

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

**A. Sellar**

alistair.sellar@metoffice.gov.uk

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Most of these comments are concerned with making the design specification more explicit and removing ambiguity which could lead to avoidable differences between models. Thanks to Martin Andrews for one of the comments.

A general point for all experiments is to state the start and end date, not just the year. Should all experiments begin on 1st January of a given year? All experiments should continue until at least December of the end year. A lack of clarity here caused problems for HadGEM2 data submissions in CMIP5.

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p10550 line 18 "...a prescribed CO<sub>2</sub> concentration and a prescribed emissions simulation (accounting explicitly for fossil fuel combustion), in which concentrations are then "predicted" by the model...."

For absolute clarity (though it makes it more repetitive), it would be worth inserting "CO<sub>2</sub>" again before "emissions" and "concentrations" and stating that the treatment of other GHGs should be identical in both simulations.

p10561 line 8: "The piControl used in CMIP begins at this point and generally continues for at least a few hundred years."

There is a more precise statement about the piControl length on the following page. Suggest dropping the second half of this sentence.

p10563 line 2: "With that understanding, here are the recommendations for the imposed conditions on the piControl"

Suggest "spin-up and piControl".

p10563 line 15: "Models without interactive ozone chemistry should specify ozone as in the mean of the first decade of the CMIP Historical Simulation"

Suggest aligning the ozone meaning period with the solar meaning period for consistency, even if it doesn't make a significant difference.

p10564 line 1: "The forcing specified in the piControl also has implications for simulations of the future, when solar variability and volcanic activity will continue to exist, but at unknown levels. These issues need to be borne in mind when designing and evaluating future scenarios, as a failure to include volcanic forcing in the future will cause future warming and 5 sea-level rise to be over-estimated relative to a piControl experiment in which a non-zero volcanic forcing is specified. This could be addressed by re-introducing the mean volcanic forcing for the piControl into the scenarios."

I would make this statement stronger and state at the very least that scenarioMIP \*will\*

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use a time-constant non-zero volcanic forcing. I presume that this known already.

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

**GMDD**

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