On generation mechanism of the tsunami due to the 1923 Great Kanto Earthquake and bathymetric change in Sagami bay

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The Great Kanto Earthquake on September 1, 1923 severed serious damage to the coastal Kanto region; the tsunami hit from the east coast of the Izu Peninsula to the west coast of the Boso Peninsula in Sagami Bay, and caused huge damage. In particular, Atami area was devastated. The fault model was proposed by Kanamori *et al.* (1971) in the 1923 Great Kanto Earthquake, and it was construed that a tsunami was generated by this crustal deformation. But we confirmed that the results of reproduction numerical simulation of coastal damage using the high-resolution submarine topography data and the fault model by Kanamori *et al.* (1971) cannot explain the recording tsunami height.

This report presents the results of a comparison between the reproduction numerical simulation and the recording tsunami height along the coast, and investigates the possibility that the tsunami of the 1923 Great Kanto Earthquake was induced by a large-scale submarine landslide in Sagami Bay based on the bathymetric change data reported by Imperial Japanese Navy. Then, in order to discuss the tsunami generation mechanism of the 1923 Great Kanto Earthquake, the tsunami scale and its arrival time which hit the coast of Sagami Bay are estimated using a simple one-dimensional model (Haugen *et al.*, 2005, Lovholt *et al.*, 2015, Harbitz 1992), and these consistencies are evaluated.

As results, it was confirmed that the bathymetric changes which observed before and after the 1923 Great Kanto Earthquake corresponded to the submarine valleys of the Sagami Bay from the analysis in comparison with the current submarine topographic data. And it was found that the tsunami scale, its arrival time and the location of tsunami source induced by submarine landslide in Sagami Bay were qualitatively consistent with the recording tsunami height by considering the characteristics of the shallow-water deformation and the tsunami convergence.

Keywords: 1923 Great Kanto Earthquake, tsunami, submarine landslide, bathymetric change