**Appendix 4.** Thermal history model input table

|  |  |  |
| --- | --- | --- |
| 1. **Thermochronologic data Samples and data used in simulations** | | |
|  | Used for modelling? | All data used for modelling published? |
| (U-Th)/He data | Not used for modelling (no appropriate geometry setting available for all crystals) | Table 3 and 4 (this paper) |
| AFT data | Yes | Appendix 2 |
| Track length data | Yes | Appendix 2 |
| Kinetic parameter: Dpar (4 manual measurements/grain) | Yes | Appendix 2 |
| **Data treatment** | Details |  |
| *AHe data* |  |  |
| Standards used during analysis | Durango apatite standard bracketing | Protocol: see methods and Appendix 1 of Wildman *et al.* (2017) |
| AHe data reduction | FT correction factors calculated based on the geometry of each single crystal using using HelioCalc (<https://www.ucl.ac.uk/~ucfbpve/heliocalc/>) designed by P. Vermeesch using the model of Ketcham *et al.* (2011)  He ages discarded based on incomplete degassing after second laser treatment |  |
| *AFT data* |  |  |
| Apatite fission track counting analysis | 5.5M HNO3 etchant, 21°C, 20s  well-thermalized channel X26 (Mol, Belgium)  none of the single grain analysis were deleted after analysis in order to retain the samples possible populations  Repositioning technique, Goodfellow U-free mica  IRRM-540 U-doped glasses  TINTs, TINCLEs and 252Cf tracks are used for some samples due to the low spontaneous track density  Dpar: 4 measurements/grain | Protocol: see Nachtergaele *et al.* (2018) |
| Standards used during analysis | Fish Canyon Tuff apatite and Durango apatite |  |
| 1. **Additional geologic information** | | |
| No temperature constraints were added. Prior was chosen as central age ± central age, as argumented by Van Ranst et al. (re-submitted) to reduce the “prior-effect”. |  |  |
| 1. **System and model-specific parameters** | | |
| Optical configuration | Nikon Eclipse Ni-E microscope equipped with a DS-Ri2 camera using 2000x magnification |  |
| FT annealing model: (Ketcham *et al.* 2007b) |  |  |
| c-axis projection is used for modeling | See Ketcham *et al.* (2007a) |  |
| Cf-irradiation for some samples | Only KM-14B benefited from Cf-irradiation  Appendix 5: KM-07, KM-14A and KM-15 also benefited from Cf-irradiation |  |
| Optical configuration | Nikon Eclipse Ni-E microscope equipped with a DS-Ri2 camera using 2000x magnification |  |
| QTQt version 5.6.0 (January 2017) | Prior: central age ± central age; 70±70°C  Burn-in: 104; post-burn-in: 106 iterations  MCMC chain converged when acceptance rates were reasonable and in balance  KM-14B: proposal step of 10 Ma and 14°C  NT-02: proposal step of 10 Ma and 14°C  Appendix 5: KM-07: proposal step of 10 Ma and 14°C  Appendix 5: KM-14A: proposal step of 10 Ma and 14°C  Appendix 5: KM-15: proposal step of 10 Ma and 14°C  Model predictions vs. observed: see Figure 7 and appendix 5 |  |

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