

Accurate measurement of the tsunami heights of the Kanpo Tsunami of 1741 caused by the volcanic eruption of Oshima-Ooshima Island on the coasts of Esashi and Matsumae districts, Hokkaido

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In the early morning of August 28th, 1741, Oshima-Ooshima volcanic island, off the coast of SW Hokkaido became active, and a huge tsunami was generated. The tsunami hit the coasts of Matsumae and Esashi districts, Hokkaido. Height distribution of this tsunami had been studied by Harori(1984), Imamura et al(1998), and Tsuji et al(2002). In the present study, tsunami height estimation was made by several newly developed ways. We checked the numbers of damaged houses, casualties, and wrecked ships for each coastal village. On the other hand we researched total numbers of houses and population for each coastal village. We calculated the percentage of damaged houses to total number, and of casualties to the population. We decided the point of ground height measurement with considering the percentage of damage. For the case of villages where almost all houses were swept away, we measure the ground height at the highest point of the residential area of the village. In each village on the coast of Matsumae and Esashi districts of Hokkaido, a shrine had been generally situated behind the highest point of the residential area of the village. Some villages has such historical record that "Whole the houses in this villages were entirely swept away, but only shrine was safe". For such villages, we measured the ground height between the house on the highest ground and the shrine.

Our field surveys were made during 14th to 16th December, 2015 on Hokkaido coast. Fig. 1 shows the result of tsunami height distribution. White circles on the coast show the measured points with high reliability, and black circles show that with less accuracy or reliability.

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Keywords: tsunami caused by a volcanic eruption, accurate measurement of height of a tsunami, the tsunami generated by the 1741 Oshima-Ooshima volcanic eruption

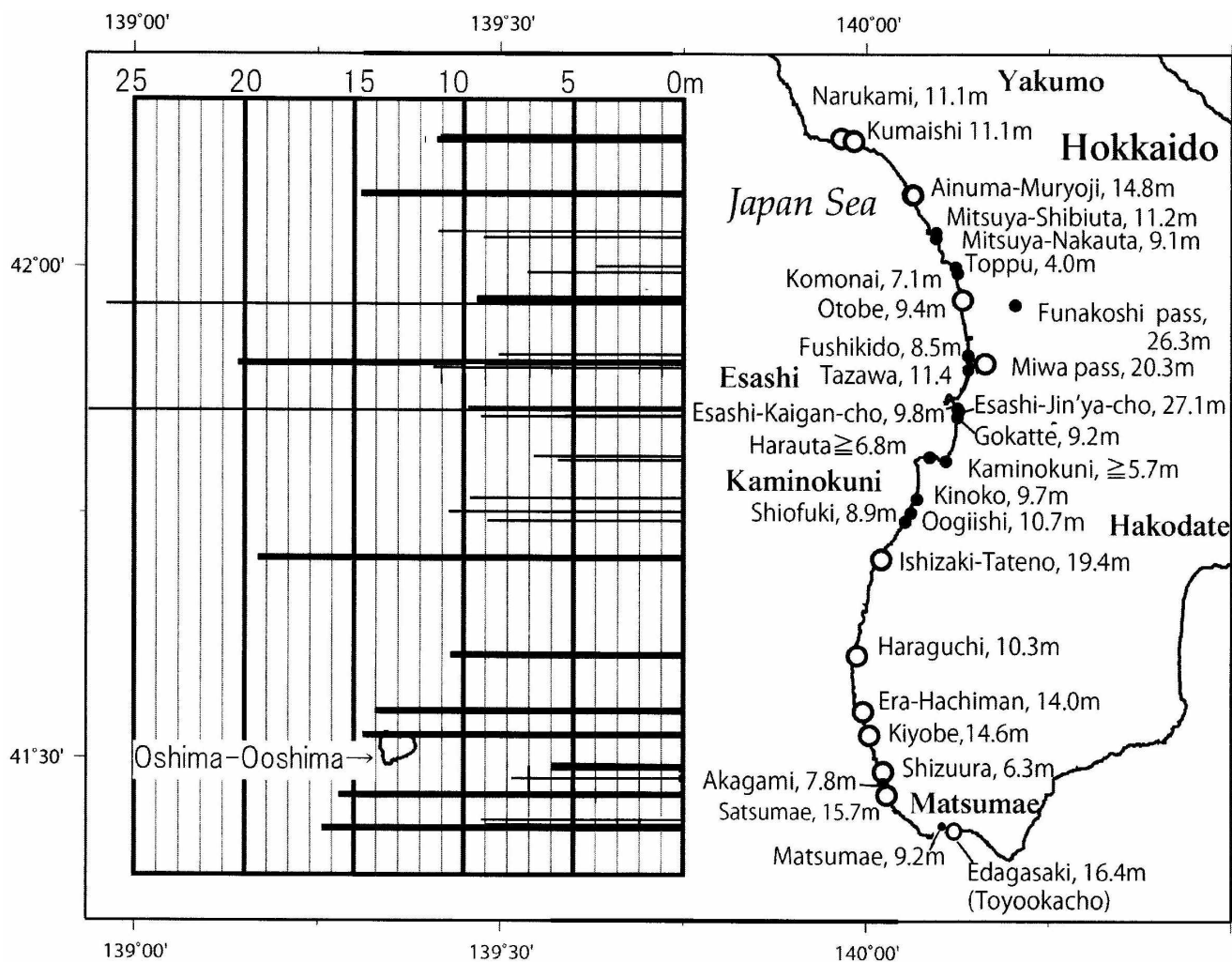


Fig. 1 Height Distribution of the tsunami caused by the volcanic eruption of Oshima-Ooshima in 1741.