



Study on Seismicity of Sino-Mongolia Arc Areas

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Using the earthquake catalogue from China, Mongolia and the global catalogue, the uniform catalogue of North China, Mongolia and adjacent areas, which is within the region 80-130°E, 40-55°N, has been established by Institute of Geophysics, China Earthquake Administration and Research Center of Astronomy and Geophysics, Mongolian Academy of Science for the seismic hazard analysis and seismic zoning map of Mongolia according to the following principles. 1) Earthquakes, which just exist in one catalogue, need to be verified further. If the earthquakes occurred in the country where the catalog comes from, then they will be adopted. If not, it should be checked with other more data. 2) The events that come from the three data sources have been checked and verified as followings. (1) The parameters of earthquakes that occurred in China will be taken from China catalog. (2) The parameters of earthquakes that occurred in Mongolia will be taken from Mongolia catalog. (3) The parameters of earthquakes that occurred in the adjacent areas will be taken from the global catalog by Song et al.

According to the uniform catalogue, the seismicity of the North China, Mongolia and adjacent areas is analyzed, and the conclusions as followings are made. 1) The epicenter map can be roughly divided into two parts, bounded by the longitude line 105°E, in accordance with the "North-South Seismic Belt" of China. The seismicity is in a high level with many strong earthquakes in the west and is in a low level with little strong events in the east. 2) Most earthquakes are shallow-focus events, but there are also several middle or deep-focus events in the study area. 3) Earthquakes with magnitude greater than 5 are basically complete since 1450 A.D., and the seismicity of the study areas is in a high level since 1700 A. 4) Two seismic belts, Altay seismic belt and Bolnay-Baikal seismic belt, are determined according to the epicenters and tectonics. 5) The b-values of magnitude – frequency relationship for the whole areas are between 0.6 and 0.7 based on the uniform catalogue, 0.677 for the Altay seismic belt and 0.699 for the Bolnay-Baikal seismic belt.

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