

Joint observations of reconnection at dayside magnetopause by TC1 and Cluster and compared with computer Simulations

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Magnetic reconnection plays a fundamental role in the dynamics of the magnetosphere. Magnetic reconnection relies on the presence of a dissipation mechanism in a localized region of space. Though there is great progress in both reconnection observations and simulations, it is still unclear how the rate of reconnection is affected by a magnetic field component perpendicular to the reconnection plane. The computer simulations have shown that smallest guide field could have large impacts on what systems will exhibit turbulence associated with reconnection. In this report, we present detailed TC1 and Cluster observations of several events of magnetopause reconnection near the x-line region with flow reverse. By combining with computer simulations, we will study the structure of reconnection layer and show evidence for anti-parallel and component reconnection. We also remotely track the reconnection rate and site by auroral and ionospheric signatures and compared with in situ observations.