

The March 25, 2020 Mw 7.5 Paramushir earthquake

Alexander S. Prytkov*, <https://orcid.org/0000-0003-4488-1682>, a.prytkov@imgg.ru

Nikolay F. Vasilenko, <https://orcid.org/0000-0003-1591-9071>, n.vasilenko@imgg.ru

Institute of Marine Geology and Geophysics, FEB RAS, Yuzhno-Sakhalinsk, Russia

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Abstract. The strong earthquake with moment magnitude $M_w = 7.5$ occurred on March 25, 2020, in the North Kurils to the southeast of the Paramushir Island. The hypocenter of the earthquake was located under the oceanic rise of deep-sea trench in the subducting Pacific lithospheric plate. This earthquake has been the strongest seismic event since 1900 for an area about 800 km long of the outer rise of the trench. It also was the strongest earthquake for the 300-kilometer long area of the Kuril-Kamchatka subduction zone adjacent to the epicenter. The article summarizes the data on the Paramushir earthquake. Tectonic position of the earthquake, source parameters, features of the aftershock process development, as well as coseismic displacement of the nearest continuous GNSS station are considered. The performed analysis did not allow us to clearly determine the rupture plane in the source. Nevertheless, the study of the features of the outer-rise earthquake is a matter of scientific interest, since the stress state of the bending area of the subducting Pacific lithospheric plate reflects the interplate interaction in the subduction zone.

Keywords:

North Kurils, Paramushir earthquake, aftershocks, focal mechanism, coseismic displacements

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