WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)
SHIP OBSERVATIONS TEAM

FOURTH SESSION

GENEVA, SWITZERLAND, 16 TO 21 APRIL 2007

SOT-IV/Doc. I-2.1
(15.II.2007)

ITEM I-2.1

Original: ENGLISH

REPORT BY THE SECRETARIATS

(Submitted by the Secretariats)

Summary and purpose of document

This document provides information on actions taken since the third session of the SOT, and on the activities of the Observations Programme Area (OPA), the Data Management Programme Area (DMPA), and the Services Programme Area (SPA) of interest to the SOT. It contains information regarding the outcome of the second session of JCOMM, Halifax, Canada, September 2005, the third meeting of the Services Coordination Group (SCG-III), Exeter, UK, 7-10 November 2006, and the second meeting of the Data Management Coordination Group (DMCG-II), Geneva, Switzerland, 10-12 October 2006, as well as actions taken since these sessions.

ACTION PROPOSED

The Ship Observations Team is invited to:

(a) Note and comment on the report as appropriate, and advise on any additional actions required of the Secretariat;
(b) Draft a report to EC-LIX proposing to maintain Resolution 7 (EC LVIII) in force and to continue the ship's call sign masking for another year;
(c) Consider the case of the delayed mode data and the requirements for marine climatology when discussing ship masking;
(d) Invite SOT Members to attend CLIMAR-III;
(e) Review the Terms Of Reference of the new DMPA TT-DMVOS, participate in the new DMPA TT-DMVOS and assist in producing the project plan;
(f) Note and concur with the ETMC developments of the IMMT format and MQCS;
(g) Decide to establish a Task Team on electronic logbooks to include membership of the ETMC and tasked to conduct an intercomparison study between the different e-logbooks and produce a report;
(h) Provide guidance to the ETMC regarding BUFR distribution of VOS data
(i) Review and adopt the new marine meteorological services monitoring programme (MMMS) questionnaire and suggest ways for disseminating it;
(j) Take the information into account when discussing relevant agenda items;

Appendices:

A. JCOMM Structure
B. IMMSC 2008 Conference, October 2008
C. WMO-IMO Consultative meeting's recommendations and agreed principles
D. Proposed new Terms Of Reference of the JCOMM DMPA Task Team on Delayed Mode Voluntary Observing Ship data (TT-DMVOS)
E. Changes proposed by the ETMC-II for IMMT format and IQCS
F. Terms of Reference for the cross-cutting Rapporteur on Sea Ice Matters
G. New proposal for the MMMS Questionnaire

DISCUSSION

Introduction

1. GOVERNING BODIES

1.1. The 39th Session of the IOC Executive Council has been held (Paris, 21 – 28 June 2006) to review progress since the 23rd Session of the IOC Assembly in June 2005, and to plan for the future. Considering the guidance provided by UNESCO's Principles and Guidelines in the Preparation of the Draft Medium-term Strategy for 2008–2013, the Committee identified four high-level objectives as the IOC's fundamental contribution to UNESCO's Medium-term Strategy for 2008–2013:

(i) Prevention and reduction of the impacts of natural hazards;

(ii) Mitigation of the impacts of, and adaptation to, climate change and variability;

(iii) Safeguarding the health of ocean ecosystems;

(iv) Management procedures and policies leading to the sustainability of coastal and ocean environment and resources.

1.2. The Resolution EC-XXXIX.1 was adopted, through the intra-sessional Working Group on the Medium-term Strategy.

1.3. The WMO Executive Council, at its fifty-eighth session (Geneva, June 2006) noted the Progress/Activity report on Marine Meteorology and Oceanography Programme.

1.4. The WMO Executive Council noted substantive achievements under JCOMM during the past intersessional period and urged that work in the ongoing priority areas should continue, including the new area of tsunami monitoring and mitigation systems and services, in close cooperation with the various Intergovernmental Coordination Groups for the Tsunami Warning and Mitigation Systems of IOC. The Council supported the new priority areas to be addressed by JCOMM, in accordance to the work plan for JCOMM for the period 2006-2010. It urged Members to provide additional funding to support the implementation of the programme through voluntary contributions to the JCOMM Trust Fund, or to the DBCP/SOT and ASAP Trust Funds, within the context of the Data Buoy, SOOP and ASAP Panels. The Council noted that the JCOMM Strategy document was adopted and reiterated the need for the preparation of an accompanying Implementation Plan for the coming intersessional period, which would include a comprehensive set of specific objectives and deliverables, with associated timelines and performance indicators, across all JCOMM Programme Areas, and input to broader WMO Programme monitoring and assessment.

1.5. As regards to the requests from EC-LVII, the WMO Council noted that an action plan for JCOMM contributions, through its Programme Areas and component Expert Teams, to multi-hazard warning systems, was adopted by a group of experts, under the JCOMM Management Committee. It urged the Commission to proceed with the implementation of this action plan.

1.6. The WMO Council also noted that the security issues arising from availability of ship positions and identification data on the Internet had been discussed again at the Third International Port Meteorological Officers Workshop (PMO-III), in Hamburg, Germany, 23-24 March 2006. The Council also noted the PMO-III proposals that could be implemented nationally and regionally. The Council recognized the seriousness of the situation, which if not addressed could ultimately lead to the disappearance of the majority of VOS reports available on the GTS and agreed that there were many implications and associated issues to address at the international and national levels. It urged Members to carefully review the proposals presented by the JCOMM Co-presidents to address the problem, and adopted Resolution 3.4.4/2 (EC-LVIII) authorizing Members which, in consultation with ship owners, wish to protect the identity of VOS to implement ship call sign masking, for a trial period of one year, a process which would facilitate open distribution of masked data on the GTS. All Members implementing such a process should provide for the secure exchange of ship call signs and reports

affected by the masking process, so as to assist in resolving real time monitoring and climate analysis problems. The Council also requested the Secretary-General, as a high priority issue, to establish a high level dialogue, involving affected Members, the International Maritime Organization, the International Chamber of Shipping, shipping companies, and relevant organizations and technical commissions (e.g. Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, Commission for Basic Systems), in order to determine if there is a link between VOS data availability on external Web sites and piracy and other ship security issues; to review the implementation and impact of masking; and to propose a general and universally acceptable solution to the issue that would address ship owners and masters' concerns as well as the data monitoring and quality information feedback requirements, for consideration by the fifty-ninth session of the Executive Council in 2007.

1.7 A high level WMO-IMO consultative meeting was therefore held at WMO from 12 to 13 February 2007. 16 people attended the meeting. Five WMO Members were represented (Australia, France, Japan, UK, and USA), three WMO Technical Commissions (CBS, JCOMM, CCl) as well as IMO, ICS, INTERCARGO, and INTERTANKO, the latter three organizations representing the shipping industry. Capt. Gordon Mackie (retired) chaired the meeting as an independent expert. From the discussion it appeared that (i) there are not only security concerns for the shipping industry but also commercial activities concerns, and (ii) there are different approaches and concerns within the WMO Members (e.g. Japan concerned about piracy, USA concerned about protecting its partnership with the private sector). The meeting discussed the requirements for VOS observations for operational applications (NWP, marine safety) and for climate applications. After discussion a number of principles could be agreed upon, and the meeting agreed on a number of actions for the coming months. These are summarized in Appendix C. It was particularly recommended that the SOT in liaison with the WMO Secretariat and USA drafts a report to EC-LIX proposing to maintain Resolution 7 (EC LVIII) in force and to continue the ship-s call sign masking trials for another year, on the basis of the recommendations from the SOT regarding a unified approach to call sign masking. Regarding cooperation with IMO, the meeting recommended to consider proposing a Resolution to the IMO on met-ocean services similar to A.706(17) for navigational warnings and to present the first proposal to the appropriate IMO Sub-committee(s) for endorsement.

1.8. Noting that 80% of the countries in Region I are coastal and depend on maritime navigation and fishery, concerns were expressed regarding the lack of capabilities in the marine meteorological field in the NMHSs in the African region. The Executive Council was informed that a project to strengthen and enhance the operational marine meteorological capabilities in African countries for improving maritime safety was under preparation.

2. ADMINISTRATIVE MATTERS

2.1. Other actions taken in support of the SOT during the past year include:

(i) Preparation of various letters and documentation:

- Letter to IACS regarding ship design;
- Letter to ICS regarding the inclusion of weather reporting in the masters' standing orders;
- Information letters regarding the marine data quality monitoring reports;
- Information letter regarding the new format of WMO Publication No. 47 (Version 3, 1 July 2007);
- Quarterly reminders regarding national submission of input for the WMO Publication No. 47

(ii) Coordination, compilation and preparation of the SOT annual report for 2005;

(iii) Follow-up on decisions and recommendations of SOT-III;

(iv) Follow up regarding the ship security issue; coordination, compilation, and preparation of a technical document regarding technical implications following WMO EC-58 resolution on ship owners and master's concerns with regard to VOS data exchange;

(v) Organization of a high level dialogue consultative meeting;

(vi) Preparation of the third International PMO Workshop and follow up on recommendations;

(vii) Close liaison with JCOMM, in particular in the development of coordination and integration procedures;

(viii) Liaison with CBS on codes and other matters; with other IOC and WMO technical commissions and regional associations (or equivalent bodies) on relevant issues; and with CLIVAR, GCOS, GOOS, and SCOR;

(ix) Liaising with IMO, Inmarsat and other relevant international organizations and bodies on SOT-related matters;

(x) Management of the SOOPIP contributions to the DBCP trust fund (Germany, Japan, USA) for the SOT Coordinator's position, and assisting in the work of the SOT coordinator;

(xi) Maintaining the ASAP trust fund;

(xii) Assistance with regard to the recruitment of the new Technical Coordinator of the DBPC and the SOT (vacancy notice, compilation of CVs, investigation of candidates' skills through appropriate contacts, preparation for the interviews and required missions for the candidates and the interview board, contract and recruitment, training of the new TC);

(xiii) Management of the WMO Publication No. 47;

(xiv) Preparation of SOT-IV

(xv) Supporting the work of the SOT and panel chairs and task teams;

3. JCOMM-II

3.1. The second session of JCOMM (JCOMM-II) took place in Halifax, Canada, 19-28 September 2005, at the kind invitation of the Government of Canada. Two important events were associated with the session; i) the launching of the 1250th drifting buoy completing the drifting buoy array, which will be the first component of the Global Ocean Observing System to be fully implemented, and ii) the Scientific Conference, entitled "Operational Oceanography and Marine Meteorology for the 21st Century" which highlighted recent developments in operational systems and scientific and technological advances important to JCOMM.

3.2. Over 120 scientists from 30 countries participated in the scientific conference. It had three sessions including i) Recent JCOMM results; ii) Future science and technologies for observations, iii) Future JCOMM Products and Services. The Conference drew the message to JCOMM, that the next intersessional action plan should be made including the following items:

(i) Articulate to governments the need for sustained funding for the observing system and its local, national and international infrastructure (users, including private sector can provide advocacy);

(ii) Provide more homogeneous access to data and products;

(iii) Give greater visibility for data and products;

(iv) Adopt and implement new technologies while preserving continuity of information;

(v) Support and facilitate the entry of autonomous ocean observing systems into EEZs;

3.3. It was also emphasized during the conference, that Private Sector and User Groups should be involved into JCOMM planning and development through the Management Committee and Expert Teams. Regional ocean observing systems and GOOS regional alliances also should be considered in

the development of JCOMM. The participants finally noted the need to assess progress at JCOMM-III.

Organizational Structure:

3.4. Through considerable discussions during the second session, JCOMM decided that the overall framework would continue as designed in JCOMM-I for the next intersessional period, except for the Capacity Building Programme Area: The Commission decided to appoint Capacity Building Rapporteurs within the Observations, Services and Data Management Programme Areas, forming a cross-cutting team, and to establish a joint JCOMM-GOOS Task Team on Resources which will report to both JCOMM Management Committee and GOOS Scientific Steering Committee. It also decided to establish the Cross-cutting Team on Satellite Data Requirements, with rapporteurs of the Observations (one meteorological and one oceanographic), Services and Data Management Programme Areas (appointed by JCOMM Management Committee in consultation with the GOOS Scientific Steering Committee). The new structure is illustrated in Appendix A.

3.5. The Commission elected Dr P. Dexter (Australia) as its co-president for meteorology, and Dr J.-L. Fellous (France) as its co-president for oceanography, during the next intersessional period.

Outcome of JCOMM-II discussions regarding the SOT

3.6. The Commission noted that progress has been made on some of these activities since the meeting, and took action on these as follows:

(a) The Commission agreed to amend the IMMT format and Minimum Quality Control Standards, in particular to cover additional requirements of the VOSClim Project, with these new versions of IMMT (IMMT-3) and MQCS (MQCS-V) to replace the existing versions from 1 January 2007;

(b) The Commission adopted modification in definition and formatting in WMO-No. 47, and recommended that a version of the Extensible Markup Language (XML) should be developed and implemented for the future exchange of the metadata included in WMO-No. 47;

(c) Requested CBS to review and if necessary revise the BUFR template for ship data, based on the findings of the ETMC on the issue;

(d) Endorsed the proposal from SOT and ETMC, supported by the Management Committee, that, instead of the reduced wind at 10 m, the original wind data should always be reported in ship meteorological reports, including those generated by electronic logbooks.

3.7. The Commission noted with satisfaction that the Second JCOMM Workshop on Advances in Marine Climatology (CLIMAR-II) was successfully held in Brussels, November 2003, in conjunction with the celebration of the 150th anniversary of the landmark Brussels Maritime Conference of 1853, under the High Patronage of His Majesty King Albert II. It therefore agreed to the proposal that a third such self-funded workshop, CLIMAR-III, should take place in the near future. It requested the Data Management Programme Area Coordinator and the Secretariats to proceed with the organization of the workshop at an appropriate time.

4. JCOMM Observations Programme Area (OPA)

4.1. Observations Coordination Group (OCG)

4.1.1. The Observations Coordination Group is defining its strategic workplan. Details are provided in document I-2.2.

4.1.2. Discussions are also underway regarding the future of JCOMMOPS. Details are provided in document I-5.1.

4.1.1. The second Session of the Observations Coordination Group is planned after the SOT session

in Geneva, from 23 to 25 April 2007. The SOT may wish to make specific recommendations to the OCG.

4.2 Ship Observations Team (SOT)

4.2.1. The new format for WMO Publication No. 47 has been slightly revised after JCOMM-II and WMO Members informed and requested to provide their input in the new format as of 1 July 2007. Future of WMO Publication No. 47 will be discussed under agenda items I.4.3 and I.5.1.2 (see documents I.4 and I.5.1 for details).

4.2.2. The SOT annual report for 2005 has been published. The SOT annual report for 2006 is being compiled for publication by mid-2007.

4.2.3. The third International PMO workshop, co-sponsored by the Deutscher Wetterdienst (DWD) and WMO, was held at the Bundesamt für Seeschiffahrt und Hydrographie (BSH), Hamburg, Germany, 23-24 March 2006 (see document IV-2.3.2 for details). The workshop made a number of recommendations dealing with: (i) ship security, (ii), migration to table driven code forms, (iii) updating procedures for WMO publication 47, (iv) proposed actions to recruit more ships, (v) education and outreach, (vi) improvement of VOSClim data submission, (vii) proper installation of instruments on ships, (viii) updating list of Inmarsat Land Earth Stations (LES), (ix) ship inspection forms, (x) reporting on observing practices, (xi) monitoring, quality information, and feedback, (xii) web tools, and (xii) requirements for national reports. These recommendations would be discussed during the next Ship Observations Team and JCOMM Management Committee meetings. A longer-term solution arising from discussions at SOT-III, JCOMM-II, and PMO-III-INT was proposed for consideration by the WMO Executive Council (EC-LVIII). It was recommended to reclassify ship data transmitted in FM-13 SHIP format from essential data to additional data.

4.2.4. The IOGOOS/JCOMM Western Indian Ocean XBT Training Workshop was held in Goa, India, 5-7 October 2005. Workshop was hosted by the National Institute of Oceanography of India in Dona Paula and co-sponsored by the NOAA Office of Climate Observation, USA. The workshop was for developing Capacity Building for XBT observations in the western Indian Ocean. A total of 50 participants including 15 foreign nationals and 35 Indians attended the workshop. A draft 'Goa Plan of Action 2005' was proposed that outlined specific milestones necessary to achieve the principal goal of the workshop which was to re-establish the western Indian Ocean XBT line IX-8 (Mumbai – Mauritius) recommended by the IOGOOS/CLIVAR Indian Ocean panel for Climate (IOP) and to present these observational results at SOT-IV.

4.2.5. A Training and Capacity Building Workshop for the Eastern Indian Ocean (7-10 June 2006 in Bali, Indonesia) was organized by the Republic of Indonesia South East Asia Center for Ocean Research and Monitoring (SEACORM) and the NOAA Office of Climate Observation (OCO). This had been convened within the framework of *Partnerships with NOAA for GEOSS Applications (PANGEA)*, with the aim of strengthening partnerships with regional institutes in order to share resources such as shiptime for mooring deployments.

4.3. Data Buoy Cooperation Panel DBCP

4.3.1 The position of Technical Coordinator of the DBCP and the SOT is shared between the two Panels since 1999. The Technical Coordinator is basically working 70% of her time for the DBCP and 30% for the SOT. At its twenty-second session, La Jolla, USA, 16-20 October 2006, the DBCP reviewed the arrangements for the employment of the technical coordinator, as well as the sharing of his activities between the Panel and the Ship Observations Team. The Panel decided that these arrangements were suitable for the foreseeable future, subject to review at each Panel session. While considering the contract established by IOC/UNESCO for the employment of the Technical Coordinator, the Panel noted a new arrangement for the Technical Coordinator's employment, as a UNESCO Appointment of Limited Duration (ALD), grade P2, through funds provided by the Panel and deposited in the IOC Trust Fund. The Panel approved this arrangement as it stood.

4.3.2 The DBCP is seeking opportunities for the deployment of drifters in the global oceans and especially in the data sparse areas (e.g. Southern Ocean). Information on deployment opportunities is

being collected by JCOMMOPS. The DBCP is willing to cooperate with the SOT in this regard. DBCP-22 included in its workplan a recommendation to design drifter deployment packages in such a way as to ensure for safe deployments from 20m above the sea from ships moving at up to 25 knots.

5. JCOMM Data Management Programme Area (DMPA)

5.1 DMCG-2

5.1.1. The second session of the DMCG was held in Geneva, 10-12 October 2006.

5.1.2. The ET-MC was also requested to consider the possibility of developing, with the Expert Team on Wind Waves and Storm Surges (ET-WS) and other appropriate groups, a JCOMM extreme wave event archive. The Group recommended preparing a proposal in this regard for submission to IODE-XIX. Finally, the possibility of broadened connections to other marine (e.g. Numerical Weather Prediction (NWP)) and oceanographic Quality Control (QC) was noted.

5.1.3. The DMCG agreed that the management, formatting and QC of delayed-mode Voluntary Observing Ship (VOS) data have long formed important tasks of the ETMC. These form the other (non-Summaries) part of the MCSS, and remain crucial for climate applications including because of security issues developing with the Global Telecommunication System (GTS) reporting of VOS, plus other longstanding GTS code limitations.

5.1.4. DMCG-2 agreed that one important task would be to resolve the future of the MCSS Summaries. A related task is an examination, as requested by JCOMM-II, of how both oceanographic and ice climatologies could be coordinated with the marine meteorological data to be seen as an integrated product – this might naturally be tied into modernization of the MCSS Summaries. The International Maritime Meteorological Archive (IMMA) format, widely used for ICOADS, was suggested for wider review within ET-MC, possibly followed by formal JCOMM publication.

5.1.6 The DMCG agreed that maintaining the delayed-mode VOS data flow utilizing the International Maritime Meteorological Tape (IMMT) format was important, but also that management of the MCSS—including the two separate functions of VOS data handling and MCSS Summaries—needed to be modernized. As an initial step it recommended establishment of a new self funded Task Team on Delayed-Mode Voluntary Observing Ship data (TT-DMVOS), to focus exclusively on the first function. The Team would be tasked amongst other things to manage the Global Collecting Centres (GCCs), establish requirements for the IMMT format and the Minimum Quality Control Standards (MQCS), reconcile the IMMT and the International Maritime Meteorological Archive (IMMA) formats, revise relevant WMO technical publications as needed, and establish a web site to share relevant information.

5.1.7. The DMCG expressed appreciation to the NOAA Climate Database Modernization Program (CDMP) for the work done on the imaging and digitization of WMO Publication No. 47.

5.1.8. The DMCG recommended organizing a CLIMAR-III Conference tentatively in Poland, in 2008.

5.2. ETMC-2: the Expert Team on Marine Climatology held its second session in Geneva, Switzerland, from 26 to 27 March 2007.

5.2.1 The ETMC-II reviewed and agreed on the terms of reference and membership of the new TT-DMVOS. The Team agreed with the Membership that was proposed by DMCG-II and noted that the US/NOAA/NCDC Member had not been identified yet. The ETMC defined its working relationships with, the new task team, whose membership will now include selected members of ETMC and SOT. The Team agreed with the proposed reporting mechanisms i.e. (i) producing a project plan to guide operations for the next three years (the plan should explain the linkages to other components of the JCOMM, including the SOT and other pertinent programs), (ii) establishing an annual reporting mechanism to the ET-MC and the SOT, and (iii) reporting to the ET-MC and the SOT at their regular meetings. The Team agreed that the Chairpersons of the TT-DMVOS would produce the project plan by August 2007. The Team agreed on a few changes with regard to the Terms of Reference that will have to be submitted to the SOT and then the DMCG. New proposed TT-DMVOS TOR and Membership are provided in Appendix D.

5.2.2 The ETMC-II agreed that the following issues will have to be considered by the TT-DMVOS once established:

- Investigating the implementation of a Unique report identifier, possibly using BUFR, in order to compare the same observation coming from different data streams.
- The TT-DMVOS should discuss archived data at the GCCs: enhance the QC at GCCs, archive them, exchange between GCCs and provide them to the ICOADS.
- ICOADS role needs to be refined as providing an archive and climatological products.

5.2.3 The ETMC-II reviewed the International Maritime Meteorological Tape (IMMT) format and the Minimum Quality Control Standard (MQCS), including their implementation status (to be implemented generally for all data collected as from 1 January 2007), and discussed the need for further revisions or action, at this time, to be passed to the TT-DMVOS. The Team agreed with some changes for a version IV of the IMMT format (Appendix E). The Team noted that GHRSST requirements needed to be considered and included in the META-T Pilot Project categorization of instrumental metadata. META-T in turn was requested to provide input for possible changes to the IMMT format. However, the Team agreed that the IMMT format should also be reviewed in comparison with the new proposed IMMA format. The Team agreed that the SOT should be informed of the IMMT developments.

5.2.4 The ETMC-II proposed and agreed on changes for a version VI of the MQCS (Appendix E) and noted that changes should be linked to IMMT. The SOT should eventually propose the new MQCS-VI to JCOMM-III for adoption and inclusion in the Manual and the Guide to Marine Meteorological Services after concurrence.

5.2.5 The ETMC-II agreed that the Methods of calculation of dew point should be documented and that software should be made freely available with the goal of eventually achieving standardization for marine climatology. The Team agreed to approach CIMO in this regard. It recommended publishing a list of available software via the ETMC web site. It noted that a method was described in the WMO Publication 8 (Guide to observational practices and methods of observation) and that KNMI was using it. The Team recommended to conduct and inter-comparison study between the different electronic logbook and that a report should be produced (**action, SOT-IV**). If there are differences, this needs to be documented (who is using what, and what are the differences). The Team noted that if everybody was using the same formula, even if wrong, data could be recalculated; the Team agreed that this was more difficult in the contrary.

5.2.6 The ETMC-II noted that experimenting with required BUFR developments had already begun. For instance, TurboWin 4.0 is already capable of compiling BUFR messages. Nevertheless, guidance is needed from the SOT to indicate (i) whether BUFR is going to be assembled on board or at the local receiving NMSs before being inserted into the GTS, and (ii) if on board, which BUFR template should be used. The Team recommended that the SOT address these issues **(action, SOT)**.

5.2.7 The Team also agreed that inter-comparison surveys of electronic logbook should be conducted. It suggested the establishment by the SOT of a Task Team on electronic logbooks to include membership from the ETMC (**action, Secretariat, SOT**). It recommended the inclusion of Takashi Yoshida, Martin Rutherford, and Frits Koek in the TT Membership and invited Scott Woodruff to propose someone from AMVER-SEAS (**action, S. Woodruff**). The Team encouraged the groups and programmes above to provide feedback on the use and possible improvements of electronic logbooks to the developers. The Team recognized that training workshops could be a mechanism to obtain such feedback. ETMC agreed that the electronic logbooks should be made available in different versions of foreign languages (e.g. English, Spanish, Russian, French) and recommended the developers to include such requirements (**action, proposed SOT TT on e-logbooks**). The Team noted that some ship owners were reluctant to install e-logbook software and suggested that the proposed SOT TT on e-logbooks addresses the issue.

5.2.8 The Team noted with concern that ship masking had been noticed in collected delayed mode data and that the number of such data was increasing. The Team also noted that the high level WMO-IMO consultative meeting had not made any specific recommendation to mask delayed mode data and

recommended that the SOT take action in order to resolve this issue (**action, SOT**). The Team agreed on the following recommendations that should be conveyed to the SOT:

- ETMC is concerned about the increasing number of masked data that appear in e-logbook data
- The call sign should not be masked in the delayed mode data flow and in the e-logbooks
- A unique report identifier is required for all VOS including VOSClim
- Information about the issue, its solutions and technical implications should be made available via the ETMC web site, as appropriate

5.2.9 The ETMC-II was informed about the status of the planning, based on an offer by Poland to host the third CLIMAR (CLIMAR-III) workshop in May 2008. The Team agreed that the organizing Committee should be tasked to advise on possible meeting structure, content and planning, and include at least the following individuals: Scott Woodruff, Val Swail, Ed Harrison, Bob Keeley, Miroslaw Mietus, and Etienne Charpentier with potentially one or two additional Members. Proposed structure, content and planning of CLIMAR-III needs to be discussed. The ETMC agreed that sessions on wave and storm surges should be considered, and invited the SOT to discuss the possibility of having SOT Members attending CLIMAR-III (**action, SOT-4**).

5.2.10 See also the paragraphs under paragraph 6 below for information on the ETMC-II discussions regarding the establishment of an Extreme Wave database as well as Wind, Wave and Surge Climatologies.

6. JCOMM Services Programme Area (SPA)

6.1. The third meeting of the Services Coordination Group (SCG-3) was held in Exeter, 7-10 November 2006.

6.2. SCG-3 recalled that the SPA work plan arising from the Second Session of the JCOMM identifies a clear need to develop observational data requirements for applications and activities within the SPA. The Group agreed that it should prepare a document on *Observation Requirements for JCOMM Services*, including observational data requirements for Disaster Risk Management (DRM). In this context, the Group requested each SPA ET Chairperson to identify a clear set of observational data requirements to support marine meteorological and operational oceanographic products and services, including MSS and MAES, as soon as possible in order that time is available for the OPA to address the requirements during the current intersessional period.

6.3. SCG-3 noted with appreciation that a considerable focus of effort for the Services Programme Area during the next two years is planning the International Maritime Met-ocean Services Conference 2008 in Exeter, United Kingdom, from 5 to 9 October 2008, with the aim of establishing and agreeing on International Met-ocean Services requirements, identifying shortcomings of the present systems and reviewing long and short-term solutions. The Group also noted that the Management Committee endorsed this Conference and expressed its appreciation for SPA efforts to put together private and public maritime application industries, system and service providers, marine scientists and engineers to improve communication and mutual understanding. A concept paper providing background information, the aim, deliverables and scope of the Conference is provided in the Appendix B.

6.4 A proposal has been developed between the Expert Team on Wind Waves and Storm Surges (ETWS) and the ETMC for the establishment of a JCOMM Extreme Wave Database for use in model validation and validation of remotely sensed waves, where such models and algorithms suffer from lack of sufficient data. This database would be populated with measured wave data where the significant wave height exceeds 14 metres, with appropriate accompanying metadata. Mr Robert Keeley and Mr Scott Woodruff have run initial searches on selected archived wave databases and could identify a number of useful instances. The Ninth International Workshop on Wave Hindcasting and Forecasting, Victoria, Canada, 24 to 29 September 2006, expressed a strong interest in expanding the scope of the extreme wave data archive, to include satellite estimates as well as data from wave radars such as the WaMoS or MIROS. The rationale for the proposed database is to have a relatively small and manageable set of extreme storm sea states for comparison with wave forecast and hindcast products, model development and evaluation and satellite sensor calibration and validation. The database should

carry a WMO-IOC JCOMM label, and be referenced from various locations in the JCOMM web pages, including the Dynamic Part of the *Guide to Wave Analysis and Forecasting* presently under development. Development of this database should be undertaken jointly by the ETWS, ETMC and others, including possibly the IODE, SOT and DBCP.

6.5 At its Second Session, Geneva, 20-24 March 2007, the ETWS raised concerns about the need to associate adequate disclaimers with the planned database, since the extracted in situ data will necessarily be very sparse and incomplete. It was also suggested that altimeter data be included from the outset. The ETWS-II agreed to contribute to the establishment of this database, through the solicitation of additional contributions of in situ data (e.g., beyond the Canadian and US data that have been scanned in preliminary fashion), with the likelihood that some complications would also need to be sorted out on open redistribution and other national or organizational data policies; and with Dr Hendrik Tolman kindly agreeing to arrange for the provision of a selection of appropriate altimeter data, and Dr Jean Bidlot of a selection of GTS data from the ECMWF.

6.6 The ETMC-II agreed with the development of the database and recommendations by the ETWS-II and reviewed the draft proposal. The ETMC invited its Members to seek National contributions to the database once established (action, ETMC Members), and asked the Secretariat to draft a recommendation for JCOMM-III in this regard. The ETMC agreed that it should be responsible for the coordination of the developments and standardization for the database in terms of format, quality control, and delivery of the data while the database itself will be managed and implemented by Members/Member states.

6.7 ETWS-II also considered the need for Wind, Wave and Surge Climatologies and suggested continuation of ongoing work including in the areas of completing analyses of existing questionnaires, and updating inventories of climatological products. Products from the US Corps of Engineers in this area were emphasized as an important potential resource. The database will be relatively small but all the surrounding data will be needed and eventually collected. Data Policy/availability issues will have to be investigated. Specific contributions will be added in the database, e.g. satellite data, ECMWF in situ data, NOAA NDBC archive, MEDS, Canada. Work is needed to get additional contributions through ETWS but ETMC can help as well (e.g. E. Gowland checked UK Metoffice database). Role of the ETMC to manage and maintain the database. Ocean Weather Stations databases, buoy data need to be explored as well. Jason/Topeix/ERS1/ERS2/ENVISAT databases may also contain useful records and Space Agencies will have to be approached. Industry data (e.g. riggs & platforms) should be looked at as well (action, Val Swail). ETMC Members invited to check for additional records. Management and hosting of the database still needs to be investigated; possible solutions could be NCAR, MEDS. Work is required in terms of translation into IMMA (a new attm. might be needed for certain variavles, e.g. elevation); NDBC data can be initially included as a seed for the database. The Team invited M. Ruterford, E. Kent, S. Woodruff, V. Swail, B. Keeley, C. Donlon to coordinate the ingest of the data from the ETMC and ETWS and move forward on IMMA format issues.

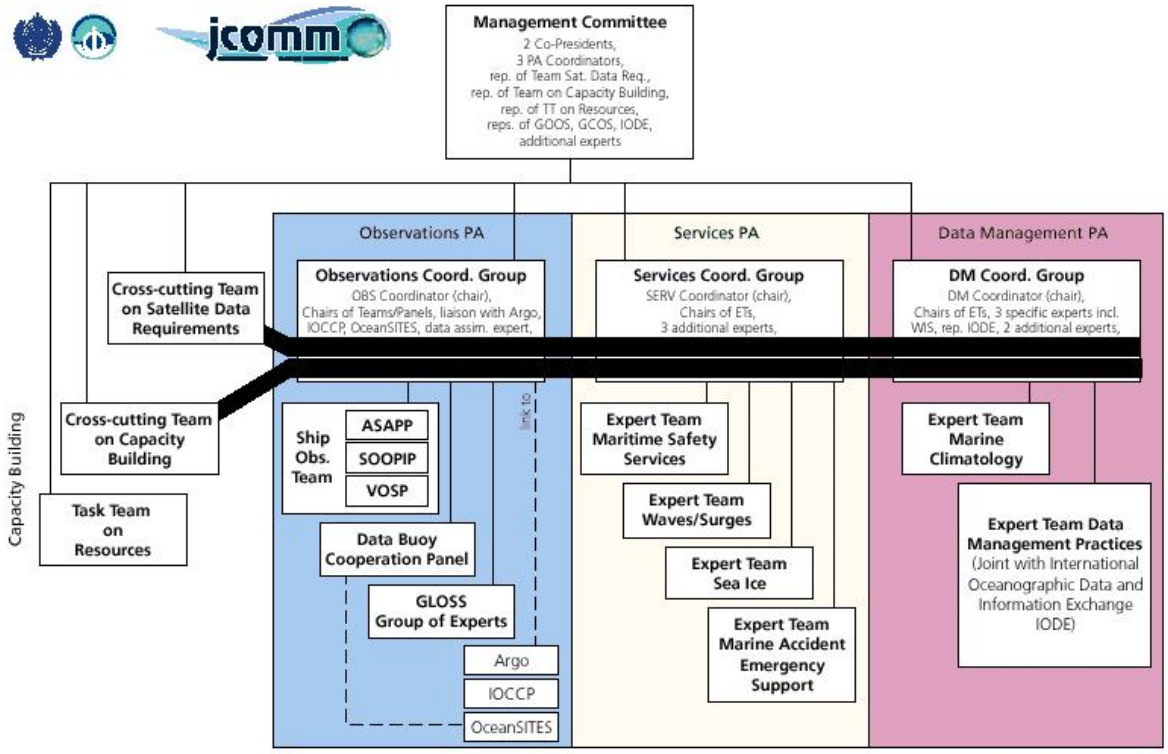
6.8 At its third meeting, Geneva, Switzerland, 28-31 March 2007, the ETSI agreed to build stronger cross-JCOMM links for ice activities and in particular with the DMPA and OPA with respect to ice information and interoperability (codes, data formats, WIS issues including satellite and in situ). Following further discussion that noted the need to explore how best to achieve this aim, the Team agreed to establish a cross cutting Rapporteur for Sea Ice Matters to consider the matter further and report back to ETSI. The ETSI nominated Mr Jonathan Shanklin as the Rapporteur for Sea Ice Matters. The Terms of Reference for the proposed Rapporteur are provided in Appendix F.

6.9 ETWS-II and ETSI-III also discussed the marine meteorological services monitoring programmes, with particular emphasis for future gathering of users' feedback. It was noted that, direct interaction with and feedback from users was an essential part of the provision of high quality and valuable marine services. Both Teams reviewed the new questionnaire, adapted for SOLAR and non-SOLAS vessels. ETWS-II had noted some deficiencies in the questionnaire and added information on wind waves and storm surges. ETSI-III similarly added information on sea ice and Icebergs and recommended a broad distribution of the questionnaire for obtaining such information from ships sailing in Polar Regions. It was proposed to present the new questionnaire to the SOT-IV for approval and following dissemination through appropriate channels. An on-line questionnaire will also be developed through the SCG web site. The proposed questionnaire is provided in Appendix G.

Appendices: 6

APPENDIX A

JCOMM Structure



APPENDIX B

INTERNATIONAL MARITIME MET-OCEAN SERVICES CONFERENCE 2008

(Concept paper)

Background

1. Enhancing all aspects of safety at sea is the primary objective of marine forecast and warning programmes. But there are a wide variety of other applications that have became increasingly important such as offshore resource exploration; military and defence operations; marine engineering; sub-sea communications; tsunami; storm surges and coastal defence; ship routing and navigation; operations in the marginal ice zone; pollution monitoring prevention and clean-up; sustainable management of commercial fishing activities; marine and coastal environmental management; and, most recently, seasonal and climate forecasting. All of these applications require marine meteorological and oceanographic observational data sets and prognostic products that are accurate, timely and supported by innovative and accessible services.

2. Today, the quality and breadth of data products expected by marine industries has expanded considerably and the challenge is to ensure that they provide value to the present and future generation of maritime applications. Operational met-ocean services rely on complex and expensive data collection and real time synthesis systems that must interact in real time across international boundaries. The IOC/WMO Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM) has been created to facilitate the development and application of globally distributed marine meteorological and oceanographic services and their supporting observational, data management and capacity building programmes.

3. A close dialog between those people pioneering the development of the next generation of maritime service infrastructures and those using their output in maritime applications is essential to ensure value for money and maximum impact across all maritime operational services. The IMMSC 2008 Conference provides a unique opportunity for international leaders (executive level decision makers) of the maritime Industry, governments, maritime service providers, marine scientists and engineers for maritime safety, marine accident and emergency systems, wind wave and storm surge systems and services in the Arctic and Antarctic to help shape the future of JCOMM activities that will assist the delivery of a new generation of systems for the maritime service sector.

IMMSC 2008 Aim

4. The aim of the International Maritime MetOcean Services Conference 2008 (IMMSC 2008) is to:

- Establish and agree on international MetOcean services requirements, identifying shortcomings of present systems and reviewing long and short-term solutions.

5. The objectives of the IMMSC 2008 are:

- To understand present and future MetOcean needs of the international maritime industry;
- To build on scientific and technical excellence to respond and better meet these needs;
- To integrate international regional/global efforts with that of others to increase efficiency and capability and minimize duplication of effort;
- To ensure JCOMM acts as a flexible, streamlined organization capable of coordinating international maritime services;
- Enhance coordination of worldwide marine meteorological and oceanographic services and their supporting observational, data management and capacity building programmes;
- Influence the development of best practices.

6. IMMSC 2008 will provide a forum and close dialog between leaders working with marine meteorological and oceanographic (MetOcean) products and services including private and public maritime application industries, system and service providers, marine scientists and engineers to improve communication and mutual understanding.

IMMSC2008 Deliverables

7. The primary output from the conference will be:

- Clear requirements on information providers and user applications ensuring targeted development of the most appropriate and useful MetOCean products and services;
- IMMSC 2008 marine meteorological and oceanographic key products and services assessment report (hard copy and dynamic web components);
- IMMSC 2008 marine meteorological and oceanographic products and services user community directory of MetOcean requirements (hard copy and dynamic web components);
- IMMSC 2008 marine meteorological and oceanographic products and services user community handbook (MarServR, hard copy and dynamic web components). The MarServR will provide a practical and easy-to-use reference of international maritime MetOcean data products and services that will be updated on a four-year cycle.

IMMSC 2008 Scope

8. The IMMSC Scope:

(a) The Conference is planned for a one-week period (Monday-Friday) in October 2008;

(b) A limited number of trade stands will be available in the MetOffice street area;

(c) Poster presentation areas, plenary presentation and limited parallel sessions/breakout groups;

(d) Places are limited to 200 people with a preferred 50:50 mix of world leading scientist/engineers and application specialists;

(e) The proposed Conference will work with/benefit from other conferences, particularly industrial conferences, GODAE, MERSEA, BLUElink> and other major operational ocean projects.

Appendix C

WMO-IMO Consultative Meeting, Switzerland, Geneva, 12-13 February 2007

1) Recommendations or agreed principles

- It is difficult to establish the link between the availability of VOS observations on public websites and piracy. However, the perception that the link still exists in the shipping industry and such security concerns have to be addressed. There are also concerns of commercial considerations amongst the shipping companies.
- Ship's identification and location should not appear on public web sites in real time when the ship owners and masters do not authorize this.
- Any proposed scheme to address ship owners and masters concerns should be compliant with the Resolution 40 (Cg-XII) and there is no need to recommend any changes in the terms of the Resolution nor to reclassify VOS data.
- It is preferable for the longer term to adopt a universally accepted global and standardized solution using an agreed international system of masked call signs (yet to be developed).
- The following approach is acceptable: (i.) making the data openly available according to WMO Resolution 40 (Cg-XII), and (ii.) selectively masking the ship's identification when requested to do so by the ship owners and masters. Only users who sign an agreement are authorized to receive the non-masked reports.
- Protecting the partnership of the WMO Members in the private sector, consistent with principles stated in WMO Resolution 40 (Cg-XII) is a matter of concern.
- The meteorological report, including date, time, position and the measured geo-physical variables from VOS reports is essential for time critical meteorological applications as far as the relevant shipping companies allow for the exchange of VOS reports with no conditions on use according to WMO Resolution 40 (Cg-XII). Other variables such as some unique ship identification, and the name of the country recruiting the ship could be considered as critical to various applications although it was considered that the SOT should address this. The ship's call sign was not considered as essential in the context of WMO Resolution 40 (Cg-XII) provided that the above variables are made available.
- A unique identification number is required for data assimilation (bias correction, automatic removal of suspect observations), quality monitoring, quality information feedback to Port Meteorological Officers (PMOs), and climate studies. The ship's call sign does not necessarily have to be considered as an essential data provided that any proposed scheme permits to meet the requirements expressed in Annex I of WMO Resolution 40 (Cg XII).
- In case a unique identification numbering scheme was adopted, some restriction could eventually be applied to the WMO Publication No. 47 in order to avoid cross-reference between a unique number and the ship's recruiting country.
- Identification of the country of recruitment in any unique identification scheme may not be necessary.
- Simple and generic design standards could potentially facilitate the recruitment of ships in the VOS fleet and the installation and siting of meteorological instruments. The active support and assistance of shipowners and of the classification societies was required. Reservations by INTERCAGO, INTERTANKO, and ICS were noted. Serious consideration must be made regarding new ship design requirements for the making of weather observations. The shipowners eventually decide on what building standards they will use.

2) Actions resulting from the meeting

Action	By	Deadline	Ref.
To investigate whether it would be feasible to routinely make the database of IMO numbers available to the WMO community and under what conditions	IMO	mid-2007	4.6
To cooperate with MSC sub-committee for investigating the use of LRIT to transmit weather observations	SOT, IMO	2008	4.5
To invite ICS, IMO, CBS, and CCI at the SOT-IV meeting	WMO	03/2007	5.6, 7.7
To improve timeliness of the original data and to directly discuss with the UK MetOffice how the technical procedures could be adjusted in order to minimize the impact.	JMA, MetOffice	04/2007	5.5
to investigate whether the private sector users of these data could help in reducing the cost or impact of a solution.	USA	mid-2007	5.8
To consider removing the country name from unique identification schemes	SOT	SOT-IV	5.7
To promote the added value of VOS observations in support of marine meteorology and climatology and maritime safety with the shipping industry	SOT	SOT-IV	7.2
To complete the proposed applications/concerns vs. security levels table in such a way to reflect as many possible concerns in the table	Pierre Blouch	EC-LIX	7.6
To undertake a review of the implementation impact of masking	SOT	2008	7.7
To consult nationally in order to present a coherent and more focused proposals at SOT-IV, that could be reviewed by the SOT and possibly endorsed	Australia, France, Japan, UK, USA	SOT-IV	7.7
To establish an ad hoc task team on call sign masking schemes	SOT	ASAP	7.8
To explore long term solutions	SOT	SOT-IV	7.9, 7.10
To prepare a report to EC-LIX proposing to maintain Resolution 7 (EC LVIII) in force and to continue the trials for another year, on the basis of the recommendations from the SOT regarding a unified approach to call sign masking.	SOT USA WMO	30/04/2007	7.11
To liaise with USA and Japan in order to inform the WMO Members in advance about the implementation of their respective trial schemes	WMO	ASAP	5.9
To draft new version of MSC 1017 and then submit it to MSC-89 for approval	SOT WMO & IMO	SOT-IV MSC-89	8.2.2
To consider proposing a Resolution to the IMO on Metocean services similar to A.706(17) for navigational warnings. To present the first proposal to the appropriate IMO Sub-committee(s) for endorsement	WMO & IMO	mid-2007 IMO sub-comm. IMO Assembly	8.4
To focus WMO and IMO common activities in specific topics to be considered as Pilot Projects (e.g., GMDSS website).	WMO & IMO	mid-2007	8.6
To encourage the use of AWS	SOT	SOT-IV	9.1
To draft a document on ship design. ICS then to investigate impacts.	SOT ICS IACS	mid/late 2007	9.5 9.8
To prepare a promotional DVD	SOT WMO	mid/late 2007	9.9

APPENDIX D

PROPOSED NEW TERMS OF REFERENCE (TOR) OF THE JCOMM DMPA TASK TEAM ON DELAYED-MODE VOLUNTARY OBSERVING SHIP DATA (TT-DMVOS)

(Revised version proposed by ETMC-II)

Background: The Marine Climatological Summaries Scheme (MCSS), established in 1963 (Resolution 35, Cg-IV), has as its primary objective the international exchange, quality control and archival of delayed-mode marine climatological data, in support of global climate studies and the provision of a range of marine climatological services. Eight countries (Germany, Hong Kong, China, India, Japan, Netherlands, Russian Federation; United Kingdom and USA) were designated as Responsible Members (RMs) to gather and process the data, including also data from other Contributing Members (CMs) worldwide; and to regularly publish Marine Climatological Summaries (MCS) for representative areas, in chart and/or tabular forms. Two Global Data Collecting Centres (GCCs) were established in 1993 in Germany and the United Kingdom to facilitate and enhance the flow and quality control of the data. Eventually all data are to be archived in the appropriate archives, including ICOADS.

Scope: In practice, the delayed-mode marine climatological data, handled under the MCSS, and published in the MCS, have generally been limited to Voluntary Observing Ship (VOS) data (i.e., excluding buoy or other non-ship data), in accordance with the original intent of the MCSS. The Task Team will focus primarily on modernizing the management and quality control of the delayed-mode VOS data, while at the same time exploring possible connections with the management of real-time VOS and other ship-based data (e.g., Shipboard Automated Meteorological and Oceanographic System (SAMOS) and GOSUD). So as to develop a clearer separation between data processing, and the preparation of climatological summaries, the team's scope will be limited to data management. Because the RMs and the GCCs have primary involvement in the data processing, they will be invited to contribute to the work. The review and modernization of the MCS is clearly also an important task, which will be considered separately by the ET-MC, and to which the RMs will also be invited to contribute. In addition, as part of the collective modernization of the data management and the MCS, it is anticipated, in due course, that the "MCSS" terminology will be replaced by a new and more up-to-date terminology reflecting a separation between the two functions.

The self-funded Task Team will primarily work via email and shall:

i. Examine current delayed-mode VOS data management practices, including those of the GCCs, and streamline them as possible to reduce redundancies (if any), standardize operations, and exploit appropriate modern technologies;
ii. Examine possibilities for commonality of the data management of the delayed-mode data, with real-time VOS data;
iii. Keep under review the International Maritime Meteorological Tape (IMMT) format, and suggest changes if necessary;
iv. Keep under review the Minimum Quality Control Standards (MQCS), and suggest changes if necessary;
v. Submit proposals to the JCOMM via the ET-MC for revising technical publications, in particular the WMO *Manual* (No. 558) and *Guide* (No. 471) *on Marine Meteorological Services*, to incorporate possible changes in the IMMT and the MQCS, and to reinvent the MCSS terminology;
vi. Review the International Maritime Meteorological Archive (IMMA) format, and suggest ways to reconcile the IMMT and IMMA formats;
vii. Establish and maintain a website to share relevant information;
viii. Collaborate and liaise with other groups (e.g., SAMOS and GOSUD), as needed, both to ensure access to expertise and appropriate coordination.

Tentative Membership (from ET-MC; including both GCCs as Co-chairs, and all RMs presently represented on the ET-MC) include: Elanor Gowland (Co-chairperson), Elizabeth C. Kent, Frits B. Koek, Alexander Vorontsov, Wing-tak Wong, Takashi Yoshida, Scott D. Woodruff, and Reinhard Zöllner (Co-chairperson).

Proposed additional members (not on the ET-MC) include: A representative from US/NOAA/NCDC, Graeme Ball (Chairperson of the OPA/SOT) and Julie Fletcher (Chairperson of the OPA/SOT/VOS Panel).

Reporting mechanisms*:*

a. The Team will produce a project plan to guide operations for the next three years. The plan should explain the linkages to other components of the JCOMM, including the SOT and other pertinent programs.
b. The Team will establish an annual reporting mechanism to the ET-MC and the SOT.
c. The Team will report to the ET-MC and the SOT at their regular meetings.

APPENDIX E

CHANGES PROPOSED BY THE ETMC-II FOR IMMT FORMAT AND MQCS

ETMC-II proposed the following changes for a version IV of the IMMT format:

- The case of the code for element 13, true wind direction, has been corrected to lower case.
- The coding procedure for element 40, source of observation, has been refined so "4" specifically refers to using an internationally agreed electronic logbook software (TurboWin, SEAS, Obs (JMA)).
- The version of the IMMT code (element 65) has been updated to introduce IMMT-4 in line with the above changes.
- The version of the MQCS (element 86) has also been updated to introduce MQCS-VI (see next section for details).
- There have been some changes to the VOSClim element numbers. This was done to separate the sign from the value of the departure of the reference level from actual sea level (element 91 onwards).
- Due to the changes to the numbers of the VOSClim elements, the flags needed to be brought into line as well. No other sign is given a flag, so the flag on the sign of the departure of reference level from sea has been removed accordingly. This causes a blank at character 156 to remove the need to re-write any IMMT processing software too dramatically. The result is the same number of characters and elements as for IMMT-3.
- Fractional hour
- Wind speed to have better resolution
- Unique identifier
- Dew point recommendations
- Depth of SST
- Element 30 indicator for SST measurement, e.g. add infrared, micro-wave, or indicate the wavelength. But the ETMC considered that this might be considered in the Pub47. For radiation thermometer, it is the height that needs to be considered.
- Elements 7 and 8 (lat/lon): increase resolution
- Element 41; add identification for VOSClim ship

ETMC-II proposed the following changes for a version VI of the MQCS

1. Check for validity of character for element 9 (indicator for cloud height and visibility) added.
2. Check for validity of character for element 64 (version of FM-13 code) added.
3. Check for validity of character for element 65 (version for IMMT format) added.
4. The version of the MQCS (element 86) has also been updated to introduce MQCS-VI.
5. The limit of the maximum height in meters of deck cargo above summer maximum load line (element 90) has been increased to 35 metres to allow for the larger cargo vessels being built.
6. The flags set by checks on element 91 have been updated to reflect the separation of sign and value of the departure of the reference level from actual sea level, and subsequent re-numbering of elements within VOSClim and their flags.

APPENDIX F

TERMS OF REFERENCE FOR THE CROSS-CUTTING RAPPORTEUR ON SEA ICE MATTERS

Recognizing the importance of cross-cutting issues related to maritime safety, sea ice climatology, sea ice observations and sea ice data management in general, the cross-cutting Rapporteur on Sea Ice Matters shall liaise with the JCOMM and CBS appropriate panels in order to:

1. Act as focal point for ETSI within the JCOMM structure, in particular the OPA, DMPA and SPA;

2. Harmonize different ice charting and observations coding tables and coding standards, e.g. SIGRID-3, IMMA, BUFR and Aspect, in collaboration with the DMPA TT on table-driven codes;

3. Investigate the interoperability of sea ice information systems, in particular ice charts, with the WMO Information System (WIS) and/or other ocean related data systems being developed;

4. Report back to ETSI and SPA

APPENDIX G

NEW PROPOSAL FOR THE MMMS QUESTIONNAIRE

APP/O/MMS-Q2

MARINE METEOROLOGICAL SERVICES MONITORING PROGRAMME QUESTIONNAIRE

To Masters, Deck Officers, Skippers, Sailors, icebreaking services and other marine users

In order to monitor the effectiveness of the weather and sea bulletins produced and transmitted by Meteorological Services, the World Meteorological Organization would appreciate your cooperation in completing the following questionnaire. The objective of this programme is to improve the level of meteorological support to all marine user communities.

Ship's Name & Call Sign	
Type of ship (SOLAS or non-SOLAS)	
or other marine user activity (specify)	
Activities (merchant, ferry, cruising, fishing, recreational, icebreaking)	
Country of registry	
Name of master	
Operational area(s)	
Voyage from	to
Date, time, position when the questionnaire completed	

Please complete the following questionnaire by placing a tick mark under the appropriate column heading and providing additional information or comments as appropriate.

		Good	Average	Poor	Issuing Met Service	Station
1	**Reception of GMDSS info. Please rate the quality of reception:** (should be filled at least by SOLAS vessels)					
A	via INMARSAT SafetyNET					
B	via Navtex (518 kHz)					
2	**Reception of other Safety info.** (This section should be filled at least by non-SOLAS vessels)					
A	via Navtex (490 or 4209.5 kHz)					
B	via HF Radio					
C	via VHF Radio					
D	via visual signals					
E	via e-mail					
F	via web interface					
3	**Storm and Gale warnings. Please rate the following:**					

A	Comprehension of warnings					
B	Accuracy of warnings					
C	Terminology used					
D	Usefulness (anticipation, parameters, thresholds…) **Please comment in Section 9**					

4	**Sea Ice and Icebergs Information (to be for mariners in areas with floating ice). Please rate the following:**					
A	Clarity of information					
B	Accuracy of information					
C	Timeliness					
D	Terminology used					

5	**Wave and Storm Surge Information. Please rate the following:**					
A	Clarity of information					
B	Accuracy of information					
C	Timeliness					
D	Terminology used					

6	**Weather and Sea bulletins. Please rate the following:**					
A	Comprehension of bulletins					
		Good	**Average**	**Poor**	**Issuing Met Service**	**LES/Navtex Station**
B	Accuracy of bulletins					
C	Are bulletins on time?					
D	Terminology used in bulletins?					
E	Usefulness (parameters,…) *Please comment in Section 9*					

7	**Graphic broadcasts (e.g. Facsimile). Please rate the following:**					
A	Are charts received on time?					
B	Accuracy of information on charts				If Yes, please comment in Section 9 on how the service could be improved.	
C	Comprehension of symbols					
D	Quality of reception					
E	Is this a useful service?	**Yes** ☐ **No** ☐				

8 **Please visit (http://weather.gmdss.org). Comment in Section 9 on the quality of the GMDSS website.**

9 **Land Earth Stations (LES) Inmarsat** (This section should be filled only by Voluntary Observing Ships)

A	Rate your success in contacting a LES to send your weather observation messages (OBs)				LES: _____
B	Do you experience delays in sending your OBs?	**Yes** ☐ **No** ☐			
C	Do any LES refuse to accept your OBs?	**Yes** ☐	LES if Yes: _____		

10 Other related problems (if any) – include ship's position, date and time.

11 Suggested improvements

_____
Master's signature

Use additional sheets if necessary.

For each case, complete one questionnaire

After completion, please return to the following address:

Ocean Affairs Division
Applications Programme Department
World Meteorological Organization
7 bis, avenue de la Paix
Case postale No.2300
CH-1211 Geneva 2
Switzerland
Telefax: +41 22 730 8128
E-mail: oca@wmo.int