

**JOINT WMO-IOC TECHNICAL COMMISSION
FOR OCEANOGRAPHY AND MARINE
METEOROLOGY (JCOMM)**Submitted by: **JCOMM-4/Doc. 7**
WMO Secretary-General
and UNESCO/IOC
Executive Secretary**FOURTH SESSION**Yeosu, Republic of Korea,
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Agenda Item: **7**
Status: **DRAFT 1****JCOMM DATA MANAGEMENT PROGRAMME AREA: ACHIEVEMENTS
AND FUTURE PRIORITIES****SUMMARY****ISSUES TO BE DISCUSSED:**

1. Data Management Plan update;
2. Quality management, improved ocean data standards, JCOMM catalogue of standards and practices;
3. Interoperability between ocean data systems and with the IODE Ocean Data Portal (ODP) and WMO Information System (WIS); ODP development;
4. Collection, recording, and exchange of instrument/Platform metadata;
5. Modernization of the Marine Climatological Summaries Scheme (MCSS), and new Marine Climate Data System (MCDS);
6. Organization of the fourth JCOMM Workshop on Advances in Marine Climatology (CLIMAR-IV), and the fourth International workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT-IV) workshops in 2014 and 2015 respectively;
7. Priority activities for the DMPA during the next intersessional period;

DECISIONS/ACTIONS REQUIRED:

The Commission is requested to:

- (a) Adopt:
 - Priority activities for the DMPA during the next intersessional period;
- (b) Request Members/Member States:
 - to participate actively in the Ocean Data Standards (ODS) process in submitting and reviewing candidate standards;
- (c) Urge Members/Member States:
 - to collect, distribute and record instrument/platform metadata together with the ocean observational data;
- (d) Invite Members/Member States:
 - to consider implementing Quality Management Systems for their ocean data centres and data management systems if that was not already the case;
- (e) Request the Data Management Programme Area (DMPA) to:
 - to continue to collaborate in the development of the IODE Ocean Data Portal (ODP);
 - to make steps towards an integrated *in situ*/satellite data management system, and improve the integration and comparison of satellite and *in situ* data;
 - to keep the "Oceanographer's Cookbook for Submitting Ocean Data in Real Time and Delayed Mode" under review, and continue to maintain the BUFR templates for ocean data under review so that they continue to take end-user requirements into account;
 - to finalize the BUFR Master Table 10 (Oceanographic Data);
 - to lead the development of the MCDS in close cooperation with the IODE;
 - to keep the Data Management Plan and its implementation details under review, and to update them as needed;
 - to keep the JCOMM DMPA webpages under review and to update them as needed;

- to proceed with organizing a fourth JCOMM Workshops on Advances in Marine Climatology (CLIMAR-IV) around 2014, and a fourth MARCDAT in 2015;
- (f) Approve the draft text for inclusion in the general summary of JCOMM-4 given in Appendix A;
- (g) Adopt draft Recommendation 7/1 (JCOMM-4) – Provision of Ocean Instrument/Platform Metadata given in Appendix B.

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

7 JCOMM DATA MANAGEMENT PROGRAMME AREA: ACHIEVEMENTS AND FUTURE PRIORITIES (*agenda item 7*)

7.0.1 The Commission recalled the priority activities for the Data Management Programme Area during the last intersessional period as decided by JCOMM-III (priority (i) to (ix) of paragraph 7.4, WMO-No. 1049), and noted with appreciation the following achievements.

7.0.2 Regarding JCOMM-III priority (i), the DMPA contributed to the improvement of standardization for ocean data management. In particular, two standards have been published through the JCOMM/IODE¹ Ocean Data Standards (ODS²) process, additional standards are currently under review, and additional standards have been identified for submission through the process. (see item 7.1 for details).

7.0.3 Regarding JCOMM-III priority (ii), the DMPA supported the WMO Integrated Global Observing System (WIGOS) through collaboration in the JCOMM Pilot Project for WIGOS, focusing on interoperability between the IOC/IODE Ocean Data Portal (ODP) (now progressing to version 2) and the WMO Information System (WIS), contributing to making the IODE ODP and the WIS interoperable as well as other ocean data systems interoperable with ODP and/or WIS (see item 7.3). The JCOMM Pilot Project for WIGOS has been completed in late 2010, and thirteen key ocean data-sets made interoperable with the ODP or the WIS (see item 7.4, and JCOMM/TR-No. 48 for details), while the ODP is developed in such a way as to become interoperable with the WIS. Noting that the ODP provides a simple and cost-effective solution for developing countries to make their ocean data sets visible and accessible to the international community, the Commission requested the DMPA to continue to collaborate in the development of the IODE ODP. The DMPA contributed to the development of a global integrated observing system by making steps towards an integrated *in situ*/satellite data management system. The Commission requested the DMPA to continue efforts in this regard, and improve the integration and comparison of satellite and *in situ* data, e.g. address the climatic and non-climatic requirements for *in situ* and satellite data, and consider data homogenization and interoperability issues.

7.0.4 Regarding JCOMM-III priority (iii), the DMPA Supported the WIS implementation by assisting with the updating of manuals (e.g. Global Temperature Profile Programme – GTSP – Real-Time Quality Control Manual, Revised Edition, 2010), updating the data management plan, and finalizing the Oceanographer's Cookbook for Submitting Ocean Data in Real Time and Delayed Mode. Changes have also been proposed to the BUFR³ templates for ocean data (ship-based observations, data buoys) in order to include in the GTS real-time data flow the instrument/platform metadata that are required in real-time by end-user applications. Plans are underway for sharing tools for encoding/decoding software within the oceanographic community, and example of BUFR reports have been produced for training purposes. The Commission requested the DMPA to keep the "Cookbook" under review, and continue to maintain the BUFR templates for ocean data under review so that they continue to take end-user requirements into account. It further requested the DMPA to finalize the BUFR Master Table 10 (Oceanographic Data) (See also item 7.4 for more discussion on WIS).

7.0.5 Regarding JCOMM-III priority (iv), the Water Temperature Instrument/Platform Metadata (META-T) Pilot Project has been completed, and some key recommendations made in particular

1: IOC International Oceanographic Data and Information Exchange (IODE)

2: <http://www.oceandatastandards.org/>

3: FM-94 BUFR : Binary Universal Form for the Representation of Meteorological Data (used for distribution of time critical data onto the Global Telecommunication System – GTS).

regarding the need to collect and distribute the metadata together with the data. Some recommendations have then been made in this regard by the Expert Team on Marine Climatology (ETMC) for the evolution of the Ocean Data Acquisition System (ODAS) Metadata Service (ODASMS) (see item 7.2). The META-T also facilitated improvement of the instrument metadata management by updating the Table Driven Codes. The Commission urged Members/Member States to collect, distribute and record instrument/platform metadata together with the ocean observational data, and adopted Recommendation 7/1 (JCOMM-4) – Provision of Ocean/Instrument Metadata (See also item 7.2 for some additional information on metadata).

7.0.6 Regarding JCOMM-III priority (v), the Modernization effort of the Marine Climatological Summaries Scheme (MCSS) lead to proposing a Vision and draft strategy for a new Marine Climate Data System (MCDS, see item 7.2) to better address in particular the requirements for climate services. The Commission requested the DMPA to lead the development of the MCDS in close cooperation with the IODE (See item 7.2 for details).

7.0.7 Regarding JCOMM-III priority (vi), the Data Management Coordination Group (DMCG) reviewed progress on the implementation details⁴ of the Data Management Plan (JCOMM TR No. 40, Rev. 1), as well as the future actions for the realization of the plan. Tasks and future actions for the realization of its objectives were also discussed, and a new version of the Plan and its implementation details were proposed accordingly. The Commission requested the DMPA to keep the Data Management Plan and its implementation details under review, and to update them as needed.

7.0.8 Regarding JCOMM-III priority (vii), the DMPA has updated the Catalogue of Standards and Best Practices, and as part of the JCOMM Data Management Plan recommended implementation of Quality Management Systems (QMSs) by Members/Member States in compliance with the WMO Quality Management Framework (QMF). The Commission invited Members/Member States to consider implementing QMSs for their ocean data centres and data management systems if that was not already the case.

7.0.9 Regarding JCOMM-III priority (viii), the DMPA webpages on the JCOMM website have been substantially reviewed and updated to provide useful information to the targeted audience. The Commission requested the DMPA to keep the webpages under review and to update them as needed.

7.0.10 Regarding JCOMM-III priority (ix), the third International Workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT-III) was organized in Frascati, Italy from 6 to 8 May, and the workshop's proceedings with recommendations published. The Commission requested the DMPA to proceed with organizing a fourth JCOMM Workshop on Advances in Marine Climatology (CLIMAR-IV) around 2014, and a fourth MARCDAT in 2015.

7.5 DMPA priorities for the next intersession period (2012-2017)

7.5.1 The Commission endorsed the future priority activities for the next intersessional period for the Data Management Programme Area (DMPA) as described below, with no particular order:

- (i) Continue to adopt standards/best practices for use by the marine meteorological and oceanographic community through the IODE-JCOMM Ocean Data Standards Process in support of the Global Framework for Climate Services (GFCS), the IOC-WMO-UNEP-ICSU Global Ocean Observing System (GOOS), IODE¹, and the WMO Integrated Global Observing System (WIGOS) implementation;

⁴ <http://www.jcomm.info/dmp-id>

- (ii) Assist in the further development of the IODE Ocean Data Portal, its linkages with other ocean data systems (e.g. SeaDataNet^{Error! Bookmark not defined.}, IMOS⁵, OBIS⁶, GEOSS⁷), its interoperability with the WMO Information System (WIS), and its capacity development activities to ensure full participation of Members/Member States;
- (iii) Develop a strategy and implementation plan in the next two years for achieving a vision for a new MCDS and start implementation preparation of the new JCOMM Marine Climate Data System (MCDS);
- (iv) Improve the management of instrument/platform metadata;
- (v) Organize the fourth JCOMM Workshop on Advances in Marine Climatology (CLIMAR-IV), possibly in 2014, and the fourth International workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT-IV), possibly in 2015.

REFERENCES FOR DOC. 7 (Not to be included in the final Meeting Report):

1. Abridged Final Report with Resolutions of the Sixteenth World Meteorological Congress (WMO-No. 1077), paragraphs 2.5.19 – 2.5.21, 3.1.1.4, 3.5.3.7, 11.4.5, and Resolution 24
2. Abridged Final Reports with Resolutions of the Sixty-second (WMO-No. 1059), paragraphs 2.5.5-2.5.7, 3.5.2.11, 4.2.46-4.2.50, and Resolution 4, and Sixty-third Sessions (WMO-No. 1078) of the WMO Executive Council
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_oe&task=viewDoclistRecord&doclistID=112
4. Summary Report of the Forty-third (IOC/EC-XLIII) Session of the UNESCO/IOC Executive Council
5. Summary Report of the Twenty-sixth (IOC-XXVI) Session of the UNESCO/IOC Assembly
6. Summary report of the Twenty-First Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XXI);
http://www.iode.org/index.php?option=com_oe&task=viewDocumentRecord&docID=7203
7. 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_oe&task=viewDocumentRecord&docID=6397
http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=7803
8. Final Report of the third Session of the Expert Team on Marine Climatology (JCOMM/MR-No-70)
http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=4950
9. Final Report of the fourth Session of the Data Management Coordination Group (JCOMM/MR-No. 71)
http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=5531
10. Final Report of the second Session of the JCOMM-IODE Expert Team on Data Management Practices (JCOMM/MR-No. 72)
http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=6002
11. Final report of the workshop for a new Marine Climate Data System (MCDS) meeting, including the draft MCDS strategy in JCOMM MR#90;
http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=8259
- 12 JCOMM Data Management Plan (JCOMM/TR-No. 40, Rev. 1)

5: Australian Integrated Marine Observing System
6: Ocean Biogeographic Information System
7: Global Earth Observing System of Systems

- http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=2877
13. Proceedings of the third JCOMM Workshop on Advances in Marine Climatology (JCOMM/TR-No. 45)
<ftp://ftp.wmo.int/Documents/PublicWeb/amp/mmop/documents/JCOMM-TR/J-TR-45-CLIMAR-III/index.html>
14. Proceedings of the third International Workshop on Advances in the use of Historical Marine Climate Data (JCOMM/TR-No. 59)
<ftp://ftp.wmo.int/Documents/PublicWeb/amp/mmop/documents/JCOMM-TR/J-TR-59-MARCDAT-III/index.html>
15. Pilot Project for the integration of marine meteorological and other appropriate oceanographic observations into the WMO observing system (WIGOS) (WIGOS Pilot Project V – JCOMM Pilot Project for WIGOS) – Project Report (WMO/TD-No. 1515 – 2011 – JCOMM Technical Report No. 48)
http://www.jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=6698
16. Summary report of the Twenty-First Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XXI);
17. Global Temperature Profile Programme – GTSP – Real-Time Quality Control Manual, Revised Edition, 2010
<http://www.iode.org/mg22>
18. **JCOMM-4/BM. 7:** Progress and activity report – Data Management Programme Area

APPENDIX B: DRAFT RECOMMENDATION

Rec. 7/1 (JCOMM-4) — Provision of Ocean Instrument/Platform Metadata

THE JOINT WMO/IOC TECHNICAL COMMISSION FOR
OCEANOGRAPHY AND MARINE METEOROLOGY,

Noting:

- (1) Recommendation 3 (JCOMM-III) – Provision of ocean data acquisition system and water temperature metadata
- (2) The Abridged Final Report with Resolutions and Recommendations of the Third Session of the Joint WMO/IOC Commission for Oceanography and Marine Meteorology (WMO-No. 1049), general summary, paragraphs 5.2.10, 6.1.5, 6.1.11.4, 6.2.5, 7.1.5, 7.2, 7.4, 10.1.7, 10.2.7
- (3) Resolution 24 (Cg-XVI) – Marine Meteorology and Oceanography Programme,
- (4) Resolution 50 (Cg-XVI) – Implementation of the WMO Integrated Global Observing System (WIGOS),
- (5) The final report of the third meeting of the JCOMM Expert Team on Marine Climatology (JCOMM/MR-No. 70),
- (6) The final report of the fourth session of the JCOMM Data Management Programme Area Coordination Group (JCOMM/MR-No. 71),
- (7) The final report of the Eighth Session of the JCOMM Management Committee (JCOMM/MR-No. 83),
- (8) The Final report of the workshop for a new Marine Climate Data System (MCDS) meeting, including the draft MCDS strategy in JCOMM MR#90;
- (9) The summary report of the Twenty-First Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XXI);
- (10) Recommendation 7.2/1 (JCOMM-IV) – Marine Climate Data System (MCDS)

Considering:

- (1) The importance of instrument and platform metadata in a number of domains including climate applications and research (for example, bias correction), and operational applications, permitting amongst other things to interpret the data correctly, ensure traceability to standards, enhance coherence of data records, and facilitate quality monitoring activities.
- (2) That China has fully developed an Ocean Data Acquisition System (ODAS) Metadata Service (ODASMS) for assembling, preserving and disseminating metadata on ODAS platforms.
- (3) That there is a number of systems in place that are collecting metadata from ocean observing platforms (e.g. WMO Publication No. 47, European Directory for Initial Ocean and Observing Systems – EDIOS maintained by the SeaDataNet infrastructure) that can contribute metadata to the MCDS.
- (4) The Development of the JCOMM Marine Climate Data System (MCDS), including WMO-IOC Centres for Marine-meteorological and Oceanographic Climate Data (CMOCs), providing an integrated data-flow for the collection of marine-meteorological and oceanographic climate data, including metadata from in situ ocean observation platforms.
- (5) That metadata systems require the active involvement of all Members/Member States which operate such platforms and equipment to provide updated metadata in a routine fashion.

Recommends:

- (1) Members/Member States to record and provide through the appropriate mechanisms, including CMOCs – once established – on a routine basis required metadata about ocean instruments and observing platforms that they operate.
- (2) Members / Member States providing the functions of the ODASMS into their CMOC should they establish one.
- (3) The JCOMM *in situ* Observation Programme Support Centre (JCOMMOPS) to routinely contact platform operators so that the metadata are being submitted to the relevant CMOC(s), including for operational platforms and for historical ones.

Requests the Secretary-General of WMO and the Executive Secretary of UNESCO/IOC, to assist Members/Member States, as necessary, in the submission of metadata to the CMOCs.

This Recommendation replaces Recommendation 3 (JCOMM-III), which becomes obsolete.
