

The Cryosphere Discuss., community comment CC1
<https://doi.org/10.5194/tc-2021-175-CC1>, 2021
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Comment on tc-2021-175

Andrew Shepherd

Community comment on "Brief communication: A roadmap towards credible projections of ice sheet contribution to sea-level" by Andy Aschwanden et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2021-175-CC1>, 2021

A few quick comments:

1/ Slater et al. have compared AR5 projections to IMBIE and they also found that the projections underestimated ice loss. Their conclusion was that the main issue was with SMB and not ice dynamics:

<https://www.nature.com/articles/s41558-020-0893-y?proof=t>

2/ Hofer et al. have shown that there is a significant difference between CMIP5 and CMIP6 temperature forcing, particularly in the Arctic, and that this leads to a significant difference in modelled ice loss for Greenland. Their Fig. 3b shows a cumulative difference between Greenland ice loss under CMIP5 & CMIP6 of something like 1000-2000 Gt by 2020 for RCP8.5. Although this is an extreme scenario, their Fig 5 shows the difference is similar for other pathways. Hofer has suggested that ISMIP6 models may have been forced with CMIP5; as the difference is comparable to the bias shown in your Fig. 1 its probably worth checking this in detail.

<https://www.nature.com/articles/s41467-020-20011-8>

3/ In your Fig. 1 you show IMBIE as well as 2 individual records of observations which are both included in IMBIE which are both at the upper range of ice losses among the ensemble included in IMBIE. For balance it might be a good idea to show the individual records that are at the lower range also. Or alternatively you could just show the IMBIE alone.

4/ We have updated the IMBIE assessment for AR6 and I am happy to provide those data should you need them

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