

## Rapid-response field surveys of the 2010 Chilean earthquake tsunami in Japan

Tomoyuki Takahashi<sup>1\*</sup>, Field survey team of the 2010 Chilean earthquake tsunami in Japan<sup>2</sup>

<sup>1</sup>Akita Univ., <sup>2</sup>-

A large earthquake (Mw 8.8) occurred off the coast of the central Chile on 27 February, 2010. The resultant tsunami reached all the way to Japan about 22 hours after the mainshock. Generally, field surveys for tsunami heights and its damage should be carried out as soon as possible just after the mainshock, because watermarks as debris and memories of residents become debased later and later. Moreover, nobody was killed due to the tsunami in Japan, and social confusion was relatively low. Therefore, we carried out rapid-response field surveys along the Pacific coast in Japan after tomorrow of the tsunami arrival.

The results are as follows. (1) Hokkaido district: From Urakawa to Hanasaki, the tsunami inundated piers, while it did not on the coast west from Urakawa and north from Nemuro. The height of the tsunami was estimated to be 1.1 m at Hanasaki. (2) Tohoku district: The field surveys were carried out at Kuji, Miyako, Yamada, Ohtsuchi, Toni, Hirota, Kesen'numa, and Onagawa bays. At Kesen'numa bay, the tsunami height is measured with 0.8 m at the baymouth, but with 1.5 m at the bayhead. The tsunami ran up in the Ohkawa river, and reached 1 km from the river mouth with the height of 0.9 m. (3) Kanto district: the tsunami heights were averagely about 1 m from Iwaki, Fukushima prefecture, to Tateyama, Chiba prefecture. Above all, the height was 1.6 m at Kashima port, Ibaraki prefecture, and 1.5 m at Iioka port, Chiba prefecture, which appeared at 15:00-18:00, 28, February. (4) Kii peninsula: The surveys at 7 cities (towns) in Wakayama prefecture and 3 cities (towns) in Mie prefecture result in the height of 1 m at Kushimoto town, and less than 1 m at the other sites. (5) Shikoku district: A tide gauge station at Susaki, Kochi prefecture, records the maximum height with 1.30 m at 19:49. Tide gauge records at Yoshino and Shimanto rivers indicated that the tsunami ran up more than 10 km from each river mouth. (6) Kyushu district: In Kagoshima prefecture, the tsunami height of 1.1 m was observed at Shibushi port, where the pier was inundated around 18 o'clock due to almost the same water level of a tsunami over a high spring tide. (7) Okinawa district: At the ports on the eastern coast in Okinawa and Kudaka islands, the heights were estimated to be about 1 m.

Members of "Field survey team of the 2010 Chilean earthquake tsunami in Japan" are as follows. Tomoyuki Takahashi<sup>1)</sup>, Rui Asakura<sup>1)</sup>, Kunimasa Miyagi<sup>2)</sup>, Seiji Kondo<sup>3)</sup>, Taro Kakinuma<sup>4)</sup>, Shingo Suzuki<sup>5)</sup>, Hideyuki Shiroshita<sup>6)</sup>, Yushiro Fujii<sup>7)</sup>, Yoichi Murashima<sup>8)</sup>, Kunio Ohtoshi<sup>9)</sup>, Yoshitaka Matsuzaki<sup>10)</sup>, Kenji Harada<sup>11)</sup>, Ryosuke Ando<sup>12)</sup>, Junko Komatsubara<sup>13)</sup>, Taku Komatsubara<sup>13)</sup>, Yuichi Namegaya<sup>12)</sup>, Haruo Horikawa<sup>12)</sup>, Yoshinori Miyachi<sup>13)</sup>, Masafumi Matsuyama<sup>14)</sup>, Takumi Yoshii<sup>15)</sup>, Takeo Ishibe<sup>16)</sup>, Kentaro Imai<sup>17)</sup>, Yoshinobu Tsuji<sup>16)</sup>, Akihito Nishiyama<sup>16)</sup>, Tomoya Harada<sup>16)</sup>, Satoko Ikema<sup>18)</sup>, Fumihiko Imamura<sup>18)</sup>, Kazuhisa Goto<sup>18)</sup>, Susumu Nakano<sup>19)</sup>, Yoshihiro Okumura<sup>20)</sup>, Yuichi Nishimura<sup>21)</sup>, Yugo Nakamura<sup>21)</sup>, Yoshinori Shigihara<sup>22)</sup>, Koji Fujima<sup>22)</sup>, Yasuko Shigihara; 1) Akita Univ., 2) Ishigakijima Loc. Met. Obs., JMA (Former), 3) NHK, 4) Kagoshima Univ., 5) DPRI, Kyoto Univ., 6) Graduate school of Informatics, Kyoto Univ., 7) IISEE, BRI, 8) Kokusai Kogyo, Co., Ltd., 9) Kochi Univ., 10) PARI, 11) Saitama Univ., 12) AFERC, AIST, 13) IGG, AIST, 14) Civil Engineering Research Lab., CRIEPI, 15) Environmental Science Research Lab., CRIEPI, 16) ERI, Univ. Tokyo, 17) CIDIR/ERI, Univ. Tokyo, 18) Tohoku Univ., 19) Tokushima Univ., 20) DRI, 21) Hokkaido Univ., 22)

National Defense Academy of Japan.

Keywords: the 2010 Chilean earthquake tsunami, rapid-response field surveys,  
the Pacific coast in Japan, witness account