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Landmark WMO Data Conference sets the scene for change



A landmark WMO Data Conference has set the scene for an overall modernization of the roles, rules and requirements for the international exchange of observations and other data pertaining to Earth systems. The virtual event, which took place from 16 to 19 November, brought together more than 1 200 participants from National Meteorological and Hydrological Services (NMHSs), the private sector, space agencies, global data providers and users, academia and international and development partner organizations. WMO convened the conference to review the requirements and arrangements for data exchange in order to implement the Earth systems approach outlined in the WMO Strategic Plan 2020-2023.

The global explosion in demand for weather, climate and water monitoring and prediction, coupled with a growing appreciation of the necessity to look at the whole Earth system, is leading WMO to update its data policies to harness the latest advances in satellite and computing technology. WMO also aims to close the glaring observation gaps in developing countries, and to embrace. Thus, the Organization is developing a unified, overarching data policy supporting data exchange across all key domains in an Earth systems approach – weather, climate, water, atmospheric composition, cryosphere, space weather and oceans.

The Conference aimed to bring together diverse experts in these areas to discuss the policy approach, present the views of their communities and stakeholders and to identify both the main obstacles to increase exchange of data and the best opportunities to overcome them. This was furthered when the Conference moved online due to the Coronavirus pandemic. The virtual event opened the way for a far wider range of participants – the result was one of the most widely-attended meetings in WMO history.

The Conference supported the strong commitment of WMO to the free and unrestricted exchange of essential data. This policy is enshrined in Resolution 40 (Congress XXII), which states that “WMO commits itself to broadening and enhancing the free and

unrestricted international exchange of meteorological and related data and products.” It also improved understanding of the roles of a broad array of stakeholders, including the private sector, in data provision.

The Conference covered four themes:

- The changing landscape of weather, climate and water data
- Business models and data policy issues
- Filling the gaps in global data coverage
- Data exchange for Earth system monitoring and prediction

A series of seven workshops, four around the themes of the Conference and three for specific stakeholder groups (satellites, research and hydrology), were held in the months leading up to the event. These provided an opportunity for preliminary consideration of some of the major issues to be discussed and highlighted some issues that had not been considered.

A virtual poster session was facilitated by a team of WMO junior professional officers who used a combination of available web tools to organize posters under each Conference theme, with videos by Conference presenters, space for online comments, and video chat rooms which were used during the timetabled poster sessions.

Increases in data availability and exchange will have real-world benefits, in particular, improved prediction and monitoring to enable WMO Members to save lives and livelihoods. With this in mind, the conference strongly endorsed the concepts of the [The Global Basic Observing System \(GBON\)](#) and the [Systematic Observations Financing Facility \(SOFF\)](#). GBON is a WMO-led initiative to improve exchange of observational data to sustain and improve weather and climate forecasting. SOFF will provide sustainable, long-term financing to improve observations in data sparse areas and developing countries with the largest capacity gaps.

For more information, visit the [WMO Data Conference website](#)

First WMO Infrastructure Commission Session adopts key decisions and recommendations

The first session of the WMO Infrastructure Commission (INFCOM), held from 9 to 13 November, adopted a number of key decisions and recommendations. Despite the challenge of the pandemic, which forced the Session to be held virtually, it was attended by 343 participants representing WMO Members and partner organizations.

INFCOM was established by the World Meteorological Congress in 2019 as part of the WMO Reform. Its first session made historical decisions on the Global Basic Observing Network (GBON), which sets the foundation for substantially enhancing the data made available to WMO Members in support of Numerical Weather Prediction (NWP) and climate re-analysis. A Resolution on GBON was adopted together with the recommendation that its Technical Regulations be adopted by the Extraordinary Session of the World Meteorological Congress in 2021. GBON will enhance the implementation of observing systems in least developed countries and Small Island Developing States (SIDS) with the funding for basic GBON requirement coming through financial instruments, such as the Systematic Observations Financial Facility (SOFF).

The Session also made decisions on a number of issues that will allow the Organization to plan the evolution and further development of infrastructure requirements at the national level. These decisive actions will help to facilitate the provision of information and services by WMO Members to society according to their mandate:

- WMO Information System (WIS) 2.0 Implementation Plan, and Functional Architecture and Demonstration Projects
- Increased opportunities for making more aircraft-based observation data available to NWP thanks to WMO collaboration with the airline industry
- The review of WMO data policies and practices concerning space-based observations
- Progressing with the operational implementation of the WMO Integrated Global Observing System (WIGOS) and integration of observations from all Earth System Domains
- Mechanism for development and implementation of the GCOS Surface Reference Network, and the call for Members to apply to operate the lead centre
- Inclusion of Measurement Quality Classifications for Surface Observing Stations on Land into the WMO Guide on Instruments and Methods of Observation (WMO-No. 8)
- Implementation of Hydrological Activities under the new WMO Structure
- Readiness for the World Radio Telecommunication 2023 and the use of Radio Frequencies for meteorological and related environmental activities
- Amendments to the Manual on the Global Data-Processing and Forecasting System (WMO-No. 485) and the designation of new Global Data Processing and Forecasting System (GDPFS) centres.

The INFCOM also explored how it could better engage with WMO Regional Associations and how to improve the participation of women in its activities.

For more information on the activities and membership of the WMO Infrastructure Commission, visit the [INFCOM section](#) of the WMO Community Platform.

WMO commits to strengthening its agenda on operational hydrology

The WMO Hydrological Coordination Panel (HCP) adopted several key decisions and actions in support of the new WMO strategic priority on water at its virtual meeting on 23 to 26 November. A key outcome of the meeting was the agreement to finalize an Action Plan to support the [WMO eight long-term ambitions related to operational hydrology](#) in order to address the water challenge before it becomes a crisis.

The new Plan will include five action areas: floods, droughts and food security, science to operations, water resources are known to support sustainable operation and development, and Water quality. The Action Plan will be finalized and ready for adoption in January 2021 and for swift implementation thereafter.

Other key decisions:

- Prioritize and support the development of regional implementation plans related to the Hydrological Status and Outlook System.
- The Water and Climate Coalition, which contributes to the Sustainable Development agenda, is now open to Members, the private sector and civil society. More activities and policy support will be developed in the coming months. A temporary website allows access to the Coalition at: www.water-climate-coalition.org
- Regulatory materials relevant for hydrology are currently being reviewed and will be published next year to include the newest technology and methodology.

More detailed information on the Hydrological Coordination Panel and its work can be found here: <https://community.wmo.int/activity-areas/hydrology-and-water-resources/hydrological-coordination-panel>

Regional Association III and Side Event on Ocean in South America

A virtual session of WMO Regional Association III (South America) took place from 25 to 27 November with 127 participants, including representatives of three other international organizations. Ms Yolanda Gonzalez Hernandez, Permanent Representative of Colombia, was elected as President while Mr Raul Rodas Franco, Permanent Representative of Paraguay, was elected as Vice-President.

Representatives of 11 WMO Member made decisions and resolutions related to the implementation of WMO reform in the region. Particularly important was the creation of a high-level task team to propose a regional response to the reform process and agree on effective actions. A new regional working structure was also defined, comprising a Management Group and five working groups:

1. Infrastructure and Technological Development
2. Hydrology and Water Resources
3. Science and Research
4. Weather and Climate
5. Services

In addition, decisions were made on public-private engagement, the development of new partnerships, particularly the implementation of the Hydro-meteorological Alliance as well as the publication of the Regional Climate Report for Latin America and the Caribbean.

The Regional Association Members emphasized the need to incorporate science innovations into the operation of the NMHSs in the region. Toward this goal, they created a working group on science and research, which will be composed of scientists from the region from NMHSs, academic institutions and the Regional Training Centres (RTC).

The Regional Basic Observation Network (RBON) was another important commitment of the Members to contribute to the Global Basic Observation Network (GBON). In this regard, the interest in SOFF was high because of the opportunity to improve the basic observing infrastructure of NMHSs.

The High-Level Task Team (HLTT) on Reform will contribute to the work of the Executive Council High-Level Task Force on the comprehensive review of the WMO Regional concept and approaches according to Resolution 11 (Cg-18) WMO Reform – Next Phase.

Ocean side-event

A [side-event on Oceans](#) on 26 November brought over a hundred eminent South American meteorological and oceanographic professionals to discuss ocean priorities – focusing on developing a roadmap for future cooperation in the region. This was timely on the eve of the UN Ocean Decade of Science for Sustainable Development (2021 to 2030).

Prof. Celeste Saulo, WMO First Vice-President and Acting President of RAIII, chaired the event, which included a keynote presentation from the former Intergovernmental Oceanographic Commission (UNESCO-IOC) Executive Secretariat Dr Patricio Bernal (Chile). He set the context for future cooperation, building on the strengths of the past collaboration, including on the Investigation of El Niño in the context of the South Eastern Pacific, and the Global Ocean Observing System Regional Alliances in the Pacific and the Atlantic.

Key ocean priorities were identified across the 3 important aspects:

- Ocean-climate nexus
- Observations
- Services

The other panelists included, Dr Ken Takahashi, Permanent Representative of Peru to WMO and member of the World Climate Research Programme Joint Scientific Committee; Commander Daniel Peixoto de Carvalho, Commander, Navy Hydrographic Centre, Brazil, and METAREA V Coordinator for Brazil; the Professor Pilar Cornejo Garrido, Dean of Marine Sciences Faculty at Escuela Superior Politécnica del Litoral (ESPOL), Ecuador and Commander Ariel Troisi, Chair of the UNESCO-IOC, from the Argentinian Navy.

Regional Association VI - A new format with phased approach

WMO Regional Association (RA) VI (Europe) held its 18th Session virtually on 20 November with over 227 participants, representing 48 WMO Members and 7 international organizations. RA VI president Dr Michael Staudinger opened the session with a progress report on the achievements since the last session and expressed appreciation for the support provided by the Secretariat despite the impacts of the COVID-19 pandemic. WMO Secretary-General Petteri Taalas addressed the participants and encouraged them to express their ideas on how the regional reform process could be implemented more efficiently and effectively at the regional scale.

During the discussions, the RA VI agreed on a new format for its session and will now hold three meetings during 2020/2021, focusing initially on a comprehensive reform of Regional Association business and processes as requested by the 18th session of the World Meteorological Congress in 2019. RA VI further agreed to establish two high-level task teams to guide the reform of Association business processes, working mechanisms, intra- and inter-regional cooperation, and to propose a way forward for the implementation of this guidance bearing in mind the characteristics of the region, including the diversity and capacity levels of Members.

To align the regional and global working structures, the Association established an overarching structure composed of working groups on infrastructure, services and research, and a Regional Hydrological Assembly. Guided by the RA VI president and management group, the regional working groups and Assembly will perform activities in collaboration with the relevant global bodies of WMO. The WMO Experts Database will be used to select regional experts who are already committed to serving on the global WMO bodies, thus ensuring the connection between the regional and global agenda. In the interim period the existing working groups are kept in force as a starting point for the redesign of Association business and will advise the regional reform process.

Other business

The Executive Secretary of the United Nations Economic Commission for Europe (UNECE), Ms Olga Algayerova, addressed the RA VI session and called for a strengthening of the links between all UN organizations. She welcomed the engagement of RA VI on issue-based coalitions, namely on Environment and Climate Change and on Sustainable Food Systems, guided by the Regional UN System Meetings. She looked forward to a strong contribution from WMO at the next Regional Forum on Sustainable Development in March 2021, which will review progress in the implementation of the Sustainable Development Goals in the region against the backdrop of the COVID-19 pandemic.

The RA VI session agreed to contribute to ongoing high-level discussions between the WMO and the EU, especially on the topic of cooperation and collaboration between its National Meteorological and Hydrological Services and the Copernicus programme.

The RA VI session also took note of key regional initiatives:

- Global Multi-Hazard Alert System (GMAS) - The RA VI Members decided to engage in the further development of the GMAS

Framework by establishing a Task Team to lead related processes in the region.

- [South-East European Multi-Hazard Early Warning Advisory System \(SEE-MHEWS\)](#) - The SEE-MHEWS project is now in a quasi-operational phase. The hydrometeorological modelling system is being applied in pilot river catchment in the region and will serve as the basis for the application of the full regional advisory system.
- Central Asia and South Caucasus Multi-Hazard Early Warning Advisory System (CASC-MHEWS) - The session requested that the RA VI president inform the RA II president about this initiative in order to launch consultations to establish collaboration between the two RAs for the successful implementation of the project.
- RA VI Federated approach to data sharing – The session welcomed the EUMETNET Concept of Federated Data Coordination Mechanism. It also requested the president and the Management group to work closely with EUMETNET on this matter under the existing Memorandum of Understanding between WMO and EUMETNET.

The next RA VI is planned for June 2021.

For more information: <https://meetings.wmo.int/RA-VI-18/SitePages/Session%20Information.aspx>

WMO and IATA sign new collaboration agreement on the AMDAR Programme



The International Air Transport Association (IATA) and WMO signed a new agreement on 26 October to increase and improve automated reporting of meteorological data by commercial aircraft in support of weather and forecasting. This new collaboration aims to improve the coverage of the existing WMO Aircraft Meteorological Data Relay (AMDAR) system and to ensure reporting of meteorological data over currently data-sparse areas. The initiative, called the WMO and IATA Collaborative AMDAR Programme (WICAP), is expected to bring many additional and new partner airlines into the programme, which is already supported by around 40 national airlines and several thousand passenger and cargo aircraft.

Meteorological information gathered by in-flight aircraft – air pressure and temperature, wind speed and direction and turbulence – are used by meteorological agencies and others in numerical weather prediction models to derive forecast and weather service products for aviation, the wider transport industry and other private business sectors, as well as the public. The positive impact and improvement

to weather forecasts that these data provide is well-established and provides a significant benefit to airline and aviation operations and safety.

Under the collaboration, WMO, its Members and partner agencies will be responsible for establishing a regionally-based operational framework for the reception and processing of the data. IATA will build the business case for, and promote airline participation in, the programme while helping to coordinate technical solutions for data relay.

An additional unfortunate aspect of the COVID-19 crisis has been the severe loss of aircraft-derived meteorological data that has been an inevitable result of the steep decline in airline operations and passenger flights since March 2020. While meteorological services and other data providers have endeavoured to offset the loss of up to 80 to 90% of normal aircraft data levels with other sources where possible, there has been a measurable negative impact on the accuracy of weather forecasts as a result of AMDAR data reductions. The IATA and WMO collaborative programme will support the re-establishment of aircraft meteorological data availability in the coming years as the crisis is overcome and the aviation industry recovers.

Airlines will take advantage of all available cost and operational efficiencies to rebuild better after the crisis. Efficiency can be derived from the enhanced use and application of in-flight operations and safety processes and procedures, of improved weather forecasts and information that results from availability of AMDAR data. For more information on the Working Arrangement, read the Press Release [here](#).

WMO Services for Polar Waters – collaboration with the Arctic Council

WMO announced its new [webpage](#) that acts as a one-stop-shop for Members to access practical WMO polar information relevant to shipping at the fourth Arctic Shipping Best Practice Information Forum organized by the Protection of the Arctic Marine Environment (PAME). The Shipping Forum, which took place virtually from 24 to 25 November, supports effective implementation of the International Maritime Organization's (IMO) Polar Code by [publicizing information](#) relevant to all involved in safe and environmentally sound Arctic shipping. The WMO Polar Shipping page sources information from the Global Cryosphere Watch, in situ observations in Polar waters, the Year of Polar Prediction initiated by the World Weather Research Programme, and the Polar Climate Predictability Initiative sponsored by the World Climate Research Programme, and Arctic Climate Services.

WMO also joined the panel discussion on Multilateral Bodies – Support Related to Safe Arctic Navigation. Also participating in the panel were the International Hydrographic Organization's Arctic Regional Hydrographic Commission and the International Ice Charting Working Group, represented by NOAA and the Permanent Representative of Denmark to WMO, respectively. WMO highlighted its support for Maritime Safety Information (MSI) through the Global Maritime Distress Safety System – more specifically the IMO-WMO Worldwide Met-Ocean Information and Warning Service – with the support of Arctic METAREA Coordinators: Canada, Norway and Russian Federation. WMO also pointed to its work with the International Ice Charting Working Group.

The most recent [Arctic Consensus Statement](#) on the Seasonal Climate Outlook and [regional climate summary](#) were presented at the Shipping Forum, which also took note of the recommendations of the first WMO-IMO International Symposium on Extreme Maritime Weather (2019):

- Better monitor climate change, provide long-range services
- Incorporate and standardize ice charts into shipboard ECDIS
- Establish standards for ice forecasters and analysts
- Improve iceberg models to predict location drift and deterioration
- Improve training to 'close the gap' between met-ocean information providers and users.

The Shipping Forum placed particular emphasis on collecting practical and useful information for stakeholders, such as shipowners and operators in Polar waters from WMO.

In cooperation with IMO, WMO supports the International Convention for Safety of Life At Sea (SOLAS) through the provision of MSI. WMO has been an Observer to the Arctic Council since 2017 and is actively engaged in PAME.

WMO Hub Exchange Dialogue focuses on distance learning delivery

The COVID-19 pandemic has forced WMO and the international community, to rethink its working methods and to adapt many capacity development, education and training activities to address the needs of Members and ensure business continuity.

Building on this momentum, the Cabinet Office of the Secretary-General organized an internal WMO Hub exchange dialogue on distance learning delivery on 23 October. The aim of the virtual dialogue was to strengthen internal communication and exchange of knowledge among the WMO Secretariat on issues that are timely and relevant to the Organization's work and that contribute to the international agenda.

The discussion focused on the opportunities and challenges provided by distance and hybrid learning and provided background information, available resources, and measures currently being taken by the Education and Training Office of the Member Services and Development Department.

The opportunities that were highlighted included:

- broader reach to learners in need
- lower carbon footprint
- lower delivery costs
- flexibility of scheduling
- long-term engagement with students.

The challenges addressed concerned unfamiliar delivery methods for many trainers and students, study space issues at home, reaching those with limited access to technology, particularly in developing countries, and the time required for instructors to invest in preparation and conversion to distance learning.

Also presented at the event was the perspective of a research-intensive academic institution and a long-standing WMO partner, the University of Reading, which has been applying online practices for some time, which made for an easy transition in March 2020. While it has moved back to blended and on-campus learning and teaching since October 2020, all learning material is available online and there is a choice for online or on-campus interactive sessions, including those related to computing labs and meteorological instruments.

Good practices and lessons learned from various collaborative initiatives with WMO Technical Departments were also shared. The 2020 Education and Training Innovations course served as an example of a successful large-scale online initiative that reached over 250 participants from various training institutions. The course was based on the recent publication, WMO Global Campus Innovations. The number of distance learning courses provided by WMO Regional Training Centres (RTC) has increased rapidly in the past year due to the needs presented and the means shared through training.

WMO former President David Grimes Appointed to the Order of Canada



David Grimes, former WMO President (2011-2019), will become a Member of the Order of Canada for his outstanding leadership in meteorology and for his pioneering development of a global strategy on climate change and disaster-risk preparedness.

Mr Grimes spent his entire career working for Atmospheric Environment Service (AES)/Meteorological Service of Canada (MSC) where he held numerous postings across Canada as a meteorologist. He later served as Director General in several positions over 15 years, which included Canadian Climate Centre, Policy, Services, Predictions and Partnerships.

He served as Canada's permanent representative to WMO in 2006 and was appointed Assistant Deputy Minister for MSC in 2007. Under his leadership and vision, MSC obtained significant new funding to upgrade the infrastructure and modernize the monitoring networks, radars, weather warning and forecasting systems, and the supercomputer.

Mr Grimes was active in WMO and other international forums for over 30 years. He has been among Canada's negotiators for the United Nations Framework Convention on Climate Change (UNFCCC) and participated in the Intergovernmental Panel on Climate Change (IPCC).

Mr Grimes was first elected President of WMO in 2011 and served two consecutive terms. He helped shape the future direction of WMO. He led the development and subsequent adoption of the [Global Framework for Climate Services](#). Other notable achievements during his tenure have been a sharper focus on the polar regions, and the development of the [Global Cryosphere Watch](#).

FOCUS-Africa holds its first stakeholder workshop in South Africa

FOCUS-Africa, a new climate services initiative launched in September, hosted its first [internal stakeholder workshop](#) from 30 November to 1 December and an [external workshop](#) on 9 December.

At the internal workshop, Consortium Members adopted the workplans for eight Case Studies (Malawi, Mauritius, Mozambique, South Africa, Tanzania and Zambia) and discussed the state of the project, identifying user requirements and challenges. Members also adopted the Responsible Research and Innovation (RRI) approach for the implementation of the project and produced a timeline of actions required to realize its vision taking into account gender equality, open access, public engagement and science education.

The external workshop concentrated on the case study on agriculture and food security in South Africa. Participants, including many end-users ranging from smallholder farmers to financial institutions for the agriculture sector, were challenged on the concept of the climate services full-value chain and co-production as well as on the role of science for user engagement. A main outcome of the workshop was the replacement of the traditional way of visualizing the value chain as a linear process by a more transdisciplinary vision leading to a new form of learning and problem-solving.

FOCUS-Africa is a four-year 7 million Euro initiative funded by the European Commission that aims to develop sustainable tailored climate services for four sectors – agriculture and food security, water, energy and infrastructure – in the Southern African Development Community (SADC) region. The project is implemented by a consortium of 18 institutions led by WMO including the Tanzania Meteorological Agency, the Malawi Department of Meteorology and Climate Change and the SADC Climate Services Center.

For more information about the FOCUS-AFRICA workshop and upcoming events please click [here](#).

We welcome your comments about MeteoWorld and look forward to hearing from you: editor@wmo.int

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Obituaries

An obituary for our colleagues, Dr Netatua (Neta) Pelesikoti and Professor Laban Ayieko Ogallo can be found in the Online version of MeteoWorld.

Nature: A framework for research linking weather, climate and COVID-19

"A framework for research linking weather, climate and COVID-19" was published in Nature on 12 November. It reports on the outcomes of the international virtual symposium on Climatological, Meteorological and Environmental factors in the COVID-19 pandemic held on from 4 to 6 August by WMO. The symposium engaged over 400 participants from 72 countries to assess and review current understanding, forecasting, and communication challenges related to climatic, meteorological and environmental influences on SARS-CoV-2 and COVID-19.

Read the article at www.nature.com

Latest publications

State of the Global Climate 2020 - Provisional Report. WMO 2020. Available in English.

WMO Greenhouse Gas Bulletin No. 16: The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2019. WMO 2020. Available in English.

Bulletin 69 (2): WMO at 70 - Responding to a Global Pandemic. WMO 2020. Available in English. Translations being prepared for French, Spanish and Russian.

State of the Climate in Africa 2019. WMO No.1253. Available in English and Arabic.

2020 State of Climate Services. WMO No.1252. Available in English and Arabic.



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