



The dayside magnetic reconnection locations observed by MMS during Phase 1 and their relation to the predictions of the Maximum Magnetic shear model

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Several studies have validated the accuracy of the Maximum Magnetic Shear model to predict the location of the reconnection site at the dayside magnetopause. These studies found agreement between model and observations for 74% to 88% of events examined [e.g., Vines et al., 2015; Petrinec et al., 2016; Trattner et al., 2016]. It should be noted that, of the events that failed the prediction of the model, 72% shared a very specific parameter range. These events occurred around equinox and for an IMF clock angle of about 240° . This study investigates if this remarkable grouping of events is also present in data from the recently launched MMS mission. Our MMS magnetopause encounter data base, which includes both full and partial magnetopause crossings and FTEs, contains about 4500 intervals. We use the known reconnection line signature of switching accelerated ion beams in the boundary layers to identify encounters with the reconnection region to identify about 300 events when the spacecraft are very close to a reconnection site. The confirmed locations are compared with predicted reconnection location and sorted by time and IMF clock angle to determine anomalies in the prediction capability of the model.