

Temporal and energy parameters of aftershock process of the earthquakes of the Caucus and adjacent territories

Svetlana Rodina, Alexandr Lutikov, and Galina Doncova
Russian Federation (Rodina@ifz.ru)

On the basis of the data analysis of 23 aftershock sequences of strong and moderate strong earthquakes (5.1 \leq MW \leq 7.1) of Caucasus and adjacent territories the aftershock process duration (Taft) and the value of the total scalar seismic moment released during its development (M0aft) were estimated. Similar work on the Kurile-Kamchatka earthquakes has been executed by the authors in 2013.

According to the selection criterias proposed by the end of aftershock sequences the parameters M0aft and Taft which later have been used to build the regressions were evaluated. A significant correlation between $\lg(M0aft)$ and $\lg(Taft)$, and moment magnitude of the main event was obtained in the form of: $\lg(M0aft) = (1.316 \pm 0.182)Mw + 9.071 \pm 1.105$, $R = 0.845$ and $\lg(Taft) = (0.745 \pm 0.160)Mw - 2.315 \pm 0.971$, $R = 0.713$, where R - linear correlation coefficient.

On an example of Caucasian region together with adjacent territories and the Kurile-Kamchatka region it is possible to conclude, that aftershock process relative intensity and duration inversely proportional to seismic activity of considered area. That is, accompanied by the strong seismic events relaxation processes are the longer and more intense than the lower average seismic activity in the region where they occur. This conclusion may be considered preliminary, as needs to be tested in other seismically active areas.