Advances in zircon geochronology by LA-ICP-TOF-MS

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The amount of zircon geochronology data published per year increases exponentially [1,2]. New and improved analytical techniques allow for shorter turn-around times, as well as making larger and higher-resolution imaging applications feasible, pushing the boundaries of high-speed geochronological analyses [3,4,5,6].

We present zircon U-Pb geochronology data acquired by laser ablation inductively-coupled plasma time-of-flight mass spectrometry (LA-ICP-TOF-MS) utilising a high-speed two-volume cell LA system (Teledyne Cetac) coupled to the TOFWERK icpTOF 2R.

We demonstrate that the precision and accuracy of LA-ICP-TOF-MS is well comparable to established analytical approaches, while the increased speed of acquisition provides larger volumes of data in the same analysis time. As the full mass spectrum is acquired with each measurement, this method lends itself uniquely to multi-proxy provenance analyses.

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