[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-P21]PTHA along the Southern Kuril Trench : Probability setting and results of PTHA

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Keywords:Kuril Trench, Tsunami, Probability, PTHA

We have conducted a probabilistic tsunami hazard assessment (PTHA) along the Southern Kuril Trench. As a temporary PTHA before publishing the lastest long-term evaluation for the Kuril Trench (The Earthquake Research Committee(ERC)/HERP, 2017), we constructed the earthquake models without characterizing the fault parameters and their occurrence probabilities. Althoug the PTHA includes larger uncertainties than one based on a long-term evaluation for earthquake, it will be a robust result even if a long-term evaluation changes in the future.

The earthquake source areas (ESAs) were set on the plate boundary with covering the earthquake occurrence area along the Southern Kuril Trench by changing the magnitude range from Mw7.0 to 9.4. We considered only one slip distribution pattern for the earthquake smaller than Mw8.4 which had a large displacement at the center of ESA, and more than one slip distribution patterns for the earthquake larger than Mw8.5.

The occurrence probabilities were calculated by assuming that a magnitude – frequancy relation obeyed the Gutenberg-Richter law and occurrence of earthquake obeyed a Poisson process. Referring the earthquake catalog of JMA from 1923 to 2010, we estimated the mean annual frequancy for the earthquakes along the Southern Kuril Trench with magnitude larger than Mw7.4 as 0.362 and set the b value of the Gutenberg-Richter law 0.9, which was a standard value of seismicity around Japan.

The result of PTHA along the Southern Kuril Trench is as follows:
1. For the most area of Hokkaido bordering the Pacific Ocean, the tsunami heights at 1,000 years recurrence interval exceeded 10m.
2. The probability of exceedance the tsunami heights of 5m in 30 years were larger than 30% for the most area of Hokkaido bordering the Pacific Ocean.