Tectonic geomorphological survey of the ITSL to forecast the behavior of active faulting and strong earthquake motion

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We conducted a tectonic geomorphological survey of the northern Itoigawa-Shizuoka Tectonic Line with support from the Ministry of Education, Culture, Sports, Science and Technology of Japan. This survey clarifies the detailed distribution of the slip-rates of the fault that would enable us to forecast the behavior of the fault and to estimate the strong ground motion associated with an earthquake.

The digital elevation model with high density and high precision was constructed photogrammetrically by using 1:10,000 scale aerial photographs. The aerial photographs taken in the 1940s or 60s are also used in areas where tectonic landforms had already been artificially modified; this was intended to reconstruct the original landforms. The landform deformations by faulting were analyzed from 68 transactions that were measured under the photogrammetrical system. The interval of the transactions along the fault is on an average 880 m and 500 to 600 m at locations with distinct fault deformation. The distribution pattern of the slip-rate probably enables us to estimate strong ground motions.

The geographical information with regard to active faults (for example: precise location, cumulative amount and shape of deformation, and slip-rate) will be compiled on the active fault GIS and is intended to be provided by webGIS. This can be a compilation of the basic information not only for earthquake anticipation but also for land use planning in order to mitigate earthquake disaster.