

Organizing energetic particle fluxes in Saturn's inner and middle magnetosphere

E. Roussos (1), N. Krupp (1), P. Kollmann (1), C. Paranicas (2), D.G. Mitchell (2), S.M. Krimigis (2, 3), A. L. Müller (1), Z. Bebesi (1)

(1) Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany, (2) John's Hopkins Applied Physics Laboratory, Laurel, Maryland, USA, (3) Academy of Athens, Office of Space Research and Technology, Greece
(roussos@mps.mpg.de)

Abstract

Saturn's magnetosphere is a complex environment where a large number of processes may act as controlling factors in organizing charged particle distributions and transport. Using five years of energetic particle data from Cassini's MIMI/LEMMS experiment we attempt to identify the importance of the possible different dependencies by arranging energetic electron and ion fluxes in different coordinate systems (or combinations of coordinate systems). Fluxes are organized as a function of time, distance (L-shell), latitude, local time, SKR longitude, magnetic field, pitch angle and angular separation from the various icy moons. We will focus on the inner and middle magnetosphere (dipolar) and for a wide range of different electron and ion energies.