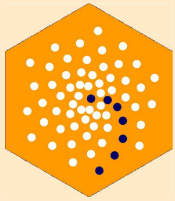


# *Monitoring climatic extremes with the European Climate Assessment & Dataset*

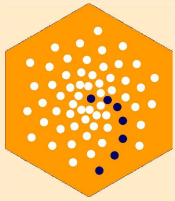
*What can we offer and what would you need?*

Ine Wijnant and the ECA&D team



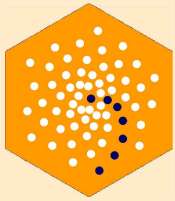
# European Climate Assessment & Dataset

- Regional Climate Centre on climate data for WMO RA VI
- tool for monitoring climate and climatic extremes
- dataportal for daily and aggregated data

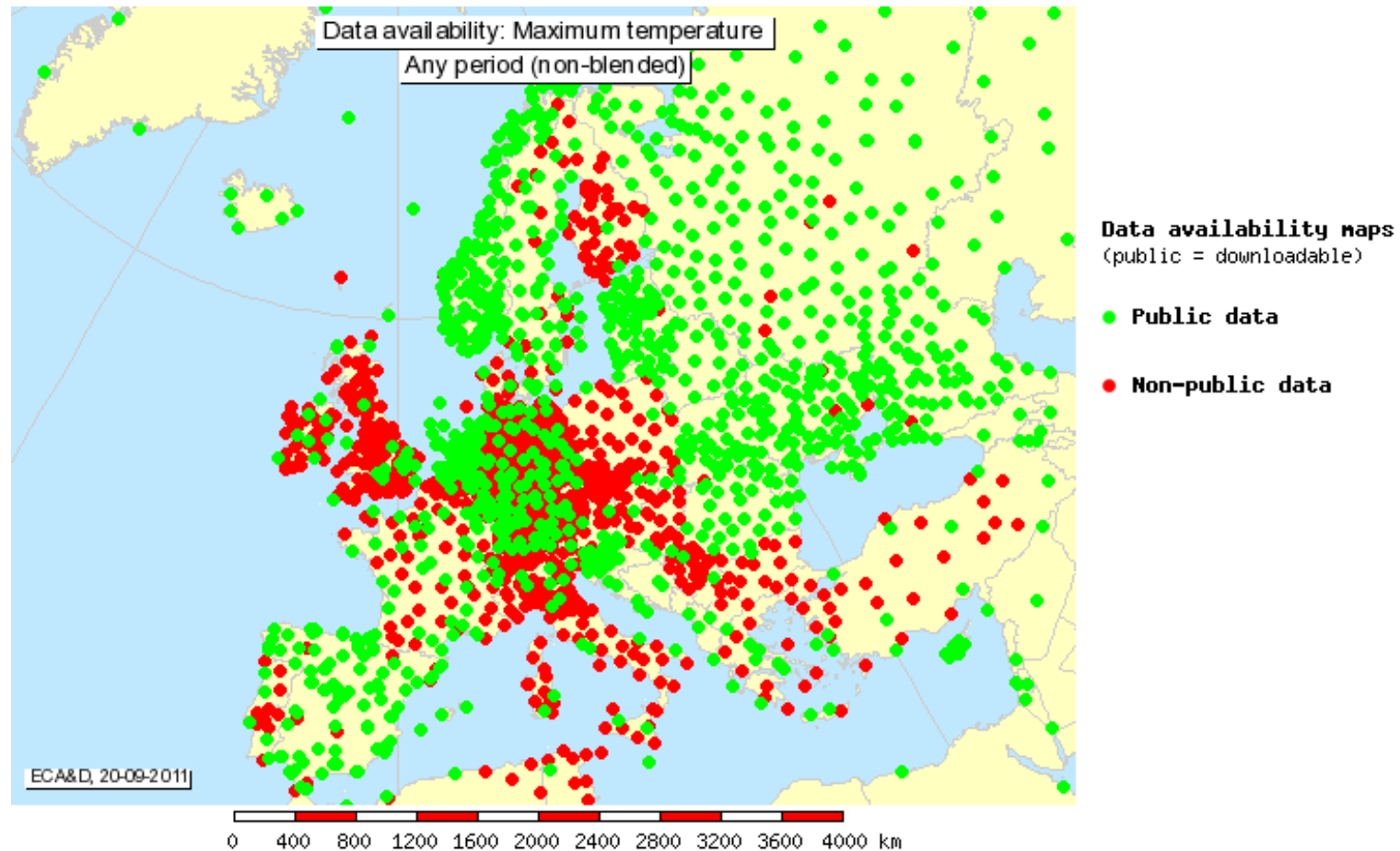


# European Climate Assessment & Dataset

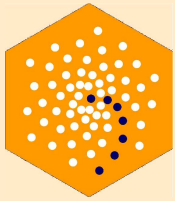
- daily data for 4822 stations
- 57 participants, 62 countries
- 12 elements, like:
  - daily precipitation sum
  - daily max. & min. temperature
  - wind gust



# European Climate Assessment & Dataset

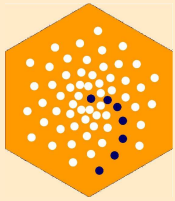


coverage of stations with daily max. temperature



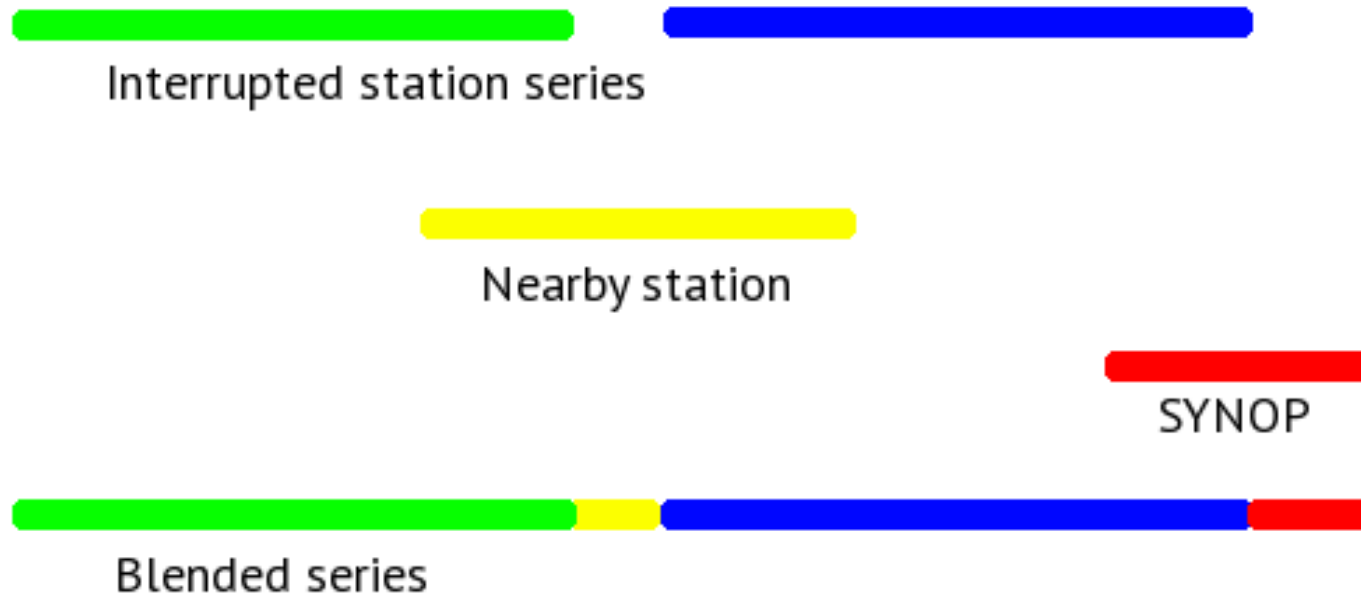
# Maintenance

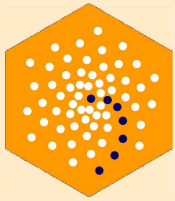
- monthly updates
  - data directly from the NHMSs
  - data from the GTS
- quality control
- 'blending' of data
- calculation of indices of extremes
- calculation of trends, return values etc.
- homogeneity tests



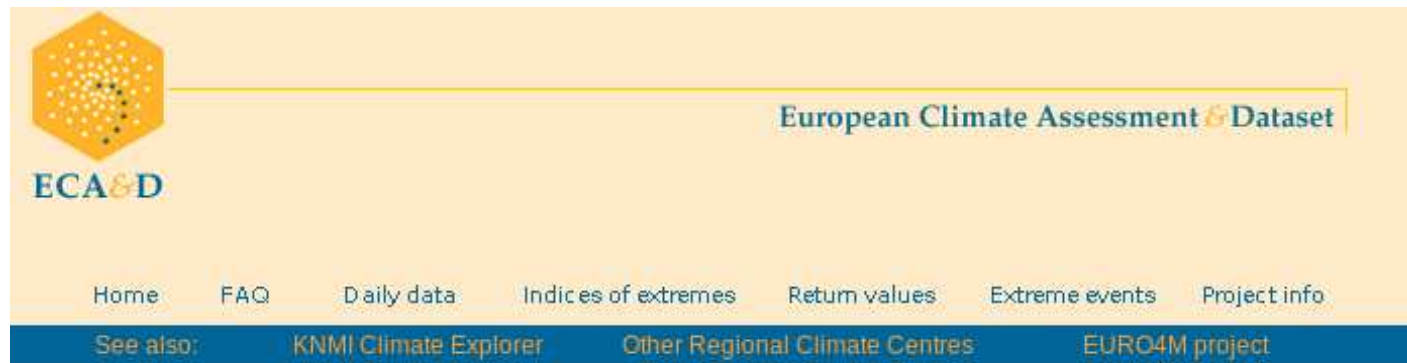
# Maintenance

to make series as long and complete as possible:  
'blend' with nearby station and/or GTS data

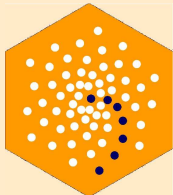




# What can be found at ECA&D?



- Daily Data
  - download of daily data
  - metadata information



# What can be found at ECA&D?

## 16 WIEN

<u>CC: Cloud cover</u>	1901-01-01	2011-08-31
<u>HU: Humidity</u>	1901-01-01	2010-12-31
<u>TX: Maximum temperature</u>	1855-02-01	2011-08-31
<u>TG: Mean temperature</u>	1855-02-01	2011-08-31
<u>TN: Minimum temperature</u>	1855-02-01	2011-08-31
<u>RR: Precipitation amount</u>	1852-09-01	2011-08-31
<u>SD: Snow depth</u>	1916-01-01	2011-03-03
<u>SS: Sunshine</u>	1907-10-01	2010-12-31

### Station details for Wien, AUSTRIA

Latitude	48:14:00 N	WMO identifier	11035
Longitude	16:21:00 E	GCOS station	Yes
Elevation	198.5 m		
ECA Station ID	16		
Land use	Located between the north-easternmost hills of the Alps (Wienerwald) and flat plains (Wiener Becken). The surroundings of the town are forested hills from the north to the south-west and flat agricultural plains from south over east to north.		
Soil type	Unknown		
Surface coverage	Unknown		

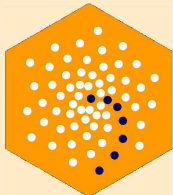


[Show location using Google Maps](#)  
(Green arrow, but could be out of view)  
(not part of ECA&D, opens a new window)


### Station history

1734 – 1773 Jesuit college, z=171m asl (estimate)  
 1762 – 1774 Astronomical observatory of the University of Vienna , z=171m asl  
 1775-01 – 1878-12 Astronomical observatory of the University of Vienna , z=171m asl  
 1852-06 to 1872-04 Favoritenstraße (Main observatory of the Austrian weather service), z=194m asl  
 Since 1872-04 Hohe Warte (Main observatory of the Austrian weather service), z=198.5m asl  
 Due to an overlapping of the sub-periods homogenisation could be carried out directly and without serious problems.



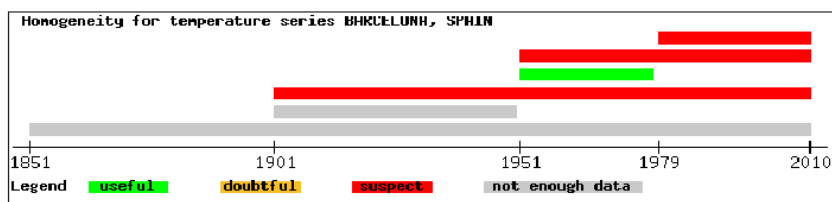


# What can be found at ECA&D?

Country	Station	Element
 SPAIN	335 BARCELONA	TX: Maximum temperature series

## Homogeneity test results

The quality for climate change research of each **blended** series was statistically tested. A description of the homogeneity tests that have been applied is given in Publications > [ATBD](#) and in this [helptext](#). The diagram below summarizes the test results for fixed time periods. Only the results for periods with at least 80% data availability are shown.



## Source Information

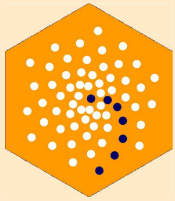
The tables below provide details on the source data that is used to create the **blended** series. The exact source of each observation in the blended series can be traced back from the first figure of the source ID. A source ID starting with 9 indicates synoptical data, whereas 1 indicates participant data. The column "Dheight" is the difference in height (meters) between the main station and the station used for blending. "Dist" is the distance in kilometers between the main stations and the stations used for blending. "Ele ID" specifies the observation characteristics of the element and "Par ID" the data provider. "Public" indicates if the series is available for public download. Synoptical data can only be downloaded as part of the blended series, but not separately.

Source	Par ID	Ele ID	WMO	GSN	Latitude	Longitude	Height	Dheight	Dist	Begin	End	Public
101171 BARCELONA, SPAIN	47	TX1			+41.25.10	+02.07.31	412m	0m	0km	19270801	19990930	Y
101646 BARCELONA, SPAIN	48	TX1			+41.25.10	+02.07.31	412m	0m	0km	18650101	20031231	N
119884 BARCELONA, SPAIN	31	TX3			+41.25.10	+02.07.31	412m	0m	0km	19260101	20110131	Y

Ele ID	Description	Unit
TX1	Maximum temperature unknown interval	0.1 °C
TX3	Maximum temperature 0-0 UT	0.1 °C

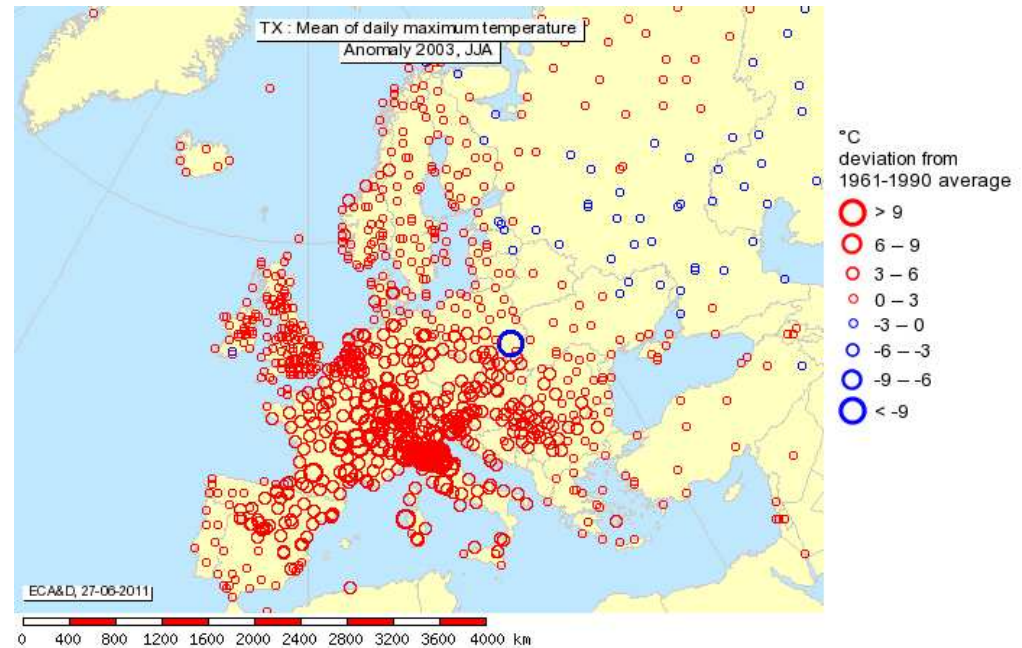
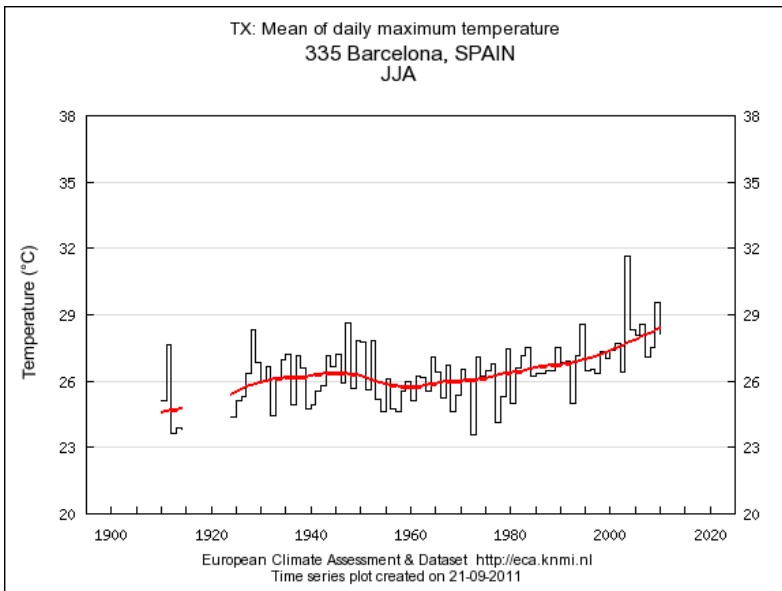
Par ID	Country	Name	Affiliation	City
31	SPAIN	Jose Antonio Lopez	Instituto Nacional de Meteorologia	Madrid
47	SWITZERLAND	GSN network	World Meteorological Organization	Geneva
48	UNITED KINGDOM	EMULATE project	Climatic Research Unit	Norwich

## homogeneity information and sources of data

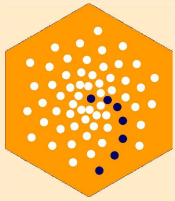


## Derived data

### 61 impact relevant indices (indices of extremes)

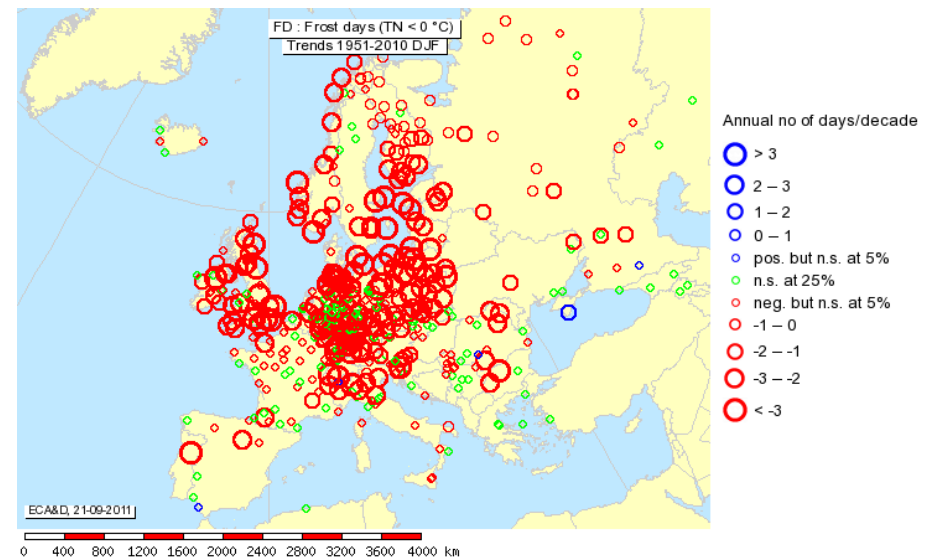
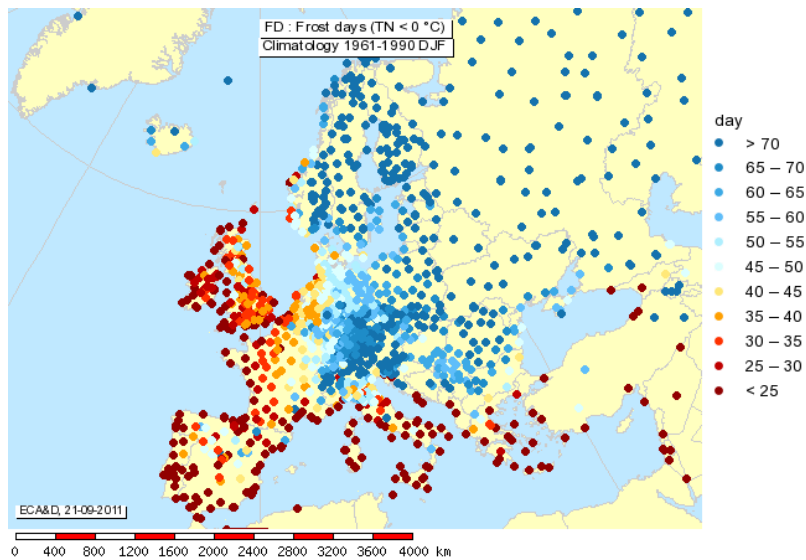


mean of daily max. temperature

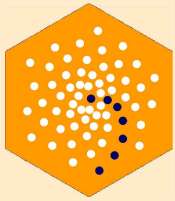


## Derived data

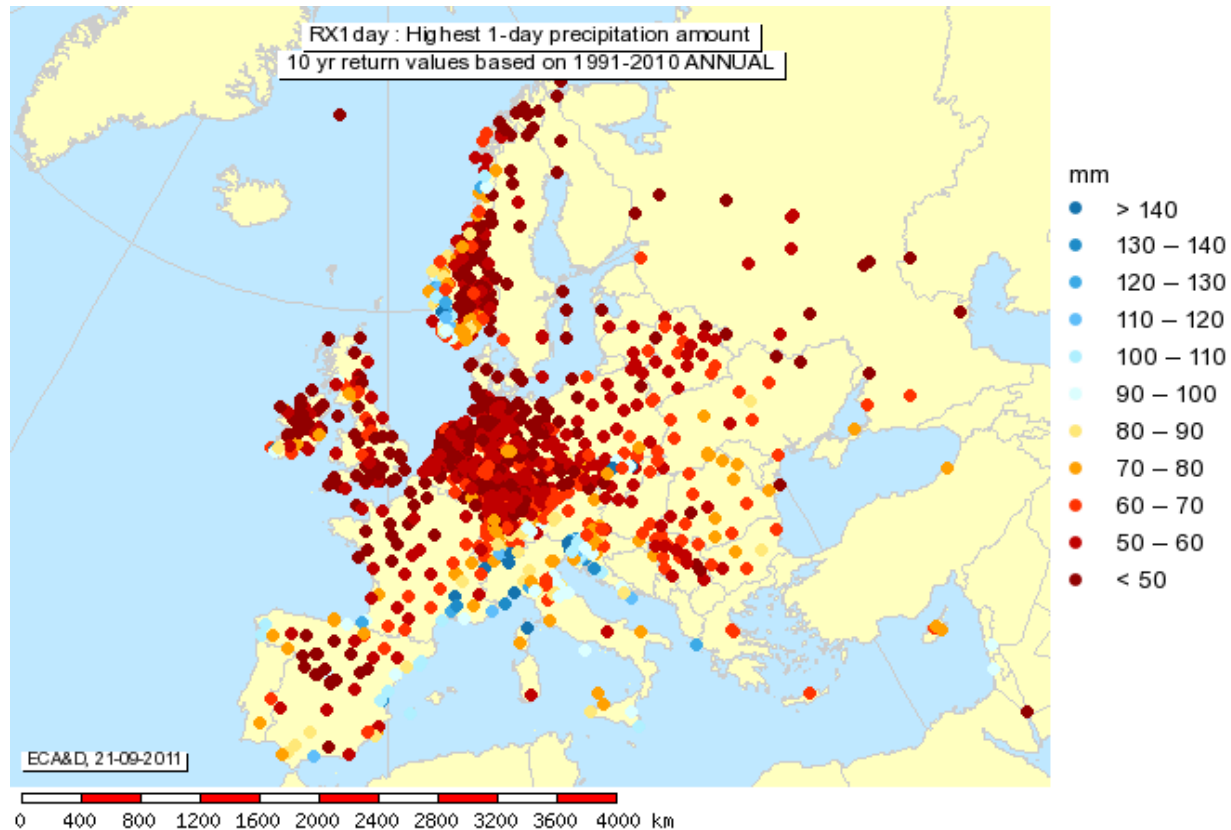
### 61 impact relevant indices (indices of extremes)



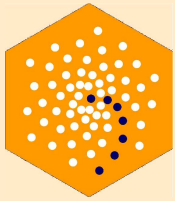
### climatology and trend in Frost Days (TN < 0°C)



# Extreme events



Return value maps  
(1, 2, 5, 10, 50 year return periods)



# Extreme events

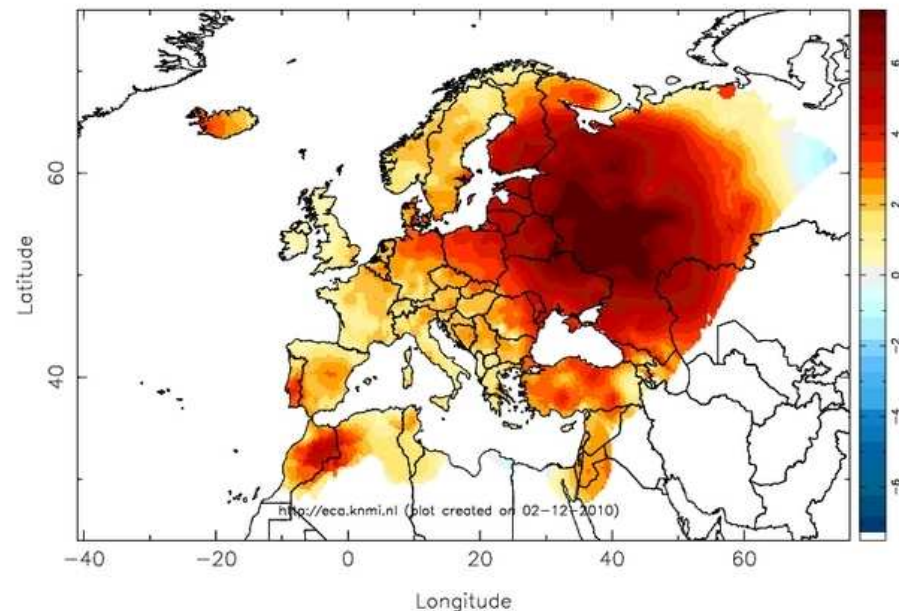
## Russian heat, drought and fires, Summer 2010

GEO theme: Disasters, Health, Agriculture

Category: Heat, Drought

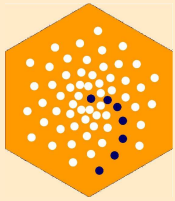
In Summer 2010, Russia was hit by record temperatures, meagre rainfall amounts and subsequent crop loss, peat and forest fires. The extreme situation was mostly due to an exceptionally strong and persistent area of high pressure that lasted for weeks, favouring southerly flow, ample sunshine and little rain. This "blocking pattern", which effectively prevents the normal east-to-west movement of weather systems that typically bring cooler temperatures and rain, began in early July and lasted through mid-August. According to NOAA, it was the most extreme and longest lasting blocking pattern since 1920.

In the E-OBS anomaly map below, one can see that for vast areas of Western Russia and Eastern Europe, mean temperatures were between 4 and 8°C above normal during July and the first two weeks of August 2010.

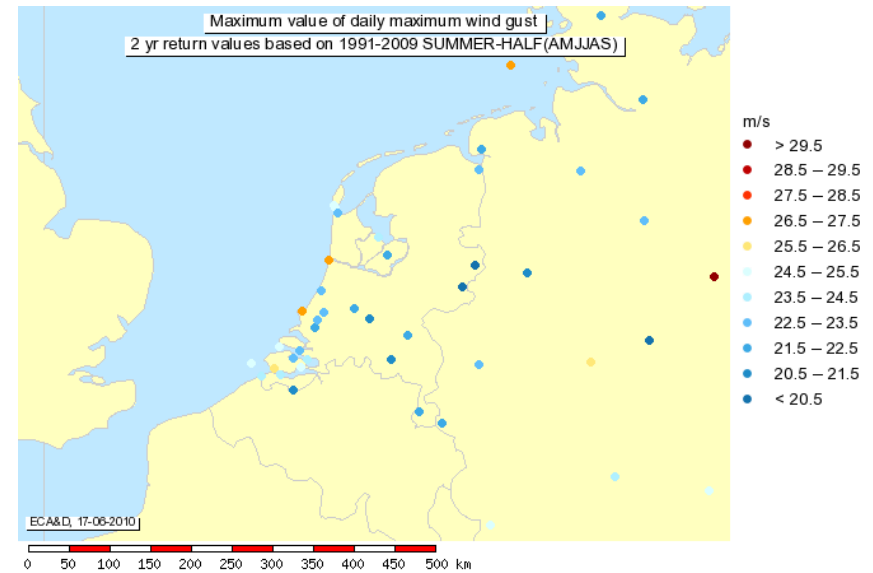
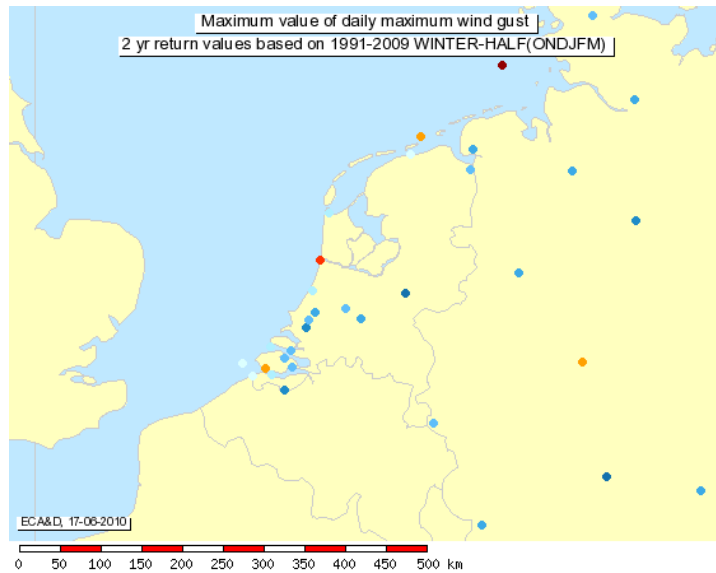


E-OBS anomalies for mean temperature during July and the first two weeks of August 2010 compared to the normal period 1961-1990.

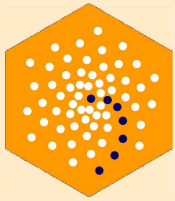
## Extreme event descriptions



# collaboration with Meteoalarm



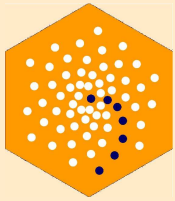
2-year return period wind gust  
(~ code orange warning)



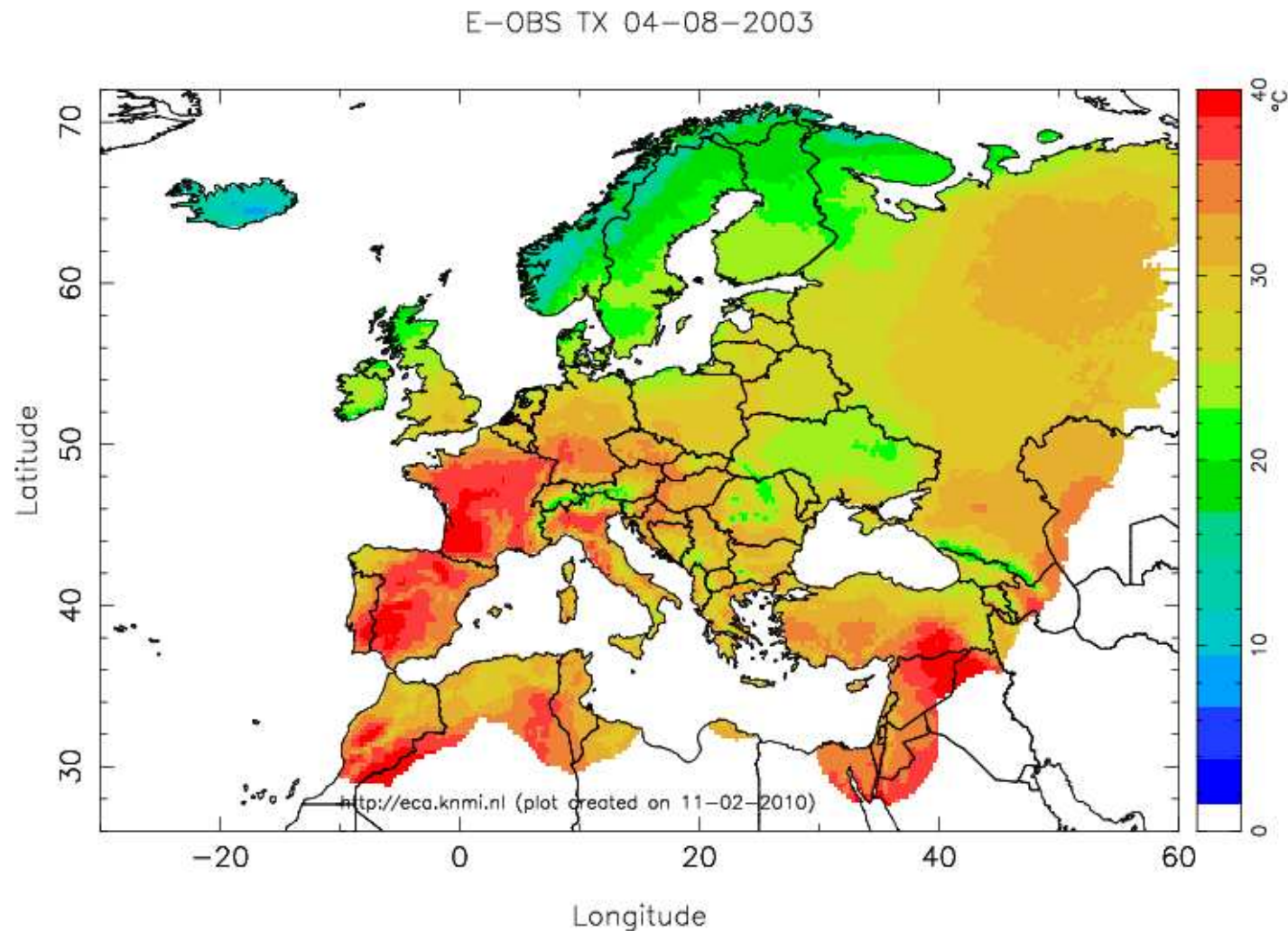
## E-OBS gridded data

- based on ECA&D station records
- precip., temperature and pressure
- $0.25^\circ \times 0.25^\circ$  and  $0.50^\circ \times 0.50^\circ$  resolution
- version 5 (released Sept. 2011)  
Jan. 1950 - Jun. 2011
- updated monthly



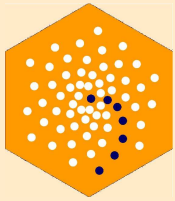


## E-OBS gridded data



4 Aug. 2003 - hottest day in Europe on record!





# European Climate Assessment & Dataset

visit [eca.knmi.nl](http://eca.knmi.nl)

Thank you!