

## Apatite fission-track and (U-Th)/He ages of the Suzuka Range, southwest Japan, and their geomorphological implications

Shigeru Sueoka<sup>1\*</sup>, Kunimi Yamada<sup>1</sup>, Kenji Shibata<sup>1</sup>, Hiroyuki Tsutsumi<sup>2</sup>, Takahiro Tagami<sup>2</sup>, Noriko Hasebe<sup>3</sup>, Akihiro Tamura<sup>3</sup>, Shoji Arai<sup>3</sup>

<sup>1</sup>Japan Atomic Energy Agency, <sup>2</sup>Kyoto University, <sup>3</sup>Kanazawa University

The Suzuka Range is a fault block mountain distributed along the Isewan-Tsurugawan Tectonic Line, a tectonic boundary between the Kinki and Chubu districts. The Kinki district on the west of the Range is characterized by predominance of reverse faults and alternation of N-S trending mountain ranges and basins (Kinki Triangle; Huzita, 1962, 1983), whereas the Chubu district on the east of the Range 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 Suzuka Range 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. However, how the slab has affected the landform development and tectonics of the region is not well understood partly because vertical crustal movements in the past few million years are not estimated. Subsidence and its rates in the past few million years in the Ohmi and Nohbi basins can be estimated by the depths and ages of the layers of the Pliocene Kobiwako and Tokai Groups. On the other hand, estimating uplift and its rates of the Suzuka Range requires denudation and denudation rates.

We are attempting revealing denudation history of the Suzuka Range in the past few million years by using thermochronological methods. We used apatite fission-track and (U-Th)/He thermochronology which have low closure temperatures (90-120 deg. C and 55-80 deg. C, respectively) and are generally used to detect recent denudation events. In apatites of granitic samples collected at the Suzuka Range, fission-track densities do not vary systematically along the N-S profile. Assuming that uranium concentrations are homogeneous in the granitic samples, the Suzuka Range should have had spatially homogeneous denudational history. If the apatite fission-track ages reflect the denudation history of the Range in the past few million years, uplift of the Range might be spatially homogeneous although subsistence of the Ohmi and Nohbi Basins started from the south and propagated to the north (e.g., Okada, 1980). On the other hand, if the apatite fission-track ages reflect the denudation history of the Suzuka Range in the past few ten million years, the denudation might be mainly attributed to the regional peneplanation of the Kinki and Chubu districts since the Palaeogene or late Cretaceous time. In a presentation, we are planning to provide more fixed and detailed discussions from the results of apatite fission-track and (U-Th)/He ages.

Keywords: fission-track thermochronology, (U-Th)/He thermochronology, Suzuka Range, denudation