



## **Regional Climate Simulation (1989-2009) with WRF in the CORDEX-Europe Domain**

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Within the WRCP sponsored program “COordinated Regional climate Downscaling Experiment (CORDEX)”, regional climate simulations are performed by many modeling groups to contribute to the IPCC AR5 and the climate community beyond AR5.

A one-way nested WRF-ARW (version 3.1) model is applied to Europe for 1989 - 2009 with resolution of  $0.33^\circ$  and  $0.11^\circ$  respectively, forced with ERA-Interim data. The simulation is carried out on a rotated lat-lon projection. The physical options include Morrison double-moment microphysical scheme; the CAM shortwave and longwave radiation schemes; the new Kain-Fritsch (KF-eta) convection scheme; the YSU planetary boundary layer parameterization; as well as the Noah land surface model. In addition, the time-varied SST is considered. Selected variables including air temperature, precipitation and runoff are validated with long-term observation data to assess the capabilities and uncertainties of regional climate simulations with WRF. The focus is on the frequency, amount and location of precipitation, and the complex interaction between atmosphere and the land surface.

This study forms the baseline for a further high-resolution climate projection in the CORDEX-Europe domain for 2010 – 2030.