



Variations of energetic electron fluxes to the pole from the external boundary of the outer electron radiation belt of the Earth and the position of auroral oval

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Variations of fluxes of electrons with energies more than 200 keV to the pole of the Earth's outer electron radiation belt are studied using CORONAS-F (2001-2005) and CORONAS-Photon (2009) satellite observations. Data of auroral Meteor satellites were used for the identification of auroral oval position. Low altitude polar orbit of CORONAS satellites permits to observed electron fluxes in both polar regions every 1.5 hours (its orbital period corresponds to about 15 circuits per day). Localized electron precipitations were observed to the pole from the external boundary of the outer radiation belt. It is shown, that such kind of electron fluxes are observed for more than a half of polar crossings. Special events are selected when near the same increases of electron fluxes to the pole from the outer radiation belt are observed during 2 and 3 consecutive orbits. This means that observed increases can exist more than three hours.

Results of observations on board of CORONAS satellites are compared with data of auroral satellites Meteor-3M (2002-2004) and Meteor-M (from 2009 till now). It was shown that most of the observed increases of electron fluxes are localized inside auroral oval. The detailed investigation of observed phenomena such as asymmetry, frequencies, MLT-distribution was carried out. The nature of observed increases of electron fluxes is discussed.

This work was partly supported by RFBR foundation grants 07-02-92004-HHC_a.