WORLD CLIMATE PROGRAMME

WORLD CLIMATE APPLICATIONS AND SERVICES PROGRAMME

REGIONAL ASSOCIATION I (AFRICA)
WORKING GROUP ON CLIMATE RELATED MATTERS

Meeting of the Task Team on the Establishment of Regional Climate Centres (RCCs) Niamey, Niger, 25-26 May 2010

Final report

World Climate Applications and Services Division
Climate Prediction and Adaptation Branch
Climate and Water Department

WORLD METEOROLOGICAL ORGANIZATION

May 2010

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Regional Association I (Africa)

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FINAL REPORT

1. Introduction

1.1 Regional Association I (Africa) has been keenly pursuing the establishment of Regional Climate Centres (RCCs), as per the designation criteria established by WMO. The RA I Working Group on Climate Related Matters (WGCRM), at its meeting in Cotonou, Benin from 25 to 27 November 2008, held some preliminary discussions and consultations in this regard, and appointed a Task Team for further consideration of the implementation aspects and provide the appropriate recommendations to the president of RA I. The Task Team consists of the following members:

1. Dr Y.S. Boodhoo, Permanent Representative of Mauritius with WMO;
2. Mr Alphonse Kanga (Congo), Chair, RA I WGCRM;
3. Mr Epiphane Ahlonsou (Benin); and
4. Mr Jolamu Nkhokwe (Malawi).

The Task Team was expected to be assisted by a representative of the WMO Secretariat. Upon the request of the president of RA I, a meeting of the Task Team was organized with WMO support from 25 to 26 May 2010, which was hosted by the African Centre of Meteorological Applications for Development (ACMAD) at Niamey, Niger. The meeting was attended by all the members of the Task Team (see Annex I for list of participants). The meeting was chaired by Dr Boodhoo. The Annex II contains the adopted agenda for the meeting.

2. Opening of the Meeting

2.1 The meeting was opened at 9 AM on 25 May 2010, in the premises of ACMAD. Dr A. Diallo, Director-General of ACMAD, welcomed the participants. He referred to several landmark events that brought focus onto the climate issues, including the World Climate Conference-3, the launching of preparations for the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), and the recent First Conference of Ministers Responsible for Meteorology in Africa. He briefed the members on the project "African Early Warning and Advisory Climate Services in Africa“ (ViGIRisC Africa) recently launched by ACMAD, which aims to support the development of products and pilot services of vigilance related to climate risk in different areas where vulnerability is high. He noted the various challenges faced by Africa in terms of climate, and that we need collective efforts to effectively address these challenges. He thanked WMO and its RA I for addressing the issue of RCCs in a sustained manner, which would help to consolidate best practices in climate matters. He emphasized that capacity building and data availability are major issues that need to be addressed with a priority. He also referred to the AMMANET, which is a network of African scientists, from different countries and various disciplines, national or regional operational services, universities and research institutes that manifest their interest and wish to participate in African Monsoon Multidisciplinary Analyses (AMMA) international programme, in which ACMAD has been playing a key role. He urged that all climate-related initiatives in Africa should take into consideration the longstanding efforts being put in by the different regional institutions already existing.

2.2 The Chair, Dr Boodhoo, welcomed the participants and in his opening remarks he recalled that the concept of RCCs has been a subject of a very old initiative, which the WMO Commission for Climatology has been pursuing for sometime. He noted that the establishment of RCCs in Africa is timely due to weak adaptive capacities and the ever increasing disasters exacerbated by climate change. He also noted that the concept, which initially centred around cooperative data services, has substantially evolved, in line with the emerging capabilities and requirements. He expressed his satisfaction that the formal designation process for RCCs is now put in place, and that a beginning has already been made in RA II and RA VI. He called upon the Task Team to put in concerted efforts to guide an early implementation of RCCs in RA I.

2.3 Dr R. Kolli made an opening statement on behalf of the WMO Secretariat. He highlighted the efforts being made by WMO in accelerating the RCC implementation worldwide, particularly in regions vulnerable to climate variability and change where effective regional mechanisms are critical to meet the needs of countries with low capacities, particularly RA I. He noted that the present Task Team meeting follows a request made by the RA I president to WMO Secretary-General. He thanked ACMAD for hosting the Task Team meeting and providing all the required logistic support. He also thanked Dr Boodhoo for agreeing to chair the meeting.

2.4 Mr A. Kanga, Chair, RA I WGCRM, provided the background for the Task Team meeting, including the perspectives of the WGCRM on RCCs. He recalled the WGCRM meeting held in Cotonou, Benin from 26 to 28 November 2008, which had a special focus on the establishment of RCCs in RA I and constituted the present Task Team with wide representation from different sub-regions of RA I. He recalled the mandate of the Task Team, and the initial ideas of the WGCRM which considered an RCC Network structure for Africa centred around ACMAD as the coordinating agency. He brought to the attention of the meeting that the report of the Task Team is expected to be submitted the president of RAI to be presented to the Fifteenth Session of RA I later during this year. He outlined the expected outcome of the meeting, which is essentially focused on its Terms of Reference (see 5.1) and the related issues relevant to the establishment of RCCs in RA I.

3. Brief Appraisal of the Conference of Ministers responsible for Meteorology in Africa

3.1 Keeping in view the relevance of the recent regional initiatives on climate issues to the RCCs, Dr Boodhoo provided a brief appraisal of the First Conference of Ministers Responsible for Meteorology in Africa, held at Nairobi, Kenya, from 15 to 16 April 2010. He summarized the outcomes of the various sessions in the Expert Segment of the Conference, and also the Ministerial Declaration. He noted that, while RCCs are not mentioned explicitly in the Ministerial Declaration, but the concept is adequately captured, particularly with reference to the Global Framework for Climate Services (GFCS). He informed the meeting that the Ministerial Declaration agreed to establish the African Ministerial Conference on Meteorology (AMCOMET) as a high-level mechanism for the development of meteorology and its applications in Africa. The Declaration also designated a Task Force to define the institutional framework and internal arrangements of AMCOMET with WMO as the Secretariat with the support of the African Union. The Declaration also agrees to take necessary measures within two years to develop an African Strategy on Meteorology for enhancing cooperation between African countries to strengthen the capabilities of NMHSs and the existing regional and sub-regional climate centres in Africa. Dr Boodhoo pointed out that these aspects are directly relevant to the implementation of RCCs in RA I.

4. Appraisal of RCC concept and Designation Process

4.1 Dr Kolli presented an overview of the established RCC concept, and explained the various stepwise procedures for the implementation and designation of WMO RCCs. He noted that RCCs will be Centres of Excellence, designated by WMO Commission of Basic Systems (CBS) and CCl, to perform regional-scale climate functions, and will be complementary to and supportive of NMHSs, who will deliver all warnings and national-scale products. He further noted that establishment of RCCs will be initiated by Regional Associations (RAs), based on regional needs and priorities. He briefed the meeting on the definitions and designation criteria for RCCs as laid out in the recent amendments to the WMO Manual on Global Data Processing and Forecasting

Systems (Volume I, Global Aspects) and approved by WMO Executive Council in June 2009. He presented the meeting with a concise document prepared by WMO Secretariat and endorsed by the CCl Management Group in May 2010 (see Annex III). He briefed the members on the current status of the establishment of RCCs, particularly the designation of RCCs in RA II and the pilot phase of RCC operations in RA VI. Dr Kolli mentioned that different RAs have adopted different regional mechanisms to guide climate activities, and informed the Task Team on the approaches taken by the recent sessions of RA II, RA IV, RA V and RA VI. Of these, the Task Team agreed that the Working Group on Climate Services approach as adopted by RA V recently would be the most suitable model for RA I to follow, particularly in the context of the implementation of RCCs.

4.2 The Task Team agreed that there is a need for the RCCs to have a special focus on (i) climate modeling and predictions; (ii) climate monitoring and prediction of extremes; and (iii) climate research. In particular, the Task Team emphasized the need to strengthen and pursue linkages between operational climate services and WCRP/CLIVAR communities at the regional and national levels.

4.3 The Task Team noted that there is as yet no specific mechanism to periodically assess the performance of designated RCCs. The Task Team further noted the need to facilitate the availability of adequate information to Members on the operational activities of RCCs.

4.4 Mr Jean-Pierre Ceron of Meteo France, and Co-Chair, CCl OPACE-3 on Climate Products and Services and their Delivery Mechanisms, briefly attended the meeting on invitation by the Task Team, and appraised the meeting on the recent CCl initiatives in guiding the RCC implementation, oversight and standardized operational practices. He also briefed the meeting on the pilot phase of RA VI RCC-Network, of which he is implementing the RCC-Node for Long Range Forecasting (LRF).

5. RA I WGCRM activities in the implementation of RCCs

5.1 Mr A. Kanga briefed the members on the activities of the RA I WGCRM in working towards the implementation of RCCs in RA I, and also outlined the overall roles and responsibilities of the WGCRM as an advisory body to the president of RA I. He described the Task Team formation, and recalled the Terms of Reference as given below:

1. Identify clearly all NMHS and other users climate needs through responses to questionnaires received by RA I.
2. Evaluate capacities of centers, NMHS or other institutions that express intent to become RCC based on materials sent to RA I.
3. Propose a “Network RCCs” structure for Africa based on the selected potential candidates and on the WG RA I recommendations.
4. Advice RA I on appropriate coordination mechanism within the proposed RCC structure.
5. Submit follow-up report to the P/RAI before May 2009

He further informed the meeting that a questionnaire was distributed to all RA I Members and existing regional institutions, to identify the needs of NMHSs and other users, along with a letter from the president of RA I explaining the objectives of the questionnaire through email. The responses so far received have been presented to the Task Team for consideration. He emphasized the need to provide a Task Team report to the president at the earliest possible time, with its conclusions and recommendations.

5.2 The Task Team noted that the responses to the questionnaire were mainly from the centres/NMHSs desirous of hosting a WMO RCC. The Task Team expressed concern at the lack of adequate responses from the Members on national requirements, particularly from those potentially interested in the use of RCC services. The Task Team also noted the absence of an expression of interest in hosting an RCC in Southern Africa. The Task Team agreed that another attempt should be made to obtain a more representative response to the survey, and agreed that

special efforts should be made to encourage SADC-DMC at Gaborone to indicate its plans to host a WMO RCC.

5.3 The Task Team noted that the RA I WGCRM has the principal role to advise the president of RA I in the implementation of RCCs in RA I, and also in assessing the activities and products of RCCs. In particular, this responsibility consists of, inter alia:

- Strategic implementation plan including conduct of a survey;
- Planning a pilot phase of RCC operations;
- Launching and overseeing a pilot phase of RCCs including advice on corrective measures as required;
- Assessment of pilot phase performance of RCCs;
- Advise the president of RA I on all matters related to the designation process of RCCs.

5.4 Considering that RA II and RA VI are in relatively advanced stages of RCC implementation, the Task Team urged RA I WGCRM to liaise with the concerned regional bodies to share their experiences, and requested WMO Secretariat to facilitate this interaction.

5.5 The Task Team deliberated on the implementation of RCCs in RA I, particularly the options of having multi-functional full-fledged RCCs and distributed-function RCC-Network. The Task Team agreed that a distributed-function RCC-Network is highly coordination-intensive on an operational mode, which has too many practical constraints to succeed in RA I. The Task Team therefore agreed that multi-functional RCCs should be the overarching implementation strategy for RA I.

6. Consideration of responses to questionnaires on RCCs in RA I

6.1 The Task Team considered the available responses to questionnaires. In all, seven responses have been received, three from regional institutions (ACMAD, AGRHYMET and ICPAC) and four from NMHSs (Algeria, Egypt, Morocco and Mauritius). The Task Team felt that the responses from NMHSs was too low (4 out of 53), and agreed that another attempt should be made to get more responses. Further, the Task Team noted the need to seek adequately authenticated responses to the questionnaires, duly signed by the concerned heads of institutions. While the questionnaires have given some initial appraisal of the needs and capabilities of the responders, the Task Team agreed that comprehensive technical proposals for the implementation of multi-functional RCCs would be required to make an objective assessment of the readiness to initiate a pilot phase.

7. Outline of an Implementation Plan for RCC establishment in RA I

7.1 The Task Team considered the latest procedures for the designation of RCCs, and agreed that a clear timeline should be established to initiate the process for implementing RCCs in RA I. The following outline for the implementation plan is developed after detailed discussion of all the related aspects.

a) Survey templates as per the latest versions to be disseminated by end of June 2010. Covering letters with the templates should refer to the recent Ministerial Conference;
b) Completed templates to be received by end of July 2010; Task Team members as well as RA I WGCRM members should make special efforts to encourage greater responses to the survey;
c) Qualitative analysis of the survey by the Task Team/WGCRM by end of August 2010, through correspondence;
d) Recommendation to the P/RA I on the list of centres to be invited to join a pilot phase of the RA I RCC implementation (end of September 2010);
e) P/RA I seeks concurrence of RA I session for the pilot phase and selection of centres (October-November 2010);

f) P/RA I formally invites the centres to join the pilot phase, with specific instructions on the actions and reports to be submitted to be taken during the pilot phase (end of January 2011);
g) The pilot phase will have a minimum duration of one year;
h) The centres will make technical presentations before the WGCRM (February 2011);
i) The pilot phase commences in March 2011;
j) WGCRM monitors the pilot phase and reports regularly to the P/RA I; engage in consultation with the Secretariat as needed;
k) Cg appraised about RCC progress (May 2011);
l) Pilot phase is completed by March 2012;
m) P/RA initiates designation process as appropriate.

7.2 The Task team agreed that adequate consultations with WMO Secretariat and CCl will be most crucial at different stages of the implementation plan, to ensure that all the formal requirements for RCC designation are fully complied with.

8. Conclusions and Recommendations

8.1 After due consideration to all the issues related to the implementation of RCCs in RA I, its own Terms of Reference, and the latest procedures in the designation of WMO RCCs, the Task Team agreed on the following conclusions and recommendations:

(a) RCC establishment is a high-priority issue for RA I, and all efforts should be made to accelerate the process.
(b) The response received to the previous survey, particularly from national stakeholders, is too small, and additional efforts should be made to mobilize greater response.
(c) Based on the available expressions of interest from regional institutions, ACMAD and ICPAC are recommended to be developed as multi-functional RCCs. AGRHYMET is encouraged to support ACMAD as a collaborating partner, to enhance the RCC operations in terms of hydrological and agricultural applications. Another key regional institution, SADC-DMC, may also be encouraged to be developed as a multi-functional RCC, as and when it is ready with an appropriate proposal.
(d) The existing regional institutions already performing a range of regional climate functions need to enhance their infrastructure and human resources to meet the operational requirements of RCCs.
(e) RA I WGCRM should re-send the survey template (by end of June 2010, using the latest templates provided by WMO Secretariat) to all Members; the questionnaire responses should be duly authenticated by the concerned heads of the institutions. Even if a Member does not intend to host an RCC, the questionnaire should be completed. All applications for hosting RCCs should be explicitly endorsed by the PR of the country where the institution is located.
(f) The Task Team appreciated the strong interest from Members to host RCCs as part of NMHS activities (Algeria, Egypt and Morocco, all from North Africa), but considering the substantial overlap in their proposed role as RCCs, the Task Team suggests that the three countries engage in further consultations, facilitated by the WGCRM, to come up with a coherent and complementary plan of action.
(g) The Task Team underlines the importance to consider the special circumstances and characteristics of regions spanning across two or more RAs, such as the Mediterranean Region and the Indian Ocean region, and suggests the establishment of trans-regional RCC-Networks.
(h) The Task Team noted that an RCC-Network is a highly coordination-intensive activity on operational scale, and recommended that multi-functional, self-contained RCCs should constitute the overarching implementation strategy for RA I.
(i) The Task Team may be continued in the present form until the end of the current intersessional period, to guide the RCC implementation plans and advise the WGCRM.
(j) The Task Team suggests for the consideration of the WGCRM and the president of RA I, that a proposal be made to the forthcoming RA I session to set up a Working Group

on Climate Services which, inter alia, could coordinate the implementation of RCCs in RA I.

(k) The Task Team requests WMO Secretariat to facilitate interaction with RA II and RA VI on their experiences with RCC implementation, and also keep RA I WGCRM apprised of all further developments in the designation process of RCCs.

9. Closure of Meeting

9.1 The meeting closed with vote of thanks to the Chair, on 26 May 2010 at 5 PM.

Annex I

LIST OF PARTICIPANTS

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Annex II

PROVISIONAL AGENDA
Chairman: Dr Y.S. Boodhoo

25 May 2010 (Tuesday)

0900 - 0905	Welcome by ACMAD Director-General
0905 - 0910	Opening Remarks by Chairman
0910 - 0915	Opening Statement by WMO Secretariat (R. Kolli)
0915 - 0930	Background to the Task Team Meeting, including RA I WGCRM perspectives and Expected Outcomes (A. Kanga)
0930 - 1000	Appraisal of 1st Conference of Ministers Responsible for Meteorology in Africa, Nairobi, April 2010 (Y. Boodhoo)
1000 - 1030	Tea/Coffee
1030 - 1100	RCC concept and Designation process (R. Kolli)
1100 - 1130	Appraisal of RA I WGCRM activities on RCC implementation (A. Kanga)
1130 - 1230	Open Discussion on RCC implementation in RA I
1230 - 1400	Lunch
1400 - 1430	Role of RA I WGCRM in coordinating RCC implementation (A. Kanga)
1430 - 1530	Consideration of responses to questionnaires on RCCs in RA I
1530 - 1600	Tea/Coffee
1600 - 1700	Consideration of responses to questionnaires on RCCs in RA I (contd.)

26 May 2010 (Wednesday)

0900 - 0930	Outline of an implementation plan for RCCs in RA I (R. Kolli/A. Kanga)
0930 - 1000	Commission for Climatology perspectives (J.P. Ceron)
1000 - 1030	Tea/Coffee
1030 - 1230	Open Discussion on implementation plan for establishing RCCs in RA I
1230 - 1400	Lunch
1400 - 1530	Discussion on regional coordination of RCC matters, including linkages with GPCs, regional institutions, RCOFs and Members
1530 - 1600	Tea/Coffee
1600 - 1700	Conclusions and Recommendations

Annex III

How to establish and run a WMO Regional Climate Centre (RCC)

This brochure provides information for any climate-centred organization that considers becoming a WMO RCC, or a node in a WMO RCC-Network. Where not explicitly specified, the term 'WMO RCC' refers to both full-fledged multifunctional WMO RCCs and distributed-function WMO RCC-Networks.

Concept

WMO RCCs are centres of excellence that create regional climate products including long-range forecasts in support of regional and national climate activities and thereby strengthen capacity of WMO Members in a given region to deliver better climate services to national users.

Scope

WMO RCC responsibilities shall be regional in nature and shall not duplicate or replace national responsibilities.

Functions

WMO RCC services span a set of mandatory and additional highly recommended functions defined and specified in the Manual on the GDPFS with criteria for designation, and might cover further functions beyond as required by the region. **Mandatory functions must be fulfilled in order to obtain WMO's designation as WMO RCC.** WMO RCCs shall follow guidance published by the WMO Commission for Climatology on technical, climate-related matters and by the WMO Commission for Basic Systems on operational issues.

Users

The primary clients of WMO RCCs are NMSs and other WMO RCCs in the region and in neighbouring areas as well as international institutions recognized by the WMO Regional Association (RA).

Organizational models

WMO RCCs can be structured in one of two ways: RCC functions for a region may be undertaken within a single (multi-functional) centre, or may be distributed amongst various centres, or nodes, in a WMO RCC-Network. WMO Regional Associations define the region for which respective RCC functions are carried out. It is recommended to agree on the appropriate WMO RA's RCC structure *first* before implementing WMO RCCs. Furthermore, it is strongly advised not to mix the two types in the same region.

Note: WMO is currently exploring ways to provide RCC services in climate sensitive areas, which belong to either several WMO RAs (e.g. Arctic or Mediterranean regions) or to none (Antarctica). A separate concept note is under development in this regard.

WIS compliance

RCC operations must be consistent with WIS standards. WMO RCCs may also become WMO WIS DCPCs.

Data policy

WMO RCCs should always adhere to the WMO principles on the exchange of data and products.

Information Sources

WMO RCCs and RCC Networks will acquire information from reliable sources including Global Producing Centres for Long-range Forecasts (GPCs) and associated Lead Centres as well as scientifically recognised external sources. Additional main sources of reliable information for WMO RCCs are the respective NMSs they serve.

Definitions

Regional Climate Centre: 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).

Regional Climate Centre Network: A group of centres performing climate-related activities that collectively fulfil all the required functions of an RCC may be designated by WMO as 'WMO Regional Climate Centre Network' (WMO RCC-Network).

Node: Each centre in a designated 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 (e.g. Long-range Forecasting (LRF), climate monitoring, climate data services, training).

A WMO RCC must not necessarily belong to an NMS, but a non-NMS candidate for RCC designation must be nominated by the Permanent Representative of the concerned Member country.

Within an WMO RCC-Network, one of the nodes should be identified as 'point of contact' for the RCC-Network, for communications, co-ordination of reporting etc. as well as for a certain level of network coordination.

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WCASP - No. 80
WMO/TD - No. 1534

Detailed criteria for WMO RCC mandatory functions

Function: Operational activities for long-range forecasting

Activities	Criteria
Interpret and assess relevant LRF products from Global Producing Centres (GPCs), distribute relevant information to RCC users, and provide feedback to GPCs	**Product:** assessment of the reliability and outcomes of GPC or LC-LRFMME products including the reasoning (make use of LC-SVSLRF), for the region of interest **Output type:** texts, tables, figures etc. **Element:** 2-m mean temperature, total precipitation **Update frequency:** monthly or at least quarterly
Generate regional and sub-regional tailored products, relevant to RCC user needs, incl. seasonal outlooks etc.	**Product:** probabilities for tercile (or appropriate quantile) categories for the region or sub-region **Element:** 2-m mean temperature, total precipitation **Output type:** rendered images (maps, charts), text, tables, digital data **Forecast period:** one month up to six months **Update frequency:** 10 days to one month
Generate consensus statement on regional or sub-regional forecasts	**Product:** consensus statement on regional or sub-regional forecast **Element:** 2-m mean temperature, total precipitation **Output type:** report **Forecast period:** a climatologically significant period (from one month to one year) **Update frequency:** at least once per year (to be defined by the region)
Perform verification of RCC quantitative LRF products, including the exchange of basic forecast and hindcast data	**Product:** verification datasets (e.g. SVS LRF scores, Brier Skill Score; ROC; Hit Rate Skill Score) **Element:** 2-m mean temperature, total precipitation
Provide on-line access to RCC products/ services to RCC users	**Product:** an on-line data/information portal
Assess use of RCC products and services through feedback from RCC users	**Product:** analysis of feedback (which is made available using a template) **Update frequency:** annually, as part of a regular reporting of RCCs to WMO RAs

Function: Operational activities for climate monitoring

Activities	Criteria
Perform climate diagnostics incl. analysis of climate variability and extremes, at regional and sub-regional scales	**Product:** climate diagnostics bulletin incl. tables, maps and related products **Element:** Mean, Max and Min temperatures, total precipitation; other elements (esp. GCOS essential climate variables) to be determined by the region **Update frequency:** monthly
Establish an historical reference climatology for the region and/or sub-regions	**Product:** database of climatological means for various reference periods **Spatial resolution:** by station **Temporal resolution:** monthly at a minimum **Elements:** Mean, Max and Min temperatures, total precipitation; other elements (esp. GCOS essential climate variables) to be determined by the region **Update frequency:** at least 30 years, preferably 10 years
Implement a regional climate watch	**Product:** climate advisories and information for RCC users **Update frequency:** whenever required, based on the forecast of significant regional climate anomalies

Function: Operational data services, to support operational LRF and climate monitoring

Activities	Criteria
Develop quality controlled regional climate datasets, gridded where applicable	**Product:** regional, quality controlled climate datasets, gridded where applicable, following CCI guidance on QA/QC procedures **Temporal resolution:** daily **Elements:** Mean, Max and Min temperatures and total precipitation, at a minimum **Update frequency:** monthly
Provide climate database and archiving services, at the request of NMSs	**Product:** national databases with metadata, accessible to the NMS in question (backup service, development site etc.) **Elements:** as determined by the NMS **Update frequency:** at the request of the NMS

Function: Training in the use of operational RCC products and services

Activities	Criteria
Provide information on methodologies and product specifications for mandatory RCC products, and provide guidance on their use	**Product:** manuals, guidance documents and information notes **Update frequency:** when methods/products are revised or introduced or discontinued
Coordinate training for RCC users in interpretation and use of mandatory RCC products	**Product:** survey and analysis of regional training needs, and proposals for training activities

Note: A set of additional 'highly recommended' RCC functions in the domains of 'climate prediction and climate projection', 'non-operational data services', 'coordination', 'training and capacity building' and 'Research and Development' is listed and specified in the Manual on the GDPFS. WMO RCCs and WMO RCC-Networks are encouraged to deliver as much 'highly recommended' functions as possible, based on related regional requirements.

Recommended steps for designation of a WMO RCC or WMO RCC-Network

When a climate-centred entity wishes to be designated by WMO as a WMO RCC, or if a group of entities wishes to be designated as WMO RCC-Network, the following steps are recommended:

Step 0 Regional Associations (RAs) are strongly encouraged to conduct a survey of Members on regional needs for and capacity to deliver RCC services, to underpin decisions related to candidate entities seeking WMO RCC status. A draft survey template*, based on the mandatory functions required for RCC designation as well as the associated highly recommended functions, is available through the WMO Secretariat, and can be modified based on regional requirements.
Note: Ideally, the RA adopts a resolution formally committing itself to the establishment of RCCs, including the operation of a pilot phase, during one of its regular sessions. This resolution should be based on a related survey on regional needs for and capacity to deliver RCC services and should mandate a Working Group, Task Team or an appropriate body reporting to the President of the concerned RA (P/RA) to elaborate a WMO RCC implementation plan based on mutual consensus among the relevant stakeholders.

Step 1 The RCC candidate(s) will contact* P/RA through, and with the endorsement of, the Permanent Representative of the country in which it is situated, expressing its intent to be designated as a WMO RCC, and to begin a pilot phase.
Notes:
(1) It is highly recommended that RCC candidates take part in a pilot phase during which they (i) build their capacity to perform the mandatory RCC functions, (ii) undertake any other functions of high priority in the region, and (iii) prepare to demonstrate that they meet the requirements laid down in the Manual on the GDPFS. Pilot programmes will be organized through the RAs, at the discretion of the RA Members. The duration of a pilot phase will be determined as needed on a case-by case basis. The official title of WMO RCC, however, is only granted following the complete WMO designation process.
(2) If a group of centres would like to collectively fulfil all the required functions of a WMO RCC (termed as WMO RCC-Network), P/RA might mandate any relevant coordination group of the RA dealing with climate related matters to provide the required coordinating assistance throughout the entire designation process.

Step 2 P/RA will inform P/CCl, with copy to P/CBS and the SG, of the intent expressed by the candidate(s). In consultation with the CCl, the appropriate coordination group of the RA dealing with climate related matters and WMO Secretariat, P/RA will consider the criteria for designation (as per the Manual on the GDPFS, Vol 1, Global Aspects), respective regional requirements and any existing pilot or existing WMO RCC(s) in the region. If needed, P/RA will provide information on regional needs and fulfilment of WMO designation criteria.

Step 3 The candidate(s) will work in contact with the relevant coordination group of the RA dealing with climate related matters, the CCl, other experts nominated by the P/RA, other existing WMO RCCs in the region if any, WMO Secretariat and possibly the existing WMO GPCs during its preparations for designation.

Step 4 Upon successful conduct of the pilot phase and based on the respective positive assessment of the mandated (climate) coordination group of the RA, P/RA will contact the SG with a request for formal designation of the candidate(s) as WMO RCC, providing information/documentation on the process followed, and an assessment of the capability to meet requirements of the designation criteria.

Step 5 WMO SG will arrange for appropriate consultations with P/CCl and will take up any concerns with P/RA.

Step 6 When advised by P/CCl on satisfactory compliance with the designation criteria, SG will forward the request for formal designation to P/CBS for further action with copy to P/CCl and P/RA for information.

Step 7 CBS, through its relevant bodies, will review the submission and will discuss any concern with the RA and CCl through WMO Secretariat. The proposal may need to be resubmitted with all required clarifications addressed.

Step 8 When appropriate, the candidate(s) will be invited by CBS to present the proposal (in the form of an amendment to the Manual on the GDPFS) at one of its sessions for decision. The presentation of the proposal shall be complemented by the respective demonstration of capabilities, through documentation as well as oral presentation. WMO Secretariat will assist in the development of the proposed amendment to the Manual on the GDPFS.

Step 9 With the approval of the Members of CBS, the amendment to the Manual will be put up to WMO Congress or to WMO Executive Council for approval.

Step 10 With this final WMO approval, the Manual on the GDPFS will be revised and the RA and the candidate(s) will be advised in writing on the designation of the respective WMO RCC or WMO RCC-Network.

*relevant templates are available at: http://www.wmo.int/pages/prog/wcp/wcasp/RCCs.html.

Note: Issues to be considered by a candidate before applying for WMO designation

In order to conduct RCC functions to the standards as set out in the Manual on the GDPFS in pilot or designated form, a centre or group of centres will need the following:

i) Clear internal mandates, and clear mandates from the host country and the relevant WMO Regional Association to undertake and to sustain high-quality, consistent climate activities for the benefit of a region or sub-region;

ii) Appropriate resources to set up and run the centre in a sustained way, including physical infrastructure (computers, offices, hardware, operating supplies, etc.), communication systems (Internet, phones, faxes, satellite data receiving equipment, etc.), the necessary basics (power, water, lighting, heating, cooling, etc.) and human resources including, inter alia, administration staff, technical support staff, climate data specialists, analysts, forecasters and service specialists. The amount and nature of resources required to set up and run a WMO RCC will depend on a number of factors, including the extent of the programme to be undertaken and the extent of the region to be served.

Two examples of WMO RCC arrangements (as of mid 2010)

Regional Association II

RA II decided to establish multifunctional centres and/or specialized centres. CBS-XIV, and subsequently EC-LXI, formally designated the Beijing Climate Centre (BCC), China and the Tokyo Climate Centre (TCC), Japan as (multifunctional) WMO RCCs in 2009 (RCC Beijing and RCC Tokyo respectively, cf. www.rccra2.org). Meanwhile, India, Iran, Russian Federation and Saudi-Arabia have also expressed their intent to seek formal designation as WMO RCCs in Region II.

Regional Association VI

RA VI decided to establish a WMO RCC-Network, starting with 3 nodes on climate data, climate monitoring and long-range forecasting. The nodes are collectively run by consortia under the coordination of a lead institute. The current structure in pilot mode is as follows:

RCC node on climate data: KNMI/The Netherlands (lead), Météo-France/France, OMSZ/Hungary, met.no/Norway, RHMS/Serbia, SMHI/Sweden, TSMS/Turkey

RCC node on climate monitoring: DWD/Germany (lead), Armstatehydromet/Armenia, Météo-France/France, KNMI/The Netherlands, RHMS/Serbia, TSMS/Turkey

RCC node on LRF: Météo-France/France and ROSHYDROMET/Russian Federation (joint lead), met.no/Norway, RHMS/Serbia, TSMS/Turkey

Currently, DWD/Germany acts as the overall RA VI Pilot RCC Network Focal Point.

Note: According to the decisions of CBS-XIV, the reflection of a WMO RCC-Network in Volume I 'Global Aspects' of the Manual on the GDPFS is defined as follows: RCC-Network (Region) 'Cityname' Node 1, 'Cityname' Node 2, … 'Cityname' Node X. The 'Cityname' refers to the node leads only. A more comprehensive description of WMO RCC-Networks including specific reference to all formal consortium members shall be given in Volume II 'Regional Aspects' of the Manual on the GDPFS.

References:

Manual on the GDPFS, Guide to Climatological Practices and reports of RA II-XIV, CBS-XIV, EC-LXI and RA VI-XV

Abbreviations:

CBS: WMO Commission for Basic Systems	NMS: National Meteorological Service
CCl: WMO Commission for Climatology	LRF: Long-range forecasting (forecast range of 1 month to 2 years)
Cg: World Meteorological Congress	P: *here:* President
DCPC: (WIS) Data Collection or Production Centre	QA/QC: Quality assurance/quality control
GCOS: Global Climate Observing System	RA: WMO Regional Association
GDPFS: WMO's Global Data Processing and Forecasting System	RCC: WMO Regional Climate Centre
GPC: WMO Global Producing Centres for long-range forecasts	SG: *here:* WMO Secretary-General
LC: *here:* WMO Lead Centres on LRFMME and on SVSLRF, associated with GPCs	SVS: WMO's Standard Verification Scheme
MME: Multi-model ensembles	WIS: WMO Information System

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