

Grand Challenge on Near-Term Climate Prediction - Report

Note for documentation:

- Please keep the length of the report to 2 pages.
- Please use web links as much as possible.
- Please focus on issues and subjects that require JSC attention.

Note for GC session at JSC-38 (Afternoon session, Wednesday 5 April)

- 210 minutes are assigned for the presentations and discussions for all seven GCs. Please aim for a presentation of 15 minutes maximum, to allow time to discuss key issues.
- Please focus on the major issues that require JSC attention.

1. Highlights for JSC

- We hold **regular WCRP organised teleconferences**, approximately every 6 weeks with a good level of participation.
- We have prepared a complete **draft paper on the Grand Challenge on Near-Term Climate Prediction**, led by the Grand Challenge co-chairs and with 17 other international participants. The paper makes the case for Near-Term Climate Predictions, sets out current challenges:
 - Insufficient understanding of the mechanisms governing decadal variability and predictability
 - Initialization and ensemble generation
 - Shock, Drift and Bias in climate models
 - Application of NTCP
 and opportunities:
 - Interest and research initiative in Decadal Variability within WCRP Projects stand to advance understanding of underlying mechanisms
 - Advancements in coupled climate models
 - Advancements in data assimilation
 - CMIP6 and the Decadal Climate Prediction Project
 - New approaches and emerging hindcast results
 and sets out our four very clear and achievable objectives as below.
- We have defined and agreed **four objectives** for this Grand Challenge:
 - **Promote and provide new knowledge of climate mechanisms and climate forecasting systems**
 - **Produce standards, verification methods and guidance for near-term predictions**
 - **Promote and support the establishment of operational decadal predictions under WMO**

- **Initiate and issue a real-time “Global Annual to Decadal Climate Update” each year**

2. Early success and/or planned activities in 2017/2018

- We have a complete draft paper on this Grand Challenge which will be submitted shortly
- We have worked hard to get the idea of a WMO decadal Lead Centre proposed and accepted at CBS16 – this is a key element of our plan for operational decadal predictions
- We have established the content of our “Global Annual to Decadal Climate Update” with input from the CBS/CCI Expert Team¹ and GFCS (Global Framework for Climate Services)
- We are coordinating the collection of real-time decadal predictions
- We have applied for funding to help with our activities

3. Partners for GC implementation (within and outside WCRP community)

Our partners include: 19 international members of the group; CLIVAR and SPARC core projects, with membership from CliC and GEWEX; expert team members/liaisons from the CBS/CCI Expert Team, GFCS and other relevant WMO departments. We have also recently applied for EU funding to support this activity as a small part of a much broader programme of work for the EU.

4. Overall GC timeline (include any milestones)

- Submit paper on Near-Term Climate Prediction (**2017**)
- Promote and provide new knowledge of climate mechanisms and climate forecasting systems (**Ongoing**)
- Produce standards, verification methods and guidance for near-term predictions (**2018**)
- Promote and support the establishment of operational decadal predictions under WMO (**2019**)
- Initiate and issue a real-time “Global Annual to Decadal Climate Update” each year (**2017 onwards with 2 years of practise ‘dry’ running**)

5. Issues and challenges, for example:

- There is a particular issue around dealing with WMO infrastructure and meetings on all levels from CBS-16 where we achieved a good degree of success in our aims but not a complete success, to the upcoming WMO EC meeting where we need to rally other groups to our cause. This is being done through national WMO representatives but it is hard going, complicated and tiring!
- The white paper and other activities are gaining traction but as usual they are all being done alongside urgent day job activities.

¹ The Joint CBS (Commission for Basic Systems)/CCI (Commission for Climatology) Expert Team on Operational Predictions from Sub-seasonal to Long-Time Scales (ET-OPSLS)