

Interactive comment on “Pliocene Model Intercomparison Project (PlioMIP): experimental design and boundary conditions (Experiment 1)” by A. M. Haywood et al.

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On behalf of all the authors I would like to thank the reviewer for his/her constructive comments on how to improve the manuscript. In response we have/will implement virtually everything the reviewer suggests. Details provided below.

(1) P1218, L 6-7. I suppose the hyphenation of "ge-ographic" is not correct.

NOT CORRECT SO CHANGED

(2) P1219, L 11. Change "refereed" to "referred"

DONE

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(3) P1219, L 26-27. Change "community more easily understand" to "community to understand more easily".

DONE

(4) P1220, L 5. Change "was set at 50 years" to "was set to 50 years".

DONE

(5) P1220, L 9. Change "was set at 405 ppmv" to "was set to 405 ppmv".

DONE

(6) P1220, L 16. Change "In the absence of any proxy data to the contrary," to "In the absence of any adequate proxy data,".

DONE

(7) P1221, L 12. Topo_Plio is calculated by Orog_Plio_PRISM3D-Topo_Modern_PRISM3D. Is Orog_Plio_PRISM3D correct or shall it be Topo_Plio_PRISM3D?

NOT CORRECT SO CHANGED

(8) P1221, L 19. Change "Also Modern SST" to "Also modern SSTs".

DONE

(9) P 1221, L 19-22. The meaning of the sentence "Also Modern SST are projected ..." is not clear to me, to rephrase it might be helpful for the readers.

DONE

(10) P 1222, L 27. Change "configuration, are produced" to "configuration, is provided"

DONE

(11) P 1225, L 20. Change "are differenced" to "are subtracted" (I suppose here the

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authors refer to subtracting two data sets).

DONE

(12) P 1226, L 1-2. Sinus interpolation is problematic in some areas where non-linear feedbacks are acting, see e.g. Laepple and Lohmann (2009, *Paleoceanogr.*). You may comment on the implicit assumption you did.

MORE INFORMATION PROVIDED

(13) P 1228, L 3. Change "warmer as" to "warmer than".

DONE

(14) Please provide the reader with the sea ice boundary condition, e.g. through a map of sea ice distribution.

PLOTS OF SEA-ICE COVERAGE FOR FEBRUARY AND AUGUST ADDED TO FIGURE 5

(15) Please comment on other (fixed) boundary conditions, such as roughness, gravity wave drag parameterizations etc. and discuss the potential uncertainty through unknown parameters like the variance of the orography (at least in some of the models this is required).

COMMENT ADDED. IT IS IMPOSSIBLE TO PROVIDE ALL OF THE REQUIRED FIXED BOUNDARY CONDITIONS IN SUITABLE VERSIONS FOR EACH MODELLING GROUP. IT IS UP TO THE INDIVIDUAL TO IMPLEMENT THE BOUNDARY CONDITIONS IN THE APPROPRIATE WAY. THE KEY IS FOR EACH GROUP TO DOCUMENT HOW SURFACE ROUGHNESS ETC HAS BEEN CALCULATED IN THEIR MODEL

(16) Please improve the quality of some figures: e.g. some black boxes around the figures (Fig. 3), the size and quality of the figures (e.g. the biomes).

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FIGURES IN QUESTION WILL BE IMPROVED IN THE FINAL VERSION

(17) I would like to see a reference on how the biome parameters are translated into climate model input.

ADDITIONAL INFORMATION WILL BE PROVIDED.

Interactive comment on *Geosci. Model Dev. Discuss.*, 2, 1215, 2009.

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