

## Tsunamis reflected from Hawaiian Islands and observed at south-west Pacific coast of Japan

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Formerly week decay of tsunamis obliquely invading to the Pacific coast of Japan was noticed and reflected wave from Hawaiian Islands was suggested as one of the reasons. Therefore, we carried out wave analyses for 1952 Kamchatka, 2006 Kuril and 2011 Tohoku-chiho tsunamis observed at Kushimoto tide station. The analyses consist of making diagrams of amplitude-time, period-time and calculating the spectra for 24-hour time histories. At the same time the same tsunami spectra observed at Midway Island and Hawaiian Island were calculated for the first 6 hours. Correlation coefficients were calculated for all the spectral components between Kushimoto and one of Hawaiian Islands in the 6 hour spectra. Time variations of the correlation were estimated for every 3 hour from the initial arrival time of Kushimoto. Arrival times of the reflected waves from Hawaiian Islands were estimated from refraction and inverse refraction diagrams. As the results we concluded that amplitude increases and period change were found approximately corresponding to the predicted arrival times in the diagrams and increases of spectral correlation between Kushimoto and tide stations in Midway, Hawaiian Island after the predicted arrival times. These facts strongly suggest that the reflected waves from Hawaiian Islands arrived at Kushimoto tide station and the reflected waves consist of characteristic radiation of the reflectors.

Keywords: tsunami, reflected wave, Kushimoto, Hawaiian Islands, spectra

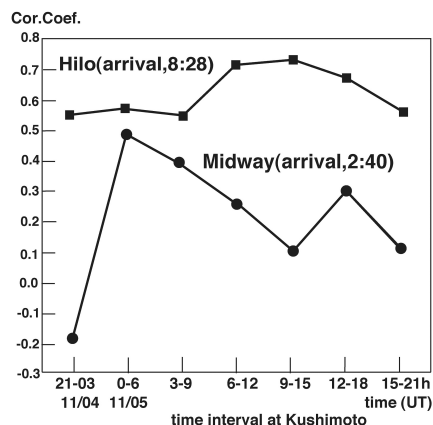


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