

**JOINT WMO-IOC TECHNICAL COMMISSION
FOR OCEANOGRAPHY AND MARINE
METEOROLOGY (JCOMM)**

Submitted by: **JCOMM-4/Doc. 8.1**
WMO Secretary-General
and UNESCO/IOC
Executive Secretary

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FORECASTING SYSTEMS AND SERVICES**SUMMARY****ISSUES TO BE DISCUSSED:**

1. Outcome of the work of the SFSPA regarding the maritime safety services
2. Future development of JCOMM/SFSPA activities, including the work programme and tasks

DECISIONS/ACTIONS REQUIRED:

The Commission is requested to:

- (a) Re-establish the Expert Team on Operational Ocean Forecasting (ETOOFS) and assign it the following tasks:
 - complete the first Guide to Operational Ocean Forecasting Systems during the intersessional period;
 - consolidate the monitoring of the operational quality control systems with extended participation of forecasting centres, as well as to establish a set of initial performance metrics for Operation Ocean Forecast Systems (OOPS);
 - continue updating requirements in WMO Rolling Review of Requirements (RRR) and in the Statement of Guidance (SoG), to include essential variables for ocean forecasting;
 - to liaise with partners to identify the best approach for the coordination for relevant aspects of seasonal ocean climate forecasting and in particular prepare a recommendation specifying the role required from JCOMM and to facilitate the implementation of the approved recommendation;
 - work with the Expert Team on Maritime Safety Services (ETMSS) and relevant organizations for coordination of an extension of capability to fill the gap identified following the recent Fukushima nuclear accident;
 - continue assisting Members / Member States, through training activities, to develop operational ocean forecast systems
- (b) Re-establish the Expert Team on Wind Waves and Storm Surges (ETWS) and assign it the following tasks:
 - continue review and update the Guide to Wave Analysis and Forecasting (WMO-No. 702) and the JCOMM Guide to Storm Surge Forecasting (WMO-No.1076), including their dynamic part;
 - cross-reference with other Manuals and Guides of WMO and UNESCO/IOC;
 - revise the Guide to Wave Analysis and Forecasting, following the format of the 1998 version, WMO Series 702;
 - continue collaboration with ECMWF and European Space Agency (ESA) to continue efforts for wave forecast verification scheme, as well as for the development of spectral validation of wave model outputs;
 - continue assisting Members / Member States, through JCOMM/TCP training workshops, to develop operational wave and storm surge forecasting;
- (c) Request Members / Member States to:
 - contribute to the development of an Ocean Extremes Monitoring System that would establish a suite of ocean variables and indices together with their reference variability/probability density, in both ocean observations and modelling;
 - apply and make maximum use of the wave forecast verification scheme for marine forecasting purposes.
- (e) Approve the draft text for inclusion in the general summary of JCOMM-4 given in Appendix;

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APPENDIX: DRAFT TEXT FOR INCLUSION IN THE GENERAL SUMMARY OF JCOMM-4

8.1 FORECASTING SYSTEMS AND SERVICES *(agenda item 8.1)*

8.1.1. The Commission recalled Recommendation 5 (JCOMM-3) to develop a Guide to Operational Ocean Forecasting Systems, with the objective of documenting the current practices for ocean forecasting, in order to: (a) provide existing centres with alternative approaches to promote discussion on the best practice; and (b) serve as an aid for developing centres. The Commission re-affirmed that operational ocean forecasting would remain the priority of JCOMM for the intersessional period, and noted with appreciation the ongoing effort by the Expert Team on Operation Ocean Forecast Systems (ETOOFS) in developing the Guide. The Commission requested ETOOFS to complete the first Guide during the intersessional period and encouraged Members/Member States to contribute content writers and reviewers for the Guide during the intersessional period.

8.1.2. The Commission recognized the value of the Guide to Wave Analysis and Forecasting (WMO-No. 702), the JCOMM Guide to Storm Surge Forecasting (WMO-No.1076) and other relevant technical guidance publications in ensuring the provision of high quality, accurate, consistent, and timely operational forecast products. Recognizing the developments and advances relating to wave and storm surge forecasting, the Commission agreed on the usefulness of dynamic parts of both the wave and storm surge guides to keep abreast of the latest development. The Commission noted that the publications, including their web-based dynamic parts, should be maintained as up-to-date as possible and therefore requested the Expert Team on Wind Waves and Storm Surge (ETWS) to keep the contents of these publications under review as well as cross-referenced with other Manuals and Guides, such as the Manual of Quality Control Procedures for Validation of Oceanographic Data (UNESCO/IOC M&G No. 26), and to advise on the need for future updating as appropriate. In this context, the Commission requested ETWS to revise the Guide to Wave Analysis and Forecasting during the intersessional period, following the format of the present version.

8.1.3. The Commission reaffirmed the importance of the wave forecast verification scheme, which was initiated in 1997. It was pleased to note the successful collaboration with the European Space Agency (ESA) GlobWave project in implementing components of the wave forecast verification scheme specifically to expand the verification scheme to include additional remotely sensed data, and spatial intercomparison. The Commission requested ETWS to continue this collaboration and to continue with the development of spectral validation of wave model outputs. In this context, the Commission expressed its appreciation to the current seventeen – up from twelve - contributing centres and encouraged Members/Member States to participate in the wave forecast verification scheme and to disseminate their wave data in order to further develop the scheme. It urged Members/Member States to make maximum use of the scheme applications for marine forecasting purposes.

8.1.4. The Commission noted the completion of the routine monitoring of operational quality control systems for operational ocean forecasting systems, and expressed its appreciation to participating centres including the Australian Bureau of Meteorology, Environment Canada, NAVOCEANO, and UK Met Office. The Commission endorsed the ETOOFS workplan to consolidate the monitoring of the quality control systems with extended participation of forecasting centres, as well as to establish a set of initial performance metrics for Operation Ocean Forecast Systems (OOFS). The Commission encouraged ETOOFS and the Global Ocean Data Assimilation Experiment (GODAE) OceanView to continue their collaboration to develop the next generation of metrics.

8.1.5. The Commission noted the ETOOFS workplan to develop an Ocean Extremes Monitoring System that would establish a suite of ocean variables and indices together with their

reference variability/probability density. The Commission encouraged its Members/Member States to contribute to this activity, in both ocean observations and modelling. The Commission agreed that this system would help to raise awareness of the frequency and distribution of extremes in the ocean and provide a context to regional impacts and represent a JCOMM contribution to the Global Framework for Climate Services (GFCS).

8.1.6. Noting that the quality of ocean forecasting depends on a range of sustained remote sensing and in situ observations, the Commission agreed on the importance of updating and communicating requirements for key variables for ocean forecasting systems. The Commission noted with satisfaction the effort by ETOOFS and other Teams of the Services and Forecasting Systems Programme Area (SFSPA) to extend the scope of requirements in WMO Rolling Review of Requirements (RRR) and in the Statement of Guidance (SoG) to include essential variables for ocean forecasting. The Commission noted the extension of ocean observing requirements to include coastal ocean forecasting and coupled climate forecasting systems that would serve as a JCOMM contribution to GFCS, and requested the ETOOFS to continue working with other Teams and the JCOMM Point of Contact for the Commission for Basic Systems (CBS) on Ocean Applications (Ali Mafimbo) to review and update the requirements.

8.1.7. Following the discussion under agenda item 5.4 on JCOMM contribution to GFCS through operational seasonal climate forecasting, the Commission requested the Services and Forecasting Systems Programme Area (SFSPA) (through ETOOFS) and other relevant international groups (e.g., the Working Group on Numerical Experimentation (WGNE), GODAE OceanView Science Team (GOVST), Working Group on Seasonal to Interannual Prediction (WGSIP)) to develop a coordination framework to support ocean and marine observing, modelling and service requirements for operational coupled seasonal climate forecast systems. The Commission requested ETOOFS to liaise with partners to identify the best approach for the coordination for relevant aspects of seasonal climate forecasting and in particular prepare a recommendation specifying the role required from JCOMM and to facilitate the implementation of the approved recommendation.

8.1.8. The Commission agreed on the role of ETOOFS in the coordination of the strategy for the Marine Pollution Emergency Response Support System (MPERSS) outlined in the Recommendation 8.3/1 (JCOMM-4), and requested ETOOFS to lead the coordination of an extension of capability to fill the gap identified following the recent Fukushima nuclear accident in cooperation with the International Atomic Energy Agency (IAEA) and partner groups. In doing so, the Commission requested ETOOFS to identify a responsible member within the Team for this task as Activity Leader on marine environmental emergencies. The Commission also requested the ETOOFS to work with the Expert Team on Maritime Safety Services (ETMSS), who should take the lead on the international coordination for meeting the service requirements [See agenda item 8.3].

8.1.9. The Commission highlighted the importance of capacity building for the development of operational ocean forecast systems as well as the interpretation and application of ocean forecast products. The Commission noted that ETOOFS would provide a supporting role to planned capacity building workshops: the GODAE summer school, the IOC Perth-Office demonstration project for operational ocean forecasting in the Indian Ocean, and DBCP capacity building. The Commission requested that ETOOFS continue to assist where possible other initiatives during the intersessional period. The Commission also requested the ETWS to continue working with the WMO Tropical Cyclone Programme (TCP) to assist Members/Member States to operationalize the wave and storm surge modelling and forecasting, through the joint JCOMM/TCP training workshop series.

REFERENCES FOR DOC. 8.1 (Not to be included in the final Meeting Report):

1. Abridged Final Report with Resolutions of the Sixteenth World Meteorological Congress (WMO-No. 1077) Resolution 24, paragraph number 4.4
2. Abridged Final Reports with Resolutions of the Sixty-second (WMO-No. 1059) and Sixty-third Sessions (WMO-No. 1078) of the WMO Executive Council, paragraph number 4.2.46 to 4.2.50
3. Abridged Final Report with Resolutions and Recommendations of the First (WMO-No. 931), Second (WMO-No. 995) and Third (WMO-No. 1049) Sessions of JCOMM:
http://www.jcomm.info/index.php?option=com_oa&task=viewDoclistRecord&doclistID=112
4. Summary Report of the Forty-third (IOC/EC-XLIII) Session of the UNESCO/IOC Executive Council, paragraph number 5.3
5. Summary Report of the Twenty-sixth (IOC-XXVI) Session of the UNESCO/IOC Assembly, paragraph number 6.2
6. Final Reports of the Eighth (JCOMM/MR-No.83) and Ninth (JCOMM/MR-No. 88) Sessions of the JCOMM Management Committee:
http://www.jcomm.info/index.php?option=com_oa&task=viewDocumentRecord&docID=6397
http://www.jcomm.info/index.php?option=com_oa&task=viewDocumentRecord&docID=7803
7. Final Reports of the Fifth (JCOMM/MR-No.76) and Sixth (JCOMM/MR-No.89) Sessions of the Services and Forecasting Systems Coordination Group:
http://www.jcomm.info/index.php?option=com_oa&task=viewDocumentRecord&docID=5768
http://www.jcomm.info/index.php?option=com_oa&task=viewDocumentRecord&docID=8248
8. **JCOMM-4/BM. 8:** Report on SFSPA Progress/Achievements