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Project acronym: ENSEMBLES

Project title: ENSEMBLE-based Predictions of Climate Changes and their Impacts

Instrument: Integrated Project Thematic Priority: Global Change and Ecosystems

**D2B.22 RCM scenario simulations at 25km resolution
available at the RCM database**

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Organisation name of lead contractor for this deliverable: Max Planck Institute for Meteorology

Revision [final]

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Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the Consortium (including the Commission Services)	

D2B.22 RCM scenario simulations at 25km resolution available at the RCM database

Within WP2B.1 several transient regional climate change simulations for Europe have been carried out in ENSEMBLES. The original plan for these experiments is described in Deliverable D2B.1.

Table 1 shows the actual, extended version of the plan - as agreed between RT2B, RT3 and RT6 -, and the status for the ENSEMBLES RCM simulations at 25 km horizontal resolution for Europe. All except one (see below) contractual runs are now available at the RCM database at DMI.

Fortunately a number of additional experiments compared to the original simulation plan (D2B.1) have been carried out by several partners. Furthermore, some partners provided more results from RCM simulations at 50km resolution, which are not included in table 1.

From the 24 (contractual and non-contractual) simulations at 25km horizontal resolution actually 20 are available at the ENSEMBLES RCM database at DMI.

One contractual run from METO-HC (HadRM3Q0 experiment driven by the ECHAM5 GCM) is missing and METO-HC is still committed to perform the missing simulations and to send the processed output to the DMI server. METO-HC is expecting to complete the process within one year, i.e. before end of 2010. METO-HC states that this is due to the availability of supercomputing power and human resources to complete the postprocessing of the data.

The main reason for not having completed the HadRM3Q0 integration driven by ECHAM5 is in the revision of a strategy following the second year report, which has been discussed and agreed by the partners. It has been underlined that the set of GCMs chosen for the RT2B matrix gave a narrow range of temperature response over Europe in comparison with the AR4 GCMs. This problem was addressed by including two "perturbed physics" GCM from the Hadley Centre ensemble in the set of GCMs and two 150-year integrations driven by the two "perturbed" RCM models. The two perturbed models were also used in two simulations with the ERA-40 reanalysis, which were needed for the RT3 investigations on the weighting system. These additional RCM integrations (380 years in total) were given priority over the ECHAM5/HadRM3Q0, which was postponed to the end of the project.

Finally, the simulation could not be performed last year since METO-HC has moved to a new supercomputing system and the RCM has not been fully ported yet.

The simulation results have been used for analyses shown in the final report and are still the basis for many more studies and scientific papers. The first fast analyses using the so-called "quick-look analysis" (D2B.21 and D2B.24) of the ENSEMBLES RCM transient simulations for Europe were very helpful and will be continuously be updated even after the end of the project.

Table 1. The ENSEMBLES RCM simulations for Europe at 25 km resolution. Those simulations and institutions marked with an *) are outside of the contractual runs. For the METO-HC GCM, there are standard (std), low and high sensitivity runs. Marked in italics are planned or ongoing simulations that as of to date have not yet been delivered to the data base.

GCM RCM	ERA40	METO- HC, Std	METO- HC,Low	METO- HC,High	MPIMET	IPSL	CNRM	NERSC	CGCM3	Total
METO-HC <i>HadRM</i>	1961- 2002	1950- 2100	1950- 2100*	1950- 2100*	<i>1950- 2100</i>					4
MPIMET <i>REMO</i>	1961- 2002				1950- 2100	<i>1950- 2050*</i>				2
CNRM <i>ALADIN</i>	1961- 2002						1950- 2050			1
DMI <i>HIRHAM</i>	1961- 2002				1950- 2100*		1950- 2100	<i>1950- 2100*</i>		3
ETH <i>CLM</i>	1961- 2002	1950- 2100								1
KNMI <i>RACMO</i>	1961- 2002				1950- 2100					1
ICTP <i>RegCM</i>	1961- 2002				1950- 2100					1
SMHI <i>RCA3</i>	1961- 2002		1950- 2100*		1950- 2100*			1950- 2100		3
UCLM <i>PROMES</i>	1961- 2002		1950- 2050							1
C4I <i>RCA3</i>	1961- 2002			1950- 2100*	1950- 2050*					2
GKSS <i>CLM</i>	1961- 2002					1950- 2050*				1
Met.No <i>HIRHAM</i>	1961- 2002							1950- 2050*		1
CHMI <i>ALADIN</i>	1961- 2002						<i>1950- 2050*</i>			1
OURANOS* <i>CRCM</i>	1961- 2002								1950- 2050*	1
EC* <i>GEMLAM</i>	1961- 2002									
VMGO* <i>VMGO</i>		1950- 2050*								1
Total		3	3	2	7	2	3	3	1	24