

Study on a boundary between the near-Earth plasma sheet and the magnetotail

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We analyze E-t spectrograms obtained by the Geotail spacecraft at distances of 9-30 RE. Particle signatures seen in the spectrograms obtained in the near-Earth magnetosphere are different clearly from those in the magnetotail. In the near-Earth region, particle spectra are stable and show a high temperature and a large intensity of particles. On the other hand, particle spectra are fluctuating and show a low temperature and a small intensity of particles in the magnetotail. In 2003 and 2004, we have shown that the transition between the two regions often occurs rapidly and was observed repeatedly around a certain distance (10-15 RE). This suggests that there exists a boundary between the near-Earth (-15 Re) plasma sheet and the magnetotail. In the present paper, we examine configuration change of the magnetic field around this boundary and its association with geomagnetic activities. We also discuss low-altitude boundaries reported by Newell et al. [1996].