The making of the revised edition of “Digital Active Fault Map of Japan” Part 2: stereoscopic active fault map

*Michio Shirasawa[1], Ryuzo Yokoyama[1], Ena Tsuchiya[2], Nao Shimoyama[2], Tatsuya Sasaki[2], Toshifumi Imaizumi[3]

1. Yokoyama Geo-Spatial Information Laboratory Co., Ltd., 2. OYO Corporation, 3. Tohoku University

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 make the stereoscopic active fault map.

In this revised edition, we show the active fault traces on Digital Topographic Map system developed by the Geospatial Information Authority of Japan. These two-dimensional maps with various scales can be viewed seamlessly all over Japan. We also created three-dimensional shaded relief base maps along major active faults. Active fault mapping is mainly conducted based on interpretation of stereo-paired aerial photographs. Three-dimensional images created from digital elevation models have recently been used widely for active fault mapping. In this revised edition, we made three-dimensional anaglyph images along major active faults to make it easier for the readers to understand how the active faults were mapped based on tectonic geomorphic features. The three-dimensional active fault maps were made by Yokoyama Geo-Spatial Information Laboratory Co., Ltd. The names and approximate locations of major active faults have gradually become known due to information dissemination activities by the Japanese and local governments. However, the exact locations of active fault traces are much less known. A red-cyan glass is attached to this publication to view the anaglyph images in this explanatory book and on the computer screen. By looking at these images three-dimensionally, the readers can easily understand the location of the fault traces and related tectonic geomorphic features. They can also recognize geomorphic and artificial features along active faults, such as landslides, steep scarps, deep valleys, residential areas, bridges, roads, railways, etc. Whenever a large inland earthquake with surface ruptures occurs along an active fault, local governments need to take counter-measures against subsequent disasters and discuss post-earthquake land-use planning. The three-dimensional active fault maps in this publication can serve as fundamental data for comprehensive earthquake-related disaster mitigation.

Keywords: stereoscopic topographic map, stereoscopic active fault map, digital elevation model (DEM)

©2018. Japan Geoscience Union. All Right Reserved.