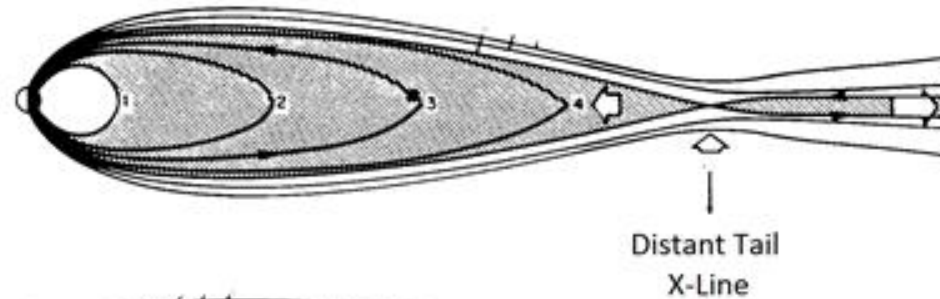


MMS Magnetotail Observations of the Complete Substorm Cycle and Streaming Energetic Particles

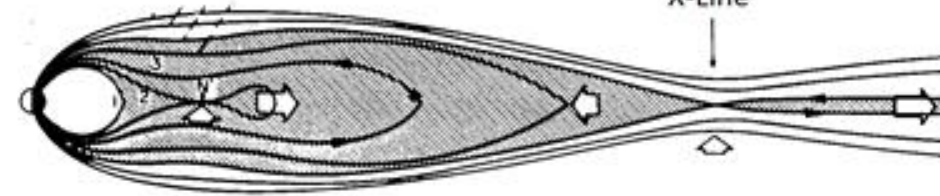
T. W. Leonard, D. N. Baker, MMS EPD Team, et al.
Laboratory for Atmospheric and Space Physics

The Substorm Sequence

Ground State

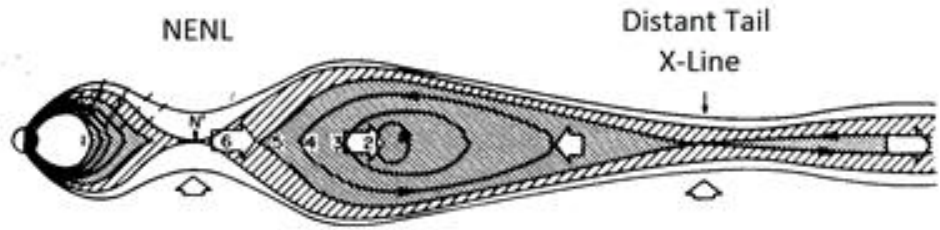


Late Growth



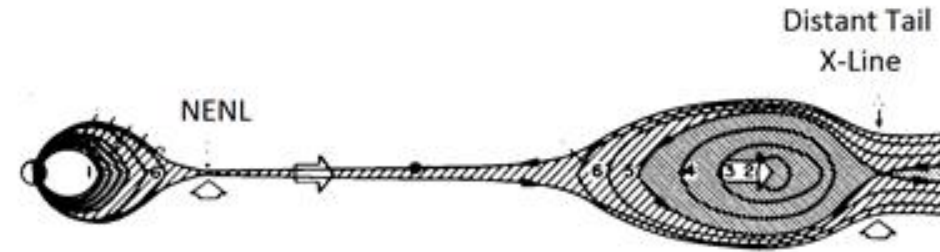
Reconnection on closed plasma sheet field lines

Substorm Onset



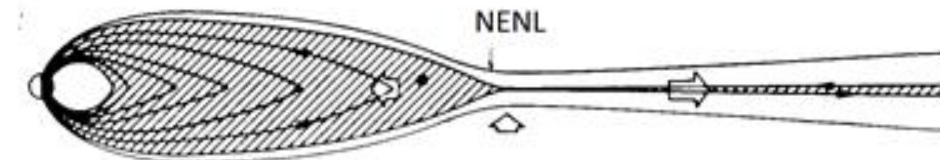
Strong plasma jetting both Earthward and tailward; Plasmoid release

Plasmoid Release



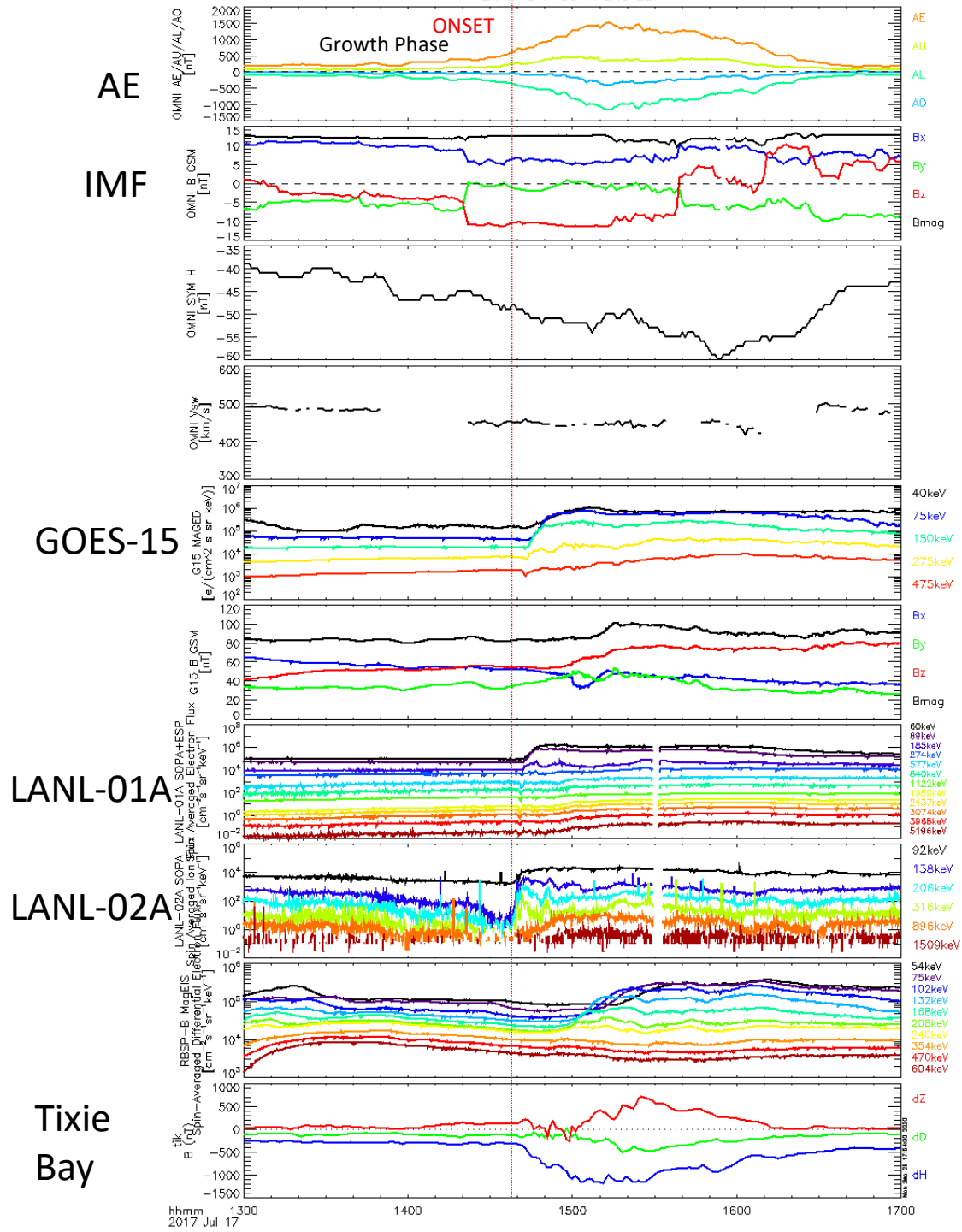
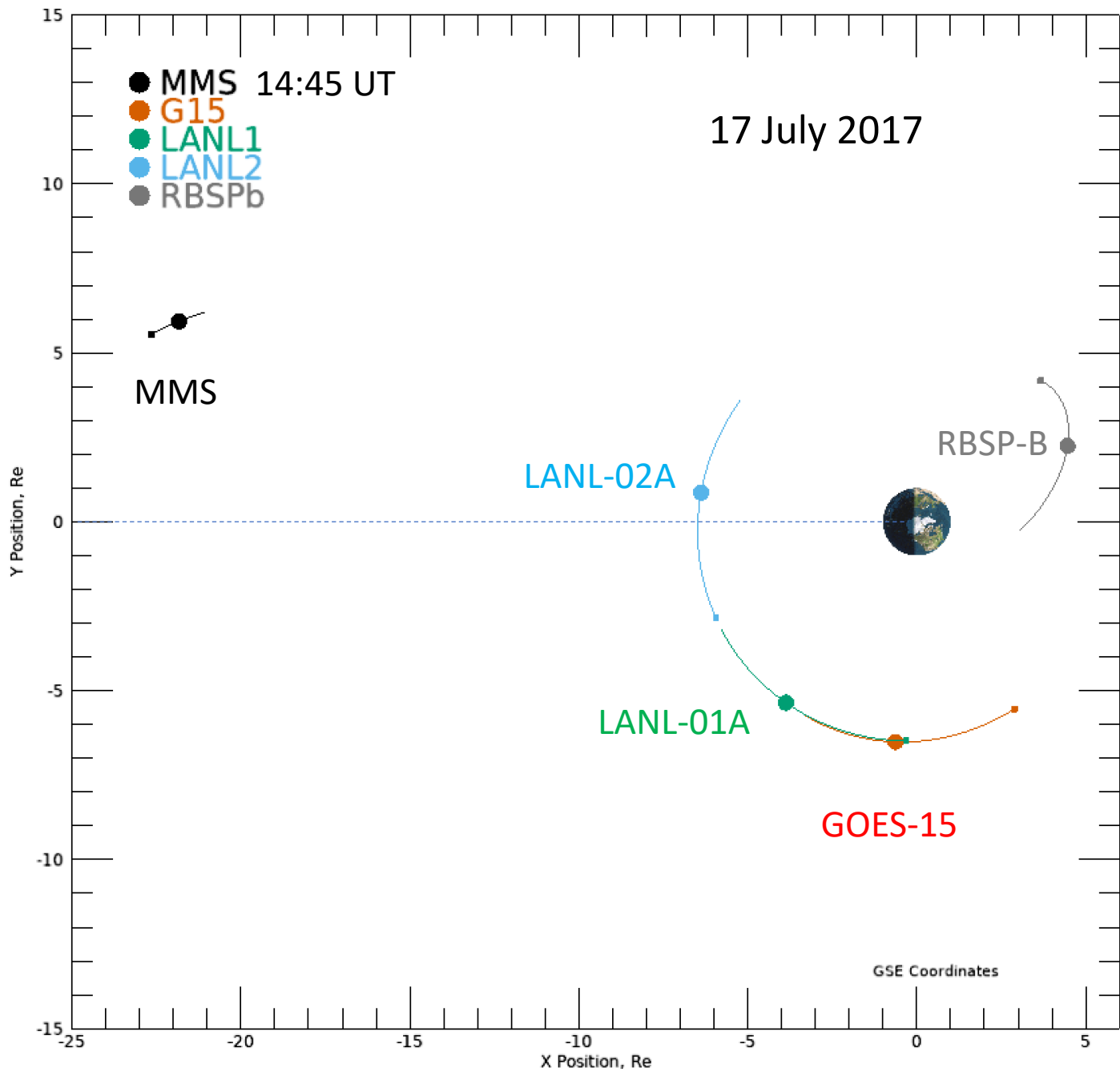
Thin residual plasma sheet with continued dissipation

Recovery Phase



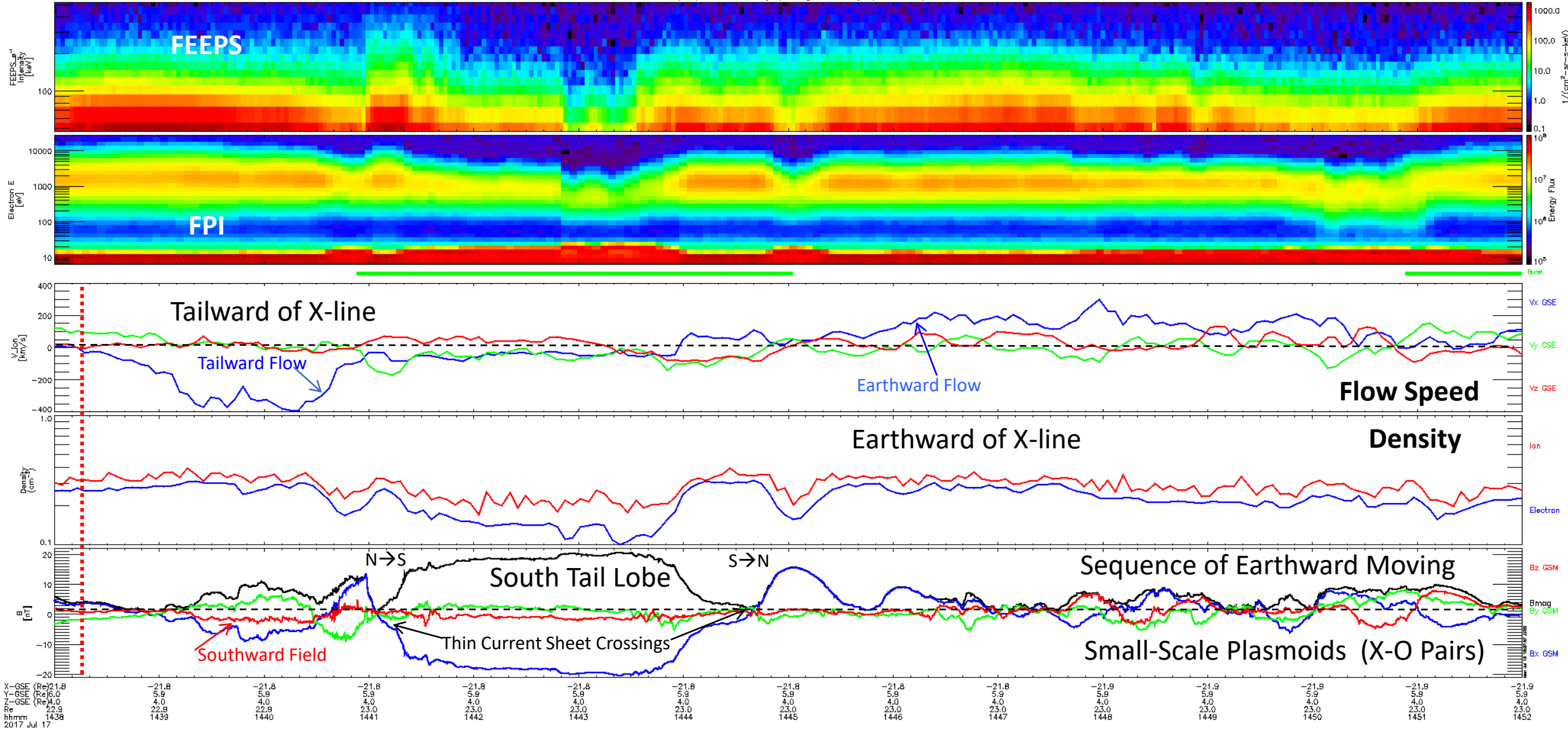
Tailward retreat of the NENL with poleward "leap" of auroras

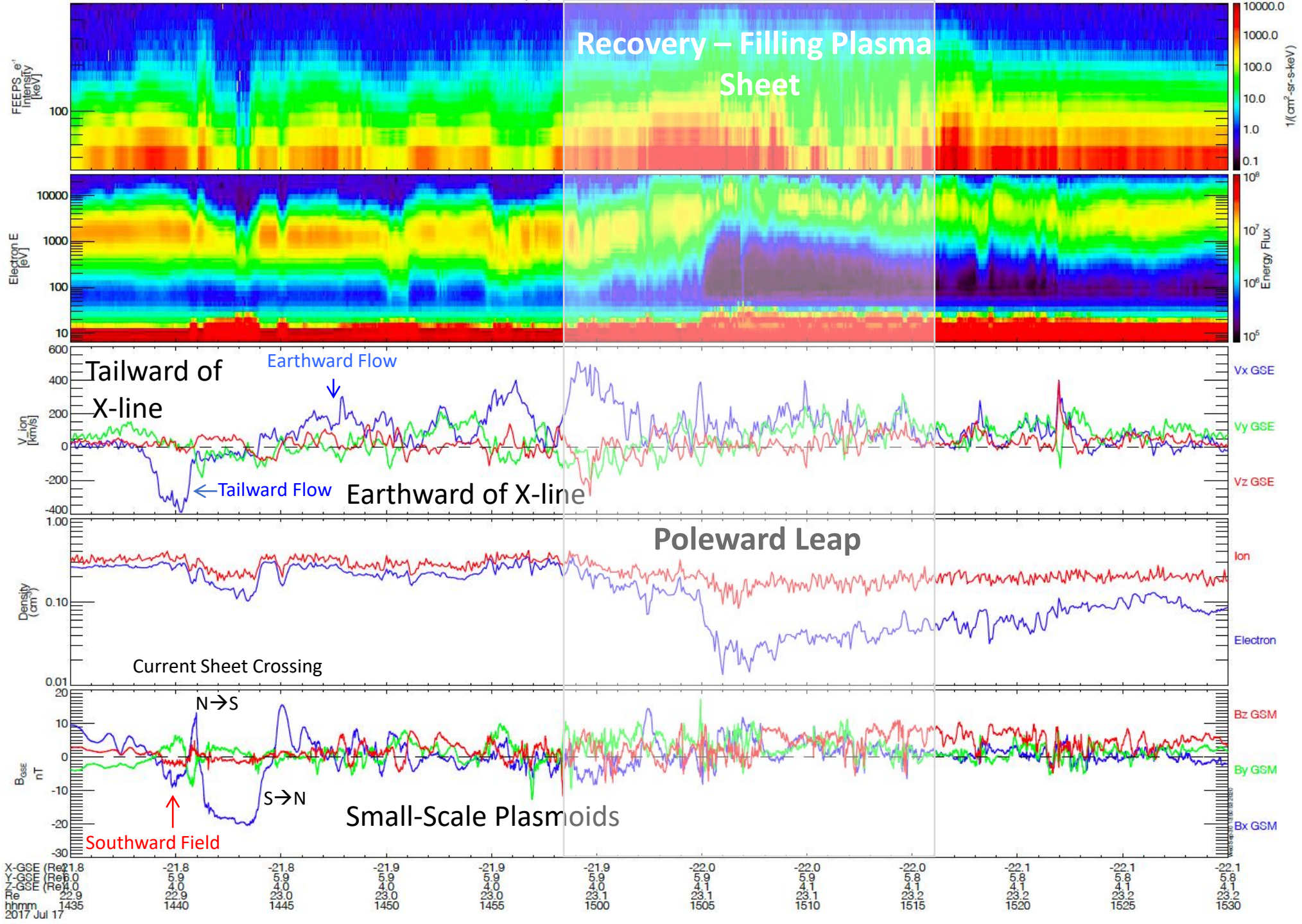
2017-07-17/13:00:00 to 2017-07-17/17:00:00

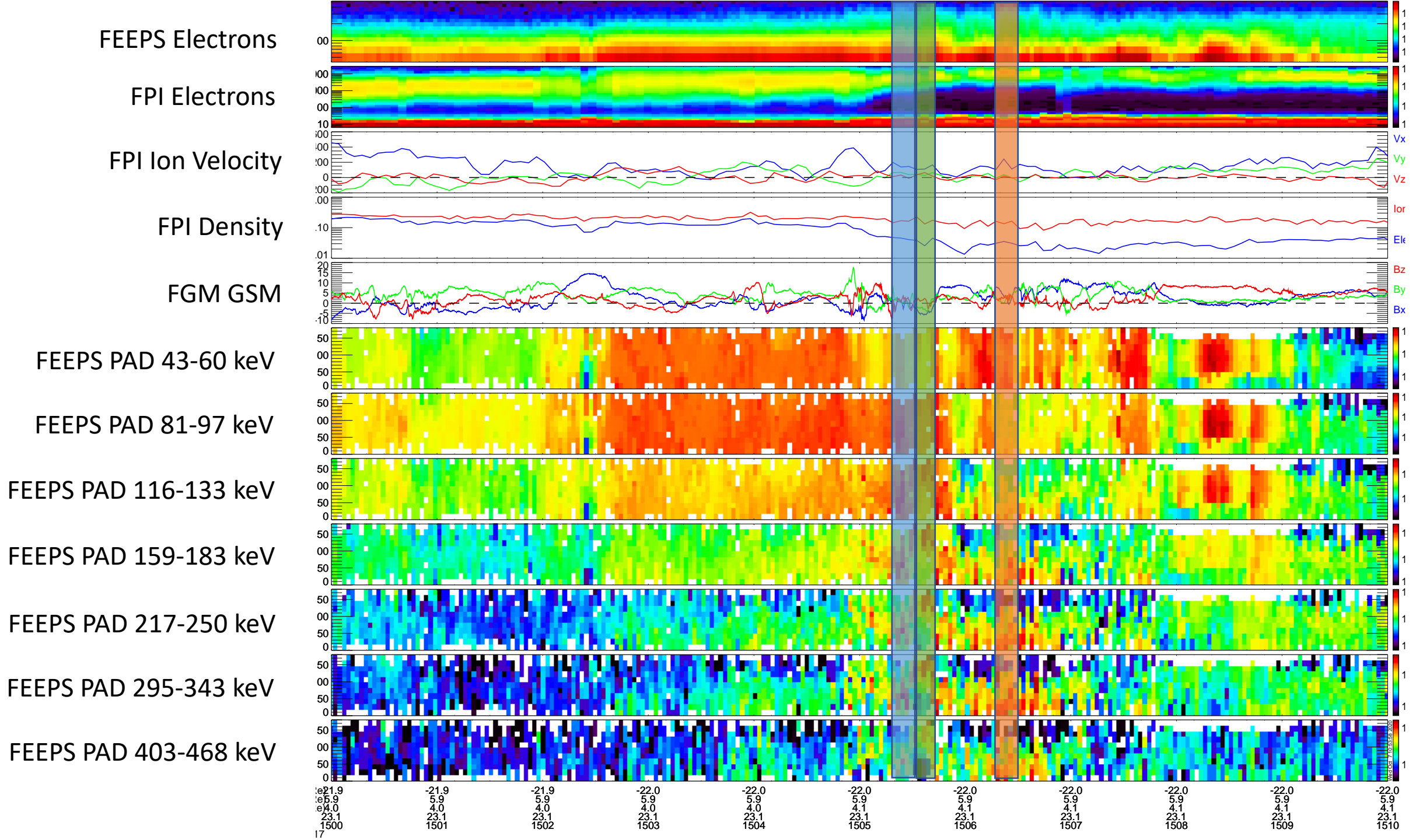


MMS 1 Data – 17 July 2017

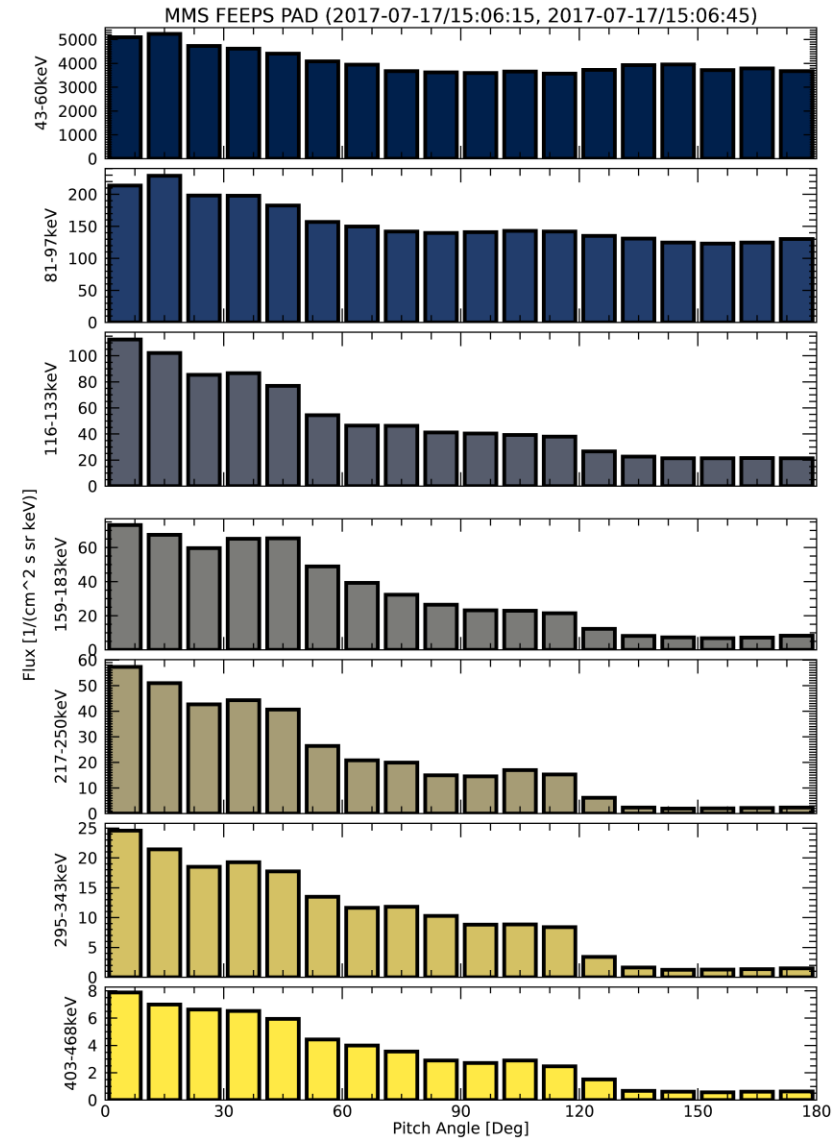
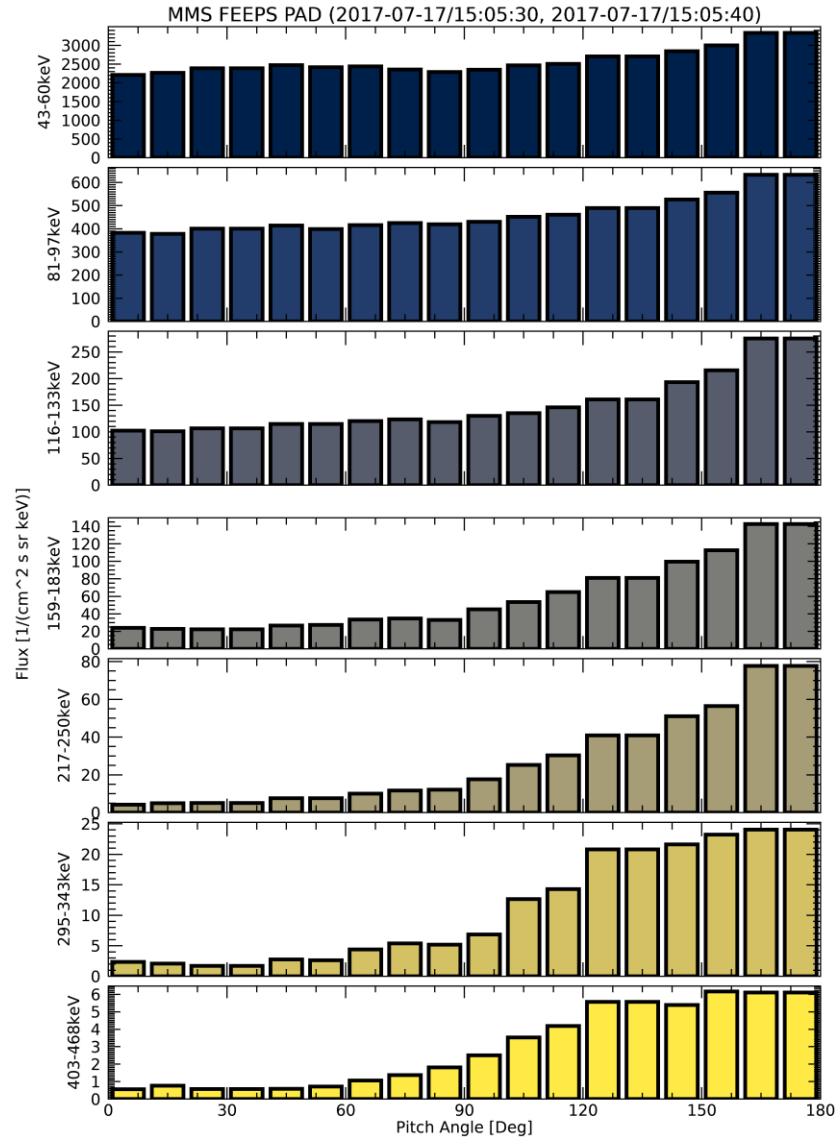
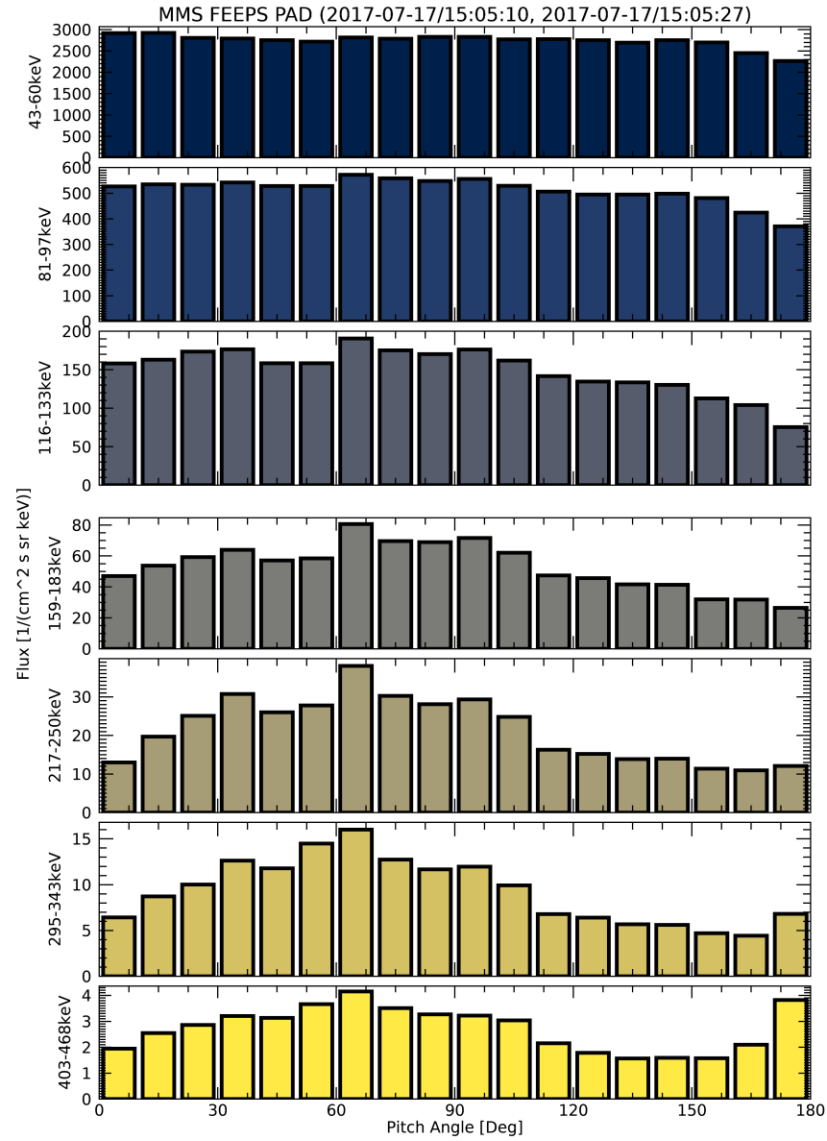
MMS1(feeps_e-1-l1b-srvy-pod_fgm-l2-srvy_fpi-l2-fast)





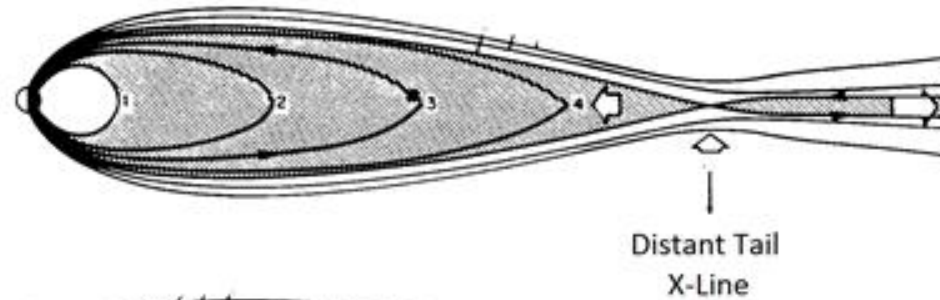


MMS2 Pitch Angle Distributions

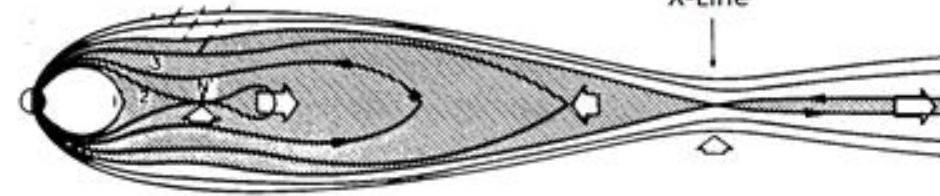


The Substorm Sequence

Ground State

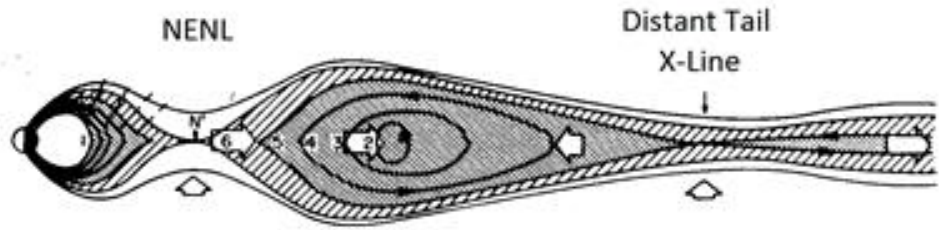


Late Growth



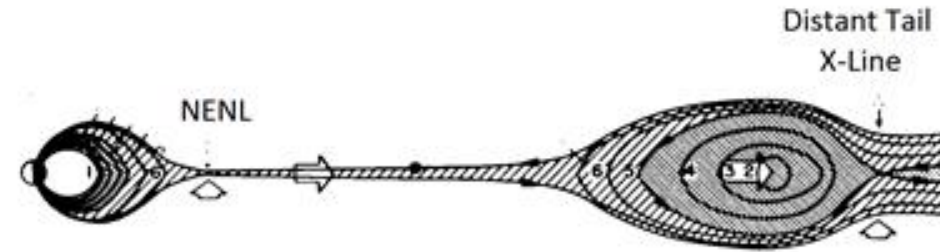
Reconnection on closed plasma sheet field lines

Substorm Onset



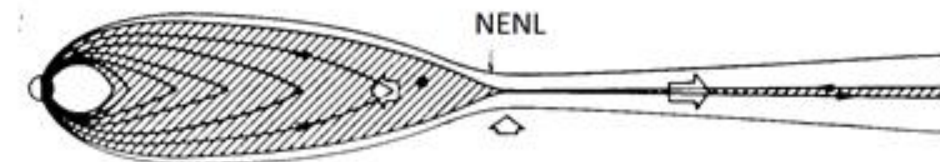
Strong plasma jetting both Earthward and tailward; Plasmoid release

Plasmoid Release



Thin residual plasma sheet with continued dissipation

Recovery Phase



Tailward retreat of the NENL with poleward "leap" of auroras