

Sea level change at Uwajima before and after the 1946 Nankai earthquake

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Sea level change at Uwajima before and after the 1946 Nankai earthquake was investigated by using daily mean sea level data of tide gauge stations at Uwajima, Tosa-shimizu and Hosojima for two years of 1946 and 1947. First, we removed effects of atmospheric pressure and astronomical tides on each of the records. Then, we tried to get rid of the effects of the oceanic current by taking the difference of the records between two stations. Because no co-seismic change was observed at Hosojima, we think it is possible to consider that the difference of the sea level between Uwajima and Hosojima or Tosa-shimizu and Hosojima reflect crustal deformation at Uwajima or at Tosa-shimizu. From the difference between Tosa-shimizu and Hosojima it is seen that the sea level at Tosa-shimizu rose clearly about 30 cm relative to Hosojima when the Nankai earthquake occurred on December 21, 1946. We think, however, that the change in the relative sea level during several days before the earthquake of less than 10 cm was not a significant one as Kobayashi et al. (2002) pointed out. As for the difference between Uwajima and Hosojima we found that the sea level at Uwajima rose gradually during the period from 8 through 26 in December 1946. The amount was about 15 cm from 8 through 20, and about 10 cm at the earthquake occurrence. Since changes of almost the same amount were observed nearly 10 times in two years, it is difficult to consider the gradual change to have been a precursory crustal deformation around Uwajima before the Nankai earthquake.