Lecture Abstract:

The “Fluid Inclusions of stalagmites” Lecture

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Fluid inclusions in speleothems offer the unique possibility to access the parent drip water of the calcite, although only in minute quantities. They open up three new and promising approaches to paleotemperature reconstruction:

1. Analysis of the isotopic composition of the water in the inclusions offers paleoclimatic information, both from the water as archived paleoprecipitation and from a comparison of the isotope ratios of the water and the calcite [1-4].
2. Even more direct paleotemperature information can be extracted from noble gas concentrations dissolved in the water, although the application of the noble gas thermometer to speleothems remains challenging, due to noble gases from air-filled inclusions that mask the temperature signal and in some cases due to noble gas components of unknown (possibly lattice-bound) origin [5-8].
3. Palaeotemperatures can potentially be determined from the liquid-vapour homogenisation temperature of fluid inclusions in stalagmites [9-10].


