

Long-term seismic quiescence before shallow great earthquakes with M_w 8.0 or larger between 1990 and 2014

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Long-term seismic quiescence was investigated in and around the focal area of 23 great earthquakes with M_w 8.0 or larger and with a centroid depth shallower than 100 km in the global CMT catalog between 1990 and 2014. Earthquakes shallower than 60 km with the body wave magnitude of 5.0 or larger were selected in an earthquake catalog created by International Seismological Center (ISC). Clustered events such as earthquake swarms and aftershocks were removed from the ISC catalog by using a stochastic declustering method developed by Zhuang et al. (2002). A detailed analysis of the earthquake catalog using a gridding technique (ZMAP) shows that the seismic quiescence areas were found in and around the all focal areas of these great earthquakes except for four earthquakes. The four earthquakes are located in the area with a very low background seismicity and thus I was not able to estimate the temporal change in seismicity.

Keywords: seismicity, seismic quiescence, great earthquake