

Energetic Particle Transport in the Plasma sheet

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The plasma sheet of magnetosphere is thought to be one of the downstream of reconnection outflow, therefore in this chapter we try to study the effect of the particle spatial diffusion at the downstream using earth plasma sheet. A statistical and systematic study of the dawn-dusk plasma sheet is conducted by using both the thermal/middle energy electrons of under 40keV (LEP) and the energetic electrons of over 38keV (EPIC) onboard the Geotail satellite. We find that the enhanced energetic electron flux exists dawnside and the dawn-dusk plasma sheet asymmetry is clearly observed for the energetic electrons of over 38keV, while the asymmetry is not clearly found for the low energy electrons. To explain this asymmetry, we use diffusion convection model in the plasma sheet. We found that cross field diffusion is the important agent of the energetic particle transport.