Royal Netherlands
Meteorological Institute
*Ministry of Infrastructure and the
Environment*

A brief introduction to E-OBS

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What is E-OBS?

E-OBS TX 04-08-2003

Data availability: Maximum temperature
Any period (non-blended)

ECA&D, 17-11-2017

0   400   800   1200 1600 2000 2400 2800 3200 3600 4000 km

Data availability: Precipitation amount
Any period (non-blended)

ECA&D, 17-11-2017

0   400   800   1200 1600 2000 2400 2800 3200 3600 4000 km
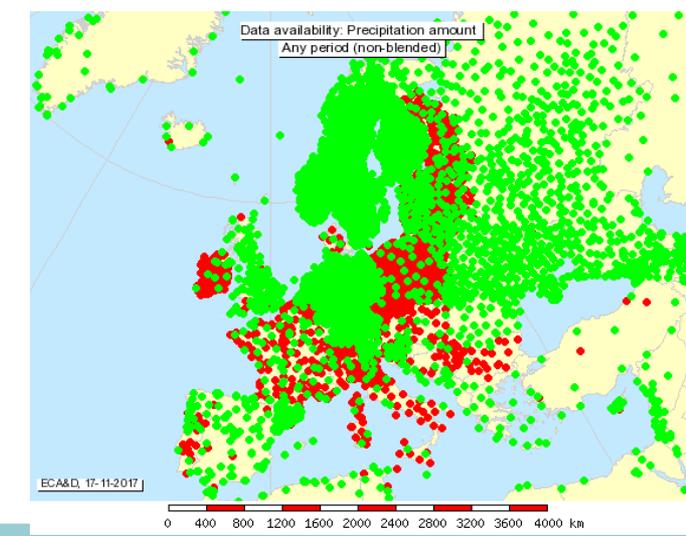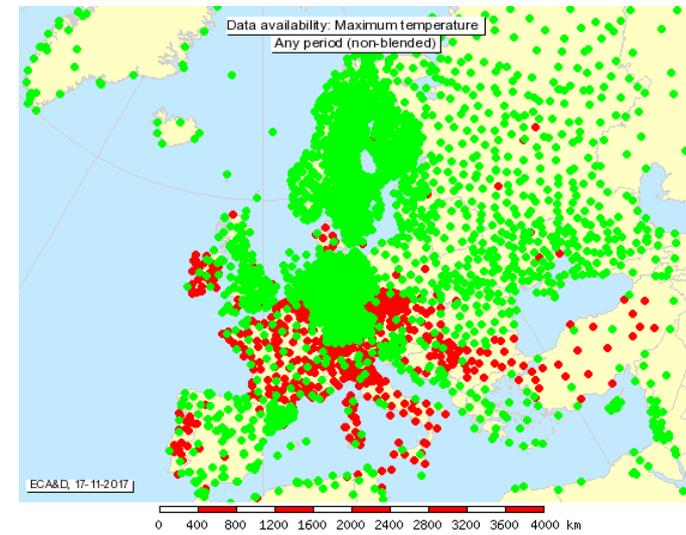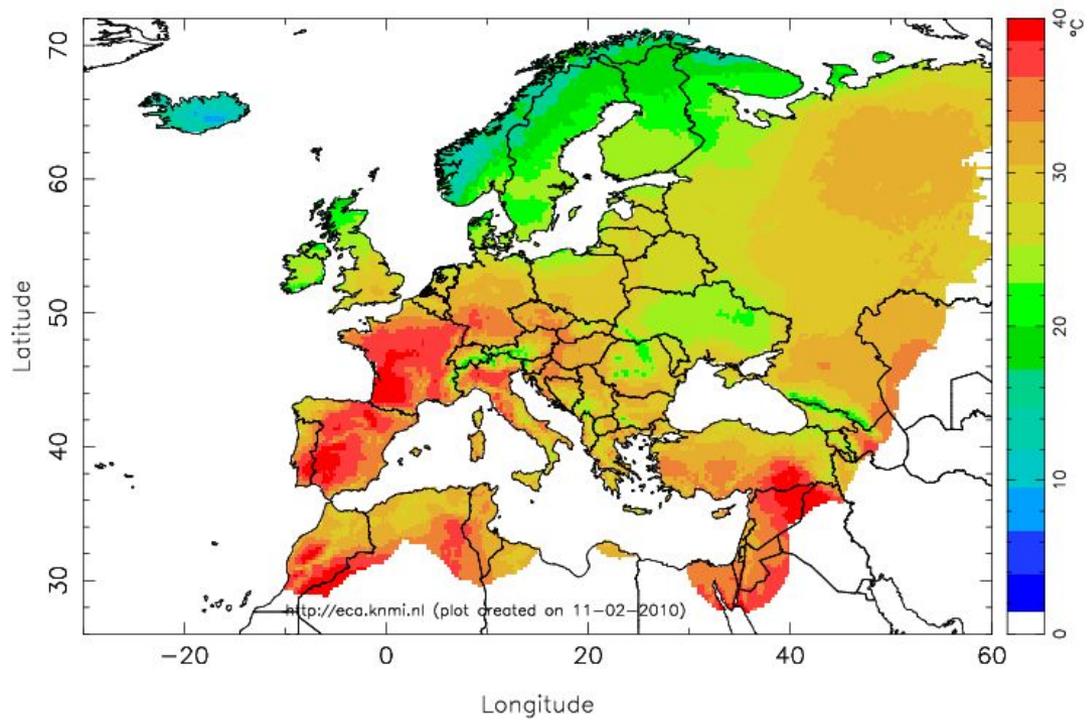
- Over 10.000 stations
- 68 participants (mostly NMHSs)

Use of E-OBS?

citations to Klein Tank et al. (2002) and Haylock et al. (2008)
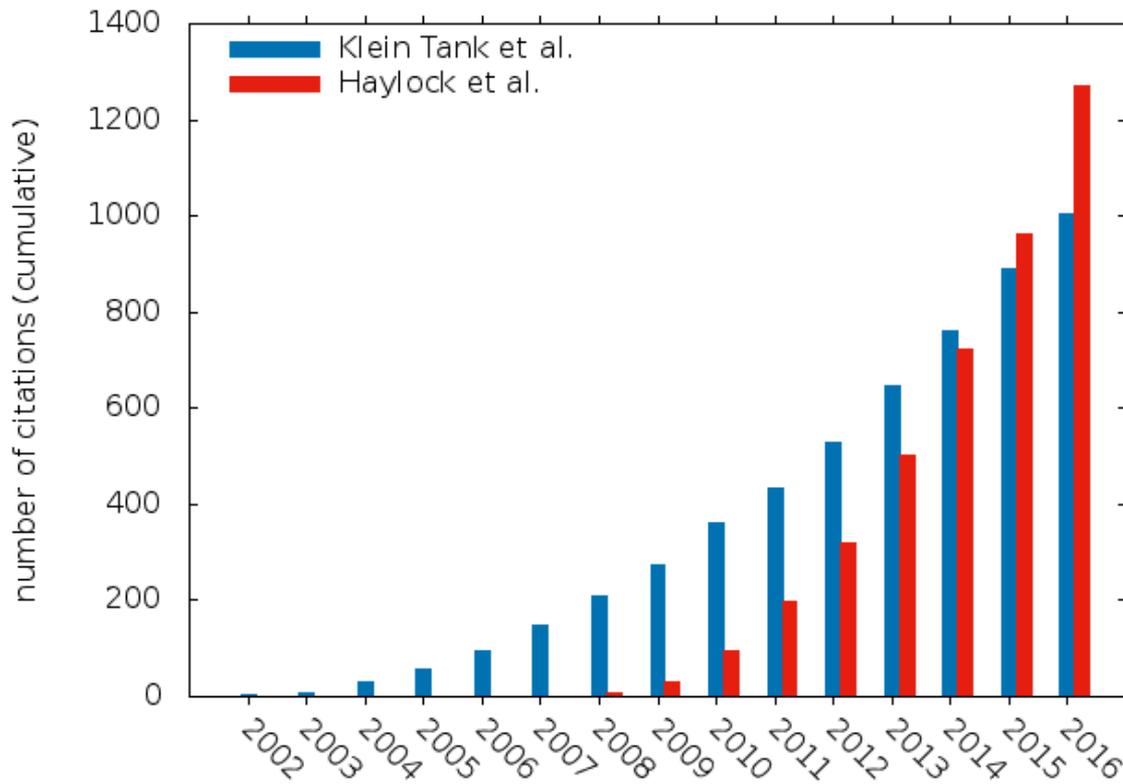
- Approx. 60 new users each month
- Approx. 6300 users registered

Issue 1: homogeneity of data

Inhomogeneity due to
- Changes in the surroundings of stations
- Relocation of stations
- Change of measurement equipment

before 1938

after 1938
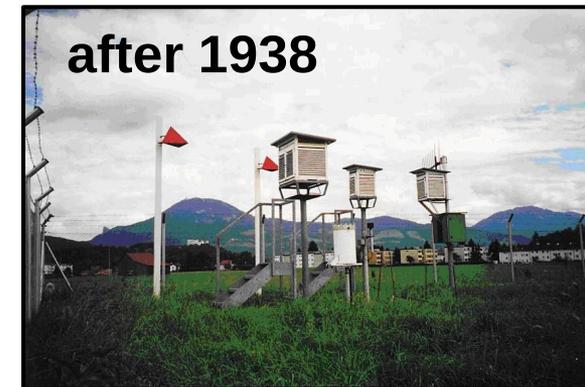
Issue 1: homogeneity of data

Mean ann(2it) tn 2150 Salzburg AUSTRIA

Raw series

Corrected series
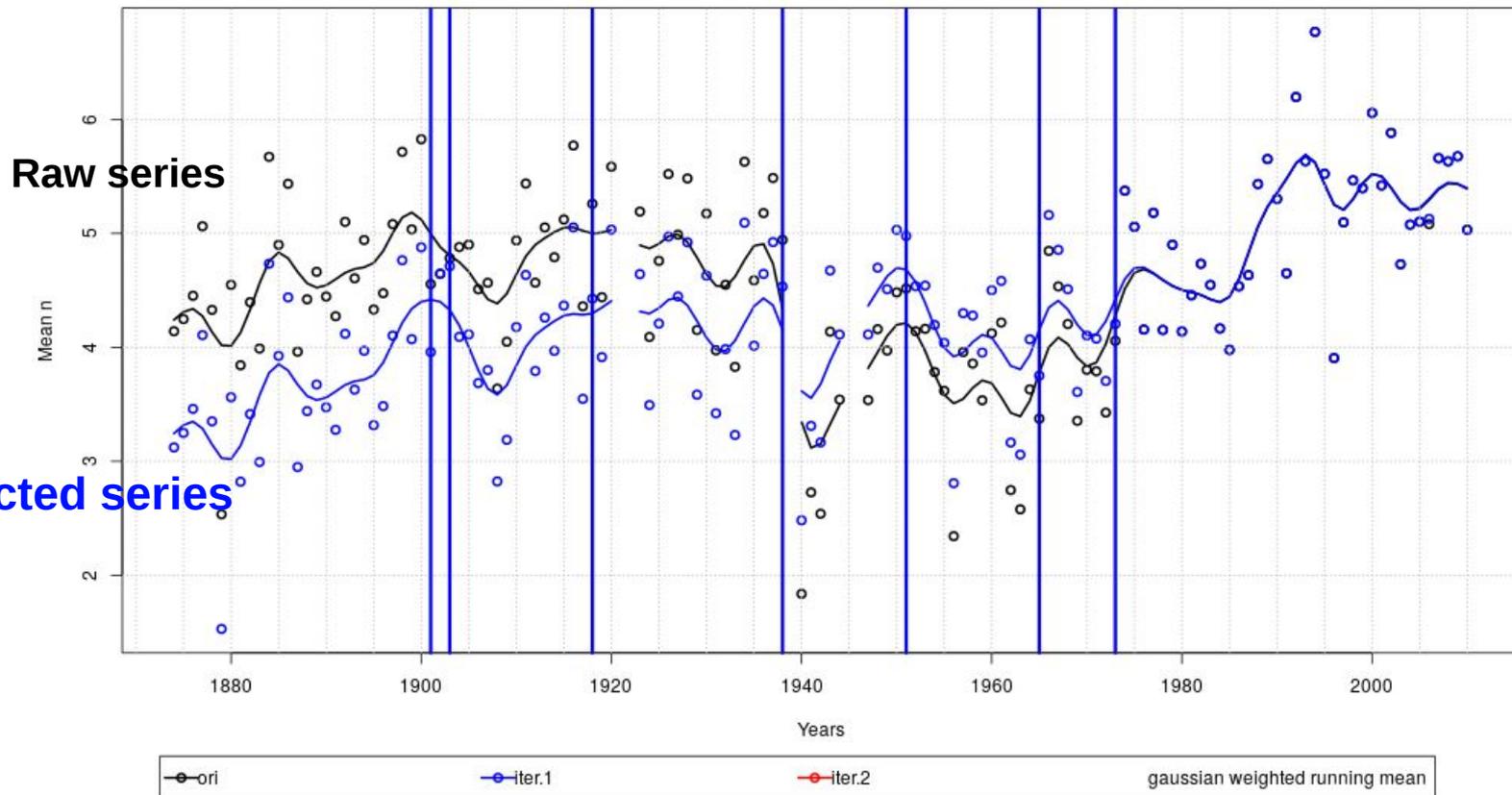
Annual means of TN Salzburg before and after the homogenization with change points identified by break detection.

Issue 1: homogeneity of data
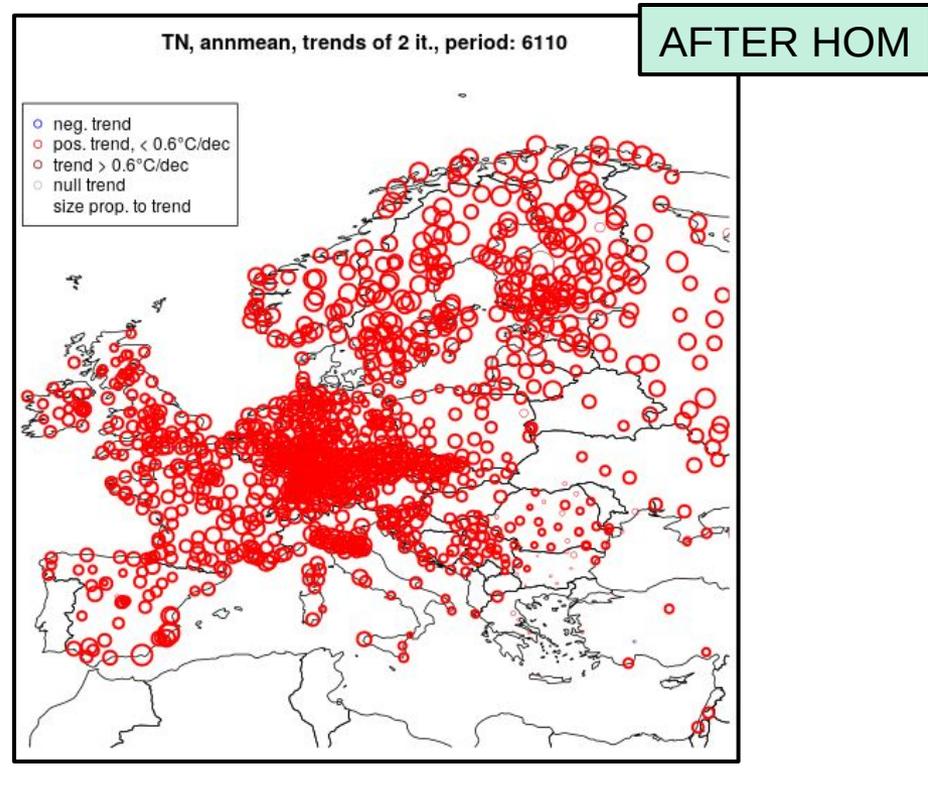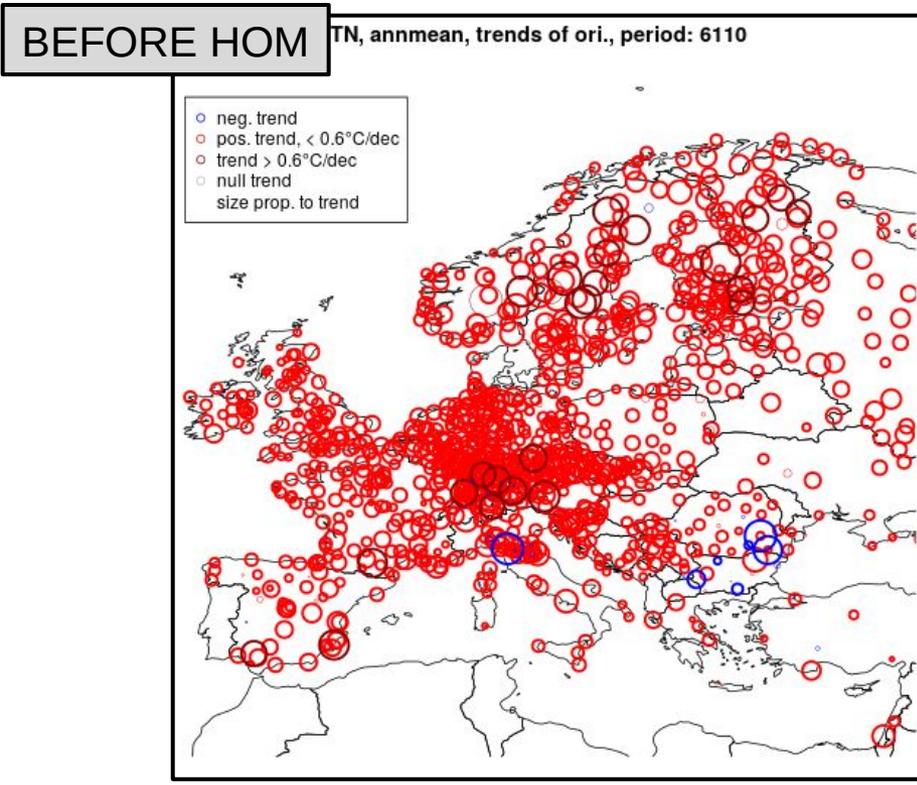
Trends on annual mean of minimum temperatures: blue circle (negative trend), red circle (positive trend, <0.6 C/dec), brown circle (trend over 0.6 C/dec)

Issue 2: the E-OBS goes with an uncertainty

Extreme Events |

TX 8ᵗʰ August 2003

a) Maximum Daily Temperature Interpolation
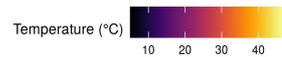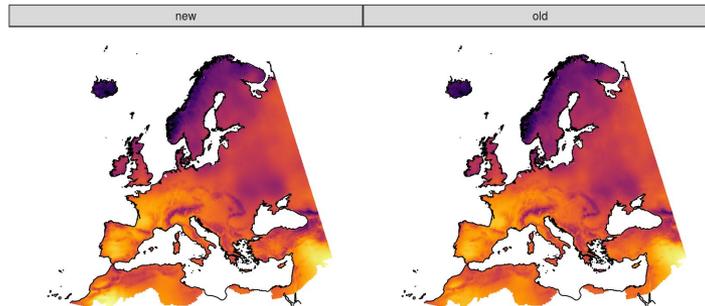
b) Interpolation Difference (New - Old)
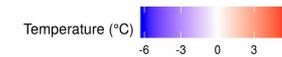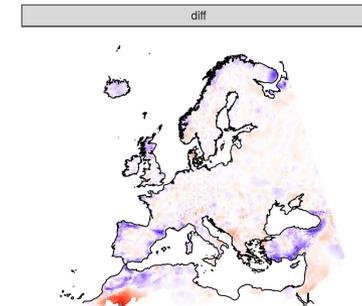
c) Maximum Daily Temperature 95% uncertainty
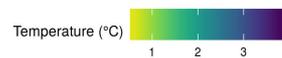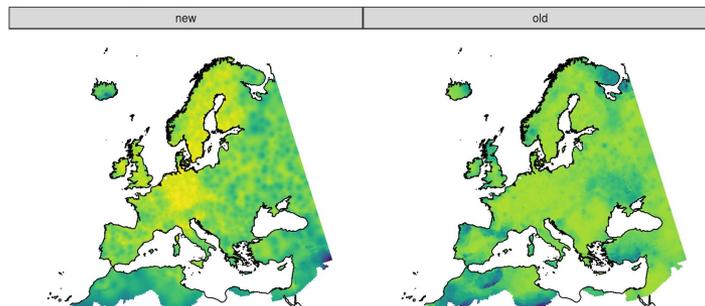
d) Uncertainty Difference (New - Old)
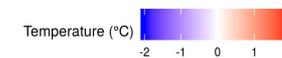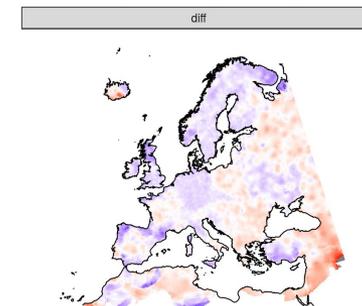
Issue 2: the E-OBS goes with an uncertainty

Extreme Events |

RR 1st June 2013

a) Daily Rainfall Total Interpolation
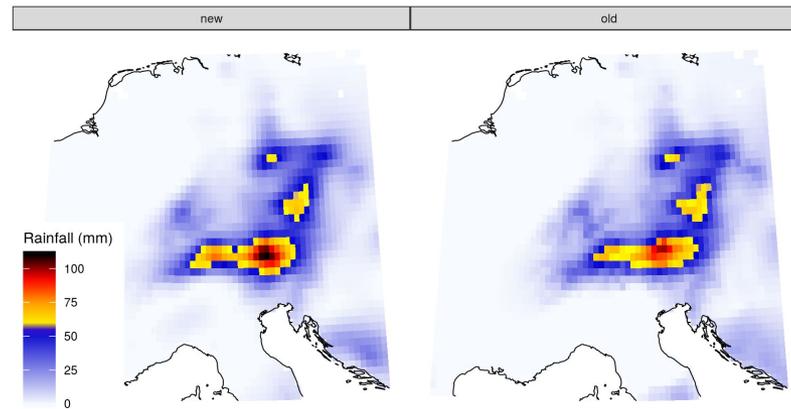
b) Interpolation Difference (New - Old)
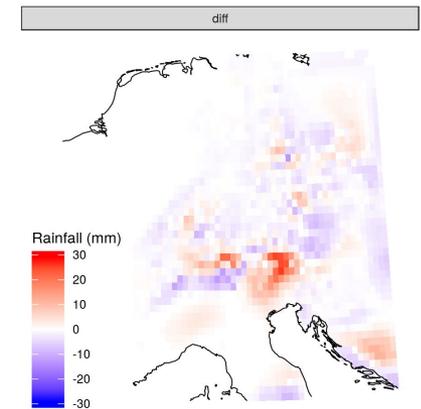
c) Daily Rainfall Total 95% uncertainty
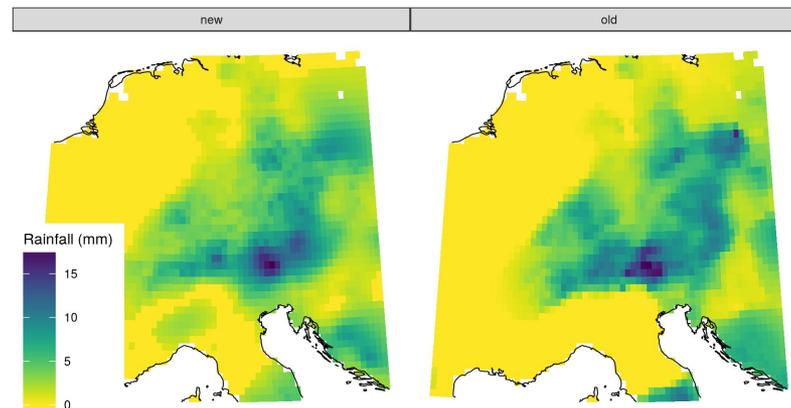
d) Uncertainty Difference (New - Old)
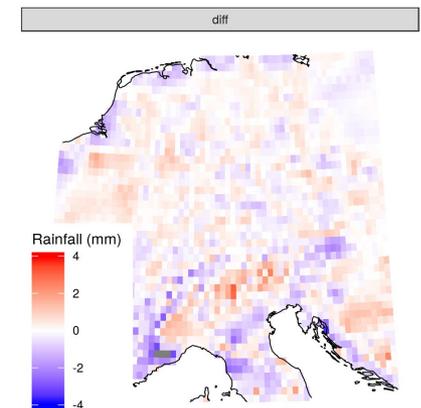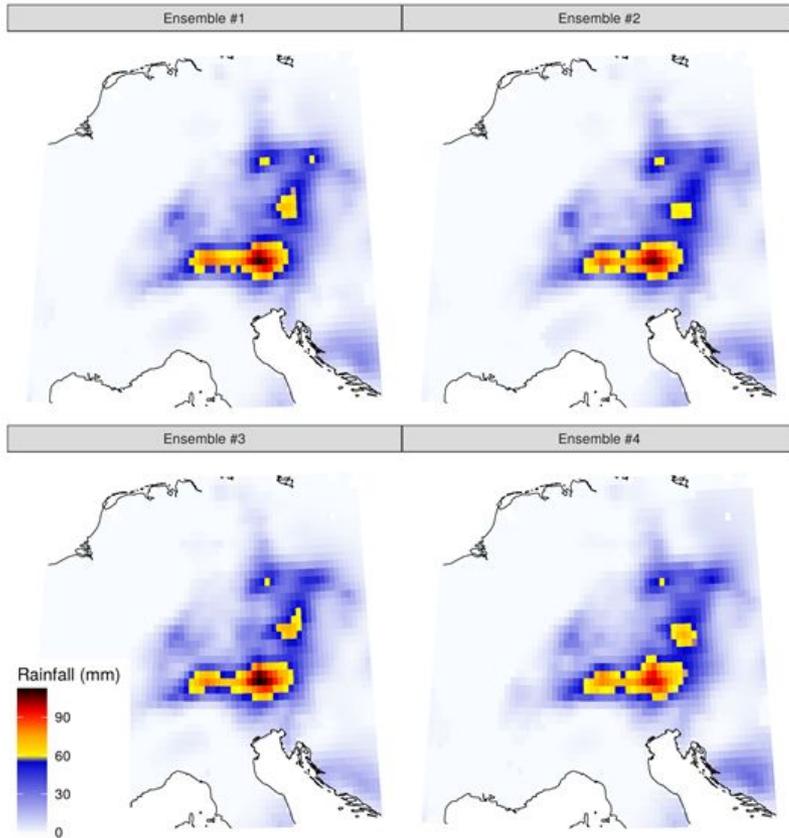
Issue 2: the E-OBS goes with an uncertainty
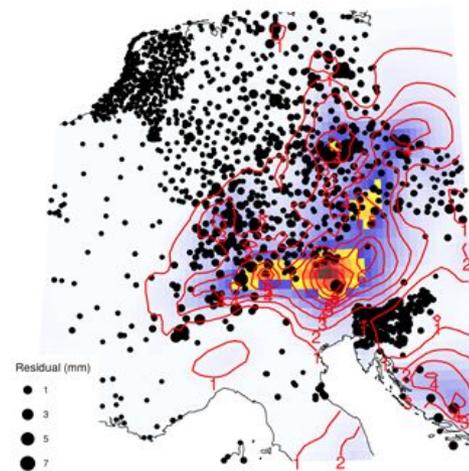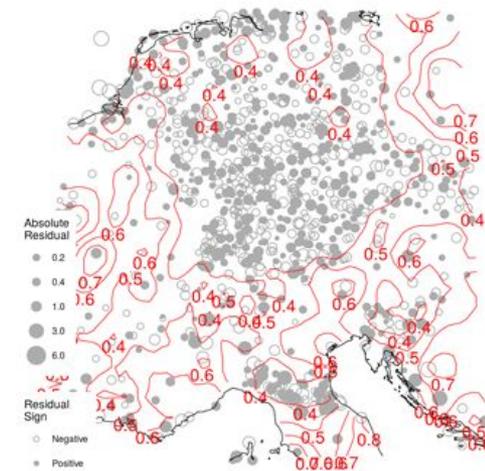

Extreme precipitation event 1st June 2013

Issue 3: sometimes the station data is suspect

'bulls eyes' indicate problems

low standard deviation in high station density (and vice-versa)
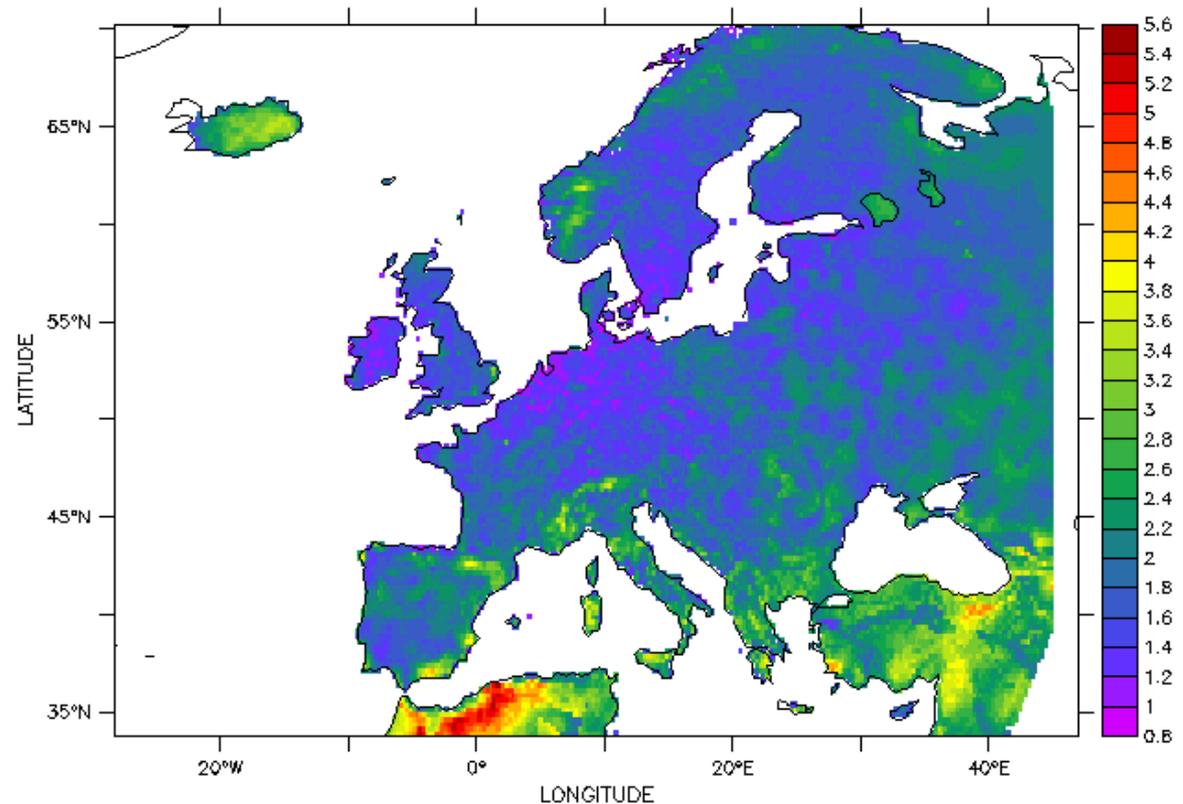
'standard deviation difference SMHI − E−OBS, TX'

Issue 4: inhomogeneity in coverage
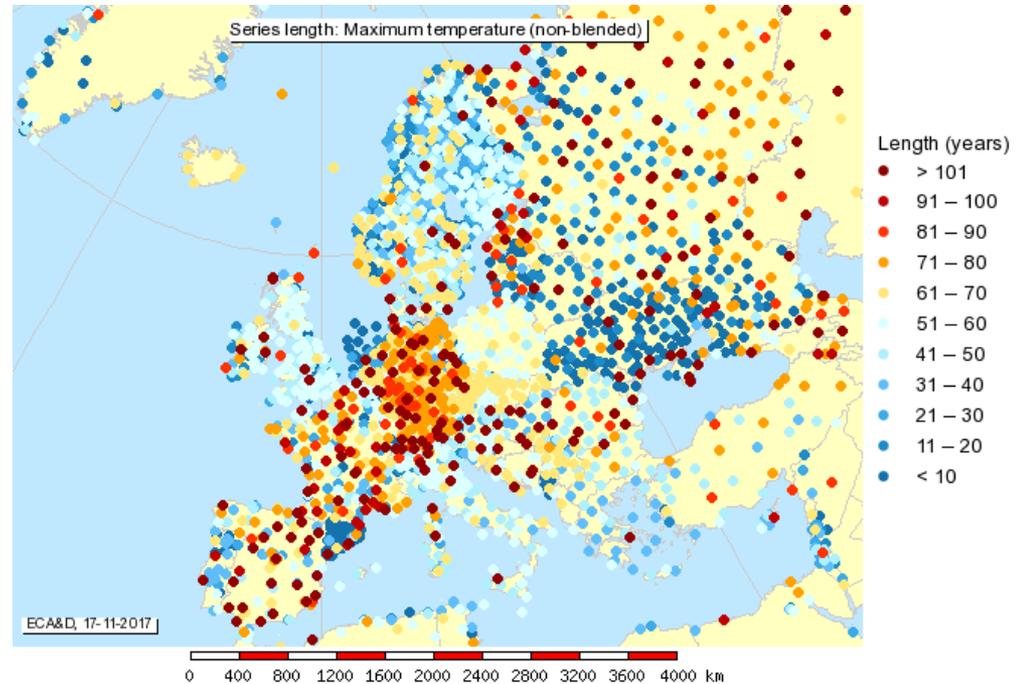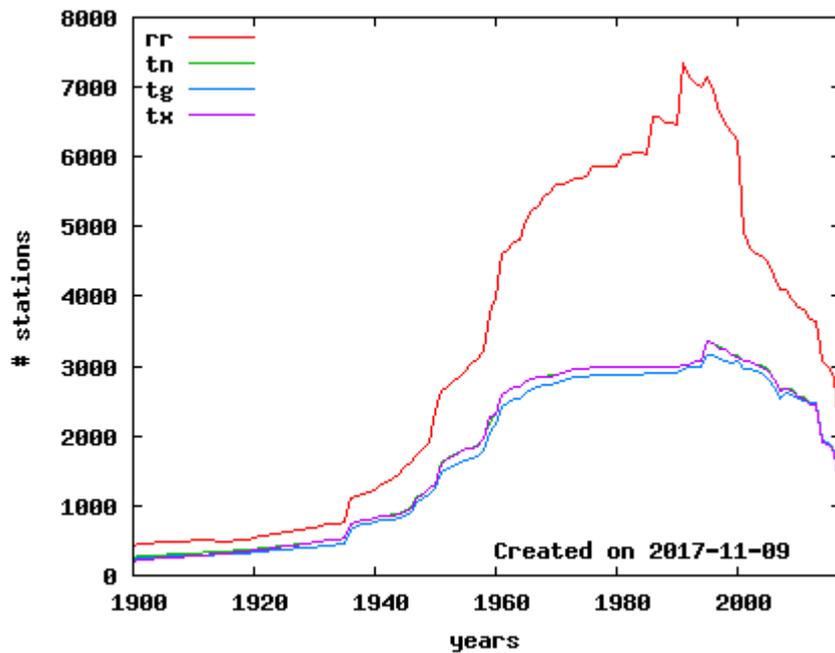
Conclusions

- E-OBS: high resolution dataset for *daily* precipitation, temperature and pressure
- Based on *validated* data
- Issues with
  - Inhomogeneity of data (breaks)
  - Uncertainty introduced by the gridding
  - Suspect data escapes the Quality Control
  - Inhomogeneity in coverage

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