Geophysical Research Abstracts
Vol. 12, EGU2010-4627, 2010
EGU General Assembly 2010

Auroral asymmetries in the conjugate hemispheres during substorm onset and expansion phase.

Nikolai Ostgaard (1), Beate Krøvel Humberset (1), Karl Magnus Laundal (1), Harald U Frey (2), J. B. Sigwarth (3), Arne Aasnes (1), and James Weygand (4)

(1) University of Bergen, Dept. of Physics and Technology, Bergen, Norway (nikost@ift.uib.no, +47 5558 9440), (2) Space Sciences Laboratory, U.C. Berkeley, California, USA, (3) Lab. for Extraterr. Physics, Electrodyn. Branch, NASA GSFC, Greenbelt, USA, (4) Inst. of Geophys. and Plan. Physics, U.C., Los Angeles, California, USA

Simultaneous global imaging in the ultraviolet wavelengths by the IMAGE and Polar satellites are used to examine the dynamics of the auroral substorm.
When mapped onto apex coordinates, the auroral features in the conjugate hemispheres are usually found to be asymmetric.
Earlier studies have demonstrated that the asymmetries of substorm onset locations in the two hemispheres are controlled by the IMF clock angle.
In this paper we follow similar features in the two hemispheres during expansion phase of several substorms. We find that the asymmetry induced by the IMF clock angle at substorm onset disappear during the expansion phase implying that magnetic field lines with asymmetric footpoints are rectified during expansion phase. Various mechanism that can re-establish the symmetric aurora are discussed.