

Clim. Past Discuss., referee comment RC2  
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## **Comment on cp-2021-129**

Chris Brierley (Referee)

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Referee 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-RC2>, 2021

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This paper is obviously a good fit for publication in climate of the past. It describes some novel simulations looking at the role of lakes and wetlands over North Africa. There is clearly sufficient work represented by simulations to warrant a publication, and I commend the authors for having done these runs. The inclusion and analysis of the water budget is also a nice feature.

Unfortunately I don't feel this manuscript is worthy of publication in its current state, because of the open questions around seasonality. A quarter of the manuscript's Discussion section is devoted to speculation about the rainfall changes in autumn using other published work. This is further emphasised in the conclusions. If I've understood the methodology section correctly, then such information could be computed directly by the simulations. A revised manuscript should include some analysis of this data for autumn – preventing there being any need to speculate.

Other minor comments.

The title should be reworded to say "from extended lakes", to better convey the direction of influence.

I suggest changing lines L42-L44 from

"Moreover, little research has been done regarding the role of vegetated wetlands during the mid-Holocene (Carrington et al., 2001). Present investigations on the effect of vegetated wetlands prescribed a small extent in the western Sahara and in the vicinity of mega-lake Chad (Carrington et al., 2001; Hoelzmann et al., 1998). Apart from mega-lake

Chad,"...

To

"Moreover, little research has been done regarding the role of vegetated wetlands during the mid-Holocene. Vegetated wetlands have been prescribed in the vicinity of mega-lake Chad (Carrington et al., 2001; Hoelzmann et al., 1998), yet"...

L47 "in mid-Holocene" should be "of mid-Holocene"

L60 Whilst I appreciate you citing both of my papers here, I am unclear why our work on ENSO is relevant. Instead you might want to cite the doi number from the EGSF to give better credit to the MPI team who performed the mid-Holocene simulation.

L65 What is it necessary to the monthly SIC and SST anomalies from the MPI mid-Holocene simulation to your experimental design. I can see why you might do it, but you analyse nothing but the climatologies in this paper.

Fig 1. Add in the caption that the present-day lakes are also drawn. Can you make them more visible as well, please?

It is not clear how eq. 1 differs from that of Egerer et al. Please explain.

L104: prescribed -> proposed

L115: Please add "likely" before associated. You provide no evidence of this statement.

L116: It is unclear what evidence you are basing this claim on. Figure 2 shows only zonal mean values, and so cannot be used to support discussion of regional changes.

Figure three is barely mentioned and feels like a remnant of an earlier draft. It could be a useful figure.

L155. The "Sahara heat low" is an undefined term. I find myself thinking of low heats and cold places.

Please label Fig 4 as mm/day.

L165: figure 5 doesn't really show a northward shift of the African easterly jet. Rather it shows a death of the southern portion of it.

Would "ground albedo" be a better term than "background albedo"?

L185 involve -> induce (?)

L190. Can you explain the final sentence a little more? You don't have a figure showing heterogeneous rainfall in the paper, so this is a little complicated to grasp.

L195. You might also want to cite the compilation of Shanahan et al (2015).

L231. I believe there is a missing word between "access water". Perhaps you could rephrase the sentence