



WMO RA VI RCC Network contribution

What are Regional Climate Centres (RCCs)?

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**.

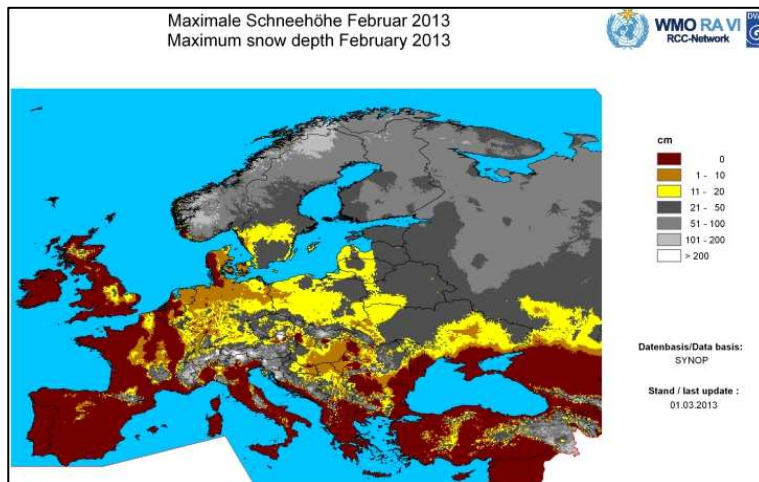
- WMO-mandated activity
- Regional component of the Global Framework for Climate Services (GFCS) Climate Service Information System (CSIS)
- Users: NMHSs, RCOFs and other RCCs (end users are customers of the NHMSs)

RCC in the RA VI:

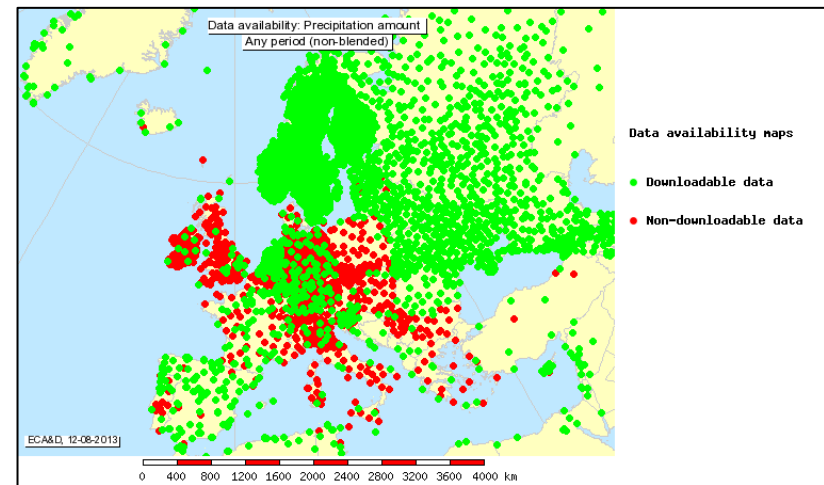
- Poll in 2008 led to product portfolio (fixed in the implementation plan)
- Pilot network 2009-2012; 3 nodes; each node formed by a consortium
- CBS XV (09/2012): approval of nomination of the pilot RCC network to become the WMO RA VI RCC Network
- Resolution 4.3/1 (EC-65) in May 2013 (RCC to be assigned as an RSMC of WMO)

WMO RA VI RCC Network

- RCCs provide regional-scale tailored climate services on
 - Climate Data
 - Climate Monitoring
 - Climate Outlook and projections



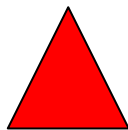
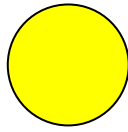
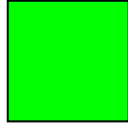
Example product: Maximum snow depth, a DWD contribution to the RCC-CM

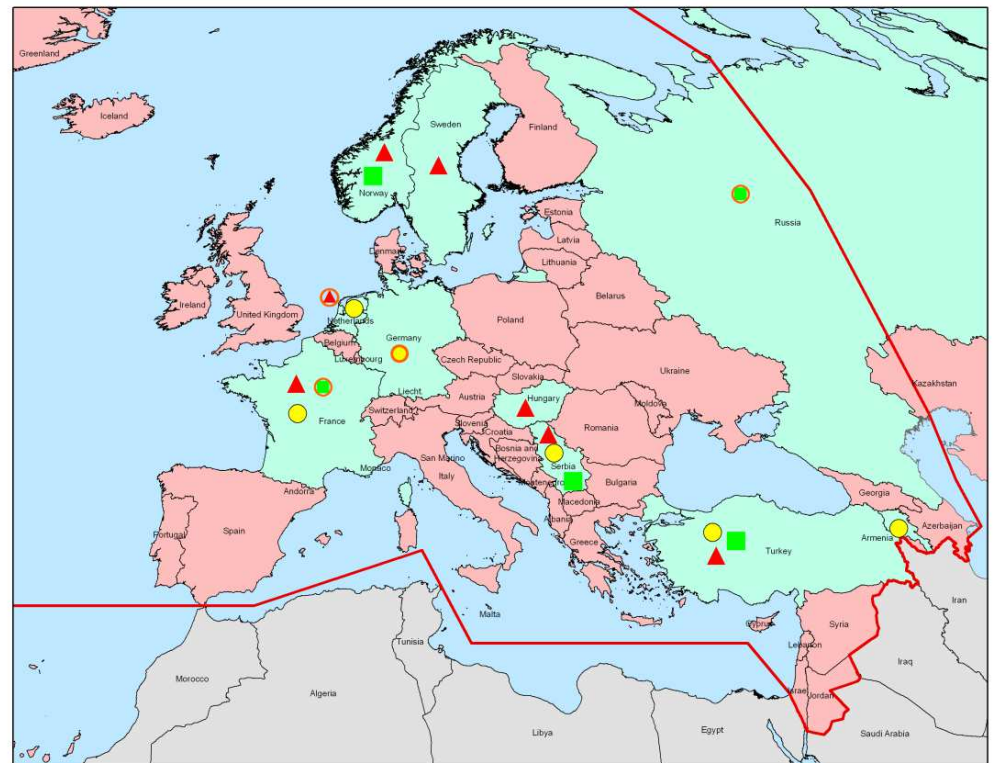


Example product: Data availability for precipitation amount in ECA&D , the KNM contribution to RCC-CD

WMO RA VI RCC Network in Europe

RA VI RCC Network

- 
 - RCC on Climate Data (red):
France, Hungary, Norway, Serbia, Sweden, Turkey;
lead: The Netherlands
- 
 - RCC on Climate Monitoring (yellow): Armenia, France, The Netherlands, Serbia, Turkey;
lead: Germany
- 
 - RCC on Long-range Forecasting (green):
Norway, Serbia, Turkey;
lead: France, Russian Federation



WMO RA VI RCC Network Product summary

- **RCC Network De Bilt Node on Climate Data Services (RCC-CD):**
 - various data sets for Europe, both station data and gridded data (ECA&D, MILLENNIUM, ENSEMBLES, BALTEX, SHARK), indices and various sub-regional data sets;
 - Services: Archiving functions, data management & visualisation tools.
- **RCC Network Offenbach Node on Climate Monitoring (RCC-CM)**
 - Maps and gridded data for reference climatologies, anomalies, indices, trends, statistics;
 - reports, significant weather event data base, Climate Watch Advisories.
- **RCC Network Toulouse and Moscow Node on Long-range Forecasting (RCC-LRF)**
 - Maps and graphs on model performance, gridded data;
 - Seasonal forecast bulletins, seasonal outlooks, consensus statements, model verification.

RCC-CD product examples

- Reports on extreme events
- Data sets for download
- Maps of daily data

European Climate Assessment - Dataset


ECA-17
Flooding in Poland and Eastern Europe, Spring 2010

GEO theme: Water, Disasters
Category: Rain

Country: Poland, Czech republic, Slovakia, Serbia, Hungary

In May 2010, extremely heavy and persistent rain caused severe flooding in Poland and neighbouring countries, the worst the area has seen in 160 years, much worse than the last major floods in 1997. Southern Poland was hit hardest, but northern areas were impacted as well. Parts of Czech Republic, Slovakia, Hungary and Serbia also experienced flooding and were majorly affected. As reported by the BBC, there were at least 20 fatalities and thousands of people being along the Vistula river, which flows from the Southern Tatra Mountains into the Baltic Sea, were forced to evacuate as the river swelled. According to the Bloomberg news, total damage from the floods may exceed 2.5 billion Euros.

The month of May consisted of many more wet days than normal for these regions, over 12 more than the normal over the period 1951-1990. A wet day is defined as the precipitation amount being greater than or equal to one millimetre. The anomalously high amount of wet days during May 2010 can be seen on the ECA&D map below.




ECA&D map of the anomaly in the number of wet days, where precipitation amount is greater than or equal to 1 mm, for the month of May 2010 compared to the normal period 1951-1990.

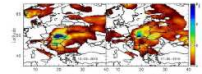
The bulk of the rainfall was due to a weather regime characterized by strong baroclinic temperature contrasts, high amounts of precipitable water in the water vapor available for precipitation, and a quasi-stationary area of low pressure in the upper atmosphere termed an 'upper low'. The low tracked across the Southern Alps and the subsequent orographic lifting in the lee of the mountains triggered the release of the extreme precipitable water amounts causing intense precipitation. According to the German weather service (Deutscher Wetterdienst, DWD), previous floods in Poland during the recent past in 1997 and 2001 were also initiated by such a weather regime.

Satellite images of the heaviest storm days (16, 17 and 18 May) along with figures of the precipitation sums on 16 and 17 May are shown below.

Page 1 of 3, source: http://eca.knmi.nl, created on 23-04-2012

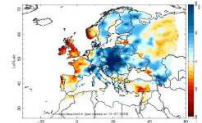


Satellite images of the heaviest storms on 16, 17 and 18 May 2010



E-CAD precipitation sums for the heaviest rain days 16 and 17 May. The two-day total exceeded 200 mm in some areas, but the bulk of the precipitation fell in a narrow band.

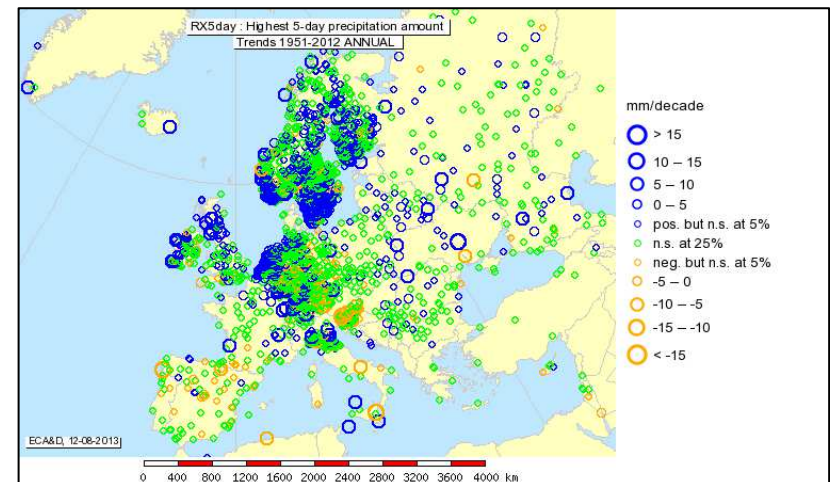
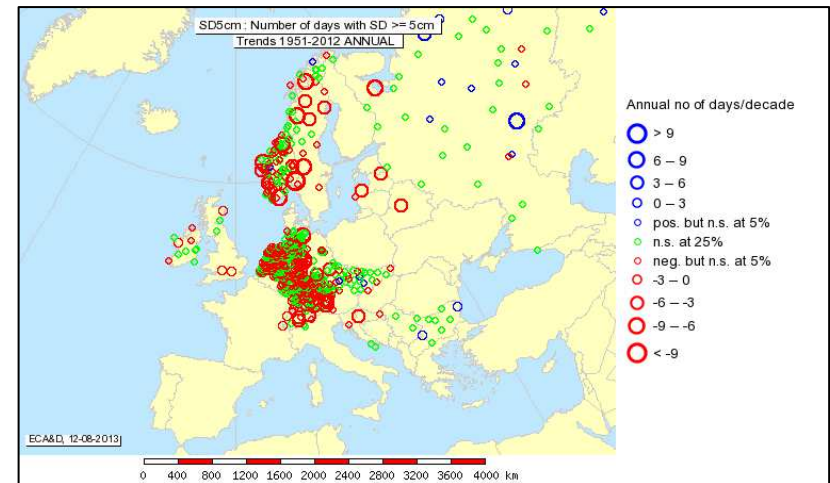
As seen in the figure below, precipitation amounts in the month of May were well over 100 mm above average across vast regions of Eastern Europe.



E-CAD anomalies of precipitation sum for the month of May 2010 compared to the normal period 1951-1990.

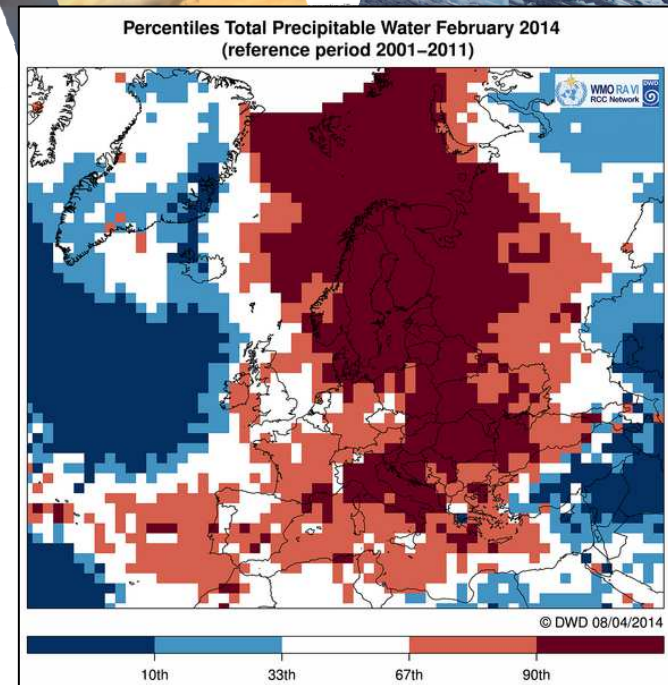
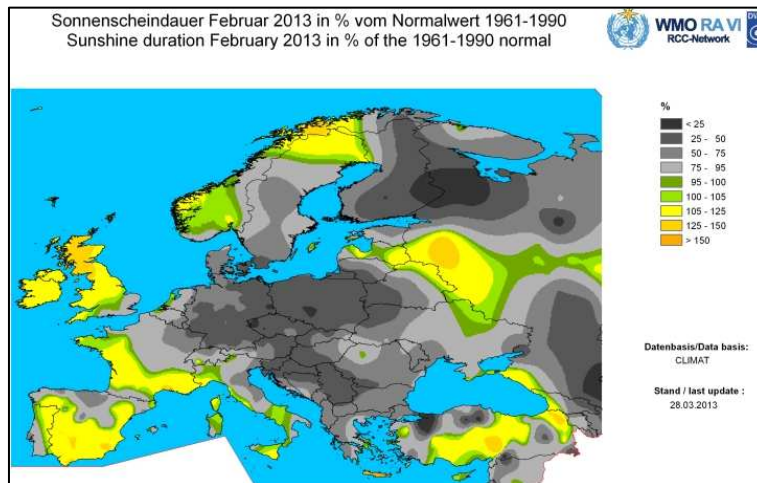
For the areas over which the greatest amount of precipitation fell, there appears to be no clear trend toward a change in the number of very wet days, with greater than 20 mm of precipitation, during May. See the ECA&D trend map below.

Page 2 of 3, source: http://eca.knmi.nl, created on 23-04-2012



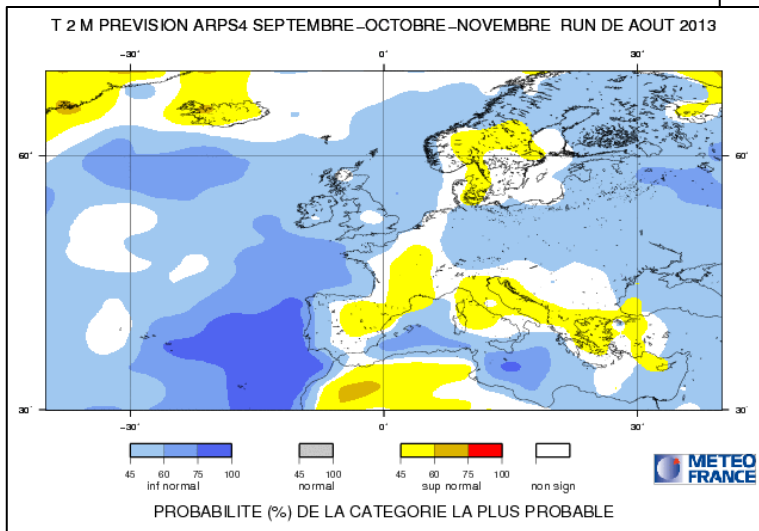
RCC-CM products in general:

- Maps, including from satellites
- Gridded data sets for download
- Documentation of significant events
- Monthly and annual reports
- Climate watches



RCC-LRF product examples

- Monthly global bulletin
- Global and regional seasonal prediction maps
- Climate outlook

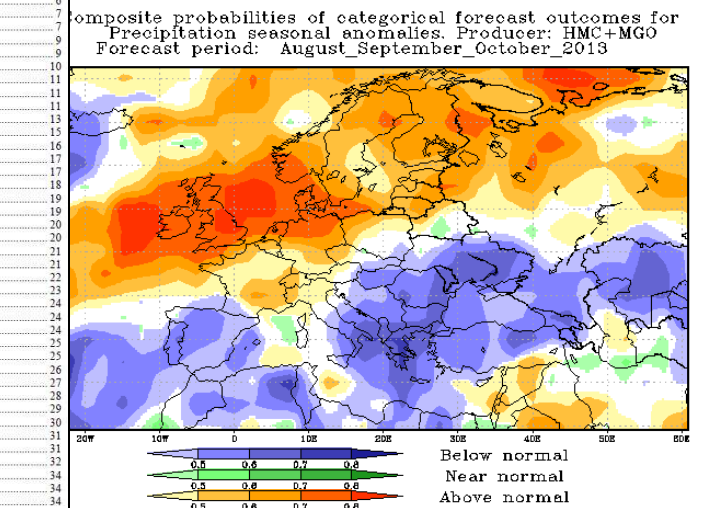
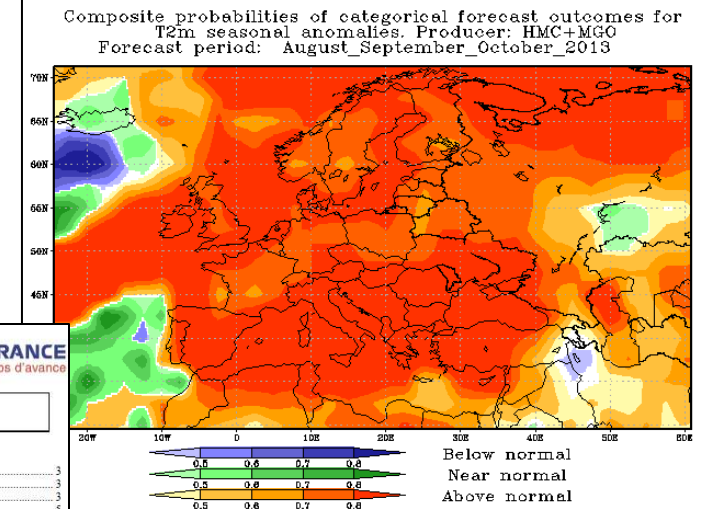


**GLOBAL CLIMATE BULLETIN
n°170 - AUGUST 2013**

Table of Contents

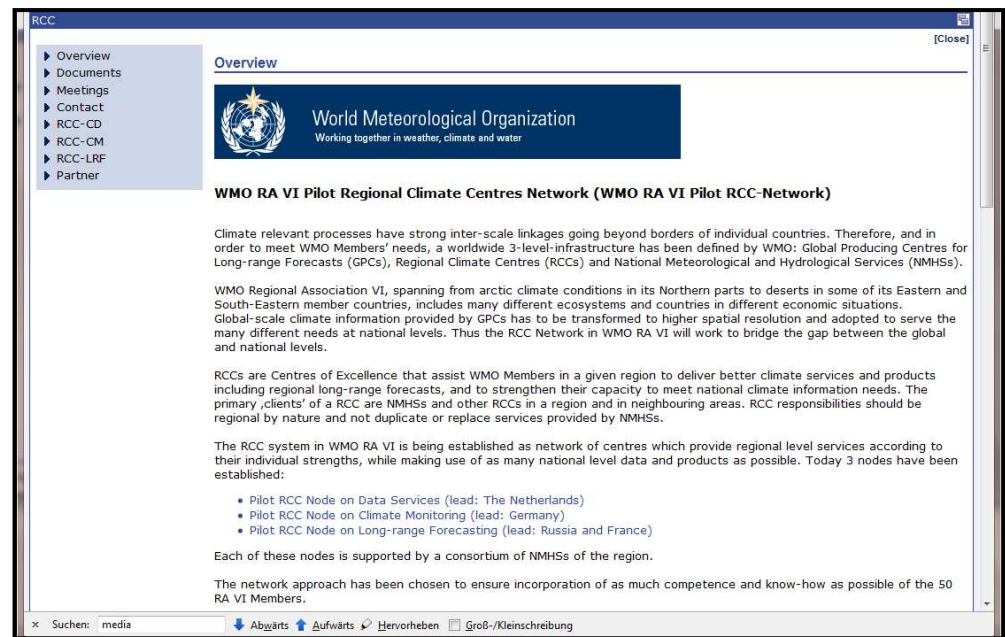
I. DESCRIPTION OF THE CLIMATE SYSTEM (JUNE 2013)	3
I.1. OCEANIC ANALYSIS	3
I.1.a Global Analysis	3
I.1.b Pacific Basin (fig 3, 4 and 5)	3
I.1.c Atlantic Basin	6
I.1.d Indian Basin	6
I.2. ATMOSPHERE	7
I.2.a Atmosphere - General Circulation	7
I.2.b Precipitation	9
I.2.c Temperature	9
I.2.d Sea Ice	10
II. SEASONAL FORECASTS FOR ASO FROM DYNAMICAL MODELS	10
II.1. OCEANIC FORECASTS	11
II.1.a Sea Surface Temperature (SST)	11
II.1.b ENSO Forecast	13
II.1.c Atlantic Ocean forecasts	15
II.1.d Indian Ocean forecasts	16
II.2. GENERAL CIRCULATION FORECAST	17
II.2.a Global Forecast	17
II.2.b North hemisphere forecast and Europe	18
II.3. IMPACT - TEMPERATURE FORECASTS	19
II.3.a ECMWF	19
II.3.b Météo-France	20
II.3.c Met Office (UKMO)	20
II.3.d Climate Prediction Centre (CPC)	21
II.3.e Japan Meteorological Agency (JMA)	21
II.3.f Lead Centre on Multi Model Ensemble (LCMME)	22
II.3.g Euro-SIP	23
II.4. IMPACT - PRECIPITATION FORECAST	24
II.4.a ECMWF	24
II.4.b Météo-France	24
II.4.c Met office (UKMO)	25
II.4.d Climate Prediction Centre (CPC)	25
II.4.e Japan Meteorological Agency (JMA)	26
II.4.f Lead Centre on Multi Model Ensemble (LCMME)	27
II.4.g Euro-SIP	28
II.5. REGIONAL TEMPERATURES	29
II.6. MODEL'S CONSISTENCY	30
II.6.a GPCs consistency maps	31
II.7. "EXTREME" SCENARIOS	32
II.8. DISCUSSION AND SUMMARY	34
Forecast over Europe	34
Tropical Cyclone activity	34

RA VI RCC-LRF Node GLOBAL CLIMATE BULLETIN n°170 AUGUST 2013 1/39



Access to RCC Network information and products

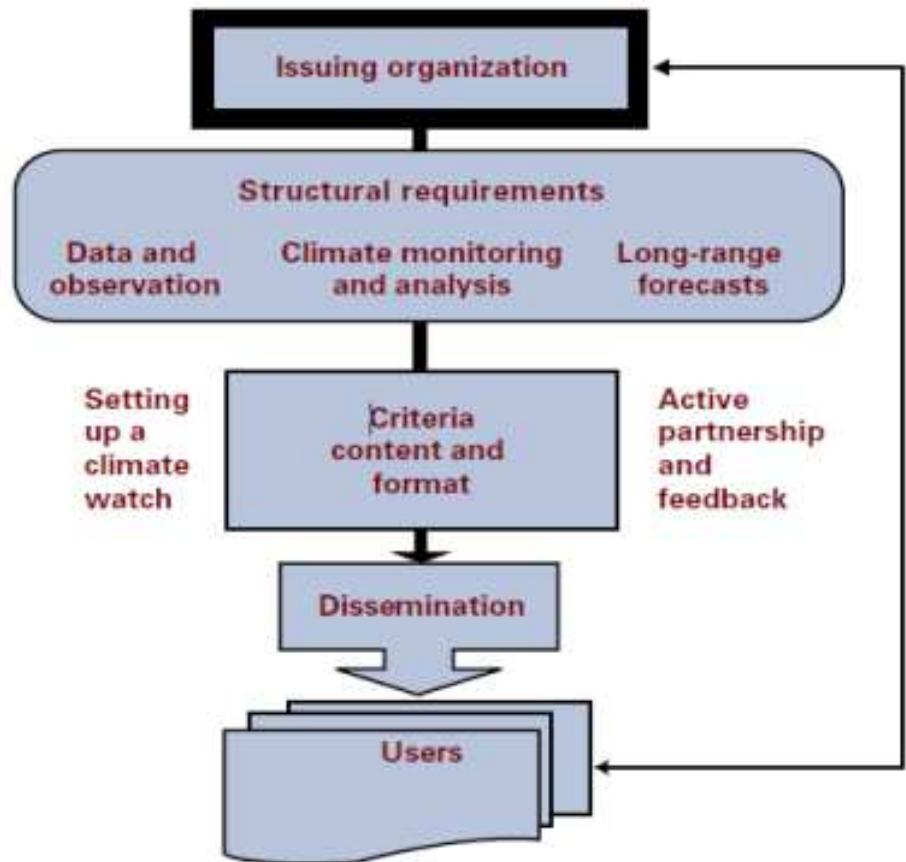
- Website <http://www.rccra6.org>
- General description
- Links to
 - Documents
 - Meeting information
 - Contact details
 - Links to all RCC nodes, including product catalogues



The screenshot shows a web browser window displaying the 'Overview' page of the WMO RA VI Pilot Regional Climate Centres Network. The page features the WMO logo and the text 'World Meteorological Organization Working together in weather, climate and water'. Below this, the title 'WMO RA VI Pilot Regional Climate Centres Network (WMO RA VI Pilot RCC-Network)' is displayed. The main content area contains several paragraphs of text describing the network's purpose and structure, including a list of pilot nodes: Pilot RCC Node on Data Services (lead: The Netherlands), Pilot RCC Node on Climate Monitoring (lead: Germany), and Pilot RCC Node on Long-range Forecasting (lead: Russia and France). A search bar at the bottom left shows the text 'Suchen: media'.

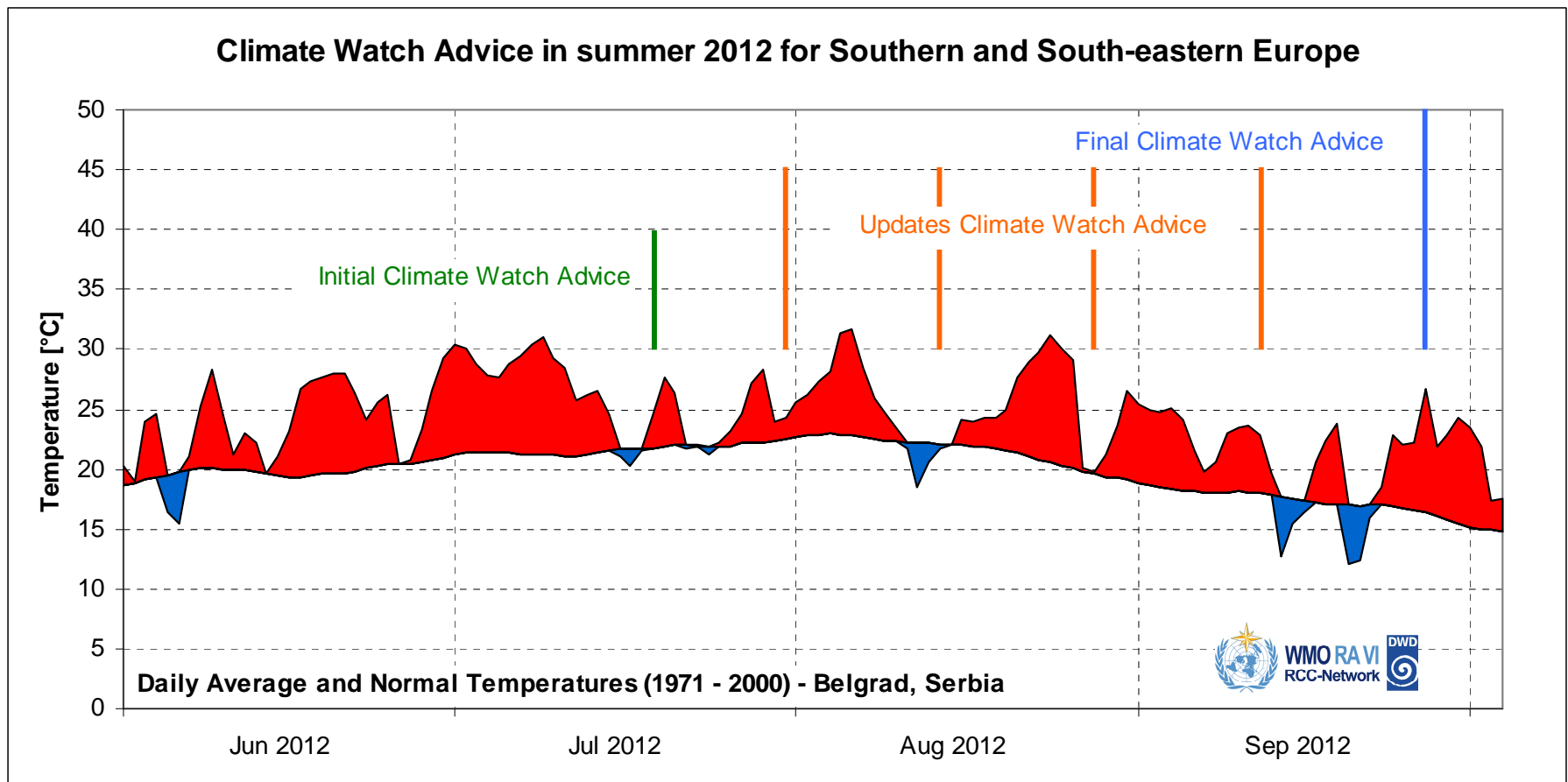
Climate Watch System in RA VI

- **Goal:** efficient monitoring and **warning** against **extreme climate events**
- **Task:** provides **advisories and statements** to inform users about evolving or foreseen climate anomalies at the regional and national levels, thus allowing them to make informed **decisions**.
- **Use:** RCC forecast and monitoring products
- RCC-CM send out advisories to the national services, they send tailored advisories /warnings to the end-users



How to develop a climate watch system

RCC-CM products: Climate Watch Advice



Thank you for your attention!

Dipl.-Met. Stefan Rösner

Head, Division Regional Climate Monitoring,
Coordinator WMO RA VI RCC Network,
Deputy GCOS German Coordinator
Frankfurter Str. 135
63067 Offenbach
Germany

T: +49 (0)69 8062 4306
F: +49 (0)69 8062 3759
M: +49 170 9054658
E: stefan.roesner@dwd.de
or: rcc.cm@dwd.de
I: www.dwd.de/rcc-cm
www.rccra6.org
www.gcos.de

