

Response to reviewers:

We thank the reviewers and editor for their thorough and constructive comments. We have revised the manuscript accordingly and below we provide responses to each reviewer comment (RC 1, RC 2) with quoted reviewer text in black followed by our reply in blue, we have included manuscript line references where possible.

RC 1:

- '1) Methodological description - personally I found the description of the methodology slightly confusing and disjointed. In particular lines 38-45 could perhaps be moved later in the discussion rather than breaking the description of what is calculated and shown? Lines 33-37 could be expanded with the further details from later paragraphs about how the uncertainty separation is actually done?'
 - We agree with the reviewer that the discussion of assumptions, can be moved to further in the text. We have left the explanation of uncertainty separation unmodified.
 - Lines 38-45 moved to after line 67.
- '2) Figure 1: (a) The region name could be given in the figure somewhere; (b) Is 'reduced regional projections' the best term for the MGW projections?; (c) Could the authors include the total variance for global processes? I think this would help with the explanation of the new separation; (d) Should the black hatched area be broken into blue and green hatching instead to indicate global model and global scenario components?; (e) Could the regional labels in the final panel say 'regional model' and 'regional scenario' for clarity?'
 - The reviewer has provided some good suggestions here to improve the figure, we have incorporated (most of) them:
 - Added subtitle to the figure stating the data and region.
 - Changed the hatching of the global model uncertainty contribution in Figure 1f.
 - Added 'Model' and 'Scenario' in the labels of the 'Regional' contribution labels in Figure 1f.
 - Added the total variance without MGW in Figure 1e: as grey area for comparison and a label in the figure.
 - Changed the title of Figure 1d to 'Regional projections - after MGW'.
 - We have decided against adding 'model' and 'scenario' labels in panel f. The panel becomes very crowded if one adds four additional words ('global scenario', 'global model', 'regional scenario', 'regional model'), only adding the labels for the regional contribution does not due enough justice to the global contributors, and the main message of this paper that both are relevant and can be separated.
- '3) line 60 - the authors say 'This global model uncertainty exceeds its regional counterpart at all timescales'. However, looking at the Figure this seems to be true only after ~2035ish and not before?'
 - The reviewer is correct, the text was modified.
 - Line 60: changed 'at all timescales' to 'after 2035'.