



A Revised Look at Relativistic Electrons in the Inner Zone and Slot Region

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***T. P. O'Brien, J. F. Fennell, J. B. Blake, J. H. Clemmons, M. D. Looper,
J. E. Mazur, J. L. Roeder, D. L. Turner, G. D. Reeves and H. E. Spence***

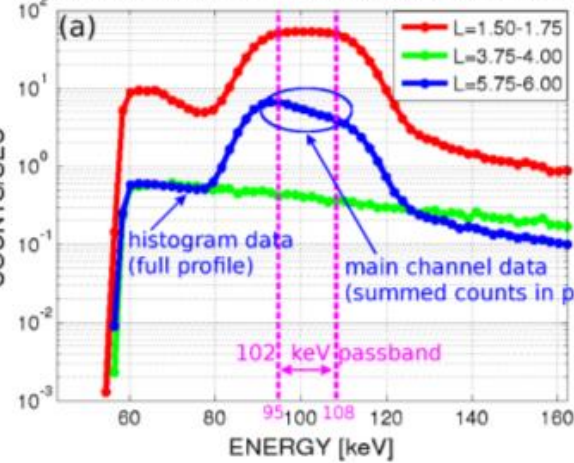
2018/03/07

Particle Dynamics in the Earth's Radiation Belts

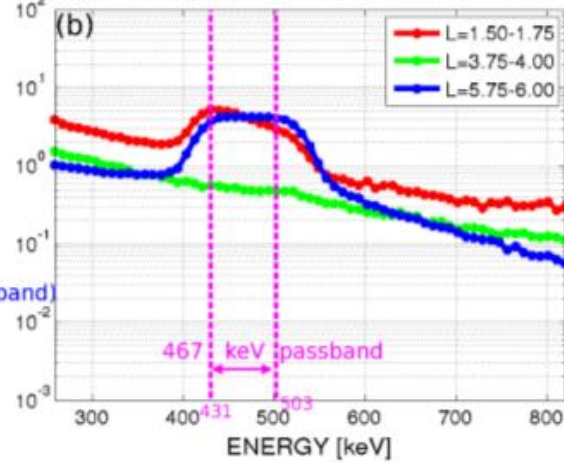
seth@aero.org

"STANDARD" BACKGROUND CORRECTION

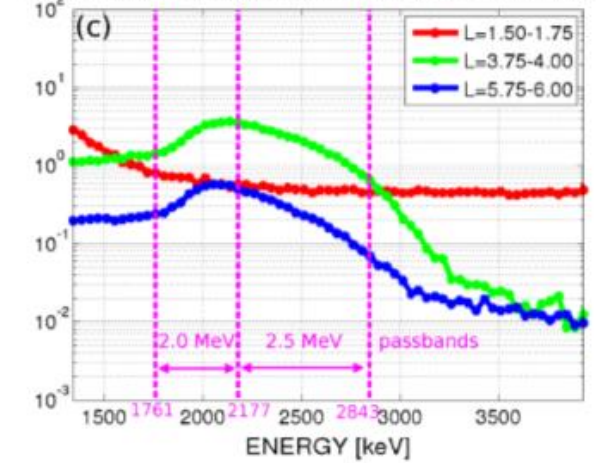
MagEIS-LOW-B; pix05; 2013/04/09 (07:41:20-12:09:51)



MagEIS-M75-B; pix04; 2013/04/09 (07:41:20-12:09:51)

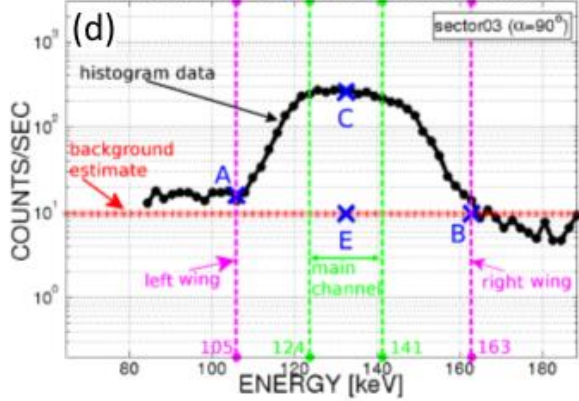


MagEIS-HIGH-B; pix02; 2013/04/09 (07:41:31-12:10:02)

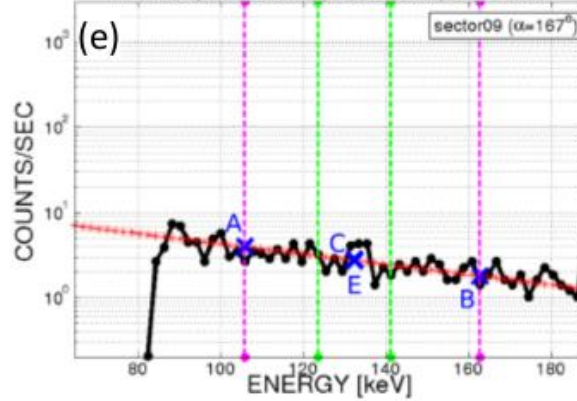


MagEIS-LOW-B; pix06; chan06; 21-Oct-2013 03:35:10 [L(L*)=1.89(1.89); MLT=19.8; B/Beq=1.003]

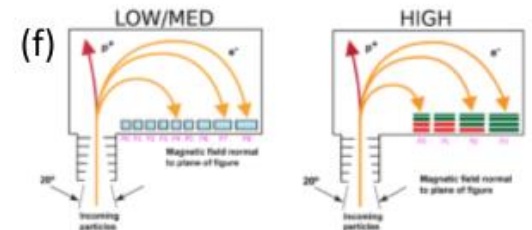
A=15.80828; B=9.56146; C=254.78332; Co=245.23186; E=9.56146; R=15.04831
m=1.00000; A-Co/R=-0.48803; A-C/R=-1.12341; B-B/R=8.92608



A=3.96351; B=1.79786; C=2.81725; Co=0.08720; E=2.73005; R=15.04831
m=0.98649; A-Co/R=3.95772; A-C/R=3.77630; B-B/R=1.67841



Guelpierre et al., JGR, 2015



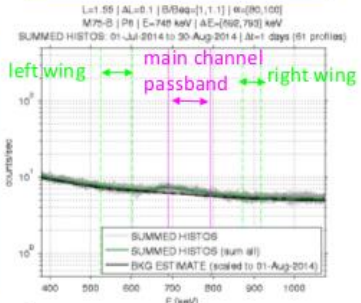
	E_n [keV]	E_{low} [keV]	E_{high} [keV]
M75-P6	749	692	793
M75-P7	899	840	952
HIGH-P0	1064	970	1279
M75-P8	1066	1007	1116
HIGH-P1 (L)	1575	1403	1728
HIGH-P1 (R)	1728	1539	1939

"ALTERNATE" BACKGROUND CORRECTION

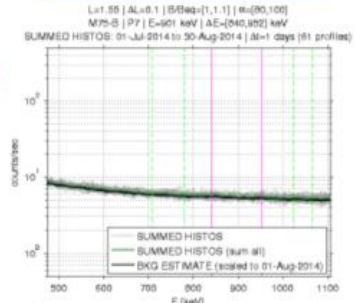
2014 JUL/AUG

2015 NOV/DEC

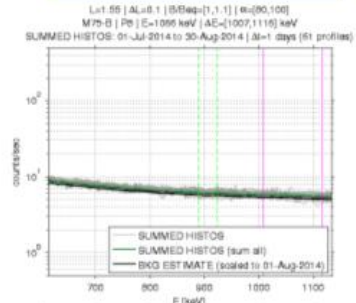
M75-P6 (0.75 MeV)



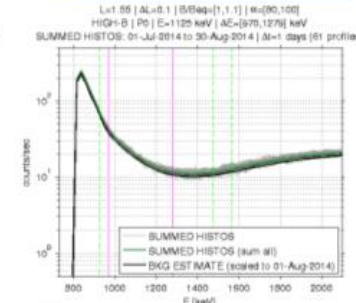
M75-P7 (0.90 MeV)



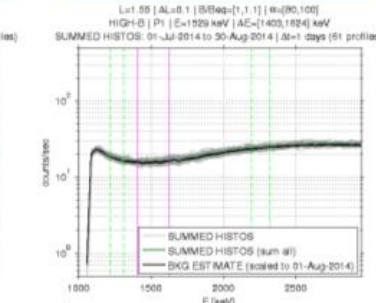
M75-P8 (1.07 MeV)



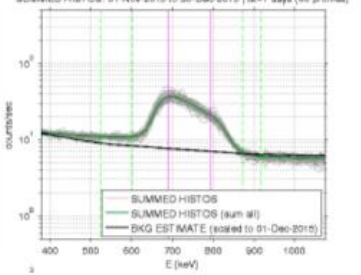
HIGH-P0 (1.06 MeV)



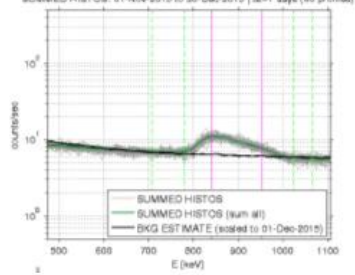
HIGH-P1 (L) (1.58 MeV)



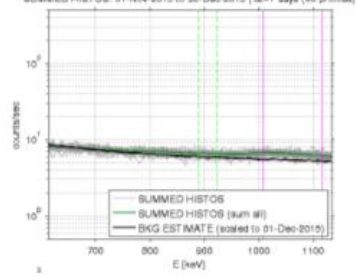
M75-P6 (0.75 MeV)



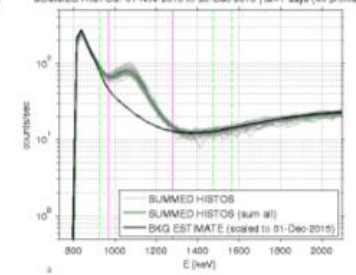
M75-P7 (0.90 MeV)



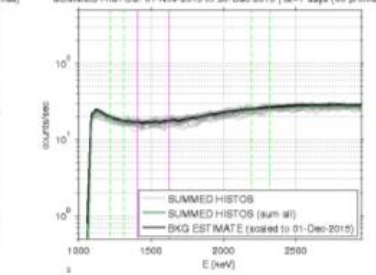
M75-P8 (1.07 MeV)

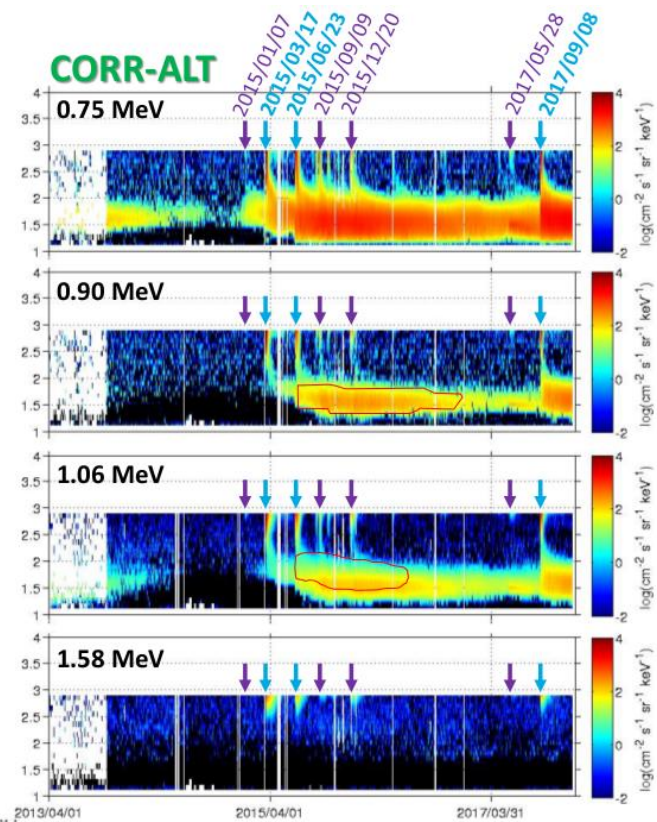
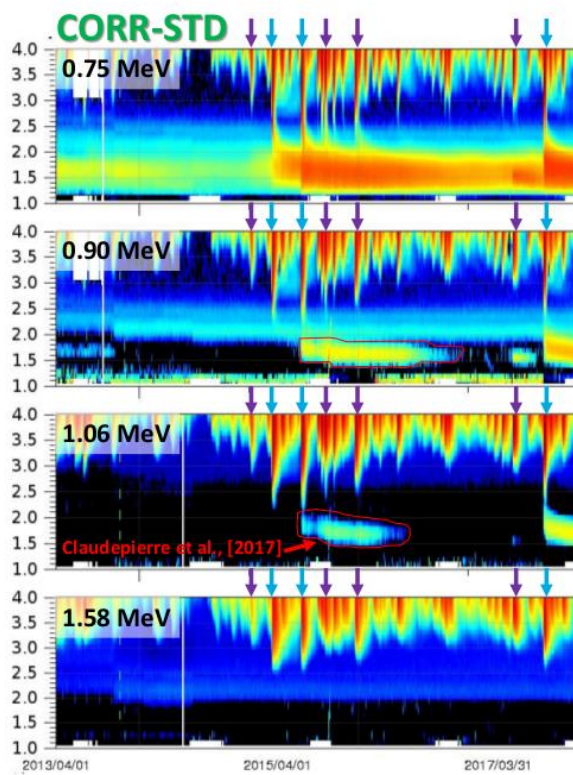
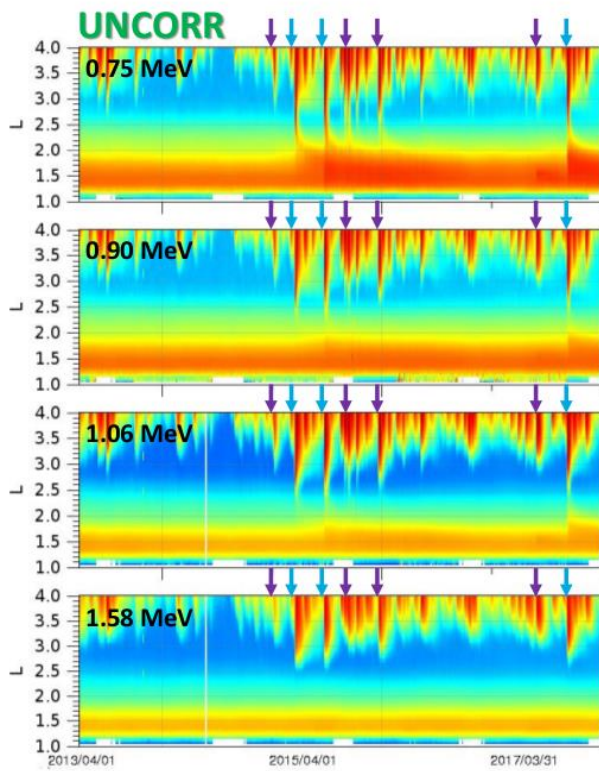


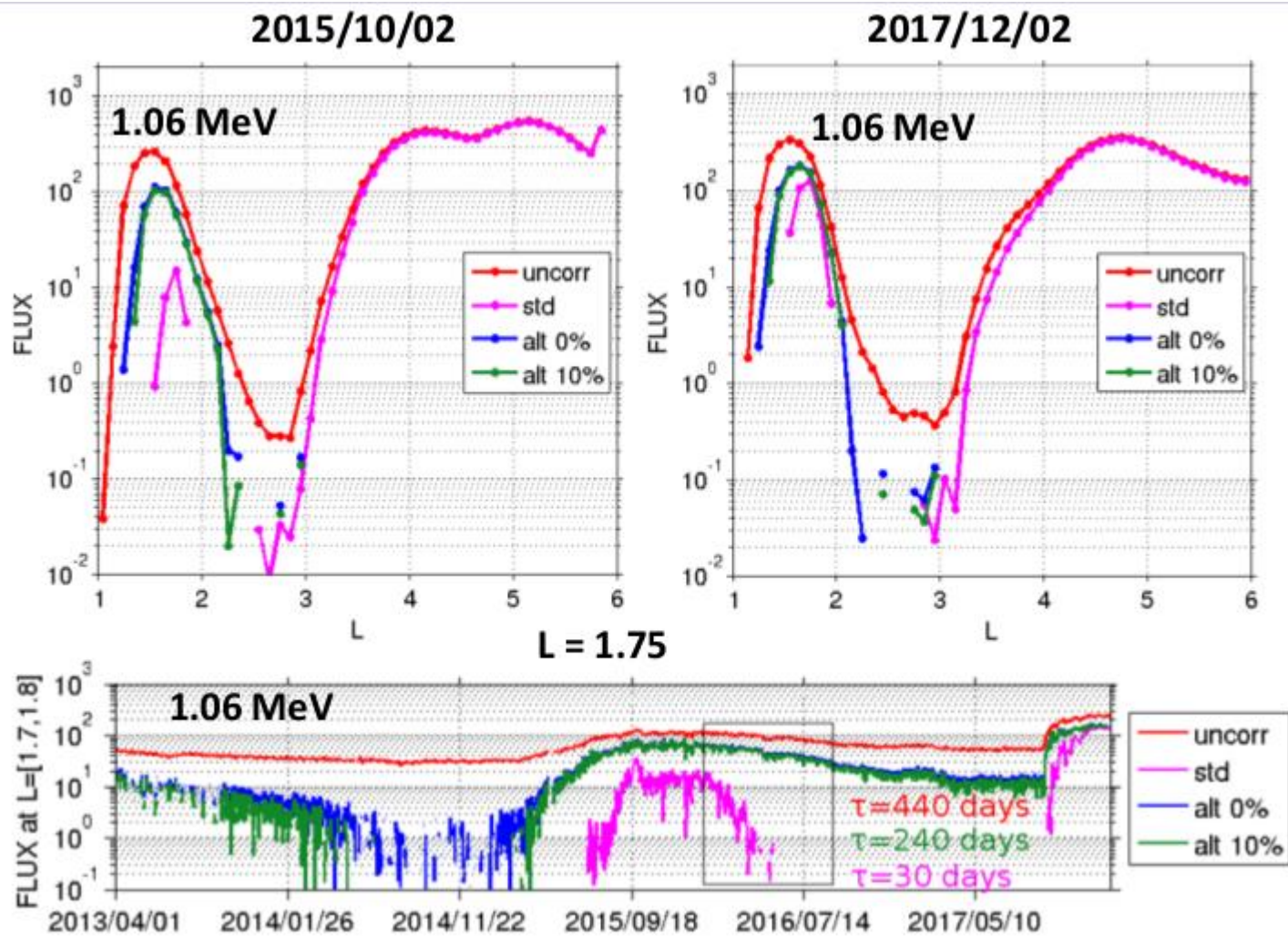
HIGH-P0 (1.06 MeV)



HIGH-P1 (L) (1.58 MeV)







Upcoming New MagEIS Data Release

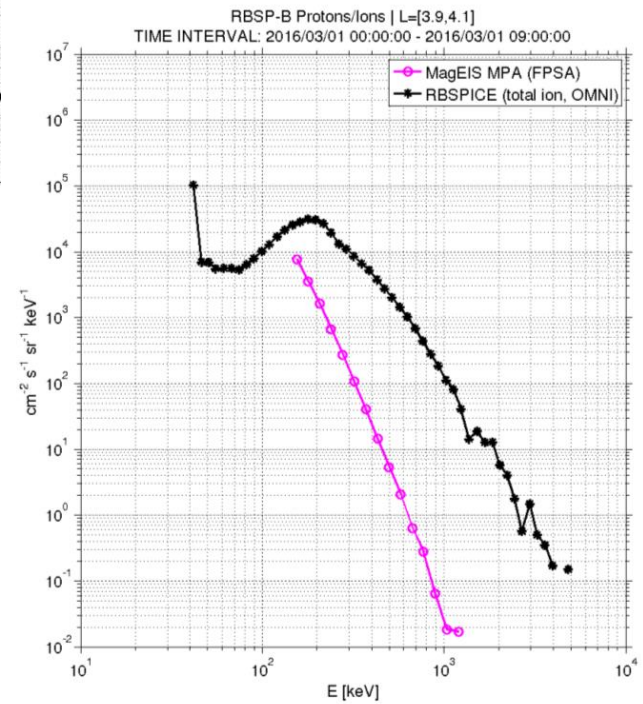
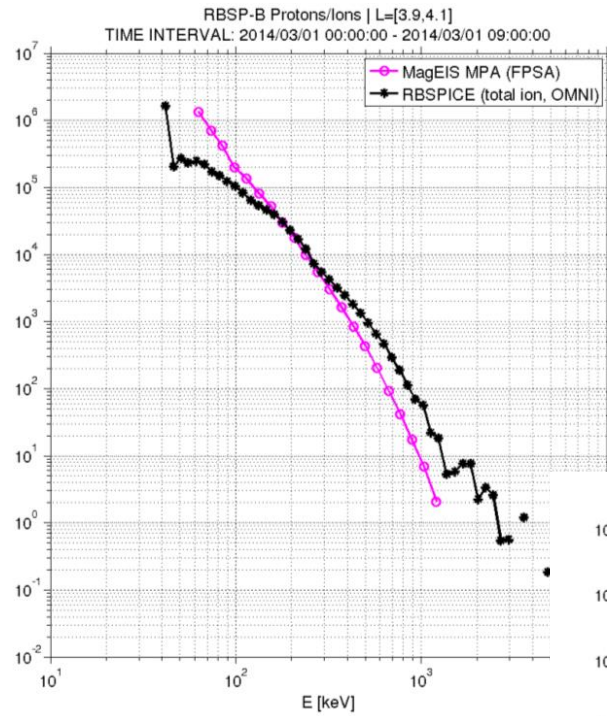
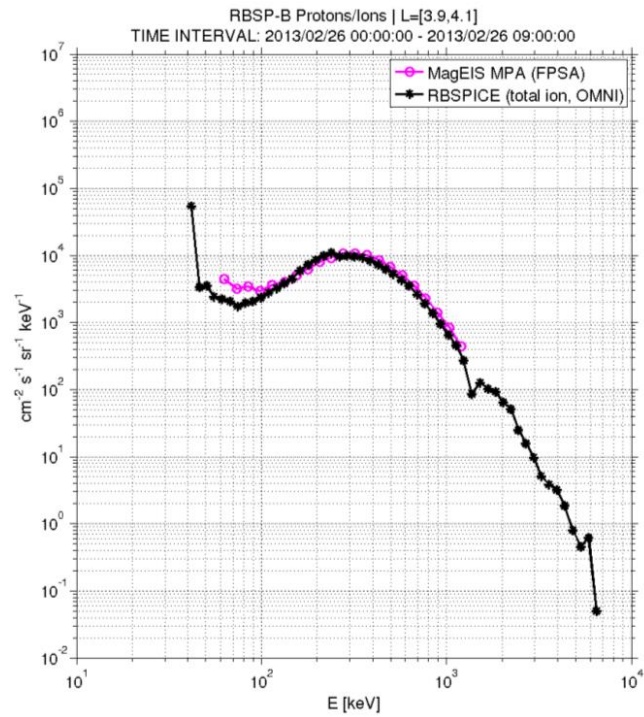
Release 04 aka "rel04"

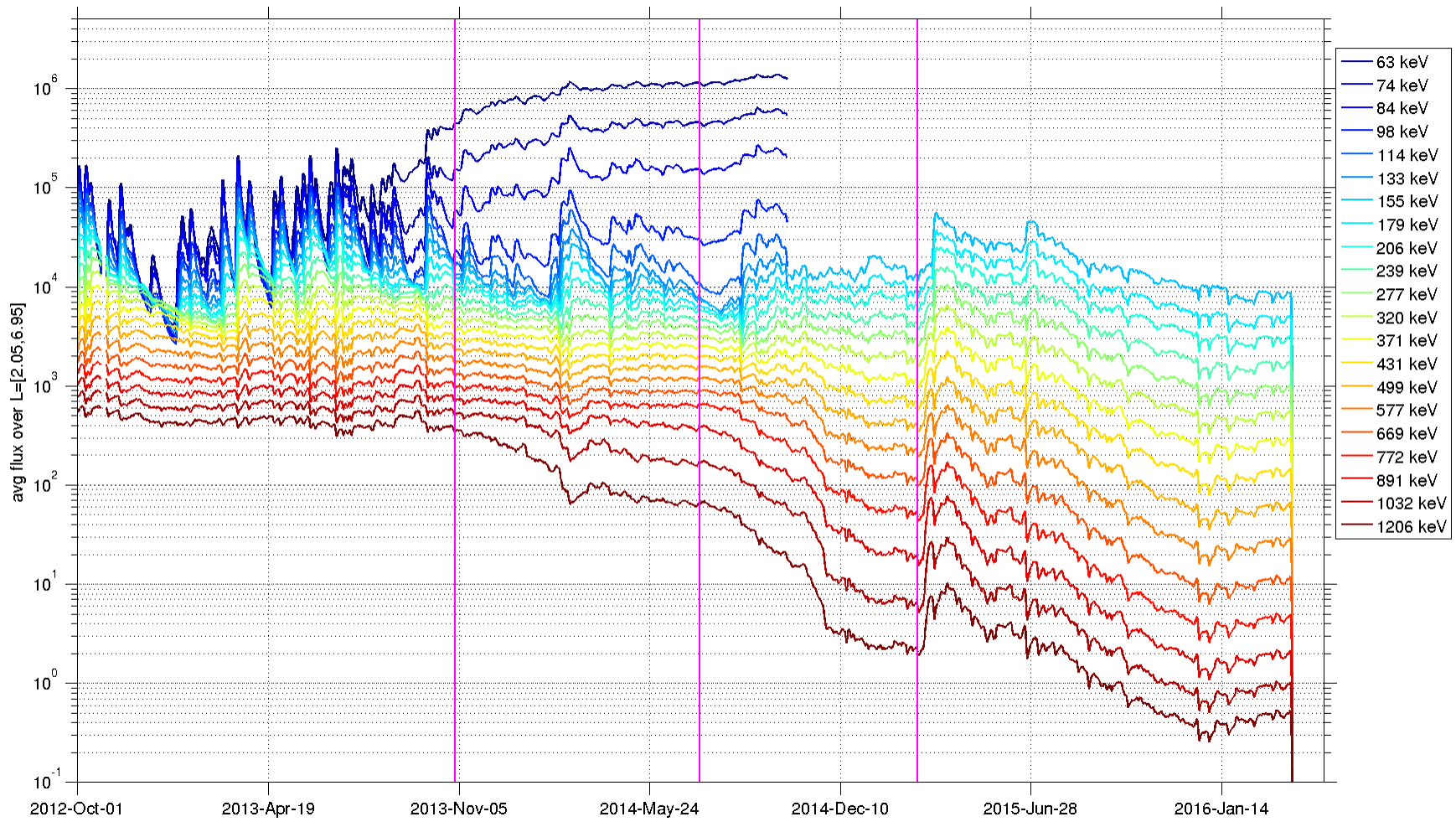
- Van Allen Probes ECT data (HOPE+MagEIS+REPT) comes out in releases
 - *In addition to usual versioning (e.g., v1.0.1 -> v1.0.2 -> v1.1.0 -> v2.0.0)*
 - *There have been 3 releases to date (currently on "rel03")*
- MagEIS rel04 will have some big-ish changes

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 - A. Considerable issues with the MagEIS proton measurements have been uncovered, including noise at the lower energies (~60-250 keV) and efficiency-of-detection issues at the higher energies (~250-1200 keV).***
 - These issues began in mid-2013.
 - After that time, the MagEIS proton data should only be used qualitatively and with extreme care.
 - We recommend using RBSPICE protons instead. Please consult the MagEIS team if you wish to use MagEIS proton measurements.





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RBSPA (MagEIS electrons)

LOW/M75/HIGH

All energies in keV

Does not include any channel changes on M35

Array	2012/09/19 00:00:00	2012/10/04 19:00:00	2013/02/24 00:00:00	2013/03/31 00:00:00	2013/08/03 00:00:00	Start UTC
index	2012/10/04 19:00:00	2013/02/24 00:00:00	2013/03/31 00:00:00	2013/08/03 00:00:00	PRESENT	Stop UTC
0	15*	15*	15*	15*	15*	
1	23^	23^	23^	20^	20^	
2	38	38	38	33	33	
3	58	58	58	54	54	
4	82	82	82	80	80	
5	110	110	110	108	108	
6	132*	145	132*	132*	132*	
7	145	182	145	143	143	
8	154^	221	154^	144^	144^	
9	182	224	182	184	184	
10	221	249	221	226	226	
11	243	323	243	235	235	
12	338	354	338	346	346	
13	460	460	460	470	470	
14	597	584	597	597	597	
15	741	741	741	749	749	
16	879	879	879	909	909	
17	1042	1042	1042	1064	1064	
18	1088*	1088	1088	1079	1079	
19	1650*	1650	1650	1650	1575	
20	1768*	1768	1768	1768	1728	
21	2280*	2280	2280	2333	2280	
22	2680*	2680	2680	2680	2619	
23	3455*	3455	3455	3618	3618	
24	3969*	3969	3969	4062	4062	

LUT: 16385/24577/XXXXX 16385/24578/29698 16385/24577/29698 16386/24579/29699 16386/24579/29699

25 possible channels: 9 (LOW) + 9 (M75) + 7 (HIGH).

HIGH threshold changes

Channels 0 and 1 on both LOW and M75 are often noisy and set to FILL VALUES in the public data files.

*FILL VALUES IN ALL DATA FILES

^FILL VALUES IN PUBLIC DATA FILES

RBSPB (MagEIS electrons)

LOW/M75/HIGH

All energies in keV

Does not include any channel changes on M35

Array	2012/09/19 00:00:00	2012/09/28 16:00:00	2012/10/04 16:30:00	2012/10/17 00:00:00	2012/10/24 00:00:00	2013/02/24 00:00:00	2013/03/31 00:00:00	2013/08/03 00:00:00	Start UTC
index	2012/09/28 16:00:00	2012/10/04 16:30:00	2012/10/17 00:00:00	2012/10/24 00:00:00	2013/02/24 00:00:00	2013/03/31 00:00:00	2013/08/03 00:00:00	PRESENT	Stop UTC
0	15*	15*	15*	15*	15*	15*	15*	15*	
1	27^	27^	27^	23^	23^	23^	24^	24^	
2	38	38	38	37	37	37	32	32	
3	60	60	60	55	55	55	54	54	
4	78	78	78	77	77	77	75	75	
5	100	100	100	103	103	103	102	102	
6	129	129	129	133*	134	133*	132	132	
7	133*	133*	133*	134	168	134	133*	133*	
8	149^	166	166	168	199	168	154^	154^	
9	166	169^	169^	169^	217	169^	168	168	
10	201	201	201	199	249	199	208	208	
11	235	249	249	249	334	249	246	246	
12	339	350	350	350	362	350	354	354	
13	459	465	465	465	465	465	470	470	
14	584	584	584	584	584	584	604	604	
15	726	733	733	733	733	733	749	749	
16	875	879	879	879	879	879	899	899	
17	1040	1042	1042	1042	1042	1042	1064	1064	
18	1088*	1088*	1088	1088	1088	1088	1066	1066	
19	1612*	1612*	1612	1612	1612	1612	1575	1575	
20	1809*	1809*	1809	1809	1809	1809	1728	1728	
21	2333*	2333*	2333	2333	2333	2333	2333	2228	
22	2742*	2742*	2742	2742	2742	2742	2619	2559	
23	3455*	3455*	3455	3455	3455	3455	3455	3455	
24	3969*	3969*	3969	3969	3969	3969	3969	3878	

LUT: [17408/25600/XXXXX](#) [17408/25601/XXXXX](#) [17408/25601/31746](#) [18433/25601/31746](#) [18433/26626/31746](#) [18433/25601/31746](#) [18434/26627/31747](#) [18434/26627/31747](#)

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 - C. ***Revised flux conversions and calibration factors for electrons. The electron energy channel definitions and flux levels have changed***

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 - C. Revised flux conversions and calibration factors for electrons. The electron energy channel definitions and flux levels have changed*
 - D. Revisions to the background correction algorithm for the electron data*
 - E. The electron and proton time tags should be more uniform in the merged/public L2 and L3 data files than was the case in the rel03 files.*
 - F. MagEIS LOW-A data loss in Aug/Sep 2017: An anomaly on MagEIS LOW-A led to a loss of data from 2017/08/21 through 2017/09/25*

JOB OPENING: Postdoctoral Fellow in Space Physics, Memorial University of Newfoundland, St John's, NL, Canada

From: Danny Summers (dsummers at mun.ca)

A position of Postdoctoral Fellow in Space Physics is available in the Department of Mathematics and Statistics, Memorial University of Newfoundland, St John's, Canada starting in September, 2018. Candidates should have a Ph.D. in space physics, plasma physics, or related field. Experience is required in one or more of the following: radiation belt physics, Earth's magnetosphere, solar wind, planetary magnetospheres, kinetic theory, MHD, computer simulations. Initial appointment is for one year, renewable subject to satisfactory performance and budget. Please send letter of application, statement of research interests and CV, and have at least three letters of reference sent, to Professor Danny Summers, Department of Mathematics and Statistics, Memorial University of Newfoundland, St John's, NL, Canada A1C 5S7.



Thank You