

Time series analysis in earthquake complex networks

Pastén, Denisse

Czechowski, Zbigniew

Toledo, Benjamín

© 2018 Author(s). We introduce a new method of characterizing the seismic complex systems using a procedure of transformation from complex networks into time series. The undirected complex network is constructed from seismic hypocenters data. Network nodes are marked by their connectivity. The walk on the graph following the time of succeeding seismic events generates the connectivity time series which contains, both the space and time, features of seismic processes. This procedure was applied to four seismic data sets registered in Chile. It was shown that multifractality of constructed connectivity time series changes due to the particular geophysics characteristics of the seismic zones - it decreases with the occurrence of large earthquakes - and shows the spatiotemporal organization of these seismic systems.