Description of two minor modifications to the accepted version of "The Detection and Attribution Model Intercomparison Project (DAMIP v2.0) contribution to CMIP7"

We are pleased that our manuscript has been accepted for publication in GMD. In preparing the final publication-ready manuscript, we made two changes to the text to better respond to issues raised by the reviewers in the light of information newly available since our paper was accepted.

Gareth Jones review included the following comment (available here EGUsphere - The Detection and Attribution Model Intercomparison Project (DAMIP v2.0) contribution to CMIP7, along with our response):

It might be complicated to use the "f" value in the variant ID to indicate specific forcing set ups across all models, in the way suggested. Some institutions have used that to indicate their unique forcing set ups (e.g., HadGEM3, UKESM, GISS-E2, CAMS-CSM1-0) in CMIP6, and the CMIP7 forcings task team have discussed recommending models use the "f" value to be associated with the input forcings version number. Has this proposal been discussed with other MIPs and the CMIP7 forcing team?

As indicated in our response we contacted the CMIP7 forcings task team to ask about this, and received a preliminary response. After submission of our updated manuscript, we received additional feedback from the task team recommending that we do not suggest using the "f" value to denote simulations run with updated forcings. Based on this additional feedback, in Section 3.4 we replaced:

However, we do note that the Earth System Grid Federation (ESGF) naming convention includes a forcing index which can be used to label different forcing variants for a given experiment. We recommend that this index is used to publish simulations with updated forcing variants if and when modelling centres perform them. For example, if the original version of hist-nat, using the Medium scenario forcings from 2022 to 2035 were published with the 'f1' forcing index, and were a major volcanic eruption to occur in 2027, and an updated stratospheric aerosol forcing datasets be published that year, a new version of the simulation using the updated forcings could be published with the 'f2027' forcing index. Such a simulation could cover only part of the time period covered by the original simulation (e.g. 2022-2035 only), as long as it is labelled appropriately. We suggest labelling such simulations with major updates to forcings with the year which historical forcings were extended to e.g. 'f2027'. Alternatively a version number of the forcing dataset could be used.

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However, the CMIP community is continuing to explore how forcings can be updated more regularly and how such updates could be used in CMIP7. DAMIP will engage with this discussion to ensure that developed solutions support updates to attribution simulations.

In addition, Gareth Jones included this comment in his review:

I am surprised to see the design for hist-nat to not include stratospheric ozone changes due to influences of solar and volcanic factors, and put those forcing factors in the hist-O3 with the anthropogenic O3 factors. I think this is a major step backwards. It will no longer be possible to compare anthropogenic only and natural only simulated climate, without adding even more

caveats than we do already. I would be reassured if the authors could demonstrate that the natural O3 changes in the stratosphere have ignorable influence on climate in the simulations, but I fear that is not the case for all diagnostics of interest, especially in the stratosphere (Shindell et al, 2013).

As part of our response (EGUsphere - The Detection and Attribution Model Intercomparison Project (DAMIP v2.0) contribution to CMIP7), we wrote the following:

As suggested by the reviewer, we are beginning a new simulation with CanESM5 of the response to naturally-induced ozone changes only to test this assumption. Results are not yet available at the time of the deadline for revising the manuscript, but if we have another opportunity to make final revisions to the manuscript we will describe the results in the manuscript then. If not, results from this simulation will be described in a future paper reporting the results of DAMIP.

This simulation has now been carried out, and based on its results we added two additional sentences to the description of hist-nat in Section 3.1.2 to describe the results and better address the reviewer's concern:

To test the sensitivity to this change in experimental design, we carried out a test simulation with CanESM5.0 of the response to the DAMIP v1.0 specified solar and volcanically-induced ozone changes alone. This showed small forced changes in global mean stratospheric temperature of less than 0.5°C, but no discernible changes in tropospheric climate.