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Methodology:
U-Pb dating was carried out using a Resonetics RESOlution M-50 series 193nm excimer laser ablation system equipped with a Laurin Technic Pty S-155 ablation cell. Ablation was conducted in a mixed He (300 mL/min) and Ar (930 mL/min) carrier gas and mixed with N2 (2 mL/min) downstream of the cell. Contamination at mass 204 from Hg in the carrier gases was <150cps. All data was collected using a 36 µm Ø laser crater, a repetition rate of 3 Hz, and laser fluence of 3 J/cm2. The data were standardized against FC1 zircon (1099 ± 2 Ma) which was analyzed at least 16 times per run and distributed evenly throughout the sequence. Each ablation was 30 sec in duration and was preceded by 30 sec of background collection. Ablated aerosol was transferred to the ICP-MS using nylon tubing with an in-line 'squid' smoothing device connected immediately before the junction with the ICP-MS torch. Isotope intensities were measured using an Agilent 7700x quadrupole-ICP-MS operated in 'auto' detector mode: sensitivity and P/A factors were tuned by rastering across NIST610 glass before the start of each run. A second external rotary pump was used to enhance sensitivity. The ICP-MS method measured 90Zr, 202Hg , 204Pb, 206Pb, 207Pb, 208Pb, 232Th and 238U with a total quadrupole sweep time of 0.26 seconds. The background corrected 202Hg ion beam measured during ablation was used to peak strip any small excess 204Hg from 204Pb signal using the 202Hg/204Hg measured on the gas background. The magnitude of this correction was typically insignificant. The data were reduced offline using VizualAge (Petrus and Kamber 2012) and Iolite v2.5 (Paton et al. 2011) running as plugins in Wavemetrics Igor Pro 6.23. Concentration data were calculated relative to NIST610 (distributed throughout the sequence) and using the Iolite trace-elements "internal standardization" data reduction scheme. An estimated value of 44 wt% Zr in zircon was used as the internal standard composition. Common-Pb was corrected (if necessary) using the background-corrected and Hg-interference corrected 204Pb intensity, a common-Pb composition based on Kramers and Tolstikhin (1997) Pb-Pb evolution curve and an estimate of the age of the zircon based on the uncorrected 206Pb/238U age. This correction method is suitable for grains with modest common-Pb content and minor Pb-loss. The %Pb* estimate reported in the data tables was taken from the Andersen (2002) routine implemented in VizualAge.

Plešovice zircon – consistency standards

The Plešovice zircon standard is from the Bohemian Massif, Czech Republic, and was provided by Jiří Sláma (Bergen). This zircon has a concordant U–Pb age with a weighted mean 206Pb/238U date of 337.13 ± 0.37 Ma (ID-TIMS, 95% confidence limits) taken from taken Sláma et al (2008). This material is locally affected by minor recent Pb-loss.

References

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