



On the retreat of Near-Earth neutral line during substorm expansion phase: a THEMIS case study during the 2008 January 9 substorm

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The location of magnetic reconnection in the mid-tail during a substorm was studied in many researches. Here we present multi-point THEMIS observations of a reconnection event in the near-Earth magnetotail during substorm. In this event, THEMIS probes stayed in the near-Earth and mid-tail region aligning along magnetotail. This allows reconnection evolution to be probed simultaneously from about -10 RE to -23 RE down tail. The Hall current related electron streams were observed at the same time by two probes far away from reconnection site. Before near-Earth reconnection involved tail lobe magnetic field, the reconnection site was restricted in inner of -23 RE. When reconnection involved into tail lobe region, the reconnection site started to retreat gradually.