

## **WMO Liaison Report**

Submitted by  
WMO Secretariat and the vice-chairperson of JCOMM Services Coordination Group (SCG)

### **SUMMARY**

**Executive Summary:**

This document provides a brief report on the activities of the World Meteorological Organization (WMO) since WWNWS-4, mainly through the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), that are related to activities related to the provision of marine weather information for GMDSS.

**Action to be taken: the participants are invited to:**

- (a) Note and comment on the information provided, as appropriate;
- (b) Provide additional recommendations and suggestions as appropriate.

**Related documents:** None

## **1. Major outcomes of the 65<sup>th</sup> session of the WMO Executive Council**

The sixty-fifth session of the WMO Executive Council (EC-65) took place in Geneva from 15 to 23 May 2013. The full report will be available in electronic form at the WMO web site: <http://www.wmo.int> in due course.

The WMO Executive Council (EC) recalled the role of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM); to coordinate, develop and recommend standards and procedures for the work of WMO Members in the overall collection, exchange, access, understanding, application and delivery of marine meteorological and oceanographic data, information, forecasts and warnings. In this context, the EC reviewed and noted the progress of key activities including the implementation of the World-Wide Met-Ocean Information and Warning Service (WWMIWS), the coordination for marine environmental emergencies response, and the national implementation of the Coastal Inundation Forecasting Demonstration Project (CIFDP).

The major outcomes of the EC-65 in connection with the provision of marine weather information included the following:

### **1.1. World-Wide Met-Ocean Information and Warning Service**

It was recalled that the WWMIWS introduced the role of METAREA Coordinators and identified their responsibilities, to ensure that the provision of met-ocean information and warnings is consistent in meeting the obligations of the International Convention for the

Safety of Life at Sea (SOLAS). This also ensures consistency with other aspects of safety information provided under the Convention, in particular, Navigation Warnings, which are provided under the auspices of the IHO, and are coordinated by NAVAREA Coordinators.

The EC noted the need for collaboration by JCOMM (through its Expert Team on Maritime Safety Services: ETMSS) with IOC, IHO and IMO to better coordinate the provision of tsunami warnings on the SafetyNet system. The EC also recognized the need of ensuring maritime weather and sea ice safety services, including the operational service in five new Arctic Ocean Metareas, and acknowledged the acceptance of the National Meteorological and Hydrological Services (NMHSs) to serve as coordinators in their different METAREAs.

The WMO EC requested that the ongoing process to identify/reaffirm/approve the METAREA Coordinators to be formally concluded as soon as possible.

### **1.2. WMO Manual on Marine Meteorological Services (WMO-No.558)**

The Management Committee of JCOMM (MAN) made a recommendation to the WMO EC to review the overall structure of the Manual on Marine Meteorological Services (WMO-No. 558) and the Guide to Marine Meteorological Services (WMO-No. 471), in view of new structures for those mandatory publications avoiding duplication and/or potential conflict in contents. The EC endorsed and supported this recommendation, and requested the development of clear guidelines for WMO Members applying to be Preparation/Issuing Services for the Global Maritime Distress and Safety System (GMDSS) Marine Broadcasting System, to be included in the revised publication.

JCOMM/ETMSS has the responsibility to work with the WMO Secretariat to carry out the review of two publications, targeting to submit a revised publication to the WMO Congress for approval, within the JCOMM intersessional period (2012-2017). Until the adoption of the new structures and associated publication of new editions, the ETMSS will continue to review and update these publications with new developments, as addenda

## **2. Progress in the work of JCOMM**

JCOMM/ETMSS, for WMO and IOC, has the responsibility for providing technical advice and to make recommendations for the governing bodies on metocean support for maritime safety, Search and Rescue and marine pollution emergency response support. In doing so, the ETMSS assists WMO Members and IOC Member States in the implementation of services and in the development of standardized methods for the quality assurance related to the provision of MSI, especially for the GMDSS. Based on the technical advice and recommendations of ETMSS, WMO works closely with IMO, IHO, ICS, IMSO, EMSA and other organizations to coordinate and improve maritime safety services.

For the JCOMM intersessional period 2012-2017, ETMSS on behalf of JCOMM plans to conduct the following activities as a matter of priority:

- Coordination for WWMIWS, including review/revision of the joint IMO/IHO/WMO documentation
- Review and revision of WMO-No.558 & WMO-No.471
- JCOMM Marine Meteorological Monitoring Survey (MMMS) on an inter-annual basis

- Facilitation for Quality Management (QM) approach for MSI
- Enhancing coordinating capabilities for Marine Environmental Emergency Responses
- Contribution to the provision of marine volcanic ash advisory, and navigational warnings for severe solar magnetic storms
- Continuous support for implementation of the GMDSS in the Arctic, including the development of definition on Object Catalogues for the provision of numerical information for mariners, as a set of IHO S-1xx formats

The following sub-sections briefly introduce the progress in 2012-2013, for a subset of the above topics.

## **2.1. Coordination for IMO/WMO Worldwide Met-ocean Information and Warning Service: WWMIWS**

The WWMIWS is now included in the regulatory publications as an IMO resolution 1051(27), which was formally adopted by the 27<sup>th</sup> IMO Assembly (November 2011). It complements the IMO Resolution A706(17) on the IMO/IHO World-Wide Navigational Warning Service. All those reference documents are available on the JCOMM website (<http://www.jcomm.info/GMDSS>).

The Terms of Reference for METAREA Coordinators have been clearly defined through the establishment of the WWMIWS. Those Coordinators will, in particular, ensure, in collaboration with Issuing & Preparation Services and Members issuing MSI through NAVTEX, the coordination and consistency of the met-ocean MSI prepared for the GMDSS, requested by IMO. The process to identify, finalize and approve the METAREA Coordinators is under way.

Considering the recently growing number of requests from WMO Members to become responsible Services for their areas of interest (e.g. VietNam, Peru, Kenya), WMO Members expressed their wish for there to be clear documentation on the guidelines for potential new Preparation / Issuing Services, which is being undertaken by ETMSS presently (*see sections 1.2 and 2.2*).

Relating to the GMDSS implementation in the Arctic, the most significant improvement has taken place in the coordination for Arctic MSI. Since the full-capacity operation of MSI service in the Arctic in 2011, Canada (METAREAs XVII & XVIII), Norway (METAREA XIX), the Russian Federation (METAREAs XX & XXI), Denmark and USA have continued to act as Issuing Services and/or Preparation Services for the GMDSS in the Arctic Ocean. JCOMM/ETMSS and Expert Team on Sea Ice (ETSI) supported the new Issuing Services during the implementation phase (*See also section 2.2*).

JCOMM encourages the WMO Members / IOC Member States who cover the Southern Ocean to follow the METAREAs XVII-XXI agreement on exchange and preparation of GMDSS sea ice information.

The JCOMM Expert Team on Waves and Coastal Hazard Forecasting (ETWCH) is working closely with the ETMSS to improve the sea state in marine weather information for GMDSS. Currently the majority of Issuing Services provide information on the significant wave height only, generally using the Douglas scale. Considering that many accidents have occurred in coastal or open seas due to sea state, where significant wave heights were far below the

thresholds fixed for the vessels, the future improvement should address the complex (e.g. crossing seas) or unusual (e.g. steep sea, risk of abnormal or freak waves, breaking wave intensity) sea state.

The experts of ETWCH and ETMSS are in process of defining key parameters and related thresholds, to provide more useful information for the safety of vessels and crews in complex and dangerous seas, in association with the ship masters, owners and manufacturers. A white paper will be issued by January 2014, on:

- key elements to understand complex sea states ,and associated terminology in weather and sea bulletins;
- Required development for standardized forecasts of dangerous sea state;
- proposed form of dissemination through SafetyNET and NAVTEX.

Once approved by the WMO Congress, the associated standards, manuals and guidelines (e.g. WMO Manual on Marine Meteorological Services) will accommodate the above-development, and partner Organizations will be advised on the progress following the established procedure.

## **2.2. Review and revision of WMO-No.558 & WMO-No.471**

The WMO Manual on Marine Meteorological Services (WMO-No. 558: <http://www.jcomm.info/558>), supported by the Guide to Marine Meteorological Services (WMO-No. 471: <http://www.jcomm.info/471>), specifies obligations of WMO Members in the implementation of Marine Meteorological Services (including MSI provision), to ensure uniformity in the practices and procedures.

Upon the decision at the 65<sup>th</sup> WMO EC, the ETMSS is conducting a review of the overall structure of the WMO-No. 558 and WMO-No. 471. A proposal for new structures will be submitted to the WMO Congress within the JCOMM intersessional period (2012-2017). Until the adoption of the new structures and associated publication of new editions, the ETMSS will continue to review and update these publications on the new development, as addenda (*see also section 1.2*).

The addenda of WMO-No.558 and WMO-No.471 are under preparation, to be made available by the end of 2013; to include the changes adopted during JCOMM-4 (May 2012), provision of sea ice information, availability of MSI prepared for the GMDSS on the GTS, and reference to the WWMIWS and METAREA Coordinators.

Upon the review of ETMSS, the addenda will also include additional information on:

- Revised METAREAs and Coordinators' information, to be maintained as online publication (“dynamic part” of the Manual/Guide);
- Updates on Search & Rescue;
- Updates on marine environmental emergency responses (*See also item 2 of this report*)
- Guidelines for Members applying to be new Preparation / Issuing Service
- Sea ice information in SafetyNET bulletins (including the definition of ice-edge and the common set of Sub-Areas agreed by Preparation Services), as well as the list of abbreviations for ice information, to be used in NAVTEX bulletins

### **2.3. Marine Meteorological Monitoring Survey**

JCOMM Marine Meteorological Monitoring Survey (MMMS) has been regularly conducted in order to monitor the effectiveness of and the degree of user satisfaction on the marine meteorological and oceanographic information produced and transmitted by the National Meteorological and Hydrological Services (NMHSs).

For the 2011 survey, the WMO Secretariat developed an online version of the MMMS (<http://www.jcomm.info/MMMS>). This new means enabled the dissemination of surveys more frequently to assess the level of satisfaction of end-users. It therefore was decided to conduct surveys in every two years with the support of the WMO Secretariat, ETMSS and the Issuing Services and the national Port Meteorological Officers (PMOs); and to further improve the analyses and dissemination/use of the survey results by the Issuing Services.

Largely be based on the previous survey in 2011, a new survey will be conducted in the 4<sup>th</sup> quarter of 2013 and 1<sup>st</sup> quarter of 2014, with minor changes to clarify the input needed from ship masters. The Sub-Committee is invited to provide suggestions as appropriate, for the forthcoming survey.

### **2.4. Marine Meteorological and Oceanographic Support for Marine Environmental Emergency Responses**

The Marine Pollution Emergency Response Support System for high seas, MPERSS (<http://www.jcomm.info/MPERSS>), was formally established in 2001 at the first session of JCOMM (June 2001, Iceland) after a trial period since January 1994. Its primary objective is to have in place a coordinated, global system for the provision of meteorological and oceanographic information for marine pollution emergency response operations outside waters under national jurisdiction. The MPERSS is implemented as recommended practise following the guidance within the WMO-No.471, by the Area Meteorological and Oceanographic Coordinators (AMOCs) who are identified among the NMHSs with capabilities of marine modelling and service distribution.

JCOMM at its 4<sup>th</sup> session (May 2012, Republic of Korea) recommended that it should take a proactive role in supporting the WMO Members and IOC Member States to respond to marine environmental emergencies, including the maritime radioactive material discharge. This should include supporting responsible centres to extend their technical capabilities, exchange diagnostic and forecast data, as well as provide enhanced coordination for services and information provision in a way that meets requirements as defined by the International Atomic Energy Agency (IAEA) and International Maritime Organization (IMO).

To this end, JCOMM established an ad hoc Task Team to; 1) firstly, review available technologies for modelling, forecasting and operational support, in view of exploring feasibility of providing enhanced coordination in basin scale; and 2) review the current framework for MPERSS and propose a future framework for the global coordination of marine environmental emergency responses, ensuring that existing capabilities within MPERSS (including Search and Rescue) are not compromised by any reapportionment of resources. The Team will complete its work and submit a proposal for future framework to the WMO Congress in 2015.

The Task Team had its meeting in July 2013 in Vienna, Austria, jointly with the IAEA consultants meeting on Marine and Aquatic modelling for Radiological Emergencies, to share knowledge and discuss on future actions to enhance capabilities for assessment and prognosis of marine releases during a radiological event. The joint meeting provided an excellent opportunity for the Task Team to better understand the operational requirements of “users” for metocean information in radiological emergencies, and to initiate its work to propose a streamlined international coordination. The Task Team will maintain its primary consideration on clearly identifying users of metocean information for emergency responses - including any authoritative parties - and their requirements for specific information. Further investigation in this regard should be made for other issues (e.g. oil spill, Search and Rescue), through consultation with the IMO regional marine pollution combatting centres and other marine pollution research and monitoring programmes of IOC/UNEP.

A future framework should also include ways to ensure usability of information service / products, through continuous interaction with users to review/update requirements. Primarily responding to operational requirements, it will need to be recognized as part of relevant intergovernmental protocols and contingency plans (e.g. the Joint Radiation Emergency Management Plan for the respective parts of procedure), after rigorous trials/test and review.

## **2.5. Quality Management (QM) approach for MSI**

WMO continues to monitor and facilitate the quality assurance for MSI through MMMS and the annual self-assessment reports by all Issuing Services/METAREA Coordinators, to ensure the use of best practices and the improvement of value for mariners. Training opportunities for QM are continuously sought, such as the Maritime Safety Services Enhancement Workshop in May 2010. It is proposed that the next Workshop would be organized in conjunction with the WWNWS-6 in 2014, and also with a meeting of the METAREA Coordinators.

The WMO Congress at its 16th session (2011) agreed that the special emphasis of the WMO on service delivery, including climate services, requires a renewed effort in documenting that all relevant processes from physical measurements in observations to forecasts and warnings issued to all user and customer groups are undertaken within a sound Quality Management Framework (QMF).

A key aspect of documenting "all the relevant processes" is ensuring the competence of all staff involved in the processes associated with the development and implementation of a quality management system (QMS). In fact, the ISO 9001 Quality Management Standard has a specific clause associated with the competence, training and awareness of staff:

### *6.2.2 Competence, training and awareness*

*The organization shall*

- a) determine the necessary competence for personnel performing work affecting conformity to product requirements,*
- b) where applicable, provide training or take other actions to achieve the necessary competence,*

- c) evaluate the effectiveness of the actions taken,*
- d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and*
- e) maintain appropriate records of education, training, skills and experience.*

**ISO 9001:2008**

To assist in the development of requirements for marine meteorological and oceanographic services, JCOMM at its 4<sup>th</sup> session (2012) adopted Recommendation 5 (JCOMM-4) – Quality Management Implementation for JCOMM, and formed an ad hoc Task Team on Marine Competency Requirements (TT-MCR; <http://www.jcomm.info/TT-MCR>).

The Task Team is in the process of drafting internationally acceptable competency requirements for marine meteorological and oceanographic services, based on WMO's QMS guidance as well as the existing national/international requirements for such services. The proposed competencies, so far identified, include the following:

- **ANALYSE AND MONITOR CONTINUOUSLY THE WEATHER SITUATION**  
Observations and forecasts of weather parameters and significant weather phenomena are continuously monitored to determine the need for issuance, cancellation or amendment/update of forecasts and warnings according to documented thresholds and regulations.
- **FORECAST MARINE WEATHER PHENOMENA AND PARAMETERS**  
Forecasts of meteorological parameters and phenomena are prepared and issued in accordance with documented requirements, priorities and deadlines.
- **WARN OF HAZARDOUS PHENOMENA**  
Warnings are issued in a timely manner when hazardous conditions are expected to reach documented threshold values and as appropriate, amended according to documented criteria.
- **ENSURE THE QUALITY OF METEOROLOGICAL INFORMATION AND SERVICES**  
Marine weather forecasts, warnings and related products are provided within a quality management framework.
- **COMMUNICATE METEOROLOGICAL INFORMATION TO INTERNAL AND EXTERNAL USERS**  
Marine weather forecasts and warnings are effectively communicated to user communities.
- **REGIONAL VARIATIONS**  
A clear understanding of the regional variations applicable to adjacent areas of forecast and warning responsibility.

The final draft of the Marine Competency Requirements will be submitted to the WMO Congress in 2015, for approval.

In the future, to ensure the systematic and continuous improvement of marine meteorological and oceanographic services, the user requirements for maritime safety services should be clearly delivered from and coordinated by responsible organizations, which would require closer coordination between WMO and partner organizations such as IMO and IHO; for the case of the aero-meteorological information services, the International Civil Aviation Organization (ICAO) provide a clear set of user requirements and regulatory frameworks to the WMO Commission for Aeronautical Meteorology (CAeM). The Sub-Committee is invited to consider this issue from the services providers' and users' point of view, and to advise on the points for future consideration.

### **3. Other activities**

The WMO and the International Mobile Satellite Organization (IMSO) finalized a Memorandum of Understanding in April 2013, to ensure and enhance collaborate on matters such as the use of satellite telecommunication services for the collection and dissemination of marine meteorological and oceanographic data to promote the safety of life and property at sea and the safe and efficient operation of ships. The two Organizations will also ensure exchange of information and regular consultations in the field of maritime communications for maritime safety and efficiency of navigation.

The WMO Secretariat provided technical assistance to IHO in the spirit of collaboration, to develop an online version of the IHO's survey on the receipt and reliability of Navigational Warnings via NAVTEX and SAFETYNET (<http://www.surveymonkey.com/s/WWNWS> or <http://www.surveymonkey.com/s/IHOsurvey>, *see agenda item 3.4.2*). This new means, as proven through the previous MMMS, allowed a wide range of users to easily access the survey and provide responses and a closer coordination between the MMMS and WWNWS surveys.