QUASITRAPPING AND DRIFT EFFECTS OF HIGH-ENERGY SOLAR COSMIC RAYS IN THE MAGNETOSPHERE

E.V. Vashenyuk, B.B. Gvozdevsky
Polar Geophysical Institute, Apatity, Russia
gvoy@pgi.kolasc.net.ru

The nature of latitude maximum in distribution of energetic solar particles formed in subpolar regions during anisotropic solar proton events (SPE) is investigated. The SPE of February 16, 1984 was characterized by 100 percent interplanetary anisotropy of energetic solar protons. The polar orbiting low-altitude satellite NOAA-8 crossed polar caps in the dawn-dusk direction. A maxima in latitude profile of solar protons were observed not only at the dawn side (the entry point of the anisotropic flux) but also at the dusk side, which could be caused by the drift from the dawnside. Moreover, the dayside meridional chain of neutron monitors showed the peak in the latidudinal profile of the increase effect, which is the evidence of drift-like motion of relativistic solar protons. Using relations between latitude profiles of solar protons of low and moderate energies (NOAA-satellite data) and relativistic ones (neutron monitors) the characteristic parameters determining the drift and precipitation mechanisms for high energy solar protons have been obtained.