

Tsunami Heights of the 1854 Ansei-Tokai Earthquake Tsunami in Gokasho Bay Region, Mie Prefecture

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The Kumano-nada Sea coastal area has been repeatedly attacked by tsunamis from the Nankai Trough subduction-zone earthquake. For historical tsunamis, since this area is close to Kinki region, many historical records exist. For the recent 1944 Showa-Tonankai earthquake tsunami and the 1854 Ansei-Tokai earthquake tsunami, not only historical records and monuments but also many folklores still remain. However, the 1944 Showa Tonankai earthquake tsunami has a comparatively small scale, and is unsuitable for examining the average scale about the tsunami from the Nankai Trough. Based on above-mentioned reason, we studied for the 1854 Ansei-Tokai earthquake tsunami.

Gokasho Bay is a blockade inner bay which has typical ria coasts and drowned valleys. It is located in central Kii Peninsula and faced with the Nankai Trough. In this bay area, measurement points of the tsunami height for the 1854 Ansei-Tokai earthquake tsunami and the data on height were mainly based on historical records and oral traditions. In particular, in Konsa district, it is based on the words of the Bon festival dance currently kept in there called "Shongai kudoki" or "Tsunami kudoki". Tsunami heights were measured by level measurement using laser range finder TruPulse360 and a hand level on the basis of the spot elevation given by 1/2500 topographical maps.

As a result, a total of 40 points of tsunami height were obtained in Gokasho Bay region. The average inundation height of whole bay area was approximately 4 - 5 m.

In Konsa, located in the most closed-off section of the bay, dendritic valley plains which have small-sized rivers spread. According to distribution of both inundation and run-up points by this research, it is supposed that tsunami ran-up to every valleys of those. Tsunami heights in Konsa ranged 4 - 11 m, and were higher than those in other districts. The maximum run-up height was 11.5 m in the valley of Ushiroguchi.

Keywords: Gokasho Bay, 1854 Ansei-Tokai Earthquake Tsunami, tsunami height, run-up height, inundation height