



Cluster multi-point observations of 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. 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, which is a manifestation of the main expansion phase onset of substorms. During summer 2007, Cluster crossed the night-side plasma sheet closer to the Earth, at X^- -11 RE, compared to the earlier years of the mission, at locations closer where the near-Earth substorm disturbances are considered to take place. There were both dipolarization (B_z enhancement) events associated with fast flows and without fast flows. Using multipoint observations, characteristics of the dipolarization front are examined and compared with the scenario predicted from the flux pileup as well as current disruption models.