

Tsunami Height Distribution of the 1854 Ansei Nankai Earthquake on the east coast of Tokushima Prefecture, Shikoku

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A field survey for clarify the distribution of the heights of the 1854 Ansei Nankai earthquake along the east coast of Tokushima prefecture, Shikoku was conducted. On Shimada and Ooke Islands facing Naruto channel seawater infiltrated salt fields by the tsunami, and it caused big damage to the salt fields, where tsunami height is estimated at 0.7m. In the residential area in Okazaki, Muya, Naruto City, about 30% of houses were perfectly destroyed, and the tsunami height there was estimated at 3.4 meters. An old document recorded that sea water reach “Tateishi Rock” at Hayazaki, where we measured the ground height and clarified that sea water rose up to 1.8 meters above mean sea level. In Toyooka area in Matsushige town sea water came across the coastal sand dune and the pine tree forest was flooded, and tsunami height was measured at 5.8 meters. At the residential area of Kagamino Bridge, Tokushima City, an eyewitness account said that the water surface of Imagire river rose up 3.0 meters in the time of the tsunami arrival. Sea water went upstream along Katsuura river in Komatsushima City up to Edanohashi Bridge and several cargo vessels were carried from the sea and were grounded there. We measure river water surface at this bridge and obtain the height at 1.8 meters above mean sea level. We estimated the water height was at 2.2 meters there. Sea water reached Hatayama Rock Hill in the south part of Komatsushima City, where the distance is about 1.7 kilometers from the shore, and the ground height is 1.7 meters. In Anan city, sea water invaded into the area Gakuhara, which located about 3 kilometers from the coast (height: 1.8m). Fukumura village which is located close to the coast line sea water rose up to more than 1.5 meters above the floor in the house of Mr. Tokutaro Hayashi. We estimated the tsunami height was suggested at 4.5 meters above mean sea level. In Tachibana port town, in Anan city, total number of houses was 156, and 22 houses of them were swept away, 23 houses were perfectly destroyed, and 111 houses were partially damaged. We made measurement of the ground height of the residential area there, and clarified that sea water rose up to the height of 4.2 meters. In Tsubaki town area in Anan city, about 30 ha of rice field were submerged, where we can estimated the tsunami run up height at 4.2 meters. Figure shows the heights of the tsunami of the 1854 Ansei Nankai earthquake on the east coast of Tokushima Prefecture.

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