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CLUSTER AND SUPERDARN OBSERVATIONS DURING A POSITIVE B_Y PERIOD

D. Ambrosino, M.F. Marcucci, E. Amata, I. Coco

IFSI/INAF, Roma, Italy

On January 3, 2003, Cluster crossed the northern dusk high latitude magnetopause during an outbound orbit. Before crossing the MP, SC3 observed a boundary layer of dawnward flowing plasma; during the same period SC1 stayed in the magnetosheath, crossing the MP several times and observing a similar BL of dawnward flowing plasma. During the period of observations, the IMF and the magnetosheath magnetic field, as observed by ACE and SC1, are predominately directed along positive B_Y, with B_Z changing from positive to negative. Therefore, Cluster observations can be explained in the framework of high latitude reconnection for positive B_Y. Simultaneously, SuperDARN observations show that the high latitude convection at noon is characterized by an extended westward flow, as expected for the observed orientation of the external magnetic field. We quantitatively analyze the reconnection at Cluster and study the SuperDARN and Cluster data in a coordinated fashion to infer the global configuration of the reconnection at the magnetopause.