

Study of tectonic landforms and late Quaternary slip rates along the middle part of the ISTL active fault system

Nobuhisa Matsuta[1]; Hiroshi Sawa[2]; Nobuhiko Sugito[3]; Masayoshi Tajikara[4]; Kaoru Taniguchi[5]; Daisuke Hirouchi[6]; Satoshi Ishiguro[7]; Yoshiki Sato[8]; Mitsuhisa Watanabe[9]; Yasuhiro Suzuki[3]; Yasuhiro Suzuki Research Group for ISTL Tectonic Landforms[10]

[1] National Taiwan Univ.; [2] Geography, Tsuruoka Nat. Col. Tec.; [3] Nagoya Univ.; [4] Fukken Co. Ltd.; [5] ERC, ADEP; [6] Aichi Institute of Technology; [7] Environmental, Nagoya Univ.; [8] Environment, Nagoya Univ.; [9] Fac.Sociol. Toyo Univ.; [10] -

Our research group has conducted the detailed mapping and estimating slip rate by geomorphic marker about the Itoigawa-Shizuoka tectonic line since 2005. Last year, we focused a tectonic geomorphic survey along the middle part of the Itoigawa-Shizuoka tectonic Line Active fault System (ISTL). Procedure of this study is 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 explains the geomorphic evolution reasonably, 4) measurement of vertical offset by construction of cross section and calculation of vertical offset rates, 5) measurement of horizontal offset by geomorphic markers and calculation of the horizontal offset rates. Vertical/Horizontal offset rates were estimated based on offset of geomorphic markers (fluvial terraces) correlated by tephra chronology (HH, Nirasaki volcanic debris avalanche; H, older than 120 ka; M1, 90-100 ka covered by On-Pm1 tephra; M2a, covered by On-Mt tephra; M2b, ; L1a 20 ka; L1b, 10 ka; L2, 4-7 ka; L3, 1-2 ka).

As a result, mapped fault in this study are similar to previous work, however we obtained some different results as follow; 1) In Fujimi area, we judged that three faults and estimated slip rate. Vertical and lateral slip rates are less than 1mm/yr and 3.5-5.0 mm/yr, respectively. 2) We inferred that left-lateral slip trace of Fujimi area extend a fault trace to Shimotsutaki area. 3) In Hakusyu area, the age of some geomorphic surfaces in this study is younger than in previous study reveals that the vertical slip rate in this study is higher than in previous study and it was estimated at 0.2-0.8 mm/yr.

Research Group for ISTL Tectonic Landforms: Suzuki, Y., M. Watanabe, H. Sawa, D. Hirouchi, T. Kumamoto, N. Matsuta, M. Tajikara, K. Taniguchi, N. Sugito, S. Ishiguro, Y. Sato, C. Uchida, S. Sano, T. Nozawa, and H. Sakaue