



Correlation of VLF/LF variations from ground and satellite observations with magnetic activity and outer-zone particles

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Our main goal is selection of the local VLF/LF perturbations connected with earthquakes from large-scale or global anomalies related to atmospheric circulations, magnetic storms and to solar activity. In this study we investigate the variations of the VLF/LF signals recorded in two recently installed stations (Graz and Moscow) and electromagnetic signals recorded in the DEMETER satellite. The period of analysis for ground data is from January 1 to October 31, 2010. During this time magnetic activity was rather moderate, Dst index didn't exceed -60 nT. There were a few fluxes of outer-zone protons and electrons with high-pitch angle (GOES satellite data). Correlation of the signal with Dst index is found to be about ~12-18% in the majority of wave paths. For several wave paths the correlation doesn't reveal. Correlation with particle fluxes is 20-50% in the vicinity of some events. Satellite data have been analysed during 2006. Magnetic activity here was higher (Ds up to -110). We find evident correlation of low frequency noise 150-1500 Hz with magnetic storm activity but no significant correlation for higher frequencies – 6.5-20 kHz.