

Supporting Information for “MMS Observations of Storm-time Magnetopause Boundary Layers in the Vicinity of the Southern Cusp”

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1. Data

MMS consists of four identical spacecraft in a tight tetrahedron configuration (Burch et al., 2016a). This study includes data from the following instruments on MMS1. The Fluxgate magnetometer (FGM) observes DC magnetic fields at 8 or 16 Hz in survey mode and 128 Hz in burst mode (Torbert et al., 2016). The Fast Plasma Investigation (FPI) measures the 3-dimensional electron distribution every 30 ms(4.5 s) and ion distribution every 150 ms(4.5 s) in burst(fast) mode for energies of 0.01-30 keV (Pollock et al., 2016). The Electric Field Double Probes (EDP) provide 3-axis electric fields at 8192 Hz in burst mode (Ergun et al., 2016; Lindqvist et al., 2016; Torbert et al., 2016). The Hot Plasma Composition Analyzer (HPCA) obtains H+, He++, He+, and O+ velocity distributions at 10 second cadence in survey mode (Young et al., 2016). The Fly's Eye Energetic Particle Spectrometer (FEEPS) measures the 3-dimensional electron distribution with energies of 70-1000 keV every 2.5 seconds in survey mode (Blake et al., 2016). The 1-minute resolution solar wind conditions come from the NASA OMNIWeb data service (<https://omniweb.gsfc.nasa.gov/>).

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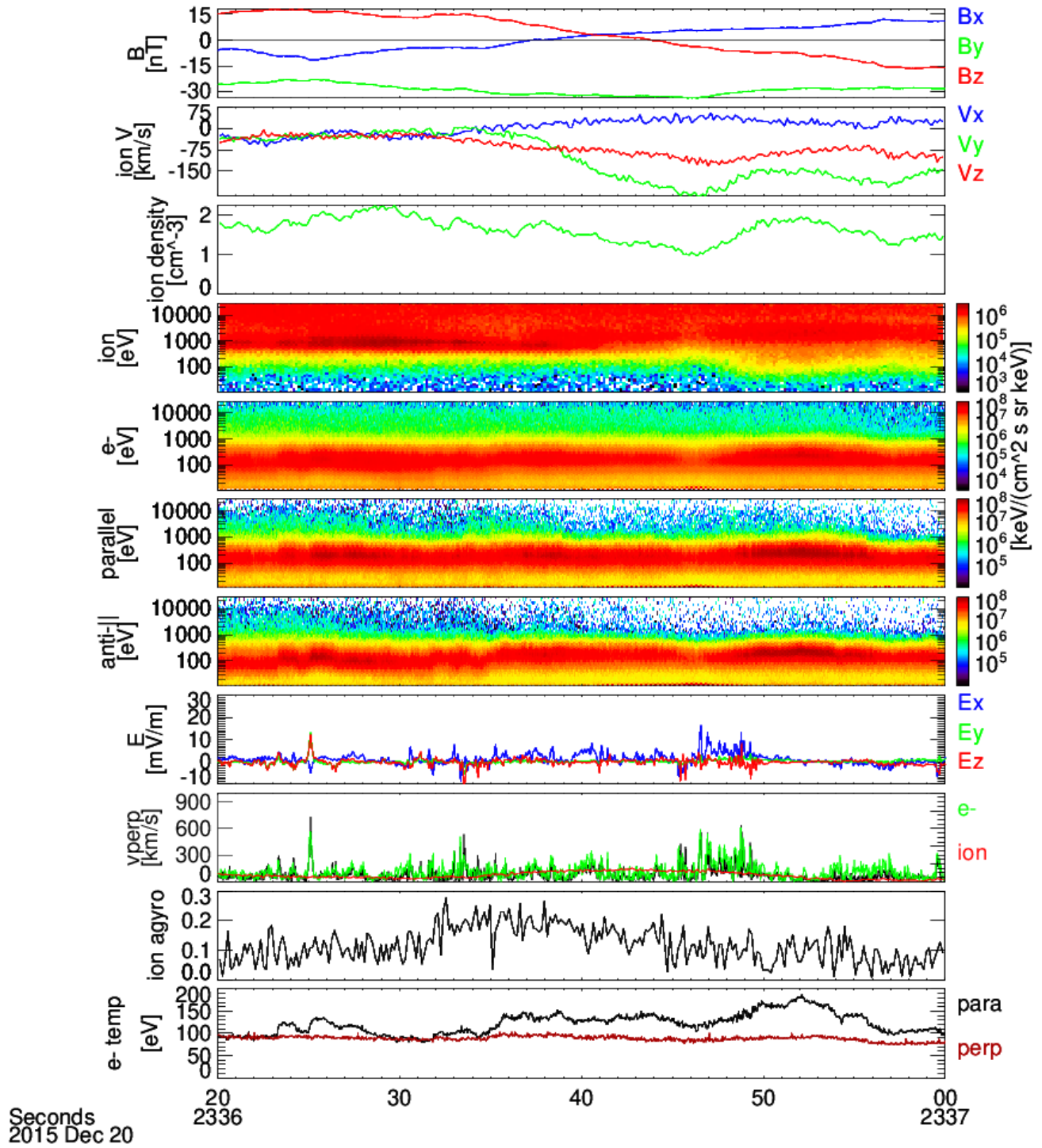


Figure S1. MMS exiting the magnetosphere ~ 20 seconds after the observations presented in Figure 3 from the main text. Lack of reconnection signatures at this current sheet supports that MMS was near a secondary reconnection site in Figure 3.

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