Geophysical Research Abstracts
Vol. 19, EGU2017-13490, 2017
EGU General Assembly 2017


# Nearly relativistic electron fluxes and ionospheric parameters as components of space weather

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We present specific features detected in spatial distributions of magnetospheric high energy electrons and in ionosphere plasma electron densities and temperatures during a deep minimum of 11 year's cycle of solar activity. New outcome comes as a result of joint analysis of experimental data derived from the satellite telescope of electrons and protons STEP-F aboard the low, circular and highly inclined orbit CORONAS-Photon satellite, and from Demeter satellite. The highly sensitive STEP-F instrument flown in 2009 and measured sub-relativistic electron fluxes and protons of intermediate energies by extensive-angled telescopic system of detectors at the height of ∼550 km covering the wide range of McIlwain L-parameters from ∼1 up to ∼20.
We present peculiar characteristics of electron flows in well-known Van Allen outer and inner radiation belts, inside the region of South Atlantic Anomaly and outside of mentioned zones observed during the first half of May, 2009. In spite of extremely low solar activity, and the presence of single geomagnetic substorm on May, 6-8, which was characterized by remarkably small Dst =-30 nT, substantial variations of electron fluxes with energies E > 180 keV came into being in all zones of enhanced charge radiation. It was clearly seen elongation of the South Atlantic Anomaly in terms of electron flows up to low and near-equatorial latitudes to eastern-directed longitudes. Throughout the whole period there were recorded two radiation belts in the inner magnetosphere: well-studied at L∼2.3, and additional one at L∼1.6. The third radiation belt at L∼1.6 had specific belt-shaped profile of particle fluxes, and registered at broad range of longitudes that do not coincide with those ones related to the Anomaly location.
The analyses of subrelativistic electrons at the heights of upper ionosphere and inospheric plasma parameters has been analysed.
From this standpoint we consider electron flux pulsations during various phases of geomagnetic activity as an important constituent of space weather.