



Timing of the onset of MIS 11 revealed by speleothem in southern Europe

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The interglacial period, known as Marine Isotope Stage 11 (MIS 11, 428-397 thousand years ago), is often considered as a potential analogue for future climate projection because of the similar patterns of insolation variability. However, studies on mechanisms of the onset of MIS 11 (called Termination V, T-V) in response to insolation increase is still hampered by a lack of good dating materials in paleoclimate archives, despite a stack of East Asian monsoon records with precise U-Th dates has been proposed. Previous studies suggested the $\delta^{18}\text{O}$ value registered in speleothems in Mediterranean realm can be a good bridge connecting the U-Th-based age model of speleothem to marine cores from Mediterranean sea, which opens a new possibility to detect ocean-atmosphere/internal-external forcing interaction beyond ^{14}C dating limitation. Here we present a new speleothem $\delta^{18}\text{O}$ record from northern Italy covering 500-300 thousand years ago. The results show a similar pattern with $\delta^{18}\text{O}$ records of marine cores around Mediterranean. The age model of the speleothem hence provides an opportunity for tuning the marine cores, which could improve our understanding of relationship between global atmosphere and ocean circulations.