Geophysical Research Abstracts
Vol. 17, EGU2015-2325, 2015
EGU General Assembly 2015

Multipoint measurements: a key tool for magnetic reconnection research

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Despite a multitude of research efforts in recent history, theoretical and modeling predictions of the structure of the reconnection diffusion region continue to uncover a multitude of surprises. A common theme among most predictions is a complex structure, with prominent spatial gradients, which determine the variation of magnetic fields, currents, and structures of distribution functions. On the electron scales, there is growing consensus that these scales are given either by the electron bounce width or by local electron Larmor radii, but many unsolved puzzles remain, particularly in asymmetric configurations. In this presentation, we will present an overview of open scientific questions pertaining to reconnection physics, and we will put these questions into the context of NASA's Magnetospheric Multiscale mission.