

WMO RCC Functions

World Climate Applications and Services Division

Climate Prediction and Adaptation Branch

Climate and Water Department



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

**Scoping Workshop: Towards Implementing
an Antarctic RCC-Network
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DEFINITIONS AND MANDATORY FUNCTIONS

From the Manual on the GDPFS

- A **multifunctional centre** that fulfils all the required functions of an RCC for the entire region, or for a sub-region to be defined by the Regional Association may be designated by WMO as a '**WMO Regional Climate Centre**' (WMO RCC)
- A **group of centres** performing climate-related activities that collectively fulfil all the required functions of an RCC may be designated by WMO as a '**WMO Regional Climate Centre Network**' (WMO RCC-Network)
- Each centre in a designated WMO RCC-Network will be referred to as a '**Node**'. A Node will perform, for the region or sub-region defined by the Regional Association, one or several of the mandatory RCC activities
- **Recipients of RCC products and services will be NMHSs**, other RCCs and international institutions recognized by the Regional Association

Mandatory functions

In order for a centre or a group of centres in a cooperative effort to be officially recognized as a WMO RCC (Regional Climate Centre), or a WMO RCC-Network, it **shall perform the following minimum set of functions**

Operational Activities for LRF

- Interpret and assess relevant LRF products from Global Producing Centres (GPCs), make use of Lead Centre for Standard Verification System on LRF, distribute relevant information to RCC Users; and provide feedback to GPCs;
- Generate regional and sub-regional tailored products, relevant to RCC User needs, including seasonal outlooks etc.;
- Perform verification of RCC quantitative LRF products, including the exchange of basic forecasts and hindcast data;
- Generate 'consensus' statement on regional or sub-regional forecasts;
- Provide on-line access to RCC products/services to RCC Users;
- Assess use of RCC products and services through feedback from RCC Users

Operational Activities for Climate Monitoring

- Perform climate diagnostics including analysis of climate variability and extremes, at regional and sub-regional scales;
- Establish an historical reference climatology for the region and/or sub-regions;
- Implement a regional Climate Watch

Operational Data Services, to support operational LRF and climate monitoring

- Develop regional climate datasets, gridded where applicable;
- Provide climate database and archiving services, at the request of NMHSs

Training in the use of operational RCC products and services

- Provide information on methodologies and product specifications for mandatory RCC products, and provide guidance on their use;
- Coordinate training for RCC Users in interpretation and use of mandatory RCC products

Mandatory functions: why

- MF provide a basis for formal WMO designation which has essentially been kept the same for all RCCs, setting a relatively low bar to allow wider participation of entities with relatively modest capacities.
- Once this is complied with, each RCC can prioritize its functions and additional activities based on the specific needs of the region, and even give them more importance than the mandatory functions which may not be of much interest (e.g., surface air temperature over the Antarctic).
- For the sake of keeping the designation, all RCC operations must necessarily include mandatory functions on a routine basis.
- Criteria and products for MF are defined in Appendix II-11

HIGHLY RECOMMENDED FUNCTIONS

Climate Prediction and Climate Projection

- Assist RCC Users in the access and use of WCRP-CMIP climate model simulations
- Perform downscaling of climate change scenarios
- Provide information to RCC Users for use in development of climate adaptation strategies
- Generate, along with warnings of caution on accuracy, seasonal forecasts for specific parameters where relevant, such as:
 - onset, intensity and cessation of rainy season;
 - tropical cyclone frequency and intensity
- Perform verification on consensus statements for forecasts;
- Perform assessment of other GPC products such as SSTs, winds, etc.



Non-operational data services

- Keep abreast of **activities and documentation related to WMO WIS**, and work towards WIS compliance and DCPC designation;
- Assist NMHSs in **the rescue of climate data** from outmoded storage media;
- Assist NMHSs to develop and **maintain historical climate datasets**;
- Assist RCC Users in the development and maintenance of software modules for standard applications;
- Advise RCC Users on **data quality management**;
- Conduct **data homogenization**, and advise RCC Users on homogeneity assessment and development and use of homogeneous data sets;
- **Develop and manage databases**, and generate **indices**, of climate extremes;
- Perform **Quality Assurance/Quality Control** on national datasets, on request of an NMHS;
- Provide expertise on **interpolation techniques**;
- Facilitate data/metadata exchange amongst NMHSs, including on-line access, through an agreed regional mechanism;
- Perform Quality Assurance/Quality Control on regional datasets



Coordination Functions

- Strengthen collaboration between NMHSs on related observing, communication and computing networks including data collection and exchange;
- Develop systems to facilitate harmonisation and assistance in the use of LRF products and other climate services;
- Assist NMHSs in user liaison, including the organisation of climate and of multidisciplinary workshops and other forums on user needs;
- Assist NMHSs in the development of a media and public awareness strategy on climate services



Training and Capacity building

- Assist **NMHSs in the training of users** on the application and on implications of LRF products on users;
- Assist in the **introduction of appropriate decision models** for end-users, especially as related to probability forecasts;
- Promote **technical capacity building on NMHS level** (e.g. acquisition of hardware, software, etc.), as required for implementation of climate services.
- Assist in **professional capacity building** (training) of climate experts for generating user-targeted products.



Research and Development

- Develop a **climate Research and Development agenda** and coordinate it with other relevant RCCs;
- Promote **studies of regional climate variability and change**, predictability and impact in the Region;
- **Develop consensus practices** to handle divergent climate information for the Region;
- **Develop and validate regional models**, methods of downscaling and interpretation of global output products;
- Promote the **use of proxy climate data in long-term analyses** of climate variability and change;
- **Promote application research**, and assist in the specification and development of **sector specific products**;
- Promote studies of the **economic value of climate information**

References

- *Manual on the Global Data-processing and Forecasting System (WMO-No. 485 Vol II)*
- *How to establish and run a WMO Regional Climate Centre (RCC) (WCASP80_TD1534)*
- *Guidance on establishment & operation of WMO Regional Climate Centres (under development)*

Thank you



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Overarching Recommendations (1/2)

- RCCs to facilitate access to digital data (not only in-situ observational data)
- Consider explaining the meaning of ‘mandatory’ functions in the sense of minimum requirements for designation, thereby being the starting point for RCC functions that can be further developed according to regional needs
- Mandatory functions being valid in general, they should be reviewed for some minor adjustments including in terms of consistency and in the light of the RCC Review 2018 recommendations
- Provide more specific technical guidance for RCC mandatory and recommended functions
- Raise awareness through publishing an article on RCC functions and role in developing climate services

Overarching Recommendations (2/2)

- Make sure that implications of the WMO governance reform on RCC designation and operations are well understood and appropriately taken into account
- Make sure that RCC Research and development needs are communicated to the appropriate bodies, e.g., WCRP/WGSIP and IPET-OPSLS
- Consider regular RCC reviews and information exchange fora
- IPET-RCA to explore and communicate opportunities for RCCs arising from Copernicus Climate Change Service (C3S) and Climate Services Toolkit
- WMO Operational Climate Prediction workshops to include dedicated sessions for discussions on relevant RCC operational aspects