Supporting Information for

The exhumation history of the Central Asian Orogenic Belt reveals preserved paleotopography since ~160 Ma

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**Introduction**

Attached is the single-grain apatite and zircon data obtained for this study. In addition to modelling parameters used and raw outputs for transparency.

Figure S1. Radial plots for apatite fission-track calculating central ages.

Figure S2. Observed vs Predicted mean track length Distribution and Observed Ages vs Predicted Ages for thermal modelling using QTQt 5.7.0.

Figure S3. Tera-Wasserburg (T-W) concordia diagrams of apatite U-Pb data from samples A16-34, B15204, and 06-TN-12. Ellipses are plotted at 2 sigma uncertainties. The dashed lines correspond to linear regressions through the apatite U-Pb data that were used to obtain an estimate of the initial 207Pb/206Pb ratio (upper intersect of the concordia curve) and the apatite U-Pb (AUPb) date (lower intercept with the concordia curve).

Table S1. Apatite fission track age and chemical data: ρs is the density of spontaneous tracks within the region of interest and is expressed as 10^5 tracks/cm2. Ns is the total number of counted spontaneous tracks per sample. 238U is the concentration in ppm of uranium 238 measured in each grain. 35Cl is the concentration in ppm of chlorine 35 measured in each grain. BLOD is below limits of detection, and thus could not provide a concentration value and was not used in calculating sample concentration averages. Dpar is the average length of spontaneous track etch pits in μm. t is the age of the grain age in Ma.

Table S2. Zircon fission track age and chemical data: Ns and Ni is the number of spontaneous and induced fission-tracks respectively. Area is the region of interest counted. RhoS is the density of spontaneous tracks, RhoD is the density of dosimeter tracks, RhoI is the density of induced tracks.

Table S3. Thermal history model input table for simulations of the Karatau-Talas, Kazakhstan and Kyrgyzstan, based on framework established by Flowers et al. (2015).

Table S4. 238U/206Pb and 207Pb/206Pb ratios and their associated standard deviation, as well at their individual error corrections.