

**FOURTH SESSION  
OF THE JCOMM DATA MANAGEMENT  
COORDINATION GROUP**

**(OSTEND, BELGIUM, 8-9 APRIL 2010)**

**FINAL REPORT**



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## **NOTES**

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## EXECUTIVE SUMMARY

The fourth session of the JCOMM Data Management Coordination Group (DMCG) was held at the Project Office of the International Oceanographic Data and Information Exchange (IODE) of the Intergovernmental Oceanographic Commission (IOC) of UNESCO, Ostend, Belgium, from 8 to 9 April 2010.

The Group reviewed the action items that arose from the third DMCG-3 Session, Ostend, Belgium, 26-28 March 2008. The Group noted with appreciation that about 80% of the action items had been addressed and completed, and reviewed the remaining action items that are relevant to the priority activities decided by the third JCOMM Session (JCOMM-III), Marrakech, Morocco, 4-11 November 2009; resulting renewed actions were merged with the new action items arising from this session.

The Group reviewed the future priority activities for this JCOMM intersessional period for the Data Management Programme Area (DMPA) as endorsed during JCOMM-III, and produced the DMPA work plan for the next intersessional period accordingly.

The Group reviewed the recent activities of the JCOMM-IODE Expert Team on Data Management Practices (ETDMP), and the JCOMM Expert Team on Marine Climatology (ETMC), and endorsed their work programmes as defined at the third ETMC and second ETDMP Session respectively. In particular, the Group agreed with the plan proposed by the ETMC for the modernization of the Marine Climatological Summaries Scheme (MCSS), and the proposed establishment of a WMO-IOC network of Centres for Marine-meteorological and Ocean Climatological Data (CMOCs) by JCOMM-IV. To address the issue of Rig and Platform metadata as discussed at JCOMM-III, the Group proposed that the Management Committee discuss the integration of Rigs and Platforms in the DBCP and SOT Terms of Reference. The Group requested the ETDMP to prepare a consolidated workplan of the ETDMP based on the different workplans proposed for (i) Ocean Data Standards (ODS), (ii) Ocean Data Portal (ODP), and (iii) Metadata.

The Group proposed a strategy for Capacity Building in ocean data management, and particularly proposed to organize training courses on (i) the use of Table driven codes for marine meteorology and operational oceanography, (ii) the establishment of ODP data nodes, and (iii) Instrument Metadata (requirements and practical exchange). The Group requested the Secretariat to proceed in tentatively organizing these workshops, identify resource persons, and collect teaching materials.

The Group reviewed collaborations with the JCOMM Observations, and Services and Forecasting Systems Programme Areas, as well as with WMO and IOC bodies or Systems such as the International Oceanographic Data and Information Exchange (IODE), the WMO Information System (WIS), the WMO Integrated Global Observing Systems (WIGOS), the WMO Quality Management Framework (QMF), the Commission for Instruments and Methods of Observation (CIMO), the WMO Commission for Climatology (CCI), the WMO Commission for Basic Systems (CBS). It also reviewed its interactions and collaboration with the Pan-European infrastructure for Ocean & Marine Data Management (SeaDataNet), and the Australian Integrated Marine Observing System (IMOS). Aspects regarding these collaborations have been considered and integrated in the DMPA workplan for the period 2010 to 2012. The Group also agreed that collaboration should be extended with the Ocean Biogeographic Information System (OBIS), the Global Sea Level Observing System (GLOSS), the Tsunami monitoring community, and some GOOS Pilot Projects. The requirements of those groups in terms of Ocean Data Standards still need to be addressed. The requirements of groups such as the Argo Steering Group, the GTSP, and GOSUD in terms of provision of data through the Ocean Data Portal still need to be addressed as well.

The Group reviewed progress on the implementation details of the Data Management Plan (JCOMM TR No. 40), 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 in order to be able to propose an

updated version of the plan.

The Group agreed that the JCOMM Data Management Plan, and related implementation details, should to be updated according to JCOMM-III recommendations, and the outcomes of the OceanOBS09 and IMDIS conferences. The new GCOS Implementation Plan (2010 version) will also have to be considered in this regard. The Group agreed that a first update of the Data Management Plan should be available within 10 months and requested the DMCG Chairperson to lead this effort in liaison with, and with input from Group members.

The Group was informed on the present status of the Oceanographer's Cookbook for submitting ocean data in real-time and delayed mode, and proposed an action plan for completing it.

The Group agreed that it would be useful to address the integration of the JCOMM Specialized Oceanography Centres (SOCs), the IODE Responsible National Oceanographic Data Centres (RNDOCs), and the VOSCLIM Real Time Monitoring Centre (RTMC), and proposed an evaluation of their functions in the view to possibly propose a plan in the future for their integration under JCOMM. The integration of in situ/satellite/model field data management, including match-up databases (e.g. ICOADS) was also discussed and better collaboration with the satellite community proposed.

The meeting achieved consensus, and permitted to make substantial progress regarding a number of issues. The Group reviewed action items arising from the Session, and prepared its work plan for the intersessional period 2010-2012 according to JCOMM-III expressed priorities, and the discussions during this Session.

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## GENERAL SUMMARY OF THE WORK OF THE SESSION

### 1. ORGANIZATION OF THE SESSION

#### 1.1 Opening

1.1.1 The Fourth Session of the JCOMM Data Management Coordination Group (DMCG) was opened by Ms Sissy Iona, Chairperson of the DMCG, at 09h00 a.m. on Thursday 8 April 2010 at the Project Office of the IOC International Oceanographic Data and Information Exchange (IODE) in Ostend, Belgium. Ms Iona welcomed the participants at the meeting and noted that it was a great honour for her to follow up from Mr Robert Keeley as DMCG Chairperson, and was looking forward to an active collaboration with the Group. She summarized the workplan for this DMCG Session.

1.1.2 The WMO Secretariat representative welcomed the participants to the Session on behalf of the Secretary-General of WMO, Mr Michel Jarraud, and the Executive Secretary IOC, Dr Wendy Watson Wright. The Group recognized the rapidly developing WMO Integrated Global Observing System (WIGOS), promoted by the WMO Fifteenth Congress (Cg-XV) as a strategic objective of the WMO, and noted the substantial contribution of the DMPA in the development of the JCOMM Pilot Project for WIGOS. The Group also recognized that ocean data are expected to play a crucial role in the developing Global Framework for Climate Services (GFCS), and that ocean data management standards, practices, and procedures should be developed in a way consistent with the GFCS.

#### 1.2 Adoption of the agenda

1.2.1 The Chairperson introduced the Provisional Agenda, and invited the meeting to review it and adopt it. The meeting adopted the Agenda ([Annex I](#)).

#### 1.3 Local arrangements

1.3.1 The Secretariat representative provided information on the working hours of the meeting and some practical arrangements for the meeting.

1.3.2 Participants were reminded that all working documents were made available through the JCOMM web site. Participants were invited to introduce themselves briefly. The list of participants is available as [Annex II](#).

### 2. DMPA CHAIRPERSON'S REPORT

2.1 The DMCG Chairperson, Ms Sissy Iona (Greece) presented a report on the activities of the Group and the Expert Teams during the last intersessional period. At the Third Session of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) that was held in Marrakech, Morocco, from 4 to 11 November 2009, the Commission selected Sissy Iona (Greece) as chairperson of the Data Management Coordination Group and Data Management Programme Area Coordinator, in the position of Robert Keeley (Canada).

2.2 Ms Iona reported that the Data Management Coordination Group and its Expert Teams have been very active during the last intersessional period in responding to the action programme as defined by JCOMM-II and the third Session of the Group (DMCG-III, Ostend, Belgium, 26-28 March 2008). There has been an increasing close cooperation with the International Oceanographic Data and Information Exchange (IODE) of UNESCO/IOC in the intersessional period, not only through the jointly managed Expert Team on Data Management Practices (ETDMP), but also through the various activities undertaken, including the Ocean Data Standards Pilot Project (ODS) and the JCOMM Pilot Project for the WMO Integrated Global Observing System (WIGOS).

2.3 The Data Management Plan was kept updated as several tasks were being implemented. Its content update is an on-going activity in consistency with the WMO and IOC Strategic Planning, including the WMO Information System, and the IOC Strategic Plan of the Oceanographic Data and Information Management. See agenda item 8.1 for details.

2.4 There was progress on Table Driven Codes to include instrumentation metadata. The BUFR templates for XBT and VOS data are ready, while work has still to be done for buoys. In addition, Master Table 10 for oceanographic data is still under validation. Use of the Binary Universal Form for the Representation of meteorological data (BUFR) will be required for all data circulating on the Global Telecommunication System (GTS) by 2012. The Group agreed that the use of the Ocean Data Acquisition System (ODAS) Metadata Service (ODASMS) should be tested by key users in order to verify how operational the Service is, and propose improvements if needed. The Group requested the Expert Team on Marine Climatology (ETMC) to address this issue, and invited the ETMC Chairperson to liaise with the ETMC and the ODASMS in this regard (**action; S. Woodruff; Sept 2010**).

2.5 Much work has been done in Marine Climatology concerning data exchange and archive formats, interoperability with the International Comprehensive Ocean-Atmosphere Data Set (ICOADS), historical ocean data rescue and the modernization of the Marine Climatological Summaries Schemes (MCSS) through its two Task Teams on Delayed Mode VOS Data (TT-DMVOS) and Marine-meteorological and Oceanographic Climatological Summaries (TT-MOCS). The TT-DMVOS is focusing primarily on modernizing the management and quality control of delayed-mode Voluntary Observing Ship (VOS) data while the TT-MOCS under its new chair will focus on modernizing the content, format and dissemination methods for MCSS data and products to include respectively, satellite data, Geographical Information System (GIS) compatibility and Internet-based web services.

2.6 The main activities of ETDMP during the intersessional period were concentrated on the finalization of the End-to-End Data Management (E2EDM) technology, the establishment of the Ocean Data Standards (ODS) Pilot Project, the development of the Ocean Data Portal (ODP) and design of the WIGOS Pilot Project (PP). ETDMP also successfully contributed to WIGOS work.

2.7 The first standard for Country Codes for Identifying Countries in Oceanographic Data Exchange has been adopted. On January 2010, an invitation was sent to the SeaDataNet to submit its proposal to the Standards Process. The first Pan-European infrastructure for Ocean and Marine Data Management (SeaDataNet) Common Data Index (CDI) standard proposal was to be reviewed by the ETDMP in early April 2010.

2.8 Specialized education and training activities were undertaken during the intersessional period for enhancing the capability of members in accessing existing products and providing marine forecasting and warning services. During the JCOMM-III Session three Activity Leaders on Capacity Building (CB) were identified to work with the PA coordinators address a strategy for CB and implement a range of JCOMM-focused capacity building activities. Mr Bouksim (Morocco) was nominated Activity Leader on Capacity Building for the Management Committee. The Group agreed that Capacity Building activities, and training in particular, on End to End Data Management technology, and Table driven Codes (e.g. BUFR encoding and decoding) should be organized. The Group noted that E2E documentation was already available through the ODP web site.

2.9 The former (R. Keeley, Canada) and the present (S. Iona, Greece) DMCG Chairpersons attended several meetings since the third Session of DMCG (DMCG-III, Ostend, Belgium, 26-28 March 2008), including those from the other JCOMM Programme Areas, to address the work of the JCOMM Data Management Programme Area (DMPA) since DMCG-III.

### 3. REVIEW OF ACTIONS

### 3.1 Review of actions from DMCG-3

3.1.1 The Group reviewed the action items that arose from the third DMCG Session, Ostend, Belgium, 26-28 March 2008. The Group noted with appreciation that about 80% of the action items had been addressed and completed. The Group review the remaining action items that are relevant to the priority activities decided by JCOMM-III (see agenda item 3.2) and resulting new actions will be merged in the action items arising from this session:

1. Action 4/2.1/2.1.2: Regarding training material on the application of data management to marine hazards to be included in OceanTeacher, the Group noted that Bob Keeley can assist in this regard. For example, the “Cookbook” can be submitted to the OceanTeacher even though it is not entirely completed.
2. Action 8/2.2/2.2.2: Regarding identifying missing digital library material and course material for OceanTeacher related to JCOMM subject areas, the Group proposed that other JCOMM Programme Areas should also provide input. In this regard, the Group requested S. Iona to write to the PA Coordinators and cc the activity leaders on CB. The Group also agreed that some WMO and IOC Publications need to be updated. The JCOMM Pilot Project for WIGOS has already identified the following ones which should be updated as a matter of priority:
  - IOC Manual and Guides No. 4, Guide to Oceanographic and Marine Meteorological Instruments and Observing Practices;
  - IOC Manual and Guides No. 26, Manual of Quality Control Procedures for Validation of Oceanographic Data;
  - WMO Publication No. 544, Manual on the Global Observing System (GOS);
  - WMO Publication No. 488, Guide on the Global Observing System (GOS);
  - WMO Publications No. 8, Guide to Meteorological Instruments and Methods of Observation.

The Group noted that the Data Buoy Cooperation Panel (DBCP) and WMO were providing funding in the context of the JCOMM Pilot Project for WIGOS for recruiting a consultant who will be tasked to update some of those Publications. Another consultant will probably have to be recruited and funded to update IOC No. 4. The Group requested S. Iona to approach Charles Sun and seek whether he could look at IOC No. 26 from a GTSP perspective and estimate the effort that would be required for updating the guide (**action; S. Iona; ASAP**). See also paragraph 6.1.14.

3. Action 9/2.2/2.2.2: Regarding Tsunami monitoring, the Group noted that the African sea level station monitoring facility has now been superseded by a global facility ([www.ioc-sealevelmonitoring.org](http://www.ioc-sealevelmonitoring.org)). The purpose of the facility is to identify what stations are operating, which ones are faulty, and permits to resolve problems. However, the Global Sea Level Observing System (GLOSS) Africa web site still provides for the list of stations of interest to Africa ([ioc.unesco.org/glossafrica](http://ioc.unesco.org/glossafrica)). The Group noted that Lesley Rickards is expected to submit quality control procedures for sea level data through the Ocean Data Standards process (ODS). Sea level data is also a key dataset identified by the JCOMM Pilot Project for JCOMM for which interoperability with the ODP and/or WIS should be developed. The Group agreed that efforts should be made for collecting all required metadata about the sea level stations. The Group requested S. Iona to contact Mark Merrifield and Torkild Aarup and seek participation of DMPA experts at the forthcoming GLOSS Group of Experts meeting – 2<sup>nd</sup> quarter 2011 – and explain the rationale of collecting more metadata from GLOSS as well as providing interoperability with the ODP (**action; S. Iona; Sept 2010**).
4. Action 24/3.3/3.3.5: Regarding changes needed to bring BUFR Master Table 10 (MT10) into conformance with present WMO rules for Table Driven codes (TDCs), the Group requested the DMPA Task Team on Table Driven Codes (TT-TDC) to continue to address the issue and to submit a proposal to the Commission for Basic Systems (CBS) Inter

Programme Expert Team on Data Representation and Codes (IPET-DRC) (**action; TT-TDC; Jun 2010**).

5. Action 36/3.6/3.6.2: Regarding including action items in the Data Management (DM) plan regarding computer models, the Group referred to Recommendation No. 7 of the plan, and requested the Chair to contact Coriolis and seek feedback (**action; S. Iona; ASAP**). The Group agreed that the SFSPA Coordinator should also be invited to provide input and requested S. Iona to contact him in this regard (**action; S. Iona; ASAP**). The Group agreed that historical reanalysis products had to be considered in the plan, as well as distributed data processing systems. The Group requested N. Mikhailov to propose a paragraph on distributed processing systems for inclusion in the DM Plan (**action; N. Mikhailov; ASAP**). The ETMC will address Numerical Weather Prediction (NWP) and satellite matchup data.
6. Action 37/3.6/3.6.3: Regarding interaction with the Global Ocean Data Assimilation Experiment (GODAE) getting information on how to distribute and make available model outputs, how to target their distribution, how to manage inter-comparisons, the Group requested the DMCG Chair to investigate with MyOcean what is the current status and what documentation could be provided (**action; S. Iona; Jun 2010**).
7. Action 53/Rec 5.1.11: Regarding the Rig and Platform metadata issue, the Group proposed that the DBCP takes care of automated rigs and platforms, and the SOT takes care of those making manual observations, as observing practices in each case are more relevant to those respective Panels. The Group invited the Management Committee to address the issue at its forthcoming Session in late 2010 in the view to propose updates to the Terms of Reference of the DBCP and the Ship Observations Team (SOT). The Group requested S. Iona to bring this issue to the Management Committee (**action; S. Iona; Nov 2010**).
8. Action 58/5.2/5.2.7: Regarding IODE representation in the TT-MOCS, the Group requested The IOC Secretariat to distribute the Terms of Reference of TT-MOCS to the IODE Community (after those have been updated by TT-MOCS) in order to find an appropriate representative no later than December 2010 (**action; Secretariat/IOC; Dec 2010**). The Group requested S. Woodruff to contact the TT-MOCS Chair, E. Kent (UK), and suggest an IODE representative once identified (**action; S. Woodruff; Feb 2011**).
9. Action 60/5.3/5.3.3: Regarding providing ODS documentation to authors of marine Quality Control (QC) document, and inviting submission of the document to the process, the Group suggested that an outline and overview/summary could be submitted. The document as it stands is not suitable yet as a standard. The Group suggested renaming the document to better reflect its content, which is more related to ship-based observations. It invited the TT-DMVOS to review the document to check its consistency with the Minimum Quality Control Standard (MQCS), and requested S. Woodruff to circulate it to the co-chairs of the TT-DMVOS (**action; S. Woodruff; ASAP**). The Group agreed that the document should eventually be published as a JCOMM Technical Report and IOC Manuals and Guides (M&G), and included in the best practices catalogue (**action; TT-DMVOS; Oct 2010**). The Group noted that higher-level QC as eventually proposed by the TT-MOCS should eventually be published in the appropriate WMO Publication.
10. Action 70/5.5/5.5.1.9, 74/5.5/5.5.2.4, 78/5.5/5.5.2.7: Regarding real-time receiving and updating mechanism for META-T, the Group invited J. Chen (China) to provide feedback to the DMCG Chairperson (**action; J Chen; Jun 2010**). The Group agreed that users of the ODASMS should be invited to provide feedback to China regarding the use of the service. The ETMC was tasked to attempt accessing the data and report on possible problems (**action; ETMC; July 2010**). The Group requested the JCOMM *in situ* Observing Programme Support Centre (JCOMMOPS) to make sure that metadata it is routinely collected and are regularly submitted to the appropriate archives (**action; JCOMMOPS; ongoing**). The Group invited China to investigate and assist in making the instrument/platform metadata stored in the ODASMS and the Water Temperature Metadata

Pilot Project (META-T) interoperable (discoverable) via the ODP in the view to report at the fourth JCOMM Session (JCOMM-IV) (**action; J. Chen; mid-2012**). This would also include information on how to link observed data and instrument/platform metadata. The Group recommended that ODASMS should be registered in the ODP using Data Provider (**action; ODASMS; July 2010**). The Group proposed to rename the existing ODAS metadata format into "Required ocean observing platform platform/instrument metadata content" and recommended that JCOMM Observation Panels address the specific formats required for exchanging metadata reports for specific platform types.

11. Action 72/5.5/5.5.1.10: Regarding establishing links between JCOMMOPS and the Association of Hydro-Meteorological Equipment Industry (HMEI) on the metadata issue to see how the manufacturers can cooperate in collecting the metadata, the Group agreed that HMEI should be invited to attend IODE and GLOSS Group of Experts (GLOSS-GE) Sessions. The IOC Secretariat was invited to make sure an agenda item is included in the agenda for IODE-XXI regarding establishing a Memorandum of Understanding (MOU) between IOC and the HMEI, and HMEI eventually benefits from similar "consultative status" as with the WMO (**action; Secretariat/IOC; Jun 2010**). The Group requested The WMO Secretariat to provide information to the IOC Secretariat on the WMO "consultative status" (**action; Secretariat/WMO; Jun 2010**).
12. Action 79/5.5/5.5.2.8: Regarding the preservability of marine data from BUFR reports, the Group endorsed the strategy, and course of action proposed by the third Session of the ETMC (ETMC-III, Melbourne, Australia, 8-12 February 2010). The Group recognized that WIS should be aware that there are requirements for data transfer (e.g. delayed mode) that are different from the present time-critical requirements associated with the current GTS; and that if needed, the WMO Information System (WIS) could evolve in permitting: (i) real-time distribution using GTS formats, and (ii) delayed mode distribution using appropriate new formats permitting to distribute additional information that had been lost in the real-time data flow. The Group requested S. Woodruff to contact the Inter-Commission Coordination Group on WIS (ICG-WIS) Chairperson and provide information and proposal on the issue (**action; S. Woodruff; Sep 2010**).
13. Action 82/6.1/6.1.8: Regarding ODP becoming interoperable with existing data systems and WIS, the Group recommended that the CBS Expert Team on WIS Global Information System Centres (GISCs) and Data Collection and Production Centres (DCPCs) (ET-WISC) addresses the issue of documenting the interface between the ODP and GISCs. (**action; H. Knottenberg; Jul 2010**). The Group requested ODP and the GISC in Germany to work on the specifications of this interface (**action; N. Mikhailov + H. Knottenberg; end Jul 2010**). The Group invited the ET-WISC to consider accepting N. Mikhailov for participating in the ET-WISC representing JCOMM (**action; H. Knottenberg; ASAP**).
14. Action 95/8.2.2/8.2.2.2: Regarding contributing as appropriate to a Volume IV of WMO Technical Regulations, the Group requested S. Iona, G. Reed, and the IOC Secretariat to review the draft (**action; S. Iona, G. Reed, Secretariat/IOC; Jun 2010**).
15. Action 96/8.2.2/8.2.2.5: Regarding JCOMM Technical Report no. 13, the Group requested the Secretariat to delete references to old versions of the dynamic part of the guide from the JCOMM catalogue of best practices and standards (**action; Secretariat; ASAP**).
16. Action 108/8.4/8.4.2: Regarding reporting progress on ODS to the Global Earth Observation System of Systems (GEOSS) for inclusion in the GEOSS standards registry, the group requested the IOC Secretariat & G. Reed to inform J. Pearlman about ODS (**action; Secretariat/IOC & G. Reed; ASAP**).

### 3.2 Priority actions from JCOMM-III

3.2.1 The Group reviewed the future priority activities for this JCOMM intersessional period for the Data Management Programme Area (DMPA) as endorsed during the third JCOMM Session, Marrakech, Morocco, 4-11 November 2009, in view to produce the DMPA work plan for the next intersessional period:

- (i) Develop standards/best practices in the marine community through the IODE-JCOMM Standards Process;
  - ⇒ The Group noted that important decisions were made at ETDMP-II and endorsed the ETDMP ODS workplan.
- (ii) Continue to work under the JCOMM Pilot Project for WIGOS to make the ODP and WIS interoperable as well as other ocean data systems interoperable with ODP and/or WIS;
  - ⇒ The Group endorsed the ETDMP ODP workplan and recommended that the JCOMM Pilot Project for WIGOS propose legacy recommendations in this regard.
- (iii) Upgrade present BUFR encoding for marine variables to include instrument/platform metadata;
  - ⇒ The Group stressed that a training strategy was needed on table driven codes. The Group noted that Bob Keeley would be retiring soon and that a candidate was needed to chair the Task Team on Table Driven Codes. The Task Team will particularly have to address the BUFR template for buoy data as those for Expendable Bathythermograph (XBT) and VOS achieved good progress so far, and propose a workplan for testing and validating all ocean related BUFR templates. The BUFR Master Table 10 will also have to be made consistent with WMO rules.
- (iv) Complete Meta-T and Ocean Data Acquisition System (ODAS) implementation and capture of instrument/platform metadata;
  - ⇒ The Group endorsed the ETDMP metadata workplan, and requested the ETMC to assist in this regard.
- (v) Modernize the Marine Climatological Summaries Scheme (MCSS);
  - ⇒ The Group endorsed the ETMC workplan in this regard.
- (vi) Review and update the Data Management Plan;
  - ⇒ The first version of the updated Data Management Plan and its implementation details should be ready by February 2011. See also agenda item 8.
- (vii) Update the Catalogue of Standards and Best Practices and contribute to the implementation of Quality Management System (QMS) in compliance with the WMO Quality Management Framework (QMF);
  - ⇒ The Group requested the ETDMP and the ETMC to propose update to those relevant documents that need updating, and to propose new documents as appropriate (**action; ETMC & ETDMP; ongoing**).
- (viii) Review and update the DMPA website;
  - ⇒ The Group agreed that the DMPA web pages on the JCOMM web site needed to be updated, and simplified in order to make those pages more attractive (**action; S. Iona & Secretariat; Dec 2010**).

- (ix) (ix) Organization of the third International workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT-III) and fourth JCOMM Workshops on Advances in Marine Climatology (CLIMAR-IV) meetings (see sec. 1.4).

⇒ The Group requested the ETMC to lead organization of MARCDAT-III and establish organizing committee as appropriate (**action; ETMC; early 2011**).

3.2.2 The Group agreed that this was a short intersessional period so the action plan will have to focus on realistic actions.

3.2.3 The Group also reviewed additional recommendations from JCOMM-III, and decided to include them in the Data Management Plan as appropriate (**action; S. Iona; Feb 2011**). Regarding JCOMM-III requests to document Marine Community Profile (MCP) metadata profile and other metadata related documentation, the meeting requested the ETDMP to address this issue through the Task Team on ODS (**action; ETDMP/ODS; end 2010**).

## 4. ETMC ACTIVITIES

### 4.1 Chairperson's report

4.1.1 The Chairperson of JCOMM Expert Team on Marine Climatology (ETMC), Scott Woodruff, reported on Team's recent Third Session, 8-12 February 2010, Melbourne, Australia. ETMC-III began with a scientific and technical workshop occupying the first 1.5 days (29 presentations<sup>1</sup>). Goals of the following regular session included continuing modernization of the MCSS, exploring interoperability with the ICOADS, and exploring cooperation/linkages with CCI.

4.1.2 Mr Woodruff briefly described the status of ICOADS, highlighting the heterogeneous data mixture in recent decades, and blending of WMO Pub. 47 metadata from 1966-2007. Plans for modernization of the data flow component of the MCSS—being planned and implemented by TT-DMVOS—were described. A proposed higher-level QC standard (HQCS) is planned eventually to incorporate NWP and satellite data. The Group agreed that the HQCS needs to explore possible convergence with existing QC standards and interoperability with ICOADS (e.g. issues related to the QC of historical data). Similarly a “transport” format suggested to replace the International Maritime Meteorological Tape (IMMT) should explore convergence or interoperability with the ICOADS International Maritime Meteorological Archive (IMMA) format; alternatively the Network Common Data Form (NetCDF) (Hierarchical Data Format, HDF) was noted as a potentially attractive option in appropriate contexts for VOS data transmission.

4.1.3 Following up on longstanding ETMC concerns about ensuring that the WMO migration (2012) to the BUFR format does not compromise climate archives, an *ad hoc* ETMC task team (lead, Frits Koek, The Netherlands) will propose (for the next SOT) VOS data preservation guidelines at different levels. Preservation at the BUFR/GTS level may benefit from adoption of the effective National Oceanic and Atmospheric Administration (NOAA) NOAA National Centers for Environmental Prediction (NCEP) practice of attaching the original traditional alphanumeric code forms (e.g. FM 13, FM 18). An additional important issue related to BUFR is the encryption of VOS call signs (for security and commercial concerns), for which a proposal was outlined and will also be developed for the next SOT.

4.1.4 ETMC-III tasked a pilot study to investigate the contents and accessibility of the ODASMS and META-T server(s), which USA will undertake seeking to explore the feasibility of populating ICOADS with e.g. a month of buoy/ODAS metadata. The Group discussed that the scope of platforms included within the ODAS) terminology, while defined (very broadly) by UNESCO in 1972, is not widely understood, and suggested it possibly be updated (i.e. once the desired metadata scope of ODASMS and links with META-T are resolved) (**action; S. Woodruff; 2012**).

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1 : <http://www.jcomm.info/etmc3>

The Group noted with concern that the ODASMS currently appears to be offline, but this status will be investigated in more detail soon by the pilot study, seeking to establish a more active dialogue with China in the event of continuing problems.

4.1.5 Improved management of rig and platform data and metadata is needed, e.g. because their GTS reports can be difficult to identify and characterize (due to a lack of metadata). Since manned platforms can resemble VOS in observing practices and metadata, the Group endorsed the ETMC-III suggestion inviting the Management Committee to consider addition of suitable rigs/platforms to the Terms of Reference (ToR) of SOT (i.e. those which observing practices are consistent with the VOS Scheme), together with inclusion of associated metadata in WMO Pub. 47; and similarly that data and metadata from buoy-like rigs/platforms (i.e. those which observing practices are consistent with automated data buoys) be considered for addition to the DBCP ToR. The Group requested the DMCG Chairperson to bring this issue to the Management Committee in late 2010 (**action; S. Iona; Nov 2010**). Meanwhile, the ETMC Chairperson will renew discussion with the SOT Chairperson seeking common ground on these issues.

4.1.6 Since VOSclim practices are being extended to the wider VOS, ETMC-III tasked the Chairperson to request the VOS Climate Project (VOSclim) Real-Time Monitoring Centre (UK Met Office) to provide monitoring data for all VOS to the VOSclim Data Assembly Centre (DAC) (at NOAA National Climatic Data Center - NCDC). Providing real-time monitoring data for a broader data mixture including buoy/ODAS data and historically (as feasible), would also be highly desirable, ultimately with the aim to populate ICOADS with all these feedbacks.

4.1.7 A new proposal was outlined for formal recognition through JCOMM of ICOADS, which would establish a network of mirrored WMO-IOC Centres for Marine-meteorological and Ocean Climatological Data (CMOC). The ToR are being drafted by an *ad hoc* task team (lead: Gudrun Rosenhagen, Germany), with proposed requirements to include hosting standardized formats and QC processing, open data access, and WIS interoperability. The anticipated benefits would include facilitating the open exchange of historical data with the assurance of recognized international archival. The Group agreed in principle with this proposal and requested the ETMC to move forward as suggested in the view to make a formal proposal at JCOMM-IV (**action; S. Woodruff; 2012**).

4.1.8 Another important proposal for “advanced” ICOADS (bias adjusted) observations was outlined. This envisions centralized data management by the ICOADS US project team, with expert groups internationally defining correction factors (and uncertainties), and associated metadata and QC improvements also crucial. While resources and other details have not yet been determined, a pilot project will be initiated prior to discussion at MARCDAT-III.

4.1.9 Recognizing that discrepancies exist between different databases of Global Ocean Observing System (GOOS) and Global Climate Observing System (GCOS) marine climatology user requirements, ETMC-III plans to develop a template for long-term marine surface physical observations (likely linked to TT-MOCS, discussed below). Strengthening cooperation with the satellite community was also discussed, initially through the US National Centre for Atmospheric Research (NCAR) exploring the potential for a satellite match-up database, leading to an anticipated MARCDAT-III session.

4.1.10 A variety of joint activities with the JCOMM Expert Team on Wind Waves and Storm Surges (ETWS) were described, including a pilot project to calculate wave summaries for 1970-2010, also leading to a MARCDAT-III session. The status of the extreme wave database being hosted at the US National Oceanographic Data Centre (NODC) was reviewed. In conjunction, some NDBC buoy (and C-MAN) archive discrepancies have been discovered within NOAA, and to begin resolving these problems a NOAA technical workshop is planned.

4.1.11 A catalogue of untapped historical R/V data will be initiated in 2010 by Shawn Smith (USA), linked with the REcovery of Logbooks and International Marine data (RECLAIM) project. More generally, the challenges of determining data rescue priorities were described, as benefits can be

difficult to quantify for different applications (e.g. marine meteorology, oceanography, reanalyses, fisheries, ecology). A possible MARCDAT-III session was suggested.

4.1.12 The modernization of the marine climatological summaries component of the MCSS will be undertaken by TT-MOCS (new Chair, acting, E. Kent, UK). Previous JCOMM sessions had urged ETMC to examine how marine, oceanographic, and ice climatology products could possibly be integrated. ETMC-III suggested added requirements to make products more readily discoverable through product and services level metadata, and accessible through the use of modern web services technologies. The Group agreed that IODE should be represented in the TT-MOCS (see also item 8 of paragraph 3.1.1).

4.1.13 Finally, recent and future marine climatology workshops were discussed. The Third JCOMM “Workshop on Advances in Marine Climatology” (CLIMAR-III, Poland, 2008) is leading (as previously) to a special issue (2010) of the *International Journal of Climatology*. The related series of MARCDAT “International Workshops on Advances in the Use of Historical Marine Climate Data” (most recent: UK Met Office 2005), will continue next with MARCDAT-III planned tentatively in early 2011, and closely linked with the satellite community. The Group requested the ETMC to convene an organizing committee for MARCDAT-III, and include additional DMCG representation on that Committee, including S. Iona as DMCG Chairperson (**action; S. Woodruff & V. Swail; ASAP**).

4.1.14 The Group suggested to identify data sets holding marine climatological data sets for registering with the Ocean Data Portal, including those data-sets identified by the JCOMM Pilot Project for WIGOS (**action; S. Woodruff & N. Mikhailov; ASAP**).

4.1.15 The Group endorsed the ETMC-III work programme.

## 5. ETDMP ACTIVITIES

### 5.1 Chairperson’s report

5.1.1 The Chairperson of the joint IODE-JCOMM Expert Team on Data Management Practices (ETDMP), Mr Nick Mikhailov (Russian Federation) reported on the outcomes of the second ETDMP Session, Ostend Belgium, 6-7 February, 2010. He recalled the issues considered at ETDMP-II, i.e. (i) IODE/JCOMM Ocean Data Standard Process Pilot Project, (ii) IODE Ocean Data Portal, (iii) JCOMM Pilot Project for WIGOS, and (iv) the IODE Marine Environmental Data and Information Referral System (MEDI).

5.1.2 The Group recalled that the ETDMP work structure and organization format is based on Recommendation IODE-XIX. It uses the task-oriented approach and includes three groups to address (i) Ocean Data Standards (ODS), (ii) Ocean Data Portal (ODP), and (iii) Metadata.

5.1.3 Regarding the Task Team for Ocean Data Standards, the following work directions were adopted by the ETDMP and endorsed by the Group:

- (i) Ocean Data Standards (ODS) Process: conducting the review and adopting standards, as well as to continuing the management of those standards, and updating the process itself;
- (ii) Contributing to the Ocean Data Portal (ODP) in terms of common code formats and other related standards; and
- (iii) Addressing the “Best practices” aspects of the JCOMM Pilot Project for WIGOS.

5.1.4 The Task Team for ODS identified the following priorities for ODS grouped in 5 categories<sup>2</sup> and proposed the following workplan endorsed by the ETDMP and the Group:

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2 : The five categories proposed by ETDMP are described in the final report of ETDMP-II, paragraph 6.1. They include Standards for (1) temporal/space/units attributes, (2) thematic code list, (3) vocabularies, (4) QC flags, and (5) Discovery metadata.

- (i) Review the process taken to adopt the Standard for country codes; prepare procedures for ODS for best practices; and prepare the candidates of standard for 'Date and Time', seek appropriate persons and/or organizations that make proposals (*by May 2010, July 2010, and August 2010*);
- (ii) Encourage SeaDataNet and the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH) to submit their proposals on ODS, by keeping in touch with relevant bodies. Regarding QC flags, in particular, with SeaDataNet, GE-BICH, GTSPP, and MyOcean (*by October 2010*);
- (iii) Examine further the candidates of standards for 'Lat, Lon, Alt.' and other items in Category<sup>2</sup> 1 , and seek appropriate persons and/or organizations that make proposals (*by October 2010*);
- (iv) Propose a working plan to set standards for the items in Categories<sup>2</sup> 2 to 5 (*by November 2010*);
- (v) Keep communicated with ODP and Metadata TT respectively standards process (continuously);
- (vi) Report on the ODS development to the ETDMP-III or IODE-21 (*by next session of ETDMP*);
- (vii) Coordinate the ODS processes for submitted proposals (continuously).

5.1.5 Regarding the Task Team for Metadata, the following work directions were adopted by the ETDMP and endorsed by the Group:

- (i) Coordinating the development of a system for the collection, distribution, and archiving of metadata taking into account requirements from MEDI, META-T, ODAS, and other similar activities;
- (ii) Contributing to the ODP on issues related to linking the ODP distributed data with their associated metadata (e.g. organizations, data sets, platform/instruments); and
- (iii) Addressing the "Best practices" and "Metadata" aspects of the JCOMM Pilot Project for WIGOS.

5.1.6 The Task Team for metadata proposed a workplan endorsed by the ETDMP and the Group. Major items of the workplan include the following:

- (i) Review relevant ISO19115 standards and guidelines (ISO19115-1 and -2, MCP, NAP, INSPIRE, WMO Core, others?), devise criteria for documenting the review/comparison, and issue recommendations on discovery metadata using ISO 19115 (to be completed by the end of 2010);
- (ii) Compare the various system structures, considering interoperability, highlighting similarities and inconsistencies between metadata structure and content (by January 2011). In particular, review SeaDataNet metadata management structure & techniques. Provide an overview report to ETDMP identifying advantages & disadvantages of SeaDataNet approach (by August 2010);
- (iii) Issuing recommendations on vocabularies, interoperability, and interactions between the different components of the ODP (to be completed by the end of 2010). Define and propose a common interoperability model/standard to wider community with the aim of adoption through Ocean Data Standards (ODS) process (by June 2011). Upon adoption through Ocean Data Standards (ODS) process, publicize new standard to scientific data management community for general use (by End 2011);
- (iv) Integrating metadata (discovery, semantic) under a single applied model based on ISO 19115. This model will provide the basis for functions of the ODP under data management related projects (to be completed by 2011);

5.1.7 Regarding the Task team for Ocean Data Portal, the following work directions were adopted by the ETDMP and endorsed by the Group:

- (i) Developing the IODE Ocean Data Portal and initiating its operational implementation; and
- (ii) Addressing the “Marine distributed data system and interoperability with WIS” aspects of the JCOMM Pilot Project for WIGOS.

5.1.8 The Task Team for ODP proposed a workplan endorsed by the ETDMP and the Group. Major items of the workplan include the following

- (i) Addressing the technical specification regarding the interactions and interoperability between WIS and ODP on one hand, and the communication tools to be used between WIS-ODP and SeaDataNet on the other hand (to be completed by the end of 2010);
- (ii) Implementing new ODP Data providers (North America, WestPack, Australia -2010; South America and Africa (to be completed by 2011). GTSP data, the Canadian Integrated Science Data Management (ISDM), Argo (to be further discussed), Japan (starting), China (to discuss), other the Ocean Data and Information Network (ODIN) for the Western Pacific (ODINWESTPAC) (to discuss), the Australian Integrated Marine Observing System (IMOS) (starting), WODB (to discuss with K. Casey), US-NODC (to discuss), the ODIN for the Caribbean and South America (ODINCARSA) -Latin America (ODINCARSA-LA) (to develop), the ODIN for Africa (ODINAFRICA) (as from 2011), SeaDataNet (to develop), other regions? (by May 2010).
- (iii) Completing the version 1 of ODP (User Interface, Documentation and Technical Specifications, GeoNetwork components for interaction with WIS/SDN) (to be completed by the end of 2010), including interoperability with the WIS and SeaDataNet (by June 2010); and the ODP V.1. software development (by October 2010); and
- (iv) Document main requirements of the ODP V2 for ODS (by May 2010), and complete the version 2 of ODP (White paper and TS – September 2010; ODP v2 Toolbox – 2011, ODPv2 demo with network (to be completed by JCOMM-IV in 2012). This includes the ODP V1/V2 toolbox, and ODP V1 - V2 metadata conversion service, ODP V2 Integration Server, ODP V2 Data Provider, and ODP V2 Portal toolkit (alpha) (by Sept 2011). Produce revised technical documentation on the ODP components (Wiki, documentation on Integration Server, Data Provider & Light Data Provider) (by November 2010);
- (v) Document on migration of the ODP metadata into the ISO 19115 standard (by June 2010).
- (vi) Interoperability components (including Joint ODP – SDN communication service, ODP – WIS communication service, and ODP – OBIS communication service) (by September 2011);

5.1.9 The Group requested ETDMP to prepare a consolidated workplan of the ETDMP based on the different workplans of the three Task Teams (**action; ETDMP; 16 April 2010**).

## **6. CAPACITY BUILDING ACTIVITIES**

### **6.1 Secretariat's report**

6.1.1 The Secretariat reported on the Capacity building Activities on: Education and Training, Technology Transfer and Implementation Support during the last intersessional period.

#### *Outcome of JCOMM-III*

6.1.2 During the 3<sup>rd</sup> Session of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, Marrakech, Morocco, 4-11 November 2009 the issue of education and training, technology transfer and implementation support was discussed extensively in Agenda Item 9.

6.1.3 In terms of specialized education and training the Commission had noted that during the intersessional period, activities related to specialized education and training in marine meteorology, physical oceanography and data management had taken place as part of the work programmes of its Programme Areas (PAs). The Commission had agreed to continue with this approach and to assign one of its Management Committee members to oversee these activities and to liaise closely with the relevant educational and training activities such as the WMO Education and Training Programme, IOC's Capacity-Building Section and the IODE Ocean Teacher and ODIN projects (paragraph 9.1.1). The Commission agreed that, in general, the activities undertaken in this area had been particularly successful, especially with regard to the workshops and training seminars, which were considered of great value in stimulating and assisting in the further development of marine meteorological and oceanographic observing systems and enhancing the capability of Members/Member States, especially Least Developed Countries (LDCs) and Small Island Developing States (SIDS), in accessing existing products and providing marine forecasting and warning services (paragraph 9.1.2).

6.1.4 The Commission had further recognized that it was essential that all maritime Members/Member States should be in a position to both contribute to and benefit from the work of JCOMM. This applied equally to the operation of ocean observing systems, the receipt and management of marine data and the generation and delivery of products and services. It therefore adopted a statement of principles for JCOMM Capacity-Building to better represent the requirements and describe the implementation mechanism and activities to be undertaken by JCOMM, including training, transfer of technology, and development of projects. The Commission requested that these principles should be transmitted to the Executive Councils of WMO and UNESCO/IOC, to seek their assistance in implementation, and that they should be kept under review by the JCOMM Management Committee.

6.1.5 The Commission agreed that the series of international and regional seminars and workshops had very well achieved its purpose, and that the new orientation, namely, to plan and implement courses in more specific subjects, corresponded well with national and regional requirements. In this context, the Commission commended all Members/Member States which had hosted seminars, workshops and training events during the intersessional period. It particularly thanked the UNESCO/IOC and its Project Office for IODE for hosting and supporting a number of training events in its excellent facilities in Ostend, Belgium, and expressed the hope that the productive partnership between JCOMM and IODE of UNESCO/IOC would be expanded in the future.

6.1.6 In liaison with the relevant WMO and UNESCO/IOC branches and offices, JCOMM-III proposed that consideration should be given to workshops on marine services including links to public weather services and disaster risk reduction aspects, with a focus on regions of specific concern, such as coastal inundation in vulnerable low-lying areas. It emphasized the need for future training to focus in particular on "training the trainers", to maximize the benefit of the training. The Commission agreed that efforts should be directed towards the development of additional training tools for effective communication to users of the products and services coordinated through the SPA, and that additional efforts should be made to engage the space agencies more extensively in JCOMM capacity-building, to ensure an effective pooling of resources. The Commission also noted the need to encourage the development of courses in operational oceanography within universities, to work closely with the new WMO Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS) on training related to polar regions, and it encouraged Members/Member States to further share their training facilities and courses in marine meteorology and oceanography with others. The Commission recalled that the Ice Analysts Workshops, organized by the ETSI with the International Ice Chart Working Group (IICWG) and local hosts, had been of particular value to national ice services, and it agreed that they should continue during the coming intersessional period.

6.1.7 The Commission noted with appreciation that both the UNESCO/IOC and the WMO facilitate access to a wide range of training materials, through OceanTeacher (<http://www.oceanteacher.org>) that was developed by the IODE of UNESCO/IOC, the UNESCO Bilko

(<http://www.bilko.org>) for remote-sensing image analysis, and Met e-learning (<http://www.met-elearning.org>), which was managed by the WMO Education and Training Programme. It recommended that these efforts should be closely coordinated, to avoid duplication. Additionally, it recalled that one of the main developers of high quality Distance Learning material in different languages, is the Cooperative Programme for Operational Meteorology, Education and Training (COMET, <http://www.meted.ucar.edu/>), that COMET Modules cover many fields of interest to the marine meteorological and oceanographic communities, covering atmospheric and oceanic processes as well as remote sensing of marine and oceanographic elements, and that work was now underway to translate some COMET modules into Spanish. It requested the Management Committee to explore developing an expanded partnership with COMET. The Commission also noted other virtual training centres and e-learning tools, such as Eumetcal – EUMeTrain (<http://www.eumetcal.org/>). The Commission agreed that such e-learning tools could be used as a selection mechanism for candidate trainees, as well as to assist trainees in preparing for courses, and requested the Secretariats to take the necessary actions in this regard.

6.1.8 The Commission created the new positions of “JCOMM Activity Leaders on Capacity Building”. These were subsequently identified as: (i) Mr Noon-Sik SUK (Korea Republic) for the SPA; (ii) Mr Vitaly Sychev (Russian Federation) for the OPA; and (iii) Mr Hassan Bouksim (Morocco) for the Management Committee.

6.1.9 The Commission urged the Activity Leaders on Capacity-Building to work with the PA coordinators and the Secretariats to revise the JCOMM CB strategy that builds on existing capacity-building work in both WMO and UNESCO/IOC, to implement a range of JCOMM-focused capacity-building activities.

6.1.10 The Commission also recognized the importance and value of the training courses in satellite oceanography provided by several of the space agencies. In this regard, it would be timely and worthwhile to seek further coordination and sharing of efforts and responsibilities between JCOMM and the space agencies to support the strengthening of capacity for training and education.

6.1.11 In terms of technology transfer and implementation support the Commission, noting the success of the WMO/CBS Severe Weather Forecasting Demonstration Project (SWFDP) and the Ocean Data and Information Network (ODIN) strategy developed by the IODE of UNESCO/IOC, the Commission recommended that these concepts should be used by the different PAs in developing their regional projects.

*Capacity Building activities related to the DMPA during the inter-sessional period (March 2008 – April 2010)*

6.1.12 The following activities were organized contributing to JCOMM capacity building between March 2008-April 2010:

- 16 - 17 February 2009: JCOMM/IODE Jamboree-3 planning meeting  
Informal consultation meeting between IODE staff and Johannes Guddal and Murray Brown (OceanTeacher) on possible organization of Jamboree-3, Oostende, Belgium
- 20 - 21 March 2009: Training Course on the Establishment of National OceanDataPortal nodes in the Black Sea region (ODINBlackSea), Obninsk, Russian Federation
- 31 Aug - 4 Sep 2009: WESTPAC Training Course for IODE Ocean Data Portal data providers,  
Seoul, Korea Rep
- 13 October 2009: Training Course on the establishment of IODE Ocean Data Portal data providers  
Oostende, Belgium

- 19 - 23 October 2009: MetOcean Modelling Jamboree-III, Oostende, Belgium
- 14 - 18 December 2009: the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) / NOAA / IODE Training Course on the Use of Satellite Wind and Wave Products for Marine Forecasting (Co-sponsored by EUMETSAT and the Government of Flanders (through the IOC Project Office for IODE, Oostende), Oostende, Belgium
- 21 - 23 December 2009: Training Course on the Establishment of National OceanDataPortal nodes in the Black Sea region (ODINBlackSea) for Georgian and Turkish NODCs, Istanbul, Turkey

*Review of Capacity Building related action items from the previous DMCG meeting*

6.1.13 The meeting reviewed the Capacity Building related action items from the third Session of the DMCG (Oostende, Belgium, 26-28 March 2008). It particularly noted that the invitation to JCOMM to submit training materials to OceanTeacher remains open. No materials have been received from WMO. IODE has taken the initiative to host the "EUMETSAT/NOAA /IODE Training Course on the Use of Satellite Wind and Wave Products for Marine Forecasting" Co-sponsored by EUMETSAT and the Government of Flanders (through the IOC Project Office for IODE, Oostende). The course was held between 14-18 December 2009 and was attended by 12 meteorologists from 6 countries. The training materials are available in OceanTeacher.

6.1.14 The Group also noted that the UNESCO/IOC and WMO facilitate access to a wide range of training materials, through OceanTeacher (<http://www.oceanteacher.org>), UNESCO Bilko (<http://www.bilko.org>), and Met e-learning (<http://www.metelearning.org>). MAN-7 agreed that JCOMM CB strategy was not required. JCOMM CB activities are now the responsibility of the respective JCOMM Programmes Areas, being coordinated by a member of MAN. Statement of principles for CB adopted by JCOMM-III. The Group requested the IOC Secretariat to contact Jeff Wilson (WMO Secretariat) and seek enhanced collaboration on OceanTeacher (**action; Secretariat/IOC; ASAP**).

6.1.15 Regarding how to reference OceanTeacher training material in WMO search, the meeting noted that some discussions happened between E. Christian and M Brown by email. Eliot Christian informed Dr Brown that actual content of information resources such as OceanTeacher does not fit within the scope of the WMO Information System (WIS). WIS can help with cataloguing such content, and WIS can help expose such a collection of content to external searchers.

6.1.16 It is noted that establishing collaboration between WMO and IOC/IODE's OceanTeacher in terms of contribution of content for the OceanTeacher Digital Library and Classroom materials has, to date, not been successful.

6.1.17 Taking into account the work plans of ETDMP and ETMC, the Group discussed what training should be made available in the next two years, and how to identify other training needs of members/member states related to data management. After discussion, the Group agreed that the following activities would be needed:

(i) Training Course on the use of Table driven codes for marine meteorology and operational oceanography

- Target audience: Met services, operational oceanographers (GLOBAL)
- resource persons: Bob Keeley, Simon Elliott
- organizers: WMO (WIS)+ OTA
- timing: 2011

(ii) Training Course on the establishment of ODP data nodes (v.1.) (REGIONS)

- Target audience: Africa, Latin America (NODCs + NMHSs)
- Resource persons: Sergey Belov, Sergey Sukhonosov
- Organizers: OTA
- Timing: 2011
- Venue: To be defined

Note: v.1. will differ little from v.2. as far as nodes are concerned

Needed: training materials (manuals) should be “packaged” and entered in OT. These should be translated into French and Spanish (**action; Secretariat; Nov 2010**).

At SG-ODP (1-3 November) training materials should be endorsed.

(iii) Training Course/Workshop on Instrument Metadata (requirements and practical exchange)

- Target audience: all those who produce ocean observations (GLOBAL)
- Resource persons: tbd (Derrick Snowden, maybe Bill Burnett)
- Organizers: WMO (EC) + OTA
- Timing: 2011
- Venue: To be defined

6.1.18 The Group requested the Secretariat to proceed in tentatively organizing these workshops, identify resource persons, and collect teaching materials (**action; Secretariat/IOC; Sep 2010**).

6.1.19 It was suggested to have (iii) before (i). The Group noted that interpretation in other languages (e.g. French, Spanish) might be needed at some point for those training course targeting specific regions. The Group also noted the following events which are already planned:

- (i) Training Course on Marine Instrumentation organized in April 2010 (Stennis Space Center, USA): need to get training materials from organizers. Etienne will contact them.
- (ii) International Workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT)

Target audience: users and producers of historical marine climate data (GLOBAL)

Resource persons: Scott Woodruff

Organizers: Val Swail, Scott Woodruff

Timing: early 2011

Venue: Italy (ESA)

6.1.20 The Group expressed interest in WMO organizing training activities on WIS. The Secretariat was asked to investigate about availability of WIS training, especially on the data provider side (**action; Secretariat/WMO; ASAP**).

6.1.21 The Group requested the IOC Secretariat to discuss organizing a “Jamboree” Capacity Building event with Johannes Guddal (**action; Secretariat/IOC; ASAP**).

6.1.22 The Group discussed the Partnership for New GEOSS Applications (PANGEA) concept that permits to develop synergies between developed countries and developing countries in terms of data use to address societal benefits, and ocean observing systems implementation. The Group noted that a PANGEA training course sponsored by the DBCP was planned in Cape Town in April 2010 for countries of the Western Indian Ocean Region. The Group agreed that it would be beneficial to add a data management perspective in the PANGEA concept to complement the existing “data use” and “observing system implementation” ones. The Group invited the organizers of the PANGEA workshops to provide training materials to the OceanTeacher (**action; Secretariat; ongoing**).

6.1.23 The Group noted with interest the recent organization of a EUMETSAT/NOAA /IODE Training Course on the Use of Satellite Wind and Wave Products for Marine Forecasting<sup>3</sup> (Ostend, Belgium, 14-18 December 2009), and suggested that the exercise should be repeated.

## 7. COLLABORATIONS

### 7.1 WMO

#### 7.1.1 JCOMM Observations Programme Area (OPA)

7.1.1.1 The Group discussed the activities for cooperation between the DMPA and the Observations Programme Area (OPA). The Group noted the following:

- (i.) OPA is contributing to the JCOMM Catalogue of Practices and Standards.
- (ii.) OPA is contributing to the Oceanographers' Cookbook on how to distribute ocean data in real-time and delayed mode. Drifter data need to be included in the cookbook (**action; DBCP; Oct 2010**).
- (iii.) The Expert Team on Marine Climatology (ETMC) is collaborating with the Ship Observations Team (SOT) through the ETMC/SOT cross-cutting Task Team on Delayed Mode VOS Data (TT-DMVOS).
- (iv.) An Extreme-Wave Database was developed in collaboration with the DBCP, the SOT, ETMC, and the ETWS of the SFSPA, and is now operated by the US National Oceanographic Data Centre (NODC).
- (v.) The DBCP Task Team on Moored Buoys is working on rationalization of collection of metadata from moored buoys to contribute, via JCOMMOPS, to the ODAS Metadata Service (ODASMS) operated by China. The DMCG encourages the DBCP to continue the work;
- (vi.) Collaboration between the SOT, the DBCP, and the DMPA Task Team on Table Driven Codes has been quite effective on GTS coding issues, and changes proposed to the XBT/XCTD, and VOS BUFR templates.

7.1.1.2 Noting JCOMM-III recommendations regarding the rig and platform metadata issue, and the outcome from the ETMC-III, the Group concurred with the ETMC recommendation that the SOT should eventually become responsible for rigs and platforms, and invited the JCOMM Management Committee to discuss the consideration of including appropriate rigs and platforms as part of the Terms of Reference of the SOT (and other rigs and platforms as part of the Terms of Reference of DBCP). This issue was discussed in item 7 of paragraph 3.1.1, and in paragraph 4.1.5.

#### 7.1.2 JCOMM Services and Forecasting Systems Programme Area (SFSPA)

7.1.2.1 The Group discussed the activities for cooperation between the DMPA and the Services and Forecasting Systems Programme Area (SFSPA). The Group noted the following:

- (i.) The Expert Team on Wind Waves and Storm Surges (ETWS) maintains important interactions with the ETMC, particularly in the development of the JCOMM extreme wave database, co-organization of the Third JCOMM Workshop on Advances in Marine Climatology (CLIMAR-III, Gdynia, May 2008), and to address wind wave and storm surge climatology issues. Plans are also underway for organizing a third International Workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT) tentatively in Italy around

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3 : [http://www.iode.org/index.php?option=com\\_oe&task=viewEventRecord&eventID=513](http://www.iode.org/index.php?option=com_oe&task=viewEventRecord&eventID=513)

early 2011 and in close relationship with the satellite community.

- (ii.) The ETWS also contributed to the joint CCI-CLIVAR-JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI) on wave and surge indices, as part of a broader JCOMM contribution on surface and sub-surface marine climate indices, developed in a special session of CLIMAR-III.

7.1.2.2 The Group agreed on the following:

- (i.) A stronger collaboration between ETWS and ETMC is required for continuing to develop regional and global storm surge climatologies as a measure of risk assessment for marine hazards and to assist Members/Member States in developing their own databases and hazard analysis.
- (ii.) A strengthened collaboration is required between the ETMC and the Expert Team on Sea Ice (ETSI) in order to expand sea ice climatologies and enhance the Global Digital Sea Ice Databank (GDSIDB).
- (iii.) Recognizing the considerable importance of the Global Framework for Climate Services (GFCS) to WMO and UNESCO/IOC, and to their Members/Member States, as well as the potential role for JCOMM in climate services, the Group discussed its potential contributions to the GFCS and included it in its work programme, as appropriate. The Group agreed that the JCOMM Data Management Plan had to be updated to reflect requirements for the GFCS in terms of ocean data management (**action; S. Iona; Feb 2011**). For example, data exchange formats used for assimilating observations in ocean models need to be standardized. The Group recognized that WMO is not regulating the netCDF format but WMO and NCAR should work at ensuring interoperability of netCDF with the WIS. This issue also relates to the planned development of a bias-adjusted ICOADS as discussed under agenda item 4.

### 7.1.3 WMO Information System (WIS)

7.1.3.1 Mr Heinrich Knottenberg (Germany), Chairperson of the CBS Expert Team on WIS Centres (ET-WISC), and member of the CBS Implementation Coordination Team on Information Systems and Services (ICT-ISS) provided an overview of recent developments regarding the WMO Information System (WIS).

7.1.3.2 Mr Knottenberg reported that candidate GISCs and DCPCs have been requested to fill in a questionnaire in order to receive feedback on their implementation status on the basis of WIS requirements (the deadline was end of March 2009). A Team is currently evaluating the results from the questionnaire, and checking if the candidates are ready. Germany, China, and Japan have plans to make GISC demonstration in June 2010 for the sixty-second Session of the WMO Executive Council (EC-LXII). The Group noted that semi operations of the German GISC should start in the second half of 2010; and become fully operational in early 2011.

7.1.3.3 The Group reviewed its activities linking with the WMO Information System (WIS). The links of DMPA with the WMO Information System are basically realized through the following activities:

- (i) Development of the End to End Data Management (E2EDM) technology and the Ocean Data Portal in such a way that the ODP becomes interoperable with the WIS;
- (ii) Through the JCOMM Pilot Project for WIGOS, identification of key ocean data sets for which interoperability with the WIS and/or ODP should be developed;
- (iii) Migration to Table Driven Code Forms (TDCF), and the development of BUFR templates for the distribution of time-critical ocean data sets on the GTS; a variable-based rationalization of these templates is also being proposed by the DMPA Task Team on Table Driven Codes.
- (iv) JCOMM participation with the Inter-commission Coordination Group on WIS (ICG-WIS);

and contribution to the review of the WMO core profile of ISO 19115 metadata standard

7.1.3.4 The Group recalled the two phases for the development of the WMO Information System (WIS), i.e. (i) Part A - the continued consolidation and further improvements of the GTS for time-critical and operation-critical data, including its extension to meet operational requirements of WMO Programmes in addition to the World Weather Watch (including improved management of services); and (ii) Part B - an extension of the information services through flexible data discovery, access and retrieval services to authorized users, as well as flexible timely delivery services; it would be implemented essentially through the Internet.

7.1.3.5 The Group noted with appreciation that WIS has now moved from development to implementation and Croatia, Italy, Germany, the Russian Federation, the United Kingdom, and the United States have proposed having their ocean and/or marine centres as centres holding marine datasets, to become WIS candidate for GISCs/DCPCs.

7.1.3.6 The Group noted that a Memorandum of Understanding (MoU) has been signed between WMO and the Open Geospatial Consortium (OGC), a global, non-profit making, consensus based, standards making body that is responsible for many of the interoperability standards between IT systems. The MoU is expected to recognize the themes of meteorology, oceanography, climatology and hydrology.

7.1.3.7 The Group recalled that JCOMM-III appreciated the important and successful role of the Data Management Programme Area (DMPA) in ensuring WIS incorporates JCOMM's needs. JCOMM-III approved the use of ISO 23950 for search as an effective enablement for interoperability between systems allowing information discovery across Members/Member States' systems as well as connecting many other communities.

7.1.3.8 The Group invited Germany and Russia to work together in the JCOMM framework to demonstrate technical realization of interoperability between the ODP and a GISC (**action; N. Mikhailov & H. Knottenberg; Feb 2011**) (see also action items under item 13 of paragraph 3.1.1). The Group agreed that the status of the ODP as part of the WIS (i.e. DCPC vs. GISC) should be considered after the technical demonstration is realized.

#### 7.1.4 WMO Integrated Global Observing System (WIGOS)

7.1.4.1 The Group reviewed its activities linking with the WMO Integrated Global Observing System (WIGOS).

7.1.4.2 The Group recognized the rapidly developing WMO Integrated Global Observing System (WIGOS), promoted by the WMO Fifteenth Congress (Cg-XV) as a strategic objective of the WMO. WIGOS will establish an integrated, comprehensive and coordinated observing system to satisfy in a cost-effective and sustained manner the evolving observing requirements of WMO Members, and will enhance coordination of WMO observing systems with those of partner organizations, such as the Intergovernmental Oceanographic Commission (IOC) of UNESCO, for the benefit of society. The DMPA, and its Expert Teams as well as the DMCG already played an important role in WIGOS especially through the JCOMM Pilot Project for WIGOS where key ocean data sets have been identified for developing interoperability with the WMO Information System (WIS) and/or the Ocean Data Portal of IOC.

7.1.4.3 The aim of the JCOMM Pilot Project for WIGOS is to enable and prove concept for the integration into WIGOS of marine meteorological and other appropriate oceanographic observations (in situ, surface marine, and satellite data), real time and delayed mode data and products (e.g. models) collected within the oceanographic marine community. In this exercise, the Pilot Project considers instruments and methods of observation aspects, as well as data management, data exchange, and quality management. The Pilot Project is also considering assembled in situ fields, biochemistry, model outputs, marine surface and subsurface climatologies and measurements. The goals of the Pilot Project are to:

- Develop guidelines for agreeing on consistent instrument and data management standards to be used across the community in accordance with the quality management principles. Traceability to standards is an important aspect considered.
- Increase accessibility of data and making appropriate identified data sets interoperable with the wider WMO and IOC communities through the WMO Information System (WIS) and the Ocean Data Portal (ODP) of the International Oceanographic Data and Information Exchange (IODE) of the IOC.
- Set guidelines regarding Capacity Building and training programme regarding this integration effort.

7.1.4.4 The pilot has defined detailed Project and Implementation Plans describing the following pilot project key deliverables:

- (i) Documenting and integrating instrument best practices and related standards among the marine meteorological and oceanographic communities;
- (ii) Build marine and oceanographic data systems that are interoperable with the WMO Information System (WIS) in close cooperation with the IOC ocean community;
- (iii) Promote quality management and standards and establishing compliance with the WMO Quality Management Framework (QMF);
- (iv) Participation in the CBS Rolling Review of Requirements (RRR) process and provide input to the WMO Database (instrument performances and requirements).

7.1.4.5 The IODE-JCOMM Ocean Data Standards Pilot Project (ODS), and the development of a JCOMM Catalogue of Best Practices and Standards are regarded as contributions to the Pilot Project.

7.1.4.6 A number of key potential partners have been identified (see the project implementation plan<sup>4</sup> for details) for providing data through WIS; they have been approached and some already replied favourably. Workshops were held in March 2009 in Obninsk, Russian Federation, and in Seoul, Republic of Korea in September 2009 to address interoperability between ocean data systems in those regions and the ODP. The Obninsk workshop also addressed interoperability between the ODP and the WIS.

7.1.4.7 The Group noted that from an ETMC perspective, it is expected that the importance of historical data to modelling will increase (e.g. ICOADS, Global Collecting Centres, VOSCLIM data from the DAC, RNO DC/DB, World Ocean Atlas, ODASMS, Meta-T). Historical data are valuable as tests of the ability of models to reproduce past conditions and so provide confidence that they can also make reliable predictions. The WIGOS Pilot Project for JCOMM is also therefore aiming at facilitating access to historical data and associated metadata through the ODP and WIS.

7.1.4.8 The Group agreed that an excellent cooperation had been realized between the IOC (through IODE) and the WMO mainly thanks to commitments from the ETDMP. This cooperation could be strengthened thanks to the Pilot Project. The Group noted that the Pilot Project will end in early 2011 but related activities will continue. The Group requested the Secretariat to provide a copy of the draft Pilot Project report to S. Iona for review, and to bring the DMCG perspective (**action; Secretariat & S. Iona; ASAP**).

#### 7.1.5 WMO Quality Management Framework (QMF)

7.1.5.1 The Group reviewed its activities linking with the WMO Quality Management Framework (QMF).

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4 : [http://www.wmo.int/pages/prog/www/wigos/documents/Impl\\_Plan\\_JCOMM.pdf](http://www.wmo.int/pages/prog/www/wigos/documents/Impl_Plan_JCOMM.pdf)

7.1.5.2 The Group recalled that WMO is now recognized as an international standardizing body by the International Organization for Standardization (ISO) and the agreement between ISO and WMO was adopted in September 2008, giving WMO the status and authority for the development of international standards related to meteorological, climatological, hydrological, marine and related environmental data, products and services. The WMO Executive Council, at its sixty-first session (June 2009), through Resolution 8 (EC-LXI) established procedures to be followed by all technical commissions and EC working groups in proposing common ISO/WMO Technical Standards. The text of the Resolution is reproduced in [Annex IV](#).

#### 7.1.6 Commission for Instruments and Methods of Observation (CIMO)

7.1.6.1 The Group reviewed its activities linking with the Commission for Instruments and Methods of Observation (CIMO). Linkages with CIMO are essentially realized through the JCOMM Pilot Project for WIGOS where the DMPA is strongly involved especially on data systems interoperability and quality management aspects. However, most of the CIMO aspects relate to instrument practices and are more related to the work of the OPA, i.e. (i) the Establishment of Regional Marine Instrument Centres (RMIC); (ii) enhancing the links with the ocean instrument manufacturers through the Association of Hydro-Meteorological Equipment Industry (HMEI); (iii) documenting the scope for ocean instrument inter-comparisons; and (iv) updating WMO and IOC Publications relevant to instruments and methods of observation.

#### 7.1.7 WMO Commission for Climatology (CCI)

7.1.7.1 The Group reviewed its activities linking with the WMO Commission for Climatology (CCI). The Group noted that the fifteenth Session of the CCI (Antalya, Turkey, 19-24 February) aligned its activities with the emerging Global Framework for Climate Services (GFCS) and substantially restructured itself into a more flexible structure of four Open Panels of CCI Experts (OPACEs). An Expert Team on Climate Database Management Systems (ET-CDBMS) was established under OPACE-1 (Climate Data Management), replacing the former Expert Team on Climate Data Management including Metadata. The Joint CCI-CLIVAR-JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI) was re-established under OPACE-2 (Climate Monitoring and Assessment). Other climate data and monitoring aspects such as Data Rescue, Observing Requirements and Standards for Climate and Climate Monitoring activities including long term homogenous data sets, operational monitoring of weather and climate extremes; and Climate Watch Systems are expected to be planned by project led by *ad hoc* Task Teams.

7.1.7.2 ETMC-III agreed that it should explore with the CCI opportunities to develop climate indices on a broader basis than just ETCCDI. The ETCCDI membership from JCOMM could be modified to include expertise related to both surface and sub-surface observations, climate change detection activities, climate indices and ocean climate modellers. More effective arrangements for collaboration on the development of climate indices should be put in place.

7.1.7.3 ETMC-III outlined several areas of potential collaboration between the ETMC and CCI, noting the desire to adopt a coordinated approach to marine and environmental data and data management. Areas identified included: collaborative development of required interoperability standards and systems for data exchange; collaboration on WIGOS, and GCOS/GOOS (to ensure best practices in observational systems serving the climate program); in developing climate indices and defining and monitoring extremes; and in capacity building and training.

#### 7.1.8 WMO Commission for Basic Systems (CBS)

7.1.8.1 The Group reviewed its activities linking with the WMO Commission for Basic Systems (CBS). DMPA linkages with the WMO Commission for Basic Systems (CBS) are essentially realized with the CBS Open Programme Area Group (OPAG) on Information Systems and Services (ISS), and more particularly with its Inter-Programme Expert Team on Data Representation and Codes (IPET-DRC) on one hand, and the Inter-Programme Expert Team on

Metadata and Data Interoperability (IPET-MDI), which aims to create sustainable data and metadata standards that meet the needs of WMO's stakeholder community, on the other hand.

7.1.8.2 Collaboration with CBS is being achieved through the DMPA Task Team on Table Driven Codes (TT-TDC) for updating BUFR and Character form for Representation and EXchange of data (CREX) templates for ocean data. This collaboration is also being achieved through the JCOMM Pilot Project for WIGOS, where the DMPA is facilitating the development of interoperability between ocean data sets and the IODE Ocean Data Portal (ODP) on one hand, and between the ODP and the WMO Information System (WIS) on the other hand. Hester Viola (JCOMMOPS) is representing JCOMM in the IPET-DRC, and Greg Reed (Australia) in the IPET-MDI.

7.1.8.3 The JCOMM OPA is also strongly cooperating with the CBS through the CBS OPAG on Integrated Observing Systems, and its Implementation Coordination Team on Integrated Observing Systems (ICT-IOS), and the CBS Expert Team on the Evolution of the Global Observing System (ET-EGOS).

7.1.8.4 The Group noted that JCOMM has been represented at the Fifth meeting (Geneva, Switzerland, 15-19 March 2010) of the CBS Expert Team on Satellite Utilization and Products (ET-SUP) by Dr Jean-Louis Fellous (COSPAR), and Dr Craig Donlon (ESA). The Group agreed that the *in situ* and satellite communities should joint efforts to address integration of satellite products, and in situ products. The Group requested S. Iona to liaise with C. Donlon, the OPA Coordinator, C. Clark, JCOMMOPS, the ETMC Chair, S. Woodruff, and propose draft Terms of Reference for a cross-cutting Task Team on satellite to be proposed at the forthcoming JCOMM Management Committee meeting (**action; S. Iona; Nov. 2010**). The Group also welcomed the consideration of satellite products by the ETMC (e.g. matchup products, and satellite climatologies), and the developing cooperation between the DBCP and the GHRSSST.

## 7.2 IOC

### 7.2.1 International Oceanographic Data and Information Exchange (IODE)

7.2.1.1 The links of DMPA with the IOC are basically realized through close cooperation with the International Oceanographic Data and Information Exchange (IODE) Programme of the IOC, and particularly relate to the development of the IODE Ocean Data Portal (ODP), and the JCOMM/IODE Standards process.

### 7.2.2 Expert Team on Data Management Practices (ETDMP)

7.2.2.1 The group recalled that during 2008-2009, the joint JCOMM-IODE Expert Team on Data Management Practices (ETDMP) has been focusing on (i) finalizing the End to end data Management (E2EDM) technology; (ii) participating in establishing the IODE-JCOMM Ocean Data Standards Process; and (iii) development of the IODE Ocean Data Portal Project and the ODP-JCOMM Pilot Project for WIGOS. In view of the common goals and objectives of the IODE Ocean Data Portal and the JCOMM Pilot Project for WIGOS, the Joint Steering Group for the IODE Ocean Data Portal and the JCOMM Pilot Project for WIGOS was established. This Group met twice in 2009 and is expected to meet for its Third Session in November 2010 prior to the termination of the Pilot Project in December 2010. Details about ETDMP activities are discussed under agenda items 5, 7.1.4, and 7.2.3.

### 7.2.3 JCOMM/IODE Standards Process

7.2.3.1 The Group recalled that DMCG-III had agreed with the development of the JCOMM/IODE Standards Process managed by the ETDMP through a Pilot Project. This approach was further endorsed by JCOMM-III. Detailed information on the JCOMM/IODE standards process is available at <http://www.oceandatastandards.org>.

7.2.3.2 The Group noted that at this point, only the following standard has been proposed and accepted through the Standards process and published as IOC Manual and Guides no. 54: Recommendation to Adopt ISO 3166-1 and 3166-3 Country Codes as the Standard for Identifying Countries in Oceanographic Data Exchange. Also, in January 2010, SeaDataNet has been invited to submit a proposal on SeaDataNet Parameters Vocabulary to the IODE/JCOMM Standards Process.

7.2.3.3 The Group recalled that JCOMM-III requested the ETDMP to identify the standards that are widely applicable within the marine meteorological and oceanographic community, for including in the WMO and UNESCO/IOC Technical Regulations, and/or submission to appropriate international standards bodies, such as ISO, taking into account the procedures to be followed by all technical commissions in proposing common ISO/WMO Technical Standards. It also called on Members/Member states to participate in the IODE-JCOMM Standards Process, as appropriate.

7.2.3.4 Candidate standards have been reviewed at the Second session of the ETDMP, Ostend, Belgium, 6-7 April 2010. These included:

- Date and Time (ISO 8601:2004)
- Latitude and Longitude (ISO 6709)
- Units
- Platform/Instruments
- Institutions
- Ontology
- Taxa
- QCs (dependent on parameters)
- Others (ex. Communication protocols, GIS standards,,,,)

7.2.3.5 A Catalogue of Best Practices and Standards under JCOMM and IODE of UNESCO/IOC has been prepared by Mr Robert Gelfeld and a test site has been published on the web at <http://bestpractice.iode.org/> by the UNESCO/IOC Project Office for IODE.

7.2.3.6 The Group recalled that JCOMM-III recommended that the JCOMM Management Committee establish a policy for the systematic review of these publications before they were recommended for adoption as tools for the QMS.

#### *7.2.4 Pan-European infrastructure for Ocean & Marine Data Management (SeaDataNet)*

7.2.4.1 The Group discussed cooperation's with the Pan-European infrastructure for Ocean & Marine Data Management (SeaDataNet) and noted that the IODE Committee has assigned high priority to the interaction with the SeaDataNet (SDN) infrastructure. The ETDMP and SDN management group have proposed specifications for the ODP-SDN interoperable interfaces based on portal to portal interaction. The technical requirements for the ODP and SDN interoperability were considered at the SDN Technical Team meeting (September, 2009). Issues to be resolved include data granularity, resource registration, data access rules and procedures. These issues were further discussed during IMDIS meeting in March 2010.

7.2.4.2 SeaDataNet has expressed interest in submitting a number of candidate standards to the JCOMM/IODE Standards process. An invitation has been sent to the SeaDataNet Technical Task Team to consider the following data standard submissions: (i) Sea Level Quality Control; (ii) CDI profile; (iii) CSR (Cruise Summary Report); (iv) SeaDataNet device categories; and (v) ODV4 in ASCII format.

7.2.4.3 The Group requested the ETDMP to follow up these standard submissions with SeaDataNet (**action; ETDMP; ongoing**).

### 7.2.5 Australian Integrated Marine Observing System (IMOS)

7.2.5.1 The Group discussed cooperation's with the Australian Integrated Marine Observing System (IMOS). The Integrated Marine Observing System (IMOS) is a distributed set of equipment and data-information services which collectively contribute to meeting the needs of marine climate research in Australia. The observing system provides data in the open oceans around Australia as well as the coastal oceans. IMOS coordinates the deployment of a wide range of equipment and assembles the data through distributed facilities around the country. The data are made available to researchers through the eMII Facility located at the University of Tasmania.

7.2.5.2 The Group noted that discussions have been held between the IODE ODP developers and IMOS to explore cooperation including the possible use of some IMOS features in ODP, the installation of ODP Data Provider software at IMOS and publishing of Australian datasets to the ODP. Collaboration with IMOS will accelerate the development of ODP V2 and ensure its compliance with internationally accepted standards. IMOS currently has access to a large number of datasets from ten IMOS facilities. Over the next 12 months the Australian Ocean Data Centre Joint Facility (AODCJF) agencies will be adding several thousand datasets – all of which will be available to ODP. Data Provider v.1.5 with "light" functionality was successfully installed at the IMOS office in the University of Tasmania. New resources will be added and the data list finalized. IODE will continue to collaborate with IMOS to ensure compatibility with the IMOS portal. This will result in increased number of data providers from the region which will contribute to the JCOMM Pilot Project for WIGOS.

## 7.3 Other collaboration

7.3.1 The Group also agreed that collaboration should be extended with the other JCOMM Programme Areas (OPA, SFSPA), as well as with the Ocean Biogeographic Information System (OBIS), the Global Sea Level Observing System (GLOSS), the Tsunami monitoring community, some GOOS Pilot Projects. The requirements of those groups in terms of Ocean Data Standards still need to be addressed. The requirements of groups such as the Argo Steering Group, the GTSP, and GOSUD in terms of provision of data through the Ocean Data Portal still need to be addressed as well.

7.1.2 The Group recalled that the WCRP Observation and Assimilation Panel (WOAP) have a Task Group on Data Management, and noted that Bob Keeley is a vice-chair of this Task Group. Considering that Bob Keeley will be retiring soon, the Group invited its members to propose nominations for taking up that role.

## 8. DATA MANAGEMENT IMPLEMENTATION PLAN

### 8.1 Review of content and actions

8.1.1 The Group reviewed progress on the implementation details of the Data Management Plan (JCOMM TR No. 40), 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 in order to be able to propose an updated version of the plan.

8.1.2 The Group agreed that the JCOMM Data Management Plan, and related implementation details, should be updated according to JCOMM-III recommendations, and the outcomes of the OceanOBS09 and IMDIS conferences. The new GCOS Implementation Plan (2010 version) will also have to be considered in this regard. The Group agreed that a first update of the Data Management Plan should be available within 10 months and requested S. Iona to lead this effort in liaison with, and with input from Group members (**action; S. Iona; Feb 2011**) (see also paragraph

3.2.1 – vi).

8.1.3 While discussing the implementation details, the group agreed on the following with respect to these specific recommendations as listed in the implementation details:

1. Recommendation 4.1: The Group agreed that while the delayed mode data flow of ship data from ship to shore should be standardized, this was not necessarily the case for the real time data. It requested the ETMC to investigate the use of SensorML for recording and transmitting instrument metadata from ship to shore in delayed mode (**action; S. Woodruff; end 2010**).
2. Recommendation 4.2b: A survey should be made at some point regarding the potential use of BUFR Master Table 10 (MT10).
3. Recommendation 4.2c: A new Chairperson is needed for the Task Team on Table Driven Codes. It was also proposed to nominate Ms Maureen Pagnani (NOC, Southampton) for participating in the TT-TDC (**action; S. Woodruff; ASAP**).
4. Recommendation 4.3.1a: The Group requested The WMO Secretariat to provide S. Iona with the document prepared by Mr Thomas Loubrieu (France) on ocean data systems (**action; Secretariat/WMO; ASAP**). The Group noted that the ODP is planning to permit the use of netCDF for transport of data; CF will be used this year but there are issues to be resolved according to N. Mikhailov.
5. Recommendation 4.3.1b: SeaDataNet did not make substantial progress in using CF despite the fact that CF was formally adopted by SeaDataNet.
6. Recommendation 4.3.2a: The Recommendation should be limited to metadata (i.e. excluding data) and renamed to “Address the use of XML tags for metadata”. The Group proposed to differentiate between tags for metadata (easier) and tags for data (more difficult). ODP v1 can provide XML for data (with three options: NetCDF, ASCII, XML) but this creates a big XML file that is not really being used at this point. Some developments will be done for v2 of ODP and SeaDataNet and feedback is needed in this regard. The Task Team on Metadata could be asked to make proposals on XML tags based on feedback from ODP and SeaDataNet experiments.
7. Recommendation 4.3.2b: The ETDMP Task Team for metadata should address this Recommendation (**action; ETDMP; ASAP**).
8. Recommendation 4.3.3b: The Group agreed that it was not necessary to submit BUFR templates, and delayed mode VOS formats (IMMT, IMMA), to the standards process.
9. Recommendation 5.1: GTSP has addressed the issue of duplicates through the use of unique tags. The TT TDC is discussing the possibility of adding a unique ID in BUFR templates, including XBT and VOS.
10. Recommendation 5.2a: IOC M&G No. 26 needs to be updated, as well as other related documents from the JCOMM catalogue, and new documentation (e.g. sea level).
11. Recommendation 5.2b: The ODS TT needs to address flag scales (**action; ETDMP/ODS; ASAP**).
12. Recommendation 5.3a: The unique tag issue should be submitted to the ODS. The Group requested S. Iona to approach Charles Sun in the view to have GTSP submitting this to the ODS (**action; S. Iona; ASAP**).

13. Recommendation 5.5: Broad adoption is needed for a scheme to permit preserving processing history; but it is not clear who might be in a position to make a firm proposal in this regard. This issue also relates to the metadata categories proposed by META-T.
14. Recommendation 5.7a: A better cooperation with the SFSPA is needed. The Group agreed that guidance from the Management Committee was needed, and requested the Chairperson of the DMCG to raise this at the forthcoming Management Committee meeting (**action; S. Iona; Nov 2010**).
15. Recommendation 5.8: The Group considered that the status of IODE Responsible National Oceanographic Data Centres (RNODCs), JCOMM Specialized Oceanography Data Centres (SOCs), and the VOSCLim Real Time Monitoring Centre (RTMC) should be addressed. It would be beneficial to develop a proposal for integrating them into a single system of dedicated centres contributing to the ODP, and with specialized functions (archive, QC, monitoring, etc.). The Group agreed that feedback from those centres was needed before initiating a proposal, and requested the IOC Secretariat to contact the RNODCs (**action; Secretariat/IOC; Sep 2010**):
  - IGOSS (BATHY and TESAC) *operated by Japan, USA and Russian Federation.*
  - MARPOLMON *operated by Japan, USA and Russian Federation*
  - WESTPAC *operated by*
  - ADCP Japan *operated by Japan*
  - Drifting Buoy Data *operated by Canada*
  - INDO *operated by India*
  - JASIN *operated by United Kingdom*
  - Persian Gulf *operated by Iran*
16. The Group requested S. Woodruff to contact VOSCLim RTMC and seek feedback from them (**action; S. Woodruff; Sep 2010**). It requested The WMO Secretariat to contact the SOCs (**action; Secretariat/WMO; Sep 2010**). Greg Reed was also requested to contact the ISDM, and discuss what tasks they are still carrying one as RNODC/DB (**action; G. Reed; Sep 2010**). Based on the feedback, it will be possible to identify those centres with historical function to be connected to ODP, and those centres carrying other activities (e.g. QC, monitoring). The Group requested that the feedback information be submitted to the DMCG Chairperson; and the Chairperson to convene an *ad hoc* task group to address the issue and possibly make a proposal (**action; S. Iona; Sept 2010**). The *ad hoc* task Group should make a proposal by the end of 2010 so that IODE elements can be addressed at IODE-XXI. The *ad hoc* Task Group will be tasked to draft a Recommendation for JCOMM-IV, including ToR of such centres, plus background information.
17. Recommendation 6.3c: The work of the ETMC regarding the development of a network of CMOCs, as well as the TT-MOCS regarding the modernization of the Marine Climatological Summaries part of the MCSS modernization exercise should take this recommendation into account.
18. Recommendation 7.1b: The Group requested S. Iona to contact C. Donlon on how to make satellite and in situ data better integrated, including regarding ICOADS matching up with satellite data (**action; S. Iona; Sep 2010**).
19. Recommendation 7.1g: Recommendations to IODE-XXI, and JCOMM-IV need to be prepared for recommending the use of adopted standards.
20. Recommendation 7.1h: the Group requested the DMPA Coordinator to send out information to JCOMM members about DMPA activities using the JCOMM web site and to seek feedback from them (**action; S. Iona; ongoing**).

21. Recommendation 7.1k: The group requested the *ETDMP* to provide a *performance model for ODP* (**action; ETDMP/ODP; 2011**)
22. Recommendation 7.5a: The Group proposed that the IODE nominates itself as a World Data System (WDS).
23. Recommendation 8a: The Group agreed that the JCOMM web site needed to be updated, including populating some pages where information is missing, reducing text where appropriate to make the site more attractive and clear (**action; S. Iona; end 2010**). The Group noted that the ETMC web site could possibly be moved to the JCOMM web site.

## 8.2 Cookbook for Submitting Data, present status and future actions

8.2.1 The Group was informed on the present status of the Oceanographer's Cookbook for submitting ocean data in real-time and delayed mode.

8.2.2 The Group noted that two chapters of the Cookbook needed to be completed (i.e. the parts related to recipes for submitting marine meteorological data in real time and delayed mode). It requested S. Iona to coordinate the further development of the Cookbook, and to contact the OPA and seek feedback as needed (**action; S. Iona; mid 2011**). The group requested The WMO Secretariat to provide information on VOS data submission in real time to S. Iona (**action; Secretariat/WMO; end 2010**), and the Global Collecting Centres to provide information on the handling of delayed mode VOS data (**action; GCCs; end-2010**).

## 9. WORK PLAN FOR 2010-2012 AND REVIEW OF ACTIONS ITEMS FROM THE MEETING

9.1. The Group reviewed action items arising from the Session, and prepared its work plan for the intersessional period 2010-2012. The proposed workplan is reproduced in [Annex V](#). The agreed upon action items arising from the Session are listed in [Annex III](#).

## 10. CLOSURE OF THE MEETING

10.1 Before closing the meeting, the Group recalled that on 23 November 2009, WMO and OGC signed a Memorandum of Understanding<sup>5</sup> to provide a mechanism for the co-ordination between the activities carried out by the OGC Met Oceans Domain Working Group (DWG) and hydrology DWG, and the activities carried out by the expert teams of the CBS OPAG on Information Systems and Services with a view to developing the use of ISO/OGC standards for the WIS. In accordance to the MoU, OGC privileges are granted to eight WMO experts.

10.2 The Group noted that CBS is supporting the nomination of four experts from CBS and one each from CCI, CHy, CIMO and JCOMM. In a meeting between WMO and OGC (9-10 February 2010 in Geneva) further details of the liaison were discussed and the nominations of experts exchanged. Heinrich Knottenberg, one of the nominated experts from CBS, also represented JCOMM at this meeting. He reported to the group the outcome of the meeting and proposed that JCOMM should take the opportunity to nominate a person with special expertise on JCOMM issues in the field of metadata-standardisation. The Group nominated G. Reed for participating in the working group subject to the availability of funds.

10.3 Ms Sissy Iona thanked all for participating and for their comments and support to the DMCG, as well as the Secretariat. She stressed that there is still a substantial amount of work to be completed before the Fourth session of JCOMM in 2012, especially by the two Expert Teams on Marine Climatology (ETMC) and Data Management Practices (ETDMP). The Group thanked the IODE Project Office for the great facilities and support provided during the Session.

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5 : [ftp://ftp.wmo.int/In-box/To-www/DM/20091123\\_OGC\\_WMO\\_MOU.pdf](ftp://ftp.wmo.int/In-box/To-www/DM/20091123_OGC_WMO_MOU.pdf)

10.4 The Fourth Session of the JCOMM Data Management Coordination Group (DMCG-IV) closed at 17h00 on Friday 9 April 2010.

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**ANNEX I**

**AGENDA**

- 1. ORGANIZATION OF THE SESSION**
    - 1.1 Opening
    - 1.2 Adoption of the agenda
    - 1.3 Local arrangements
  - 2. DMPA CHAIRPERSON'S REPORT**
  - 3. REVIEW OF ACTIONS**
    - 3.1 Review of actions from DMCG-3
    - 3.2 Priority actions from JCOMM-III
  - 4. ETMC ACTIVITIES**
    - 4.1 Chairperson's report
  - 5. ETDMP ACTIVITIES**
    - 5.1 Chairperson's report
  - 6. CAPACITY BUILDING ACTIVITIES**
    - 6.1 Secretariat's report
  - 7. COLLABORATIONS**
    - 7.1 WMO
    - 7.2 IOC
  - 8. DATA MANAGEMENT IMPLEMENTATION PLAN**
    - 8.1 Review of content and actions
    - 8.2 Cookbook for Submitting Data, present status and future actions
  - 9. WORK PLAN FOR 2010-2012 AND REVIEW OF ACTIONS ITEMS FROM THE MEETING**
  - 10. CLOSURE OF THE MEETING**
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## ANNEX II

### LIST OF PARTICIPANTS

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**ANNEX III**

**ACTION ITEMS ARISING FROM THE MEETING**

<b>No.</b>	<b>Ref.</b>	<b>Action item</b>	<b>By</b>	<b>Deadline</b>
1	2.4	to address the issue of testing the ODASMS, and the ETMC Chairperson to liaise with the ETMC and the ODASMS in this regard	S. Woodruff	Sept 2010
2	3.1.1(2)	to approach Charles Sun and seek whether he could look at IOC No. 26 from a GTSP perspective and estimate the effort that would be required to updating the guide	S. Iona	ASAP
3	3.1.1(3)	to contact Mark Merrifield and Torkild Aarup and seek participation of DMPA experts at the forthcoming GLOSS Group of Experts meeting – 2 <sup>nd</sup> quarter 2011 – and explain the rationale of collecting more metadata from GLOSS as well as providing interoperability with the ODP	S. Iona	Sept 2010
4	3.1.1(4)	to address the issue bringing BUFR Master Table 10 (MT10) into conformance with present WMO rules for TDCs, and to submit a proposal to the CBS IPET-DRC	TT TDC	Jun 2010
5	3.1.1(5)	to contact Coriolis and seek feedback on computer models for the DM Plan	S. Iona	ASAP
6	3.1.1(5)	to contact SFSPA Coordinator and invite him to provide input on computer models for the DM Plan	S. Iona	ASAP
7	3.1.1(5)	to propose a paragraph on distributed processing systems for inclusion in the DM Plan	N. Mikhailov	ASAP
8	3.1.1(6)	to investigate with MyOcean what is the current status and what documentation could be provided in terms of interaction with GODAE and getting information on how to distribute and make available model outputs, how to target their distribution, how to manage inter-comparisons	S. Iona	Jun 2010
9	3.1.1(7)	to bring the recommendations from the Group regarding the rigs and platforms issue to the Management Committee	S. Iona	Nov 2010
10	3.1.1(8)	to distribute the Terms of Reference of TT-MOCS to the IODE Community (after those have been updated by TT-MOCS) in order to find an appropriate representative no later than December 2010	Secretariat/IOC	Dec 2010
11	3.1.1(8)	to contact the TT-MOCS Chair, E. Kent (UK), and suggest an IODE representative in TT-MOCS once identified	S. Woodruff	Feb 2011
12	3.1.1(9)	to circulate the marine QC document to the co-chairs of the TT-DMVOS	S. Woodruff	ASAP
13	3.1.1(9)	to take steps so that the marine QC document can be published as a JCOMM Technical Report and IOC M&G, and included in the best practices catalogue	TT-DMVOS	Oct 2010
14	3.1.1(10)	to provide feedback to the DMCG Chairperson regarding real-time receiving and updating mechanism for META-T	J Chen	Jun 2010
15	3.1.1(10)	to attempt accessing the ODASMS data and report on possible problems	ETMC	July 2010
16	3.1.1(10)	to make sure that metadata JCOMMOPS is routinely collecting are regularly submitted	JCOMMOPS	Ongoing

		to the appropriate archives		
17	3.1.1(10)	to investigate and assist in making the instrument/platform metadata stored in the ODASMS and META-T interoperable (discoverable) via the ODP in the view to report at JCOMM-IV	J. Chen	mid-2012
18	3.1.1(10)	to register ODASMS in the ODP using Data Provider	ODASMS	July 2010
19	3.1.1(11)	to make sure an agenda item is included in the agenda for IODE-XXI regarding establishing a MOU between IOC and the HMEI, and HMEI eventually benefits from similar "consultative status" as with the WMO	Secretariat/IOC	Jun 2010
20	3.1.1(11)	to provide information to the IOC Secretariat on the WMO "consultative status"	Secretariat/WMO	Jun 2010
21	3.1.1(12)	to contact the ICG-WIS Chairperson and provide information and proposal on WIS considering regulating delayed mode data flow	S. Woodruff	Sep 2010
22	3.1.1(13)	to addresses the issue of documenting the interface between the ODP and GISCs.	H. Knottenberg	Jul 2010
23	3.1.1(13)	to work on the specifications of the ODP-GISC interface	N. Mikhailov + H. Knottenberg	end Jul 2010
24	3.1.1(13)	to consider accepting N. Mikhailov for participating in the ET-WISC representing JCOMM	H. Knottenberg	ASAP
25	3.1.1(14)	to review the draft Volume IV of WMO Technical Regulations	S. Iona, G. Reed, Secretariat/IOC	Jun 2010
26	3.1.1(15)	to delete references to old versions of the dynamic part of the guide (JCOMM TR No. 13) from the JCOMM catalogue of best practices and standards	Secretariat	ASAP
27	3.1.1(16)	to inform J. Pearlman about progress on ODS for inclusion in the GEOSS standards registry	Secretariat/IOC & G. Reed	ASAP
28	3.2.1(vii)	to propose update to those relevant documents of the Catalogue of Standards and Best Practices that need updating, and to propose new documents as appropriate	ETMC & ETDMP	ongoing
29	3.2.1(viii)	to update the DMPA web pages on the JCOMM web site	S. Iona & Secretariat	Dec 2010
30	3.2.1(ix)	to lead organization of MARCDAT-III and establish organizing committee as appropriate	ETMC	early 2011
31	3.2.3	to include JCOMM-III recommendation in the Data Management Plan as appropriate	S. Iona	Feb 2011
32	3.2.3	to address the issue of documenting MCP metadata profile and other metadata related documentation through the Task Team on ODS	ETDMP/ODS	end 2010
33	4.1.4	the scope of platforms included within the ODAS terminology, while defined (very broadly) by UNESCO in 1972, is not widely understood, and should be updated (i.e. once the desired metadata scope of ODASMS and links with META-T are resolved)	S. Woodruff	2012
34	4.1.5	to bring the issue of Rigs and Platforms to the Management Committee in late 2010	S. Iona	Nov 2010
35	4.1.7	ETMC to move forward the CMOC proposal as suggested in the view to make a formal proposal at JCOMM-IV	S. Woodruff	2012

36	4.1.13	to convene an organizing committee for MARCDAT-III, and include additional DMCG representation on that Committee, including S. Iona as DMCG Chairperson	S. Woodruff & V. Swail	ASAP
37	4.1.14	to identify data sets holding marine climatological data sets for registering with the Ocean Data Portal, including those data-sets identified by the JCOMM Pilot Project for WIGOS	S. Woodruff & N. Mikhailov	ASAP
38	5.1.9	to prepare a consolidated workplan of the ETDMP based on the different workplans of the three Task Teams	ETDMP	16 April 2010
39	6.1.14	to contact Jeff Wilson (WMO Secretariat) and seek enhanced collaboration on OceanTeacher	Secretariat/IOC	ASAP
40	6.1.17	to translate into French and Spanish the ODP v1 training materials	Secretariat	Nov 2010
41	6.1.18	to proceed in tentatively organizing the proposed CB workshops, identify resource persons, and collect teaching materials	Secretariat/IOC	Sep 2010
42	6.1.20	to investigate about availability of WIS training, especially on the data provider side	Secretariat/WMO	ASAP
43	6.1.21	to discuss organizing a "Jamboree" Capacity Building event with Johannes Guddal	Secretariat/IOC	ASAP
44	6.1.22	the organizers of the PANGEA workshops to provide training materials to the OceanTeacher	Secretariat	Ongoing
45	7.1.1.1 (ii)	to include drifter data in the cookbook	DBCP	Oct 2010
46	7.1.2.2 (iii)	to update the JCOMM Data Management Plan to reflect requirements for the GFCS in terms of ocean data management	S. Iona	Feb 2011
47	7.1.3.8	Germany and Russia to work together in the JCOMM framework to demonstrate technical realization of interoperability between the ODP and a GISC	N. Mikhailov & H. Knottenberg	Feb 2011
48	7.1.4.8	to provide a copy of the draft JCOMM PP for WIGOS project report to S. Iona for review, and to bring the DMCG perspective	Secretariat & S. Iona	ASAP
49	7.1.8.4	to liaise with C. Donlon, the OPA Coordinator, C. Clark, JCOMMOPS, the ETMC Chair, S. Woodruff, and propose draft Terms of Reference for a cross-cutting Task Team on satellite to be proposed at the forthcoming JCOMM Management Committee meeting	S. Iona	Nov. 2010
50	7.2.4.3	to follow up these standard submissions with SeaDataNet	ETDMP	Ongoing
51	8.1.2	to lead the exercise for updating the JCOMM Data Management Plan, and related implementation details	S. Iona	Feb 2011
52	8.1.3 (3)	to nominate Ms Maureen Paganini (NOC, Southampton) for participating in the TT-TDC	S. Woodruff	ASAP
53	8.1.3 (4)	to provide S. Iona with the document prepared by Mr Thomas Loubrieu (France) on ocean data systems	Secretariat/WMO	ASAP
54	8.1.3 (7)	to address Recommendation 4.3.2b from the DM Plan	ETDMP/Metadata	ASAP
55	8.1.3 (11)	to address flag scales	ETDMP/ODS	ASAP
56	8.1.3 (12)	to approach Charles Sun in the view to have GTSP submitting the unique tag to the ODS	S. Iona	ASAP

57	8.1.3 (14)	to raise Recommendation 5.7a and better coordination with SFSPA at the forthcoming Management Committee meeting	S. Iona	Nov 2010
58	8.1.3 (15)	to seek feedback from the RNODCs before initiating a proposal	Secretariat/IOC	Sep 2010
59	8.1.3 (16)	to contact RTMC and seek feedback from them regarding the SOC-RNODC integration	S. Woodruff	Sep 2010
60	8.1.3 (16)	to contact the SOCs and seek feedback from them regarding the SOC-RNODC integration	Secretariat/WMO	Sep 2010
61	8.1.3 (16)	to contact the ISDM, and discuss what tasks they are still carrying one as RNODC/DB	G. Reed	Sep 2010
62	8.1.3 (16)	to convene an ad hoc task group regarding SOCs and RNODCs to address their integration issue and possibly make a proposal	S. Iona	Sept 2010
63	8.1.3 (18)	to contact C. Donlon on how to make satellite and in situ data better integrated, including regarding ICOADS matching up with satellite data	S. Iona	Sep 2010
64	8.1.3 (20)	to send out information to JCOMM members about DMPA activities using the JCOMM web site and to seek feedback from them – Ref DM Plan Recommendation 7.1h -	S. Iona	ongoing
65	8.1.3 (21)	to provide a performance model for ODP	ETDMP/ODP	2011
66	8.1.3 (23)	to update the JCOMM web site, including populating some pages where information is missing, reducing text where appropriate to make the site more attractive and clear	S. Iona	end 2010
67	8.2.2	to coordinate the further development of the Cookbook, and to contact the OPA and seek feedback as needed	S. Iona	mid 2011
68	8.2.2	to provide information on VOS data submission in R/T to S. Iona	Secretariat/WMO	end 2010
69	8.2.2	to provide information on the handling of delayed mode VOS data	GCCs	end-2010

## ANNEX IV

### RESOLUTION 8 (EC-LXI) PROCEDURES TO BE FOLLOWED IN PROPOSING COMMON WMO/ISO TECHNICAL STANDARDS

THE EXECUTIVE COUNCIL,

**Noting:**

- (1) Article 26 of the WMO Convention,
- (2) Resolution 6 (Cg-V) – Relations with the United Nations and other international Organizations,
- (3) The working arrangements between the International Organization for Standardization (ISO) and WMO formally adopted on 16 September 2008,

**Recognizing** the wide ranging benefits to National Meteorological and Hydrological Services and user communities resulting from the implementation of common Standards for meteorological, climatological, hydrological, marine and related environmental data, products and services,

**Considering:**

- (1) The importance of following up on the working arrangements between the International Organization for Standardization and the World Meteorological Organization;
- (2) The need to establish the benefit/cost implication to Members of elevating an existing Technical Regulation/Manual/Guide to a common Standard, considering the consequences of converting recommendations to compulsory Standards;
- (3) The importance of determining cross-cutting elements of proposed common Standards with other WMO documents under the control of different technical commissions or Executive Council panels and working groups requiring action from these bodies following the approval of the common Standard;

**Decides** that, for each proposed common Standard, the responsible body initiating the proposal should prepare comprehensive supporting documentation that includes:

- (1) The benefit/cost implication to Members of submitting an existing Technical Regulation/Manual/Guide for adoption as a common WMO/ISO Standard, considering the consequences of converting recommendations to compulsory standards (from “should” to “shall”) when applicable;
  - (2) A full description of the cross-cutting elements of the proposed common Standard with other WMO documents under the control of different technical commissions or Executive Council panels and working groups that would lead to a requirement for action from these bodies in the event of the Standard being created. To this end, presidents of technical commissions and Executive Council members are to be informed about potential impacts and invited to register an interest in the document being processed;
  - (3) An assessment of which elements in the common Standard could create a risk if adopted, and which ones would constitute a risk if omitted or not approved as a common WMO/ISO standard. This risk assessment should be provided with due reference to the AS/NZ 4360:2004 Standard for Risk Management
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**ANNEX V**

**JCOMM DMPA WORK PLAN FOR THE INTERSESSIONAL PERIOD 2010-2012**

<b>JCOMM-III Priority</b>	<b>Actions</b>	<b>By</b>	<b>Deadline</b>
Develop standards/best practices in the marine community through the IODE-JCOMM Standards Process	<ul style="list-style-type: none"> <li>Execute ETDMP/ODS workplan (see ETDMP-II final report)</li> </ul>	ETDMP	Ongoing
Continue to work under the JCOMM Pilot Project for WIGOS to make the ODP and WIS interoperable as well as other ocean data systems interoperable with ODP and/or WIS;	<ul style="list-style-type: none"> <li>Execute ETDMP/ODP workplan (see ETDMP-II final report);</li> <li>JCOMM Pilot Project for WIGOS to propose legacy recommendations in this regard</li> </ul>	ETDMP JCOMM PP/WIGOS	End 2010 Nov 2010
Upgrade present BUFR encoding for marine variables to include instrument/platform metadata;	<ul style="list-style-type: none"> <li>Find replacement for Bob Keeley to lead the TT on Table Driven Codes;</li> <li>Address BUFR template for buoy data; and finalize those for XBT and VOS;</li> <li>Propose a workplan for testing and validating all ocean related BUFR templates;</li> <li>Make BUFR Master Table 10 consistent with WMO rules;</li> </ul>	TT-TDC	2012
Complete Meta-T and Ocean Data Acquisition System (ODAS) implementation and capture of instrument/platform metadata;	<ul style="list-style-type: none"> <li>Execute the ETDMP/metadata workplan (see ETDMP-II final report) with assistance from the ETMC</li> <li>Test ODASMS</li> <li>Complete BUFR templates with appropriate metadata</li> <li>Submit JCOMMOPS metadata to appropriate archives</li> </ul>	ETDMP/metadata ETMC, META-T TT-TDC	2011 Sep 2010 2012
Modernize the Marine Climatological Summaries Scheme (MCSS);	<ul style="list-style-type: none"> <li>Execute the ETMC workplan through the TT-DMVOS and TT-MOCS (see ETMC-III final report)</li> <li>Prepare JCOMM-IV Recommendation and background information regarding the CMOC proposal</li> </ul>	ETMC (TT-DMVOS & TT-MOCS)	2012
Review and update the Data Management Plan;	<ul style="list-style-type: none"> <li>The first version of the updated Data Management Plan and its implementation details should be ready by February 2011. S. Iona to lead this effort in liaison with, and with input from Group members</li> </ul>	S. Iona	Feb 2011
Update the Catalogue of Standards and Best Practices and contribute to the implementation of QMS in compliance	<ul style="list-style-type: none"> <li>ETDMP and the ETMC to propose updates to those relevant documents that need updating, and to propose new documents as appropriate</li> </ul>	ETDMP & ETMC	2012

with the WMO-QMF;	<ul style="list-style-type: none"> <li>• Review Volume IV of WMO Technical Regulations</li> <li>• Coordinate completion of the “cookbook” for submitting ocean data in real time and delayed mode (e.g. drifters, VOS)</li> <li>• Finalize marine QC document and add in the catalogue</li> <li>• Estimate effort for updating IOC M&amp;G No. 26</li> </ul>	S. Iona, Secretariat/IOC S. Iona  TT-DMVOS GTSP	June 2010  Mid 2010  Oct 2010 ASAP
Review and update the DMPA website;	<ul style="list-style-type: none"> <li>• Update the DMPA web pages on the JCOMM web site, and simplify them in order to make those pages more attractive</li> <li>• Add new information</li> </ul>	S. Iona & Secretariat	Dec 2010
Organization of MARCDAT-III and CLIMAR-IV meetings (see sec. 1.4)	<ul style="list-style-type: none"> <li>• ETMC to lead organization of MARCDAT-III and establish organizing committee as appropriate</li> </ul>	ETMC	Early 2011

Other activities	Actions	By	Deadline
Address the status and possible integration within a new organizational framework of the JCOMM/SOCs, IODE/RNODCs, and VOSclim RTMC	<ul style="list-style-type: none"> <li>• Seek feedback from the RNDOCs</li> <li>• Seek feedback from the SOCs</li> <li>• Seek feedback from RNODC/DB (ISDM, Canada)</li> <li>• Seek feedback from RTMC</li> <li>• Convene <i>ad hoc</i> task team</li> </ul>	Secretariat Secretariat G. Reed S. Woodruff S.Iona	Sep 2010
Integration of in situ/satellite/model field data management, including match-up databases (e.g. ICOADS)	<ul style="list-style-type: none"> <li>• Seek feedback from SFSPA</li> <li>• Seek feedback from satellite community</li> <li>• Derive recommendations for Management Committee, and JCOMM-IV</li> </ul>	DMCG	2012
Integration of Rigs and Platforms in the DBCP and SOT Terms of Reference	<ul style="list-style-type: none"> <li>• Address the issue with the Management Committee</li> <li>• Contact DBCP and SOT Chairs</li> <li>• Revise ToR of DBCP and SOT at JCOMM-IV</li> </ul>	S. Iona S. Woodruff	2012
Capacity Building for data management	<ul style="list-style-type: none"> <li>• Compile training materials for OceanTeacher and organize training activities on table driven codes</li> <li>• Organize training activities on ODP</li> <li>• Organize training activities on metadata</li> <li>• The organizers of the PANGEA workshops to provide training materials to the OceanTeacher</li> <li>• WIS Training material</li> </ul>	Secretariat	Sep 2010     Sep 2010

	<ul style="list-style-type: none"><li>• Translate ODP v1 documentation in French and Spanish</li><li>• Plan for “Jamboree” workshop</li><li>• to contact Jeff Wilson (WMO Secretariat) and seek enhanced collaboration on OceanTeacher</li></ul>		Nov 2010
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## ANNEX VI

### ACRONYM LIST

ACRE	Atmospheric Circulation Reconstructions over the Earth
AES	Advanced Encryption Standard
AIS	Automatic Identification System
AMSA	Arctic Marine Shipping Assessment
AODCJF	Australian Ocean Data Centre Joint Facility
AOPC	Atmospheric Observation Panel for Climate
Argo	International profiling float programme
ASAP	As soon as possible
ASAP	Automated Shipboard Aerological Programme
AWS	Automatic Weather Stations
BOM	Bureau of Meteorology (Australia)
BUFR	Binary Universal Form for the Representation of meteorological data
CAS	WMO Commission for Atmospheric Sciences
CB	Capacity-Building
CBS	WMO Commission for Basic Systems
CCI	WMO Commission for Climatology
CDI	SeaDataNET Common Data Index
CDMS	Climate Data Management System
CEOS	Committee on Earth Observations Satellites
Cg	WMO Congress
CIMO	WMO Commission for Instruments and Methods of Observation
CLIMAR	JCOMM Workshops on Advances in Marine Climatology
CLIVAR	WCRP Climate Variability and Predictability Programme
CM	Contributing Member
CMDP	NOAA Climate Data Modernization Program (USA)
CMM	Former WMO Commission for Marine Meteorology (now JCOMM)
CMOC	WMO-IOC Centres for Marine-meteorological and Ocean Climatological Data
CONOPS	WIGOS Concept of Operations
COSPAR	Committee on space Research
CREX	Character form for Representation and EXchange of data
CWP	Community White Papers
DAC	Data Assembly Centre
DBCP	Data Buoy Cooperation Panel
DCPC	Data Collection and Production Centre (of WIS)
DM	Data Management
DMAC	IOOS Data Management and Communications (USA)
DMCG	JCOMM Data Management Coordination Group
DMPA	JCOMM Data Management Programme Area
DRR	Disaster Risk Reduction
DWD	Deutscher Wetterdienst (Germany)
DWG	OGC Domain Working Group (DWG)
E2E	End-to-End Data Management
E2EDM	End-to-End Data Management Pilot Project
EC	Executive Council
EC-PORS	WMO Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS)
ECMWF	European Centre for Medium Range Weather Forecasts
EECRA	Extended Edited Cloud Report Archive
ENCODE	Ship masking scheme whereby a unique, non-repeating identifier is used; the identifier is derived from encrypting elements in the message, e.g. callsign + latitude + longitude
ESA	European Space Agency

E-SURFMAR	EUMETNET Surface Marine programme
ETCCDI	Joint CCI-CLIVAR-JCOMM Expert Team on Climate Change Detection and Indices
ET-CDBMS	Expert Team on Climate Database Management Systems
ETDMP	JCOMM-IODE Expert Team on Data Management Practices
ETMC	JCOMM Expert Team on Marine Climatology
ETMSS	JCOMM Expert Team on Maritime Safety Services
ETSI	JCOMM Expert Team on Sea-Ice
ET-WISC	CBS Expert Team on WIS Centres
ETWS	JCOMM Expert Team on Wind Waves and Storm Surges
EUMETNET	Network of European Meteorological Services
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
FAQ	Frequently Asked Questions
FTP	File Transfer Protocol
GAW	Global Atmosphere Watch
GCC	Global Collecting Centre
GCC-DM	Delayed-mode GCC
GCC-RT	Real-time GCC
GCOS	WMO-IOC-UNEP-ICSU Global Climate Observing System
GCOS-IP	GCOS Implementation Plan in Support of the UNFCCC
GDAC	Global Data Assembly Centre
GDSIDB	Global Digital Sea Ice Data Bank
GE-BICH	IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GFCS	Global Framework for Climate Services
GHRSSST	Group for High Resolution SST
GIS	Geographical Information System
GISC	Global Information System Centres (of WIS)
GLOSS	Global Sea Level Observing System
GLOSS-GE	GLOSS Group of Experts
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GODAR	Global Oceanographic Data Archaeology and Rescue
GOOS	WMO-IOC-UNEP-ICSU Global Ocean Observing System
GOS	WMO Global Observing System
GOSUD	Global Ocean Surface Underway Data Pilot Project
GPS	Global Positioning System
GTS	Global Telecommunication System
GTSP	Global Temperature and Salinity Profile Programme
HDF	Hierarchical Data Format
HISKLIM	HISTorical CLIMate (the Netherlands)
HQC	Higher-level QC
HQCS	Higher-level Quality Control Standard
HMEI	Association of Hydro-Meteorological Equipment Industry
ICES	International Council for the Exploration of the Sea
ICG-WIS	Inter-Commission Coordination Group on WIS
ICOADS	International Comprehensive Ocean-Atmosphere Data Set (USA)
ICSU	International Council for Science
ICT ISS	CBS Implementation Coordination Team on Information Systems and Services
IMMA	International Maritime Meteorological Archive
IMMT	International Maritime Meteorological Tape
IMO	International Maritime Organization
IMOS	Integrated Marine Observing System (Australia)
IOC	Intergovernmental Oceanographic Commission of UNESCO

IOCCP	IOC International Ocean Carbon Coordination Project
IODE	International Oceanographic Data and Information Exchange (of IOC)
IP	Implementation Plan
IP	Intersessional Period
IPET-DRC	CBS Inter Programme Expert Team on Data Representation and Codes
IPET-MDI	CBS Inter-Programme Expert Team on Metadata and Data Interoperability
ISDM	Integrated Science Data Management (Canada)
ISO	International Organization for Standardization
JCOMM	Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology
JCOMMOPS	JCOMM <i>in situ</i> Observing Programme Support Centre
JMA	Japan Meteorological Agency
LDCs	Least Developed Countries
LDP	ODP Light Data Provider
M&G	Manual and Guides
MAN	JCOMM Management Committee
MARCDAT	International workshop on Advances in the Use of Historical Marine Climate Data
MASK	Ship masking scheme whereby a unique, repeating identifier is used; the masking identifier is assigned by the NMS that recruited the ship
MCP	Marine Community Profile
MCS	Marine Climatological Summary
MCSS	Marine Climatological Summaries Scheme
MEDI	IODE Marine Environmental Data and Information Referral System
META-T	Water Temperature Metadata Pilot Project
M&G	Manuals and Guides
MOU	Memorandum of Understanding
MQCS	Minimum Quality Control Standard
MSC	Maritime Safety Committee (of IMO)
MSI	Maritime Safety Information
MT10	BUFR Master Table No. 10
NCDC	NOAA National Climatic Data Center (USA)
NCEP	NOAA National Centers for Environmental Prediction (USA)
NDBC	NOAA National Data Buoy Center (USA)
NetCDF	Network Common Data Form
NMDIS	National Marine Data and Information Service (China)
NMHS	National Meteorological and Hydrographic Service
NOAA	National Oceanic and Atmospheric Administration (USA)
NOC	National Oceanography Centre (UK)
NODC	IODE National Oceanographic Data Centre
NWP	Numerical Weather Prediction
OBIS	Ocean Bio-geographical Information System
OceanSITES	OCEAN Sustained Interdisciplinary Timeseries Environment observation System
OCG	JCOMM Observations Coordination Group
ODAS	Ocean Data Acquisition System
ODASMS	ODAS Metadata Service
ODIN	IOC Ocean Data and Information Network
ODINAFRICA	ODIN for Africa
ODINCARSA	ODIN for the Caribbean and South America
ODINWESTPAC	Ocean Data and Information Network for the Western Pacific
ODP	UNESCO/IOC-IODE Ocean Data Portal
ODS	IODE-JCOMM Ocean Data Standards Pilot Project
ODV	Ocean Data View
OGC	Open Geospatial Consortium
OOPC	Ocean Observations Panel for Climate
OPA	JCOMM Observations Programme Area

OPACE	Open Panels of CCI Experts
OPAG	Open Programme Area Group
OPAG ISS	OPAG on Information Systems and Services
OT	OceanTeacher
OWDIP	Ocean Wave Data and Information Portal
PA	Programme Area (of JCOMM)
PANGEA	Partnership for New GEOSS Applications
PDF	Portable Document Format
PP-WET	DBCP/ETWS Pilot Project for Wave measurement Evaluation and Testing
PSMSL	Permanent Service for Mean Sea Level
Pub47	WMO Publication No. 47
QA	Quality Assurance
QC	Quality Control
QMF	WMO Quality Management Framework
QMS	Quality Management System
R/V	Research Vessel
RA	WMO Regional Association
REAL	Ship masking scheme whereby the Official ITU callsign of the ship is used (i.e. unmasked)
RECLAIM	REcovery of Logbooks And International Marine data
RIHMI-WDC	Russian Research Institute of Hydrometeorological Information
RM	Responsible Member
RMIC	WMO-IOC Regional Marine Instrument Centre
RNODC	IODE Responsible National Oceanographic Data Centre
RNODC/DB	RNODC for Drifting Buoys
RRR	Rolling Review of Requirements
RTMC	VOSclim Real Time Monitoring Centre
SCG	JCOMM Services Coordination Group
SDN	SeaDataNet
SeaDataNet	Pan-European infrastructure for Ocean and Marine Data Management
SFSPA	JCOMM Services and Forecasting Systems Programme Area
SHIP	Ship masking scheme whereby a non-unique identifier is used; the callsign is unilaterally replaced by the letters "SHIP"
SOC	JCOMM Specialized Oceanography Centre
SOC/DB	SOC for Drifting Buoys
SOT	JCOMM Ship Observations Team
SPA	JCOMM Services Programme Area (before JCOMM-III, now SFSPA)
SSS	Sea Surface Salinity
SST	Sea Surface Temperature
TDC(s)	Table Driven Code(s)
TOR	Terms of Reference
TT-DMVOS	SOT/ETMC Task Team on Delayed Mode VOS Data
TT-MOCS	ETMC Task Team on Marine Meteorological and Oceanographic Climatological Summaries
TT-TDC	DMPA Task Team on Table Driven Codes
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
VCP	Voluntary Cooperation Programme
VOS	Voluntary Observing Ship
VOSclim	VOS Climate Project
WCC	World Climate Conference
WCRP	World Climate Research Programme
WDC	ICSU World Data Centre
WDIP	WIGOS "Test of Concept" Development and Implementation Plan
WG	Working Group
WGNE	CAS Working Group on Numerical Experimentation
WG-SP	GCOS AOPC/OOPC Working Group on Surface Pressure

WG-SSTSI	GCOS AOPC-OOPC Working Group on Sea-Surface Temperature and Sea-Ice
WIGOS	WMO Integrated Global Observing System
WIS	WMO Information System
WMO	World Meteorological Organization
WOA	World Ocean Atlas
WOAP	WCRP Observation and Assimilation Panel
WOD	World Ocean Database
XBT	Expendable Bathythermograph
XCTD	Expandable Conductivity Temperature and Depth probe
XML	Extensible Markup Language

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