Geophysical Research Abstracts, Vol. 9, 06020, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06020

Cassini Observations of Saturn's Dawn-Magnetotail Region: Preliminary results

E. Sittler (1) and CAPS MAGNETOTAIL TEAM

(1) Goddard Space Flight Center, Greenbelt, Maryland, USA, (Edward.C.Sittler@nasa.gov / Fax: 301-286-1433 / Phone: 301 286-9215

Using Cassini thermal plasma, hot plasma and magnetic field observations for several intervals between the dawn meridian of Saturn's outer magnetosphere and Saturn's magnetotail region, we investigate the structure of the magnetotail, plasma and magnetic field properties within tail-like current sheet regions and ion flows within the dawn to magnetotail regions. We use Cassini Plasma Spectrometer (CAPS) Ion Mass Spectrometer (IMS) and Electron Plasma Spectrometer (ELS) observations and MIMI LEMMS ion and electron observations to characterize the plasma environment. IMS observations are used to measure plasma flow velocities from which one can infer rotation versus convective flows. IMS composition measurements are used to trace the source of plasma from the inner magnetosphere (protons, H_2^+ and water group ions) versus an external solar wind source (protons and He^{++} ions). A critical parameter for both models is the strength of the convection electric field with respect to the rotational electric field for the large scale magnetosphere. For example, are there significant return flows (i.e., negative radial velocities, $V_R < 0$) and/or plasmoids ($V_R > 0$) within the magnetotail region?