

TOWARDS LOCATING STABLE RECONNECTION AT THE DAYSIDE MAGNETOPAUSE DURING SOUTHWARD IMF

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Determining the location and spatial extent of the magnetic reconnection X-line at the dayside magnetopause is important for understanding how energy and plasma is transported from the solar wind into the magnetosphere. Based on observations, a model has been recently developed for the reconnection X-line location during southward IMF conditions which is found to vary with solar wind conditions and with dipole tilt angle. An analytic model of the magnetosheath is also used to determine where the shocked solar wind plasma flow is sub-Alfvénic and super-Alfvénic near the magnetopause. These two models are used together to estimate where stable reconnection regions can occur for southward IMF. The validity of these models will be tested with THEMIS *in situ* observations at the magnetopause. IMAGE FUV ionospheric observations of the footpoints of reconnection in conjunction with magnetic field mappings to the dayside magnetopause will also be used to compare with the model regions of stable reconnection.

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