

Advancement of real-time tsunami inundation forecast method for outer-rise earthquakes and its sensitivity analysis

*Naotaka YAMAMOTO CHIKASADA¹, Wataru Suzuki¹, Takayuki Miyoshi¹, Shin Aoi¹, Sho Akagi²

1. National Research Institute for Earth Science and Disaster Resilience, 2. Mitsubishi Space Software Co.,Ltd.

National Research Institute for Earth Science and Disaster Resilience (NIED) are developing a new algorithm of a real-time tsunami inundation forecast using ocean bottom pressure data recorded by the Seafloor Observation Network for Earthquakes and Tsunamis (S-net), which has been constructed along the Japan Trench (Aoi et al, 2015, JpGU; Aoi et al, 2017, WCEE). The main target of this algorithm is tsunamis due to earthquakes occurred beneath the S-net and the algorithm has been examined using such pseudo-tsunami data. However, there is a possibility of the occurrence of a huge intraplate earthquake called outer-rise earthquake, particularly after the great interplate earthquake, the 2011 Tohoku earthquake, similar to the pair of the 1896 Meiji Sanriku earthquake tsunami and 1933 Showa Sanriku earthquake tsunami or the pair of the 2006 and 2007 great Kuril earthquake tsunamis. We cannot detect far-field outer-rise earthquake tsunamis immediately, because the S-net only covers outer-rise earthquake region up to 50 km east from the Japan Trench.

Therefore, we need to enlarge a schema to detect and forecast far-field outer-rise earthquake tsunami which is occurred outside of the observation network. In this presentation, we propose a procedure of real-time tsunami forecast using the multi-index method proposed by Yamamoto et al. (2016, EPS) to adopt outer-rise earthquake tsunamis. We also consider sensitivity analyses of outer-rise earthquake tsunami for some regions on the east coast of Japan from the Kanto to Tohoku and Hokkaido.

This work was partially supported by the Council for Science, Technology and Innovation (CSTI) through the Cross-ministerial Strategic Innovation Promotion Program (SIP), titled "Enhancement of societal resiliency against natural disasters" (Funding agency: JST) and "Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures" in Japan (Project ID: jh170035-NAJ).

Keywords: real-time tsunami forecast, S-net, outer-rise earthquake