CLUSTER Observations of Dipolarization Front Near the Flow-Breaking Region

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Dipolarization (sudden enhancement in Bz) 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. During summer 2007, CLUSTER crossed the night-side plasma sheet closer to the Earth, inside of $X \sim -10$ RE, which is an ideal location to study the flow-breaking region. We present an observation of a multiple dipolarization event on 20071027 by examining the gradients in the fields at different scales as well as by analyzing the detailed particle signatures around the dipolarization front. Three topics will be mainly discussed in this talk (1) current sheet disturbances associated with dipolarization (2) electron acceleration around the flow-breaking region (3) shock-like signatures of the dipolarization front.