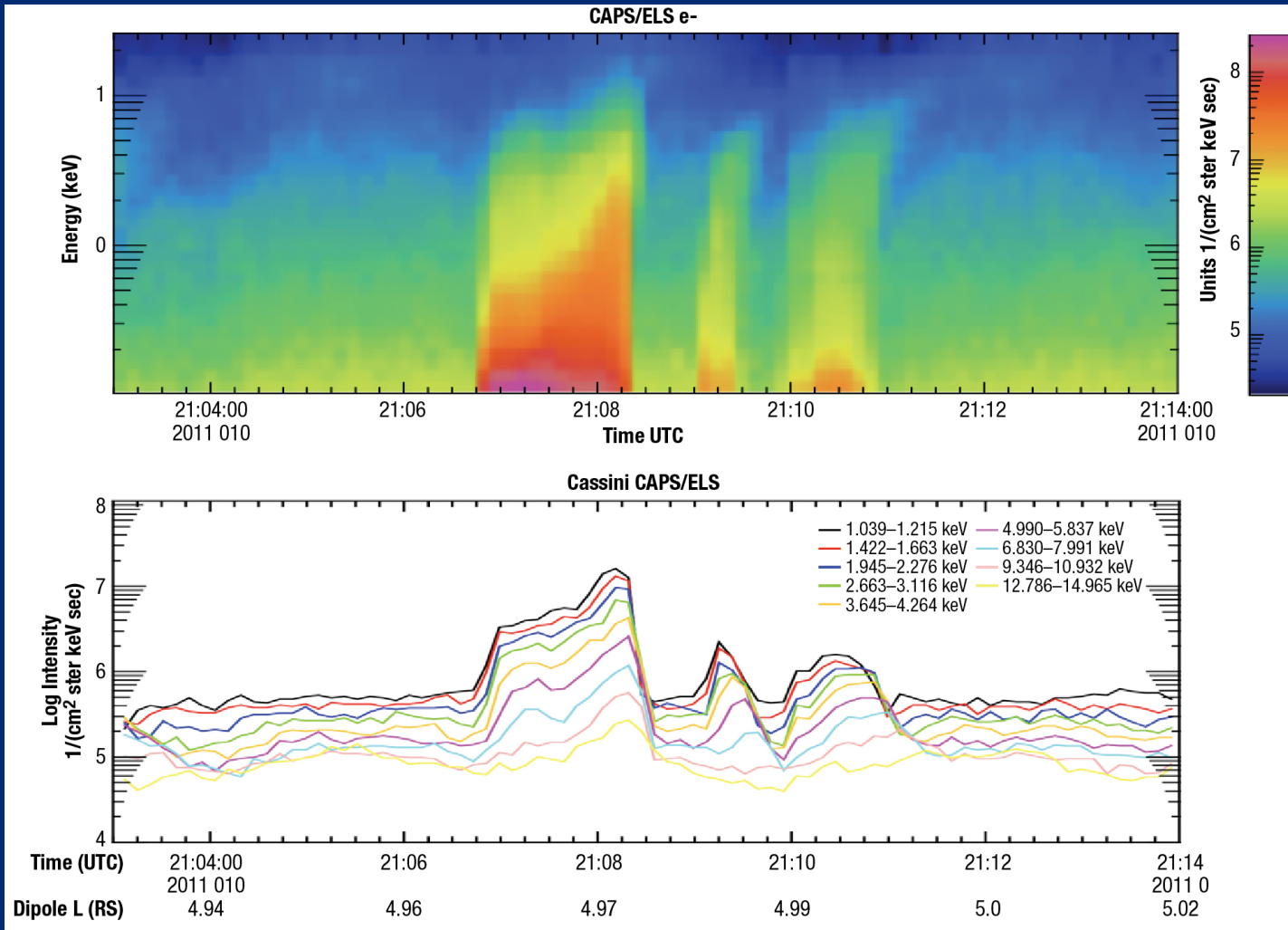


Energetic particles in Saturn's magnetosphere



Plasma injections in Saturn's magnetosphere often reveal a characteristic feature in the intensity (the slope in the orange color in the figure). We believe this occurs because more energetic particles drift out of an injection as it moves radially toward the planet, leaving the eastern edge of electron inflow channels more depleted at the high energy portion. We have analyzed these features in the Cassini plasma data to estimate radial inflow speeds. We find in our survey that inflow speeds average 22 km/s and that injections have only moved 1-2 Saturn radii inward before detection by the spacecraft.

Plasma injections can be used to quantify the flow of mass and energy in a magnetosphere.