

Excerpt from: Magmatic $\delta^{18}O$ in 4400-3900 Ma detrital zircons: A record of the alteration and recycling of crust in the Early Archean

A.J. Cavosie, J.W. Valley, S.A. Wilde

2 Samples and analytical methods

2.2 Standard zircon KIM-5

Each zircon mount contained a 0.5 to 1.0 mm chip of oxygen isotope standard zircon KIM-5. The chips were obtained from a single cm-size kimberlite megacryst zircon from Kimberley, South Africa, with a $\delta^{18}O$ value of $5.09 \pm 0.06\text{‰}$ (Valley, 2003; Valley et al., 1998). Fifteen age determinations by SHRIMP II were made on two chips of KIM-5 (Fig. 1a). The data were reduced with SQUID (Ludwig, 2001a) and plotted using Isoplot/Ex (Ludwig, 2001b). The $^{206}\text{Pb}/^{238}\text{U}$ ages corrected for common Pb using both ^{204}Pb measured values (88 ± 11 Ma, 2σ) and ^{208}Pb -corrected values (92 ± 3 Ma, 2σ) are indistinguishable within error.

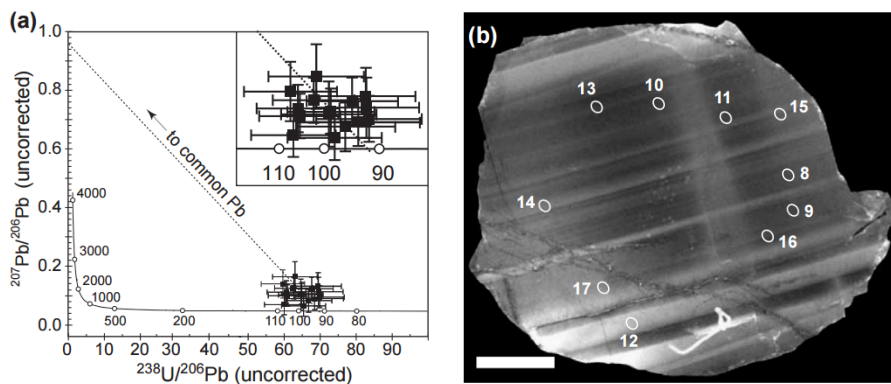


Figure 1: SHRIMP II UPb analyses of zircon standard KIM-5. (a) TeraWasserburg concordia plot of 15 SHRIMP II analyses of two different chips of KIM-5 made in two different sessions. Ages along concordia are in Ma. Error bars are 2σ . (b) CL image of one of the KIM-5 chips used as an oxygen standard in this study (embedded in mount 01JH36). Numbered analyses correlate to UPb analyses 8 through 17 listed in Appendix 2. Scale bar is 200 μm .

References

- K. Ludwig. Squid 1.02, a users manual. *Berkeley Geochronological Center Special Publication*, 2, 2001a.
- K. Ludwig. Users manual for isoplot/ex rev. 2.49: A geochronological toolkit for microsoft excel. *erkeley Geochronological Center Special Publication*, 1a, 2001b.
- J. Valley. Oxygen isotopes in zircon. *Reviews in Mineralogy and Geochemistry*, 53(1):343–386, 2003.
- J. Valley, P. Kinny, D. Schulze, and M. Spicuzza. Zircon megacrysts from kimberlite: oxygen isotope variability among mantle melts. *Contrib. Mineral. Petrol.*, 133:1–11, 1998.