

SSS013-04

Room: 302

Time: May 26 16:15-16:30

Clustering of earthquakes and monitoring of regional seismic activity

Shin-ichi Noguchi^{1*}

¹NIED

Detection and monitoring of spatial and temporal clustering of earthquakes are important, because the clustering activity has the possibility of foreshocks or the initiation of future large events. We examine earthquake clusters using a linking method for shallow intraplate earthquakes beneath the Japanese islands.

Pairs of earthquakes were linked through conditions based on origin time difference t and hypocentral distance d . We assume reasonably that the range of the time and distance of link-conditions depend on magnitude M , i.e., $t(M)$ and $d(M)$.

The results of extracted clusters show that the number of linked events, duration time, and spatial extent are proportional on the whole to the M of the maximum event of the linked cluster. The extracted clusters based on both the Hi-net and the JMA catalogues show the predominance of high clustering activity in the upper crust beneath the Japanese islands, which may be due to the thin and weak seismogenic layer consisting of many small earthquakes. Further the ratio of clusters having foreshock activity among total clusters is also remarkably high, which may reflect the change of stress field or heterogeneity in the crust associated with the recent large intraplate earthquakes.

Keywords: earthquake clusters, monitoring, linking method, seismogenic layer