Geophysical Research Abstracts
Vol. 21, EGU2019-1170, 2019
EGU General Assembly 2019

Source properties of earthquakes near the Bering transform fault

Anna Skorkina
IEPT RAS, Moscow, Russia

The Commander Islands region, tectonically, is unique, being at the junction of the Pacific plate and Bering plate [Cross, Freymueller, 2008]. The tectonic deformation is distributed in the region between a few sub parallel shear faults, of which the Aleutian transform is the most evident.
Another such shear fault, the Bering fault, was activated in 2017, when on its section with the length of 400 km, a shear fracture-source with Mw = 7.8 [Lay et al., 2017] and with the epicenter near the Medny Island, with a displacement of about 2 m, caused a tsunami of a limited scale [Chebrov et al., 2017]. Its sizeable aftershock sequence (more than 150 earthquakes with M > 3.5 in the first two weeks), recorded by the digital seismic network of the Kamchatka Branch of Geophysical Survey, Russian Academy of Sciences.
Using about 1000 records of 5 stations equipped by CMG-5TD for earthquakes of 2011-2017 with ML of 3.5–6.5 (aftershock sequence and background seismicity), source spectra of S-waves were recovered, with determining of seismic moment and two corner frequencies [Gusev, 2018].
The mass estimates of the first and second corner frequencies were also used to study their scaling properties, b1 equals to 0.35 (with standard deviation of 0.02), and b2 is 0.15 (with standard deviation of 0.03) what is not within assumption of similarity. Moreover, b2 value is less than 0.23 as observed for other earthquakes near Kamchatka peninsula [Skorkina, Gusev, 2017].
The study was supported by the grant from the Russian Foundation for Basic Research (project 18-35-00029).