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# HIGH-ENERGY MAGNETOSPHERIC ELECTRONS WITH ENERGY >2 MEV AND STATE OF THE INTERPLANETARY ENVIRONMENT

The behavior of high-energy electrons in the Earth's magnetosphere is one of the most actual problems in the physics of magnetosphere and space weather. First of all this is due to the fact that large enhancements in relativistic electron fluxes lead to failures in the operation of spacecraft and, in some cases, led to the failure of satellites. Based on the data of 37-year (1987-2023) measurements of magnetospheric electron fluxes with energy >2 MeV in geostationary orbits, solar wind speed and geomagnetic activity, a catalog of electron flux enhancements was compiled in which the electron fluence exceeds dangerose level. To study the average characteristics of the near-Earth environment during high-energy electron (>2 MeV) flux enhancements in geostationary orbit, we used various parameters available during the period of high-energy electron observations on the GOES satellites (June 1987–2023). We calculated typical behavior of the solar wind velocity and the Ap-index of geomagnetic activity before the electron flux enhancement and during its onset. On average, the Ap-index begins to grow 2 days earlier than an electron fluence enhancement occurs, and on the previous day it reaches a level 2 times higher than the average values for these years. One can say that the electron flux enhancement begins at the decline of geomagnetic activity after its prior increase. Before large enhancements of the magnetospheric electron flux, significant interplanetary and magnetospheric disturbances are observed, and their power grows with a threshold of the electron fluence enhancement.

## Section

Nuclear physics (Section 1)

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