

PRESSURE AND ENTROPY CHANGES DURING A DIPOLARIZATION IN THE PLASMA SHEET

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THEMIS observations in plasma sheet at $r=6-12 R_E$ during 2007-2008 tail season are used to study plasma parameters changes associated with dipolarizations. We base our analysis on measurements in close vicinity to the neutral sheet requiring that observed magnetic field meets criterion $|B_z/B_{xy}| > 1$. We compared plasma parameters prior and after a dipolarization when the plasma sheet was in force equilibrium as inferred from electric field data. Analysis of plasma pressure changes showed no regular behaviour. On average it slightly increases after dipolarization but, in majority of events the difference was within 20%. The specific entropy was estimated using three different approaches, two of which gave similar results. In spite of some uncertainty, we could conclude that the entropy, defined as pV^γ , decreases during a dipolarization unlike the quantity p/n^γ .

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