



## **Statistical analysis of the ELF turbulence registered in the ionosphere over the regions of the strong earthquakes by DEMETER satellite**

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The disturbances of the electromagnetic field around areas of the earthquakes as preseismic events can occur few hours or even few days before main shock. The payload of the DEMETER French microsatellite allows to measure waves and also some important plasma parameters (ion composition, electron density and temperature, energetic particles) with high temporal resolution in the ionosphere over the seismic regions. In the present work analysis of the low frequency fluctuations of the electric and magnetic fields for the selected strong earthquakes ( $M > 6.5$ ) will be given. Special attention will be given to study of the characteristics of the spectra of these variations and search of the nonlinear effects. This analysis is possible in the time interval when the waveform has been transmitted. The mechanism of the energy transmission from the earthquake to the ionosphere is not clear, but we can discuss the behavior of the ionospheric plasma and search of the instabilities which could be a source of the electromagnetic field variations. Some attempt of this discussion will be given in the presentation. The results of the search of the some statistical characteristics of the spectra and multispectra prior to the discussed earthquakes will be given in this presentation.