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Discussions

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comment

Interactive comment on "Modelling a Modern-like-pCO$_2$ Warm Period (MIS KM5c) with Two Versions of IPSL AOGCM" *by* Ning Tan et al.

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Anonymous Referee #1 In the paper, the authors document their Pliocene experiments with IPSL-CM5A and CM5A2, which contribute to the PlioMIP2. They carry out the experiments following the PlioMIP2 guideline. The results are clearly presented. I suggest that the paper should be accepted after minor revisions. I have two suggestions that authors should consider in the revised version.

Response: Thanks a lot for these positive comments on this paper.

1. The energy balance at the top of atmosphere should be added in Table 3.

Response: We have added this in Table 3.

2. In this study, the authors use modern river routing, but modify the land-sea mask (closing the Bering Strait, the Canadian Archipelago and the Hudson Bay). In this way, rivers might not reach ocean, in particular in the Hudson Bay. It is likely that the simulated responses in AMOC are caused not only by the closing of these seaways, but also the salinity drift in the Pliocene simulations. To exclude this possibility, I suggest the authors check the mean salinity in ocean, and add them in Table 3.

Response: Thanks for this suggestion. The river routing is generally kept the same as the PI configuration. But if the estuaries change to land after the land-sea mask modification, the new estuaries are created towards the closest ocean. So, we confirm river water have flowed into the ocean and there is no salinity drift in our experiments. As you suggested, we have added the mean ocean surface salinity in Table 3.

Other minor corrections .

1. Page 3 line 5, "therefore" also appears in the previous sentence. Reword.

Response: Corrected.

2. Page 3 line 6, "but will not be use in this paper" change to "but not used in this study". Page 4 line 3, 20km or 2km?

Response: Corrected. It is 20 km. In LMDZ, there are 39 levels in vertical in total and above 20 km, there are 15 levels.

3. Page 4 line 19, please check if "litter" is rightly used in the sentence.

Response: We change to "litterfall" which is better.

4. Page 5 line 21, respectively should be deleted.

Response: Corrected.

5. Page 5 line 22, the second "and" can be changed to as well as

Response: Changed as suggested.

6. Page 5 line 28, "only by closing Bering Strait and North Canada Archipelago region, and modifying the topography in Hudson Bay", change to "only by closing the Bering Strait and the North Canadian Archipelago region, and modifying the topography in the Hudson Bay"

Response: Changed as suggested.

7. Page 7 line 21, add the before Bering Strait

Response: Corrected.

8. Page 7 line 32, add Canadian Page 9 line 11, "contribution" to "contributions"

Response: Corrected.

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