

A Show Case on Climate Watch Systems Experience of the European Regional Climate Centre

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Outline

- ➔ 1. Some general background information about the European Regional Climate Centre
- ➔ 2. Our Climate Watch Showcase: Hot long summer 2012 in southern and southeastern Europe

Part 1

The European (RA VI) Regional Climate Centre Network

The WMO Region VI (Europe)



What is a Regional Climate Centre (RCC) ?

RCCs are **Centres of Excellence** that **assist WMO Members** in a given region to deliver **better climate services and products** including regional long-range forecasts, and to strengthen their capacity to meet **national climate information needs**.

- WMO activity (with mandate of WMO)
- Regional component of the Global Framework for Climate Services (GFCS) in the GFCS - pillar “Climate Service Information System (CSIS)”
- Users: other RCCs and the NMHSs (end users are customers of the NMHSs)

RCC in the RAVI:

- Poll in 2008 led to product portfolio (fixed in the implementation plan)
- Start as pilot network in 2009; 3 nodes; each node formed by a consortium
- CBS XV (09/2012): approval of nomination of the pilot RCC network to become the WMO RAVI RCC network
- Final decision by EC in May 2013 (RCC to be assigned as an RSMC of WMO)



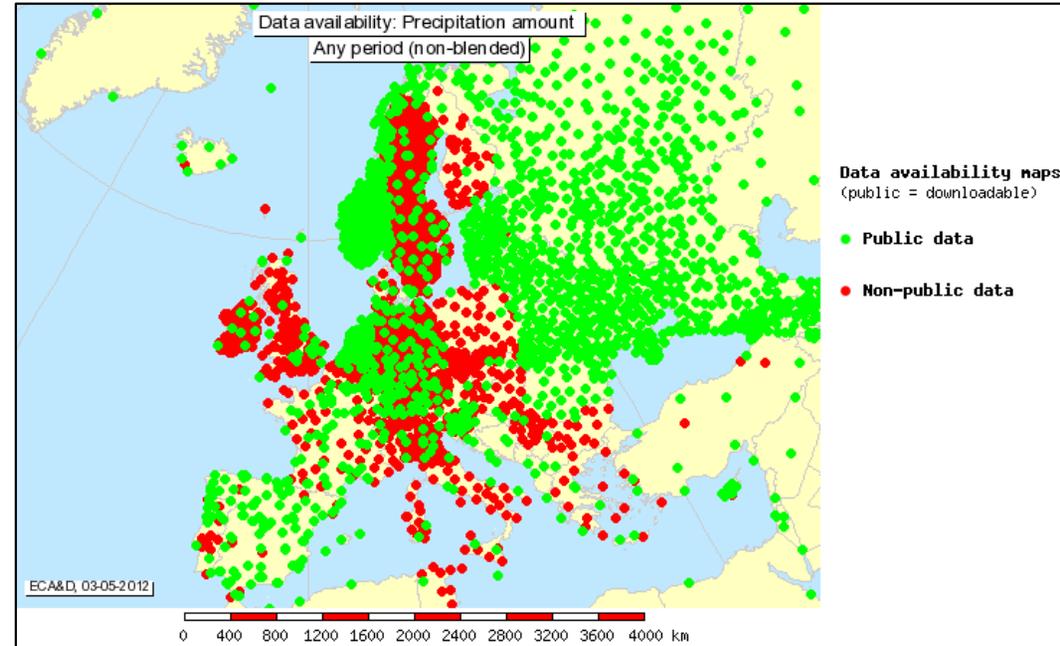
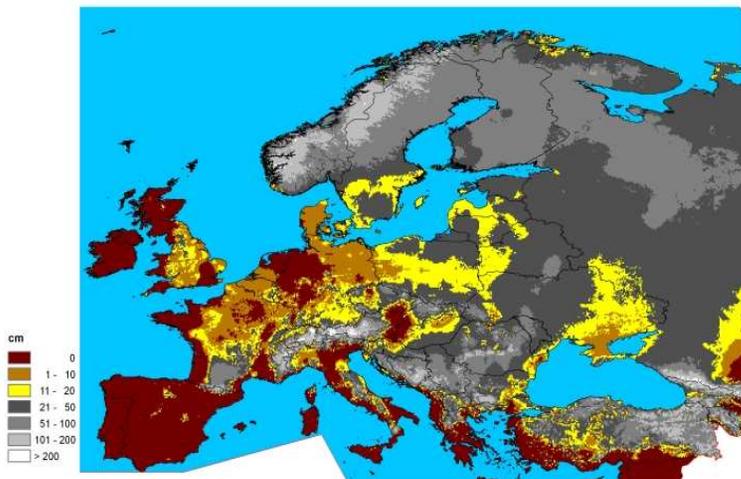
WMO RAVI Pilot RCC-Network

→ RCCs provide regional-scale tailored climate services on

- Climate Data
- Climate Monitoring
- Climate Outlook and projections

Maximale Schneehöhe Februar 2012
Maximum snow depth February 2012

Datenbasis/Data basis: SYNOP
Stand/last update: 01.03.2012



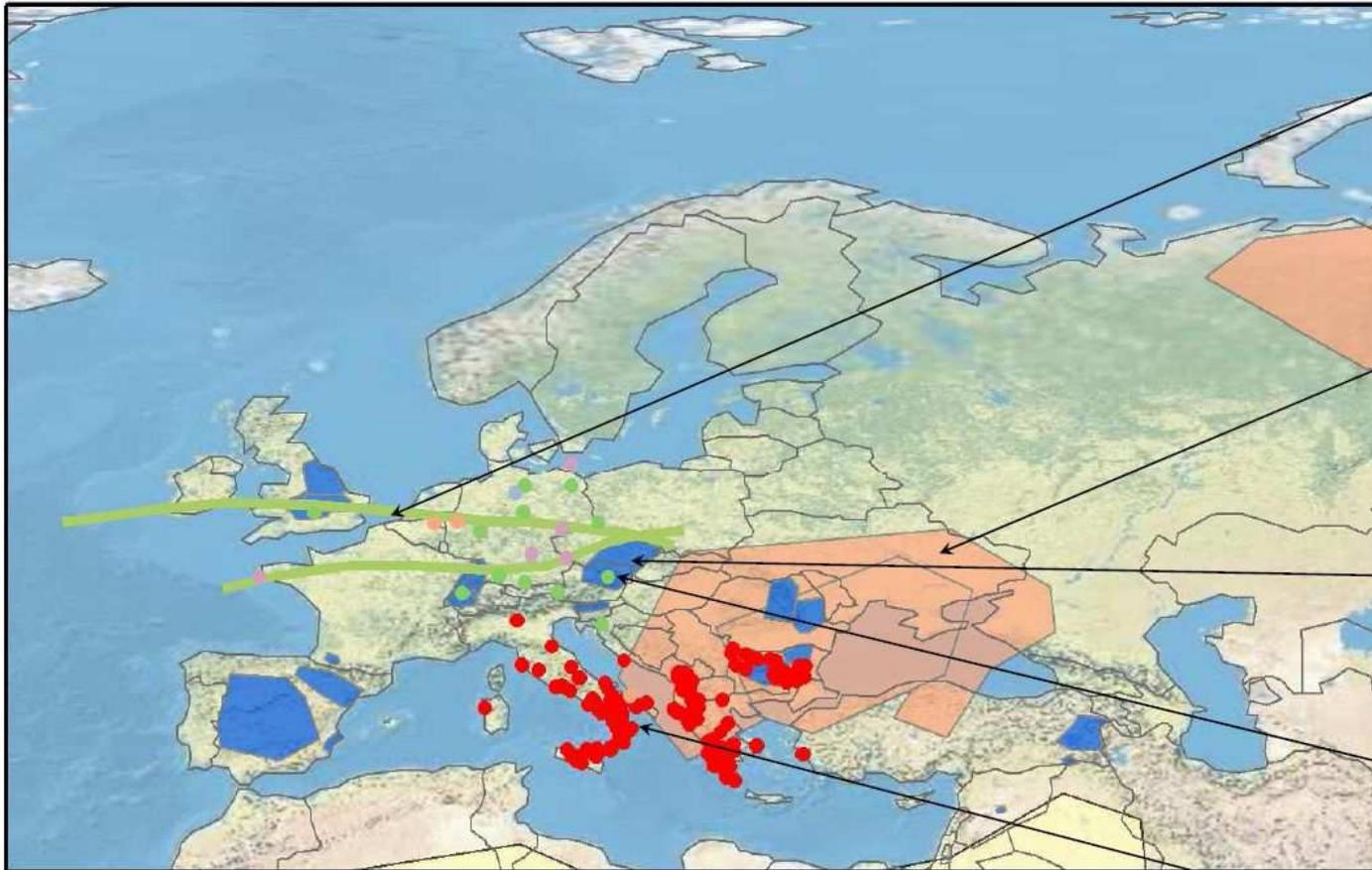
RAVI RCC Product summary

- **RCC on Climate Data:**
 - various data sets for Europe, both station data and gridded data (ECA/D, MILLENNIUM, ENSEMBLES, BALTEX, SHARK) and various sub-regional data sets
 - Services: Archiving functions, data management tools
- **RCC on Climate Monitoring**
 - Maps, reference climatologies, anomalies, indices, trends, statistics
 - reports, significant weather event data base, climate watch (advisories on possible future events),
- **RCC on Long-Range Forecasting** (seasonal forecasts)
 - Seasonal forecast bulletins, maps and graphs on model performance, seasonal outlooks, consensus statements, model verification



RCC-CM products: The Climate Knowledge Database

extreme weather events in 2007 in Europe



field	value
category	storm
begin	2007-01-17
end	2007-01-19
killed	46
damage (Million US\$)	9,010
cyclone	Kyrrill
source	EM-DAT
affected countries	NL, PL, SI, DK, AT, BY, BE, FR, DE, CH, GB, DE, CZ, UA
field	value
category	heat
begin	2007-07-01
end	2007-07-31
killed	506
source	EM-DAT
affected countries	MK, RS, SK, AL, AT, BA, HU
field	value
category	flood
begin	2007-09-06
end	2007-09-10
source	DFO
affected countries	CZ
field	value
category	rainfall
begin	2007-09-05
end	2007-09-08
source	KIT
cyclone	Xaver
affected countries	AT
field	value
category	wildfire
begin	2007-07-01
end	2007-08-31
source	EM-DAT
killed	11
affected countries	IT

- Cold
- Drought
- Flood
- Heat
- Storm track
- Cold
- Heat
- Wildfire
- Rainfall
- Storm

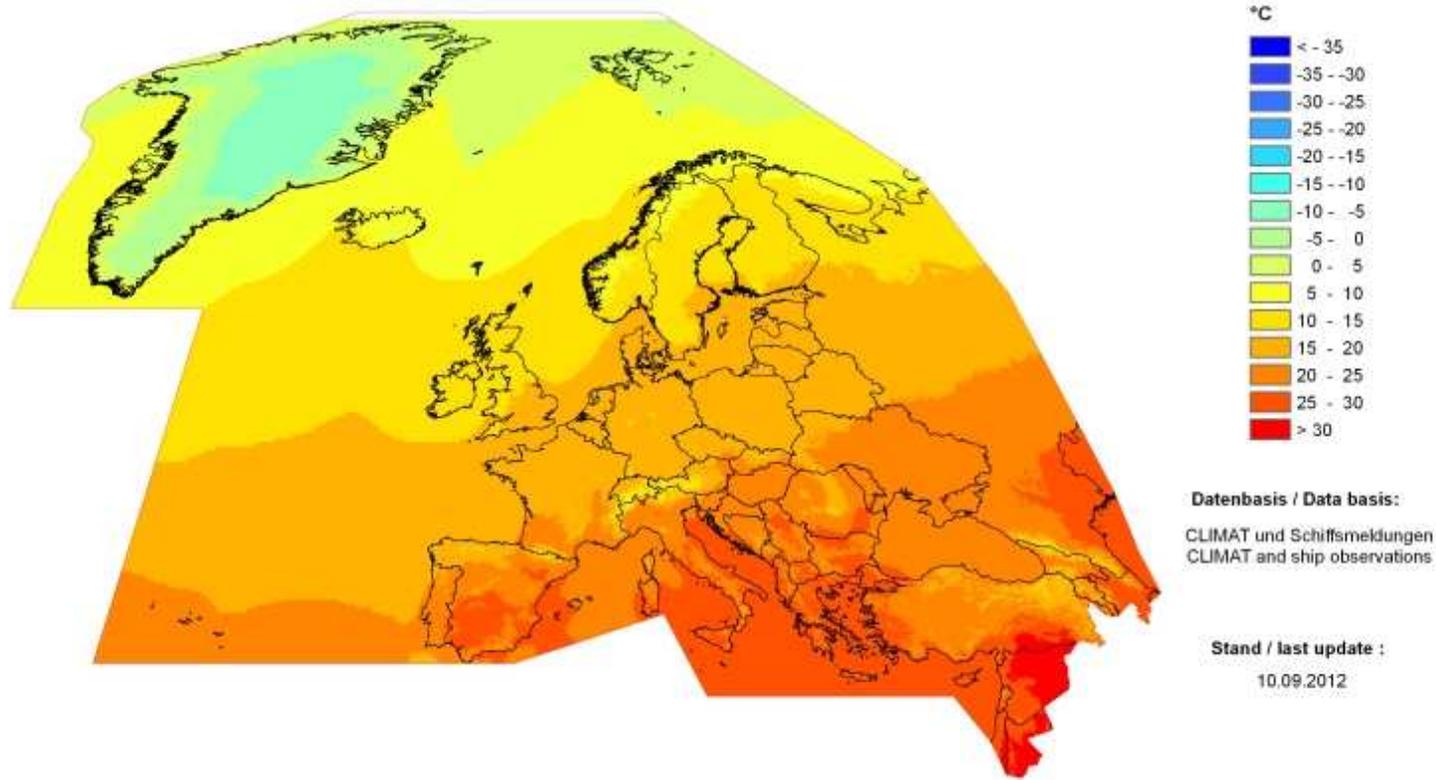
Part 2

Climate Watch Showcase: Long Hot Summer 2012 in southern and southeastern Europe



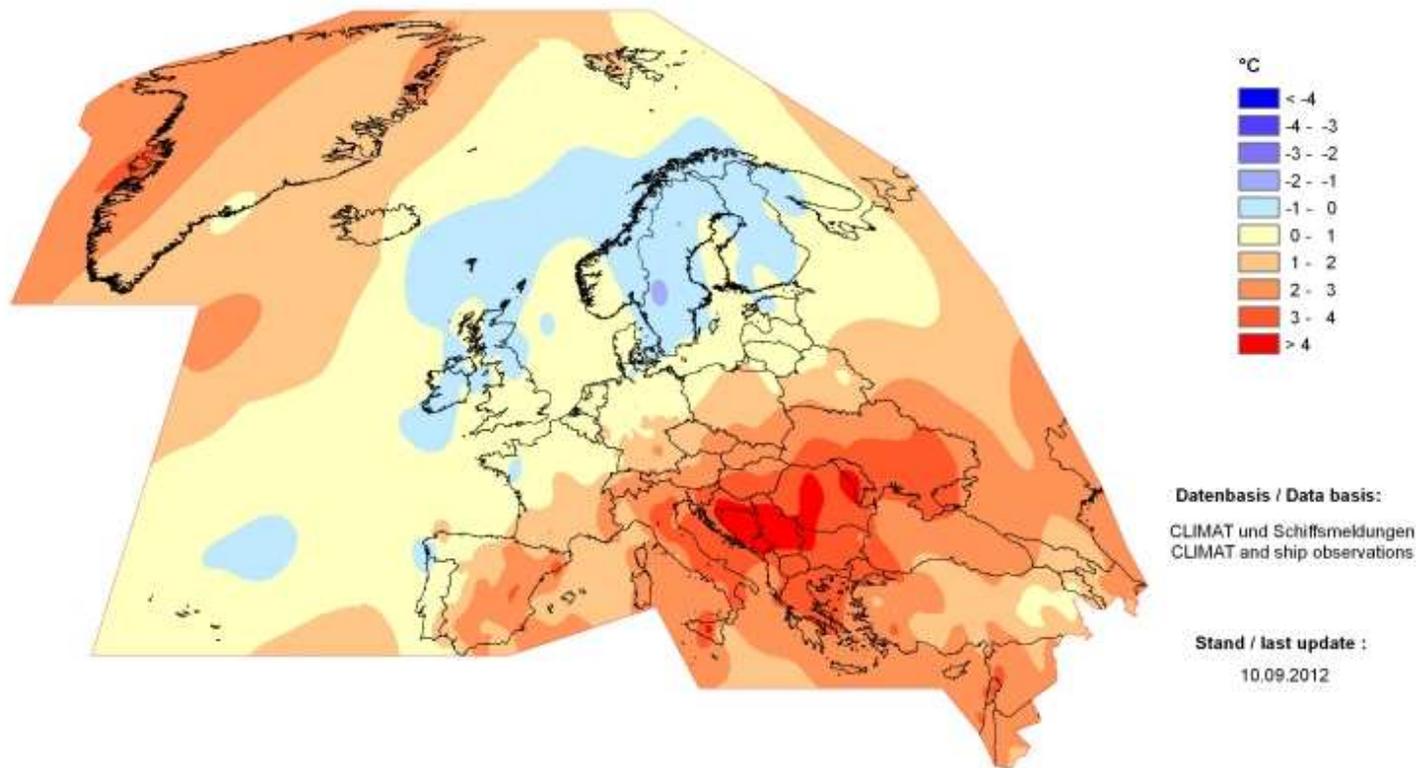
Mean temperatures of summer 2012

Mittlere Temperatur Sommer 2012
Mean Temperature Summer 2012

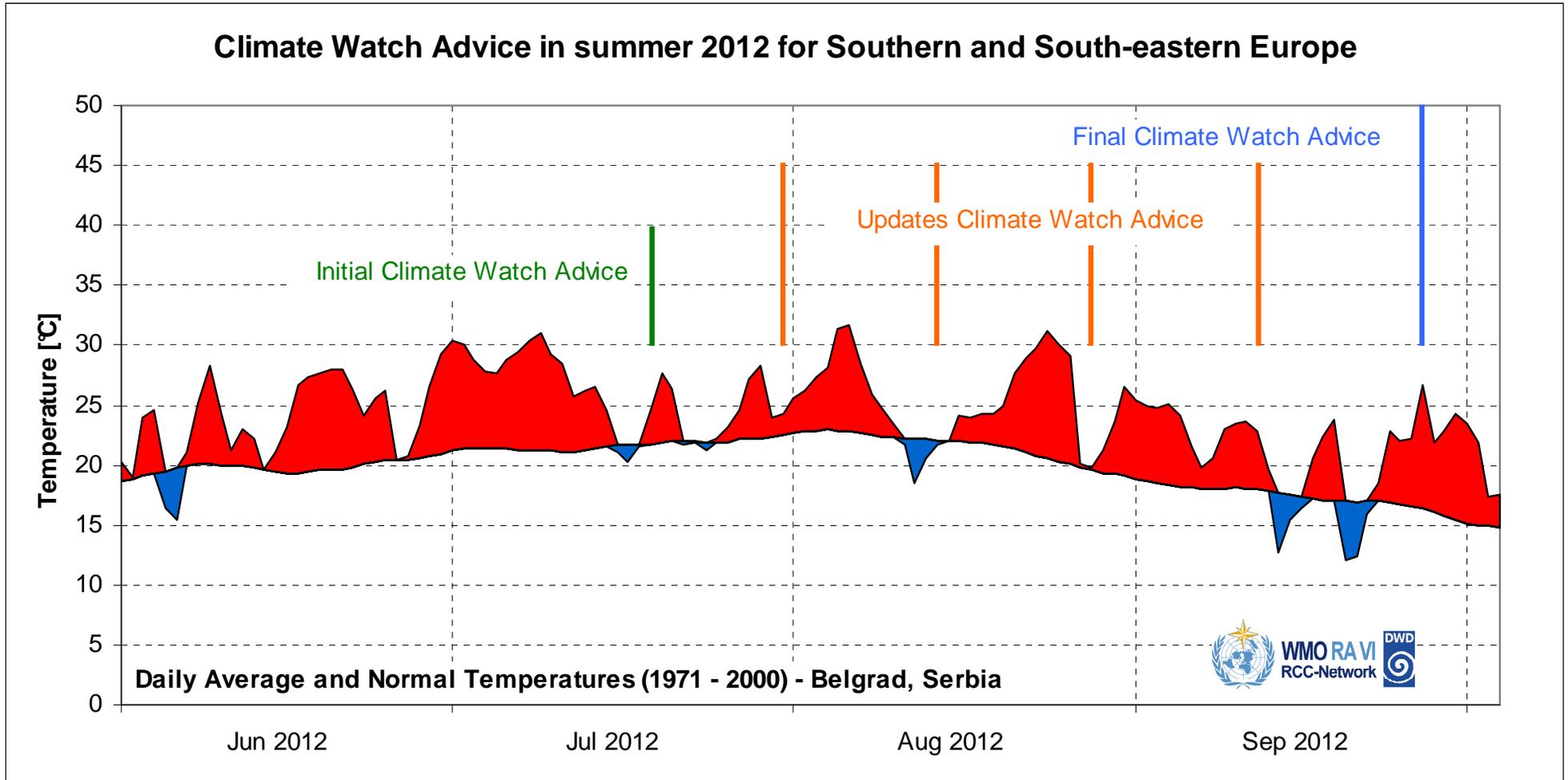


Mean temperature anomalies of summer 2012

Temperaturabweichung Sommer 2012 vom Normalwert 1961-1990
Temperature deviation Summer 2012 (reference period 1961-1990)

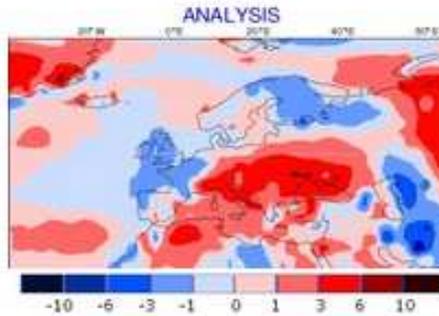


RCC-CM products: Climate Watch Advice

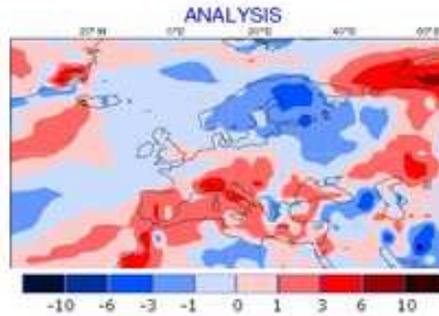


temperature weekly analysis (ECMWF)

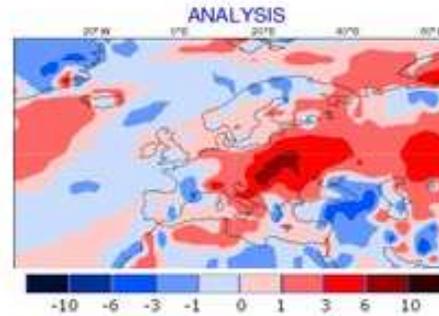
18.06.2012 - 24.06.2012



25.06.2012 - 01.07.2012



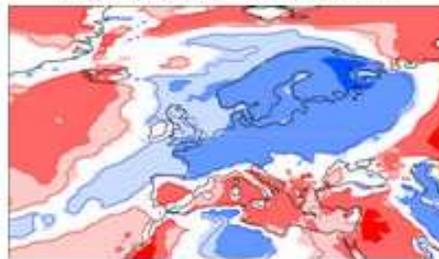
02.07.2012 - 08.07.2012



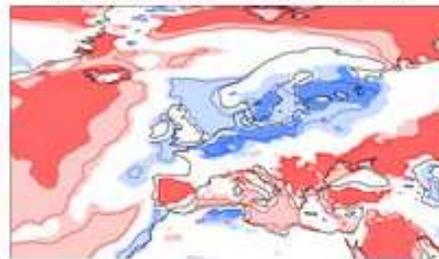
08.07.2012 - 14.07.2012

temperature weekly forecast (ECMWF)

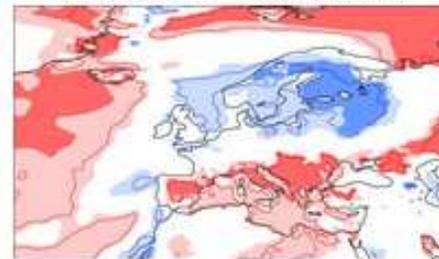
16.07.2012 - 22.07.2012



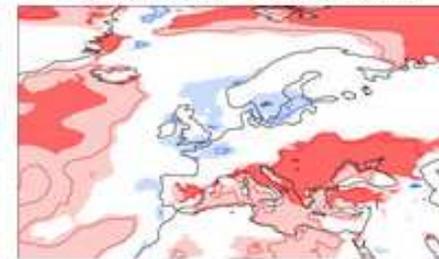
23.07.2012 - 29.07.2012



30.07.2012 - 05.08.2012



06.08.2012 - 12.08.2012



Monitoring
for the last
three weeks

Forecast
for the next
four weeks
from
12-07-2012

ECMWF EPS-Monthly Forecasting System

2-meter Temperature anomaly

Forecast start reference is 26-07-2012

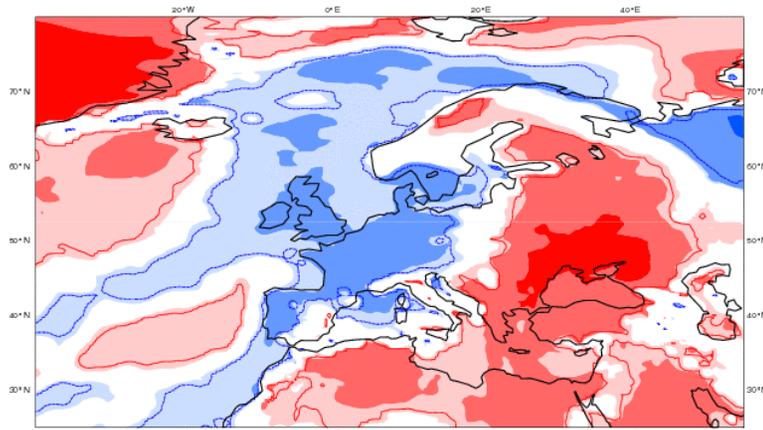
ensemble size = 51 climate size = 90

Shaded areas significant at 10% level

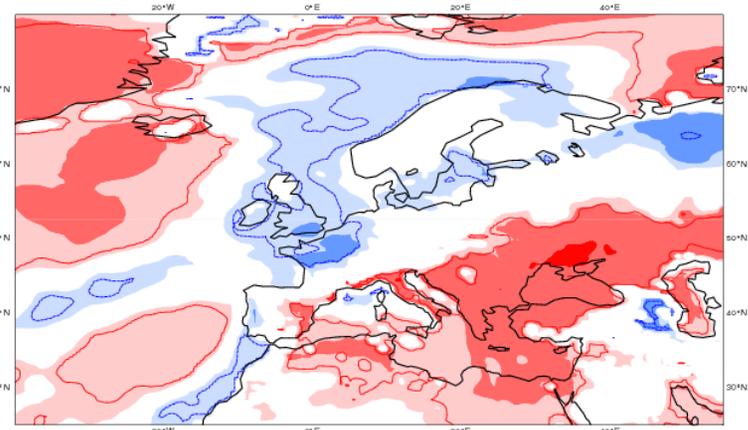
Contours at 1% level



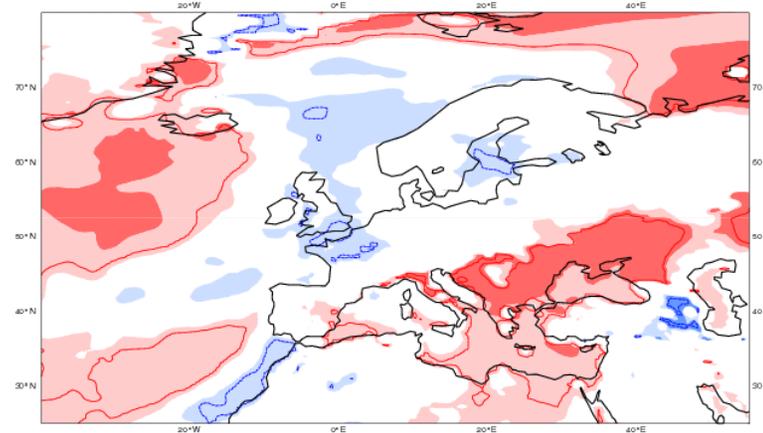
30-07-2012/TO/05-08-2012 Day 5-11



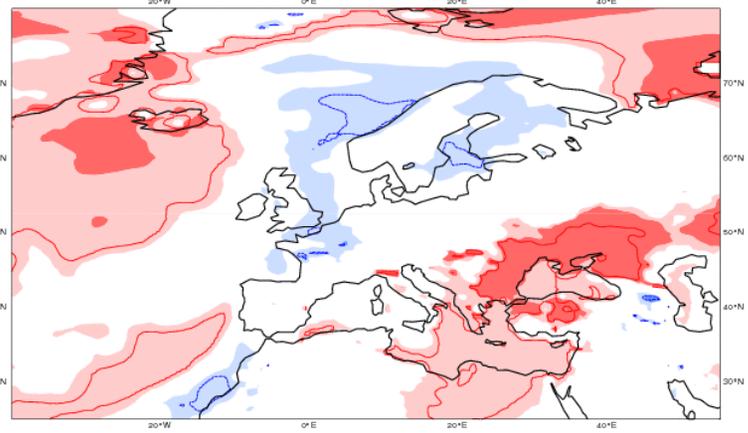
06-08-2012/TO/12-08-2012 Day 12-18



13-08-2012/TO/19-08-2012 Day 19-25



20-08-2012/TO/26-08-2012 Day 26-32



Initial Climate Watch issued on 19 July 2012

Due to the recent weather situation (current heat wave in parts of Southern and South-eastern Europe) and the results from monthly forecast we expect

"A period with (significantly) above normal temperatures at least up to the end of the July with possible extension of such conditions into August is expected for South-eastern Europe. The probability for this anomaly is estimated to be above 70%."



National climate watch from Serbia

Region of concern: Western Balkans

Drought monitoring – June and July 2012

Due to very high temperatures and small precipitation amount in June in the region of Western Balkans very hot and dry weather prevailed, thus increasing a drought risk to a considerable degree.

July temperature anomalies in the region were around +3°C, while in Serbia they amounted to +4.5°C.

In major parts of Serbia, Montenegro, and Bosnia and Herzegovina this was the hottest month of June ever recorded. In most parts of Serbia June was also the warmest month ever recorded.

Two heat waves were recorded in Serbia – the first lasted from 16 to 24 June, and the second one from 29 June to 15 July. Precipitation deficit was recorded in the entire region during June. According to the SPI-2 values for June and July, in most parts of Serbia very dry to extremely dry weather prevailed.

Since 25 June agricultural drought has been identified in Serbia.

Forecast

A warmer and dry weather is forecasted for the period 30 July to 26 August. Temperatures will be above normal in the entire region of Western Balkans (reference period 1981-2010), with forecast probability of 80%. In addition, a precipitation deficit is expected, with forecast probability of above 70%.

In September temperatures will be around and above-normal (reference period 1981-2010), and a below normal precipitation is to be expected.

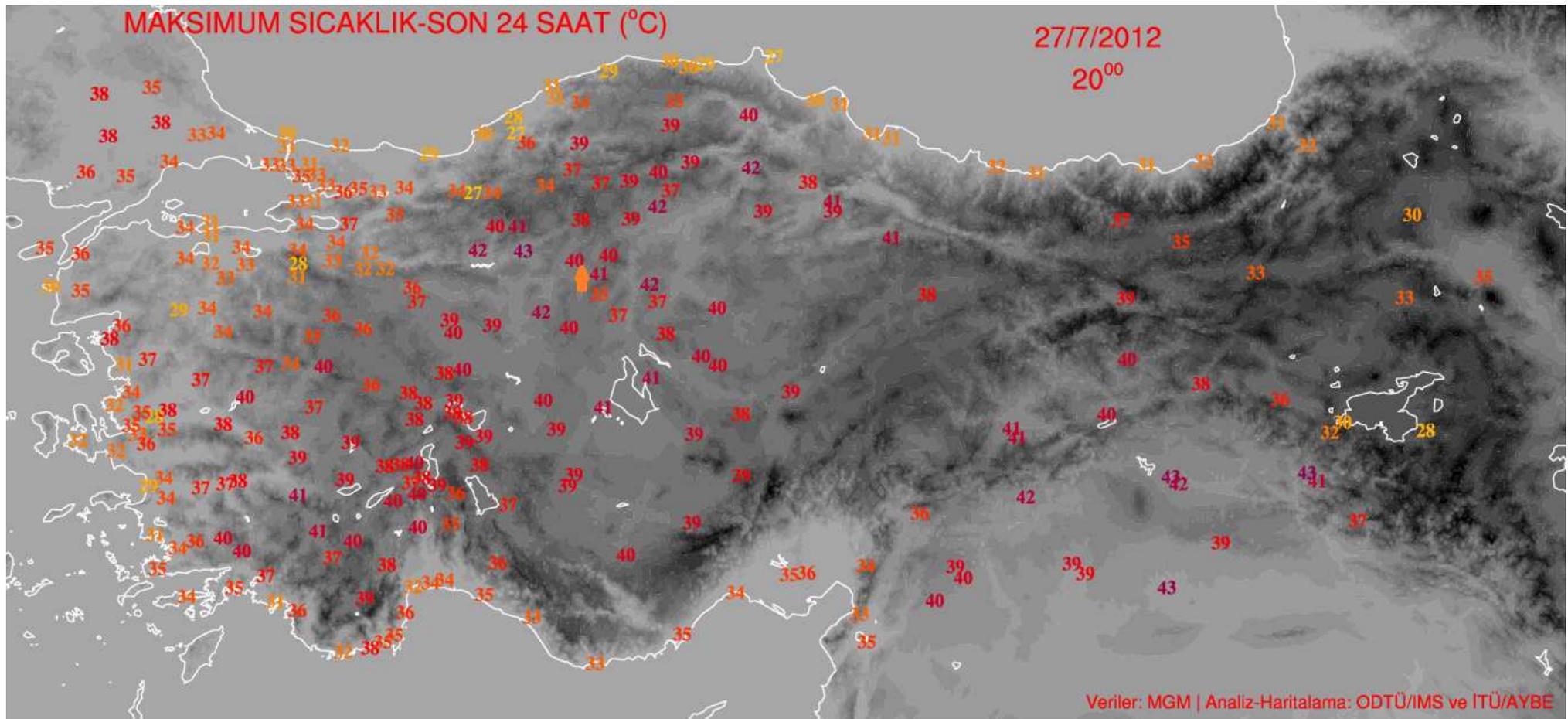
Impacts – conclusion

In view of the analysis for June and forecast for August and September, considerable yield reduction of economically most important crops (corn, soya, sugar cane...) is to be expected in Serbia (amounting to 30-50%); this situation is similar to the 2000 drought.

Updated information will be issued on 07-08-2012.



Temperature maxima in Turkey 27 July 2012



Termination of Climate Watch Advice on 27 September 2012

Due to the recent weather situation and the results from monthly forecast we announce

"Termination of this Climate Watch Advice at the end of September due to weakness of signal and decreasing of absolute temperature at the beginning of October"



Conclusions of Climate Watch Summer 2012 (Pilot CW)

- Advisory was appreciated by the NMHSs and by WMO (positive feedbacks)
- Advisory was taken for formulation of a more detailed national climate watch
- Conclusions / Problems / Questions to be solved:
 - Which (objective) criteria?
 - Extension to more than one variable (e.g. heat waves can be related to drought, but precipitation forecasts are less reliable than for temperature)
 - Forecasts for week 2-4 often show too low signals (due to higher ensemble spreads), ensemble means can be misleading
 - Generally: Forecasts alone are not enough, comparison with actual monitoring is needed
 - Look at circulation patterns to understand / attribute extreme anomalies
 - Update every two weeks seems reasonable
 - Human resources necessary (discussion forums, watch over the whole year including holiday times -> more than one person necessary)



A photograph of a wooden structure, possibly a shed or a small building, with a corrugated metal roof. The structure is silhouetted against a bright, orange and yellow sunset sky. The sun is visible in the lower right corner, creating a lens flare effect. The overall mood is warm and serene.

Thank you for your attention !

Don't worry, be happy ...