
Analogous systems to study the formation of speleothems

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Résumé

The formation of mineral concretions in limestone caves (speleothems) is an example of the coupling between flow and solidification, leading to various shapes that are remarkable for their geometric regularity. While the chemical processes leading to limestone precipitation are well known, the factors that determine the shapes and growth rates of these speleothems are far from understood, due to the very long timescales involved: the growth rate is of the order of a centimetre per century. Moreover, these factors are difficult to measure in the field. Our approach is to carry out lab experiments on analogue systems, in order to reduce the time scales and to control the parameters (flow rate and geometry, concentration of reactants). The aim is to link the spatio-temporal scales to the dominant physical parameters, and to identify the growth mechanisms.

Mots-Clés: speleothems, analogue experiments, reactive fluids

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