(Author Response in Blue) We would like to thank the editor for taking the time to share these additional suggestion which have once again helped us to improve the manuscript. We have made the requested adjustments and hope they help provide the necessary clarification.

Editor comments on "Resolving GIA in response to modern and future ice loss at marine grounding lines in West Antarctica" by Wan et al.

I would like to thank the authors for the care they have taken in addressing my previous comments, particularly in relation to the terminology used to describe various processes associated with glacial isostatic adjustment and the key result that relates grid resolution to load radius. All other points were addressed in the authors' rebuttal and only a few minor queries remain. These are listed below (line numbers refer to the 'clean' manuscript version 4), and I am delighted to confirm that this article is now accepted for publication (subject to technical corrections, i.e. no further review).

Thank you for choosing to publish your work in The Cryosphere. Pippa Whitehouse (editor)

Line 171: Line 164 states that the shallowest layer is at 12 km depth so it is not clear how there can be 'a few layers down to ~10 km depth'. Do you include extra layers when you carry out the grid refinement?

We have clarified that the 3-D region of grid refinement is performed to depths of ~ 10 km, and operates by bisecting the grid both horizontally and vertically.

Lines 191-193: text that describes how you use the free scaling parameter is difficult to understand without close reading of the supplementary material. For example, it is not clear what you mean by 'the depth dependence' and 'the surface value'. Please simplify this text and explain the meaning of '1/C' (appears after the scaling factors in the paragraph beginning line 211)

We have removed the concept of depth dependence and surface value to minimise confusion. 1/C is just the dimension / unit of the scaling factor – we've changed it to K^{-1} for better clarity.

Line 394: inconsistent use of a minus sign when reporting the ICE-RD result compared with the ICE-SH and ICE-GOL results

Thank you for spotting this inconsistency – we have removed the minus sign.

Lines 435-446: this paragraph was written before you included the 1-D (WAIS) simulations (which are introduced in the previous paragraph and discussed in the next paragraph). This leads to some ambiguity here because it is not clear what you mean by 'the average 1-D viscoelastic Earth model' – all 1-D models can essentially be described as 'average' models, and results for two different 1-D models are shown in fig. 8, which is discussed in this paragraph. Please use a consistent naming convention for the two 1-D models used in this study.

Thank you for bringing up this area of confusion. We have clarified which model is the 1-D global average vs. 1-D WAIS best-fit earth model wherever referred to.

Lines 501-502: I am confused by the statement that relates the viscous and elastic components of the signal (apologies if I am being dense!). I see that the percentages are taken from fig. 9 (bottom row), where the x-axis is labelled '% of total signal'. This suggests that the values quoted here describe the relative magnitude of (a) the difference between the elastic and viscous components and (b) the total (viscoelastic?) signal; this is different to what is implied by your text (the relative

magnitude of the elastic and viscous signals). Please clarify what you mean by the 'total signal' and hence check the wording of this result.

Thank you for catching this as well, we have clarified in the text and in the caption for Fig. 9 as to which experimental sea level result the % is referring to.

Caption to Fig. 1 (and Fig. S1): The grounding line is not the same as the 0m contour. In fact, the grounding line delineates the extent of marine-grounded ice (which is currently mentioned in relation to the black line, which delineates the extent of floating ice)

We have removed the mention of the 0m contour.

Caption to Fig. 9: I think 8 factors are compared in this figure, not 6 (labelled on the left)

Thank you for catching this, we have clarified the caption accordingly.