The 2003 heatwave in Switzerland and the likelihoods of seeing it again

A project by Mattis Westergaard and Tomás Basile

Introduction and thoughts

- 2003 heatwave
- German GCM:
  - French RCM: RCP 8.5 + historical data
  - German RCM: RCP 2.6
- ERA5
- Switzerland and Basel

- CMIP too coarse
  - Solution was to use ERA5 and remapping RCMs
- The spatial mean includes the cold alps
  - Solution was to pick a low gridbox and stick to analysing that

2003 heatwave

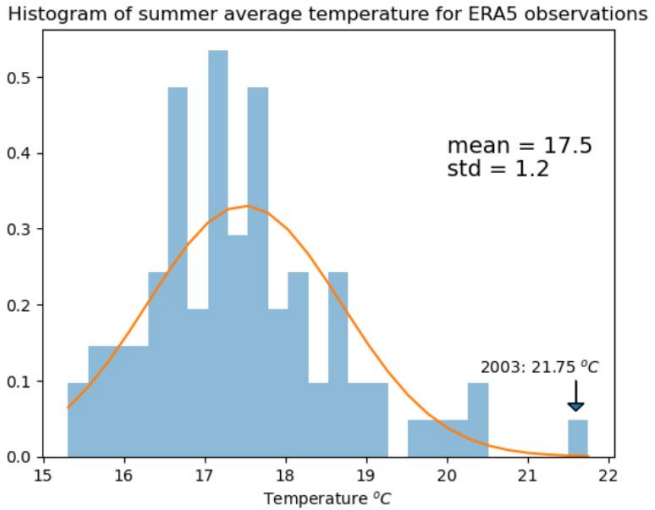
ERA5 data

Get likelihoods by fitting the data to a gaussian

Return period in paper: 46.000 years

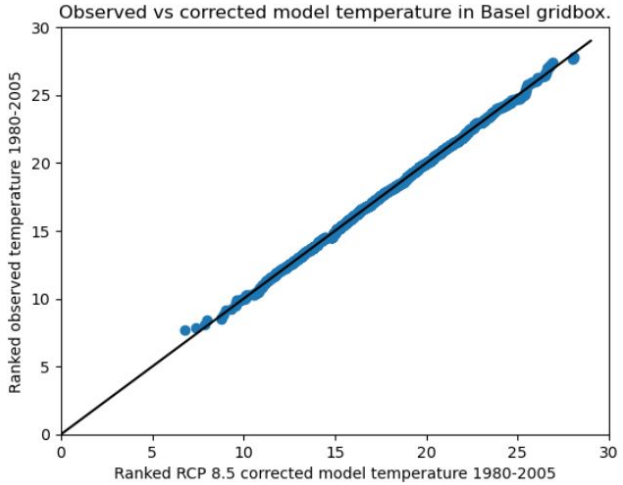
Return period by us: 4.700 years

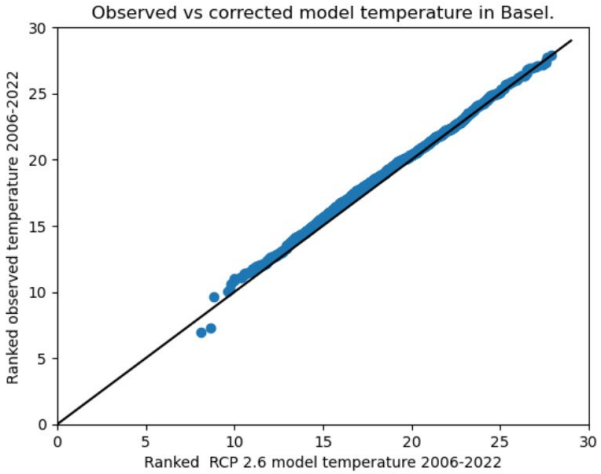
Average temperature: 21.75

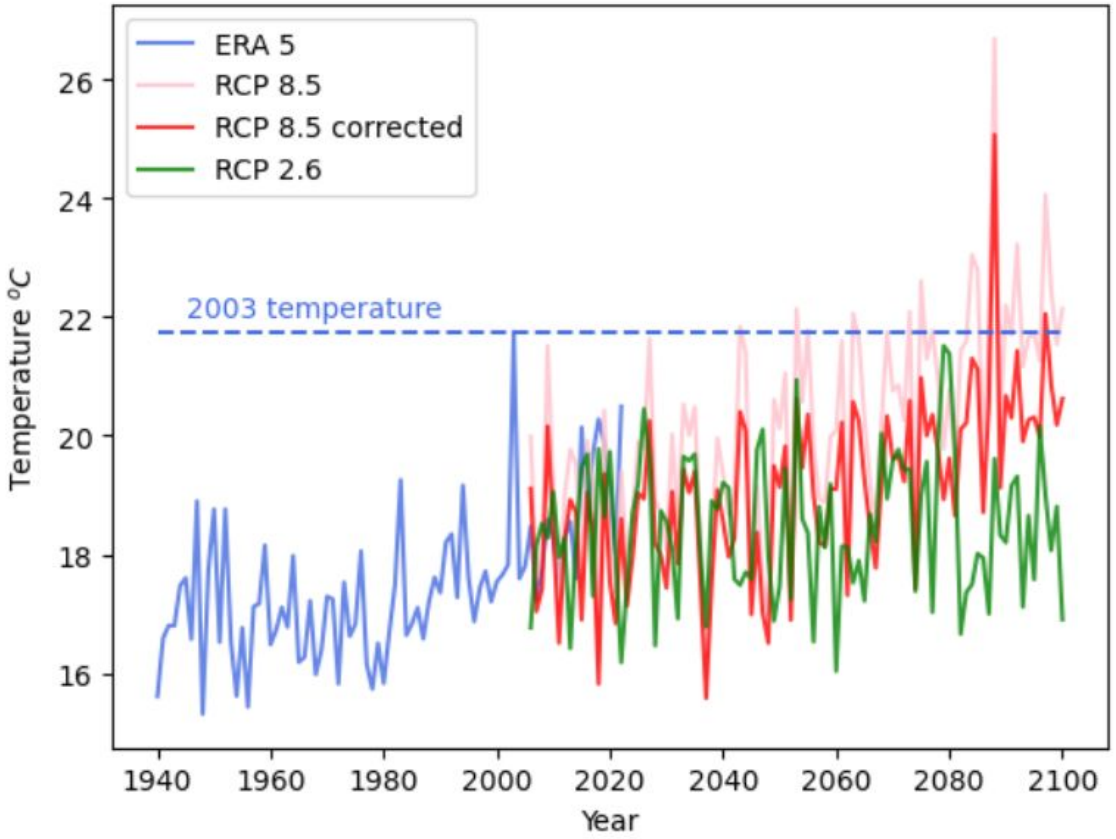


Data management

- Time merging
- Remapping
- Switzerland boxes
- Bias correction
    - RCP 8.5 quantile mapping







The finalised data

Heatwaves in the future

RCP 8.5:

2003 mean temperature return period in 2060-2100:

11.3 yrs

Mean temperature of 4.700 year event:

24.5 °C

RCP 2.6:

2003 mean temperature return period in 2060-2100:

230.8 yrs

Mean temperature of a 4.700 year event:

22.8 °C

Extra figures