

Characterization and Correlation Analysis of Seismic Activity Time Series in Data Bases of the Burgos Basin Mexico

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Abstract

From a seismic point of view the Burgos basin Mexico, a region with oil and gas deposits, is a intraplace seismic zone, i.e., a basin with low seismic activity. There are historical evidence of isolated earthquakes, however it was not possible to measure its intensity and others characteristics due to lack of instrumentation. Lately, in 2006 a seismograph was installed in this zone and from 2015 there are records of more than 270 earthquakes of magnitude below 4.5 Richter degrees. Recently, using the fracking technique, the gas shale extraction has been reported. It is known that the Burgos basin is highly fractured with a huge fault (the San Marcos fault) which crosses end to end all the region. In this work the results of the correlation and rescaled range analysis and the application of the Higuchi method in seismic time series are shown. Keywords: Burgos basin Mexico, fracking, seismic time series, R/S analysis, San Marcos fault, correlation function

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