

## Report to CLIVAR SSG-18

**Panel or Working Group:** CLIVAR/JSC Working Group on Coupled Modeling (WGCM)

### **1. Contributions to developing CLIVAR science and fit, where appropriate, to the CLIVAR imperatives**

*Anthropogenic Climate Change, Decadal variability, predictability and prediction, Improved atmosphere and ocean component models of Earth System Models*

The motivation for the 5<sup>th</sup> Phase of the Coupled Model Intercomparison Project (CMIP5) emerged in the latter stages of the IPCC AR4 process where a number of gaps became evident in the information CMIP3 could provide. At an Aspen Global Change Institute session in mid-2006, representatives from a number of interested communities (e.g. physical climate science, biogeochemistry, impacts/adaptation, integrated assessment modeling) formulated the basic concept for CMIP5, dividing the simulations into the near-term and long term time scales, with additional experiments to better address biogeochemical feedbacks in the climate system. In parallel, the community interested in physical climate feedbacks, in particular those associated with clouds and moist processes, have elaborated a strategy to better assess these processes in models and better understand their role in climate change.

Thus, the scope of CMIP5 is much broader than CMIP3, with not only long term concentration-driven AOGCM experiments with the four new RCP mitigation scenarios, but also emission-driven Earth System Model (ESM) experiments, some of those with partial coupling to explore sensitivity of the carbon cycle feedback. A number of hindcasts and near term prediction experiments will represent the new field of climate research called decadal climate prediction. There will be many more experiments to explore the impact on climate of various natural and anthropogenic forcings, the reasons for model spread in terms of size and nature of feedbacks, and paleo-climatic experiments to assess the ability of CMIP5 models to reproduce past climate changes to better inform the credibility of the models' future climate change projections. Even more versions of models will involve aerosols-chemistry-climate models, higher resolution AOGCMs (about 50 km resolution) and higher resolution yet (about 25 km) atmosphere-only time slice experiments. CMIP5, together with model intercomparison projects run in parallel to CMIP5 (e.g. Transpose-AMIP, which will evaluate CMIP5 climate models in weather forecast mode), will make it possible to assess and to analyze models participating in CMIP5 over a wide range of time-scales (from the process to the paleo-climatic scale) and configurations.

### **2. Cooperation with other WCRP projects, outside bodies (e.g IGBP) and links to applications**

WGCM's partners include CLIVAR, GEWEX, SPARC, CliC, WGNE, WOAP, IDAG, AIMES, WGSIP

### **3. Workshops/meetings held**

The 14th Session of the CLIVAR/WCRP WGCM occurred on 4-6 October 2010, hosted by the UK Met Office, Exeter, UK

(<http://www.clivar.org/organization/wgcm/wgcm-14/wgcm14.php>). The two main topics of this meeting were progress of the Coupled Model Intercomparison Project: Phase 5 (CMIP5) and model evaluation and development. WGCM's partners (including CLIVAR, GEWEX, SPARC, CliC, WGNE, WOAP, IDAG, WGSIP) and the global modelling centres reported on their activities of relevance to CMIP5, including associated coordinated experiments, and progress in model development. The CMIP5 discussion included the prospects and coordination of analyses across the different CMIP5 components and recommendations for analysts. WGCM encouraged the CMIP5 partners to pledge introductory/overview papers on the components of CMIP5 that they are leading in an effort to facilitate the assessment process by IPCC author teams in AR5. Discussions also addressed how to promote and facilitate model development, how to benefit from CMIP5 analyses and implications for WCRP coordination.

#### **4. New activities being planned, including timeline,**

Continued effort in:

- CMIP5 and WGCM-endorsed community coordinated experiment participation and analysis. The anticipated timeframe for CMIP5 is of 5 years.
- Model development and Evaluation

#### **5. Workshops/meetings planned (see ANNEX B also)**

CMIP5 Analysis Workshop – 5-9 March 2012, University of Honolulu, Hawaii, USA (Annex B1)

15<sup>th</sup> Session of WGCM – September 2012, Hamburg, Germany (3rd International Conference on Earth System Modelling, 16-21 September). (Annex B2)

#### **6. Issues for the SSG**

## Annex B1

### Proforma for CLIVAR Panel and Working Group requests for SSG approval for meetings

Requests should be made through D/ICPO (Robert.Molinari@noc.soton.ac.uk) against the following headings:

1. Panel or Working Group: **WGCM**
2. Title of meeting or workshop: **CMIP5 Analysis Workshop**
3. Proposed venue: **International Pacific Research Center (IPRC), University of Hawaii, Honolulu, Hawaii, USA**
4. Proposed dates: **5-9 March 2012**
5. Proposed attendees, including likely number: **150**
6. Rationale, motivation and justification, including: relevance to CLIVAR themes & JSC cross cutting topics and any cross-panel/working group links and interactions involved:

The workshop will showcase the first CMIP5 results, as coordinated by the different CMIP5 partner communities

7. Specific objectives and key agenda items
8. Anticipated outcomes (deliverables):
9. Format: Short presentations and posters
10. Science Organising Committee (if relevant):

The CMIP5 workshop will be organized by WGCM and the CMIP Panel along with contributions from AIMES.

11. Local Organising Committee (if relevant):
12. Proposed funding sources and anticipated funding requested from WCRP:

Funding sources: WCRP, US inter-agency group, IPRC

Preliminary discussions with IPRC estimate the logistical costs of the workshop, without any other funding support, estimating for 150 people will require a registration fee of US\$200.

A proposal will be prepared in the next coming months by the scientific organizing committee to bid for additional funding to lower the registration fee and to contribute to the travel costs for young scientists and speakers.

## **Annex B2**

### **Proforma for CLIVAR Panel and Working Group requests for SSG approval for meetings**

Requests should be made through D/ICPO (Robert.Molinari@noc.soton.ac.uk) against the following headings:

1. Panel or Working Group: **WGCM**
2. Title of meeting or workshop: **15<sup>th</sup> Session of WGCM**
3. Proposed venue: **Hamburg, Germany**
4. Proposed dates: **September 2012**
5. Proposed attendees, including likely number: **40-50**
6. Rationale, motivation and justification, including: relevance to CLIVAR themes & JSC cross cutting topics and any cross-panel/working group links and interactions involved:

The proposed location and time will coincide with the 3rd International Conference on Earth System Modelling, being held in Hamburg on 16-21 September.

7. Specific objectives and key agenda items
8. Anticipated outcomes (deliverables):
9. Format: 3-day meeting
10. Science Organising Committee (if relevant): WGCM
11. Local Organising Committee (if relevant):
12. Proposed funding sources and anticipated funding requested from WCRP:  
WCRP funding – 20K USD