Dynamic parameters of weak earthquakes on the southeastern slope of the Baltic Shield

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GS RAS, St. Petersburg, Russia

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Abstract The dynamic parameters of earthquake sources characterize the features of the process of destruction of the seismogenic medium. These parameters are defined in the world for earthquakes of different magnitudes and different genesis. For the seismically weakly active region of Fennoscandia, the source characteristics of earthquakes were characterized in the 1990s from analog records. In this paper, we obtained a summary of the indicated valuesfor weak earthquakes with ML=1-2 that took place on the southeastern slope of the Fennoscandian shield in 2009-2019 for two earthquake swarms of different origins - tectonic Kouvola and technogenic Erkilia. The work was carried out according to the data of the St. Petersburg digital seismic network. In the process of research, using seismograms of the network, the spectra of direct waves Sg were constructed, the values of the seismic moment, corner frequency, source radius and stress drop for 15 earthquakes of a tectonic and technogenic nature were calculated. The results obtained, although they have a spread in values, do not differ much from the world averages. However, it turned out that the seismic moment and stress drop significantly depend on the genesis of events.

Keywords Weak earthquake, magnitude, seismic moment, stress drop, source radius, Fennoscandia, Vyborg rapakivi granite intrusion, seismic swarm.

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Information about authors

Assinovskaya Bela Aleksandrovna, PhD, Senior Researcher of the Geophysical Survey of the Russian Academy of Sciences (GS RAS), St. Petersburg, Russia. E-mail: assin.bela@gmail.com

Panas Natalya Mikhailovna, Category 1 engineer of the GS RAS, St. Petersburg, Russia. E-mail: natagold-86@inbox.ru