

Review of “Opinion: Status, Plans, and Needs of Southern Ocean Modelling”

Martin et al. (2026)

In this opinion paper, Martin and colleagues summarize the outcome of a survey conducted in preparation for a SOOS/OCEAN:ICE Workshop, aiming to highlight research priorities by the modeling community ahead of Antarctica InSync and the IPY.

While the results of the survey are certainly useful and worth publishing, the respondent group is very likely skewed towards physical ocean and ice scientists. The authors acknowledge this, but I think this could be highlighted even more for increased transparency (e.g., in the abstract). The fact that certain marine biogeochemical and atmospheric processes are not ranked high amongst suggested research priorities does probably reflect the group of respondents more than being a true reflection of what the whole polar scientist community thinks. While the ad hoc survey design and advertisement likely affect the robustness of the results, the authors report on the survey outcomes, as much as possible, in a balanced and objective way.

Overall, the paper is well written, and I have only minor comments, see below. As a result, I can recommend publication as an opinion paper once my comments below have been addressed.

Main comments:

My only main suggestion to the authors is to consider adding an appendix to the paper to include the exact questions and answer options given in the survey. I acknowledge that the authors make these available in the cited Zenodo repository, but I think not every reader would go there to check. While reading the paper, I found myself wondering about the exact wording of questions and answers multiple times, and I think making these more readily available would help the reader.

Specific comments:

L. 21-29: In my opinion, the abstract would benefit from more explicitly mentioning that the survey results are most robust for the physical ocean-ice sciences. While I appreciate the way in which authors acknowledge throughout the text the shortcomings related to survey design and/or expertise of the respondents, I think it would be more honest if the abstract made it clear that biogeochemists, ecologists, and atmospheric scientists were likely underrepresented. In a way, the same applies for the title, which makes the opinion piece sound more comprehensive than it truly can be, given the group of respondents.

L. 34: I suggest starting a new sentence: “Ocean heat is a major...”

L. 56: “[...] the *physical* ocean modeling community” ?

L. 57ff: I didn’t fully understand what to make of this sentence. Why “initially”? Can you elaborate in the text on why and how you changed your approach, e.g., in advertising the survey? Or did you decide to be more inclusive once you started receiving responses to the survey, realizing that modelers using a wider variety of tools answered the questions? Some clarification and/or rephrasing could help here.

L. 75: delete “modeling” (or something else is missing)

L. 100: This is where I first started to wonder what the responses were offered (see main comment above): only “oceanographer” or was the specification of sub-disciplines possible? Do you have any insights into how many of the respondents do not identify as physical oceanographers but biological or chemical ones?