EPSC Abstracts
Vol. 6, EPSC-DPS2011-1234, 2011
EPSC-DPS Joint Meeting 2011

Active current sheets in Saturn's magnetosphere

C.S. Arridge (1,2), A.J. Coates (1,2), F.J. Crary (3), M.K. Dougherty (4), C. Forsyth (1), C.M. Jackman (5,2), S.M. Krimigis (6), N. Krupp (7), L. Lamy (8), E. Roussos (7), N. Sergis (9), J.A. Slavin (10), A.P. Walsh (1)

(1) Mullard Space Science Laboratory, University College London, UK, (2) The Centre for Planetary Sciences at UCL/Birkbeck, London, UK, (3) Southwest Research Institute, Texas, USA, (4) Department of Physics, Imperial College London, UK, (5) Department of Physics and Astronomy, University College London, UK, (6) Johns Hopkins University Applied Physics Laboratory, USA, (7) Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany, (8) LESIA, CNRS-Observatoire de Paris, Meudon, France, (9) Academy of Athens, Greece, (10) NASA Goddard Space Flight Center, USA (csa@mssl.ucl.ac.uk)

Abstract

Hot electron distributions are often found in Saturn's plasma sheet and have been associated with magnetic reconnection in Saturn's outer magnetosphere. Typically the electrons are at least an order of magnitude more energetic than the surrounding electron populations and abrupt transitions are observed between the two regimes. Sometimes these energetic populations are observed as part of a bi-modal distribution with more typical warm plasma sheet electrons. In this poster we present case studies of some intervals in Saturn's outer magnetosphere where these hot electrons are present and examine the surrounding structure. We show significant changes in the current and plasma sheet on the timescale of hours and disruptions in the current sheet which appear to persist for more than one rotation of the plasma sheet around the planet.