



## Entropy in natural time of geoelectric time series of dichotomic nature.

Alejandro Ramírez-Rojas, J. Rubén Luevano, and Carlos A. Vargas

Física de Procesos Irreversibles. Departamento de Ciencias Básicas. Universidad Autónoma Metropolitana. Unidad Azcapotzalco, México D.F. 02200. México (arr@correo.azc.uam.mx)

It is well known that short-term earthquake prediction is one of the most debated topics in the Earth Science. In this context, the seismic electric signals (SES) activities have played a polemic topic by the scientific community. The SES are electric self-potential fluctuations of low frequency ( $\leq 1\text{Hz}$ ) and dichotomic nature. These fluctuations are detected in seismically active regions as anomalies in geoelectric signals since a few hours to some weeks before impending earthquakes. SES have been reported in Greece, Japan and México. In this work we present a study case of dichotomous nature signals monitored in the seismically active Mexican region located in the Guerrero-Oaxaca coast by means of the natural time domain. Our monitored geoelectrical signals are associated with two EQ's occurred on October 24, 1993 and September 14, 1995. In order to compare our experimental data set we consider a chaotic dichotomic time series obtained from the Liebovitch and Thot model. Our results show that entropy and power spectrum, in the natural time domain analysis, are consistent with the results reported already.