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Regional climate of the prealpine region “Bayerisches Oberland”: What do we expect for the near future?

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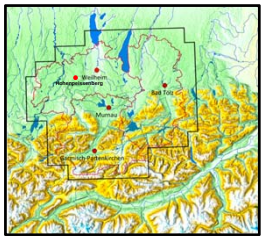
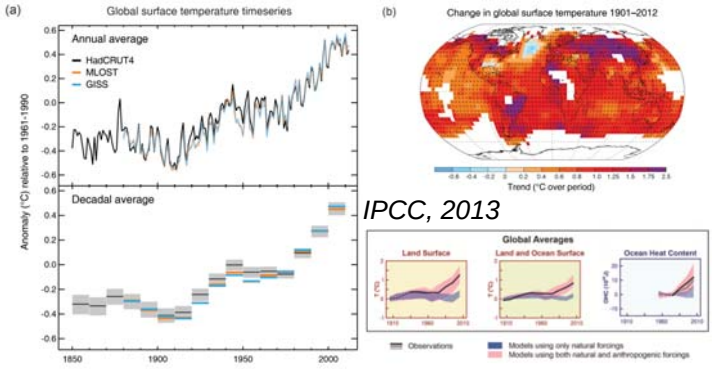
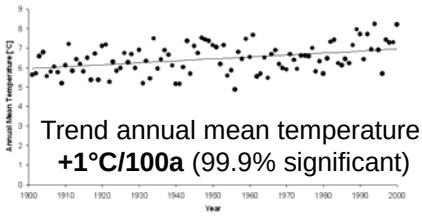


Observed global and regional warming

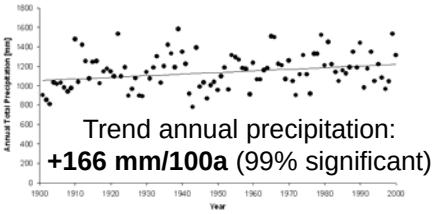


IPCC, 2013

Hohenpeissenberg:



Trend annual mean temperature:
+1°C/100a (99.9% significant)



Trend annual precipitation:
+166 mm/100a (99% significant)

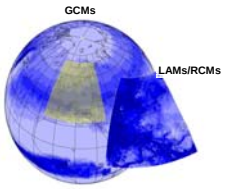
Temperature increase since 1900:

- Global: 0.8 °C
- Europe: 1.2 °C
- **Alpine region: 2.0 °C**

➢ **Regional temperature increase is larger than global one**

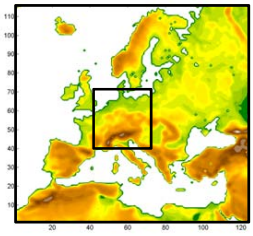
➢ **Alpine and prealpine region are climate sensitive regions**

Regional projections for the near future

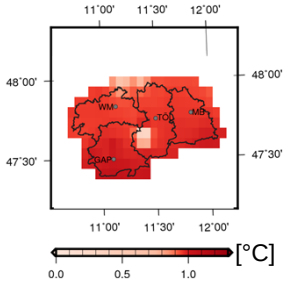


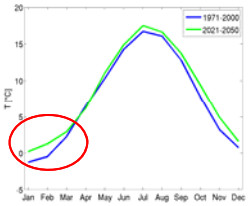
Regional climate simulations for Central Europe

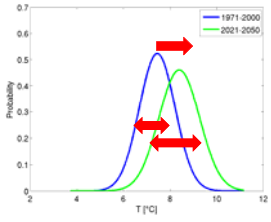
- GCM: ECHAM5, A1B: ~ 200 km
- RCM: WRF, 2 nests: - Nest1: 125 x 117 gridpoints, 42 km
  - Nest2: 175 x 175 gridpoints, 7 km
  - both nests with 40 vertical levels



Projected temperature change: 2021-2050 versus 1971-2000

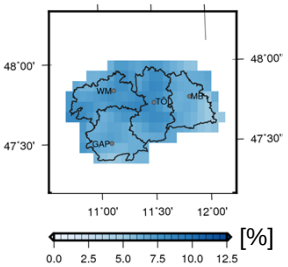


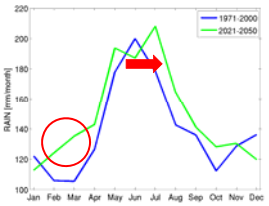


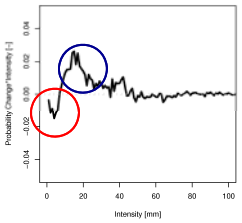


- Mean annual temperature increase: **~ 1°C**
- Larger warming in winter
  - ➢ 18 less frost days per year
  - ➢ 17 less snow cover days per year
- 5 more summer days (Tmax>25°C) p.y.
- In addition to mean temperature change, increase of variability

Projected precipitation change: 2021-2050 versus 1971-2000







- Mean annual precipitation change: **~ 7%**
- More precipitation in February and March
- Shift of monthly precipitation maximum
- Less small precipitation intensities
- High precipitation intensities occur more frequently

Wagner, Berg, Schaedler, Kunstmann (2013):
High resolution regional climate model simulations for Germany: Part II-projected climate changes.
Climate Dynamics, Volume 40, Issue 1, pp 415-427, http://link.springer.com/article/10.1007/s00382-012-1510-1