Geophysical Research Abstracts, Vol. 7, 05770, 2005 SRef-ID: 1607-7962/gra/EGU05-A-05770 © European Geosciences Union 2005



## Synoptic measurements from the DOUBLE STAR and CLUSTER spacecraft at the dayside magnetospheric boundary: Comparison with a global MHD simulation

**J. Berchem** (1), A. Marchaudon (2), J. M. Bosqued (3), C. P. Escoubet (4), M. Dunlop (5), C. J. Owen (2), H. Reme (3), A. Balogh (6), C. Carr (6), A. N. Fazakerley (2), J. Cao (7)

(1) IGPP, University of California, Los Angeles, California 90095, USA

- (2) Mullard SSL, University College London, Surrey, RH5 6NT, United Kingdom
- (3) CESR, Toulouse, 31000 France
- (4) ESA/ESTEC, Noordwijk, 2200 AG, Netherlands
- (5) Rutherford Appleton Laboratory, Didcot, Oxon, OX11 0QX, United Kingdom
- (6) The Blackett Laboratory, Imperial College, London, SW7 2BZ, United Kingdom
- (7) Center for Space Science and Applied Research, Beijing, 100080 China

Synoptic measurements from the DOUBLE STAR and CLUSTER spacecraft offer a unique opportunity to evaluate global models in simulating the complex topology and dynamics of the dayside magnetosphere. We describe results from comparing observations from the DOUBLE STAR (Equatorial) and CLUSTER spacecraft on May 8, 2004 with the predictions of a three-dimensional magnetohydrodynamic (MHD) simulation that uses plasma and magnetic field parameters measured upstream of the bow shock. While solar wind plasma conditions were fairly constant during the conjunction event, the interplanetary magnetic field (IMF) was variable and marked by several time periods with a strong By component. We discuss topological changes and plasma flows at the dayside magnetospheric boundary inferred from the simulation results. In particular, we examine whether the occurrence of multiple reconnection processes could explain plasma injections and transient structures observed by the spacecraft.