[EJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS08]Active faults and paleoseismology

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Geologic and historic information on seismic cycles and on the magnitude and source faults of past earthquakes is essential information to understand future large earthquakes. The study of past faulting and seismicity is an important issue for an interdisciplinary community of seismologists, geologists, geomorphologists, archaeologists, and historians.

[SSS08-P19]Long-term evaluation of ≧ M6.8 earthquakes on active faults in Shikoku area

★ Invited Papers

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The Earthquake Research Committee published “Method of Long Term Evaluation for Active Faults (Provisional Version)” in November 2010 and started regional evaluation of active faults to assess hazard of shallow destructive earthquakes not only at selected major active fault zones with a length of 20 km or more, but also at shorter active faults and active faults in coastal areas. The regional evaluation for Kyushu, Kanto, and Chugoku were published in 2013, 2015, and 2016, respectively. Here, we present the long-term evaluation of active faults for Shikoku region published in December 2017.
In the regional evaluation, we expanded the target active faults to shorter ones with a minimum length of 5 km and with lower degree of activity (less than B-class). The regional probability of earthquake occurrence is comprehensively calculated for a regional unit. In order not to overlook underlying part of active faults, geological and gravitational data in the region was referred in addition to the surface traces of active faults read in detail from 1/10,000 aerial photographs. Source areas of destructive shallow historical earthquakes were also examined. As a result, we newly incorporated three active faults (Kamihogunji, Kamiura–Nishitsukinomiya, and Tsunatsukemori Faults) to the evaluation. We also revised the long-term evaluation for the two major active fault zones (the Median Tectonic Line (MTL) fault zone and the Nagao fault zone) based on the latest findings.
In the regional evaluations for Kyushu, Kanto, and Chugoku, each region was divided into several territories from the characteristics of active faults and seismicity, or geological and tectonic features, and the probability of earthquake occurrence for each territory was evaluated separately. However, Shikoku region was holistically evaluated because active faults in this region distribute around the MTL fault zone unevenly, and the seismicity is low.
The regional evaluation showed that the shallow seismicity of inland area of Shikoku is relatively low: the comprehensive probability of shallow earthquakes of *M*6.8 or larger during the next 30 years is evaluated as 9-15%. However, the MTL fault zone, the longest active fault zone in Japan, runs through the northern part of Shikoku Island. In this revision, the western end of the MTL fault zone was extended to the Yufuin fault in Oita prefecture, Kyushu. The MTL fault zone was divided into ten

segments, while five segments are in Shikoku region. Three of them were evaluated as S- or A-rank with relatively higher occurrence probability of large earthquakes. Histories of past activities in each segment, obtained from trench surveys, showed that several segments might have ruptured simultaneously in the past.
In the present evaluation, there are several remaining problems such as the dip angle of the deeper part of the MTL fault zone, and geometrical relationship in underground between the MTL fault zone and Nagao fault zone, which is located north of the MTL fault zone. Advancement in research is necessary to solve these issues.