

Tectonic geomorphology along the southern part of the ISTL active fault zone, central Japan

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We conducted a tectonic geomorphological survey in the area between Hakushu and Kajikazawa, along the southern part of the Itoigawa-Shizuoka Tectonic Line (ISTL) active fault zone, for the purpose of accurate mapping of active faults and obtaining slip rates. Procedure of this study as follows; 1) aerial photo analysis and field survey, 2) mapping of geomorphic surfaces and reconstruction of geomorphic evolution, 3) mapping of tectonic landforms which explain the geomorphic evolution reasonably, 4) measure vertical displacement by construction of cross sections by air photo survey and calculation of slip rates. Slip rates were estimated based on fault displacement and ages of terraces (H: older than 130-150 ka, M1: ca. 100 ka, M2: ca. 60 ka, L1a: ca. 20 ka, L1b: ca. 10 ka, L2 and L3: younger than 10 ka). Although mapped faults in this study are similar to existing papers, some different results were obtained as follows; 1) In some areas, flexure scarps are recognized at 200-300 m distance from mountain front. We inferred these flexure scarps caused by secondary deformation in the thick sediment in the footwall side of the ISTL active fault zone. 2) In some areas along the mountain front, we recognized fault scarps which deform younger fluvial fans (L2, L3) by several meters. Although accurate ages of these fans are unknown, these displacements may show single event of the southern part of the ISTL active fault zone. 3) Along two small rivers (Karasawa River and Kirisawa River) in the northern part of study area, we recognized marked flexure on L1b terrace. These flexures are located at 100 m west from mountain front and distribution pattern of flexure and terraces is similar to that of flexure of M1 terrace in Tsukiyama area. Ikeda et al. (2008) interpreted that the flexure of Tsukiyama area is formed by movement of nappe. Similar phenomenon may occur in the L1b terraces along the Karasawa and Kirisawa Rivers. 4) We recognized broad flexure in young alluvial fan (L3) along the Midaigawa River. Although accurate ages of this fan are unknown, this fact implies recent event of the southern ISTL active fault zone.