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**JCOMM AND THE IOC MEDIUM-TERM STRATEGY 2014–2021:
A SYNTHESIS OF COMMON OBJECTIVES**

Summary. Through EC-XLV/Dec.3.2(II), the IOC Executive Council at its 45th session (2012) accepted the report of the JCOMM-4 session (WMO-IOC/JCOMM-4/3, May 2012, Yeosu, Republic of Korea), the recommendations contained therein and the overall intersessional work plan for JCOMM 2012–2016 in support of IOC Member States and WMO Members.

This document highlights elements of the JCOMM Strategy 2012–2016, whose Executive Summary was approved at JCOMM-4, and is under review and revision by the JCOMM Co-Presidents and Management Committee. It maps the relevant JCOMM Strategy with the draft IOC Medium-Term Strategy objectives and functions. Finally, the document contains a synthesis of the JCOMM Operating Plan 2013–2016 developed by the Management Committee and Secretariats. The Operating Plan is aligned with the adopted JCOMM work programme, the Programme and Budget of IOC and Operating Plan of WMO. It details JCOMM activities and their required and identified financial resources.

Background

The Joint IOC-WMO Technical Commission for Oceanography and Marine Meteorology (JCOMM) was established by its parent Organizations, the World Meteorological Organization and the Intergovernmental Oceanographic Commission (of UNESCO) in 1999, to coordinate worldwide marine meteorological and oceanographic services and their supporting observational, data management, services and capacity building programmes.

Prior to 1999, marine meteorological and oceanographic observations, data management and service provision programmes were internationally coordinated by two separate bodies —the World Meteorological Organization (WMO), through its Commission for Marine Meteorology (CMM), and UNESCO's Intergovernmental Oceanographic Commission (IOC), through the Committee for the Integrated Global Ocean Services System (IGOSS), jointly with WMO.

JCOMM is now in a mature phase (see Fig. 1) and it is organized in three programme areas with more than ten expert teams that coordinate and recommend standards and procedures for a meteo-oceanographic integrated observing, data management and service system that uses state-of-the-art technologies and capabilities. It is responsive to the evolving needs of all users of marine data and products; includes an outreach programme to enhance the national capacity of maritime countries; and aims to maximize the benefits for its Members/Member States in the projects, programmes and activities that it undertakes in their interest and that of the global community in general.

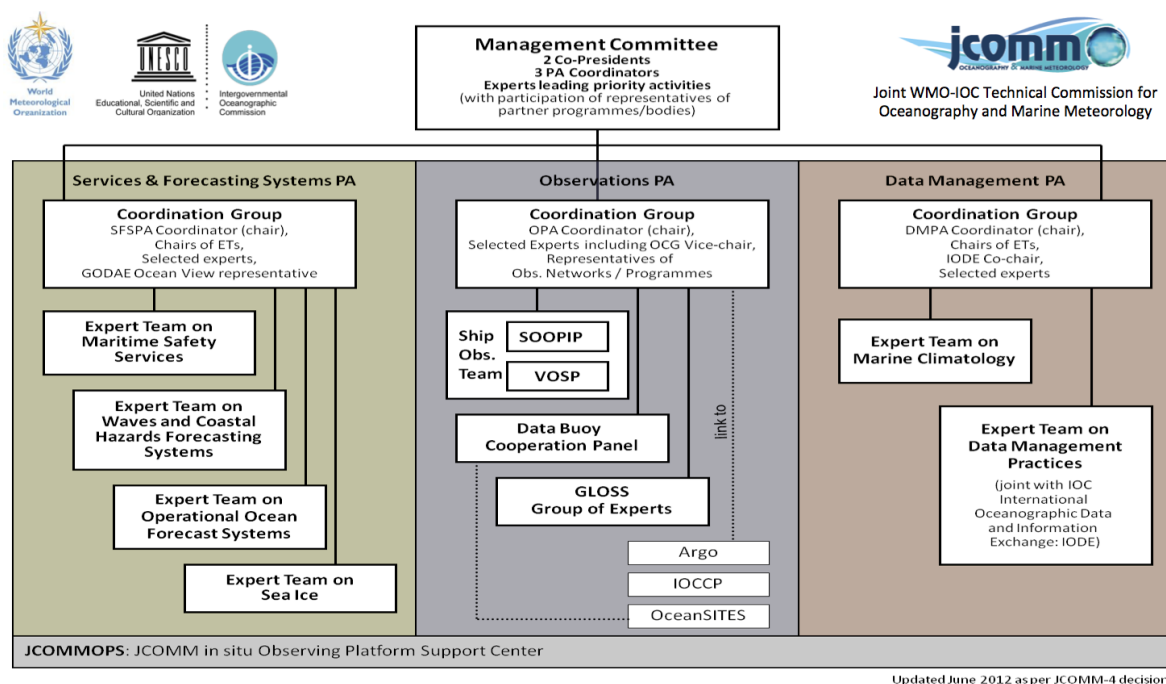


Fig. 1 The JCOMM Organization Chart as approved at the JCOMM-4 Session in 2012 (<http://www.jcomm.info/>), with three programme areas: Services and Forecasting Systems (SFSPA), Observations (OPA), and Data Management (DMPA)

The JCOMM Vision

JCOMM aims to provide an international framework for cooperation and coordination in order to construct a fully integrated meteo-marine and oceanographic observations, data management and

service system, thereby maximizing the benefits for IOC Member States and WMO Members, and the global community in general.

More specifically, JCOMM's activities will impact four major areas that are of interest to both IOC and WMO:

- 1) Marine and maritime safety and emergency response;
- 2) Coastal hazards forecasting and management;
- 3) Marine resource exploitation such as fisheries, offshore oil extraction and ocean renewable energy; and
- 4) Climate variability and change understanding, monitoring and predictions.

Long Term Objectives

While WMO and IOC initial goals of enhancing safety at sea remain primary objectives of JCOMM, requirements for data and services have steadily expanded in volume and breadth during the last few decades. Other applications such as coastal area management, sustainable management of commercial fishing activities, ship routing, offshore resource exploration and development, pollution monitoring, prevention and clean-up and, most recently, climate modelling and prediction, became increasingly important.

Notably, many of these applications require observational data sets and forecasting products, for both the ocean and the atmosphere, in real time and delayed mode, as well as an interoperable ocean and atmosphere data management system.

In response to these considerations, the long-term objectives of JCOMM are:

- (i) **To enhance the provision of marine meteorological and oceanographic services** in support of the safety of life and property at sea and in coastal areas; contribute to risk management for and sustainable development of, ocean-based economic, commercial and industrial offshore and coastal activities; and contribute to the prevention and control of marine pollution, protection of the marine environment, coastal area management and recreational activities;
- (ii) **To coordinate the development, enhancement and delivery of climate services related to the marine atmosphere and coastal and deep oceans** as a contribution to the Global Framework for Climate Services (GFCS); and to coordinate and enhance the provision of the data, information, products and services required to support climate research and the detection and prediction of climate variability
- (iii) **To coordinate the enhancement and long-term maintenance of an integrated global marine meteorological and oceanographic observing and data management system**, containing both *in situ* and remote sensing components and including data communication facilities, in the most cost-effective and efficient way, as part of the Global Ocean Observing System (GOOS) and the World Weather Watch (WWW), and in support of the Global Framework for Climate Services (GFCS), the World Climate Research Programme (WCRP), the Global Climate Observing System (GCOS), and other major WMO and IOC Programmes. This system is contributing to the WMO Information System (WIS) and the IODE Ocean Data Portal, and will be complying with the requirements of the WMO Integrated Global Observing System (WIGOS);
- (iv) **To manage the evolution of an effective and efficient programme through the selective incorporation of advances in meteorological and oceanographic science and technology**; and to work to ensure that all countries have the capacity to benefit from, and contribute to, these advances, and to contribute to the work of JCOMM in general;

- (v) **To promote and facilitate the equitable participation of all WMO Members and IOC Member States** in all activities of, and benefit from all products and services provided by, JCOMM.

These long-term objectives are compatible with the draft IOC Medium–Term Strategy for 2014–2021 and its High Level Objectives. JCOMM concentrates its work in three of the IOC's six functions (Fig. 2):

- B: Maintain, strengthen and integrate global ocean observing, data and information systems [*Observing system / data management*],
- C: Develop early warning systems, services and preparedness to mitigate the risks of tsunamis and ocean-related hazards [*Early warning and services*],
- F: Develop the institutional capacity in all of the IOC functions, as a cross-cutting function [*Capacity Development*].

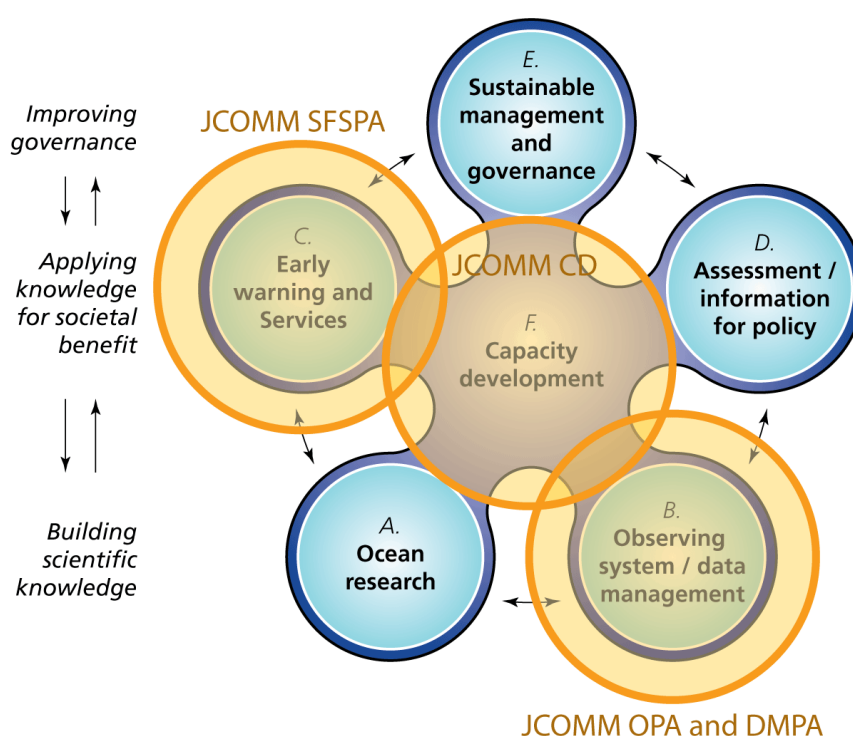


Fig. 2 The main JCOMM contributions to IOC Functions.

JCOMM addressing the IOC Medium Term Strategy

This section will try to map synthetically the JCOMM Actions, extracted from Annex 2 of the JCOMM 2012–2016 Strategy, and the IOC Functions and High Level Objectives of the draft IOC Medium-Term Strategy (IOC-XXVII/2 Annex 3).

Fundamental to the Strategic Planning Documents of IOC and WMO are agreed sets of Objectives and Functions (IOC), or Expected Results (ER, WMO). The WMO Expected Results are detailed in the report of the Sixteenth World Meteorological Congress (Cg-XVI, 2011).

The work of JCOMM will contribute to the Objectives and Functions of IOC as outlined in the table below. For reference, the WMO Expected Result to which the action contributes is also noted. Details of these are found in WMO-No. 1069.

IOC Functions	IOC High-Level Objective(s)	JCOMM action	WMO ER
B: Observing system / data management	3: <i>resiliency to climate change and variability</i>	The Commission supports and, where appropriate, coordinates and regulates the work of Members/Member States in the implementation and improvement of capabilities to exchange high quality marine meteorological and oceanographic data, information and products, on which climate studies, predictions and services, as well as impact and adaptation strategies, are based.	3
B: Observing system / data management	3: <i>resiliency to climate change and variability</i>	The Commission strives to address the requirements for marine meteorological, oceanographic and climatological data for applications of WMO and IOC programmes, particularly those of the GFCS. In close coordination with IOC-IODE and other related bodies, JCOMM works to develop a new Marine Climate Data System (MCDS) - standardized international system for the improved management of a wide range of marine/ocean climate data, integrating their collection, rescue, quality control, formatting, archiving, exchange, and access. The relevant data and associated metadata originating in real-time, delayed-mode and from historical records, will be of known quality, and extend to products that satisfy the marine data requirements for long-term climate monitoring and climate services.	4
B: Observing system / data management	2: <i>early warning and</i> 3: <i>climate resiliency</i>	JCOMM also fosters closer collaboration with other UN Agencies of UN-Oceans, the International Council for Science (ICSU) and other governmental and non-governmental organizations on matters related to marine meteorology and oceanography.	7
B: Observing system / data management	2: <i>early warning and</i> 3: <i>climate resiliency</i>	The Commission supports and where appropriate coordinates and regulates the collection, implementation, maintenance and application use of integrated in situ and space-based observing systems in oceanography and marine meteorology to assist Members/Member States in the provision of marine meteorological and oceanographic data, products and services. Providing an implementation framework for WIGOS and GOOS, JCOMM continuously reviews and updates the implementation goals for the global ocean observing network, for guidance for Members / Member States.	4
C: Early warning and services	2: <i>Effective early warning and preparedness</i>	JCOMM plays a key role in operational oceanography and marine meteorology. The Commission assists, coordinates and, where appropriate, regulates the work of Members/Member States in the (1) implementation and improvement of capabilities to access and exchange data, information, products, forecasts and warnings upon which marine meteorological and oceanographic services and marine-related decision-making processes are based; and (2) development of feedback systems to measure and subsequently enhance the overall effectiveness of these services.	1
C: Early warning and services	2: <i>Effective early warning and preparedness</i>	The Commission supports and, where appropriate coordinates and regulates, efforts to reduce risks of marine hazards caused by storms, waves, surges and other hazardous events in the marine environment, through supporting and coordinating the development and enhancement of techniques and procedures for modelling and forecasting marine-related hazards, and through assisting Members/Member States to access, understand and apply relevant data, information, products and services.	2
C: Early warning and services	2: <i>Effective early warning and preparedness</i>	Through national and regional demonstration projects, JCOMM promotes and demonstrates the integrated approach in supporting mitigation of coastal hazard risks, at national, regional and global scales, as specific contribution to the Global Framework for Climate Services (GFCS) and disaster risk reduction programmes of WMO and IOC. Efforts are made to support Members / Member States to deliver integrated coastal forecasting services for inundation from waves, storm surges, and other hydro-meteo-oceanographic causes; and to enhance integrated operational forecasting and warning capacity.	2

IOC Functions	IOC High-Level Objective(s)	JCOMM action	WMO ER
C: Early warning and services	2: <i>Effective early warning and preparedness</i>	Priority activities of JCOMM aim to assist Members / Member States with the future developments of marine meteorological and oceanographic services including multi-hazard warning and responses, through continuous efforts for Quality Management (QM) approach for metocean services, as well as the adaptation/development of technologies to national and regional environments.	6
C: Early warning and services	2: <i>Effective early warning and preparedness</i>	The Commission maintains a proactive role in ensuring a coherent, science-based approach to implement environmental conventions, including the International Convention for the Safety of Life at Sea (SOLAS). In doing so, continuous efforts are made to enhance cooperation among WMO-IOC and other UN Agencies members such as the International Maritime Organization (IMO) and International Hydrographic Organization (IHO).	7
F: Capacity development	2: <i>Effective early warning and preparedness</i>	The Commission promotes and facilitates the international exchange of experience, implementation of verification projects, transfer of technology and research uptake, and supports relevant education and training related to new research and technologies to meet the needs of national agencies and of other organizations that play a role in the provision of marine meteorological and oceanographic services.	5
F: Capacity development	2: <i>early warning and</i> 3: <i>climate resiliency</i>	JCOMM does not itself conduct research, develop models or serve products and provide services. Instead, it coordinates and facilitates the application of knowledge acquired from research activities, stimulates new scientific initiatives by identifying operational needs for new technologies, and ensures operational robustness of new systems that serve a variety of national, regional and international users.	5
F: Capacity development	2: <i>early warning and</i> 3: <i>climate resiliency</i>	The Commission gives priority to education and training activities that respond to the needs of and build capacity in the developing countries with particular emphasis on the Least Developed Countries (LDCs) and Small Island Developing Countries (SIDs). The implementation of JCOMM capacity development would become enhanced through effective cooperation with the regional entities of WMO and UNESCO/IOC (WMO Regional Associations, UNESCO/IOC Sub-Commissions and GOOS Regional Alliances).	6
		The Commission will keep under review its organisational structures, activities and process, as well as the needs of Members/Member States so as to undertake its tasks efficiently and effectively.	8

Synthesis of the JCOMM Operating Plan

The JCOMM Management Committee and Secretariat maintain an Operating Plan that is based on the approved JCOMM work plan and priorities, and details activities that are planned, implemented and reviewed by the established JCOMM groups and teams. It identifies how these activities contribute to IOC and WMO objectives and results, the expected outcomes and deliverables, and the required and identified resources from WMO and IOC regular and extra-budgetary sources.

The WMO Regular Budget contribution for JCOMM activities was decided by the World Meteorological Congress in 2011 as approximately US\$ 320k per biennium (the amounts are set in Swiss Francs, come from two WMO departments, and do not include the cost of the intergovernmental JCOMM sessions).

The IOC Regular Programme contribution for JCOMM activities was US\$ 109k in 2006-7, US\$ 110k in 2008-9, US\$ 127k in 2010-11, and planned at US\$ 170k in 2012-13, but was actually US\$ 34k due to UNESCO's financial situation. An extraordinary voluntary contribution by the Republic of Korea to the IOC, associated with the hosting of the JCOMM-4 session, also included a voluntary financial contribution towards the JCOMM work plan in 2012–2013 of US\$ 99k (out of a

total US\$ 350k contribution), allowing implementation of about 80% of planned IOC-supported JCOMM activities in the biennium 2012–2013.

Human resources in the IOC secretariat supporting JCOMM have been maintained (at about two full-time professional staff equivalents) thanks only to a secondment from the People's Republic of China. One JCOMM P-3 post has been frozen since late 2011. This secondment is presently set to expire in April 2014.

Given the planned level of activity supporting the statutory meetings of groups and teams, as well as their activities and entire work plan of JCOMM in 2014–2015, the financial and human resources required in the IOC secretariat are expected to remain constant at US\$ 170k per biennium and two full-time equivalent professional staff. The development of projects and capacity development activities will require additional financial and human resources.

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