



High Latitude Outer Radiation Belt Boundary Dynamics In Comparison With the Ovation Model

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The geometry and the dynamics of the Earth's outer radiation belt polar boundary is described at the altitudes between 500 and 1000 km from the Earth surface in dependence on universal time and geomagnetic activity level expressed by the Dst-index. The quantitative model which was built earlier for the Northern hemisphere in quiet conditions using the Coronas-Photon data measured during extremely quiet 2009 epoch is generalized for both quiet and disturbed conditions using Meteor-M 1 and Meteor-M 2 data obtained from 2009 till now. Both hemispheres are studied. Observations of different satellites were mapped to the single altitude using A2000 magnetospheric magnetic field model. The outer radiation belt boundary is compared with equatorward auroral oval boundary represented by Patrick Newel's Ovation Model at NOAA Web-site for the period from July till December 2015. Prediction of the Earth's outer radiation belt polar boundary for one hour is provided based on the Dst forecasting model. Real-time prediction model was implemented into the set of space weather applications of Space Monitoring Data Center of Moscow State University.