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Tectonic geomorphology and late Pleistocene activity of western marginal faults of the Suzuka Mountains, central Japan

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This study focuses on the tectonic geomorphology in small scales derived from precise aerial photograph interpretation of tectonic landforms. Marginal fault zone at the western foot of the Suzuka mountain range is one of major active faults in Japan. This fault zone, composed of east-dipping thrust faults trending N to S, is about 44km long containing many presumed active faults. One of a recent previous work have carried out a seismic reflection profiling and boring survey across the presumed zone of faults to be along the Uso River, but have not clear the late Pleistocene to Holocene activity of faults because of no detailed data on the recent deposits.

This work shows that surface fault traces are recognized in the northern half of the fault zone. It extends at least 9km in length. At the site of the Uso River, small tectonic scarp recognized on young terraces developed along the river are well accord with the assumed sites of the fault by the seismic reflection records. Based on reported data on geomorphological history in central Japan, it is reasonable to assume that the latest faulted terraces formed after the late Pleistocene by geomorphological evidences. A possible interpretation of tectonic geomorphology can be such that the small fault scarp identified on such terraces adjoining a flood plain is the movement of the fault associated with the most recent event of surface rupture during the Holocene time.

Though Seismic reflection profiling also plays an important role in the understanding of the relationship between underground seismogenic and surface faults in order to clarify the regional characteristics of the faults, it is needed to attach the highest importance on the tectonic landforms on everything from large to small scales for them. In particular, recent fault activity can be seen such as the small displacement of landforms and can be clearly differentiated as compared to those from earlier times. To identify the recent fault activity on the surface is highly effective subjects for mitigation of seismic hazards, simulation of earthquakes associated with active faults.

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Keywords: active fault, tectonic geomorphology, suzuka mountain range, aerial photograph