



Non-uniform scaling features in ultra low frequency geomagnetic signals and correlation with seismicity

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The scaling behaviour of the time dynamics of Ultra Low Frequency (ULF) geomagnetic data observed during 2000 and 2001 at Izu Peninsula in Japan are analyzed. The 50 Hz data and then resampled at 1Hz were used for the analysis performed in the present study. On the base of the detrended fluctuation analysis (DFA), which is a powerful tool to detect and investigate time-scaling behavior in nonstationary signals, deviations from uniform power-law scaling were identified and quantified by means of an instability index. The results point out to significantly high instability index in ULF geomagnetic data possibly correlated with the occurrence of large earthquakes and intense seismic clusters.