

## Exploring Holocene climate fluctuations registered in Bosnian stalagmites adopting a multiproxy approach

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The central Mediterranean area, a crucial region for present day and future climate change, has been characterised by contrasting patterns between northern and southern climate influences over the Holocene (e.g. Magny et al., 2012; Peyron et al., 2013). Several records from the Italian Peninsula identify this phenomenon: relatively dry conditions experienced during the first half of the Holocene are followed by an increase in moisture in the northern regions, while in the southern portion of the Peninsula the opposite trend occurs. On the Balkan side of the Adriatic Sea, this contrasting pattern is less well documented. The available studies focused on lake sediments show a more gradual and less warm early Holocene and more stable conditions during the early-mid Holocene compared to Italy (Bordon et al., 2009; Vogel et al., 2010).

Several speleothems have been collected from Banja Stijena and Govještica Caves (Bosnia and Herzegovina). Preliminary U-Th dating allowed to choose the five most promising samples for further study. Stable oxygen and carbon isotopes have been analysed along the stalagmite growth axes and trace elements of one sample have been investigated. Air-mass back-trajectory analyses of present day precipitation in the area have been performed in association with GNIP rainfall isotope data analyses, with the aim of understanding the parameters driving rainfall stable oxygen isotope composition variations. Considering the impossibility of having a detailed monitoring of cave conditions due to the practical difficulties of identifying the original location of the samples collected, petrographic observations have been coupled with  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  in order to improve the understanding of the environmental processes recorded by these samples, as suggested in Frisia (2015) and Borsato et al. (2015).

Here we will present the results of these multiproxy analyses, exploring the potential of these samples in recording regional climate fluctuations and discussing their implications for a better understanding of Holocene climate dynamics in the Balkans.

### References

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