We thank the reviewer for these helpful comments, which have further improved details of the manuscript. Please find our responses to their comments below.

Reviewer comment: Section 2.4: I would still like to see the equation for basal melt as a function of TF here. Also, consider adding some more details on how the basal melt parameterization is tuned to reproduce 20 m/yr average melt. What physical parameters in the parameterization are you tuning, and are these tuned values within reasonable bounds?

Author response: We have added equation 2 to show how we calculate melt based on thermal forcing, and explained that we tune a parameter analogous to exchange rate, following Jourdain et al. (2020). We have added this text to clarify the parameter tuning: "We find $\gamma 0$ values of 30,246 m yr-1 for CNRM-CM6, 45,292 m yr-1 for HadGEM2, and 75,580 m yr-1 for MIROC5. For reference, Jourdain et al. (2020) found median $\gamma 0$ values for Antarctica of 14,500 and 159,000 m yr-1 for their two calibration methods."

Reviewer comment: Supplementary Figure S8a: The velocity maps do not extent to the 2017 ice front location (as in Fig S7a), which I interpret as the ice front being retreated inland of its 2017 position. Is that because ice thickness has reduced to zero here?

Author response: That's correct. The ice front has retreated due to combined surface and sub-marine melting. We have clarified this in the figure caption: "The retreat in simulations using the 2017 calving front (a) is due combined surface and sub-marine melting."

Reviewer comment: L441-451 From Fig2 it looks like CNRM-CM6 exhibits a similar rise in ocean thermal forcing toward the end of the century, yet the ice shelves remain intact. Is there an obvious explanation?

Author response: Thanks for pointing this out! We were naively showing thermal forcing averaged over the whole marine-based part of the domain, but much of that is not actually experienced by the glacier during our simulations. HadGEM2 warms much more in the deep central-to-northern part of the fjord than CNRM does. We have changed this figure to show the average of the thermal forcing between the initial ice extent (2007) and the most retreated configuration of the grounding line in the perturbed parameter ensemble (HadGEM2, q=1/7, low sigma max at 2100), which now shows much more clearly that HadGEM2 warms significantly more in the relevant area. Also note that the absolute values are much larger when averaged in this way, but this does not change the interpretation. We have added the explanatory text to the caption: "The values in (c) were calculated using the area between the initial ice front and the most retreated grounding-line position in our perturbed parameter ensemble, where the bed is below sea level."

Reviewer comment: L725 and following: you might also find the recently accepted results by Barnes and Gudmundsson (2022) of interest. They broadly support your discussion about the complex dependency of glacier response on different sliding parameterizations.

Barnes, J. M. and Gudmundsson, G. H.: The predictive power of ice sheet models and the regional sensitivity of ice loss to basal sliding parameterisations: A case study of Pine Island and

Thwaites Glaciers, West Antarctica, The Cryosphere Discuss. [preprint], https://doi.org/10.5194/tc-2022-109, in review, 2022.

Author response: We have added this reference to the sentence: “However, there does not seem to be any consensus on the best form of the basal friction relationship, and the best choice could be glacier- or basin-dependent (Barnes & Gudmundsson, 2022).”