WMO WORKSHOP ON GLOBAL REVIEW OF REGIONAL CLIMATE OUTLOOK FORUMS

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CONCEPT NOTE

Background

Regional Climate Outlook Forum (RCOF) is a platform that brings together national, regional and international climate experts and stakeholders' representatives from countries with common interests to provide climate predictions based on input from NMHSs, regional institutions, WMO Regional Climate Centres (RCCs), Global Producing Centres for Long Range Forecasts (GPC-LRFs) and other climate prediction centers. Through interaction with sectoral users, extension agencies and policymakers, RCOFs also aim to assess the likely implications of the outlooks on the most pertinent socio-economic sectors in a given region, and explore the ways in which use can be made of them. RCOFs strengthen regional networking of the climate service providers and user-sector representatives, as well as facilitate the development of climate capacity in the NMHSs.

RCOFs were initiated in late 1990s under the WMO Climate Information and Prediction Services (CLIPS) project in collaboration with National Meteorological and Hydrological Services (NMHSs), regional institutions and other international organizations. First established in 1996 at a Meeting in Victoria Falls, Zimbabwe, RCOFs gained momentum as a regional response to the major 1997–1998 El Niño event, since then RCOF concept has spread worldwide. RCOFs are widely recognized to be key elements in the implementation of the Global Framework for Climate Services (GFCS), a WMO spearheaded initiative of the United Nations system. As of date, the RCOF concept has completed 20 successful years of implementation, with 19 forums operational around the world[1].

RCOF Process

In different regions of the world, the RCOFs have evolved in different ways, based on specific needs and capabilities and tailored to meet the local conditions. At the same time, in all regions they constitute reliable and authentic sources of high-quality climate information, developed through a cooperative endeavor and on a sustainable basis. In many regions, the users benefiting from the RCOFs are true stakeholders, contributing to the organization of the

[1] More details on RCOFs can be found in the RCOF brochure with factsheets posted on the dedicated website: https://public.wmo.int/en/our-mandate/climate/regional-climate-outlook-products

sessions and evolution of the process, thus ensuring their sustainability, and applicability to meeting user needs.

The RCOF process typically includes the following components:

- A pre-COF training workshop on seasonal climate prediction to strengthen the technical capacity of national and regional climate scientists;
- Meetings of regional and international climate experts to review/assess the available inputs for seasonal prediction and develop a consensus-based regional climate outlook, typically in a probabilistic form;
- The forum proper, in which the climate scientists present and interpret the available real-time seasonal prediction products from WMO GPC-LRFs and RCCs as well as the country-level forecasts, assess the skills of forecasting systems, and develop the consensus seasonal climate outlook statement for the region. Together with the user representatives, the forum participants discuss the potential applications of RCOF products for decision making in the relevant sectors;
- Special outreach sessions involving media experts to develop effective communication strategies.

RCOFs also review impediments to the use of climate information, as well as experiences and lessons learned regarding applications of previous RCOF products and the enhancement of sector-specific applications. The RCOFs are followed by the development of detailed national-scale climate outlooks and risk information including warnings, in many cases through National Climate Outlook Forums (NCOFs), and communicate to decision-makers and the public.

The WMO RCCs/RCC-Networks operating in various regions around the world as well as other relevant regional/national institutions, provide technical guidance and coordinate the RCOFs sessions in the respective sub-regions.

WMO, with the help of a number of national, regional and international organizations and development agencies, has been providing sustained support to facilitate RCOFs' growth and expansion. However, WMO emphasizes the need for RCOFs to be self-sustained on a continuing basis, with minimal dependence on external resources. Many of the RCOFs have indeed been able to self-sustain through different regional projects and national funding mechanisms. However, some RCOFs still seek support through WMO funding mechanisms and are subject to the inherent uncertainties.

In addition to directly supporting the RCOFs along with other partners, WMO has been making efforts to put in place a number of global and regional mechanisms that would further strengthen the RCOF activities, particularly GPC-LRFs, which provide real-time global seasonal forecasts accessible to all WMO Members, and RCCs to cater to the specific needs of the concerned regions and countries.

Global RCOF Review

WMO in collaboration with other partners has also been making concerted efforts to extend the RCOF network worldwide, with particular emphasis on regions with developing and least developed countries vulnerable to climate variability and change. During last two decades a number of the RCOFs have achieved remarkable progress in regional networking and user liaison, and substantially contributed to capacity building and user awareness. The RCOFs have demonstrated many benefits, including promoting broad awareness and acceptance of

seasonal forecasts, improvements in Members' capacities to develop and interpret such forecasts, and the provision of useful information for decision-making.

However, there are still challenges and gaps both in terms of human and infrastructure capacities as well as technical and methodological aspects of RCOF implementation. Based on the users' feedback in terms of the usefulness of seasonal outlook in their decision making and planning process, it is evident that their needs are not fully met. Therefore it is important to regularly monitor and review the RCOFs implementation process, including technical aspects, in order to identify gaps and challenges and propose way to improve the RCOF process.

International expert review meetings on RCOFs, hereafter called Global RCOF Review, were organized twice in the past in 2000 and 2008 under WMO coordination, with the aim to undertake a comprehensive review of the RCOF process, share experiences, highlight successes, address the challenges and pave the way forward for improved RCOF operations.

- The first multi-stakeholder Review of Regional Climate Outlook Forums was conducted in October, 2000 in Pretoria, South Africa, with the main conclusion that there was a need to pursue further development in the Forum process in a systematic, sustained and coordinated manner. A workshop report has been published[2], which summarized the results of review of RCOFs in different regions, including the challenges, gaps, and proposed actions for the way forward.

- The second RCOF Review[3] was conducted in November 2008 at Arusha, Tanzania. An important outcome of this review meeting was the development of six position papers encapsulating the workshop conclusions recommendations, on (i) RCOF operational practices, (ii) User liaison in RCOFs, (iii) Verification of RCOF products, (iv) Integration of Research into RCOFs, (v) Capacity building in RCOFs and (vi) Sustainability of RCOFs.

Since the last RCOF Review, there have been considerable developments and scientific advances in sub-seasonal to seasonal forecasting methodologies, downscaling techniques, impact based forecasts, and communicating tailored climate information to users. Current use of dynamical forecasts in developing seasonal climate outlooks at RCOFs is mainly subjective and depends on confirming or challenging the statistical results, and the blending of individual national forecasts into a spatially coherent regional outlook in probabilistic terms on the basis of expert assessment. Subjective consensus-based approaches pose challenges for the usability of forecasts, particularly at the national level, as well as for evaluation of forecast skill. It is being increasingly recognized that further progress on operational seasonal forecasting, and the routine development of associated tailored products for decision support, will entail more widespread adoption of objective seasonal forecasting schemes[4] that readily facilitate the tailoring of forecast products to support specific end uses. WMO Executive Council, at its 69th session in 2017, adopted a decision to consider the adoption of objective sub-seasonal and seasonal forecasts as an overarching technical strategy, particularly at regional and national levels, promoted through RCOFs, by adopting suitable operational practices and capacity

[2] http://www.wmo.int/pages/prog/wcp/wcasp/documents/PretoriaSumRpt2.pdf
[3] http://www.wmo.int/pages/prog/wcp/wcasp/RCOFReview2008.html
[4] A draft document on "Development of Objective Regional Seasonal Forecasts in Africa, Asia-Pacific and South America", which is still evolving, is available at: http://www.wmo.int/pages/prog/wcp/wcasp/linkedfiles/Draft-Discussion-Paper-Objective-Regional-Seasonal-Forecasts.docx

development efforts, to be facilitated by a global RCOF review[5]. Furthermore, the CCl experts have developed a number of guidance documents, such as the Guidance on Verification of Seasonal Climate Forecasts, Guidelines on Good Practices for Climate Services User Engagement, Guidelines on Climate Risk Management. It is important to find ways to integrate these approaches into RCOF process.

It is, therefore, proposed to conduct a WMO Workshop on Global Review of RCOFs in 2017 representing the third such review of the RCOF process, to examine all aspects of the interpretation, creation and dissemination of regional climate outlooks as handled through the RCOFs, particularly in the light of the recent achievements and given the higher expectations and requirements of stakeholders in more actionable climate information tailored to their needs. The Workshop will be hosted by the International Research Centre on El Niño (Centro Internacional para la Investigación del Fenómeno de El Niño, CIIFEN) in September 2017 in Guayaquil, Ecuador.

The Objectives and Scope

The proposed Global RCOF Review 2017, being coordinated by WMO as part of the GFCS Climate Services Information System (CSIS) implementation, has the overarching objective of reviewing carefully the processes currently in vogue at various RCOFs in order to determine the gaps and propose ways to make more effective delivery and communication of climate products and services for decision making in a sustainable manner. All aspects of the development, interpretation, and dissemination of regional climate outlooks as handled through the RCOFs will be reviewed and necessary changes in the approach will be considered. Future needs for product provision, training and networking (including user liaison) will be assessed and opportunities explored. In specific terms, some of the issues to be taken up at Global RCOF Review 2017 are outlined below:

- Review the lessons learnt from nearly two decades of RCOFs operation, particularly user perceptions of RCOF operations, mechanisms to generate sector-specific outlooks (such as Climate Services User Forums), overview of methodologies and approaches, standardized verification of RCOF products, resource mobilization and sustainability;
- Identify opportunities and innovative approaches and standardized operational practices for generating RCOF outputs over the next decade, including, *inter alia*, the development of objective sub-seasonal and seasonal regional forecasts, tailoring forecast products to specific user-requirements, and mechanisms for the provision of regular sub-seasonal updates between the RCOF sessions;
- Consider possible expansion of the RCOF product portfolio (such as detailed climatological information serving as essential background for the forecasts, monitoring information for the recent and current seasons, sub-seasonal information including onset date, rainfall distribution, etc., variables other than rainfall and temperature, impact-based outlooks, etc.)
- Identify opportunities to enhance the capacity development benefits of RCOFs to strengthen NMHSs capacities to generate outlooks and tailored products at country level.

The Global RCOF Review is expected to deliver the following outcomes:

[5] http://meetings.wmo.int/EC-69/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-69-d04-5-CSIS-approved_en.docx?Web=1

- Identification of strengths, weaknesses, opportunities and threats for RCOFs going forward, and priorities for addressing them;
- Strategies for fast-track optimization and stabilization of RCOF processes according to identified priorities, and requirements for implementing these strategies;
- An Action plan for the RCOFs' evolution, including the introduction of objective seasonal climate forecast schemes, new approaches including expanded product portfolio based on standardized operational practices identified during the workshop;
- Identification of the roles of RCCs in coordinating RCOF sessions, and also providing regular updates to RCOF products between the sessions;
- Strategies for effective promotion of the RCOF concept and further communication of RCOF products at the national level, including through National Climate Outlook Forums (NCOFs).

Alignment with WMO strategic priorities

The Global RCOF Review 2017 contributes to the implementation of the GFCS, particularly to Climate Services Information System (CSIS), User Interface (UI) and Capacity Development (CD) pillars, and adheres at least to two WMO Strategic Priorities:

- Implementation of climate services under the Global Framework for Climate Services;
- Enhance the capacity of NMHSs to deliver on their mission

Review process and Participants

The RCOF Review process will be guided by the Commission for Climatology Task Team on RCOFs (TT-RCOF) in close collaboration with the Subject Matter Experts (SME) from international institutions involved in RCOF process, e.g., International Research Institute for Climate and Society (IRI), RCCs, GPCLRFs. The World Climate Applications and Services Division at the WMO Secretariat will provide the overarching technical and logistic support.

The Review process will consist of the following phases:

- The completion of a survey by each of the RCOFs on the current status of RCOFs process, including the details on technical and organizational aspects;
- A three-day International Workshop, which will bring together Technical/Organizational Leads from the existing RCOFs worldwide, representatives from WMO RCCs, GPC-LRFs and the associated Lead Centres, other regional and international climate institutions involved in and/or coordinating RCOF operations and capacity building activities, some slected NMHSs, invited climate experts and stakeholders, the members of TT-RCOF, as well as representatives from the relevant user and development agencies. The anticipated number of participants will be around 50. The workshop will consist of plenary as well as break-out discussion sessions.
- Following the Workshop, the TT-RCOF, with support from the Secretariat, will further synthesize the findings into a publication summarizing the outcomes and recommendations of the review.

Outline of the Workshop Agenda

Day 1

- Background, goals and objectives of the RCOF Review;
- Introduction of the CSIS and the positioning of RCOFs in GFCS;
- Current status of GPC-LRFs, RCCs and their roles in RCOF operations;

- Brief presentations of individual RCOFs around the world (based on the survey, including aspects of coordination, operational aspects, capacity development and user involvement; a template will be provided)

Day 2

- Brief presentations of individual RCOFs around the world (contd.);
- Verification of consensus based climate outlooks;
- Sub-seasonal and Seasonal objective forecasting;
- Impact based forecasts;
- Enhancement and expansion of RCOF product portfolio;
- Break-out group discussions on key topics such as:
    - Operational practices of seasonal forecasting and verification;
    - Research needs;
    - Capacity development;
    - User engagement;
    - Sustainability mechanisms;
    - Coordination between RCOFs with overlapping domains;

Day 3

- Wrapping-up of break-out discussions;
- Break-out group reports;
- Plenary discussion:
    - SWOT Analysis of the RCOF process
    - Action Plan on the Way Forward for improved and sustained RCOF processes
- Conclusions and Recommendations

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