
[JJ] Evening Poster | H (Human Geosciences) | H-DS Disaster geosciences

[H-DS10]Tsunami and Tsunami Forecast

convener:Naotaka YAMAMOTO CHIKASADA(National Research Institute for Earth Science and Disaster Resilience), Kentaro Imai(Japan Agency for Marine-Earth Science and Technology), Hiroaki Tsushima(気象庁気象研究所)

Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

This session discusses issues related to improving real-time and long-term prediction accuracy of tsunami from earthquakes, landslides, and volcanoes, which include such as a better understanding of tsunami dynamics, new real-time tsunami observing systems deployed in the open ocean and coastal waters, methodologies of more rapid and accurate prediction during tsunami emergencies, more extensive and accurate inundation maps, and long-term tsunami potential forecast.

[HDS10-P17]3-D Tsunami inundation simulation in Shimanokoshi for the 2011 off the Pacific coast of Tohoku earthquake

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In Shimanokoshi, Shimohei-gun, Iwate Prefecture, railway structures were severely damaged during a Tsunami of the 2011 off the Pacific coast of Tohoku earthquake. In this report, therefore, to evaluate a Tsunami wave-field in and around the Shimanokoshi station which were extremely damaged by the Tsunami and to evaluate the Tsunami force acting a railway structure, we performed the 3-D Tsunami inundation simulation for the Shimanokoshi station.

As for Tsunami simulation, we performed the 2-D Tsunami simulation by a grid size of 15m in the area to the coast and we performed the 3-D Tsunami inundation simulation by a grid size of 5m in the inland, using the fault model of the 2011 off the Pacific coast of Tohoku earthquake proposed by Cabinet Office, Government of Japan. As for the results of the 2-D Tsunami simulation, the Tsunami height of 20m in the vicinity of Shimanokoshi were estimated in this simulation. The height was the same as the Tsunami height observed in the vicinity of Shimanokoshi during the 2011 off the Pacific coast of Tohoku earthquake. As for the results for the 3-D Tsunami inundation simulation, a railway structure of Shimanokoshi station whose length reaches to about 200m were affected by the Tsunami inundation for about 10 minutes; however, the railway structure were acted by the Tsunami force for about 2 minutes from the input of the Tsunami inundation. The distribution of the Tsunami force were locally varied along the railway structure and therefore, we performed the 3-D Tsunami inundation simulation by a grid size of 1m for the area of 250m x 100m including the Shimanokoshi station. Moreover, we performed the frame analysis for the railway structure of the Shimanokoshi station, using the distribution of the Tsunami force estimated by this 3-D Tsunami inundation simulation.