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Self-Similar properties of interevent times and distances of earthquakes around

Turkey and surroundings area and seismic declustring

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The fundemental aim of the current study is to determine the patterns in the elapsed times and distances between the epicenters to acquire a statistical earthquake distribution model. The self-similar properties of mentioned parameters of the seismic events, which have occurred in the surroundings of Anatolia plate, are determined by taking the threshold magnitudes between 2 and 7.9. The changes in the scaling properties before and after large earthquakes are investigated and evaluated according to the faulting characteristics. The earthquake clusters complicate the statistical analysis of the background seismic activity that might be related to changes in the tectonic field. The cluster features differ from place to place and typically lie between two extreme types of spatial clusters of earthquakes: those that eventually decrease in time, such as aftershock sequences and swarms, and those that persist in time at the same location. Ultimately, the persistent background activity prevails over the aftershock activity. To forecast the location of the large earthquakes, it is necessary to analyze the background seismicity, for which removal of temporal cluster members is considered to be of central importance. Seismic declustering is widely used in statistical seismology and hazard assessment for removing aftershock sequences and for determining background seismicity. We perform a sensitively analysis to improve the understanding of the impact of declustering algorithms on commonly performed tasks, such as determining background activity and estimating the significance of seismicity rate changes.

We apply different declustering algorithms to the Kandilli catalog in order to remove the aftershocks sequences in this catalog. Afterwords, we can easly evaluate reliable seismic activity of study area.