*We thank editor for this response opportunity. We appreciate the reviewers' valuable suggestions and comments on our manuscript, which help us to clarify the inappropriate expressions, refine some confused ideas, and improve our manuscript significantly. We have made point-by-point responses according to your comments and suggestions. They are shown in black and the responses and actions taken are shown in blue.*

## *Anonymous Referee #2*

***Comment 1***

Mei Hou et al selected 47 previously published Holocene records sensitive to temperature, humidity, sea level, among others, across the world (mainly SE Asia, Mediterranean/Europe, Arctic, North, Central and South America). The selection was made as follows: "We exclude those records that do not provide convincing evidence of an event across this interval [7.5-7.0 kBP]" (sic! Lines 113 ff in the manuscript). Accordingly, the authors conclude that there was a widespread climatic event across the northern hemisphere (or even the world), with dry anomalies in the Asian Monsoon areas, cooling/wetting in the northern mid and high latitudes. They attribute this 'event' to a combination of low solar forcing, volcanoes and a rapid retreat of the northern ice sheets.

It is currently very popular to claim global climatic events in the Holocene and coin names. Indeed, the question whether or not centennial climate variability across the world was synchronous, and attributable to forced or unforced variability is fundamentally important (cf. Neukom et al. 2019: Nature; for the past 2000 years). However, as stated in the manuscript (lines 113 ff) Mei Hou et al selected their data sets based on a preconceived idea (that there is an anomaly around 7.5-7 k BP); therefore, itis not surprising that their qualitative analysis does show this event across their regions of interest. If one starts with a grossly biased data set, the Results and Conclusions are grossly biased too. This is a fundamentally critical flaw of this manuscript.

*We agree with your comments that we biasedly selected favorable data to support*

*our preconceived idea that there is a widespread climate anomaly around 7.5-7.0 ka BP. We also accept your criticism about the logical flaws in this manuscript, but we believe that our manuscript still has some scientific values and could be published on journal Climate of the Past after careful revision.*

*Before arguing for the scientific value of this manuscript, we would like to present four methods to prove the authenticity of past climate reconstruction, which may be useful for understanding the discrepancy between our work and others mentioned by reviewers.*

*Due to high uncertainties from dating or/and proxy indicators (please see detailed discussions in response to the first reviewer), most reconstructed climate change series or climate events are best and should be seen as a hypothesis rather than as a fact, needing further verification (Skinner, 2008; Lowe and Walker, 2014; Bradley, 2015) .Generally, there are four methods adopted by researchers to identify climate change or/and prove its authenticity.*

*The first is more deductive in terms of adopted methodology. For example, Milankovich, on the base of plausible and theoretical causal relationship between orbital movement and climate change and thus glacial-interglacial alternations, put forward the Milankovich glacial-interglacial theory. It was later confirmed by proxy records from various natural archives such as sea sediments, loess deposits, and ice-cores and so on (Lowe and Walker, 2014; Bradley, 2015). Such a confirmation is mutual. The orbital-scale climate change reconstructed by proxy records are also confirmed by Milankovich glacial-interglacial theory. Another example is the reconstruction of climate event related to the vocalic eruptions (Lowe and Walker, 2014; Bradley, 2015). For example, researchers on the base of precisely dated timing of eruption of Mount Tambora, Sumbawa, Indonesia in April 1815 and the established causal relationship between volcanic eruption and climate change, infer the occurrence of a climate event, which was confirmed by the ample of palaeoclimate evidence indicative of year without summer in 1816.*

*The second is more inductive. For example, even without Milankovich theory, the reproducibility of multiple independent reconstructed orbital-scale climate change series*

*(including their timing, amplitude, duration, pattern, and even the whole "reconstructed curve") can prove the reliability and the truth of the reconstructed orbital-scale climate changes mainly by sea sediment, Chinese loess and Antarctic ice-core record (Bradley, 2014; Lowe and Walker, 2014). Another example is the high reproducibility of D-O events, the Younger Dryas, and the Holocene 8.2kaBP event among GISP, GISPII and other ice-core records, which can prove their authenticity (Bradley, 2014; Lowe and Walker, 2014).*

*The third is also more deductive. For example, the 4.2 ka BP event, now widely accepted as the golden marker for the Middle-Late Holocene boundary (Walker et al., 2012), was firstly put forward more on the base of cultural transformations than the proxy records themselves (Weiss et al., 1993). In their influential Science paper, Weiss et al. (1993) based on limited proxy evidence, suggested that the collapse of Akkadian civilization were brought by centuries-long drought. They also found that at the end of the third millennium BC several widespread old civilizations include the early Greece, the Egypt, and the Indus in the Eurasian continent collapsed at about the same time period. Based on these findings, they further deductively put forward a hypotheses that 4.2ka climate event (drought) was responsible for their demise. Since no external forcing other than widespread climatic anomaly [drought by Weiss et al., 1993 and later was found to involve decrease in temperature (Wu and Liu, 2004) or monsoon intensity (Berkelhammer et al., 2012)] could result in the approximate synchronicity collapse of several widespread old civilizations; the inference for a widespread of climate anomaly is reasonable. Such hypothesis stimulated intensive hunting for the 4.2 ka BP evidence. Now, most Holocene climate reconstruction researchers believe the existence of 4.2kaBP, but they could not convincingly prove its existence purely by proxy records due to lack of reproducibility of multiple independent reconstructed climate series that showed the 4.2kaBP event. It seems that the 4.2kaBP event was proved to be a reality more by cultural transformations than by proxy records.*

*The forth is inductive, which may be made possible by the capacity of big data to identify climate event. Its basic ideas is that if climate change ever occurred it may leave imprint in the environment and could thus be registered by proxy records from various archives. Since no reproducibility of multiple independent proxy records existed to prove*

*its truth, big data may help. Big data is expected to enhance the common or shared climate singles, which may be identified to stand out as a demonstration of the occurrence of a climate event. Those reconstructed composite climate series (mainly used for the past millennium and partly used for the Holocene climate reconstruction) belong to this category, and analysis of the occurrence probability of the stand-out climate event in the selected proxy records is another category. Apparently, such inductive method needs big data due to the high uncertainties in proxy records. On a common sense, the bigger the data, the higher probability the climate event was identified. The finding by Briner et al. (2016) that composite is sensitive to the diminishing number of records (this paper was cited by the reviewer) support our hypothesis. But how big the data is rarely discussed. If data is not big enough, the possible true climate event would be either dampened or enhanced by those non-climatic noises, which can result in a false climate event. Even though the data is big enough to produce a climate event, it should be noted that such a standing-out climate event is also a probability rather than the truth.*

*In our manuscript, we aim to provide a hypothesis for a possible widespread climatic anomaly around 7.5-7.0 cal ka BP (but we must admit at the first that our manuscript has some logic and tone problems). Our hypothesis was put forward mainly based by three findings. First, widespread archaeological transformations occurred around 7.5-7.0 ka BP in China, which were characterized by widespread abonnement of settlements especially in the northern, northwestern, and northeastern environment-vulnerable areas, early-middle Neolithic transitions, southward retreat of rice cultivations in several temperate northern areas (Zhang et al., 1997; Lü and Zhang, 2008; Dong, 2013; Wang et al., 2014). Similar archaeological transformations such as the Mesolithic-Neolithic transition across southern Iberia and the final collapse of the Early Neolithic Linear Pottery culture across the central Europe also occurred at about the same time period (Gronenborn, 2010; Sánchez et al., 2012). These widespread archaeological transformations are strongly suggestive of a possible climate change cause. Second, there are some individual researchers that find some evidence of possible climate change around 7.5-7.0 cal ka BP, however, a synthesis of large number of proxy records is still lacking, which is needed. Third, we also examine the climate forcing responsible for the 7.5-7.0 cal ka BP event and found four potential mechanisms. On the*

*base of the three findings, we intend to provide a hypothesis for the possible widespread climatic anomaly around 7.5-7.0 cal ka BP.*

*Therefore, the pronounced discrepancy between our work and other studies that the reviewers used as augments against us originated from the fact that we aim to put ward a hypothesis for a possible existence of a climate anomaly while the others aim to reconstruct or identify climate change series (composite) or climate event and prove their authenticity. Our manuscript is more like a lawyer, whereas other studies are more like a judge. We are looking for favorable evidence to support our hypothesis, while a judge need to concern about both positive and negative evidence to make a decision. On the base of this analysis, we could further make response to the reviewer's other following inquires.*


- ✓ *Berkelhammer, M., Sinha, A., Stott, L., et al. An abrupt shift in the Indian Monsoon 4000 Years Ago, In: AGU Geophysical Monograph on Climate and Civilization. Geophysical Research Letters, 2012, 198: 75–87.*
- ✓ *Bradley, R. S. Paleoclimatology: Reconstructing climates of the Quaternary (The third edition). Oxford: Academic Press. 2015.1–675.*
- ✓ *Dong, G. Neolithic cultural evolution and its environmental driving force in Gansu-Qinghai region problems and perspectives. Marine Geology & Quaternary Geology, 2013, 33: 67–75, (in Chinese).*
- ✓ *Gronenborn, D. Climate, crises and the neolithisation of Central Europe between IRD-events 6 and 4, in: The Spread of the Neolithic to Central Europe, edited by: Gronenborn, D. and Petrasch, J. Verlag des Romisch-Germanischen Zentralmuseums, Mainz, 2010: 61–80.*
- ✓ *Lowe, J. J., Walker. M. J. C. Reconstructing quaternary environments. Routledge, 2014.1–538*
- ✓ *L ü, H., Zhang, J. Neolithic cultural evolution and Holocene climate change in the Guanzhong Basin, Shanxi, China. Quaternary Sciences, 2008, 28: 1050–1060 (in Chinese).*

- ✓ *Skinner. L. C. Revisiting the absolute calibration of the Greenland ice-core age-scales. Climate of the Past, 2008, 4(4): 295–302.*
- ✓ *Sánchez, M. C., Espejo, F. J. J., Vallejo, M. D. S., et al. The Mesolithic-Neolithic transition in southern Iberia. Quaternary Research, 2012, 77: 221–234.*
- ✓ *Walker, M. J. C., Berkelhammer, M., Bjorck, S., Cwynar, L. C., Fisher, D. A., Long A. J., Lowe J. J., Newnham, R. M., Rasmussen, S. O., Weiss, H.: Formal subdivision of the Holocene Series/Epoch: a Discussion Paper by a Working Group of INTIMATE (Integration of ice-core, marine and terrestrial records) and the Subcommission on Quaternary Stratigraphy (International Commission on Stratigraphy), Journal of Quaternary Science,2012, 27: 649–659.*
- ✓ *Wang, C., Lu, H., Zhang, J., et al. Prehistoric demographic fluctions in China inferred from radiocarbon data and their linkage with climate change over the past 50000 years. Quaternary Science Reviews, 2014, 98: 45–59.*
- ✓ *Weiss, H., Courty, M. A., Wetterstrom, W., et al. The Genesis and Collapse of Third Millennium North Mesopotamian Civilization. Science, 1993, 261 (5124): 995–1004.*
- ✓ *Wu, W. and Liu, T. Possible role of the "Holocene Event 3" on the collapse of neolithic cultures around the Central Plain of China. Quaternary International, 2004, 117:153–166.*
- ✓ *Zhang, L., Fang, X., Ren, G., et al. Environmental changes in the north China farming-grazing transitional zone. Earth Science Frontier, 1997, 4:127–136, (in Chinese).*


***Comment 2***

Here I list just e few examples:

(1) For Kilimanjaro, Thompson et al (2002) report anomalies at 8.3, 5.2, and 4 k BP; 7-7.5 is not mentioned at all. The period in question (7.5-7.0 k BP) does not show anomalous mean or variability. The entire ice record does not have any chronological marker (all ages are model ages!). At the same time, Berke et al 2012 (QSR) show for

nearby Lake Victoria (biomarker TT) that there is absolutely no anomaly in temperature or humidity in the period in question. This record is very well dated. For Lake Challa it is the same.

*We accepted your analysis, and we will remove the Kilimanjaro ice core record.*

(2) Sundqvist et al (2014 Climate of the Past) and Briner et al 2016 (QSR) compiled an extensive data set for the Canadian Arctic and Greenland (47 records): absolutely nothing.

*The reason mainly lines in the fact that Briner et al. (2016) use big data inference method aforementioned to reconstruct the long-term (millennial timescale) temperature trends during the Holocene rather than to capture short-term climate event. However, we found that their composite temperature series for the "North of 66ºN"(fig.15) do capture the 8.2ka event. Among the 27 records used for this composite temperature series, 20 records show the 8.2 ka event and 7 records are ice core records. If we exclude the 7 ice core records, only 13 records registered the 8.2 ka event (we will further explain why we need to exclude the 7 ice core records, and why there are so many proxy records that registered the 8.2 ka event. Please see following detailed response).*

*Another interesting finding is that their composite temperature series for the "South of 66ºN" (fig.15) does not capture the 8.2ka event. Furthermore, both of the above mentioned composite temperature series do not capture the widely accepted 4.2ka event (Walker et al., 2012) and the 5.0-6.0ka rapid climate changes (Mayewski et al.2004; Brooks, 2006). We thus can't deny the existence of these climate event on the base of their absence in their reconstructed composite temperature series. The same is for our suggested 7.5-7.0 ka BP climate anomaly.*


- ✓ *Briner, J. P., McKay, N. P., Axford, Y., et al. Holocene climate change in Arctic Canada and Greenland. Quaternary Science Reviews, 2016, 147: 340–364.*
- ✓ *Mayewski, P. A., Rohling, E. E., Stager, J. C., et al. Holocene climate variability, Quaternary Research, 2004, 62: 243–255.*
- ✓ *Walker M. J. C., Berkelhammer, M., Bjorck, S., Cwynar, L. C., Fisher, D. A., Long A. J., Lowe J. J., Newnham, R. M., Rasmussen, S. O., Weiss, H.: Formal subdivision of*

*the Holocene Series/Epoch: a Discussion Paper by a Working Group of INTIMATE (Integration of ice-core, marine and terrestrial records) and the Subcommission on Quaternary Stratigraphy (International Commission on Stratigraphy), Journal of Quaternary Science,2012, 27: 649–659.*

(3) The review by Wanner et al 2012 (QSR): nothing. Wanner et al 2015 (J Geol Soc) and the related Holocene Climate Atlas HOCLAT (Wanner & Ritz 2011): nothing. In contrast: these reviews show that the proxy records from the same area often show conflicting results when it comes to variability/anomalies at finer scales). Noteworthy: Wanner et al. (2015) used objective statistical methods to assess whether climate was 'anomalous' at a given time; an objective approach with statistical testing whether or not the window 7.5-7.0 k BP was different (mean, SD) from the preceding or following 500 years period is completely missing in the present manuscript. One may or may not see anomalies or trends presented in the paper, depending on the preconceived idea (or hypothesis), and what one strives to show.

*We can take the study by Wanner et al 2011 as an example. In this paper, they compiled 46 temperature and 35 humidity/precipitation time series to identify the Holocene cold events and found that 38 sites (47%) recorded the 8.2 ka event; if 11 ice cores are excluded, only 27 site (33%) registered 8.2 ka event. It is should be noted that the existence of 8.2ka event has been previously confirmed mainly by the multiple duplicable ice core records with large spatial scale climate singles (such as windblown sea salt and continental dust and trapped-bubble records of concentrations of trace gases) (Alley et al., 1997; Alley and Ágústsdóttir, 2005). Such verification in combination with its great significance in dealing with global warming and understanding cultural transformations related to it would necessarily enhance the publications of proxy records that registered the 8.2 ka event. As a result this would further increase the occurrence probability in the inductive reconstruction method with "big data". Such conjecture was supported by Wanner et al. (2011) reconstruction of other Holocene events. For example, they did not identify 4.2 ka event, the widely accepted marker event for the Middle-late Holocene boundary (Walker et al., 2012). In addition, their identified 6300 a BP and 4700 a BP event received less acceptance by the Holocene climate research community than their possible counterparts of 5500 a BP (Magny and Haas, 2004; Brooks, 2006)*

*and 4.2kaBP (Walker et al., 2012; Wu and Liu, 2004).The identified 6300 a BP and 4700 a BP event should not be regarded as truth but as hypothesis, needing further variations. In this way, the absence of possible 7.5-7.0ka event in reconstruction by Wanner et al.(2011) should not be used to prove against its existence.*


- ✓ *Alley R B, Ágústsdóttir A M. The 8k event: cause and consequences of a major Holocene abrupt climate change. Quaternary Science Reviews, 2005, 24(10–11): 1123–1149.*
- ✓ *Alley, R. B., Mayewski, P. A., Sowers, T., et al. Holocene climatic instability: A prominent, widespread event 8200 yr ago. Geology, 1997, 25(6): 483–486.*
- ✓ *Brooks N. Cultural responses to aridity in the Middle Holocene and increased social complexity. Quaternary International, 2006, 151(1): 29–49.*
- ✓ *Magny, M., Haas, J.N. A major widespread climatic change around 5300 cal. Yr BP at the time of the Alpine Iceman. Journal of Quaternary Science, 2004, 19: 423–430.*
- ✓ *Walker M J C, Berkelhammer M, Björck S, et al. Formal subdivision of the Holocene Series/Epoch: a Discussion Paper by a Working Group of INTIMATE (Integration of ice‐core, marine and terrestrial records) and the Subcommission on Quaternary Stratigraphy (International Commission on Stratigraphy). Journal of Quaternary Science, 2012, 27(7): 649–659.*
- ✓ *Wanner, H., Solomina, O., Grosjean, M., et al. Structure and origin of Holocene cold events. Quaternary Science Reviews, 2011, 30: 3109–3123.*
- ✓ *Wu, W. and Liu, T. Possible role of the "Holocene Event 3" on the collapse of Neolithic cultures around the Central Plain of China. Quaternary International, 2004, 117:153–166.*


(4) Marcott et al 2013 (Science) have shown that, for the Northern Hemisphere, the peak warmth was around 7.0 k BP; the period 7.5-7.0 were the warmest 500 years in the past 10,000 years, which is in complete contradiction to the idea proposed here.

*Like reconstruction by Briner et al (2016), Marcott et al. (2013) reconstructed composite temperature series aims to present the general Holocene temperature trend*

*rather than to capture those climate events. Therefore, their temperature stack does not capture the possible 7.5-7.0ka event suggested by us, the widely accepted and confirmed 8.2ka and 4.2ka event, and almost all other short-term climate events during the whole Holocene, too. For reasons, the statement by authors themselves could provide partial explanations: "our temperature stack does not fully resolve variability at periods shorter than 2000 years (p1200)". Other explanations may line in the high uncertainties in proxy records.*

- ✓ *Briner, J. P., McKay, N. P., Axford, Y., et al. Holocene climate change in Arctic Canada and Greenland. Quaternary Science Reviews, 2016, 147: 340–364.*
- ✓ *Marcott, S. A., Shakun, J. D., Clark, P. U., et al. A Reconstruction of Regional and Global Temperature for the Past 11,300 Years. Science.2013, 339:1198–1201.*

(5)In their very comprehensive review, Solomina et al 2012 (QSR) report several glacial advances before, at 7.5 and after the period in question. These 500 years (7.5-7.0kBP) were not different or anomalous to the periods before or afterward.

*Compared with other continuous proxy records, discontinuous glacier records may subject to high dating uncertainties and ability to capture the exact variables (temperature or perception or both) of climate change. Solomina et al (2015 p27.) stated that "The accuracy and coverage of the records is still too low to assess the global or regional synchronicity of advances at the centennial scale with high confidence. Apart from the events at 9.1-9.2 ka and 8.0-8.4 ka, glacier records presently do not provide firm evidence of global synchronism through the Holocene on the centennial to millennial scale. The lack of such synchronicity can be also connected to limitations in these records (discontinuous, incomplete, of low accuracy, showing a mixture of advances triggered by both temperature and precipitation)." Therefore, the absence of the possible 7.0 -7.5ka event in the glacier records could not be used to prove against its existence.*

- ✓ *Solomina, O. N., Bradley, R. S., Hodgson, D. A., et al. Holocene glacier fluctuations. Quaternary Science Reviews, 2015, 111:9–34.*

(6) Several high-quality records form Europe (Heiri et al 2015 The Holocene, work by Seppä et al) do not show any anomaly during the period under consideration.

*Both Seppä et al. (2009) and Heiri et al. (2015) used the stacking method to reconstruct a composite Holocene climate series based on the "big data". If the data is big enough, the shared or common climate single will be stand out for identification as stated in above response. In contrast, a non-big-enough data will smooth out the "standing out" singles due to high uncertainties in proxy records and the interference of non-climatic noises. Mainly because of these limitations, the stacking records could not convincingly capture the climate events whether they are the confirmed 8.2ka and 4.2ka events or our suggested one of 7.5-7.0ka.*

*The statements by authors themselves provide further partial explanation that supports our view: "In contrast, shorter decadal- to centennial-scale climatic events, which have been reported for the region, are largely lacking. For example, the cooling episodes during the Lateglacial Interstadial such as the Gerzensee or Aegelsee Oscillation, or the 8.2 kyr event, are not visible in the reconstruction. This is partly because these events are not well expressed in the individual chironomid records." (Heiri et al., 2015, p145). Therefore, too, as indicated in above other responses, the absence of the possible 7.0 -7.5ka event in these records could not be used to prove against its existence.*


- ✓ *Heiri, O., Ilyashuk, B., Millet, L., et al. Stacking of discontinuous regional palaeoclimate records: Chironomid-based summer temperatures from the Alpine region. The Holocene, 2015, 25:147–162.*
- ✓ *Seppä, H., Bjune, A. E., Telford, R. J., et al. Last nine-thousand years of temperature variability in Northern Europe. Climate of the Past, 2009, 5: 523–535.*


(7) The same for European/Alpine Flood history: the most comprehensive review (Wirth et al 2015, QSR) does not show any anomaly during the period in question. In contrast: for the southern Alps, L Cadagno, L Ledro (also cited in the ms but by Magny et al) and lake Ghirla show very calm conditions ca 8-6.8 k BP. There was a peak for the N Alps (but at 7.6 k BP). In short: nothing anomalous.

*Our several above responses could partly answer these inquires. A peak for the N Alps at 7.6 k BP could be seen as related to our suggested 7.0-7.5ka event within dating error range. However, this correlation should be taken with cautions due to the high*

*dating uncertainties. The statement by the authors themselves support our hypothesis: "the overall pattern in the N-Alps record (Fig. 6a) is characterized by an elevated flood frequency from 10 to 8.3 kyr BP, moderately increased flood activity at 7.5 kyr BP and between 6.3 and 4.8 kyr BP." (p120) (Wirth et al. (2015)). However, our hypothesis is put forward based on a combined consideration of the widespread cultural transformations, paleoclimate proxy evidence, and plausible driving forcings rather than only proxy records.*

- ✓ *Wirth, S. B., Glur, L.,2, Gilli, A., et al. Holocene flood frequency across the Central Alps e solar forcing and evidence for variations in North Atlantic atmospheric circulation. Quaternary Science Reviews, 2013, 80: 112–128.*

(8) In many of the data sets shown in this manuscript, the period 7.5-7.0 kBP is represented by only 1 (one!) data point. This is not robust.

*Thanks for pointing out some of the inappropriate selection of proxy records to characterize this event. We will delete some records that did not meet the criteria in the revised manuscript, including Soreq cave, Lake Titicaca, Jeita Cave etc.*

(9) Moreover: if it turns out that the anomalies reported here were short-lived (centennial) and not synchronous across space in the period 7.5-7.0 k BP (which truly seems to be the case according to the Figures presented) then it is more likely that the regional anomalies (if they existed) could be attributable to unforced (internal) climate variability (instead of forced variability; see also Neukom et al 2019, Nature). This should at least be considered and could be tested (formal attribution).

*We agree with you that the possible 7.5-7.0 ka event could not be synchronous across space, but currently proxy records did not allow us to determine such synchronism. Even with precisely-dated and highly-resolved proxy record during the past millennium, the synchronicity and even the existence of the Medieval Warm Period is disputable. We also agree with you that the unforced (internal) climate variability may be responsible for the anomalies. But the lacking of a reliable unforced climate variability series at present coving the 7.0-7.5 kaBP time period preclude us to conduct such a test.*

***Comment 3***

In summary: The manuscript has a fundamental problem with an unacceptable bias in the underlying data set (selection of the records). Moreover, the analysis has been made purely subjectively (by eye or by preconceived idea); any objective statistical testis missing whether or not the period considered (7.5-7.0 k BP) was different from the 500 years before or after the 'event'. With the approach proposed here, one can claim a 'widespread climatic event' possibly for all 500 years long periods in the Holocene. This manuscript should not be published without addressing two issues (very serious and major revisions): 1. Unbiased selection of time series to start with (for the Arctic see e.g. Sundqvist et al. and other regional compilations); 2. Robust statistical testing(quantification) of the hypothesis whether or not the period in question was different(mean, SD, maybe other metric) from other 500 years long periods before or after 7.5kBP. After revisions, the manuscript should go through review again.

*We agree with your views that we biasedly selected favorable data and proved the existence of a climate anomaly using a qualitative and subjective way to support our hypothesis that there is a widespread climate anomaly around 7.5-7 k BP. We also accept your criticism about the logical flaws in this manuscript, but we argue that this is mainly due to different scientific aims between our work and other quantitative studies and the high uncertainties of proxy record which result in the inability of quantitative "not-so-big-data" to identify and prove the existence of our suggested possible 7.5-7.0 k BP event. We present past climate reconstruction methods for understanding the discrepancy between our work and those quantitative studies.*

*Those quantitative studies that reviewer strongly recommend to us reconstruct past climate on the base of big data. However, as indicated above, these methods are not suitable for our manuscript. For example, most of your suggested quantitative reconstruction even did not capture these well confirmed climate event such as 8.2ka and 4.2ka. We have predicted if we adopt similar research method, we most probably find no evidence for 7.5-7.0 ka event.*

*The aim of our paper is to put forward a hypothesis for a widespread 7.5-7.0ka event on the base of a combined consideration of the widespread cultural transformations,*

*paleoclimate records, and plausible driving forcings rather than only proxy records.*

*As a matter of fact, similar method has been widely adopted by many past climate review papers. We can give a few examples, such as the review of 8.2ka event (Alley and Ágústsdóttir, 2005), 5.5ka event (Magny and Haas, 2004), 4.2ka event (Marchant and Hooghiemstra, 2004), and the general Holocene climate events (Mayewski et al., 2004). These papers are influential and highly-cited. For example, paper listed above by Mayewski et al. (2004), Alley and Ágústsdóttir (2005), Magny and Haas (2004), and Marchant and Hooghiemstra (2004) have been cited by 2032, 765, 227, and 286 times respectively according to the Google Scholar.*


- ✓ *Alley R B, Ágústsdóttir A M. The 8k event: cause and consequences of a major Holocene abrupt climate change. Quaternary Science Reviews, 2005, 24(10–11): 1123–1149.*
- ✓ *Magny, M., Haas, J.N. A major widespread climatic change around 5300 cal. Yr BP at the time of the Alpine Iceman. Journal of Quaternary Science, 2004, 19: 423–430.*
- ✓ *Marchanta, R., Hooghiemstrab, H. Rapid environmental change in African and South American tropics around 4000 years before present: a review. Earth-Science Reviews, 2004, 66: 217–260.*
- ✓ *Mayewski, P. A., Rohling, E. E., Stager, J. C., et al. Holocene climate variability, Quaternary Research, 2004, 62: 243–255.*


*We appreciate your concertation of our response. We hope that we have addressed all the questions by the reviewers.*

*Thank you very much for your time and considerations,*

*Sincerely,*


*Corresponding Author*
*Wenxiang Wu*