

A Study on Tsunami Inundation Simulation for the Nankai Trough Earthquake for Osaka City

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In planning disaster prevention measure against the tsunami, it is a very important factor how will the tsunami occur by occurrence of an earthquake and how it will attack. Since the Scenario of the Nankai Trough fault seismic source model was announced from the Cabinet Office as the maximum assumed wave source, various local governments and others are considering various disaster prevention measures and others. In this research, we carried out the tsunami inundation simulation for Osaka City using all 11 case fault models of the Nankai Trough's large earthquake model study meeting (2nd report) announced by the Cabinet Office in August 2012, and examined the results.

Topographical model in tsunami inundation simulation was using topographic data published by the Cabinet Office, and we modeled with a 1215m grid about range of 1200km × 800km including from the fault to the coast. The calculation time was set to a maximum of 6 hours so that the maximum inundation area and the maximum inundation depth due to the tsunami could be calculated, and the calculation time interval was set to 0.01 second interval so that the calculation was stable.

If the parameters (slip angle, position, epicenter) etc in the fault seismic source model are different, the tsunami characteristics such as the tsunami wave height, the arrival time of the tsunami and the inundation range of tsunami should be different. However, it was different that the location of the large slip region and the epicenter in the fault model of 11 cases, but almost the same tsunami level and arrival time were found in the observation points in Osaka Bay in all cases. It was also found that the maximum wave height appearance time is within 30 minutes from the start of rupture regardless of the case. This trend can be seen similarly in the vicinity of the Kii Channel, off the coast of Osaka Bay, and this trend is thought to be the influence of the topographic of the intricate straits sandwiched between Kii Peninsula and Kochi / Kagawa. We will continue further multilateral investigation in the future and report on the results as well.

Keywords: Tsunami inundation simulation, Nankai Trough Earthquake, Osaka-bay