

Fault length and the past millennium activity of the Fujigawa-kako Fault Zone

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The Fujikawa-kako fault zone, striking NNW-SSE, is located in the western side of the Mountain Fuji. This fault zone is the inland extension of the Nankai Trough, and is considered as a source fault of the Tokai large earthquake which has been altered for more than three decades in central Japan. To understand the seismic potentials for the Fujikawa-kako Fault Zone, quantitative assessment of recent activity is vital.

Previous studies reported that the Fujikawa-kako fault zone is about ~26 km and the most recent seismic event may occurred before 1,500 years based on the drilling and trench data without direct fault evidence (Yamasaki et al., 2002; The Headquarters for Earthquake Research Promotion, 2010). However, our group has reported that the total length of the fault zone is up to ~35 km and the most recent seismic faulting event may occur in the recent 1,500 years based on field investigations, trench excavations, and radio carbon dating ages which were carried out during the past decade.

In this study, geological and geomorphological investigations are conducted to identify the tectonic topography and characterize the recent faulting activity of the northern segment of the fault zone. Based on the interpretation of aerial photos and 3D perspective views analyzed using Digital Elevation Model (DEM) data, and field investigations, we have obtained following new findings: 1) distinct fault scarps are recognized in the northern area from Shibakawa to the Omuro volcano; ii) the total fault length is up to 36 km; iii) the AD 896 Jogan lava flow was displaced 2-4 m in vertical along the fault scarp. Trench excavations and fault outcrops, volcanic ash sequence analysis as well 14C dating results also show that the recent seismic faulting event probably occurred in the past millennium. Based on the historical records, it is inferred that the latest fault event occurred along the Fujikawa fault zone is related to one of the three large earthquakes of ~M8: AD 1096 Eichou, AD 1707 Hōei, and AD 1854 Ansei Tokai earthquakes, which all occurred in the Tokai region around the study area. In this presentation, we will report our recent results including field investigations and dating ages and discuss the fault length and recent activity of large earthquakes.

References cited:

- 1) Yamasaki, H. et al. (2002), Off-fault Paleoseismology in Japan: with special reference to the Fujikawa-kako fault zone, central Japan. Geographical report of Tokyo Metropolitan University. 37, 1-14.
- 2) The Headquarters for Earthquake Research Promotion (2010). Re-evaluation of the Fujikawa-kako fault zone. 54p.

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