Realtime tsunami prediction system using dense ocean floor network system and tsunami amplification

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Future huge earthquake and the accompanied tsunami are argued well along the Nankai Trough, Japan. The Japan cabinet office proposed some worse case's models of the huge earthquakes. The highest tsunami arrives over 30m based on their models and the countermeasures are needed along the coastal areas. Japan Agency for Marine-Earth Science and Technology (JAMSTEC) focused on the tsunami amplification (Baba et al., 2012) and we have constructed the realtime tsunami prediction system using realtime data from the dense ocean floor network system for earthquakes and tsunamis (DONET). We calculated tsunami waveforms of DONET stations and coastal points we want to predict, prepared tsunami inundation maps around the predicted points, and registered them into the database. Using relationship of the maximum tsunami height between each predicted point and the average of absolute values of DONET pressure data, we derive the tsunami height predicted by this system and the registered inundation map. The propagated time between the predicted points and the DONET stations are also registered in the database, and the tsunami arrival time can be also derived at the same time. We confirmed the compatibility by comparison between the theoretical tsunami height of the coastal point and the tsunami height estimated by this system using examples of the 2011 off Tohoku tsunami and of the worse cases by the Japan cabinet office. This system estimates the tsunami height and the arrivals well in cases that DONET stations locate between the predicted coastal points and the fault models. We add DONET2 data installed in the Nankai earthquake rupture zone on the DONET1 data in the Tonankai earthquake ones to advance the prediction, and introduce selection of the fault models and used DONET stations according to the direction of the focus and order of the triggered stations. In this presentation, we report the current ability and the issues to be resolved in the future.