

Solar wind entry and magnetic structures observed in the magnetosphere

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Abstract

Low latitude boundary layer (LLBL), which becomes thick and dense during the interval of northward Interplanetary magnetic field (IMF), is considered as the source region of the formation of cold-dense plasma sheet (CDPS). The CDPS plays an important role in the coupling of solar wind and Earth magnetosphere. Investigating the Spatio-temporal change of CDPS will help us better understand the plasma exchange between solar wind and magnetosphere. We use 21 years of Geotail data (1996-2016) to investigate the CDPS events. Using the high resolution data from the MMS satellites, we also try to investigate the fine structure inside the LLBL. The OMNI dataset is used to determine the orientation of the IMF, and to calculate the location of magnetopause.