C A R I B B E A N

M E T E O R O L O G I C A L

O R G A N I Z A T I O N

**CARIBBEAN METEOROLOGICAL COUNCIL** **Doc. 5**



SIXTIETH SESSION

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##### SPECIAL CMO AND WMO ISSUES

(Submitted by the Coordinating Director)

## Introduction

1. This document is designed to keep the Council informed on significant regional or international issues of special interest to the CMO. Some of these, particularly those emanating from the World Meteorological Organization (WMO) or other relevant organizations, will require decisions or actions by Council to ensure that CMO Member States understand their roles and adhere to commitments and requirements. Some other items will likely be presented verbally. The Agenda item covers primarily the following topics:
2. Outcome/Highlights of the *72nd Executive Council* (EC) of the WMO
3. Transition to the new WMO Governance Structure and Strategic Plan
4. Budget and Financing for 2020-2023
5. Extraordinary Session of the World Meteorological Congress – Key Issues
6. Other Highlights
7. WMO Integrated Global Observing System – Initial Operational Phase
8. Reception of Geostationary Satellite Imagery in CMO Member States
9. The Global Framework for Climate Services (GFCS)
10. Issues emerging from the WMO Technical Commission and Research Board sessions in 2020
11. Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems

* Tropical Cyclone Programme
* Global Multi-hazard Alert System (GMAS)
* WMO Catalogue of Hazardous Events

## A: Outcome/Highlights of the *72nd Executive Council*, 2020

## Preamble

1. The **World Meteorological Organization** (WMO) is the Geneva-based UN-Specialized Agency that is responsible for coordinating global scientific activities in meteorology and related sciences. It is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces, and the resulting distribution of water resources. In other words, "weather, climate, water, and the environment. Because of the very nature of the atmosphere, international cooperation at a global scale is essential for the development of meteorology and operational hydrology down to the national level, for countries to reap the benefits from the global scientific and technical application in these fields. WMO provides the framework for such a unique international cooperation which, as a result, exists among every nation of the world, whether large or small, continental or island, developed or developing. Therefore, the manner in which WMO functions affects the National Meteorological and Hydrological Service of every country.
2. The structure of the WMO comprises the World Meteorological Congress, an Executive Council, six Regional Associations, the Geneva-based Secretariat, and, since the major governance 18th World Meteorological Congress, the Commission for Observation, Infrastructure and Information Systems (Infrastructure Commission, INFCOM), the Commission for Weather, Climate, Water and Related Environmental Services & Applications (Services Commission, SERCOM), and a Research Board.
3. The Executive Council (EC) is the executive body of the Organization, which meets annually, implements decisions of the supreme body – the WMO Congress – coordinates the Programmes, decides on the allocation of budgetary resources, provides guidance and takes action on recommendations of Regional Associations and Technical Commissions and on matters affecting international meteorology and related activities.
4. The 72nd session of the Executive Council began implementing the priorities decided by the 18th Congress and the 71st Executive Council, including the setup of new panels to streamline its work, namely:
   1. Policy Advisory Committee
   2. Technical Coordination Committee
   3. Climate Coordination Panel
   4. Hydrological Coordination Panel
   5. Executive Council Panel of Experts on Polar and High-mountain Observations, Research and Services
   6. Capacity Development Panel
5. The *72nd Executive Council*, took place on a virtual platform from 28 September to 2 October 2020 under the chairmanship of Professor *Gerhard Adrian* (Germany). The Coordinating Director, *Dr Arlene Laing*, an elected Member of the Executive Council, led a strong delegation, comprising *Dr. David Farrell*, Principal of the CIMH, *Mr Glendell De Souza* of the CMO Headquarters, and *Mr John Tibbetts* of the Cayman Islands. The involvement of this team increased the regional input to the session and facilitated the critical follow-up actions.

## Summary of issues

### A(1) Transition to the new WMO Governance Structure and Strategic Plan

1. Council will recall the report to the 59th CMC of the WMO Strategic Plan 2023 and the new governance structure aligned to the Strategic Plan (Annex I). Details of the WMO governance reform are available at <https://public.wmo.int/en/governance-reform>. The 18th Congress established a Transition Team to lead the transition to the new governance structure. The transition will occur over two years, at the end of which Congress will hold an *Extraordinary Session of Congress* in 2021.

1. The Transition Team met in November 2019 to discuss the Commissions’ substructures and their terms of reference and to prepare for what would have been the Joint Session of the Technical Commissions and the Research Board in April 2020. With the onset of the pandemic, those sessions were postponed. Members were then asked to nominate experts as chairs and vice-chairs of the standing committees as well as to review and approve the terms of reference by correspondence.
2. With the new structure, each of the two Technical Commission comprises a set of Standing Committees comprised of experts nominated by the Permanent Representatives and Study Groups to tackle specific issues and provide opportunities for wider participation by Members;
3. Council is asked to note the selection of *Ms* *Kathy-Ann Caesar* of CIMH as the Co-Chair of Education, Training and Capacity development (ET-ETC) under the Standing Committee on Aviation Services. Additionally, *Dr Arlene Laing*, has been serving on the Infrastructure Commission Study Group for the Global Basic Observation Network (GBON) and *Mr John Tibbetts*, Director of Cayman Islands National Weather Service, was selected to serve on Expert Team on Multi-Hazard Early Warning Systems (MHEWS) Technical Guidance (ET-MTG) under the Standing Committee on Disaster Risk Reduction.
4. In December 2019*, Dr Arlene Laing* was nominated as the RA IV representative to the Research Board and a Member of its Management Team.
5. Members are **urged** to nominate experts via <https://community.wmo.int/> to ensure that the Caribbean perspective is represented in decisions of these global bodies.
6. Council is reminded of the five Long Term goals for the 2020-2030 period set by the WMO Strategic Plan:

* Goal 1: *Better serve societal need*s: delivering, authoritative, accessible, user-oriented and fit-for-purpose information and services
* Goal 2: *Enhance Earth system observations and predictions*: Strengthening the technical foundation for the future
* Goal 3: *Advance targeted research*: Leveraging leadership in science to improve understanding of the Earth system for enhanced services
* Goal 4: *Close the capacity gap* on weather, climate, hydrological and related environmental services: Enhancing service delivery capacity of developing countries to ensure availability of essential information and services needed by governments, economic sectors and citizens
* Goal 5: *Strategic realignment of WMO structure and programmes* for effective policy- and decision-making and implementation

1. Goals 1 and 4 are of particular interest to the Organs of the CMO, which have aligned their strategic objectives to those goals, and the NMHSs of CMO Member States, which are the beneficiaries of the long-term goals.
2. As noted above, the Executive Council panels changed to align with the new Strategic Plan. With regard to capacity development, Council will recall that under the new structure, “Education and Training” is now a part of the *Capacity Development Panel* of the Executive Council*.* Therefore, in 2019, the decision was made to nominate to the Panel, *Dr David Farrell*, Principal of CIMH, which is a WMO Regional Training Centre. His nomination was confirmed in April 2020 and the panel held its first meeting on 26-27 August 2020 via videoconference. *Mr Evan Thompson,* President of RA IV represents the Presidents of Regional Associations on the Capacity Development Panel. Council is asked to note their service on this vital panel.

### A(2) Budget and Financing for 2020-2023

1. At the 72nd Executive Council and the preceding Financial and Advisory Committee (FINAC-39) meeting, the Secretary-General reported that as of 15 September 2020, the WMO has **received only about** **40% of contributions**. More than 100 Members have an outstanding balance of assessed contributions due to WMO, with CHF 40 million of assessed contributions remaining unpaid to that date.
2. In discussing the financial matters of the WMO, the CMO team took a critical look at the state of the contributions of CMO Member States to the WMO budget. It must be recognized that, despite the size of a country, all Member States form part of a global system under the umbrella of the WMO that is critical to the economies of all countries and to the safety and well-being of all their citizens. As all countries benefit significantly from WMO, it was therefore noted with concern that a few CMO Member States had arrears ranging from two (2) to eleven (11) years. It was hoped that the CMO Member States with significant arrears to WMO make every effort to enter into an arrangement with WMO that would alleviate this situation.

### A(3) Extraordinary Session of the World Meteorological Congress – Key issues

1. The 72nd Executive Council decided that the Extraordinary Congress in 2021 will be held 31 May to 4 June 2021 in Geneva, pending the evolution of the COVID-19 pandemic. With the preference for a face-to-face meeting, it is possible that the Congress may be postponed to later in 2021. The agenda will focus on a few key areas, including those elaborated below.

#### Review of WMO Regional Concept and Approaches

1. Council will recall that the 18th Congress indicated that **priority should be placed on increasing regional capability**, which is outlined under Long-term Goal 4 and its associated Strategic Objectives for 2020-2023. The Climate Coordination Panel, the Hydrological Coordination Panel, and the Capacity Development Panel represent vehicles for WMO Regional Associations to input their priorities and needs across both the Commissions and the Research Board. Coordination among the WMO bodies is needed to ensure that they are supporting, systematically and seamlessly, the **full value chain of systems and services to support Members**.
2. Therefore, EC-72, through Resolution 3.3 (2) decided:

“(1) To establish an EC Task Force to lead the comprehensive review of the WMO Regional concept and approaches according to the decision of Resolution 11 (Cg-18) — WMO Reform – Next Phase, and submit recommendations to EC-73 and Extraordinary Congress (2021) for discussions, guidance and decisions,

(2) The Task Force will be led by the third vice President of WMO and composed of all Presidents and Vice-Presidents of Regional Associations and interested EC members, and with broad consultations with WMO global and regional partners, taking into consideration the differences (diversity) of WMO Regions . Representatives of the Technical Commissions and the Research Board will be invited to this Taskforce to facilitate links with these bodies.

(3) To establish harmonized structures for the functioning of the regional associations with due consideration of regional characteristics and priorities of the regions and available financial and human resources in alignment with the new constituent bodies of the Organization by using similar taxonomy or designation of the subsidiary bodies of the technical commissions that will exist during the entire intersessional period to promote common approaches and better cross-regional cooperation;”

EC-72 called for the effective coordination of the working groups of the regional associations; consideration of the structures of the Technical Commissions, sharing of workplans, and inviting of the presidents of the Commissions and the Research Board to regional meetings.

1. Council is asked to note that, in alignment with the EC-72 Resolutions 3.3(1) and 3.3(2), the RA IV President and Management Group, with the support of the WMO RA IV Sub-regional Office, have started the process of setting regional priorities and revising the working structures of RA IV. The new working structures will be presented for approval at the 18th Session of RA IV and Members of RA IV have been asked to nominate chairs and vice chairs for the new subsidiary bodies to conduct the tasks of the regional work programme. Members States of the CMO and WMO are **urged** to nominate experts, based on their relevant expertise within the Member State, and nominations are not restricted to NMSs.
2. Regional Associations are also being asked to open up their sessions to economic and political organs and to participate in their regional high-level events, thereby promoting a stronger regional policy and political footprint. They are also invited to engage with regional UN organizations, other inter-governmental regional organizations, and donor organizations. With these partner organizations, regional associations can focus on thematic areas of common interest in their region. An example of this new approach is the issuance of a *Regional State of Climate* report that is based on the annual *State of the Climate* issued for the globe. For RA IV, Council should note that the WMO Regional Climate Centre at CIMH was involved in the development of the Regional State of the Climate report that will be launched later this year.

#### WMO Data Policy

1. Council will recall that the 18th WMO Congress in June 2019, agreed to review international data resolutions (WMO Resolutions 40, 25, and 60) and discuss emerging data issues at the 2020 WMO Data Conference. The decision was motivated by, among other things, the explosive growth in demand for weather, climate, water, atmospheric composition data and information. There is also the additional challenge of balancing open data sharing in an era where the private sector role in weather, climate, and water is expanding.
2. The basic concept of a new WMO Data Policy (tentatively named Resolution 42) is that essential datasets need to be exchanged to support global numerical modelling, which are a public good for all nations. As part of that effort to ensure skilful prediction, it is important for every Member State to maintain its contribution to a baseline observing network. This means that, e.g., Members need to take into account the need to establish and maintain the Global Basic Observation Network (GBON) to the extent that is environmentally feasible and where practically achievable and to make those observations accessible via WIGOS and WIS.
3. Council is advised that the revision of the WMO Data Policy is a major issue for the WMO that has implications for CMO Members. A draft revised data policy concept was presented to the 72nd Executive Council for discussion (**Annex II**).
4. Further discussion continued during four workshops hosted by the WMO in advance of the WMO Data Conference, which will be held from 16-19 November 2020 by videoconference. Council is asked to note that the Coordinating Director will be giving an oral presentation at the Data Conference on the Caribbean perspective, based on discussions at *Caribbean Symposium 2019: Operational Hydro-Meteorology Leadership Summit* (CMC59, Doc 11). The outcome of WMO Data Conference will be a resolution for approval by the Extraordinary Session of Congress in 2021.

#### Operational hydrology in addressing global water challenges

1. During the "*Hydrology Assembly*" at the 18th Congress, WMO was challenged to find the best mechanism for engaging with the operational hydrological community. During the transition period to complete the governance reform, the Hydrological Coordination Panel of the Executive Council has been developing a Plan of Action and draft Declaration to be considered at the Extraordinary Session of Congress in 2021. Input to the plan is via surveys and events organized by regional hydrological advisers. The CMO Headquarters encouraged responses from NMHSs, national hydrology experts, and stakeholders.
2. Within RA IV, the Regional Hydrological Advisers have met in two virtual forums in 2020 to discuss a Plan of Action for operational hydrology within RA IV. Decisions are expected to be made about how operational hydrology fits within the WMO structure, with consideration given to how vital operational hydrology is to addressing global water challenges, and emerging opportunities in the broader WMO interdisciplinary context.

1. Council is reminded of the **urgency** for Member States to formalize their hydrological advisers with the WMO. This is necessary in order for them to be able to vote at the Extraordinary Congress in 2021.
2. Council may wish to discuss the role of operational hydrology within CMO, which has only one Member State with a fully-fledged hydrological service. Consideration of the role of hydrology in the Organization is warranted given the shifting emphasis of WMO and NMHSs to encompass holistic approach to service delivery, including environmental services, impact-based forecasting, multi-hazard early warning systems, energy, and water management. The need to access hydrology expertise is noted in the Terms of Reference for the drafting of legislation for National Meteorological Services (that project will be discussed under Item 11).

### A(4) Other Highlights

#### Alliance for Hydromet Development and WMO Country Support Initiative

1. Council will recall learning of the *Alliance for Hydromet Development* that was announced at the 18th WMO Congress, by the WMO in partnership with the World Bank and other development partners. At the 72nd Executive Council, the Alliance welcomed the Climate Investment Fund (CIF) as a new partner. CMO Member States who are WMO Members are reminded of opportunities available for resource mobilization through the Alliance, with help from the WMO. In order to more effectively build capacity in developing countries, WMO is expanding its services, via the Country Support Initiative, to Member States by partnering with donor agencies and providing advice to Members in implementing capacity development investment.

#### Systematic Observations Financing Facility (SOFF)

1. The Systematic Observations Financing Facility (SOFF) is a financing and technical mechanism to support basic surface observations – the Global Basic Observing Network (GBON). The SOFF was formally endorsed by European Meteorological Institutions on 2 October 2020 as a side event to the 72nd Executive Council. Through the SOFF, developing countries will be able to deliver their contribution to GBON. SOFF investment will focus on providing long-term observational data exchange as a measure of success. The intent is to support operating and maintenance costs of a country’s basic observation infrastructure through results-based finance. It will produce local benefits while delivering on a global public good – that of better global weather forecasts and climate information for all nations. The SOFF was developed based on the recognition that some less developed countries do not have the resources to sustain the quality of surface-based observations needed for a homogenic global network to support global NWP and climate services.

#### Guidelines for Public-Private-Engagement

1. Council is reminded of Resolution 80 (Cg-18) - “*Geneva Declaration 2019: Building Community for Weather, Climate and Water Actions*” that set a high-level WMO policy on public-private engagement. On the recommendation of the Policy Advisory Committee, that policy framework was transformed into a set of guidelines for actions at the global, regional, and national-level by WMO and its Members **to promote effective engagement among public, private, academic, and civil society sectors to advance socio-economic benefits**. The 72nd Executive Council endorsed the *Guidelines for Public-private Engagement* (edition 2020) (under [Resolution 5.2/1](https://meetings.wmo.int/EC-72/_layouts/15/WopiFrame.aspx?sourcedoc=/EC-72/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-72-d05-2-PUBLIC-PRIVATE-ENGAGEMENT-approved_en.docx&action=default)). Members are urged to review and follow the guidelines for best practices in partnerships to aid in their development and delivery of services to meet societal needs.

#### IMO Prize and WMO Research Award for Young Scientist

1. During its 72nd session, the Executive Council voted to present the sixty-fifth IMO Prize to *Mr David Grimes*, recently retired WMO President (2011-2019), for his outstanding work in the global meteorology community including spearheading of the Global Framework for Climate Services (GFCS) and the Global Cryosphere Watch, among several achievements. The Prize is named after the WMO’s predecessor organization, the *International Meteorological Organization*.
2. The WMO *Research Award for* *Young Scientists* was granted to *Dr B Rohith* (RA II, India) for his lead authorship of the paper, “Basin-wide sea level coherency in the tropical Indian Ocean driven by Madden–Julian Oscillation*”*, published in Nature Communication (2019). The Executive Council also noted the significance of the paper, “Statistical downscaling of the North Atlantic tropical cyclone frequency and the amplified role of the Caribbean low-level jet in a warmer climate”, by *Ms Jhordanne Jones* (RA IV, Jamaica).
3. Council is asked to note that *Dr Arlene Lain*g has been a Member of the Committee for the WMO Research Award for Young Scientists since the 71st Executive Council in 2019.

## B WMO Integrated Global Observing System – Initial Operational Phase

1. Over the last several years, the Caribbean Meteorological Council has held significant discussions on the *WMO Integrated Global Observing System* (WIGOS), an all-encompassing approach to the improvement and evolution of WMO’s global observing systems, which is needed in all countries to consolidate progress in meteorological research, numerical modelling, and computer and communication technologies. Closely tied to WIGOS is the implementation of the *WMO Information System* (WIS). WIGOS, together with WIS, form the basis for the provision of **accurate, reliable and timely weather, climate, water and related environmental observations and products** by all Members and WMO Programmes, which would lead to improved service delivery. Both WIGOS and WIS are very essential to all technical and scientific activities of Meteorological Services in the Caribbean and worldwide.
2. Council is asked to note that WIGOS is operational from 2020, after a *Pre‑operational Phase* in 2016-2019. As with all Member States of WMO, CMO Member States should currently be in full preparation for implementation. The goal is for all Member States and their partners to benefit from a fully operational system starting this year. In the Caribbean region, the focus has been on getting the Meteorological and Hydrometeorological Services fully ready in the first instance, while efforts continue to bring partner institutions and organizations on board as contributors to WIGOS.
3. WMO has recognized that significant capability gaps and other challenges remain. Those will need to be addressed during 2020-2023, in order for the system to fully serve all WMO application areas and help Members exploit the full potential of partnership agreements. The highest priorities for WIGOS during this period will be:
   1. National WIGOS implementation, including necessary capacity development, partnership agreements and integration of observing systems for all application areas;
   2. Fostering a culture of **compliance** with the WIGOS technical regulations;
   3. Implementation of the Global Basic Observing Network (GBON) and the Regional Basic Observing Networks (RBON);
   4. Operational deployment of the WIGOS Data Quality Monitoring System (WDQMS);
   5. Operational implementation of Regional WIGOS Centres (RWC);
   6. Further development of the Observing Systems Capability Analysis and Review (OSCAR) databases.

High priority will be given to activities that will assist Members in developing and implementing their national WIGOS plans, with special emphasis on the Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States where the needs are the greatest.

1. Per the requirement for WIGOS implementation, National Meteorological Services (NMS) are required to develop a National WIGOS Implementation Plan (N-WIP). The N-WIP must describe how the NMS will partner with other national entities to create a comprehensive strategy for the implementation of a national observing system, to collect, manage and store meteorological and hydrological and other forms of data. The CMO Headquarters provided NMSs with a self-assessment template for the identification of gaps in their observing systems and examples of completed assessment to assist in the completion of their assessment. Further, NMSs of Members States that are not Members of WMO were provided with a form for the input of their data, which is required for the updating of their observational metadata which is stored on the WMO metadata database called Observing Systems Capability Analysis and Review (OSCAR)/Surface. The updating of the database is a requirement of establishing their N‑WIP. Council is **urged to support their NMS in the development of a National WIGOS Implementation Plan** by facilitating and enabling the necessary data policies and partnerships to integrate information about data related to weather, climate, and water and the environment.
2. The concept for *Regional WIGOS Centres* (RWCs), as endorsed by the WMO Executive Council, is a vital part of the implementation of WIGOS. The Executive Council has recognized the critical role that RWCs will play in advancing the implementation of WIGOS at the regional level by providing regional coordination, technical guidance, assistance and advice to Members and partner organizations, through regional WIGOS performance monitoring and incident management. A Concept Note for a ***Virtual Regional WIGOS Centre in RA IV*** (North America, Central America and the Caribbean), was developed as a collaborative effort of the United States National Weather Service, Environment Canada, the CMO Headquarters Unit, and the Trinidad and Tobago Meteorological Service.
3. The RWC functions are to monitor and evaluate the availability, timeliness, and quality of observation data, where the CMO HQ and TTMS will cover the English-speaking Caribbean. The RWC Concept Note was endorsed by the RA IV Management Group at its meeting in January 2020, Boston, USA. The RWC working group is currently developing an implementation plan to be presented in 2021.

## C Reception of Geostationary Satellite Imagery in CMO Member States

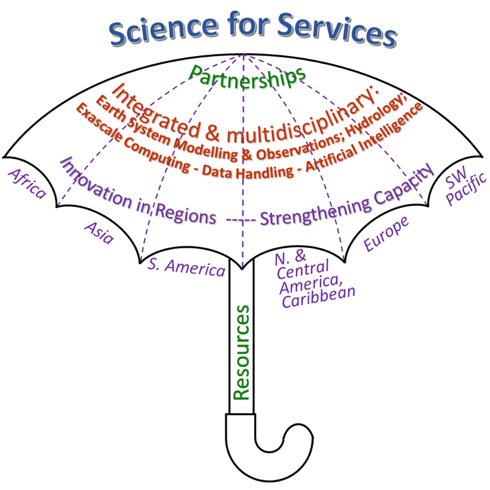
1. Council will recall that the new Geostationary Operational Environmental Satellite (**GOES-16**) was successfully launched in November 2016; becoming the operational **GOES-East** weather satellite positioned at 75.2 degrees West, providing coverage over the Atlantic Ocean from the west coast of Africa, North and South America and the Caribbean. The sister satellite, **GOES-17**, launched in March 2017, became the operational **GOES-West** satellite at 137.2°W in late 2018. GOES-16 and 17 are the new generation of geosynchronous environmental satellites that provide atmospheric and surface measurements of the Earth’s Western Hemisphere for weather forecasting, severe storm tracking, space weather monitoring and meteorological research.
2. The lightning mapping capability allows forecasters to track lightning over the entire hemisphere. This is important because intensification in lightning activity may indicate a storm is becoming increasingly severe.
3. Personnel from the CMO Headquarters and the CIMH continue to be directly involved with WMO and the US National Weather Service in coordinating the operational use of the GOES data among CMO Member States. Due to the vast data volume and faster satellite transmission than the previous systems, Meteorological Services in the region have either installed or are exploring their options among three pathways to receive the new satellite data and/or imagery, namely:
4. Direct readout from the GOES Re-Broadcast (GRB);
5. Various commercial data services via the Internet;
6. Data via GEONETCast-Americas - the western hemisphere component of a near real‑time global network of satellite-based data dissemination systems.
7. In 2018, the Cayman Islands became the first Anglophone Caribbean State to install a full GOES ReBroadcast (GRB) ground station, thereby receiving the primary relay of full resolution, calibrated, near-real-time direct broadcast data from the GOES satellite system. The National Weather Service of the Cayman Islands indicated a willingness to share its GOES imagery with the NMHSs of other BCT Members. Additionally, a GRB ground station has been installed in Tobago, with selected images being shared publicly via the website of the Trinidad and Tobago Meteorological Service since September 2020.

## D The Global Framework for Climate Services (GFCS)

1. The Council will recall that the ***Global Framework for Climate Services*** (GFCS), a United Nation (UN)-led initiative spearheaded by WMO, is being implemented throughout the world to guide the development and application of science-based climate information and services in support of decision-making. Council may further recall that, in 2018, a change in the governance of the GFCS was recommended after the 70th WMO Executive Council endorsed a Mid-term Review of the GFCS. Via Resolution 20 (Cg18), the governing structure for the GFCS was changed from an *Intergovernmental Board on Climate Services*, which was accountable to the WMO Congress, to the *Climate Coordination Panel* (CCP) which reports to the WMO Executive Council. The new CCP includes the following: (i) Subgroup on the WMO contribution to the GFCS, (ii) Subgroup on climate policy and (iii) GFCS Partners Advisory Committee (PAC), the mechanism for stakeholder engagement in GFCS. All the substructures have met at least once. The CCP is led by the President of the WMO and became active in 2020.
2. As a framework with broad global participation and reach, GFCS enables the development and application of climate services to assist decision-making at all levels in support of addressing climate-related risks and outcomes at national, regional and global levels. The priority areas for the GFCS are (i) Agriculture and food security (ii) Disaster risk reduction, (iii) Energy (iv) Health and (v) Water. The GFCS is currently being implemented through eight global projects, many with an emphasis on developing countries and Small Island Developing States.
3. In this regard, several of the GFCS Projects involve the CIMH, which has been implementing the five GFCS pillars plus other sectors of importance such as tourism, at the regional level. One project example is the European Union-African Caribbean Pacific (EU-ACP) GFCS Project that will benefit several CMO Member States through the development of National Frameworks for Climate Services.

## E Issues emerging from the WMO Technical Commissions and Research Board in 2020

1. Council is asked to note that the first session of the Commission for Observation, Infrastructure and Information Systems (INFCOM-1) was held as a Virtual meeting on 9-13 November 2020 and attended by *Dr Arlene Laing* and *Mr Glendell De Souza*, representing the British Caribbean Territories (BCT). Among the issues raised by the delegates was the selection process for experts to serve in sub-structures of the Commission; with the expressed desire to ensure appropriate balance among regions, countries, and gender. With the change from eight to two Commissions, there is concern about the reduction in opportunity for a broad cross-section of Members to participate in the Commissions. In the current process experts have been nominated by their Permanent Representatives (PRs) using the WMO Community Platform but the process for selection thereafter is not clear. The Executive Policy Advisory Committee is reviewing the process for the selection of experts to serve.
2. Delegates of INFCOM-1 recognized the huge challenge of implementing WIGOS and requested the WMO Secretariat to provide support to Members and Regional Associations in implementing WIGOS through its operational phase, especially to less developed countries, within available resources. Also extensively discussed were the requirements for the Global Basic Observation Network, a critical part of WIGOS that specifies the contribution of Members to a baseline surface and upper-air observing network.



1. The Research Board met by videoconference on 20 December 2019 and 6-8 April 2020 to discuss its Terms of Reference and development of Concept Notes on research goals. The Concept Notes articulate the high-level scientific priorities and key activities needed in a manner that is attractive and accessible to the broad scientific community and to partners who are not familiar with WMO, including funding agencies and stakeholders; facilitate interactions within WMO; enable the research programmes to work more effectively on cross-cutting aspects; and provide an inclusive framework for partners of WMO. The *Science for Services* Concept is the overarching umbrella for the other concept notes. Council is asked to note that *Dr Arlene Laing* is leading the Concept Note on “*Innovation in Regions*”.

Credit, WMO

1. In response to the COVID pandemic and the questions about seasonal and environmental impacts, the WMO Research Board convened a Task Team, WMO SARS-CoV-2/COVID-19 TT**.** In her role as a Member of the Research Board, Dr Arlene Laing nominated *Dr David Farrell*, Principal of CIMH to the Task Team, because of CIMH’s experience in research on climate and health impacts. The role of the Task Team is to respond to the real-time challenge of providing decision support and relevant knowledge on climate-weather-air pollution drivers and determinants of the SARS-CoV-2/COVID-19 pandemic. The TT supported the organization of the international virtual *Symposium on Climatological, Meteorological and Environmental Factors in the COVID-19 Pandemic* (4-6 August), under the auspices of the WMO, WHO, and the American Geophysical Union (AGU). The Coordinating Director participated in breakout sessions of the Symposium.

## F Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems

### F(1) Tropical Cyclone Programme

1. The Caribbean Meteorological Council is aware that activities within the WMO *Tropical Cyclone Programme* (TCP) are among the most important to the Caribbean and other tropical basins. The TCP is essential to help reduce the disaster risk associated with the tropical cyclones. The most critical regional activity under the TCP is the *Hurricane Committee*, serving the *North Atlantic and Caribbean Basin*. The Hurricane Committee has at its core, *the US National Hurricane Center*, which is one of WMO’s primary *Regional Specialized Meteorological Centres* (RSMCs) for tropical cyclones.
2. Most Meteorological Services in CMO States are represented on the Hurricane Committee which, along with the relevant regional and national disaster management community, work continuously towards the reduction of disaster risks by tropical cyclones, particularly the loss of lives. The Hurricane Committee defines and routinely updates the warning system for tropical cyclones in the North America, Central America and the Caribbean region, including the areas of responsibility of the NMHSs in each Member State in the provision of tropical cyclone forecasts and warnings. The warning system includes back-up arrangements between Meteorological Services with warning responsibilities.
3. The 2020 Hurricane Committee met via videoconference, for the first time, on 31 March and 3 April, in a session with a shortened agenda of critical decisions. The Operational and Technical Plans for 2020 were updated and finalized. Of note in terms of observations was the voluntary increase in the number of rawinsonde launches by NOAA and Météo-France to offset the loss of aircraft observations due to the dramatic reduction in commercial air traffic due to the pandemic.
4. The opening session of this year’s Hurricane Committee featured a special guest, *Ms Sally Edwards*, Regional Regional Advisor, *Pan American Health Organization* (PAHO), who spoke about the challenge of managing the overlapping COVID-19 pandemic and a predicted active hurricane season. She described the concerns of conflicting response actions for the pandemic and hurricane preparedness, e.g., where distancing and extra sanitization mitigate the spread of COVID-19, and the need for people at risk from tropical cyclone impacts to evacuate to shelters and the potential lack of adequate utilities including water. She stressed the need of unprecedented support from the meteorological community and the need for closer cooperation and better communication in providing hurricane warning services for Disaster and Health agencies, under such unprecedented challenges.
5. Chair of the Hurricane Committee and Director of the US National Hurricane Center (NHC), *Mr Kenneth Graham*, described the actions that the NHC was taking to ensure continuity of operations. 2020 Hurricane Operational Plan was updated and agreed upon. Decisions about the retirement of names of hurricanes was tabled until the next face-to-face meeting of the Committee, which is expected to be in 2021 in Panama, which was the 2020 host country before the pandemic travel restrictions.

### F(2) Global Multi-hazard Alert System (GMAS)

1. Council will recall that the 18th WMO Congress supported the establishment of a Global Multi-hazard Alert System framework for compiling information from existing or planned national and regional systems and boost impact-based forecasting services, which focus on what the weather will do rather than purely on what the weather will be. The GMAS framework will leverage good examples of global, regional, and sub-regional platforms that provide alerts of various natural hazards. Council is once more asked to **urge** CMO Members to "sustain their engagement in strengthening their MHEWS and to contribute to regional and transboundary multi-hazard early warning mechanisms (platforms, advisory systems) by also providing in-kind support."
2. Information about the implementation of GMAS was presented to the RA IV Management Group meeting in June 2020. Implementation is predicated on the adaptation of the Common Alerting Protocol (CAP) across the globe. Advisories and warnings issued via the CAP will be used by GMAS to populate the global map.

### F(3) WMO Methodology for Cataloguing Hazardous Events (WMO-CHE)

1. The previous Congress resolved to develop *identifiers* *for cataloguing extreme weather, water and climate events* (Cg17, Resolution 9) and the 70th Session of the Executive Council recommended an approach for cataloguing high-impact events (Recommendation 1). Those decisions support monitoring of the implementation of international initiatives such as the Sendai Framework for Disaster Risk Reduction2015−2030, the Paris Agreement on climate change, and the United Nations FrameworkConvention on Climate Change (UNFCCC) Warsaw International Mechanism for Loss andDamage associated with climate change impacts, and the 2030 Agenda for SustainableDevelopment with its 17 Development Goals (SDGs).
2. The WMO coordinated catalogue of hazardous weather, climate, water, and space weather events was adopted by the 18th Congress. Council is reminded to encourage Members to contribute to the WMO catalogue as well as to the CIMH Climate Impacts Database.

**ACTIONS PROPOSED TO COUNCIL**

1. **Council** is asked to:

**Note** the key issues emanating from the 72nd session of the Executive Council (EC) of theWorld Meteorological Organization;

**Urge** CMO Member States to ensure that their NMHSs complete activities in preparation for the Operational Phase of WIGOS, which became operational in 2020;

**Discuss** and **provide guidance** on the proposed Virtual *Regional WIGOS Centre* (RWC) as a collaboration among the US, Canada, CMO Headquarters and the Trinidad and Tobago Meteorological Service;

**Discuss** and **provide guidance** on the major revision of WMO Data policy and related resolution to be decided by the Extraordinary Congress in 2021;

**Note** efforts being made with regard to coordination among hydrological advisers and agencies within RA IV; and the important issues on hydrology emerging from the 2020 sessions of WMO Executive Council, Technical Commissions and Research Board;

**Discuss** and **provide guidance** on the role of operational hydrology in the CMO;

**Encourage** CMO Member States to take advantage of resources available through the Alliance for Hydromet Development with the support of the Organs of the CMO and other regional partners;

**Encourage** CMO Member States to contribute to the Global Multi-Hazard Alert System and the WMO Catalogue of Hazardous Events;

**Urge** Member States to **complete the process** for reception of the new GOES-16 weather satellite data and products;

**Continue** its strong support for the *Global Framework for Climate Services* and to **urge** Member States to actively participate in GFCS projects and activities;

**Note** and **support** the work of WMO Regional Association IV;

**Urge** WMO Members to nominate experts to the WMO Expert database to expand Member participation in WMO constituent bodies.

**Note** and **support** the important work of the regional Hurricane Committee;

**Encourage** Member States to consult the WMO *Guidelines for Public-Private Engagement* (2020 edition) in developing partnerships to enhance their capacity to meet demand for services and to participate in the WMO Open Consultative Platform.

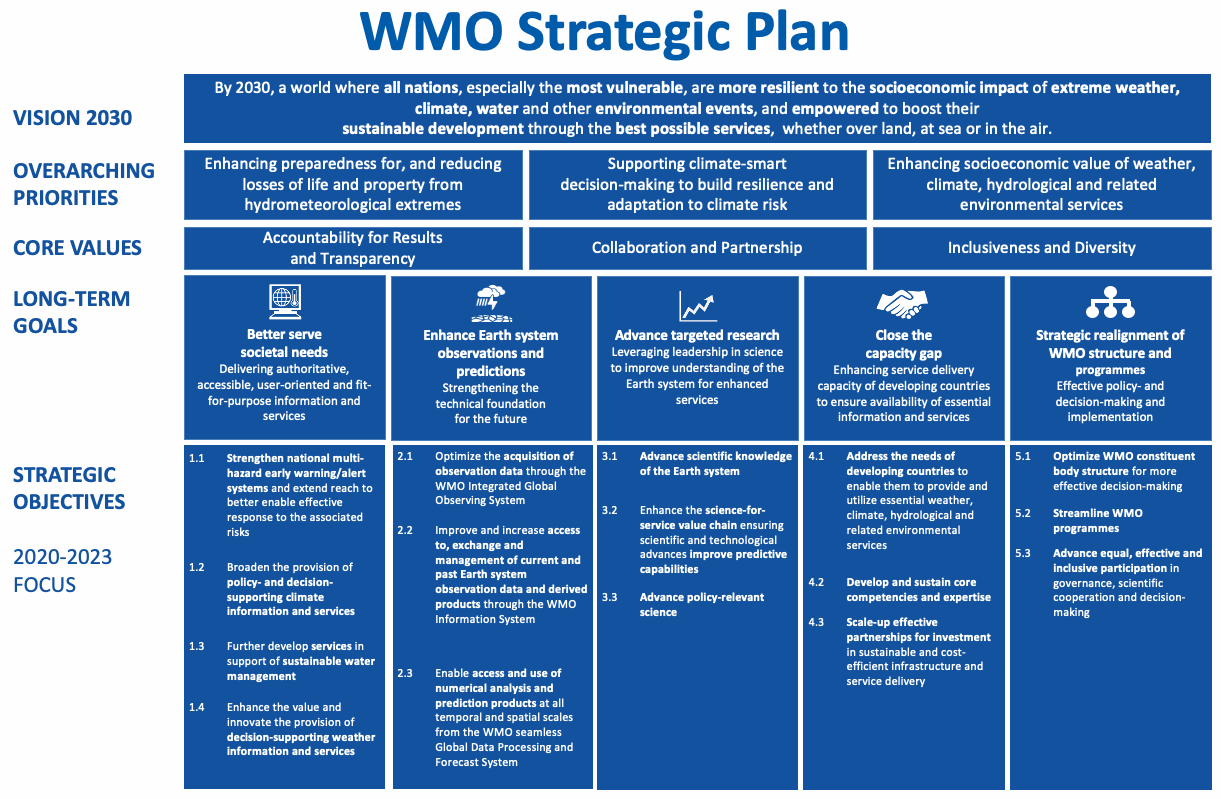
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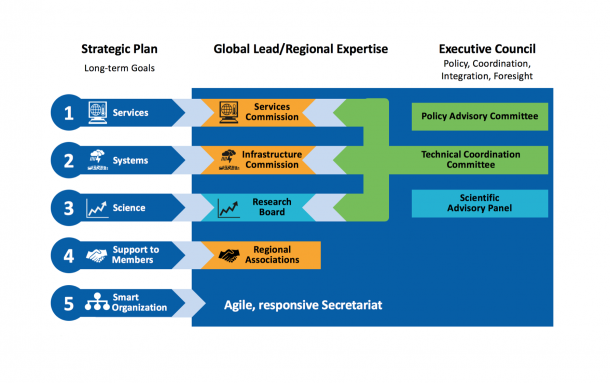
CMO Headquarters,

November 2020

# Annex I

# WMO Strategic Plan and Constituent Bodies





Source: WMO

# Annex II

## Draft Decision 3.5/1 (EC-72)

## WMO Data Policy

**The Executive Council,**

**Recalling** [Resolution 56 (Cg-18)](https://library.wmo.int/index.php?lvl=notice_display&id=21440#.X2yPgGgza71) - Data policies and practices, in which EC was requested to establish a process for the review of the WMO data policies and practices expressed in [Resolution 40 (Cg-XII)](https://library.wmo.int/index.php?lvl=notice_display&id=4752#.X2yQn2gza70) - WMO Policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, [Resolution 25 (Cg-XIII)](https://library.wmo.int/index.php?lvl=notice_display&id=5849#.X2yRS2gza70) - Exchange of hydrological data and products, and [Resolution 60 (Cg-17)](https://library.wmo.int/index.php?lvl=notice_display&id=18648#.X2yQCWgza70) - WMO Policy for the international exchange of climate data and products to support the implementation of the Global Framework for Climate Services,

**Further recalling** [Resolution 2 (EC-71)](https://library.wmo.int/index.php?lvl=notice_display&id=21441#.X2yS_2gza72) - Data policies and practices, in which the Infrastructure Commission was requested “to provide the PAC with its analysis of the WMO data policies {…} and {…} continue the evaluation of the emerging data issue and their implication on Members and weather enterprise as a whole {…}”,

**Noting** that the Infrastructure Commission has established a Study Group on Data Issues and Policy (SG-DIP) tasked with responding to the resolutions cited above,

**Noting further** that as a result of its comprehensive review of WMO data policies and practices, SG-DIP has proposed the development of a draft Resolution on WMO Data Policy (working title: Resolution 42), with the aim of submitting it to EC-73 for its recommendation to the WMO Extraordinary Congress in 2021,

**Noting with appreciation** the updates provided by SG-DIP to the Executive Council via the Policy Advisory Committee (PAC-1*,* 11-12 May 2020, PAC-2, 17-18 August 2020*)* and the Technical Coordination Committee (TCC-1, 27-29 April 2020, TCC-2, 13 July 2020 and TCC-3, 1-2 September 2020) regarding the structure and purpose of the resolution and the plans and schedules for stakeholder consultations that form an integral part of the development work,

**Having considered** the recommendation provided by the Policy Advisory Committee concerning the drafting of a single WMO Data Policy,

**Having further considered** the recommendation provided by the Technical Coordination Committee on the comprehensive update of WMO data policies,

**Decides** to endorse the overall approach taken by the Infrastructure Commission and its Study Group on Data Issues and Policy, including the emerging structure of the draft Resolution 42, as shown in the [Annex](#Annex) to the draft Decision;

**Requests** the Infrastructure Commission, working closely with the Services Commission, the Research Board and other bodies, to finalize the text of the draft Resolution via the work of SG-DIP, the planned stakeholder consultations and the WMO Data Conference in November 2020 and to submit the draft text to EC-73 for its recommendation for Congress to the WMO Extraordinary Congress;

**Further requests** the Infrastructure Commission – via the upcoming TCC and PAC sessions - to continue briefing the Executive Council on the development of the draft Data Policy Resolution;

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Decision justification:

1. [Resolution 56 (Cg-18)](https://library.wmo.int/index.php?lvl=notice_display&id=21440#.X2yXkGgza71) – Data Policies and Practices

2. [Resolution 2 (EC-71)](https://library.wmo.int/index.php?lvl=notice_display&id=21441#.X2yS_2gza72) – Data Policies and Practices

3. Final Report of the Ad Hoc Meeting on Data Issues and Policies  
(11-13 February 2020)

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**Annex to draft Decision 3.5/1 (EC-72)**

## September 2020: Concept, structure and next steps for drafting of Resolution 42,

## Comprehensive update of WMO data policies

The Study Group on Data Issues and Policies (SG-DIP), taking into account the results of the analysis of national practices in the application of [Resolutions 40 (Cg-12)](https://library.wmo.int/index.php?lvl=notice_display&id=4752#.X3br2mj7S1s), [25 (Cg-13)](https://library.wmo.int/index.php?lvl=notice_display&id=5849#.X3btYWj7S1s) and [60 (Cg-17)](https://library.wmo.int/index.php?lvl=notice_display&id=18648#.X3bthWj7S1s), carried out in response to [Resolution 2 (EC-71)](https://library.wmo.int/index.php?lvl=notice_display&id=21441#.X3bttWj7S1s) and published during the upcoming data conference, *[Igor A SHUMAKOV]* is making good progress on the proposed update and merging of WMO data policies into a unified single data policy resolution. This document summarizes the rationale for updating WMO data policy, reviews the proposed structure of the new draft data policy resolution, and outlines next steps within the work plan.

The Study Group is pursuing the development of unified data policy resolution based on the conclusions of the ad hoc meeting on Data Issues and Policies (11-13 February 2020), convened in response to [Resolution 56 (Cg-18)](https://library.wmo.int/index.php?lvl=notice_display&id=21440#.X3NDqmj7S1s) — Data Policies and Practices, and [Resolution 2 (EC-71)](https://library.wmo.int/index.php?lvl=notice_display&id=21441#.X3NEN2j7S1s) — Data Policies and Practices. The ad hoc meeting concluded that, in order to guarantee access to the wealth of data required to achieve the goals laid out in the WMO Strategic Plan – which are based on an Earth system approach to monitoring, understanding and predicting weather, climate and water – a comprehensive update of WMO data policies would be needed. Furthermore, SG-DIP was of the view that WMO would maximize its visibility and impact by striving to adopt one common, overarching data policy, rather than by pursuing a set of separate resolutions structured by discipline, as has been the case in the past The proposal from SG-DIP was thus to develop a new overarching WMO data policy resolution and submit it for consideration by the Extraordinary World Meteorological Congress in 2021 (Cg (Ext)-21). This proposal was presented and discussed at the First Session of the EC Policy Advisory Committee (PAC-1) in May 2020, during which the PAC expressed its support for the approach taken and agreed that the development of such a new draft data policy resolution should proceed.

**Concept and structure of Resolution 42**

Within the overall weather, climate and water value chain, Resolution 42 focuses specifically on those observational data and derived quantitative products that are either necessary (“essential data”) or highly desirable (“additional data”) to exchange in order for Members to be able to deliver the necessary weather, climate, water-related and other environmental services to their constituencies.

Resolution 42 draws on elements of the three core WMO data policy resolutions for weather, water and climate, Resolutions 40, 25 and 60, respectively, and is building on the experience gathered over the years with the various strengths and weaknesses of these resolutions and their implementations.

Compared to its predecessor Resolution 40, Resolution 42 introduces the following new elements:

 In keeping with the broadening of the remit of WMO and the drive toward Earth system monitoring and prediction, the new draft resolution is intended to cover all of WMO’s activity areas, and it therefore encompasses data from all WMO-relevant domains and disciplines;

 Recognizing the difficulty of including in a WMO Congress resolution on data policy a sufficient amount of detail for Members to be able to implement such a policy, the text of the resolution calls for subsequently codifying the policy in the WMO Technical Regulations wherever possible;

 Specific details on which datasets, variables, model products, etc. that belong to the categories of essential and additional data for the different domains is therefore referred to the text of the WMO Technical Regulations wherever possible;

 Recognizing the rapid rate of change of technology, and the speed of scientific developing, the text of the resolution calls for regular review and update of the policy as necessary;

 Also included are requests to the Infrastructure Commission and the Secretary General to propose, develop and implement, respectively, systems to monitor compliance of Members with the policy articulated in the resolution;

Resolution 42 is based on the four-part structure of preamble, policy, practice and guidelines known from Resolution 40. The preamble has been drafted to reflect the current policy context, including a radically transformed data landscape, and an increased and increasing demand for weather, water and climate services.

The draft text reaffirms “*As a fundamental principle of the World Meteorological Organization (WMO) and in consonance with the expanding requirements for its scientific and technical expertise, WMO commits itself to broadening and enhancing the free and unrestricted international exchange of Earth system data”*

In terms of practice, the current draft text maintains the two-part split of data into “essential” and “additional” types, with “essential” data being subject to free and unrestricted exchange. It further defines guidelines on what constitutes “essential” data in Annex 1, within seven (admittedly interlaced) disciplines/domains:

1. Weather

2. Climate

3. Hydrology

4. Atmospheric Composition

5. Cryosphere

6. Oceans

7. Space Weather

Additional annexes yet to be drafted will provide specific guidance to stakeholders in the areas of research (Annex 2), public-private engagement (Annex 3), and terms and definitions (Annex 4). Terms and definitions will be reviewed and refined by a sub-group over the next several months.

**Work plan: Next steps**

Having agreed on a basic structure for Resolution 42, the Study Group has formed a Drafting Team to finalize the draft of the resolution. Over the next nine months, the Group will continue to review, update and refine the draft in consultations with a gradually broadening group of stakeholders, with the aim to present an effective and broadly supported version for approval at Cg (Ext)-21. Next steps include:

 Elements of the revised draft will be circulated for stakeholder review and comment during four Preparatory Theme Workshops and three Stakeholder Consultations leading up to the WMO Data Conference (16-19 November 2020), and then throughout the Conference itself.

 SG-DIP-2 (January 2021); Input from Data Conference incorporated into draft Congress resolution.

 INFCOM-3 (February 2021); Review of draft resolution, recommendation to Congress.

 PAC-3 (March 2021); final adjustment to draft Congress resolution.

 EC-73 (April 2021); Recommendation to Cg-(Ext)21 on the draft data policy resolution.

 Cg (Ext)-21; Resolution on WMO Data Policy.

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