Current Practice in the RA VI RCC Network/SEEVCCC Operational Issuing of the Climate Watch Advice on the Sub regional Level

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LONG-RANGE FORECASTING TRAINING

(LRF Training)

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WMO RA VI-Europe RCC Network – SEEVCCC/RHMSS Mandatory operational functions:

According to WMO RA VI **Resolution 1** (XV – RA VI) on establishement of Regional Climate Centere Network in Region Association VI (Europe): WMO RA VI RCC Network and decision of WMO Commission for Basic System (XV session) related to amendments to the Manual on the Global Data-processing and Forecasting System (WMO – No. 485), South East Europeian Virtual Climate Change Center (**SEEVCCC**) hosted by Republican Hydro Meteorological Service of Serbia (**RHMSS**) participate in all 3 RA VI RCC Network nodes with operationally mandatory and highly recommended functions.

- **RA VI RCC node on Climate Services:**

  KNMI/Netherlands (Lead), Meteo – France/France, OMSZ/ Hungary, Met.No/Norway, SEEVCCC/RHMS Serbia, SMHI/Sweden, TSMS/Turkey

- **RA VI RCC node on Climate Monitoring:**

  DWD/Germany (Lead), Armstatehydromet/Armenia, Meteo – France/France, KNMI/Netherlands, SEEVCCC/RHMS Serbia, TSMS/Turkey

- **RA VI RCC node on Long-range Forecasting:**

  Meteo – France/France and ROSHYDROMET/Russian Federation (Joint lead), Met.No/Norway, SEEVCCC/RHMS Serbia, TSMS/Turkey

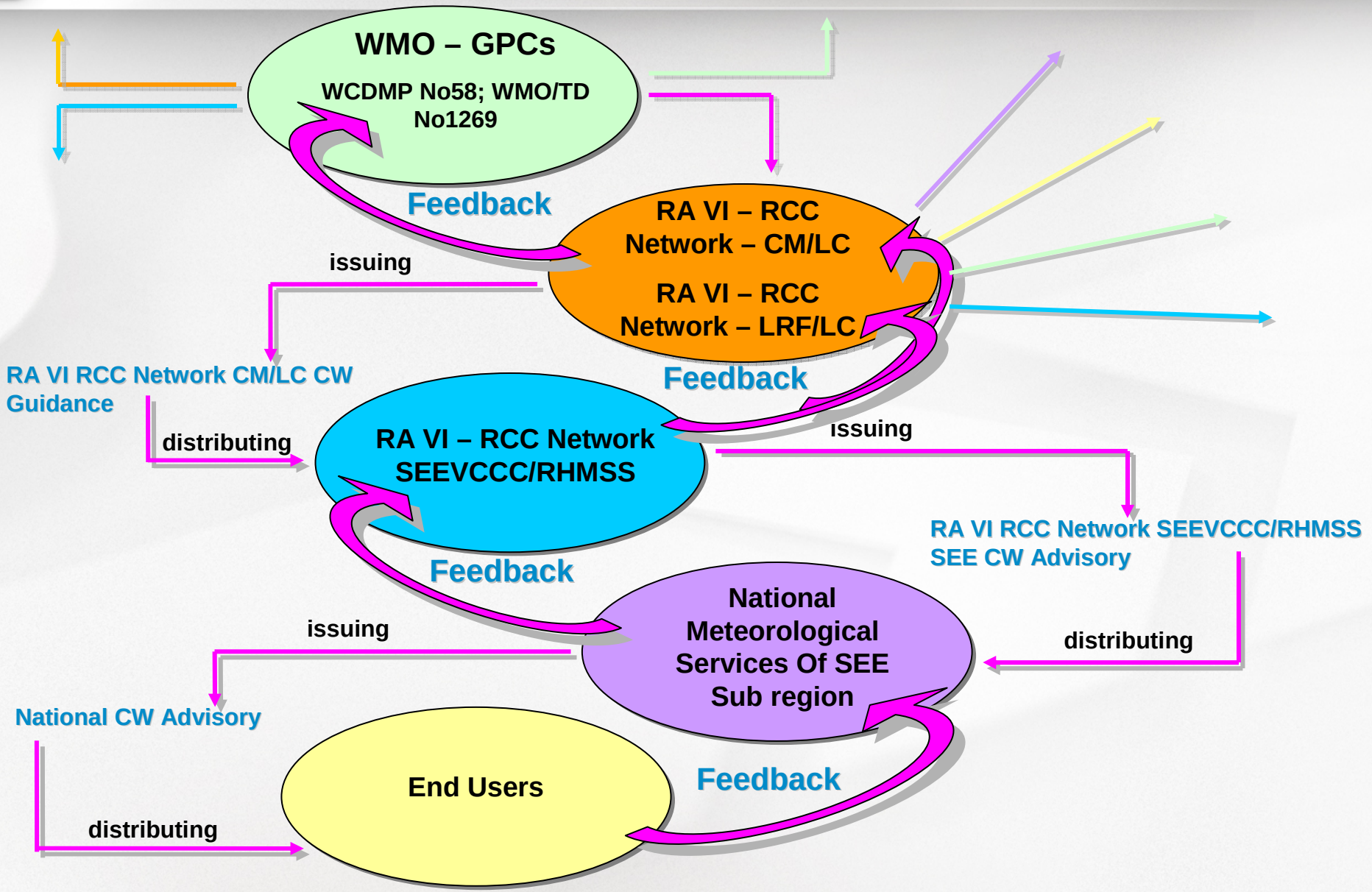
Overall coordination of the WMO RA VI RCC Network: DWD/Germany

RA VI RCC node on Climate Monitoring – SEEVCCC/RHMSS operational activities in Climate Watch

A **Climate Watch System** (CWS) is an operational cooperative system for climate warning based on existing meteorological facilities and infrastructure at **regional** and **national** level. It involves user in its design, operation and evaluation. A CWS builds on existing weather early warning system by adding advisories on **climate events** such as heat waves, cold waves, extended heavy precipitation leading to flooding, rainfall/soil moisture deficiency leading to drought conditions, severe wind storms extending beyond weather scales, extended snowfall, etc. A CWS purpose is to support sector **Early Warning System** particularly water resources, agriculture and health sectors by providing timely climate **monitoring**, **long range forecast** and **CW advisories.**

The main activity of SEEVCCC/RHMSS within the Climate Monitoring node is to produce on regular bases sub-regional Climate Watch Advice in order to support National Meteorological and Hydrological Services (NMHS) in implementing National Climate Watch System (CWS) as a part of National Early Warning System

Climate Watch System



SEEVCCC Initiative – CW Preoperational Phase

South-East European Virtual Climate Change Center Initiative
– Climate watch preoperational phase –
Milan Dacić
Permanent Representative of Serbia with the WMO
Republic Hydrometeorological Service of Serbia – RHMSS, host of the South East European
Virtual Climate Change Center (SEEVCCC)

3. SEEVCCC operational functions and R&D activitties within WMO RA VI RCC Pilot Regional Climate Centre (RCC) Network

Contributing to elaboration of a strategy to implement operational Climate Watch in the Region, whilst the two pillars of a Climate Watch System – operational climate monitoring and LRF – are already available, the SEEVCCC performs an experimental climate warning system (CWS), i.e., climate watch system, which is designed to provide advisories (climate watches) informing the partner NMHSs on ongoing, pending or expected climate anomalies and their possible negative impacts. In order to establish the operational CWS, it is required to link climate monitoring with the long-term (seasonal) forecast updated on monthly or preferably on a weekly basis. Experimental work in this area is based on the connection of probabilistic long-term forecast of SPI (standardized precipitation index) obtained from SEEVCCC seasonal prediction modelling system with the SPI index calculated from observations.

Source: WCDMP-No. 75, p. 37-38

The SEEVCCC performs an experimental climate warning system (CWS), i.e., climate watch system, which is designed to provide advisories (climate watches) informing the partner NMHSs on ongoing, pending or expected climate anomalies and their possible negative impacts

CWS – Roadmap adopted by WMO Regional Association VI Workshop on Climate Monitoring including the Implementation of Climate Watch Systems (organized by WMO, held in Offenbach, Germany, 25–28 October 2010) - WCDMP-No. 75

IV. General recommendations

1. Ensure that appropriate liaison mechanisms are established between GMES (Global Monitoring for Environment and Security) and the CWS in the region.
2. To encourage LRF providers, RCCs and observational data owners to consider providing access to daily data;
3. To identify a set of requirements for necessary data and indices that should be made available by LRF, GPCs and RCCs to support implementation of CWS.
4. **Undertake implementation of CWS as a voluntary pilot phase to develop initial best practices (countries volunteering: Turkey, Serbia, Finland);**
5. Extend RCOF mechanism to other sub-regions of RA VI such as SW-Europe and the polar region;
6. CCl accelerates its work on extreme weather and climate events to support implementation of CWS;
7. Encourage NMSs and NHSs to establish a dialogue with users and stakeholders.

4. Undertake implementation of CWS as a voluntary pilot phase to develop initial best practices (countries volunteering: Turkey, Serbia, Finland);

Follow-up of WMO RA VI Workshop recommendations - Climate Watch Advices issued by DWD (RCC - CM/LC) during the Heat Waves in Summer 2012.

CWA - initial 19 July 2012, first update 31 July 2012 and final 27 September 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%."

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

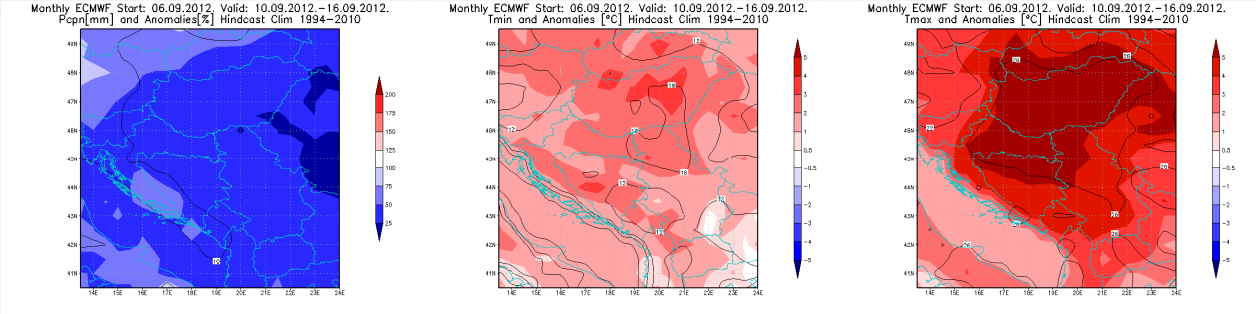
Due to the recent weather situation and the results from monthly forecast we announce

"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"

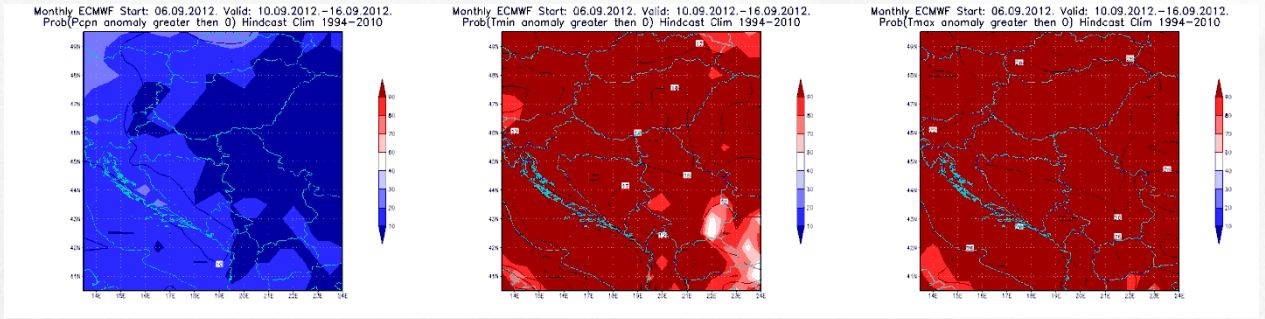
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Follow-up of WMO RA VI Workshop recommendations – Pilot Climate Watch Advices issued by RCC SEEVCCC/RHMSS in 2012.

- Following the WMO documents (WMO/TD No 118x, WCDMP No 74, WCDMP No 75, WMO/TD No 1269, WCDMP No 58, WMO/TD No 1565) we started issuing CW advice for Western Balkans in the summer 2012.



- Pilot version of CW Advice was introduced on WMO SEECOF 8 in Podgrica, Montenegro in November 2012.
- From January 2013. RA VI RCC SEEVCCC/RHMSS operationally issuing Sub regional CW Advice for SEE available through www.seevccc.rs



RCC SEEVCCC: Data & Products in Use for CWA

Preparation and issuing CW SEE Bulletin are based on SEEVCCC climate monitoring, SEEVCCC LRF products as well as climate monitoring and LRF products from WMO RA VI RCC Network LCs and other WMO GPCs:

RCC – CM/LC and other GPCs Monitoring maps - Weekly and monthly **(DWD, GPCC, NOAA/CPC)**

RCC SEEVCCC Monitoring monthly and seasonal maps

RCC – LRF/LC and other GPCs Monthly and Seasonal forecast products - Weekly / monthly basis – Tmin , Tmax, precipitation in respect to model climatology – 1994 – 2011; 5 ensemble members; soon in use also CFS v2 (Climate Forecast System version2) (Meteo France, ECMWF, NOAA)

RCC – SEEVCCC/RHMSS Sub regional Monthly and Seasonal forecast products - Regional atmosphere-ocean Coupled Model output :

Monthly/Seasonal forecast – mean temperature and precipitation
Climatology – 1961 – 1990 (observations)
Number of ensemble members in forecast – 51
Forecast for **seven months** in advance
Horizontal resolution for atmospheric model – 0.25º
Horizontal resolution for ocean model – 0.2º

RCC SEEVCCC: CW Advice for SEE - Example 1

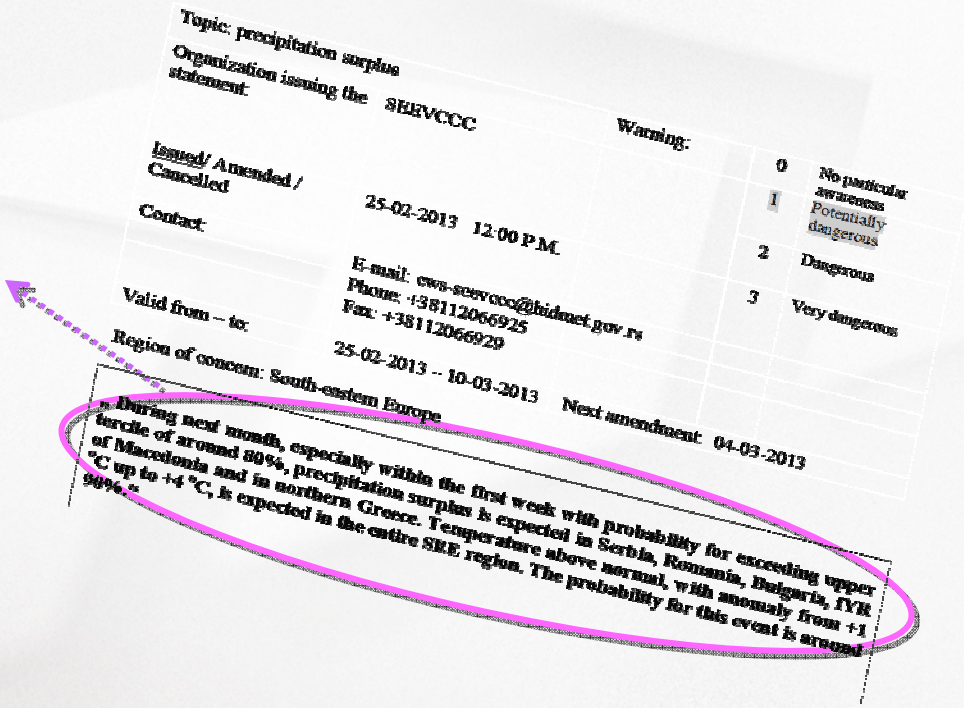
Example 1 – Precipitation surplus and River Pcinja flooding at the end of February 2013.

CW Advice was issued on 25. February 2013.

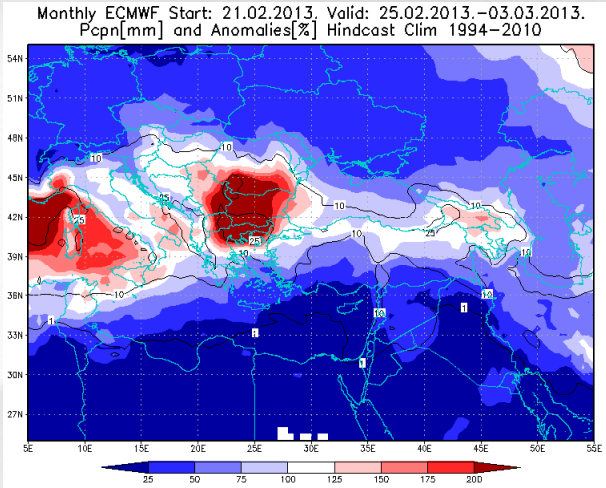
Affected area: fYR of Macedonia and Southern Serbia

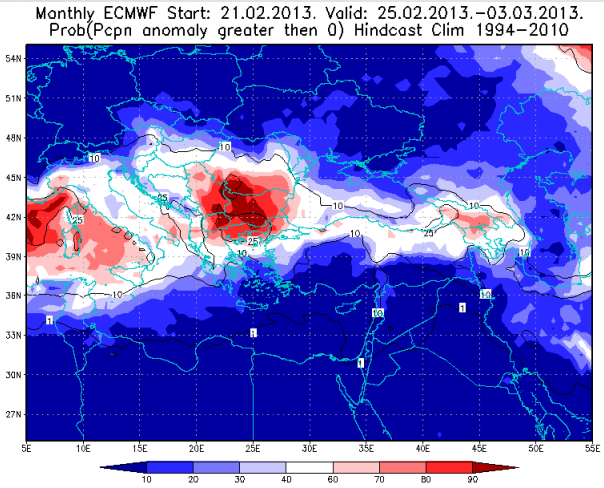
CW Advice

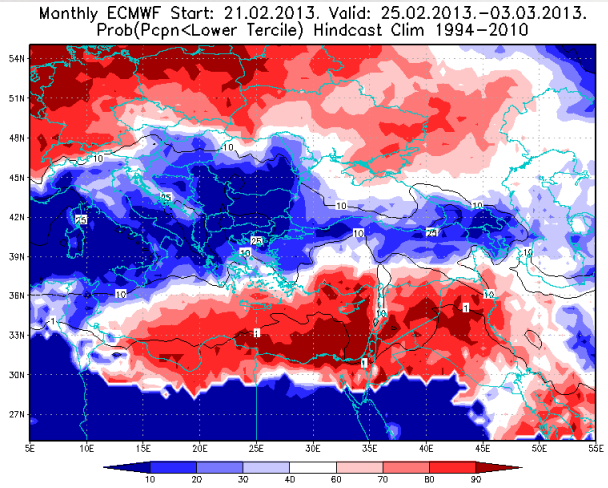
„ During next month, especially within the first week with probability for exceeding upper tercile of around 80%, precipitation surplus is expected in Serbia, Romania, Bulgaria, fYR of Macedonia and in northern Greece. Temperature above normal, with anomaly from +1 °C up to +4 °C, is expected in the entire SEE region. The probability for this event is around 90%.“



CW Advice for SEE - Example 1, cont.

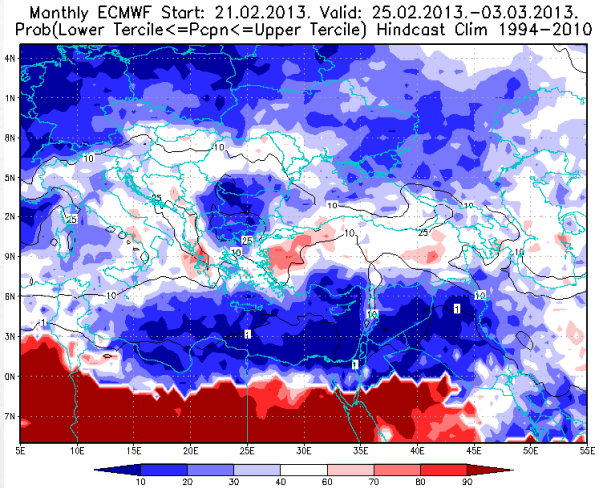


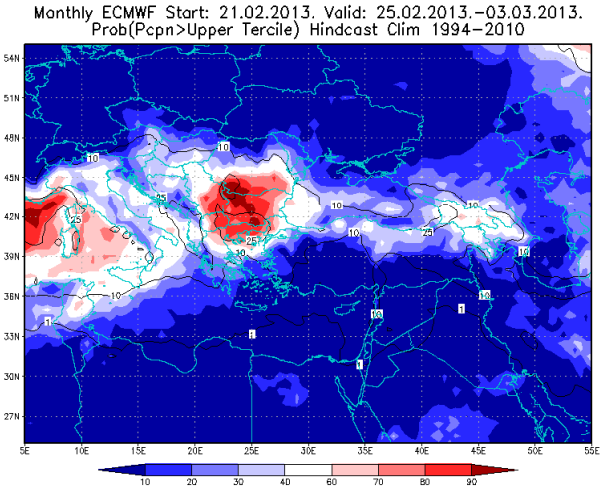




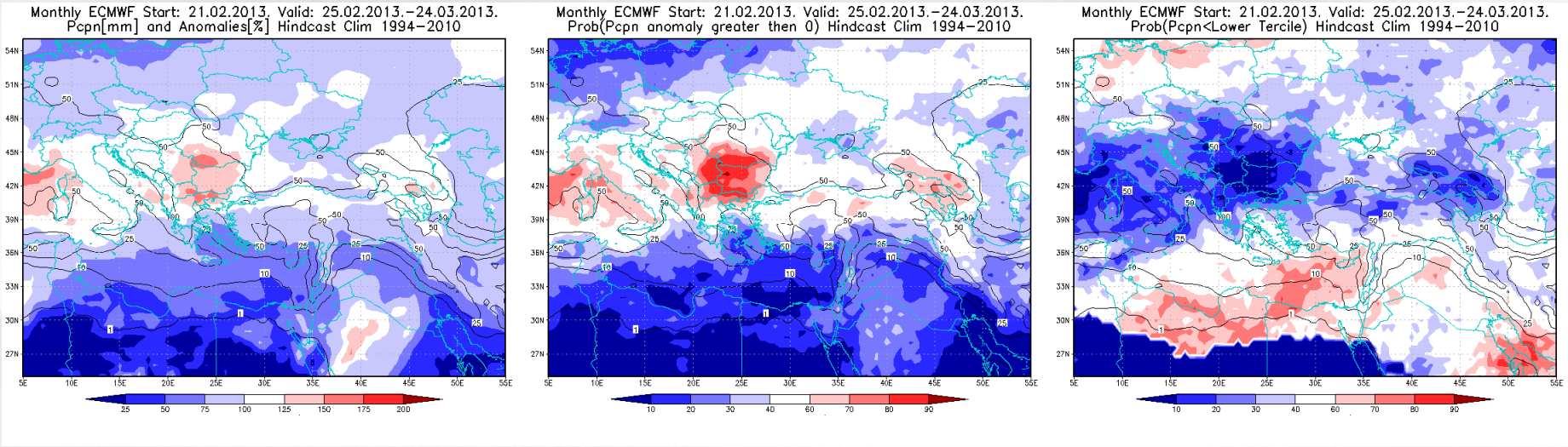
Weekly outlook of precipitation :

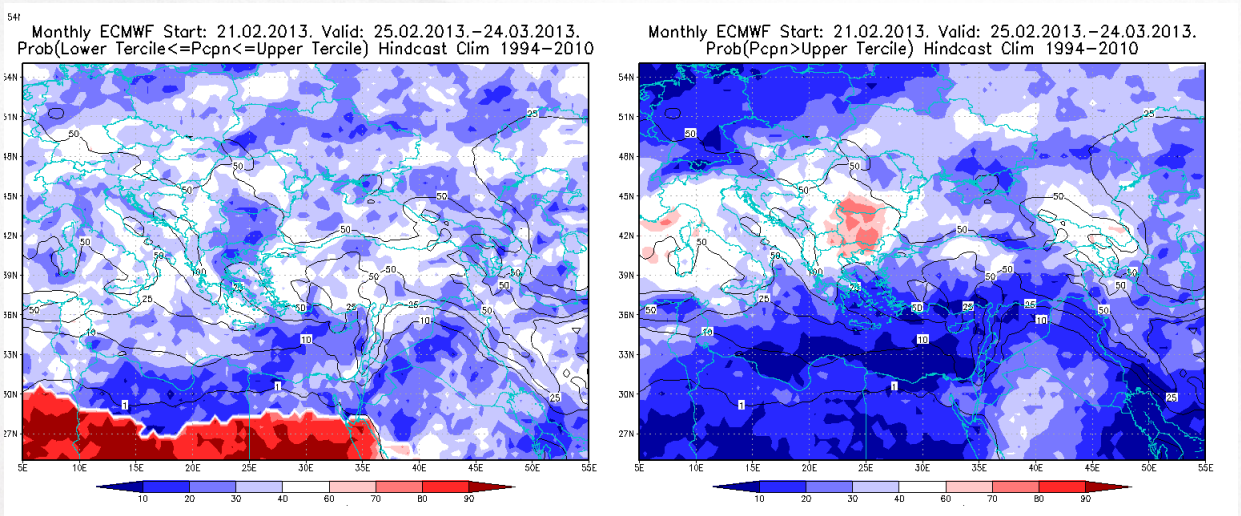
- anomaly (%)
- anomaly > 0
- probability for lower tercile
- probability for normal
- probability for upper tercile



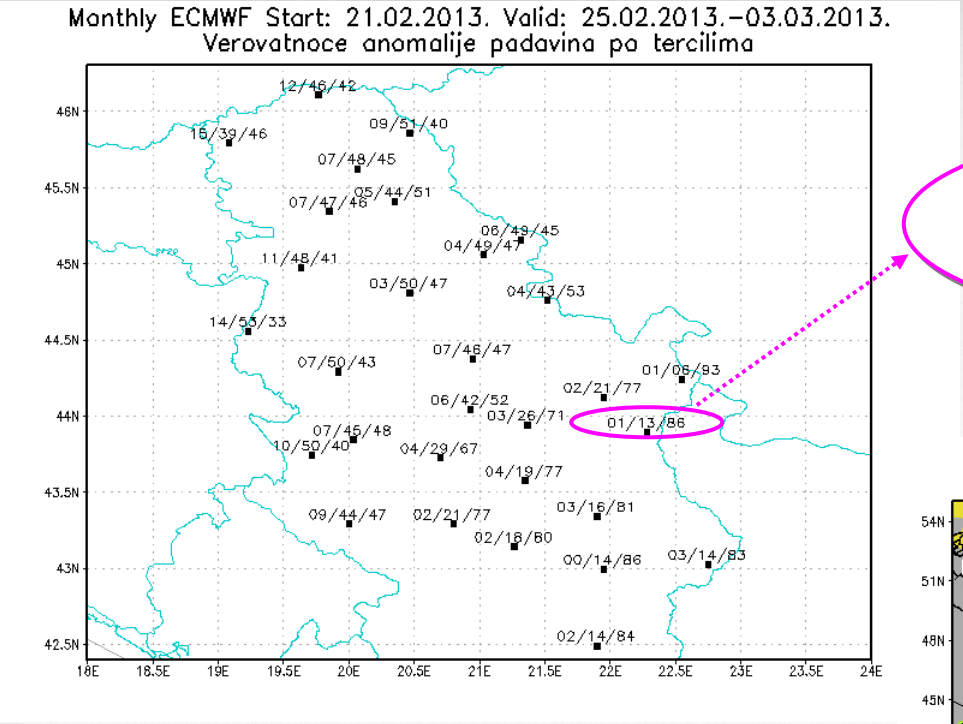


CW Advice for SEE - Example 1, cont.

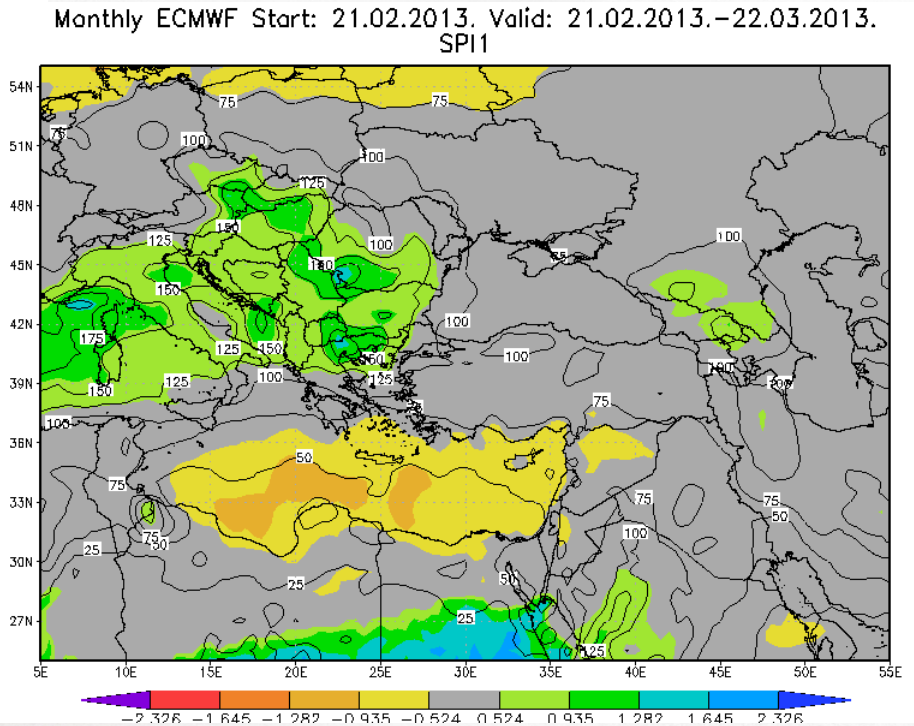




CW Advice for SEE - Example 1, cont.



Lower / Middle / Upper

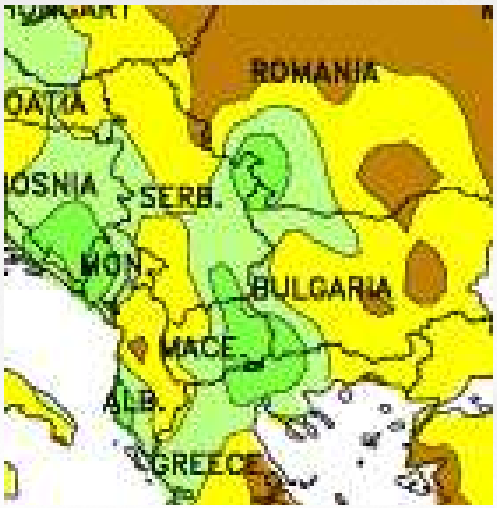


Forecast of moisture conditions SPI-1 (30 - day period) estimated on monthly precipitation ECMWF forecast

CW Advice for SEE - Example 1

Monitoring

In the period from February 24th to March 02nd in SEE region mean temperature was above normal 1981-2010, from +1 ºC up to +7 ºC. **Precipitation, from 25 up to 100 mm, was recorded in most part of Croatia and Bosnia and Herzegovina, in Montenegro, FYR of Macedonia, part of western, eastern and southeastern Serbia, southwestern Albania, northern Greece, westernmost of Bulgaria and southwestern Romania.** In rest of the region precipitation was up to 25 mm. Reference climatological period is the 1981-2010 period



According to official and media reports normalization on River Pcinja water level started after 03. March

RCC SEEVCCC: CW Advice for SEE - Example 2

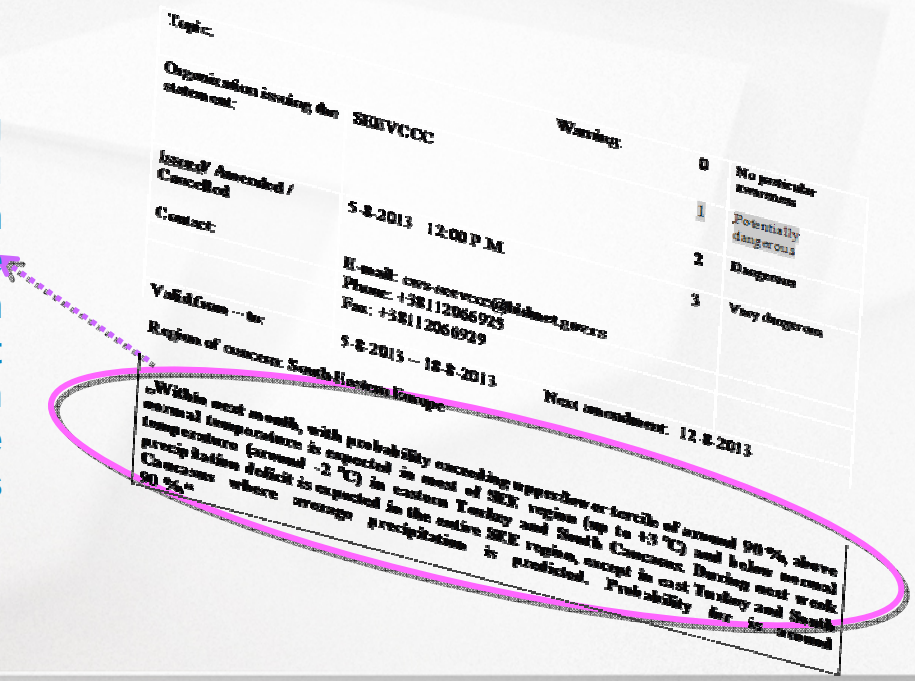
Example 2 – Temperature above normal and Heat Wave in August 2013.

CW Advice was issued on 05. August 2013.

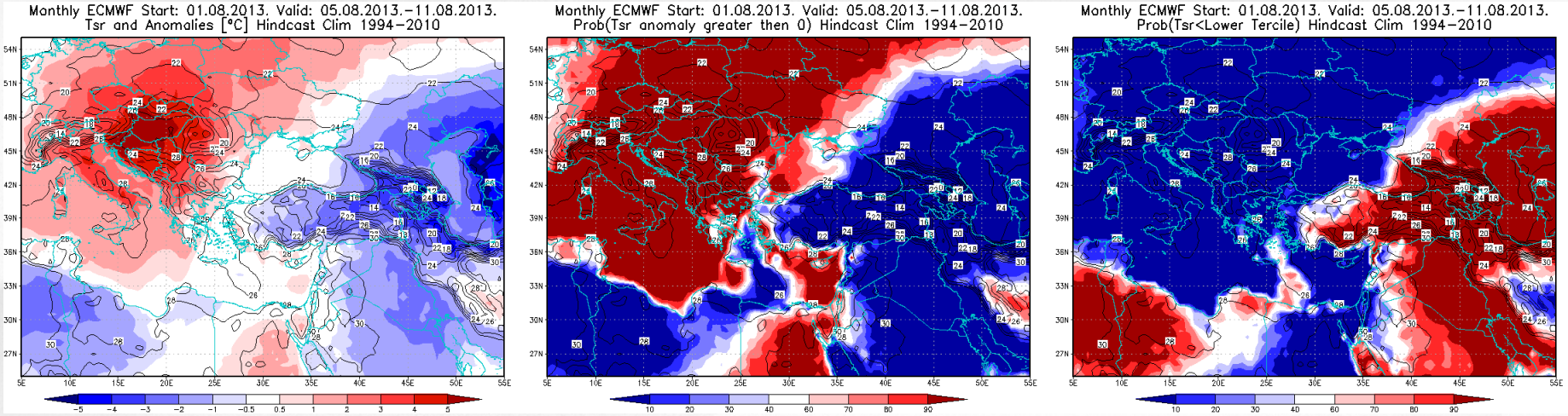
Affected area: Balkans

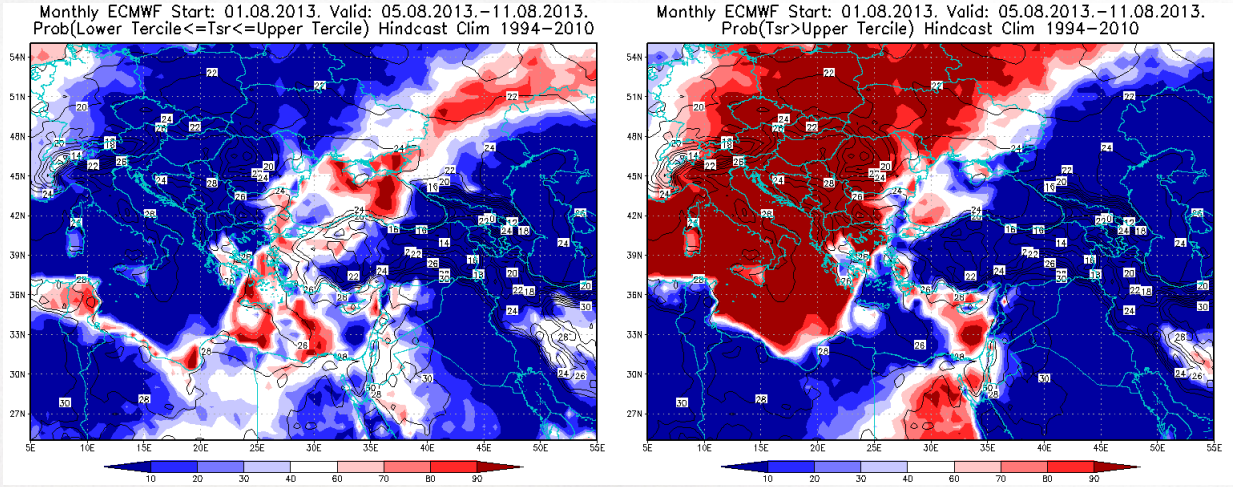
CW Advice

„ Within next month, with probability exceeding upper/lower tercile of around 90 %, above normal temperature is expected in most of SEE region (up to +3 °C) and below normal temperature (around -2 °C) in eastern Turkey and South Caucasus. During next week precipitation deficit is expected in the entire SEE region, except in east Turkey and South Caucasus where average precipitation is predicted. Probability for is around 90 %. “

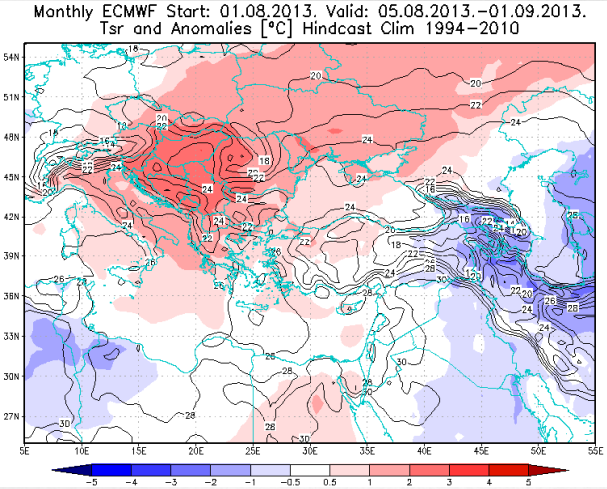


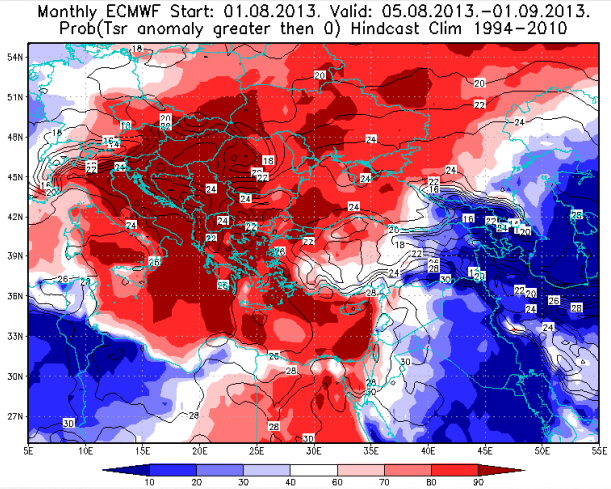
CW Advice for SEE - Example 2, cont.

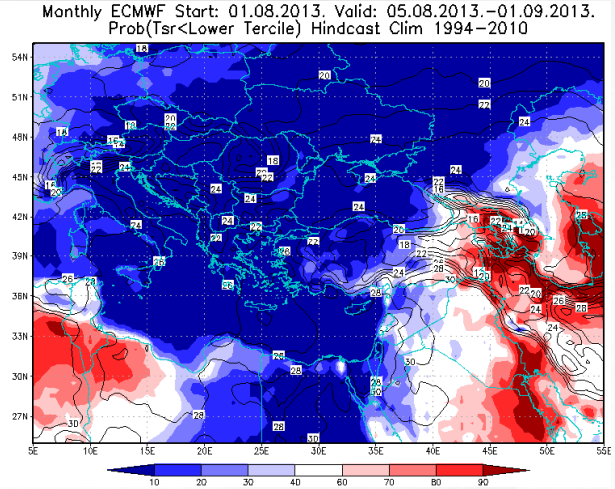


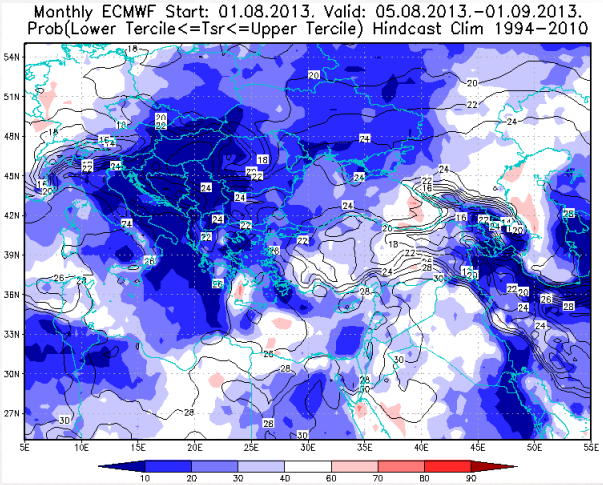


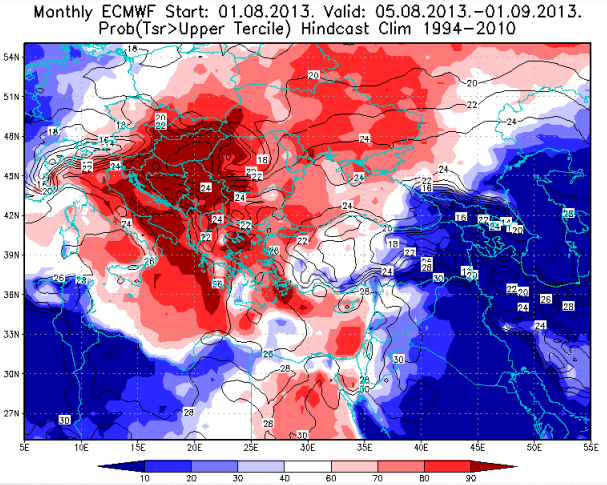
CW Advice for SEE - Example 2, cont.



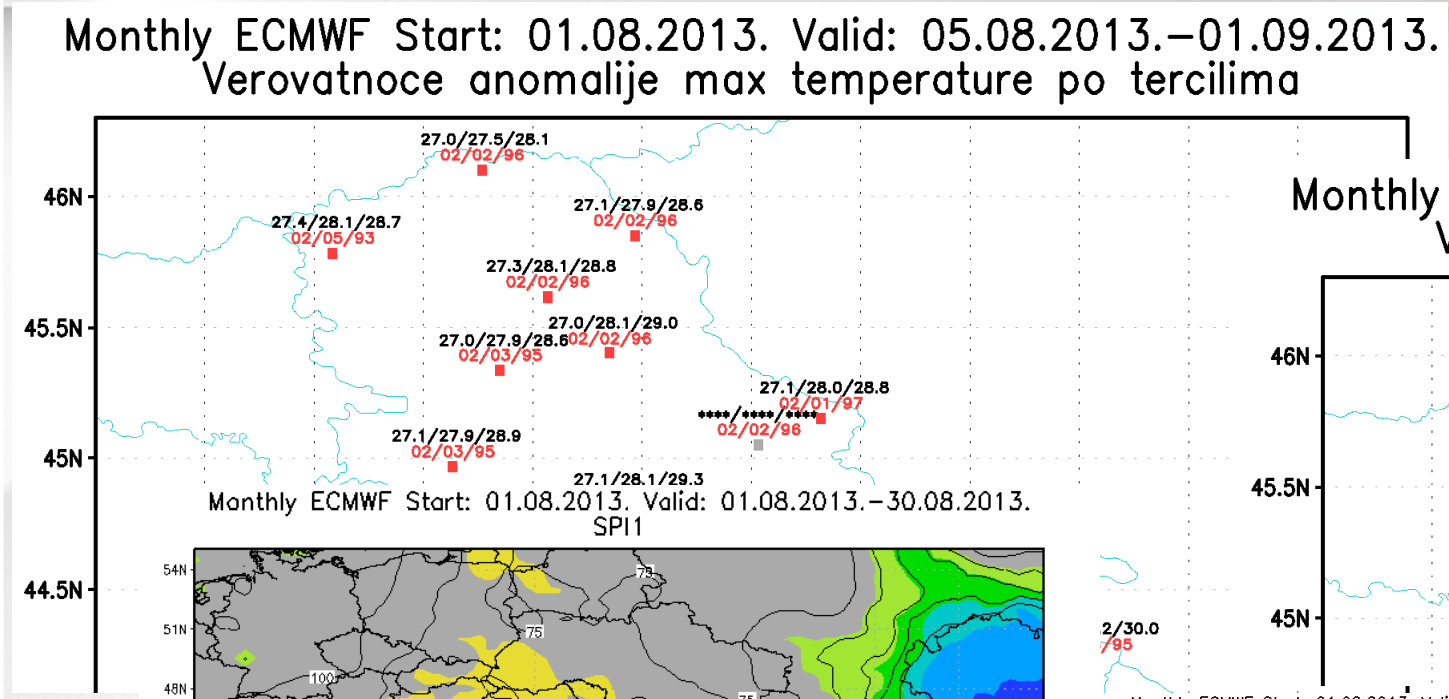


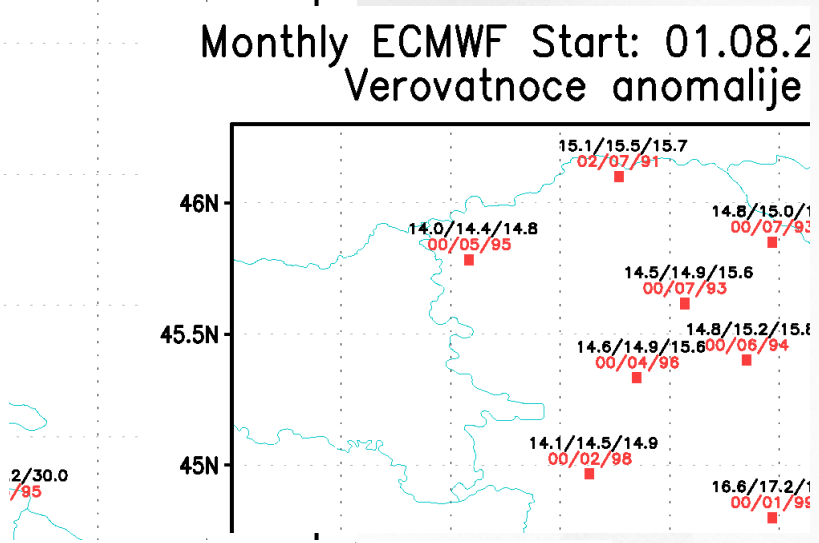


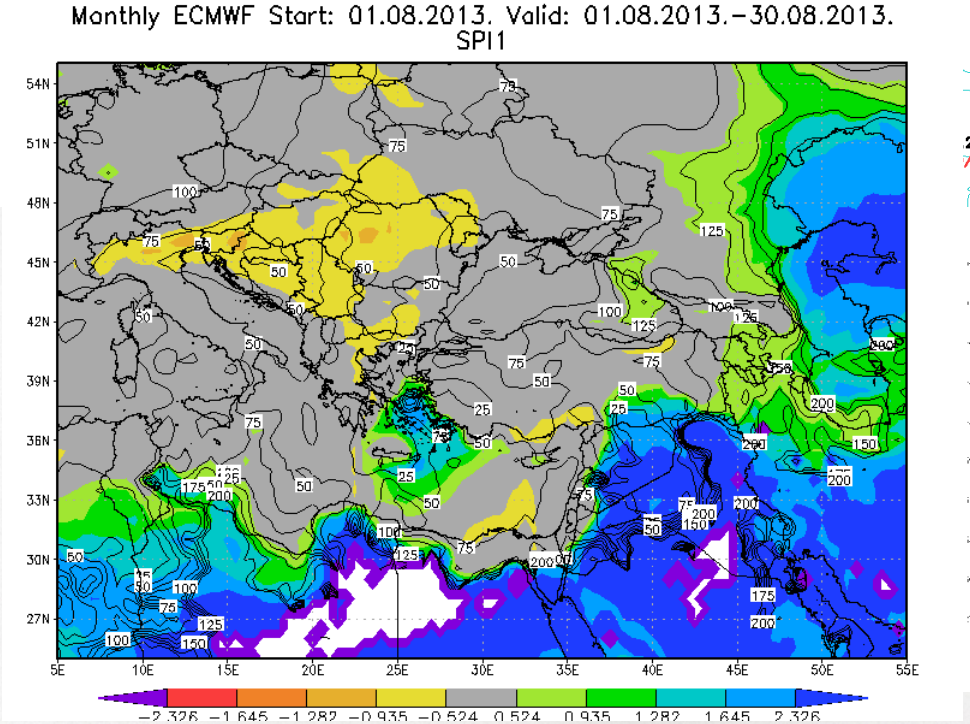


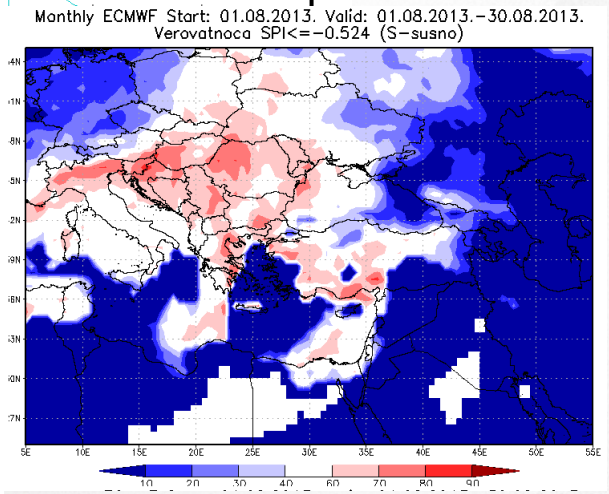


CW Advice for SEE - Example 2, cont.





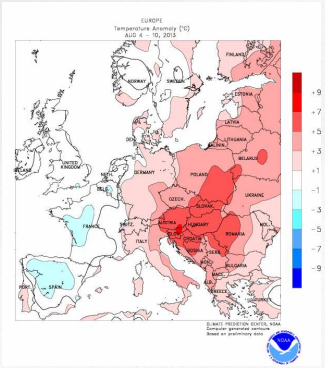


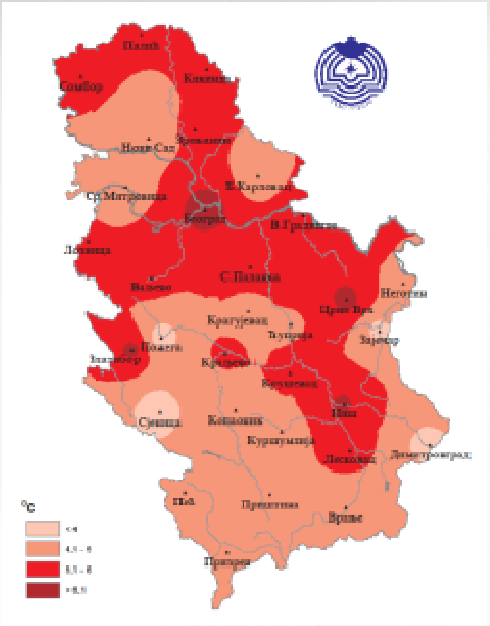


CW Advice for SEE - Example 2, cont.

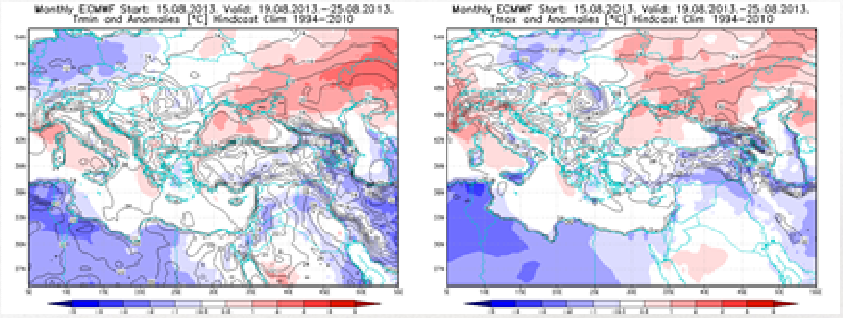
Monitoring

In the period from August 04th to 10th temperature above normal 1981-2010, with anomaly from +1 up to +7 °C, was recorded in Balkans and western Turkey. In central and east Turkey and South Caucasus below normal temperature with anomaly from -1 up to -5 °C was observed. Daily maxima were from 35 °C up to 40 °C over Balkans and in western Turkey. Precipitation from 25 up to 200 mm was registered in the costal regions. In rest of the region no significant precipitation was recorded.
Reference climatological period is the 1981-2010 period





Heat Wave in Serbia was recorded from 3. to 10. August 2013.



Issued/ Amended / Cancelled	12-8-2013 12:00 P.M.		3	Very dangerous
Contact:	E-mail: cws-seevccc@hidmet.gov.rs Phone: +38112066925 Fax: +38112066929			
Valid from – to:	12-8-2013 – 25-8-2013	Next amendment: 19-8-2013		

Region of concern: South-Eastern Europe

„With probability of 70% for upper tercil, during next month, in almost whole SEE region temperature above normal is expected (temperature anomaly up to +2 °C). Normal to dry weather conditions is expected in the region till beginning of September. “

THANK YOU

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