

Review of revised manuscript „Impact of ice sheet meltwater fluxes on the climate evolution at the onset of the Last Interglacial” by Goelzer et al.,

The authors have (nearly) addresses all my points raised in my initial review and made a good effort to improve the manuscript. I like the appendix on the NH ice sheet reconstruction approach and I think that the experiments as well as the results are now presented in a more comprehensive way. Nevertheless, I still have a few points I urge the authors to address before this manuscript goes in print.

Main points:

1. Follow-up to point C in the initial review (and your answer given):

I am ok with that you don't want to discuss the sea level changes in full details to avoid duplication with Goelzer et al., 2016. Nevertheless, I think a figure (e.g., panel added to Fig. 3) showing the LIG evolution in ice volume for the NH, GrIS, and AIS is of crucial importance. You have several statements in the text referring to the state/changes of the ice sheets during the LIG and the reader is tempted to derive these ice sheet changes from the FWFs in Fig. 3. Thus, in the current form this can lead to misunderstandings, as happed in my case (see point C in initial review). You should therefore make it clearer how the shape of the FWF curves in Fig. 3 connect to the ice sheet changes and I am convinced that this is best done by showing the ice volume changes as a figure as well.

2. Follow-up to point D in my initial review (and your answer given) #1:

I am fully aware of the fact that FWF are only one component of the net surface balance of the AIS. Still, I wonder whether the 0.4 Sv peak and the ~constant 0.1 Sv flux throughout the LIG are reasonable estimates (at least in terms of magnitude). This question has not been answered in your author response. How do your AIS FWFs compare with present-day FWFs?

3. Follow-up to point D in my initial review (and your answer given) #2:

You mention in the author response that you choose the ocean model to conserve global ocean salinity and ocean volume despite adding substantial amounts of FWF. This should definitely be mentioned in the manuscript and implications of the resulting physical inconsistency need to be discussed.

4. Please do another careful editorial check of the whole manuscript. In particular regarding references and abbreviations used in the manuscript, I quickly spotted several errors/inconsistencies. Some examples are:

- (GHG) should be introduced at first instance (page 6, line 183)
- NH and SH abbreviations should be used consistently instead of the full “Northern Hemisphere / Southern Hemisphere as those are very common terms. On page 16, line 472: “northern hemisphere” should be NH or at least “Northern Hemisphere”,
- same in caption of Fig. A1

- The use of “present-day” and “present day” is not consistent throughout the manuscript
- “Clague and James 2001” should be “Clague and James 2002”
- Stuiver et al. 1998 is referenced in text but not in the reference list

Wording

1. Page 1, line 23-26 (Abstract): This sentence sounds a little odd to me. May be add “as well” after “which are modulated” to make it clearer.
2. Page 2, Lines 53-56: Again I find this sentence a bit confusing. Please be clearer on what you mean with “relatively short period” and provide specific time ranges.
3. Page 4, line 2: add “, particularly in the SH” after “on the climate”. This makes it clearer that your main focus is on the climate evolution in the SH.
4. Page 8, lines 228-230: This sentence is only partly clear to me. Why are the air temperatures in all runs similar when the FWF of all ice sheets are similar? Please clarify.
5. Page 8, line 243: I think “warming trends” is not the appropriate term here.
6. Page 8, line 247: add “(not shown)” after “WAIS”.