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Geoscientific Model Development
Discussions

Interactive comment on "Ice-sheet configuration in the CMIP5/PMIP3 Last Glacial Maximum experiments" *by* A. Abe-Ouchi et al.

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We thank the reviewers #1 very much for the encouraging comments and the kind suggestion on the editorial changes.

On the general comment We agree that the comparison between PMIP2 and PMIP3 is not only due to the change of ice sheet configuration. In the revised text, we make clear that the difference between PMIP2 and PMIP3 includes the difference due to the revision or development of the model versions for the CMIP. We would like to clarify that the conclusion is not simply drawn by comparing the ensemble mean between PMIP2 and PMIP3 simulations, but by looking at the individual results from model groups. For each model group the model version is indeed different between PMIP2 and PMIP3. Despite the differences in each modeling group, the estimates of the forcing and tem-

perature change provide larger changes (LGM-PreIndustrial) in PMIP3 than in PMIP2 simulations. This systematic behaviour would not appear if it only results from model versions (some models would show larger and other smaller estimates), which is why we stated with confidence that it is due to the ice sheet. In addition a simple estimate of the impact of the different ice-sheet on the radiative forcing is provided in Braconnot et al 2012, NatureCC and lead to the conclusion that the forcing would be larger with PMIP3 than with PMIP2 ice-sheet. This point is treated in more depth in Braconnot and Kageyama, Phil.transA, in press. In the revised paper we should state that there is still a need of further analysis how the difference of temperature and climate in detail between PMIP3 and PMIP2 model results is influenced by the ice sheet.

For the minor comments: We certainly would like to follow all points of the suggestion. One point that the reviewer#1 points out is on the phrase of ice sheet "boundary condition". We mean by the boundary condition in the LGM experimental set up. This should be clarified in the revised text.

Thank you again for the comments and helping us improving the manuscript.

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Interactive comment on Geosci. Model Dev. Discuss., 8, 4293, 2015.