a Modern Isotope Mass Balance Model to Re-Evaluate Paleoclimate Records from Lake Erie:* **J Langston**, B Saylor, R Clotts, N E Levin, J D Ortiz, E Barrera
- 1959844** *Tropical Cyclones in a Changing Climate: A Study of High-Latitude Paleostorms Over the Past Several Millennia Using Sediment Cores from Newfoundland, Canada:* **A Nogueira**, E J Wallace, K Gross, T S Winkler, R Sullivan, J P Donnelly, K McKeon, L Barnett, M Starr
- 1959001** *Unprecedented Modern Warming Revealed by 10,800-Year Varved Sediment record of Lake Żabińskie, Poland:* **P Zander**, M Żarczyński, W Tylmann, H Vogel, M Grosjean
- 1856552** *Upper Mississippi River Valley tributary slackwater sediments reveal shifting deglacial meltwater sources associated with the Marquette Readvance of the Laurentide Ice Sheet:* **S B Penprase**, A Wilwerding, A D Wickert, M McKenzie, P Larson, T M Rittenour
- 1986839** *Using Ice-Marginal Moss and Proglacial Lake Sediments to Reconstruct Neoglacial Ice Cap Fluctuation in Northeast Greenland:* **L Wilson**, J P Briner

- 1993862** *Mid-Pleistocene to Holocene Paleoenvironmental Change Recorded in Sediment Cores and GPR Surveys from Savage Neck Dunes Natural Area Preserve (SNDP) on the Southern Delmarva Peninsula:* **G DeMarco**, H Cutshaw, A J Oakley, S R Cornell
- 1948324** *Ocean Redox Dynamics across the PETM in the Eastern Tethys: Insights from Shallow Marine Carbonates of the Lower Indus Basin:* **Q U Z Dar, PhD**, T He, S Jiang
- 1947979** *Tracking historical metal pollution in Cassidaigne canyon (NW Mediterranean sea, France) using benthic foraminiferal elemental ratios:* **S Sepulcre**, L Licari, C Grenz, P Gély, F Haurine, R Pinna, D Malengros, S Rigaud, M Leblanc, M Jaumon, L Allinei, L Degroote, L Lescure, C Labrune, O Sulpis

247785

Southeast Asia and the Indo-Pacific: Past, Present, and Future Climate and Environment
(joint with A, B, GC, OS)

Conveners: Ronnakrit Rattanasriampaipong, University Corporation for Atmospheric Research; Jarunetr (Nadia) Sae-Lim, Washington University in St Louis; Shouyi Wang, Woods Hole Oceanographic Institution; Monica Vega, Brown University

1876348 *40,000 Years of Southeast Asian Hydroclimate Variability from Cave Archives:* **M L Griffiths**, K R Johnson, E W Patterson, D McGee, A Wolf, V Ersek, F S R Pausata, S Tiwari, A N LeGrande, R A Mortlock, J A Bendle, G M Henderson, T Bolger, J White, Q Đổ-Trọng, T Bui, M Xuân, T Đình, A Akhtar, J A Higgins, E Haryono, P Lape, L Wattimena, M Ririmasse

1924306 *A High-Resolution Integrated Approach to Reconstructing Kuroshio Current Extension Variability: Foraminiferal Assemblages and Stable Isotopes:* **H Kwarteng**, A R Lam

1961827 *A Multi-Proxy Record of Organic Productivity and Sediment Grain Size from Loktak Lake, India:* **J Bouffard**, A L Hillman, M S Finkenbinder, M B Abbott, B L Konecky, C P P Sharma, Y R Singh

1955279 *Contrasting Atmospheric Drivers Behind the Premature Monsoon Arrival in 2025 with Insights from the 2023 and 2024 Seasons:* **P Datta**, A Hossain, M K Das

1930115 *Distinct Orbital Imprints on Indo-Pacific Hydroclimate: Evidence from Leaf Wax Isotopes Over the Last 650,000 Years:* **T Tran**, J Tierney, A Holbourn

1866361 *Half-Precession Cycle in Western Equatorial Pacific Rainfall Over the Past 2.3 Million Years:* **S C Bova**, Y Rosenthal, M Yamamoto, J Lambert

252057

The Role of the Reactive Silica Cycle in Climate & Ocean Evolution (joint with B, OS)

Conveners: Shaily Rahman, University of Colorado Boulder; Lizzy Trower, California Institute of Technology; Brandi Kiel Reese, University of South Alabama; Jeffrey Krause, Dauphin Island Sea Lab

1951869 *Assessing the Potential of in situ Silicon Isotope Ratios as A Palaeo-Si Proxy in Recrystallized Sponge Spicules in Ediacaran-Cambrian Cherts:* **Y Ye**, P Frings, D Frick, F von Blanckenburg, Q Feng, D J Conley

1983952 *Beyond the Bedrock: How Water, Land, and Nutrients Reshape Dissolved Silicon Concentrations and Fluxes in Rivers:* **J Carey**, S A Bush, K Johnson, K Jankowski, L Sethna, N Lyon, P L Sullivan

1860500 *Hawkesbury Floods (Eastern NSW, Australia) of Past 222 Years Show a Strong Gleissberg Cycle Plus a Falsifiable Hypothesis Predicting Flood-Prone 2030s, and Supporting a Space Weather Link with the 22yr Hale Cycle and with Holocene Millennial Cycles:* **M W Asten**, K McCracken

1930286 *Moisture Source vs Rainfall Amount in a Last Interglacial Stalagmite from the Philippines:* **M Gerald Vega**, N Sekhon, C KongJohnson, H Tompkins, B Belanger, S Jalandoni, C P David, M C M Geronia, D McGee, J L Oster, K M Cobb, D E Ibarra

1923974 *New high resolution paleoclimate simulations of Mainland Southeast Asia:* **E W Patterson**, S Tiwari, F S R Pausata, M L Griffiths, A N LeGrande

1916302 *New ~40 kyr Biomarker Record of Indian Summer Monsoon Dynamics from Loktak Lake, India:* **A Santis**, B L Konecky, J Hutchings, C P P Sharma, Y R Singh, A L Hillman, M B Abbott

1959996 *Ocean density gradients north of New Guinea show half-precession relationship with export production over the last 138 kyr:* **J Lambert**, J T Abell, B K Linsley, K Gibson, S C Bova, G Winckler

1946105 *Reversed Arabian Sea east-to-west sea surface temperature gradients in the middle Miocene weaken South Asian summer monsoon:* **X Liu**, M Huber

1961375 *Southeast Asian Autumn Monsoon Response to Orbital Changes in Insolation During MIS 6 Recorded in a Central Vietnamese Speleothem:* **J R Yambing**, D McGee, K R Johnson, S Sidahmed, M L Griffiths, E W Patterson, Q Đổ-Trọng, T Bui, M Xuân, Q H Nguyễn

1918511 *Spatio-temporal Variability in Tree-Ring $\delta^{18}\text{O}$ and Seasonal Growth Response of *Abies spectabilis* in the Western Himalaya:* **B D Chinthala**, P S Ranhotra, J Griessinger, A Bräuning

1931725 *Biogenic Silica accumulation in the Ross Sea shelf sediment:* **M Dutta**, K Hall, K Maiti, P J Bart

1963815 *Disentangling Effects on Porewater Silicon Isotope Signatures During Early Diagenesis:* **J W Krause**, G F de Souza, R Roseburrough, K Howe, K Breland, P Gilman, L Bowman, B Kiel Reese

1874067 *Effect of Phosphorus Limitation on Photophysiology and Elemental Uptake by the Antarctic Sea Ice Diatom *Fragilariopsis cylindrus*:* **C Raymond**, M Baker, S Kranz, M Torres

1981055 *Extreme Weather Effects and Annual Trends in Sediment Biogenic Silica off the Louisiana Coast:* **K Breland**, L Bowman, C Puranananda, S Rahman, B Kiel Reese, J W Krause

1983637 *Si Isotope Compositions in Porewaters Illustrate Reverse Weathering in the Gulf of Papua and Amazon-Guianas Deltaic Systems:* **I Heine**, Y Yin, X Y Zheng, L Trower, R C Aller, S Rahman

1957359 *Spatial Variation in Microbial Mediation of Marine Silica Sequestration During Early Diagenesis:* **L Bowman**, P Michalopoulos, K Breland, P Gilman, K Hendry, W L Hong, K Howe, B Kiel Reese, K Maiti, R A Pickering, R Roseburrough, E Rousselaki, M Taillefert, J W Krause

1968812 *Temporal Variability in Sediment Microbial Abundance in the Mississippi River Plume:* **P Gilman**, C Puranananda, K Howe, S Rahman, J W Krause, B Kiel Reese

252619

Undergraduate and Early-Stage Graduate Student Presentations in Paleocceanography and Paleoclimatology (joint with ED, OS)

Conveners: **Christopher Kinsley**, Berkeley Geochronology Center; **Chloe Anderson**, Harvard University; **Lauren Haygood**, Oklahoma State University Main Campus; **Matthew Kirby**, California State University Fullerton; **Joan Chimezie**, Organization Not Listed

1894620 *Compositional analyses of mixed detrital-authigenic sediments to inform sample processing decisions, IODP Expedition 403 Site U1620, Svyatogor Ridge sediment drift:* **X Fundalewicz**, O Viskupic, M Sarco, R Stroop, K Nehring, J McCollum, E A Johnson, C Elmi, K K St John, R Lucchi, T Ronge

1935012 *Ex Situ Depth Habitat Determination of Planktic Foraminifera in the Eastern Equatorial Pacific Using Mg/Ca and $\delta^{18}\text{O}$ Paleotemperature Proxies:* **A Parsons**, F Mekik

1940396 *A Last Interglacial Speleothem Record of Southeast Asian Autumn Monsoon Variability from Hoa Huong Cave, Vietnam:* **T Bialosuknia**, K R Johnson, E W Patterson, A B Jost, J R Yaming, S Sidahmed, C Marsh, M Elizarraras Botello, D McGee, M L Griffiths, Q Đỗ-Trọng, T Bui, M Xuân

1923157 *A Proxy-Based Approach to Modeling Core Top Sediment Age:* **C Cline**, F Mekik

1963598 *Analysis of $\delta^{11}\text{B}$ as a Seawater pH Proxy: Comparing Ocean Circulation Inverse Model Output with Marine Calcifier Geochemistry:* **J Dong**, B Williams, H Seo, W Fu, F Primeau

1989866 *Application of Benchtop Micro X-Ray Fluorescence Spectroscopy to Chemical Imaging of Plant and Animal Fossils:* **S Coykendall**, L McQueen, N Gordon, S Kolomyjec, D D Wright

1972928 *Testing recent proposed changes to global marine Si cycle summaries using a stable Si isotope mass balance model:* **S Rahman**, L Trower

1961826 *The effects of tropical cyclones on marine sediment organic matter in the Mississippi River plume:* **S Kille**, L Bowman, K Howe, B Kiel Reese, J W Krause

1958406 *What is the Chemical Composition of Silica Produced by the Marine Cyanobacterium, Synechococcus?:* **H Immandi**, K Barnette, L Bowman, A Siersma, J W Krause

1923248 *Calibrating carbonate dissolution in deep sea sediments throughout the ocean water column from thermocline to CCD – a triproxy approach connecting aragonite with calcite dissolution in one equation:* **H Rainey**, F Mekik

1869946 *Can disturbance signals be detected and purged to improve paleoclimate fidelity of Thuja occidentalis tree ring chronologies?:* **N Bolling**, N Schulberg, D Griffin

1963405 *Comparison of Carbon Isotope Values in Marine Calcifiers on Human Timescales:* **G Karlcut**, B Williams, H Seo, D J Y Chen, W Fu, F Primeau

1925581 *High Latitude Core Top Foraminifera:* **L Fitzgerald**, A Bains, A J Wagner, E L Sikes, N Slowey, A Ryan, A Leal

1925545 *Late Pleistocene Speleothem Hydroclimate Records from Eastern Indonesia:* **R Indriksons**, J Breeden, K Jablonska, E W Patterson, M L Griffiths, K R Johnson, L Wattimena, R A Mortlock, M DaSilva, E Haryono, P Lape, M Ririmasse, A B Jost, D McGee

1910289 *Orbital-scale paleoproductivity change at the Del Caño Rise in the Indian sector of the Southern Ocean since the Mid-Pleistocene Transition:* **H Choi**, X Crosta, H Matsui, M Ikehara, T Irino, I Billy, S Ha, H Takata, B K Khim

1891384 *Preliminary characterization of sediment pellets to infer ice-rafting mechanism in the Eastern Fram Strait, IODP Expedition 403 Site U1623:* **K Nehring**, M Sarco, R Stroop, M Buckley, K K St John, R Lucchi, T Ronge

1985263 *PROPOSING A MODEL OF DEPOSITION FOR A POTENTIAL TSUNAMIITE AT THE CRETACEOUS-PALEOGENE BOUNDARY ALONG THE GULF OF MEXICO: MUSSEL CREEK, ALABAMA:* **B L Cobb Faulk**, Y Lu, T Ikejiri, M Lu

1970351 *Western Pacific Warm Pool Perspectives: Timing, Forcing, and Communication of the Mid Pleistocene in the Upper Water Column:* **W Garlick**, K Gibson, E Hamontree, B K Linsley, J Lambert, J Spain, W Huang, H Thomas, S C Bova, E Tappa

251984

Understanding the Influences of Sedimentary and Oceanographic Processes on Geochemical Archives Across Geologic Time (*joint with B, EP, H, OS*)

Conveners: **Preston Kemeny**, California Institute of Technology; **Danielle Santiago-Ramos**, Rutgers University

1876898 ⁴¹Ca Dating of Marine Deposits from Middle and Late Pleistocene: **H M Zhu**, W W Sun, M L Bender, E Huang, H Huang, W Jiang, Z T Lu, J Tian, T Xia, Y Z Yan, G M Yang

1952041 Assessing Diagenetic Alteration of Foraminiferal Geochemistry in Northeast Pacific Continental Margin Sediments: **J T Donnenfield**, M Walczak, A C Mix, J S Fehrenbacher, J R Alder, J Padman, A Ross

1949825 Assessing the spatial variability in authigenic clay formation across the Pacific Ocean using stable Li isotopes (⁷Li/⁶Li): **B J Jong**, A G Dunlea, Y Rosenthal, Z Steiner, L Godfrey, D Santiago-Ramos

1901969 Calibrating Benthic Individual Foraminifera Analyses (BIFA): Proxy for Bottom Water Variability or Sedimentary Reworking?: **A O'Keefe**, K Thirumalai, J T Abell, H McKenley, D Thompson, J L Russell

1983848 Does the Uranium Speciation in Sedimentary Shales Reflect Paleo-redox Conditions?: **F Meyer**, A Chappaz, D Gregory, E Carrothers, E A Sperling, J V Strauss, L Nana Yobo, K V Lau

1922181 Estimation of Stratigraphic Completeness in Deep-Sea Records from a Gaussian Model of Sedimentation: **S Goldberg**, J T Abell, F Pavia, M Cantine

1940637 Exploring Biogeochemical Controls on REE-Rich Mud Formation Using a Coupled Mass Balance Model of Neodymium and Phosphorous in the Ocean: **R Matsunami**, K Yasukawa, K Nakamura, Y Kato

247471

Water Isotope Systematics: Improving Understanding of Past, Present, and Future Hydroclimate

Conveners: **Jiang Zhu**, University of Wisconsin Madison; **Marja Haagsma**, Oregon State University; **Mampi Sarkar**, Rice University; **Chandler A Morris**, Organization Not Listed

1923478 The Water Isotopes and Climate Network (WISO-NET) and the Water Isotope Model Intercomparison Project (WISO-MIP): first results and a call for community engagement: **S Dee**

1956902 Geochemical and Isotopic Constraints on Source Rock Composition and Tectonic Settings of the Lower Bhander Sandstone from the Bhopal Inlier, Central India: **P Tiwari**, A Ghatak, B Belyatsky, K B Naik, A Chaudhari

1903724 Investigation of Ages and Petrographic Context of Glauconite and Celadonite at IODP Site U1564: **J Fridman**, S OConnell, S R Hemming, S Cox, J Dodd, T C Ku, T Liu, D D McNamara, G Pasquet

1858248 Marine Authigenic Clay Formation Traced by Silicon Isotopes - Implications for Geochemical Cycles at Present and through Geological Time: **S Geilert**, A Balk, P Frings, A Abbott, J Holtz, S Löhrr

1988711 Millennial-Scale Sedimentation Rate Variability of the Deep Ocean Estimated from Radiocarbon-Dated Sediment Cores: **S Newall**, L E Lisiecki, C Lawrence, T Lee

1897642 Organic Carbon Enrichment in Carbonate Concretions of the Miocene Rincon Shale, CA: Implications for Organic Matter Preservation in Concretions: **S J Loyd**, M Nguyen

1915974 Reconstructing Depositional Conditions from Combined Bulk and Microscale Isotopic Analysis of Marine Sedimentary Pyrite: **D A Fike**, J Houghton, C Jones

1908953 SEDIMENTARY AND OCEANOGRAPHIC CONTROLS ON THE S-ISOTOPIC COMPOSITION OF PYRITE IN MODERN MARINE SEDIMENT (AND SEDIMENTARY ROCKS): **V Pasquier**, D A Fike, I Halevy, J Marin-Carbonne

1998873 Sedimentary Record of Biogeochemical Processes in a Ferruginous Lake: An Analog for Ancient Oceans: **S A Akam**, B W Johnson, A Thomas, M Oquendo, I Lascu, X L Liu, E Swanner

1919736 Tectono-Provenance and Geochemical Signatures of the Barail Sandstones: Insights into Himalayan Sediment Routing in the Surma Basin during the Late Oligocene.: **A S Pacheerikattil**, A SR, B Bharali, V K, F Hussain, A Ghatak

1862828 A Drop in Time: Water Isotope Records and Hydrologic Response in Laikipia, Kenya: **V Ajeh**, J Gitonga, L Willard, R Munoz-Carpena, K T Uno

1890394 A new theoretical framework for parameterizing nonequilibrium fractionation during evaporation from the ocean: **M Duetsch**, C W Fairall, P N Blossey, R Fiorella

1970907 Analysis of Large-Scale Atmospheric Circulation Using Subseasonal Variations of Stable Isotopes in Rainwater in the Western Peruvian Andes: **C Romero**

- 1912815** *Comparing Triple Oxygen ($\delta^{18}\text{O}$ - $\delta^{17}\text{O}$) and $\delta^{18}\text{O}$ - $\delta^2\text{H}$ Isotope Systematics Using a Lake Balance Approach: Insights from Bear Lake, Utah-Idaho:* **M J Custado**, A R Waldeck, B Belanger, J Rugenstein, X K Wang, K M Cobb, J L Oster, D E Ibarra
- 1959899** *Constraining tropical Pacific Rainwater and Seawater $d_{18}\text{O}$ Relationships through the 2023-2025 ENSO cycle:* **L Bryce**, K M Cobb, J L Conroy, N K Murray, S Levin, M Xu, G Esquivel-Hernandez, R Sanchez-Murillo, M Hardt, E A Holland, W J Powell, X K Wang
- 1960645** *Data-model comparisons of the tropical hydroclimate response to the 8.2 ka Event with an isotope-enabled climate model:* **A R Atwood**, A L Moore, R Pauly
- 1871951** *Decadal change in isotopic composition of river and groundwater from the Ganga river basin: Insights into river hydrology.:* **A Kumar**, K Prasanna, A Sharma
- 1880687** *Decadal Insights into Fog Origins and Water Inputs in the Namib Desert through Integrated Isotope and Satellite Observations:* **Y Li**, N Qiao, E Marais, G Maggs-Kölling, Y Liu, L Wang, PhD
- 1968468** *Do Lake Effect Precipitation Events have a Unique Stable Isotope Fingerprint?: An Analysis of Isotope Data from Western New York:* **A Marshall**, E K Thomas, S M Evans, R Topness, S Mark, N Leon
- 1973556** *Eastern North American hydroclimate connected to North Atlantic Subtropical High weakening across the most recent deglaciation:* **D Fastovich**, T Bhattacharya, C Sun, S Jackson, T Krause, J M Russell, J W Williams
- 1863593** *Emulating Water Isotopes in Coupled Earth System Models:* **F Zhu**, X Jia, Y Xie, J Zhu, D E Amrhein, Z Li, Q Cheng, R Li
- 1855237** *ENSO-driven hydrological variability in the tropical Pacific – sea surface salinity and oxygen isotope observations versus models:* **C A Morris**, K M Cobb, B L Otto-Bliesner, S Macarewich, J Zhu, S Stevenson, A R Atwood, S C Sanchez, L Bryce
- 1910505** *Estimates of the T to ET ratio in the tropics using TROPOMI and AIRS deuterium observations:* **J Worden**, A Raudzens Bailey, E Tajfar, T E Bilir, A A Bloom, J Landgraf, T Borsdorff
- 1887551** *High resolution monthly precipitation stable isotope estimates across Australia from machine learning:* **G Falster**, G Abramowitz, S Hobeichi, C E Hughes, P C Treble, N J Abram, M I Bird, A Cauquoin, R Drysdale, C Jin, N Munksgaard, B Proemse, J J Tyler, M Werner, C V Tadros
- 1896314** *How do lake characteristics bias water isotope and temperature records of rapid climate change?:* **R Topness**, E K Thomas, N Leon
- 1860014** *Relating seasonal d -excess shifts in precipitation water isotopes to changes in vapor sources and Rayleigh distillation along coast to mountain transect in Oregon.:* **Z Perry**, C Segura, J R Brooks
- 1998996** *Seasonal and Intra-seasonal Rainfall Isotope Variability Over Bay of Bengal:* **L R Palliyil**, S Krishnadas, M Madhavan
- 1924963** *Stable isotopes in Galápagos Islands' terrestrial gastropods track ecology and climate variability:* **K Smith**, J L Conroy, C Parent
- 1880436** *The limits of modeling water isotopes using moisture convergence alone:* **T Kukla**, R Fiorella, N Siler
- 1948289** *Variability of isotopic composition and moisture sources in the Tota basin (Colombia), Northern Tropical Andes:* **G A Rodriguez Abaunza**, B W Bird, J Escobar, B A Steinman, B L Konecky, F Velasco, D Plazas Jimenez
- 1919295** *Warm-Season Surface Water $\delta^{18}\text{O}$ Values from Conventional and Clumped Stable Isotopes in Freshwater Bivalve Shell: Isotope Paleohydrology of the Pre-Dam Colorado River and Lake Agassiz:* **D L Dettman**, Z Wang, E Stiles, K W Huntington, J Quade
- 1854527** *Water Isotope Model Intercomparison Project (WisoMIP): Present-day Climate:* **H Bong**, A N LeGrande, S Dee, J Zhu, A Cauquoin, R Fiorella, Q Ding, N Dutrievoz, M Tanoue, M Frazer, M Sarkar, C Agosta, K Yoshimura, M Werner, A Okazaki, C M Risi, H C Steen-Larsen, M Casado, S Wahl, J M Nusbaumer, J R Worden, S P Good, A Raudzens Bailey, M Schneider, S Noel, S Mandal, K W Bowman, Y Li, G A Schmidt
- 1922607** *WISO-SAT: A global database of stable hydrogen isotopes in water vapor from eight satellite missions:* **M Sarkar**, S Dee, M Frazer, A Raudzens Bailey, S P Good, S Mandal, S Noel, M Schneider, H Bong, H C Steen-Larsen, K W Bowman, M Haagsma, J R Worden
- 1970995** *Calibration of Hydrogen Isotope Signatures in Surface Waters and Long-Chain n -Alkanes at the Drainage-Basin Scale: Case Studies from the Northern Tibetan Plateau:* **G Zhuang**
- 1888282** *Cenozoic lower crustal flow beneath the Qinling Orogen or not?:* **Y Zhang**

247150

Orogenic Belts and Plateaus: Growth, Collapse, and Climate Interactions (joint with EP, PP, S, V)

Conveners: Lin Li, University of North Carolina at Charlotte; Gilby Jepson, University of Arizona; John He, University of Minnesota; Eva Golos, University of Wisconsin-Madison

- 1895599** *Cenozoic Lower Crustal Viscosity Change and Its Role in Staged Uplift of Tibetan Plateau:* **X Xiong**, H Wu, Y Liu, N Xiong, K Wang
- 1997707** *Effects of Gravitational Collapse on High Topography and Laterally Varying Weak Lower Crust in the Western US:* **I Bromberg**, L M Flesch, W E Holt, A Bahadori, C M Calvelage
- 1966479** *Evolution of the South Tibetan Detachment System India (STDS) from Cambro-Ordovician Kurgiakb to Cenozoic Himalayan orogeny Dhauliganga Valley, NW Himalaya, India:* **G Deshmukh**, A K Jain, R Dixit, P K Mukherjee
- 1969633** *Extensional Collapse of the Wide Arizona Highland: A Mechanism for the Formation of Multiple MCCs:* **Y Wang**, W E Holt, T Rasbury, W Shen, H Wu, A Bahadori, C Seebeck
- 1980031** *Inboard Advance of Arc Magmatism Regulates Mountain Building in the Andes:* **T Capaldi**, B K Horton, F Fuentes, C Mackaman-Lofland, G Ortiz
- 1845014** *Middle Miocene (15–13 Ma) Onset of Strike-Slip Motion Along the Kunlun Fault and Implications for Stress Reorganization in the Tibetan Plateau:* **L Li**, P Gao, C Garzione, J Nie
- 1971267** *Paleogene uplift associated with Laramide crustal duplexing in southern Nevada and California, USA:* **M Odum**, A V Zuza, T A Sihpol, T Lee, T Capaldi
- 1941313** *Pleistocene Accelerated Faulting and Orogeny in the Northern Red River Fault, Southeastern Tibetan Plateau: Evidence from Pseudotachylyte and U-Th Dating of Fault Rocks:* **Y Yan**, X Shi, K Zhu, X Liu, X Wang, Y Huang, R J Weldon
- 1975192** *Refinement of Continental Crust by an Orogenic Density Filter:* **B Z Klein**, A Smye
- 1961309** *Remagnetization of the Cretaceous Limestone in Northern Lhasa Block, Tibetan Plateau: the Result of Qiangtang-Lhasa or India-Asian Collision?:* **X Yang**, Y Zhang
- 1971474** *The Active Role of the Overriding Plate: How Internal Deformation Modulates Geodetic Observations and Controls Megathrust Hazard:* **E O Lindsey**, J H Chong, D Panda, B Oryan, M H Jaman, L Shen, M S Steckler
- 1868219** *The Effects of Flat Slab Removal on Continental Topography, Deformation, and Magmatism:* **A O'Keefe**, C A Currie
- 1897764** *The India-Asia Collision: Quantifying Outcrop and Thin-Section Crustal Shortening of the Eastern Tethyan Himalaya:* **K McFadden**, K Metcalf, D M Robinson, S Davis, Y Li, L Ding
- 1929585** *THE PRE-COLLISION CONFIGURATION OF NORTHERN GREATER INDIA AND POST-COLLISION CONTROLS ON HIMALAYAN DEFORMATION:* **D M Robinson**, Y Li, K Metcalf, L Ding
- 1890527** *Uplift of continental plateaux by crustal melting, underplating and eclogitization:* **H Thybo**, Z Zhou, G Wang, I M M Artemieva
- 1926263** *Using Stable Isotope and Clumped Isotope Analysis to Reconstruct Surface Uplift of the Altai Mountains.:* **G Sanchez Ortiz**, N Vaughan, R Bertoldo, D Meegan Kumar, G Bayasgalan, B Tsagaan, Z Sainbayar, G Baatarsuren, D E Ibarra, F J Pazzaglia, J K Caves Rugenstein