

Conditions of use for the climate simulation data using the regional climate model CLM

(in the CERA¹ database project "CLM_regional_climate model_runs")

Preamble

The Model and Data Group (M&D) at the Max Planck Institute for Meteorology, Hamburg (referred to hereinafter as data producer) has computed regional climate scenarios, which are made available via the CERA database of the WDCC² in the above named project. The simulations were carried out at the request of the Federal Ministry for Education and Research (BMBF) and in consultation with the group of German regional climate modellers (as per WLA Workshop³ Nov. '04). The cooperation project with the BMBF pursues the goal of providing free access to the model data to the participating and other interested institutions. The provision of the data intends to enable the work of climate impact research projects and to stimulate and support the development of adaptation strategies to climate change.

The data were computed at the German Climate Computing Centre (DKRZ⁴) in Hamburg using the regional climate model CLM. The simulations were carried out with support by the CLM developers (BTU Cottbus, GKSS Research Centre, Potsdam Institute for Climate Impact Research), the scientific steering committee of M&D, the shareholders of DKRZ and the BMBF. After the final quality review process all interested users will have access to the actual climate scenario data being calculated with high resolution both in space and time.

Attention is drawn to the special situation prevailing in this context, as the data will be released before the end of the final scientific review, so that the first users are actually involved in the validation process. This means that first users will have to use the data with special care.

CLM climate simulation data	
Data compilation	Model and Data Group (M&D) at MPI for Meteorology, Hamburg
Model	CLM 2.4.11 (Climate mode of the Local Model of the DWD) Dynamic model; drive: ECHAM5, non-hydrostatic
Model region	Europe
Simulation period	from 1960 to 2100
IPCC ⁵ emission scenarios	A1B, B1 (from 2001)
Resolution	0.165° (data stream 2), 0.2° (data stream 3); approx. 20 km
Structure	Rotated model grid (data stream 2 = DS2) or Regular lat/lon grid (data stream 3 = DS3); extraction of subregions possible.
Data format	netCDF or ASCII format

1 CERA: Climate and Environmental Data Retrieval and Archive

2 WDCC: World Data Center for Climate

3 WLA Workshop for the German contribution to regional modelling for the IPCC AR4, Nov. 2004

4 DKRZ: German High Performance Computing Centre for Climate- and Earth System Research

5 Intergovernmental Panel on Climate Change

User information

At the time of data release (December 2007), the quality control of the CLM computations have not yet been finished. Comprehensive quality control and an evaluation of the results is currently in progress. At this point your specific attention is drawn to the provisional nature of the results. Please note in particular the following points:

1. All data may be changed or withdrawn without prior notice, if it should become necessary during the on-going quality assurance process.
2. Please contact the data producers directly in the case of any inconsistencies in the CLM data or if you have any questions on interpretation. The two e-mail addresses sga@dkrz.de and data@dkrz.de are available for this purpose. The further procedure will then be agreed on individually.
3. At the moment, no quantitative statements are made on the deviation of the model climate from available observations and on the internal variability of the model. Absolute values and changes in the calculated climate scenarios should therefore be used with caution. You are expected to confer with the data producers before assessments are made.
4. The model results cannot be interpreted as point related exact values: instead, they represent mean values in space and time with the model resolution (grid spacing and time step).
 - a. For a spatial analysis it is therefore recommended to use a minimum number of 5x5 grid boxes in homogeneous terrain. Evaluation in highly differentiated terrain demands a special approach, depending on the respective issue. In this case, the user shall confer with the data producers.
 - b. Analysis in time should encompass a time period of at least 15 years. No individual time steps may be analyzed, instead only statistical considerations are permitted.
5. To analyze a combination of several model variables in a synergetic way, we strongly advise to use the original rotated model grid (DS2). Minor interpolation effects occur in spatial interpolation from the rotated (DS2) to the regular grid (DS3) which do not have an impact on the actual interpolated variable, but which can cause unrealistic results when combining several such variables (error propagation). When planning such analyses, again it is advisable to contact the data producers in advance in order to stipulate a suitable approach.
6. We draw specific attention to the fact that the data were interpolated to the regular grid (DS3) without any correction in altitude. In a highly differentiated terrain, this can have an impact on the parameters in the respective grid boxes due to the flattened topography.
7. The results on the regular grid (DS3) have been generated as a dedicated product for the end-users to facilitate the access to the CLM results. They are not suitable for the investigation of every possible question.