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D2B.21 Description of the ‘quick-look’ analysis procedure for the RCM scenario simulations

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Revision [1]

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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)	



ENSEMBLES RT2B

Deliverable D2B.21

**Description of the ‘quick-look’ analysis procedure
for the RCM scenario simulations**

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Overview and objectives of the ‘quick-look’ analysis

Within the present Deliverable the main objectives and the technical implementation of a so called ‘quick-look’ analysis are described. The basic idea is to present on a protected web site the evolution of trends and variability of a few key parameters for all transient RCM control and scenario runs which are done within RT2B.1. The analysis will be done for the RCM results itself, as well as for the results of the respective driving GCM. During the accomplishment of the RCM simulations the web-page will be updated at regular intervals with the newest results, which are provided by the respective partner.

The ‘quick-look’ analysis has the following objectives:

- To monitor the scenario simulations progress and quality:
In RT2B.1, several regional modelling groups are applying their RCMs for transient simulations using emissions after IPCC SRES A1B on a scale of 25km horizontal resolution for the time period 1950-2050, some of them until 2100. Sometimes errors in the model setup lead to multiple executions of the computationally intensive transient simulation. In some cases knowledge of the placement of a simulation in the band of the other ENSEMBLES RCM simulations after a simulation progress of some decades could help to identify such errors.
- To provide very fast first information on the performance of the RCM scenarios:
The results of the transient RCM simulations will serve as input to WP2B.2 and WP2B.3 and other RTs, in particular RT6. Some of these are mainly interested in general trends of basic meteorological quantities like temperature or precipitation. Therefore it is desirable to provide as fast as possible trends of mean values and variability for some key variables after completion of the runs. Additionally, these results may lead to an early publication giving highlights on the experiments.

Subject to the agreement of the contributing modelling centres, the web site will be made public at or before the end of the ENSEMBLES project.

Technical Implementation of the ‘quick-look’ analysis

Variables:

The “quick-look” analysis will be performed for the following list of variables:

- 2m-Temperature
- Precipitation
- Evaporation

The analysis will be done for the RCM results themselves, and additionally for the results of the associated GCM providing the boundary data (interpolated to the RCM grid).

Analysis Areas:

The analysis of trends and variability will be performed for the following areas:

- Whole ENSEMBLES model domain
- Areas similar to „PRUDENCE-areas“

For simplicity reasons, the computations of area means (to be done by the individual modelling partners) should be done on the original model grid, e.g. on the rotated coordinate system. For computing the values for the PRUDENCE regions (Fig. 1), 1/0-masks which are representing standard PRUDENCE areas as well as possible are required. Masks for models using the rotated coordinate system will be provided by MPIMET.

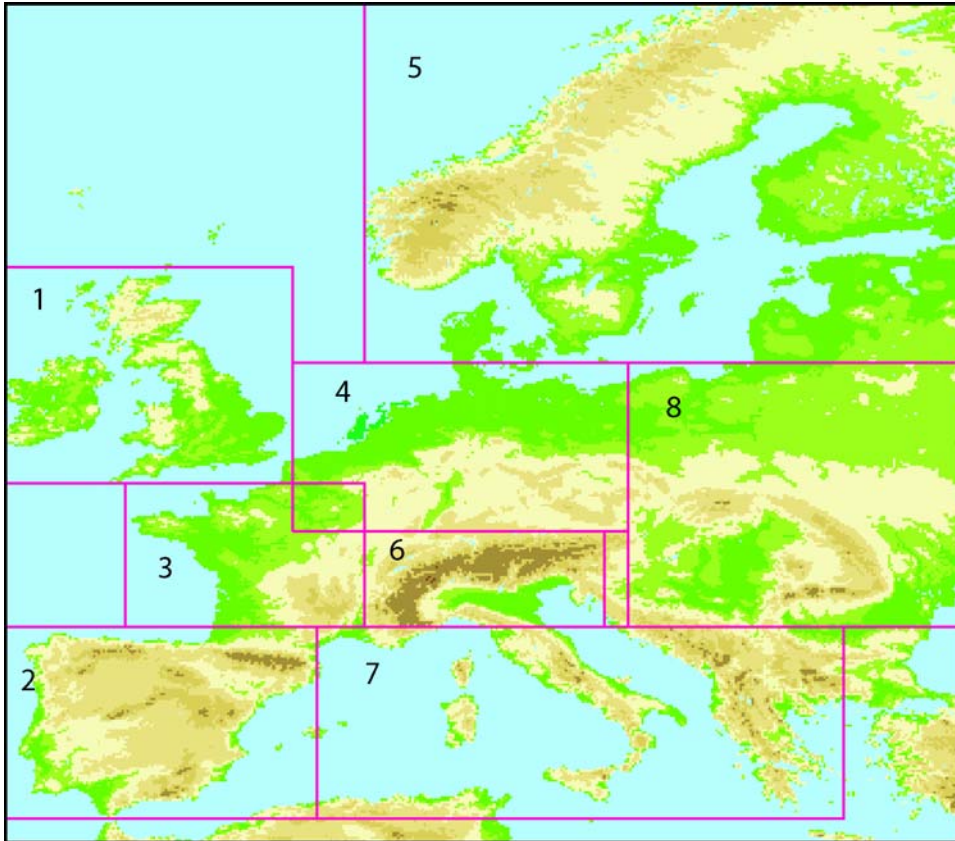


Fig.1: PRUDENCE areas

Analysis of trends and variability:

For the analysis variables, monthly mean values of area means for a couple of areas (see below) will be calculated by each modelling partner for each analyzed variable. This should be done at a regular interval, i.e. after completion of one decade in the transient run. The resulting numbers (one number per variable, per month, and per area = 3600 numbers per decade) will be delivered to the analyzing partner (MPIMET) by email.

The analyzing partner will compute from the received monthly values for each area, variable and model the following list of quantities:

- yearly mean values
- yearly standard deviation based on the monthly values
- yearly values of the seasonal mean (4 seasons)
- decadal standard deviation of the seasonal means
- mean annual cycle for each decade on a monthly basis
- annual cycle of the standard deviation of each individual month for each decade

For each area and each of the analysis quantities, a line graph plot showing results from all ENSEMBLES RCM transient runs will be updated with the new results. All these plots will be available to all ENSEMBLES partners through a password protected web site, with links from the regional scenarios web portal developed by UEA and the DMI data archive web pages.

Figure 2 shows an example plot for the evolution of yearly 2m-temperature (running mean based on monthly values).

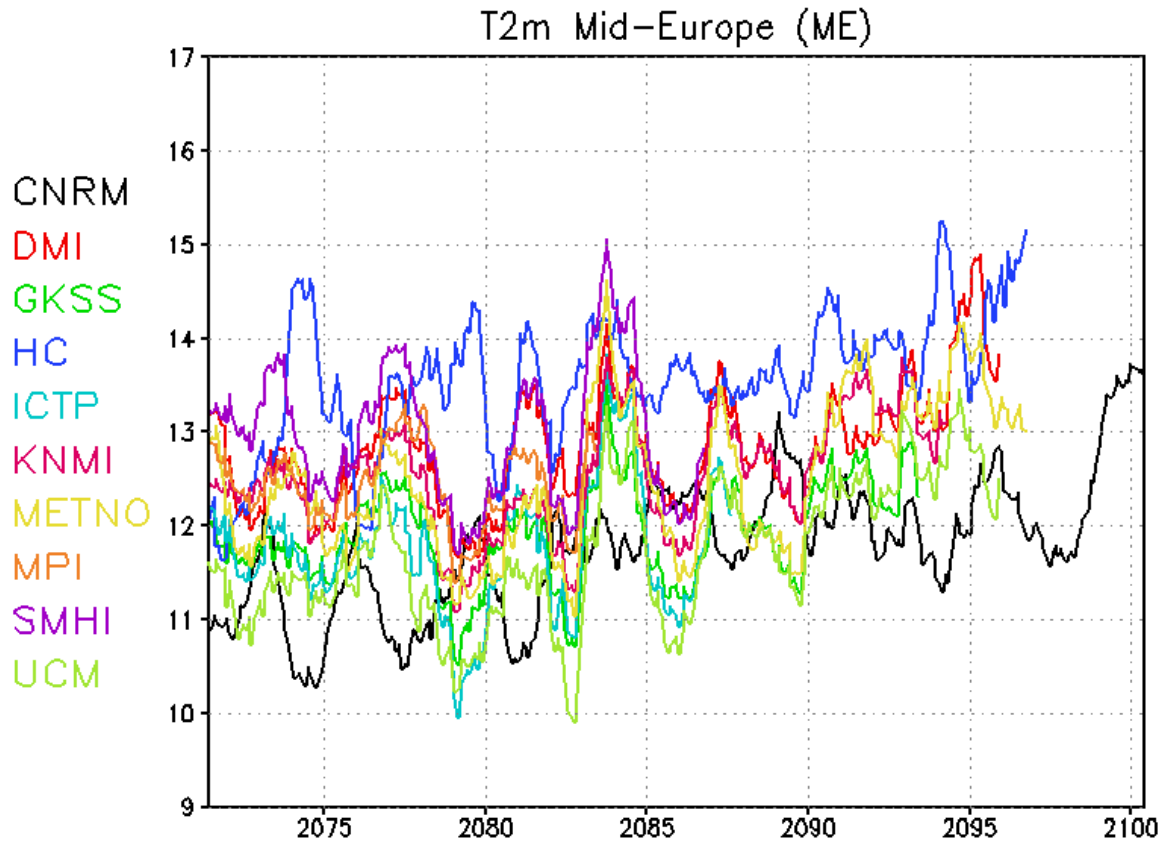


Fig. 2: Example plot for the evolution of yearly 2m temperature (running mean based on monthly values) evolution for PRUDENCE area 4 (Mid-Europe).

Analysis of small scale features (mainly for use in WP3.4):

For the analysis of small scale features, horizontal plots of seasonal decadal means will be produced on the RCM model grid. The 10-year seasonal mean data for each simulated decade should be provided by each individual RCM modelling partner in NETCDF format (same NETCDF specification as used for the RCM data in the RCM data base at DMI). The analyzing partner (MPIMET) will produce standardized plots from this data.

These plots of the horizontal distribution of the seasonal decadal mean of the key variables will then be continuously added to the password protected web site.