

## Mapping of active faults in the area around the southern segment of the Itoigawa-Shizuoka Tectonic Line, central Japan

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It is well known that tectonic-related topographic features that develop around active faults record displacements during large-magnitude earthquakes, and that tectonic-related topographic studies are essential for developing a historic and/or paleoseismic perspective of the locations, magnitudes, recurrence intervals, and slip patterns of seismogenic faults. Therefore, it is important to recognize and identify active faults and tectonic-related topographic landform features for studying the present activity of active faults to assess the seismic hazard in a densely populated region.

This study focuses on the mapping of active faults in the area around the southern segment of the Itoigawa-Shizuoka Tectonic Line (ISTL), central Japan. Although previous studies have reported the presence of some active faults in this area, the detail distribution and geometric features of active faults are still unclear. In this study, we identified the active fault traces using perspective maps made from the digital elevation mode (DEM) data with 5-m-contours and stereo-examination of aerial photography and conducted field investigations. Interpretations of perspective topographic maps, field investigations, and structural analysis of fault zones reveal that i) many fault traces are newly found, which formed a deformation zone of up to ~100-500 in width; ii) the active fault traces show more irregular shape than that previously reported, curved around boundary between the mountains and basin, indicating the lower dip-angle thrust fault structures; iii) the active faults developed along the southern sector of the ISTL are found to be extended to the south at least ~25 km longer than that reported previously.

The findings of this study show that the detail mapping of the active faults can provide new insights to study the tectonic activity and fault nature of active faults and to reassess the seismic hazard for the densely populated area around the ISTL.

Keywords: active fault, fault mapping, Itoigawa-Shizuoka Tectonic Line (ISTL), fault trace, fault geometry, thrust fault