Speleothem stable isotopes as recorders of climate change from the Eastern part of Europe and Turkey

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The region comprising of East Central Europe, South East Europe and Turkey contributed to the SISAL (Speleothem Isotopes Synthesis and AnaLysis) global database with stable carbon- and oxygen isotope time-series from 37 speleothems from 24 caves. The temporal distribution of the compiled records from the region reach back to ~236 ka with sporadic data from the Sofular Cave (Turkey). The currently available oldest record from the studied region is the SO-14B record (Sofular Cave) reaching back to MIS 16. The regional subset of SISALv2 records displays a continuous coverage for both $\delta^{13}C$ and $\delta^{18}O$ for the past 160 kyr, with a mean temporal resolution of ~14 yr for the Holocene, and ~75 yr for the pre-Holocene period. The relationship between $\delta^{18}O$ of modern precipitation (amount weighted annual and winter season mean values) and climatological parameters show a strong positive correlation in East Central Europe reinforcing the link between modern day precipitation $\delta^{18}O$, temperature and large-scale circulation (North Atlantic Oscillation) expected to be preserved in the speleothem $\delta^{18}O$ record; while a negative relationship was documented between precipitation amount and oxygen isotope compositions in South East Europe. Variations of $\delta^{13}C$ values are primarily interpreted as reflecting dry/wet periods across the region.