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# Strengths and weaknesses of speleothem-based climate reconstructions - Examples from Oman, Yemen, Saudi Arabia and Turkey

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Interest in speleothems as recorders of terrestrial climate has increased markedly during the past years. This trend was triggered by recent advances in analytical techniques and the growing demand for well-dated and highly-resolved climatic time series, which are comparable to those obtained from Greenland ice cores. Dating speleothems with high precision, however, has often remained a challenge for several reasons. First, dating samples with low Uranium contents results in large age uncertainties. Second, detrital contamination, indicated by high contents of 232Th, often requires significant corrections, which also affects the accuracy of U-series dates. Third, age uncertainties of typically 1% of the absolute age, are still too high to decipher leads and lags between various paleoclimate records. Based on our own speleothem projects in Oman, Yemen, Saudi Arabia and Turkey we will provide an overview on the strengths and weaknesses of speleothem chronologies, and present new applications with great potential to further improve speleothem chronologies.