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U-series dating of Greenland Interstadials in speleothems during Marine Isotope Stage 3

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Speleothems dated by state-of-the-art U-series disequilibrium techniques provide high-precision chronologies of glacial-age climate variability (Dansgaard-Oeschger) unrivalled by other archives for the Marine Isotope Stages 3 to 5. Not all speleothem samples provide useful information, though. Caves located in climatically sensitive areas and cut in rocks of higher than normal uranium contents are the primary targets for this research. The Spannagel and Kleegruben caves, located in the high Central Alps of Austria, have proven to be such rare sites and yielded an 11 kyr-record covering the prominent Greenland Interstadial 14 (EPSL, 203, 2002). We have recently obtained a second stalagmite from the same cave site and refined our previous chronology based on a new spike calibration at the Heidelberg laboratory. We refined our previous age assignments of the Greenland Interstadials during this time interval, i.e. GIS 15b at 55.6 kyr, GIS 15a at 55.0 kyr, onset (mid point) of the prominent GIS 14 at 54.2 yr and onset of GIS 12 at ca 48 kyr. The timing of these interstadials is within 0.1 kyr of the newly proposed GRIP.SFCP04 timescale (Quat. Sci. Rev., 23, 2004).