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Interactive comment on "Holocene Asian monsoon evolution revealed by a pollen record from an alpine lake on the southeastern margin of the Qinghai-Tibetan Plateau, China" *by* E. Zhang et al.

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Responses to Reviewer 2: "The manuscript titled "Holocene Asian monsoon evolution revealed by a pollen record from an alpine lake on the southeastern margin of the Qinghai-Tibetan Plateau, China" is an interesting and valuable piece of work and adds new data to the existing base of studies and knowledge concerning the late glacial–Holocene evolution of the Asian monsoon system. Especially the very high resolution of pollen-analyzed samples is impressive and reflects the great efforts invested. Nevertheless, I raise some concerns regarding the content of the manuscript text and the

compilation of figures. All my comments and suggestions are listed below. In addition, the authors claim that the language has been checked by Jan Bloemendal. However, there are lots of mistakes of different kind remaining in the text. I have tried to correct these errors and improve the wording for a better understanding, but final proof-reading by a native speaker is an absolute "must"."

Response: Thanks. We will considered all of the constructive suggestions and implemented them in the revised manuscript late. We will rewrite the manuscript more clearly and improve the discussion section, especially, as recommended. Furthermore, we will carefully check English and invite native speakers to correct the mistakes. We think the revisions can improve our manuscript significantly, and we also hope that our manuscript in its revised version would be better suited for publication.

General comments: 1. "Please use age units in text and figures consequently: either "cal ka BP" or "cal yr BP"

Response: The units will be unified as "cal ka BP".

2. "I suggest revision of the description of the pollen analysis (description of the pollen assemblage zones in chapter 4.2). See also comments in the table below."

Response: The chapter would be revised as the reviewer suggested.

3. "I suggest to incorporate chapters 5.1.1-5.1.7 in chapter 5.1 (Two-sentence chapters are generally inappropriate) and to add some more discussion to the now rather interpretative style of this chapter. This chapter could examine the long-term Holocene evolution of the recognized changes in the pollen record in relation to the results of other studies. A suitable title could be "5.1 Holocene vegetation and climate evolution"."

Response: The chapter will be revised.

Specific comments

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1. “P4753L14-16: This is a repetition to what you’ve previously said in lines 7-8”

Response: The sentence would be removed.

2. “P4753L16: Change “sits” to “sites””

Response: Thanks, it would be changed.

3. “P4753L16: Please check the use of “synchronous”. Is this what you really mean? Maybe just replace it with “uniform””

Response: Thanks, we underscore the results from stalagmite and “synchronous” is OK, but “uniform” would be better.

4. “P4753L22: Change “sediments” to “sediment” and “differs” to “differ””

Response: Thanks, they would be changed.

5. “P4753L23: Please make clear that it is the proxy which reacts sensitive and not the reconstructed “data””

Response: Thanks, we will delete “data”.

6. “P4753L24-25: Change “real differences in local precipitation responses to the ISM are also possible” to “there is also the potential of local differences in ISM precipitation response””

Response: Thanks, it would be changed.

7. “P4754L1: Delete “that originates””

Response: Thanks, it would be deleted.

8. “P4754L3: Change to “the Asian summer monsoon in China””

Response: Thanks, it would be changed.

9. “P4754L19: “in China” might be deleted here”

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Response: Thanks, it would be deleted.

10. “P4754L21: What do the 2 parameters dominate? Please clarify.”

Response: they are modern pollen/vegetation distributions, and we will clarify in the revised version.

11. “P4754L21: Write “South China””

Response: Thanks, it would be amended.

12. “P4754L21-22: Delete “including southwestern China”, It is clear that “south China” already includes southwestern China.”

Response: Thanks, it would be deleted.

13. “P4754L26: Start new paragraph at “Wuxu Lake. . .””

Response: Thanks, it would be rephrased.

14. “P4754L28: Please provide a reference for the mentioned altitude”

Response: The data is from a reference(Xiao et al,2011) and will add the reference in the revised version. 15. “P4754L27-29: The altitude of the lake does not affect the sensitivity of the vegetation to climate change. Please rewrite/clarify.”

Response: Thanks, the vegetation around tree-line changes significantly with the altitude, thus the vegetation would change relative rapidly in response to climate change due to the short geographic distance.

16. “P4755L6: Change “separated” to “characterized””

Response: Thanks, it would be amended.

17. “P4755L9: Write “steep elevation gradients””

Response: Thanks, it should be climatic gradients.

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18. “P4755L9: Please define “summer””

Response: Thanks, it is from June to August.

19. “P4755L10: Write “The regional vegetation””

Response: Thanks, it would be amended.

20. “P4755L12: Write “shrubs and meadows””

Response: Thanks, it would be amended.

21. “P4755L17: According to the figure it flows into Jiulong River.”

Response: Yes, it first flows into Jiulong River and then into Yalong River, it would be amended.

23. “P4755L19-20: Replace “Quercus pamosa; and Betula utilis, Betula platyphylla, Salix and Rhododendron occur in the secondary canopy” with “Quercus pamosa with Betula utilis, Betula platyphylla, Salix and Rhododendron occurring in the secondary canopy””

Response: Thanks, it would be replaced.

24. “P4755L21: Write “shrubs””

Response: Thanks, it would be amended.

25. “P4755L22-23: Replace “activity, with occasional Tibetan yak herdsmen using it for summer grazing.” with “activity. Occasionally, Tibetan yak herdsmen use the area as grazing grounds during summer.””

Response: Thanks, it would be amended.

26. “P4755L23: Write “station””

Response: Thanks, it would be amended.

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27. “P4755L23-26: Add this information to the climate information given earlier in this subchapter.”

Response: Thanks, it would be rephrased.

28. “P4756L5: Replace “refrigerated” with “stored””

Response: Thanks, it would be amended.

29. “P4756L9: Delete “18””

Response: Thanks, it would be deleted.

30. “P4756L11: Delete 2nd “the”

Response: Thanks, it would be deleted.

31. “P4756L14: Delete “addition of””

Response: Thanks, it would be deleted.

32. “P4756L15: Write “cloths””

Response: Thanks, it would be amended.

33. “P4756L16: Delete “finally””

Response: Thanks, it would be deleted.

34. “P4756L19: Write “terrestrial pollen grains””

Response: Thanks, it would be amended.

35. “P4756L19: Replace “species” with “pollen type””

Response: Thanks, it would be amended.

36. “P4757L7: Delete “phase””

Response: Thanks, it would be amended.

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37. “P4757L17: Replace “sediments” with “plant remains” if this is what you’ve dated.”

Response: Thanks, it would be amended.

38. “P4757L21: Delete “final””

Response: Thanks, it would be deleted.

39. “P4758L2-3: Please specify the 214 pollen types correctly and completely. Note that ferns produce spores.”

Response: In total, 214 pollen types were identified. However, only types showing statistically significant were used for the interpretations.

40. “P4758L4: Write “contributions of””

Response: Thanks, it would be amended.

41. “P4758-4760: Integrate chapters 4.2.1-4.2.8 as paragraphs into chapter 4.2”

Response: Thanks, it would be reorganized.

42. “P4758L16: Delete “their””

Response: Thanks, it would be deleted.

43. “P4758L16: Replace “for” with “throughout””

Response: Thanks, it would be replaced.

44. “P4758L16: Delete “Finally,””

Response: Thanks, it would be deleted.

45. “P4758L17: Replace “a high abundance” with “at high abundances””

Response: Thanks, it would be amended.

46. “P4758L20: Delete “the representation of””””

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Response: Thanks, it would be deleted.

47. “P4758L21: Replace “and their replacement by” with “to the benefit of””

Response: Thanks, it would be amended.

48. “P4758L21: Delete “from””

Response: Thanks, it would be deleted.

49. “P4758L22: Delete 2x “about” or use words like “about” or “circa” consequently.”

Response: Thanks, it would be amended.

50. “P4758L22: Replace “. . . 2%.” with “. . . 2%, respectively.””

Response: Thanks, it would be replaced.

51. “P4758L23: Can’t see the “generally over 30%” Betula pollen in this zone”

Response: Sorry, over 20% is more available.

52. “P4758L24: Replace “to” with “as in””

Response: Thanks, it would be replaced.

53. “P4758L23-24: To me it seems that there is a rise in Pinus after 11.3 cal ka BP”

Response: Thanks, because Pinus pollen may be transported from the lowest altitude vegetation zone in the region, or from long distance sources, we do not discuss the implication of Pinus pollen.

54. “P4759L2-3: Strictly speaking, this statement rather applies to zone 2”

Response: Thanks, “highest” is changed to “relative high”.

55. “P4759L5-6: Regarding Tsuga representation, there is no difference between zone 2 and 3a. The authors should try to focus on the significant and visible trends.

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Response: Thanks, although Tsuga pollen increases slightly, considering the low representation and significant climatic implication of this pollen type (Xiao et al., 2011; Shen et al., 2006), we could not ignore this change.

Shen C, Liu K-b, Tang L, Overpeck JT (2006a) Quantitative relationships between modern pollen rain and climate in the Tibetan Plateau. Review of Palaeobotany and Palynology 140:61-77.

Xiao X, Shen J, Wang S (2011) Spatial variation of modern pollen from surface lake sediments in Yunnan and southwestern Sichuan Province, China. Review of Palaeobotany and Palynology 165:224-234.

56. "P4759L8-9: Again, there is clearly no gradual decrease in Carpinus in this zone!"

Response: Thanks, we agree that Carpinus in this zone does not decrease gradually, but the abundance actually decreases relative to prior ones. We delete "gradually" in P4759L9.

57. "P4759L11-12: How about Thalictrum?"

Response: Thanks, it is.

58. "P4759L13: Delete "however" and start a new sentence."

Response: Thanks, it would be amended.

59. "P4759L13-14: Actually, Pinus is the dominant arboreal taxon in the record."

Response: As mentioned above, Pinus pollen may be transported from the lowest altitude vegetation zone in the region, or from long distance sources.

60. "P4759L15: Delete comma after "slightly""

Response: Thanks, it would be deleted.

61. "P4759L18-19: But the most obvious decrease is seen in Carpinus pollen percentages."

Response: Thanks, we think the “obvious decrease of Carpinus” generally caused by anomaly high abundance at the end of sub-zone 3a, the average does not have any change.

62. “P4759L19: Change “relative” to “relatively””

Response: Thanks, it would be amended.

63. “P4759L20: Change “percentage” to “percentages””

Response: Thanks, it would be amended.

64. “P4760L2-4: But Ericaceae and Hippophae are (correctly) included in the arboreal group”

Response: Thanks, we would rephrase this sentence.

65. “P4760L4-5: This sentence sounds odd. Please formulate a new sentence after “. . . around 70%””

Response: Thanks, the following sentence is rephrased as follows: Arboreal taxa decrease to around 70%, mainly due to the reduced Betula and deciduous Quercus.

66. “P4760L6: Replace “the slightly increased representation” with “a slight increase in the representation””

Response: Thanks, it would be replaced.

67. “P4760L9-10: Looking at the herbaceous taxa curve, I can’t see any decrease compared to the previous zone. Overall, herbs percentages seem to be slightly increased.”

Response: Totally, herbaceous taxa increased in the late Holocene with some fluctuations. However, from the arboreal taxa curve, the opposite one of the herbaceous, generally show high values than the Zone 4. Sorry for the indistinct figure and slightly change.

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68. “P4760L11: Replace “by” with “to””

Response: Thanks, it would be replaced.

69. “P4760L12: Delete “The herbaceous taxa exhibit a stable composition,””

Response: Thanks, it would be deleted.

70. “P4760L19-20: Replace “alpine shrub and meadow” with “alpine shrubs and meadows””

Response: Thanks, it would be replaced.

71. “P4761L2: Add “taxa” after “broadleaved””

Response: Thanks, it would be added.

72. “P4761L2: Replace “;” with “,””

Response: Thanks, it would be revised.

73. “P4761L9: Replace “previously-defined zonation” with “defined pollen zones””

Response: Thanks, it would be revised.

74. “P4761L8-9: Put “(Fig. 4b)” after “five groups””

Response: Thanks, it would be added.

75. “P4761L7-9: If they correspond, why don’t you explain which PCA groups correspond to which pollen zone?”

Response: Thanks, we’ll add such information in our revised manuscript.

76. “P4761L9-12: Replace “from zones” with “of zones””

Response: Thanks, it would be amended.

77. “P4761L13: Add the reference for the software you used.”

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Response: Sorry, the reference is “Schulz M and Mudelsee M (2002) REDFIT: Estimating red-noise spectra directly from unevenly spaced paleoclimatic time series. Computers & Geosciences 28: 421–426.”

78. “P4761L18: Add “modern” before “tree-line””

Response: Thanks, it would be added.

79. “P4761L19: Replace “be sensitive” with “react sensitively””

Response: Thanks, it would be revised.

80. “P4761L19-20: Replace “lake sediment surface pollen” with “lake surface pollen” in this place and throughout the text”

Response: Thanks, we will check and replace them.

81. “P4762L3: Delete “the””

Response: Thanks, it would be deleted.

82. “P4762L4: Add comma after “Thus””

Response: Thanks, it would be added.

83. “P4763L16: Delete both commas”

Response: Thanks, it would be deleted.

84. “P4763L17: Replace “replaced” with “replacing””

Response: Thanks, it would be revised.

85. “P4763L22: Replace “indicate” with “indicates””

Response: Thanks, it would be amended.

86. “P4763L23: Delete “somewhat””

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Response: Thanks, it would be deleted.

88. “P4764L4: Delete “the”

Response: Thanks, it would be deleted.

89. “P4764L5: Replace “,” with “.””

Response: Thanks, it would be amended.

90. “P4764L6: Replace “decreases” with “decrease””

Response: Thanks, it would be amended.

91. “P4764L7: Replace “indicate” with “indicates””

Response: Thanks, it would be amended.

92. “P4764L8: Replace “whiles increases” with “while increase””

Response: Thanks, it would be amended.

93. “P4764L9: Replace “suggest” with “suggests””

Response: Thanks, it would be amended.

94. “P4764L9-10: Replace “The climate was ameliorated compared to the preceding interval, with humid summers and warm winters.” with “With humid summers and warm winters the climate was more favorable compared to the preceding interval.””

Response: Thanks, it would be amended.

95. “P4764L11: The minor but distinct” is contradictory. Please change.”

Response: Thanks, “but distinct” would be deleted.

96. “P4764L15: Delete the second “first””

Response: Thanks, it would be deleted.

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97. “P4764L15: Delete the comma and “and, put a full stop and Start a new sentence “Since the winter. . .””

Response: Thanks, it would be amended.

98. “P4764L18: Replace “proxy of” with “proxy for””

Response: Thanks, it would be amended.

99. “P4765L9-11: Were, according to your opinion, the discrepancies only or mainly controlled by the advance or retreat of desert? Please rephrase/clarify.”

Response: Thanks, the sentence is rephrased as follows: The discrepancies may be due to the fact that the grain-size of loess and dune mobility were also influenced by the advance or retreat of deserts in northern China.

100. “P4765L20: Add “be” after “may””

Response: Thanks, it would be added.

101. “P4765L24: Replace “The model” with “A model””

Response: Thanks, it would be revised.

102. “P4765L29: Here I think you actually mean the Holocene period and not exactly the last 12 ka. If so, please write “during the Holocene period”.”

Response: Thanks, actually, we want to express that during the period of both YD and the Holocene, we replace “12” with “12.3”.

103. “P4766L1: The 5.3 heading would be not quite consequent since you also compare your results to other studies and reconstructions in the previous chapter. I suggest deleting this heading and changing the following chapter numbers accordingly. E.g. chapter 5.3.1 becomes 5.3 and 5.3.2 becomes 5.4 etc.”

Response: Thanks, it would be rearranged.

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104. “P4766L2: Talking about the context of the YD/Holocene transition, the community commonly refers to the onset of the Holocene “initial warming” which “initiated” the end of the YD. Thus, I would suggest naming the heading “Timing of the Holocene onset”.”

Response: Thanks, it would be amended.

105. “P4766L3-21: I agree that, regarding the state of the art research in monsoon Asia and the North Atlantic region, the Holocene onset appears to be contemporaneous. However, I’m not aware that this onset is accepted to have happened around 11.5 ka BP. There are other records which suggest an earlier initial Holocene ISM strengthening. Leipe et al. (2014) mention a set of ISM records in their discussion (see figure and text), which suggest such earlier Holocene onset. This should be also taken into account in your discussion. At the moment it sounds like that the ISM onset at a large spatial scale ca. 11.5 ka BP is widely accepted.”

Response: Thanks, it would be amended.

106. “P4766L13: Start a new paragraph after “(Stuiver et al., 1995).””

Response: Thanks, it would be revised.

107. “P4766L14-16: Please revise this sentence. It is not easy to read and to understand.”

Response: Thanks, it would be revised as follows: Firstly, the stage for vegetation succession: e.g., the Abies/Picea form the climax forest in the subalpine ecotone after glacier retreat in northwestern Sichuan took about 100 years.

108. “P4766L17: Replace “to lag climate by” with “may lag climate change by””

Response: Thanks, it would be revised.

109. “P4766L18-20: I personally don’t understand what you mean by this sentence. Please rephrase.”

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Response: we will rephrase this sentence and make it understandable.

110. “P4766L20: Have you checked if this time lag can be explained by a dating error range? How about the 1-sigma range, too? Maybe the lag is within this error range. If so you should mention this in the text.”

Response: Thanks, the 95% confidence limit of the point ranges from 11.0 to 11.6 cal ka BP.

111. “P4766L24: Write “strengthened””

Response: Thanks, it would be revised.

112. “P4766L26: Delete “the””

Response: Thanks, it would be removed.

113. “P4767L9: Add comma after “Thus””

Response: Thanks, it would be added.

114. “P4767L12: Replace “, coincident” with “coinciding””

Response: Thanks, it would be amended.

115. “P4767L13: Change to “insolation””

Response: Thanks, it would be amended.

116. “P4767L21: It would be advantageous for the reader if you added the location of the sedimentary records.”

Response: Thanks, it is Paru Co from the southern QTP.

117. “P4767L27: Delete “which””

Response: Thanks, it would be removed.

118. “P4768L17: I don’t understand what you mean with “dynamic blocking effect”.

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What is dynamic about this effect?”

Response: Thanks, it would be removed.

119. “P4768L19-20: As the name suggests, the QTP is a plateau and thus mainly not characterized by steep terrain.”

Response: Sorry, we mean that the steep terrain in the margin of the QTP.

120. “P4768L22: I think not “confine”, but “block” is the proper word here.”

Response: Thanks, it would be amended.

121. “P4768L22: If you talk about moist summer monsoon winds you should mention this. E.g. “. . .summer monsoon windward side. . .””

Response: Thanks, we think that the differences in not controlled by the ISM, just influenced by local water recycle in the mountain areas, due to the records from both the interior of the QTP and the Indian subcontinent suggest that ISM gradually weakened during this period.

122. “P4768L19-26: But such rain-shadow effect is also a very influential feature in the marginal zones of the QTP. You might want to say here, that sites on the QTP are often too far away from the moisture source and that these sites receive less moisture during times of reduced ISM activity. If it’s this what you want to say, please clarify this in this section.”

Response: what we would like to express is close to this comment from the reviewer that lakes in this study area may receive additionally precipitation from such rain-shadow effect, resulting in such long climate optimum.

123. “P4769L12: Add “differences” after “solar insolation””

Response: Thanks, it would be amended.

124. “P4769L14: Replace “and in winter warmth” with “(i.e. winter temperature)”

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Response: Thanks, it would be amended.

125. “P4769L18: Replace “relative” with “relatively””

Response: Thanks, it would be amended.

126. “P4770L4-7: Please try to make the sentence shorter. I.e. split it into several sentences. The colon can be omitted.”

Response: Thanks, it would be amended as follows: Our findings are generally consistent with previous studies: the EAWM was strong in the early Holocene and weakened in the late Holocene. However, in contrast to other studies, our results suggest that the EAWM was slightly weaker during the YD event than in the early Holocene.

127. “P4770L10: Replace “was reached and maintained” with “persisted””

Response: Thanks, it would be amended.

128. “P4770L12: I think by “timing” you mean “onset”. If so, please change..”

Response: Thanks, it would be changed.

129. “P4770L9-14: From the discussion I understood that you explain the longer duration of high moisture levels by the marginal location of your site on the QTP, i.e. the relatively close location to the moisture source compared to other site situated on the QTP. Only referring to rain-shadow effect doesn’t appear to be a sufficient explanation here. A bit poor and simplistic is also the interpretation of the recognized inconsistencies by “discrepancies in local rainfall response”. On the one hand you see a late onset of the optimum phase compared to other ISM reconstructions. On the other hand this optimum phase last longer than in other regions. In this case, rain-shadow effects would promote local rainfall (during the middle Holocene) around your site but could also hinder the penetration of rainfall (during the early Holocene) into the region. It would be beneficial for the quality of your article, if you could rethink your interpretations regarding this issue.”

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Response: Thanks, it would be amended.

130. “P4770L13: The word “genuine” is not needed in this context.”

Response: Thanks, it would be removed.

Comments to figures: 1. “Try to avoid mentioning information twice in the figure captions. E.g. in the caption for Fig. 1a “Location of Wuxu Lake” and “location of Wuxu Lake”. Please also check the other figures.”

Response: Thanks, the repetition would be removed.

2. “Fig. 1a - Looking at the arrows which are supposed to schematically illustrate the pathways of the summer monsoon systems, it seems like the region around Huguang Maar Lake and Dongge Cave is mainly influenced by the EASM. In fact, it is mainly influenced by the ISM. See Dykoski et al. (2005) citing Yihui et al. (2004). Although it is a schematic illustration, it is necessary to put a bit more effort into the outline of the arrows marking the monsoon systems. Maybe also choose another blue color for the EAWM.”

Response: Thanks. Generally, between 100 and 105°E is considered as the transition region of the EASM and the ISM (Wang et al., 2003), but the accurate boundary could not defined, thus the eastern part (Huguangyan Maar Lake) is thought mainly dominated by EASM. Although suggested by Chen et al. (2014), the record from Dongge Cave is an ISM proxy, the climatic implication in China is controversial, and in this papper, we do not use the stalagmite record from the eastern China for comparison. For the EAWM, we would add another arrow in the South Chian.

Chen, F., Chen, X., Chen, J., Zhou, A., Wu, D., Tang, L., Zhang, X., Huang, X., and Yu, J.: Holocene vegetation history, precipitation changes and Indian Summer Monsoon evolution documented from sediments of Xingyun Lake, south-west China, J. Quaternary Sci., 29, 661–674, 2014. Wang, B., Clemens, S., Liu, P., 2003. Contrasting the Indian and East Asian monsoons: implications on geologic timescales. Marine Geol-

ogy 201, 5–21.

3. “Fig. 1b A bit more precision is also recommended for this figure: It seems that the arrow is not associated with “Wuxu Lake”. Why the Yalong Rivers ends somewhere above the map scale. Please adjust the position of the scale bar and the label. In addition, see my comment in the above table.”

Response: Thanks, the figure will be modified.

4. “Fig. 3 - Make sure the figure is plotted in landscape. Try to increase the font size especially of the pollen types and the other parameters. Reduce the amount of minor tick marks on the Age-axis. - use either “Herbs” or “Herbaceous” - Please check the spelling of all taxa names. At least Sanguisorba is spelled incorrectly. - Delete the line which crosses the labels of the x-axes. - Properly label the x-axes”

Response: Thanks, the figure will be redrawn and the spelling of all taxa names would be checked.

5. “Fig. 4 - Correct spelling of Sanguisorba. - use either “Actinidia” or “Actinidiaceae” consequently throughout the text and in the figures. The Actinidiaceae family contains more that one genus! - Write “(b) Sample scores. . .””

Response: Thanks, these mistakes would be corrected.

6. “Fig. 5 - In the text you mention 12.3 ka, here it is 12.2 ka.”

Response: Sorry, it is a mistake.

7. “Fig. 6 - For a more direct and better understanding of the illustrated curves, I recommend to add information about what different trends show in terms of climate. E.g. by means of arrows which indicate increase/decrease in EAWM circulation (this also applies to Fig. 7 and 8). Briefly say what the PCA axis represents. E.g. “PCA axis 1 interpreted as a proxy for. . .””

Response: Thanks, the figure will be modified.

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8. “Fig. 7 - “ISM proxy from Wuxu Lake” and “Sample scores on PCA axis 2” is a repletion and of little informational value for the busy reader. - Specify the meaning of PCA axis 2 in the caption”

Response: Thanks, the figure will be modified and the caption would be rephrased.

9. “The axis for the summer and winter insolation intensity cannot be the same.”

Response: The solar insolation lines are 30°N in June (solid line) and 30°S in December (dashed line), we do not think there is any problem in the figure.

References:

Dykoski CA, Edwards RL, Cheng H, et al. (2005) A high-resolution, absolute-dated Holocene and deglacial Asian monsoon record from Dongge Cave, China. Earth and Planetary Science Letters 233(1–2): 71-86. Leipe C, Demske D and Tarasov PE (2014) A Holocene pollen record from the northwestern Himalayan lake Tso Moriri: Implications for palaeoclimatic and archaeological research. Quaternary International 348: 93-112. Yihui D, Chongyin L and Yanju L (2004) Overview of the South China sea monsoon experiment. Advances in Atmospheric Sciences 21(3): 343-360.

Response: Thanks, we think these inferences are very helpful for improving the manuscript.

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