



MMS Observations of magnetospheric fast ion flows and magnetic dipolarization near the dusk-meridian flank

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The concept of a magnetic dipolarization front propagating earthward through Earth's magnetotail and accompanied by fast earthward ion flows, both as consequences of magnetic reconnection occurring tail-ward of an observation point, is well known. Examples of this phenomenology have recently been referred to as reconnection fronts. It is less common to imagine similar signature sets in contexts other than the imagined noon-midnight magnetotail configuration. Nevertheless, signatures of 800 km/s earthward ion flows were observed contemporaneously with distinct but temporary increases in the GSE-z component of the magnetic field at a geocentric distance of the order of 10 RE, in the vicinity (but somewhat tail-ward) of Earth's equatorial dusk terminator on August 12, 2015. These observations were obtained using the Fast Plasma Investigation (FPI) and the Fields electric fields experiment on NASA's Magnetospheric Multiscale (MMS) mission. Several interesting questions arise as to the nature of the observed plasma and field signatures and their drivers in cases such as this. To what degree are they analogous to the magnetotail reconnection fronts previously alluded to? And, to the degree that they are, what kind of reconnection geometry can we envision as giving rise to these signatures at such a location? We will present sample observations and discuss their significance from this point of view.