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| WEATHER CLIMATE WATER | **World Meteorological Organization****COMMISSION FOR OBSERVATION, INFRASTRUCTURE AND INFORMATION SYSTEMS****Third Session**15 to 19 April 2024, Geneva | **INFCOM-3/Doc. 5** |
| Submitted by:President of the Commission8.IV.2024**DRAFT 1** |

**AGENDA ITEM 5: CONSIDERATION OF THE WMO PROGRAMMES RELEVANT TO THE COMMISSION INCLUDING THE STRATEGIC PLANNING**

# WMO Programmes relevant to the Commission including the strategic planning

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| **Summary** |
| **Document presented by:** President of the Commission in response to the directives given by [Decision 2 (EC-77)](https://library.wmo.int/viewer/66333/?offset=1#page=40&viewer=picture&o=bookmark&n=0&q=) – Actions of the Executive Council on decisions adopted by the Nineteenth World Meteorological Congress, following [Resolution 42 (Cg-19)](https://library.wmo.int/idviewer/67177/489) – WMO Technical Commissions and Additional Bodies for the Nineteenth Financial Period, and [Resolution 62 (Cg-19)](https://library.wmo.int/idviewer/67177/564) - Review of previous resolutions of Congress.**Strategic objective 2024–2027:** 5.1Optimize WMO constituent body structure for more effective decision-making**Financial and administrative implications:** Within the parameters of the Strategic and Operating Plans 2024–2027**Key implementers:** Members, INFCOM, SERCOM, Research Board, and Regional Associations**Time frame:** 2024–2027**Action expected:** Consider and adopt the proposed draft Recommendation 5/1 (INFCOM-3) |

# GENERAL CONSIDERATIONS

### Background

1. Scientific and technical programmes[[1]](#footnote-2), in existence since 1969[[2]](#footnote-3), are the basic organizing framework for the scientific and technical activities of WMO. They are approved by Congress (Convention of the WMO, [Article 14](https://library.wmo.int/viewer/48992/?offset=#page=18&viewer=picture&o=bookmark&n=0&q=); General Functions of the Secretariat, [Regulation 154 (2)](https://library.wmo.int/viewer/48992/?offset=#page=83&viewer=picture&o=bookmark&n=0&q=)), executed by technical commissions ([General Regulations, Annex III](https://library.wmo.int/viewer/48992/?offset=#page=103&viewer=picture&o=bookmark&n=0&q=)) and additional bodies under the guidance and coordination of the Executive Council (Convention of the WMO, [Article 14](https://library.wmo.int/viewer/48992/?offset=#page=18&viewer=picture&o=bookmark&n=0&q=)), the regional and subregional facilitation of the regional associations ([General Regulations, Annex I (1)](https://library.wmo.int/idviewer/48992/85)) and the managerial support of the Secretariat ([General Regulation 154 (2)](https://library.wmo.int/viewer/48992/?offset=#page=83&viewer=picture&o=bookmark&n=0&q=) - *Basic documents No. 1* (WMO-No. 15)). Congress reviews the programme structure of the Organization at each ordinary session.

### A streamlined programme structure and the review of the programme approach

The directives of Congress

1. Strategic Objective 5.2 of the [*WMO Strategic Plan 2020–2023*](https://library.wmo.int/records/item/56826-wmo-strategic-plan-2020-2023?offset=6) (WMO-No. 1225), and [Resolution 11 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=63) – WMO reform – next phase, calls for the streamlining of WMO scientific strategies, plans and programmes according to the WMO Strategic Plan[[3]](#footnote-4), Operating Plan and budget, based on long-term goals and strategic objectives.
2. On this basis, the Nineteenth World Meteorological Congress (Cg-19), in [Resolution 62 (Cg-19)](https://library.wmo.int/idviewer/67177/564) - Review of previous resolutions of Congress, emphasized the needto align WMO scientific and technical programmes with the Strategic Plan and the governance structure of the Organization, while maintaining foundational elements of the WMO programme structure, and adopted a streamlined programme structure for the nineteenth financial period. Congress requested the Infrastructure Commission, the Services Commission, and the Research Board to develop and update the descriptions of the programmes to be maintained in light of the governance reform, the Strategic Plan and other intervening changes, and submit them to the Executive Council at its seventy-eighth session. Congress further requested the Executive Council, at its seventy-eighth session, to consider and adopt, on behalf of Congress, such updated programme descriptions.
3. In [Resolution 42 (Cg-19)](https://library.wmo.int/idviewer/67177/489) - WMO Technical Commissions and Additional Bodies for the Nineteenth Financial Period Congress, further requested the Executive Council to continue reviewing the respective authorities and coordinating the relations among the constituent bodies, the additional bodies and their subsidiaries bodies, as well as the Secretariat, with regard to existing processes and mechanisms related to the technical and scientific activities of the Organization, including the process for identifying experts to the constituent and subsidiary bodies, the identification and programmatic inclusion of Members’ needs and requirements.

The action taken by the Executive Council

1. The Executive Council, at its seventy-seventh session (EC-77), took action on the above directives of Congress in [Decision 2 (EC-77)](https://library.wmo.int/viewer/66333/?offset=1#page=40&viewer=picture&o=bookmark&n=0&q=) - Actions of the Executive Council on decisions adopted by the Nineteenth World Meteorological Congress, and [Resolution 7 (EC-77)](https://library.wmo.int/viewer/66333/?offset=1#page=17&viewer=picture&o=bookmark&n=0&q=) – Subsidiary bodies of the Executive Council, by referring them to the technical commissions and the Research Board for the preparation of updated programme descriptions, to the Secretary-General for the preparation of an analysis of programme-related authorities and processes and to the Technical Coordination Committee (TCC) and the Policy Advisory Committee (PAC) for a review and presentation of recommendations to the Executive Council at the seventy-eighth session (EC-78) and following sessions.

The approach of the Technical Coordination Committee

1. At its first session following EC-77, the TCC reviewed the development, evolution, and function of WMO scientific and technical programmes. It considered their role as groupings of activities for internal planning and management and relations with United Nations system organizations and other international organizations. In this regard, TCC also reviewed the responsibilities of WMO bodies and the Secretariat over programmes, the role of programmes in the planning, programming and budgeting processes of the Organization and their main characteristics as defined by Congress and the Executive Council.
2. Based on past practice, the TCC provided guidance to WMO bodies and adopted a template programme description for use by the technical commissions and other bodies and agreed to:
3. Review the proposed programme descriptions recommended by SERCOM-3, INFCOM-3, and other bodies;
4. Discuss them jointly with the PAC;
5. Submit a consolidated draft Resolution to EC-78 (see [TCC-1(2023)/Summary Report](https://meetings.wmo.int/TCC/Session%20Documents/Lists/Session/By%20Agenda/TCC-1%282023%29%20Summary%20Report.pdf), pp. 18–25).
6. The TCC further agreed to submit, jointly with the PAC, to EC-79 recommendations on the programme-based approach in the planning, programming, and budgeting processes of the Organization.

### The descriptions of the Major Programmes for the nineteenth financial period

1. Following the agreement within the TCC, the Services Commission and the Infrastructure Commission at their third sessions are invited to adopt recommendations with the programme descriptions respectively for the Weather, Climate, Hydrological, Marine and Related Environmental Services Programme, consolidating previous more sectoral programmes ([Recommendation 5.1/1 (SERCOM-3)](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7bF8B3B00D-CF2B-4FE7-BFEA-161E7A06EEC9%7d&file=SERCOM-3-d05-1-WORK-PROGRAMME-FOR-THE-NEXT-PERIOD-approved_en.docx&action=default) – SERCOM work programme and Programme description, on the “Weather, Climate, Hydrological, Marine and Related Environmental Services Programme”), and the expanded World Weather Watch Programme, encompassing the infrastructure needs to cover the Earth system (draft Recommendation 5/1 (INFCOM-3) – Expanded World Weather Watch Programme and its affiliated programme).
2. The joint session of TCC and PAC to be held in Geneva on 22 and 23 April 2024 is invited to review the above programme descriptions and recommend them for adoption to EC‑78.

**Expected action**

1. Based on the above, the Commission may wish to adopt draft Recommendation 5/1 (INFCOM-3), which contains the draft programme descriptions of the expanded World Weather Watch Programme, as one of the major programmes of WMO, and the Space Programme, an affiliated programme.

# DRAFT RECOMMENDATION

## Draft Recommendation 5/1 (INFCOM-3)

### Expanded World Weather Watch Programme and its affiliated programme

THE COMMISSION FOR OBSERVATION, INFRASTRUCTURE AND INFORMATION SYSTEMS,

**Recalling**:

(1) [Resolution 16 (Cg-V)](https://library.wmo.int/idviewer/58590/91) – World Weather Watch, adopting the plan for World Weather Watch as a major item in the programme of WMO for the fifth financial period, responding to the decisions of various organs of the United Nations on the subject of international cooperation in the peaceful uses of outer space and in particular solutions 1721(XVI) and 1802(XVII) of the General Assembly of the United Nations,

(2) [Resolution 62 (Cg-19)](https://library.wmo.int/idviewer/67177/564) – Review of previous resolutions of Congress, establishing the WMO programme structure for the nineteenth financial period, maintaining and requesting the Infrastructure Commission to:

(a) Develop an expanded programme as an evolution of the World Weather Watch Programme, encompassing the infrastructure needs to cover the entire Earth system according to the Strategic Plan and submit it to the Executive Council at its seventy-eighth session, and

(b) Develop and update the descriptions of the programmes to be maintained considering the governance reform, the Strategic Plan, and other intervening changes, and submit them to the Executive Council at its seventy-eighth session,

**Reaffirming** the belief expressed by [Resolution 16 (Cg-V)](https://library.wmo.int/idviewer/58590/91) that if opportunities presented by modern scientific and technological developments are taken and applied in a coordinated fashion on a global basis, great benefits will be reaped by all countries in the world, developed and developing, and that such opportunities should be used only for peaceful purposes, due account being taken of the national sovereignty and security of states, in accordance with the provisions of the Charter of the United Nations and the spirit and traditions of WMO,

**Affirming** that the expanded World Weather Watch Programme and affiliated programmes and partnerships, under the responsibility of the Infrastructure Commission, to develop and advance the operational infrastructure facility that is the foundation to all WMO activities and applications,

**Noting** that the pre-operational phase of the Global Cryosphere Watch (GCW) has successfully completed, as reported in [INFCOM-3/INF. 5](https://meetings.wmo.int/INFCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7b32497C9A-8372-480A-9A4F-915C3F10DA34%7d&file=INFCOM-3-INF05-COMPLETION-OF-GCW-PRE-OP-PHASE_en.docx&action=default), and GCW has been integrated into the expanded World Weather Watch Programme,

**Having examined** the draft programme description of the expanded World Weather Watch Programme and the Affiliated Space Programme provided in the [annex](#Annex_to_draft_Recommendation) to the present Recommendation,

**Recommends** to Executive Council the adoption of the programme description of the expanded World Weather Watch Programme, as one of the WMO major programmes, and the affiliated Space Programme provided in the [annex](#Annex_to_draft_Recommendation) to the present Recommendation, as part of the Resolution to adopt WMO major programmes for the nineteenth financial period.

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[Annex: 1](#Annex_to_draft_Recommendation)

## Annex to draft Recommendation 5/1 (INFCOM-3)

## (Annex 2 to draft Resolution 4.2/1 (EC-78))

## Expanded World Weather Watch Programme

### 1. Purpose and scope

1.1 Building on the heritage of the World Weather Watch Programme, which was founded by WMO in 1963 in response to a 1961 United Nations General Assembly Resolution, and responding to the preamble of the WMO Convention "Recognizing the importance of an integrated international system for the observation, collection, processing and dissemination of meteorological, hydrological and related data and products" and its Article 2 items (a), (b), (c) and (e), the expanded World Weather Watch Programme objective is the development and implementation of globally coordinated component systems: the WMO Integrated Global Observing System (WIGOS), the WMO Information System (WIS) and the WMO Integrated Processing and Prediction System (WIPPS), for acquiring, processing, transmitting and disseminating Earth system observations, and related standards; and the development and implementation of sound data and information management practices for all WMO Programmes and their associated application and services areas; and the coordination of the production and use of standardized analysis and model forecast fields.

1.2 The scope of the Programme is defined in two dimensions:

(1) Application areas, including their users, to be considered in identifying requirements to/for the component systems:

(a) Weather and weather-related applications;

(b) Climate, including climate services and including the contribution to and from the Global Climate Observing System (GCOS);

(c) Water-related applications;

(d) Related environmental services, specifically atmospheric composition-related applications, and space weather services.

(2) Earth system domains, where the component systems are operated in/for:

(a) Atmosphere, both physics, as the core operational component of WMO, building on the heritage of the World Weather Watch Programme and the Instruments and Methods of Observation Programme, and chemistry (composition), through the active engagement with operational and research communities through the Global Atmospheric Watch (GAW) and the Global Greenhouse Gas Watch (GGGW);

(b) Hydrology, through the active engagement with hydrological organizations in Members, guided by the [*Vision and Strategy for Hydrology and Associated Plan of Action and WMO Hydrological Research Strategy*](https://library.wmo.int/idurl/4/66218) (WMO-No. 1319);

(c) Cryosphere, through the active engagement with operational and research programmes and organizations, through the GCW;

(d) Ocean, in close collaboration with the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC/UNESCO) including through the Joint WMO-IOC Collaborative Board (JCB), and including the contribution to and from the Global Ocean Observing System (GOOS), guided by the [Global Ocean Observing System: 2030 Strategy](file:///C%3A/Users/rnitu/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/PK9YNC0A/unesdoc.unesco.org/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_ae2d96bd-3e1b-4e03-ad4d-848533a6d8a2) and the WMO-IOC Collaborative Strategy 2022–2025;

(e) Terrestrial/land surface that are not covered by hydrology and cryosphere domains;

(f) Space weather.

1.3 In the non-atmospheric Earth system domains, implementers of the expanded World Weather Watch components are often outside of national meteorological and hydrological services (NMHSs), requiring the maintenance and development of partnerships at international, regional, and national levels to succeed.

1.4 The Programme includes those activities for assisting programmes of surface and upper-air meteorological and other Earth system observations in areas of global commons: space (through the affiliated Space Programme), the High Seas, and the Antarctic, working with relevant international organizations, as well as the development and implementation of Antarctic regional practices and facilitating the exchange and dissemination of Antarctic data for operational and research purposes, as it devolves from [Article 2 of the Convention](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements).

### 2. Overall objective

2.1 Being underpinned by the WMO Unified Data Policy for the International Exchange of Earth System Data ([Resolution 1 (Cg-Ext(2021)](https://library.wmo.int/idviewer/57850/9)), the overall objective of the expanded World Weather Watch Programme is to ensure the following long-term outcomes are reached by 2030:

1. An integrated system of Earth system observational networks for the purposes identified in 1.2.1, including on atmosphere, hydrology, ocean, cryosphere, atmospheric composition and space weather, increasingly automated and optimized to ensure effective and sustainable global coverage;
2. High-quality fit-for-purpose traceable measurements and predictions of all components of the Earth system, feeding a continuous free and unrestricted global data exchange in accordance with the WMO Unified Data Policy and underpinned by standardized data management and exchange mechanisms;
3. Increasingly more relevant, reliable, and quality assured Earth system numerical analysis and prediction products provided to enable Members to provide required services.

2.2 The Programme directly addresses Strategic Objectives 2.1, 2.2 and 2.3 of the WMO Strategic Plan 2024–2027, as the global infrastructure that supports all WMO Programmes and their associated application and services areas as well as research activities:

1. Strategic Objective 2.1 Optimize the acquisition of Earth system observation data through the WIGOS;
2. Strategic Objective 2.2 Improve and increase access to, exchange and management of current and past Earth system observation data and derived products through the WIS;
3. Strategic Objective 2.3 Enable access to and use of numerical analysis and Earth system prediction products at all temporal and spatial scales from the WIPPS.

### 3. Primary programme components

See Figure 1 for a depiction of the component systems of the expanded World Weather Watch.

Programme component targeting Strategic Objective 2.1: WMO Integrated Global Observing System (WIGOS)

Purpose and scope

3.1 Responding to the WMO Convention, Article 2 (a) ([*Basic Documents No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements) (WMO‑No. 15)), which states that one of the primary purposes of the Organization shall be “To facilitate worldwide cooperation in the establishment of networks of stations for the making of meteorological observations as well as hydrological and other geophysical observations related to meteorology”, WIGOS, as the framework for all WMO observing systems and for WMO contributions to co-sponsored observing systems in support of all WMO Programmes and activities[[4]](#footnote-5), provides Members with standards, principles and tools which optimize the acquisition and facilitate the use of observations from systems that are owned, managed and operated by a diverse array of organizations and programmes.

3.2 Responding to the WMO Convention, Article 2 (c) ([*Basic Documents No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements) (WMO‑No. 15)), which states that one of the primary purposes of the Organization shall be “To promote standardization of meteorological and related observations and to ensure the uniform publication of observations and statistics”, WIGOS also provides Members with standards, principles and tools as concerns the capture and publication of measurand quality as supported by measurements, instrumentation and traceability.

3.3 The scope of WIGOS accords with the scope of the expanded World Weather Watch Programme, with an additional dimension of surface-based (both ground and ocean) and space-based systems, which are parts of the overall system contributing to meeting the requirements of the defined application areas. The space-based component is coordinated through the affiliated Space Programme.

Main long-term objective

3.4 The main long-term objective of this programme component is to optimize the acquisition of Earth system observation data through the WIGOS (SO 2.1), guided by the [*Vision for the WMO Integrated Global Observing System in 2040*](https://library.wmo.int/idurl/4/57028) (WMO-No. 1243) and the [Resolution 20 (Cg-19)](https://library.wmo.int/idviewer/67177/193) – High Level Guidance on the Evolution of Global Observing Systems during the period 2023–2027 in response to the Vision for the WIGOS in 2040.

Implementation Activities

3.5 The following paragraphs present an overview of distribution of responsibilities in relation to the implementation of activities under this Programme component, as defined in the Manual on the [*WMO Integrated Global Observing System*](https://library.wmo.int/records/item/55063-manual-on-the-wmo-integrated-global-observing-system?offset=2)(WMO-No. 1160), Chapters 1 and 2.

Activities to be carried out by Members

* Implementation of observing networks, stations, and platforms by operators
* Observing system operation and maintenance including fault management and audit
* Observation quality control
* Delivery of observations and observational metadata
* Volunteering to support global and regional infrastructure and centres in support of WIGOS quality management
* Maintaining and developing mutually beneficial relationships at the national level to engage partners (other ministries or scientific organizations) coordinating sustained observing infrastructures in Earth System domains
* Supporting capacity development of other Members.

Activities to be carried out by the Infrastructure Commission (INFCOM)

* Determination of user requirements for WIGOS in consultation with users
* Design, planning and evolution of WIGOS
* Development and documentation of standards and recommendations for observing systems and networks
* Advocating protection of needed radio frequency spectrum (through the affiliated Space Programme)
* Performance and compliance monitoring
* Soliciting user feedback and review of requirements
* Supporting capacity development
* Maintaining and developing mutually beneficial relationships at the international level to engage partner organizations and observing systems (i.e., UN and scientific organizations coordinating sustained observing infrastructures in specific Earth System domains, space agencies).

Activities to be carried out by the Services Commission (SERCOM)

* Providing INFCOM with user requirements for observations, with a focus on where observations have the highest impact (in cooperation with WIPPS as appropriate)
* Providing INFCOM with user feedback and review of WIGOS performance, observing requirements and guidance.

Activities to be carried out by the Research Board (RB)

* Providing INFCOM with user requirements for observations, with a focus on where observations have the highest impact
* Providing INFCOM with user feedback and review of WIGOS performance, observing requirements and guidance
* Maintaining dialogue with INFCOM on observing innovation opportunities and needs.

Activities to be carried out by the Regional Associations (RAs)

* Providing INFCOM with user requirements and design of observing networks for regional priorities
* Recommending regional centres to support WIGOS
* Developing partnerships with appropriate regional bodies to support the implementation of WIGOS
* Support capacity development of Members, including through identification of gaps and liaising with regional centres in planning and conducting capacity development activities.

Activities to be carried out by the Secretariat

In addition to the general role of the Secretariat defined by WMO [*Basic Documents No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements) (WMO-No. 15):

* Support the WMO Strategic Plan 2024–2027 Strategic Objective 2.1, and support the INFCOM work programme and its roles defined above, and its linkages with other elements of the WMO Strategic Plan
* Liaise with the other WMO bodies identified above in their roles for WIGOS
* Support the maintenance and development of tools together with Members to collect and maintain the WIGOS status and progress, performance, and compliance monitoring
* Support Members with information and guidance on WIGOS implementation
* Support capacity development of Members
* Support establishing and maintaining mutually beneficial engagements with relevant partner organizations
* Represent WMO as the technical authority in the Systematic Observations Financing Facility (SOFF) Steering Committee and provide information on observing network standards and compliance monitoring results, and act as the liaison between SOFF and INFCOM.

Programme component targeting Strategic Objective 2.2: WMO Information System (WIS)

Purpose and scope

3.6 Responding to the WMO Convention, Article 2 (b) ([*Basic Documents No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements) (WMO-No. 15)), which states that one of the primary purposes of the Organization shall be “to promote the establishment and maintenance of systems for the rapid exchange of meteorological and related information”, WIS provides a flexible and extensible data management and data communication structure to be used for the collection and sharing of information for all WMO and related international programmes.

3.7 The scope of WIS accords with the scope of the expanded World Weather Watch Programme, with the intention to provide generic solutions for data sharing and data management, at different scales.

Main long-term objective

3.8 The main long-term objective of this programme component is to improve and increase access to, exchange and management of current and past Earth system observation data and derived products through the WIS (SO2.2), according to the WIS2 Strategy and the Implementation Plan, while contributing to the data sharing and management aspects of the *WMO Vision and Action Plan for hydrology*.

Implementation activities

3.9 The following paragraphs present an overview of distribution of responsibilities in relation to the implementation of activities under this Programme component, based on the [*Manual on the WMO Information System*](https://library.wmo.int/records/item/35315-manual-on-the-wmo-information-system?language_id=&offset=3) (WMO-No. 1060).

Activities to be carried out by Members

* Implementing and operating Member's national component of WIS to discharge their duties on WMO data sharing, including fault management and audit
* Ensuring that WMO technical standards on data and metadata are enforced in their data management systems
* Volunteering to support global and data collection or producing centres in support of WIS
* Informing WMO about their status of WIS implementation, compliance/noncompliance to WIS technical regulations
* Supporting capacity development of other Members
* Maintaining and developing mutually beneficial relationships at the national level to engage partners (other ministries or scientific organizations) coordinating relevant data systems.

Activities to be carried out by INFCOM

* Determination of user requirements for WIS in consultation with users
* Design, planning and evolution of WIS
* Development and documentation of standards and recommendations for data sharing system, data, and metadata management
* Performance and compliance monitoring
* Soliciting user feedback and review of requirements
* Supporting capacity development
* Maintaining and developing mutually beneficial relationships at the international level to engage partner organizations (i.e. UN and scientific organizations coordinating data systems).

Activities to be carried out by SERCOM

* Providing INFCOM with user requirements for requirements on domain specific types and volume of observation and processed data for global exchange, and service level of data exchange
* Providing INFCOM with user requirements on data and metadata standardization
* Providing INFCOM with user feedback and review of WIS performance.

Activities to be carried out by RB

* Providing INFCOM with user requirements for observation and processed data for global exchange, and service level of data exchange
* Providing INFCOM with user feedback and review of WIS performance
* Maintaining dialogue with INFCOM on data system innovation opportunities and needs.

Activities to be carried out by RAs

* Providing INFCOM with user requirements for data exchange, data and metadata standards, user feedback and review of WIS performance
* Providing INFCOM with user requirements and design of data sharing systems, data, and metadata standards for regional priorities
* Recommending global and data collection and production centres to support WIS
* Developing partnerships with appropriate regional bodies to support the implementation of WIS
* Support capacity development of Members, including through identification of gaps and liaising with regional centres in planning and conducting capacity development activities.

Activities to be carried out by the Secretariat

In addition to the general role of the Secretariat defined by [*WMO Basic Documents No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements) (WMO-No. 15):

* Support the WMO Strategic Plan 2024–2027 Strategic Objective 2.2, and support the INFCOM work programme and its roles defined above, and its linkages with other elements of the WMO Strategic Plan
* Liaise with the other WMO bodies identified above in their roles for WIS
* Support the maintenance and development of tools together with Members to collect and maintain the WIS status and progress, performance, and compliance monitoring
* Support Members with information and guidance on WIS implementation
* Support capacity development of Members
* Support establishing and maintaining mutually beneficial engagements with relevant partner organizations.

Programme component targeting Strategic Objective 2.3: WMO Integrated Processing and Prediction System (WIPPS)

Purpose and scope

3.10 Responding to the preamble of the WMO Convention “Recognizing the importance of an integrated international system for the observation, collection, processing and dissemination of meteorological, hydrological and related data and products” and its articles 2 (a) and (c) ([*Basic Documents, No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements)(WMO-No. 15)), which state, among the purposes of the Organization, “{…} to promote the establishment and maintenance of centres charged with the provision of meteorological and related services” and “{…} to ensure the uniform publication of observations and statistics”, respectively, the WIPPS enables WMO Members and other international organizations to access and use relevant, reliable, and quality assured Earth system numerical analysis and prediction products, improved forecasts, advisories, warnings and specialized forecast products at all temporal and spatial scales by the most advanced science and technology. WIPPS consists of the worldwide network of operational centres operated by WMO Members and other international organizations which generates Earth system numerical analysis and prediction products, forecasts, advisories and outlooks, warnings and specialized forecast products required by WMO Members and relevant operational organizations for the provision of services, as well as for research activities. These services include those for the protection of life and property, increased safety on land, at sea and in the air, enhanced quality of life, sustainable development, and the protection of the environment under WMO and other international programmes.

3.11 The scope of WIPPS accords with the scope of the expanded World Weather Watch Programme, with the aim to provide all required analysis and prediction products seamlessly across spatial and temporal scales and for all application areas and Earth system domains.

Main long-term objective

3.12 The main long-term objective of this programme component is to generate, enable access to and use of high-quality Earth system numerical analysis and prediction products at all temporal and spatial scales (SO2.3), by addressing three main action areas and key priorities: system and services, research and innovation, and accessibility identified by the *WIPPS Collaborative Framework* ([Resolution 58 (Cg-18)](https://library.wmo.int/idviewer/56690/193) and [Resolution 26 (Cg-19)](https://library.wmo.int/idviewer/67177/263)).

Implementation activities

3.13 The following paragraphs present an overview of distribution of responsibilities in relation to the implementation of activities under this Programme component, based on the [Manual on the WMO Integrated Processing and Prediction System](https://library.wmo.int/records/item/35703-manual-on-the-wmo-integrated-processing-and-prediction-system) (WMO-No. 485), Parts I and II.

Activities to be carried out by Members

* Carrying out WIPPS functions to meet national and international requirements, including volunteering to operate and maintain WIPPS Designated Centres:
	1. Quality control of incoming observations;
	2. Data collection and product dissemination;
	3. Long-term storage of data and products;
	4. Product verification and the performance;
	5. Documentation on system and products;
	6. Training;
	7. Reporting on compliance;
	8. Graphical representation of observations, analyses, and forecasts;
	9. Analysis and prediction, including the use and provision of WIPPS analysis and prediction products by WIPPS Designated Centres.
* Supporting WIPPS by using and providing feedback on analyses and predictions from WIPPS Designated Centres
* Maintaining and developing mutually beneficial relationships at the national level to engage partners (other ministries or scientific organizations coordinating sustained modelling infrastructures for Earth system domains/disciplines)
* Supporting capacity development of other Members

Activities to be carried out by INFCOM

* Determination of user requirements for WIPPS in consultation with users
* Design, planning and evolution of WIPPS
* Development and documentation of standards and recommendations for processing and prediction systems for Earth system application areas and/or domains and disciplines
* Performance and compliance monitoring
* Soliciting user feedback and review of requirements
* Supporting capacity development
* Maintaining and developing mutually beneficial relationships at the international level to engage relevant partner organizations.

Activities to be carried out by SERCOM

* Providing INFCOM with user requirements for WIPPS products and services in consultation with users
* Providing INFCOM with user feedback and review of WIPPS performance, products requirements, and guidance.

Activities to be carried out by RB

* Providing INFCOM with user requirements for WIPPS products
* Providing INFCOM with user feedback and review of WIPPS performance, products requirements, and guidance
* Promoting the advancement of science and technology to support improvements and evolution of the WIPPS
* Maintaining dialogue with INFCOM on seamless prediction innovation opportunities and needs.

Activities to be carried out by RAs

* Providing INFCOM with user requirements of WIPPS products and services for regional priorities
* Identifying the regional needs of WIPPS products and services and designing the optimal deployment of WIPPS Designated Centres
* Developing partnerships with appropriate regional bodies to support the implementation of WIPPS
* Supporting capacity development of Members, including through identification of gaps and liaising with regional centres in planning and conducting capacity development activities.

Activities to be carried out by the Secretariat

In addition to the general role of the Secretariat defined by [*WMO Basic Documents No. 1*](https://library.wmo.int/records/item/48992-basic-documents-no-1-convention-general-regulations-staff-regulations-financial-regulations-and-agreements) (WMO-No. 15):

* Support the WMO Strategic Plan 2024–2027 Strategic Objective 2.3, and support the INFCOM work programme and its roles defined above, and its linkages with other elements of the WMO Strategic Plan
* Liaise with the other WMO bodies identified above in their roles for WIPPS
* Liaise with relevant international organizations supporting beneficial relationships needed for the WIPPS
* Support the maintenance and development of tools together with Members to collect and maintain the WIPPS status and progress, performance, and compliance monitoring
* Support Members with information and guidance on WIPPS implementation
* Support capacity development of Members.



**Figure 1. Component systems of the expanded World Weather Watch:
the WMO Integrated Global Observing System; the WMO Information System and the WMO Integrated Processing and Prediction System (WMO global infrastructure) – their interrelation and the relation with users.**

Space Programme

Purpose and scope

4.1 The purpose of the WMO Space Programme is to coordinate, together with space agencies, the activities of Members to ensure sustained and interoperable satellite observations, enhance capacity building and to promote satellite products and applications[[5]](#footnote-6). It promotes wide availability and utilization of satellite data and products for all the relevant application areas and Earth system domains, and to integrate all components required for the provision of operational services within the applicable WMO processes and frameworks. In particular, the WMO Space Programme coordinates the development of space-based observing system to achieve full implementation of the [*Vision for WMO Integrated Global Observing System* *in 2040*](https://library.wmo.int/idurl/4/57028)(WMO-No. 1243), recognizing the complementary nature of the space-based and surfaced-based components of WIGOS, their individual strengths and limitations, and potential for integration. It promotes intercalibration of satellite instruments and harmonization of their specifications. It encourages operational and R&D space agencies to contribute to the WIGOS across all Earth system domains and to pursue system harmonization with best practices.

4.2 Satellite agencies are a specific implementation community operating in a global common, but able to provide critical observations and data products of benefit to the global infrastructure of the expanded World Weather Watch Programme, and therefore creating value for all WMO Members. Through partnerships with satellite operating agencies in the Coordination Group for Meteorological Satellites (CGMS) and the Committee on Earth Observation Satellites (CEOS) the WMO Space Programme keeps under review space-based observing capabilities (current and planned), and analyses gaps with respect to evolving requirements. It supports the global planning, optimization, and coordination of the WIGOS space-based observing system component and encourages transition of new technology to operations to address the requirements of all application areas, filling gaps in all Earth system domains.

4.3 The scope is to coordinate activities and satellite matters throughout other WMO Programmes to give guidance on the potential of space-based observations.

Main long-term objectives

4.4 The main long-term objective of the Space Programme is consistent with the expanded World Weather Watch Programme, and in particular to optimize the acquisition of Earth system observation data through the WIGOS (SO 2.1), guided by the [*Vision for the WMO Integrated Global Observing System in 2040*](https://library.wmo.int/idurl/4/57028) (WMO-No. 1243).

Implementation Activities

4.5 The WMO Space Programme activities are in five main areas:

1. Integrated space-based observing system: coordinating development of the space-based component of WIGOS for all application areas and Earth system domains;
2. Availability and use of satellite data and products: enhancing timely access of satellite data and products as required by users in all WMO Regions, promoting WIS and WIPPS implementation;
3. Capacity Building and User Engagement: maximizing utilization and benefit of satellite data by WMO Members;
4. Space Weather Infrastructure Coordination: across WIGOS, WIS, and WIPPS;
5. Coordination for the use of radiofrequency spectrum: advocating for protection of needed frequency bands for the expanded World Weather Watch Programme, in close collaboration with the Radiocommunication Sector of the International Telecommunication Union (ITU-R) and Members.

4.6 The Space Programme has a major role in defining Member requirements to space agencies. The specific roles of the Members’ space agencies, INFCOM, SERCOM, other WMO Constituent Bodies and the Secretariat is consistent with the roles described in the expanded World Weather Watch Programme components above.

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1. For the notion of “programme” the definition of ISO 21503–2017(E) (Project, programme, and portfolio management — Guidance on programme management) can be used: “temporary structure of interrelated programme components managed together that provides advantages, contributes to the achievement of strategic and operational objectives, and realizes benefits”. [↑](#footnote-ref-2)
2. Scientific and technical programmes were first established by [Resolution 5 (EC-XXI)](https://library.wmo.int/viewer/32895/download?file=245_en.pdf&type=pdf&navigator=1#page=86) – WMO Programmes. [↑](#footnote-ref-3)
3. The streamlining of programmes was Strategic Objective 5.2 of the [*WMO Strategic Plan 2020–2023*](https://library.wmo.int/records/item/56826-wmo-strategic-plan-2020-2023?language_id=&offset=10#:~:text=The%20Strategic%20Plan%20adopted%20by,their%20information%2C%20products%20and%20services.) (WMO-No. 1225). [↑](#footnote-ref-4)
4. The co-sponsored observing systems are the Global Climate Observing System (GCOS) and the Global Ocean Observing System (GOOS), which are joint undertakings of WMO and the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP) and the International Science Council (ISC). [↑](#footnote-ref-5)
5. This purpose was defined by [Resolution 62 (Cg-19)](https://library.wmo.int/idviewer/67177/564). [↑](#footnote-ref-6)