

Interactive comment on “The climate reconstruction in Shandong Peninsula, North China during the last millennia based on stalagmite laminae” by Q. Wang et al.

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Thank you for your comments patiently and seriously.

We have taken the effective and detailed comments into serious consideration.

1. Comments: "The manuscript is difficult to read."

The expressions of this manuscript should be corrected to avoid ambiguity and awkward expressions. And many words need to be replaced.

2. We are trying to provide correlation coefficients to show the relation among $\delta^{18}O$ value, monsoon intensity or other palaeoclimate reconstructions or historical data in

C2529

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this region based on mathematical and statistical analysis.

3. We will verify the time scale of the sample again and add the \pm uncertainty after the years and confidence intervals mentioned in the study.

4. We are looking for more references that can be cited to testify the conclusions in this paper.

5. The title of this paper can be replaced with “The climate reconstruction in Shandong Peninsula, North China during the last millennia based on stalagmite laminae and $\delta^{18}O$ value”.

6. The tree species will be deleted because this manuscript do not have $\delta^{13}C$ values.

7. Comments: “I would suggest this section to be merged with section 3 and separate each part in a different subsection. For instance, the last part of section 2 (Lines 5-12 in page 4648) could be merged with subsection 3.2(Lines 1-12 in page 4649) to present the U contents and the age-depth model together.”

For this comments, we will try to put this part in order after verify the time scale of the sample again.

8. We will add a map of the cave to show the location of stalagmite Ky1.

9. We will add the label in line7 page 4648, and update the figure numbers accordingly.

10. We are trying to estimate a confidence interval associated to the lamina counting.

11. In section 3.3, expressions are vague to read, some expressions will be corrected, and we will make up the defects in this section.

12. We are looking for more references to testify the conclusion and compare with other data published in the area in section 4.

13. The word “reckon” will be instead of “calculate”.

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14. Comments: “It is not clear to me what you are using the 25mm data for, if the results you provide as the final time series are those considering only the data from 6mm (see lines 18 and 24).”

We used the 6mm data for dating, and we will make it easier to understand and clearly.

15. We will develop the idea presented in section 4.2, a XRD results/figure may be better, we are trying to show a XRD results/figure.

16. Line 5-7 page 4651 and line 9-13 page 4651, the expressions in this part will be corrected and we are trying to find more evidence.

17. Line 21 page 4651, we will add (Fig.5a,d).

18. Line 21 page 4651 and line 18 page 4652, we will use a simple dash and write the lowest value first throughout the manuscript.

19. We will provide an objective index of variation or fluctuation of the data and select an appropriate time intervals to divide different periods.

20. Line 6 page 4652 and Line 11 page 4652, we are trying to correct the expressions in this part. The period between 1471 and 1892 may be divided differently based on item 19 above.

21. Line 18 page 4652, I had check this part. “The standard deviation (1) for replicate measurements on NBS-19 is $< \pm 0.10\%$.”(in line 4-5 page 4650) The expressions need to improve.

22. The word “sustaining” in this paper will be checked again based on different periods.

23. We will provide correlation coefficients (and their statistical significance) in section 4.5.

24. We will clarify the error of the age model. Because we use the horizon of 6mm to

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establish time scale and dating. The error of the age model is 20 years in this paper.

25. We are trying to choose a better method to show the correlation based on mathematical and statistical analysis.

26. We are considering to add a plot with the henyd test results to make this paper easier to read.

27. Line 6-8 page 4654: We are looking for more analysis and comparisons with other data to support the statement based on more references. And Figure 6 will be improved.

28. We are trying to add a description of the results of the study by Cheng et al. (2009), and find evidence.

29. Line 12 page 4655: “detention time” may be same with the expression of “water retention time”, and “water transit time” may not good, we will find a better expression.

30. Section 5 will be named “Conclusions” instead of “Results.”

31. We are considering to make the conclusions more significant.

32. Figure 1: We will correct this figure as the comments.

33. Figure 3: This figure will be corrected as the comments and the caption needs to add some information.

34. Figure 4: We will try to add the time scale of the stalagmite in Figure 4. And more information in the comment will be added into the figure.

For more correction about this paper, we will show it in a final author comments or a revised version.

The authors

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