

Estimate of Cross-Tail Current From the Electron and Ion Velocity Difference: GEOTAIL LEP Observations

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We are now re-evaluating electron data observed with the LEP instrument on board GEOTAIL. Generally Electron data cannot be used without removal of various spurious effects, such as due to the spacecraft potential and photoelectrons emitted from the spacecraft surface. In this paper we will present some interesting results with the focus on the estimate of the current from the velocity difference between electron and ion bulk velocities. One of the most interesting results is a characteristic variation of the cross-tail current in the course of substorms. The results can be reasonably interpreted in terms of local thinning of the current sheet in association with occurrence of magnetic reconnection.