

## Uplift and denudation history of Awaji Island further constrained by (U-Th)/He dating of apatite

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The northernmost part of Awaji Island is an uplifted block between Nojima fault to the west and Kusumoto fault to the east. The uplift/exhumation history of this uplifted block by apatite fission-track dating results has previously been reported by Ito (2004). Here I report results from apatite (U-Th)/He dating performed at Melbourne University by Dr. Barry Kohn. Four out of 5 runs yielded ages between 39-51 Ma, whereas one run yielded an age of 110.4 +/- 4.5 Ma. This anomalously old age was probably related to excess He caused by the presence of uranium and/or thorium rich in microinclusions such as zircon or monazite. By discarding this abnormally old age data, a weighted mean age of 44.1 +/- 1.3 Ma was obtained. Therefore the uplifted block had cooled to ~70 degree-C, the approximate closure temperature of the apatite (U-Th)/He system (assuming a cooling rate of 10 degree-C/Ma), at ~44 Ma. As this result matches well with the cooling curve of Ito (2004), it is concluded that the northernmost part of present day exposures on Awaji Island have experienced uplift/exhumation at an average rate of 0.0055 mm/yr from a depth of 3.6 km at ~65 Ma.