

## Strong motion evaluation for a scenario earthquake along the Nankai Trough based on the SPGA model

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The occurrence of the 2011 Tohoku earthquake (Mw9.0) along the Japan Trench motivated us to hypothesize an equally gigantic earthquake along the Nankai Trough, which is another plate boundary close to the coast of Japan. The evaluation of strong ground motions for such an earthquake should be based on a source model whose applicability for gigantic earthquakes has been demonstrated using existing strong motion records including those from the Tohoku earthquake.

In this respect, the authors proposed a source model called the 'SPGA model', which can reproduce strong ground motions from gigantic earthquakes quite accurately including strong motion pulses observed during the Tohoku earthquake.

In this article, the SPGA model was applied to a scenario earthquake with Mw9.0 along the Nankai Trough. Because it is difficult to predict the locations of SPGAs, quite a large number of cases are considered with different distributions of the SPGAs and strong ground motions with a given percentile were calculated. Numerical elaborations were made to carry out this process efficiently so that it can be done on an ordinary desktop PC.

The result indicates that the ground motions are strongly dependent on the locations of the SPGAs. The ground motions with the 90th percentile can be much more intense than those conventionally assumed for the design of structures. The ground motions with the 50th percentile are close to conventionally assumed ground motions in terms of PSI values. The calculated ground motions are often characterized by a pulse-like waveform.

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