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Study of the magnetotail current sheet properties using observations from the MMS mission

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The small interspacecraft distances of the recently launched Magnetospheric Multiscale (MMS) mission and the unprecedented time resolution of the plasma and field measurements of the instruments onboard each spacecraft allow us to study the properties of magnetotail current sheet crossings in great detail in terms of their spatial and temporal evolution and resolve several cases in ion and electron scales. In the present study we focus on some case studies of thin current sheets during the MMS commissioning phase, which lasted till August 2015. For this analysis, we use plasma density data obtained from plasma detectors and plasma density proxi estimated from spacecraft potential variations by taking into account the effect of the ASPOC ion beam current. The results of this study could be a useful input for current sheet models and simulations.