

Trace elements in speleothems as tracer of erosion and climate during Termination I in southern France.

L.DRUGAT¹, E.PONS-BRANCHU¹, H.VALLADAS¹,
M.ROY-BARMAN¹, L.FOLIOT¹, E.DOUVILLE¹

¹ LSCE/IPSL, CEA-CNRS-UVSQ, Université Paris-Saclay, F-91191 Gif-sur-Yvette, France,
laurine.drugat@lsce.ipsl.fr

Speleothems represent a first importance archive for high-resolution temporal reconstruction on continental climate variations. The Salam-3 stalagmite investigated here comes from the Salamandre Cave (SE France). The age and growth rate of this stalagmite has been dated with the ²³⁰Th/²³⁴U and ¹⁴C chronology methods. It displays a growth period between 10.90±1.10 and 13.40±0.35 ka BP, which corresponds to the Termination 1, the transition between the last glacial period and the Holocene.

The first aim of this study is to improve understanding of sources (soil or bedrock) and incorporation process (crystallography or hydrology) of poorly studied trace elements within speleothems like alkalis (Rb, Cs, Li) and Rare Earth Elements (REE). In particular, these results show a strong correlation between Li, Cs and Rb. Contrarily, REE are neither correlated with these elements, nor with Mn. REE can be interpreted as a soil surficial weathering proxy or as an indicator of crystallographic control of trace elements incorporation (Zhou et al, 2008, Bourdin et al., 2011).

The second aim is the interpretation of these elements variations as paleo-climate indicators (paleo hydrology, strong weathering events, water residence time in the epikarst). Thus, the high alkalis elements contents and variability at the beginning of the record could be interpreted as high erosional process and higher humidity phase during the (13,4-12,3) ka BP period.

Refs: Zhou et al. (2008). *Quat. Res.*, 69(3), 438-446.

Bourdin et al. (2011). *Chem. Geol.*, 290(1), 1-11