

## **Rutile (U-Th)/He thermochronology constrains the initial emplacement of the Troodos ophiolite, Cyprus**

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The Troodos ophiolite preserves one of the best undeformed on-land sections of oceanic crust. It is Turonian in age ( $91.6 \pm 1.4$  Ma), but was subaerially exposed only at the late Miocene. Unlike other ophiolites there is no exposed metamorphic sole. In SW Cyprus Troodos rocks are juxtaposed against the older Mamonia Complex along a high angle serpentinite-filled fault zone. Caught in this shear zone are  $\leq 500$  m sized slivers of rutile-bearing amphibolite, the Agia Varvara formation, which might hold information on the initial emplacement of the ophiolite.

13 Rutile grains from the Ayia Varvara amphibolites yielded an average (U-Th)/He age of  $86 \pm 7$  Ma independent of grain-size ( $R_{eq}$  of 45-90  $\mu\text{m}$ ) and an isochron age of  $89 \pm 3$  Ma.

Metamorphism of Agia Varvara was thus nearly synchronous with the igneous crystallization of the Troodos oceanic crust at late –Turonian – early Coniacian times. The hot spreading ridge and newly formed supra-subduction crust were probably the heat source for metamorphism when juxtaposed against the older protoliths of the amphibolites. Similar hornblende  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  ages (90-83 Ma; Spray and Roddick, 1981) and the lack of age – grain size correlation in rutile indicate fast cooling from peak metamorphic conditions to  $<220^\circ\text{C}$ . This rapid cooling may delineate the cessation of spreading activity in Troodos due to initial emplacement against the Mamonia continental margin.