

Journal: CP

Title: Stable isotope and trace element investigation of two contemporaneous annually-laminated stalagmites from northeastern China surrounding the "8.2ka event"

Author(s): J. Y., Wu et al.

MS No.: cp-2012-36

MS Type: Research Article

Special Issue: Advances in understanding and applying speleothem climate proxies

Referee comment by Karin Holmgren

General comments:

The paper addresses an interesting research question concerning the global pattern of the so-called 8.2 event, by adding stalagmite-based high-resolution records from northeastern China. The records do show a valuable potential to add to the understanding of this event and I agree with most of the conclusions as they are discussed in the discussion chapter, which I generally think is quite well-balanced with limited over-interpretation of the results. While the comparison with other stalagmite records is fairly weak the comparison with GISP record is rather striking! Some more statistics here would definitely increase the strength of the paper. The age model constructed, using both U-series dating and layer counting, appears very convincing and precise!

However, the paper suffers seriously from the lack of a stringent and correct use of the English language. Since I am not a native English-speaker I restrict myself from commenting comprehensively on this, but I recommend that the paper should be checked linguistically before it is re-submitted for a second review round.

Overall I agree with the detailed and constructive comments already published by A Wackerbath, and would like to stress the following:

Specific comments:

P.1594 Material and methods,

1st paragraph, 2 last sentences: Your details about the cave indicates that the cave has been monitored. If so please specify the details – for how long has the cave been monitored, which parameters have been measured, is there a met. Station outside the cave...If no monitoring has taken place then you have to state on what basis you report the data in this paragraph.

2nd paragraph: Stalagmites are collected in the "deep site of the cave". Please give some information about the cave size and form so that the reader understands what the "deep site" means. How far away from each other were the stalagmites located? In case they are situated very close to each other a similar signal in them may in fact also be due to local factors as well as to regional factors!

P.1595, Material and methods, last paragraph: On which stalagmite (or both?) was the XRF performed?

P.1596, lines 1-2: I do not really understand the sentence; believe a word is missing in the end. Moreover I have difficulties in following how figure 3 illustrates this. Maybe a more explanatory figure text would help. The present figure text needs to be revised anyhow.

p.1596, line 25: I think the word "veracity" should not be used here. Maybe use "significance" instead.

p. 1597, line 4: add "as previously" before "interpreted for Hulu and..."

P. 1600, lines 6-18 and figure 5: It would be easier to evaluate the comparability if you showed the full record (7.8-8.6). Moreover, you state that the Dongge records show an abrupt change at 8.21 – but I think you mean 8.1 don't you?

P.1600, the paragraph starting on line 19: I suggest that you re-phrase this para and that you instead from the beginning state that you now compare your three proxy-records, O, C and Ba with GISP and not as now you use the Ba for validation.

P. 1602, line 9-17. I would suggest that you do the similar correlation analysis between you C13 and Ba data with the dendro-C14 data, since you stat that these proxies are best related to the North Atlantic

Technical corrections (obs! – not complete, language check needed)

1. References cited in the text should be referred in chronologic order, which is not always the case.
2. P.1592, line 5: Please replace the word "concerned" e.g. "studied" and "has" with "have"
3. P.1593, lines 4-9, 16-17, 26-1 (P.1594): The sentences are very difficult to understand, please correct them.
4. P.1594, line 5/6: You use the word "climate" in pluralis "climates" here as well as at many other places in the paper. I am not sure that this is correct. I would recommend using the word in singularis instead
5. P.1594, lines 8, 10: Add C (Celsius).
6. P. 1594, line 20: Remove the "a" before "continuously"
7. P. 1594, line 20 and 21. Add *at 9.5 to 56 mm* and *at 43 to 88 mm*
8. P. 1595, line 17: replace "by the" with "using"
9. P. 1595, line 18: remove "which is"
10. P. 1600, line 6: Add "that" after "Despite" and remove the comma after d18O