



## **Regional downscaling of global climate simulations from CMIP5 with WRF: climate extremes in Europe**

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Within the Coupled model intercomparison Project Phase 5 (CMIP5) global climate simulations were performed world wide for historical greenhouse gas and aerosol concentrations (until 2005) and radiative concentration pathways until 2100. Although climate change is a global issue, regionally the impact will be much more diverse. More detailed information about the evolution of climate extremes such as heavy precipitation or heat waves are of special interest mainly for users of climate data carrying out mitigation and adaptation studies.

Within CORDEX CMIP5 (Coupled model intercomparison Project Phase 5) global climate model (GCM) data is downscaled to continental regions with 50 and to 12 km horizontal resolution.

With the Weather Research and Forecast (WRF) model we are performing simulations from 1958 to 2100 with  $0.44^\circ$  ( $\sim 50$  km) and  $0.11^\circ$  ( $\sim 12$  km) resolution in Europe within the projects ReKliEs-De (<http://reklies.hlnug.de>) and "FOR PROJEKT" (<https://klimawandel.uni-hohenheim.de/>) funded by the BMBF (Federal Ministry of Education and Research) and German Science Foundation respectively. WRF is forced by four different GCMs with spatial resolutions of  $\sim 1^\circ$  to  $2^\circ$  ( $\sim 100$ - $200$  km). Results of the simulations will be presented in respect to different indices for extreme climate conditions. The annual average precipitation reveals only marginal changes for the future. However, considering also seasonal timescales and different precipitation indices, the signs of climate changes are much more remarkable.