



## The WMO RAVI Pilot Regional Climate Centre Network – a support to users in Europe

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## 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 (there is a mandate by WMO)
- Providing high-quality climate services and products for the WMO RA VI Region (dedicated regional service: Europe and Middle East)
- At RA VI: Organized as a network of participating national meteorological and hydrological services (NMHSs) – the consortium. (in contrast to other RAs)
- Principle of shared work/tasks (one for all, all for one)
- No duplication of work which is already done on a national level
- Users are other RCCs and the NMHSs, end-users are the customers of the NMHSs
- “Pilot”: official designation by WMO pending

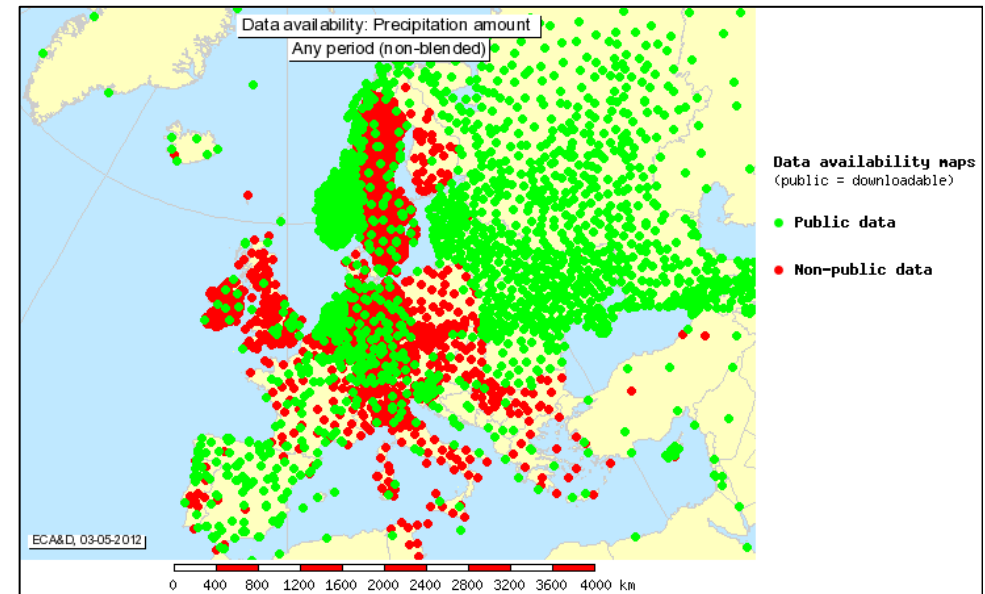
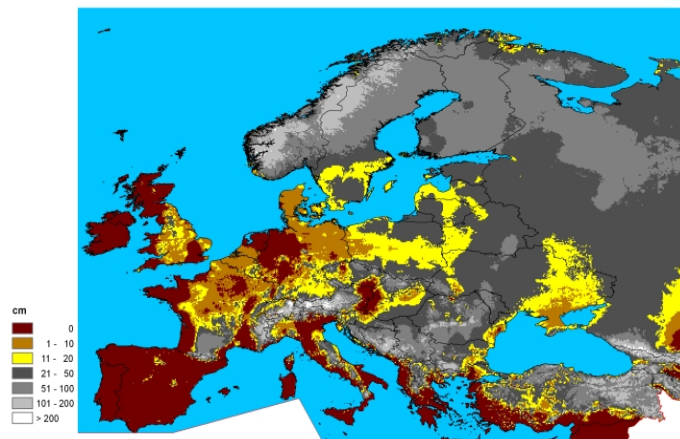


## WMO RAVI Pilot RCC-Network

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

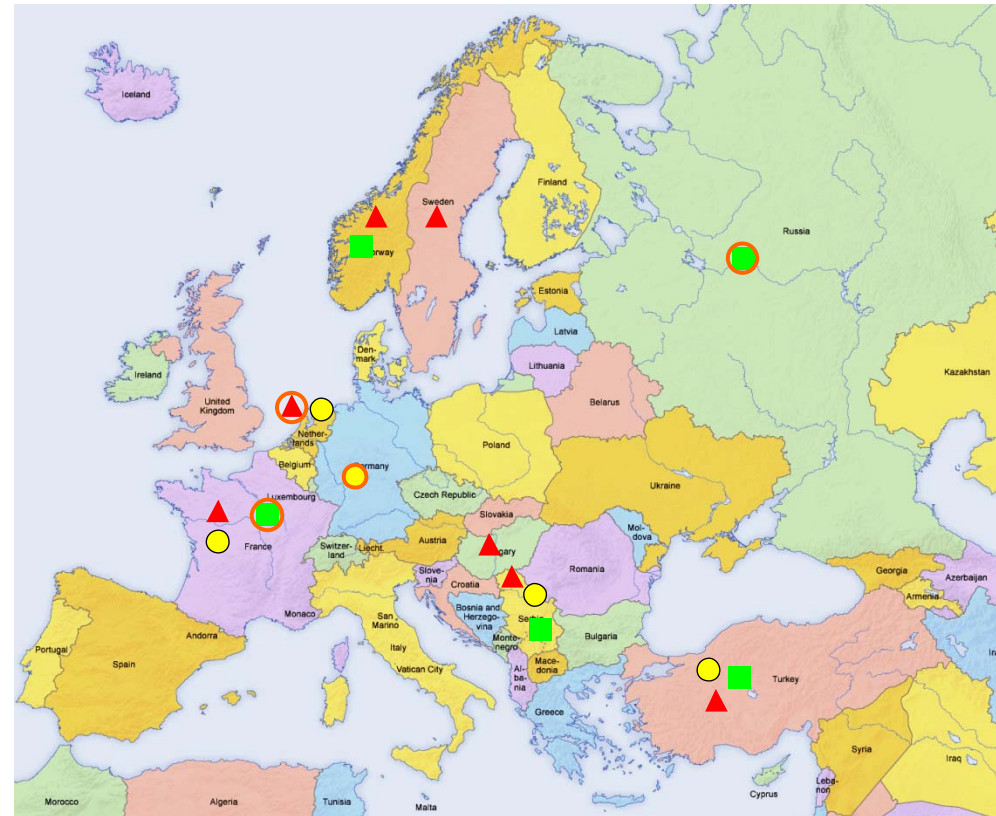
Maximale Schneehöhe Februar 2012  
Maximum snow depth February 2012

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



## WMO Pilot RCC-Network in Europe

- using the Members' knowledge to improve meteorological and hydrological services
- RA VI RCC Pilot Network
  - RCC on Climate Data: France, Hungary, Norway, Serbia, Sweden, Turkey; lead: The Netherlands
  - RCC on Climate Monitoring: Armenia, France, The Netherlands, Serbia, Turkey; lead: Germany
  - RCC on Long-range Forecasting: Norway, Serbia, Turkey; lead: France, Russian Federation



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National contributors and primary users: all 50 Met. & Hydrol. Services of RA VI



## 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-CD product examples

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


European Climate Assessment - Dataset

**ECA&D**  
**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 inundated as well. Parts of Czech Republic, Slovakia, Hungary and Serbia also experienced flooding and were majority affected. As reported by the BBC, there were at least 20 fatalities and thousands of people living 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 Euro.

The month of May consisted of many more wet days than normal for these regions; over 12 more than the normal over the period 1961-1990. 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 1961-1990.

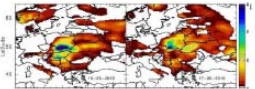
The bulk of the rainfall was due to a weather regime characterized by strong baroclinic temperature contrasts, high amounts of precipitable water (the water vapour available for precipitation), and a quasi-stationary area of low pressure in the upper atmosphere termed an 'upper low'. The low tracked 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 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

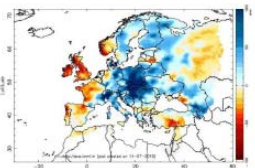


Satellite images of the heaviest storms on 16, 17 and 18 May 2010.



E-OBS precipitation sums for the heaviest rain days 16 and 17 May. The two-day total exceeds 200 mm in some areas, but the bulk of this precipitation fell in a 24-hour period.

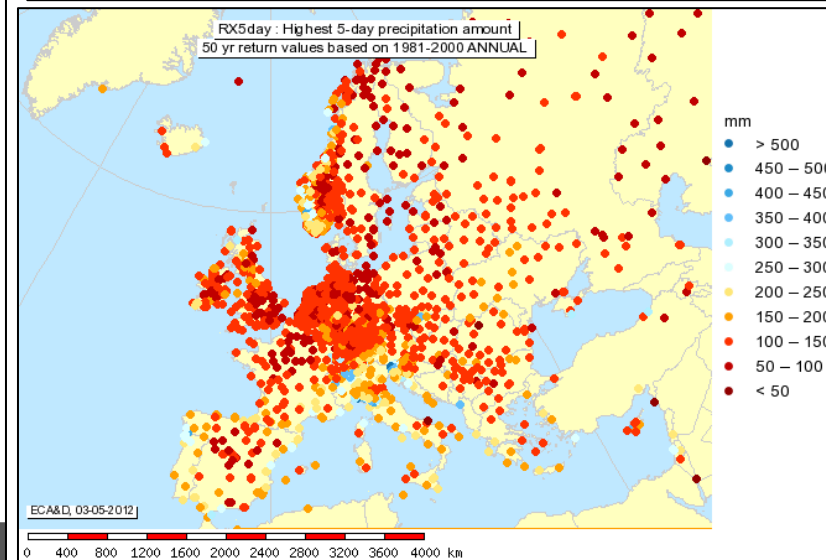
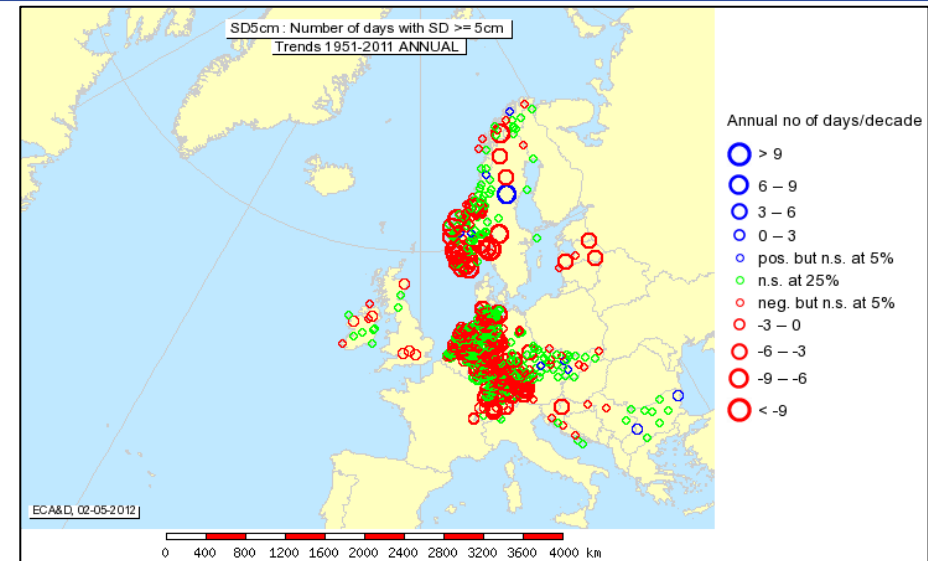
As seen in the figure below, precipitation amounts in the month of May were well over 100 mm above average across vast regions of Eastern Europe.



E-OBS anomalies of precipitation sum for the month of May 2010 compared to the normal period 1961-1990.

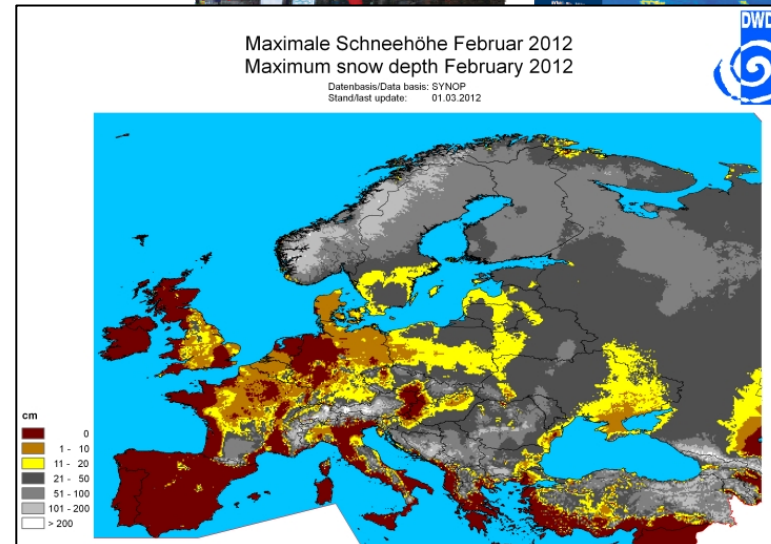
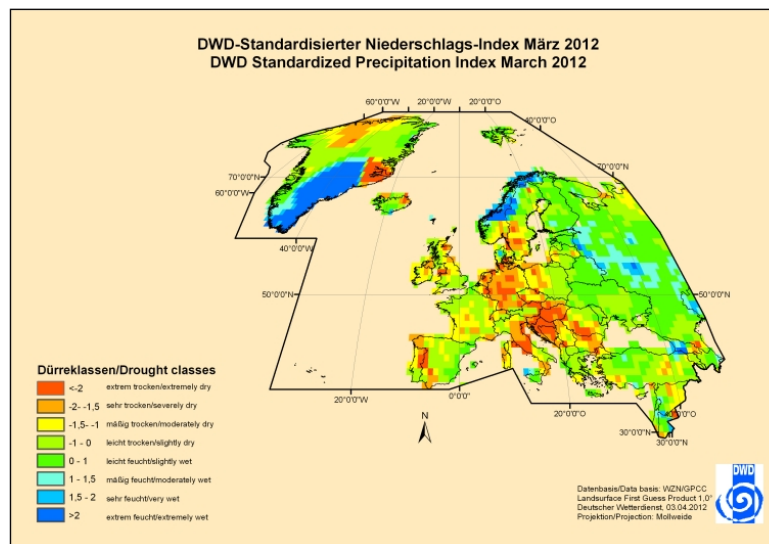
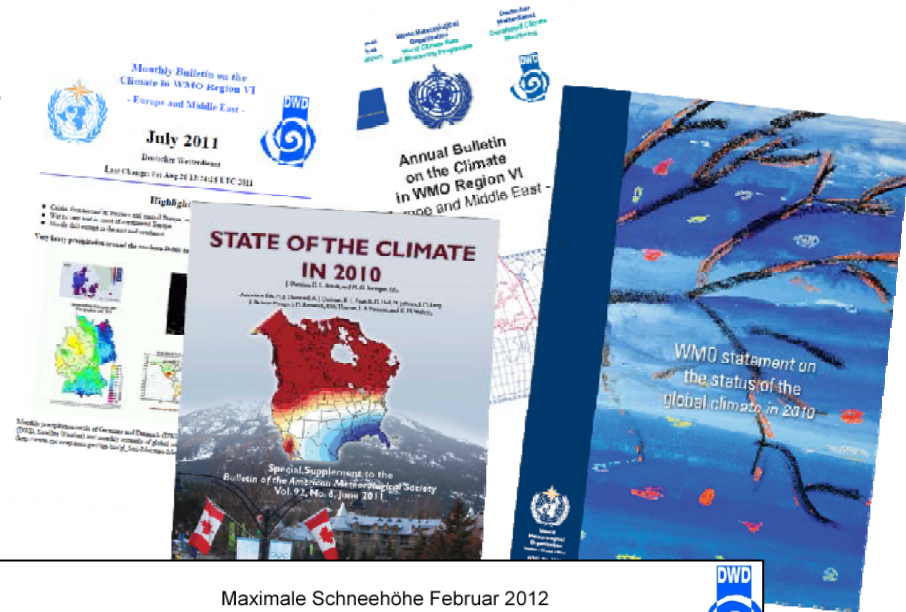
For the areas over which the greatest amount of precipitation fell, there appears to be no clear trend toward a change in the number of very wet days, with greater than 20 mm of precipitation, during May. See the ECA&D trend map below.

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



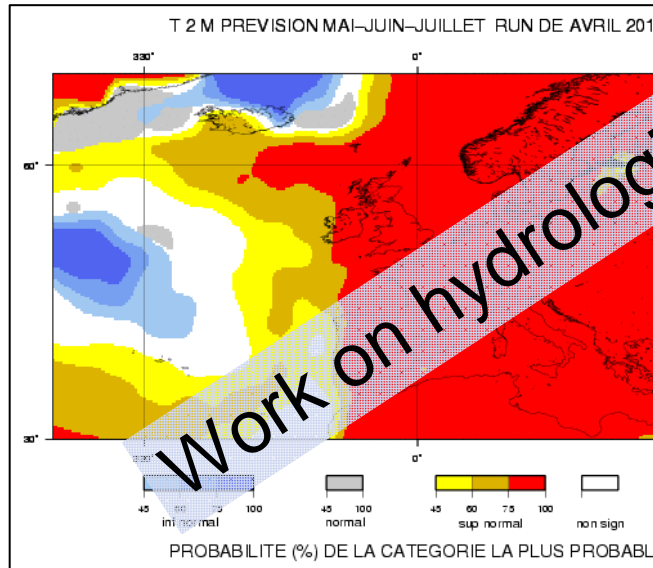
## RCC-CM product examples

- ➔ 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
- ➔ Gblal and regional seasonal prediction maps
- ➔ Climate outlook



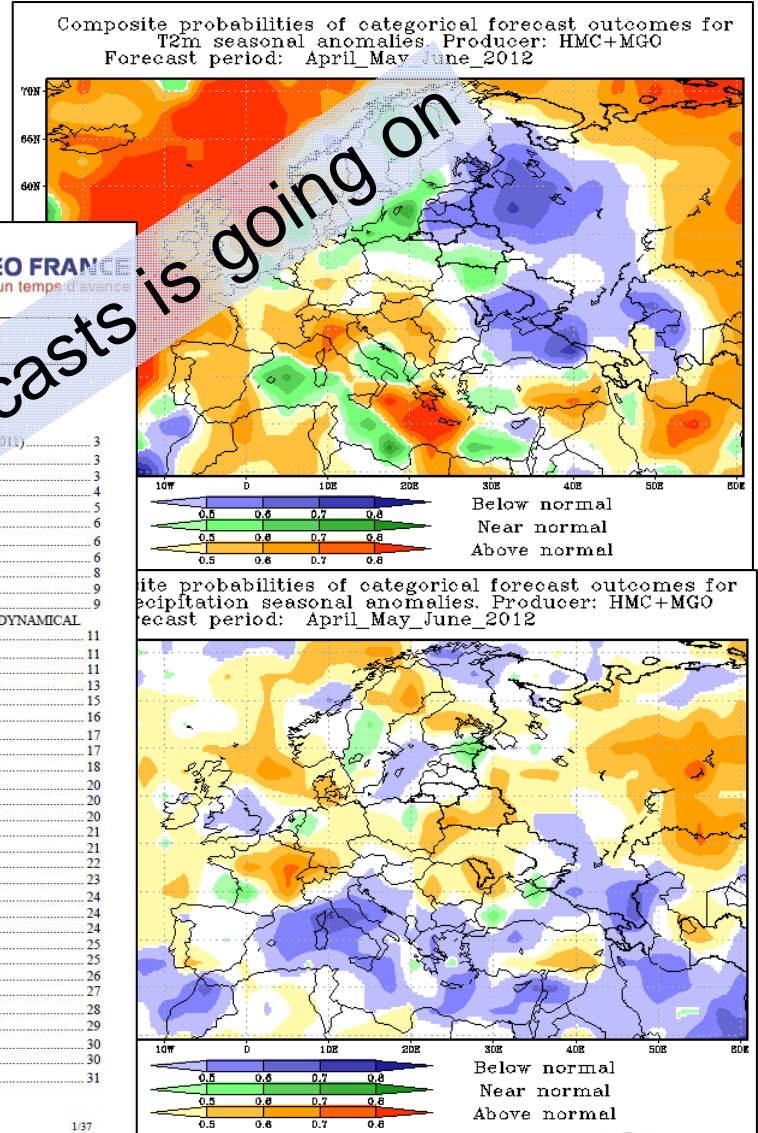
METEO FRANCE  
Toujours un temps d'avance

**GLOBAL CLIMATE BULLETIN**  
n°154 - APRIL 2012

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RCC-LRF-Node      GLOBAL CLIMATE BULLETIN n°154 APRIL 2012      1/37





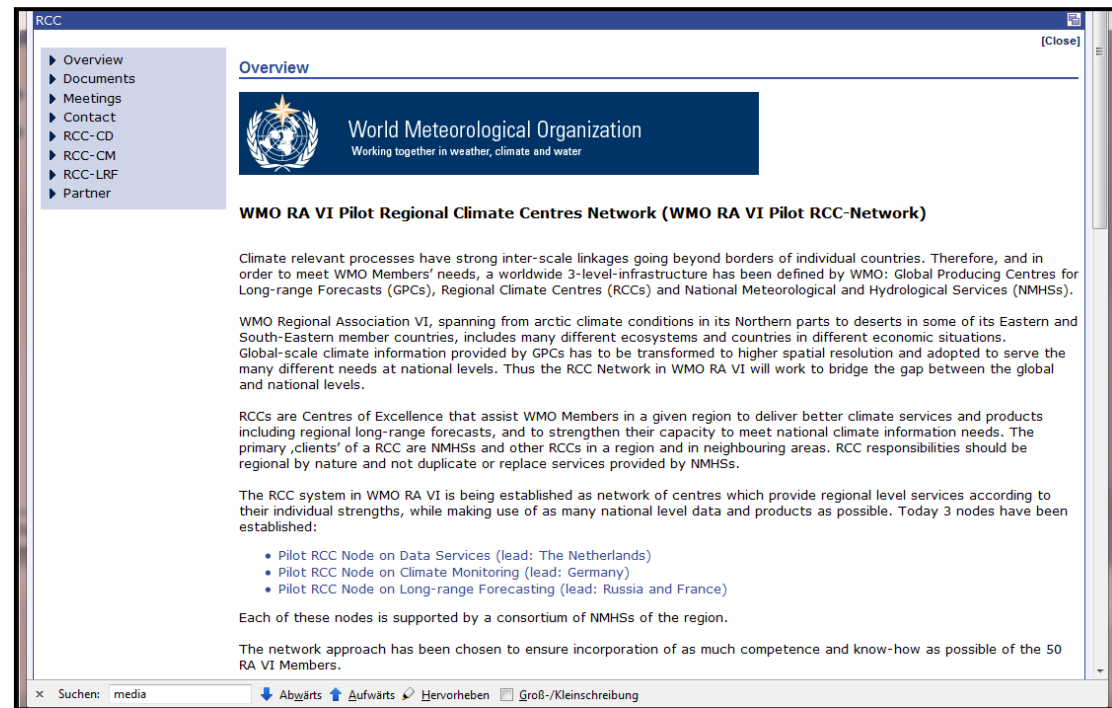


## Access to RCC-Network products - overview

- Internet
  - Recommended by implementation plan
  - Should include product catalogue for each node as PDF including examples for products
  - Access without restriction
    - Most products of RCC-CD and RCC-CM
  - Access with restriction
    - For RCC-LRF products and gridded data from RCC-CM
    - Through the respective NMHS
    - User and password authorised by host of RCC node
- Via one of the WMO Global Information System Centres (GISCs)
  - Additional access option
  - Also offers search for RCC products (if smart keywords used)

## 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 titled "RCC" with a navigation menu on the left containing: Overview, Documents, Meetings, Contact, RCC-CD, RCC-CM, RCC-LRF, and Partner. The main content area is titled "Overview" and features the WMO logo and the text "World Meteorological Organization Working together in weather, climate and water". Below this, the heading is "WMO RA VI Pilot Regional Climate Centres Network (WMO RA VI Pilot RCC-Network)". The text describes the network's purpose, its structure, and lists three 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). The browser's search bar at the bottom contains the text "Suchen: media".



## Quo vadis RCC?

- Upcoming challenges and opportunities
  - Global Framework for Climate Services (GFCS)
  - GMES Climate Core Service
  - Interaction with other RCCs
  - Liaise with Regional Climate Outlook Forums (RCOFs)
  - New inter-regional RCCs, e.g. for the Polar Region, Mediterranean
- Improve link to hydrological community
- Add new regional partners, enhance consortium
- Improve user friendliness
- Better integration of RCC webpages; WMO design



**Thank you for your attention !**

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