

## Revisited most recent paleoearthquakes along the ISTL active fault system, central Japan

KONDO, Hisao<sup>1\*</sup> ; TANIGUCHI, Kaoru<sup>1</sup> ; SUGITO, Nobuhiko<sup>2</sup>

<sup>1</sup>AIST AFERC, <sup>2</sup>Hosei University

The ISTL active fault system, central Japan, is well-known as one of the most hazardous fault systems based on the previously-reported paleoseismological works. Since the first paleoseismic trench survey was performed in 1980s, the number of paleoseismic sites becomes over 44 sites along the 150-km-long fault system, that is the highest density on active fault zone in Japan. In those studies, the timing of the most recent paleoearthquake had been reported around 1200 y.B.P., and the events had been longly estimated to be correlated with one multi-segment earthquake either 762 A.D. or 841 A.D. historical earthquakes. On the other hands, the recent result of geoslicer survey at the middle section of the ISTL indicate that the most recent event occurred around 2300 y.B.P., contradicting with the correlations with the historical earthquakes. Thus the most recent earthquakes on the ISTL is still ambiguous, therefore, we carried out systematic paleoseismic surveys around the largest segment boundary, Lake Suwa segment boundary, at the middle of the ISTL active fault system. The Lake Suwa segment boundary is structural Quarternary basin formed by left fault step-over between left-lateral strike slip faults. At three paleoseismic sites inside of the Suwa basin, we revealed the most recent events occurred a few thousands years before ~1200 y.B.P. and those are not correlatable with the historical earthquakes. These data indicate that the most recent earthquake along the ISTL did not rupture through the Lake Suwa segment boundary. In addition with this, the compiled timing of the most recent event along the entire the ISTL suggest that spatial clustering of the most recent earthquake. One large earthquake ruptured between the Kamishiro fault and the Gofukuji fault or possibly up to the Okaya fault, and another event ruptured between the Kamanashi-Yama faults and the Shimotsutaki fault. These two events will be correlated with either the 841 A.D. and the 762 A.D. earthquakes along with more reliable historical document surveys. Furthermore, this paleoseismic scenario during the most recent earthquake cycle do not deny the possibly that the larger multi-segment earthquake rupturing through the Lake Suwa segment boundary. In fact, paleoseismic event occurred between 2000 y.B.P. and 2300 y.B.P. was identified at the sites on the Gofukuji fault, the Okaya fault, and the Chino fault. Since those faults have left-lateral-strike slip component forming the pull-apart basin, the 2000-2300 y.B.P. event might have ruptured through the Lake Suwa segment boundary. To be testified this possibility, further investigation on the slip per event around the segment boundary is necessary.

Keywords: active fault, paleoearthquake, historical earthquake, ISTL active fault system