

Further development of WETTREG for the generation of regional scenarios based on results of the ENSEMBLES project

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Results of selected numerical regional and global climate models have been used to drive the regionalization method WETTREG in its 2010 version. The aim was to derive regional climate projections for the area of the German Federal State of Hesse. The time frame of the selected model runs encompassed the 20C runs (1961-2000) as well as the entire 21st century, using the SRES A1B scenario.

One item of investigation focused on the sensitivity of the WETTREG regionalization method with respect to different resolutions of the driving model's output. This included a study if the method, previously only applied to rather coarse-resolution global model outputs, would be suitable at all in conjunction with higher-resolution numerical regional model results. It was analyzed which consequences followed from using basic data with different horizontal resolution to drive WETTREG. Reanalysis data were considered to identify systematic and structural particularities in conjunction with different resolutions. Moreover within this sensitivity study several parameters of WETTREG were modified. In order to visualize the individual changes between the "tentatively introduced new" and "previously used" WETTREG method, a distinct kind of scatterplot was developed.

All in all, 16 model runs were analyzed: 7 runs were WETTREG regionalizations of different ECHAM5 MPI-OM runs; 9 further runs of global and regional dynamical models from the EU-ENSEMBLES project were regionalized with WETTREG.