Information Note on Earth Information Day 2026

Prepared by the Chair of the Subsidiary Body for Scientific and Technological Advice (SBSTA)

21 October 2026

I. Background and introduction

1. Earth Information Day (EID), held annually[1], provides a platform for Parties to engage with the systematic observation community to share and discuss latest information on the state of the global climate system including observed trends and future projections to inform work under the UNFCCC and the Paris Agreement. Earth observation networks, including in-situ and satellite-based, provide relevant data for understanding the changing climate and associated risks, predictions and forecasting, and supporting other critical climate services such as early warning systems (EWS). EID also serves to highlight advances and gaps in closing observation gaps, enhancing systematic observations, advancing related initiatives, and strengthening international cooperation.

2. EID 2025[2] provided updates on the state of the global climate system and the global climate observing system and advances in the attribution of climate-related events. The event also covered efforts and initiatives in advancing systematic observations such as the Systematic Observations Financing Facility (SOFF) and the Early Warnings for All Initiative (EW4ALL). Discussions further addressed the role of observations in supporting climate adaptation and mitigation, as well as averting, minimizing and addressing loss and damage. EID 2025 highlighted requirements for strengthening access to and sharing Earth observation data and related technological innovations, including those supported by Artificial Intelligence (AI) and machine learning (ML). The summary report for EID 2025[3] was published and is available on the event website.

3. EID 2026 will take place on Monday, 9 November 2026 (15:00–18:00hrs UTC +3) in conjunction with the Antalya Climate Change Conference, and its organization and two topics are based on submissions from Parties and non-Party stakeholders. This information note provides an overview of the event, including its organization and themes (Section II), information related to activities and updates under the Convention and the Paris Agreement (Section III), and updates and activities by relevant programmes and organizations (Section IV). All information related to EID 2026, including the agenda, list of speakers and additional resources is available on the event webpage[4].

4. I encourage Parties to consider the key messages, outcomes and discussions from EID 2026 during the informal consultations on research and systematic observation (RSO) under the SBSTA. An informal summary report on the event will be prepared, with the support from the secretariat, and made available in advance of SBSTA 67.

II. Organization and themes

5. As of 16 September 2026, 16 submissions[5] were received from Parties and non-Party stakeholders. In accordance with the submissions and in consideration of ongoing processes

[1] As mandated in FCCC/SBSTA/2019/2.
[2] See Earth Information Day 2025 - Mandated event | UNFCCC.
[3] See https://unfccc.int/documents/656340.
[4] See Earth Information Day 2026 - Mandated event | UNFCCC.
[5] Submissions were made from the following Parties and groups of Parties, Alliance of Small Island States (AOSIS), Saudi Arabia on behalf of Arab Group, Chile, European Union (EU), The least developed countries (LDCs) Group, Japan, India, Türkiye, Iceland, and United Kingdom; and the following non-Party stakeholders, The Joint Committee on Earth Observation Satellites (CEOS) and the Coordination Group for Meteorological Satellites (CGMS) Working Group on Climate, Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC), GEOMAR Helmholtz

within the UNFCCC process, the themes for EID 2026, under the narrative "*from observations to application*" are:

(a) State of the global climate observing system;

(b) Earth observations in support of effective climate action through:

a. Integrated observation systems for assessments, modelling, EWS and other climate services,

b. Equitable access to observations data and related technologies.

6. The dialogue will therefore centre on these two guiding questions: *What are we observing? How can Earth observations inform action and decision-making?* EID will go beyond providing updates of relevant initiatives and provide a platform for the systematic observation community to exchange with countries on applicable and accessible tools, products and resources to advance the utilization of Earth observations data and information.

7. EID 2026 will be held in person, with virtual participation option for registered participants, and consist of a plenary segment and an interactive session consisting of video presentations and World Café stations. The deliberations of the event will be webcast on the UNFCCC event page, accordingly, allowing for online viewing.

1. Opening and plenary on the state of the global climate observing system

8. The session, to be held in plenary, will provide relevant updates on the state of the global climate as well as status of the global climate observation system and the monitoring of Essential Climate Variables (ECVs). Institutions responsible for Earth observations, particularly World Meteorological Organization (WMO), will share observed status and trends of the global climate system and other organizations will highlight advances, gaps, risks and emerging opportunities in advancing and sustaining systematic observation. Specifically, updates will be provided for key climate indicators such as greenhouse gas (GHG) emissions and concentrations, short-lived climate forcers (SLCFs), global temperature trends, extreme events, Earth energy imbalance, ocean and cryosphere changes, and other emerging climate-system changes and processes. The session will also include updates on the El Niño phenomena and its implications.

9. Further, updates will also be provided on the status of GCOS and associated operational status in monitoring of ECVs across the ocean, terrestrial, and cryosphere on regional and global scales. Initiatives and efforts aimed at strengthening and sustaining Earth observations, including support for observing systems, capacity-building, technology transfer and data access, through initiatives such as SOFF and EW4ALL and efforts from the systematic observation community will also be shared.

2. Video presentations and World Café on Earth observations for effective climate action

10. Following the overall theme "***from observations to application***" this session will focus on the applicability of Earth observation products, providing an opportunity for the systematic observation community to share tools, resources and innovations, including those that use AI and ML, with participants. The session will appreciate how generated Earth observations data are applied and can be extended and strengthened to support risks assessments, climate services such as forecasting and prediction and EWS, adaptation planning and overall implementation of climate action.

11. The session will commence with short video presentations from the participating Earth observation institutions and be followed by engagements through a World Café format. The discussions will provide a platform for scientists, the observation community and policymakers to engage on the thematic area; in sharing information, experiences, good practices, lessons, gaps, and opportunities. Video pitches from the systematic observation community are expected to cover the following areas:

Centre for Ocean Research Kiel, Woodwell Climate Research Center, World Meteorological Organization (WMO), and International Cryosphere Climate Initiative (ICCI).

(a) ***Integrated observing systems for assessments, modelling, EWS and other climate services***: The pitches and discussions will focus on efforts and advances in integrated observing systems such as how atmospheric, oceanic, cryospheric and terrestrial observations are combined to improve understanding of the coupled Earth system, contributing to climate assessments, models and climate action. The session will also highlight examples of integrated monitoring systems, multidisciplinary observations (including biogeochemical), and integrated observation-based tools that support risk assessments, predictive modelling and climate services such as forecasting and multi-hazard EWS.

12. ***Equitable access to observation data and related technologies.*** The session aims to demonstrate efforts and gaps related to enhancing equitable access to Earth observations data, particularly to more developing countries. Specifically, Parties and organizations will exchange and demonstrate existing open access datasets and long climate data records including AI/ML-based data products for monitoring, prediction, modelling, reporting and for training and validation. Discussions will consider enabling conditions for facilitating equitable access, including capacity-building, technology transfer, institutional strengthening, data infrastructure and initiatives that support the sustainability of open-access related observing systems.

Guiding questions and additional information

13. Discussions during EID 2026 will consider the following guiding questions which are proposed to aid participants in preparing for the event:

(a) How can climate observations across the ocean, atmosphere, terrestrial, and cryosphere domains be strengthened?

(b) What are the enablers for enhancing the usability and applicability of Earth observations data and information for effective climate action?

14. Parties and relevant organizations are invited to express their interest in presenting short videos during the second session of EID 2026, related to the themes of the session. The video pitches may highlight ongoing or planned activities, programmes, and initiatives related to integrated observing systems and equitable access to observation data and related technologies. More information is available on the RSO webpage[6]. For further information, please contact the secretariat through rso@unfccc.int. Expressions of interest should be submitted no later than 15 October 2026.

3. Indicative programme

15. An indicative programme for EID 2026 is shown below, and the final agenda will be published on the event webpage in advance of the event.

[6] See RSO Webpage.

	Earth Information Day **Monday, 9 November 2026**	Full list of speakers, panellists, and experts/facilitators to be published on the event webpage
15:00	**Opening segment** UNFCCC, WMO, and GCOS	*Moderator:* SBSTA Chair or designate
15:30–16:30	**Plenary session: State of the global climate observing system:** - *Status of key global and regional climate indicators (GHG emissions and SLCFs, temperature trends, energy imbalance), El Niño 2026, and observations of ECVs* - *Advances across key systematic observations initiatives (SOFF, EW4ALL, and Systematic observation community)*	*Contributors include representatives from Earth observation institutions, scientific community, and Parties*
16:30–17:45	**Session 2 Videos and World Café: Earth observations for effective climate action** *2-minute video pitches followed by World Café:* - *Integrated observing systems for assessments, modelling, advancing climate services and EWS* - *Equitable access to observation data and related technologies*	*Led by facilitators with contributions from experts and participants*
17:50–18:00	**Closing segment**	*SBSTA Chair*

III. Brief update on linked activities under the UNFCCC

16. The implementation of the **Enhanced Transparency Framework (ETF)** continues to strengthen national climate data systems and improve the availability of information needed to track progress towards climate goals. As recognized by Parties at SBSTA 63, systematic observation, including satellite and in-situ data, plays an important role in supporting the research, monitoring, analysis and reporting of GHG emissions and removals. Through the preparation and technical review of Biennial Transparency Reports (BTRs), Parties are increasingly drawing on diverse national and international data sources, including geospatial and Earth observation information, particularly in sectors such as land use, land-use change and forestry. Data and information generated under the ETF lays the solid foundation for the development of the Climate Data Hub[7], which aims to improve access to climate-related datasets, analytical tools and digital solutions that can support transparency reporting, data management and evidence-based climate policymaking. The secretariat is also represented in the Advisory Group of the Global Forests Observation Initiative, a voluntary partnership of countries and international organizations that support the strengthening of forest monitoring, reporting and verification (MRV) capacities in developing countries, in particular for Reducing Emissions from Deforestation and Forest Degradation (REDD+) implementation. Through the #Together4Transparency initiative, the secretariat also continues to work with technical experts, international organizations and public and private sector partners to strengthen capacity, foster innovation and promote the effective use of climate and observation data in support of transparency and informed decision-making.

17. The **Adaptation Committee (AC),** under its flexible workplan for 2025–2027[8], is advancing several areas of work relevant to climate data, information and evidence for adaptation decision-making. The AC maintains its interactive portal on the state of adaptation

[7] See UNFCCC Climate Data Hub.
[8] See https://unfccc.int/documents/645371.

action by Parties[9], drawing on information contained in national reports and communications submitted to the UNFCCC, including, where reported, countries' activities related to systematic observation, EWS and climate services. The portal informed the preparation of the AC's first synthesis report on the state of adaptation action by Parties, prepared in 2026. The AC is also advancing work on impact, vulnerability and risk assessment including the collection and analysis of case studies from different regions and adaptation contexts to strengthen understanding of approaches, methodologies, data needs and lessons learned. Complementary work on adaptive capacity assessment is examining how adaptive capacity is understood and assessed, including relevant methodologies. Together, these activities contribute to strengthening the evidence base for adaptation planning, implementation and assessment of progress[10].

18. Under the **Global Goal on Adaptation**, the second GGA workshop under the Baku Adaptation Road Map, held during the Climate Week in September 2026, included a session on the GGA target 10(a), with presentations from GCOS and WMO, as well as from France and South Africa in relation to how they are conducting risk assessments to different warming scenarios[11]. Additionally, in September 2026, the UNFCCC published its technical paper on the targets of the UAE Framework and the Belém adaptation indicators[12]. The paper goes into depth on areas such as the availability of metadata and methodologies for indicators, as well as aggregation, including in relation to indicators for climate risk assessment and EWS. It explored several existing processes, and how these can be utilized for reporting on the Belém indicators.

19. Under the loss and damage, the work of the **Executive Committee of the Warsaw International Mechanism for Loss and Damage** (WIM ExCom) highlights the importance of Earth observations, climate information and related knowledge systems in understanding, assessing and responding to climate change impacts that may result in loss and damage. At its 25th meeting[13], the WIM ExCom finalized voluntary guidelines for enhancing the collection and management of data and information relevant to loss and damage to inform the preparation of BTRs. The guidelines support Parties wishing to document actions and report on observed and potential climate change impacts, including those associated with extreme weather events and slow-onset events, drawing on the best available science and relevant data and information. The WIM ExCom's work on comprehensive risk management contributes to strengthening the evidence base needed for anticipatory action, climate services and EWS by improving understanding of compounding and cascading climate risks and their implications for loss and damage. Through its dedicated discussions on the policy implications of the latest climate science, it helps connect scientific evidence with decision-making while collaboration with the Santiago Network further supports the translation of knowledge and technical information into technical assistance and capacity-building for developing countries. WIM ExCom's thematic expert groups are also developing knowledge products that help translate observations and climate information into decision-relevant insights, such as technical guidance on glacial retreat and desertification, and an online repository of information on approaches for managing compound risks and cascading climate impacts.

20. The **Technology Executive Committee (TEC)** is advancing work on community-based, people-centred EWS, complementing systematic observation and forecasting by focusing on how authoritative risk information is translated into timely protective action. Building on the earlier TEC–GEO policy brief on innovation and technology for risk knowledge, the TEC-IOM policy brief-advancing community-based EWS examines the operational "last mile", with particular relevance to warning dissemination, communication and preparedness under the EW4ALL[14]. It highlights that effective EWS require more than accurate forecasts and technical infrastructure. Systems must ensure that all at-risk populations, including displaced and marginalized groups, receive, understand, trust and can

[9] See Adaptation Committee's Interactive Portal.
[10] See Adaptation Committee.
[11] See Second GGA Workshop.
[12] See Technical paper by the Secretariat.
[13] See The 25th Meeting.
[14] See https://unfccc.int/ttclear/tec/early_warning_systems.html#ew4all.

act on warnings. The brief promotes community-driven and low-technology approaches such as community radio, mobile services and local communication networks, especially where connectivity is limited. It also highlights the need for inclusive communication, trusted local actors, feedback mechanisms, sustainable financing and better integration of climate, hazard and displacement data to strengthen preparedness and anticipatory action at community level.

IV. Brief update of information and activities by United Nations (UN) agencies and other relevant programmes and organizations

21. This section provides brief updates on some of the relevant ongoing activities by the systematic observation community. It is a non-exhaustive list of activities and initiatives by relevant programmes and organizations presenting at the EID.

22. The WMO State of the Global Climate 2025 (WMO-NO. 1391) report was published in March 2026[15] and regional State of the Climate reports for Africa, Asia, Latin America and the Caribbean, Southwest Pacific, and Europe were published between April and July 2026[16]. Work is underway in collaboration with GRID-Geneva to provide access to all State of the Climate materials via a digital hub, including the reports, interactive visualizations, access to the underlying data and guidance for users with a beta version available by the end of the year. The 2025 State of Global Water Resources, published in September 2026, provides a comprehensive, science-based assessment of the entire water cycle loop, including river discharge, groundwater, evapotranspiration, land water storage, and snow and ice, as well as high-impact events[17].

23. WMO regularly issues El Niño/La Niña Updates[18], the world's most authoritative source of information on the status and outlook of the El Niño–Southern Oscillation (ENSO) for governments and decisionmakers. These seasonal forecasts are based on a consensus of models from WMO Global Producing Centres, experts from National Meteorological and Hydrological Services (NMHSs) and climate prediction centres around the world. The September 2026 Update confirms that El Niño is firmly established and is expected to strengthen further, with WMO forecasts showing a near 100 per cent likelihood that it will persist through February 2027[19]. Exceptionally warm tropical Pacific Ocean conditions support further intensification, with a very strong El Niño expected to significantly shift rainfall and temperature patterns worldwide and fuel extreme weather. In response, WMO and NMHSs are stepping up preparedness and early-warning efforts for an exceptional event.

24. GCOS has focused on assessing the status of the global systematic observations for climate by preparing the next GCOS Status Report and GCOS High-Priority Action Plan, both scheduled for publication in February 2027, in time to inform Phase 1 (Information Collection and Preparation) of GST-2. A key milestone was the GCOS-WG Climate-iClimateAction joint meeting, held between 9 and 13 February 2026[20], which brought together around 100 scientists and experts from the satellite and in-situ climate observation communities to assess the functioning of the needed observing system, identify persistent gaps and emerging risks to the continuity and preservation of long-term observations, and discuss priorities for strengthening the system in the years ahead. The GCOS Status Report will provide evidence that, for the first time in decades, the overall observing and data management system is showing signs of decline. Emerging risks of failure are compounding persistent gaps, potentially hindering the ability to detect and understand changes and impacts across the atmosphere, ocean and terrestrial domains at a time when robust climate information is more critical than ever. The joint publication of the two documents will enable Parties and other implementers to initiate action immediately, addressing identified gaps and

[15] See https://library.wmo.int/records/item/69807-state-of-the-global-climate-2025.
[16] See Publication Series https://wmo.int/resources/publications.
[17] See https://library.wmo.int/records/item/69923-state-of-global-water-resources-2025.
[18] See Publication Series: https://wmo.int/publication-series/el-ninola-nina-updates.
[19] See https://library.wmo.int/records/item/69926-august-2026.
[20] See https://library.wmo.int/idurl/4/69839.

weaknesses without the usual one-year delay between the publication of the Status Report and the subsequent Implementation Plan.

25. The Global Ocean Observing System (GOOS),[21] led by the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) and co-sponsored by WMO, United Nations Environmental Programme (UNEP) and the International Science Council (ISC), continues to provide global leadership and coordination for essential ocean variables, ocean observations and data delivery. Sharing an expert panel (Physics and Climate Panel, OOPC) with the GCOS, GOOS has continued to coordinate closely with GCOS, including on the GCOS High-Priority Action Plan. As well as coordination and setting of essential variables by its three expert panels, GOOS also provides the coordination and interconnected delivery of sustained ocean observations data through its GOOS networks, including robotic floats, research vessels, moored buoys and ships of opportunity spanning every ocean basin and providing ocean and atmospheric variables essential for climate monitoring. GOOS works closely with nations through its national focal points and GOOS Regional Alliances to implement the ocean observing system.

26. Ocean observations power every weather forecast, early warning and climate prediction, decisions on marine biodiversity restoration and protection and sustainable economies, yet this critical global system is at risk. To strengthen and sustain GOOS and global ocean observing, the International Alliance for GOOS was launched on 23 September 2026 by the EU and Canada at the UN General Assembly with 31 members, including Canada, the EU and 29 countries and over CAD $339 million (€211 million) in financial and in-kind pledges. The Alliance aims to broaden the international support for GOOS, maintain existing platforms, close critical data gaps and strengthen global coordination, as well as strengthen data flows and interoperable data management. At the International Alliance event, GOOS also launched the Go Ocean campaign[22]. Coordinated by Voice of the Ocean with GOOS and supported by IOC-UNESCO and a steering group across science, observation, policy, industry and finance, Go Ocean has one goal: by 2030, ocean observation is understood, funded and used as the fundamental infrastructure it has become[23]. In advance of COP31, the GOOS secretariat, in collaboration with the High-Level Panel for A Sustainable Ocean Economy, will launch a policy brief highlighting the importance of ocean observing for society, nature, climate and the economy. The brief underscores the value of sustained ocean observations, the challenges that persist in the functioning of the GOOS, and the opportunities that exist to strengthen global ocean observations.

27. In 2026, WMO advanced tools, methodologies, and capacities to translate authoritative climate science and Earth observations into actionable information for climate action planning and implementation. These approaches help countries assess climate risks and vulnerabilities, identify and prioritize adaptation actions, and strengthen implementation of National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs)[24]. They also underpin initiatives such as EW4All[25], including country-level climate risk profiles that inform adaptation planning and investment. These profiles integrate historical climate data, observed trends, current and future hazards, and climate projections drawn from the

[21] See https://www.ioc.unesco.org/en/global-ocean-observing-system.

[22] See https://go-ocean.org/.

[23] See Governments at UN General Assembly support global ocean observation | Intergovernmental Oceanographic Commission.

[24] **Climate Science Information for NDCs** 3.0 in Africa. In February 2026, WMO convened a regional workshop in Lomé, Togo, bringing together participants from seven African countries to strengthen their ability to access, interpret and apply climate science information for NDC development and implementation. Participants worked with WMO-supported tools including Climpact, the Climate Information Portal, and the Climate Science Information for Climate Action methodology, which is designed to translate climate science into decision-ready information for policy and investment planning. The workshop also highlighted the application of climate information to sectoral planning and project proposals. See https://wmo.int/media/project update/regional-workshop-supports-climate-science-information-nationally-determined-contributions-africa.

[25] **Danish Support to EW4All.** WMO technical support contributed to the development of climate risk profiles for Niger, Somalia, South Sudan, Uganda and the United Republic of Tanzania, using authoritative climate data and scientifically robust methodologies. https://wmo.int/activities/projects/project-portfolio/danish-support ew4all.

latest available datasets and scientifically robust methodologies. This evidence supports the identification and prioritization of climate actions and informs adaptation planning, investment frameworks and finance-ready project proposals. WMO also strengthened national capacities to apply climate science and information in adaptation and climate planning processes[26]. WMO contributed technical expertise to the operationalization of the GGA, including work on methodologies, standards and metadata for climate information and systematic observations relevant to target 10(a)[27].

28. WMO continues coordinating GHG observations. The global averaged concentrations for 2025 are currently being calculated and will be published in the WMO GHG Bulletin at the end of October 2026. Based on a preliminary analysis, the concentrations of the main GHGs continued rising in 2025 and 2026. Observations of GHGs are used to produce estimates of GHG fluxes (emissions and removals) on different spatial scales, from global to regional, urban and facility. Within the Global Greenhouse Gas Watch initiative, the regulations were developed for the global gridded products, and the operational centres will be established in 2026-2027. This data will be available for all WMO Members to support NDC planning and monitoring. WMO conducted extensive analysis and developed recommendations for design of the global CO_2 observing system. WMO conducted stakeholder consultations in April 2026 mapping requirements for the additional independent information products, methodologies and tools within the Integrated Global Greenhouse Gas Information System (IG3IS). The good practices of the national and urban scale emission and removal quantifications have been published together with the reports of the respective workshops[28].

29. In order to provide key scientific information for policymakers and others, the World Climate Research Programme (WCRP) has produced several high-level assessments, including on (i) Earth system high-impact events, tipping points and their consequences[29], in close cooperation with the Intergovernmental Panel on Climate Change (IPCC) (ii) Transient Climate Response to cumulative carbon Emissions (TCRE)[30] and (iii) on the Global Atmospheric Impacts of the 2022 Hunga Volcano Eruption[31]. WCRP will continue to provide near-term and longer-term climate projections for future emissions for the IPCC assessment process through its Coupled Model Intercomparison Project (CMIP). Under CMIP7, the Assessment Fast Track[32], a prioritized set of 58 high frequency experiments, will deliver timely simulations to underpin IPCC AR7. WCRP's Global Precipitation Experiment (GPEX)[33], including the planned Years of Precipitation, an international coordinated effort, aims to strengthen precipitation-related observations and to address science gaps that will be essential to better understand availability of freshwater and the impacts of water stress in various regions around the world. WCRP has a renewed focus on sea-level through a global stocktake of science advances, remaining gaps, and barriers to usable regional/local information. Drawing on user needs and societally relevant case studies, this work will help

[26] **Climate Services and Related Applications Programme in Africa and the Caribbean (ClimSA)**. WMO supported capacity development strengthened the ability of national stakeholders in Angola, Jamaica, Mauritius, Seychelles and Samoa to understand, interpret and apply climate observations, trends, variability, projections and risk information in adaptation planning and implementation, including in support of NAP priorities. https://wmo.int/activities/projects/project-portfolio/intra-acp-climate-services-and-related applications-climsa.

[27] **WMO technical input to the Global Goal on Adaptation (GGA)**. WMO's technical input to the operationalization of the GGA, including Target 10(a), addresses the methodological, data, standards and metadata dimensions needed to underpin robust and comparable indicators, including those related to systematic observation: WMO technical input to the GGA – 2026. This builds on WMO's broader technical work on systematic observation and climate data, including through GCOS and the WMO Integrated Global Observing System (WIGOS). See https://wmo.int/events/meeting/climate science-advisors-2026-1.

[28] See https://library.wmo.int/idurl/4/69906, https://library.wmo.int/idurl/4/69749, https://library.wmo.int/idurl/4/69623, https://library.wmo.int/idurl/4/69714.

[29] See https://www.wcrp-climate.org/slc-activities/tpa.

[30] See https://www.wcrp-climate.org/slc-activities/tcre.

[31] See https://aparc-climate.org/2026/02/10/aparc-report-on-the-global-atmospheric-impacts-of-the-2022 hunga-volcano-eruption/.

[32] See CMIP7 Assessment Fast Track - Coupled Model Intercomparison Project.

[33] See https://www.wcrp-climate.org/gpex-overview.

shape future WCRP priorities on observations, projections, coastal extremes, compound hazards, high-end scenarios and adaptation under uncertainty. WCRP is positioning artificial intelligence and machine learning at the forefront of next generation climate science, while promoting responsible, transparent and reproducible approaches and stronger engagement with the wider community. Finally, to provide key scientific information for policymakers and others, WCRP is producing a series of policy briefs entitled: Science to Support Climate Action, with the first brief focusing on the current understanding of sea-level rise[34].

30. As EW4All approaches its 2027 target, 2027 is increasingly seen not as an endpoint but as a milestone for sustained global action toward universal protection through effective, sustainable multi-hazard early warning systems (MHEWS). This forward-looking agenda is being shaped through regional consultations leading to a global consultation, beginning with Africa in September 2026 and followed by the Arab States in October. Global progress continues as 136 countries now report MHEWS through the Sendai Framework Monitor, a 143 per cent increase since 2015, with improvements in system comprehensiveness across regions. Evidence confirms their life-saving value – disaster related mortality is six times lower in countries with more comprehensive MHEWS. Significant differences remain in operational capacity, sustainability and the ability of warnings to reach and protect people at risk. EW4All has further accelerated implementation, with around 50 countries actively engaged, 31 national roadmaps, and more than 160 countries receiving direct support. Focus is shifting from expanding coverage toward strengthening national ownership, sustainable financing, operational effectiveness and last-mile delivery, ensuring the highest-risk countries and communities are not left behind. In 2026, WMO published updates to early warning technical regulations, which were agreed by an extraordinary WMO Congress in late 2025, in addition to an implementation guide, raising the global bar for early warning service quality[35]. EW4All lead agencies also published best practices on after-event review, service delivery in fragile and conflict-affected states, and responsible AI use[36].

31. SOFF[37] has further expanded its financial and technical support to LDCs and small island developing States (SIDS), with several SOFF beneficiary countries already internationally exchanging additional Global Basic Observing Network (GBON) in-situ data. As the first countries are expected to complete their SOFF investments in late 2027, the SOFF Steering Committee adopted the SOFF compliance framework, which details how SOFF will provide long-term support for the operation and maintenance. In partnership with SOFF and WMO, European Centre for Medium-Range Weather Forecasts (ECMWF) has deepened its research on the impact of SOFF-supported observations in LDCs and SIDS on forecast accuracy; the results of this work will be presented at COP31.

32. ISC brings together more than 240 Members spanning the natural sciences, social sciences and humanities, and contributes to the RSO agenda both through the global programmes its co-sponsors and through supporting stronger science advice functions and better engagement between experts and policy institutions, especially in international settings. ISC Affiliated Bodies deliver recurring outputs of direct policy relevance, including the annual 10 New Insights in Climate Science, and the Integrated Research on Disaster Risk (IRDR) 2025 report on knowledge sharing for place and context specific disaster risk reduction[38]. The ISC further supports preparations for the Fifth International Polar Year[39] and the Decade of Action for Cryospheric Sciences 2025 to 2034, working with the Scientific Committee on Antarctic Research (SCAR) and International Arctic Science Committee (IASC) to embed social science and transdisciplinary approaches in cryosphere observation and research. With its affiliated body the International Network for Governmental Science Advice (INGSA), the ISC has launched a five-module online training programme on science

[34] See https://www.wcrp-climate.org/resources/status-briefs.
[35] See https://library.wmo.int/records/item/35722-technical-regulations-volume-i-general-meteorological standards-and-recommended-practices.
[36] See https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Publications/ai-ew4all-report.aspx, https://www.undrr.org/publication/documents-and-publications/after-event-review-aer-methodological guidance-conducting.
[37] See https://www.un-soff.org/.
[38] See report on knowledge sharing for place and context specific disaster risk reduction.
[39] See https://council.science/news/ipy-5-host-norway-korea-chile/.

advice to policy[40], which could help strengthen the capacity of researchers to bring observational and research findings to decision makers. It was co-developed with ISC Members and INGSA regional chapters and covers climate change among other transboundary challenges. The first cohort drew more than 500 scientists, and the materials are being released under a Creative Commons licence for Members to reuse.

33. The annual Global Carbon Budget[41] has been published by the Global Carbon Project (GCP), a research network of Future Earth, maintaining a historic synthesis of datasets and methodologies to quantify major components of global carbon and associated uncertainties. In addition, GCP have published the novel Global Hydrogen Budget[42], combining three decades of emissions observations into a standardised analysis of hydrogen, and its role in indirectly increasing the warming potential of methane and other GHGs. The Surface Ocean-Lower Atmospheric Study (SOLAS), another Future Earth network, have released their Science Plan 2026–2035[43] which focuses on systematic observing goals to achieve quantitative understanding of the key climatic interactions and feedback between the ocean and atmosphere. The collaboration with Future Earth and European Space Agency (ESA) will continue until Dec 2027, providing funding to Earth Observation projects across the climate and global sustainability research networks[44]. Current projects focus on low-income urban regions and are building long-term datasets of flooding in Nigeria and Ethiopia, air pollution in India, and heatwaves in Argentina, to support the IPCC Special Report on Cities and Climate Change.

34. The Group on Earth Observations (GEO) is an intergovernmental partnership whose mission is to make Earth Intelligence a public good. The 2026 GEO Symposium and GEO- 21 Plenary[45] advanced GEO's Post-2025 Strategy[46] with a focus on investing in Earth Intelligence for resilience. The Plenary endorsed the GEO In-Situ Data Strategy[47] to connect fragmented observing networks, identify gaps and improve data discovery and reuse through the GEO Knowledge Hub[48], including for climate action. GEO initiated work to improve equitable access to Very High-resolution EO, linking it with climate finance for early warning, DRR and climate resilience. GEO continues supporting the UNFCCC NAP process, contributing to the 2026 NAP Progress Report on EO for adaptation planning and implementation[49]. A UNESCO-GEO-Greek GEO Office study[50] applied EO to assess climate risks to Mediterranean World Heritage cities[51]. GEO and its initiatives, including GFOI[52], GEOGLAM[53], GEO-BON[54], GEA[55], GEO-LDN[56], support synergies across the Rio Conventions by enabling the same trusted EO data to be reused across multiple global targets and reporting frameworks, reducing governments' reporting burden while improving consistency, efficiency and effectiveness. GEO, with WMO and GCOS, is strengthening coordination along the climate data chain through the EU-funded iClimateAction project[57], supporting user and policy needs to guide climate actions.

---

40 See https://council.science/our-work/isc-ingsa-training-programme-on-science-advice-to-policy/.
41 See https://essd.copernicus.org/articles/18/3211/2026/
42 See https://www.nature.com/articles/s41586-025-09806-1.
43 See Science Plan.
44 See https://futureearth.org/initiatives/funding-initiatives/esa-partnership/.
45 See https://earthobservations.org/about-us/events/2026-geo-symposium-geo-21-plenary.
46 See https://earthobservations.org/resources#AJbe25j1Vo.
47 See https://gkhub.earthobservations.org/records/4cb0m-ehm11/files/GEO%20Insitu%20Data%20Strategy%20-%202026.pdf?download=1.
48 See https://gkhub.earthobservations.org.
49 EO use in NAP planning, and implementation is supported by GEO Work Programme activities, such as GEO-LDN, GEOGLAM, GEO Blue Planet, UHCO and GEO Mountains.
50 https://www.unesco.org/sites/default/files/medias/fichiers/2026/01/394251eng.pdf.
51 https://www.unesco.org/sites/default/files/medias/fichiers/2026/01/394251eng.pdf.
52 https://earthobservations.org/groups/global-forest-observations-initiative.
53 https://earthobservations.org/groups/geo-global-agricultural-monitoring.
54 https://earthobservations.org/groups/geo-biodiversity-observation-network.
55 https://earthobservations.org/groups/global-ecosystem-atlas.
56 https://earthobservations.org/groups/geo-land-degradation-neutrality.
57 https://iclimateaction.org/site/iclimateaction.