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.

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.
NWP model development (regional and global), taking advantage of seamless links to climate model at Met Office
Process research and parametrization development relevant to the above.

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)

Low cloud and near surface temperature forecasts (especially in regional NWP as a key forecast problem; also clearly relevant for climate prediction)

Interaction of convection with larger-scale (how to relate large-scale model circulation errors to column based parametrization errors?)

Hydrological cycle across all timescales

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?

Still a big jump from process model to SCM comparisons to improving performance of full model. Strongly support use of NWP testbed for fast physics (rather than straight to climate) - strong correlation seen in Met Office Unified Model between errors in many fields at day 1 and in climate.

Surface energy balance remains key, but hard to make much progress if uncertainties in measurements of same order as model error. Good quality measurmeents of terms in this budget (and hyorological budget) key.

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?

For direct model evaluation, most useful projects are those that provide high quality observational dataset in a convenient format.

More detailed intercomparison of NWP models at day 1 (including tendency diagnostics) potentially a

powerful tool for improving NWP AND climate .

Idealized process model to SCM comparisons continue to be useful

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)?
See 4.
Specific campaigns or projects generally more useful than adding long-term to the large number of WGs, WMO committees.

Q6: Any other suggestions/issues to be raised?