

## ***Interactive comment on “Effects of dating errors on nonparametric trend analyses of speleothem time series” by M. Mudelsee et al.***

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I thank Manfred Mudelsee for commenting on our blog article <http://www.kaltesonne.de/?p=4139> where we discuss his paper Mudelsee et al. (2012), "Effects of dating errors on nonparametric trend analyses of speleothem time series".

The two main points of criticism appear to be (1) incomplete reference to dating techniques applied in the study, and (2) the question whether millennial-scale cycles are present in the Bunker cave data set

Ad 1) We did indeed mix up dating techniques in the original version of the blog article which is unfortunate but has to do more with a "slip of the pen" rather than a lack of

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understanding. This has now been corrected. Apologies if this has caused confusion. However, the question of dating techniques is marginal to the discussion in our blog article and does in no way affect the main point that we wanted to stress: There have been major climatic fluctuations in the pre-industrial past recognized in the Bunker cave. The authors mention the MWP and LIA as well as a "mid-Holocene climate double-swing" themselves in the manuscript.

Ad 2) It is correct that the main emphasis of the discussed paper is not on millennial-scale climate variability. However, simply looking at Fig. 2 in Mudelsee et al. (2012) reveals that millennial-scale fluctuations do exist. I am especially astonished that Manfred Mudelsee criticizes this point, because he has been a co-author in another paper by Fohlmeister et al. (2012, "Bunker Cave stalagmites: an archive for central European Holocene climate variability), where they apparently studied the same sample material from the same cave. Here we read:

"Therefore, climatic-related signals from the North Atlantic (e.g. the hematite-stained grains (HSG) record; Bond et al., 2001) and the Bunker Cave delta18O record are expected to show similar variations (Fig. 5)."

The classical climate curve by Bond et al. (2001) for the last 10,000 years in the North Atlantic shows clear millennial-scale cyclicity. Similarity of the Bunker cave and the Bond North Atlantic temperature record implies that millennial-scale climate cycles also exist in the Bunker cave.

My question to Manfred Mudelsee would be: Why does he criticize an interpretation in our blog article that he seems to have supported himself in an earlier paper (Fohlmeister et al. 2012), studying the same cave and same time interval?

Another question would be: Bond et al. (2001) clearly showed that the documented millennial-scale temperature cycles were largely synchronous to solar activity changes. Why was this important observation not mentioned in Fohlmeister et al. (2012)? Similarity in timing of the Bunker cave climate cycles with the Bond et al (2001) curve would

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imply that also the Bunker cave temperature fluctuations were controlled to some extent by solar activity changes.

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