

Opportunity to participate in climate model analyses leading towards the IPCC Fourth Assessment Report

Climate modeling groups around the world have been charged with performing an unprecedented set of coordinated 20th and 21st century climate change experiments, in addition to commitment experiments extending to the 22nd century, for the IPCC Fourth Assessment Report (AR4). This will require a considerable expenditure of human and computer resources to complete these experiments. The resulting multi-model dataset will be a unique and valuable resource that will enable international scientists to assess model performance, model sensitivity, and model response to a variety of forcing for 20th, 21st, and 22nd century climate and climate change.

There will be an international process to collect, compile, and analyze output from this multi-model dataset for direct input to the IPCC AR4. *Any interested person or group can participate in this multi-model analysis activity.* Though there is a tight time schedule, this is a way for anyone to become involved with the IPCC AR4 process. A person or group can pick an analysis topic, and email the chair of the Working Group on Coupled Models (WGCM) Climate Simulation Panel, Gerald Meehl (IPCC_analysis@ucar.edu), a one paragraph description including the person or persons who will be doing the analysis, the subject of the intended analysis, the objective of the analysis, and the model data required. This information will be registered by the WGCM Climate Simulation Panel [Meehl, chair (NCAR, USA), members John Mitchell (Hadley Centre, U.K.), Bryant McAvaney (BMRC, Australia), Curt Covey (PCMDI, USA), Mojib Latif (MPI, Germany), and Ron Stouffer (GFDL, USA)] and posted to the CMIP web page. The Panel will strive to enhance communication among analysis investigators to avoid overlap as much as possible.

The registration process is open now, with a deadline of September 1, 2004. At that time, the Panel will have a list of investigators and analysis topics, and this list will be turned over to the lead authors of the relevant IPCC AR4 chapters at the First IPCC Lead Author Meeting in late September, 2004. This material will serve as a place holder for results that can be incorporated into the first draft that will be prepared for the Second Lead Authors Meeting in May, 2005.

Meanwhile, modeling groups will complete the bulk of the climate model simulations by September, 2004. Around the time of the First IPCC Lead Author Meeting in late September, the contact people who have registered for analysis projects will be notified via email concerning model data availability, and instructions will be given for accessing the multi-model dataset from PCMDI. The multi-model analyses will then proceed for the next five months leading up to the **International Workshop on Analyses of Climate Model Simulations for the IPCC AR4.**

The workshop will be held from March 1 – 4, 2005, and will be convened by U.S. CLIVAR and hosted by the International Pacific Research Center (IPRC) at the University of Hawaii in Honolulu. Scientific papers describing the results of the multi-model analyses for IPCC will be presented at the workshop. There will be a workshop

report summarizing the presentations that will be furnished to the lead authors of the relevant chapters for the AR4. Results from the analysis projects must then be written up by the respective investigators, and submitted to peer-reviewed journals by the time of the Second Lead Author Meeting in May, 2005, in order to be fully included and assessed in the AR4 as specified by the guidelines of IPCC.

The workshop organizing committee consists of members of the US CLIVAR Scientific Steering Committee [Gerald Meehl (NCAR), James Hurrell (NCAR), Lisa Goddard (IRI), and Dave Gutzler (Univ. New Mexico)]. The committee will organize the workshop in consultation with the WGCM Climate Simulation Panel.

Below is a list of runs being performed by modeling groups for the AR4:

1. 20th century simulation to year 2000, then fix all concentrations at year 2000 values and run to 2100 (CO₂ ~ 360ppm)
2. 21st century simulation with SRES A1B to 2100, then fix all concentrations at year 2100 values to 2200 (CO₂ ~ 720ppm)
3. 21st century simulation with SRES B1 to 2100, then fix all concentrations at year 2100 values to 2200 (CO₂ ~ 550ppm)
4. 21st century simulation with SRES A2 to 2100
5. 1% CO₂ run to year 80 where CO₂ doubles at year 70 with corresponding control run
6. 100 year (minimum) control run including same time period as in 1 above
7. 2xCO₂ equilibrium with atmosphere-slab ocean
8. Extend one A1B and B1 simulation to 2300
9. 1% CO₂ run to quadrupling with an additional 150 years with CO₂ fixed at 4x
10. 1% CO₂ run to doubling with an additional 150 years with CO₂ fixed at 2x

PCMDI will collect data from the runs above for a subset of fields as noted on the CMIP web page (<http://www-pcmdi.llnl.gov/cmip/>). PCMDI also has archived a collection of forcing datasets for 20th and 21st century climate simulations.

As noted above, the scale of this ambitious exercise is unprecedented in our community, and the timetable is tight. However, if an individual or group desires to become involved in the IPCC AR4, this is a very accessible way to do that. All that is required is to choose an analysis topic by September 1, 2004, and register with the WGCM Climate Simulation Panel, perform the analysis on the multi-model dataset that will be available in late

September, 2004, write up and submit the results to a peer-reviewed journal prior to May, 2005, and the results will be made available to the lead authors of the IPCC AR4.

If you desire to register an analysis topic, please be as specific as possible. For instance, “ENSO” as a general topic is too general, but it should be narrowed down to something like, for example, “ENSO effects on the Indian monsoon in 20th and 21st century climate”.

The WGCM Climate Simulation Panel

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