

GC Near-Term Climate Prediction Report

1. Highlights for JSC

- Following numerous updates, we have completed a paper documenting the Grand Challenge on Near-Term Climate Prediction, led by the Grand Challenge co-chairs and other international participants. The paper makes the case for Near-Term Climate Predictions and sets out current challenges. *Kushnir et al.* is about to be submitted to the “Perspective” track of Nature Climate Change. It sets out our 4 key objectives as described below.
- We continue to focus on our four clear, pragmatic objectives for this Grand Challenge:
 - **Promote and provide new knowledge of climate mechanisms and climate forecasting systems** – the GC members are supporting the organisation of the S2D conferences, Sep 2018, in the scope and content of which near-term climate predictions will play a prominent role.
 - **Produce standards, verification methods and guidance for near-term predictions** - Francisco Doblado-Reyes (GC member) is leading the collation of information on this question, and we have successfully added minimum requirements to the WMO GDPFS manual to this end (see below).
 - **Promote and support the establishment of operational decadal predictions under WMO** – We have made major progress towards this objective by liaising with other WMO groups including CBS and CCL. We are delighted to report that there is now an entry in the WMO GDPFS manual to define the operational production of near-term climate predictions and to define both Lead Centres and Global Producing Centres (GPCs) for these predictions. Met Office Hadley Centre has been designated WMO Lead Centre for Annual to Decadal Predictions and a call has been issued for other nominations for GPCs.
 - **Initiate and issue a real-time “Global Annual to Decadal Climate Update” each year** – We have drafted an outline for the production of the first trial Annual to Decadal Climate Update later this year. It will consist of information from multiple real time predictions collected via the WMO centres.

2. Early success and/or planned activities in 2018/2019

- **WMO GDPFS** – we have now achieved WMO recognition and protocol for provision of near-term climate hindcasts and forecasts and are working to aid centres worldwide to attain recognition under WMO protocols
- **White paper** has been rewritten and is now complete
- We recruited a **new member** carrying out decadal predictions in China: Dr Bo Wu
- We have some **funding** for our work from the EU.
- Our members are involved in organising a major **international workshop** for Sep 2018

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

- We now have [19 international members](#) of the group including all major decadal prediction centres and groups.
- Membership covers CLIVAR, SPARC, CliC and GEWEX projects
- Members and liaisons from the [CBS/CCI Expert Teams](#), Director of [GFCS](#), Chief of [DPFS](#).
- We have been awarded a small amount of EU funding to support our work as a small part of a much broader programme of work for the EU.

4. Overall GC timeline - this is an update with revised targets:

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

5. Issues and challenges, for example:

- It has been challenging to stick to original timelines and while some activities are ahead (e.g. operational recognition), others are a little behind (e.g. white paper).
- We have had a GC discussion about the merits and dangers of using initialised decadal predictions to predict the risk of temporary excursions about the 1.5 and 2deg Paris thresholds as part of our annual updates. There are lots of interesting aspects to this and we have decided that we should proceed, but with very clear messaging that this is different to what is meant by the Paris agreement (which refers to a climatological level of warming) as no doubt any temporary event will gain great interest when it happens and [initialised climate predictions](#) are a key tool here. We are preparing diagnostics and a paper on this topic and would appreciate input and thoughts on this from the JSC.
