

# (U-Th)/He thermochronology of the Tanzawa Tonalite complex, Japan.

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## Introduction

The Tanzawa Mountains on the South Fossa Magna region (SFM), middle the Japan Arc is uplifted through the multiple collisions of the Izu-Bonin Arc against the Japan Arc for last several million years [1]. The Tanzawa Tonalite complex is exposed on an area of ~25km east-west and ~5km north-south in the center of the Tanzawa Mountains and regarded that the middle crust of the Izu-Bonin Arc [2]. The cross-section of P-wave velocity distribution across the arc supports this hypothesis [3]. Therefore, it is an important and unsolved problem that how this roughly ~10 km underground pluton uplifted and exhumed as the present landscape, to describe tectonic history of SFA with arc-arc collision.

However, previous thermochronological studies for the complex were even chaotic because the radiometric ages distributed widely [e.g., 4, 5]. Therefore we performed new thermochronometry, apatite and zircon (U-Th)/He method with zircon fission-track analysis to investigate uplift history of the Tanzawa Mountains shallower than ~5 km.

## Result and interpretation

(U-Th)/He dating was performed in K.A. Farley laboratory, CALTECH. Fission-track method was performed in Kyoto Univ. The ages were similar in each method. Therefore the typical cooling rates are calculated at ~20-40 °C/Ma, 6-3.3 Ma; ~80 °C/Ma, 3.3-2 Ma; ~30 °C/Ma, 2-0 Ma. As a result, the cooling rate was nearly fixed after ~6 Ma in spite of the collisions of the Tanzawa block and the Izu block.

## References

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