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Earthward flow bouncing: Comparison between THEMIS observation and MHD simulation

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THEMIS five spacecraft observations have shown that an Earthward plasma flow bounced off to a tailward flow at the near Earth region and thereby creating a flow rotation associated with formation of a strong pressure gradient. A recent 3D MHD simulation of a localized reconnection flow with a magnetic wall upstream shows that such reversal of the flows occurs as the flux pile up of magnetic field takes place. In this presentation we compare the THEMIS flow reversal observations and the MHD simulation results to discuss the mechanisms of this bouncing including the development of pressure gradient force.