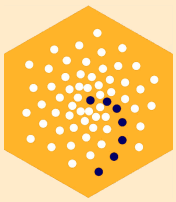


Station density influence on E-OBS

D1.9: E-OBS impact of the data

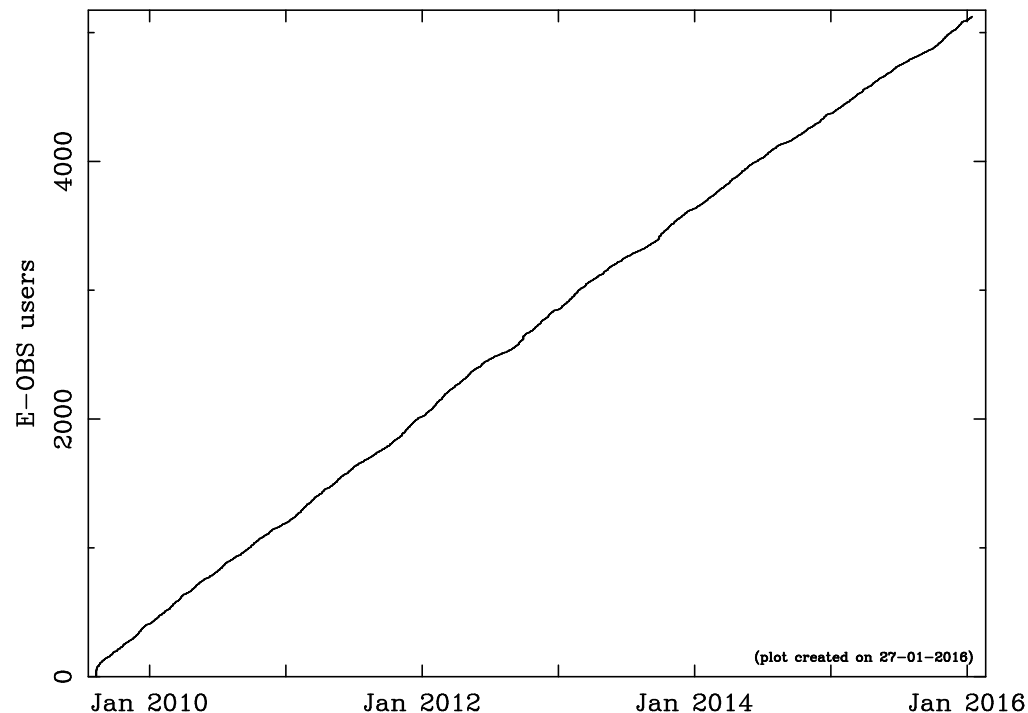
Else van den Besselaar

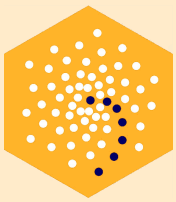
Royal Netherlands Meteorological Institute (KNMI)



Introduction

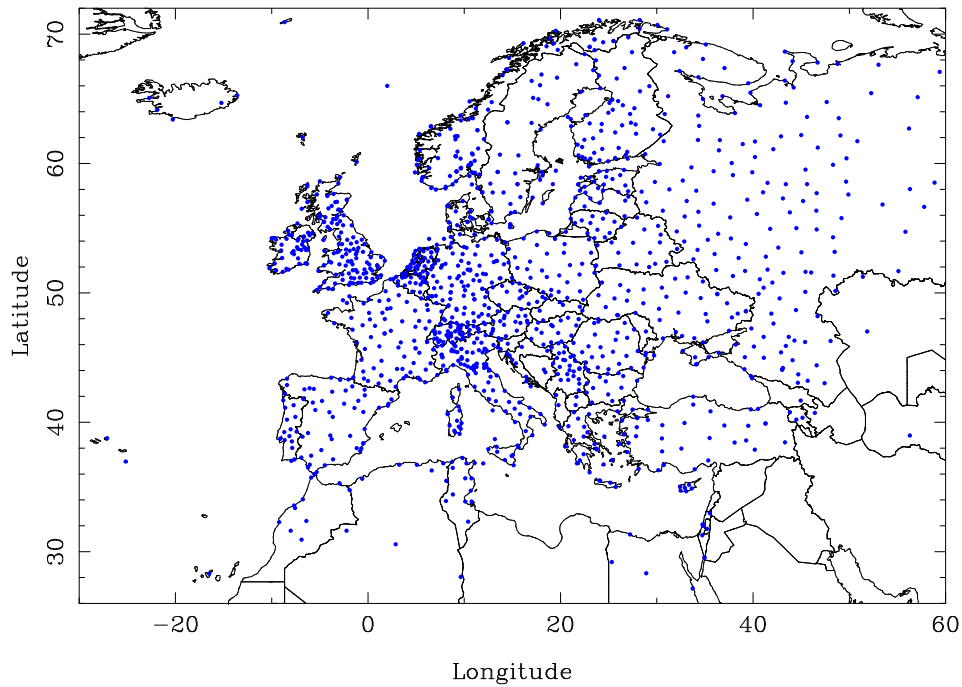
- Nr of series in ECA&D has grown a lot over the years
- Station density has influence on gridded E-OBS dataset
- E-OBS version 12.0 released in Sep 2015 (highest station density)
- E-OBS version 2.0 released in Aug 2009 (lower station density)



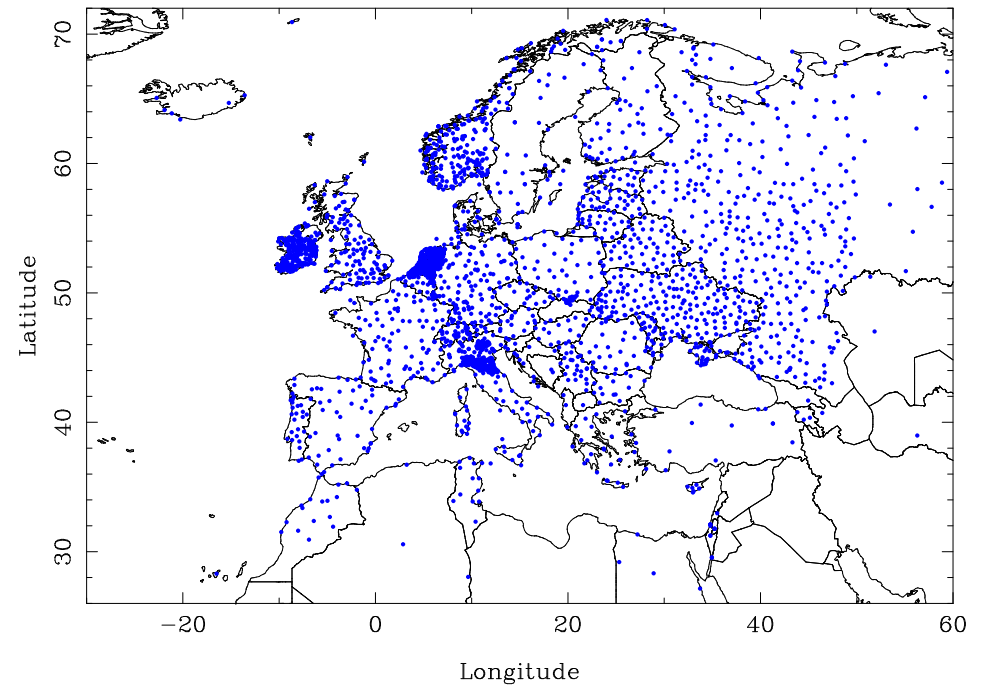


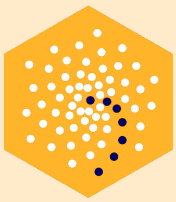
Introduction

T_{mean} v2.0



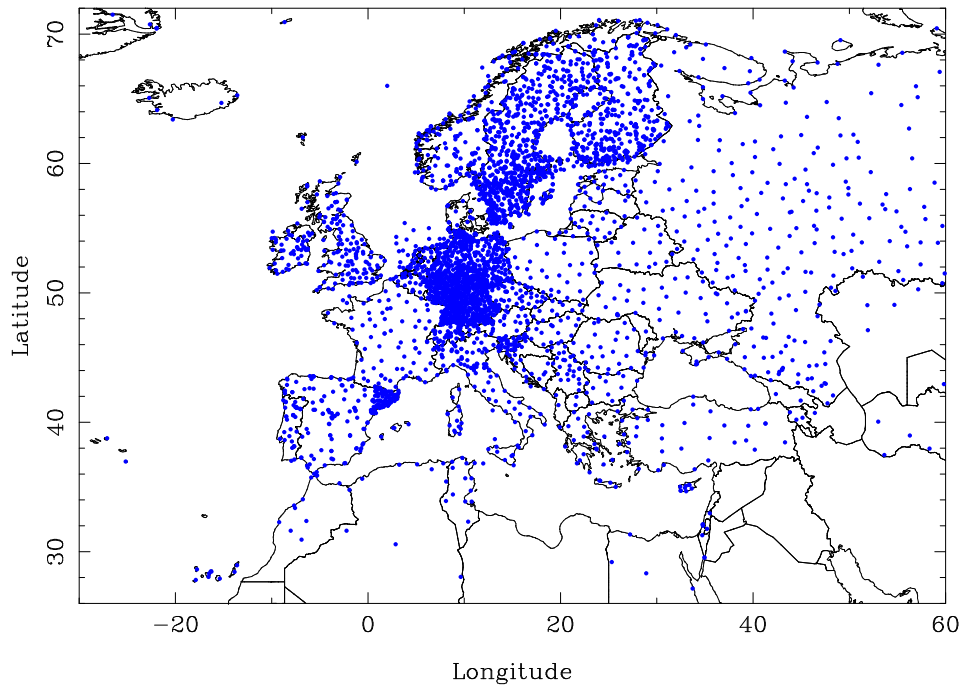
Precip v2.0



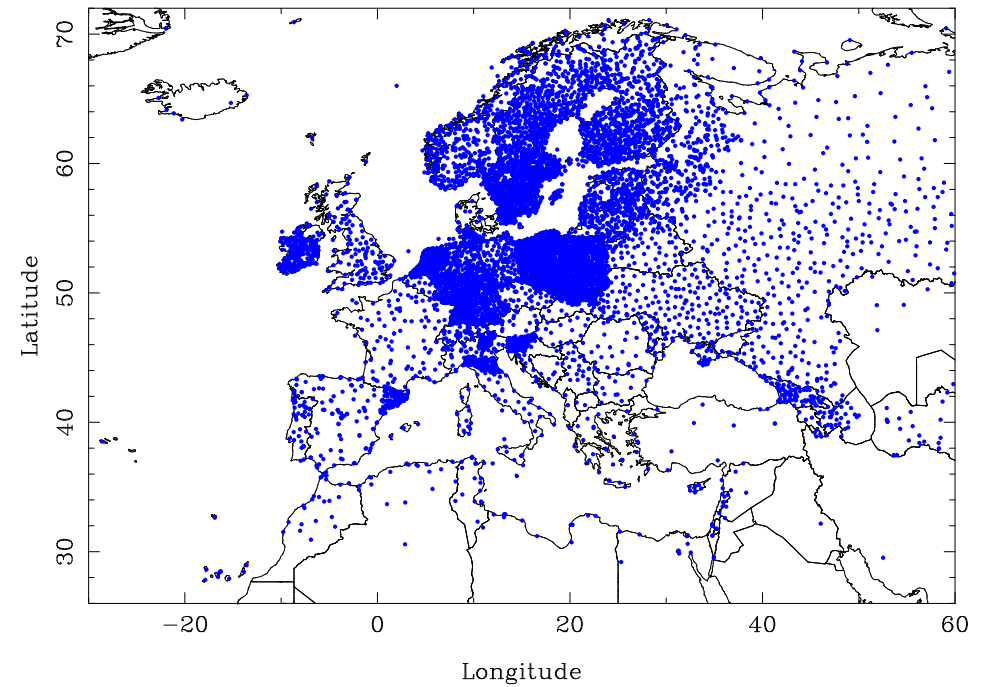


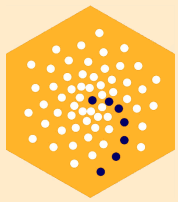
Introduction

T_{mean} v12.0



Precip v12.0

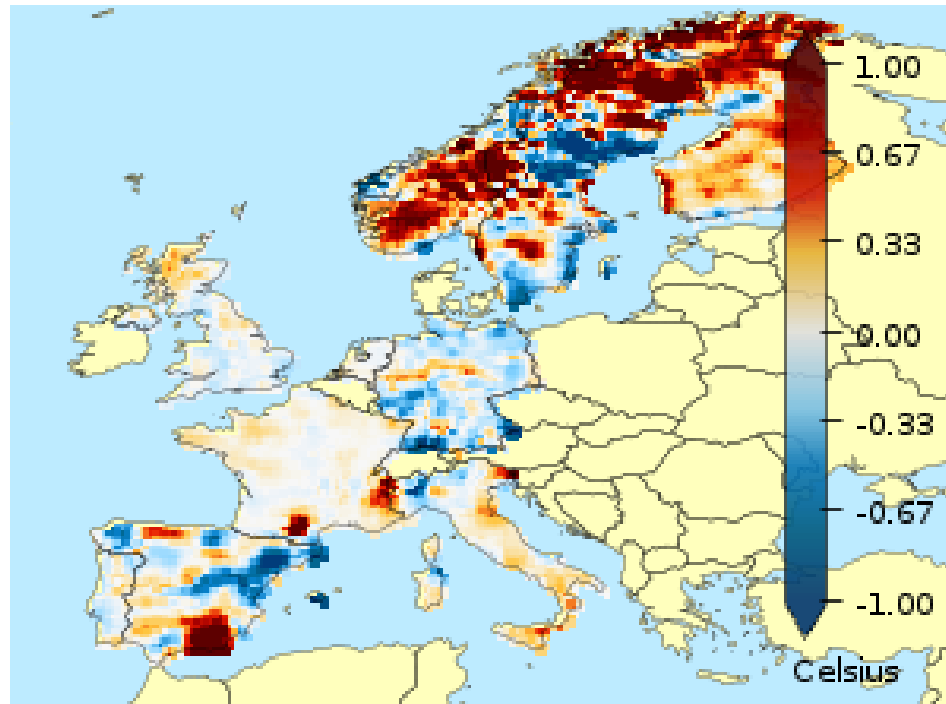




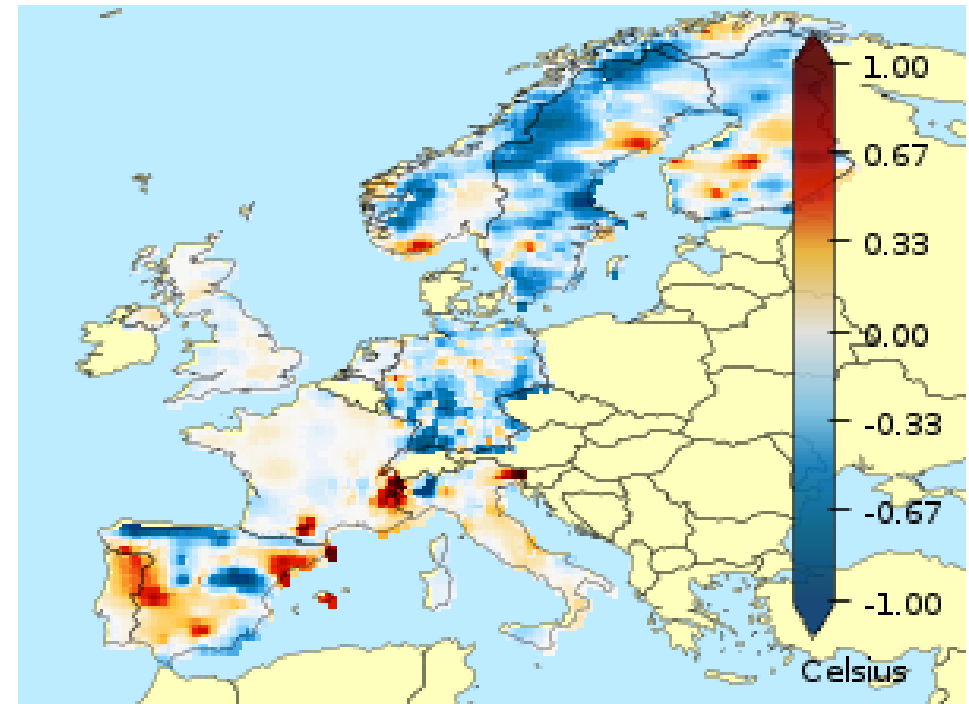
Seasonal analyses

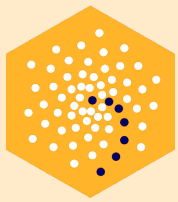
Difference between E-OBSv12.0 and v2.0 over 1981-2008

T_{mean} Winter



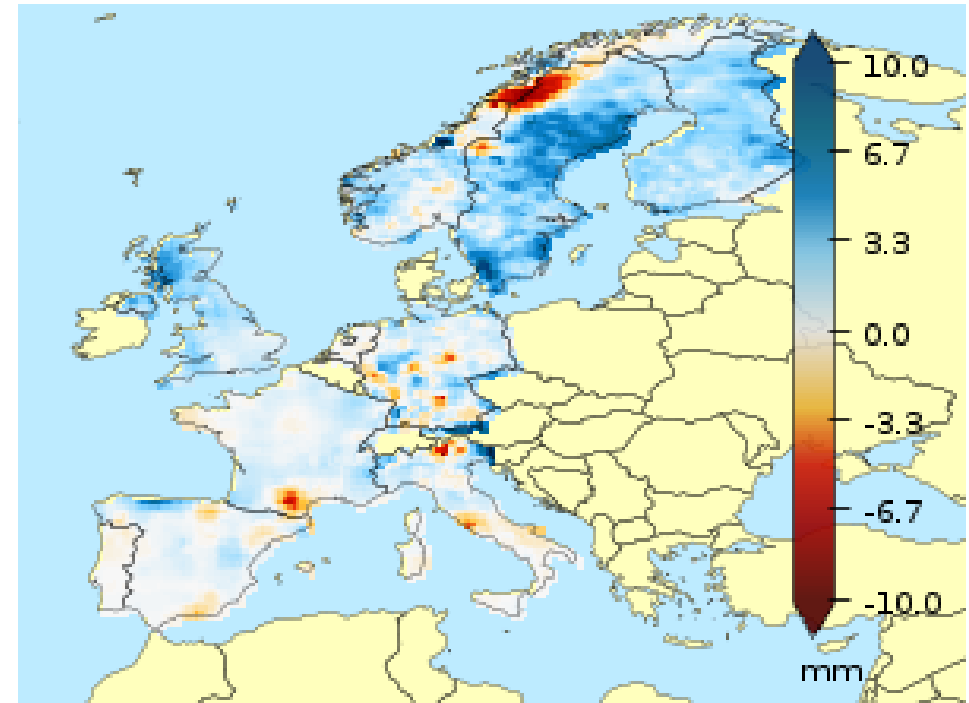
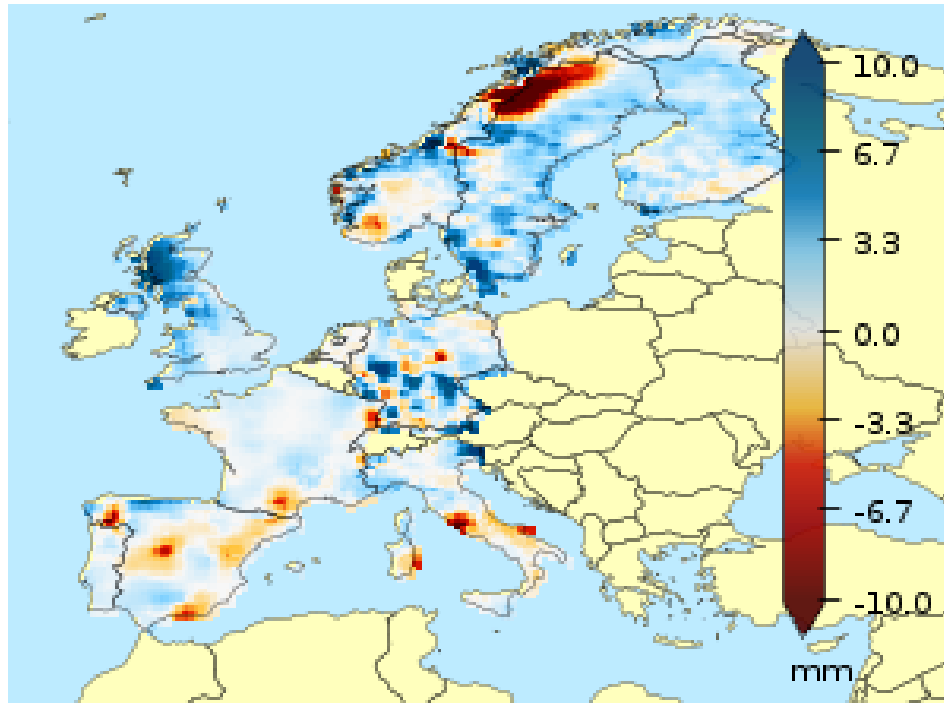
T_{mean} Summer

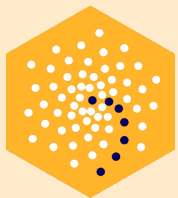




Seasonal analyses

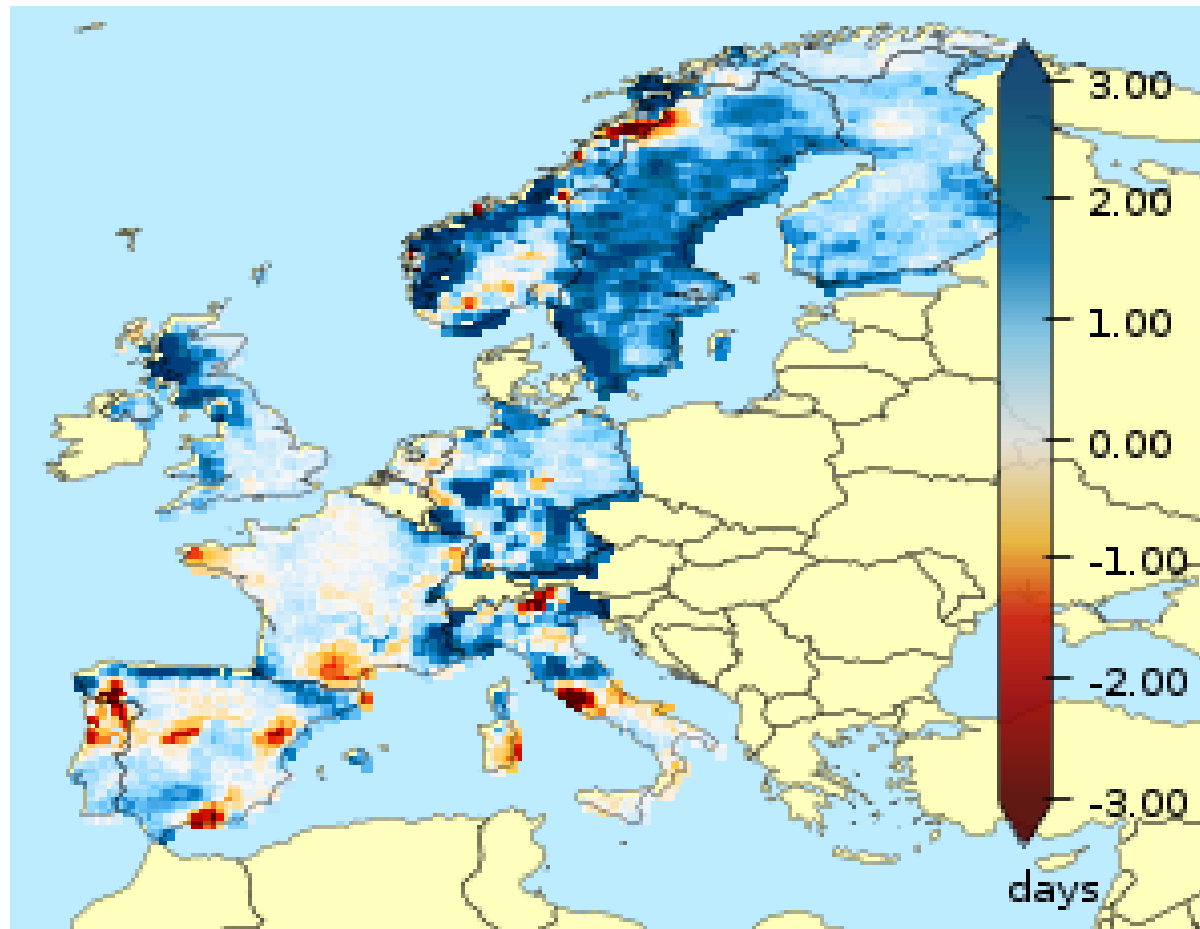
Difference between E-OBSv12.0 and v2.0 over 1981-2008
Precip Winter Precip Summer

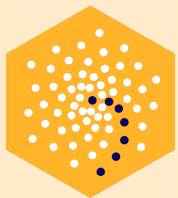




Extreme index

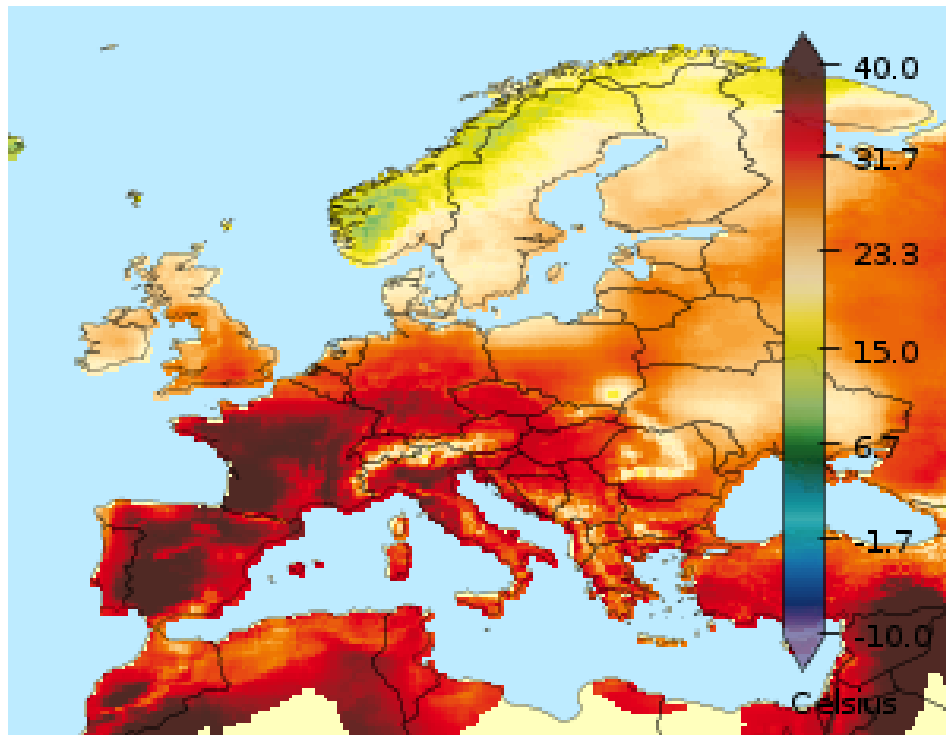
Difference in annual number of days with at least 20mm of precipitation



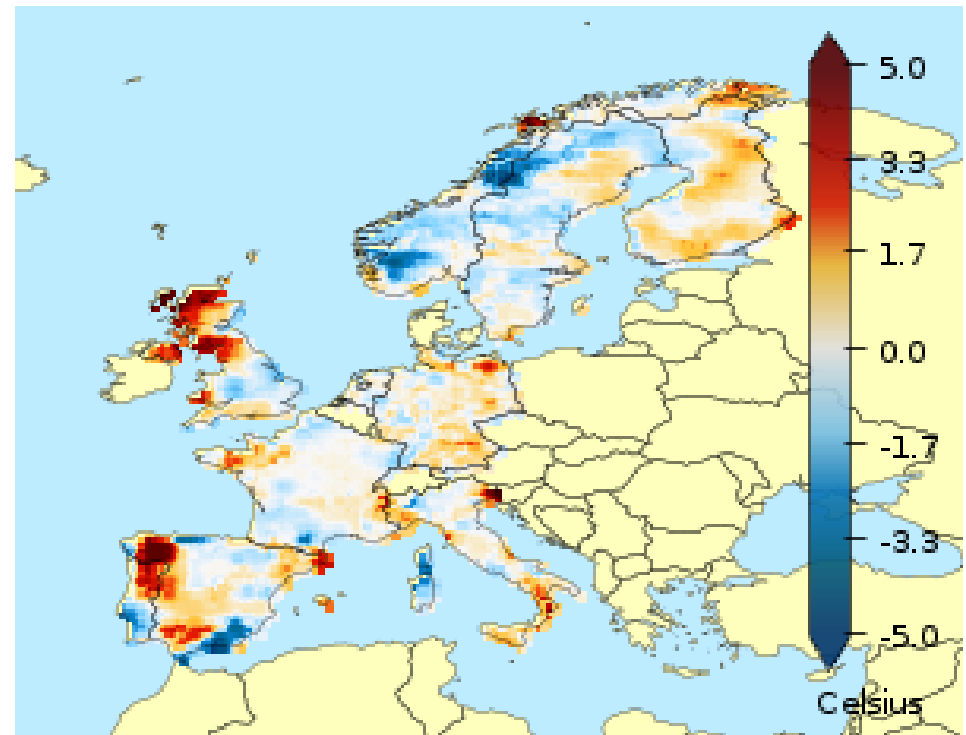


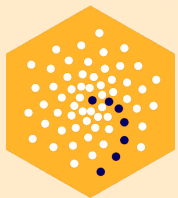
Events

T_{\max} on 4 Aug 2003 (v12.0)



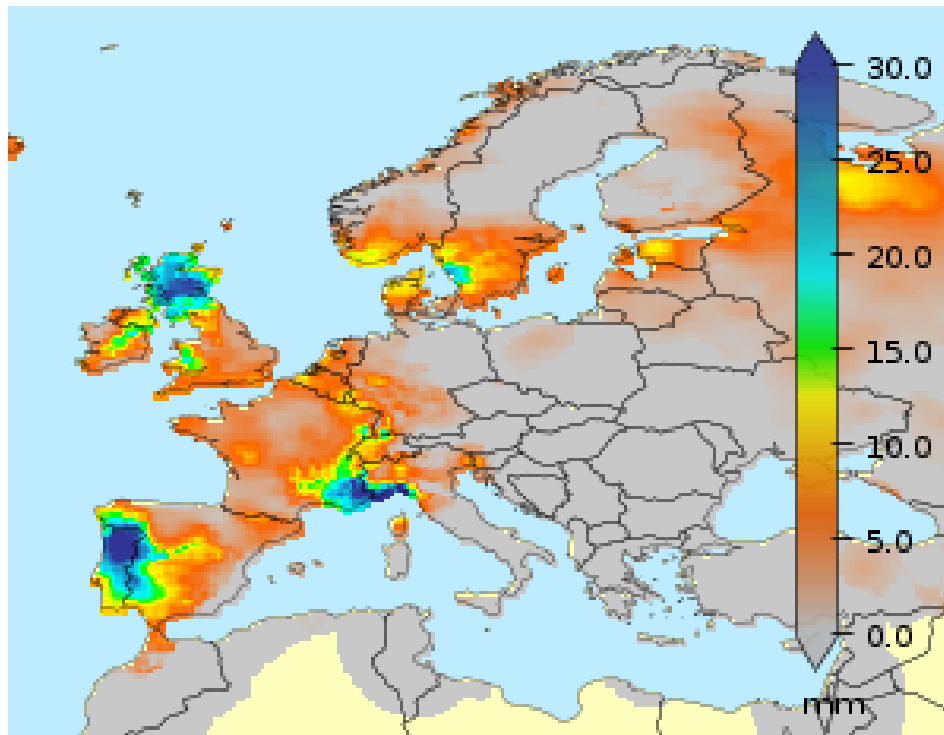
Difference v12.0-v2.0



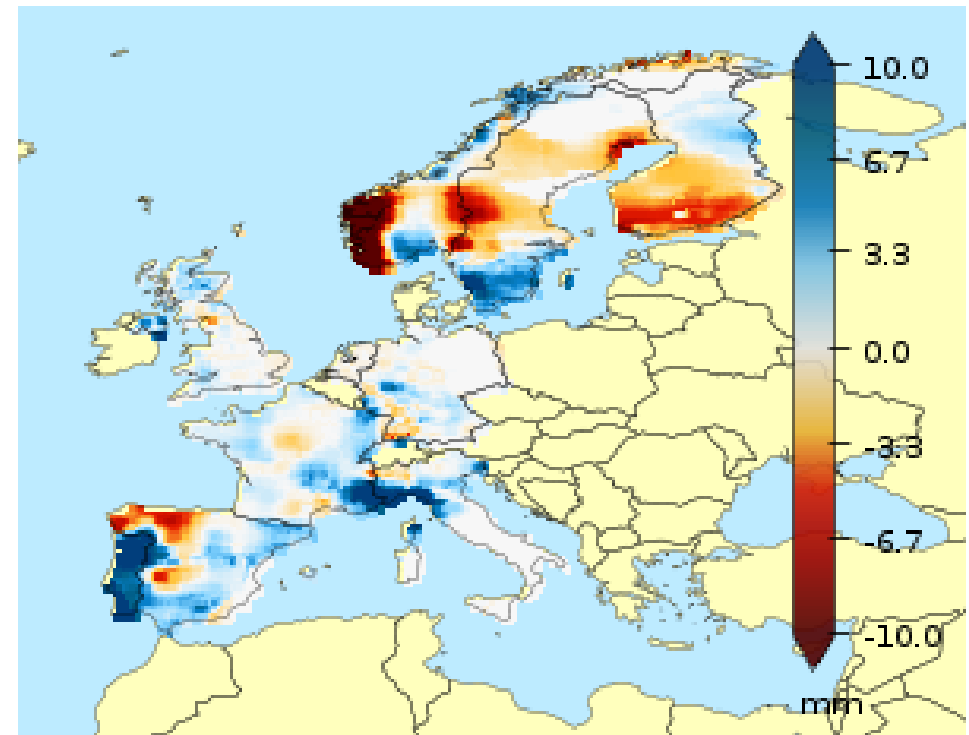


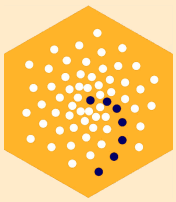
Events

Precip on 23 Jan 2002 (v12.0)



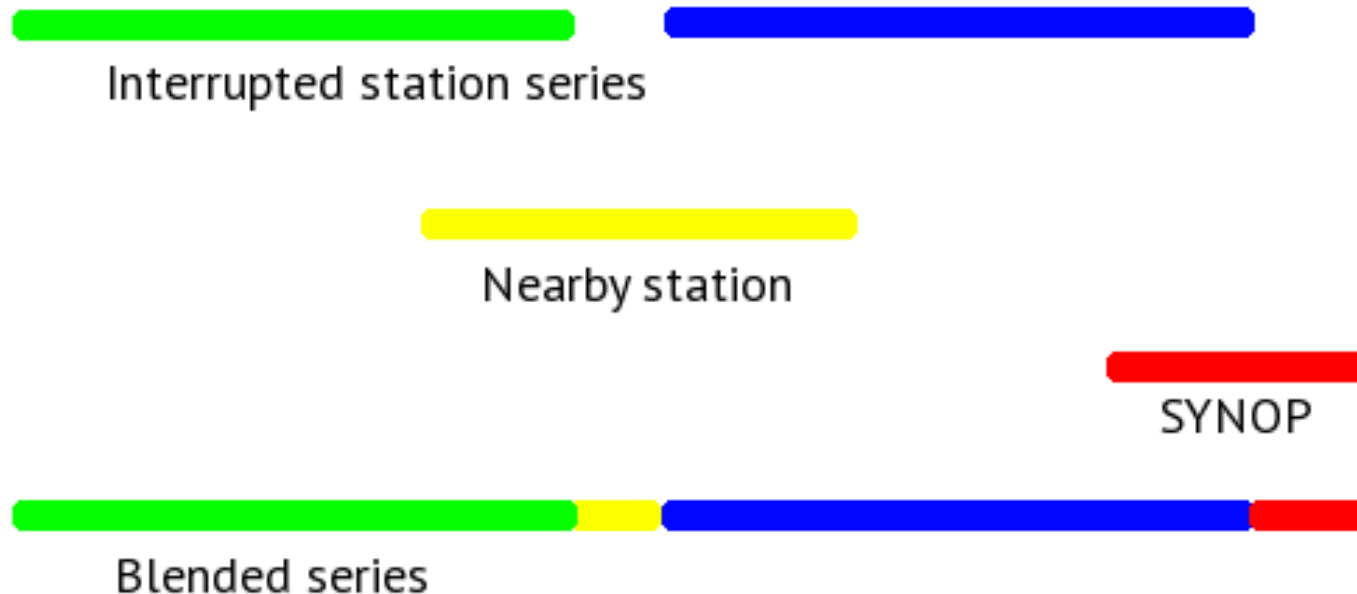
Difference v12.0-v2.0

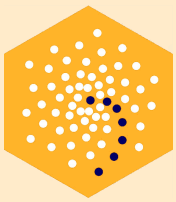




Other factors influencing E-OBS

- Changes in time series
- Temporary use of GTS data
- Blending requirements in ECA&D





Conclusions

- Effect dependent on area of station change
- Addition of one station can have large effect
- High elevation more effect than in flatter areas
- Some seasonal variation for mean temperature
- Quality increases with high station density
- Representation of extremes improves dramatically
- Planning to investigate effect further using new R-code