

Quasitrapped narrow spikes of electrons in the inner radiation belt observed by various satellites

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Fluxes of energetic electrons in the inner radiation belt were measured on board CORONAS-I, CORONAS-F, AKEBONO, SERVIS-1 and USERS. We have compared electron data at certain L-shells ($L < 2.5$), observed by the spacecraft. It is found that quasi-trapped electrons were observed practically permanently. Distributions of the anomalous electron flux have been determined by taking account of L, local time and universal time for Northern and Southern hemispheres. The frequencies occurring the peaks of electron peaks are closely correlated with geomagnetic activity. However, some of the observed peak fluxes of trapped electrons occurred without any correlation with the SEP events nor the onset of geomagnetic storms. When we analyzed these increases, it was found that they were well associated with thunderstorm activity. This result may mean that the thunderstorm activity might accelerate electrons in the upper ionosphere by some unknown mechanism and later send them into the inner trapping zone.