

The property of the magnetospheric plasma sheet: Data analysis of electric current density and thickness of the current sheet

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We have analyzed the structure of the plasma sheet with the GEOTAIL data using the method presented by Sergeev et al.[1998]. We have found that "the number of plasma particles" included in the plasma sheet, which we have defined as the product of the number density and estimated thickness of the plasma sheet, increases when the satellite observes cold dense population in the central plasma sheet.

Besides the statistical studies mentioned above, we have performed case studies of several substorm events. We have found that there are at least two kinds of thin plasma sheet:

- (1) Growth phase of a substorm
- (2) Cold dense plasma sheet

We will report these studies and discuss dynamics in the plasma sheet.