
[EJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS08]Active faults and paleoseismology

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Geologic and historic information on seismic cycles and on the magnitude and source faults of past earthquakes is essential information to understand future large earthquakes. The study of past faulting and seismicity is an important issue for an interdisciplinary community of seismologists, geologists, geomorphologists, archaeologists, and historians.

[SSS08-P12]Paleoearthquakes recorded in the Fuji Five Lakes during the last ca. 6000 years (Fuji Five Lakes, Japan)

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In Japan, one pioneering lacustrine paleoseismological study was conducted in Lake Biwa in the 1990s. However, despite the high seismicity of Japan, the field of lacustrine paleoseismology did not expand. Paleoseismological studies were more focused on inland trenches and coastal records. The paleoseismological data obtained by that way covers the last ~6000 years but contains hiatuses. Using lacustrine sediment allows us to span the same time period and to have a continuous record. Here, we present the second lacustrine paleoseismological study conducted in Japan.

The Fuji Five Lakes are situated close to the triple junction, where the North American Plate, the Eurasian plate and the Philippine Sea Plate meet. Therefore, the region can be impacted by megathrust earthquakes generated along the Nankai-Suruga and the Sagami subduction zones. In addition, intraplate earthquake may affect the Fuji Five Lakes region. In the framework of the QuakeRecNankai project, we investigated two of the Fuji Five Lakes, Lake Motosu and Lake Sai.

Here, we present the paleoseismological record of Lake Motosu and Lake Sai over the last 6000 and 2000 years, respectively. The turbidites were identified based on geophysical (magnetic susceptibility, grainsize) and geochemical properties (XRD, XRF) as well as SEM analysis. The turbidites were dated by ²¹⁰Pb/¹³⁷Cs, ¹⁴C dating and correlated with historical earthquakes. For prehistorical earthquakes (i.e., before the 6th century), they were correlated with geological evidences recorded along the Eastern Honshu coastline (i.e., tsunami deposits, coastal uplift, emerged ridge beaches). Over the last 6000 years, seismo-turbidites occurred with a mean recurrence time of 184±8 years. The near absence of large mass-transport deposits in the last 6000 years suggest that earthquake shaking mostly induced the remobilization of thin veneers of sediments in Lake Motosu. In Lake Sai, the earthquake fingerprint

differs from Lake Motosu. Over the last 1200 years, past earthquake shaking induced turbidites, delta collapse and liquefaction (sediment volcanoes).