

HDS024-P08

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Probability of the occurrence of the large earthquakes caused by multi-fault-rupture

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Some of the intra-plate large earthquakes, were generated by the multiple faulting. We need the probability of the occurrence of multiple faulting, when we evaluate the risk of the earthquake disasters.

Basic idea of the occurrence of multiple faulting stands on 2 ideas. One idea is that such earthquakes are results of the multiple fault events which occur temporally but independently (Model 1). Another is that rupture on one segment is initiating event of the ruptures on other segments (Model 2).

HERP (2009) uses the model 1 for the estimation of the probability for the multiple rupture earthquakes along the Nankai Trough. This method requires the probability for both faults. Model 2 coincides with the idea of the rupture process of the fault and stress transfer. For the temporal calculation, I used information of 1) the geometry of active faults and 2) the ratio of the elapsed time from the latest fault-event against the mean recurrence interval.

In my presentation, I'll show the result of the preliminary calculation for the some of the major active fault in Japan, based of the reports of the long-term evaluation for active faults in Japan published by HERP.

Keywords: active fault, segment, multi-fault-rupture, probability of the occurrence of large earthquakes, long term evaluation for active fault