



6-month progress report

Period: 1 September 2005 to 28 February 2006

RT 4, prepared by J-L Dufresne on 10 April 2006

Status of milestones and deliverables due in this period:

Number	Date due	Description	Status ¹
D4.0.2	Month 18	Design specification for the coordinated time-slice experiments	Completed
D4.1.1	Month 18	Characterisation of the water vapour and cloud feedbacks in response to anthropogenic forcing	Completed
D4.1.2	Month 18	Analysis of the results from the first phase of the Coupled Climate Carbon Cycle Intercomparison project (C4MIP).	Expected to be completed 2 month late
D4.2.1	Month 18	Characterization of modes of large-scale, low-frequency climate variability	Completed
D4.3.1	Month 18	Statistical methods for identifying regimes and estimating extreme-value tail probabilities using multi-model gridded data. Reports will be written up on this and disseminated to all partners and software in the R language and will be made freely available.	Completed
D4.4.1	Month 18	Synthesis of current estimates and mechanisms of predictability on seasonal to decadal timescales, including understanding the influence of ocean initial conditions, and with a focus on the North Atlantic European sector	Expected to be completed 3 to 6 month late
M4.1.2	Month 18	Assessment of feedbacks in existing simulations to provide benchmark against which the new ENSEMBLES multi-model system can be judged	Completed
M4.2.1	Month 18	Design and commence a set of co-ordinated time-slice experiments designed to explore the sensitivity of climate and its modes of variability to specific forcings, and in particular the factors that influence the ratio of land versus ocean warming under climate change	Completed
M4.3.1	Month 18	Development of statistical methodologies to explore climate variability and extreme events, tested initially on existing gridded data sets, for use with the ENSEMBLES multi-model system	Completed

¹ E.g., completed on time, completed 1 month late, expected to be completed 2 months late because of [some reason]

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M4.4.1	Month 18	Development of methodologies to explore climate variability and predictability tested initially on existing simulations for use with the ENSEMBLES multi-model system	Expected to be completed 3 to 6 month late
M4.4.2	Month 18	Assessment of seasonal-to-decadal variability and predictability in existing simulations to provide benchmark against which the new ENSEMBLES multi-model system can be judged	Expected to be completed 3 to 6 month late

Forecast status of milestones and deliverables due in next 6 months:

Number	Date due	Description	Forecast Status ²
D4.0.3	Month 24	Set up a data archive for the RT4 coordinated experiments	Expected to be on time
M4.2.4	Month 24	Analysis of the land/seawarming ratio and potential processes in CMIP integration to guide further development of the coordinated experimentation	Expected to be on time
M4.3.2	Month 24	Assessment of climate variability and extreme events in existing simulations to provide benchmark against which the new ENSEMBLES multi-model system can be judged. Preliminary analysis of extremes and regimes in coupled runs completed.	Expected to be on time
M4.3.3	Month 24	Key large-scale factors for extremes explored	Expected to be on time

Summary of achievements this period³:

A very short summary is presented here, more details may be found in the 6 month progress report of individual WPs.

WP4.1

- IPSL and Hadley Centre continued the analysis of water vapour and cloud feedback analysis on a multi-model basis. Publications, deliverable D4.1.1 and milestone have been achieved.
- IPSL and Hadley Centre continued the analysis of the coupled climate-carbon cycle simulations on a multi-model basis in the context of the C4MIP. Publication have been achieved and deliverable D4.1.2 is in the process of writing.
- UCL-ASTR, NERSC, CNRM and IPSL continued the analysis of the freshwater flux in the north atlantic and arctic ocean. The link with the strength and the stability of the THC is examined.

WP4.2

² E.g., expected to be completed on time, expected to be completed 2 months late because of [some reason]

³ A few sentences or bullet points should suffice, perhaps 1 or 2 for each active WP

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- the impact of re-emerging sea surface temperature (SST) anomalies in the North Atlantic upon the atmospheric circulation has been explored (CERFACS)
- the origin of uncertainties in the global land precipitation response to global warming and the role of the North Atlantic-Arctic interactions have been explored (CNRM)
- Time slice experiments with ECHAM5 at two different resolution (T63 and T213) have been started (IfM-UniKiel)
- The analysis of the processes driving the climate variability in the Indian Ocean and the analysis of the effects of atmospheric horizontal resolution has been continued (INGV)
- Multiyear simulations with solar maximum and solar minimum conditions have been analyzed (MPI)
- The sensitivity of El Nino simulations to various forms of flux correction (heat and wind stress) and the response of the Asian Summer Monsoon to climate change has been studied (UREADMM)

WP4.3

- Completion of milestone M4.3.1 and deliverable D4.3.1 by UREADMM. The regimes part of D4.3.1 will hopefully be completed in the next few months by KNMI - they have had delays due to health problems that were mentioned in the last report.
- Organisation of a very successful ENSEMBLES workshop on extremes in Riederalp, Switzerland 25-28 March. (co-organised by UREADMM and UFRI).
- 1 week visit of UREADMM staff (Caio Coelho) to KNMI to help collaboration in WP4.3 and WP5.4. Implementation of R statistical functions in the KNMI climate explorer.

WP4.4

- The influence of soil moisture boundary conditions on atmospheric variability has been explored (CNRM)
- The influence of anthropogenic versus oceanic forcing on the diurnal temperature range over Africa has been analyzed (CERFACS)
- analysis of PREDICATE integrations to understand the processes that give rise to decadal forecast skill has been continued (CGAM)
- Different methods to identify circulation regimes have been implemented and studies have shown that in the atmospheric data set studied the clustering methods provide only weak evidence for multiple regimes (DMI)
- 5 member of high resolution runs has been completed and the analysis of the predictability on seasonal to decadal time scales in these runs has begun (IFM).

Summary of anticipated future problems and solutions (if any):

None

Any issues to be raised with, or advertised to, other WPs/RTs⁴:

- Analysis show that validating the mean present-day climate is not sufficient to assess the reliability of climate projections, and that interannual variability is another possible

⁴ E.g., we need ... from WPx by Jun06. We will be able to provide ... to WPx by Aug06. Constructive feedback and suggested improvements to the running of the project can be provided here, for RT0 or other RTs. Please state if you wish your RT leader to keep such comments anonymous

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candidate for constraining the model response [e.g. Douville et al. (2005), Bony and Dufresne 2005]

- The use of the ISCCP simulator in climate models has proven to be helpful to study cloud feedbacks. RT2.A partners are encouraged to use the ISCCP simulator in their simulations.