

42nd Session of the WCRP Joint Scientific Committee

28th June – 2nd July

Grand Challenge on Weather and Climate Extremes Report

Highlights for the JSC: progress in the last year

The GC-Extremes team has heavily invested in the AR6 WGI report in its final sprint, with 3 coordinating lead authors, 3 lead authors, one review editor, and several contributing authors. The investment in the WGI report will be an important asset for future WCRP activities as extreme is such an important topic across WCRP core projects and LHAs. A post-AR6 stocktake workshop is planned to harness this investment with gap-analysis being a workshop agenda among others.

While the attention of the team has been mostly on the finalization of WGI report, the team has also developed a sunset plan, including a proposal for a Global Extremes Platform submitted in time for consideration at the JSC-42.

Highlights for the JSC: rationale for a Global Extremes Platform

The WCRP is responding to the societal needs on science and information of weather and climate extremes by including extremes in almost all core projects and most of the new Lighthouse activities (LHAs). Nevertheless, the delivery of information and science related to extremes by the WCRP's new structure could be further strengthened in a number of ways. This includes i) creation of a public facing website (including the underlying content) that provides users with current information about the state of weather and climate extremes and WCRP science on extremes, ii) provision of the capacity to develop and collate an extremes related database that serves both research and user communities, and iii) a place for collecting and exchanging ideas and approaches on extremes among core projects and LHAs.

The GC on extremes proposes a Global Extremes Platform to bridge these gaps so that the WCRP is well positioned to support international climate policy, including via the UNFCCC, by providing science, information, and data concerning extremes in a well-synthesized format and to prepare the community for the IPCC's AR7 assessment.

The platform centres on four pillars: 1) global weather and climate extremes assessment; 2) development and maintenance of a climate extremes indices data base; 3) facilitation of structured internal communication; and 4) important topical areas that are part of the GC on Extremes and that complement existing core projects and LHAs.

It is envisioned to be a 5-year project to demonstrate its potential and success. The Nanjing University of Information Science and Technology (NUIST, which evolved from the Nanjing Institute

for Meteorology) has generously agreed to support the platform for an initial 5-year period. The expectation is that this support will be renewed and extended after a joint WCRP and NUIST review before the end of the first 5-year period. Details about the platform are provided in the proposal.

Future of the GC

Extremes-related activities are a key part of the new WCRP strategic plan and its implementation and are widely dispersed across core projects and LHAs. Most of the work that was initialized by the GC on Extremes will be further developed, with the “Predict” and the “Understand” themes being key aspects in LHAs and core projects, and the “Document”, “Attribution” and “Compound event” themes to be transitioned to the new Global Extremes Platform.

Specific sunset activities

- Fully develop the governance and implementation plan for GEP if JSC-42 approves the platform.
- Organization of a post-AR6 stocktake workshop on extremes
This workshop was initially planned for late 2021 to harness what would have been learned in the IPCC AR6 WGI report. The plan received a very positive feedback and strong support from Juerg Luterbacher. Given the relevance of extremes to societal impacts and COVID-related uncertainty, it is postponed to the second half of 2022 to accommodate the release of WGII report. The workshop will conduct gap analysis to position WCRP science for the AR7 on extremes, focusing on WGI science and the needs from WGII assessment. It will also develop WCRP input on extremes in time for the Global Stocktake 2023. This will also be an important opportunity for cross projects/LHAs knowledge exchange and integration on extremes.
- Organization of a strong program on extremes at OSC 2023