

Configuration Change of the Cross-Tail Current Sheet in Substorms

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Using GEOTAIL data, we have calculated the cross-tail current directly, and have analyzed the change of the near Earth plasma sheet configuration associated with substorms.

We have found that the current density is enhanced after the substorm onset rather than in the growth phase, when the pressure increases high.

This means that the plasma sheet thinning occurs especially in the Expansion Phase.

We have also found that the region where the current enhancement occurs is only in the vicinity of the neutral sheet. This shows that the current sheet is very thin in the plasma sheet, and the current density is not uniform in the plasma sheet.