INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION  
(of UNESCO)

INFORMATION DOCUMENT

BACKGROUND ON THE WMO GOVERNANCE REVIEW  
AND IMPLICATIONS FOR JCOMM, GCOS, GOOS, AND WCRP

Summary
A reform of WMO constituent bodies has potential implications for co-sponsored bodies and programmes, including most notably the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), but also the Global Ocean Observing System (GOOS), the Global Climate Observing System (GCOS), and the World Climate Research Programme (WCRP). These last three have other co-sponsors in addition to IOC and WMO.

Here, the proposal for a new mechanism of cooperation between WMO and IOC, the Joint Committee for Oceanography and Meteorology (JCOM), is described in greater detail. A potential future for present essential functions under JCOMM is described, along with potential benefits and risks. This document supports IOC/EC-LI Agenda Item 5.1, and is also published as a WMO Information Document, EC-70/INF.16.3(5), with a different title.
1. **INTRODUCTION**

1.1 **WMO AND THE REFORM OF CONSTITUENT BODIES**

1. As a UN Specialized Agency, the World Meteorological Organization (WMO) serves the interests of its Members. It seeks to support them in achieving their goals in the most efficient and cost-effective manner possible. In particular, WMO Members are committed to delivering high-quality weather, climate and water information and services that will assist decision-makers at all levels of society. These services contribute to the global agenda, notably the Sustainable Development Goals (SDGs), the Sendai Framework for Disaster Risk Reduction, and the Paris Agreement on climate change.

2. Established in 1950, WMO recognizes the need to continuously adapt to a rapidly changing world. The need for regular reform is being driven by environmental degradation, resource constraints, increased competition, technological advances, and other forces. In 2015, the Seventeenth World Meteorological Congress\(^1\) requested the Executive Council to continue to introduce specific measures for improvement of WMO processes and practices and to undertake a holistic review of the Organization, including its processes and working practices, in implementing the Strategic Plan 2016–2019.

3. Furthermore, the Congress requested the Executive Council to provide recommendations to the Eighteenth Congress on constituent body constructs, as appropriate, including possible new structures for technical commissions, regional associations and the Executive Council, and also to provide recommendations on rules, procedures, processes, working mechanisms, and duties, of constituent bodies, WMO Officers (President, Vice-Presidents, presidents of regional associations and technical commissions) and the relationship between them and the WMO Secretariat to enhance the efficiency and effectiveness of the Organization and good governance.

4. In response to this request, in 2016 the Executive Council (EC), at its Sixty-eighth session\(^2\) tasked the EC Working Group on Strategic and Operational Planning (WG/SOP) with launching this review. In 2017 the sixty-ninth EC\(^3\) expressed its agreement with the need for change, noting that it should be implemented through a phased approach ensuring smooth and effective transformation of different kinds of WMO constituent bodies. It also observed that transformative and innovative processes have already started in several key areas.

1.2 **THE PROPOSED WMO STRATEGIC PLAN 2020-2023**

5. The work of WMO is guided by strategic and operational plans that are adopted every four years. The 2020–2023 Strategic Plan will be adopted by the Eighteenth World Meteorological Congress that will take place in June 2019. A revised system of WMO constituent bodies is also meant to support the implementation of the Strategic Plan 2020-2023.

6. The Sixty-ninth session of the Executive Council\(^4\) endorsed a new comprehensive vision for the Organization: “We envision a world in 2030 where all WMO Members, especially the most vulnerable, are more resilient to the socioeconomic consequences of extreme weather, water, climate and other environmental events; and support their sustainable development through the best possible services, whether over land, at sea or in the air”.

---

1. Seventeenth World Meteorological Congress: Abridged final report with resolutions – 7.7 Continuous improvement of WMO processes and practices (WMO-No. 1157)
2. Executive Council - Sixty-eighth session: Abridged final report with resolutions and decisions – Decision 84 (EC-68)), (WMO-No. 1168)
4. Ibid. – Decision 65 (EC-69).
7. It also endorsed three overarching priorities – addressing disaster risk reduction, climate risk and socioeconomic benefits – and the structure of the draft Strategic Plan based on five long-term goals and associated objectives:

1. Better serve societal needs: Delivering, authoritative, accessible, user-oriented and fit-for-purpose information and services.
2. Enhance Earth system observations and predictions: Strengthening the technical foundation for the future.
3. Advance targeted research: Leveraging leadership in science to improve understanding of the Earth system for enhanced services.
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.
5. Strategic realignment of WMO structure and programmes for effective policy- and decision-making and implementation.

8. These five long-term goals, and in particular the first three, provide a reference framework for the organization of a system of technical commissions to support their implementation.

1.3 THE PROPOSAL BY THE WMO EXECUTIVE COUNCIL WORKING GROUP ON STRATEGIC AND OPERATIONAL PLANNING (WG/SOP)

9. Through four meetings between 2016 and 2018, EC WG/SOP reached progressive consensus and consolidated a proposal for the reform of WMO constituent bodies, aligned with the concept of the Strategic Plan, which can be summarized as follows:

a) An intergovernmental technical Commission for Weather, Climate and Water Services and Application (CSA) to support the implementation of Long-Term Goal 1 and further the application of meteorology to aviation, shipping, water problems, agriculture and other human activities through the development and implementation of globally harmonized services in all main domains of the Organization – weather, climate, water and other environmental services - to enable informed decision-making and realization of socioeconomic benefits by all user communities and society as a whole.

b) An intergovernmental technical Commission for Observation, Infrastructure and Information System (COIS) to support the implementation of Long-Term Goal 2 through to the development and implementation of globally coordinated systems for acquiring, processing, transmitting and disseminating observations; the development and promulgation of standards for meteorological, hydrological and other environmental observations; the coordination of the production and use of standardized analysis and model forecast fields; and the development and implementation of sound data management practices, for all WMO Programmes and their associated application areas.

---

5 E.g. air quality, sand dust and storms, ozone.
7 The last meeting of EC WG/SOP also considered an alternative proposal by the Conference of the Meeting of Directors of the Iberoamerican NMHSs (CIMHET) that foresees the establishment of three commissions for services focusing on the three pillars of WMO: weather (aviation and marine meteorological services), climate (climatology and climate services including agrometeorological services) and water (hydrological services and polar and high-mountain regions).
8 Draft Recommendation 16.3(4)/1 (EC-70) and annexed Draft Resolution 16.3(4)/1 (Cg-18).
9 Footnote 8.
c) A **Scientific Advisory Panel** and a **Research Board** to support the implementation of *Long-Term Goal 3* through advising on the efforts required to enhance weather, climate, water and related environmental sciences, guiding the scientific development of seamless systems across time and spatial scales, disciplines and programmes and activities and forward looking strategic advice on emerging challenges and opportunities\(^\text{10}\).

d) An enhanced role of **regional associations** to support the implementation of *Long-Term Goal 4* together with a mechanism for capacity development and education and training aiming at reducing gaps among members and keeping the principle of no Member left behind and left alone\(^\text{11}\).

e) The consolidation of the structures of the **Executive Council** around a **Policy Advisory Committee** and a **Technical Coordination Committee** to implement *Long-Term Goal 5* by guiding the optimization of WMO structures and programmes and facilitating the collaboration between technical commissions and regional associations\(^\text{12}\).

f) A formal **interagency mechanism** to continue and deepen the cooperation with the Intergovernmental Oceanographic Commission (IOC) of UNESCO that was formerly established under JCOMM, as well as to further develop common standards and interoperability of the observations and information management systems and harmonization of service delivery mechanisms\(^\text{13}\).

g) Enhanced **working arrangements** to facilitate engagement with other key user agencies (the International Maritime Organization [IMO] for shipping; the Food and Agriculture Organization [FAO] for food security) and the contribution of expert groups outside the WMO community to the work of the technical commissions.

10. IOC Vice-Chairperson Monika Breuch-Moritz attended the last meeting of EC WG/SOP to bring the perspectives of IOC Member States. The meeting underlined the importance of strengthening and expanding the collaboration of WMO with IOC given the critical role of the ocean for weather and climate applications and services supported by ocean observations, as well the need to preserve and enhance the collaborative work accomplished through JCOMM.

11. Given the joint nature of JCOMM, the meeting recommended to EC-70 a draft decision\(^\text{14}\) concerning the creation of a joint WMO-IOC consultation group on JCOMM with the goal of preparing parallel resolutions for the 18th World Meteorological Congress (2019) and the 30th IOC Assembly (2019), inviting IOC governing bodies to adopt a similar decision. The consultation group is expected to provide recommendations on the setting of the existing JCOMM programme areas and groups into the new structure.

1.4 **THE CHANGING CONTEXT OF THE IOC**

12. IOC is in the middle of its eight-year Medium-Term Strategy, which covers the years 2014-2021, and identifies four high-level objectives for all Member States:

1. Healthy ocean ecosystems and sustained ecosystem services

2. Effective early warning systems and preparedness for tsunamis and other ocean-related hazards

\(^\text{10}\) Draft Recommendation 16.3(2)/1 (EC-70) and annexed Draft Resolution 16.3(2)/1 (Cg-18) and footnote 8.

\(^\text{11}\) Draft Recommendation 16.3(3)/1 (EC-70) and annexed Draft Resolution 16.3(3)/1 (Cg-18)

\(^\text{12}\) Draft Recommendation 16.3(2)/1 (EC-70) and annexed Draft Resolution 16.3(2)/1 (Cg-18).

\(^\text{13}\) Footnote 8.

\(^\text{14}\) Draft Decision EC-70/16.3(4)/1.
3. Increased resiliency to climate change and variability and enhanced safety, efficiency and effectiveness of all ocean-based activities through scientifically-founded services, adaptation and mitigation strategies.

4. Enhanced knowledge of emerging ocean science issues.

13. These are organized in a conceptual framework of functions required, organized around a value chain of building of scientific knowledge, application of that knowledge, and improving governance. These functions are:
   a) Ocean research,
   b) Observing system and data management,
   c) Early warning and services,
   d) Assessment and information for policy,
   e) Sustainable management and governance, and
   f) Capacity development.

14. This Medium-Term Strategy accompanied reforms in the way IOC intergovernmental governing bodies (its Assembly, Executive Council, and many primary subsidiary bodies) function: with an emphasis on shorter meetings, a focus on needed decisions, and in many cases, a project-based approach that replaces standing bodies.

15. The work of IOC has also adapted to a changing context, which includes Agenda 2030 and in particular Sustainable Development Goal 14 on the ocean, the Paris Agreement and work on climate mitigation and adaptation, the Sendai Framework for Disaster Risk Reduction, and the Samoa Pathway for Small Island Developing States.

16. On 6 December 2017, the UN General Assembly, as part of the Resolution on Oceans and the law of the sea (A/RES/72/73), decided to “proclaim the United Nations Decade of Ocean Science for Sustainable Development for the 10-year period beginning on 1 January 2021, and called upon the Intergovernmental Oceanographic Commission to prepare an implementation plan for the Decade in consultation with Member States, UN Bodies, and relevant stakeholder”. The IOC has begun the planning process for the Decade and has invited WMO and other UN Agencies to provide contributions.

2. WMO AND IOC: AN ENHANCED SCOPE OF COLLABORATION

2.1 A FRAMEWORK AGREEMENT BETWEEN WMO AND IOC

17. The joint meeting of the WMO Bureau and the IOC Officers (Geneva and Paris, by videoconference, 17 January 2018) considered that at present the cooperation between WMO and IOC is formally captured in five different memoranda of understanding for the four co-sponsored programmes (Global Climate Observing System [GCOS], Global Ocean Observing System [GOOS], World Climate Research Programme [WCRP], and Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology [JCOMM]) and the fifth covering Secretariat cooperation under JCOMM. The meeting agreed on the usefulness of developing an

15 The report of the meeting is annexed to the Report by the President of the Organization (Inf. 2.1).
18 WMO, IOC of UNESCO and ICSU 1993.
19 WMO and IOC of UNESCO 2002.
20 WMO and IOC of UNESCO 2002.
overall cooperative framework agreement between the two Organizations that would cover areas of collaboration in a more coherent and effective way.

18. The framework agreement would cover broad themes (such as climate) rather than specific initiatives and focus on the nature of the cooperation of mutual benefit. It would be complemented by technical appendices, replacing or supplementing the existing five MoUs (many of which also involve other partners), with a view also to develop a model approach for interagency agreement. The framework agreement would also aim to facilitate the leverage of more resources available to ocean matters through the collaboration between WMO and IOC for the benefit of Members/Member States.

19. The meeting further agreed that such enhanced scope of cooperation between WMO and IOC, redefined in a more holistic way based on the Earth system approach, could inform the reorganization of the interagency mechanism support it.

2.2 A REDESIGNED INTERAGENCY MECHANISM BETWEEN WMO AND IOC

20. The proposed revision of the system of technical commissions and the expanded and evolving collaboration between WMO and IOC in marine meteorology and oceanography – in order to ensure a coherent and compatible Earth system approach to observations, data management, forecast systems and the development of appropriate services related to weather, climate, and freshwater, as well as related research and capacity development – offer the opportunity to redesign the interagency mechanism and the working arrangements that support such collaboration.

21. It is proposed that such redesign (Figure 1) is based on the following elements:

a. Integrating JCOMM components on observation, data management, and processing and forecasting systems into the WMOI COIIS and GOOS and IODE on the IOC side,

b. Integrating JCOMM components on service delivery into the WMO CSA21 and the relevant programmes in the IOC function on early warning and services,

c. Establishing the Joint WMO-IOC Committee for Oceanography and Meteorology (JCOM) as the coordination mechanism for the collaboration between WMO and IOC, ensuring at a strategic level that work is connected from the provision of observations and scientific knowledge to its application in services and in setting policy.

21 Or a Commission for Weather, encompassing aviation and marine meteorological services (CIMHET proposal).
Among the most important factors that justify the integration of the programme areas of JCOMM into the proposed system of WMO technical commissions are:

a. Yielding improved relevance, effectiveness and efficiency through a flexible structure, improving the ability of the technical commissions to deliver its core functions and respond to change,

b. Evolving toward a seamless Earth system approach, integrating sectoral aspects dealt with by the current system of technical commissions and minimizing the gap between research and operations,

c. Improving strategic and structural alignment of constituent bodies, in particular the interrelationship among technical commissions and other constituent bodies and reducing inter-commission task teams,

d. The value chain that lies at the heart of the two-technical commission approach and its relationship with the strategic plan: (i) observation, data management, and data processing, modelling and forecasting, and (ii) applications and services,

e. The opportunity to align with the framework provided by the WMO Integrated Global Observing System (WIGOS) for the integration and sharing of observational data and by the WMO Information System (WIS) for data exchange, management and processing,
f. The importance of research and capacity development to support observations, data management and services, including information services aimed at setting global and national policy in climate.

23. Specific details of how each element of JCOMM and the broader IOC-WMO cooperation would continue under the WMO reform are pending but would fall under the mandate of the new JCOM to identify once the reform adopted. JCOM could continue to review these arrangements at a strategic level to reinforce cooperation at both the national and global levels in oceanography and meteorology.

3. JCOMM OPERATIONAL PROGRAMME AREAS: HOW ESSENTIAL FUNCTIONS WOULD CONTINUE

24. The structure of JCOMM as adopted by JCOMM-522 is represented in Figure 2. It includes a Management Group and three programme areas (PAs): Observation (OPA), Data Management (DMPA), and Services and Forecasting Systems (SFSPA). Each PA has a Coordination Group to coordinate the work of three to five expert groups.

![Diagram of JCOMM structure](image)

Figure 2. Structure of JCOMM as adopted by JCOMM-5

---

The precise definition of the substructures of the new technical commissions will be their responsibility once they would be established, taking into account the need to preserve and enhance JCOMM current essential functions and the recommendations of the joint WMO-IOC consultation group. The section below explores – with no prejudice to the work of the joint WMO-IOC consultation group – how each Programme area of JCOMM could continue to function under the WMO reform process, using some examples (and not a complete analysis). A transition plan for each body under JCOMM would have to be developed.

3.1 OBSERVATIONS PROGRAMME AREA

The Observations Coordination Group (OCG) of JCOMM at present plays an important role in coordinating the work of largely platform-based marine meteorological and oceanographic in situ global-scale observing networks. It works on responding to requirements, identifying and promoting standards and best practices, ensuring flow of data to real-time systems and archives, and the adoption of new technologies and sensors for a more integrated observing system. It also oversees the work plan of the technical coordination unit JCOMMOPS.

The OCG, in addition to its role in coordinating the intergovernmentally-governed teams (DBCP, SOT, and GLOSS), serves as a hub of cooperation for numerous platform-based networks conducting global-scale in situ ocean observations, with strong ties to ocean research communities. These groups are self-governed, and include the Argo profiling floats, GO-SHIP repeat hydrography, OceanSITES fixed point time series, carbon observations coordinated under the International Ocean Carbon Coordination Project, and new links to emerging programmes coordinating ocean gliders, coastal HF radar, and animal tracking. The OCG is co-sponsored by GOOS.

OCG has at present strong engagement from both the WMO-led side with WIGOS, and on the IOC-led side as a core coordinating body of in situ observing networks in GOOS.

In the future, one could imagine the OCG with a continued strong link to GOOS, and a newly-negotiated link to the WMO Commission for Observation, Infrastructure and Information System (COIIS) through a standing committee on observing systems and measurements. It would remain then as a strong joint body of IOC and WMO programmes.

3.2 DATA MANAGEMENT PROGRAMME AREA

The data management aspects under JCOMM are coordinated through the Data Management Programme Area (DMPA) and its Data Management Coordination Group (DMCG). The DMCG elaborates the Joint WMO and IOC strategy for marine meteorological and oceanographic data management for the period 2018 to 2021, and JCOMM-5 requested DMPA to keep the Strategy under review and develop an Implementation Plan responding to the Strategy in consultation with the other Programme Areas and the IOC International Oceanographic Data and Information Exchange (IODE) Committee.

As IOC refines the concept of an Ocean Data and Information System (ODIS), led by IODE but involving all IOC programmes, and as WMO WIS would further evolve, IPET-MOIS will have an important job to ensure the proper interoperability and governance of these two systems, interfacing with the work done at a national and regional level. It could keep its particular focus on connecting ocean systems into meteorological systems, as a joint activity of IODE and on the WMO side of the WMO Commission for Observation, Infrastructure and Information System (COIIS) through a Standing Committee on Data Exchange and Management.

Marine Climatology is important for WMO as it is contributing to the Global Framework for Climate Services (GFCS). Such activity would benefit from closer links with WMO climate applications and services activities. The link with the IODE remains important because of the contribution of ocean data, and IODE GDACs to the MCDS. A joint WMO-IODE expert team could be proposed in the future under the WIS-SC of the new COIIS.
3.3 SERVICES AND FORECAST SYSTEMS PROGRAMME AREA

33. Currently, the marine meteorological and oceanographic services aspects under JCOMM are coordinated through SFSPA and its Services Coordination Group (SCG). SFSPA comprises the Coordination Group as well the Committee for the IMO/WMO Worldwide Met-Ocean Information and Warning Service (WMMIWS), the four expert teams, plus a Coordinator of Satellite Data Requirements. The Coordination Group comprises the leadership positions from SFSPA: Chair, four Vice-Chairs (WMO Systems, IOC Ocean Systems, International Maritime Organization (IMO) – International Hydrographic Organization (IHO) Regulatory Material, Quality Management and Competencies), Chairs from each of the Expert Teams, the WMMIWS Committee, and Co-Chairs from JCOMM – Commission for Hydrology (CHy) Coastal Inundation Forecasting Demonstration Project (CIFDP). The following selected examples illustrate some of the issues to be considered for the functioning of SFSPA.

34. The Expert Team on Operational Ocean Forecast Systems is primarily led from the IOC side at present, engaging operational systems that are operated within met services and outside, in regional organizations, navies, and other national ocean agencies with an operational mandate. At present it is attached to the Services and Forecast Systems Programme Area of JCOMM. In the proposed future WMO reorganization, ETOOFS would have its strongest link with the WMO Global Data-processing and Forecasting Systems (GDPS), which will be organized under a Standing Committee for Data Processing and Modelling under COIIS. On the IOC side it would lose a home programme if JCOMM was changed but would naturally be connected to GOOS and the efforts to improve delivery of observations to end users.

35. Another example includes the WMMIWS Committee – which is primarily led by WMO and an obligation under the UN Convention for Safety of Life at Sea (SOLAS) – and has no formal IOC involvement. The WMMIWS Committee coordinates with the IMO and IHO to ensure the maritime safety warnings adhere to the international standards required under SOLAS. This is a mandatory activity of WMO, currently under the JCOMM structure and must continue in the future, potentially under the proposed CSA. This presents an opportunity to consider how the proposed JCOM will include partnerships with other intergovernmental agencies such as IMO and IHO.

3.4 CONNECTING BEYOND JCOMM’S PRESENT REACH, WITH JCOM

36. ETOOFS (above) is an example of a group that like all others would benefit from a full view of connectivity in a value chain that leads from observations through data systems to services and on to end users. JCOM will have to navigate this connectivity at a strategic level to ensure that:

- Ocean observations, data systems, and forecast systems are properly recognized on the WMO side as growingly critical for delivery of services for weather, climate, and water, and
- GOOS, IODE, and other relevant IOC programmes use the engagement with national meteorological and hydrographic services through WMO to engage users and respond with a fit for purpose systems.

37. JCOM would have to take up this work at a strategic overarching organizational level, leaving technical work to the bodies under structures of WMO and IOC programmes and commissions.

38. JCOM would also be placed to operationalize a future WMO-IOC Framework Agreement, ensuring that all the co-sponsored programmes including the WMO-IOC-ICSU World Climate Research Programme (WCRP), the WMO-IOC-UNEP-ICSU Global Climate Observing System, and the WMO-IOC-UNEP-ICSU Global Ocean Observing System are appropriately connected and resourced, with expertise from the meteorological and oceanographic side, and with outputs and connections to other programmes and structures that make strategic sense.

39. Looking at WMO's three overarching priorities - addressing DRR, climate risk, and socioeconomic benefits, there are opportunities to better connect IOC and WMO programmes, and
oceanographic and meteorological agencies at the national level. These include potentially, as examples:

- A focus on coastal issues covering extremes, disaster risk reduction, and climate adaptation, which would engage the full range of IOC programmes including the focus on Tsunamis, Integrated Coastal Area Management and Marine Spatial Planning, in addition to those now engaged with WMO,
- A focus on services for the shipping industry, which would be led from WMO but involve relevant IOC programmes as well as the IMO,
- A focus on research combining ocean and atmosphere that have relevance in developing climate services, including not only the WCRP but a broader range of IOC research foci in marine pollution, deoxygenation, and acidification; with a strong connection to the projects under the Decade of Ocean Sciences for Sustainable Development,
- etc.

40. Capacity development for Members and Member States is a core preoccupation of both WMO and IOC, and the positive synergies between IOC and WMO activities in this area should be another focus of strategic discussion for JCOM.

4. POTENTIAL BENEFITS AND RISKS ARISING FROM THE REFORM TO MITIGATE

41. This section is provided as an initial scoping exercise by the WMO and IOC Secretariats of the benefits and risks to mitigate arising from the reform. It will be further considered by the joint WMO-IOC consultation group on JCOMM.

4.1 POTENTIAL BENEFITS

- Increased efficiencies by focusing intergovernmental work on strategic decisions and leaving technical discussions to the expert level, and avoiding double or triple governance of expert groups across WMO, IOC and joint structures.
- Greater collaboration between WMO and IOC programmes, and meteorological and oceanographic agencies at the national level, due to the use of the Earth system approach and more integrated work in observation, data management, services and forecasting.
- Merging of programmes and redesign of common programmes to enhance the present structure.
- Greater ability to leverage observation and data management activities occurring within the COIIS.
- Greater ability to leverage service delivery enhancement activities occurring within the CSA.

4.2 POTENTIAL RISKS

- Dilution of focus on marine meteorological and oceanographic services, systems, observations and issues due to conflicting priorities within the new commission structure.
- No synergies realized by integrating activities within COIIS and CSA.
- Change management: JCOMM is a recognized focal point for oceanographic and marine meteorological collaboration, which will be managed differently in the future.
- No real enhancement of the current working structures, if the working groups are only transferred, with tasks carried out in parallel, and the intergovernmental JCOMM is transformed into an interagency JCOM.
- Loss of expertise if the new technical subsidiary bodies do not give sufficient attention to the specific marine aspects.