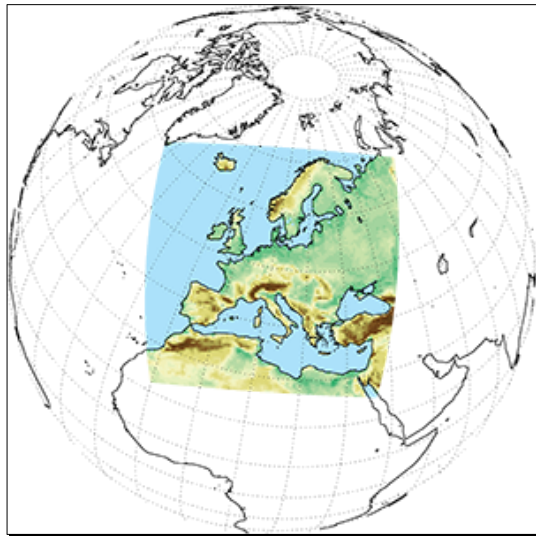


# Euro-Cordex (Coordinated Downscaling Experiment)



## Factsheet

Cordex provides regional climate change projections for all terrestrial regions of the globe within the timeline of the Fifth Assessment Report (AR5) and beyond.

- coordinated by D. Jacob & A. Gobiet
- Region:  $\sim 27^{\circ}\text{N} - 72^{\circ}\text{N}$ ,  $\sim 22^{\circ}\text{W} - 45^{\circ}\text{E}$
- Spatial resolution: EUR-11:  $0.11^{\circ}$  (12 km)
- Periods:
  - Hindcast (ERA Interim): 1989 – 2008
  - Control: 1951 – 2005
  - Scenario: 2006 – 2100
- Reklies-De: will provide additional simulations in future

<http://www.euro-cordex.net/>

## Simulation matrix (historical/rcp45/rcp85)

|   | EUR-11   | mpi-esm-lr | ipsl-cm5a-mr | hadgem2-es | ec-earth | cnrm-cm5 | miroc5 | ccsm4 |
|---|----------|------------|--------------|------------|----------|----------|--------|-------|
| 1 | REMO2009 | xxx        |              | x-x        | x-x      | x-x      | x-x    | x-x   |
| 2 | WRF331   | x-x        | xxx          | x-x        | x-x      | x-x      | x-x    | x-x   |
| 3 | CCLM48   | xxx        |              | x-x        | xxx      | xxx      | x-x    | x-x   |
| 4 | HIRHAM5  |            |              |            | xxx      |          |        |       |
| 5 | RACMO22E |            |              |            | xxx      |          |        |       |
| 6 | RCA4     | xxx        | xxx          | xxx        | xxx      | xxx      |        |       |

finished/planned/corrected

## List of Parameters

| daily near surface parameters |                                 | unit                     |
|-------------------------------|---------------------------------|--------------------------|
| <b>tas</b>                    | air temperature                 | $K$                      |
| <b>tasmin</b>                 | minimum air temperature         | $K$                      |
| <b>tasmax</b>                 | maximum air temperature         | $K$                      |
| <b>pr</b>                     | precipitation                   | $\frac{kg}{m^2 \cdot s}$ |
| <b>rsds</b>                   | downwelling shortwave radiation | $\frac{W}{m^2}$          |
| <b>huss</b>                   | specific humidity               | $\frac{kg}{kg}$          |
| <b>sfcWind</b>                | wind speed                      | $m/s$                    |

evaporation + + + duration of sunshine + + + snow depth + + + total runoff

[/iplex/01/2013/IMPROVE/cordex/EUR-11/day/](#)

[/iplex/01/2013/IMPROVE/cordex/EUR-11-bc/day/](#)

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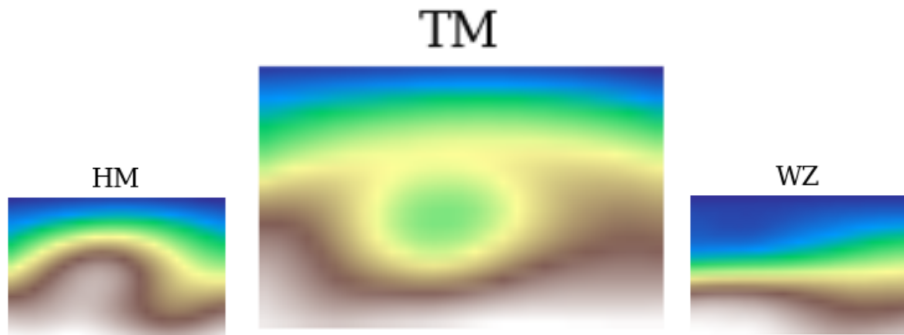
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## Overview about climate data and scenarios

| scale    | dataset | region  | scenarios   | bias-correction |
|----------|---------|---------|-------------|-----------------|
| global   | watch   | World   | CMIP5       | ISI-MIP         |
| regional | EOBS    | Europe  | Euro-Cordex | Impact2C        |
| national | Österle | Germany | KFO2015     | 4+1             |

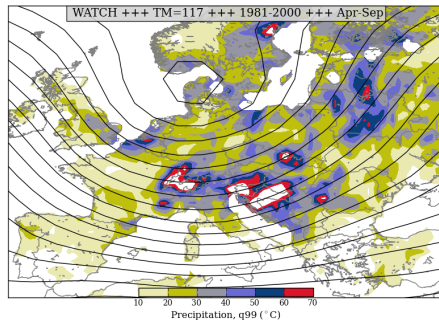
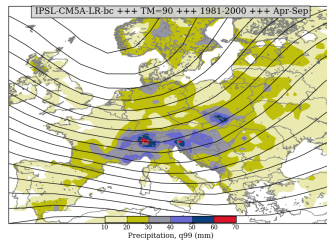
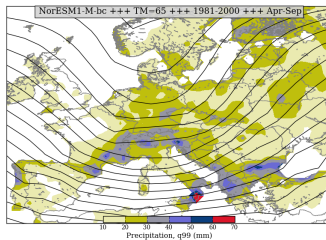
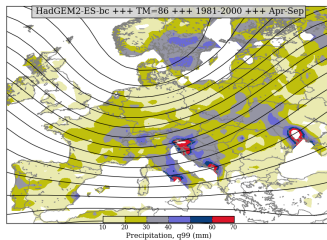
## Evaluation of climate scenarios by: Circulation pattern over Europe: 500hPa (GPH)



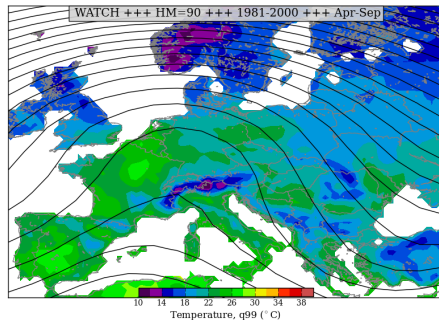
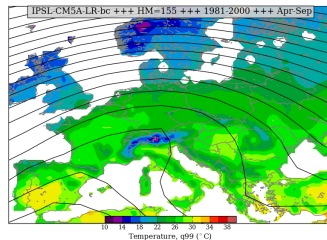
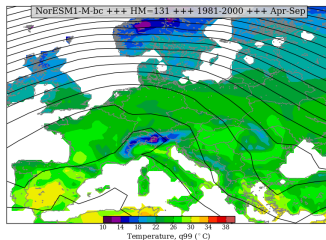
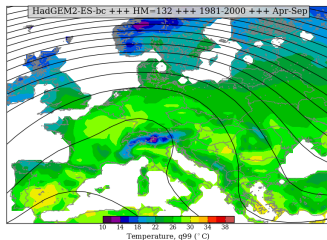
“comparison of structural similarity”

$$index = ssim(NCEP, GCM)$$

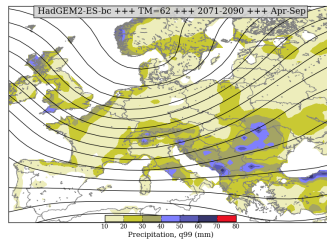
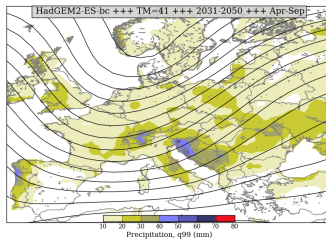
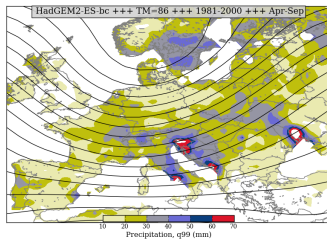
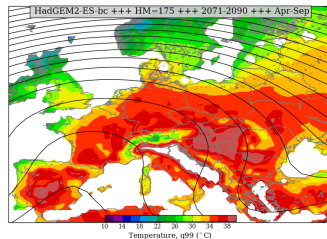
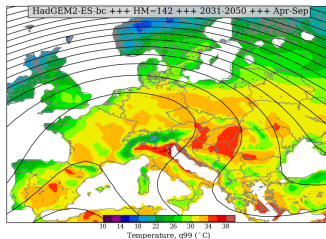
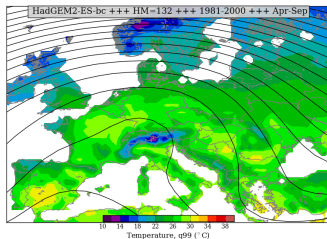
# “Low over Central Europe” in ISIMIP (1981-2000)



# “High over Central Europe” in ISIMIP (1981-2000)

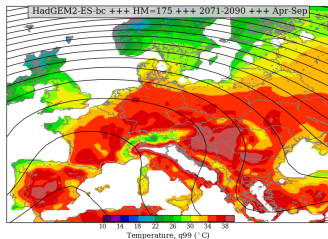
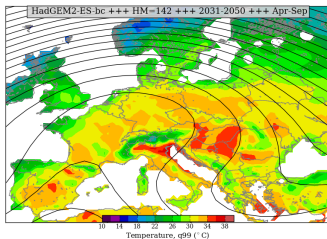
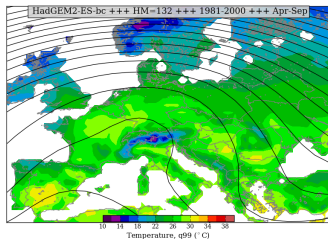
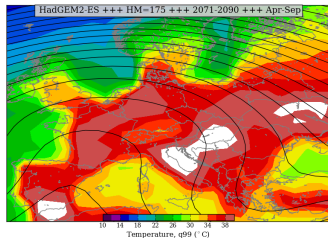
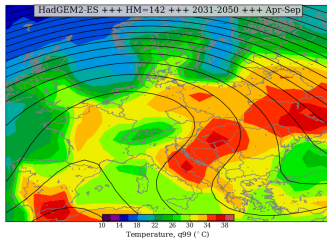
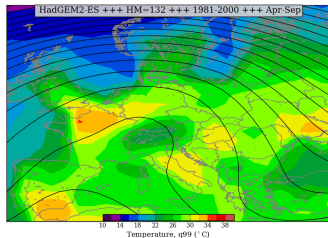


# “High and Low over Central Europe” in ISIMIP (RCP8.5)

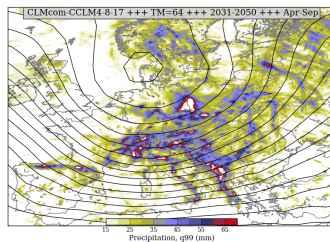
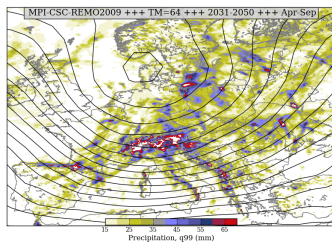
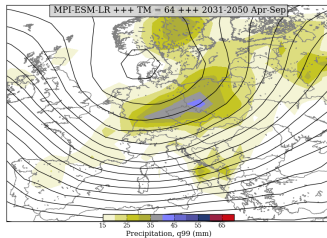
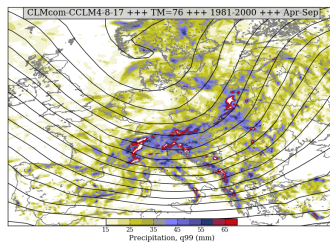
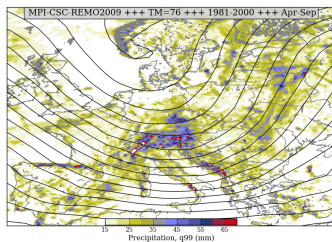
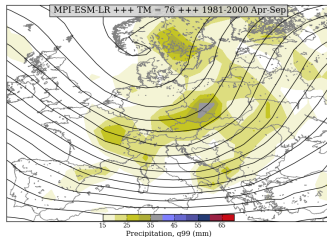




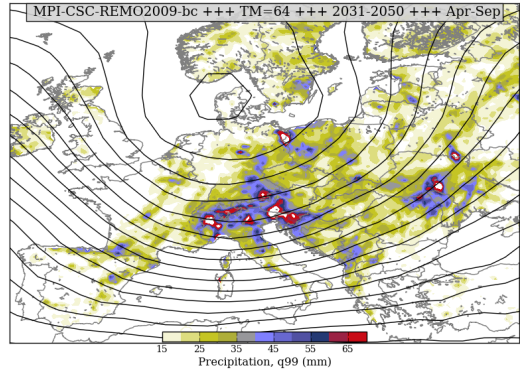
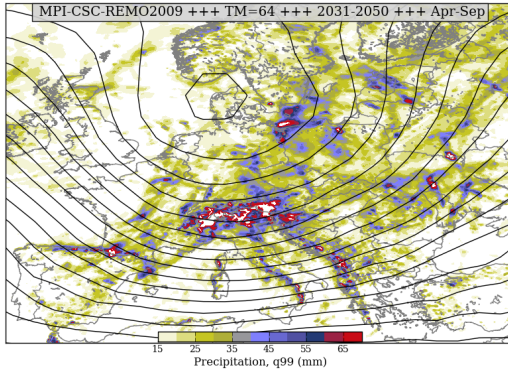
# “High over Central Europe” in ISIMIP (RCP8.5)



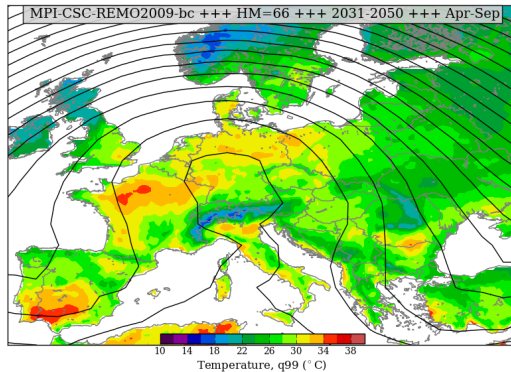
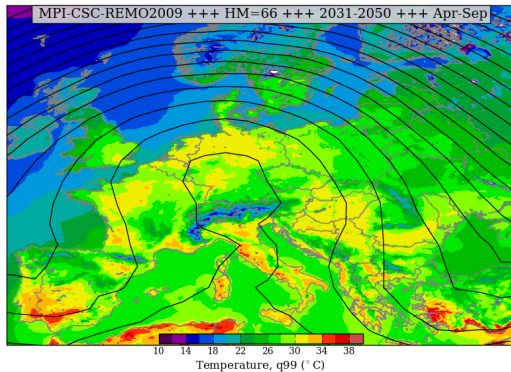
# “Low over Central Europe” in CORDEX (1981-2000, 2031-2050)



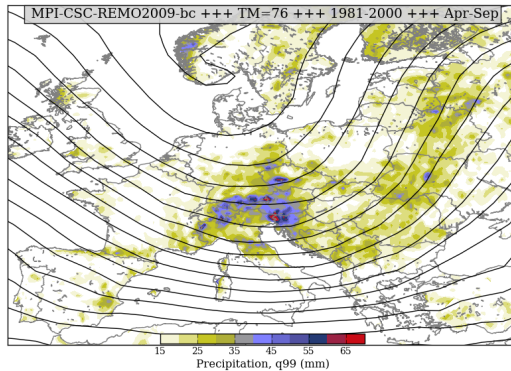
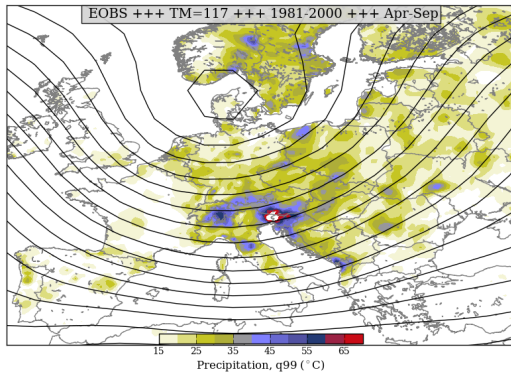
# “Low over Central Europe” in IMPACT2C (RCP8.5)



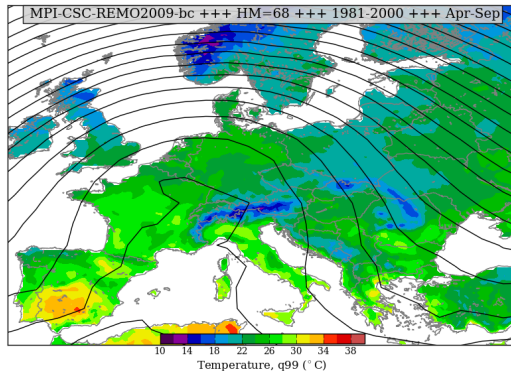
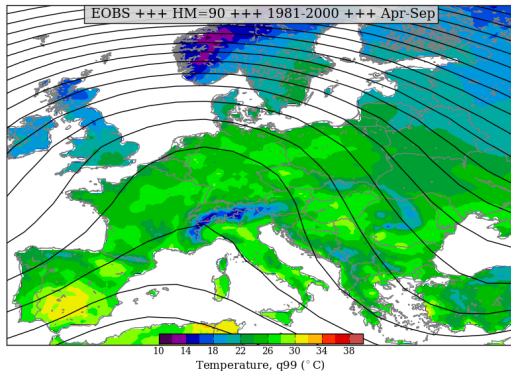
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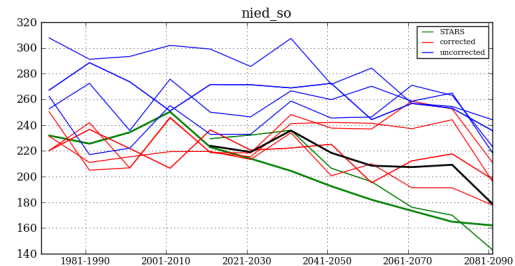
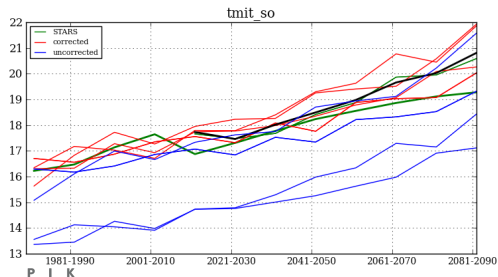
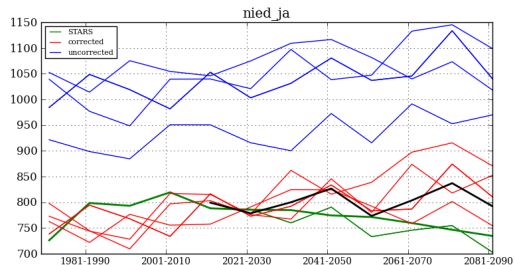
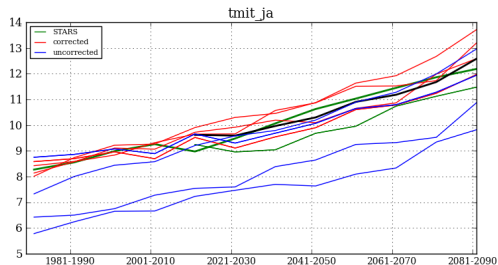
# “Low over Central Europe” in EOBS (1981-2000)



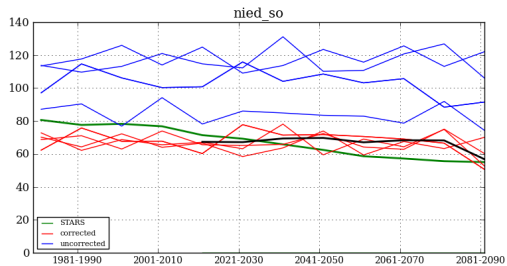
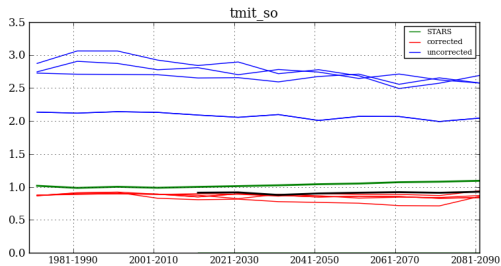
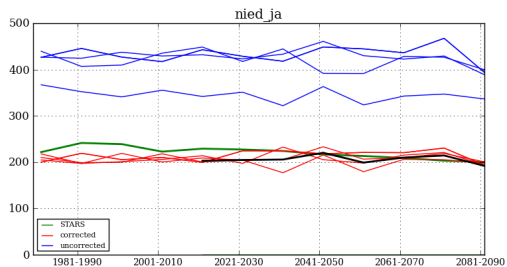
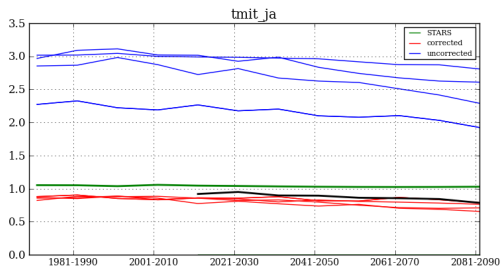
# “High over Central Europe” in EOBS (1981-2000)



# ClimateImactsOnline for Germany (4 RCM-bc + 1 STARS, mean)

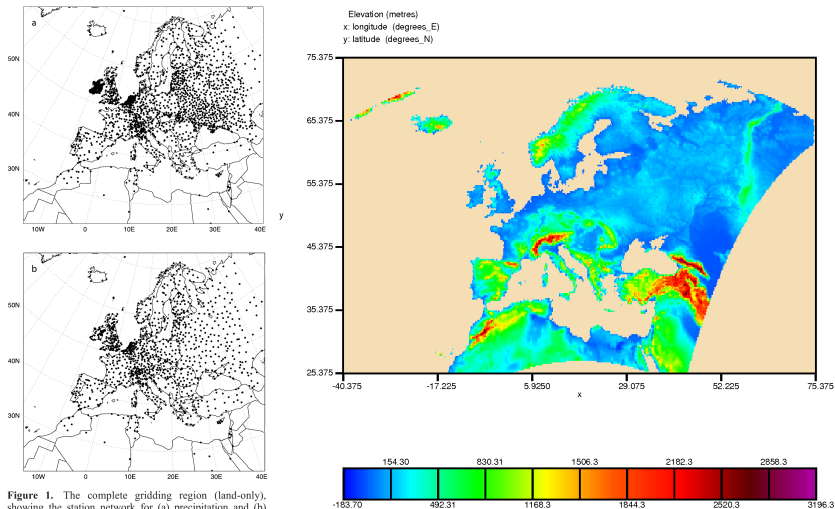


# ClimateImactsOnline for Germany (4 RCM-bc + 1 STARS, std)





# E-OBS dataset (ECA&D): elev\_0.25deg\_reg\_v10.0



# E-OBS dataset (ECA&D): tg\_0.25deg\_reg\_v10.0

