



Magnetic reconnection in the turbulent magnetosheath

Emiliya Yordanova (1), Zoltan Vörös (2,3,4), and the MMS Team

(1) Swedish Institute of Space Physics, Uppsala, Sweden (eya@irfu.se), (2) Space Research Institute, Austrian Academy of Sciences, Graz, Austria, (3) Geodetic and Geophysical Institute, RCAES, Hungarian Academy of Sciences, Sopron, Hungary, (4) Department of Geophysics and Space Sciences, Eötvös University, Hungary

Magnetosheath downstream a quasi-parallel bow shock is one of the most turbulent regions in the near Earth' space. It has complex topology and it is characterized by strong fluctuations in all field and plasma parameters. The turbulence gives rise to coherent structures (vortices, flux tubes, current sheets) from MHD to kinetic (proton and electron) scales. In some parts of the region the physical processes are plasma flow dominated while in others magnetic field dominated. This dynamical behavior leads to continuous interaction between the structures providing means for turbulence to dissipate energy by processes such as magnetic reconnection. We present spacecraft observations of kinetic-scales current sheets in the magnetosheath, formed by the interaction of magnetic structures. We observe signature of magnetic reconnection, such as ion demagnetization, electron heating, electron jets and pressure anisotropy.