



Methods Of Automatic Processing Of Leo Satellite Data And Empirical Model Of The High Latitude Boundary Of The Earth's Outer Radiation Belt

Vera Barinova, Vladimir Kalegaev, Irina Myagkova, David Parunakian, Minh Nguyen, Valery Eremeev, and Oleg Barinov

Moscow State University Skobeltsyn Institute of Nuclear Physics

In this work we present a method of automatic detection of the high latitude boundary of the Earth's outer radiation belt (HLB ORB). The two-pass algorithm is based on detection of the highest monotone electron flux grow and decay at high latitudes for 30-second and 1-second resolution data.

The processing algorithm is based on analyzing time profiles of charged particle fluxes (electrons, 100-200 keV) measured at low altitude polar circular orbits of the Coronas-Photon, Meteor-M1 and Meteor-M2 spacecraft. We have enhanced our empirical model of the HLB for quiet periods to describe a substantial subset of disturbed periods. We have investigated a realations with the L McIlwain coordinate values for each dst interval. We have also conducted analyses of the dependence of the mean HLB position depending on the DST index during 2014-2016. The similar dependence of HLB position on Kp was also obtained.