



## **Climate variability during the Holocene deduced from several speleothems from Hüttenbläuserschachthöhle**

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Climate variability in Central Europe during the Holocene was characterised by changes on a millennial to decadal time-scale. Speleothems provide the opportunity to study past climate variability using high temporal resolution proxy records (e.g. stable isotopes and trace elements [1, 2]), and offer precise age models by U-series dating [3]. However, the climatic significance of an individual speleothem record is still a matter of debate, and limitations in sample availability often hamper the possibility to reproduce climate patterns observed at a specific cave site or to resolve spatial climate patterns.

Here we present a palaeoclimate record based on three speleothem samples from the Hüttenbläuserschachthöhle (HBSH), western Germany, which were sampled in close proximity. Two samples cover almost the entire Holocene, except for a short time interval (speleothem growth stop) around 8 ka. A third sample grew continuously between 10 and 8 ka. Trace element and stable isotope data were analysed at high resolution and allow us to investigate climatic patterns during the Holocene.

The aim of this study is to evaluate the consistency of the proxy data recorded in the individual stalagmites and potentially to create a stack from the three HBSH speleothems. Correlations between the three speleothems will be investigated on different time-scales to identify the underlying mechanisms influencing speleothem growth and proxy signals in the HBSH system. Due to the close proximity of HBSH (<1 km) to the intensively investigated Bunker Cave system [4], this data set also provides the unique opportunity to compare the Holocene record with a time-series from different cave systems, which should have recorded the same climate signal.

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