

Locations of "reversed" cross-tail current at the substorm onsets: GOES-5, GOES-6 and AMPTE/CCE magnetic field observations-(5)

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Using high-time resolution magnetic field data from the AMPTE/CCE satellite during the interval from May 1 to August 31, 1985, we selected 59 substorm events which have clear onsets in the nightside magnetosphere. By analyzing the three components of the magnetic field vector when its north-south component reached the first peak, we found that 34% of these 59 events were initiated by field-aligned current perturbations, and 66% by cross-tail current perturbations, 90% of these 66% could be explained in terms of eastward cross-tail current. We will also show the magnetic data from geosynchronous satellite GOES 5, GOES 6, one of which was within 1 Re from the AMPTE/CCE position, and discuss the spatial development of dipolarization in the near-Earth tail.

It has been widely accepted that during substorm expansion onsets magnetic field changes are often detected at the nightside geosynchronous altitude. Using high-time resolution magnetic field data from the AMPTE/CCE satellite during the interval from May 1 to August 31, 1985, we selected 59 substorm events which have clear onsets in the nightside magnetosphere. By analyzing the three components of the magnetic field vector when its north-south component reached the first peak, we found that 34% of these 59 events were initiated by field-aligned current perturbations, and 66% by cross-tail current perturbations, 90% of these 66% could be explained in terms of eastward cross-tail current. We will also show the magnetic data from geosynchronous satellite GOES 5, GOES 6, one of which was within 1 Re from the AMPTE/CCE position, and discuss the spatial development of dipolarization in the near-Earth tail.