



Study of entropy in the natural time domain of geoelectrical time series monitored in Guerrero-Oaxaca, México.

Alejandro Ramírez-Rojas (1), Luciano Telesca (2), and Fernando Angulo-Brown (3)

(1) Universidad Autónoma Metropolitana, Ciencias Básicas, México D.F., Mexico , (2) National Research Council, Institute of Methodologies for Environmental Analysis, C.da S.Loja, 85050 Tito (PZ), Italy, (3) Departamento de Física, Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional

Seismic electric signals (SES) have been considered precursors of strong earthquakes, and, recently, their dynamics has been investigated within the Natural Time Domain (NTD). In this paper we apply the NTD approach to two geoelectric time series recorded in a seismically very active area of Mexico, associated with two strong earthquakes, $M = 6.6$ and $M=7.4$, occurred on October 24, 1993 and September 14, 1995, respectively. The measured low frequency geoelectric signals display periods with dichotomic behavior. Our findings point out to an increase of the correlation degree of the geoelectric signals before the occurrence of the strong earthquakes; furthermore, the power spectrum and entropy in NTD are in good agreement with the results published in literature. Our results were validated by the analysis of a chaotic map simulated time series, which revealed the typical characteristics of artificial noise.