

45th Session of the WCRP Joint Scientific Committee (JSC)

Report to the WCRP Joint Scientific Committee

Global Precipitation Experiment (GPEX)

1. Highlights for Joint Scientific Committee (including high-level publications, new achievements/products, and capacity building activities – **in particular anything you feel should go into a WCRP annual achievement report or brochure**)

(a) Launch of GPEX as a WCRP new Lighthouse Activity

- *The GPEX Science Team (with representation from almost all existing WCRP projects and other international projects and appointed by the JSC) developed and submitted the GPEX Science Plan which was subsequently approved by JSC in 2023,*
- *GPEX was launched as a new WCRP Lighthouse Activity in October 2023 at the WCRP Open Science Conference in Kigali, Rwanda*

(b) GPEX membership

- *JSC appointed the GPEX Science Team members to the Interim Scientific Steering Group (SSG) of GPEX in early 2024,*
- *The GPEX Interim SSG prepared the call for membership of the GPEX SSG and four Working Groups, and WCRP has issued this call, with the deadline of 4/28/2024,*
- *The GPEX Interim SSG submitted the list of candidates (including the consideration of various balances of the membership) in May 2024 to JSC for approval.*

(c) Publication

- *The GPEX Science Plan is openly available at the WCRP web site: <https://www.wcrp-climate.org/gpex-overview>*
- *The manuscript based on the GPEX Science Plan has been accepted by the Bulletin of American Meteorological Society (BAMS) to further increase the community awareness and impacts of GPEX.*

(d) Interaction with WCRP projects, other projects, and organizations

- *As the GPEX Interim SSG members represent almost all WCRP projects, there have been good interactions between GPEX and other WCRP projects. GPEX has also given remote or in-person presentations to other WCRP project meetings when invited (with the most recent ones being the in-person presentation to the ESMO SSG in March 2024, GEWEX SSG in April 2024, and the GEWEX/ANDES meeting in May 2024),*
- *GPEX has maintained interactions with WWRP and its projects (e.g., giving an invited talk about GPEX to the WWRP and WMO joint tropical meteorology meeting in May 2023),*
- *In collaboration with GEWEX, GPEX has interacted with the WMO Infrastructure Department (e.g., instruments and measurements) and Service Department (e.g., hydrology),*

- *GPEX has been active in increasing the awareness and interest of the broader community by organizing the GPEX Townhall during the WCRP OSC in October 2023 and American Meteorological Society (AMS) Annual Meeting in January 2024, and by giving talks at conferences (e.g., the International Precipitation Conference in June 2023 and the AOGS meeting in August 2023) and to funding agencies (e.g., the US Global Change Research Program in July 2023). Specific to the AMS 2024 annual meeting townhall, we sought not only to publicize GPEX and recruit members but also to have meaningful dialogue with potential US funding agencies.*
- *GPEX initiated and held a video conference with the Schmidt Sciences (a philanthropic organization in the U.S.) on its current call for global water cycle-related 10 Million USD/5 years proposals. The GPEX and GEWEX communities are encouraged to submit proposals.*

(e) Committee meetings

- *So far GPEX activities have been communicated and carried out via regular (monthly or bi-monthly) video meetings – which is appropriate at this stage of GPEX,*
- *We also held in-person meetings when several members attended the same meeting (the WCRP OSC in October 2023 and American Meteorological Society Annual Meeting in January 2024).*

2. Planned science initiatives and major events (over next 1- 5 years)

(a) Membership and Implementation Plan

- *Finalize the membership and leadership of GPEX SSG and four Working Groups in 2024,*
- *Organize an in-person meeting of members of the SSG and current members of the Interim SSG (around the AGU meeting in Washington D.C.) in December 2024,*
- *Develop the GPEX Implementation Plan in 2-3 years.*

(b) WCRP Years of Precipitation

- *Identify and endorse 3-4 anchor projects for the GPEX global coordinated field campaigns on four storm types (atmospheric rivers, mesoscale convective systems, tropical cyclones, and monsoons) as part of the WCRP Years of Precipitation (YoP) in 1-2 years,*
- *Launch the YoP in 2-3 years,*
- *Finish the GPEX global coordinated field campaigns in 4-6 years.*

(c) Other GPEX Activities

- *Interact with and seek the agreement of major forecasting and modelling centers on generating analysis/reanalysis, forecasting, and modelling products for the YoP in 1-2 years,*
- *Besides the YoP, develop three other types of GPEX activities (data synthesis and development, modeling, and capacity development), with some led by GPEX and most led by other WCRP projects (with GPEX contributions) in 1-3 years (before YoP) and in 4-6 years (during the YoP),*
- *Continue the engagement with other projects and organizations each year.*

3. Planned Products, high-level assessments or other key outputs/publications

- *Finish the GPEX Implementation Plan (and its potential publication as a peer-reviewed paper) in 2-3 years,*
- *Finish the Implementation Plan for the field campaigns of each storm type in 2-5 years.*

4. Linkages with other lighthouse Activities, Core Projects, Academy etc.

- *As the GPEX Interim SSG members represent almost all WCRP projects, GPEX has benefited from other WCRP projects in the development of the GPEX Science Plan,*

- *GPEX will continue to leverage other WCRP projects for synergistic GPEX activities,*
- *GPEX does not see any issues that would require specific attention from the JSC.*

5. Partnerships with entities outside of WCRP

- *GPEX will continue to interact with WWRP and its projects,*
- *In collaboration with GEWEX, GPEX will continue to interact with the WMO Service Department and Infrastructure Department,*
- *GPEX will continue to interact with the Schmidt Sciences and explore opportunities with other philanthropic organizations and the private sector,*
- *GPEX is also seeking to more proactively engage with sectoral organizations that will benefit from GPEX activities (e.g., the renewable energy sector where, for example, improved predictions or measurement based nowcasting of hail are of high value to solar plants and wind turbines to permit operational changes to mitigate the risk of damage from hail).*

6. Suggestions, issues or challenges

- *We don't have any specific suggestions or issues for GPEX or WCRP activities at present,*
- *Once we make some progress in our GPEX Implementation Planning, we may have suggestions for new topics/activities and/or potential suggestions for a Global Fellowship focus for future years,*
- *An important challenge for GPEX is ensuring continued complementarity with other Lighthouses and core projects and maximally benefiting from synergies. As a partial solution GPEX SSG and Working Groups will continue to have good representation from those WCRP activities.*