

Testing of the characterized source model of intraslab earthquakes for strong ground motion prediction

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We proposed a proto-type procedure for strong ground motion prediction of intra-slab earthquakes. It is based on the characterized source model of intraslab earthquakes by the analyses of slip characterization of heterogeneous source models and the relationships between SMGA and asperities (e.g., Iwata and Asano, 2010). The main part of the procedure is as follows,

- 1) Give the seismic moment M_0 .
- 2) Obtain total rupture area and total asperity area by the empirical scaling relationships between S , S_a , and M_0 given by Iwata and Asano (2010).
- 3) Square rupture area and asperity area are assumed.
- 4) Source mechanism is assumed to be the same as the small event in the source area
- 5) Plural scenarios including variety of number of asperities and rupture starting points are prepared.

In this study, we test this procedure by simulating strong ground motions for several events such as the 2001 Geiyo earthquake (M_w 6.8, Hypocentral depth = 46km) by the empirical Green's function method (Irikura, 1986). Effects of the scenarios on estimated ground motions are discussed. Simulated ground motions using source parameters given by the characterized source model for crustal earthquakes (Irikura and Miyake, 2001) are compared to those for intra-slab earthquakes.

Keywords: intraslab earthquake, characterized source model, strong motion prediction, the empirical Green's function method