

WMO Commission of Climatology (CCI) Climate Services Information System Implementation Co-ordination Team (ICT-CSIS) report from the ‘WMO International Workshop on Climate Services Information System Operations and Coordination’, Nanjing, China 21-24 March 2017 to WCRP JSC-38

This workshop brought together:

- Technical experts from NMHSs from six countries engaged in national implementation of the Global Framework for Climate Services (Bhutan, Burkina Faso, Moldova, Papua New Guinea, Peru, Tanzania)
- Experts representing GPCs, RCCs, RCOFs, SMEs, OPACEs and ICT-CSIS, including from the WCRP:
 - Francisco Doblas-Reyes (WGSIP), Clare Goodess (WGRC), Rodney Martinez (JSC), Fredolin Tangang (CORDEX)

The outcomes of the workshop include a tangible action plan for climate service delivery through CSIS operations, with a special focus on CSIS implementation at the national level. In particular, draft short-term (12 to 18 month) action plans for the illustrative countries were developed by the NMHS representatives which will be finalised in-country over the next few weeks. A number of the NMHSs have responsibilities with respect to their national climate change offices and inputs to national communications and National Adaptation Plans which are reflected in the draft action plans developed during the workshop. Most of the draft plans however, focus primarily on building climate resilience, Disaster Risk Management (DRM) and the development of Early Warning Systems (EWS). For DRM and EWS the main focus is on subseasonal to seasonal prediction timescales – with a general interest in having some understanding of the longer-term trajectory of projected change. The agricultural sector was identified as a priority by many of the countries, in many cases to ensure food security.

These draft action plans, and the broader workshop discussions, identify a number of areas where research input from and collaboration with the WCRP would bring many mutual benefits. These benefits include: strengthening of linkages between the research and operational (particularly RCC and NMHS) communities and thus enhanced direct societal relevance of WCRP activities; more effective and targeted incorporation of regional and national expertise in specific WCRP research activities; added authority of national climate information products; enhanced capacity building at the regional and national level through RCCs and NMHSs; and, efficient and open data and knowledge exchange.

The following WCRP research areas were identified as the most pressing priorities by workshop participants:

1. Optimised approaches for the use of multi-model ensembles across all forecasting/prediction timescales, from subseasonal to decadal, and including climate projection timescales for which no standard methods currently exist
2. Improved access to CMIP5/6 and CORDEX outputs and evaluation of these outputs at the regional and national level
3. Improved methods for, and appropriate use of, downscaling and bias adjustment - across all forecasting/prediction/projection timescales
4. Improved and advanced methods for the construction and analysis of national observational climatologies, including extreme events and the effective use of multiple data sources
5. Enhanced understanding of the linkages between local/national weather and climate (including extreme events) and regional/large-scale climate dynamics and circulation – both to improve understanding of current trends and variability (which is important for climate resilience and adaptation decision making), and for improved forecasting/prediction/projection

6. More robust and objective approaches to the interpretation and distillation of observations and model outputs into climate information (as outlined in the proposed WCRP Frontiers of Climate Information (FOCI) project concept)
7. Improved predictability of extreme rainfall (including drought) on subseasonal to decadal scales
8. Improved understanding and forecasting ability of processes with regional impacts, such as the variability in the Niño 1+2 region
9. There is an evident demand from in-country users for information on decadal prediction timescales, and thus interest in a number of NMHSs in this developing research area

These research topics cut across a number of WCRP activities, but the following (in alphabetical order) are considered particularly relevant:

- CORDEX
- CMIP (including from CMIP6: DCP, ENSOMIP, HighResMIP, ScenarioMIP)
- Grand Challenge on Near-term Prediction
- Grand Challenge on Understanding and Predicting Weather and Climate Extremes
- Grand Challenge on Water for the Food Baskets of the World
- WGRC/WGIR (Information for Regions)
- WGSIP (working with WWRP in the case of subseasonal timescales)