

Comparing plasmoid structure in different planetary magnetospheres

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Abstract

Plasmoids as in situ evidence of magnetotail reconnection have been found at several planets including Mercury, Earth and Saturn. Much can be discerned about their morphology through the analysis of spacecraft magnetometer data alone. Here we compare and contrast observations of plasmoids at different planets. We discuss the differences between flux ropes and magnetic loops, applying principal axis analysis to probe their interior geometry. We discuss the relative influences of magnetotail reconnection on global magnetospheric dynamics at the different planets, and focus on the different external and internal conditions which lead to specific plasmoid characters.