

42nd Session of the WCRP Joint Scientific Committee

28th June – 2nd July

Instructions

Overarching request: An update on progress of the Core Project (CP), including any recommendations for change since JSC41B (e.g. coming out of any internal review).

In this report please:

- Keep the length of the report to 2 pages ideally.
- Use web links as much as possible.
- Include the issues and subjects indicated below.
- work with the JSC liaison of your Core Project in preparation of the report and/or presentation.

1. Highlights for JSC

- Highlight 1
- Highlight 2...

2. Primary science issues (ahead, 3 to 5 years)

- Science issue 1
- Science issue 2...

3. Issues and challenges, for example:

- Outline any proposed changes to the Core Project
- How you work with the new “Core Projects”?
- How do you plan to work with the Lighthouse activities?
- Are there additional elements you would like to see in the new WCRP?
- How do you see your community evolving e.g. new activities or activities coming to an end?

GEWEX:

GEWEX Project description, activities and background materials (<https://www.gewex.org>)

GEWEX Project related meetings, agenda and meeting materials (<https://www.gewexevents.org>)

1. GEWEX Highlights for JSC

- GEWEX Science Plan (living document) ready ([GEWEX Science Plan](#)): Strong focus on process studies at all spatiotemporal scales // good foundation to work with most if not all LHAs!
- Restructuring/Renewal of GEWEX activities on-going: New SSG co-chair (Xubin Zeng) // GASS new co-chair (Sandrine Bony)// GASS panel expanding and continues to work successfully with WWRP and WGNE // New GEWEX wide cross cutting activities on Irrigation, ET initiated. On Groundwater and Surface Water (incl. floods) being set up // GHP working on 3 new RHPs Central Asia, US and Mountainous Africa (together with START) // stronger collaboration between panels by adding liaison members (early-mid career)
- 2021 PAN-GASS meeting => July 24-28, 2022 in Monterey, CA, USA (<https://tinyurl.com/ym752yn7>)
- Improved communication strategy (a.o. ~bi-monthly SSG conf calls incl. panel co-chairs)
- Continued strong direct collaboration with START in Central Asia and Africa is in the planning

2. Primary science issues (ahead, 3 to 5 years)

- Adding Carbon process in their interactions with the water cycle to the GEWEX portfolio (fill in the gaps, work with iLEAPS, and others)
- Support better integration of -water related- climate science with hydrological applications and services (at WMO but also for GEWEX with other communities e.g. GEO / IAHS / UNESCO-IHP)
- Develop global to regional consistent water and energy budgets
- Bring back evaporation into the focus of the scientific community to enhance our understanding and increase our confidence in the predicted changes.
- GLASS: Land-atmosphere interactions => Urban land surfaces // enhancing process studies, modeling and benchmarking through improved physically meaningful diagnostic tools and metrics // GEWEX Land -Atmosphere Feedback Observatories: from bedrock to boundary layer (https://www.gewex.org/gewex-content/files_mf/1583952472Feb2020.pdf)
- GHP: Hydroclimate => regional focused activities to support bridging between observational & modelling communities and the stakeholders (and other sci. communities) // Further develop new RHPs with focus on Capacity Development // Connect GASS and GLASS process studies with regional high-resolution (field scale!) - climate modeling ([TeamX, InARCH](#))
- GASS: Atmosphere System Studies => precipitation grand challenge (e.g., diurnal cycle, seasonal prediction), process understanding and parameterization for weather and climate models (e.g., surface momentum drag due to topography; cloud microphysics) // Development of new projects (e.g., shallow and deep convection, dynamics-physics coupling, process studies motivated by WCRP grand challenge projects) // Higher resolution observations and modelling that link with GLASS and GHP efforts
- GDAP: data analysis and assessments => support integrated satellite data development and instrument simulators (ISCCP-NG, ACCP) // Earth Energy Imbalance Assessment // Development of new projects (e.g., Regional and global water cycle imbalance assessment)

3. Issues and challenges, for example:

- Outline any proposed changes to the Core Project:
 - Expansion of the GEWEX SSG with 2 extra members to support the interaction with the new CPs and LHAs (see next bullet as well)
- How you work with the new “Core Projects”?

- With RIFS direct representation is preferred to provide an efficient connection/channel to support regional information development and uptake. GHP and its RHPs are one important element to be considered
- With ESMOC, GEWEX already has close interactions with the relevant modelling (via GASS and GLASS) and observational (via GDAP and GHP) projects, and direct representation is preferred for efficient coordination
- How do you plan to work with the Lighthouse activities?
 - Pro-actively ingest/suggest GEWEX activities and elements that can support the LHA. GEWEX has already met with co-chairs of two LHAs (Digital Earth and Safe Landing Climates) to discuss collaborations. Meetings with the other three LHAs will also be scheduled.
- Are there additional elements you would like to see in the new WCRP?
 - With the addition of new project offices, communications among all core projects and LHAs becomes more challenging. There is a need for expanded WCRP Secretariat support for more coordination and facilitation.
 - With the increased importance of water resources in a changing climate within the whole of WMO, *WCRP should take the lead* and better coordinate efforts between WCRP (e.g., GEWEX, My Climate Risk, Safe Landing Climates), WMO Hydrology Department, and UNESCO Intergovernmental Hydrological Programme.
- How do you see your community evolving e.g. new activities or activities coming to an end?
 - For each GEWEX panel, we do see the natural evolution of activities, with some projects ending and new projects developing. The overall structure of GEWEX seems to be adaptive enough to accommodate the needs of the evolving community.
- Challenges in general
 - Many activities, in particular new ones have suffered from the pandemic through lack of support (many proposal grants are still on hold or delayed) and lack of in person meetings (including international field experiments)
 - Some geopolitical issues might hamper direct engagement with certain countries in particular if perceived as bilateral. It is important that WCRP acknowledges and publicly states that the IPOs act also under their auspices.
 - Clarity needed on how WCRP/GEWEX can and should interact (or improve the interaction) with other WMO entities (e.g. GCOS, GFCS, Hydrology) in particular as part of WMO Departments of Research Department and Infrastructure as well as their mandates.