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

Existing solutions

KNMI Climate Explorer and ECA&D data portals

Copernicus workshop, ECMWF, 3-6 March 2015

ECA&D Data Portal (established 1998)

ECA&D

European Climate Assessment *&* Dataset

| Home | FAQ | Daily data | Indices of extremes | Return values | Extreme events | Project info |

See also: KNMI Climate Explorer   ICA&D   EURO4M project

Home

Home

Welcome to the website of the European Climate Assessment & Dataset project. Presented is information on changes in weather and climate extremes, as well as the daily dataset needed to monitor and analyse these extremes. ECA&D was initiated by the ECSN in 1998 and has received financial support from the EUMETNET and the European Commission.

What's new?

The database is updated until: Jan 31, 2015.
February 2015 - Updates received from the Spanish Meteorological Services Aemet for all their stations up to the 2014/12/31..
February 2015 - Updates received from Hellenic National Meteorological Service (Greece) for 13 stations (23 rain gauges) running up to 2004/12/31..
February 2015 - Following changes in the data policy at the Deutscher WetterDienst (DWD), most series provided by DWD have the status "downloadable". Original data and metadata are provided at the DWD ftp site.
February 2015 - The Regional Agency for Environmental Protection (ARPA) Vallee d'Aosta provided data for 5 stations.
January 2015 - The Portugese winery Sogrape Vinhos S.A. provided data for 20 stations and updates these monthly.

KNMI Climate Explorer (established 1999)

KNMI Climate Explorer

Three main functions

- Data portal
    - Station data, Climate indices
    - Analysed fields, Reanalyses, Model output
- Data manipulation
    - Point values, area averages of fields
    - Lower frequency statistics, extreme indices
    - Filtering
- Data analysis
    - Mean, s.d., &c.
    - Extreme value fits, return times, return values
    - Correlation, regression, composite analysis
    - EOFs, SVDs.

- 66 Participants
- 62 Countries
- 10259 Stations
- 40630 Daily station series
- 75 Derived indices per station

TN90p: Days with TN > 90th percentile of daily min temp (warm nights)
244 ZUERICH/FLUNTERN, SWITZERLAND
ANNUAL

European Climate Assessment & Dataset http://eca.knmi.nl
Time series plot created on 29-06-2011
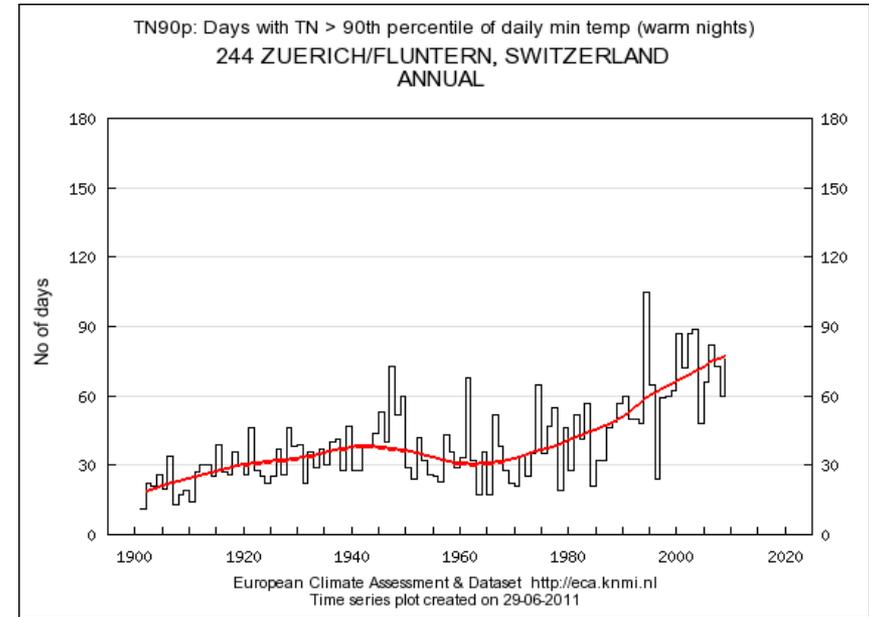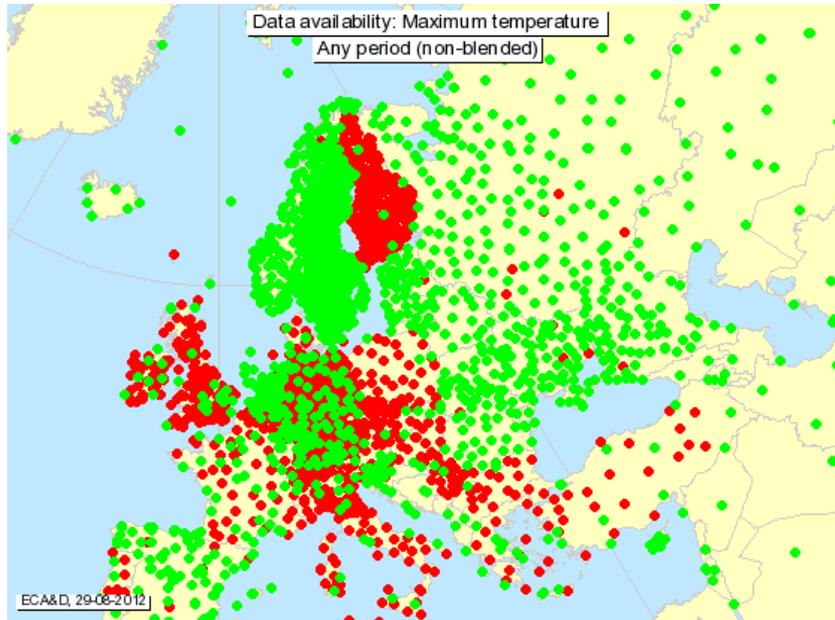
Homogeneity for cloud cover series ZUERICH/FLUNTERN, SWITZERLAND

Legend: useful | doubtful | suspect | not enough data
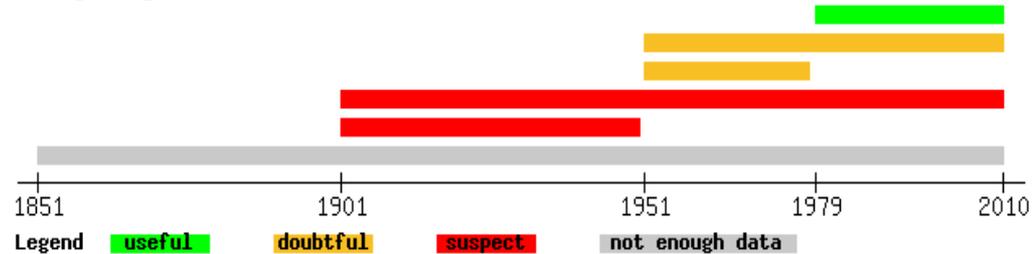
ECA&D is the backbone of the WMO RA-VI RCC on Climate Data

Usage

Climate Explorer

- 3000 unique users per month
- Make ~100 000 plots / month
- Acknowledged in ~100 scientific papers / year
- Used widely for teaching

Newly registered E-OBS Users per month

2010
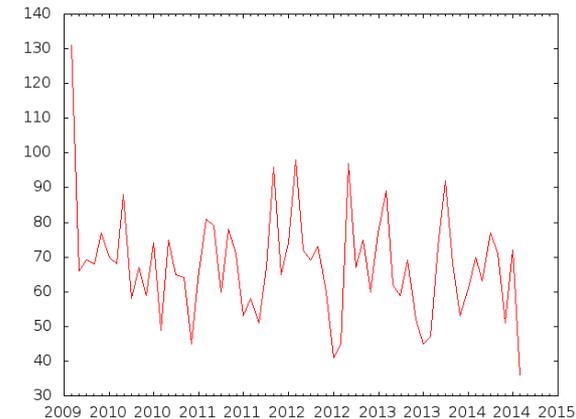
Unique visitors to www.eca.eu per month

7000

1000
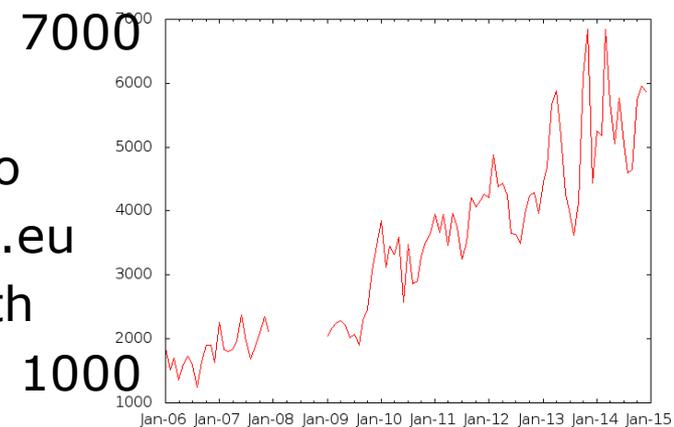
2006

Types of users

Climate scientists:
- Download raw data
- Visualisation, exploratory analysis, reviews, …

Scientists in other fields:
- Download derived data
- Calibrate their data (eg paleo)
- Input to impact models
- Visualisations

Engineers (Climate Explorer only):
- Compute climatologies, statistical properties
- Projections, forecasts & verification

Civil servants (mainly ECA&D/E-OBS):
- Download/visualise climate indicators (incl. trends and return periods)

Common needs:
Easy Access,
Quality Control of
Data and Algorithms

Examples: visualisation
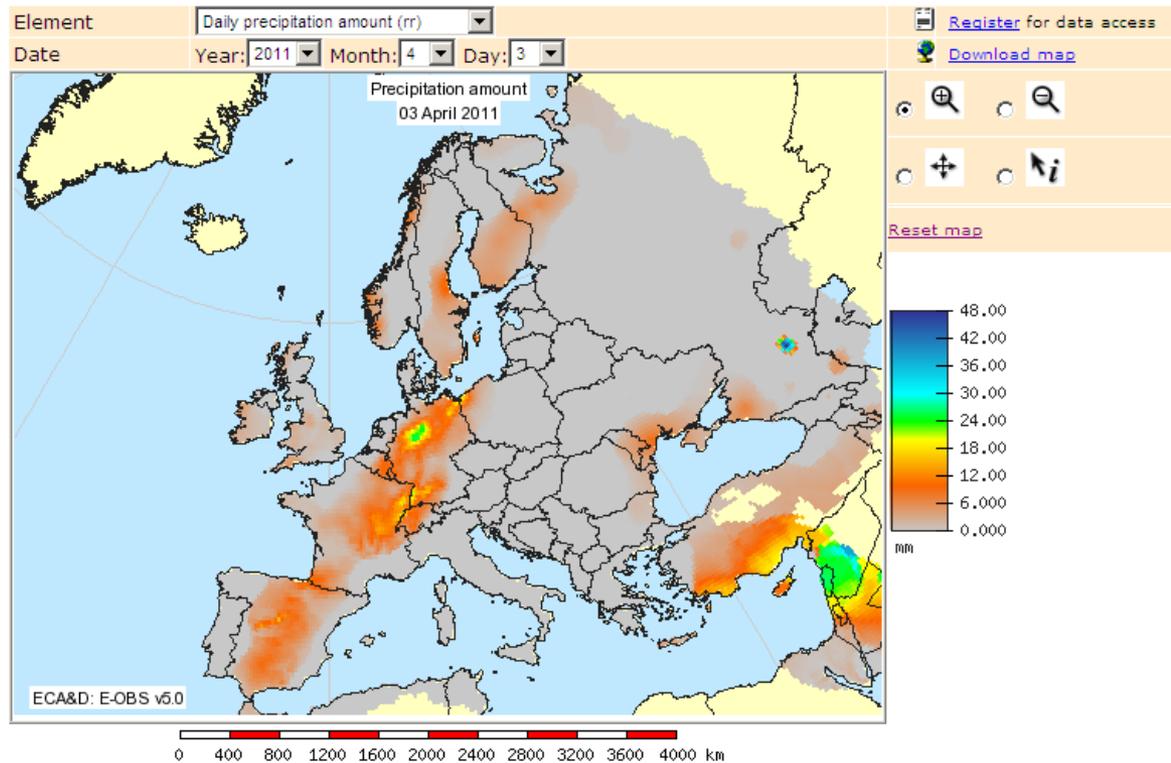
Examples: visualisation

prcp/clim8110-1 Feb-Jan2015
GPCC monitoring precipitation
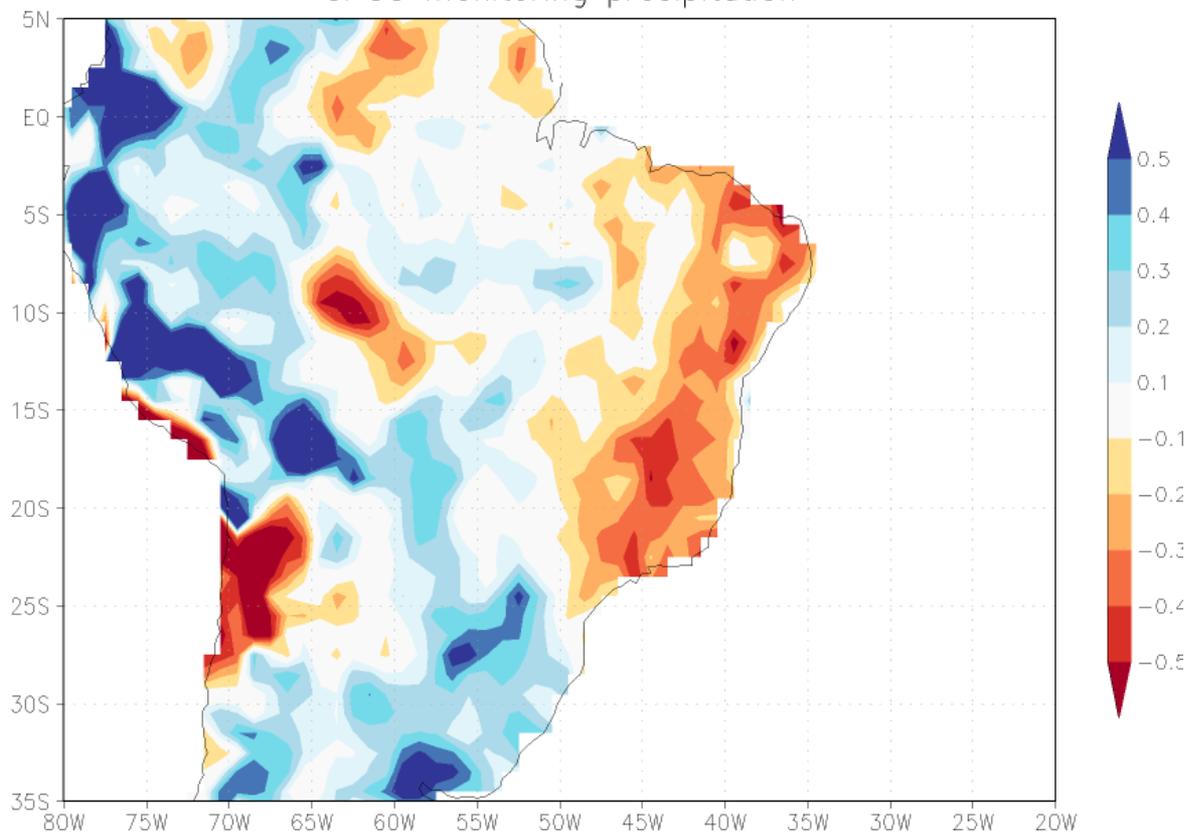
Example: visualisation

Note that all data of a map or plot can always be downloaded
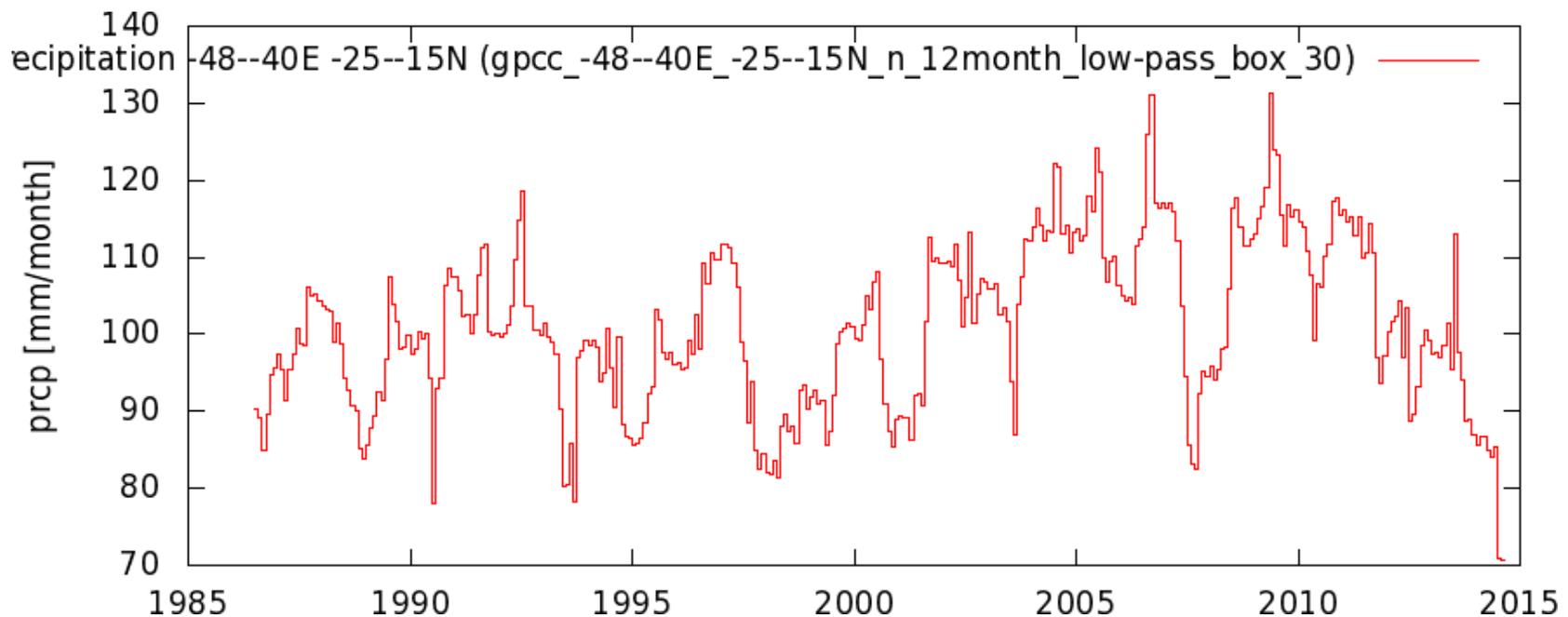
Example: analysis

2014 warmest year on record in Europe

E-OBS European temperature
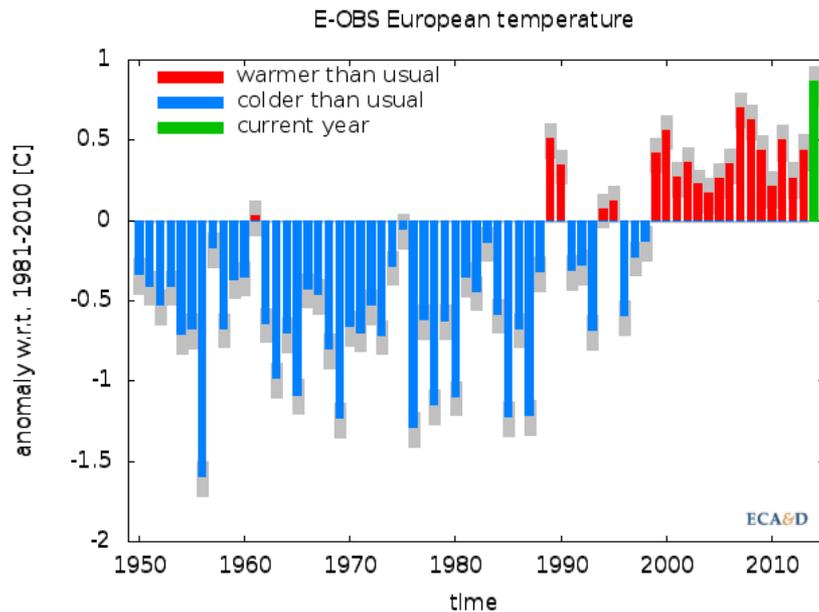
Temperatures wrt 1981-2010

Return time 2014: ~90 year
Return time 1951: >10000 year
Ratio > 50 (95% CI)

annual index tg Europe
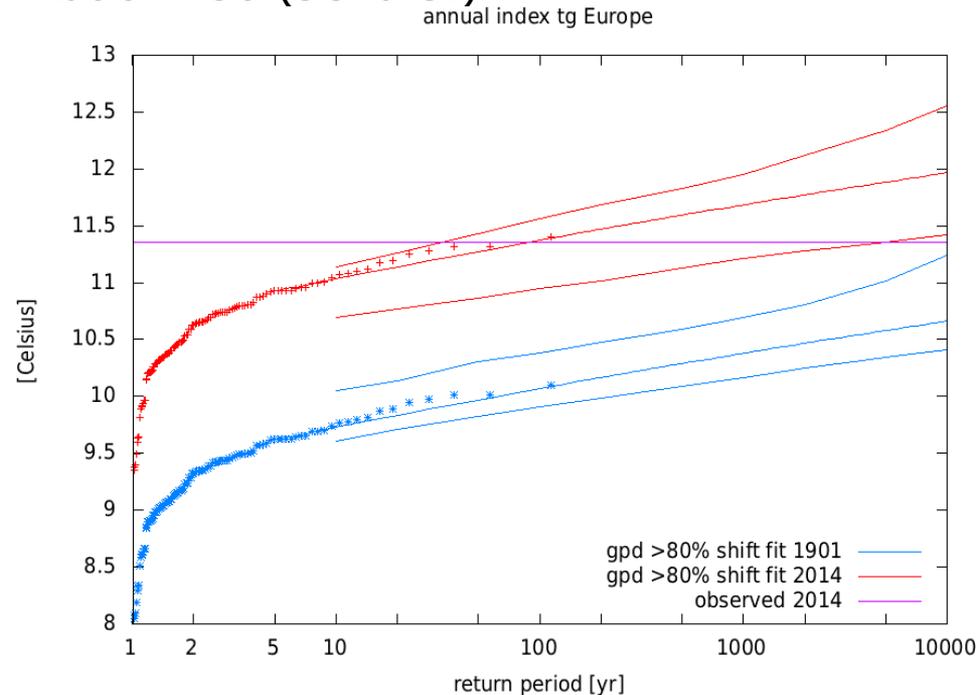
Flooding of Danube/Elbe
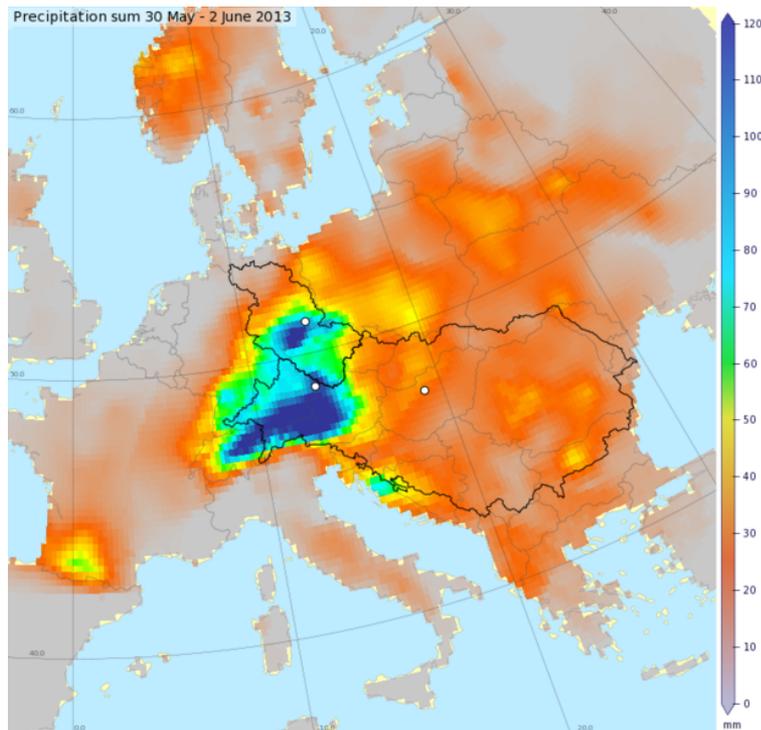
Precipitation amount observed between 30 May and 2 June 2013. The black lines indicate the drainage basins of the rivers Elbe (top) and Danube (bottom). (source: E-OBS).
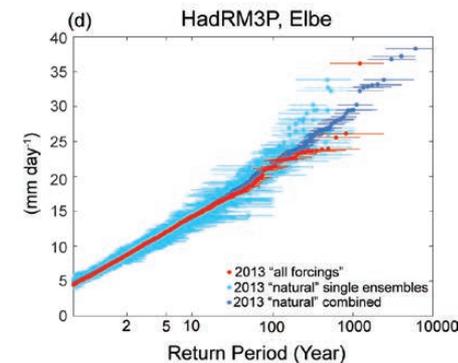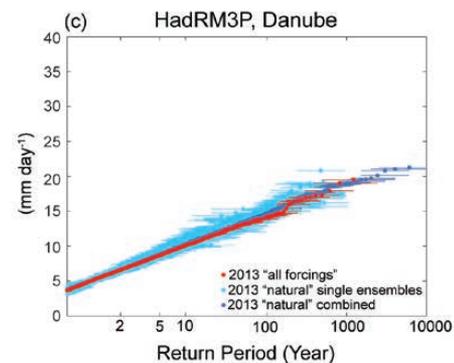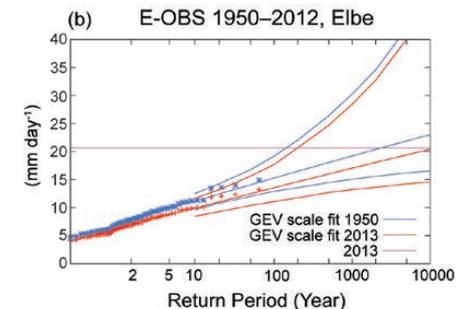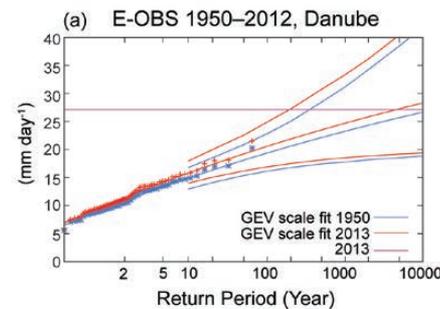
Return times in the observed present and past climates (top) and in present and pre-industrial modelled climates (bottom). No change can be detected. Schaller et al, BAMS, Explaining Extreme Events 2013.

Portals being integrated, also with ESGF, Climate4impact

- Common storage
- Common visualisation tools (ADGUG)
- Integrated transformations (eg extreme indices)

Currently part of the EU projects

- ECA&D/EOBS: CHARMe, EUPORIAS, UERRA, CLIPC, EUSTACE
- Climate Explorer: SPECS, EUCLEIA

- Climate4impact.eu: IS-ENES2, EUPORIAS, SPECS, CLIPC

Future plans

- Keep users happy
- Further integration, operationalisation Climate Explorer
- More daily data (CMIP5, CORDEX, KNMI'14 data)
- Integration with other data sources
- Additional variables, stations, and indicators (ECA&D)
- Improved gridding and homogenisation of data (E-OBS)
- More extreme value analyses (Climate Explorer)
- Integrations into Copernicus system.