Geophysical Research Abstracts,
Vol. 10, EGU2008-A-03704, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-03704
EGU General Assembly 2008

Refractive scattering evidence from multi-frequency scintillation spectra observed at auroral latitudes

B. Forte

University of Nova Gorica (biagio.forte@p-ng.si)

During the October 2003 major geomagnetic storm, intensity scintillations on radio signals at 150 MHz and 400 MHz transmitted coherently from Tsykada beacon satellites have been observed.

Through the analysis of intensity fluctuation spectra, evidence of refractive scattering from large scale ionospheric irregularities in the spatial plasma density distribution is found. The events can indeed be explained by using the refractive scattering theory developed by Booker and MajidiAhi (1981). The presence of refractive scattering is particularly evident in strong scintillation events, where spectral saturation may well occur. The observed intensity spectra fit the shape of theoretical predictions of the refractive theory.

This provides useful insights about spectral slope, Fresnel scale, and the scale of irregularities producing the observed intensity scintillations actually present in the ionosphere.