

Energy spectrum of proton flux near geomagnetic equator at low altitudes.

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The results of proton energy (tens keV - several MeV) spectrum measurements near geomagnetic equator ($L < 1.15$) at low altitudes (< 1000 km) are presented. Data of experiments onboard ACTIVE, SAMPEX, NOAA TIROS-N satellites and SPRUT-VI onboard MIR station are used and cover the time range about 30 years (including previous measurements). The energetic spectra registered during geomagnetic disturbances and during geomagnetic quiet time are presented. The approximation of energy spectrum was built using kappa-distribution function. The comparison of energy spectrum of near-equatorial protons and ring-current protons spectrum was made. Using the estimation of life-time of near-equatorial protons we conclude that ring current is the main source of near-equatorial protons.