Reviewer 3

We thank the reviewer for the time he took to make a careful reading of our manuscript and for all the suggestions that are very useful to improve it. In the following the comments of the reviewer are in black, while our responses are in blue.

The authors present a protocol for the ocean component of TIPMIP that focuses on the stability of the AMOC. The MIP proposes a new set of fresh water hosing experiments that partly complement the core TIPMIP experiments and partly extend earlier hosing experiments such as the NAHosMIP.
Many previous community-driven hosing MIPs have focused on adding fresh water to the ocean while keeping the background to the pre-industrial state. The novel aspect of the proposal here is that they add the hosing to climate change simulations or different background states. This is an important aspect as the background climate may influence the AMOC stability and it is also more relevant for the ongoing discussion on the effects of climate change on the AMOC and its consequences for the north Atlantic realm. The MIP proposes a relatively wide range of freshwater applications, from an addition of a "realistic" amount of meltwater from Greenland (exp. B) to very strong, idealized scenarios with (unrealistic) additions of up to 0.6Sv. Thus, the potential analyses can include uncertainty estimates and also address issues of structural differences in the models.
The protocol also includes an extension of the NAHosMIP with relatively simplified set-ups and an experiment with a paleo-backdrop, mimicking the 8.2 kyr event.
The manuscript reflects an extensive discussion in the community and is well balanced so that many modelling groups can participate, either in the full set or selected sub-experiments.
The manuscript is written in a clear and concise way and should be published in GMD.

I have only a few minor issues to consider:

We warmly thank the reviewer for these encouraging comments and have processed the minor revisions expressed below, to which we also provide answers below.

Abstract:
Ln 60: In experiment C, the run at 2 degr. Warmer climate is only tier 2, so it cannot be the general purpose of this experiment to study the effect of background warming. I would formulate it more like Exp. C is extending the NAHosMIP to include the TIPMIP models with the potential to include the global warming aspect.
This is actually a good point raised by the reviewer and we have revised the abstract (lines 61-62) mainly following the proposition of text.

Ln 80ff: I would support Referee#2 here and include the "post OSNAP" discussion on the relative roles of deep water formation regions and that their representation is certainly model and resolution dependent.
Such a discussion has now been added lines 82-90

Ln 155 constant background
Corrected.

Ln 207: is the precip bias issue really relevant here?
We do think so, notably because GrIS melting represents a relatively limited amount of freshwater release, while precipitation changes that concern a very large area and also impacts on river discharge can represent a large amount of freshwater forcing as also discussed in Weijer et al. (2020) review paper. The spread of such an increase is large among models in the future (IPCC 2021), and the historical trends are already poorly represented in some of them, as discussed in Vicente-Serrano et al. (2022).
In terms of order of magnitude, a 1mm/day of precipitation increase over the North Atlantic region will actually lead to freshwater release of the order of 0.1-0.3 Sv (dependent on the size of the region chosen to compute this)
However, given this comment of the reviewer, we have extended a bit this justification in the manuscript lines 223

Ln 219: wasn't that originally proposed by Gerdes et al (https://doi.org/10.1016/j.ocemod.2005.08.003)
Indeed! The text has been corrected accordingly.

Ln 240: it would be good to clarify here that some experiments are required in parallel to the core TIPMIP experiments, but for B and C, they can (at least for tier 1) be run in parallel to existing control or historical/scenario simulations.
We have added a description of this point lines 259-261.

Ln 373: is "pursued" the correct word here?
The reviewer is right, "is underway" is clearer.

Ln 509: …testetd a range of freshwater range from 0 to 0.6 Sv (no need to mention tier 2 here)
This has been accounted for.

The experiment tables could be made a bit more consistent, e.g. include the initial conditions for all.
Thank you for pointing this out. The tables have been modified in order to be consistent among them, notably providing the initial conditions for all simulations.