

We thank the reviewer for the comments and suggestions. Our response is detailed below (in black), below the corresponding comments (in blue)

Perşoiu et al. present a very clearly written hypothesis attempting to explain the underlying climate dynamics that accounted for the widespread 4.2ka event. While much is known about the character and extent of the 4.2ka event, what is lacking is understanding of the causes, so the hypothesis presented here is very useful. Thinking about the seasonality of climate takes this study further than previous syntheses of this event. It is well thought through and argued. Figure 3 presents a useful summary of their hypothesis. The hypothesis itself is plausible. Future work – producing better records from more sites – is now required to help test this hypothesis. Good, thorough methodology for choosing which sites to include in your study.

Thank you for the appreciations.

I have very few suggestions for changes. One is that Dean et al. 2017 (actually 2018) is cited in the table but not in the reference list. Also, I know this is a synthesis and is focused on the climatology, however because the hypothesis comes from the proxy data, I wonder if you could plot at least some of the proxy data on a summary graph. This would help with your argument and help readers to assess for themselves what the proxy data show. The authors could also go into more detail on what type of palaeo records, and from where, are required to properly test this hypothesis.

In summary, this paper is very well written and presents a useful and plausible hypothesis so I recommend it for publication with some changes.

We have corrected the reference to Dean et al. (2017).

Winter records are scarce, and, except for few, generally with low resolution. The records listed in Table 1 indicate the conditions at 4.2 ka cal BP as plotted in Figure 1, but not all of them show a clear-cut drop in the recorded values. We do not support cherry-picking “selected” records to be plotted in a figure. Further, all of the papers in the special issue (The 4.2 ka BP climatic event) have such plots (especially the review papers by Kaniewsky et al. and Bini et al.). We have added a line at the end of the text (in conjunction with the suggestion for future studies, see below) to further support our decision.

„...more detail on what type of palaeo records, and from where, are required to properly test this hypothesis...”

This is a very useful suggestion. We have added a sentence at the end of the “Conclusions”, where we highlight several locations for future research to test (support or invalidate) our hypothesis. The text of the paragraph is appended below.

“Especially important would be winter precipitation records from Western Asia and Eastern Europe, as well winter temperature records from southern Europe and the wider Middle East, where such data are scarce. Further, most of the winter records are of low resolution and/or with poor chronological control, such that improvements in these fields are required to further test our hypothesis.”