



Testing predictions of the Reconnection Location with THEMIS

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Recent studies concerning the location of the reconnection line with single point measurements under stable solar wind and IMF conditions reveal that magnetic reconnection tends to occur along a continuous X-line of maximum magnetic shear across the dayside magnetopause. Exceptions to this continuous reconnection X-line are dominant southward IMF conditions (within $\pm 25^\circ$ of southward IMF) or a dominant IMF Bx component (more than 70% of the IMF in the Bx component) for which the reconnection line bifurcates, and exists along magnetopause regions where the merging fields are exactly anti-parallel.

In this presentation we will discuss plasma observations at the magnetopause by the THEMIS satellites. On 2 occasions, the spacecraft observed in the boundary layer accelerated flows that switched directions as the spacecraft crossed the magnetopause. These accelerated flow reversals indicate that the reconnection line was very close to the spacecraft. The observed positions of the reconnection lines are compared with prediction from the maximum magnetic shear model. In both cases the observed location is in agreement with the model prediction. However, in the second case the model predicted an anti-parallel reconnection site; indicating that the solar wind conditions responsible for transitioning between the anti-parallel reconnection scenario and the tilted X-line need further investigation.