

CLUSTER MULTI-POINT, MULTI-SCALE OBSERVATIONS OF FLOW-INDUCED DIPOLARIZATION IN THE NEAR TAIL REGION

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Dipolarization (sudden enhancement in B_z) is one of the key signatures in the magnetotail indicating enhanced magnetic flux transported from the tail and/or change in the local/global configuration of the tail current sheet associated with substorms. The magnetic signatures have been also interpreted as evidence of current sheet disruption and/or pileup of the magnetic flux due to enhanced reconnection flows. Since summer 2007, Cluster crossed the night-side plasma sheet closer to the Earth, inside of $X \sim -10R_E$, at locations where these near-Earth substorm disturbances are considered to take place. Cluster configuration during this period contains different separation distance among the spacecraft and therefore allows examining simultaneously the local current density together with evolution of the dipolarization signatures. In this presentation we discuss the current sheet evolution during dipolarization associated with fast flow and flow breaking events by examining the gradients in the fields and the flow structures obtained by the multi-point multi-scale observation of the current sheet.

Reconnection, Turbulence, Shock

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