

World Meteorological Organization (WMO)**DRAFT STATEMENT AT SBSTA 62****Bonn, Germany****16-26 June 2025****(Full Version - FINAL)**

The World Meteorological Organization (WMO) along with its co-sponsored bodies, the IPCC, the Global Climate Observing System (GCOS), and the World Climate Research Programme (WCRP), continues to contribute scientific information to support the negotiation process. WMO plays a leading role in the coordination of the acquisition and international exchange of global observations, data and products that are needed to better understand, monitor, predict, and adapt to the changing climate.

1- State of Greenhouse Gases in the Atmosphere

Together with key partners, WMO is engaged in delivering information on the state of the atmosphere including trends and variability of key constituents impacting the Earth's climate, both short- and long-lived climate forcers, like ozone, aerosol, and greenhouse gases, measured through in-situ networks. Performed with the relevant quality requirements, this information is essential for evaluating the performance of climate models and validating atmospheric observations from space. Essential information is published through the yearly bulletins. The WMO Greenhouse Gas Bulletin 2023 was published in October last year and reported that the globally averaged surface mole fraction for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) reached new observed highs, with CO₂ at 420.0±0.1 ppm, CH₄ at 1934±2 ppb and N₂O at 336.9±0.1 ppb. These values constitute 151%, 266%, and 124% of pre-industrial (before 1750) levels. The GHG bulletin for 2024 will be published ahead of COP30.

The reported values are the result of the latest analysis of observations from the WMO Global Atmosphere Watch (GAW) in-situ observational network. The increase in CO₂ from 2022 to 2023 was slightly higher than the increase observed from 2021 to 2022 and slightly lower than the average annual growth rate over the last decade, which is partly caused by natural variability, as CO₂ emissions have continued to increase. For CH₄, the increase from 2022 to 2023 was lower than the observed values from 2021 to 2022 but still slightly higher than the average annual growth rate over the last decade. For N₂O, the increase from 2022 to 2023 was lower than that observed from 2021 to 2022, which was the highest increase observed in our modern time record. WMO is engaged to continue monitoring activities, with a clear goal to expand observations from areas where they are currently missing. With the active engagement of its members, WMO is now developing further capacity to deliver more operational products that will support countries in their greenhouse gas mitigation strategies through the Global Greenhouse Gas Watch (G3W) initiative.

2- State of the Global Climate 2024

WMO's State of the Global Climate 2024 report confirmed that 2024 was the warmest year in the 175-year observational record, with a global mean near-surface temperature of 1.55 ± 0.13°C above the 1850-1900 average used to represent pre-industrial conditions. This clearly surpasses the previous warmest year, 2023 at 1.45 ± 0.12°C above the 1850-1900 average. For global mean temperature, each of the past ten years, 2015-2024, was individually in the top ten warmest years on record.

In 2024, ocean heat content reached the highest level in the 65-year observational

record, exceeding the previous record high set in 2023. Over the past eight years, each year has set a new record for ocean heat content. The rate of ocean warming over the past two decades, 2005–2024, is more than twice that observed over the period 1960–2005.

In 2024, the global mean sea level reached a record high in the satellite record (from 1993 to present). The rate of global mean sea-level rise in the past 10 years (2015–2024) was more than twice the rate of sea-level rise in the first decade of the satellite record (1993–2002).

Acidification of the ocean surface has continued over the past 39 years as shown by the steady decrease of global average ocean surface pH. Regionally, ocean acidification is not increasing uniformly.

Glacier mass loss from 2021/2022 to 2023/2024 represents the most negative three-year glacier mass balance on record, and seven of the ten most negative annual glacier mass balances since 1950 have occurred since 2016. Exceptionally negative mass balances were experienced in Norway, Sweden, Svalbard and the tropical Andes.

The minimum daily extent of Arctic sea-ice in 2024 was the seventh lowest in the observed record (1979 to present). The 18 lowest Arctic sea-ice extent minima in the satellite record all occurred in the past 18 years. The annual minimum and maximum of Antarctic sea-ice extent were each the second lowest in the observed record (1979 to present).

The WMO State of the Global Climate 2024 report also presented three methods for estimating the current (long-term) global warming level, with central estimates ranging from 1.34°C to 1.41°C compared to the 1850-1900 baseline. A WMO team of international experts is considering all of these estimates in order to ensure consistent, reliable and timely tracking of long-term global temperature changes.

The WMO Global Annual to Decadal Climate Update released in May 2025 reports that there is an 80% chance that at least one of the next five years will exceed 2024 as the warmest on record, an 86% chance that at least one of next five years will be more than 1.5°C above the 1850-1900 average, a 70% chance that 5-year average warming for 2025-2029 will be more than 1.5°C, and long-term warming currently remains below 1.5°C. However, every additional fraction of a degree of warming drives more harmful heatwaves, extreme rainfall events, intense droughts, melting of ice sheets, sea ice, and glaciers, heating of the ocean, and rising sea levels.

3- Early Warning for All Initiative (EW4All)

The Early Warnings for All (EW4All) initiative aims to ensure that everyone, everywhere, is protected from hazardous weather, water or climate events through life-saving early warning systems by 2027. Co-led by WMO and UNDRR with leadership from ITU and IFRC and support from across the United Nations, humanitarian network and climate, philanthropic and multi-lateral development funds, the initiative is strengthening political commitment and global collaboration to enhance disaster risk knowledge, detection, monitoring, forecasting, communication, and preparedness for climate-related hazards.

A number of countries have demonstrated their commitment to fulfilling the goal of universal multi-hazard early warning systems (MHEWS) coverage by 2027, with national road maps, which countries and their partners are using for scaled-up and coordinated action across the 4 pillars.

As the lead agency for the detection, observation, monitoring, analysis and forecasting elements of the EW4All, WMO has developed the [Pillar 2 Resources Package](#), which

compiles key technical regulations and guidelines to support the strengthening of observation, monitoring, analysis, and forecasting systems as the authoritative voice on weather, water and climate. This package forms part of the broader [Pillar 2 programmatic framework](#), which provides a structured approach to enhancing national capacities for hazard monitoring and forecasting, ensuring countries are better equipped to deliver timely and accurate early warnings.

4- Systematic Observations Financing Facility (SOFF)

The [Systematic Observations Financing Facility \(SOFF\)](#) is a specialized UN climate fund established by WMO, UNDP and UNEP at the request of the World Meteorological Congress. It supports countries to enhance the generation and international exchange of weather and climate observations as defined through the Global Basic Observing Network (GBON). While mandatory for all countries from 2023, GBON compliance in Least Developed Countries (LDCs), Small Island Developing States (SIDS) and Lower Middle-Income Countries (LMICs) on average is less than 10 percent. SOFF is a delivery vehicle for the EW4All initiative.

Data collected and shared by countries through SOFF support and feed into global forecast and climate information products, which further inform national climate mitigation and adaptation plans, therefore Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs), early warning systems and strengthen the data going into the Global Stocktake (GST) and the Global Goal on Adaptation (GGA). A study by the European Centre for Medium-Range Weather Forecasts (ECMWF), published in May 2025, provides the strongest scientific evidence to date that targeted investments in GBON infrastructure in under-observed regions dramatically improve forecast accuracy – both locally and globally. The largest improvements are observed from adding observations in Africa where forecast uncertainty would reduce by over 30% in high-impact regions. Investments in the Pacific SIDS are equally important, with forecast uncertainty reduction of up to 20%. This evidence provides a clear case for scaled-up SOFF investments.

To continue operating at speed and scale and to respond to very high-country demand, SOFF is pursuing the development of an impact bond as an innovative climate finance vehicle envisioned to be announced at COP30. The bond aims to mobilize resources from a broad range of public, private and philanthropic partners to scale up support to countries in closing their basic observation gaps.

5- Climate Risk and Early Warning Systems (CREWS)

[CREWS](#) is an innovative pooled financing mechanism, with the objective of protecting people and communities in LDCs and SIDS by inclusive, accessible, and actionable early warning systems that strengthen resilience and help avert, minimize and address the loss and damage associated with climate change. Operations are country-owned, demand-driven, and people-centred, and provide financing based on the immediate gaps and demands of countries identified in their NDCs. It draws on, and leverages, the expertise, and networks of its three implementing partners – the World Bank Group (WBG) GFDRR, WMO and UNDRR – to be potentially expanded to include IFRC and ITU, which are currently undergoing accreditation, as well as a range of operational partners, at the global, regional and national levels, who provide expert services and technical assistance to the countries.

CREWS contributes to the implementation of the UNFCCC Paris Agreement. Article 7 calls on international cooperation on adaptation efforts including strengthening scientific knowledge on climate and early warning systems; and Article 8 calls on enhanced action on early warning systems as an area of cooperation for averting, minimizing and addressing loss and damage associated with the adverse effects of climate change.

As of 2024, 396.7 million people have access to and receive forecasts, and early warning services developed or improved with CREWS support. 12 countries have contributed USD 134 million to the CREWS Financial Intermediary Fund (FIF) administered by the World Bank, leveraging a further USD 900 million in additional financing. CREWS operates in 18 countries and has regional programmes in Africa, Asia Pacific and the Caribbean. A further 10 countries are benefitting from facilitated access to climate finance.

6- Water and Climate Change Interdependencies

The [2024 WMO State of Global Water Resources Report](#) highlights that 2023 was the driest year in more than three decades, with over 50% of global catchments experiencing below-normal river discharge and glacier loss exceeding 600 gigatons—the highest in recorded history. Water scarcity, extreme floods, declining groundwater, and glacier retreat are no longer isolated issues; they are systemic, climate-driven disruptions that directly affect economic stability, food and energy security, public health, and ecosystem integrity.

SB62 presents a critical opportunity to embed water across the UNFCCC agenda. From adaptation indicators and mitigation planning to loss and damage, technology deployment, and transparency systems, water is a cross-cutting enabler of both climate adaptation and mitigation, essential to achieving the long-term goals of the Paris Agreement.

To support this integration, WMO has made relevant submissions and stands ready to provide additional technical inputs and recommendations on how water can be addressed under key agenda items, including the GGA, National Adaptation and Mitigation Plans, Loss and Damage, Just Transition Work Programme, agriculture and food security, technology development and capacity-building, and the implementation of GST outcomes. WMO also supports the implementation of the COP29 Presidency initiative Baku Dialogue on Water for Climate Action, which serves as a platform to promote scientific evidence on the causes and impacts of climate change on water resources.

7- International Year of Glaciers' Preservation

The International Year of Glaciers' Preservation 2025, officially kicked off on 21 January 2025, is mandated by a United Nations General Assembly Resolution, which also designated 21 March as the annual World Day for Glaciers, starting this year. The International Year and World Day for Glaciers aims to raise global awareness about the critical role of glaciers, snow and ice in the climate system and the hydrological cycle, and the economic, social and environmental impacts of the impending changes in the Earth's cryosphere, as well as to share best practices and knowledge in this regard and in addressing issues related to accelerated melting of glaciers and its consequences.

IYGP 2025 is co-facilitated by UNESCO and WMO to provide secretarial support.

The [official website](#) acts as a knowledge repository hosting scientific and educational content for diverse audiences and links to data sources, events, etc.

The [13 key messages](#) shape outreach and communication campaigns. IYGP policy briefs and press releases are aligned with the latest science and research, and support evidence-based decision- and policymaking for national and intergovernmental contexts.

The following are the WMO priorities in cryosphere-related activities: (1) establish a link between the melting of the cryosphere under different climate scenarios, its contribution to SLR and the impacts on coastal areas, low-lying countries and small islands, (2) address the permafrost thaw and the release of carbon in the atmosphere, and, (3) monitor the glacier and permafrost hazards in the mountains and polar regions.

8- Climate services in support of the third round of the Nationally Determined Contributions (NDC 3.0)

WMO is helping countries use climate science, data, and information more effectively to inform national climate policies. This includes integrating and quality-assuring climate data and information in NDC and NAP revisions, enhancing national capacities, advancing climate risk assessments, and co-developing country-specific climate analyses. WMO has designed a training course on climate science information and NDC 3.0 formulation. The aim is to strengthen the capacity of NMHSs to access, synthesize, and incorporate relevant climate science information into climate actions, plans and investments – including NAPs and NDCs.

The WMO and the wider community continue to develop, deliver and use climate services for decision-making and climate action under the Global Framework for Climate Services, to coordinate and advance efforts in key sectors such as health, agriculture, energy, disaster risk reduction and water resources. As part of this, the WMO coordinates with partners and stakeholders to regularly report on the annual State of the Global Climate, the State of the Climate in five regions of the world, the state of climate services, updates on the status of El Niño / La Niña, and an annual to multiannual global climate forecast. The WMO also engages in broader adaptation-related activities, including under the framework of the UAE-Belém work programme on the GGA.

9- Support to mitigation activities

The WMO continues implementing a broad spectrum of activities to support climate mitigation. WMO promotes broader utilization of observations-based science-driven data needs in support of national climate policies and regulations, GST, NDC planning, and national reporting. The WMO's Integrated Global Greenhouse Gas Information System (IG3IS) initiative has the potential to support Non-Market Approaches (NMA) by enhancing the efficiency and effectiveness of climate change mitigation efforts, including in the context of the NDC implementation. Combining atmospheric observations with inventory within the modelling framework helps in providing stakeholders with data relevant to their decision-making scale. The good practices for the national and urban scale are being finalized by the WMO community. The WMO's G3W offers substantial benefits to countries lacking observational or modeling capacities. Several modelling centres that plan to participate in this system have the capability to produce monthly gridded net fluxes of CO₂ and CH₄ using the assimilation of the available observational data. These products can provide initial insights on the net fluxes over the countries and be helpful in the establishment of the net fluxes (balance between sources and sinks) and tracking the progress with overall mitigation under NDCs, though these products have large uncertainty in the areas where observations are limited.