



## **Overview of karst modeling approaches and their relevance for paleoclimate reconstruction**

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There is a gap of incorporating hydrological variability into paleoclimate reconstruction with speleothem analysis. The influence of flow and transport processes in karst systems on drip water composition is not well understood resulting in unknown uncertainties. Recent studies included hydrological models in their calculations but many of them use lumped approaches with limited potential to characterise local variability in water movement and storage. This presentation will explore different conceptual models of karst systems and their heterogeneities, and how they can be translated into numerical models of varying complexity. They go along with varying data requirements and degree of process representation. Special focus will be set on the assessment of model parameters at different spatial and temporal scales including applications that range back far beyond the present.