

WORLD METEOROLOGICAL ORGANIZATION

SURVEY OF MEMBERS ON NEEDS AND CAPACITIES FOR POLAR RCC SERVICES

SUMMARY OF THE RESULTS

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As a part of preparation for the Scoping Workshop on “Climate Services for Polar Regions: Establishing Polar Regional Climate Centres –Towards Implementing an Arctic PRCC”, to be held in Geneva, from 17 to 19 November 2015, a survey of members on the needs and capacities for Polar RCC Services was initiated by the WMO Secretariat. The outcomes of the survey will be used to help prepare for the scoping workshop, and will form an important basis for developing a suitable RCC implementation strategy for the Polar Regions.

The questionnaire (attached), consisted of two parts, i.e. mandatory and highly recommended RCC functions, was disseminated to the Permanent Representatives of 22 countries - members of Executive Council Panel of Experts on Polar and High Mountain Observations, Research and Services (EC-PHORS), namely, Argentina, Australia, Canada, Chile, China, Denmark, Finland, France, Germany, Iceland, India, Italy, Netherland, New Zealand, Norway, Republic of Korea, Russian Federation, South Africa, Switzerland, Sweden, United Kingdom of Great Britain, and the United States of America. Around 70% of surveyed (17 countries, including all (eight) member states of Arctic Council) provided the responses, which shows the high interest of countries in polar activities. 31% of responded countries are providing and/or interested in climate activities in Arctic Polar Region, 25% - in Antarctica, and 44% didn't indicate the region.

The answers for RCC mandatory and highly recommended functions were analyzed separately, and the initial findings are as follows:

MANDATORY FUNCTIONS:

1. Operational Activities for Long Range Forecasts (LRF)

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

YES	67%
NO	25%
Not clear	9%

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

YES	58%
NO	40%
Not clear	2%

Question 3: Is your country interested in contributing to a function of a PRCC?

YES	74%
NO	14%
Not clear	13 %

About two third of the responding Members require Operational Activities for LRF to be included in PRCC services.

Slightly less than two third of the responding Members are already carrying out Operational LRF activities. Canada indicated that they do not generate consensus statement on regional or sub-regional forecasts, as the forecasts are purely from models, and there's no human interpretation. Though they do produce a statement, as a part of their seasonal outlook, which could be an input for the generation of a consensus statement but to be for regions outside Canada.

About three quarters of the responding Members are interested in contributing to Operational LRF function of a PRCC. Canada would be interested in contributing to this function for both Arctic and Antarctic, working in partnership with other partners to issue the products.

Conclusion:

There is a clear indication of the requirements for, the capabilities and interests to run Operational LRF functions under the PRCC.

2. Operational Activities for Climate Monitoring

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

YES	69%
NO	25%
Not clear	6%

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

YES	77%
NO	21%
Not clear	2%

Question 3: Is your country interested in contributing to a function of a PRCC?

YES	79%
NO	2%
Not clear	19%

About two third of the responding Members require Operational Activities for Climate Monitoring to be included in PRCC services.

More than three quarters of the responding Members are already carrying out Operational Activities for Climate Monitoring. Canada provides these services for the Canadian Arctic, mostly due to capacity limitation to offer these services for very large land mass over Canada. However Canada could offer a significant contribution in collaboration with neighboring countries.

More than three quarters of the responding Members are interested in contributing to Operational Climate Monitoring function of a PRCC.

Conclusion:

There is a clear indication of the requirements for, the capabilities and interests to run Operational Climate Monitoring functions under the PRCC.

3. Operational Data Services, to support operational LRF and climate monitoring

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

YES	72%
NO	19%
Not clear	9%

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

YES	78%
NO	22%
Not clear	0%

Question 3: Is your country interested in contributing to a function of a PRCC?

YES	81%
NO	9%
Not clear	9%

More than three-quarters of the responding Members require Operational Data Services to be included in PRCC services.

More than three quarters of the responding Members are already providing Operational Data Services. Canada provides these services for the Canadian Arctic, mostly due to capacity limitation to offer these services for very large land mass over Canada. However Canada could offer a significant contribution in collaboration with neighboring countries.

More than three quarters of the responding Members are interested in contributing to Operational Data Services function of a PRCC.

Conclusion:

There is a clear indication of the requirements for, the capabilities and interests to run Operational Data Services functions under the PRCC.

4. Training in the use of operational RCC products and services

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

YES	69%
NO	25%
Not clear	6%

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

YES	63%
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NO	28%
Not clear	9%

Question 3: Is your country interested in contributing to a function of a PRCC?

YES	75%
NO	6%
Not clear	19%

More than two third of the responding Members require Training in the use of operational RCC products and services to be included in PRCC services.

Slightly less than two third of the responding Members are already providing Training Services. Canada provides these services for the Canadian Arctic, mostly due to capacity limitation to offer these services for very large land mass over Canada. However Canada could offer a significant contribution in collaboration with neighboring countries.

Three quarters of the responding Members are interested in contributing to Training in the use of RCC products and services function of a PRCC.

Conclusion:

There is a clear indication of the requirements for, the capabilities and interests to run Training functions under the PRCC.

Mandatory functions in total

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

YES	69%
NO	23%
Not clear	8%

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

YES	69%
NO	28%
Not clear	3%

Question 3: Is your country interested in contributing to a function of a PRCC?

YES	77%
NO	8%
Not clear	15%

Overall analysis:

More than two-thirds of the responding Members require PRCC services.

More than two-thirds of the responding Members are already carrying out relevant activities.

More than three-quarters of the responding Members are interested in contributing to functions of a PRCC.

Overall conclusion:

There is a clear indication by the majority of respondents on the requirements for, the capabilities and interests to perform mandatory functions and to run PRCC.

Special notes from different respondents:

Under Question 2 (Does your country provide relevant services or carry out research to enable such services for Polar regions) South Africa indicated the provision of a number of services over SADC region for both mandatory and highly recommended functions, but since this doesn't belong to Polar Antarctic region, therefore these answers were not considered as positive.

Under the Question 3 (Is your country interested in contributing to a function of a PRCC) Norway answered "No" to all functions, indicating that the framework for such centres has not been yet well established, or exemplified. In many cases the answer would be positive when/if the Polar RCC(s) would be defined in concrete terms.

HIGHLY RECOMMENDED FUNCTIONS

Research and Development:

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

78% Yes; 18% No; 4% not clear

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

63% Yes; 31% No; 6% not clear

Question 3: Is your country interested in contributing to a function of a PRCC?

65% Yes; 24% No; 11% not clear

Overall analysis:

More than three-quarters of the responding Members require Research and Development PRCC services.

Slightly less than two-thirds of the responding Members are already carrying out relevant activities.

Two-thirds of the responding Members are interested in contributing to Research and Development functions of a PRCC.

Overall conclusion:

There is a clear indication of the requirements for, the capabilities and interests to run R&D PRCC functions.

Coordination Functions:

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

73% Yes; 27% No; 0% not clear

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

67% Yes; 33% No; 0% not clear

Question 3: Is your country interested in contributing to a function of a PRCC?

66% Yes; 17% No; 17% not clear

Overall analysis:

Around three-quarters of the responding Members require relevant PRCC services.

Two-thirds of the responding Members are already carrying out relevant activities.

Two-thirds of the responding Members are interested in contributing to Coordination functions of a PRCC.

Overall conclusion:

There is a clear indication of the requirements for, the capabilities and interests to run Coordination functions of a PRCC.

Climate Prediction and Projection:

Does your country require this activity to be performed or coordinated by a PRCC?
63% Yes; 35% No; 2% not clear

Does your country provide relevant services or carry out research to enable such services for Polar regions?
56% Yes; 40% No; 4% not clear

Is your country interested in contributing to a function of a PRCC?
57% Yes; 25% No; 18% not clear

Overall analysis:

Around two-thirds of the responding Members require relevant PRCC services.
More than half of the responding Members are already carrying out relevant activities.
More than half of the responding Members are interested in contributing to functions of a PRCC.

Overall conclusion:

There is a clear indication of the requirements for, the capabilities and interests to perform Climate Prediction and Projection functions of a PRCC.

Training and Capacity Building:

Does your country require this activity to be performed or coordinated by a PRCC?
61% Yes; 34% No; 5% not clear

Does your country provide relevant services or carry out research to enable such services for Polar regions?
45% Yes; 50% No; 5% not clear

Is your country interested in contributing to a function of a PRCC?
55% Yes; 25% No; 20% not clear

Overall analysis:

Around two-thirds of the responding Members require relevant PRCC services.
Less than half of the responding Members are already carrying out relevant activities.
More than half of the responding Members are interested in contributing to functions of a PRCC.

Overall conclusion:

Although less than a half of respondents currently carry out training and capacity building activities, however there is apparently an indication of the requirements for, the capabilities and interests to run relevant PRCC services.

Highly-recommended functions in total:

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

69% Yes

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

59% Yes

Question 3: Is your country interested in contributing to a function of a PRCC?

61% Yes

Overall analysis:

More than two-thirds of the responding Members require relevant PRCC services.
More than half of the responding Members are already carrying out relevant activities.
Almost two-thirds of the responding Members are interested in contributing to functions of a PRCC.

Overall conclusion:

There is a clear indication of the requirements for, capabilities and interests to run relevant PRCC services.

Summary mandatory and highly-recommended functions:

Question 1: Does your country require this activity to be performed or coordinated by a PRCC?

69% Yes

Question 2: Does your country provide relevant services or carry out research to enable such services for Polar regions?

61% Yes

Question 3: Is your country interested in contributing to a function of a PRCC?

65% Yes

Overall analysis:

More than two-thirds of the responding Members require relevant PRCC services.
Almost two-thirds of the responding Members are already carrying out relevant activities.

Two-thirds of the responding Members are interested in contributing to functions of a PRCC.

Overall conclusion:

There is a clear indication of the requirements for, capabilities and interests to run relevant PRCC services.

Annex 1
WORLD METEOROLOGICAL ORGANIZATION

SURVEY OF MEMBERS
ON NEEDS AND CAPACITIES FOR POLAR RCC SERVICES

PART A: Functions that will be mandatory for WMO designation as RCC or RCC-Network

Requirement/Function	<i>Does your country require this activity to be performed or coordinated by a Polar RCC ? (Yes/No; Arctic/Antarctic)</i>	<i>Does your country provide relevant services or carry out research to enable such services for Polar Regions ? (Yes/No; Arctic/Antarctic)</i>	<i>Is your country interested in contributing to this function of a Polar RCC ? (Yes/No; Arctic/Antarctic)</i>
Operational Activities for Long Range Forecasts (LRF)			
Interpret and assess relevant LRF products from Global Producing Centres (GPCs), 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.			
Generate consensus statement on regional or sub-regional forecasts			
Perform verification of RCC quantitative LRF products, including the exchange of basic forecasts and hindcast data			
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 quality controlled 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			

NOTE: Reflect true capacity to deliver the function, in consideration of the required human resources, computing and telecommunications capacities including equipment, power, hardware, software, etc., and other infrastructure requirements, and also mandate of the organization.

PART B: Highly recommended functions of RCCs and RCC-Networks

Requirement/Function	<i>Does your country require this activity be performed or coordinated by a Polar RCC ? (Yes/No; Arctic/Antarctic)</i>	<i>Does your country provide relevant services or carry out research to enable such services for Polar regions ? (Yes/No; Arctic/Antarctic)</i>	<i>Is your country interested in contributing to this function of a Polar RCC ? (Yes/No; Arctic/Antarctic)¹</i>
<i>Climate Prediction and Climate Projection</i>			
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			
<i>Non-operational data services</i>			
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			
<i>Coordination Functions</i>			
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			

¹ Where appropriate, indicate in this column the priority from your perspective as High (H), Medium (M) or Low (L).

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 service			
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			

NOTE: Reflect true capacity to deliver the function, in consideration of the required human resources, computing and telecommunications capacities including equipment, power, hardware, software, etc., and other infrastructure requirements, and also mandate of the organization.