

Large amplitude electric field in the near tail regions

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Measurements from Geotail spacecraft of electric fields, magnetic fields, plasma waves, and plasma particles are used to study the structure and dynamics of the magnetospheric plasma. This paper focuses on measurements of the large amplitude electric field above ± 20 mV/m observed in the near tail regions. Large amplitude electric fields are found in the plasma sheet and its boundary region at radial distance $15R_E$, and are associated with the largest changes in the magnetic field and the intense auroral kilometric radiation (AKR). In this paper, examples of large amplitude electric fields in the magnetosphere at radial distance up to $30R_E$ are presented. The results are described and compared with various possible generation mechanisms of large amplitude electric fields using the plasma waves, magnetic fields, and plasma particle measurements observed by the Geotail spacecraft.