Abstract:

Magnetic reconnection is a fundamental process in plasmas which converts magnetic field energy into particle thermal and kinetic energy be reconfiguring magnetic field topology. The Magnetospheric Multiscale (MMS) spacecraft were launched in 2015 with the aim of investigate magnetic reconnection at Earth's magnetopause and magnetotail. The goal of MMS is to understand the microphysics of magnetic reconnection, by determining the kinetic processes occurring in the electron diffusion region, where magnetic field lines reconnect. We present recent observations of magnetic reconnection near and at the electron diffusion region. We focus on the behavior of electrons, including electron acceleration and heating, and observations of waves, and discuss the role of waves in ongoing reconnection.