

Dear Editor,

Thank you for suggestions for clarifications and improvements. We are providing responses to these below. Your comments are copied in black and answers provided in blue and italics.

I unfortunately cannot create a pdf showing the differences between the last two versions of the manuscript from where I am now, but there are few changes:

- the “pre-industrial” occurrences that have been harmonised (except in references),
- the Data availability section,
- the typo on line 365,
- the caption of Figure 3.

I will need some additional time to prepare the data to be distributed with the paper.

Thank you for your understanding.

Best regards

Masa Kageyama, on behalf of the authors.

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I will be happy to accept your paper for final publication, granted some minor corrections, mostly in the data availability section.

Could you please copy in the data availability section the website address (<https://www.esrl.noaa.gov/psd/>) where the NOAA_OI_v2 data set is available. Moreover, would it be possible to give the address pointing directly to the dataset and not to the general website.

Both the data site describing the data set and the address pointing the the data set itself have been added in the “Data availability” section.

In figure 3, could you please give a reference for ‘The magenta contour shows the 0.15 isocontour of the observations averaged over years 1982–2001’ as well as the location of the data themselves (doi or website).

The caption of figure 3 has been modified to give the precision about the “observations”, the reference and points to the `{\it Data availability}` section for the source website.

Moreover, CP is not in favor of papers indicating that ‘something should happen sometimes’ because this will remain like that unless some corrigendum is published. Therefore, statements like ‘will be shortly available’, ‘the majority of the model simulations’ are not acceptable as such. They should be more precise! Where will be available the simulations that are not ‘the majority’?

We will make the very data shown on the figures available on a dedicated web site, or as supplementary material if its size is smaller than 50 Mb. We have therefore re-written this part of the “Data Availability” section as follows:

“The majority of the model simulations used in this study are available or will shortly be available on the Earth System Grid Federation ([\url{https://esgf-node.llnl.gov/}](https://esgf-node.llnl.gov/)), the data repository for CMIP6 simulations. The results of analyses from this original data, shown on Figures 2 to 12, will be referred to with a doi and accessible from the IPSL website upon acceptance of the manuscript.”

We will need additional time to prepare this data in a user-friendly format. Can this be accommodated for?

I also identified three spellings for preindustrial, pre-industrial or Pre-industrial. Could this be checked.

We have checked and all occurrences should now be “pre-industrial”, as in Eyring et al., 2017’s overview paper on CMIP6 simulations.

Non-public comments to the Author:

This is a very specific question. On line 365, what do you mean with ‘among the 16th’ ? Is it an accidental cut/paste or does it really refer to the sentence. Apologize for this naive question.

This was actually a typo. It should have been « among the 16 models ». Apologies for the confusion it created.