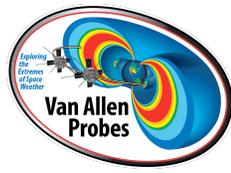




Van Allen Probes SWG Telecon

17 April 2015

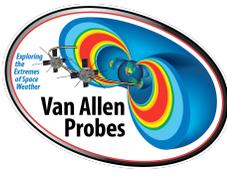


- News
- Poster session/data workshop at GEM (June 14-19, Snowmass, CO)
- CEAR workshop (June 21-25, Seattle, WA) Andy Gerrard
- AGU Sessions
- Early results from close approach (April 09)
- “Persistent pressure belt of high-energy (>100 keV) ions and its implications for the inner magnetosphere dynamics” Matina Gkioulidou and RBSPICE team
- Pushed to next week - ~~“Ground-based observations during March 17 storm” Eric Donovan and Emma Spanswick~~
- Walk on



Dial-in Information

(17 April 2015 3:00 EDT)



SWG Telecon (Van Allen Probes)

Host: Aleksandr Ukhorskiy

When it's time, start your meeting from here:

https://apl-webex.jhuapl.edu/orion/joinmeeting.do?ED=xuNI4ZXT8HeVCplibgo0Sw==&PW=BqAAAGh6QnTRUHou3INmEqUxGVZfFOrmssKy6JjHwSjLtVXeTxZ6YY2WPCCcrJmDiOYskeUzY1LUUp_eQnulkZCd-Er2

When: Friday, April 17, 2015, 3:00 pm (2 hrs), Eastern Daylight Time (New York, GMT-04:00).

Access Information

Meeting Number:

990 769 119

Password:

RBSP

Host Key:

760094 (Use this key during the meeting if you ever need to reclaim the host role.)

Audio Connection

8-1000 (Internal)

(240)228-1000 (Washington, DC)

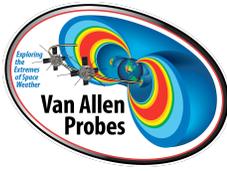
(443)778-1000 (Baltimore, MD)

(844)275-9323 (Toll Free)

Access Code:

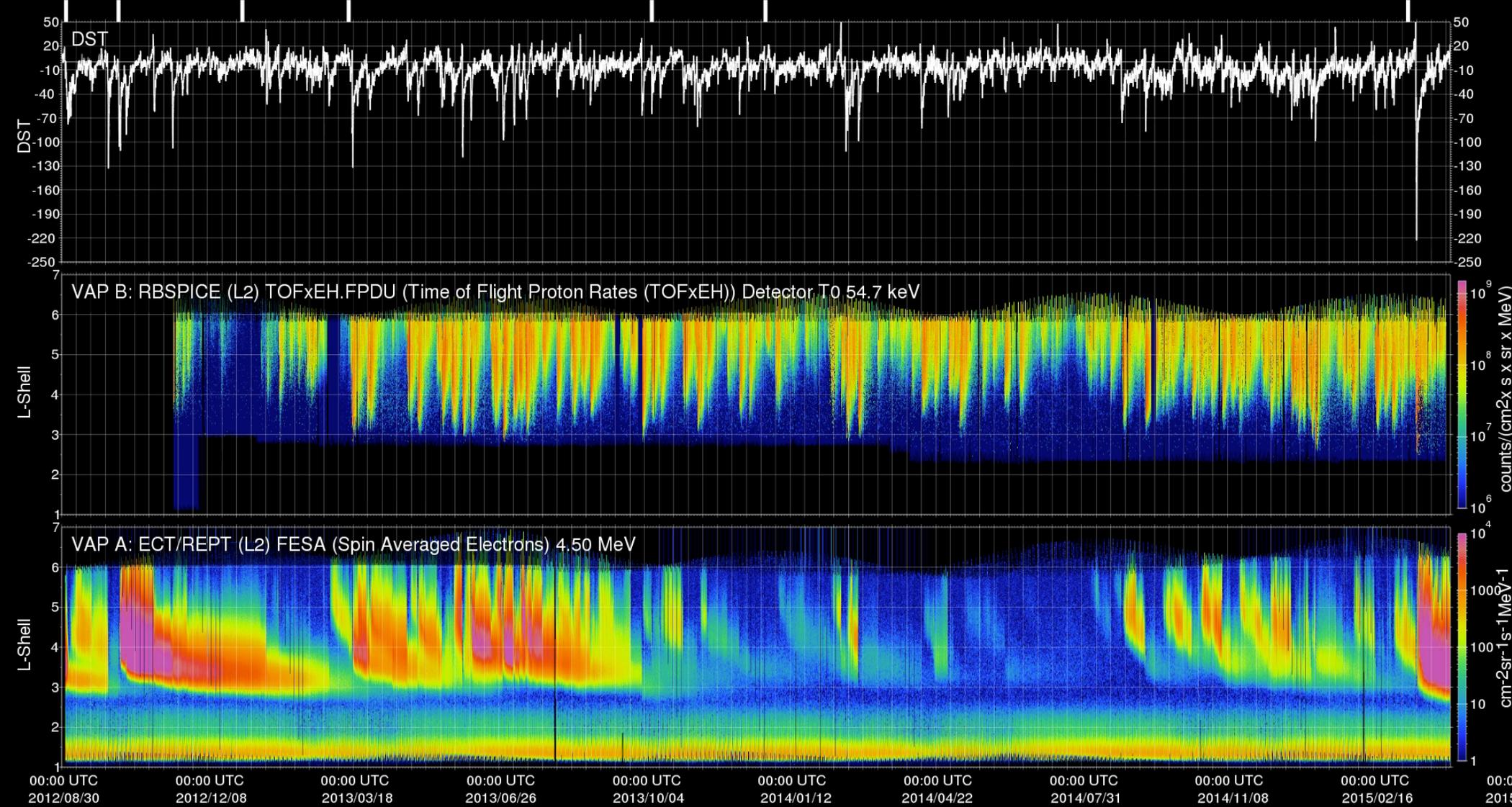
990 769 119

The apl-webex.jhuapl.edu team



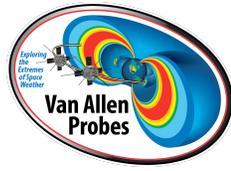
August 30th, 2012: Launch

April 15, 2015





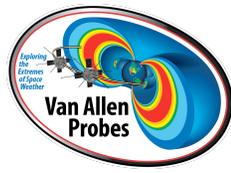
GEM & CEDAR Workshop 2015



- Special Van Allen Probes poster session/data workshop at GEM (June 14-19, Snowmass, CO)
 - Call for instrument team representation
- CEAR workshop (June 21-25, Seattle, WA) Andy Gerrard



IM Related Sessions at AGU Fall 2015



Comparative studies of the storm-time inner magnetosphere

Matina Gkioulidou, Alexa Halford, Drew L Turner, and Philip W Valek

Geomagnetic storms are manifestations of strong coupling between the solar wind and Earth's magnetosphere which result in dynamic changes of the ring current and radiation belts environment. Different solar cycle phases are associated with a variety of solar wind structures that drive geomagnetic storms. This session's goal is to investigate energetic particles' and fields' evolution in the inner magnetosphere during storms. We solicit contributions describing new insights from in situ, global and ground based observations, as well as simulations of storm-time intervals for Solar Cycle 24 (e.g. during ongoing missions such as the Van Allen Probes, THEMIS, TWINS, IBEX, GOES, Cluster). We also encourage contributors to compare to storms from previous solar cycles (e.g. the CRRES era). With the current solar cycle entering its declining phase, this session will consider solar cycle dependences and variations of storms and how energetic particle populations contribute to and are affected by them.

Inner magnetosphere cross-population interactions

Jichun Zhang, Yiqun Yu, Colby L Lemon, and Michael Warren Liemohn

The terrestrial inner magnetosphere is populated by particles in a variety of energies, which form distinct regions such as the ring current, plasma sheet, plasmasphere, and radiation belts. These particle populations can interact with each other through electric field perturbations that couple the inner magnetosphere and the ionosphere, magnetic field distortions due to the formation of the ring current during magnetic storms, and plasma wave activity. Recent in-situ measurements of plasma, fields, and waves from current space missions (e.g., Van Allen Probes, MMS, Cluster, THEMIS, TWINS, POES, and GOES) and advances in modeling and theory have been greatly improving our understanding of the inner magnetosphere cross-population interactions. We solicit presentations on observations, numerical simulations, and theoretical investigations that address coupling between electric/magnetic fields and plasma, interactions between cold/hot/energetic particles via waves, and effects of ionospheric particle precipitation on the inner magnetosphere dynamics.

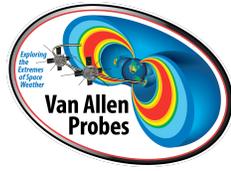
Radiation belt dynamics in the Earth's inner zone and slot region

J. F. Fennell, Xinlin Li, and Jean-Francois Ripoll

The inner radiation zone and slot region have recently become a focus of interest because they reside either completely within the plasmasphere or extend into the inner edge of the plasma sheet depending on geomagnetic activity. The energy dependence and dynamics there are different than found in the outer radiation belt. These regions have been little studied until recently. The physical processes that occur in these regions involve strong variations in the source, transport, and loss rates for both electrons and ions. This session solicits contributions that incorporate studies of effects like wave-particle interactions, radial transport, solar particle entrapment, etc. We encourage results utilizing measurements from older and recent missions, such as Van Allen Probes, as well as modeling efforts that shed new light on processes unique to these regions. For the purposes of the session we define these regions to be within $L < 4$.



IM Related Sessions at AGU Fall 2015



Recent Advances in Understanding the Magnetospheric Waves and Their Effects on Energetic Particles

Weichao Tu, Wen Li, and Maria Usanova

Wave-particle interactions are fundamental physical processes in Earth's inner magnetosphere and have strong effects on the dynamics of energetic particles therein. Various magnetospheric waves have been identified as the key drivers of the acceleration, transport, and loss of radiation belt and ring current particles. These waves include ULF waves, chorus, plasmaspheric hiss, magnetosonic waves, EMIC waves, etc. Characterizing the global distribution of these waves and their spectral properties is critical for modeling and eventually predicting the dynamics of energetic particles. We invite presentations on the recent advances in understanding the characteristics, generation mechanisms, and propagation of various magnetospheric waves and addressing their effects on energetic particles. This session is especially timely for the unprecedented high-quality data from recent missions (Van Allen Probes, THEMIS, MMS, Cluster, POES/GOES, CubeSat, BARREL, etc.), the new event-specific and global wave models, and the recently.

Understanding the Dynamics of Earth's Radiation Belts in the Fundamental Context of the Sun-Earth System

Allison N Jaynes, Binbin Ni, Mei-Ching Hannah Fok, and Jacob Bortnik

The dynamics of Earth's radiation belts take place over a range of scale sizes: from local wave-particle interactions to large system-scale effects due to solar wind features. Changes in ring current populations often occur on a timescale as short as minutes to hours, while variations in the ultra-relativistic electrons can be markedly different. Long-term space weather correlations reveal the broad effects over time due to solar cycle and associated Sun-Earth system responses. This session solicits contributions that incorporate a variety of spatial/temporal ranges, including: the effects of wave-particle interactions on particle populations in the radiation belts, insights into the diffusive and non-diffusive processes that occur in the belts and out to the central plasma sheet, and broader-scale space weather implications. We encourage results utilizing measurements from recent missions such as Van Allen Probes, THEMIS, POES/GOES, CubeSats, as well as coordinated modeling efforts that may shed new light on these processes.

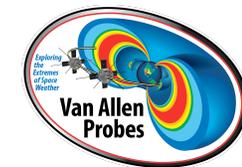
Waves and Particles at the Magnetic Equator

Kazuo Takahashi, Richard Eugene Denton, and Robert E Erlandson

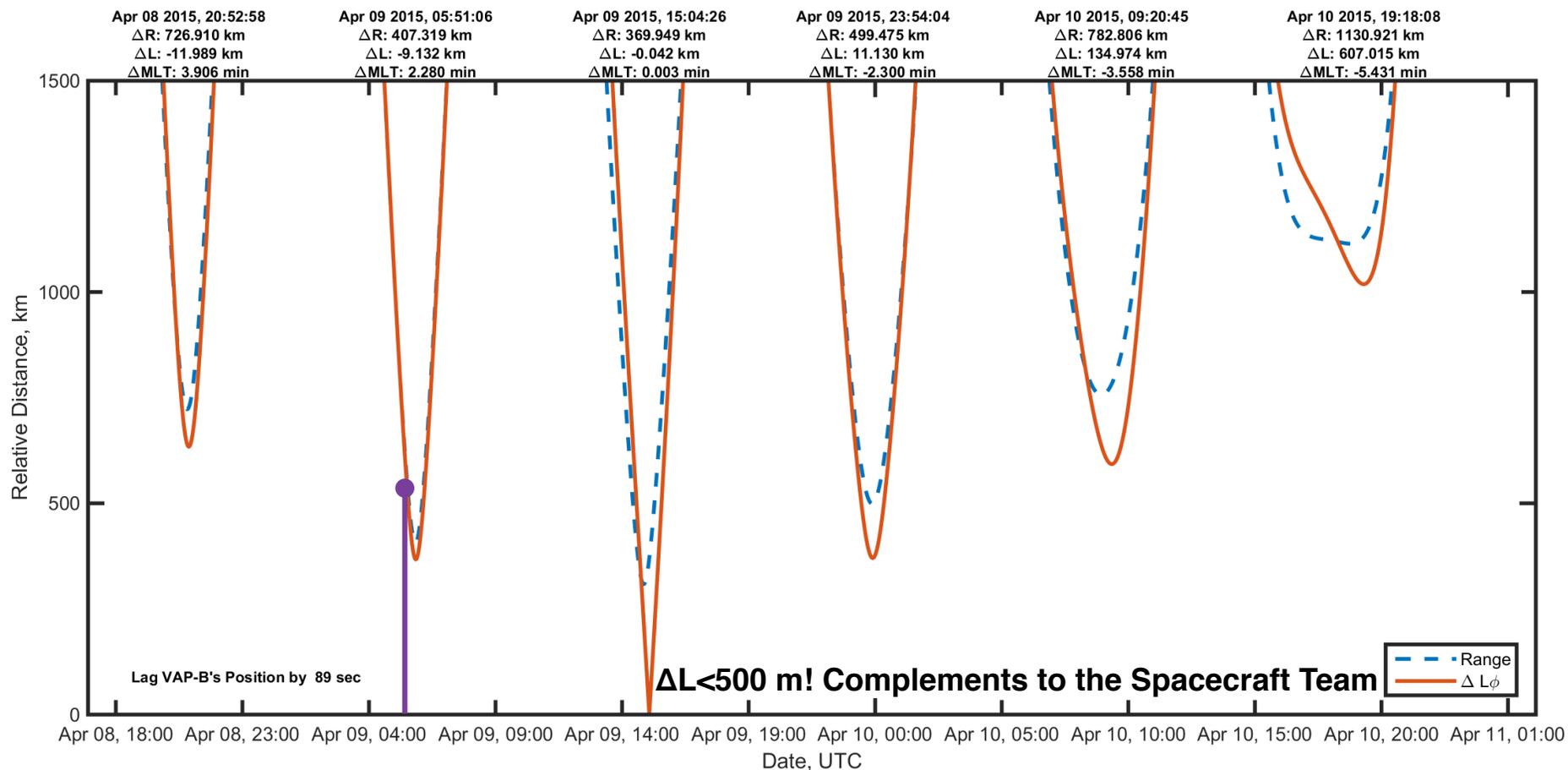
The magnetic equator in the magnetosphere is a unique site in the magnetosphere where the magnetic field magnitude has a minimum and particles with all mirror latitudes pass. As a consequence, the equator is a crucial region for the growth and propagation of plasma waves in the ULF to VLF regimes and their interaction with trapped particles. Wave phenomena that are known to exhibit properties unique to the equator include (but not limited to) whistler waves, EMIC waves, magnetosonic waves, and standing Alfvén waves. Given the new observations with multiple spacecraft and advances in numerical and theoretical techniques for these waves, now is a good time to communicate our current understanding of the equatorial processes and identify remaining questions in a common forum. This session invites observational and theoretical studies of waves and particles in the equatorial region.



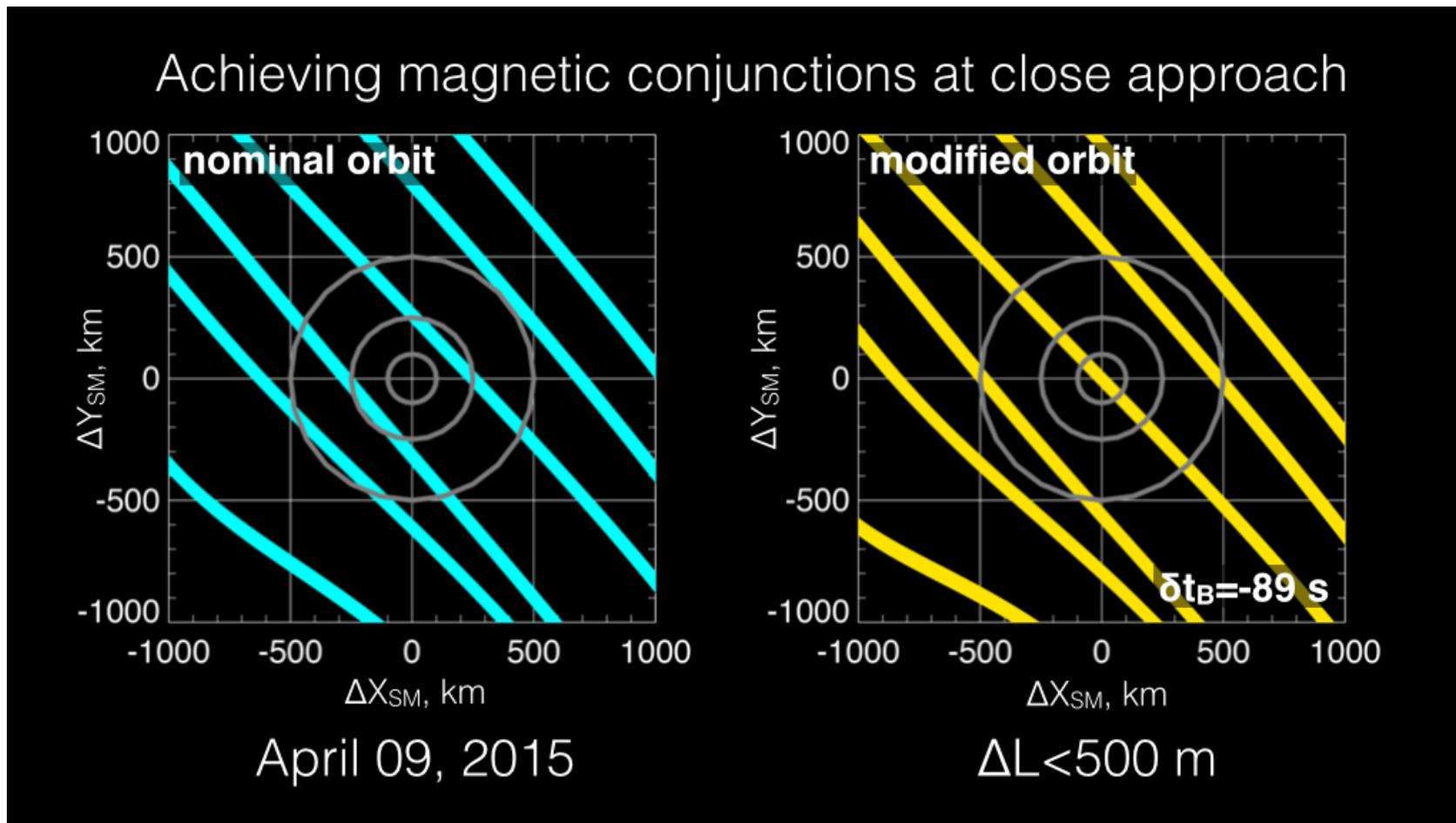
Close Approach on April 09



Single burn of ~ 89 g of fuel which shortens the mission lifetime by ~3 days



Should we do such maneuvers at future close approaches?



Next lapping event June 14-17

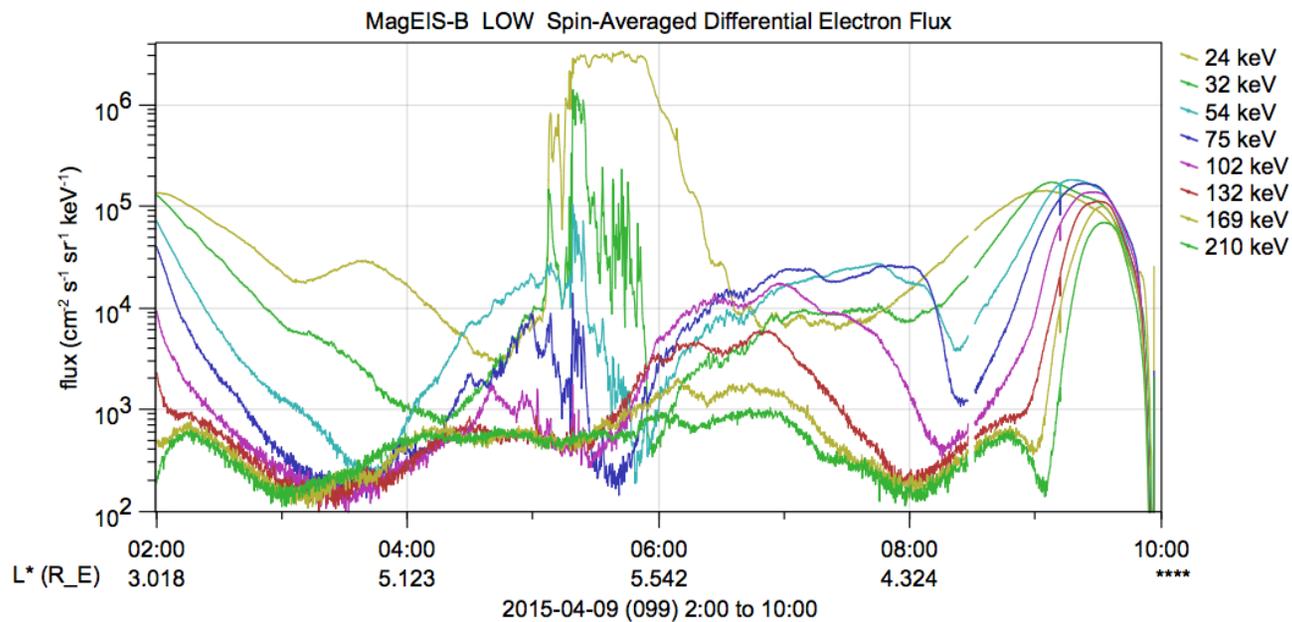
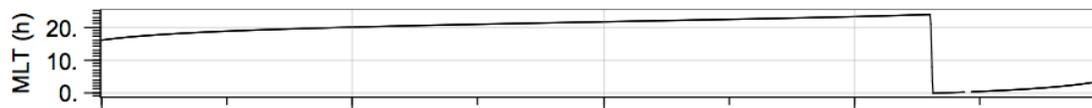
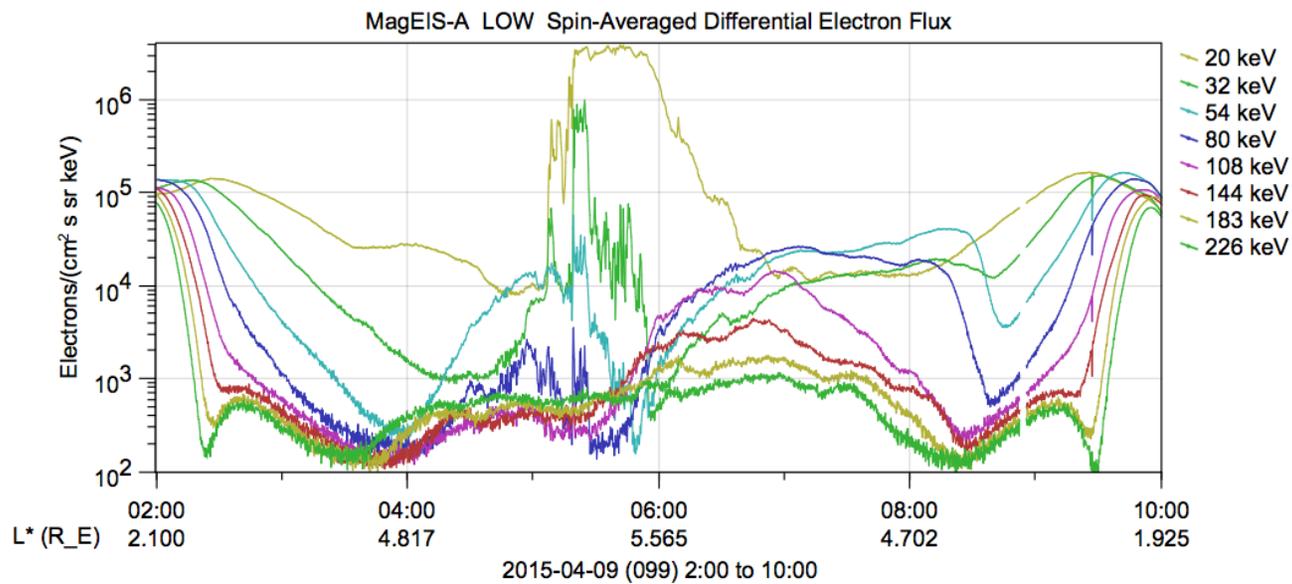
Maneuver June 1

Must decide in early May



April 09, 05:00 UT

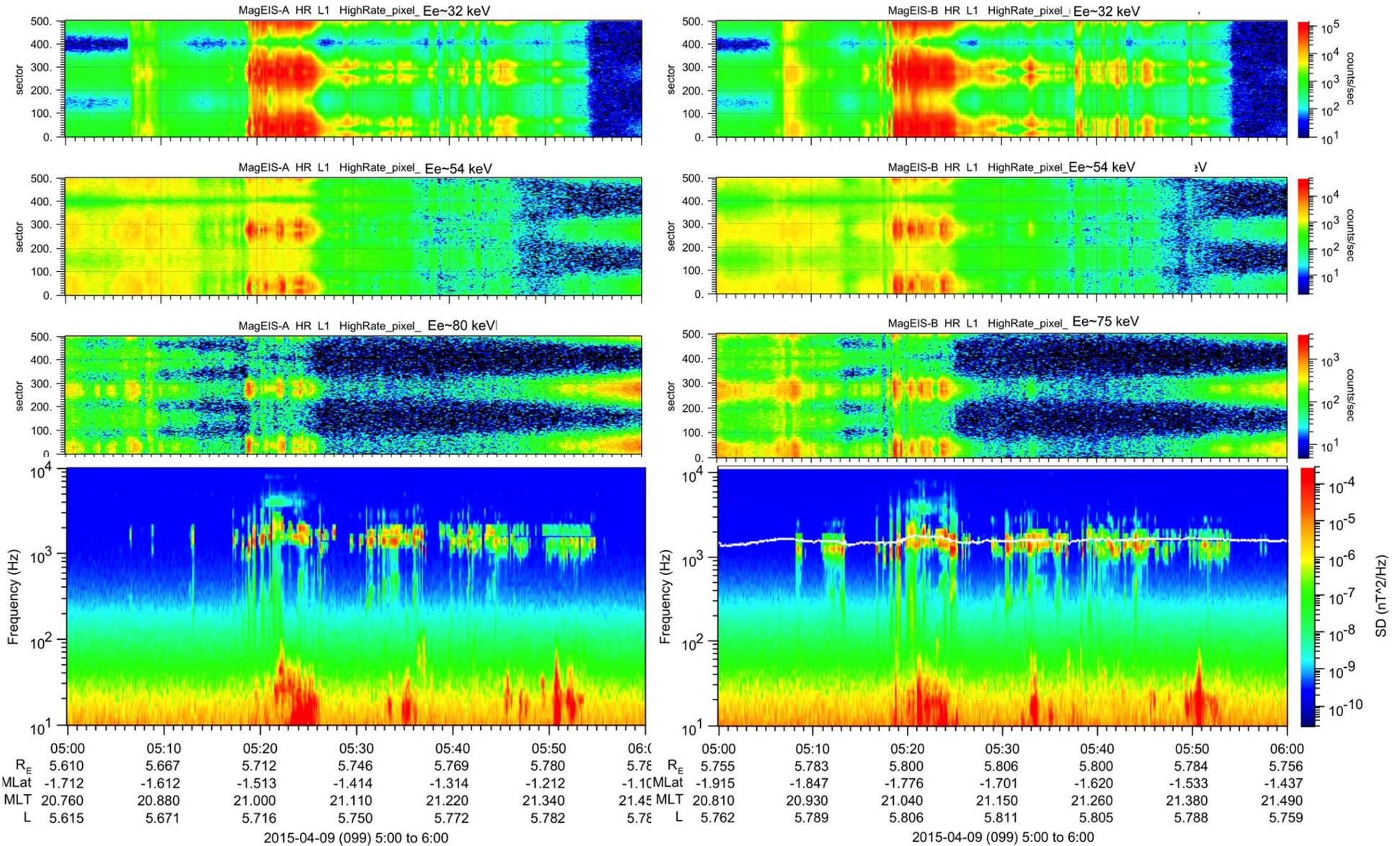
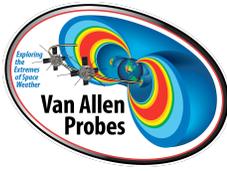
MagEIS and EMFISIS J. Fennel & B. Kurth





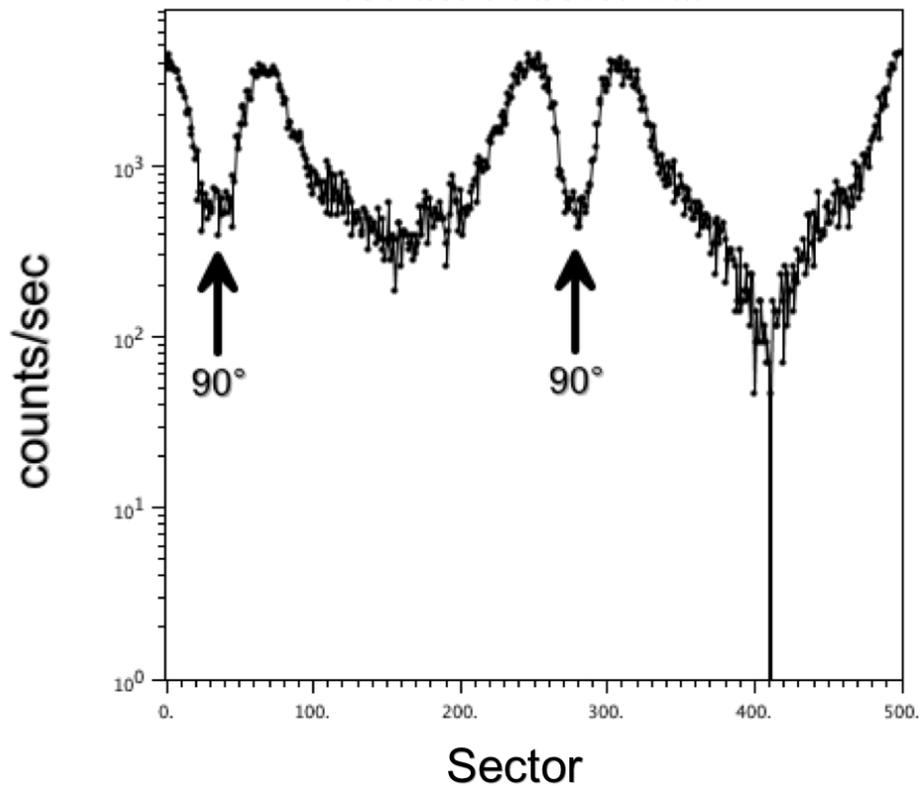
April 09, 05:00 UT

Similar to Fennell et al. [2014] event of January 13, 2013



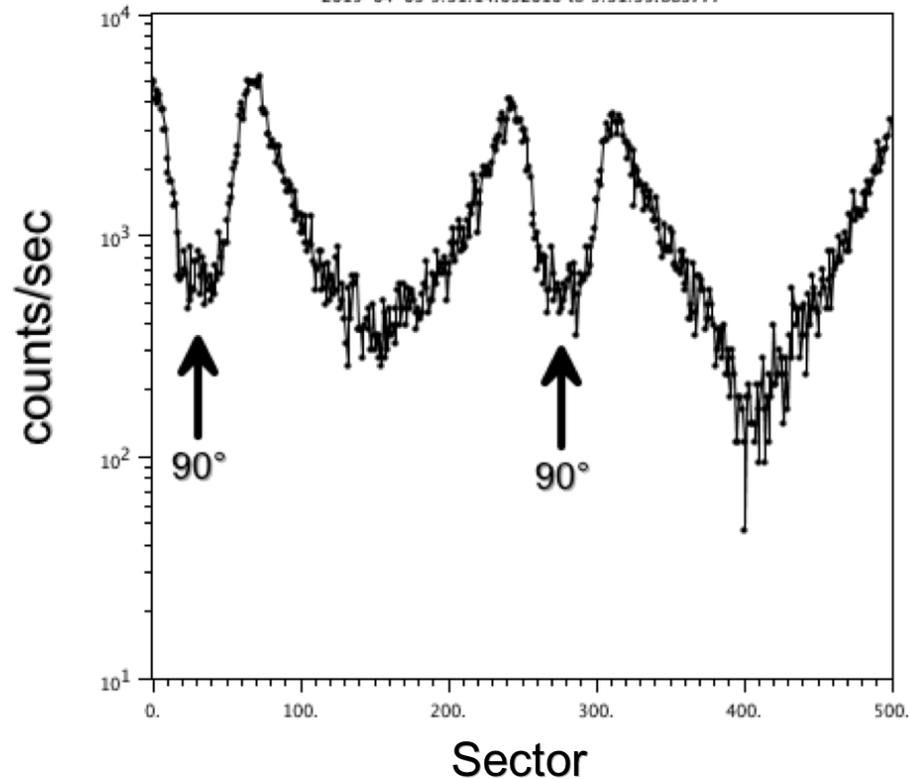
MagEIS-A LOW 32 keV 0531 UT

2015-04-09 5:31:01.016949 to 5:31:22.808717



MagEIS-B LOW 32 keV 0531 UT

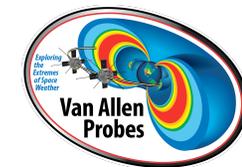
2015-04-09 5:31:14.092010 to 5:31:35.883777



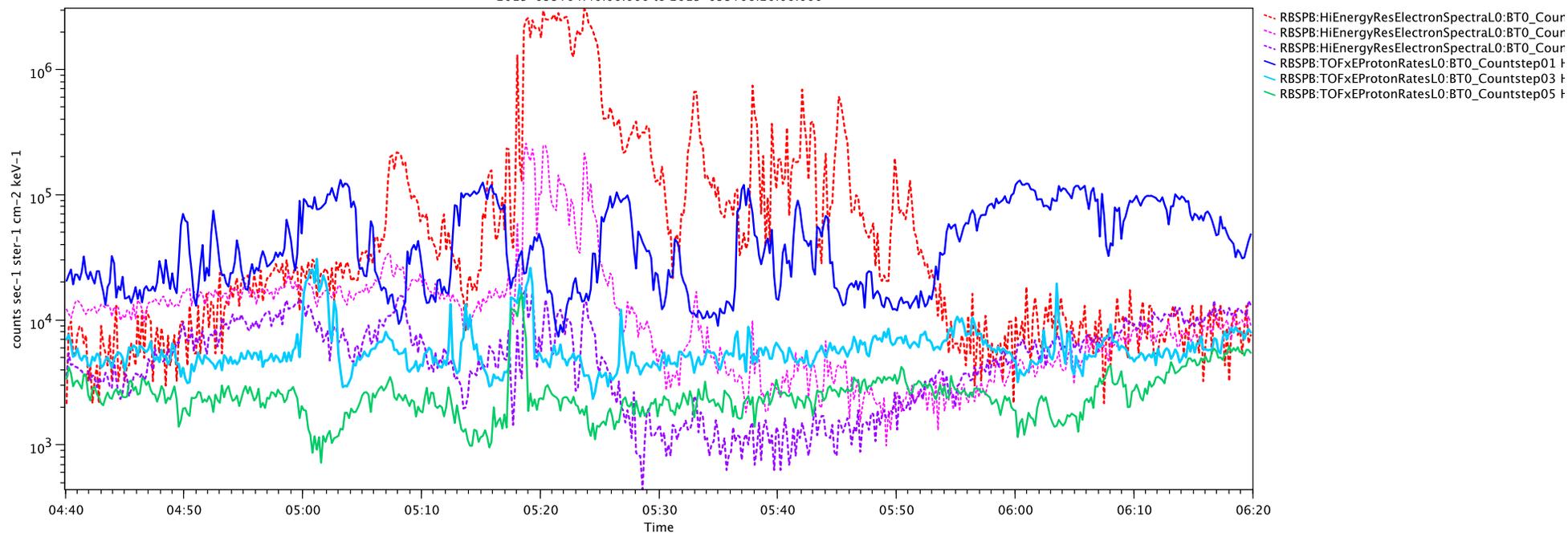


April 09, 05:00 UT

RBSPICE D. Mitchell

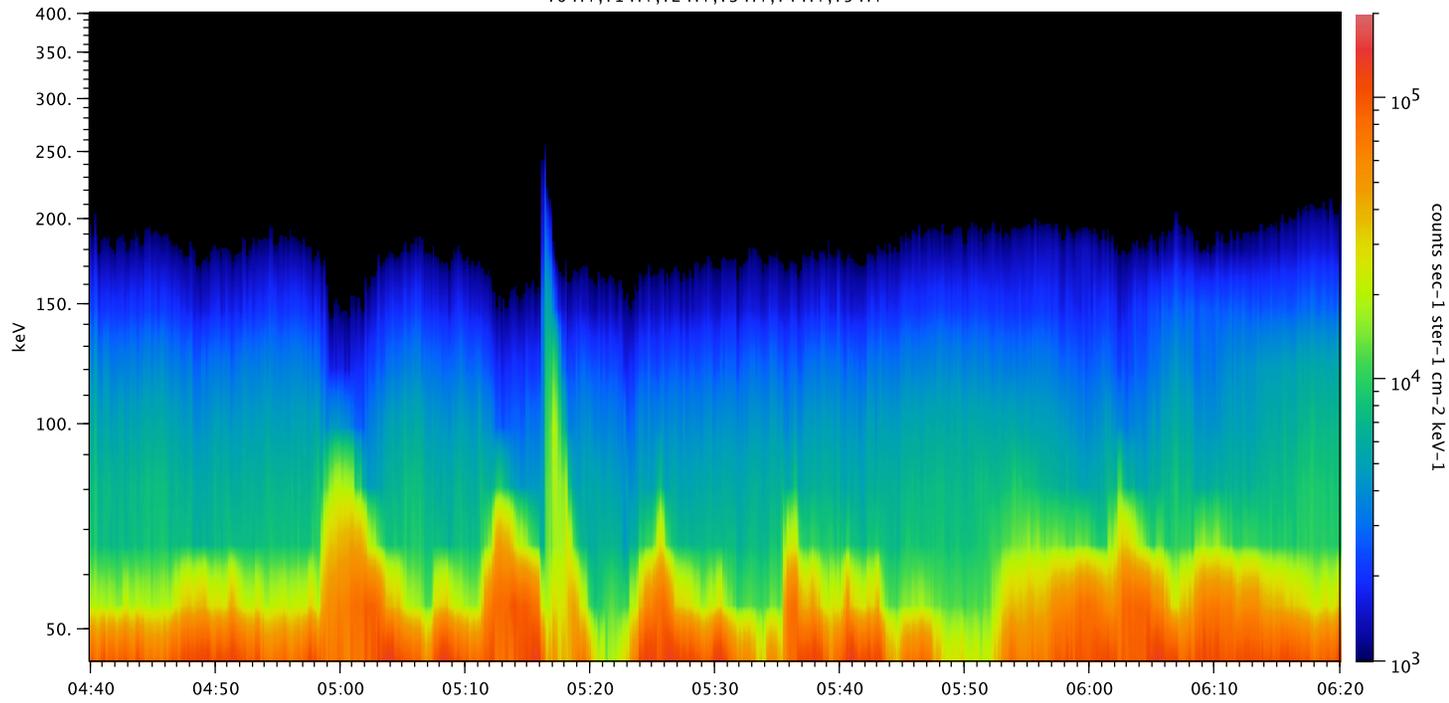


RBSP LO RBSPB HiEnergyResElectronSpectra(ESRHFLT)
RBSP LO RBSPB TOFxEProtonRates(TOFxEH)
2015-099T04:40:00.000 to 2015-099T06:20:00.000

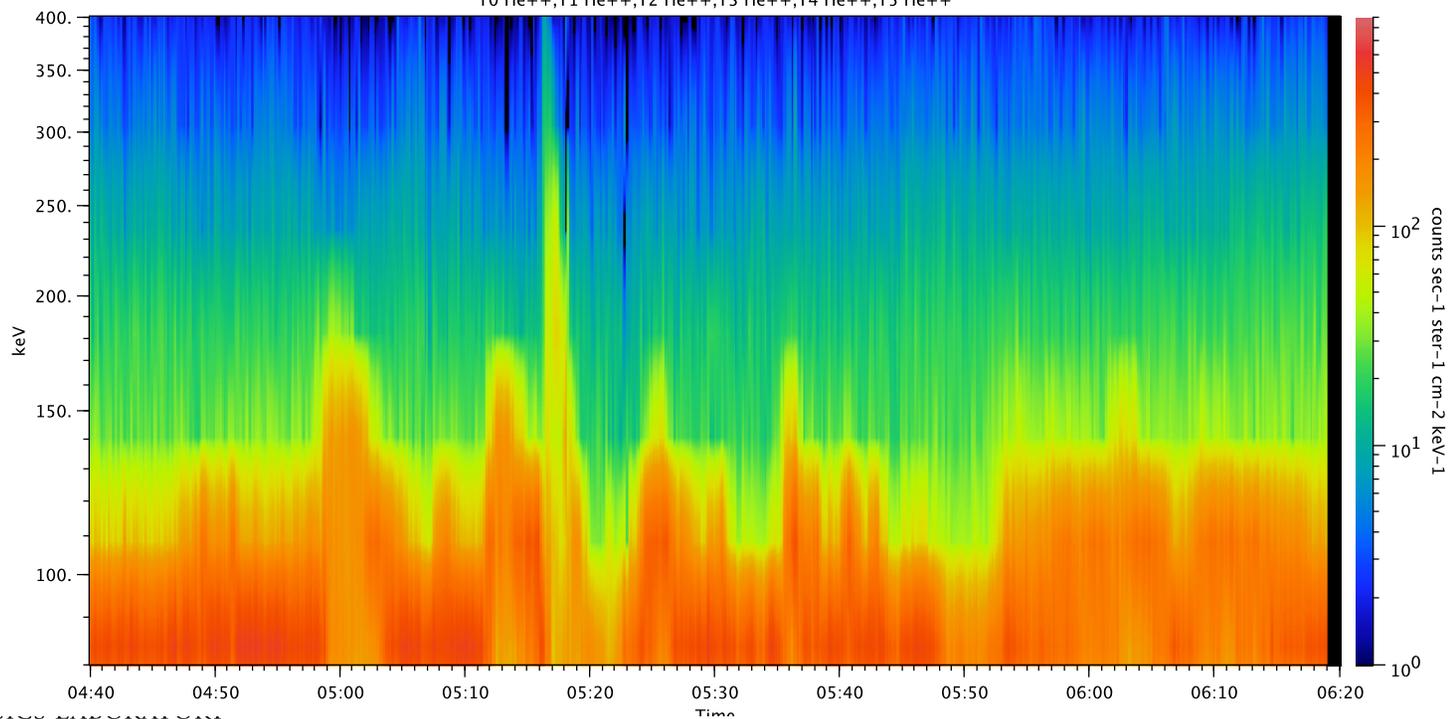




L0 Rbspb TOFxEProtonRates(TOFxEH)
[4.81824067E8,0.18565106391906738]-[4.81834867E8,0.1856507658958435]
T0 H+,T1 H+,T2 H+,T3 H+,T4 H+,T5 H+



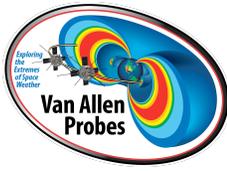
L0 Rbspb TOFxENonProtonRates(TOFxEonH)
[4.81826467E8,0.1856510043144226]-[4.81832467E8,0.18565088510513306]
T0 He++,T1 He++,T2 He++,T3 He++,T4 He++,T5 He++





April 09, 05:00 UT

RBSPICE D. Mitchell



RBSP L1 RBSPB TOFxEProtonRates(TOFxEH)
RBSP L1 RBSPB TOFxENonProtonRates(TOFxEnonH)
2015-099T04:20:00.000 to 2015-099T06:20:00.000

