

## Uplift and denudation history of the Yoro-Suzuka-Nunobiki Mountains: Constraints from apatite FT thermochronology

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The Yoro-Suzuka-Nunobiki Mountains are fault block mountains distributed along the Isewan-Tsurugawan Tectonic Line, a tectonic boundary between the Kinki and Chubu districts. The Kinki district on the west of the mountains is characterized by predominance of reverse faults and alternation of N-S trending mountain ranges and basins (Kinki Triangle; Huzita, 1962), whereas the Chubu district on the east of the mountains has predominance of strike-slip faults and westerly tilting landforms (Chubu tilting block; Kuwahara, 1968). Miyoshi & Ishibashi (2008) mentioned that the Philippine Sea Plate slab beneath the region around the Yoro-Suzuka-Nunobiki Mountains has shallow subduction angle and form a convex shape (Isewan-Kohoku slab) and proposed this shallow slab resulted in the tectonic boundary between the Kinki and Chubu districts in the region. On the eastern and western sides of the Yoro-Suzuka-Nunobiki Mountains, two major subsidence areas have formed and moved northward since the end of the Miocene as recorded by deposition of the Tokai group and Kobiwako group (e.g., Yokoyama, 1995; Yoshida, 1990). On the other hand, there is some debate over the formation process and mechanism of the Yoro-Suzuka-Nunobiki Mountains; Okada (2004) speculated the mountains have uplifted from south to north generally corresponding to the northward moving of the subsidence areas, whereas Ohta and Takemura (2004) proposed the formation of the mountains were still later and independent from the formation of the subsidence areas.

We are attempting revealing uplift and denudation history of the Yoro-Suzuka-Nunobiki Mountains in the past few million years by using apatite fission-track (AFT) thermochronology. We have obtained AFT ages and length distribution data in one site for the Yoro Mountains, eight sites for the Suzuka Range, and one site for the Nunobiki Mountains. Highlights of the results are as below: 1) the AFT ages range 47-30 Ma, 2) the ages were youngest in the middle to south parts of the Suzuka Range and get older to the north and south, 3) thermal histories calculated from the AFT ages and length distributions indicate rapid cooling events in the past few million years in the middle to south parts of Suzuka Range, but not in the Yoro and Nunobiki Mountains and the north part of the Suzuka Range, 4) the rapid cooling events in the past few million years are attributable to the uplift of the Suzuka Range since ~1.3 Ma (Yokoyama, 1995). We are conducting additional AFT analyses in seven sites of the Nunobiki Mountains to expand our results to the south. In this presentation, we are planning to provide progressed discussions containing the results of the additional data.

Keywords: Yoro-Suzuka-Nunobiki Mountains, apatite fission-track thermochronology, denudation, eastern margin of the Kinki Triangle