

**A Proposal for
Oversight and Governance of Observational and Analysis
Data Prepared for Model Evaluation**

See white paper prepared for the WDAC (dated February 25, 2013)
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Current status

- NASA has made some key observations available that are technically aligned with CMIP5 data conventions. Several reanalysis datasets are similarly available
- A working group is focused on identifying additional NASA data sets of particular value for climate modeling research.
- The originators of the Obs4MIPs (at JPL and PCMDI) are striving to expand the obs4MIPs activity, however it is evident that the effort would benefit from broader oversight

Obs4MIPs Current Selection Criteria

- Directly comparable to a model output field defined as part of CMIP5
- Well established in the peer reviewed literature with demonstrated value for model evaluation
- Documented for their use in model evaluation, with product version traceability
- Open to contributions from data producers meeting obs4MIPs requirements
- “Technically aligned” with CMIP5, and then hosted on ESGF

Challenges: Identifying datasets for Obs4MIPs

- Some filtering of candidate data sets may be necessary so that the user community can be guided to the most appropriate data available and is not confused by datasets that are largely duplicative or of demonstrably inferior quality
- The appropriate scope of product duplicity has yet to be determined. For example, how many SST products should be made available?
- Data validation, documentation in literature, value for model evaluation: How good is good enough for Obs4MIPs?

Challenges: Broadening the scope

- The focus of obs4MIPs and ana4MIPs has to date primarily focused on large scale, regularly gridded data, at monthly time scale
- Guidance and strategy will be required to include other data
- In general, strategic guidance regarding the evolution of obs4MIPs is needed, including the evolution of the protocols and requirements.

Challenges: Infrastructure support

- As observational scientists become aware of obs4MIPs/ana4MIPs, it is expected that they will show increasing interest in reworking their datasets to conform them to standards. Technical assistance will be requested and tools and documentation to facilitate this will be demanded, and so there will be a need for advocacy to raise resources for this effort.
- Currently, substantial effort is required to apply the CMIP5 data conventions to observational data. A “recipe” exists, but it needs to be improved.
- Its important to liaise with ESGF and its development

Challenges:

Coordination with other efforts is needed

- Other efforts, such as CFMIP-OBS, IS-ENES, CMUG are making great progress towards advancing the availability of observations for model evaluation and have expressed interest in contributing to Obs4MIPs. Coordination is needed to strengthen these mutual endeavors. With multiple efforts contributing, “how good is good enough?” must be carefully assessed.
- Emergent model intercomparisons are adhering to the overarching data conventions established for CMIP5. One example is the Atmospheric Chemistry and Climate Model Intercomparison Project (ACCMIP). The obs4MIPs criterion “Directly comparable to a model output field defined as part of CMIP5” will need to be augmented.
- There will be a need to negotiate the metadata standards and to coordinate with data systems. A high-level strategy and guiding principles will be needed to enable the coordination and negotiation between different communities.

Proposed oversight and guidance

- WDAC, in coordination with WMAC, is ideally suited to oversee obs4MIPs and ana4MIPs. This notion was raised and widely supported at the recent sessions of the WGNE and WGCM
- Various members of the early contributors to obs4MIPs and ana4MIPs are willing to serve on a broader committee. A member of WMAC has voiced willingness to participate, as has a member of ESA-CCI CMUG.
- WDAC oversight and guidance could greatly aid the aspirations of these efforts

Early objectives of a panel or task team:

- Review existing obs4MIPs/ana4MIPs protocols and contributions. Adopt these or revise as appropriate to establish the obs4MIPs baseline.
- Define a protocol for accepting contributed data sets – this includes the mechanics of how and what is considered, and the process for accepting rejecting, or deferring a data set.
- Coordinate within the AR6 timeframe a workshop (perhaps with WCRP backing) to recommend modifications for the next round of MIPs and observational products so that there is greater overlap.
- Consider all components of earth system modeling, identify high priority candidate data sets especially useful for model evaluation, and encourage work to bring them in conformance with the obs4MIPs/ana4MIPs data standards.
- Enhance visibility of obs4MIPs/ana4MIPs within the WCRP and initiate coordination with other relevant efforts.

A draft terms of reference:

- Establish standards for creating observational and reanalysis data sets that can be readily used to evaluate earth system models and promote development of conforming data sets.
- Ensure that whenever sensible, the standards are made consistent with data standards used in major climate model intercomparison efforts like CMIP.
- Coordinate activities with major climate model intercomparison efforts (e.g., CMIP) and liaise with other related WCRP bodies, ESGF, etc.
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- Encourage development of, compose content for, and oversee a website providing information on observational data sets for model evaluation.
- Seek community input and feedback on the value of products developed in conformance with obs4MIPs standards and evolve and tighten, if necessary, the standards to meet any additional needs.
- Report to the WDAC, WMAC, and brief other relevant WCRP committees and panels (e.g., the WGCM) on progress, status, and plans for activities overseen by the panel.