

Supplementary Table 5: Thermal history model input table for simulations of the Catalina Rincon metamorphic core complex, Arizona, USA, based on framework established by Flowers et al. (2015)

1. Thermochronologic Data

Samples and data used in simulations

Samples and data used in simulations				
	Simulation inputs		Data Source	All data
Sample Region	AHe	AFT		
<i>Catalina metamorphic core complex</i>				
UoM0422-06 (1085 m)	x	x	Supplementary Table S1 and Table 5	yes
KJJ09-03 (1608 m)		x	Supplementary Table S1 and Table 5	yes
UoM0522-01 (1608 m)	x		Supplementary Table S1 and Table 5	yes
WP-01 (2004 m)	x	x	Supplementary Table S1 and Table 5	yes
UoM0422-12 (2291 m)	x	x	Supplementary Table S1 and Table 5	yes

Data treatment, uncertainties, and other relevant constraints

Onset of detachment after Peters (2003)

Onset of detachment (26 Ma): Box constraints on the models (26 ± 1 Ma) were from Peters, L., Ferguson, C. A., Spencer, J. E., Orr, T. R. & Dickinson, W. R. (2003), 'Sixteen $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology analyses from southeastern Arizona', Arizona Geological Survey Open File Report p. 46.

Error (Ma) applied in modeling: error of 1 Ma was used

AFT data

Dpar (μm): From Supplementary file 1

Lengths: Length data for all samples is available in Supplementary File 1

Initial mean track length: 16.3 μm

Track length reduction standard: 0.893

2. Additional geological information

Assumption	Explanation and data source
All samples were assumed to have remained at present-day vertical separation throughout geological time (Gallagher et al. 2005)	

3. System- and model-specific parameters

He radiation damage model : Flowers et al. 2009

FT annealing model : Ketcham et al. 2007

FT c-axis projection : Used

Modeling code : QTQt 5.7.0 PC

Statistical fitting criteria : Default QTQt values

MCMC Parameters : Burn-in = 200,000, Post-burn-in = 200,000