

LASS-ICPMS zircon geochronology: Comparisons with SHRIMP

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High precision U-Pb zircon geochronology is an essential tool in geological studies of crustal evolution. Several U-Th-Pb geochronological techniques are well established, with the Sensitive High-Resolution Ion-MicroProbe (SHRIMP) established as the industry standard for in-situ, texturally controlled zircon geochronology. Recent technological advances have seen new U-Th-Pb analytical techniques and applications developed. Over the last decade studies [1] [2] have shown that application of the laser ablation (LA)-ICPMS method produces accurate and precise U-Pb zircon data. A relatively new technique in U-Pb zircon chronology is the laser-ablation split-stream (LASS) ICPMS method [4], which provides high-speed, high-spatial resolution, simultaneous isotopic and elemental analysis. The LASS technique splits the laser aerosol stream into two streams, with one stream directed into a single collector (SC)-ICPMS to measure elemental abundances, and the other aliquot to a multicollector (MC)-ICPMS to measure U-Th-Pb isotopic ratios. The advantage of the LASS technique is the simultaneous measurement of U-Th-Pb and TE from the same volume of material obtained from single spot analysis.

U-Pb zircon ages obtained by LASS-ICPMS analyses yield results which are directly comparable to those previously obtained by SHRIMP analyses. In this presentation we will present a dataset of newly obtained U-Pb zircon LASS ages from meta-igneous lithologies from the Gascoyne Province in the Capricorn Orogen, Western Australia, benchmarked against previous zircon SHRIMP U-Pb analyses undertaken by the Geological Survey of Western Australia. The results of this exercise indicate a near perfect correlation between the two analytical techniques and provides increased confidence in the application of the more rapid LASS technique in future, regional scale studies.

[1] Cocherie & Robert (2008) *Gondwana Res.* **14** 597-608. [2] Gehrels et al. (2008) *Geochem. Geophys. Geosyst.* Q03017, doi:10.1029/2007GC001805. [4] Kylander-Clark et al. (2013) *Chem. Geol.* **345** 99-112.