Clim. Past Discuss.,
https://doi.org/10.5194/cp-2018-127-RC1, 2018
© Author(s) 2018. This work is distributed under
the Creative Commons Attribution 4.0 License.

Climate of the Past Discussions

Interactive comment on "The 4.2 ka BP event in the Central Mediterranean: New data from Corchia speleothems (Apuan Alps, central Italy)" *by* Ilaria Isola et al.

Anonymous Referee #1

Received and published: 31 October 2018

The article by Isola et al. is a nice addition to previous studies that have focused on the 4.2 ka BP event in Central Mediterranean. Past studies on Corchia Cave (mentioned by the authors) have already shown the importance of this location for past environmental reconstructions, justifying the publication of this new and important dataset. The manuscript is well written and well organized. The sections flow logically and the paper captures the reader's attention.

I do have some minor recommendations to improve an already good paper:

1- No picture(s) or clear description of the cave and of the speleothem are given. The authors mention that "The cave has been described in detail elsewhere (Drysdale et

Printer-friendly version

Discussion paper

al., 2004; Piccini et al., 2008; Baneschi et al., 2011) and only general information is reported here". That is fine but I would suggest the authors add "informative" pictures of the cave and of the speleothem because, referring to other publications may reduce the impact of this article.

2- A main point: statistical analyses are absent here (except in Table 2) and could have provided a good opportunity to correlate the different signals (especially in case of long-term time-series). I suggest that the authors test their correlations (see Figs 4 and 5) and maybe add information on what they suggested: "robust evidence for a regional reduction in precipitation, in spite of some differences in chronology" (see page 10). I think that the use of statistical analyses would significantly increase the impact of this good article.

3- A last point that needs to be better discussed/tested: the age-model. Clearly, the ages at 98.3 mm (corrected age: 5.392±0.2 ka), 99.3 mm (corrected age: 5266±0.7 ka) and 100.4 mm (corrected age: 5323±0.4 ka) are somewhat ambiguous and need to be discussed in more detail. Even if the "issue" was presented by the authors, I suggest to pay more attention to this because chronology is a key point here and must be unequivocal.

I particularly like two points: 1- "lower mean annual temperature, reduced precipitation during winter, and cooler and wetter summer conditions appears plausible". This is a perfect way to summarize the key findings described in the paper; and 2- "These results indicate that the synoptic processes behind the 4.2 ka BP event involved changes not only in average conditions (as reported by the speleothem) but also significant changes at the seasonal scale". The last sentence summarizes what will probably be a key research avenue for most palaeo-environmentalists during the coming years.

The article could be published as it stands but I strongly encourage its publication after minor revisions.

Interactive comment on Clim. Past Discuss., https://doi.org/10.5194/cp-2018-127, 2018.

CC BY