Climate of the Past Discussions

Clim. Past Discuss., author comment AC1
https://doi.org/10.5194/cp-2021-129-AC1, 2021

Reply on RC1

Nora Farina Specht et al.

Author comment on "Simulated range of mid-Holocene precipitation changes from extended lakes and wetlands over North Africa" by Nora Farina Specht et al., Clim. Past Discuss., https://doi.org/10.5194/cp-2021-129-AC1, 2021

Reply to Referee comments on cp-2021-129, "Simulated range of mid-Holocene precipitation changes to extended lakes and wetlands over North Africa" by Specht et al.

We thank the Referee #1 for the constructive and valuable comments to make this manuscript more understandable and to improve the results. In the following, we respond to each comment individually, in which the referee's comments are marked in black and our answer is marked in blue.

Referee: Thanks very much for assigning me to review this manuscript entitled *"Simulated range of mid-Holocene precipitation changes to extended lakes and wetlands over North Africa".* The authors analyze the distinct responses of mid-Holocene precipitation to prescribe several surface boundaries conditions. Overall, this paper very interesting and the logical is clear. From my understanding, moderate revisions are needed before its publication on this journal.

Answer: Thank you for pointing out that the study is interesting and that the main story line is clear.

Referee:

Comments on this manuscript:

For the method part,

The authors should give more details of "moisture budget analysis and its thermodynamic and dynamic decompositions"used in this study, because not every reader is a good at dynamics.

Answer: We agree that a more detailed introduction of the moisture budget components would support the comprehensibility of the manuscript. Therefore, we will include the equation by Seager et al. (2010) into the methods part and explain these terms using

simple examples, e.g. “the dynamic term prescribes changes in the moisture budget caused by a response in the mean circulation, e.g. changes in inland moisture transport by the monsoon westerlies.”

Referee:

For the result part,

Please give one more Fig2b in the Fig2 which is related to“evaporation ”responses, in order to support the authors statement “P4L108-110”

Answer: We will add an additional figure (map plot) that show the contribution of the local evaporation response and moisture budget response to the overall precipitation response.

Referee: Please use “local evaporation”instead of “direct evaporation”(P5L123)

Answer: Will be done.

Referee: Please take care the statement (P5L125). Indeed was neglected in Seager et al. 2010.

Answer: I am not sure what this comment refers to, but we will take care of explaining the moisture budget analysis and its meaning in the method part.

Referee: Please check the order of the Fig.3 and Fig.4, I am afraid the fig.3 should have appeared in some place prior to Fig.4.

Answer*:* We will changes the order of figure 3 and 4.

Referee: If possible, please add the extent of change in each experiment so that it will Convery a very clear picture for the reader.

Answer: We will show the contribution of the local evaporation response and moisture budget response to the overall precipitation response in a separate figure (as mentioned above).

Referee: Typo error, ITZC L149

Answer: We will correct this typo.

Referee: Please add the horizontal circulation changes in each subplot of Figure 4 to

support your statements P6L133-134

Answer: We will add the horizontal wind response at 850 hPa to figure 4 d-f.

Please also note the supplement to this comment:
https://cp.copernicus.org/preprints/cp-2021-129/cp-2021-129-AC1-supplement.pdf