

Thin current sheet and plasma jet observed within a FTE by MMS

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Bursty magnetic reconnection may lead to the formation of flux transfer events (FTEs) on the dayside magnetopause. FTEs are characterized by a peak in magnetic field intensity and a bipolar signature in the magnetic field component normal to the magnetopause surface. Many features of FTEs have not been precisely identified owing to the limited resolution of plasma instruments on past missions. Thanks to unprecedented high resolution and accuracy, measurements made by the recent MMS mission reveal the fine structure of FTEs in full detail. The work presented here consists in the study of an FTE that was detected by MMS on November 7th, 2015. Burst data were available from all four spacecraft, in good tetrahedral configuration, allowing us to use multi-spacecraft data analysis methods. The event shares several features with FTEs but our interest lies in a very localized current system and an ion jet observed in the center of the structure. There is evidence of multiple sub-structures inside the FTE. We discuss the presence of a current sheet inside the event as a result of colliding jets leading to the possible formation of magnetic islands or coalescence of multiple magnetic islands.