

## Field-aligned currents in the outermost plasma sheet boundary layer with Geotail observation

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We have studied the outermost field-aligned currents (FACs) in the plasma sheet boundary layer (PSBL) with the Geotail observations. The trajectory and plasma data of Geotail enables us to conduct a more comprehensive and systematic survey than former work based on the ISEE 1 and 2 data. We identified the FACs with the variation of the cross-tail magnetic field component and calculated their intensities on the assumption of the sheet current. A case study indicated that the FACs flow earthward on the earthward side of the reconnection site while the FACs are directed tailward on the tailward side. This tendency was confirmed statistically for PSBL crossings by Geotail inside  $X(\text{GSM}) = -40$  RE. The statistical study also showed a dawn-dusk asymmetry of the polarity of the outermost FACs on the earthward side of the reconnection site. That is, the FACs in the dawn sector mainly flow earthward, while the tailward-flowing FACs frequently appear in the dusk sector, which is the sense of the region 1 FAC system.