Geophysical Research Abstracts, Vol. 9, 00315, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-00315


# Characteristics of low latitude boundary layer and the magnetosheath plasma penetration inside the magnetosphere

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Characteristics of low latitude boundary layer (LLBL) of the magnetosphere of the Earth are investigated using data of Interball/Tail probe observations. Variations of ion and electron particle fluxes, magnetic field are analyzed. The thickness of LLBL is evaluated for a number of cases. The dependence of LLBL thickness on the interplanetary magnetic field (IMF) orientation and its variability is investigated. The problem of magnetosheath plasma penetration inside the magnetosphere is analyzed taking into account large variations of magnetosheath magnetic field with amplitudes larger than the magnetic field under the magnetopause. The results of observations lead the conclusion that the turbulent nature of magnetic field and plasma fluctuations in the magnetospheath is one of the main factors determining structure of LLBL.