



Bimodal behaviour of magnetotail dipolarization fronts

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We study the ion and electron density and temperature in the pre- and post-dipolarization plasma sheets in the Earth's magnetotail, using the ECLAT dipolarization front (DF) event list. From the DF eventlist, we selected cases for which Cluster is near the neutral sheet and the earthward plasma flow perpendicular to the magnetic field exceeds 100km/s. These events are divided into different categories with respect to their temperature and density ratios before and after the DF. We perform a statistical study of the ion and electron temperature and density variations during the DF crossings. Earlier studies concluded that the ion temperature increases while the density decreases across the DF. Our statistical results, however, show that the DFs fall mainly into 2 complementary categories with respect to temperature and density variation, i.e. temperature increases while density decreases or vice versa.

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