

Database construction of Tsunami inundation zone for large subduction-zone earthquakes: A case of Ishinomaki City

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Real-time prediction of Tsunami in a coastal zone (Tsushima et al., 2009) is quite effective for an early warning, in terms of lead time to be evacuated from the coastal zone and to understand the tsunami water level; however, this information is not accessible to the citizens and various companies. To issue the better Tsunami early warning, Tsunami inundation zones should be visualized by database of Tsunami inundation zones for large subduction-zone earthquakes (Honma and Katada, 2009), in which Tsunami inundation zones are related to tsunami water levels in the coastal zones. In this report, for an example of Ishinomaki City, Miyagi Pref., we constructed database of Tsunami inundation zone for large subduction-zone earthquakes along Japan Trench. We simulated Tsunami inundation in Ishinomaki City for 27 models of scenario Tsunami sources (the Headquarters for Earthquake Research Promotion, 2011), which set on large subduction-zone earthquakes (M8-9) in Tohoku-Oki. In the simulation, we applied the non-linear long-wave theory, with a grid size of 1215m / time interval 0.9s in the sea and a grid size of 15m / time interval 0.1s in the land. We applied crustal deformations after Okada (1992) to initial water levels, in the boundary conditions of the perfect transmission in the sea and runup in the land (Kotani, 1998). In the future, we will investigate real-time prediction of Tsunami inundation zone by the matching method for the database of Tsunami inundation zones and tsunami water levels in the coastal zones.

Keywords: Tsunami inundation zone, Database, Ishinomaki City