

Application for CMIP6-Endorsed MIPs

Please return to CMIP Panel Chair Veronika Eyring (email: Veronika.Eyring@dlr.de)

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The recently proposed, revised CMIP structure (see information on the CMIP Panel website at <http://www.wcrp-climate.org/index.php/wgcm-cmip/about-cmip>) provides for a small set of experiments to be routinely performed by modeling groups whenever they develop a new model version. The output from these so-called *ongoing CMIP Diagnostic, Evaluation and Characterization of Klima (DECK)* experiments will be distributed for community use via the ESGF infrastructure. Other Model Intercomparison Projects (MIPs) will build on the CMIP DECK experiments and augment them to address a broad range of scientific questions. Additionally proposed MIP experiments together with the CMIP DECK experiments will constitute the suite of simulations for the next phase of CMIP.

MIPs are now invited to request endorsement for the next phase of CMIP (i.e., CMIP6). Applications from MIPs requesting status as a CMIP6-Endorsed MIP should be sent to the CMIP Panel Chair. We would appreciate your application by mid-September 2014 in time for the next WGCM meeting, although applications will be considered after that point in time. A MIP may propose that a subset or even all of their experiments be included as part of the suite of simulations constituting CMIP6. The CMIP Panel will, together with the WGCM co-chairs, decide 1) whether a MIP meets the criteria for endorsement for CMIP6 and 2) which (if any) of its experiments will be included in CMIP6. Note that it is expected that all additional experiments proposed for CMIP6 will be scientifically analyzed and exploited by the MIP.

CMIP6-Endorsed MIPs can make full use of the ESGF infrastructure. In order to minimize the burden imposed on modeling groups wishing to participate, the MIPs seeking to be part of CMIP Phase X must agree to comply with the CMIP standards in terms of experimental design, data format and documentation. In general the WGCM encourages adhering to the standards in place for CMIP.

The main criteria for MIPs to be endorsed for CMIP6 are

- The MIP addresses at least one of the key science questions of CMIP6;
- The MIP follows CMIP standards in terms of experimental design, data format and documentation;
- A sufficient number of modeling groups have agreed to participate in the MIP;
- The MIP builds on the shared *CMIP DECK* experiments;
- A commitment to contribute to the creation of the CMIP6 data request and to analyze the data;
- A commitment to identify observations needed for model evaluation and improved process understanding, and to contribute directly or indirectly to making such datasets available as part of obs4MIPs.

The additional criterion used to determine whether a particular MIP experiment should qualify for inclusion as part of the CMIP6 suite of simulations is:

- The proposed experiment is of central importance to CMIP6;
- The proposed experiment has been run at least by two modeling groups already;
- The proposed experiment is useful in a multi-model context and to a number of climate researchers.
- A commitment to scientifically analyze, evaluate and exploit the proposed experiment.

Note that the CMIP panel and WGCM co-chairs will attempt to decrease the total number of experiments included in CMIP6, compared with CMIP5. Thus, it is possible that not all or even none of the experiments proposed by a CMIP6-Endorsed MIP will be included.

Proposals from MIPs should include the following information:

- * *Preliminary information used to determine whether a MIP should be endorsed for CMIP6 or not.*
- ** *Information that must be provided later (and before the panel can determine which experiments, if any, will be incorporated in the official CMIP6 suite).*
- Name of MIP*
- Co-chairs of MIP (including email-addresses)*
- Members of the Scientific Steering Committee*
- Link to website (if available)*
- Goal of the MIP and a brief overview*
- References (if available)*
- An overview of the proposed experiments*
- An overview of the proposed evaluation/analysis of the CMIP DECK and CMIP6 experiments*
- Proposed timing*
- For each proposed experiment to be included in CMIP6**
 - the experimental design;
 - the science question and/or gap being addressed with this experiment;
 - possible synergies with other MIPs;
 - potential benefits of the experiment to (A) climate modeling community, (B) Integrated Assessment Modelling (IAM) community, (C) Impacts Adaptation and Vulnerability (IAV) community, and (D) policy makers.
- If possible, a prioritization of the suggested experiments, including any rationale**
- All model output archived by CMIP6-Endorsed MIPs is expected to be made available under the same terms as CMIP output. Most modeling groups currently release their CMIP data for unrestricted use. If you object to open access to the output from your experiments, please explain the rationale.**
- List of output and process diagnostics for the CMIP DECK/CMIP6 data request**
 - whether the variable should be collected for all CMIP6 experiments, or only some specified subset and whether the output is needed from the entire length of each experiment or some shorter period or periods;
 - whether the output might only be relevant if certain components or diagnostic tools are used interactively (e.g. interactive carbon cycle or atmospheric chemistry, or only if the COSP simulator has been installed);
 - whether this variable is of interest to downstream users (such as impacts researchers, WG2 users) or whether its principal purpose is for understanding and analysis of the climate system itself. Be as specific as possible in identifying why the variable is needed.
 - whether the variables can be regridded to a common grid, or whether there is essential information that would be compromised by doing this;
 - the relative importance of the various variables requested (indicated by a tiered listing) is required if the data request is large.
- Any proposed contributions and recommendations for**
 - model diagnostics and performance metrics for model evaluation;
 - observations/reanalysis data products that could be used to evaluate the proposed experiments. Indicate whether these are available in the obs4MIPs/ana4MIPs database or if there are plans to include them;
 - tools, code or scripts for model benchmarking and evaluation in open source languages (e.g., python, NCL, R).
- Any proposed changes from CMIP5 in NetCDF metadata (controlled vocabularies), file names, and data archive (ESGF) search terms.**
- Explanation of any proposed changes (relative to CMIP5) that will be required in CF, CMOR, and/or ESGF.**