EGU24-12838, updated on 23 Jan 2025
https://doi.org/10.5194/egusphere-egu24-12838
EGU General Assembly 2024

Nicaragua seismicity study in terms of entropy fluctuations in natural time domain

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Nicaragua is located on the western margin of the Caribbean plate near its interaction with the Cocos plates. The Caribbean plate is surrounded by four major tectonic plates: Cocos at the southwest, Nazca at the south, the North American and South American to the north and southeast respectively. The Cocos plate subducts the Caribbean plate at rates of aproximately 70 to 90 mm/yr having a steeper dip around 75° and 80°. The Central American subduction zone is seismically active. The associated volcanic arc consists mainly of basaltic-andesitic quaternary volcanic rocks (predominantly pyroclastic and lava flows). The seismicity, although constant, has not exceeded earthquakes of Ms 7.3. We analyzed the period between 2000 and 2023 in terms of entropy in natural time domain. Our analysis in terms of Gutemberg-Richter law shows b-value fluctuation ranging between 0.53 and 1.03 by year. Regarding the analysis of entropy fluctuations, it indicates the correlations are short-range, so we consider that the seismic sequence behaves as a Markovian process.