

## Spatial distribution of tsunami deposits of the 1993 Hokkaido Nansei-oki Earthquake at a lowland along the Valentine Bay, Primorye coast, Russia

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The coast of eastern Primorye Russian coastal provinces had been affected repeatedly by tsunamis caused by earthquakes that occurred along the eastern margin of the Sea of Japan. The most recent one is the 1993 Hokkaido Nansei-oki earthquake and tsunami. Recently, cooperative study by Russian and Japanese researchers carried out along the eastern Primorye coast and found modern and paleotsunami deposits at several places (Ganzey et al., 2015). In July 2016, we visited the Valentine Bay where the 1993 deposits are found to be preserved well in a lowland. The Valentine Bay is located about 200 km east of Vladivostok and about 440 km west northwest of Okushiri Island, Hokkaido. The 1993 tsunami height was measured to be about 4m and caused damage to fishing boats and harbor facilities. Our survey area was about 500 m square, and it had been used as a meadow by cultivating low dunes. The survey was done by excavation with handy geo-slicer or small scoop. We observed at 35 points, and 27 of which were sampled. The 1993 tsunami deposit are sandy and covered with an average 3-5 cm soil. The distribution is sheet-like and be traced up to ca. 300 m inland from the beach. The maximum thickness of the layer is 10.5 cm, and the mean grain size of the sand is 1.4 - 2.8  $\phi$ . Both sediment thickness and mean grain size tend to be thinner and finer from the coast to the inland, but thick and coarse especially at along the old river channel between the dunes. Near the distribution limit, the sand layer became patchy. Also, behind the factory damaged by the tsunami on the sand dune, coal pieces were mixed in the sand layer, suggesting that the tsunami crossed the dunes and carried artificial materials along with beach sand. Today, there are very few places where we can track tsunami deposit from the coast to the migration limit. The modern tsunami deposit at the Valentine Bay is important to examine the processes of formation, succession and preservation that occurred while it is related to the microtopography and the environment.

Ganzey, L. A., Razjigaeva, N. G., Nishimura, Y., Grebennikova, T. A., Kaistrenko, V. M., Gorbunov, A. O., Arslanov, K. A., Chernov, S. B. and Naumov, Y. A., 2015, Deposits of Historical and Paleotsunamis on the Coast of Eastern Primorye. *Russian Journal of Pacific Geology*, 9, 64-79.

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