



ULF/ELF magnetic field variations in atmosphere probably induced by seismicity

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Local variations of the magnetic field in the ULF-ELF frequency range associated with seismicity are studied with the data of more than 3 year observations at Karimshimo complex observatory (Lat=52.827 N, Long=158.132 E, Kamchatka, Russia). A wide band emission is found to start about 5 days before an earthquake and last until 5 days after it. ULF/ELF emission registered at periods of enhanced seismic activity as compared with the seismically-quiet background is characterized by the wave arrival azimuth rotated towards the meridional direction and the polarization closer to linear. This results in the enhanced ratio of the power spectra of the meridional P_{hh} to the azimuthal P_{dd} horizontal components. The standard deviation of the preferential wave arrival azimuth and the ellipticity are reduced in comparison with the background. Parameters of this emission are studied for more than 30 individual earthquakes and statistically with the Superposed Epoch (SPE) method. The reliability of the earthquake predicting hypothesis is verified and the favorable parameters for the earthquakes together with those for ELF magnetic field are selected. The following earthquake parameters are favorable for this emission: depths $H < 50$ km, magnitudes $M_S > 5.5$ and epicenter distances $R < 300$ km. The changes of natural ULF/ELF emissions during the periods of enhanced seismic activity are interpreted as the result of the excitation of additional ULF/ELF emissions in the seismic zone to the east of the observatory.