Recipe of predicting strong ground motions for future large earthquakes

Kojiro Irikura [1], Takao Kagawa [2], Katsuhiro Kamae [3], Haruko Sekiguchi [4]

[1] Disas. Prev. Res. Inst., Kyoto Univ., [2] G.R.I., Osaka, [3] Reaserch Reactor Institute, Kyoto Univ., [4] DPRI, Kyoto Univ.

    We attempted to make a recipe for the prediction of ground motions, based on geological investigations of capable earthquake faults and seismological studies of source models. Total fault lengths of scenario earthquake are evaluated from survey of segmentation and grouping of active faults, fault widths from seismogenic zones, and seismic moment of the capable faults from the empirical relationship between the source areas and seismic source. The scaling relations of slip heterogeneity on fault plane based on a statistical analysis of the source inversion of fifteen crustal earthquakes. We made source modeling based on a self-similar distribution of asperities satisfying the heterogeneity of slip on the fault surface and its two-dimensional Fourier transform of the k-squared model.