RESPONSE TO REVIEWER SC1

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Dear Aparna

Thank you for your interest in our manuscript and for taking the time to read through and provide your feedback.
Below we highlight our responses.

This manuscript is informative. Given the use of the dataset collections in Obs4MIPs (and beyond), these type of manuscripts help the data consumers acknowledge the work of Obs4MIP groups.

Some minor comments are presented below.

Page 4, L 21, Cite CMIP Experimental design, as needed.

We now cite the appropriate CMIP experimental design here and further below.

Page 6, L4, Actual citation for COSP seems missing.
Thank you, citation added

Page 13, L 16: Just to clarify, does this statement mean the CMIP6 data request was formed based on what will be present in obs4MIPs. Was this one of the factors or the only factor?

A secondary factor, wording updated.

Page 14, L2: TYPO: Specifications
DONE

Page 14, L4: Line spacing seems off.
FIXED

Page 14, L11: Cite CMOR, as needed.

We have added a reference of the software/version which includes a DOI.

Page 15, L2: ? towards the end, seems incomplete.
Thank you. FIXED

Page 15, L21: How are the indicators linked to each dataset? Since line 22 mentions

the values of indicators may change, is there any version control applied here, in addition to directly associating it with the dataset, say in the form of an attribute?

The indicators aren't explicitly included in the data set files; they are kept in a separate, evolving database. Users are guided to the dataset indicators via the obs4MIPs ESGF-COG searching capability. We have now explained in the text that version control of the indicators is provided through tags on the Github repository. Inclusion of the indicators in the data files was considered but it was concluded that given they are subject to change this was not an optimal approach.

Page 17, L4: Registration process could be documented better to understand what "register" implies here.

Thank you for pointing this out - we have now pointed to the repository where users register data and have referred to previous discussion in the text.

Page 17, L10. Capability to supply SI is useful first step. Just a comment: For those users that script and download the data (thinking: synda like), but not necessary use the web interface, information like this may get lost.

Thank you for the comment. To date, the priority vehicle for making obs4MIPs data available is via ESGF. In this case, if wget is used the SI information could be lost. As the obs4MIPs data becomes further integrated with CMIP data,, this issue will need to be addressed. An intermediate solution currently being worked on will enable users to browse a catalogue of tech notes and available Supplemental Information that can be retrieved independently of the data.

Page 17, L18 onwards: This is motivating. But, citing or adding a figure or two from a publication that has used OBS4MIPS in the past would be a great example and addition to this manuscript.

Thank you. We have added a reference that typifies how obs4MIPs has been used in published research however we have concluded that the manuscript is long enough so we have not added a new figure.

Page 19, L3-4, If not already present: Nice future work that can complement this manuscript are documentation papers for each of the dataset in the OBS4mips collection.

Thank you for the suggestion.

Page 19, L8-10. I believe there is a DKRZ DOI related publication that needs to be cited here

Thank you for pointing this out Stockause et al. (2017) has been added.

Page 20, L5: Why not just- "specifically for climate model evaluation", rather than (climate).
REWORDED for clarity

Page 21, L23. The search facets and site look great.
There is a typo in the ESGF site itself. New dataset features.
THANK YOU

Data DOIs would be great additions in future.
AGREED.

Is the code to make datasets Obs4MIPs compliant (i.e CF compliant) also available openly? E.g CMOR, if that is being used, could be referenced via github.

Yes, the code, CMOR3, is publically available via Github as now indicated in the manuscript.

In general, more references and pointers to help the community help with the Obs4MIPs effort would be nice. A guide to a new user as to how to suggest or add more OBS datasets under Obs4MIPS could be very helpful.

THANK YOU FOR YOUR SUGGESTIONS. For this, the best reference for new and repeat users is the obs4MIPs CoGsite. We prefer to highlight it (https://esgf-node.llnl.gov/projects/obs4mips) so that readers of the manuscript and users are pointed to the latest project information.