

Plasma sheet dynamics in the midtail

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Plasma heating in the near-Earth plasma sheet (20-30 Re) in association with substorm activities has been studied. Substorm activities are identified with ground magnetic field data. The observations in the magnetotail are selected only when the spacecraft Geotail stays near the equatorial plane of the plasma sheet (the magnitude of B_x is less than 5 nT) for the late expansion phase and the recovery phase. Just after the tailward flows and/or earthward flows in association with onsets, strong plasma heating does not take place and B_z is small. After earthward flows during the late expansion phase and the recovery phase, strong plasma heating occurs with strong B_z . Hence, the plasma heating in the mi-tail plasma sheet is caused mainly with magnetic reconnection in the distant tail.