Antarctic Regional Climate Centre Network: the scope and concept

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An Information Paper submitted by WMO

To facilitate the engagement of countries (including Treaty Parties, WMO Members etc.) interested in climate services for the Antarctic Region, including representatives from operational, research and user communities, WMO in coordination with the Secretariat of Antarctic Treaty and other partners, organized a “Scoping Workshop on Climate Services for Polar Regions: Towards Implementing an Antarctic RCC- Network” in Bologna, Italy, from 7 to 9 October 2019, hosted by the Institute of Polar Science (ISP) of the Italian National Research Council (CNR) (*Ref. ATCM42\_ip164\_e-2*). As a part of the preparation for the Scoping Workshop, a survey of WMO Members on the needs and capacities for Polar Regional Climate Centre (RCC) Services was initiated by the WMO Secretariat. In the meantime, the Antarctic Treaty Secretariat also sent a similar letter addressed to the Antarctic Treaty Parties in order to ensure that all relevant and interested institutions in the countries were duly informed and actively engaged in the RCC implementation for the Antarctic Region.

The survey results demonstrated that 65% of respondents require the activities listed under mandatory functions to be performed or coordinated by an RCC in the Antarctic region. Furthermore, 30% already offer relevant activities, and 40% expressed interest in contributing to an Antarctic RCC effort. The high-level overview of interest and capabilities for RCC mandatory functions are presented in Table 1. Furthermore, a majority of countries also expressed high interest in providing several highly recommended functions, in particular, research, development and coordination activities.

**Table 1**

|  |  |  |
| --- | --- | --- |
| **Mandatory Function** | **Countries offering relevant Antarctic services already** | **Countries interested in contributing to Antarctic RCC functions** |
| **Long Range Forecast** | Argentina, Australia, (Italy), (Russia), UK, USA | Argentina, Australia, Chile, China, Finland, India, Italy, (Japan), Korea, Norway, Peru, Russia, Sweden, USA |
| **Climate Monitoring** | Argentina, Australia, Denmark, Chile, France, India, (Italy), Norway, Russia, UK, USA | Argentina, Australia, (Denmark), Chile, China, France, India, Italy, Japan, Peru, Korea, Russia, UK |
| **Climate Data** | Argentina, Australia, France, Chile, India, Japan, Norway, Russia, UK, USA | Argentina, Australia, Chile, China, (Denmark), France, India, Italy, Japan, Korea, Norway, Russia, UK |
| **Training** | Argentina, (Russia), USA | Argentina, Australia, Chile, China, France, Korea, Peru, Russia |

The Scoping Workshop attended by around twenty national representatives of thirteen countries (Argentina, Australia, Chile, China, Denmark, Finland, Germany, India, Italy, Norway, Peru, UK and USA), explored opportunities and challenges relating to Antarctic climate monitoring and prediction services and the underpinning data inputs. Building on the survey results the participants further discussed the Antarctic RCC-Network concept, including the provisional structure, priority functions of the Antarctic RCC-Network and the implementation strategy.

All the countries representatives expressed a clear indication of interest to contribute to Antarctic RCC-Network activities, and mutually agreed that the RCC implementation for the Antarctic would likely be based on a distributed-function model, similar to that of the WMO Regional Association VI serving Europe, that is countries with strong capabilities in mandatory functions could take the lead responsibility for specific functions and involve other contributors to form a consortium.

The following is an initial mapping of the structure of Antarctic RCC-Network considered by the participants, based on a functional delineation of the RCC-Network nodes and tentative interests volunteered for lead responsibilities, subject to internal consultations and formal endorsements. The proposed responsibilities are suggestive and need to be further discussed and formalized at the national as well as regional levels. This initial mapping can serve as the basis for exploring more substantive and formal commitments in due course:

*(i) Climate Prediction Node:*

* Operational activities for long range forecasts (LRF);
  + Lead coordinator: Bureau of Meteorology (BoM), Australia

*(ii) Climate Monitoring Node:*

* Operational activities for climate monitoring;
  + Lead coordinator: National Research Council - Istituto di Scienze Polari (CNR-ISP), Italy

*(iii) Climate Data Node:*

* Operational data services to support LRF and climate monitoring;
  + Lead coordinator: British Antarctic Survey (BAS), United Kingdom

Training, one of the mandatory functions of WMO RCCs, is proposed to be tackled as an integral part of each of the above functions. Each of the above nodes is expected to be supported by a consortium of interested and committed Members/partners, to pool together their capacities, products and services to collectively meet specified criteria for RCC mandatory functions as well as to fulfill the vision laid out for the Antarctic RCC-Network.

Moreover, participants identified priority activities beyond RCC mandatory functions to be provided by AntRCC-Network, in particular sea ice monitoring and prediction, atmospheric modes of variability and indices, Climate Change Projections and accumulation and surface melt to be explored by national focal points based on national consultations.

Participants discussed the possibility of having an Antarctic Climate (Outlook) Forum focused on the Antarctic region (as is done for other regions of the globe) to discuss requirements and updates to the Antarctic RCC. This would preferably be co-located with other relevant regional events (for example those associated with the Antarctic Treaty System, SCAR or COMNAP). Forums would be centered around thematic topics and requirements.

The Workshop highlighted the importance of close collaboration with several partners, including COMNAP, SCAR, GCW, IICWG, WCRP, and agreed to facilitate their engagement from the beginning and throughout implementation and operation of the Antarctic RCC Network.

The aforementioned findings of the Scoping Workshop and the Survey results are reflected in the Concept Paper on the Implementation of Polar Regional Climate Centres: Towards an Antarctic RCC, provided in the Annex I.

Procedurally, the next step is to convene an implementation planning meeting with involvement of countries potentially contributing to the Antarctic RCC Network in order to develop an implementation plan and secure institutional commitments from interested Members to undertake specific functions.

Furthermore, the Executive Council Panel of Experts on Polar and High Mountain

Observations, Research, and Services (EC-PHORS) at its tenth session (March 2021) endorsed the concept for the Antarctic RCC-network, and recommended to invite the team of Arctic RCC-network (in demostration phase) to identify the measures of their success and the lessons learned in the process, before moving forward on implementation of Antarctic RCC-network, given their uniqueness in the broader RCC context.

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