

**WMO OMM**

World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
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Ref.: 15523/2023-15 SIWWR

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14 July 2023

Subject: The World Weather Research Programme (WWRP) Implementation Plan 2024–2027

Action required: Providing financial and in-kind support to support WWRP projects

Dear Sir/Madam,

The [World Weather Research Programme \(WWRP\)](#) was established in 1998 to address the growing societal impacts of high-impact weather events through advances in prediction research is celebrating its 25-year anniversary.

Over the past few years, the WWRP has addressed the most important needs through its three major projects. The [Polar Prediction Project \(PPP\)](#), successfully completed in 2022, has delivered impactful and highly recognized scientific results that have improved our understanding and accuracy of polar prediction and how sea-ice decline influences midlatitude weather extreme events. The [Sub-seasonal to Seasonal \(S2S\) Project](#) will conclude at the end of this year. It established the S2S Databases (hosted by ECMWF, CMA and IRI) with many users who published high quality papers and developed new products at sub-seasonal timescales for the agriculture, energy and food security sectors.

The [High-Impact Weather Project](#), to be finalized next year, explores the value cycle of weather forecasts, addresses priorities for impact-based forecasts and showcases the importance of citizen science. These WWRP core projects have moved our field to an Earth system perspective of prediction poised to address the complex, coupled impacts of extreme weather from minutes to months. The success of these projects was due to active support of and contributions from Members, both financial and in-kind.

Under the guidance given by the Nineteenth World Meteorological Congress (Cg-19), the WMO Strategic Plan for 2024–2027, and specifically the highest WMO priority for [Early Warnings for All \(EW4All\)](#) initiative, the [new Implementation Plan of WWRP for 2024–2027](#) has been approved by Congress to focus on the priorities from the WMO Regions, the Research Board and technical commissions, apply the Earth system approach, and exploit key feature capabilities of artificial intelligence and exascale computing. Furthermore, the inclusion of social science in the design of new projects is crucial to address uncertainty, improve the warning processes, and advance useful services to a variety of stakeholders and decision makers.

Members will benefit from the links between physical and social sciences, aligned with WMO regional priorities, to ensure that advances in predictive science have a pathway to improved decision-making, especially in developing countries, and thereby address the goals of the EW4All initiative.

To: Permanent Representatives of Members with WMO

cc: Hydrological Advisers

The new Implementation Plan of WWRP for 2024–2027 will establish (in a phased approach) six new projects, which are well interconnected and linked with each other:

1. **Polar Coupled Analysis and Prediction for Services** (2024–2028). This project will pay special attention to different communities (e.g., transportation, indigenous, fisheries and tourism) and aims to improve coupled models for weather impacts, building on the work of the societal impacts group of PPP. In the increasingly summer ice-free Arctic and climate-change prone Antarctica, this project will be relying on novel observations to capture the state of the sea-ice to enable the prediction of fine-scale structures and movements of sea-ice that are relevant to coastal populations and their environments. It will focus more on the knowledge and engagement of social sciences, which will translate scientific advancements to the people in an understandable way.
2. **Sub-seasonal applications for agriculture and environment** (2024–2028). This project is aimed at further improving sub-seasonal and seasonal predictions using new coupled atmosphere-ocean-land systems and understanding sources of predictability. It will generate new products which are tailored for applications in the agriculture, energy, and water management sectors (building on the S2S Pilot project initiative), linking social science expertise into the project planning and deliverables.
3. **Urban Prediction for safer cities** (2025–2029). This project will explore observations and modelling at sub-kilometre scales, representing integrated urban scale processes, including applications for energy and transportation and understanding vulnerability of different population groups to heat and air quality hazards. It will build on projects which focus on Olympic Games in various cities and improve services to densely populated cities around the world.
4. **Integrated Hydrology and Precipitation** (2024–2028). This project is aimed at improving our understanding of uncertainties of flood risk and coastal inundation, and decision-making, through the integrated atmospheric and hydrological system on timescales of minutes to days, aligning with the [WMO Vision and Strategy for Hydrology](#). It will explore potential information for the short term forecasting of extremes including flash floods and coastal inundation for disaster risk reduction – ensuring good communication with and understanding of the various users, and ultimately that “no one is surprised by a flood”.
5. **Public Engagement for Practitioners, Learners and Educators** (2024–2028). This project is aimed at expanding the role of various sources of know-how (e.g., indigenous and local) to establish two-way dialogues with communities and their respective use of warning information issued by National Meteorological and Hydrological Services (NMHSs), while enhancing information for users through expertise in behavioural science and communication practices. It will develop communication strategies and connections with educators and experts in the communication of science to disseminate the work that the WWRP is doing in sensitizing the public on science.
6. **Aiding Decision-making in Vulnerable Africa with Nowcasting of Convection**. This project will consist of several smaller, endorsed projects in different regions in Africa aiming at expanding and improving nowcasting capabilities and tools. The focus will be on geostationary satellite data to enhance short term (0–6 hours) early warning systems and communication in Africa, reaching developing and least developed countries.

Cg-19 invited Members to support and contribute to the development, launch and implementation of these projects. I would appreciate if you would consider the possibility of providing financial and/or in-kind support to WWRP projects and activities and contribute to the WWRP trust fund set up for the respective projects. Contributions could be earmarked for specific projects and used exclusively for that purpose or be more general.

For more information, please contact Dr Estelle de Coning, Head of the World Weather Research Division in the Science and Innovation Department (edeconing@wmo.int).

Yours faithfully,



Dr Elena Manaenkova
for the Secretary-General