



Season-longitude variability of low altitude electrostatic turbulence observed at low invariant latitudes

F. Lefeuvre (1), F. Li (1), M. Parrot (1)

(1) LPCE - CNRS - Univ ORLEANS (F), Contact lefeuvre@cnr-orleans.fr

Power spectra of the ELF electric field measured on-board DEMETER are used to study the low altitude electrostatic turbulence observed at low-to- mid latitude. Survey mode power spectra, selected for statistical analysis, have a power law in $f^{-\alpha}$, with α spectral index, below ~ 160 Hz. The frequency and time resolutions are respectively ~ 19.5 Hz and 51 ms. Averaged spectral indexes are estimated in geographical bins of $2^\circ 5'$ in latitude and 5° in longitudes. Monthly maps of DEMETER night time passes (~ 22 h) point out α value greater than 2 during winter periods and at longitudes between -130° and -50° . Averages made over one year between -20° and $+20^\circ$ invariant latitudes show season-longitude variability of the spectral indexes similar to the season-longitude variability of equatorial bubble occurrence (Burke et al., *Annales Geophys.*, 22, 3089, 2004; *J. Geophys. Res.*, 109, A12301, doi:10.1029/2004JA010583, 2004). This suggests that, during winter time, a strong electrostatic turbulence is associated with plasma density irregularities which develop just after sunset in the equatorial regions.