Geophysical Research Abstracts
Vol. 14, EGU2012-7255-2, 2012
EGU General Assembly 2012

14C in a stalagmite from NE India: preliminary results of dating near the limit of radiocarbon time scale

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The radiocarbon time scale covers the last 50,000 years and is being used in many applications. Old records close to the dating limit that can provide additional information about 14C variability are rare.
Stalagmite MAW-3 has been collected in 2006 from Mawmluh Cave, Meghalaya, NE India and subsequently U-series dated at Caltech. Stable isotopes (delC13 and delO18) were measured at the Geological Institute of the ETH Zurich.
MAW-3 grew through a large part of Marine Isotope Stage 3 and stable isotope results clearly show millennial scale climatic fluctuations known as Dansgaard-Oeschger events. U-series dating shows that our sample which grew during the time interval corresponding to the geomagnetic low intensity interval, called Laschamp Event at ca. 40 ka BP. Therefore, we test its usefulness for studies of potential 14C variability at the time.
Samples for 14C dating were taken following the method of Hoffman et al. (2010). After preparation of a slab from the centre of the stalagmite small sub-samples for 14C and U-series analysis were cut with a wire saw. Samples containing ca. 10 mg of carbonate were dissolved in concentrated (85%) phosphoric acid and graphitized prior to AMS analysis at the ETH AMS facility.
Preliminary results indicate that despite of the very high correction for the dead carbon fraction DCF (ca. 6000 14C yrs) and close proximity to the limit of the 14C dating method, we are still able to measure reliable 14C ages of this portion of MAW-3.
We argue that, based on available results, fluctuations of DCF could be reconstructed. DCF changes show a correlation with stable isotope changes (delO18), i.e. precipitation patterns in the region.

References:
Hoffmann, D.L., Beck, J.W., Richards, D.A., Smart, P.L., Singarayer, J.S., Ketchmark, T., and Hawkesworth, C.J., 2010, Towards radiocarbon calibration beyond 28 ka using speleothems from the Bahamas: Earth and Planetary Science Letters, v. 289, p. 1-10.