

Geological evidence of strong tsunami manifestations on the Iturup Island (Kuril Islands) at last 3500 years

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Абстракт. The distribution of tsunami deposits in the lacustrine-swamp sections on the Kasatka Bay coast is analyzed. The main objects were a swamp formed on the place of overgrown lagoon-type lake located behind dune ridge, and a low swampy isthmus between Oktyabrskoe and Srednee lakes. Five major events have been identified, run-up parameters and age have been determined on the base of radiocarbon dating and tephrostratigraphy. Diatom analysis data were used to confirm the marine origin of the sand. Established events are correlated with data on adjacent islands and the Eastern Hokkaido coast. A trace of only one strong historical tsunami was found, its deposits lie above marking volcanic ash Ta-a (1739) of the Tarumai Volcano, Hokkaido. The tsunami took place in the second half of the 18th century. Perhaps this is a trace of 1780 AD tsunami, the source was located near Urup Island. Four paleotsunamis are well compared in age with the megatsunamis of the region (17th, 13th centuries, 1.5; 2.3–2.4 ka), which most clearly manifested on the Eastern Hokkaido coasts and left sea sands and silts sheets in marshes of the Lesser Kuril Ridge and Kunashir Island. On Iturup, the thickness of tsunami deposits and wide of sand cover is much less. It has been suggested that the peat section of Iturup recorded the run-up values in the distal zone of the Late Holocene megatsunami, which had sources in the southernmost of the Kuril-Kamchatka Trench. Regional strong tsunamis occurred in the period of instrumental observations did not leave geological evidence in the studied sections.

Keywords:

paleotsunami, radiocarbon dating, tephra, diatoms, South Kuril Islands, Holocene

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