



Multi-case study of magnetosheath high-speed jets observed by MMS

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Jets - transient enhancements in dynamic pressure - are a common phenomenon in the dayside magnetosheath, in particular downstream of the quasi-parallel bow shock. They are able to reach the magnetopause and, on impact, generate magnetopause indentations, surface waves, inner-magnetospheric disturbances and affect flows in the ionosphere and ground magnetic field measurements. Nevertheless, their character and inner structure are rather unknown. Recent observations by the four Magnetospheric Multiscale (MMS) spacecraft enable us to shed more light on this topic. During their first dayside science phase (1a), they observed more than 1000 jets in the subsolar magnetosheath. For more than 50 of those, burst data are available. The high time resolution of the MMS burst measurements and the small scale tetrahedral spacecraft configuration allow us to investigate the current structure and magnetic topology of jets, the forces acting on different plasma elements, and the differences between the motion of plasma and the propagation of the entire jet or sub-structures within.