



Dipolarization propagation properties observed by Cluster and Double Star TC1

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During magnetospheric disturbances, the magnetic field configuration in the near-Earth often changes drastically, from tail-like field to a more dipolar configuration. This dipolarization seems to be caused by the disruption of currents in the near-Earth tail or by bursty bulk flows (BBFs) in the midtail. The relation between the two is, however, still controversial.

The Cluster and Double Star TC1 spacecraft provide good opportunities for conjunction in the nightside plasma sheet in summer 2004. This study focuses on the propagation property of the dipolarization signatures observed at the two spacecraft. We discuss examples of three different types of the propagation. (1) Active region is at first tailward side of both spacecraft and propagates earthward. (2) Active region is between the two spacecraft and then propagates tailward and earthward, respectively. (3) Active region is earthward side of both spacecraft and then propagates tailward, although the flow directions are earthward.

These observations are discussed in terms of substorm relevant processes such as flow braking and pile-up of magnetic field.