

# Review of “Uncertainty quantification if the multi-centennial response of the Antarctic Ice Sheet to climate change”

## 1 Summary statement

The revisions made to “Uncertainty quantification if the multi-centennial response of the Antarctic Ice Sheet to climate change“ address the comments raised by the two reviewers, with additional details and clarifications on the impact of model resolution, grounding line parameterization, ocean warming and uncertainty quantification methods. I am still a little skeptical about the accuracy of a 20 km resolution model to correctly represent relatively small outlet glaciers and to accurately simulate the evolution of the grounding lines around the Antarctic ice sheet. This is discussed at length in the new version of the manuscript and seems supported by previously published results, but I would have appreciated to see some runs performed with a different resolution to confirm this point and to provide an attempt to quantify the impact of the resolution used in these simulations on sea level estimates.

## 2 Specific comments

Page and line numbers refer to the version of the manuscript with changes tracked.

p.1 l.15: “the marine ice-sheet instability”

p.11 l.14: “a shelf tune” → “an ice shelf tune”

p.15 l.8-11 (and also later in the text, at least in sections 3.6 and 3.8): use either “Figure XX shows” or “Figures XX show”.

p.16 l.15: Is it 2500 or 3000?

p.20 l.25: How large is the difference between the modeled and emulated sea level? Is that what is show on Fig.A1d? I would expect the difference between the modeled and emulated results to be almost negligible compared to the signal estimated, because a mean difference of 0.2 m seems relatively large, but I am not entirely sure what is the error presented on this figure.