



Multi-scale features of aurora and electric field fluctuations at the high latitudes

B. V. Kozelov

Polar Geophysical Institute, Apatity, Murmansk region, 184209 Russia
(kozlov@pgi.kolasc.net.ru / Fax: +78155574339)

A study of statistical features of auroras and electric field fluctuations at the high latitudes is presented. Data from all-sky television (TV) observations from the Barentsburg observatory (Svalbard) have been used. The results of avalanche analysis of the data by spatio-temporal techniques employed to identify and select avalanche-like transients, as well as characteristics which are commonly applied to turbulent flows (probability density function (PDF) and generalized structure function (GSF) for fluctuations), are considered. Data of electric field fluctuations observed by low altitude satellite DE-2 at the auroral latitudes have been analyzed also. The scaling features obtained can be interpreted as signatures of turbulent motion of the magnetosphere-ionosphere plasma. Possible implications of the results for the validity of self-organized criticality (SOC) models and turbulence models of the magnetosphere-ionosphere system activity are discussed.