



**Subject:** WCRP Community-Wide Consultation on Model Evaluation and Improvement

**To:**

- NWP and Seasonal Forecasting Centers
- World Climate Modeling Centers
- WGCM and associated MIPs (PMIP, CFMIP, C4MIP, etc)
- CLIVAR modeling groups (WGOMD, WGSIP)
- CLIVAR regional and monsoon panels
- US CLIVAR panels and working groups, CPTs
- WCRP Task force on Regional Climate Downscaling
- WCRP Projects (CLiC, SPARC, GEWEX)
- THORPEX, WWRP
- IGBP/AIMES

**From:**

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Errors in climate (ocean-atmosphere-land-ice) and NWP general circulation models substantially limit the skill of climate and weather predictions on a wide range of space and time scales. Identifying these errors and understanding their root cause constitutes a prerequisite for the planning of model improvement activities. On the other hand, translating the wealth of results from process studies, observational campaigns etc. to model improvements is a non-trivial issue for the modeling community.

For this purpose, we propose to initiate a "bottom-up survey" about the key deficiencies of regional and global NWP and climate models. This survey includes problems identified in operational NWP and seasonal prediction centers as well as deficiencies that climate modelers and analysts of CMIP3 simulations have identified for the current generation of models. The priorities identified by the survey will be the basis of model development/improvements across the entire WCRP Projects and activities, and also through its partnership with WWRP, IGBP and ESSP. WCRP is also currently examining the scope and structure of its modeling activities and the outcome of this survey will also inform these decisions/discussions.

We are asking modelers, analysts and process-orientated panels and international projects six targeted questions – see the template overleaf. The success of the survey in identifying priorities and opportunities depends on the involvement and enthusiasm of the participants in the survey either by sharing results and/or identifying actions to be taken.

The main purpose of the survey is to provide input to the strategic planning for model improvement activities that could be coordinated through the various working groups, projects and panels of WCRP. Suggestions for such coordinated activities are welcome. Results from this survey will be reviewed and discussed at the next WGCM and WGNE meetings. The information collected by this survey, including details, links and references on relevant ongoing and new activities (regional observational studies, observations, process modeling studies, theory, etc) will be made available by means of a community resource website and a white paper will synthesize the outcomes of this survey and make recommendations on where international coordination is needed for the development of the next generation of models.

***Please complete the survey by 15 September 2009*** and submit your response electronically to Anna Pirani at [apirani@princeton.edu](mailto:apirani@princeton.edu)



## **WCRP Community-wide Consultation on Model Evaluation and Improvement**

Please complete the following template by writing your answers into the boxes below the questions, sending any supplementary material such as clearly labeled figures in a separate file. Please submit your response electronically by **15 September 2009** to Anna Pirani at [apirani@princeton.edu](mailto:apirani@princeton.edu).

Q1: Please state your particular area of interest, e.g. global or regional climate or NWP modeling, seasonal prediction, sea-ice feedbacks, monsoons, troposphere-stratosphere exchanges, etc.

Q2: Given your interest, what would you consider/identify as the KEY uncertainties/deficiencies/problems of current models? What do you think should be evaluated/improved as a priority in models in terms of parameterization and/or interactions among processes? (Give references and/or one key figure where possible)

Q3: Do you see a particular gap (in knowledge, in observations or in practice) that would need to be filled, or a particular connection between different modeling communities or between modeling, process studies and observations that should be made a priority?

Q4: Do you see any particular resource or opportunity within the modeling/process study/observational/theoretical community (e.g. new results, new observations) that would be particularly useful and should be exploited to tackle this problem?

Q5: What would best accelerate progress on the topics raised in questions 1-4? Do you have suggestions for new initiatives (new process studies, field campaigns, or new collaborative approaches, eg international Working Groups, Climate Process Teams)?

Q6: Any other suggestions/issues to be raised?