SERVICES PROGRAMME AREA COORDINATION GROUP THIRD SESSION

Exeter, United Kingdom, 7-10 November 2006

FINAL REPORT

JCOMM Meeting Report No. 44

WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

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N O T E

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C O N T E N T S

GENERAL SUMMARY OF THE WORK OF THE SESSION

1. OPENING OF THE SESSION

1.1 Opening

1.1.1 The Third Session of the Services Programme Area Coordination Group (SCG) of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) was opened at 0930 hours on Tuesday, 7 November 2006, in Conference Room 2 at the Met Office in Exeter, United Kingdom, by the Chairperson of the Group and Services Programme Area Coordinator, Dr Craig Donlon. Dr Donlon welcomed participants to the session. Dr Donlon recalled that the present session of the SCG is the first formal meeting since the second session of JCOMM (JCOMM-II, Halifax, Canada, September 2005) and it provides an important opportunity to maintain momentum and allow the SCG to review the overall programme area. He also recalled that JCOMM-II devised a very ambitious work plan for the SCG that dealt with a number of cross-programme issues and directions to focus of the work of the PAs. Dr Donlon stressed the importance of the contributions of each and every participant for the success of the meeting, and to ensure future success of the Services Programme Area (SPA), which will be reported at the Third Session of JCOMM (JCOMM-III), planned for October 2009 in Morocco. Dr Donlon then introduced the UK Met Office Government Business Director, Dr Dave Griggs to formerly welcome and open the meeting.

1.1.2 On behalf of Professor John Mitchell, Permanent Representative of the United Kingdom of Great Britain and Northern Ireland with WMO, Dr Griggs welcomed the participants to the session, to the UK Met Office and to Exeter. Dr Griggs expressed that the UK Met Office is very pleased to host the Third Session of the Services Programme Area Coordination Group (SCG-III). Dr Griggs also expressed his appreciation to the Secretariat for its support on preparation of documents for the session and the travel arrangements of the participants. Dr Griggs recalled that the SPA has a very large work programme towards JCOMM-III. In particular, in developing proper quality control and standards covering all range of marine services, especially on new areas, such as Search and Rescue (SAR) and oil spills. He pointed out that the SCG plays a critical role on ocean international community making the things happening (e.g., in support of disaster risk management, capacity building and the international polar year).

1.1.3 Dr Griggs concluded by thanking the Group for its contribution to the WMO Members/IOC Member States. He also acknowledged the challenges facing such topics as: improving weather and ocean forecasting models, climate change detection, and disaster risk management and 'Joining-Up' the user community. Dr Griggs concluded by wishing everyone a successful meeting and an enjoyable stay in Exeter.

1.1.4 The WMO Secretariat representative, Mr Edgard Cabrera, on behalf of Mr Michel Jarraud, Secretary-General of the WMO and Dr Patricio Bernal, Executive Secretary of the IOC, also welcomed participants to the Third Session of the SCG. In doing so, Mr Cabrera expressed sincere appreciation to the UK Met Office and its Permanent Representative with WMO, Professor John Mitchell, and especially to the local organizer, Dr Craig Donlon and his staff, for the excellent facilities provided, as well as for the tremendous organizational preparations and efforts put forth for the meeting. Mr Cabrera concluded by ensuring participants of the full support of the Secretariat, both during the meeting and throughout the implementation of the work programme of the Group, and by wishing all participants a very successful meeting and an enjoyable stay in Exeter.

1.1.5 The list of participants in the session is provided in Annex I of this document.

1.2 Adoption of the agenda

1.2.1 The Group adopted its agenda for the session based on the provisional agenda prepared by the Secretariat. This agenda is provided in Annex II.

1.3 Working arrangements

1.3.1 The Group agreed upon its hours of work and other practical session arrangements. The documentation was introduced by the Secretariats, and participants made short introductions of themselves to facilitate future interactions.

2. Reports

2.1 Report of the SPA Coordinator

2.1.1 The Group noted with interest and appreciation, the report of the Services Programme Area Coordinator, Dr Craig Donlon. This report covered a newly proposed SPA structure, SPA support to the Disaster Prevention and Mitigation Programme, Capacity Building and outreach for SPA, as well as an SPA Work Plan for the current intersessional period. The Group recalled the role of the SPA within JCOMM, and agreed that a key challenge for the Programme is the integration of science and standards into operational services supporting maritime safety, emergency response, disaster risk reduction and maritime hazards with full users' support and interaction. The report emphasized the need for all ET Chairpersons to be actively engaged in a demanding inter-sessional work-plan. In addition, Dr. Donlon noted that the JCOMM was due for an external review prior to JCOMM-III, and it was particularly important that the SCG agree on a viable work-plan that must be achieved prior to review. In this regard, funding of the JCOMM activities has the maximum chance of renewal and augmentation.

2.1.2 The Group noted that the SPA Coordinator proposed, during the Fifth Session of the Management Committee (MAN-V, Geneva, Switzerland, October 2006), a new structure for the SPA for the remainder of this intersessional period, focusing all current Expert Teams (ETs) on a common theme of Maritime Met-ocean Support and Safety Services, in order to help the SPA ETs work more efficiently together. In addition, following the recommendation of the MAN-V, Dr Adrian Hines (Met Office, United Kingdom) was appointed as the Operational Ocean Forecasting Systems (OFS) Rapporteur to unify an SPA strategy for ocean products development and maximize operational ocean forecast system outputs, with the Terms of Reference (ToR) given in the Annex III **(Action: Secretariat and Co-presidents for endorsement)**.

2.1.3 Concerning the Task Team on Ocean Products Development (TT-OPD), Dr Donlon stressed that the work of the team is extensive, and it has been difficult to find suitable membership. The purpose of this team is the development of standard documents, such as Service User Requirement documents, Observation Requirements for Services, *Catalogue of Operational Ocean Products and Services, Standard Data and Metadata Formats for Ocean Products*, and *Guide to Ocean Product Presentation, Symbology and Nomenclature*. Noting the importance of these standards/reference documents to enhance Cross-Program Areas (OPA and DMPA) and internal SPA coordination and communication, the Group noted that MAN-V agreed that this work would be more effectively carried out by the SPA Coordinator, ET Chairpersons, OFS Rapporteur and the Secretariat, as a Core Team, and in close collaboration with OPA and the DMPA Coordinators and users. In this regard, the Group agreed to prepare a first version of a *Guide to Ocean Products Formats, Symbology and Nomenclature* for the Forth Session of the SCG (SCG-IV), to be finalized at the Third Session of JCOMM (JCOMM-III) **(Action: Secretariat (leader), SPA Coordinator, ET Chairpersons and OFS Rapporteur**).

2.1.4 The Group noted the SPA work plan for the current intersessional period, founded on Top Level Objectives (TLOs) that provides the overall guidance to the ETs. The SPA Work Plan TLOs are as follow:

- TLO-1: To provide support to maritime safety, hazard warning and disaster risk management systems;

- TLO-2: To develop, maintain and implement met-ocean products and services standards;
- TLO-3: To implement a User Focused Programme;
- TLO-4: To work effectively with Members/Member States;
- TLO-5: To pull-through scientific and technical expertise to operational systems;
- TLO-6: To develop and maintain communications and 'Joining-Up' the SPA; and
- TLO-7: To build appropriate capacity within JCOMM.

2.1.5 The Group noted that the report of the SPA Coordinator encompasses priority issues and activities for the remainder of the intersessional period. Specifically, the report covered: User Requirement Document; Cross-ETs and Cross-JCOMM issues; International Met-ocean Maritime Services Conference 2008; Observations requirements; communications, outreach and strategic development; upcoming major events; priorities for the current intersessional period; and a Capacity Building strategy for the SPA. In the report, Dr Donlon placed particular stress on those issues which would require the attention of the Group during the meeting, and also underlined the importance of contributions of all Group members, both to the debates during the meeting, and also to the implementation of the work plan during the remainder of the intersessional period. These substantive issues raised in the reports are addressed in detail under the appropriate agenda items.

2.2 Report of the Joint Secretariats

2.2.1 The Group noted with appreciation the various actions taken by the Joint Secretariat in support of the Commission, and in particular, the Services Programme Area since JCOMM-II. The Group also noted the main outcomes of the Fifth Session of the JCOMM Management Committee (MAN-V, Geneva, Switzerland, October 2006), and reviewed the actions raised from this meeting, assigned to the SPA (provided in Annex IV).

3. Reports of the Expert Team Chairpersons

3.1 Maritime Safety Services (ETMSS)

3.1.1 The Chairperson of the Expert Team on Maritime Safety Services (ETMSS), Mr Henri Savina, presented an overview of the work achieved since the First Session of the Team in September 2002. Mr Savina recalled the Terms of Reference (ToR) of the Team. In particular, he pointed out that the Team has to monitor and review: (i) operations, (ii) users' feedback, and (iii) technical and service quality standards for Met-ocean Maritime Safety Information (MSI), not only for the Global Maritime Distress and Safety System (GMDSS) but also, following the recommendation raised from JCOMM-II, for the other systems put in place for non-SOLAS vessels, especially in coastal waters.

3.1.2 Mr Savina suggested membership of a core team, based on the list of national contact points for the WMO GMDSS Marine broadcast system (i.e., representatives of Issuing Services) should be considered in order to make the identification and management of tasks easier, and to handle and enhance the necessary role of coordination of all Issuing Services. The Group recommended to prepare a proposal for a core team membership to be discussed during the Second Session of the ETMSS, and further to be endorsed by JCOMM in its Third Session **(Action: ETMSS Chairperson, SPA Coordinator and Secretariat)**.

3.1.3 Mr Savina also proposed the frequency of ETMSS meetings should be convened every two years. Noting that analogous groups on the International Maritime Organization (IMO) and International Hydrographical Organization (IHO) meet every year, the Group urged the Secretariat

to evaluate the possibility yearly meeting of the ETMSS; and, in this regard, advised the ETMSS Chairperson and the Secretariat to define specific agendas that may help in securing additional funding for participants **(Action: ETMSS Chairperson and Secretariat)**. In order to maintain the strong relationship between the ETMSS and the IHO Committee for Promulgation of Radio Navigational Warnings (CPRNW), that coordinates the provision of navigational warnings, Mr Savina proposed the participation of the ETMSS Chairperson on CPRNW meetings and the CPRNW Chairperson on the ETMSS meetings. The Group endorsed this request and urged the Secretariat to try to ensure proper participation on these meetings **(Action: Secretariat)**.

3.1.4 According to recommendations and work plan raised from JCOMM-II, including potential contributions to marine-related hazards warning systems, the main actions of the Team for the remainder of the intersessional period are as follows:

(i) Project for the provision of graphical Maritime Safety Information (MSI) within the GMDSS. In this regard, the Group recommended a preparation of a draft work plan to be submitted to the ETMSS-II, taking into account the existing expertise of the Expert Team on Sea Ice on ECDIS **(Action: SPA Coordinator, ETMSS and ETSI Chairpersons, OFS Rapporteur and Secretariat)**. The Group recommended the ETMSS to identify a contact point on the provision of graphical products using ECDIS, with companies in Norway, Canada and Russia, and explore its potential application within GMDSS and SafetyNET **(Action: ETMSS and ETSI Chairpersons, SPA Coordinator and Secretariat)**. The Group urged the Secretariat to make a formal request to the IHO to: (a.) approve additional met-ocean parameters within ECDIS, and (b.) use ECDIS within SafetyNET **(Action: Secretariat and ETMSS and ETSI Chairpersons)**. The Group also urged the Secretariat to identify an expert to start working, in close collaboration with the ETMSS Chairperson and under the supervision of the WMO Secretariat, exclusively on this project by early 2007 **(Action: ETMSS Chairperson and Secretariat)**.

(ii) Provision of Maritime Safety Information in polar areas. The Group agreed that the contribution of the definition of Arctic Metareas and the identification of potential Issuing Services as well as the update of JCOMM guidance and regulation documentation on the provision of sea ice information should be prepared in close collaboration with the ETSI.

(iii) Coordination for the provision of MSI related to tsunamis. This issue is further discussed under the Agenda Item 6.2.

(iv) Evolution of the GMDSS website. The Group recommended developing appropriate promotion of the GMDSS website through the IHO and IMO, especially with the IHO in order to use the common URL *gmdss.org* for the provision of both meteorological and navigational warnings. This item is outstanding since the last SCG meeting. In this regard, the Group urged the ETMSS Chairperson and the Secretariat to prepare an information document regarding this issue, to be presented during the IMO Maritime Safety Committee (MSC) 82 meeting in Istanbul, Turkey, from 29 November to 8 December 2006 **(Action: ETMSS Chairperson and Secretariat)**. The Group noted that additional products and links are planned to be added to the GMDSS website, such as NAVTEX products and links with WMO-No. 9, Volume D, Users' Feedback.

(v) Review of the guidelines and abbreviations for NAVTEX products.

(vi) Improvement of the MSI related to the provision of sea state information (e.g., rogue waves, complex and dangerous seas), in cooperation with the ETWS.

(vii) Coordination (e.g., spreading of mechanisms existing in the Baltic Sea, harmonization of units and scales, etc.). Regarding the harmonization of units and scales (e.g., vary

wind scales in different regions), the Group recommended to establish a liaison with the WMO TCP to find an appropriate solution **(Action: ETMSS Chairperson and Secretariat)**.

(viii) Monitor users' feedback and quality control.

3.1.5 The Group supported the work plan proposed by the ETMSS Chairperson, and noted with appreciation that most of the above-mentioned items would be discussed during the forthcoming ETMSS-II meeting (Angra dos Reis, Brazil, from 24 to 27 January 2007), and that some of them should be able to provide visible deliverables before JCOMM-III. During the discussion, the Group requested the participation of the Team in a variety of other activities (such as, the development of the Cross-JCOMM Pilot Project on Extreme Water Levels (JEWL) and the development of one or more capacity building modules for OceanTeacher and/or Bilko lessons on MSI (e.g., case study of a storm) and contribute to the October 2008 IMMSC Conference). These issues are addressed in detail under the appropriate agenda items.

3.2 Marine Accident Emergency Support (ETMAES)

3.2.1 The Group noted the report of the Chairperson of the Expert Team on Marine Accident Emergency Support (ETMAES), Mr Pierre Daniel. The Group recalled that ETMAES was established at the JCOMM-II and plays an important role:

(i) In support of the Marine Pollution Emergency Response Support System (MPERSS) by: (a.) monitoring implementation and operations of the MPERSS, and (b.) ensuring coordination and cooperation amongst Area Meteorological and Oceanographic Coordinators (AMOCs) of MPERSS; and

(ii) In support of maritime Search and Rescue (SAR) operations, and in particular for the GMDSS by: (a.) monitoring requirements for meteorological and oceanographic data, information, products and services to support SAR operations worldwide, and (b.) ensuring coordination and cooperation amongst relevant agencies in the provision of meteorological and oceanographic information and support to maritime SAR operations.

3.2.2 The Group was informed that the First Session of the ETMAES will take place in Angra dos Reis, Brazil, from 29 to 31 January 2007. Recognizing that the ETMAES is a new team under JCOMM, the Group thoroughly agreed that the ETMAES has an area of great potential to explore and to the benefit of the Maritime Community; and recommended ETMAES Chairperson and the Secretariat to identify and ensure an appropriate participation at the meeting (in particular, experts on Harmful Algal Blooms (HABs), Search and Rescue (SAR), operational forecast systems, ocean modelling, observations, disasters operations, etc.). In order to develop the work of the ET, the SCG requested the chairperson to prepare a proposal for a core team membership (based on the list of representatives of AMOCs) to be discussed during the First Session of the ETMAES and endorsed by JCOMM in its Third Session **(Action: ETMAES Chairperson, SPA Coordinator and Secretariat)**. This will help the development and work of the Team (rather than rely almost solely on the ET Chairperson) to be executed more effectively by assigning responsibility to certain actions. The Group also recommended to establish contact with the IOC Harmful Algal Blooms Group to strengthen collaboration **(Action: ETMAES Chairperson and Secretariat)**.

3.2.3 According to recommendations raised from JCOMM-II, Mr Daniel informed the SCG of the main priorities for ETMAES during the intersessional period. These included guidance materials to be made available through the MAES-MPERSS website at: http://www.maes-mperss.org. The Group noted that this has been implemented since 2004, based on answers to the questionnaire sent to AMOCs, and was designed to provide useful information (including technical and scientific issues), related to the implementation of MPERSS. The Group recommended that this website should be much more dynamic, significantly enriched and improved with additional met-ocean products, with specifications of available models and examples of marine accident emergency

support **(Action: ETMAES Chairperson, SPA Coordinator and Secretariat)**. To improve the MAES-MPERSS website vision to the users' community, the Group recommended the preparation of an article on this subject to the WMO Bulletin **(Action: ETMAES Chairperson, SPA Coordinator and Secretariat)**. The Group noted that a core team membership would allow the Chairperson to undertake such actions with the support of specific Team members.

3.2.4 The Group noted that other international organizations have been working on maritime safety information and marine pollution. In order to avoid duplication, the Group recommended a closer collaboration with the IMO, IHO and European Maritime Safety Agency (EMSA) **(Action: ETMAES Chairperson and Secretariat)**.

3.2.5 In order to develop the work of the Team, the Group recommended the organization, during the current intersessional period, of a workshop on MAES with the appropriate industry involvement and sponsorship. The Group also recommended that this issue would be addressed during the ETMAES-I in order to define and propose the suitable scope of the workshop **(Action: ETMAES Chairperson and Secretariat)**.

3.2.6 Cross-cutting activities were identified which require the participation of a Core Team, such as, the development of the Cross-ETs Pilot Project in Arctic ocean focused on maritime services, the review of the WMO CEOS database, the development of one or more capacity building modules for OceanTeacher and/or Bilko lessons on oil spills, HABs and SAR operations, together with the ETMC to work on climatologies and statistics for mapping oil spills and HABs and contribute to the October 2008 IMMSC Conference. These issues are addressed in detail under the appropriate agenda items.

3.3 Wind Waves and Storm Surges (ETWS)

3.3.1 The Group noted with interest and appreciation the report of the Chairperson of the Expert Team on Wind Waves and Storm Surge (ETWS), Mr. Val Swail. Mr Swail described the activities and accomplishments of the ETWS in the period since JCOMM-II, noting in particular: (i.) the publication of JCOMM Technical Reports on the wave forecast verification project, satellite data assimilation and the Eighth Waves Workshop, (ii.) the Expert Meeting on the development of the JCOMM Guide to Storm Surge Forecasting and subsequent content developed for the Guide, (iii.) the Ninth International Workshop on Wave Hindcasting and Forecasting (Victoria, Canada, September 2006) where the JCOMM Waves Programme was presented, and (iv.) presentations made to the Twenty-second Session of the Data Buoy Cooperation Panel and the First Joint SAMOS/GOSUD workshop on the requirements for enhanced wave measurements. In response to significant interest expressed at Ninth Waves Workshop, a questionnaire was developed and distributed to the participants on their wave data requirements.

3.3.2 The key elements for the ETWS during the 2005-2009 intersessional period were presented, including: (a.) production of the *Guide to Storm Surge Forecasting*, (b.) continuation and expansion of the operational wave forecast verification project, (c.) development and updating the dynamic part of the *Guide to Wave Analysis and Forecasting*, (d.) completion of Technical Reports on wave climate effects on design criteria and review of boundary layer wind fields, (e.) development, with the ETMC, of an archive of extreme wave events, (f.) development of a statement of requirements for wave observations, (g.) contribution to the organization of the scientific/technical Storm Surge Symposium (Seoul, Republic of Korea, 2-6 October 2007), (h.) co-organize the Tenth International Workshop on Wind Waves and Storm Surges (Hawaii, USA, 11-16 November 2007). The Group recommended the ETWS to articulate needs for wave observations (e.g., to be used on wave models forecast inter-comparison project) **(Action: ETWS Chairperson, SPA Coordinator, DBCP Chairperson and OOPC Chairperson)**, and to address this issue during the Second Session of the ETWS, scheduled from 20 to 24 March 2007, in Geneva, Switzerland. The Group also recommended that the *Guide to Storm Surge Forecasting* would be finalized for review on the ETWS-II **(Action: ETWS Chairperson and Secretariat)**.

3.3.3 During the ensuing discussion of the report, the Group supported the work plan proposed by the ETWS Chairperson, and additionally requested the ETWS participation in other activities (such as, the development of the Cross-JCOMM Pilot Project on Extreme Water Level (JEWL), respond to a requirement of the ETMSS for wave forecast approaches for rogue waves and dangerous seas, develop one or more capacity building modules for OceanTeacher and/or Bilko lessons on storm surge and waves, together with the ETMC to enhance storm surge statistics, contribute to the October 2008 IMMSC Conference, and participate, as possible, in other meetings relevant to the ETWS, including the meeting of the ETMSS in Angra dos Reis, Brazil, 24-27 January 2007), that are addressed in detail under the appropriate agenda items.

3.3.4 The Group also recalled the actions assigned to the ETWS Chairperson raised from the Fifth Session of the Management Committee, in particular, to establish an appropriate liaison mechanism between the CAS and JCOMM. In this regard, the Group agreed that a better link with the CAS WGNE should be defined, and recommended that the first approach would be established by the SPA Coordinator jointly with the OFS Rapporteur, and requested the Secretariat to follow-up activities of the CAS WGNE **(Action: SPA Coordinator, OFS Rapporteur and Secretariat)**.

3.4 Sea Ice (SI)

3.4.1 The Group noted with interest and appreciation the report of the Chairperson of the Expert Team on Sea Ice (ETSI), Dr. Vasily Smolyanitsky. The Group recalled the ETSI membership and reviewed the work plan of the Team for the current intersessional period. Dr Smolyanitsky described the ETSI strategy and the activities and accomplishments of the ETSI since JCOMM-II, and in particular highlighted national activities of sea ice services continuously monitored by the Team. Dr Smolyanitsky also described in detail WMO Technical Publications related to Sea Ice, their revisions and updates. In this regard, the Group noted with interest and appreciation that the third version of the WMO Publication *Sea-Ice Information in the World* (WMO-No. 574) has been updated, and have became available for the SCG-III meeting, and urged the ETSI Chairperson and the Secretariat to annually update this publication **(Action: ETSI Chairperson and Secretariat)**. Dr Smolyanitsky also presented JCOMM Technical Reports regarding the development of new standards for sea ice charts, including SIGRID-3 (WMO/TD-1214), colour coding (WMO/TD-1215) and ice decay. In this regard, the Group urged the ETSI Chairperson and the Secretariat to: (i.) update publications *Manual on Marine Meteorological Services* (WMO-No. 558) and *Guide to Marine Meteorological Services* (WMO-No. 471) to include guidelines and recommendations for the provision of sea ice information and warnings for mariners, and (ii.) finalize the update of the publication *WMO Sea Ice Nomenclature and Illustrated Glossary* (WMO-No. 259), consistent with Ice Objects Catalogue and ENC requirements **(Action: ETSI Chairperson and Secretariat)**.

3.4.2 The Group noted with interest and appreciation that the ETSI has been working with the International Ice Charting Working Group (IICWG) on the requirements for sea ice observations, and within the IGOS cryosphere theme on the requirements for space-based remote-sensing of sea ice and icebergs parameters. The Group also noted that these requirements would be addressed for endorsement during the Third Session of the ETSI, scheduled to be held in Geneva, Switzerland, from 28 to 31 March 2007. Dr Smolyanitsky also described the ETSI interrelations with the IICWG and the Baltic Sea Ice Meeting (BSIM), as well as the activities under the Global Digital Sea Ice Data Bank (GDSIDB) Project. The Group noted that the GDSIDB presently holds the largest set of digital sea ice chart collections for the Arctic (from 1933) and the Antarctic (from 1973) to near the present and corresponding blended data set. The Group noted that ETSI has been working on climatological sea ice data sets and standards for sea ice charts, and recommended the establishment of an appropriate link between the ETSI and DMPA, and in particular on the GDSIDB Project, to fill in gaps and avoid duplication of work **(Action: ETSI Chairperson and DMPA Coordinator)**.

3.4.3 The Group noted that the JCOMM-II agreed that the ETSI should be designated the responsible body for information and assessment of sea ice as an Essential Climate Variable (ECV). The Group also noted that at GCOS meetings, it was agreed that the GDSIDB data products, as well as individual data sets, will be widely used for implementation of the GCOS tasks,

including validation and co-analysis with SSM/I products and provision of sea ice climatology. In this regard, and to support the preparation and assimilation of sea ice and icebergs analysis and climatology products in numerical forecasting and climatic analysis, the Group endorsed the Sea Ice Data Analysis and Assimilation Workshop proposed by the ETSI Chairperson **(Action: ETSI and ETMC Chairpersons, GCOS SST&SI)**.

3.4.4 Following WMO Resolution 34 (Cg-XIV) and JCOMM-II recommendations, the ETSI agreed to support the International Polar Year 2007-2008 by: (i.) providing tailored information, including web pages dedicated to GDSIDB normals, ice records and national ice data, available on a timely basis, (ii.) encouraging national ice services to supply updates and historical documents and ice data from coastal stations to the GDSIDB centres, and (iii.) encouraging ETSI members to enhance sea ice observations and data archiving at the designated centres. In this regard, the Group noted with appreciation that the ETSI has been developing an Ice Information Portal, hosted by the PolarView project (supported by the ESA and EC with participation by CSA, see http://www.polarview.org), that would be aimed to support IPY participants both in the field and the office with operative analysis and prognostic sea ice products (though portal will not be intended to deal with emergency situations) and to be implemented and operational by March 2007. The Group thoroughly supported these activities and expressed its appreciation to the work undertaken by the ETSI. The Group stressed the importance to promote the ETSI tailored support for the IPY, and recommended the advertisement of sea ice products and services on SPA website in order to show JCOMM activities on these matters, including a link to Ice Information Portal **(Action: ETSI Chairperson, SPA Coordinator and Secretariat)**.

3.4.5 The Group noted with interest that ETSI established a formal relationship with the IHO TSMAD (November 2005) and jointly with IICWG started a review of the “Ice Objects Catalogue” which, when completed, would extend S-57 format and provide consistent with the IHO and ISO standards sea ice presentation model within ECDIS. The Group noted that such approach could be used for developing standards for other met-ocean products within the ECDIS and urged the Secretariat to make appropriate formal contacts with the IHO and ISO (see item 3.1.4, bullet (i.)). The Group also recalled the lack of broadcast coverage by Inmarsat in the Arctic, and noted that at present, meteorological facsimile transmissions are usually recorded by ship radio operators in digital mode, which provides an additional and sometimes unique opportunity to deliver graphical MSI products in the region. Noting the need for this kind of services in the Arctic, some designated RMCs (e.g., Deutscher Wetterdienst and Moscow RMCs) are routinely providing synoptic and prognostic meteorological information by radio-faxes. The Group agreed that the use of radio-faxes is still very useful, particularly for Arctic region, and noted that the set of broadcasted information may be easily extended by a selected sea ice products, routinely issued by several ice services (e.g., ice boundary, ice charts in black and while coding) and to this effect requested the ETSI and ETMSS Chairpersons to advocate the extension as well as continuity of MSI broadcasts by radio-faxes, especially for Arctic region, where this is the unique information available. The Group also requested to investigate the same issue for Antarctic region. The Group recommended to use this as an example of a requirement for the provision of graphical products via SafetyNET **(Action: ETSI and ETMSS Chairpersons and Secretariat)**.

3.4.6 The Group also noted the possible use of the Iridium satellite system for the delivery of sea ice informational products to the polar regions. Unlike Inmarsat, Iridium offers complete polar coverage, and is being widely exploited by many high-latitude operators. Although the present bandwidth of the system is much lower than that for the Inmarsat and is equal to 2400 bit/s, it is not expensive (current cost for downloading a 50 kbyte file being of the order of 5 USD) and its possibility to provide to the users a variety of sea ice products (with the size 100-200 kbyte) is quite attractive. That may include compressed by modern codes (like MrSiD, JPEG2000), colour-reduced or selected satellite scenes, archived gridded and textual information or vector graphics. In this context, the Group noted with interest the activities within the ETSI to develop and provide low-sized sea ice products via the Ice Information Portal during and after IPY 2007-2008 and within the DBCP to create an Iridium Pilot Programme that would evaluate the suitability of Iridium as a carrier for marine data. It also noted with appreciation the offer by the DBCP Chairperson, Mr David Meldrum, to pilot a portal that would permit users to download met-ocean products via

Iridium, and asked to be kept informed of developments in this area **(Action: ETSI and DBCP Chairpersons)**.

3.4.7 During the discussion of the report, the Group supported the work plan proposed by the ETSI Chairperson, and additionally requested the ETSI participation in other activities (such as the development of the Cross-JCOMM Pilot Project on Extreme Water Levels (JEWL), respond to a requirement of the ETMSS for provision of sea ice information, develop one or more capacity building modules for OceanTeacher and/or Bilko lessons on sea ice and icebergs, contribute to the October 2008 IMMSC Conference, and together with the other ETs to develop a pilot project focused on maritime services in the Arctic region), that are addressed in detail under the appropriate agenda items.

4. Report of the Cross-cutting *ad hoc* Group Raporteurs

4.1 Capacity Building (CB)

4.1.1 The Secretariat representative presented the report on capacity building activities, on behalf of the SPA Rapporteur of the Cross-cutting *ad hoc* Group on Capacity Building, Dr Johannes Guddal. The Group noted that two series of workshops have been held:

(a) Joint JCOMM/WMO Tropical Cyclone Programme series: Hanoi, Viet Nam 2000; Kuantan, Malaysia, 2003; Beijing, China, 2005; Manila, Philippines, September 2006;

(b) Joint JCOMM/IODE series, also named “Jamboree”: Oostende, Belgium 2005 and 2006;

based on two days of introductory lectures followed by three to four days of open-ended experiments with numerical models and corresponding data acquisition.

4.1.2 The Group agreed that these kinds of workshops are important, however, it is necessary to define a better strategy using the available tools to improve the CB activities for the SPA. Options for CB in SPA and future strategies are addressed in detail under the Agenda Item 8.

4.2 Satellite Data Requirements (SDR)

4.2.1 The SPA Coordinator presented the report, provided by the SPA Rapporteur of the Cross-cutting *ad hoc* Group on Satellite Data Requirements, Dr Pierre-Yves Le Traon. The Group noted that this report does not cover all SPA satellite requirements, especially regarding communications with users to assist with maritime support and safety issues. Therefore, the Group recommended that a new satellite rapporteur should be appointed and a more complete Terms of Reference (ToR) should be defined as soon as possible for the work of the Satellite Rapporteur to the SCG **(Action: SPA Coordinator, ETMSS, ETSI and DBCP Chairpersons, Secretariat and Co-presidents)**.

4.2.2 The Group recalled that the CBS Expert Team on Evolution of the Global Observing System (ET-EGOS) requested the SCG to review and update the Statement of Guidance (SoG) for Ocean Applications to ensure that eventually a clear set of observational data requirements to support marine meteorological and operational oceanographic products and services be finalized and included in the CEOS/WMO database. The Group urged its members, in particular the SPA Coordinator, to review the CEOS/WMO database and to provide an updated version of the SoG by mid-2007 **(Action: SPA Coordinator, ET Chairpersons, SDR and OFS Rapporteurs)**.

5. Communications

5.1 SPA website

5.1.1 The SPA Coordinator, Dr Craig Donlon, presented the SPA website (www.jcomm-services.org), including a revised JCOMM Electronic Product Bulletin (J-EPB) for ocean services. Dr Donlon demonstrated the functionality of the website, which has been developed so that ET Chairpersons and Team members can directly access and edit web pages from anywhere in the world by simply using a web browser. Dr Donlon explained that basic template pages had been prepared for each of the ETs within the SPA, and that all web management services and tools would be maintained by the SPA Coordinator. Dr Donlon acknowledged the support of the Met Office (United Kingdom), who had paid $10K USD for the JCOMM web system. Dr Donlon reminded the SCG that the task to populate the JCOMM SPA web space with useful content was now the responsibility of the ETs themselves, using the web-tool provided by the coordinator. The system was easy to use, providing an interface similar to Microsoft Word, so that no knowledge of HTML was required to develop and edit pages. Dr Donlon requested the SCG to log in to the website (the Coordinator had provided user id's and passwords to everyone prior to login) and to add that content is added to the site by the ET Chairpersons and their Teams in order to develop the first version of the SPA website, expected to be running by the end of 2006. Dr Donlon concluded that this investment made developing web pages extremely easy, and that pages could be added and developed within a few hours from start to finish. The JCOMM web space http://www.jcomm-services.org had been purchased and the site was ready for use on 8 November 2006 **(Action: SPA Coordinator, ET Chairpersons, CB, SDR and OFS Rapporteurs and Secretariat)**.

5.1.2 The Group agreed that the web is now an important and necessary communication tool and should therefore contain useful information to its potential audiences. It agreed that content should be added as a matter of urgency by the ETs and encouraged the ET Chairpersons to take action through their respective Teams. The Group stressed its concern about possible duplication and overlaps of information between the main JCOMM website and SPA website, and urged the Secretariat to check it on a continuing basis in order to ensure no duplication and/or overlaps of information **(Action: Secretariat)**.

5.1.3 The Group agreed that all JCOMM publications (such as, Manuals and Guides) relevant to the Services Program Area should be available on the SPA website, and requested the Secretariat to evaluate the possibility of obtain the electronic version of these publications, and ensure that they are placed online **(Action: Secretariat)**.

5.2 SPA Brochure

5.2.1 The Group agreed that an SPA brochure describing JCOMM Services activities and how to 'get involved' on SPA should be prepared **(Action: SPA Coordinator (Leader), ET Chairpersons, CB, SDR and OFS Rapporteurs and Secretariat)**. It also agreed on the use of the information provided on the SPA website as a basis to create this brochure.

5.3 SPA meetings and other events in 2006-2009

5.3.1 The Group reviewed the SPA meeting and other events planned for 2006-2009, and agreed that this information, plus external meetings that members of the ETs would attend, should be listed on both SPA and JCOMM websites. In this regard, the Group urged its members to provide a list of these meetings to the Secretariat to ensure that this information is available on both websites as soon as possible **(action: SPA Coordinator, ET Chairpersons, CB, SDR and OFS Rapporteurs and Secretariat (Leader))**.

5.4 Inventory of the marine services

5.4.1 The Group noted that the Fifth Session of the Management Committee (MAN-V) agreed that efforts should be made to be more pro-active in providing materials and guidance for the development of marine services at the national level, especially by updating existing guides and re-focusing them on new applications such as tourism and leisure. The Management Committee noted that model source codes are now becoming available as OpenSource (i.e., free of charge), and that these could be used as a basis for developing marine services in developing countries. In this context, the Group recommended the development of met-ocean products, in accordance with OpenSource, IHO and ISO standards (e.g., S57, S100, OCG, ISO 19115 and GML 19136) **(Action: SCG Members and DMPA Coordinator)**. The Group noted with appreciation that the DMPA is currently preparing a catalogue of JCOMM technical standards that would be worthwhile to be submitted as joint ISO-WMO standards.

5.4.2 The Group also noted that the Management Committee tasked the Secretariat and SPA, in liaison with the other PAs, to design a questionnaire targeting JCOMM Member/Member States in order to identify existing national marine services. It was also informed that the IOC is developing, for the next I-GOOS Session in June 2007, a template for the '*Report of National Contributions and Future Commitments to the Ocean Observing System*'. In early 2007, this template would circulate within JCOMM for comments **(Action: Secretariat and PA Coordinators)**.

5.4.3 The Group noted that diverse JCOMM Teams have been developing questionnaires on users' feedback. In order to avoid duplications and minimize efforts, the Group recommended SCG to prepare, in collaboration with other JCOMM Teams, a consolidated JCOMM questionnaire for user feedback solicitation **(Action: Secretariat, PA Coordinators and ET Chairpersons)**. This questionnaire should clearly identify common sections and minimize duplication with other feedback activities. The Group also recommended that the Secretariat should ensure coordination and non-duplication of all JCOMM-related questionnaires that are linked and cross-referenced on websites with returned feedback so that the maximum benefit could be gained across the entire JCOMM structure **(Action: Secretariat)**. The Group agreed that the IMO should promulgate JCOMM information on maritime safety services and products, and requested the Secretariat to ensure that the IMO solicit users' feedback on this information **(Action: SPA Coordinator, ETMSS Chairperson and Secretariat)**.

5.4.4 The Group noted that the existing questionnaires do not include sea ice information. In this context, it recommended that the Secretariat should ensure that this information would be included within the questionnaires **(Action: Secretariat)**.

5.5 JCOMM Communication strategy

5.5.1 The Group noted that the Management Committee identified three audience sectors that need to be addressed within the JCOMM Communications strategy: (i.) "IN" Reach, (ii.) "OUT" Reach, and (iii.) Capacity Building. For the "IN" Reach, a unified website will be established and managed by the WMO and IOC Secretariats. Sub-websites would be developed having a similar appearance. For "OUT" Reach, the Management Committee agreed that there was a need for JCOMM to communicate with a wider audience, including decision makers. This would address categorization of audiences and their needs (i.e., the private sector, the public sector, decision makers, NGOs and news media). The Management Committee recommended that Programme Areas carefully address their needs in a way consistent with the JCOMM communication plan, and should avoid redundancy between the JCOMM and associated websites. The Management Committee also agreed that a comprehensive analysis is required, as well as an assessment study of user community information requirements. In this context, the Group endorsed these activities and recommended that they are initiated as a priority activity as soon as possible. This would deliver a comprehensive assessment study for outreach audiences of JCOMM activities **(Action: Secretariat and PA Coordinators)**.

6. Cross-cutting issues for the SPA

6.1 Common issues

6.1.1 Based on information, proposals and extensive discussions under the preceding agenda items, the Group developed and agreed on various common and/or cross-cutting issues for the SPA, which is as follows:

(i) Strengthen a better link between the WMO and IMO, IHO and ISO on Maritime Safety Services (MSS), Marine Emergency Accident Support (MAES) and Sea Ice (SI), establishing ownership on met-ocean catalogues, where appropriated; identify focal points from these organizations on these three areas; and formalize the relationship between JCOMM ETs and analogous groups (generally sub-Committees) of these organizations **(Action: ETMSS, ETMAES and ETSI Chairpersons, and Secretariat)**.

(ii) Develop a Cross-JCOMM Pilot Project on Extreme Water Level (JEWL = JCOMM Extreme Water Level) (near-shore waves, surges and tides) in coastal/shelf zones (including assessment of current activities plus requirements, and defining a cross-JCOMM framework for develop the pilot project) noting in particular, the existing experience and expertise of the Bureau of Meteorology, amongst others **(Action: Mr Phillip Parker (Leader), SPA Coordinator, ET Chairpersons, OOPC Chairperson and OFS Rapporteur)**. An outline prospectus is provided in Annex V of this report. In this context, the Group requested the SPA Coordinator to contact Dr Mark Merrifield (Chairperson of the Group of Experts for GLOSS) to define potential SL products and discuss JEWL-PP proposed **(Action: SPA Coordinator)**.

(iii) Noting the substantially increased oil and gas activities in the Arctic Ocean, the Group agreed in developing a Cross-ETs Pilot Project for the Arctic region, focused on maritime services, support and disaster risk management (including sea ice and icebergs, oil spills, rogue waves, etc.) **(Action: ETSI Chairperson (Leader), SPA Coordinator, ETMSS, ETWS and ETMAES Chairpersons, and OFS Rapporteur)**. In particular, special attention should be provided to the modelling of ice cover and pollution. In this regard, the Group requested the ETMAES to support the ETSI on marine pollution matters in Arctic and Antarctic regions **(Action: ETMAES and ETSI Chairpersons)**.

6.1.2 Other common and/or cross-cutting issues (such as, capacity building, the IMMSC 2008 and JCOMM publications) are addressed in detail under the appropriate agenda items.

6.2 SPA support to ocean-related hazards warning systems

6.2.1 The Group recalled Recommendation 12 (JCOMM-II), which requests the JCOMM Co-presidents, in consultation with the Programme Area Coordinators, with relevant WMO technical commissions and subsidiary bodies of the IOC, GOOS regional alliances and associations and IODE regional networks, as appropriate, to develop and implement a plan of action to contribute to the implementation and maintenance of ocean-related hazards warning systems for all ocean basins. The Group noted that, responding to this recommendation, an expert meeting on this subject was convened in Geneva, Switzerland (February 2006). This meeting developed and agreed on a range of possible contributions of JCOMM, through its Programme Areas and component Expert Teams, to ocean-related hazards warning systems, within the areas of expertise of the Commission.

6.2.2 The Group noted the report on the status of the WMO Disaster Prevention and Mitigation (DPM) Programme development, presented by the WMO Secretariat Representative, Mr Edgard Cabrera. Mr Cabrera explained that the WMO DPM Programme is a major cross-cutting Programme aimed to enhance the WMO Members' capacities in Disaster Risk Management

(DRM), by strengthening and more optimally integrating the contributions of Members' National Meteorological and Hydrological Services (NMHSs) towards improving the safety and well-being of communities. The Fifty-eighth WMO Executive Council (EC-LVIII, June 2006) approved a cross-cutting coordination framework for identifying WMO DPM Programmes' strategic priorities, and concrete projects that would be measurable with respect to their benefits and outcomes. Such cross-cutting projects would be prioritized and built upon activities of WMO Programmes, Technical Commissions, Regional Associations, and strategic partners, with clear definition of roles, responsibilities and deliverables. The Group noted that the Management Committee nominated Dr Rodrigo Nuñez and Dr Craig Donlon as JCOMM Rapporteurs on DPM-related matters.

6.2.3 The Group further noted that the DPM Programme intended to host a meeting of Technical Commission Rapporteurs on DPM-related matters in December 2006, to further explore the cross-programme opportunities. The Group was informed that Ms Alice Soares from WMO Secretariat would represent JCOMM at the meeting, due to the impossibility of appointed rapporteurs. The Group urged Ms Soares to present JCOMM activities in support of the ocean-related hazards warning systems, in particular, the JEWL-PP proposal **(Action: Secretariat)**.

6.2.4 The Group recalled that the IOC has been mandated to develop a Global Ocean-related Hazards Early Warning and Mitigation System (GOHWMS). An *ad hoc* IOTWS Working Group is preparing its Terms of Reference (ToR) for IOC Assembly approval in 2007, mainly addressing governance issues and by involving existing or developing ocean-based systems. The Group noted the report on the IOC Global Ocean-related Hazards Early Warning System presented by the IOC Representative and Head of the Tsunami Coordination Unit, Dr Peter Koltermann. The Group recalled that the Tsunami Warning System in the Pacific was established in 1965 to provide, on an international basis, timely tsunami warnings, and to alert the system's participants as to the approach of potentially destructive tsunamis. In the same year, the IOC also established the International Coordination Group (ICG) for the Tsunami Warning System in the Pacific (ICG/ITSU). The ICG/ITSU provides information and guidance, and shares knowledge and experience with the IOC Member States in the region. The Group noted that the IOC Executive Council in 2006 changed the Terms of Reference of the ICG/ITSU and its name to the Intergovernmental Co-ordination Group ICG/PTWS. The Group noted that progress has been made towards the implementation of a Tsunami Warning and Mitigation System for the Indian Ocean (IOTWS), and efforts have already been launched for the establishment of warning systems in the North Eastern Atlantic, the Mediterranean and connected seas (NEAMTWS) as well as the Caribbean (CARTWS).

6.2.5 The Group noted with appreciation that since July 2006, an initial IOTWS is in place but with same constraints, especially on the 'downstream part' that deals among local and regional communities with very heterogeneous cultures. Therefore, common standards, procedures and guidelines are needed. In this context, the Group identified some potential areas where the JCOMM, and in particular the SPA, can contribute:

(i) To update and maintain, in close collaboration with the IOC Tsunami Unit, guidelines, standards and glossaries for tsunami warnings, in accordance to the ISO. And, to update publications WMO No. 558 and WMO No. 471, to include guidelines and recommendations for the provision of tsunami warnings for mariners **(Action: ETMSS Chairperson, SPA Coordinator and Secretariat)**;

(ii) To provide the draft IOC Tsunami Glossary to the ETMSS for review and comments **(Action: ETMSS Chairperson, SPA Coordinator and Secretariat)**;

(iii) To prepare a document on provision of MSI to mariners related to tsunamis and to circulate the document for comments as soon as possible **(Action: ETMSS Chairperson, SPA Coordinator, Secretariat and relevant experts)**;

(iv) To prepare a user-friendly document to formalize and ensure the use of CREX code format for SL for use by National agencies responsible to implement or upgrade SL network **(Action: Secretariat)**.

6.3 Links to OPA and DMPA

6.3.1 The Group noted with appreciation that during the Fifth Session of the Management Committee (MAN-V), possible interaction and cross-cutting issues between PAs were discussed, and a side meeting was convened between PA Coordinators and the Secretariat to better identify these issues. The Group further noted that four major areas for cooperation between PAs within the SPA work plan were identified: (i.) observation requirements for Services, (ii.) standard data and metadata formats for ocean products (a new structure addressing DM as a cross-cutting programme needs to be built), and (iii.) capacity building implementation plan, and (iv) user requirements.

6.3.2 The DMPA Coordinator, Mr Robert Keeley, presented a short summary of the actions arising from the Second Session of the DMCG (DMCG-II, Geneva, Switzerland, October, 2006). The DMCG reviewed a draft of the Data Management Strategy, including written comments received from the first limited distribution. A revised draft would be circulated by December 2006, seeking comments from a much wider audience.

6.3.3 Amongst its activities, the DMPA is undertaking work to develop BUFR templates for data collected in the OPA, to bring BUFR Master Table 10 into conformance with WMO rules, and to look at standardizing content in how data are reported and managed. Mr Keeley remarked that the ODAS application (developed by China) had more work to do to improve the interface, and in particular, that they would be contacting individual programmes in OPA, such as the DBCP, to get information on platforms rather than seeking the information from individual countries. The E2EDM project is still the main focus of the ETDMP, and they had been successful in building a prototype connection to the WIS, an extremely important development for the JCOMM. In this context, the Group recommended the SPA and DMPA Coordinators to evaluate the most useful way to provide JCOMM services via the WIS (e.g., web maps servers) **(Action: SPA and DMPA Coordinators)**. The work plan of the ETMC was being adjusted to have the MCSS carried out by a task team, so that the main ET could take a broader approach to climatologies. Mr Keeley also explained that the CB Rapporteur will be examining gaps in the IOC OceanTeacher materials. Based on this information, the DMPA Coordinator would contact other PAs to try to fill gaps **(Action: DMPA Coordinator)**.

6.4 Link to Marine Climatology

6.4.1 Based on information and discussions under the preceding agenda items regarding the work plans of the ETs, the Group identified a range of activities under SPA that could be carried out in close collaboration with the Expert Team on Marine Climatology (ETMC). These were comprised of the following items:

(i) To continue to develop the extreme wave database. The objective is to develop a database of high-quality measured data (e.g., ship, buoy, OceanSITES). This archive would form an invaluable data set of measurements that could be used to validate wind wave models and also satellite altimeter wave estimates, which have largely unknown characteristics at these heights **(Action: ETWS and ETMC)**. A more comprehensive database, including satellite, should be proposed at JCOMM-III **(Action: ETWS and ETMC)**.

(ii) To develop climatologies and statistics for mapping oil spills and HABs **(Action: ETMAES and ETMC Chairpersons)**.

(iii) To explore how climatologies of storm surge inundation zones can be constructed **(Action: ETWS and ETMC Chairpersons, SPA Coordinator and Secretariat)**. This

should be considered as a component of the JEWL-PP.

(iv) To support assimilation of sea ice and icebergs analysis and climatology data within the GDSIDB archive for implementation of the GCOS tasks and to cooperate on preparation of the Sea Ice Data Analysis and Assimilation Workshop **(Action: ETSI and ETMC Chairpersons, SPA Coordinator and Secretariat)**.

6.5 Services and products: priorities; User Requirement Document (URD)

6.5.1 The Group noted that a key activity for the SPA is to draft and publish a proper user community specification of needs within a well-articulated JCOMM Services *User Requirement Document* (URD), typically based on an assessment of the current capability. The Group agreed that the URD can be used to prioritize specific developments and actions within the SPA by identification of gaps in current service provision. In this context, the Group urged the Secretariat to compile the information on users and applications already available on the various JCOMM publications and develop a new publication entitled: '*Marine Services in the World*' **(Action: Secretariat)**. The Group also decided to develop a core portfolio on users/applications across SPA ETs **(Action: SPA Coordinator, ET Chairpersons, OFS Rapporteur and Secretariat)**.

6.6 Assessment of observation data requirement

6.6.1 The Group recalled that the SPA work plan arising from the Second Session of the JCOMM (JCOMM-II) 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 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 **(Action: SPA Coordinator, ET Chairpersons, SDR and OFS Rapporteurs, and Secretariat)**.

7. International Met-Ocean Maritime Services Conference 2008

7.1 Overview and objectives

7.1.1 The Group noted with appreciation that a considerable focus of effort for the 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 the 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 Annex VI.

7.2 Steering group and organization

7.2.1 The Group agreed that choosing appropriate representatives for the Steering Group is essential for a successful conference. These should be senior oceanographers and meteorologists, practitioners and authorities from the public and private sector. A draft list of Steering Group members was presented for consideration by the SCG. The Group requested ET Chairpersons to provide details on ET issues for design the Conference and define the Steering Group membership **(Action: SPA Coordinator, ET Chairpersons, OFS Rapporteur and Secretariat)**.

8. Capacity Building strategy for SPA

8.1 Options for CB in SPA

8.1.1 The Group was informed that a scientific/technical workshop on storm surge is planned for Republic of Korea, October 2007. This scientific workshop will complement other international efforts, including the series of capacity building workshops on storm surge and wave forecasting, organized by the JCOMM and the WMO Tropical Cyclone Programme, and JCOMM efforts into developing ocean-related hazards warning systems. The Group recommended that this Storm Surge Symposium would be announced on both the SPA and JCOMM websites as soon as possible **(Action: ETWS Chairperson, SPA Coordinator and Secretariat)**.

8.1.2 The Group discussed various options for capacity building in SPA and agreed that the Secretariat should first gather the CB material available within each ET, and then make this material available on a JCOMM Services Education/CD web page **(Action: Secretariat and SPA Coordinator)**.

8.2 Application drivers and scenarios

8.2.1 The Group was informed that, recalling the role of the Task Team on Resources (TTR) and the difficulties to formulate and make such a team function, the Management Committee in its Fifth Session established an *ad hoc* Working Group to identify and setup a mechanism for raising CB resources. A rigorous CB Strategic Plan would be developed within three months for MAN's review, and finalized within six months. This would provide a coherent framework for all future JCOMM capacity building projects, compatible with similar work under other programmes of the WMO and IOC. In this context, the Group recommended that CB Rapporteurs meet to discuss cross-JCOMM CB strategy **(Action: Secretariat and CB Rapporteur)**.

8.2.2 The SPA Coordinator noted that in the case of met-ocean services, capacity needs to be developed appropriately for each Member/Member State in a manner that eventually results a fully functioning suite of met-ocean services satisfying national, regional and international needs. The Group agreed that four stages of development should be defined for which the capacity building needs are very different:

a) **Stage 0:** Countries/Regions with very little or no services, very limited resources, who do not recognize their needs;

b) **Stage I:** Countries/Regions with little or no services, limited resources, who recognize their needs;

c) **Stage II:** Countries/Regions with some infrastructure, resources and good knowledge of met-ocean requirements and limitations. These Countries/Regions are capable of implementing SPA systems;

d) **Stage III:** Countries/Regions that have high-level infrastructures, resources and research and development activities. Capable of developing the next generation of JCOMM services and products through innovations (e.g., graphic products, ecosystem models, etc.)

The Group endorsed these definitions and urged the *ad hoc* Working Group on CB resources to consider these stages in the new JCOMM CB strategy **(Action: CB Rapporteur, SPA Coordinator and Secretariat)**.

8.2.3 The Group also agreed that collaboration with proven distance education and training projects (e.g., the IOC/IODE OceanTeacher Virtual Laboratory; the WMO Virtual Laboratory for Education and Training in Satellite Meteorology and the International Ocean Institute (IOI)) should be strengthened, and full use of these projects should be made within the JCOMM Framework.

8.3 Strategy

8.3.1 In each stage discussed in the previous agenda item, the most appropriate specialised training and regional cooperative projects should be different. For example, Stage III countries may require advanced training workshops (such as the Storm Surge Symposium). In contrast, it may be more appropriate to develop an initial capacity to use apply met-ocean products and services provided by other Member/Member States in countries that do not yet have operational services in place (i.e., Stage 0 and I). In this context, the Group supported initiatives at all four stages of development, and agreed to develop OceanTeacher/Bilko example lessons on the activities of each ET, covering the different stages **(Action: SPA Coordinator, ET Chairpersons, CB, OFS, and SDR Rapporteurs and Secretariat)** and requested the SPA Coordinator to circulate information and material on this regard **(Action: SPA Coordinator)**.

9. Review of SPA work plan

9.1 Targets and priorities for the intersessional period

9.1.1 The Group reviewed its work plan and the action list for SPA arising from the Second Session of the JCOMM (JCOMM-II), and identified targets and priorities for the intersessional period. The Group requested its Members, in particular the ET Chairpersons, and CB, SDR and OFS Rapporteurs, to revise their specific work plans in accordance to the SPA priorities and TLOs, and send a revised version to the Secretariat as soon as possible **(Action: SPA Coordinator, ET Chairpersons and CB, SDR and OFS Rapporteurs, and Secretariat)**. The SPA Coordinator and the Secretariat would compile these contributions and would circulate them for a last revision before publication **(action: SPA Coordinator and Secretariat)**.

9.2 Review availability of resources

9.2.1 The Group reviewed the availability of resources for the implementation of the work plan, and agreed that a better way for resource mobilization is focusing the work plan for the SPA on TLO 1, and in particular, on disaster risk management.

10. Any Other Business

10.1 Based on information, proposals and extensive discussions under the agenda item 9, the Group requested to:

(i) Evaluate the possibilities of GEO work plan on the work of the SPA ETs **(Action: SPA Coordinator, ET Chairpersons, CB, SDR and OFS Rapporteurs, and Secretariat)**. In this context, the Group asked the SPA Coordinator to circulate the current GEO work plan for comments **(Action: SPA Coordinator)**.

(ii) Evaluate the status of the proposal of the *Storm Surge Project for Monitoring, Hindcasting and Forecasting in the Gulf of Guinea,* and circulate this proposal within the SCG **(Action: Secretariat)**.

11. Closure of the session

11.1 Date and place of the SCG-IV

11.1.1 The Group recognized that it would need to meet again during the present intersessional period, to review progress on the many action items and to begin the preparation of appropriate actions and recommendations for JCOMM-III. It suggested that the SCG-IV might be timed to take place in Australia, in January 2009. Moreover, the Group agreed to meet after the IMMSC 2008, as to allow for an immediate review of its outcome and follow-up. The SPA Coordinator and

Secretariat were requested to finalize arrangements for the timing and venue for these meetings in due course, and notify group members accordingly.

11.2 Adoption of the report

11.2.1 Under this item, the Group reviewed, modified and approved action items and recommendations raised from the meeting.

11.3 Closure

11.3.1 In closing the meeting, the SPA Coordinator, Dr Craig Donlon, expressed his appreciation to all participants for their very positive and valuable input to the discussions, to what had been a very successful meeting, and to the work of the JCOMM SPA in general. Dr Donlon concluded by thanking, on behalf of all participants, the Secretariat for their ongoing support, the Met Office for hosting the meeting and providing such excellent facilities and support and expressed their appreciation and a special acknowledgment to Ms Alice Blunt for her excellent work in support of the Commission for more than one decade. Speaking on behalf of all participants, Dr Vasily Smolyanitsky thanked the SPA Coordinator for his substantial input and knowledgeable guidance for the Group, both during the meeting and outside.

11.3.2 The Third Session of the JCOMM Services Programme Area Coordination Group closed at 1200 hours on Friday, 10 November 2006.

Annex I

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Annex II

AGENDA

1. Opening of the session

1.1 Opening
1.2 Adoption of the agenda
1.3 Working arrangements

2. Reports

2.1 Report of the SPA Coordinator
2.2 Report of the Secretariat

3. Report of the Expert Team chairpersons

3.1 Maritime Safety Services (MSS)
3.2 Maritime Accident Emergency Support (MAES)
3.3 Wind Waves and Storm Surges (WS)
3.4 Sea Ice (SI)

4. Report of the Cross-cutting *ad doc* Group rapporteurs

4.1 Capacity Building (CB)
4.2 Satellite Data Requirements (SDR)

5. Communications

5.1 SPA website
5.2 SPA brochure
5.3 SPA meetings and other events in 2006-2009
5.4 Inventory of the marine services
5.5 JCOMM communication strategy

6. Cross-cutting issues for the SPA

6.1 Common issues
6.2 SPA support to ocean-related hazard warning systems
6.3 Links with Observations Programme Area (OPA) and Data Management Programme Area (DMPA)
6.4 Link to Marine Climatology
6.5 Services and Products: priorities; User Requirement Document (URD)
6.6 Assessment of observation data requirements

7. International Maritime Services Conference 2008

7.1 Overview and Objectives
7.2 Steering Group and Organization

8. Capacity Building (CB) Strategy for the SPA

8.1 Options for CB in SPA
8.2 Application drivers and scenarios
8.3 Strategy

9. Review of SPA work plan

9.1 Targets and priorities for the intersessional period
9.2 Review availability of resources

10. Any Other Business

11. Closure of the session

11.1 Date and place of the SCG-IV
11.2 Adoption of the report
11.3 Closure

Annex III

TERMS OF REFERENCE FOR THE OPERATIONAL OCEAN FORECASTING SYSTEMS RAPPORTEUR

The Rapporteur for Operational Ocean Forecasting Systems is requested to:

- Provide advice to the SCG and SPA ETs on operational ocean forecasting system requirements and outputs;
- In collaboration with GODAE and other relevant parties, provide advice on the standards and nomenclature used by operational ocean forecasting systems;
- To act as a focal point and JCOMM SPA representative at GODAE meetings;
- To advise on the limitations and strengths of operational ocean forecasting systems and identify areas where JCOMM can help coordinate systems in a more cost effective manner;
- To attend SCG meetings and provide a report of activities to the SCG and MAN, as requested.

Annex IV

REVISED LIST OF ACTIONS FROM MAN-V FOR SPA
(decisions from MAN-V)

Ref.	Action	By whom	When
MAN-V 3.2.1	To further develop the SPA work plan in view of full integration of its ETs' work plans and promote interaction between them	SPA and Secretariats	2006
MAN-V 3.2.2	To revise the ET's Terms of References and to propose changes	SPA	JCOMM-III
MAN-V 3.2.2	To further develop the SPA work plan in order to better engage ocean climate services	SPA	2006
MAN-V 3.2.3	To develop standards/reference documents	PAs, SPA ETs and Secretariats	JCOMM-III
MAN-V 3.2.6	To hold a workshop to compare sea ice charts, methods and techniques	ETSI	2008
MAN-V 3.2.7	To hold a Storm Surge Symposium	ETWS	2007
MAN-V 3.3.1	To develop an extreme wave database	ETWS and ETMC	2007
MAN-V 4.1.5 (i)	To work towards improved availability of coastal weather and water level forecasts to all nations	SPA Coordinator	Ongoing
MAN-V 4.1.5 (ii)	To continue and improve collaboration with tsunami programmes	PAs and DPM Rapporteurs	Continuing
MAN-V 4.2.1 (v) and 4.6.8 a)	To review and develop requirements for use of satellite technology for enhanced SERVICES climatology and real-time detection of ocean-related hazards	Satellite Rapporteurs	2007
MAN-V 4.4.4	To develop the PolarView website and include the JCOMM logo	ETSI	March 2007
MAN-V 4.6.1	To continue to implement the action plan to contribute to the marine multi-hazard warning systems	PAs	Ongoing
MAN-V 4.6.7	To work with DPM Programme to clarify the meaning of 'marine multi-hazards'	DPM Rapporteurs	ASAP
MAN-V 4.6.8 d)	To finalize the Guide to Storm Surge forecasting and to develop a demonstrate project for storm surge warnings	ETWS	2007
MAN-V 4.6.8 e)	To enhance storm surges statistics	ETWS and ETMC	2007
MAN-V 4.6.8 f)	To strengthen linkages with the CBS, OPAG on PWS for enhancement of public storm surge warnings; and with CHy for interfacing storm surge and coastal flood model	ETWS	2007
MAN-V 4.6.8 k)	To cooperate with the IMO and IHO in order to address the international organizations' role (IOC, WMO, IHO and IMO) in the provision of Tsunami Maritime Safety Information (warnings and related information)	ETMSS	Early 2007
MAN-V 4.8.1	To develop a specific section from marine services in the WMO CEOS database	SPA Coordinator and ETSI	2007

Ref.	Action	By whom	When
MAN-V 4.8.2	To designate a focal point who would liaise with the WMO Secretariat and provide input on the ET-EGOS Rolling Review of Requirements (RRR) process	SPA	2007
MAN-V 4.8.13	To establish an appropriate liaison mechanism between the CAS and JCOMM	SPA Coordinator, ETWS Chairperson and Dr Michel Beland	ASAP
MAN-V 6.3.1	To re-design PA work plans taking into account the WMO Strategic Plan and the IOC Medium-term Strategy	PA Coordinators and Secretariats	ASAP
MAN-V 9.2.3	To design questionnaire targeting JCOMM Member/Member States in order to identify the marine services that are in place nationally	Secretariats and PA Coordinators	ASAP

Annex V

JCOMM EXTREME WATER LEVEL PILOT PROJECT
(concept paper)

The following is a scope outline for a cross-JCOMM Pilot Project on Extreme Water Level in coastal/shelf zones (**JEWL = JCOMM Extreme Water Level**).

Aim:

- Federate the diverse national and international activities of extreme water level measurement, monitoring, modelling systems, analysis, forecasting and hindcasting techniques;
- Develop a prototype pre-operational framework for an new integrated operational system capable of issuing extreme water level warnings, advisories and bulletins; and
- Provision of expert advise to key stakeholders (e.g. Ministries, disaster risk managers and authorities, emergency response operators, media and the general public).

When scoping the Pilot Project, the following elements should be considered:

- Tides;
- Water level measurements (GLOSS);
- Storm surge;
- Near-shore waves;
- Precipitation (?);
- River discharge (?);
- Sea and river ices;
- Surface pressure;
- Surface winds;
- Other Meteorological & oceanographic parameters, as required;
- Satellite measurements and sea-level;
  - ❖ Altimeter and scatterometer
  - ❖ High resolution MW, VIS/IR, SAR (interferometric mode) for land inundation
- Models – forecast and hindcast mode;
  - ❖ Tides
  - ❖ Waves
  - ❖ Surges
  - ❖ Tsunamis
  - ❖ Climate changed world scenario
  - ❖ Hydrological models
- Operational communications infrastructures related to warnings/data transports; and
- Historical databases and climatologies (inundation maps, database of disasters risk, extreme waves and surges, etc).

Annex VI

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 Met-Ocean Services Conference 2008 (IMMSC 2008) is to:

- Establish and agree on International Met-Ocean 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 Met-Ocean 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 (Met-Ocean) 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 Met-Ocean 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 Met-Ocean 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 Met-Ocean 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 Met Office 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.

Annex VII

LIST OF ACTIONS
(decisions from SCG-III)

Ref.	Action	By whom	When
SCG-III 2.1.2	To approve the appointment of Dr Adrian Hines (Met Office, United Kingdom) as the Operational Ocean Forecasting Systems (OFS) Rapporteur to unify SPA strategy for ocean products development and maximize operational ocean forecast system outputs, and agree with the Terms of Reference (ToR)	Secretariat, and Co-presidents	Done
SCG-III 2.1.3	To prepare a first version of a *Guide to Ocean Products Formats, Symbology and Nomenclature* to the forth session of the SCG, to be finalized to the third session of JCOMM	Secretariat (leader), SPA Coordinator, ET Chairpersons and OFS Rapporteur	First version for SCG-IV; final version for JCOMM-III
SCG-III 3.1.2	To prepare a proposal for a core team membership to be discussed during the Second Session of the ETMSS and endorsed by JCOMM in its Third Session (JCOMM-III)	ETMSS Chairperson, SPA Coordinator and Secretariat	January 2007; JCOMM-III for endorsement
SCG-III 3.1.3	(a) To evaluate the possibility of the ETMSS also meet every year; and, in this regard, advised the ETMSS Chairperson and the Secretariat to define attractive agendas, and (b.) to ensure proper participation on these meetings	ETMSS Chairperson and Secretariat	Continuing
SCG-III 3.1.4 (i)	To prepare a draft work plan for the provision of graphical Maritime Safety Information (MSI) within the GMDSS, to be submitted on the ETMSS-II, taking into account the existing expertise of the Expert Team on Sea Ice on ECDIS	SPA Coordinator, ETMSS and ETSI Chairpersons, OFS Rapporteur and Secretariat	ASAP
SCG-III 3.1.4 (i)	To identify a contact point on the provision of graphical products using ECDIS with companies in Norway and Canada, and explore its potential application within GMDSS and SafetyNET	ETMSS and ETSI Chairpersons, SPA Coordinator and Secretariat	Prior to ETMSS-II (January 2007)
SCG-III 3.1.4 (i)	To make a formal request to the IHO to: (a.) approve additional met-ocean parameters within ECDIS, and (b.) use ECDIS within SafetyNET	Secretariat and ETMSS and ETSI Chairpersons	ASAP
SCG-III 3.1.4 (i)	To identify an expert to start working, in close liaison with the ETMSS Chairperson and under the supervision of the WMO Secretariat, exclusively on this project by early 2007	ETMSS Chairperson and Secretariat	2007
SCG-III 3.1.4 (iv)	To prepare an information document on this issue to be presented on the IMO Maritime Safety Committee 82 (MSC-82) meeting in Istanbul, Turkey, from 29 November to 8 December 2006	ETMSS Chairperson and Secretariat	Immediately

Ref.	Action	By whom	When
SCG-III 3.1.4 (vii)	Regarding the harmonization of units and scales (e.g., vary wind scales in different regions), to establish a liaison with the WMO TCP to find an appropriate solution	ETMSS Chairperson and Secretariat	ASAP
SCG-III 3.2.2	(a.) To identify and ensure an appropriate participation at the meeting (e.g., experts on Harmful Algal Blooms (HABs), Search and Rescue (SAR), operational systems, ocean modelling, observations, disasters operations, etc.), and to prepare a proposal for a core team membership (based on the list of representatives of AMOCs) to be discussed during the First Session of the ETMAES, and (b.) endorsed by the JCOMM in its Third Session	ETMAES Chairperson, SPA Coordinator and Secretariat	(a) ASAP; (b) JCOMM-III
SCG-III 3.2.2	To establish contact with the IOC Harmful Algal Blooms Group to strengthen collaboration on MAES	ETMAES Chairperson and Secretariat	ASAP
SCG-III 3.2.3	The MAES-MPERSS website would be dynamic and significantly enriched and improved with additional met-ocean products, specifications of available models and examples of marine accident emergency support	ETMAES Chairperson, SPA Coordinator and Secretariat	Continuing
SCG-III 3.2.3	To improve the MAES-MPERSS website vision to the users' community, to prepare an article on this subject to the WMO Bulletin	ETMAES Chairperson, SPA Coordinator and Secretariat	ASAP
SCG-III 3.2.4	A closer collaboration with the IMO, IHO and European Maritime Safety Agency on marine pollution, in order to avoid duplication	ETMAES Chairperson and Secretariat	ASAP
SCG-III 3.2.5	To organize, during the current intersessional period, a workshop on MAES with the appropriate industry involvement and sponsorship. This issue would be addressed during the ETMAES-I in order to define and propose the suitable scope of the workshop	ETMAES Chairperson and Secretariat	Intersessional Period
SCG-III 3.3.2	To articulate needs for wave observations (e.g. to be used on wave models forecast inter-comparison project)	ETWS Chairperson, SPA Coordinator, DBCP Chairperson and OOPC Chairperson	2007
SCG-III 3.3.2	To ensure that the *Guide to Storm Surge Forecasting* would be finalized for review for the ETWS-II	ETWS Chairperson and Secretariat	March 2007
SCG-III 3.3.4	A better link with the CAS WGNE should be defined; the first approach would be established by the SPA Coordinator jointly with the OFS Rapporteur, and the Secretariat to follow-up activities of the CAS WGNE	SPA Coordinator, OFS Rapporteur and Secretariat	ASAP

Ref.	Action	By whom	When
SCG-III 3.4.1	To annual update the publication WMO-No. 574	ETSI Chairperson and Secretariat	Continuing
SCG-III 3.4.1	To: (i.) update publications *Manual on Marine Meteorological Services* (WMO-No. 558) and *Guide to Marine Meteorological Services* (WMO-No. 471) to include guidelines and recommendations for the provision of sea ice information and warnings for mariners; and (ii) finalize the update of the publication *WMO Sea Ice Nomenclature and Illustrated Glossary* (WMO-No. 259), consistent with Ice Objects Catalogue and ENC requirements	ETSI Chairperson and Secretariat	Early 2007
SCG-III 3.4.2	To establish an appropriate link between the ETSI and DMPA, in particular on the GDSIDB project, to fill gaps and avoid duplication	ETSI Chairperson and DMPA Coordinator	ASAP
SCG-III 3.4.3	To convene a sea ice data analysis and assimilation workshop, to support the preparation and assimilation of sea ice and icebergs analysis and climatology products in numerical forecasting and climatic analysis	ETSI and ETMC Chairpersons, GCOS SST&SI	Early 2008
SCG-III 3.4.4	To promote ETSI tailored support for IPY and advertise sea ice products and services on the SPA website in order to show JCOMM activities on these matters, including a link to Ice Information Portal	ETSI Chairperson, SPA Coordinator and Secretariat	ASAP
SCG-III 3.4.5	(a.) To advocate the continuity of MSI broadcast by radio-faxes, especially for Arctic region, where this is the unique information available, and (b.) to investigate the same issue for Antarctic region. The Group recommended to use this as an example of a requirement for the provision of graphical products via SafetyNET	ETSI and ETMSS Chairpersons and Secretariat	Continuing
SCG-III 3.4.6	To pilot a portal that would permit users to download met-ocean products via Iridium, and to be kept the Group informed of developments in this area	DBCP Chairperson	Ongoing
SCG-III 4.2.1	A new satellite rapporteur should be appointed and Terms of Reference should be defined as soon as possible	SPA Coordinator, ETMSS, ETSI and DBCP Chairpersons, Secretariat and Co-presidents	ASAP
SCG-III 4.2.2	To review the CEOS/WMO database and to provide an updated version of the SoG by mid-2007	SPA Coordinator, ET Chairpersons, SDR and OFS Rapporteurs	Early 2007

Ref.	Action	By whom	When
SCG-III 5.1.1	To develop the first version of the SPA website to be operational by the end of 2006	SPA Coordinator, ET Chairpersons, CB, SDR and OFS Rapporteurs and Secretariat	End 2006
SCG-III 5.1.2	To check the main JCOMM website and SPA website on a continuing basis in order to ensure no duplication and overlaps of information	Secretariat	Continuing
SCG-III 5.1.3	To evaluate the possibility of obtain the electronic version of Manuals and Guides and to ensure that these could be online	Secretariat	End 2006
SCG-III 5.2.1	To prepare a SPA brochure describing JCOMM Services activities and how to 'get involved' in SPA	SPA Coordinator (Leader), ET Chairpersons, CB, SDR and OFS Rapporteurs and Secretariat	2007
SCG-III 5.3.1	To provide a list of SPA meetings, plus external meetings that members of the ETs that would attend to the Secretariat to ensure that this information is available on both websites as soon as possible	SPA Coordinator (Leader), ET Chairpersons, CB, SDR and OFS Rapporteurs and Secretariat	ASAP
SCG-III 5.4.1	To promote the development of met-ocean products in accordance with OpenSource, IHO and ISO standards (e.g., S57, S100, OCG, ISO 19115, GML 19136)	SCG Members and DMPA Coordinator	Continuing
SCG-III 5.4.2	To circulate the template for the 'Report of national contributions and future commitments to the ocean observing system' within JCOMM for comments	Secretariat and PA Coordinators	Early 2007
SCG-III 5.4.3	To prepare, in collaboration with other JCOMM Teams, a consolidate JCOMM questionnaire for users' feedback solicitation	Secretariat, PA Coordinators and ET Chairpersons	Ongoing
SCG-III 5.4.3	To ensure coordination and non-duplication of all JCOMM-related questionnaires that are linked and cross-referenced on websites with feedback solicited	Secretariat	Continuing
SCG-III 5.4.3	To ensure that the IMO would promulgate JCOMM information on maritime safety services and products, and that IMO solicit users' feedback on this information	SPA Coordinator, ETMSS Chairperson and Secretariat	ASAP
SCG-III 5.4.4	To ensure that sea ice information would be included within the questionnaires	Secretariat	Continuing

Ref.	Action	By whom	When
SCG-III 5.5.1	To initiate, as a priority activity and as soon as possible, the JCOMM comprehensive assessment study for outreach audiences of JCOMM activities	Secretariat and PA Coordinators	ASAP
SCG-III 6.1.1 (i)	To strengthen a better link between the WMO and IMO, IHO and ISO on Maritime Safety Services (MSS), Marine Emergency Accident Support (MAES) and Sea Ice (SI), establishing ownership on met-ocean catalogues where appropriated; identify focal points from these organizations on these three areas; and to formalize the relationship between JCOMM ETs and analogous groups (generally sub-Committees) of these organizations	ETMSS, ETMAES and ETSI Chairpersons, and Secretariat	ASAP
SCG-III 6.1.1 (ii)	To develop a cross-JCOMM pilot project on extreme water level (JEWL) (near-shore waves, surges and tides) in coastal/shelf zones (including assessment of current activities plus requirements; and defining a cross-JCOMM framework for develop the pilot project (noting the particular the existing experience and expertise of the Bureau of Meteorology, amongst others)	Mr Phillip Parker (Leader), SPA Coordinator, ET Chairpersons, OOPC Chairperson and OFS Rapporteur	Proposal by end of 2007; to initiate in early 2008; to report progress at JCOMM-III
SCG-III 6.1.1 (ii)	To contact the Chairperson of the Group of Experts for GLOSS (Dr Mark Merrifield) to define potential SL products and discuss JEWL-PP proposed	SPA Coordinator	Prior to next GE-GLOSS (June 2007)
SCG-III 6.1.1 (iii)	Noting the substantially increased oil and gas activities in the Arctic ocean, to develop a cross-ETs Pilot Project for the Arctic region focused on maritime services, support and disaster risk management (including sea ice and icebergs, oil spills, rogue waves, etc.)	ETSI Chairperson (Leader), SPA Coordinator, ETMSS, ETWS and ETMAES Chairpersons, and OFS Rapporteur	Proposal by end of 2007; to initiate in early 2008; to report progress at JCOMM-III
SCG-III 6.1.1 (iii)	The ETMAES to support ETSI on marine pollution matters in Arctic and Antarctic regions	ETMAES and ETSI Chairpersons	Continuing
SCG-III 6.2.3	To present JCOMM activities in support of the ocean-related hazards warning systems, in particular, the JEWL-PP proposal	Secretariat	December 2006
SCG-III 6.2.5 (i)	To update WMO No. 558 and WMO No. 471 to include guidelines and recommendations for the provision of tsunami warnings for mariners	ETMSS Chairperson, SPA Coordinator and Secretariat	JCOMM-III
SCG-III 6.2.5 (ii)	To provide the draft IOC Tsunami Glossary to the ETMSS for review and comment	ETMSS Chairperson, SPA Coordinator and Secretariat	Early 2007

Ref.	Action	By whom	When
SCG-III 6.2.5 (iii)	To prepare a document on provision of MSI to mariners related to tsunamis and circulate the document for comments	ETMSS Chairperson, SPA Coordinator, Secretariat and relevant experts	ASAP
SCG-III 6.2.5 (iv)	To prepare a user-friendly document to formalize and ensure the use of CREX code format for SL for use by National agencies responsible to implement or upgrade SL network	Secretariat	ASAP
SCG-III 6.3.3	To evaluate the most useful way to provide JCOMM services via the WIS (e.g., web maps servers)	SPA and DMPA Coordinators	Ongoing
SCG-III 6.3.3	The DMPA Coordinator would contact other PAs to try to fill gaps	DMPA Coordinator	Continuing
SCG-III 6.4.1 (i)	(a.) To continue to develop the extreme wave database, (b.) A more comprehensive database, including satellite, should be proposed at the JCOMM-III	ETWS and ETMC	(a.) Ongoing; (b.) JCOMM-III
SCG-III 6.4.1 (ii)	To develop climatologies and statistics for mapping oil spills and HABs	ETMAES and ETMC Chairpersons	JCOMM-III
SCG-III 6.4.1 (iii)	To explore how climatologies of storm surge inundation zones can be constructed	ETWS and ETMC Chairpersons, SPA Coordinator and Secretariat	JCOMM-III
SCG-III 6.4.1 (iv)	To support assimilation of sea ice and icebergs analysis and climatology data within the GDSIDB archive for implementation of the GCOS tasks and to cooperate on preparation of the Sea Ice Data Analysis and Assimilation Workshop	ETSI and ETMC Chairpersons, SPA Coordinator and Secretariat	Ongoing
SCG-III 6.5.1	To compile the information on users and applications already available on the various JCOMM publications and develop a publication 'Marine Services in the World'	Secretariat	2008
SCG-III 6.5.1	To develop a core portfolio on users/applications across the SPA ETs	SPA Coordinator, ET Chairpersons, OFS Rapporteur and Secretariat	2008
SCG-III 6.6.1	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	SPA Coordinator, ET Chairpersons, SDR and OFS Rapporteurs, and Secretariat	Early 2008

Ref.	Action	By whom	When
SCG-III 7.2.1	To provide details on ET issues for design the IMMSC Conference and define the Steering Group membership	SPA Coordinator, ET Chairpersons, OFS Rapporteur and Secretariat	Early 2007
SCG-III 8.1.1	To announce Storm Surge Symposium on SPA and JCOMM websites as soon as possible	ETWS Chairperson, SPA Coordinator and Secretariat	ASAP
SCG-III 8.1.2	To gather CB material available within each ET and make them available on a JCOMM Services education/CD webpage	Secretariat and SPA Coordinator	2007
SCG-III 8.2.1	To ensure that CB Rapporteurs meet to discuss cross-JCOMM CB Strategy	Secretariat and CB Rapporteur	Continuing
SCG-III 8.2.2	To ensure that the *ad hoc* Working Group on CB resources considers the four stages of CB development in the new JCOMM CB Strategy	CB Rapporteur, SPA Coordinator and Secretariat	Early 2007
SCG-III 8.3.1	To develop OceanTeacher/Bilko lessons on the activities of each ET, covering the different stages	SPA Coordinator, ET Chairpersons, CB, OFS, and SDR Rapporteurs and Secretariat	JCOMM-III
SCG-III 8.3.1	To circulate information and material on this regard	SPA Coordinator	ASAP
SCG-III 9.1.1	To revise ET specific work plans in accordance to the SPA priorities and TLOs, and send a revised version to the Secretariat	SPA Coordinator, ET Chairpersons and CB, SDR and OFS Rapporteurs, and Secretariat	ASAP
SCG-III 9.1.1	To compile ET contributions and circulate the SPA work plan for a last revision before publishing	SPA Coordinator and Secretariat	ASAP
SCG-III 10.1 (i)	To evaluate the possibilities of GEO work plan on the work of the SPA ETs	SPA Coordinator, ET Chairpersons, CB, SDR and OFS Rapporteurs, and Secretariat	ASAP
SCG-III 10.1 (i)	To circulate the current GEO work plan for comments	SPA Coordinator	ASAP
SCG-III 10.1 (ii)	To evaluate the status of the proposal of the *Storm Surge project for monitoring, hindcasting and forecasting in the Gulf of Guinea* and circulate this proposal within the SCG	Secretariat	ASAP

Annex VIII

ACRONYMS AND OTHER ABBREVIATIONS

AMOC	Area Meteorological and Oceanographic Coordinators
BSIM	Baltic Sea Ice Meeting
BUFR	Binary Universal Form for Representation of Meteorological Data
CARTWS	Caribbean Tsunami Warning System
CAS	Commission for Atmospheric Sciences
CB	Capacity Building
CBS	Commission for Basic Systems (WMO)
CEOS	Committee on Earth Observation Satellites
CPRNW	Committee for Promulgation of Radio Navigational Warnings (IHO)
CSA	Canadian Space Agency
DBCP	Data Buoy Cooperation Panel
DMCG	DMPA Coordination Group
DMPA	Data Management Programme Area
DPM	Disaster Prevention and Mitigation
DRM	Disaster Risk Management
E2EDM	End-to-End Data Management
EC	European Commission
ECDIS	Electronic Chart Display Information System
EMSA	European Maritime Safety Agency
ENC	Electronic Navigational Charts
ESA	European Space Agency
ET	Expert Team
ETDMP	Expert Team on Data Management Practices
ET-EGOS	Expert Team on Evolution of the Global Observing System
ETMAES	Expert Team on Marine Accident Emergency Support
ETMC	Expert Team on Marine Climatology
ETMSS	Expert Team on Maritime Safety Services
ETSI	Expert Team on Sea Ice
ETWS	Expert Team on Wind Waves and Storm Surges
EVC	Essential Climate Variable
GCOS	Global Climate Observing System
GDSIDB	Global Digital Sea Ice Data Bank
GEO	Group on Earth Observation
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GUSOD	Global Ocean Surface Underway Data Project
HAB	Harmful Algal Bloom (IOC)
HF	High Frequency
ICG	International Coordination Group
IGOS	Integrated Global Observing Strategy
IHO	International Hydrographic Organization
IICWG	International Ice Charting Working Group
IMMSC	International Met-ocean Maritime Services Conference
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IODE	International Oceanographic Data and Information Exchange (IOC)
IOI	International Ocean Institute
IOTWS	Indian Ocean Tsunami Warning and Mitigation System
IPY	International Polar Year
ISO	International Standards Organization
ITSU	International Coordination Group for the Tsunami Warning System in the Pacific
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology

J-EPB	JCOMM Electronic Product Bulletin
JEWL-PP	JCOMM Extreme Water Level Pilot Project
MAES	Marine Accident Emergency Support
MAN	JCOMM Management Committee
MCSS	Marine Climatological Summaries Scheme
MPERSS	Marine Pollution Emergency Response Support System (WMO)
MSI	Maritime Safety Information
MSS	Maritime Safety Services
NAVTEX	International system for reception of marine safety information
NEAMTWS	North Eastern Atlantic, the Mediterranean and connected seas
NMHS	National Meteorological (and Hydrological) Service (WMO)
NOG	Non-Governmental Organization
ODAS	Ocean Data Acquisition Systems, Aids and Devices
OFS	Operational Ocean Forecasting Systems
OOPC	Ocean Observations Panel for Climate
OPA	Observations Programme Area
PA	Programme Area
PTWS	Pacific Tsunami Warning System
RMC	Regional Meteorological Centre
SAMOS	Shipboard Automated Meteorological and Oceanographic System
SAR	Search and Rescue
SCG	SPA Coordination Group
SDR	Satellite Data Requirement
SI	Sea Ice
SL	Sea Level
SOLAS	International Convention for the Safety of Life at Sea
SPA	Services Programme Area
SST	Sea Surface Temperature
TCP	Tropical Cyclone Programme (of WMO)
TOL	Top Level Objectives
TOR	Terms of Reference
TSMAD	Transfer Standard Maintenance and Applications Development
TT-OPD	Task Team on Ocean Products Development
TTR	Task Team on Resources
URD	User Requirement Document
UK	United Kingdom
WGNE	Working Group on Numerical Experimentation
WIS	WMO Information System
WMO	World Meteorological organization
WS	Wind Waves and Storm Surges