



Magnetopause orientation and motion: comparison of constrained minimum variance and multi-spacecraft triangulation

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Knowledge of orientation, motion and dimensions of plasma structures in space is essential in their study. The advent of multi-spacecraft missions such as Cluster have provided new opportunities to determine these parameters using multipoint observations. Multi spacecraft methods are computationally more complicated and require more data than traditional single spacecraft methods though, and also typically imply strict assumptions about planarity and stationarity of the plasma structure studied. In this paper, we have utilized a large number of Cluster magnetopause crossings to compare triangulation methods with a constrained minimum variance method. The results suggest that the simplified method often provide boundary normal estimations very similar to the more elaborate multi-spacecraft methods.