

## ***Interactive comment on “Intra-seasonal hydrological processes on the western Tibetan Plateau: Monsoonal and convective rainfall events ~ 7.5 ka ago” by Linda Taft et al.***

**Linda Taft et al.**

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Received and published: 22 May 2019

Dear anonymous reviewer, thank you for commenting on our manuscript. In your introductory summary you write that “one of the authors’ main conclusion is that the northern extent of the Asian monsoon was different in the Mid-Holocene”. This is not correct. In our conclusions we write that “the northern boundary of the SW Asian summer monsoon was in a similar position as in modern times” (lines 683-684). Still in the summary you write “the data is insufficient in addressing the problem of changing monsoon precipitation in the Mid-Holocene . . .” It is not the scope of the paper to address changing monsoon precipitation during the Mid-Holocene but to look at the

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seasonality during a short Mid-Holocene period. The scope is addressed in the title and the aim is outlined in the introduction (lines 118-122), saying that we attempt in differentiating moisture sources, particularly between monsoonal, regional convective and westerly-derived moisture. Also in the summary you write “results and data seem overinterpreted”, however under your specific comments section we could not find any example what you exactly mean and what alternative interpretations you suggest. Under “specific comments” you criticize that we do not mention “specific hypotheses” to be addressed. In the introduction we write about the controversial discussion and outline our aim (lines 118-122) to figure out whether we can differentiate moisture sources with the intra-seasonal climate and weather archive Radix. This is a very clear focus. You doubt that it is necessary to describe the processing steps of the samples in such a detail. We believe it is very essential to be absolutely transparent here because it is not simply about sub-sampling a shell but you need to apply the right technique to sub-sample only the primary shell layer which is formed in the temporal resolution of a weather event during the life of the gastropod. On the other hand, secondary or tertiary shell layers may have formed much later and thus do not provide a high-resolution signal. Details are similarly important for the other methods. You mention that tables “also include details that do not seem directly relevant to the problems the study addresses”. We believe that all the tables are directly relevant for the discussion. We appreciate if you can give us a more specific example of your concern. Regarding our aim to differentiate between moisture sources, you write “it is unclear how they do this”. From line 512 to line 560 we present 6 paragraphs (a-f) explaining on which considerations the interpretation of isotopic signatures in the shells is based. This part of the manuscript we wrote particularly for those readers who are not familiar with isotope fractionation processes, also against the background that Climate of the Past has a broad readership. You write “they do not take advantage of existing palaeo-climatological studies” and later that we “ignore” existing literature. It is not our intention to ignore literature. The scope of our paper is not to review the existing literature about Mid-Holocene climate dynamics of the Tibetan Plateau, but specifically address intra-seasonal climate

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(or weather) signals on the western Tibetan Plateau. We are not aware of other studies than those we have referenced dealing with intra-seasonal signals in that area. We will be grateful to you if you give us a specific example of which literature exactly we do ignore. You write “figures are insufficient in quality and quantity”. We admit that you need to zoom into Fig.6 to easier read the labels. We will change this and put the 5 graphs separately. All other figures have a good to very good quality. We do not follow your argument that we need more figures. You state “that the authors are not accustomed to discussions with the climate community”. We have authored dozens of palaeo-climate studies in journals such as Quaternary Science Reviews, Scientific Reports or Palaeo3 and reject your statement. In several places you write that the manuscript has “serious flaws” but unfortunately in a quite general way. It is thus difficult to reply to this and we would be grateful if you go into a deeper discussion with us. With kind regards Linda Taft

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Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2019-23>, 2019.