Geophysical Research Abstracts, Vol. 9, 07161, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-07161

Statistical analysis of magnetic field fluctuations in the Earth's magnetotail

L.V. Kozak (1), A.T.Y. Lui (2) and V.M. Ivchenko (1)

(1) Kyiv Taras Shevchenko University, Astronomy and Space Physics Department, Ukraine,
(2) Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

Magnetic field relaxation in the Earth's magnetotail during substorms is investigated. Data obtained by GEOTAIL spacecraft with a temporal resolution of ˜0.01 s during 1998, 1999 and 2000 were used. The investigation was based on the statistical approach documented previously [1]. In the analysis, the probability density distributions (PDFs) of magnetic field fluctuations were plotted and the changes of the probabilities of return in different time scales were examined. Only the magnetic field magnitude was investigated. Changes in the shape and parameters of the PDFs were examined for the periods before and during magnetospheric substorms. The results demonstrate the significant variations of the parameters for the PDFs before and during magnetospheric substorms.

This study was partially supported by grant CRDF UKP2-2644-KV-05.

[1] Consolini, G., M. Kretzschmar, A.T.Y. Lui, G.Zimbardo, and W.M. Macek (2005), on the magnetic field fluctuations during magnetospheric tail current disruption: A statistical approach, J. Geophys. Res., 110.