

# Evaluation of behavioral segments of major active faults in Japan based on the active fault database

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The Active Fault Research Center, GSJ/AIST has been constructing an active fault database to make a probabilistic evaluation of the future faulting event and earthquake occurrence on major active faults in Japan. The database consists of long-term slip data, which includes amount of displacements and age of faulting references, and paleoseismicity data, which includes the excavated geological units and faulting event horizons with age-control.

Based on this database, we evaluate the magnitude and probability of occurrence of large earthquakes on each behavioral segment.

Active faults in Japan are segmented into about 550 behavioral segments based on geometry of fault strand separated by discontinuities of larger than 2-3 km and bend, and timing of paleo-faulting and slip-rate. Those behavioral segments are re-structured into approximately 330 seismogenic faults, those are probably the best-estimation for large earthquake segments, each consists of surface traces separated by jogs larger than 5 km. We selected to evaluate about 290 behavioral segments with slip-rate of 0.1 m/ky and larger, and larger than 10 km in length, those are included in about 150 seismogenic faults larger than 20 km in length, for tentative evaluation. Faulting parameters are long-term slip-rate, slip per event, recurrence interval, and age of most-recent event on each behavioral segment. We adopt mid-range value in case that the original field data have some uncertainty.

The result of the evaluation of 290 behavioral segments will be opened to public in the active fault database at website and the map showing the rupture probabilities on each behavioral segment.