

## ***Interactive comment on “Overview of the Coupled Model Intercomparison Project Phase 6 (CMIP6) experimental design and organisation” by V. Eyring et al.***

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### **Reply to Anonymous Referee #2**

We thank the reviewer for the helpful comments. We have now revised our manuscript in light of these and the other comments we have received. A pointwise reply is given below.

**This paper describes the changes made for the next stage of the CMIP, CMIP6 and the rationale behind the changes. In CMIP6 there is clear “minimum**

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**entry” of basic runs used to calibrate modes (the “DECK” and a simulation with historical forcings) to participate in the rest of CMIPs. The many MIPs have been rationalised by choosing those which map most clearly onto the WCRP “Grand Challenges “(Giving a simpler structure which should also enable a much more efficient use of resources).**

**Main Comments The paper is generally well written, informative and clear. Given that one of the stated main aims if CMIP6 is to understand “How does the earth system respond to radiative forcing”, I would expect the intercomparison of radiative forcing to be part of the minimum requirement, rather than a separate MIP ( RFMIP). In CMIP5 there is wide range of estimates of aerosol forcing in particular over the historical period (even when nominally identical aerosol forcing agents are included) which makes evaluating the relative importance of aerosols problematic. How can one understand the response of models to changes in radiative forcing when a substantial part of the forcing has not been calculated adequately?**

See response to a similar comment from Gavin Schmidt. We are now encouraging the modelling groups to participate in RFMIP-lite, but have not changed the DECK which has been agreed with the community in extensive discussions.

**Line16 The punctuation (distortion?) of model development cycles may have more to do with the cycle of IPCC Assessments rather than CMIP- I suspect some modelling centres feel under pressure to produce updated models for each Assessment. Aligning CMIP with IPCC assessments, whether deliberately or accidentally may re-enforce this pressure.**

This section has been considerably revised and somewhat streamlined in response to the reviewers comments. We hope that doing so helps address the reviewers point;

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suffice to say we wanted to avoid getting into a discussion as to what extent CMIP timelines are implicitly set by expectations related to IPCC reports.

#### **Minor comments**

**Can a model which has appeared in CMIP5 and submits the correct DECK and Historical runs is eligible for CMIP6.**

YES.

**(It is mandatory like the DECK experiments Why is the Historical control not part of the DECK?)**

This has been clarified in the text in the second paragraph in Section 3.

**Why does the data section on data come after the summary? It should either be part of the main text before the summary. Or in an Appendix**

There are specific rules where to place the 'Data availability' section in a GMD paper. We have followed the GMD requirements but the editorial office moved it during the proof stage (see our response to the Executive Editor's comment by Astrid Kerkweg). This should now be solved (see our response to the Editor's comment by Julia Hargreaves).

**Line 129 It would be useful to have a bit more general information on the MIPS. Is there the opportunity to introduce further MIPS should the need arise during the lifetime of CMIP6? Are there any criteria for winding up MIPS? Will MIPS time expire or at least be reviewed at the end of CMIP6?**

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This has been added.

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Interactive comment on Geosci. Model Dev. Discuss., 8, 10539, 2015.

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