**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**

SIXTY-THIRD SESSION

GEORGE TOWN, GRAND CAYMAN, CAYMAN ISLANDS

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##### SPECIAL WMO SESSION

(Submitted by the Coordinating Director)

## Introduction

This document is to keep the Council informed on the major decisions and actions of the *World Meteorological Organization* (WMO) that are of special interest to the CMO Member States. Some of the decisions of WMO will require decisions or actions by Council to ensure that CMO Member States adhere to commitments and requirements emanating from the decisions of the WMO Congress.

1. The 75th session of the *WMO Executive Council* (20-24 June 2022) focussed on implementing the priority decisions of the WMO Extraordinary Congress of 2021. The priority areas affect the activities of Member States and their NMHSs in the period 2020-2023, in particular. The session also deliberated on issues to be brought to the attention of the Second Sessions of the WMO Technical Commissions and Research Board in 2022; the next WMO Congress in 2023; as well as planning for the next WMO Strategic Period of 2024-2027.
2. Council is asked to note the region’s role and responses to these major WMO implementation activities, several of which have been addressed by Council over the last few years. They include such priorities as the compulsory implementation of improved observation and information systems, “Early warnings for all” per the mandate issued to WMO by the UN Secretary-General, and strengthening the capacity of National Meteorological Services in developing countries. Council is asked to take note of outcomes below, including the important Tropical Cyclone Programme, which is crucial to all Member States of the CMO:
3. Outcomes/Highlights ofthe 2022 Executive Council (EC) of the World Meteorological Organization (WMO)
4. WMO Integrated Global Observing System – Initial Operational Phase
5. The Global Framework for Climate Services (GFCS)
6. Issues emerging from WMO Technical Commissions and Research Board sessions in 2022
7. Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems

* Tropical Cyclone Programme
* Regional Coordination and Early Warning Systems

1. World Meteorological Congress 2023

## Preamble: Role and Structure of the WMO

1. The ***World Meteorological Organization*** (WMO) is the Geneva-based UN-Specialized Agency that 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”.
2. 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* (NMHS) of every country.
3. Since its establishment in 1950, WMO has played a unique and powerful role in contributing to the safety and welfare of humanity. Under WMO leadership and within the framework of WMO programmes, *National Meteorological and Hydrological Services* contribute substantially to the protection of life and property against natural disasters, to safeguarding the environment and to enhancing the economic and social well-being of all sectors of society in areas such as food security, water resources, transport, and health.
4. The structure of the WMO comprises the ***World Meteorological Congress***, the supreme body, an *Executive Council*, six *Regional Associations*, the Geneva-based Secretariat, and 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*.
5. The WMO ***Executive Council*** (EC) is the executive body of the Organization, which meets annually, implements decisions of the WMO Congress, coordinates the WMO 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.

## Outcomes/Highlights of the 2022 Executive Council (EC) of the World Meteorological Organization (WMO)

### Early Warnings for All

1. In response to the United Nations Secretary-General’s announcement on [World Meteorological Day 2022](https://public.wmo.int/en/resources/world-meteorological-day/world-meteorological-day-2022-early-warning-early-action), that the United Nations will spearhead a new action to ensure every person on Earth is protected by early warning systems within five years and the designation of WMO to lead this effort and present an action plan to achieve this goal at the twenty-seventh session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC/COP27), The WMO Executive Council approved [Resolution 3](https://meetings.wmo.int/EC-75/_layouts/15/WopiFrame.aspx?sourcedoc=/EC-75/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-75-d04(2)-UN-GLOBAL-EARLY-WARNING-ADAPTATION-INITIATIVE-approved_en.docx&action=default), “UN Global Early Warning / Adaptation Initiative”.

1. The EC-75 resolution requested that:

“*The Commission for Weather, Climate, Water and Related Environmental Services & Applications (SERCOM) to lead, in consultation with the Commission for Observation, Infrastructure and Information Systems (INFCOM) and the Research Board, the Capacity Development Panel, with support of the Secretariat, the development of an initial action plan, in alignment with the next Strategic Plan and based on needs of the most vulnerable Members who need support for establishing effective end-to-end early warning services, to respond to the “UN Global Early Warning/Adaptation Initiative” including by creating guidance and supportive frameworks to cover gaps in hazards not currently addressed and extending the coverage of existing regional specialized meteorological centres, and also to develop collaborative partnership with stakeholders inclusive of the private sector to deliver warnings to each and every citizen in a sustainable manner; “*

1. A draft Executive Plan of Action was developed by SERCOM-2 (17-21 October 2022), in consultation with Members and interested organizations across the globe. Members and their governments at the highest level were called on to support the “UN Global Early Warning / Adaptation Initiative” at relevant international forums such as UNFCCC/COP27 and the 77th session of the UN General Assembly.
2. The WMO launched the Executive Plan of Action at COP27 on 7 November 2022 and the UN Secretary-General, ***Mr Antonio Guterres***, [announced a USD 3.1 billion plan](https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fnews.un.org%2Fen%2Fstory%2F2022%2F11%2F1130277&data=05%7C01%7Cclimatecom%40lists.unfccc.int%7C86eaf3a1bce14071f7aa08dacace4ceb%7C2a6c12ad406a4f33b686f78ff5822208%7C0%7C0%7C638045284642200970%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=m2VYDAeqmiACGN%2B%2BxmAayA7CawYY%2BSWdxF9pTZY9tbo%3D&reserved=0) to ensure that everyone on the planet is protected by early warning systems within the next five years.
3. An Executive Action Plan for the UN Global Early Warnings/Adaptation Initiative was developed and approved at SERCOM-2 (17-21 October 2022) Doc 5.6(1) (**Annex I**).
4. WMO Integrated Global Observing System – Initial Operational Phase

**Implementation of Global Basic Observation Network (GBON)**

1. Council is reminded that the Global Basic Observing Network (GBON) implementation starts from 1 January 2023. INFCOM has developed a GBON Implementation Operating Plan, provided guidance materials for the initial composition of GBON, Members’ GBON compliance and GBON global gap analysis. GBON implementation guidance materials can be found at [References to GBON material](https://community.wmo.int/activity-areas/wigos/gbon/implementation-global-basic-observing-network-gbon/defining-initial-composition-gbon/references-gbon-material). Council is also reminded of the actions required of CMO Member States, as the resolution:

* **Urges** Members to immediately commence their implementation of this network, including the necessary preparations for GBON station designation and GBON data exchange, if needed in a phased approach, as allowed by their individual capacities, where applicable, in combination with support of multilateral and bilateral development partners, and financial mechanisms such as the *Systematic Observations Financing Facility* (SOFF);
* **Urges further** Members to support the implementation of GBON, including by supporting the development and establishment of SOFF and to consider contributing resources – financial, technical or in-kind – to its development and operation.

1. Council is asked to note the new Guide for GBON. Further details of the resolution on the initial GBON Guides are in **Annex II**.

**Regional WIGOS Centre**

1. Council will recall that for the last several years, significant discussions have been held on the *WMO Integrated Global Observing System* (WIGOS). WIGOS is an all-encompassing approach to the improvement and evolution of WMO’s global observing systems, which was needed in all countries to consolidate progress in meteorological research, numerical modelling, and computer and communication technologies. Closely tied to WIGOS was 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. The Council noted that WIGOS became operational in 2020 and that, as with all Member States of WMO, CMO Member States should be in full preparation for implementation. The goal was for all Member States and their partners to benefit from a fully operational system.
3. Council is informed that WMO held a Regional WIGOS Centre (RWC) Global Workshop in Geneva in hybrid format, from 25 - 27 July 2022 with representatives from already established Regional WIGOS Centres (RWCs), Members that have expressed their interest in hosting RWCs, members of the Expert Team on WIGOS Tools (ET-WT), as well as, representatives of other WMO Centres and organizations that are relevant to RWCs functions.
4. Council is also asked to note that the WMO RA IV Infrastructure Committee agreed on an update of a RA IV WIGOS Centre Concept and a Roadmap for the establishment of the RA IV Regional WIGOS Center. The original Concept and Roadmap had been approved by the RA IV Management Group (MG) in January 2020. The updated Concept and Roadmap for RA IV RWC were approved at the 31st meeting of the RA IV MG, held in hybrid mode on 22nd June 2022.

## Systematic Observations Financing Facility (SOFF): Supporting Members in the implementation of GBON

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 at a side event to the 72nd Executive Council and launched at the COP26 of the UNFCCC. 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.
2. 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 weather prediction and climate services.
3. SOFF support will be provided in three phases. In the Readiness phase, the country’s hydrometeorological status will be assessed, the GBON gap defined and a plan developed to close the gap. The Investment phase enables countries to close the GBON investment and capacity gap. The Compliance phase supports sustained GBON compliance and enables access to improved weather forecasts and climate analysis products.
4. In its initial five-year implementation period, SOFF aims to support 65 SIDS and LDCs with technical assistance, investments, and open-ended results-based funding to achieve sustained GBON compliance. SOFF became operational and officially opened its doors to business with the first Steering Committee meeting on 30 June 2022 and it is expected that by the end of 2022, SOFF will be able to allocate resources to about 20 initial countries. During its initial three-year implementation period, SOFF will prioritize support to 55 SIDS and LDCs. the complete list of SOFF-eligible countries is provided in SOFF [**Terms of Reference**](https://alliancehydromet.org/wp-content/uploads/2021/10/SOFF-Terms-of-Reference.pdf)**,** Annex 2 (dated October 2021).
5. **SERVICES FOR AVIATION – UPDATE TO WMO GUIDES IN AERONAUTICAL METEOROLOGY**
6. Council is asked to note the updating of *The Guide to Practices for Meteorological Offices Serving Aviation* (WMO-No. 732), which was last updated in 2003 (second edition). The Standing Committee on Services for Aviation (SC-AVI) acknowledged that much of the technical content of WMO-No. 732 was outdated or duplicated other existing publications. With the tremendous assistance of a WMO consultant, SC-AVI has prepared a **major update to WMO-No. 732 in terms of its structure and its content as well as in its name where it is to be retitled as the Guide to Services for Aviation**.
7. Council is asked to further note *The Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance* (WMO-No. 904) was last updated in 2007 (second edition). SC-AVI acknowledged that the technical content of WMO-No. 904 needed a thorough review and, where necessary, update taking into account the fact that aeronautical meteorological services have evolved and the methods and practices of determining, allocating and recovering costs have in some instances advanced over the past 15 years. Consequently, with the tremendous assistance of a WMO consultant, SC-AVI has prepared a major update to (but not a wholesale replacement of) WMO-No. 904. Further details of the updates are in Annex IV.

## 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.
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.

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

### 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, East Pacfic 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 ***44th Hurricane Committee*** met via videoconference on 25-28 April 2022. Details of the meeting are at <https://community.wmo.int/meetings/ra-iv-hurricane-committee-44th-session-hc-44>.

**ACTIONS PROPOSED TO COUNCIL**

**Council** is asked to:

* + - * 1. **Note** the decisions of the 75th session of the Executive Council (EC)
        2. **Encourage** WMO Member States to be prepared to take advantage of resources available through the funding mechanisms available to support Early Warnings for All
        3. **Note** the activities of the WMO Commissions and Research Board
        4. **Urge** CMO Member States to ensure that their NMHSs complete activities for the Operational Phase of WIGOS, which began in 2020
        5. **Urge** CMO Member States to begin the process of compliance with GBON, which becomes operational in 2023, following the guidelines from WMO
        6. **Note** the activities on the proposed Virtual *Regional WIGOS Centre* (RWC) as a collaboration among the US, Canada, CMO Headquarters and the Trinidad and Tobago Meteorological Service
        7. **Note** the update to WMO Guides in Aeronautical Meteorology
        8. **Continue** its strong support for the *Global Framework for Climate Services* and to **urge** Member States to actively participate in GFCS projects and activities
        9. **Note** and **support** the important work of the regional Hurricane Committee

CMO Headquarters

November 2022

# ANNEX I

# UN GLOBAL EARLY WARNINGS/ADAPTATION INITIATIVE

# GENERAL CONSIDERATIONS

1. The United Nations Secretary-General made an announcement on the occasion of [World Meteorological Day 2022](https://public.wmo.int/en/resources/world-meteorological-day/world-meteorological-day-2022-early-warning-early-action) (23 March 2022) that the United Nations will spearhead a new action to ensure every person on Earth is protected by early warning systems (Early Warnings For ALL – EW4A) within five years and the call on the World Meteorological Organization (WMO) to lead this effort and present an action plan to achieve this goal at the twenty-seventh session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC/COP27).

2.The G7 Foreign Ministers issued a statement on Strengthening Anticipatory Action in Humanitarian Assistance explicitly that “We furthermore welcome and support the UN Secretary-General’s target to have within the next five years, everyone on Earth protected by early warning systems against increasingly extreme weather and climate change”.

3. On this basis, the Executive Council, in its [Resolution 3 (EC-75)](https://meetings.wmo.int/EC-75/SitePages/Session%20Information.aspx) – UN Early Warnings/Adaptation Initiative, requested the Services Commission, in consultation with other WMO bodies and with the support of the Secretariat, to develop an initial action plan to respond to the UN Early Warning/Climate Adaptation Initiative.

4. The fundamental role of National Meteorological and Hydrological Services (NMHSs) as the official and authoritative providers of early warnings for hydrometeorological hazards should be emphasized as well as the unique coordination role played by WMO in this regard and also for related environmental hazards in the context of the United Nations system.

5. The vision of the [*WMO Strategic Plan 2020–2023*](https://library.wmo.int/index.php?lvl=notice_display&id=21525)(WMO-No. 1225), that “by 2030, we see a world where all nations, especially the most vulnerable, are more resilient to the socioeconomic consequences of extreme weather, climate, water and other environmental events; and underpin their sustainable development through the best possible services, whether over land, at sea or in the air”. And the associated strategic objective to “Strengthen national multi-hazard early warning/alert systems and extend reach to better enable effective responses to the associated risks”.

6. It should be recognized that foundational elements exist based on which to pursue the global early warning goal, such as the WMO Integrated Global Observing System (WIGOS), the WMO Information System (WIS) and the Global Data Processing and Forecasting System (GDPFS), the WMO Coordination Mechanism (WCM), the [Global Multi-hazard Alert System](https://community.wmo.int/activity-areas/drr/gmas#:~:text=The%20WMO%20Global%20Multi%2Dhazard,climate%20events%20%E2%80%93%20regionally%20and%20globally.) (GMAS), the [Climate Risk and Early Warning Systems initiative](https://www.crews-initiative.org/en) (CREWS), the Global Basic Observing Network (GBON), the [Systematic Observation Financial Facility](https://alliancehydromet.org/soff/) (SOFF), investments in hydrological infrastructure, developments in multi-hazard and impact-based early warning services, implementation of the WMO Vision and Strategy for Hydrology and its associated Plan of Action including flood and drought early warning initiatives, the [Water and Climate Coalition](https://www.water-climate-coalition.org/), the [Alliance for Hydromet Development](https://alliancehydromet.org/soff/) and other partnerships with the World Bank, the Green Climate Fund (GCF), the United Nations Development Programme (UNDP), the private sector and other entities.

Based on the above, the Commission is invited to adopt Draft Resolution 5.6(1)/1 (SERCOM-2).

# DRAFT RESOLUTION

## Draft Resolution 5.6(1)/1 (SERCOM-2)

### UN GLOBAL EARLY WARNINGS/ADAPTATION INITIATIVE

THE COMMISSION FOR WEATHER, CLIMATE, WATER AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS,

**Recalling** [Resolution 3 (EC-75)](https://meetings.wmo.int/EC-75/SitePages/Session%20Information.aspx) – UN Early Warnings/Adaptation Initiative,

**Having considered** the announcement of theUnited Nations Secretary-General calling on WMO to lead efforts to ensure that every person on Earth is protected by early warning systems within five years,

**Takes note** of the successful WMO/UN Climate Action Team/Government of Egypt UN Early Warning/Climate Adaptation Initiative round table meeting in Egypt on 5 and 6 September 2022,

**Recognizing** that the UN Early Warnings/Adaptation Initiative, now renamed the Early Warnings for All: the UN Global Early Warning Initiative for the Implementation of Climate Adaptation, will require the commitment of all governments and the collective and collaborative support of a range of stakeholders including development partners, funding agencies and the academic and private sectors,

**Reaffirming** that the Management Group of each technical commission shall be responsible for the oversight of the development, maintenance and prioritization of the Commission’s Work and Operating Plans, supporting structures and related resource needs as well as the coordination of the Commission’s response to requests from Congress and the Executive Council relevant to the Commission,

**Requests** the president of the Services Commission to take immediate action to advance preparations for the practical implementation of the challenge by, but not limited to:

(1) Involving Members and their mandated early warning authorities in their roles as providers of early warning services, as well as beneficiaries of the Early Warnings for All initiative;

(2) Mapping partnerships with other organisations from public and private sectors as well as academia;

(3) Engaging with, and learning from, existing WMO programmes and initiatives, and those of other organizations, to leverage synergies and avoid duplication of efforts;

(4) Gathering evidence to iteratively define success factors; and

(5) Continuously prepare and disseminate information materials to keep Members apprised [Secretariat] of activities and current challenges, and to support resource mobilization efforts.

**Requests** the management group of the Services Commission to work in close coordination with the management group of the Infrastructure Commission and with the Research Board, regional associations and other relevant bodies on the further development of the technical, scientific and technological elements which take into account the Initial Early Warnings for All Action Plan, drafted by the WMO Secretary-General, *[New Zealand]* to be communicated at UNFCCC COP-27 [Poland];

**Further requests *[Czech Republic]*** the president of the Services Commission to use the outcomes of this work to inform a recommendation to EC-76 relating to the priority activities, proposed subsidiary body structures and supporting partnerships necessary, to foster the successful implementation of the four pillars of people-centred Multi-Hazard Early Warning Systems: risk knowledge and management, observations and forecasting, preparedness to respond and warning dissemination and communication with a particular focus on the most vulnerable countries/territories *[Australia]*, as key elements of the Early Warnings for All Action Plan;

**Invites** the Secretary-General of WMO to provide the necessary resources to *[P/SERCOM]* support these efforts.

Introduction

General

This is the first edition of the Guide to the Global Basic Observing Network, a new Volume II of the [Guide to the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=20026) (WMO‑No. 1165). The Guide was developed following the decision of the eighteenth session of the World Meteorological Congress, [Resolution 34 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=120) on Global Basic Observing Network, as well as the approval of the Global Basic Observing Network (GBON) Technical Regulations ([Resolution 2 (Cg‑Ext(2021)](https://library.wmo.int/doc_num.php?explnum_id=11113#page=29)), section 3.2.2 of the [Manual on the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=19223) (WMO‑No. 1160), with the implementation taking effect from 1 January 2023, considering that the GBON implementation plan takes into account the individual capabilities of Members.

Members should commence their implementation of this network, including the necessary preparations for GBON station designation and GBON data exchange, if needed in a phased approach, as allowed by their individual capacities. Where applicable, implementation can be done with support from multilateral and bilateral development partners, and financial mechanisms such as the [Systematic Observations Financing Facility](https://alliancehydromet.org/soff/) (SOFF).

To complement these activities, the Congress in 2021 requested the Commission for Observation, Infrastructure and Information Systems (INFCOM) to develop the technical guidelines, processes and procedures needed to ensure the expedient and efficient implementation of GBON, and to prepare for the effective performance and compliance monitoring of GBON.

A set of guidelines incorporated in this version of the Guide will be progressively revised and enhanced through the GBON implementation, to complement the [Manual on the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=19223) (WMO‑No. 1160) and the [Guide to the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=20026) (WMO‑No. 1165) with the necessary guidance information and technical guidelines related to the GBON implementation.

Purpose and scope

The initial Guide aims to assist Members in complying with the GBON regulations that come into effect on 1 January 2023. It was developed by the Secretariat, in particular the Infrastructure Department, with input from technical experts of the Commission for Observation, Infrastructure and Information Systems (INFCOM).

Future versions of this Guide will provide detailed guidance and technical guidelines on how to establish, operate and manage GBON to make observations in compliance with the [Technical Regulations](https://library.wmo.int/index.php?lvl=notice_display&id=14073) (WMO‑No. 49), Volume I, Part I, and the [Manual on the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=19223) (WMO‑No. 1160). These versions will explain and describe GBON practices, procedures and specifications and will be aimed at assisting the technical and administrative staff of National Meteorological and Hydrological Services and other organizations responsible for the planning and management of networks of observing stations.

The Guide should be used in conjunction with the many other relevant WMO Guides, technical documents and related publications, mainly with the [Guide to the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=20026) (WMO‑No. 1165).

List of related publications

The development of this Guide takes a thin‑layer approach, meaning that it aims only to publish additional, new material that complements the material in the [Guide to the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=20026) (WMO‑No. 1165).

Publications related to this Guide are listed in the [Guide to the WMO Integrated Global Observing System](https://library.wmo.int/index.php?lvl=notice_display&id=20026) (WMO‑No. 1165).

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# SERVICES FOR AVIATION – UPDATE TO WMO guides in aeronautical meteorology

# GENERAL CONSIDERATIONS

*[The General Considerations will be included in Part II of the Summary Report]*

### Update to WMO guides in aeronautical meteorology

WMO-No. 732 addressing service delivery

1. The [*Guide to Practices for Meteorological Offices Serving Aviation*](https://library.wmo.int/index.php?lvl=notice_display&id=7644#.Yt-31HZBwuV) (WMO-No. 732) was last updated in 2003 (second edition). The Standing Committee on Services for Aviation (SC-AVI) acknowledged that much of the technical content of WMO-No. 732 was outdated or duplicated other existing publications. With the tremendous assistance of a WMO consultant, SC-AVI has prepared a major update to WMO-No. 732 in terms of its structure and its content as well as in its name where it is to be retitled as the *Guide to Services for Aviation*.

2. The proposed 2023 update (third edition) of WMO-No. 732 provides guidance to WMO Members and their service providers in the provision of aeronautical meteorological services across a range of topics such as governance and the production and delivery of observations, forecasts and other information. WMO-No. 732 complements other WMO guidance in aeronautical meteorology such as the [*Guide to Meteorological Observing and Information Distribution Systems for Aviation Weather Services*](https://library.wmo.int/?lvl=notice_display&id=7724#.Yt-3vHZBwuV) (WMO-No. 731) as well as guidance maintained by the International Civil Aviation Organization (ICAO).

3. Through [Recommendation 1 (SC-AVI-2)](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi), the Standing Committee provided its endorsement of the major update to and retitling of WMO-No. 732 and formulated a draft recommendation for the Services Commission (SERCOM) and a draft resolution for the Executive Council (EC) in this regard. [The [Final Report of SC-AVI-2](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi) refers.]

***WMO-No. 904 addressing cost recovery***

4. The [*Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance*](https://library.wmo.int/?lvl=notice_display&id=7796#.Yt-3qnZBwuV) (WMO-No. 904) was last updated in 2007 (second edition). SC-AVI acknowledged that the technical content of WMO-No. 904 needed a thorough review and, where necessary, update taking into account the fact that aeronautical meteorological services have evolved and the methods and practices of determining, allocating and recovering costs have in some instances advanced over the past 15 years. Consequently, with the tremendous assistance of a WMO consultant, SC-AVI has prepared a major update to (but not a wholesale replacement of) WMO-No. 904.

5. The proposed 2023 update (third edition) of WMO-No. 904 provides guidance to WMO Members and their service providers in the cost recovery of aeronautical meteorological services across a range of topics such as governance, general principles and procedures for appropriately allocating costs for various meteorological facilities and services, and examples of cost recovery arrangements (national case studies). WMO-No. 904 complements, in particular, guidance maintained by ICAO such as Doc 9082, [*ICAO’s Policies on Charges for Airport and Air Navigation Services*](https://www.icao.int/publications/Documents/9082_8ed_en.pdf) and Doc 9161, [*Manual on Air Navigation Services Economics*](https://www.icao.int/publications/documents/9161_en.pdf).

6. Through [Recommendation 2 (SC-AVI-2)](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi) the Standing Committee provided its endorsement of the update to WMO-No. 904 and formulated a draft recommendation for the SERCOM and a draft resolution for the EC in this regard. [The [Final Report of SC-AVI-2](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi) refers.]

7. During the next WMO financial period (2024–2027), SC-AVI intends to keep publications such as WMO-Nos. 732 and 904 under periodic review and, where necessary, update to ensure that they remain of utmost utility.

# DRAFT RECOMMENDATIONS

## Draft Recommendation 5.4/1 (SERCOM-2)

### Update the [*Guide to Practices for Meteorological Offices Serving Aviation*](https://library.wmo.int/index.php?lvl=notice_display&id=7644#.Yt-31HZBwuV) (WMO‑No. 732)

THE COMMISSION FOR WEATHER, CLIMATE, WATER AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS,

**Recalls** that the Standing Committee on Services for Aviation (SC-AVI) is responsible for, inter alia, the development of new or updated WMO technical regulations and supporting guidance in aeronautical meteorology;

**Notes** the importance of reliable, up-to-date guidance in the interest of supporting WMO Members and their aeronautical meteorological service providers in their implementation of international standards, recommended practices, procedures and policies;

**Acknowledges** that the [*Guide to Practices for Meteorological Offices Serving Aviation*](https://library.wmo.int/index.php?lvl=notice_display&id=7644#.Yt-31HZBwuV) (WMO‑No. 732) was last updated in 2003 and is therefore deemed outdated;

**Having considered** [Recommendation 1 (SC-AVI-2)](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi) recommending to the Commission, for submission to the Executive Council, a proposed major update (new edition) of WMO-No. 732, to be retitled as the *Guide to Services for Aviation* (WMO-No. 732), [available here](https://community.wmo.int/activity-areas/aviation/resources/wmo-732-update),

**Having agreed** to [Recommendation 1 (SC-AVI-2)](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi),

**Recommends** to the Executive Council draft Resolution ##/1 (EC-76), *Guide to Services for Aviation* (WMO-No. 732), as laid out in the [annex](#Annex_to_draft_Recommendation) to this present Recommendation.

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[Annex: 1](#Annex_to_draft_Recommendation)

## Annex to draft Recommendation 5.4/1 (SERCOM-2)

**Draft Resolution ##/1 (EC-76)**

[***Guide to Practices for Meteorological Offices Serving Aviation***](https://library.wmo.int/index.php?lvl=notice_display&id=7644#.Yt-31HZBwuV) **(WMO‑No. 732)**

THE EXECUTIVE COUNCIL,

**Having considered** Recommendation 5.4/1 (SERCOM-2), Update to the[*Guide to Practices for Meteorological Offices Serving Aviation*](https://library.wmo.int/index.php?lvl=notice_display&id=7644) (WMO-No. 732);

**Having examined** the proposed new edition of WMO-No. 732, to be retitled as the *Guide to Services for Aviation* (WMO-No. 732), [available here](https://community.wmo.int/activity-areas/aviation/resources/wmo-732-update);

**Having considered further** the recommendation of the Technical Coordination Committee in this connection, as contained in document EC-76/INF. XX

**Requests** the Secretary-General:

(1) To arrange for the expeditious publication of the *Guide to Services for Aviation* (WMO‑No. 732);

(2) To arrange for the updating of any current WMO publications that may refer to the legacy title of WMO-No. 732, necessarily replacing with the new title where applicable;

**Requests** the president of the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM), with the assistance of the president of the Commission for Observation, Infrastructure and Information Systems (INFCOM) and Chair of the Research Board (RB) and in consultation with the ICAO as necessary, to continue to ensure that the *Guide to Services for Aviation* (WMO-No. 732) is periodically reviewed and updated as necessary in accordance with established procedures.

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**Draft Recommendation 5.4/2 (SERCOM-2)**

**Update the** [***Guide to Aeronautical Meteorological Services Cost Recovery:  
Principles and guidance***](https://library.wmo.int/index.php?lvl=notice_display&id=7796) **(WMO-No. 904)**

THE COMMISSION FOR WEATHER, CLIMATE, WATER AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS,

**Recalls** that the Standing Committee on Services for Aviation (SC-AVI) is responsible for, inter alia, the development of new or updated models of good practice on the cost recovery of aeronautical meteorological service provision, including in respect of regional and global service;

**Notes** the importance of reliable, up-to-date guidance in the interest of supporting WMO Members and their aeronautical meteorological service providers in their implementation of international standards, recommended practices, procedures and policies;

**Acknowledges** that the [*Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance*](https://library.wmo.int/?lvl=notice_display&id=7796#.Yt_mfHZBwuW)(WMO-No. 904)was last updated in 2007 and is therefore deemed outdated;

**Having considered** [Recommendation 2 (SC-AVI-2)](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi) recommending to the Commission, for submission to the Executive Council, a proposed major update (new edition) of WMO-No. 904, [available here](https://community.wmo.int/activity-areas/aviation/resources/wmo-904-update),

**Having agreed** to [Recommendation 2 (SC-AVI-2)](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi),

**Recommends** to the Executive Council draft Resolution ##/2 (EC-76), *Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance* (WMO-No. 904), as laid out in the [annex](#Annex_to_draft_Recommendation542) to this present recommendation.

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[Annex: 1](#Annex_to_draft_Recommendation542)

**Annex to draft Recommendation 5.4/2 (SERCOM-2)**

**Draft Resolution ##/2 (EC-76)**

[***Guide to Aeronautical Meteorological Services Cost Recovery:   
Principles and guidance***](https://library.wmo.int/?lvl=notice_display&id=7796#.Yt_mfHZBwuW) **(WMO-No. 904)**

THE EXECUTIVE COUNCIL,

**Having considered** Recommendation 5.4/2 (SERCOM-2), Update the[*Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance*](https://library.wmo.int/?lvl=notice_display&id=7796#.Yt_mfHZBwuW)(WMO-No. 904);

**Having examined** the proposed new edition of WMO-No. 904, [available here](https://community.wmo.int/activity-areas/aviation/resources/wmo-904-update);

**Having considered further** the recommendation of the Technical Coordination Committee in this connection, as contained in document EC-76/INF. XX,

**Approves** the publication of the update to the[*Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance*](https://library.wmo.int/?lvl=notice_display&id=7796#.Yt_mfHZBwuW)(WMO-No. 904);

**Requests** the Secretary-General to arrange for the expeditious publication of the *Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance* (WMO-No. 904);

**Requests** the president of the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM), in consultation with the ICAO as necessary, to continue to ensure that the *Guide to Aeronautical Meteorological Services Cost Recovery: Principles and guidance* (WMO-No. 904) is periodically reviewed and updated as necessary in accordance with established procedures.

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