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| WORLD METEOROLOGICAL ORGANIZATIONCOMMISSION FOR BASIC SYSTEMS OPAG on DPFS Meeting of the cbs/ccl inter-programme Expert Team on Operational Prediction from  Sub-seasonal to Longer-time Scales  Barcelona, Spain, 2-6 June 2018 |  | CBS-DPFS/IPET-OPSLS /Doc. 4.6  (31.05.2018)  \_\_\_\_\_\_\_  Agenda item : 4.6  ENGLISH ONLY |

**STATUS OF GSCU**

*(Submitted by Rupa Kumar Kolli and Atsushi Goto, WMO Secretariat)*

##### Summary and purpose of document

The document provides an overview of the trial phase of the WMO Global Seasonal Climate Update (GSCU) done since 2015, including comments and suggestions provided from relevant experts during this phase.

##### Action Proposed

The meeting is invited to note the current status of the GSCU and also invited to provide guidance on addressing some challenges that were pointed out through the trial phase, guide operational implementation of GSCU and to support development of the user guide of the GSCU.

**Annex(es):** - The summary of the peer review in 2015

**Reference(s):**

* Decision 28 (EC-68) on Operational Implementation of a Global Seasonal Climate Update
* Decision 10 (EC-69) on Climate Services Information System Products to Support United Nations System Planning and WMO Members on Seasonal to Inter-Annual Timescales
* Recommendation 5.2/2 (CCl-17) on Global Seasonal Climate Update Operationalization

**STATUS OF GSCU**

**1. Introduction**

The World Meteorological Organization (WMO), through its Commission for Climatology (CCl), has progressed with the trial phase of the Global Seasonal Climate Updates (GSCU) and the CCl Task Team on GSCU (TT-GSCU), in close collaboration with a Commission for Basic Systems (CBS)-CCl Inter-Programme Expert Team on Operational Prediction from Sub-seasonal to Longer-time Scales (IPET-OPSLS), has produced a number of updates in near-real time to evaluate the content as well as operational requirements since 2015.

The WMO Executive Council, at its Sixty Ninth Session (Geneva, May 2018), decided to strengthen the consolidated and effective provision and utilization of GSCU to be made available on regular basis as products of the Climate Service Information System (CSIS) to the relevant, regional and national entities, including those of the United Nations system, for their reference and planning, as part of the implementation of the Global Framework for Climate Services (GFCS).

Furthermore, CCl, at its Seventeenth Session (Geneva, April 2018), decided to refine and finalize the content, production and delivery process of the Update and invited the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble (LC-LRFMME) jointly coordinated by the National Oceanographic and Atmospheric Administration (NOAA) and Korea Meteorological Administration (KMA) to integrate GSCU production and dissemination into the LC-LRFMME operational schedule, and ensure timely provision of all relevant products and supplementary information to be included therein, and provide a mechanism for collecting and considering feedback from GSCU users.

**2. Summary of reviews during the trial phase**

Through the trial phase of the GSCU, relevant experts have reviewed the trial version of the GSCU and provide a lot of their comments and suggestions to improve the content of the GSCU as well as operational requirements. The peer review done in summer 2015 is also included in this process, in which members of ET-OPSLS, ET-RCCs, TT-RCOFs, TT-GSCU, RCC/RCOF coordinators and CCl Management Group have participated.

Through the trial phase, many experts showed their positive expectation to the GSCU which could supported climate monitoring and seasonal forecast in NMHSs, RCC and RCOF. Most of experts also supported the proposed schedule, namely four-time issuance a year and targeting forthcoming seasons (DJF, MAM, JJA and SON). Though the optimal lead-time for the GSCU differs between experts and longer lead time is preferable if there is sufficient predictive skill, one-month is the majority. The reviewers supported the idea that GSCU cover the recently observed global climate conditions, particularly climate extremes.

Together with above positive estimation, experts have expressed their concerns and pointed out some challenges to be addressed toward the operationalization of GSCU as below.

* Possible inconsistency between the GSCU and national/regional level information
  + For many experts, inconsistency between the GSCU and national and regional level information is of concern, as it might cause some confusion among the users. An additional concern is that the regional scale descriptions in the GSCU might also overlap RCC functions.
* Need for a uniform baseline period for figures in the GSCU
  + The baseline period used in the GSCU differs from one figure/table to another. This could prevent an appropriate interpretation and cause unnecessary confusion.
* The period covered in the observation section (description)
  + It should be noted that the period covered in the observation section (description) does not correspond to the standard seasons on which the GSCU focuses. This is a known problem recognized by the TT-GSCU, due to the non-availability of information for the current month in which GSCU is prepared.
* Schedule, lead-time and distribution process
  + Generally longer lead-time results in lower predictive skills. IPET-OPSLS and LC-LRFMME are invited to guide on striking a balance between meeting the requirements of longer lead time and useful predictive skills.
* Terms in the GSCU
  + Objective definitions of assessment terms such as “weak” or “strong” and “extreme” could be required.

**3. Future steps toward operationalization**

As mentioned in section 1 of this document, CCl-17 decided to refine and finalize the content, production and delivery process of the Update based on external peer review recommendations and comments of NMHSs and other potential users to reflect the needs of potential users of GSCU such as NMHSs, RCCs, RCOFs and entities in United Nations system. Further, CCl-17 invited CBS to consider that further development and operational coordination of the GSCU be taken up under the responsibility of the IPET-OPSLS. Toward the operationalization of GSCU, NOAA and KMA hosting LC-LRFMME are invited to produce the GSCU regularly, possibly through a pre-operationalization phase to stabilize its operational production and provision of GSCUs, in close collaboration with IPET-OPSLS. Furthermore, CCl also decided to develop a user guide for GSCU in consultation with NMHSs and other potential users as appropriate.

IPET-OPSLS is invited to make appropriate arrangements to take GSCU under its responsibility, and guide addressing the remaining challenges encountered in the trial phase. It is also invited to support development of the user guide based on its expertise.

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Annex

**Summary of the peer review in 2015**

How potentially useful is the information ?

* In the review, many reviewers showed their positive expectation to the GSCU which could support climate monitoring and seasonal forecast in NMHSs, RCC and RCOF.
* Some experts pointed out that utility of the GSCU depends on its predictive skill and reliability, issuance schedule and the users targeted.
* A challenge noted is to consistently consolidate the national and regional forecast information produced by NMHSs and RCCs with the large scale information provided in GSCU.

What is the risk of conflicting information being disseminated at the regional and/or national levels ?

* For many of the reviewers, inconsistency between the GSCU and national and regional level information is of concern, as it might cause some confusion among users.
* Some users showed their concern that regional scale descriptions in the GSCU might also overlap RCC functions.

What is the recommended schedule (e.g., DJF, MAM, JJA, SON) for the release of the GSCU for an efficient use by the relevant stakeholders ?

* Most of reviews supported the proposed schedule, namely four-time issuance a year and targeting forthcoming seasons (DJF, MAM, JJA and SON).
* They also showed the expectation to the GSCU to be issued monthly, however, its operational feasibility should be considered.
* One of reviews pointed out the necessity of specific schedule for monsoons.

What is the optimal lead-time for the seasonal prediction products included in the GSCU, both from the scientific and operational perspectives ?

* Though the optimal lead-time for the GSCU differs between reviewers, one-month is the majority.
* Longer lead time will be welcome if the GSCU is intended to reach users like RCCs early enough to be used in their own process and/or if there is sufficient predictive skill.

Is it sufficient to provide linkage to RCC for information on regional monitoring highlights (e.g., extremes), or do you find it essential that the GSCU contains this information?

* The reviewers supported the idea that GSCU cover the recently observed global climate conditions, particularly climate extremes. One reviewer thought that the GSCU should contain a short summary of the RCC monitoring information to allow for a global overview.
* Some reviewers considered that it is enough and appropriate to provide linkage to RCC for information on regional scale details.

Is the current version of executive summary informative enough? Is something important missing in this summary?

* The current version of executive summary was estimated to be basically enough, however, some reviewers suggest adding figures of the observed climate condition, climate indices other than El Nino and discussion on probabilities and limitation of forecasts.
* It should be noted that the period covered in the observation section (description) does not correspond to the season on which the GSCU focuses.

What scientifically critical information is missing, or inadequately/inappropriately represented in the GSCU ?

* Many reviewers regarded the inconsistency of the baseline period of figures in the GSCU as a challenge to be addressed.
* The meaning of tercile probabilities and the verification of the most recent available forecast were also pointed out to missing information.

Are the vocabulary and communication issues appropriately covered in the GSCU ?

* The vocabulary in the GSCU was estimated to be appropriate.
* It is pointed out that the GSCU, especially its executive summary, should be described in terms to be obvious and understandable for users outside weather/climate communities and/or non-native users.
* An objective definition of assessment term, such as “weak” or “strong” and “extreme” could be required.

Are there any other suggestions to make the GSCU more useful and more effective ?

* Splitting GSCU in more than one document (e.g. GSCU seasonal outlook and GSCU diagnostic) to avoid having a single and long document. Generally people (particularly application users) are looking for shorter documents with summarized information.
* References for figures and tables should be described in their captions, including their original datasets, if applicable.
* If space permits, it might be good to have skill information here, for easy interpretation and cross-referencing.
* Universal color selection for figures in the GSCU would be preferable.
* Qualitative text-based assessment should be added at the top of each subsections that could assist users outside weather/climate communities in making inference on impacts or measure of seriousness.