CLIMA PROOF

University of Natural Resources and Life Sciences, Vienna
Department of Water, Atmosphere and Environment

WITH FUNDING FROM
AUSTRIAN DEVELOPMENT COOPERATION

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Introduction to the Model Scenarios

National Workshops

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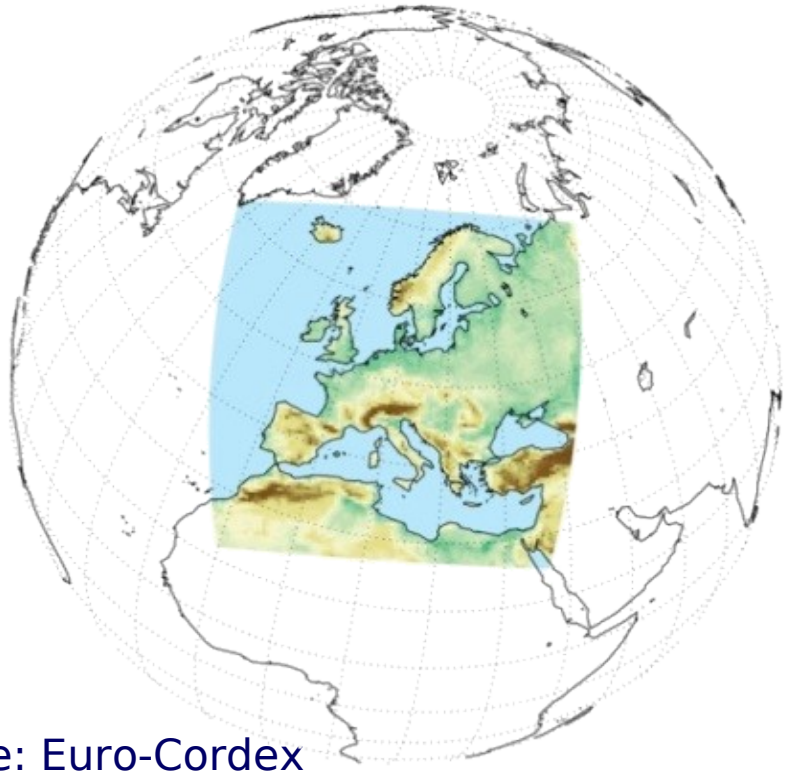
Regional climate models „EURO-CORDEX“

Coordinated Regional Climate Downscaling Experiment
www.cordex.org

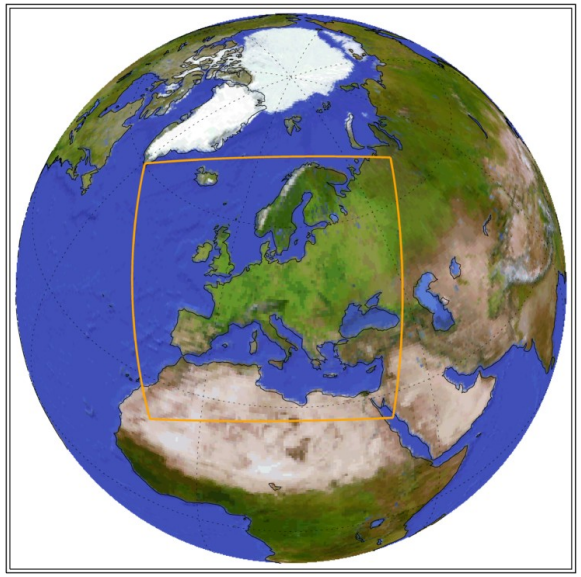
- Defined model regions www.euro-cordex.net
- Standardized spatial resolution 12 km and 50 km forced by the newest generation of global circulation models (CMIP 5)
- All RCP emission scenarios (2.6, 4.5, 8.5)



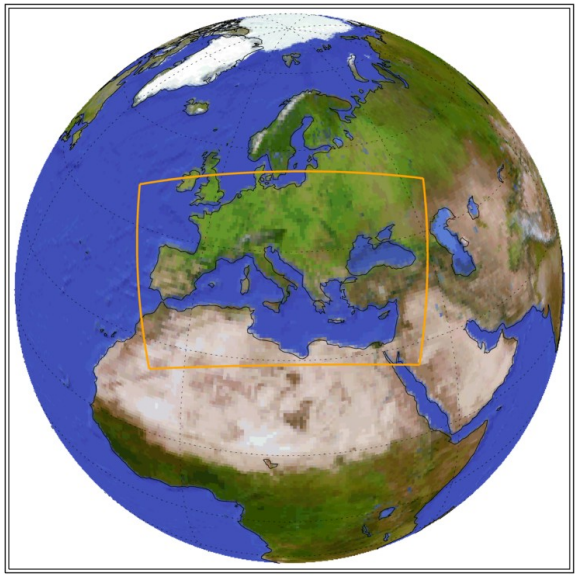
Quelle: Euro-Cordex

CORDEX Domains

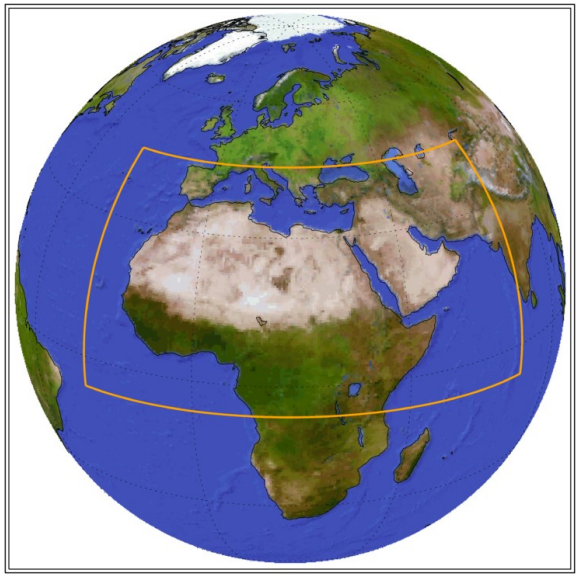
Europe
(EURO)



Mediterranean
(MED)



Middle East North Africa
(MENA)



Source: Cordex

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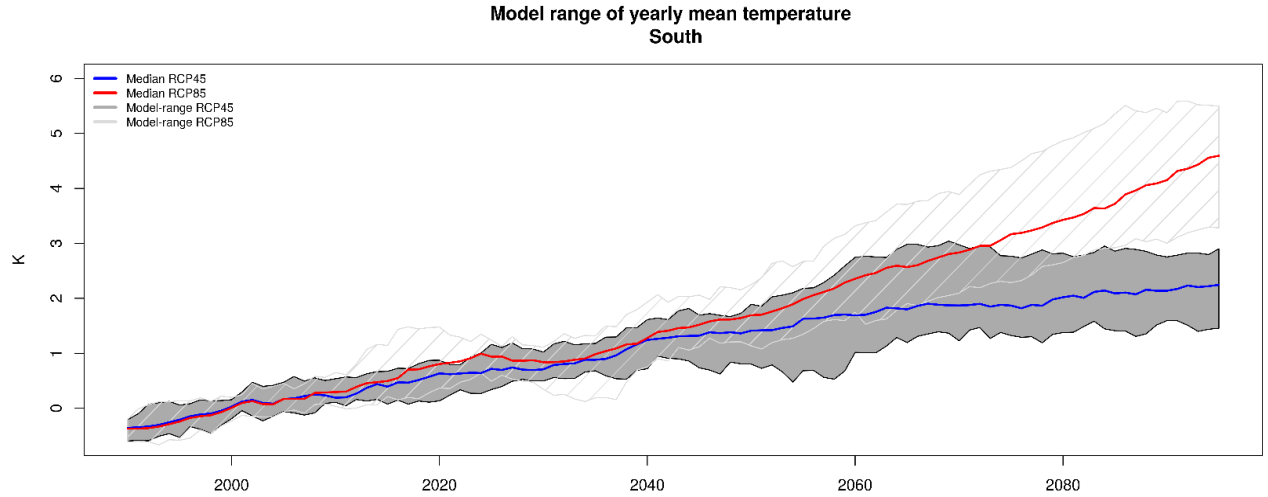
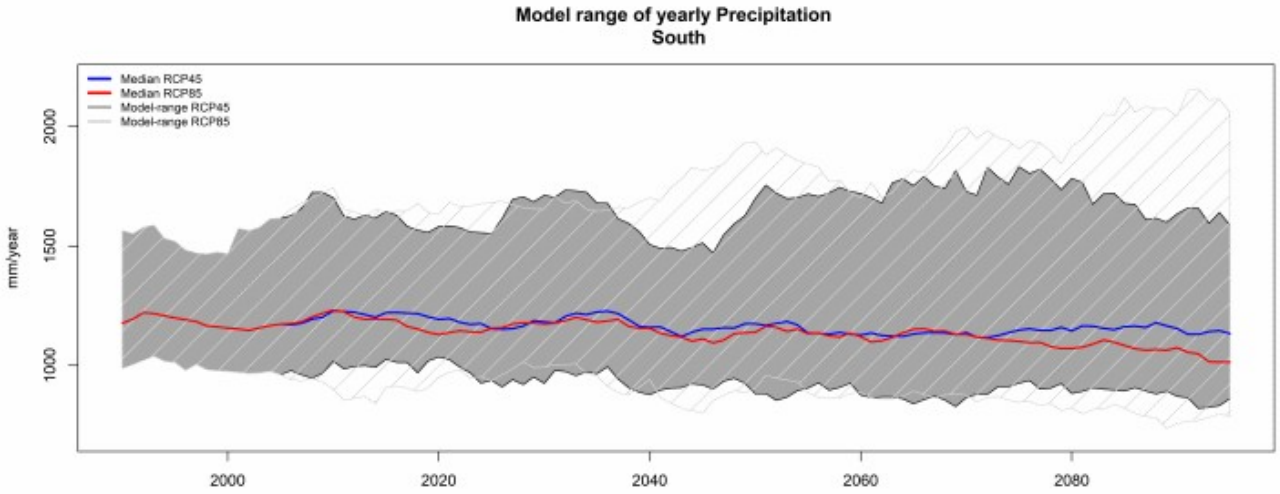
EURO-CORDEX Model Range





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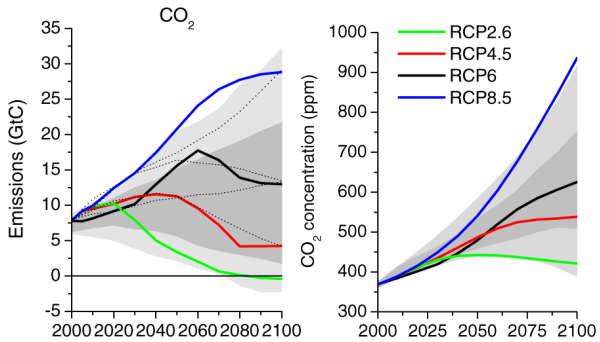
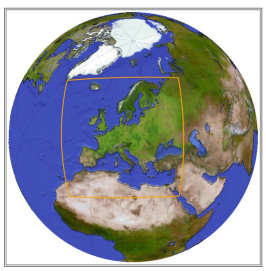
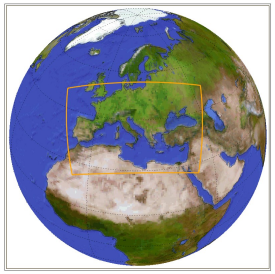
Climate Models

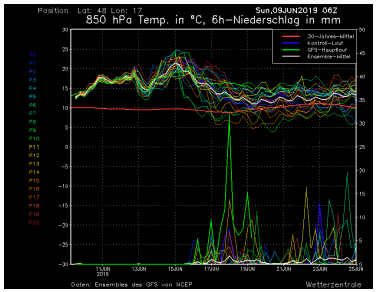
Differences in the results of climate models can be caused by:

- Emission scenario (RCP)
- Combinations of driving global circulation model (GCM) and regional climate model (RCM)
- Parameterization schemes of unresolved processes
- Domain (MED vs. EURO-CORDEX)
- Runs are transient and are not linked to observations









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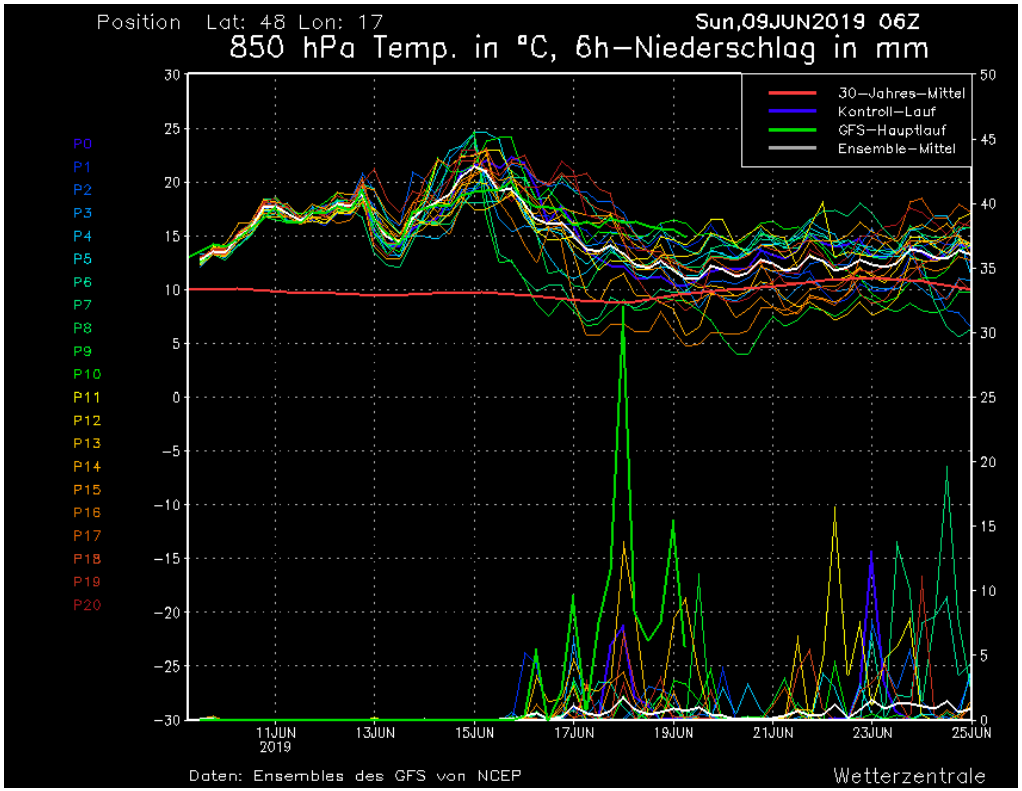
Climate Models

Small errors can result in large differences



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Climate Models in mountainous areas

- Western Balkan Region: highly complex terrain
- Spatial resolution of regional climate models (RCMs) not sufficient
- Influence of mountains on climate not well represented
- Additional bias correction and localization is needed to make the climate scenarios suitable for impact modelling or assessments

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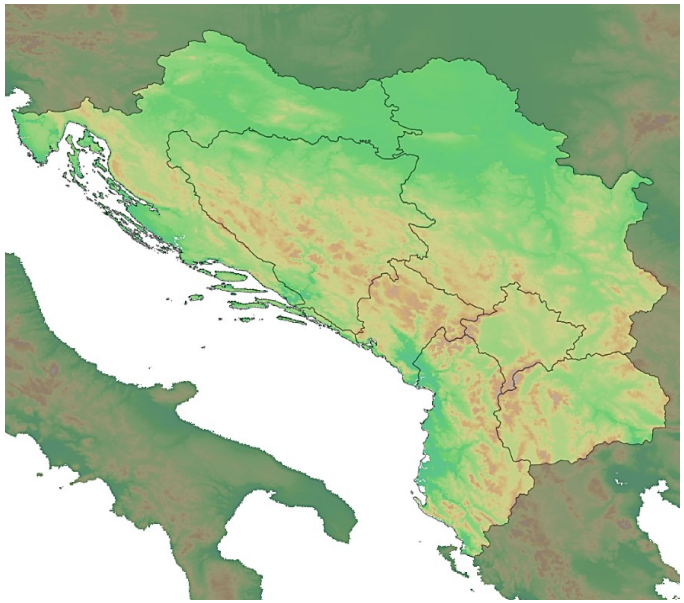
Ensemble of bias-corrected climate scenarios

An ensemble of **44 bias corrected climate model scenarios** is produced in the ClimaProof project.



Temporal resolution	Daily
Spatial resolution	0.1° (~ 11 km) (WSG 1984)
Temporal extent	1981 - 2100
Geographic extent	Western Balkan Region
Data format	netCDF
Variables	maximum/minimum temperature precipitation global radiation 10m wind speed relative humidity

Ensemble of bias-corrected climate scenarios

Meteorological parameters that will be available:

Variable	Unit	Description
tasmax	°C	daily maximum near-surface air temperature
tasmin	°C	daily minimum near-surface air temperature
pr	mm	total daily precipitation amount
rsds	W/m²	surface downwelling shortwave radiation
sfcWind	m/s	daily mean near-surface wind speed
hurs	%	near-surface relative humidity

Additionally relevant indices will be calculated (eg. heavy precipiation days, consecutive heat days,...)