

THE PENETRATION OF PLASMA SHEET INTO THE INNER PLASMASPHERE OBSERVED BY DSP SPACECRAFT

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The plasma sheet is an important region in the magnetosphere that contains electrons and ions with peak energy fluxes in the few keV range. The hot particles in the plasma sheet are the source of substorm injected particles with higher energy. The plasma sheet ions may move Earthwards and enter the inner magnetosphere during the time of enhanced magnetospheric convection, and become the source population for the ring current.

The TC-1 satellite in an equatorial elliptical orbit with an apogee of ~14 Re provides a good opportunity to study the penetration of plasma sheet into the inner magnetosphere, especially outside the geosynchronous orbit. We use the data of ion and electron measured by HIA and PEACE of TC-1 to study the penetration of plasma sheet ions and electrons, and the relation of inner boundary of plasma sheet with Kp, AE and Dst. Finally we compared the observations with theoretic results based on the model in Korth et al. [1999].

plasmasheet, inner magnetosphere, penetration

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