

Statistical properties of plasma in the vicinity of the magnetic neutral line in the magnetotail (3)

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We studied properties of plasma in the vicinity of magnetic neutral line in the Earth's magnetotail with GEOTAIL data. We required simultaneous reversals of the 1-min-averaged ion flow velocity and the magnetic field to select the data near the neutral line. When ion velocity distribution function has two peaks, we extracted both components separately adopting two-Maxwellian mixture distribution model. We found that the cold components formerly flowing tailward enter the plasma sheet with some dawnward drift velocity, which transpose mainly kinetic flux perpendicular to the ambient magnetic field. Then, they are accelerated duskward and heated in the current sheet, and ejected to the plasma sheet boundary layer with heat flux parallel to the magnetic field.

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