

## ***Interactive comment on “The modern and glacial overturning circulation in the Atlantic ocean in PMIP coupled model simulations” by S. L. Weber et al.***

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Dear Nanne,

Thanks for the comments to the reviewers. I am looking forward to seeing your revision. A couple of things occurred to me while reading the original paper, the reviews and your replies.

Reviewer 1 wants to see some description of the present day climate in the models. I was interested in a related issue, and that is to what extent the conclusions of this work relate to how the models will behave when subjected to "global warming" experiments (ie. increasing greenhouse gases starting at present day or pre-industrial climate). Is it

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possible that the processes (in the real world as well as the model world) which govern the strength of the AMOC at the LGM are orthogonal to those which induce changes under increasing green house gases? Given the first sentence of your paper, I think that including a short discussion of this issue, no matter how open ended, might help round off the paper.

Both reviewers want to know more details about the model set ups, with reviewer 1 wanting to know about the spin-up times and reviewer 2 wanting that information as well as quite a bit more. I don't think it would be too painful for you to provide another table showing some of these details. Sometimes MIP results end up not being that well described because so much becomes assumed knowledge in the MIP community. This can lead to important information not being known by people who have not actually been involved in the MIP. I also think that in several years time, when models have been further developed and PMIP2 is half-forgotten, having more complete information in papers such as this will be appreciated by all.

Reviewer 2, Question G3 is about whether the THC as represented in models is actually a good description of that in reality. Since this paper is about the THC in a host of state of the art models, it seems reasonable to me that this should be discussed in the revised version. I agree that "extensive discussion" of this belongs elsewhere, but perhaps a sentences or two, or even a short paragraph either at the end of section 1 or start of 2 would be nice?

Table 3. You ask for suggestions on how to improve the table, so here are mine: You should make the titles of all the columns considerably more informative, and make it clear that the first few columns signify relationships between the AMOC strength and a particular variable. In addition I think you should probably have some vertical lines designating the different sections because columns 2-4 are one set of results, column 5 is a kind of summary of the effects in columns 2-4, while the other two columns are not related to the others in a particular way. The other question I have is, do you need the "?no" and "?yes" at all? Perhaps it is better to only mark the results that you have a

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high degree of belief in, ie. the "Yes" and "No" results. It is also not clear to me where the cutoff points between these categories lie. Perhaps it would help if the table were referred to before the conclusion section, so it was possible to see exactly where the results come from.

jules

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Interactive comment on Clim. Past Discuss., 2, 923, 2006.

CPD

2, S678–S680, 2006

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