

JUNO-UVS
ULTRAVIOLET SPECTROGRAPH



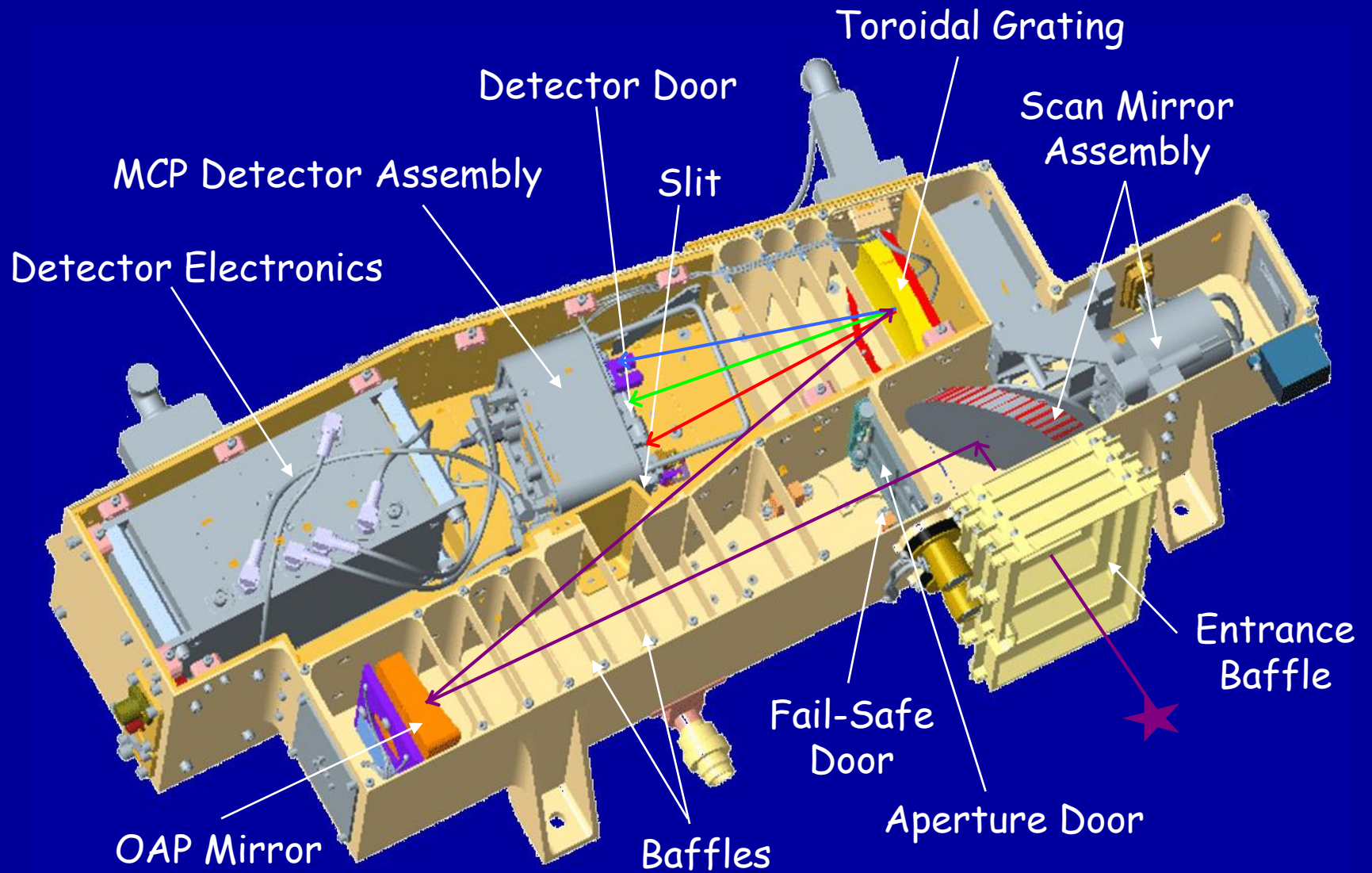
The Jovian UV aurorae as seen by Juno-UVS

Bertrand Bonfond*, Randy Gladstone, Denis Grodent,
Vincent Hue, Jean-Claude Gérard, Maarten Versteeg, Thomas
Greathouse, Michael Davis, Scott Bolton, Steven Levin, John
Connerney, and Fran Bagenal



JUNO-UVS

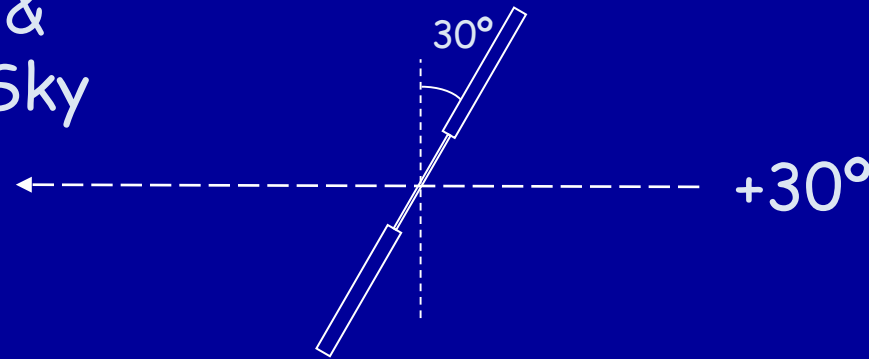
ULTRAVIOLET SPECTROGRAPH



Juno-UVS Sensor

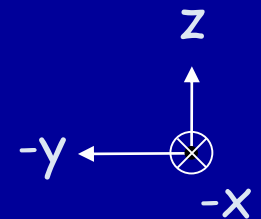
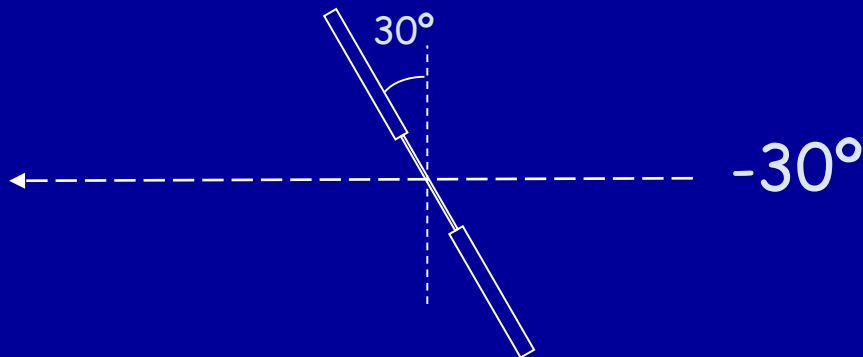
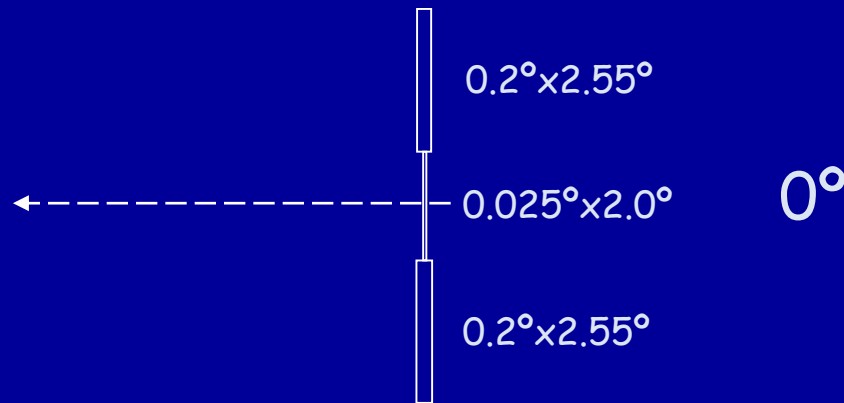


Juno-UVS Slit & Orientation On Sky



Sun

Juno Spin Plane

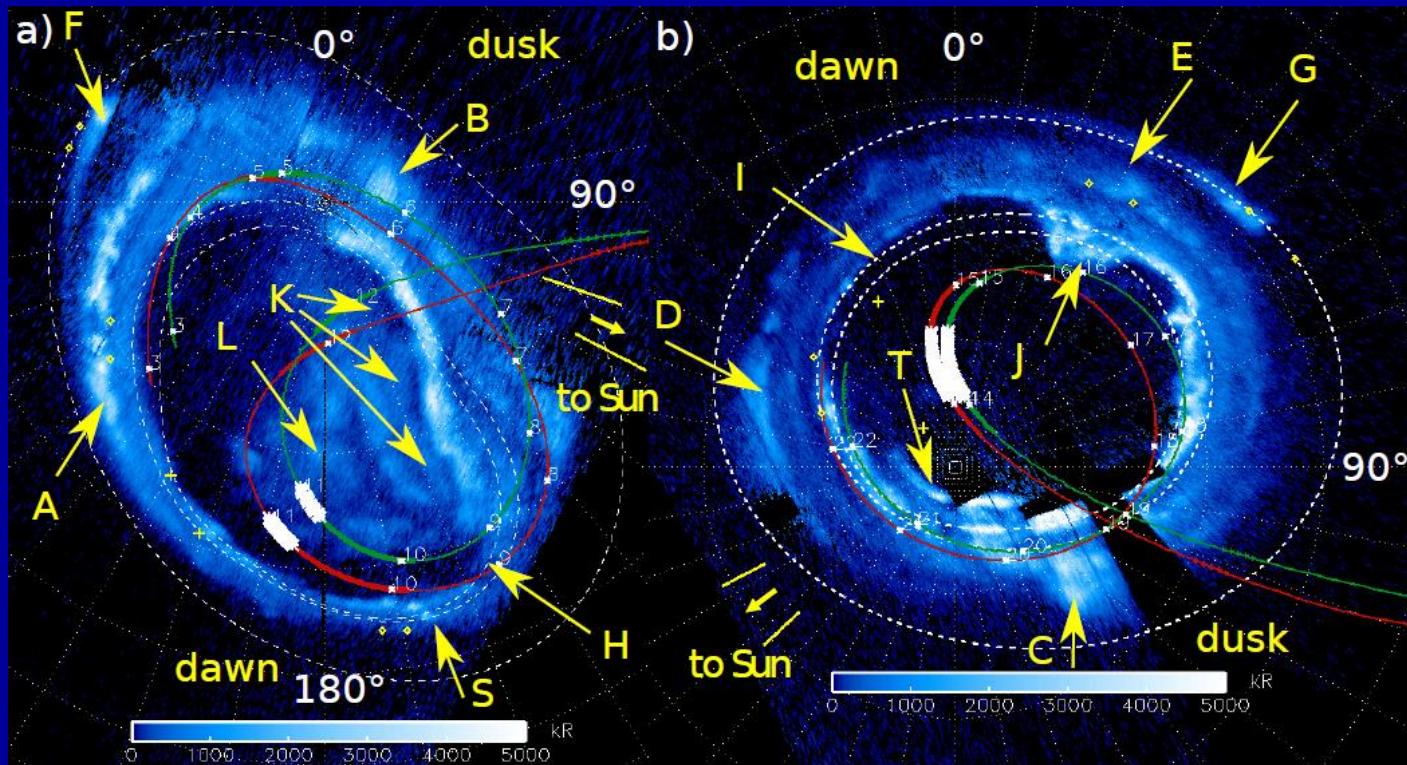


Juno Axes



An overview of the whole aurorae

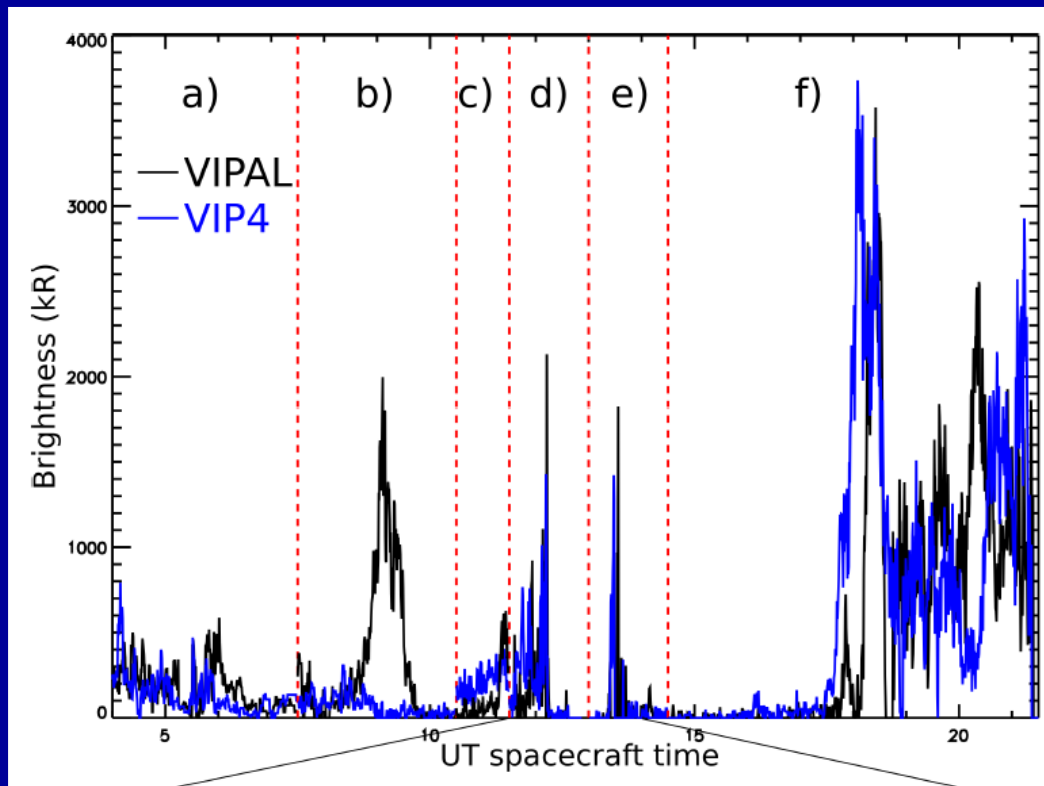
Dominated by outer emissions, NOT the main oval emissions





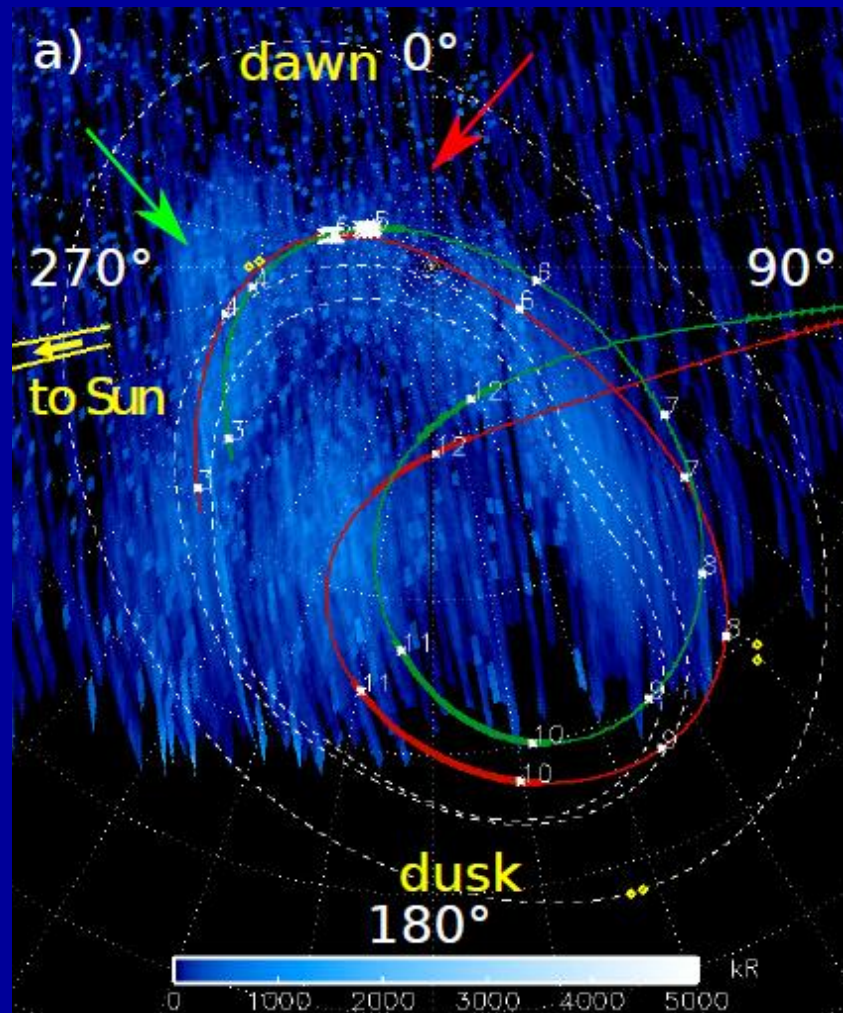
Brightness profiles

Large differences between the models



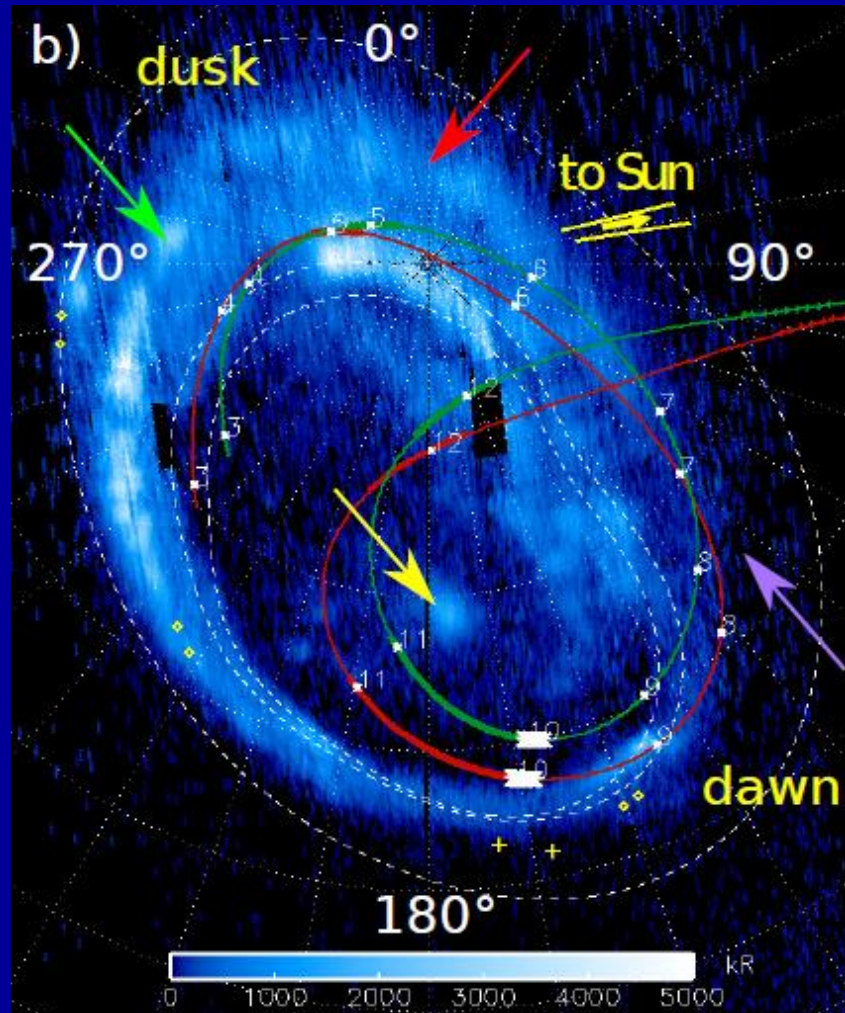


Polar maps: 5:00



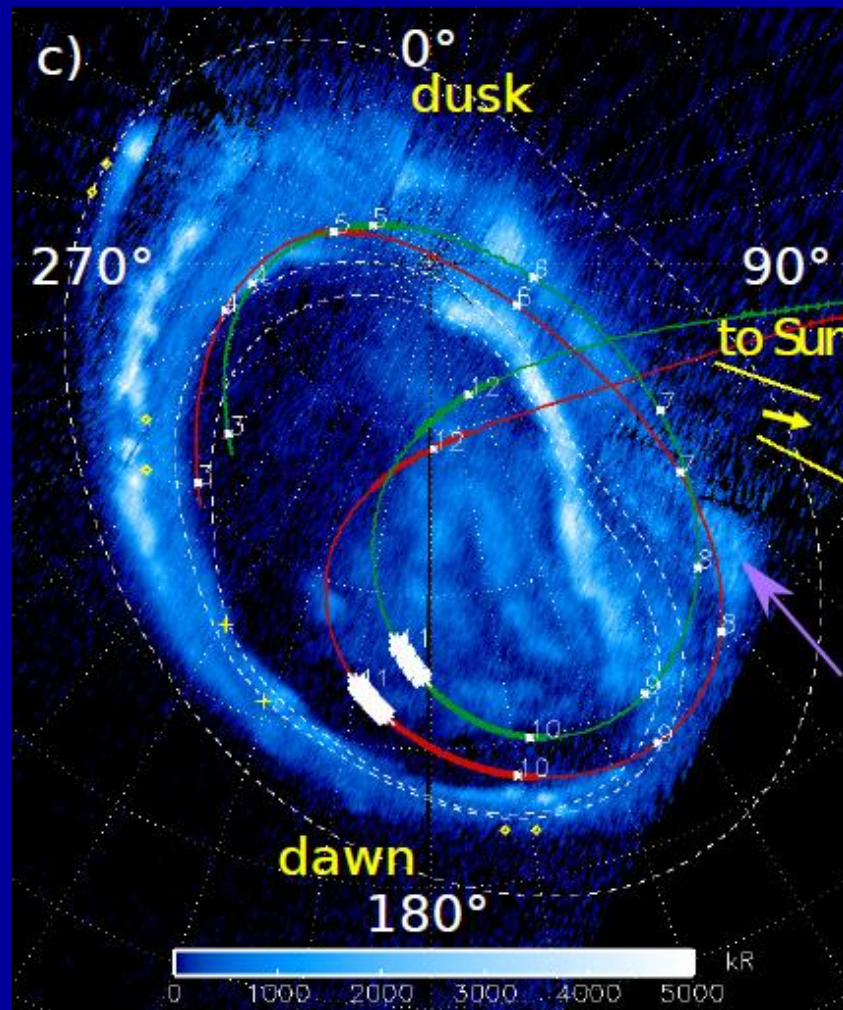


Polar maps: 10:00



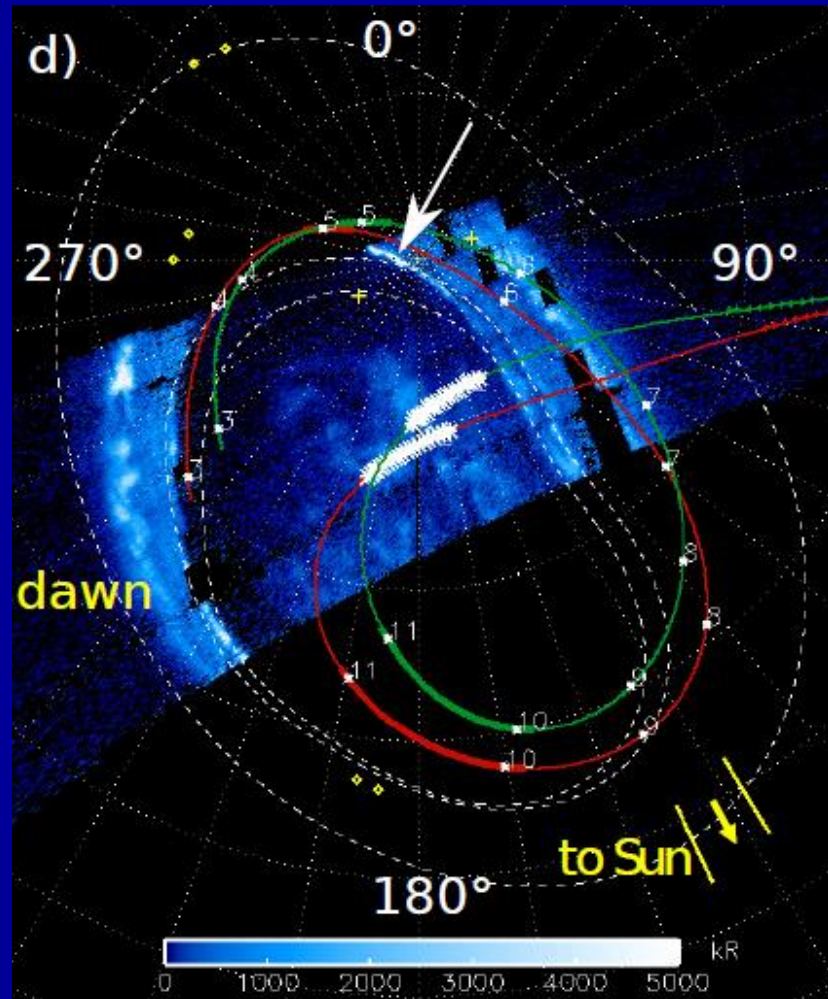


Polar maps: 11:00



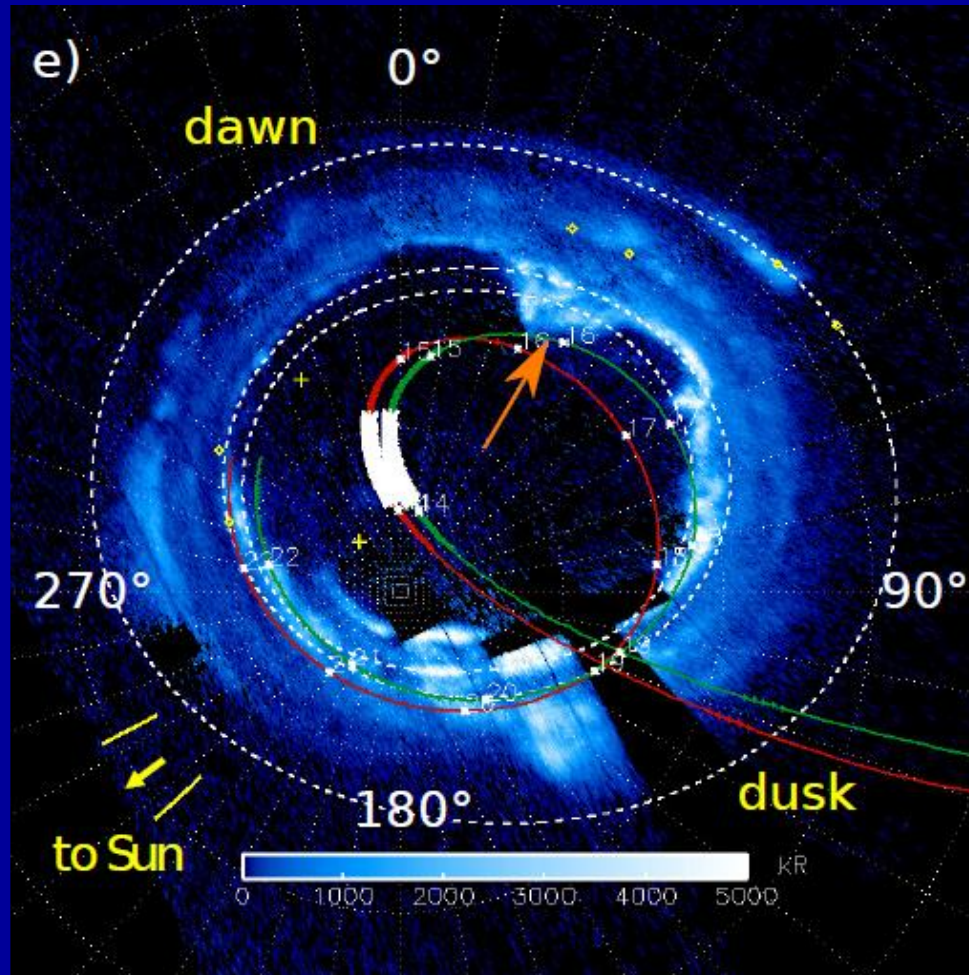


Polar maps: 12:00



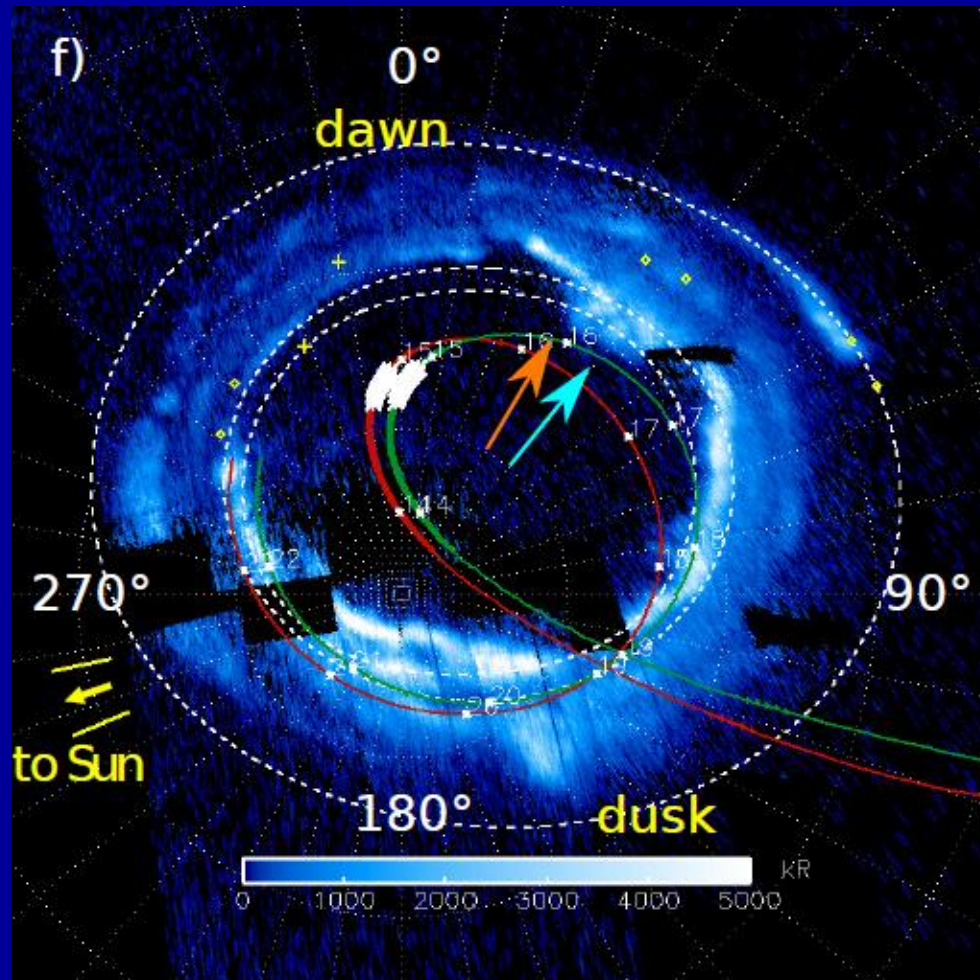


Polar maps: 14:00





Polar maps: 15:00





Energetic events

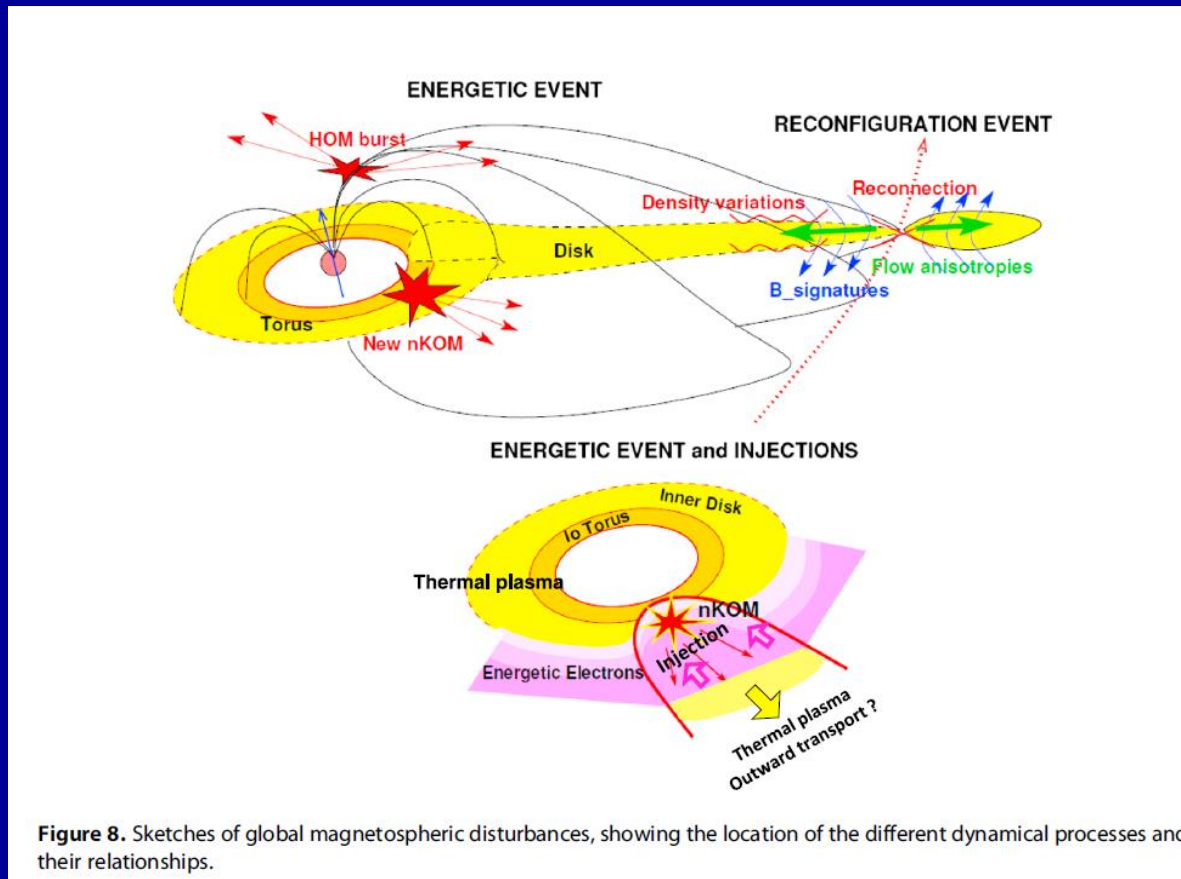
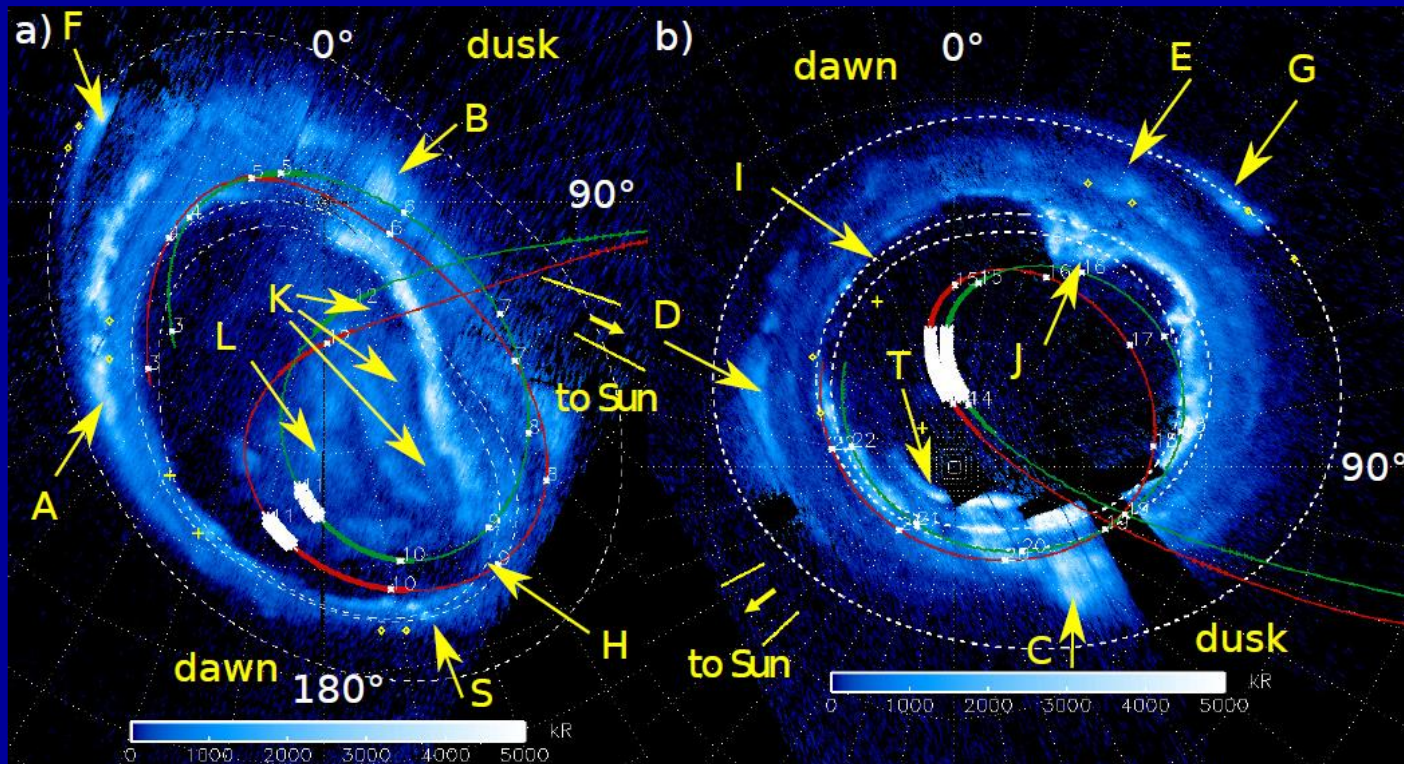


Figure 8. Sketches of global magnetospheric disturbances, showing the location of the different dynamical processes and their relationships.



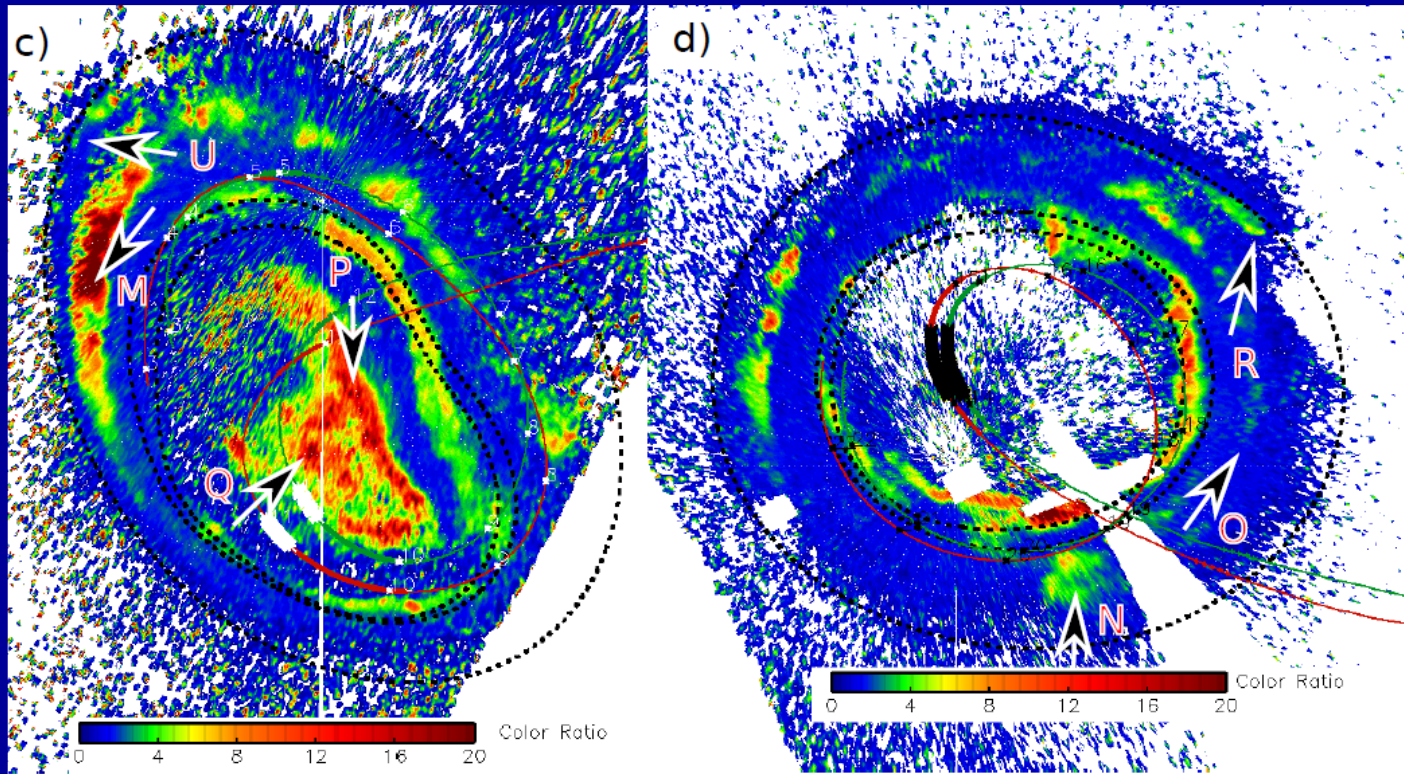
Brightness maps





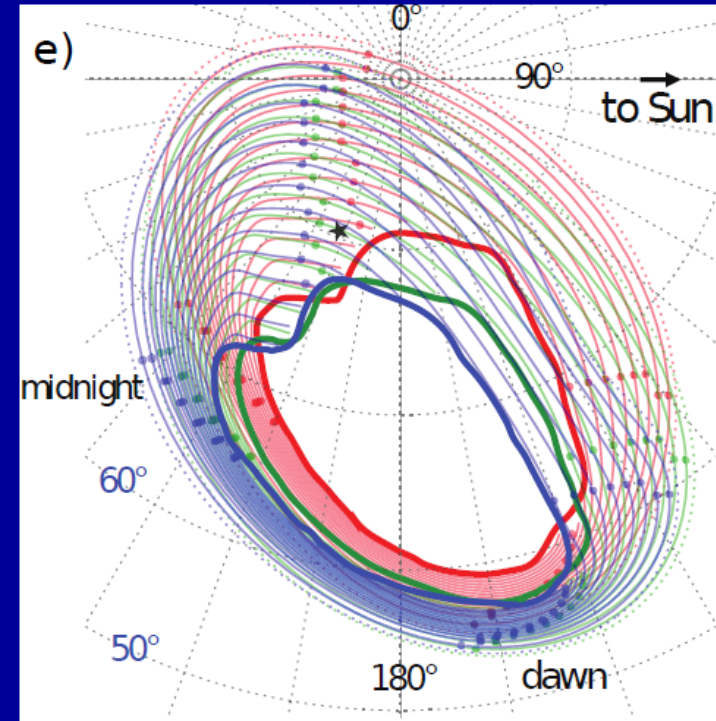
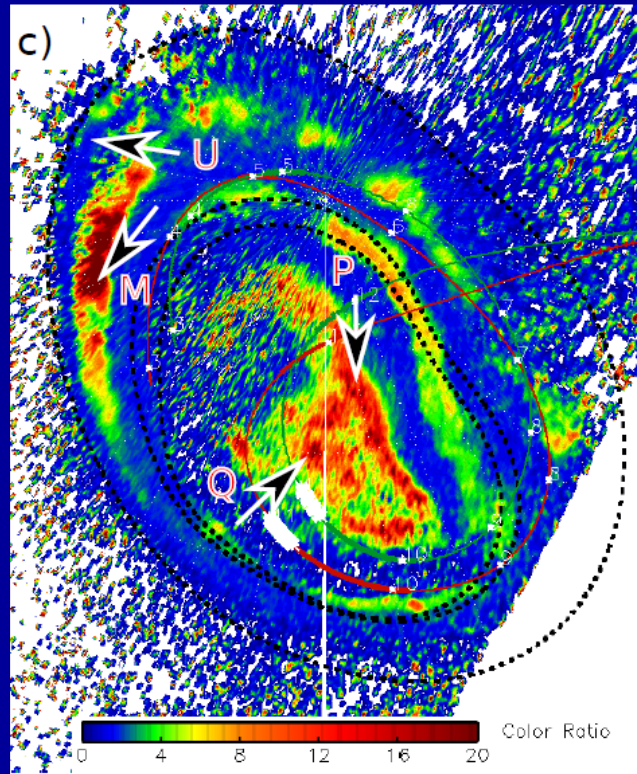
Color ratio maps

$$I_{155-162 \text{ nm}} / I_{123-130 \text{ nm}}$$



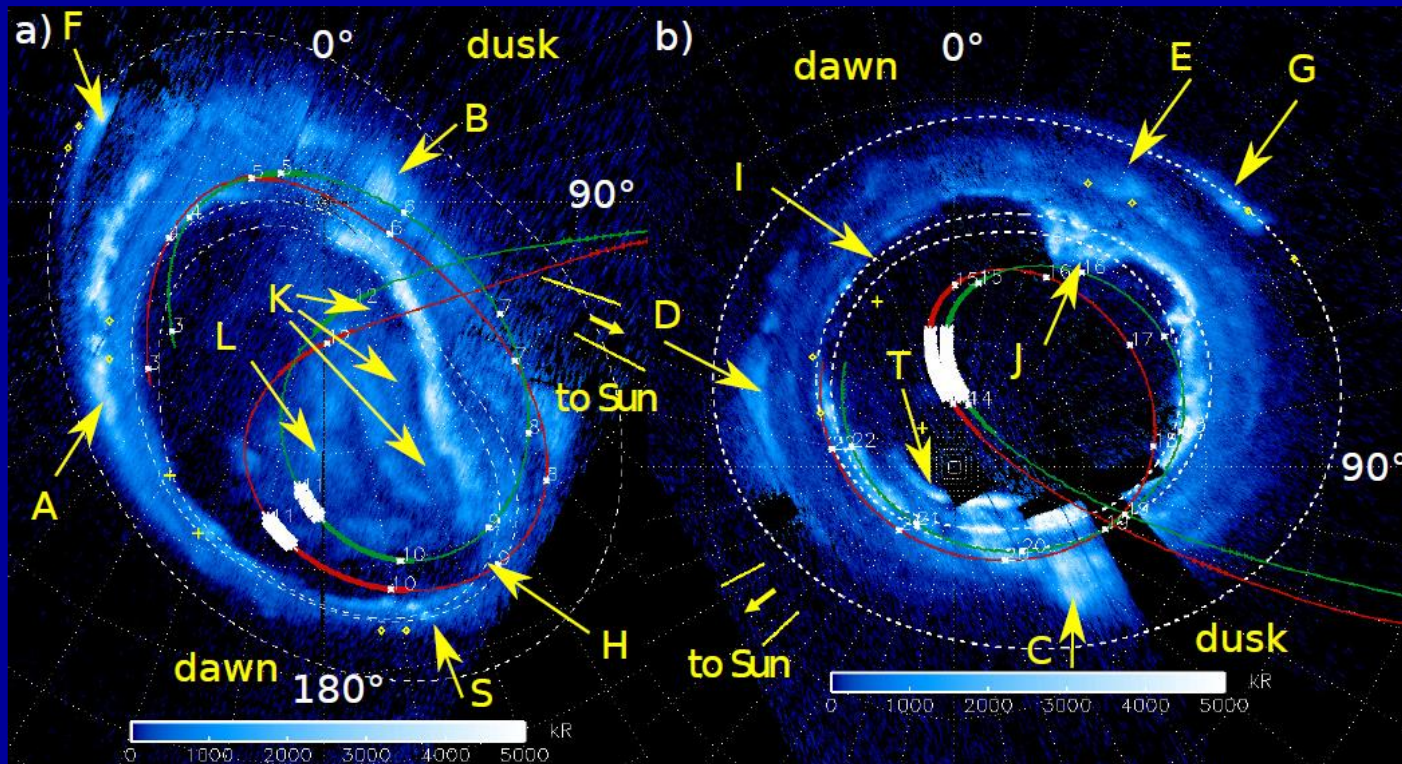


Have we found the polar cap?



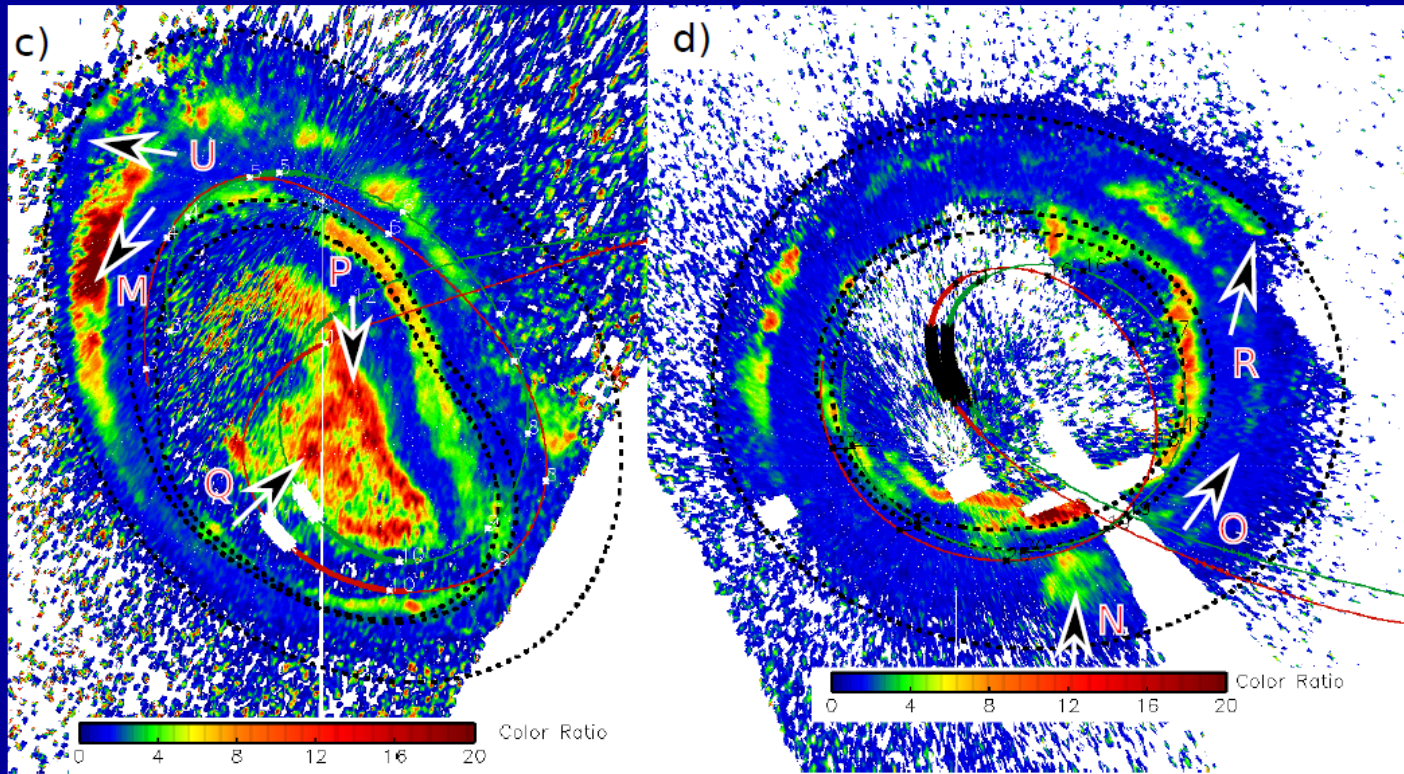


Shift between brightness and CR peaks





Shift between brightness and CR peaks





Injection signatures

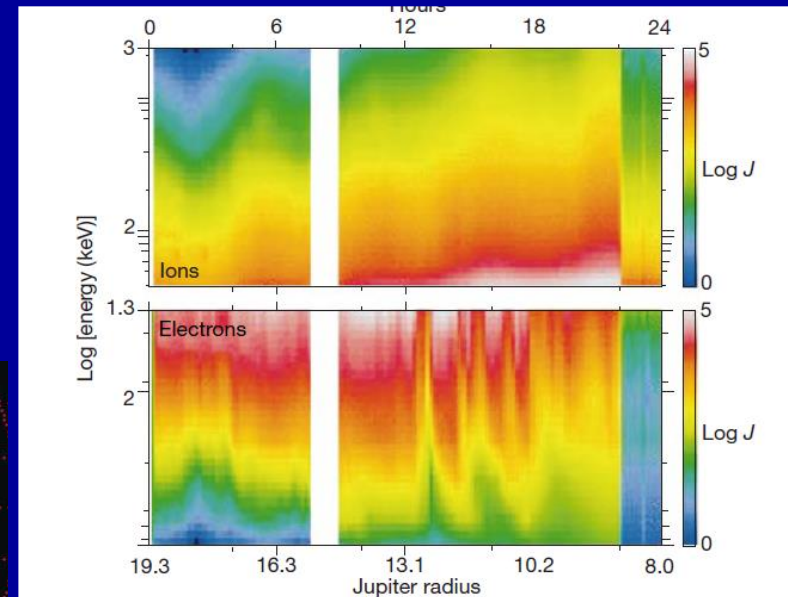
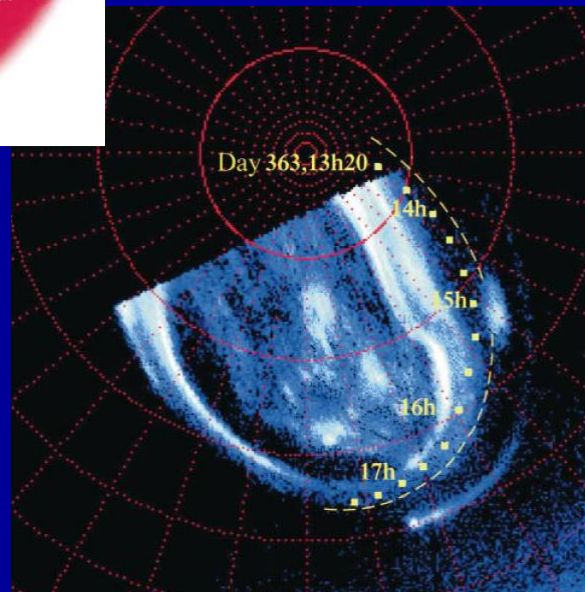
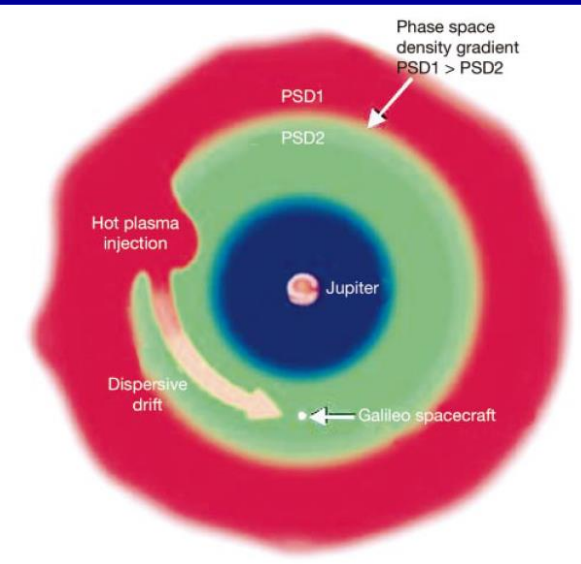
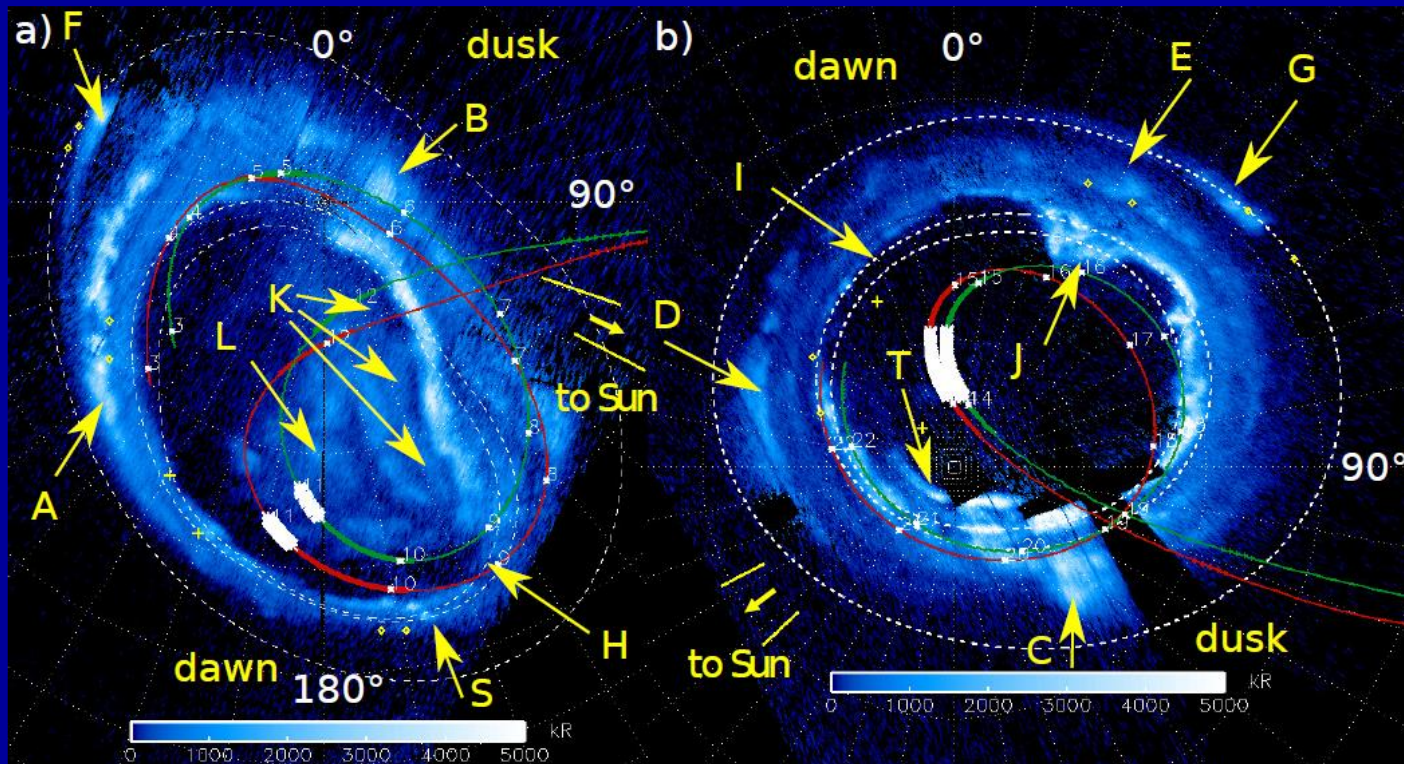


Figure 2 Energetic electron injection measurements within Jupiter's magnetosphere. Log [energy (keV)] versus time (hours of day 363, 2000; top scale) versus particle log [intensity ($\text{cm}^{-1} \text{s}^{-1} \text{sr}^{-1} \text{keV}^{-1}$)], shown as a colour scale, display of ion (top) and electron (bottom) measurements from the energetic particle detector on the Galileo spacecraft for the radial range of 19 to 8 Jupiter radii (bottom scale). The energy-dispersed injections are visible in the right-hand portion of the electron display beginning at about hour 13. The electron sensor is nearly saturated at the lower energies (top of the electron display) and so the relative variations at low energies is underrepresented here.

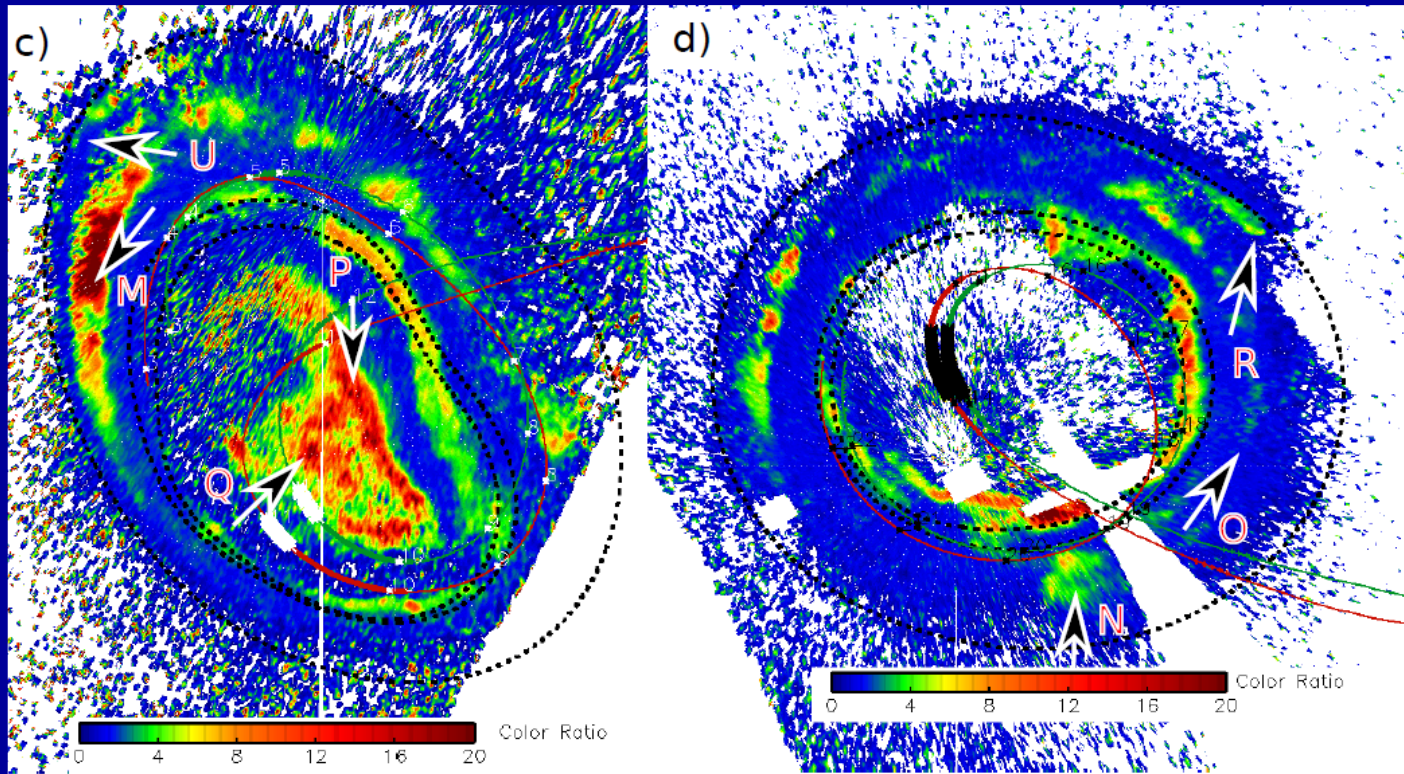


An overview of the whole aurorae



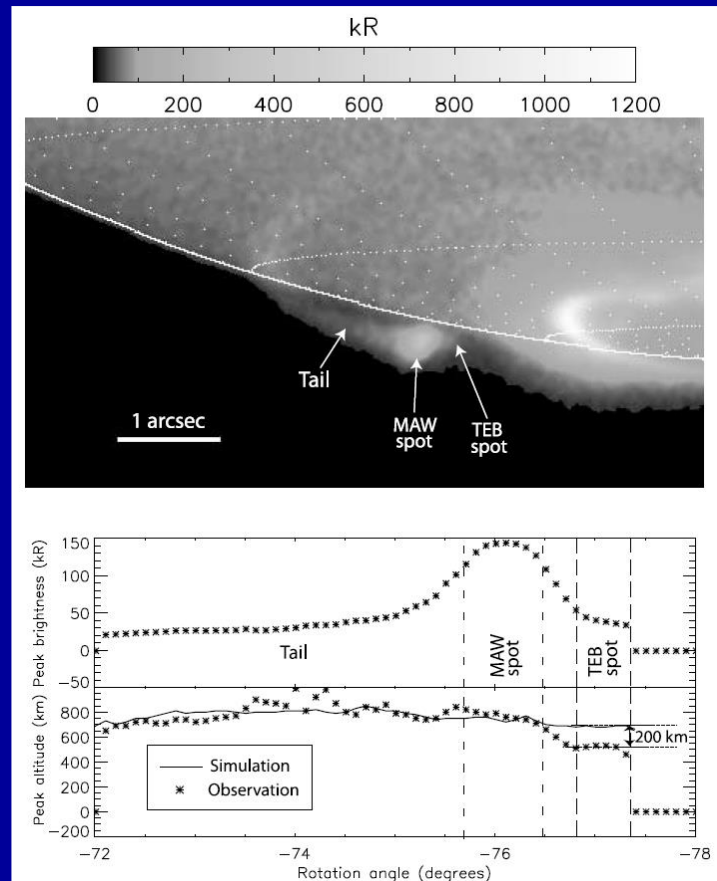


Color ratio maps



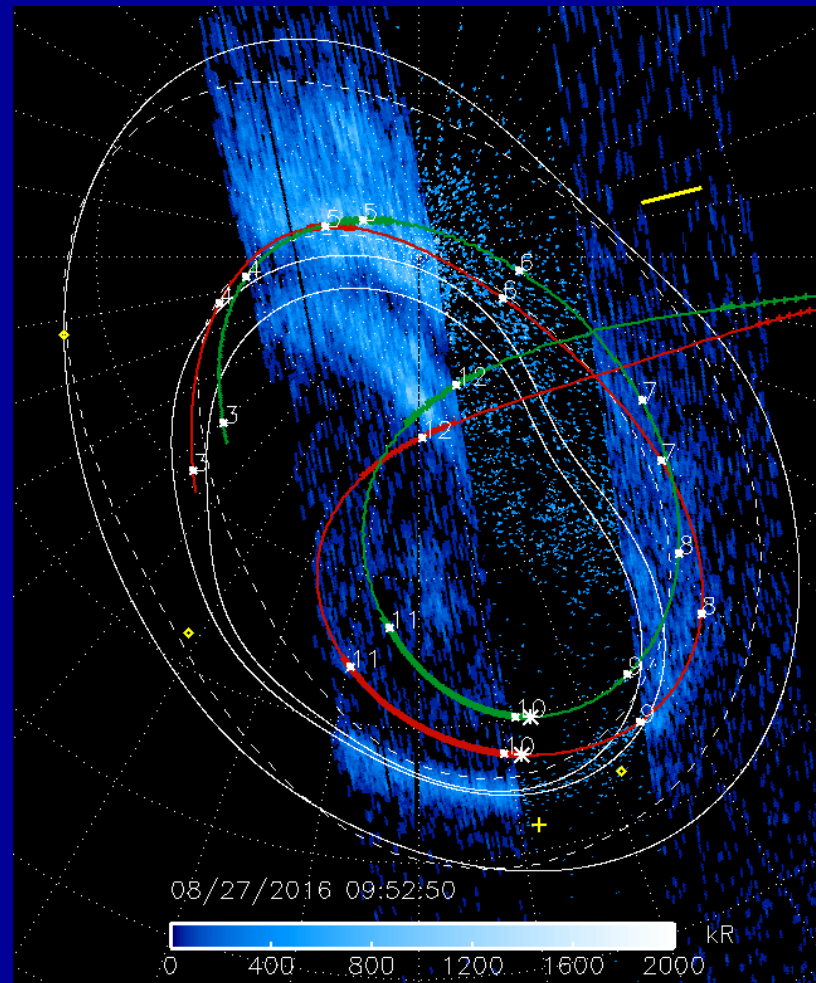


The vertical extent of the Io footprint





Animation



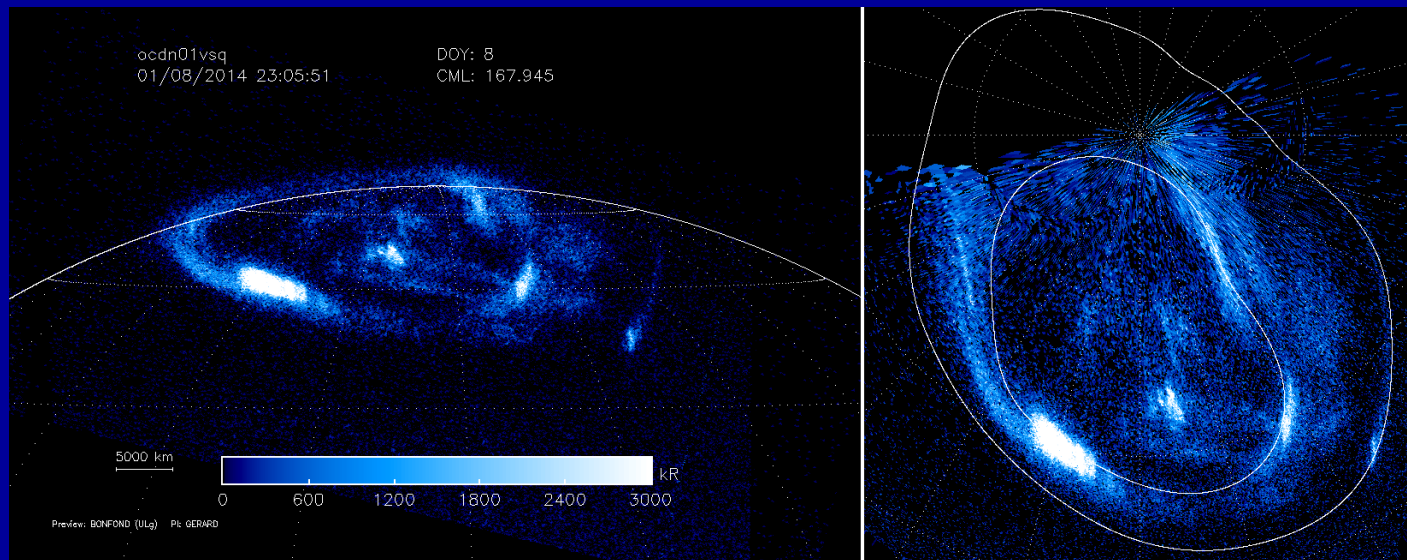


Conclusions

- Detection of the open field line region?
- Progressive development of outer emissions
- These outer emissions often show a color-ratio gradient indicative of injection signatures
- Development of a protrusion tentatively associated with tail reconnection

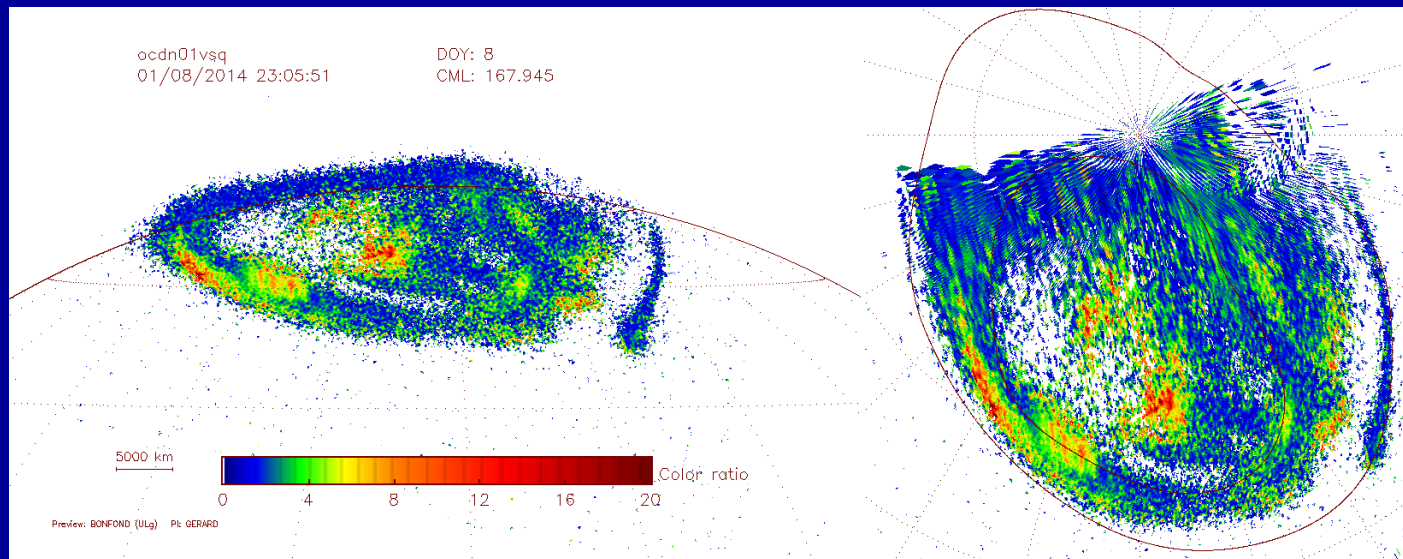


Injection signatures



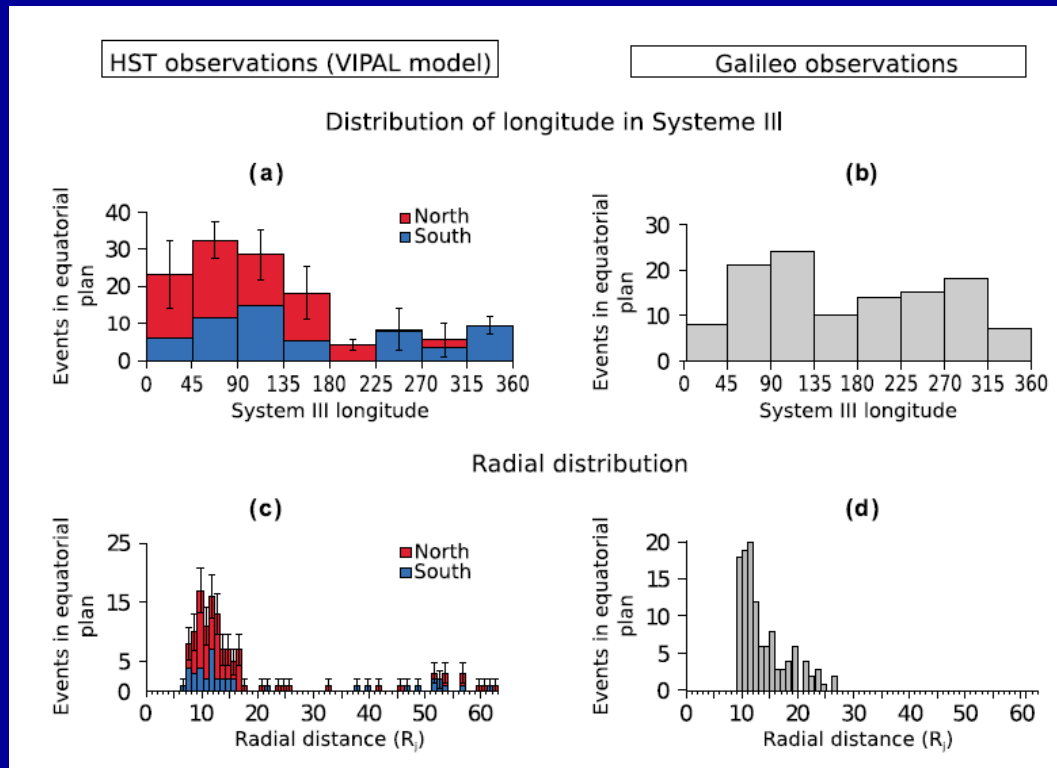


Injection signatures





Outer emissions





Brightness profiles: zoom

