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RELEC Experiment on board Vernov Satellite: Relativistic Electron Flux Dynamics in Near-Earth Space

Sergiey Svertilov (1,2) and the RELEC Team

(1) Skobel'tsyn Institute of Nuclear Physics, Moscow State University. Moscow, Russia (sis@coronas.ru), (2) Physical Department, Moscow State University. Moscow, Russia (sis@coronas.ru)

The main goal of RELEC mission is study of magnetosphere relativistic electron precipitation with it possible acting on the upper atmosphere and ionosphere as well as the monitor observation of radiation and electromagnetic environment in the near-Earth Space.
The RELEC set of instruments includes two identical detectors of X- and gamma-rays of high temporal resolution and sensitivity (DRGE-1 & DRGE-2), three axe directed detectors of energetic electrons and protons DRGE-3, UV TLE imager MTEL, UV detector DUV, low-frequency analyser LFA, radio-frequency analyser RFA, module of electronics intended for commands and data collection BE.
The small satellite now named Vernov with RELEC instruments was successfully launched July, 8 2014. The mission orbit is solar-synchronous with apogee 830 km, perigee 640 km, inclination 98.4o and orbital period about 100 min. The total data output is about 1.2 Gbyte per day.
The fluxes and spectra of electrons in the wide energy range from 0.2 to 15 MeV are measured with the use of three detectors with axe normally directed to each other: to the local zenith, opposite to the satellite velocity vector and along the direction added two previous to the Cartesian system. Due to such detector system it is possible to estimate the electron flux anisotropy. The wide dynamical range from $\sim$1 up to 104 part/cm2s and fine time resolution ($\sim$10 mcs) allows observations of trapped, quasi-trapped and precipitated electron flux and spectral variations in different areas in the near-Earth space including low L-shells.
Comparative analysis of electron fluxes measured by RELEC with experimental data on electron detection in the experiments on board the spacecraft Electro-L with geostationary orbit, and Meteor-M2 with 800 km altitude circular polar orbit similar to Vernov allows to reconstruct the energetic electron spatial distribution in the near-Earth space. A comparison will be held for periods of moderate geomagnetic disturbances of August 26-30, 2014, September 12-14, 2014, and November 10-12, 2014, and at sharp changes of relativistic electron flux in the outer radiation belt of the Earth during geomagnetic quiet periods - August 2 to 8, 2014, and in the first ten days of December 2014.