

Tsunami trace height distribution along the coasts of the Kanto and Tokai districts from the 2010 Chile Earthquake

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1. Purpose

A great earthquake (Mw 8.8) occurred offshore central Chile (origin time is 15:34, 27, Feb., 2010 in Japan time). Tsunami from this earthquake arrived at the Pacific coast of Japan 23 hours after the occurrence. Significant fishery damages are not confirmed along the coasts of the Kanto and Tokai districts (Ministry of Agriculture, Forestry and Fisheries, 2010) though a number of inundation damages occurred (e.g., 8 houses were inundated under a floor at Shimoda; Fire and Disaster Management Agency, 2010). Advanced land utilizations have been spread out along coasts of the Kanto and Tokai districts, therefore, surveys of the Tsunami Trace Height (TTH) distribution and the arrival times provide important information for tsunami disaster and mitigation for future earthquakes. In this study, we surveyed TTH and arrival times along the coast in the Kanto and Tokai districts.

2. Survey regions

We have basically surveyed at fishery harbors, marinas and mouth of rivers along the coasts of the Kanto and Tokai regions (from Iwaki, Fukushima Pref, to Kamisu, Ibaraki Pref. on 3, Mar., from Choshito Tateyama, Chiba Pref. on 5, Mar. and 7, Mar., from Miura to Yugawara, Kanagawa Pref. on 18-19, Mar., from Atami to Iwaki Pref. on 14, Mar. and 18-19 Mar.). TTHs, their arrival times, fishery damages, correspondences against the tsunami attack and so on were investigated.

3. Major Results

The TTH is about 1 m and their arrival times are from 15:00 to 18:00. Major survey results are summarized as following.

(1) The TTH is 1.6 m along the coast from Iwaki to Kamisu. Quay wall was inundated at the Port Kashima on around 16:45, 28, Feb.. In addition, TTH is more than 1 m at the Port Ouse, Port Ooarai and other locations. Small fisher-boats were brought on quay walls at the Port Ouse.

(2) The TTH along the coast from Choshi to Tateyama is 1.5 m at the Port Iioka. Fisher-boats were brought on quay walls, despite that damages due to inundation have not been confirmed. TTH is about 1 m along the northern and central coast and 0.6 m along the southern part of Boso Peninsula, respectively. The 3rd or 4th arrivals were the highest and their arrival times were 16:00 - 18:00, 28, Feb. Tsunami inundated upon low quay walls except for the Ports Choshi and Katsu'ura. Inundation reached to the front of the Fisheries Cooperative Association of Kuju-Kuri, which locates at the most inland part of the Port Katagai.

(3) TTH is basically 0.3 - 0.5 m along the western coast of Miura Peninsula, and less than 0.2 m along the coast of Sagami Bay from Zushi to Yugawara.

(4) Few witnesses were obtained along the eastern coast of Izu Peninsula from Atami to Inatori, and TTH is at most 0.2 m. On the other hand, TTH is about 1.3 m along the coast of Shimoda, southern tip of Izu Peninsula. Moreover, tsunami ran up along the channels of Inousawa River and

caused inundation under a floor (TTH is estimated to be 1.44 m). Their arrival times were 16:00 - 17:00.

(5) TTH is about 0.3 - 0.7 m along the coast of Suruga Bay from Irouzaki to Omaezaki, and the arrival times were 16:00 - 17:00.

(6) TTH is about 0.8 - 1.3 m along the coast of Enshu Nada from Omaezaki to Iwata, and the arrival times were 17:00 - 18:00.

Keywords: The 2010 Chile earthquake, tsunami, field survey, Kanto and Tokai districts