[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-P02]The making of the revised edition of “Digital Active Fault Map of Japan” Part 1: fault information

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The revised edition of the “Digital Active Fault Map of Japan” edited by Toshifumi Imaizumi, Takahiro Miyauchi, Hiroyuki Tsutsumi and Takashi Nakata is published by University of Tokyo Press. In this revised edition, we have checked and updated all the contents and information of the previous edition, incorporated new information obtained since 2002, replaced the base maps of the digital active fault maps, and developed a new GIS viewer of the maps. Although major revisions from the previous edition are summarized by Miyauchi et al (2018, this meeting), we focus how to revise the data about active fault traces and fault-related information.

(1) Revision of the active fault traces

The active fault traces in this revised edition principally follow those in the previous edition, which were mapped based on aerial photograph interpretation by the authors of the previous edition. In the previous edition, the active faults were mapped onto 1:25,000 scale topographic maps published by the Geospatial Information Authority of Japan and were digitized to create a shapefile (.shp). In this revised edition, we corrected obvious errors incorporated during the digitization, such as errors regarding the location of active fault traces and disagreements between tectonic landforms and map symbols. We revised and added fault traces based on information obtained since the publication of the previous edition. We also added approximate locations of concealed active faults together with seismic reflection lines connected with them.

(2) Fault-related information

In the previous edition, we estimated the height of tectonic scarps and the amounts of offsets of stream channels from aerial photographs and topographic maps. These data were shown along fault traces as point data. In this revised edition, we incorporated the fault database of Nakata (2008) that compiled data from studies published before 2002. We also compiled data from studies published by August 2017, and these data appear as point data on the viewer. Information on paleoseismic trenching

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was updated by including the surveys conducted since the publication of the previous edition. We also collected information on seismic reflection profiling across active faults, and the locations of the survey lines are shown on the viewer. In the previous edition, we collected the literature related to active faults. For this revised edition, we collected a wide range of studies, including those that may not be directly related to active faults. These data are compiled as active fault data.

(3) Grouping of active fault traces into active fault zones
We grouped the active faults on the Japanese Islands into 245 active fault zones to make it possible to access data using the names of active fault zones and of local government units. We basically follow the procedures of the previous edition for the grouping process. However, we revised the grouping for the areas where the fault traces were revised and new traces were added. An active fault independently located without other faults nearby was designated as an active fault zone regardless of its length. The explanatory texts were prepared for each active fault zone that appears on the viewer.

This publication aims principally to show the locations and tectonic geomorphic features of active faults in as much detail as possible. In addition, we incorporate subsurface information on active faults from seismic reflection surveys that have contributed to newly identify concealed active faults. We believe that this publication is the only active fault map of Japan as of today with detailed fault traces and comprehensive collections of active fault data. We hope the clarification and new understanding of active fault systems connecting source faults, based on integrated geoscientific surveys and analysis will be useful to researchers and to the interested public.

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