

Survey of tsunami deposits in Kunashiri Island: Results obtained in the 2015-2018 projects

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Historical and prehistorical tsunami deposits in Kunashiri Island, the Northern Territories, were studied as parts of visa-free exchange programs of Japan and Russia. The reconnaissance survey was conducted for 30 days for 4 years from 2015 to 2018, and 105 sites in the ca. 50 km area along the Pacific coastline was examined. As a result, it was confirmed that the sand layer, which can be regarded as a trace of the 1994 Hokkaido Toho-Oki tsunami is well preserved near the surface layer in the eastern lowland from Furukamappu to Ruyobetsu. The 1994 tsunami run-up, estimated from the distribution of the deposits, is 50-150 m from the coast and 3-4 m in height. Furthermore, the chemical composition of the volcanic glass was analyzed for as many as 30 volcanic tephra. Examining the results together with the stratigraphy, it was found that known tephra from volcanoes of Hokkaido, such as Ko-c1 (1856), Ta-a (1739), Ko-c2 (1694), Ta-b (1667), Ma-b (10th Century) and Ta-c (2,700 BP) are deposited at multiple sites on the island. With these volcanic deposits as the key layer, we could estimate the age of the candidates of tsunami deposits. For example, in the wetland of Furukamappu, there is one event in the 17th and 10th centuries, and two in the 10th century and 2700 years ago. It is inferred that the large tsunami that would leave the deposit in Kunashiri occurred at a frequency of once in 1000 years.

Keywords: the Northern Territories, Kunashiri Island, tsunami deposit, paleo earthquake, volcanic tephra