



New seismic catalogue after Mw 6.8 Earthquake of 1988 near Spitak, Caucasus

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During the first weeks after a large earthquake probability of dangerous seismic event near its source increases by several times and the aftershock rate decreases obeying Omori's law. At the same time after such earthquake often it is difficult to form a complete earthquake catalog because of increasing seismic activity mainly consisted of aftershocks. We made a new and more exact catalogue of seismic events after Spitak earthquake occurred of December 7th, 1988 with Mw 6.8 occurred during the first 20 days after the mainshock. According to analyses of the available data, this part is the least reliable on the completeness, accuracy of the hypocenters, and especially magnitudes. The new catalogue consists of both available data which were reprocessed using double difference technique and new data obtained by processed bulletins of Caucasus network. The new catalog has information about 2273 earthquakes with the magnitudes from 1.8 to 6.8; the magnitude of completeness equals 2. Applying double difference technique under Caucasus conditions allowed to obtain the most accurate estimation of errors of epicenters of the earthquake cluster: the longitude errors are less than 4.6 km, the latitude errors are less than 4 km, and the depth errors are less than 5 km. Space distribution of the aftershock of the new catalogue better agrees with the local tectonics compared to the old data. The new catalogue can be used for regional hazard assessment after strong earthquake. This research was supported by Russian Foundation for Basic Research (Project 16-05-00263).