Active fault flavor for the recipe of predicting strong ground motions

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We propose hypothetical methods to predict the rupture initiation point and the directivity of rupture propagation of future earthquakes associated with active fault systems based on the fault branching model. The fault branching model is a geometric criteria such as branching features of active fault traces and dip-slip distribution along the fault traces relate to the dynamic rupture processes. This model matches well with recent earthquakes of the 1930 Kita-Izu earthquake, 1979 Imperial Valley earthquake, 1990 Luzon earthquake, 1992 Landers earthquake, 1995 Hyogo-nanbu earthquake, 1995 northern Sakhalin earthquake, 1999 Hector-Mine earthquake, and 1999 Izmit earthquake. Following high demand on detailed information for active faults, we compiled completely new active faults map of Japan with a scale of 1:25,000 and digitized to GIS database. This digital fault trace map with the distribution of measured surface displacements may provide with useful information in order to predict the strong ground motions.