

## Study of Fast plasma flow in near-Earth plasma sheet using 3D MHD simulations

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The relationship between substorm and fast plasma flow in the plasma sheet has been investigated by a lot of researchers.

This fast plasma flow is considered to be one of the manifestations of near-Earth reconnection.

In this study, this earthward fast plasma flow in near-Earth plasma sheet is examined using three dimensional MHD simulations on the basis of the spontaneous fast reconnection model.

In addition to the examination of three-dimensional fast plasma flow using MHD simulation, comparisons them with actual in-situ satellite observations are performed.

As one of the significant results, the relatively small cross section of fast plasma flow versus plasmoid is clearly indicated.

This result supports the result of statistical study indicating that Geotail sees many more plasmoids than earthward fast plasma flows [Ieda et al., 2000].