

Interactive
Comment

Interactive comment on “Carbon isotopes support Atlantic meridional overturning circulation decline as a trigger for early deglacial CO₂ rise” by A. Schmittner and D. C. Lund

H. Fischer (Editor)

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Dear authors

Your manuscript "Carbon Isotopes Support..." has now been seen by two anonymous referees. In addition, one very valuable short comment (SC) has been posted by E. Galbraith on the webpage.

In view of the partly critical comments, publication of the paper in CP is largely dependent on whether you achieve to meet the reviewer comments. To this end I will send out a revised version for review again.

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The most important point here is that referee #2 is criticising the fact that your model runs are based on interglacial boundary conditions. This is also seconded by the SC and has been mentioned in my initial editorial response after your submission. Referee #2 and the SC make a convincing point that due to this, the effects of a shut down of the AMOC in your model are most likely overestimated. In view of this criticism, there are two ways forward: The first (and clearly from an editorial point of view preferred) possibility is that you redo your model runs based on glacial boundary conditions. If that is not at all possible, the minimum requirement to go forward is that you extensively discuss this limitation and the potential effects this limitation has on your results and to compare your work with other modeling studies using interglacial and especially glacial boundary conditions.

The latter is also required, as referee #2 criticises the lack of an in-depth discussion of previous work or in one case its misinterpretation (work by Tschumi).

I assume that most of the other points raised by the 2 referees can be accommodated relatively easily.

From an editor's perspective I have another request, that can be easily accommodated. To give the paper the full credit and to help other scientists in this field, you should provide your $\delta^{13}\text{C}$ data compilation in a supplement to the paper together with the used age scales (as also requested by referee #1).

Please provide also a point-to-point reply to all the comments, which allows to judge how you met the review comments.

All the best

Hubertus Fischer (CP editor)

Interactive comment on Clim. Past Discuss., 10, 2857, 2014.

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