

Seismic activity modeling of earthquakes occurred on inland active faults with smaller magnitude than assumed characteristic event for probabilistic seismic hazard

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In this study, we model seismic activity of earthquakes occurred on inland active faults with smaller magnitude than assumed characteristic event for probabilistic seismic hazard. Examples of these earthquakes are northern Nagano prefecture earthquake in 2014 (M6.7) and Kumamoto earthquake in 2016 (M6.4).

For a part of these earthquakes, probabilistic seismic hazard map by the Headquarters for Earthquake Research Promotion (HERP) are modeled seismic activity of earthquakes that does not show signs on the surface. We consider three new models for these earthquakes referred to the model of HERP. In the model of HERP, the upper limit of magnitude is assumed characteristic event on active fault or 7.4, the lower limit of magnitude is 6.8, and the mean recurrence interval is twice the interval of the active fault. In Model 1, the lower limit of magnitude is 6.5 among the model of HERP. In Model 2, the mean recurrence interval is equal to the interval of the active fault among the model of HERP. Model 3 is combined Model 1 and Model 2.

We calculate probabilistic seismic hazard map based on three new models. As a result, the seismic hazard of Model 3 is the largest, and the seismic hazards of Model 1 and Model 2 are comparable.