

## Procedure for getting a GeoMIP Testbed experiment adopted as a formal GeoMIP experiment

Approved by the GeoMIP Steering Committee on 10 April 2020

In the past, formal GeoMIP experiments (that is, experiments that are part of CMIP and listed on CMIP's website as GeoMIP official contributions) have been discussed by all GeoMIP participants, defined as anyone who is signed up to the GeoMIP list and wants to contribute to discussions. This was the case for the GeoMIP sea spray experiments (Kravitz et al., 2013) and the GeoMIP6 experiments (Kravitz et al., 2015). G4SSA (Tilmes et al., 2015) was designed separately but was included by Kravitz et al. (2015), allowing for opportunity to discuss whether that experiment should be a formal part of GeoMIP's contribution to CMIP. **This opportunity for comment and discussion is central to the values of GeoMIP.**

In recent years, GeoMIP has also included the Testbed, which is an opportunity for members of the GeoMIP community to propose new experiments, the only requirements being that the experiments are well described (so that modeling groups could in principle conduct those experiments) and that the experiments would lend themselves well to model intercomparison. Being part of the Testbed confers no special status, and Testbed experiments are not considered formal GeoMIP experiments.

Up to this point, there has been no formal procedure for how to assess whether a Testbed experiment should become a formal GeoMIP experiment, and if so, the process by which that can be done. Here we outline these steps.

The leader of the Testbed experiment should begin this process by making a proposal to the GeoMIP Steering Committee. Included in that proposal should be the following:

- 1) What experiments are being proposed
- 2) The science goals of the experiments and (if not obvious) a description of why those questions have not been answered by other GeoMIP experiments
- 3) A thorough technical description of how the experiments should be performed
- 4) How many modeling groups will need to participate for this experiment to be successful (must be at least three). If there is confirmed participation from any modeling groups, please say so here.
- 5) The proposed tier of the experiments, how many years each experiment will be, and how many ensemble members are being requested

Much of this information will likely already be available as part of the Testbed submission, so this will likely be a simple matter of cut-and-paste.

The Steering Committee requests that the experiment leader provide a draft of a peer-reviewed manuscript describing the experiment. This draft will be circulated to all GeoMIP participants as supplemental information describing the experiment. If the experiment lead has not yet prepared a draft manuscript, they must provide the Steering Committee with a timeline and justification as to when such a paper will be completed.

The Steering Committee will assess this submitted information for completeness and make a quick determination of appropriateness for GeoMIP (by simple majority vote). The Steering Committee will then circulate this information to the GeoMIP community via the GeoMIP list, which will begin the comment period. The length of the comment period will be decided by the Steering Committee, with a minimum of one month. This will also allow GeoMIP participants time to read the provided material and the experiment proposer time to provide additional material in response to questions or comments.

At the same time as this comment period, the Steering Committee will also ask which modeling groups plan to perform this experiment. Email confirmation from a modeling group representative will be sufficient. There will be no time limit on this request to the modeling groups, but at least three modeling groups must commit to the experiment before it can be formally adopted. If any participant is not able to comment within that time period, they are welcome to contact the chairs with an expected date by which they can provide feedback; the chairs will then consult with the Steering Committee as to whether the commenting period should be extended.

All comments will be collected and organized by the chair, who will then pass the comments to the experiment leader after the comment period is concluded. The experiment leader will then be required to respond to the comments, either by modifying the experiment description or by providing a reason why the comments are to be rejected, as is customary for peer review. The experiment leader should work with all members of the Steering Committee in this regard. When the experiment leader is satisfied with their responses to comments, the Steering Committee will vote on whether the new experiment is to be accepted as a formal GeoMIP experiment. To honor the consensus-based, community nature of GeoMIP, a two-thirds majority of the Steering Committee will be required to approve the experiment.

If approved, the GeoMIP co-chairs will work with the experiment lead to list the experiment on the CMIP website and on the GeoMIP website, as well as create all of the necessary protocols. If the experiment is not approved, the experiment lead is welcome to revise their experiment and try again, but no sooner than 6 months from the date of the Steering Committee's decision.