

## Long-period ground motion simulation of great Nankai Trough, Japan, earthquakes

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The megathrust earthquakes in Nankai Trough in southwest Japan have been occurring with an interval of 100-200 years. For improving seismic hazard map to prepare for the anticipated Nankai Trough earthquake, it is important to understand uncertainty of ground motions caused by different source parameters, such as rupture area, asperity, and hypocenter location. In this study, we evaluate long-period ground motions for the anticipated Nankai Trough earthquake for several scenarios with various possible parameters including rupture area, asperity, and hypocenter. In the possible parameters, we also include the scenario; the large slip near the trough following the lesson from the 2011 Tohoku earthquake. Long-period ground motions are simulated by the finite difference method using characterized source model and recently developed three-dimensional velocity structure model of Japan. The simulation results show the large variation depending on different scenarios. This large variation can help us to understand the level and variability of long-period ground motion due to source effect of the Nankai Trough earthquake.

Keywords: Nankai trough, long-period ground motion, finite difference method, uncertainty, GMS