Selected points from RT1 and other relevant discussions at ENSEMBLES General Assembly, Athens, Sept 2005

Earth System Model (ESM) Work

The need to firm up the design of ESM ensemble runs for the "stream 2" simulations was discussed. While formal specification of experiments in workplans will come later, an internal document summarising our intentions will be needed soon, as this will inform the nature of the testing to be done before WP 1.1 finishes at month 24. Issues include which models will be included, which set of ESM modules will be simulated interactively, which scenarios will be run, which forcing agents will be specified as concentrations and which as emissions, which aerosol species will be included etc. WP 1.1 will liaise with RT2A during the year to take this forward.

Assessment of ensemble prediction systems

There is a need to decide how to compare and assess different methods of sampling modelling uncertainties, both for seasonal-decadal (s2d) and longer time scales. The preliminary assessment due at month 18 should not aim to provide a potentially premature decision on a "best" method. More time will be needed to develop a suitable basis for comparing methods, which should be informed by feedback from users (e.g. the relative performance of different methods may vary with application and time scale). Also, more time will be needed to determine whether a combination of methods can outperform any individual approach. The identification of a fair basis for assessing unverifiable probabilities for long term climate will be a particularly tricky problem, because different approaches rely on different assumptions and philosophies. In this connection, the importance of using verifiable seasonal-decadal results as a test bed for unverifiable long term climate results was again emphasised. For s2d verification, ECMWF have a standard package developed for DEMETER which will be a good starting point.

Weighting

Related to the above paragraph, there was discussion of alternative approaches to weighting, both in RT1 and in a cross-cutting session on the Monday of the meeting. We have several proposals for work in WP 1.2 on how to weight model simulations, or how to produce probabilistic predictions from ensembles. We felt that it would be best not to attempt to select a subset of "chosen" methods at this stage, but rather to allow time for a range of methods to be developed, with a view to providing a report documenting and comparing them later in the project.

What do other RTs want from the RT1/2A ensembles?

More information is needed on what type of output is required from the GCM ensembles, for use in downscaling and impacts modelling. Some users would prefer to be given pdfs derived from the model runs, rather than the model runs themselves. They would map the response of their impact model to a wide range of possible inputs (e.g. long term mean changes in temperature and precip), and would only need to be told the relative probabilities for different inputs. Other users would need full daily time series from individual GCM simulations. These would provide more detail, but the (relatively) small

set of GCM runs from which data is available might not be sufficient to sample representatively the underlying pdf of possible climate futures. It was agreed that a cross-RT group would be set up to develop a few simple examples of end-to-end use of model data to predict impacts from GCM and/or RCM results. James and Paco will be in this group.

Storage of data from model simulations

RT1 and RT2A are working closely to create a comprehensive common archive of the global simulations. The ACC simulations will be eventually archived at MPI/M&D, although the final list of common variables is not decided yet. The s2d simulations will all be publicly available from ECMWF. Data from the perturbed-parameter multi-decadal simulations will also be made available. The list of variables to be stored from these larger ensembles will probably be a subset of the multi-model data, and will probably also be archived at MPI. However this remains to be confirmed. More information can be found in a presentation given by Antje Weisheimer that will be accessible from the ENSEMBLES web site.

Initialisation of seasonal-decadal experiments

In addition to the work in progress on ocean initialisation, the need to perform further investigation of other aspects of the system was noted, including, for example, the land surface and sea-ice.

Meetings

It was proposed to hold a joint RT1/RT2A meeting at ECMWF, during June 2006. This would be held as part of a wider meeting involving the CLIVAR community, and would also include the WP 1.1 workshop on finalisation of the new ESMs.

The next Annual Assembly will probably be held during November 2006, in Lund. There will also be a Management board meeting in late spring of 2006, which will review a number of major deliverables due at month 18.

For information: new emissions scenarios

SRES scenarios are under a fundamental review as part of RT7. The expectation is that the IPCC will no longer drive the process for scenario-generation as it did with SRES, but will review new scenarios that arise independently. The work is heading towards new "emissions reduction to stabilisation" scenarios at ~450/550/650/750 ppmv to feed into GCMs, but these will primarily be stated in terms of emissions (including S, N and aerosols, on continental scale, possibly gridded) rather than concentrations. Some concentration data will be available but the modelling behind it is considered less trustworthy. A complete new set of baseline scenarios is expected to be published in 3-4 years time but preliminary versions will be available earlier. The main advance relative to SRES seems to be in the socio-economic/trade modelling.