Geophysical Research Abstracts,
Vol. 11, EGU2009-10115-1, 2009
EGU General Assembly 2009

A new interhemispheric model of ionosphere

A Marchaudon (1), P-L Blelly (2), and D Alcayde (2)

(1) LPC2E, CNRS/Université d'Orléans, Orléans, France (aurelie.marchaudon@cnrs-orleans.fr), (2) CESR, CNRS/Université Paul Sabatier, Toulouse, France

In order to study the impact of coupling between hemispheres on the dynamics of the ionospheric and magnetospheric plasma, a new interhemispheric ionospheric model has been developed with a dipolar geomagnetic field geometry. This new model is based on a multi-fluid approach for ions and thermal electrons and a kinetic approach for suprathermal electrons, already used in the TRANSCAR model (Blelly et al., 2005). However, substantial developments have been made, in order to cover high altitudes, low- and mid- latitudes with a single model. The mathematical fluid approach has been extended to a 16-moments to take into account possible temperature anisotropies at high altitudes, in collisionless region. The model also integrates inertial forces, corotation at all latitudes and convection at mid and high latitudes and possible electrons precipitation at auroral latitudes. We will present the main characteristics of this new model and shows the first simulation results.