

**SERVICES PROGRAMME AREA
COORDINATION GROUP (SCG)
FIRST SESSION**

Geneva, Switzerland, 3-6 April 2002

FINAL REPORT

JCOMM Meeting Report No. 12

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NOTE

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GENERAL SUMMARY OF THE WORK OF THE SESSION

1. Opening of the session

1.1. Opening

1.1.1 The first session of the Services Coordination Group of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) was opened at 0930 hours on Wednesday, 3 April 2002, in conference room 7L of the WMO headquarters building, Geneva, by Mr Phillip Parker, chairman of the Group and Services Programme Area Coordinator. Mr Parker welcomed participants and called on the Assistant Secretary-General of WMO, Professor Hong Yan, to address the meeting.

1.1.2 On behalf of the Secretary-General of WMO, Professor G.O.P. Obasi, and the Executive Secretary IOC, Dr P. Bernal, Professor Yan welcomed participants to the meeting, to WMO and to Geneva. He noted that WMO and IOC were now entering into a new era of inter-organizational scientific collaboration, which was at the same time exciting and complicated. It was exciting because, for the first time, there was the opportunity to address important issues, such as the provision of an integrated and stable ocean database for global climate studies and the implementation of operational oceanography, at the intergovernmental level, in a multi-disciplinary and multi-institutional way. At the same time, it was complicated primarily because of this multi-disciplinary approach.

1.1.3 Professor Yan then stressed that the first JCOMM session, in Iceland in June 2001, was only a beginning, and that it was now up to the Management Committee and the Programme Area Coordination Groups, in particular, to provide the ideas, guidance and oversight required for the Commission to achieve its ambitious objectives. In this context, the present session of the Services Coordination Group had been scheduled quite early in the intersessional period, in order both to build on the momentum and enthusiasm generated at JCOMM-I, and also to allow the Group to review the services programme and provide guidance to the individual expert teams and rapporteurs.

1.1.4 Professor Yan then reviewed briefly a number of specific priority issues to be addressed during the meeting, which included the enhanced implementation of MPERSS, the long-term future of the JCOMM Products Bulletin and the assessment of requirements for new types of services. He concluded by assuring the meeting of the full and ongoing support of the joint JCOMM Secretariat, both during the present meeting and throughout the intersessional period. He then wished participants a very successful session, and an enjoyable stay in Geneva.

1.1.5 The chairman of the Group, Mr Phil Parker, then outlined his ideas and priorities for the Services Programme Area, both for the present meeting and for the remainder of the intersessional period. He noted that the Group was fortunate to have inherited from the predecessor of JCOMM a substantial and long-standing services work programme. This programme is directed towards providing the products and data specifically required by users. At the same time, there remained a number of important ongoing and new issues which required the attention of the Group. These included: the further development of MPERSS, on the basis of the implementation of the many actions proposed at JCOMM-I; the development of a more robust framework for the maintenance of the JCOMM Electronic Products Bulletin; the planned workshops on MPERSS and new ocean products; and the future of various operational information publications.

1.1.6 The list of participants in the meeting is given in *Annex I*.

1.2 Adoption of the agenda

1.2.1 The meeting adopted the agenda for the session on the basis of the provisional agenda prepared by the Secretariat. This agenda is given in *Annex II*.

1.3 Working arrangements

1.3.1 The meeting agreed its hours of work and other practical session arrangements. The documentation for the meeting was introduced by the Secretariat.

2. Report of the chairman and the Secretariat

Report of the chairman

2.1 The meeting noted with interest and appreciation the report of the chairman of the Group, Mr Phil Parker. This report, which is reproduced in *Annex III*, outlined the main activities so far within the overall Services Programme Area, as well as the main results of the first session of the JCOMM Management Committee which concerned the Services PA. These activities are addressed in detail under the appropriate agenda items.

2.2 Mr Parker then introduced two further documents: the first contained a detailed work strategy for the Services Programme Area, including its component Expert Teams; and the second was an analysis of the possibilities for convening the two workshops agreed at JCOMM-I, on MPERSS and new ocean products. The meeting decided to review and revise if necessary the overall Services Work Strategy at the end of the meeting. The final agreed work strategy is reproduced in *Annex IV*.

2.3 After some discussion regarding possible timing for the two workshops, and bearing in mind funding issues, the JCOMM work programme over the coming two years, and the requirements of the host country France, the meeting finally agreed that the workshops should, if possible, take place at the same venue and back-to-back (with perhaps an intervening weekend), preferably in the second quarter of 2004. The Secretariat was requested to write to Météo France with this proposal, to seek its formal agreement as well as the preferred dates. (**Action:** Secretariat) Planning for the workshops could then proceed on this basis. Further actions regarding the two workshops are recorded under the relevant agenda items below.

Report on JCOMM-I and subsequent actions

2.4 The meeting recalled that JCOMM was formally established in 1999 by Thirteenth Congress and the Twentieth Session of the IOC Assembly, through a merger of the Commission for Marine Meteorology (CMM) and the Joint IOC/WMO Committee for IGOSS. JCOMM is the reporting and coordinating mechanism for all operational marine activities in both WMO and IOC. As such, it is charged with the international coordination, regulation and management of an integrated, operational, oceanographic observing, data management and services system which will eventually become the ocean equivalent of the World Weather Watch.

2.5 The first session of JCOMM took place in Akureyri, Iceland, from 19 to 29 June 2001. The session was attended by 113 participants from 42 Members/Member States and 11 international organizations. A summary report of the main results of the session of relevance to the SCG is given in *Annex V*.

2.6 The meeting was informed that the JCOMM Management Committee had held its first session in Geneva in February 2002. Among the many issues addressed, those of interest to the SCG included:

- (i) A thorough review of the Programme Area work plans and implementation strategies;
- (ii) The appointment of Dr Hiroshi Kawamura as satellite rapporteur and Dr Tony Knap as rapporteur on non-physical variables and JCOMM;

- (iii) The identification of integration and overarching issues for JCOMM, and the development of an outline overall strategy;
- (iv) The development of plans for coordinating the Brussels 150th anniversary and CLIMAR-II conferences in 2003.

2.7 The meeting noted all these developments with considerable interest, and agreed that they provided an excellent framework and overall objectives for its own work, both during the coming week and in the future.

Report of the Secretariat

2.8 The meeting further noted with appreciation the various actions taken by the joint JCOMM Secretariat in support of the Commission, and in particular the Services Programme Area, since JCOMM-I. Members of the Group were urged to:

- (i) Visit the UN Atlas of the Oceans (<http://www.oceansatlas.org/>) once it was formally opened to the public on 6 June 2002, and offer comments and suggestions as appropriate regarding its enhancement within the context of JCOMM and its work;
- (ii) Also visit the new JCOMM web portal being hosted by IOC (<http://www.jcomm.net/>), provide comments and suggestions as appropriate, and also make use of the portal as a means for information exchange in support of JCOMM;
- (iii) Provide the Secretariat with suggestions regarding a JCOMM logo. (**Actions:** Group members and Secretariat)

3. Maritime Safety Services

3.1 The meeting noted with interest and appreciation a report by the chairman of the Expert Team on Maritime Safety Services, Mr Henri Savina. A summary of this report is in *Annex VI*.

3.2 Mr Savina informed the meeting that the first session of the Expert Team (ETMSS-I) was planned to be held in Lisbon Portugal, 11 to 14 September 2002 hosted by the National Meteorological Service of Portugal. Major agenda items for ETMSS-I include:

- Recommendations/guidelines for preparation of bulletins broadcast by NAVTEX
- Guidelines for sea state description including, if feasible, rogue/freak waves
- Weather information in graphical form for GMDSS
- A quality control index
- New format for publication WMO No. 9, Vol. D Information for Shipping
- Updating the Manual on Marine Meteorological Services (new text related to non-GMDSS broadcasts, products in case of SAR events, use of PAN PAN, guidelines for visibility forecasts, etc.)

3.3 The meeting was informed that the ETMSS chair attended the SafetyNET and NAVTEX Panel sessions (Geneva, July 2001), and that further sessions of these international panels would be held in conjunction with the ET meeting in Lisbon, thus facilitating mutual interactions.

3.4 The meeting noted that urgent/high priorities of ETMSS work include:

- Develop a facility for transmitting SafetyNet graphical products via Inmarsat C
- Review the proposed designation of the Kenya Meteorological Department as a GMDSS Preparation Service;
- Add complementary guidelines in the *Manual on Marine Meteorological Services* (WMO-No.558) for NMS issuing marine weather forecasts for NAVTEX broadcast;

- Review the proposal of the SCG on the future contents and updating procedures of the publication WMO No. 9, Vol. D Information for Shipping.

3.5 The meeting recognized that the issue of graphical information delivery to users at sea was not a simple one. It should take into account a variety of formats and procedures such as ECDIS, in addition to Inmarsat, and should also take into account related work in other international organizations such as IMO and IHO, as well as other WMO bodies including CBS.

3.6 The meeting was informed that Phil Parker, Services PA Coordinator, would visit Inmarsat on 8 April 2002 to discuss the issue of graphical products via Inmarsat C with Andy Fuller and Vladimir Maksimov. The meeting agreed that, after this discussion, Phil Parker and Henri Savina would, in collaboration with appropriate additional experts, prepare a document on this issue for consideration by ETMSS-I. (**Action:** Phil Parker and Henri Savina) In view of the complexity and work involved in this topic, the meeting agreed with the proposal of Mr Savina for ETMSS-I to appoint a rapporteur to undertake a full review of the subject and inform the team accordingly. (**Action:** ETMSS)

3.7 Mr. Vasily Smolyanitsky, chairman of the Expert Team on Sea Ice, informed the meeting that ETSI was preparing a progress report on electronic charts. The meeting recognized that this report could be closely related to the discussion on graphical products, and thus should be provided to ETMSS-I for reference. (**Action:** Vasily Smolyanitsky and Secretariat)

3.8 The meeting recalled that the Kenya Meteorological Department (KMD) had proposed at JCOMM-I that KMD should be designated as a GMDSS Preparation Service and that the SCG and ETMSS were requested to make an appropriate recommendation on this matter to the Management Committee. The meeting recognized that collaboration with NMS with existing GMDSS responsibilities in Metarea VIII(S) (Mauritius and France (La Reunion)) was essential in further preparing this proposal. It was agreed that, in preparation for ETMSS-I, the chairman of ETMSS would request Mauritius and Kenya to jointly prepare a session document, which should cover detailed practical and technical issues such as how to transfer products from Kenya to the Issuing Service in Mauritius. (**Action:** Chairman ET, Secretariat, Kenya and Mauritius)

3.9 The meeting noted with appreciation that a questionnaire survey on NAVTEX broadcasts was being conducted by Mr Savina. The results will be discussed at ETMSS-I. It further noted with appreciation that questionnaire surveys on general sea state description and visibility and on rogue/freak waves were being carried out by Mr Ian Hunter (South Africa) and Mr Savina, respectively. The results of these will also be discussed at ETMSS-I.

3.10 With regard to requirements for HF radio broadcasts, the meeting recognized that a survey on such requirements would be necessary for an eventual revision of the *Manual on Marine Meteorological Services* (WMO-No.558) regarding non-SOLAS vessels. It agreed that an ad hoc task team should be established for this task. (**Action:** ETMSS)

3.11 The meeting recognized the desirability of having a unique web site for GMDSS services, including at least the real time bulletins from Issuing Services, to support ships (both SOLAS and non-SOLAS) with the capability for Internet connection. It requested the first session of the ETMSS to address this issue. (**Action:** Chair ETMSS and Secretariat)

4. Wind waves and storm surges

4.1 The meeting noted with interest and appreciation a report by the chairman of the Expert Team on Wind Waves and Storm Surges (ETWS), Mr Val Swail. This report outlined in some detail the main issues facing the expert team, as well as an overall strategy and progress to date in addressing them, and is given in summary form in *Annex VII*.

4.2 In the discussions on this item, the following points were noted in particular:

- (i) It was hoped that the *Guide to Wave Analysis and Forecasting* (WMO-No. 702) would shortly be available through the WMO web site; (**Action:** Secretariat)
- (ii) It was expected that future updates to this guide would be in the form of a *dynamic part*, in a similar fashion to the *Guide to the Applications of Marine Climatology* (WMO-No. 781). Consideration would be given by the Expert Team to including selected papers from the 7th International Workshop on Wave Hindcasting and Forecasting (Banff, October 2002) and CLIMAR-II in this dynamic part. The meeting suggested that the dynamic part might also include a paper on the Maxwave Project; (**Action:** Expert Team on WS)
- (iii) An overall coordinator/editor was being urgently sought for the planned Guide to Storm Surge Forecasting, so that the project might begin as soon as possible; (**Action:** Chairman and members ETWS)
- (iv) The expert team was planning to take an active part in a number of conferences, symposia and training workshops in the next two years, including the Banff workshop noted above, CLIMAR-II, a workshop on wave and surge forecasting for Caribbean countries (Miami, USA, February 2003), the GODAE conference, and further wave and surge workshops for the South China Sea;
- (v) The meeting recommended to the expert team that a JCOMM Technical Report should be prepared on the wave model verification project, giving some details of the conduct of the project as well as results. (**Action:** ETWS and project participants) The expert team was also asked to prepare an information page on the project, including criteria for participation and contacts, for access via the JCOMM web site; (**Action:** ETWS)
- (vi) A short document should be prepared for the first session of the Observations Coordination Group outlining the status of actions regarding wave observational data, both in situ and remotely sensed; (**Action:** Karen Doublet, Val Swail, Secretariat)
- (vii) The first session of the Expert Team on Wind Waves and Storm Surges was planned tentatively for June 2003 in Halifax, Canada. (**Action:** Chairman ETWS and Secretariat)

4.3 The meeting also noted with interest a short information note from the co-president of JCOMM, Johannes Guddal, concerning the recent Hanoi training workshop on waves and storm surges (January 2002), on the interconnections with GOOS in this region, and on plans for the continuation of this workshop series for countries in the South China Sea region. It agreed that the ETWS should continue to contribute to and support these workshops as and when appropriate. (**Action:** ETWS)

5. Sea ice

5.1 The meeting noted with interest and appreciation a report by the chairman of the Expert Team on Sea Ice (ETSI), Mr Vasily Smolyanitsky, regarding the present status and effectiveness of its activities during the intersessional period since the last meeting (Ottawa, May 2000), and plans for the future.

5.2 The meeting noted that substantial progress had been made in the implementation of the previous work plan. This included a revision of the WMO Sea Ice Nomenclature, development of new standards for sea ice charts, new formats for operational and historical sea ice data exchange, colour coding, ice decay and incorporation of sea ice information in electronic charting systems in

collaboration with the International Ice Charting Working Group (IICWG), the Baltic Sea Ice Meeting (BSIM) and the Electronic Chart Display Information System (ECDIS). Reports on the above items will be prepared and discussed during the first session of ETSI (Buenos Aires, October 2002).

5.3 The meeting noted and approved the ET strategy and work plan, which are based on the plan developed by the JCOMM-I, revised and updated by ETSI members during November 2001 - January 2002. The meeting noted that ETSI will provide in future specific strategic tasks including review and advice on scientific, technical and operational aspects of sea ice observations and forecasting, coordination of service development, training and linkages with major international programmes. A summary of this work strategy is given in *Annex VIII*.

5.4 The meeting noted with interest progress achieved by the ET within the GDSIDB project. Experts of the steering group for the GDSIDB, co-chaired by Professor Roger Barry from the WDC-A for Glaciology/NSIDC and Dr Ivan Frolov from AARI, continue to provide QC and software enhancement for archived data for the support of climate oriented programmes. GDSIDB has a plan to access a number of additional sea ice data sets to be digitized for Arctic and Antarctic areas, as well as for the Baltic Sea, the Sea of Okhotsk, the Bohai Sea and Greenland waters. GDSIDB web pages (<http://www.aari.nw.ru/gdsidb>) were extended and now contain information on ETSI activities as well.

5.5 The meeting recognized the close collaboration of the ETSI with WCRP, GCOS and CliC. The meeting noted that the chairman of the ET presented reports on the GDSIDB activities at the Workshop on Advances in the Use of Historical Marine Climate Data (Boulder, Colorado, USA, January-February 2002), and the 17th Conference "Okhotsk Sea and Sea Ice" (Mombetsu, Japan, February 2002). The first workshop recommended to the ETSI and to the steering group for the GDSIDB to develop blended sea ice variables for global climate reanalysis and to prepare historical sea ice data information for the Southern Ocean during 2002-2004. Recognizing the direct value of the GDSIDB to scientific programmes, as well as to services and other sea-ice activities, the meeting stressed the importance of continuing this valuable work of the ETSI during the coming inter-sessional period. (**Action:** ETSI)

5.6 The ETSI chairman presented information on the forthcoming first session of the Expert Team on Sea Ice and the ninth session of the Steering Group for GDSIDB, which will be held in Buenos Aires, Argentina, 21 to 25 October 2002, hosted by the Argentinean Navy Hydrographic Service. The meeting noted a provisional agenda and an annotated provisional agenda for this meeting and recommended:

- (i) to include in the agenda a separate item on the dissemination of sea ice information to shipping and other marine users, including through INMARSAT SafetyNET, as part of the GMDSS; (**Action:** Secretariat and chairman ETSI)
- (ii) to prepare a report on this issue for the first session of the Expert Team Maritime Safety Services (Lisbon, Portugal, 11-14 September 2002). (**Actions:** Chairman and members ETSI, Secretariat)

5.7 The meeting recommended and the chairman of ETSI agreed to prepare information documents on the status of ETSI activities for the first session of the Data Management Coordination Group (Paris, May 2002) and the first session of the Observations Coordination Group (La Jolla, USA, April 2002). (**Action:** Chairman ETSI and Secretariat)

6. Marine pollution related services

6.1 The meeting noted with interest and appreciation a report by the Rapporteur on MPERSS, Mr Pierre Daniel. The Rapporteur recognized that the tasks defined by JCOMM-I as relating to MPERSS stemmed directly from the recommendations of the MARPOLSER98 Workshop and could be seen as being of two categories:

- (i) a series of three “structural” recommendations, dealing with (a) the inclusion of the concept of centres of excellence in meteorological and oceanographic support for pollution emergency response; (b) possible adjustments to the areas of responsibility for Marine Pollution Incidents (MPI); and (c) the development of a dedicated web site;
- (ii) a series of recommendations regarding the updating of the system plan.

In addition, JCOMM-I had (a) encouraged bilateral collaboration between the Area Meteorological and Oceanographic Coordinators (AMOCs) that had experienced success in implementing MPERSS in their MPI areas, and the others, in whose areas problems were remaining; (b) proposed the convening of a second MPERSS Workshop prior to JCOMM-II; and (c) requested that appropriate technical guidance be developed for MPERSS. The full report of Mr Daniel is attached as *Annex IX*.

6.2 The meeting recognized that discharging all these tasks was not possible for a single Rapporteur. It therefore recommended that a small *ad hoc* Task Team be established to undertake that work, and suggested for the Task Team the terms of reference as reproduced in *Annex X*. The Secretariat was requested to take actions to seek co-presidents approval for the establishment of the *ad hoc* Task Team. (**Action:** Secretariat). It was agreed that the Task Team would work mainly by email correspondence and that its members will take the opportunity of other meetings they would attend together to discuss items that deserved live exchanges of views.

6.3 Regarding the membership of the *ad hoc* Task Team, the meeting agreed that it should encompass as core members those AMOCs that had experienced success in implementing MPERSS. It therefore requested that a letter be sent to those AMOCs, seeking their contribution, or their designation of an alternate as contributor, to the work of the Task Team. (**Action:** Secretariat). It further requested that the tasks be prioritized and assigned to individuals, as soon as the members of the Task Team were identified. (**Action:** SCG chair and MPERSS Rapporteur). The meeting further agreed that a sub-set of the *ad hoc* Task Team should constitute the core of the technical Organizing Committee for the second MPERSS Workshop, entrusted with drafting a programme for the Workshop, identifying keynote speakers, preparing a Workshop brochure, etc. (**Action:** MPERSS Rapporteur with assistance of SCG chair).

6.4 Regarding the development of a MPERSS web site, the meeting agreed to make use of the JCOMM portal established at IOC. The MPERSS part should contain basic information on the system, such as: what is MPERSS; who are the contact points; what are its plans; the addresses of related web sites, etc. Updating would occur as and when necessary. (**Action:** MPERSS Rapporteur with assistance of SCG chair).

6.5 The question was raised of the relationship between MPERSS on the one hand, and Maritime Safety Information (MSI) and Search and Rescue (SAR) events on the other. The meeting recognized this question was important and requested the *ad hoc* Task Team to address it and make relevant recommendations (**Action:** *ad hoc* Task Team).

7. JCOMM Products bulletin

7.1 The meeting noted with considerable interest a presentation on the JCOMM Electronic Products Bulletin (JEB) by Dr Yves Tourre, the Bulletin Scientific Editor. It expressed its appreciation and thanks to Dr Tourre for having developed such a comprehensive and useful tool for publicizing operational oceanography worldwide. It recognized that the Bulletin was used for a variety of purposes, including hindcasting, nowcasting, monitoring, decision-making, training, etc. Its value was demonstrated by the number of hits on the site (some 9,000 per day as a mean) and the volume of data downloaded from the site (some 2000 gigabytes per day as a mean). The meeting further recognized that what Dr Tourre had developed, in collaboration with Dr Beno

Blumenthal, was in fact more than a mere bulletin, but rather a highly sophisticated “data display”, and that this should be highlighted at the level of the Bulletin public relations.

7.2 Dr Tourre presented his view on the future of the Bulletin, which he called “Survival and future”. A schematic of Dr Tourre’s presentation is given in *Annex XI*. The meeting recognized that, up to the present time, the Bulletin’s development, and its success, were based upon the *pro bono* work of a small number individuals. It expressed the view that, within the context of JCOMM, such a situation, which was certainly unavoidable and even desirable in the early stages of Bulletin development, should now evolve towards a more operational mechanism. This could be based upon an organizational structure and some well-defined tasks, irrespective of the individuals involved.

7.3 With that in mind, the meeting agreed it had to consider two sets of actions for the future of the Bulletin: (1) how to “stabilize” it from a managerial standpoint; (2) how to pursue future development of the Bulletin and identify the most efficient ways for survival.

7.4 Regarding the managerial question, the meeting recognized it would most likely be best taken care of through one or more national operational agencies (since the Bulletin might well be prepared in a decentralized way). On the other hand, that issue also involved a number of highly technical aspects. Those technical aspects had to be outlined so that a national operational agency may be requested to participate in managing the Bulletin. The meeting therefore requested Dr Tourre, assisted by specialists in information technology, to prepare a technical proposal that could be submitted to potential interested national agencies (**Action:** Dr Tourre and IT specialists). At a later stage, if agreement had been reached with one or more agencies, more detailed specifications would be determined as necessary.

7.5 Regarding the second item above, the meeting expressed the view that the kinds of tasks involved should be entrusted to a dedicated Editorial Board. It therefore requested Dr Tourre to draft terms of reference for the future Board and to make suggestions regarding its composition (scientific versus operational representation, geographical coverage, variety of disciplines involved, etc.). (**Action:** Dr Tourre).

7.6 The meeting highlighted the relationship between the Bulletin and the Specialized Oceanographic Centres (SOCs) of the former Integrated Global Ocean Services System (IGOSS). It requested the drafting group on SOCs, established by the JCOMM Management Committee at its first session, to keep that aspect of the SOCs duties and achievements in mind when making proposals regarding the future of the SOC network. (**Action:** Secretariat and drafting group)

7.7 The meeting recalled that JCOMM-I had agreed to convene a workshop on new JCOMM Products during the intersessional period. It further recalled its decision to hold that workshop in connection with the second workshop on MPERSS, during the second quarter of 2004, in principle in Toulouse (see paragraph 2.3 above). It agreed that the workshop should last not more than five days. That implied that two days would be devoted to the presentation of emerging new products, and the remaining time to specify how to implement these new products within JEB. The meeting requested that the future Editorial Board for the Bulletin (see paragraph 7.4 above) should form the core of the Organizing Committee for the Workshop and begin preparing an agenda and identifying keynote speakers as soon as possible. (**Action:** Dr Tourre and Organizing Committee). The meeting further requested that the question of the co-sponsorship of the workshop be addressed as soon as possible, in order to (i) attract potential sponsoring agencies; and (ii) to ensure end-users participation in the workshop. (**Action:** Secretariat with Dr Tourre’s assistance).

8. Review of Operational Information Publications

8.1 The meeting recalled that WMO publishes *Weather Reporting (WMO-No.9)*, which is the reference publication on the existing facilities and services available in the operation of the World Weather Watch. Volume D -*Information for shipping* of this publication includes Meteorological Broadcast Schedules for Shipping and other Marine Activities, Coastal Radio Stations Accepting

Ships' Weather Reports and Oceanographic Reports, Specialized Meteorological Services, etc. Up to the present time it has been maintained as a loose leaf, three-sectioned printed publication, which is updated by insertion/deletion/replacement of pages. Updates are implemented by the WMO Secretariat, on advice from Members.

8.2 The meeting recognized that rising publication costs, continuing complexities in managing updates to the printed version of Vol. D and major changes in the usage requirements and preferences of WMO Members and other existing and potential new users, were necessitating substantial changes to both publishing and updating procedures for the publication. It was informed that the WMO Secretariat had prepared an electronic version of the publication, for distribution to Members and other users. It noted that, for the moment, this electronic version is simply a mirror of the paper version and that JCOMM had been requested to review and make recommendations regarding the future structure, contents and browsing capabilities of the publication, for incorporation into future revisions.

8.3 To undertake this task, Mr Parker had established an ad hoc Task Team, comprising the SCG Chair, Mr Hassan Bouksim (Morocco) and Dr Jae Won Lee (Korea). The meeting agreed the terms of reference for the team (*Annex XII*). The team will meet by correspondence and make concrete proposals on revised contents and updating mechanisms. It further agreed that, in the preparation of such proposals, a questionnaire survey would be required, and that the first session of the Expert Team on Maritime Safety Services (ETMSS-I) (Lisbon, September 2002) would also provide an opportunity to review the publication. Specific proposals concerning the revised Volume D will be then submitted to the second session of the JCOMM Management Committee (MAN-II) (Paris, February 2003) for its approval. After the approval, the proposal will be passed to the WMO Secretariat, which will take necessary technical actions based on the proposal. (**Actions:** Task Team, chair ETMSS, chair SCG and Secretariat)

8.4 The meeting noted that the "*Handbook on Marine Meteorological Services (WMO/TD-No. 348)*" was published in 1991 as an easily accessible reference book on the availability of such services on a worldwide basis. It recognized that information in the handbook was useful, but it should not necessarily any longer be an independent paper publication, in view of the future availability of Volume D in an easily readable electronic form. The meeting therefore proposed to the ad hoc task team to consider the possibility that a revised Volume D should also contain a chapter which essentially contained the information now given in the handbook, appropriately updated. (**Action:** Task Team)

8.5 The meeting recognized that this work also had implications for other operational information publications in the marine field, and it requested the respective Expert Teams to take this into account in their work. (**Action:** Expert Teams)

9. Other service issues

9.1 Monitoring of marine meteorological services

9.1.1 The meeting agreed that direct interaction with and feedback from users is an essential part of the provision of high quality and valuable marine services. A marine meteorological services monitoring programme was initiated by CMM in 1981 and user surveys have been conducted. JCOMM-I agreed on its continuation and requested the ETMSS to review the survey format and to consider the possibilities for disseminating the survey in the future to ships' masters via SafetyNET, to ensure a wide receipt.

9.1.2 The meeting agreed on the importance of continuing this survey on a regular basis, noting that it was directed primarily to users (shipping) subject to SOLAS regulations. It suggested that the ETMSS consider including in the survey questions relating to service delivery/receipt via Internet. (**Action:** ETMSS) This survey would, as before, be distributed to ships through the national Port Meteorological Officers (PMOs). (**Action:** Secretariat)

9.1.3 At the same time, the meeting recognized the need to access, and seek input from, a much wider user community than those subject to SOLAS. To this end, it requested the ETMSS to additionally develop a broader survey questionnaire, appropriate to all marine users. This questionnaire should then be forwarded to maritime NMS, for distribution to their various marine user communities in whatever ways they felt were most appropriate. (**Action:** ETMSS and Secretariat)

9.2 User requirements and new services

New ocean products

9.2.1 The meeting recognized that requirements of all users for improved, expanded and new marine meteorological and oceanographic services and service types were developing rapidly. Such developments include requirements for data and information on other than the traditional marine meteorological and oceanographic variables, as well as for service types such as climate-related data and products. JCOMM-I requested the Services Coordination Group to monitor and review such developments on an on-going basis and to coordinate the preparation of advice and guidance as appropriate.

9.2.2 The meeting was informed that the Management Committee had accepted the proposal from the Services PA Coordinator to establish a new Task Team on *Development of Ocean Services*, to look at the further development of ocean services, beyond the “traditional” services that the SPA has inherited from CMM. This team would provide an interdisciplinary forum and conduit for importing expertise and ideas into the SPA from areas outside the traditional bounds of marine meteorological services which have dominated the interests of the former CMM and its ongoing activities under JCOMM up till now.

9.2.3. The meeting agreed that JCOMM and the SPA needed to be in a position to lead events as GOOS further develops and ocean observation and modelling technologies and systems rapidly advance. Programmes and individual agencies will either demand new services for their own consumption or deliver the wherewithal to produce a whole range of new services well outside traditional marine services. In this context the activities of OOPC and GOOS/COOP were important. So too were the growing numbers of national and regional ocean services centres, which will develop, produce and disseminate new operational ocean services within the framework of JCOMM. To account for these different influences, the SCG chairman proposed that this team would be chaired by himself, and would include the chairmen of the OCG and OOPC, plus some experts representing key ocean service centres, to be determined. The meeting agreed with this proposal. It suggested that the team should include the chairman of the JEB Editorial Board, Yves Tourre, and that representatives should be sought, in the first instance, from the Bureau of Meteorology (Australia), Météo France, the Japan Meteorological Agency, AARI (Russian Federation), the Met Office (UK) and NCEP/NOAA (USA). The meeting further agreed the terms of reference for the task team, which are given in *Annex XIII*. The chairman was requested to seek the final approval of the co-presidents of JCOMM for the establishment of the team. Following this, the Secretariat was requested to approach the agencies listed, to seek the nomination of appropriate experts to the team, so that it could be activated as soon as possible. (**Actions:** Chairman and Secretariat)

Requirements data base

9.2.4 The meeting noted that the WMO Secretariat maintains, on behalf of all WMO programmes, those of IOC, and of the Committee on Earth Observation Satellites (CEOS), a comprehensive data base of observational data requirements for the different programme areas, including, inter alia, NWP, operational meteorology, marine services, and climate prediction. This data base is currently being used by CBS as part of its major project to re-design and rationalize the Global Observing System, a process to which JCOMM is contributing substantially regarding the marine component. In addition, the data base is used as a resource for developing “Statements of

Guidance” on how well the composite observing system meets the observational data requirements of a number of application areas, such as marine services.

9.2.5 Both the newly appointed JCOMM satellite rapporteur within the Observations Programme Area Coordination Group, Dr Hiroshi Kawamura (Japan), and the JCOMMOPS coordinator, Mr Etienne Charpentier, had participated as JCOMM representatives in the fourth session of the CBS Expert Team on Observational Data Requirements and the Redesign of the GOS (Geneva, 28 January to 1 February 2002). Within the context of this meeting, they had prepared a first draft of a Statement of Guidance relating to the marine component of the GOS and JCOMM requirements for marine observational data. As noted by Dr Kawamura and Mr Charpentier, this draft now needed extensive review, both within JCOMM (the Services and Observations CGs) and outside (GOOS/COOP and GODAE).

9.2.6. In preparing the draft statement, Dr Kawamura and Mr Charpentier had also recognized that the requirements data base on which it depended, remained deficient with respect to the requirements for marine observational data to support the provision of all types of marine services. To address this matter, the meeting established a small task team, comprising the chairs of the Expert Teams on MSS, WS and SI, together with the MPERSS rapporteur. The task team should review the existing data base contents from the perspective of its members' respective specialist areas, and prepare a first draft annotation and updating, for subsequent review by the expert teams during their forthcoming sessions. Once consensus was reached by the expert teams, the data base revisions would be submitted to the WMO Secretariat through the JCOMM management committee. To assist in this process, the Secretariat was requested to provide the task team with the relevant extracts from the existing data base. (**Action:** Secretariat, chairs of the ETs, MPERSS rapporteur) It was expected that this process should be completed within approximately 12 months.

10. Closure of the session

10.1 The meeting 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-II. Bearing in mind the overall funding situation, as well as the timing of the planned workshops on MPERSS and ocean products, it suggested that SCG-II might be timed to take place in Toulouse, immediately following the two workshops. This would thus take advantage of the likely participation of some group members in the workshops, as well as allow an immediate review of their outcome and follow-up. The chairman and Secretariat were requested to finalize arrangements for the timing and venue for the meeting in due course, and notify group members accordingly.

10.2 The meeting reviewed and approved the final report of the meeting, including action items and recommendations.

10.3 In closing the meeting, the chairman thanked all participants for their valuable input to what had been a very productive meeting, and looked forward to working with all group members on the many ongoing action items during the remainder of the intersessional period. He also thanked the Secretariat for its continuing support. Speaking on behalf of all participants, Yves Tourre thanked the chairman for his substantial input and wise guidance for the Group, both during the meeting and outside.

10.4 The first session of the JCOMM Services Coordination Group closed at 1055 hours on Saturday, 6 April 2002.

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Agenda

- 1. Opening of the session**
 - 1.2. Opening
 - 1.3. Adoption of the agenda
 - 1.4. Working arrangements
- 2. Report of the chairman and the Secretariat**
- 3. Maritime Safety Services**
- 4. Wind waves and storm surges**
- 5. Sea ice**
- 6. Marine pollution related services**
- 7. JCOMM Products bulletin**
- 8. Review of Operational Information Publications**
- 9. Other service issues**
 - 9.1 Monitoring of marine meteorological services
 - 9.2 User requirements and new services
- 10. Closure of the session**

Report of the Services Programme Area Coordinator

1. JCOMM-I devised a very ambitious work programme for the SCG. It is in a state of natural evolution as requirements for services are being further determined, preparatory work for planning frameworks for new services is getting established, and the on-going round of meetings of JCOMM subsidiary bodies gets underway. The JCOMM Management Committee's first session in February 2002 (MAN-I) provided the most recent opportunity to take stock of JCOMM plans and intersessional coordination activities. While MAN-I was informed about the working level details of JCOMM's Programme Areas (PAs), it did not seek to make decisions about the work plans and management of them. However it dealt with a number of cross-Programme issues and directions for the focus of the work of the PAs.
2. MAN-I elected Ms Miriam Andrioli (Argentina) and Professor Lin Shaohua (China) as new PA Coordinators for Capacity Building and Data Management, respectively, following the sudden and premature retirement from those positions by Admiral Hector Soldi and Dr Wang Hong, prior to MAN-I. This will have indirect impacts on the SCG. In terms of the work and plans of the SCG for the remainder of the intersessional period, MAN-I has introduced some new connections into the Group from other activity areas, and has recommended changes to the timeliness of some of the workshops initially proposed by JCOMM-I.
3. Observations Coordination Group (OCG) Chairman, Dr Stan Wilson, proposed that the area of wave observations was one where both SCG and OCG could benefit from overlap in interests, at least for an initial period. The premise being that strictly speaking wave observations as an issue could rightly be taken into the OCG as part of the Observations Programme Area (OPA) natural set of activities. From the SCG perspective it would be more efficient and useful to maintain the "vertical integration" of wave activities, including observations, within the ETWS. This is, after all, the group where JCOMM's wave expertise is concentrated. It was agreed that we should jointly investigate how best to handle this issue, with an initial foray into cross-representation between our CGs involving Ms Karin Doublet (Norway). Karin is a member of the OCG with a weather service/forecasting background. She has been invited to attend SCG-I as a rapporteur on this matter, with the view of evaluating how best to place wave observation activities in the PA structure.
4. MAN-I appointed the new Rapporteur on the development of non-physical services, Dr Tony Knap (Bermuda), and tasked him with liaising with both the OCG and SCG. To this end his attendance at SCG-I will familiarize him with the current work and plans for the SPA and provide SCG with valuable access to his expertise and thoughts for future services involving non-physical oceanographic variables. This is particularly relevant in the context of further development of GOOS and emerging coastal service issues. MAN-I accepted my proposal to establish a new *Development of Ocean Services* task team to look at the further development of ocean services, beyond the "traditional" services that the SPA has inherited from CMM. This team would include the Chairmen of the OCG and OOPC, plus some experts representing key ocean service centres.
5. As is now clear the programme of conferences and workshops proposed by JCOMM-I for the intersessional period was very ambitious, particularly for the SPA. The intention to hold the Brussels 2003 Conference, and the 2nd MPERSS Workshop and JCOMM Products Workshop also in 2003, presented a number of organizational challenges. Now that the nature of the Brussels conference has been settled by MAN-I, there is likely to be less direct call upon the resources of the SCG to assist planning, organizing etc. Nevertheless it is likely that individuals will want to contribute papers/posters etc and attend. In terms of

timing (now September 2003) it has provided a number of options for holding the two SPA workshops, including holding them later in 2003 (after Brussels) and/or staggering them over into 2004. SCG-I will need to decide the optimal scheduling for the workshops taking into account the intention of France to host both meetings and the logistical effort required, and the desirability of holding them relatively late in the intersessional i.e. in 2004 but before JCOMM-II.

6. The chairmen of the SPA Expert Teams (ETs) and Rapporteurs have made a great start to the development of their work areas, and planning for the many and varied activities under their responsibility. In many ways the SPA is fortunate that we have a fairly clear-cut agenda with many activities continuing from the CMM-IGOSS programmes. This has kept the level of uncertainty about scoping the work plans for the PA and the ETs at a fairly low level, thus enabling work to continue/proceed through the transition to JCOMM very smoothly and effectively. The work of the ETs speaks for itself, and is reported on impressively by the chairmen under agenda items 3-5. The MPERSS rapporteur has a challenging task to assist and enable the full implementation of MPERSS and adoption of the recommendations from the MARPOLSER98 workshop. JCOMM-I recognized that this task required considerable group support for his work in order to achieve success. SCG-I should be in a position to agree on the nature and scope of such support through creation of an ad hoc task team. The Editor of the JCOMM Electronic Products Bulletin will provide insight into the growth and success of the Bulletin and key challenges ahead. Both rapporteurs will no doubt wish to link their ongoing work with the staging of the proposed workshops mentioned in paragraph 5 above, and the importance they place on them. These will be considerations for the SCG when it decides the scheduling of the workshops.

Services Programme Area Work Strategy

1. Introduction

This plan was presented to MAN-I without significant comment. It has since been updated in light of the decisions, recommendations, etc. of MAN-I. The bracketed paragraph references point to relevant text from the JCOMM-I abridged final report.

According to the tasks defined at JCOMM-I for the Services Coordination Group (SCG) and Expert Teams (ETs) on Maritime Safety Services (ETMSS), Wind Waves and Storm Surges (ETWS), and Sea Ice (ETSI), and the rapporteurs on MPERSS and the JCOMM Products Bulletin, the tentative working strategy for the intersessional period of JCOMM-I and JCOMM-II is as follows:

2. Objectives of the JCOMM Services Programme Area (SPA)

Develop the JCOMM services strategy and plans for high priority JCOMM services objectives and projects; accomplish the tasks of services as defined at JCOMM-I; respond to the requirements for services of end user communities, participating organizations and other relevant operational or scientific programmes and activities; support the promotion, coordination, and integration of marine meteorological and operational oceanographic services.

3. The Mission of the SCG

Develop the JCOMM services strategy and submit it to the JCOMM Management Committee for approval; accomplish the services coordination tasks especially those with high priority; discuss and determine the implementation plan for JCOMM services and other services matters which can be addressed during the JCOMM intersessional period; identify areas which require consideration by JCOMM and develop proposals, projects and recommendations to be put to the Management Committee for consideration at the following session of the Commission.

4. Objectives of ETMSS, ETWS and ETSI

MSS: Coordinate, monitor and review arrangements for the provision and dissemination of maritime safety services to shipping;

WS: Review and advise on scientific and operational aspects of wind wave and storm surge forecasting and effectively coordinate with other JCOMM groups, GOOS and other scientific bodies;

SI: Review and advise on scientific, technical and operational aspects of sea ice observations and forecasting, oversee operations of the GDSIDB, coordinate services development and training and linkages with major international programmes.

5. Working Relations between the SCG, the ETs and the rapporteurs

SCG: Through reviewing and analyzing the existing requirements for services, especially in regard to international regulations, those of GOOS and other emerging international programmes and the likely future directions of operational oceanographic science, technologies and systems, determine and develop a cohesive strategy for coordinating, continuously improving and establishing JCOMM services. Essentially the ETs

will provide key expertise and advice on the major on-going service components of the SPA. The SCG will provide broad direction for the work of the ETs and the channel for their expertise to be linked to the Management Committee and other PAs. The SCG will also rely on the ETs to provide the interfaces to the user communities and feedback from them about on-going and new requirements, perceptions of relevance and quality of services and identification of gaps in JCOMM services or technical issues which may require the attention of the Management Committee.

ETs: The ETs will provide the SCG with advice and technical and practical solutions which will be required to successfully implement the strategies, objectives and operational plans for JCOMM services as developed by the SCG. The chairmen of the ETs will provide leadership to their Teams and will be the primary link from them to the SCG. The Chairmen will devise the detailed work programme for their Teams under guidance from the SCG and its planning and implementation framework.

Rapporteurs: The rapporteurs on MPERSS and the JCOMM Products Bulletin will provide the focus of expertise for their areas. They will develop advice and technical, scientific and practical solutions to issues/problems for the SCG and ETs, as well as the development of services which are relevant to their areas of responsibility.

6. Work Plan for the SCG

6.1 Respond to requests, advice, requirements etc. from the Management Committee, the JCOMM co-presidents and WMO/IOC Secretariats.

6.2 On the basis of the overall work plan as prescribed by JCOMM-I and the JCOMM co-presidents prior to the Management Committee's first meeting in February 2002 (MAN-I), the identified tasks have been prioritized as shown below. The plan can be conveniently organized into three phases: Short-term (up until SCG-I in April 2002); medium-term (May 2002 to December 2003); long-term or the intersessional period as a whole.

6.3 The SCG will undertake or oversee a number of the short term high priority tasks identified by JCOMM-I and MAN-I leading up to and including SCG-I, including:

- Develop arrangements/protocols for the participation of ad hoc or longer term rapporteurs in the activities of the SCG;
- Identification of appropriate funding support for a second MPERSS workshop (para 6.4.6);
- Resolution of the date for the second MPERSS workshop;
- Develop the basis for the proposed ad hoc task team to support the MPERSS rapporteur and implementation and development of MPERSS;
- Preliminary evaluation of support and contribution to the proposed workshop on JCOMM products (in support of operational oceanography and marine meteorology);
- Resolution of the optimum timeframe for holding the JCOMM products workshop;
- Progress towards development of a facility within SafetyNet for transmission of graphical information to ships at sea via Inmarsat C and in particular in Polar Regions (para 6.1.5);
- The review of the matter concerning the designation of the Kenya Meteorological Department as a GMDSS Preparation Service and make recommendations to the co-presidents and the Management Committee (para 6.1.12);
- Develop a discussion paper for SCG-I on the future of the publication WMO No. 9, Vol. D *Information for Shipping* with the view of adopting electronic publishing

during the intersessional period and consider the future of other JCOMM publications not specifically discussed at JCOMM-I;

- Establish mechanisms and processes for undertaking a range of tasks dealing with the on-going review of the effectiveness of the work plan and requirements for services including expanded oceanographic services, and further implementation and development of MPERSS;
- Initial response to decisions made at MAN-I in regard to JCOMM support for the Brussels 2003 conference;
- Review plans and arrangements for the first sessions of the ETs, to be held in 2002-2003.

6.4 For the period May 2002 to December 2003, and in the light of the outcomes of MAN-I and SCG-I, the specific medium-term tasks include:

- Review the effectiveness of the Services work plan (Res. 16/2);
- Prepare specific proposals for implementing recommendations from the MARPOLSER98 Workshop and develop a mechanism to deal with related scientific and technical issues (para 6.4.4);
- Develop plans for the second MPERSS and JCOMM Products Workshop;
- Contribute to plans for, and the holding of, the Brussels 2003 conference;
- Develop a final report on publishing the WMO No. 9 Vol. D *Information for Shipping* in electronic format;
- Assist the ad hoc rapporteur from the Observations Coordination Group (OCG) in the evaluation of the optimum connections between the OCG and SCG viz a viz wave observation activities;
- Interact with and assist the rapporteur on the development of non-physical oceanographic observations and services.

6.5 For the intersessional period as a whole the long term components of the Work Plan will entail:

- On-going review of the Services work plan;
- Explore the development of draft set of IOC Technical Regulations to govern the provision of oceanographic services (para 9.3);
- Review requirements for modelling, product preparation and service provision for atmosphere-driven ocean processes, and if necessary propose development of relevant operational programmes (para 6.2.17);
- On-going review and evaluation of requirements for improved and new services, and discontinuance of services where warranted (para 6.6.9 and Res. 16/2);
- Consolidate implementation plans for MPERSS flowing from the MARPOLSER98 Workshop, including the updated system plan, resolution of the outstanding technical and scientific issues and development of appropriate technical guidance (paras 6.4.4 and 6.4.6);
- On-going oversight of relevant manuals, guides, handbooks and other relevant continuing or special publications.

6.6 Working mechanism of the SCG

The SCG determines and reviews the work plan, and devolves tasks as appropriate to the Expert Teams or other relevant nominated experts. The chairman of the SCG will organize, coordinate and monitor the process of the tasks being accomplished.

The work of the SCG will be mainly organized and coordinated through correspondence. If the budget permits, it is hoped that SCG members can meet once per

year in the current intersessional period to promote the establishment of new JCOMM working arrangements, structures and programme activities and oversee the implementation of the tasks. This will be a significant consideration given the scope of JCOMM's work programmes over the next two years.

The SCG will also pay its attention to the development of cooperative relations with relevant bodies outside JCOMM, notably GOOS and related science bodies and panels which will have a significant role in the establishment of the technical bases for the generation of new oceanographic services in the future.

7. Work Plan of ETMSS

Subject to further revision the draft ETMSS work plan entails:

Urgent/High Priority

- Develop facility for transmitting SafetyNet graphical products via Inmarsat C (para 6.1.5);
- Review proposed designation of Kenya Meteorological Department as a GMDSS Preparation Service (para 6.1.12);

Medium term/High-Medium Priority

- Ascertain on-going requirements for HF radio broadcasts and liaise with CBS and WMO RA II (para 12.2.6);
- Review the questionnaire for monitoring of MMS prior to its distribution in 2004 (para 6.6.6);
- Plan and hold MMS-I in September 2002.

Intersessional/Moderate Priority

- Consider designation of additional Metareas for Arctic waters (Rec. 9/1);
- Consider dissemination of the MMS monitoring survey directly to ships via SafetyNet (para 6.6.6);

On-going/Moderate Priority

- Keep under review the designation of a further Issuing Service for SafetyNet services in Metarea VIII (para 6.1.13);
- Review, maintain and improve the gathering of user responses to the WMO GMDSS broadcast services (Rec. 9/1)

8. Work Plan of ETWS

Subject to further revision the draft ETWS work plan entails:

Medium term/High-Medium Priority

- Revise and update the Guide to Wave Forecasting and Analysis (para 10.3) including placing it online by end 2002;
- Develop plan for Guide to Storm Surge Forecasting;
- Plan and hold ETWS in the northern spring 2003.

Intersessional/High Priority

- Cooperate with the WMO Tropical Cyclone Programme (TCP) and provide expert assistance to the IOC/IHO/WMO Project on storm surge disaster reduction in the northern Indian Ocean area (para 6.2.14);

Intersessional/Medium Priority

- Develop technical advice on WS modelling, forecasting and service provision. Prepare guidance material on storm surge prediction for consideration by the Management Committee (para 6.2.6 and Rec. 16/2);
- Develop technical advice and provide support to Members on wave and storm surge modelling, forecasting and services, including:
 - Review of boundary layer winds;
 - Techniques and benefits of satellite data in wind and wave models;
 - Variations of long return period caused by long term climate trends;
 - Organize training courses and technical workshops;
 - Regular updates of catalogue of wave and surge models;
 - Advice to Members on development of wave and surge services;
 - Inventory hindcast wind wave and surge climatologies.
- Monitor projects for verifying operational wind wave model output and develop procedures to distribute information on the wave forecast verification scheme (para 6.2.10 and Res. 16/2) including:
 - Continue exchange of wave verification scores between operational centres and increase number of centres participating;
 - Expand wave model verification to consider the quality of spectral wave forecasts;
 - Identify operational storm surge model outputs and monitor verification results.

9. Work Plan of ETSI

Subject to further revision the draft ETSI work plan entails:

Urgent/High Priority

- Develop amendments and during the first ET meeting in October 2002 review a draft revision of the WMO Sea Ice Nomenclature, for approval by the co-presidents and publication by WMO (para 6.3.9).

Medium term/High Priority

- Plan and hold ETSI in October 2002.

Intersessional/Moderate Priority

- Develop amendments to the Sea Ice Nomenclature for colour standards of ice charts and coding sea ice decay from remotely sensed data (para 6.3.8);
- Develop and revise Sea Ice Nomenclature, terminology, data formats and software codes (para 6.3.15);
- Review and provide guidance on the GDSIDB including QC, error analysis and archiving and recommend action (Res. 16/2);
- Develop techniques and capabilities to systematically measure ice thickness by means of remote sensing (para 6.3.15);
- Prepare historical sea ice data sets (para 6.3.15);

- Review and catalogue products and services required in sea ice areas (Rec. 16/2);
- Provide support to Southern Hemisphere countries to enhance Antarctic sea ice services (para 6.3.15)

On-going/Moderate Priority

- Develop technical guidance, software exchange, specialized training and other capacity building support concerning sea ice observations and services (Res. 16/2);
- Develop cooperation and coordination with climate oriented programmes such as WCRP, WCP and CLIC (para 6.3.15);
- Continue collaboration with BSIM, IICWG and ECDIS (para 6.3.19)

Summary Report on the Results of JCOMM-I

1. The Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) was formally established in 1999 by Thirteenth Congress and the Twentieth Session of the IOC Assembly, through a merger of the Commission for Marine Meteorology (CMM) and the Joint IOC/WMO Committee for IGOSS. JCOMM is the reporting and coordinating mechanism for all operational marine activities in both WMO and IOC. As such, it is charged with the international coordination, regulation and management of an integrated, operational, oceanographic observing, data management and services system which will eventually become the ocean equivalent of the World Weather Watch.

2. The first session of JCOMM took place in Akureyri, Iceland, from 19 to 29 June 2001. Substantial support for the meeting, as well as warm and generous hospitality, was provided. The session was attended by 113 participants from 42 Members/Member States and 11 international organizations. It was particularly pleasing to note that almost all the national delegations included approximately equal numbers of meteorologists and oceanographers. This was an indication of the importance which both communities placed on JCOMM, and it also ensured a good balance in the debates during the session and in the priority issues to be addressed by the Commission.

3. There was full agreement at the session that a major priority for the coming intersessional period would be the implementation and maintenance of an operational ocean observing system to provide the data required to support global climate studies. Detailed requirements for these data have been developed and will be maintained by the Ocean Observations Panel for Climate of GOOS, GCOS and the WCRP, which thus becomes one of the primary scientific advisory bodies for JCOMM. In reviewing the report of the OOPC to the session, the Commission recognized a number of priority requirements, including the implementation and long-term maintenance of Argo and its integration with the SOOP; operational implementation of VOSCLIM; long-term resources for system maintenance; and integrated data management.

4. The Commission noted with satisfaction that the WMO marine broadcast system for the GMDSS of IMO had been fully implemented prior to the final implementation date for the GMDSS of 1 February 1999, and congratulated all concerned for this outstanding work. It adopted a number of small amendments to the regulations covering the GMDSS marine broadcast system as given in the Manual on Marine Meteorological Services (WMO-No. 558), which included two new Metareas (17 and 18) to allow for the extension of SafetyNET services in Arctic waters. At the same time, the Commission recognized the on-going need for terrestrial maritime safety broadcasts to some coastal waters and for shipping not subject to SOLAS, and therefore agreed to maintain the existing terrestrial broadcast component of the Manual pending a major revision by the Expert Team on Maritime Safety Services. The Commission further recognized the importance to mariners of meteorological information in graphical form, and therefore urged the early completion of the project for the delivery of such graphical information through Inmarsat C, as part of SafetyNET. The Commission reviewed the status of the project for the harmonization of meteorological services delivered by NAVTEX in the Baltic Sea region, urged rapid formal acceptance of the guidelines developed under the project, and commended the rapporteur (Dr Michal Ziemianski, Poland) and his co-workers for their efforts in preparing and testing these guidelines.

5. The Commission recognized that the wave programme had continued to provide valuable support to many Members/Member States in their provision of wave related services to users. It noted a detailed revised programme of action for the coming four years, and agreed that the programme should be extended to cover also the analysis, modelling

and forecast of storm surges. The Commission also recognized the considerable importance of on-going work on sea ice and polar region issues, in particular to maritime safety and global climate studies. It noted with appreciation the substantial on-going development of the Global Digital Sea Ice Data Bank, which it agreed was an important resource supporting the WCP, as well as the work undertaken on ice codes, formats and nomenclature. The Commission fully supported enhanced involvement with external sea ice groups such as the Baltic Sea Ice Meeting and the International Ice Charting Working Group.

6. The Commission strongly supported the full implementation of the Marine Pollution Emergency Response Support System, as a means of providing coordinated and timely meteorological and oceanographic data and services to support operations in response to major pollution emergencies originating outside territorial waters. It expressed appreciation for the seminar and workshop on MPERSS held in Townsville, Australia, in 1998, and agreed that another such event in support of MPERSS implementation should take place in 2002 or 2003. The Commission recognized the considerable value of the JCOMM Electronic Products Bulletin, as a means of making easily available to Members/Member States both data sets and tailored oceanic products on an operational basis. It agreed on the importance of securing the resources needed to ensure its long-term maintenance, and further supported the concept of a specialized workshop on "JCOMM Products in Support of Operational Oceanography and Marine Meteorology", to provide a catalyst for further development of the Bulletin. Finally, the Commission acknowledged the continuing importance, to both service providers and users, of the regular monitoring of user responses to marine meteorological services. It reviewed the results of the most recent such survey and urged their wide distribution. It agreed that the next survey of this type should take place in 2004.

7. While JCOMM needs to interact in various ways with most of the other major programmes and bodies of WMO and IOC, it will continue to have particularly close relations and interactions with GOOS, GCOS, CBS and IODE. One aspect of such interactions which engendered considerable debate concerned the developing requirements under GOOS for the international operational collection, exchange and management of non-physical ocean data (ocean chemistry and biology). It was recognized that JCOMM is most probably the appropriate mechanism to undertake this work, but at the same time the Commission presently has no expertise or capabilities in these disciplines. The Management Committee was therefore requested to interact with GOOS on this subject, with a view to eventually developing some formal proposals for the Commission.

8. Outside WMO and IOC, JCOMM will continue to work closely with international organizations and bodies such as IMO, IHO, UNEP, ICSU/SCOR, etc. in a number of areas of common interest and concern. The Commission also supported the continuing involvement of WMO and IOC in various inter-agency coordination activities relating to the oceans, including in particular preparations for and participation in the World Conference on Sustainable Development, Johannesburg, September 2002. It noted with satisfaction that both WMO and IOC had actively supported and contributed to the development of the UN Atlas of the Oceans project.

9. The Commission elected Mr Johannes Guddal (Norway) as its co-president for meteorology and Dr Savi Narayanan (Canada) as its co-president for oceanography.

Tentative Work Plan for Expert Team on Maritime Safety Services

According to the tasks defined at JCOMM-I for the Expert Team on Maritime Safety Services, the report presented by the coordinator of the Services Programme Area (SPA), Phil Parker, during MAP-I, and additional inputs from the Expert Team chairman (underlined), tasks of the tentative work plan for the intersessional period of JCOMM-I and JCOMM-II are listed below with descriptions of actions taken, underway or proposed.

Subject to further revision the draft work plan entails:

Urgent/High Priority

- ***Develop facility for transmitting SafetyNet graphical products via Inmarsat C***

The SCG chairman and WMO Secretariat have further discussed the mooted project with Inmarsat. As has been the long term stumbling block, both are awaiting further advice from Inmarsat as to the scope of the work required, practical specifications for the project (ie. for software development) and the possible arrangements for operating and delivering new services using the planned facility.

Given the continuing slow progress on this issue, the Management Committee may wish to express an opinion on how JCOMM should proceed given the lack of success up to now.

The chairman of ETMSS proposes to identify a rapporteur on this topic: there is quite a job to do, in connection with other international organizations or agencies (IMO, Inmarsat,...), other WMO groups (CBS,...), many possibilities to study (formats: ECDIS, WMO formats, general graphical formats,... - contents...) and perhaps several steps to progress.

- ***Review proposed designation of Kenya Meteorological Department as a GMDSS Preparation Service***

Advice is to be sought from the WMO Secretariat as to how to move forward on this issue. With support from the WMO Secretariat, the SCG chairman and ETMSS chairman, Mr Henri Savina, are likely to devise a “capabilities evaluation” of the relevant areas of the Kenya Meteorological Department. Ideally this will facilitate an objective assessment of Kenya’s ability to provide GMDSS services. The views of nearby WMO Members in Metarea VIII will also be sought. This will no doubt involve a fair amount of national and international sensitivities and will have to be carefully handled.

Contacts are to be taken anyway by Kenya with Issuing Services concerned (France, Mauritius, India) to study what could be done. I point out that France (La Réunion) would continue to prepare and issue tropical cyclone warnings for the whole of Metarea VIII(S).

Note: Kenya Meteorological Department (according to WMO No. 9, Vol. D Information for Shipping – to be checked) already prepares weather marine forecasts for High Seas.

- **Add complementary guidelines in the Manual on Marine Meteorological Services for NMS issuing marine weather forecasts for NAVTEX broadcast**

The size of met bulletins are significantly higher (need several minutes for broadcasting) than nav messages, and they are not repeated numerously: the NAVTEX reception is very unstable, particularly due to the IMO regulation or standard that precise that all messages with more than 30% error rate in one single 5 second period shall be completely rejected. Those cases can occur even if transmitters have reliable field levels (strength), allowing correct reception for well-installed receivers.

Many cases of jamming and interferences had been seen, especially during the night, often due to interference with other distant NAVTEX transmitters (reflection on ionospheric layers) amplified by some receivers using active antennas. Those problems are familiar with international frequency 518 kHz, but not with national frequency 490 kHz (less NAVTEX transmitters for the moment...).

So, It's particularly important to give to NMS guidelines and strategies in Manual on Marine Meteorological Services, to reduce the size of each meteorological message, to minimize the risk for it to be rejected by receivers.

- **Keep under Review the proposal of the SCG group on the future of the publication WMO No. 9, Vol. D Information for Shipping**

The discussion paper which is presented to SCG-I should also be presented to ETMSS-I, particularly for the contents of the future version.

Medium term/High-Medium Priority

- Prepare detailed guidelines for inclusion in Manual on Marine Meteorological Services for visibility and sea state description including, if feasible, rogue/freak waves.
- Ascertain ongoing requirements for HF radio broadcasts and liaise with CBS and WMO RA II
- Review the questionnaire for monitoring of Marine Meteorological Services (MMS) prior to its distribution in 2004

Intersessional/Moderate Priority

- Consider designation of additional Metareas for Arctic waters
- Consider dissemination of the MMS monitoring survey directly to ships via SafetyNet. Definition of a system of indicator(s) for monitoring user responses and satisfaction with the quality of marine services.

Ongoing/Moderate Priority

- Keep under review the designation of a further Issuing Service for SafetyNet services in Metarea VIII
- Review, maintain and improve the gathering of user responses to the WMO GMDSS broadcast services.

The ETMSS chairman believes that a second meeting (ETMSS-II) should probably be planned during the intersession (autumn 2004 ?).

**Specific Tasks and Strategy 2001-2005
for the Expert Team on Wind Waves and Storm Surges**

1. *Review the contents of the Guide to Wave Analysis and Forecasting and advise on the need for future updating as required.*

Strategy:

- a. Place the Guide to Wave Analysis and Forecasting on the WMO web-site under the JCOMM home page. Completion by end of 2002;
- b. Develop a dynamic part of the Guide to Wave Analysis and Forecasting, following the model of the Guide to the Applications of Marine Climatology. Material would be based on selected papers from the 7th International Workshop on Wave Hindcasting and Forecasting, CLIMAR-II, and the 150th Anniversary Brussels Conference as appropriate. The dynamic part would also include bi-annual updates to wave models and hindcast data bases contained in the present static Guide. Proposed content from the 7th Waves Workshop to be reviewed at ETWS-I in spring 2003; gaps in content will be identified, and suitable material solicited for CLIMAR-II or Brussels as appropriate.

2. *Develop a plan and implementation plan for the preparation of a Guide to Storm Surge Forecasting.*

Strategy:

- a. Following the model of the Guide to Wave Analysis and Forecasting, develop a full, annotated Table of Contents for discussion at ETWS-I in spring 2003. Proposed content may be reviewed by the Tropical Storm Programme. An Editor should be proposed for the Guide, and individual section authors identified and confirmed, subject to approval by the Expert Team;
- b. Develop the draft content for the Guide by the end of 2003, for peer review as appropriate. Content will likely include material based on documentation of existing storm surge models and measured and model data bases, as for the Wave Guide. All sections to be written will be provided electronically, to be made available online at the time of initial publication. A framework will be put in place for a dynamic part of the Guide to be updated in a similar fashion as the Wave Guide.

3. *Complete and publish a review on boundary layer wind fields.*

Strategy:

- a. Identify a "convening lead author", as was done for example for the OceanObs99 Conference, or to some extent in the JCOMM Technical Report No. 9, "Estimation of Extreme Wind Wave Heights", to assemble a team of suitable authors to produce the review report;
- b. Develop a draft outline of the proposed content for a JCOMM Technical Report on boundary layer wind fields for review by ETWS-I in spring 2003;

- c. Develop the draft content for the Technical Report by the end of 2003, for peer review as appropriate. All sections to be written will be provided electronically, to be made available online at the time of initial publication.

4. *Prepare a review on techniques and benefits of the use of satellite-derived data in wave and marine surface wind models and on assimilation of observations (especially remotely sensed waves and near surface wind) in wave forecasting.*

Strategy:

- a. Identify a “convening lead author”, to assemble a team of suitable authors to produce the review report;
- b. Develop the draft content for the Technical Report by the end of 2003, for peer review as appropriate. All sections to be written will be provided electronically, to be made available online at the time of initial publication.

5. *Monitor projects for verification of operational wind wave and storm surge model output and develop procedures for the distribution of information on the wave forecast verification scheme.*

Strategy:

- a. Continue exchange of verification scores between the operational centres presently involved in wind wave forecasting;
- b. Promote exchange of verification scores between other operational centres involved in wind wave forecasting, to increase the number of centres participating in such exchange;
- c. Expand the present operational wave model verification project to consider the sufficiency of currently used skill scores for adequate representation of spectral wind wave forecast quality and to establish a standard set of exchanged statistical scores;
- d. Publish the results of the verification in the scientific literature, and as a JCOMM Technical Report available on the WMO web site;
- e. Identify operational storm surge model output, and monitor as appropriate model verification results.

6. *Continue establishing requirements for and of wind wave and storm surge information, its application, and its relationship to other elements in a range of environmental problems, especially those connected to various modules of GOOS.*

Strategy:

- a. Maintain or establish liaisons with important user groups for wind wave and storm surge information, such as the International Association of Oil and Gas Producers (OGP) Metocean Committee, and other similar organizations;
- b. Maintain liaison with major international programmes and their individual components, such as GOOS, OOPC, COOP, GODAE, by participating in organizational or technical meetings on an opportunistic basis or on request.

7. Continue monitoring studies on surface wind wave, storm surge, and surface wind climatologies and continually update the inventory of hindcast climatologies.

Strategy:

- a. Review literature on wind, wave and storm surge climatologies, and develop targeted questionnaires for distribution to identified authors to supply information on the data bases, following the example of the present Tables 9.2, 9.3 in the Guide to Wave Analysis and Forecasting. Questionnaire(s) to be developed by July 2002, for completion by authors by the end of 2002, and compiled for review at ETWS-I in spring 2003;
- b. Once approved, the content will be placed on the WMO web site as part of the dynamic part of the relevant Guide.

8. Review the subject focusing on variations of long return period parameter caused by long-term trends in climatic mean values.

Strategy:

- a. Identify a “convening lead author”, to assemble a team of suitable authors to produce the review report;
- b. Develop the draft content for the Technical Report by the end of 2003, for peer review as appropriate. All sections to be written will be provided electronically, to be made available online at the time of initial publication.

9. Organize training courses and workshops to include wind wave and storm surge analysis and forecasting.

Strategy:

- a. Organize 7th International Workshop on Wave Hindcasting and Forecasting in October 2002, and subsequently the 8th International Workshop on Wave Hindcasting and Forecasting in Fall 2004, to address ongoing and emerging issues such as user requirements, new measurement technologies and model advances, especially related to shallow water;
- b. Organize JCOMM Training Workshop on Wave and Surge Forecasting, Bahamas (to be confirmed), 2-6 December 2002. Develop the proposed content and identify appropriate resource persons to lead this course, by July 2002;
- c. Coordinate with the Expert Team on Marine Climatology (lead) on the organization and content of the proposed CLIMAR-II, with respect to session(s) dealing with wave and surge issues;
- d. Coordinate, and/or participate on an opportunistic basis, wave and surge sessions in other meetings which may arise during the intersessional period.

10. Cooperate with the WMO Tropical Cyclone Programme and provide expert assistance for the IOC/IHP/WMO Project on storm surge disaster reduction in the Northern Indian ocean area.

Strategy:

- a. Review relevant results of recent meetings and technical conferences on tropical storms, and the national storm surge project proposals solicited by WMO/ESCAP by November 2001, to identify areas where the ETWS can contribute to the Tropical Cyclone Programme.
- b. Provide guidance and technical assistance as requested, for further development of the storm surge forecasting project in the northern part of the Indian Ocean;
- c. Participate, on an opportunistic basis, in planning and technical meetings organized by the WMO Tropical Cyclone Programme.

11. Prepare regular updates (two-yearly) of the catalogue of operational and experimental wind wave and storm surge models along with their products and disseminate these alongside other information in WMO publications.

Strategy:

- a. Develop questionnaire(s) for distribution to Members to supply information on operational wind wave and storm surge models and their products, following the example of the present Tables 6.1, 6.2 in the Guide to Wave Analysis and Forecasting. Questionnaire(s) to be developed by July 2002, for completion by Members by the end of 2002, and compiled for review at ETWS-I in spring 2003;
- b. Identify areas of the world, which are prone to significant storm surges but are not covered by corresponding forecasting services;
- c. Once approved, the content will be placed on the WMO web site as part of the dynamic part of the relevant Guide. High profile information may be considered for other publications, such as the WMO Bulletin.

12. ETWS Chairman to report to SCG-I on planning for ETWS-I, proposed to be held in March-April 2003.

Strategy:

- a. Notify ETWS members of planned meeting of the Expert Team in March-April 2003.
- b. Dates and location to be determined in conjunction with the Secretariat in April 2002.
- c. ETWS Intersessional Workplan identifies tasks to be reviewed at ETWS-I.

Summary of Proposed Actions

N°	Action Title	2 Expected result	Members Participating
1.	Revise and update Guide to Wave Analysis and Forecasting	Place Guide on WMO web site by end 2002	Chairman and WMO Secretariat
		Develop plan for dynamic part of Guide by April 2003	Chairman and all ETWS members
2.	Develop plan for Guide to Storm Surge Forecasting	Develop a proposed Table of Contents by April 2003	
		Develop draft content for peer review by end 2003	
3.	Develop technical advice and provide support to Members on wave and storm surge modelling, forecasting and service provision	Technical report on review on boundary layer wind fields	
		Technical report on techniques and benefits of satellite data in wind and wave models and assimilation of observations in wave forecasting	
		Review report on variations of long return period caused by long-term climate trends	
		Organize training courses and technical workshops to include wind wave and storm surge analysis and forecasting	Chairman and all ETWS members as opportunities arise to organize, and to participate when possible
		Prepare two-yearly updates of catalogue of operational and experimental wind wave and storm surge models and products	
		Consultation service to WMO Members developing their wave and storm surge forecasting services	All ETWS members, continuously
		Update inventory of hindcast wind wave and storm surge climatologies	
4.	Monitor projects for verifying operational wind wave model output and develop procedures to distribute information on the wave forecast verification scheme	Continue exchange of wave verification scores between operational centres, and increase number of centres participating; publish results	
		Expand present wave model verification project to consider spectral wind wave forecast quality	
		Identify operational storm surge model output; monitor as appropriate model verification results	
5.	Cooperate with the WMO Tropical Cyclone Programme and provide expert assistance as required	Provide expert assistance to the IOC/IHO/WMO Project on storm surge disaster reduction in the northern Indian Ocean area on request	All ETWS members on request
6.	Report to JCOMM Services Coordination Group - annually	Text of the report detailing ETWS Workplan and progress	Chairman in consultation with WMO Secretariat and ETWS members

Strategy and Work Plan of the Expert Team on Sea Ice

Introduction

1. The Expert Team on Sea Ice (ETSI) was formally constituted at JCOMM-I as a part of the JCOMM Services Programme Area (SPA). Initial work plan for the ETSI was developed at JCOMM-I and included in the JCOMM intersessional work programme. Mr Vasily Smolyanitsky was elected the chairman of the ETSI. The members of the ETSI presently comprise the **chairman** (and ex-officio member of the Team), **nine experts** representing the national services related to sea ice and the ice-covered regions from Argentina, Canada, China, Denmark, Germany, Iceland, Japan, Sweden and USA, and **invited representatives** of regional and international sea ice bodies in particular the Baltic Sea Ice Meeting (BSIM) and the International Ice Charting Working Group (IICWG).

Strategy and workplan for the ET

2. The period after JCOMM-I has been one of update, since ETSI incorporated most of the working aspects from the former WMO CMM Subgroup on Sea Ice. The strategy and work plan firstly developed at JCOMM-I were revised and updated at the ad-hoc ETSI meeting during the 3rd meeting of the IICWG in November 2001 (Tromso, Norway) and during November 2001 – January 2002 by correspondence between ETSI members and in January were submitted to the SPA chairman. Strategy and work plan items shown beneath closely follow the submitted documents.

Strategy

3. Similar to other bodies, ETSI should answer both general and specific strategic tasks:
- Provide advice to the Services CG and other Groups of JCOMM, as required on issues related to sea ice and the ice-covered regions;
 - Review and advise on scientific, technical and operational aspects of sea ice observations and forecasting, oversee operations of the GDSIDB, coordinate services development and training and linkages with major international programmes.

Workplan

4. The following significant short and long-term tasks have been identified for the plan (in brackets – nearest corresponding listing numbers from the JCOMM work plan):

Urgent/High Priority

- Develop amendments and during the first ET meeting in October 2002 review a draft revision of the WMO Sea Ice Nomenclature, for approval by the co-presidents and publication by WMO (para 6.3.9);

Intersessional/Moderate Priority

- Develop amendments to the Sea Ice Nomenclature for colour standards of ice charts and coding sea ice decay from remotely sensed data (para 6.3.8);

- Develop and revise Sea Ice Nomenclature, terminology, data formats and software codes (para 6.3.15);
- Review and provide guidance on the GDSIDB (Global Digital Sea Ice Data Bank project) including QC, error analysis and archiving and recommend action (Res. 16/2);
- Develop techniques and capabilities to systematically measure ice thickness by means of remote sensing (para 6.3.15);
- Prepare historical sea ice data sets (para 6.3.15);
- Review and catalogue products and services required in sea ice areas (Rec. 16/2);
- Provide support to Southern Hemisphere countries to enhance Antarctic sea ice services (para 6.3.15)

On-going/Moderate Priority

- Develop technical guidance, software exchange, specialized training and other capacity building support concerning sea ice observations and services (Res. 16/2);
- Develop cooperation and coordination with climate oriented programmes such as WCRP, WCP and CLIC (para 6.3.15);
- Continue collaboration with BSIM, IICWG and ECDIS (para 6.3.19)

Implementation of the work plan

Progress on revision of WMO Sea Ice Nomenclature

5. In July 2001, a draft version of the WMO Sea Ice Nomenclature in XML format was developed and published at http://www.aari.nw.ru/gdsidb/XML/si_xml.asp. It is expected that the given material will be also a part of a broader JCOMM XML Marine Glossary currently under development. The XML version of the nomenclature is also interlinked with a future new SIGRID-3 format for sea ice charts coding also utilizing XML technology. Other amendments to the nomenclature, expected to be elaborated in 2002 include extensions for ice decay and ice chart colour coding and are described in the next paragraph.

Development of new standards for sea ice charts, including colour coding, ice decay and incorporation of sea ice information in electronic charting systems (in collaboration with IICWG)

6. In collaboration with the IICWG ETSI developed proposals for a) colour standards of ice charts, b) sea ice decay from remotely sensed data and c) for a new format for operational and historical sea ice mapped data exchange. It may be noted that standardization of colour coding for ice charts is a part of a longer term strategy to place ice information in electronic navigation charts and reflects collaboration between the ice community, JCOMM and such international organization as ECDIS, IMO, and IHO. Similar, ice decay from the remotely sensed data and a new format for data exchange are a part of a long-term strategy to extend the scope of information supporting ice navigation and to facilitate its relay to end-users.

Colour coding

7. During the 2000-2001 period, IICWG ice experts succeeded in preparation of the draft colour standard which, according to the decisions of the 3rd IICWG meeting (November, 2001) includes two mutually exclusive separate colour codes: one mainly based on total concentration and another based on stage of development. Proposed codes are

complementary to the existent WMO black and white ice symbols and are flexible in use (for ice services).

Ice decay

8. Extension of summer season ice description by introducing ice decay parameter measured from radar back scatter is a result of research undertaken by Canadian Ice Service experts, under the Arctic Sea Ice Regime Shipping System (AIRSS). The JCOMM-I agreed that as a result of this work, appropriate amendments to the nomenclature for coding sea ice decay should be developed during the next intersessional period. During the last 3rd IICWG meeting it was agreed for IICWG experts from Canada and Russian Federation to investigate inter-relationship between traditional stages of melt and new ice strength index with respect to physical process in seasonal cycle and movement of ships in ice, to improve exchange of ice melt / strength science (past, present, future) within IICWG.

New format for operational and historical sea ice mapped data exchange

9. Currently used formats for ice chart coding SIGRID (Sea Ice Grid) and SIGRID-2 were introduced by WMO in 1981 and in 1994 respectively and allow storing primarily climatological data. Presently within the GDSIDB project practically all historical sea ice data for 1950-2001 period are kept in this format. In comparison to a number of commercial standards SIGRID format has an advantageous capability of comprehensive depiction of sea ice parameters. However, it has a number of restrictions and inconveniences to be kept as a practical operative format. So far most ice services are no longer submitting data to GDSIDB in SIGRID. Based on the current international practices utilizing GIS for chart production and using SIGRID code tables for quantitative description of sea ice parameters, IICWG ice experts succeeded in preparation of the so-called "SIGRID-3" draft format for sea ice data operational and climatological exchange.

10. The above three items are complimentary to existent WMO technical guidance material and are presently under active discussion. Comprehensive reports will be prepared by October 2002 for revision at ETSI session and will serve as a basement to provision of amendments to WMO Sea Ice Nomenclature.

WMO GDSIDB project and interrelation with WCRP and GCOS

GDSIDB activity and preparation of historical data sets

11. ETSI continued to provide guidance on the WMO GDSIDB project. GDSIDB pages (<http://www.aari.nw.ru/gdsidb>) were extended and now incorporate working information on ETSI activities. Experts of the Steering Group for the GDSIDB project, co-chaired by Professor R.G. Barry from WDC-A for Glaciology/NSIDC and Dr Ivan Frolov from AARI, continued to provide QC and software enhancement for archived data for the interests of climate oriented programmes.

12. Presently the GDSIDB holds 7 or 10-days period mapped ice data for the Arctic starting from March 1950 and for Antarctic from January 1973 and to near the present for both regions. Charts are stored in a number of digital formats including WMO standard SIGRID (states for Sea Ice GRID), EASE-GRID (coinciding with the one used at NSIDC to provide passive microwave SSM/I data) and ESRI GIS ArcInfo compatible. Most of the project data are available on-line from GDSIDB centres (at AARI and NSIDC) or in recently published Joint U.S.- Russian Arctic Atlas for Sea Ice. There are a number of gaps: temporal (mostly in winter time) and spatial (mostly outside navigable areas like Northern Sea Route or areas of interest), yet GDSIDB material from the 1970s is alternative or complimentary and may be ground-truth to pure SSM/I products (as it is based on comprehensive usage of

all available sources of ice information and expert knowledge) or the unique source of ice conditions and climate for the earlier than 1978 period. For example, statistics for the Arctic shelf seas assessed with incorporation of AARI data (starting in 1950) and Canadian data (starting in 1968) are more complicated than ones assessed from 1978 and show more evidence for oscillation in ice extent tendencies rather than trends. According to our view GDSIDB material can be regarded as the source of the **most robust statistics (norms)** for the ice conditions in the Arctic during 1950s-1990s.

13. Project content is expanding, more data are awaiting or expecting 1) for Antarctic region from Australia, Argentina, Russia; or 2) for the Northern Polar Region – to eliminate artificial lack for ice charts in standard, easily readable by users, format for late 1990s for the Arctic Ocean; and 3) new data for the Baltic Sea, Sea of Okhotsk, Bohai Sea, Greenland waters.

14. It is planned that the 9th Session of the GDSIDB project combined with the 1st ETSI Session in October 2002 will review on-going and relevant to project sea ice and polar region activities. The same is for a new format SIGRID-3 to store operational and historical charted ice data, which will be considered in October 2002 and is intended to provide more flexibility in importing and processing data in modern tool kits.

Collaboration with WCRP, GCOS and CliC

15. A report on the GDSIDB was presented at the recent “Workshop on Advances in the Use of Historical Marine Climate Data” (29.01-01.02.2002, Boulder, Colorado, NOAA, CDC). The prime goal of the workshop was to collaboratively build a new “blend of the US Comprehensive Ocean-Atmosphere Data Set (COADS), with the UK Met. Office, Main Marine Data Bank (MDB), plus with newly digitized data in the US and from other international partners. A key focus of the meeting was on the work of the SST (Sea Surface Temperature) and Sea-Ice Working Group (SST/SI WG) of the GCOS/WCRP Atmospheric Observation and Ocean Observations Panels for Climate (AOPC/OOPC), as well as new NOAA initiatives in the SST) area”. During the workshop recommendations related to sea ice were elaborated and included into workshop documents.

16. In respect to sea ice it was noted that there is still insufficient intercalibration of the global sea-ice analysis dependant on passive microwave SSM/I and IR satellite or traditional air reconnaissance and shipborne data where available, and so far underrating of ice charts based on the given sources. Next, it was noted that summer season modelers currently try to model sea ice in AGCMs in a simplified way by increasing the ice concentrations to compensate for melt phenomenon. Also expressed during the workshop were a need and fine perspectives for a blended 7-10 days and monthly products collaboratively compiled by ice services and groups (e.g. Canada, Russia and USA).

17. Based on above discussions and concerns following draft recommendations related to cooperation with ETSI and GDSIDB were elaborated for the workshop documents:

- It is critical for the 2002-2003 that a blended product based on GDSIDB data and existing one in COADS be derived, as it is vital for accurate global analyses of SST and sea ice climate. Estimates of errors should be determined in the blended product.
- It is desirable to ask ETSI to provide recommendations for proper and best-guess blending and averaging procedures.
- Inventory from ETSI on possibly available historical sea ice data for the Southern Ocean is desirable during 2002-2004.

- It will be useful to consider a future (in 2002 or 2003) JCOMM report from ETSI on assessing stages of melting using visible and microwave and its correspondence to visible ice surface features. Techniques provided in the report may be possibly used during 2003-2005 for retrospective calculations of stages of melting.
- It is also important that during 2002-2005 SSM/I algorithms be examined in cooperation with ETSI using ice charts and standard observations as ground truth material so that the most accurate one is selected. Differences between algorithms may help define the errors. For those purposes it would be helpful if the location and type of observations were indicated in the blended product.

18. It is expected that ETSI will be represented (by several reports) at the forthcoming ACSYS/CliC Workshop on "Sea Ice Extent and the Global Climate System", to be held at Meteo-France in Toulouse from 15 to 17 April 2002.

Remote sensing of sea ice parameters including training

19. The following new products and initiatives were noted by or related to ETSI members:

- Remote sensing of ice decay is now actively developed by Canadian Ice Service and is discussed above in paragraph 3.2.2;
- In cooperation with German Ice Service, BSH's Marine Climatology Section has developed a new Video Product on Global (hemispheric) Sea Ice Distributions. The product and background info can be addressed via the following web sites:
 - <http://www.bsh.de/Oceanography/Ice/Publications.htm>
 - <http://www.bsh.de/Oceanography/Climate/Climate.htm>
- IWICOS (Integrated Weather, Sea Ice and Ocean Service System) is now collaboratively developed by the Danish Meteorological Institute, the Finnish Institute of Marine Research, the Icelandic Meteorological Office and other technical groups and is hosted by the Technical University of Denmark, Danish Centre for Remote Sensing at:
 - <http://www.dcrs.dtu.dk/sea-ice/>
- USA National Ice Center developed an "International Ice Chart Working Group Training Cite"; cite comprises guides to analysis of satellite imagery, ice physics and ice covered seas specific info and is now available at:
 - <http://www.natice.noaa.gov/IICWG%20WEB/page2.html>

Planning for SI-I, Buenos Aires, Argentina, 21 to 25 October 2002

20. A draft annotated agenda was collaboratively prepared by ETSI members for the first session of the ETSI combined with the ninth session of the GDSIDB project planned to be held in Buenos Aires, Argentina, 21 to 25 October 2002, and hosted by the Argentinean Navy Hydrographic Service. It is planned that the Sessions will provide progressive reports and elaborate updated implementation plan for the full scope of ETSI and GDSIDB tasks.

21. Prime items of 1st session of ETSI are planned to include:

- report by the Chairman of the ETSI;
- reports by the members of ETSI, BSIM and IICWG reports;
- WMO sea ice documents and publications, including sea ice nomenclature, colour standard for ice charts, ice decay/stages of melting, Formats for operational and historical sea ice data exchange;
- ETSI future activities and working plan for the next intersessional period.
- Prime items of 9th session of GDSIDB project are planned to include:
 - reports of the GDSIDB centres;
 - development of sea ice historical data processing;
 - submission of new sea ice data to the GDSIDB;
 - sea ice products based on GDSIDB data;
 - new Contributions to the GDSIDB from Member States;
 - working plan for the next intersessional period;
 - relations to other WMO/IOC and international programmes

Report of the Rapporteur on MPERSS

Introduction

1. The WMO Marine Pollution Emergency Response Support System (MPERSS) has been implemented on a trial basis since January 1994. JCOMM-I agreed that MPERSS trials should continue during the coming intersessional period. The Commission also agreed with the substance of the recommendations of the MARPOLSER98 Workshop.

2. The Services Coordination Group is expected to prepare specific proposals based on the appropriate recommendations of the MARPOLSER98 Workshop for consideration and agreement by Members/Member States.

3. The appropriate recommendations of the MARPOLSER98 Workshop should be the followings:

- (i) To include the concept of centres of excellence in meteorological and oceanographic support for pollution emergency response, as support for the Area Meteorological and Oceanographic Coordinators (AMOCs). While these centres would not necessarily provide operational products, or be considered formally as WMO RSMCs, they could nevertheless perform a very valuable role in areas such as the provision of expert advice and specialized training to AMOCs and supporting services;
- (ii) To investigate possible adjustments to the areas of responsibility as presently defined (the MPI areas), to better reflect existing technical and geographical realities, as well as the roles and responsibilities of regional and national combating centres;
- (iii) Other operational support should include a web site with real-time information on incidents and support provided.

4. The Group will also prepare an updated version of the system plan based on the following recommendations of MARPOLSER98 for review by the Management Committee and eventual distribution to Members/Member States.

- (i) Section 2.3.1 of the plan should recognize that, ideally, meteorological and oceanographic information and support should be prepared and delivered on time and space scales relevant to the requirements of the operational response which it is supporting;
- (ii) Both the principles and section 2.3.1 should note specifically that the provision of high quality meteorological and oceanographic support products requires real-time interaction with and feed-back from the users; this includes on-site observations as well as feed-back on product quality and timeliness;
- (iii) In addition to (v) above, reference should be made to the fact that those NMSs running oil spill models require input information from users on the oil type involved in each incident;
- (iv) Section 2.3.1 (d) should include some generic reference to modern communications facilities, rather than specific reference to Inmarsat alone;

- (v) The information given in Annex IV to the MARPOLSER98 Workshop report should replace that given in Appendix II to the plan;
- (vi) Appendix I should be revised appropriately following the review of the MPI areas recommended above;
- (vii) IMO should provide WMO with amendments to section 2.4 and Appendices III, IV and V as appropriate.

5. The Commission encouraged bilateral collaboration between those Area Meteorological and Oceanographic Coordinators (AMOCs) which had been largely successful in implementing MPERSS in their MPI areas and those where implementation problems remained; in this context, it requested the coordinators to consider establishing MPI area coordination subgroups, to assist in implementation;

6. JCOMM-I proposed that a second workshop on MPERSS should be convened. Appropriate funding support for such a workshop will need to be identified. It also urged that this workshop should include substantial participation from maritime safety agencies and other user organizations, which would assist greatly in implementation and recognition of the system; France proposed to host this event in late 2003 or the beginning of 2004 in Toulouse. Develop plans for the Workshop ?

7. The Group is expected to develop a mechanism to deal with technical and scientific issues related to the implementation of MPERSS, including the development of a specific implementation plan and timetable, directed to ensuring full implementation of the system during the coming intersessional period and to develop appropriate technical guidance on MPERSS, including a compilation of available oil spill models, to assist in system implementation.

8. For these purposes, the Group may make a proposal to the co-presidents to establish a small ad hoc Task Team on MPERSS.

Ad hoc Task Team on MPERSS

Terms of Reference

The ad hoc Task Team on MPERSS will support the activities of the JCOMM Rapporteur on MPERSS, in line with the decision of JCOMM-I that such a team would be required to achieve its recommendations to implement MPERSS and the outcomes of the MARPOLSER98 Workshop.

The membership will include initially representatives of the key participants in MPERSS implementation, selected on the basis of their current high level of expertise and appropriate geographical coverage. Membership will be expanded to include participants from countries or regions where expertise needs to be significantly developed in order to fulfil a more complete implementation of MPERSS once core operational arrangements are in place.

Objectives

The Task Team shall:

In general

- Support the MPERSS Rapporteur to implement JCOMM's recommendations;
- Assist the organisation of meetings, preparation of correspondence and reports as appropriate;
- Participate in consultations with Members and relevant organisations at both the international and national levels;
- Liaise with response agencies to facilitate and further develop contacts with them and other user groups and their involvement in preparing national and regional plans for implementing MPERSS;
- Provide advice to the SCG on MPERSS issues.

And more specifically

- Develop the concept of centres of excellence in meteorological and oceanographic support for the MPERSS Area Meteorological and Oceanographic Coordinators (AMOCs);
- Facilitate and encourage the AMOCs to establish Marine Pollution Incident (MPI) area coordination subgroups, to assist MPERSS implementation;
- Investigate adjustments to the existing MPI areas of responsibility to better reflect existing technical and geographical realities, as well as the roles and responsibilities of regional and national combating centres;
- Develop a web site to be hosted by the IOC JCOMM portal, to include information about MPERSS and real-time information on incidents and support provided;
- Prepare an updated version of the system plan based on the recommendations of MARPOLSER98 for review by the Management Committee and eventual distribution to Members/Member States;
- To develop plans for a second workshop on MPERSS which France has proposed to host in 2004, including identification of appropriate funding support;
- Develop a mechanism to deal with technical and scientific issues related to the implementation of MPERSS, including the development of a specific implementation plan and timetable;
- Develop appropriate technical guidance on MPERSS, including a compilation of available oil spill models, to assist in system implementation.

Membership

The initial membership will include:

- MPERSS Rapporteur (Chair)
- Five members from national meteorological or ocean services already involved in MPERSS activities to a high level (1 representative from each continent)
- A representative of a Member providing services in areas prone to sea ice
- A representative of IMO
- Plus possibly a representative of user groups

Conduct of meetings

The Team will undertake its work by correspondence, and will meet where possible during other sessions of JCOMM bodies or scientific conferences, meetings, etc.

The JCOMM Electronic Products Bulletin (JEB)

Survival and future

Paradoxically and in spite of its growing international success, JEB is entering a critical period where it needs full resources for sustainability and implementation of new products. There is a need for an Editing Board, and for approximately US \$ 50k/year to ensure a stable and ongoing JEB. Following is a listing of time consuming and dedicated key actions, for strategic implementation in the next two years:

a) Public relations effort

JEB as a window must continue to be presented at Climate and Ocean Meetings and Venues. Sponsors must be identified.

b) Training workshops on the usage of JEB

Training, education, blended learning and capacity building must be linked to well- targeted Workshops. On-line presentation and computation must be given in order to display the power of JEB. Effort by Dr. Yves Tourre in this regard must be supported.

c) Workshop in Toulouse on New Products

If a JEB Editorial Board is formed, as proposed by SCG-I and with membership to be suggested by Dr. Yves Tourre in the near future, it must allocate some of its time to the upcoming JEB Workshop to take place in Toulouse, in the first half of 2004. Resources are required.

d) Development of mirror/cache JEB sites internationally

It is time to implement JEB Mirror/Cache Sites worldwide. This will require effective interaction between Programmers/System Analysts from sites in Japan, Germany, Africa, South America with Dr Benno Blumenthal (LDEO).

e) Development and implementation of new products

A range of new products is in view through new real time observing programmes such as ARGO and JASON:

- Salinity profiles and 2-dimensional salinity analyses at depth;
- Altimetry with better definition and basin products such as the Mediterranean Basin. Linkages with Climate Change.

The Climate Engine has been developed by Mr. Jeff Anis at SIO of UCSD and requires full implementation within JEB;

The same applies to ice products in the Arctic and Antarctic, developed by Dr. Vasily Smolyanitski and ready for implementation within JEB;

f) "Cleaning" JEB

Major cleanup and updating of JEB (redundant features, inaccuracies, new products, etc.) is required. Dedicated activity is necessary.

g) Relationship between JEB & GOOS Products Bulletin

GOOS is implementing an Electronic Bulletin. Ways and means should be identified to link JEB to that Bulletin. Indeed, for the time being, JEB represents the real-time component of Physical Oceanography for GOOS. Linkages with and support from the upcoming European Framework Programme 6 must be found.

h) Salary for System Programmer/Analyst/IT

Salary for Information Technician support (2-3 months/year) equivalent to US \$ 8-12k per year

i) Development of a multi-lingual bulletin

This is badly needed. It requires full implementation and international support.

**Task Team on
Review of WMO Vol. D, No. 9 – *Information for Shipping***

Terms of Reference

An ad hoc review team will evaluate the requirements for converting the existing printed version of the publication WMO Vol. D, No. 9 *Services to Shipping* into one published entirely via an electronic medium.

The team shall:

1. Evaluate the relevance and utility of the content of the existing publication, and recommend which components should be retained, deleted or expanded, and where new ones should be added.
2. Determine the most appropriate structure and organization for the new publication taking into account expected patterns and modes of usage and the known technological operating environments of WMO Members.
3. Recommend in broad terms the functionalities of the new publication.
4. Determine an appropriate mechanism for updating the new publication, including:
 - Procedures to ensure integrity of the publication as a whole;
 - A procedure to facilitate the speedy incorporation of amendments by Members;
 - The format of information (e.g. the amendments and related metadata) to be used in the updating process.
5. Determine the most appropriate approach to incorporate information encompassed by the existing Handbook on MMS in Vol. D;
6. Determine where cross-reference to the ITU will be required to ensure compatibility with international standards, usage, etc. on radio telecommunications aspects.
7. Recommend an ongoing review mechanism for the publication in terms of the responsibilities and ongoing work programme of the ET on MSS.
8. Finalize its report in late 2002 for submission to the 2nd session of the JCOMM Management Committee in 2003.

Membership

SCG Chair

Mr Hassan Bouksim (Morocco)

Dr Jae Won Lee (Korea).

Task Team on Development of Ocean Services

Introduction

1. The first Session of the JCOMM Management Committee (MAN-I) endorsed the establishment of a task team on the *Development of Ocean Services* in order to more rapidly and effectively integrate the various scientific, technical, organizational and operational issues relevant to the expansion of JCOMM services, including into non-physical oceanographic areas. To this end it agreed that a small interdisciplinary team could effectively achieve such a goal, but would be anchored in the SCG. The membership should span the services, observational, scientific and operational areas within existing JCOMM organs and related organizations particularly GOOS and its bodies, and operational ocean service groups having considerable expertise in providing and developing new oceanographic services.

Terms of Reference

2. The terms of reference for the task team are:

- (i) **Purpose:** The task team shall provide a mechanism and forum for requirements for services utilizing all ocean variables, observations, model outputs, etc. to be effectively and directly linked to the planning activities of the Services Coordination Group for formulation of new JCOMM services. It shall take into account relevant activities and plans of groups, bodies or projects such as, inter alia, GOOS, OOPC, COOP, GODAE, Argo, new/emerging observation systems including those for chemical and biological variables.
- (ii) **Membership:** The team will be chaired by the Chairman of the SCG, and will include the Chairman of the OCG, the Chairman of the OOPC, the Chairman of the JEB Editorial Board, the JCOMM Rapporteur on non-physical oceanographic observations/services, and representatives of key operational ocean services centres selected to provide a sound balance of expertise and geographical coverage. A total membership of up to 10 is envisaged.
- (iii) **Operation of the team:** The team will conduct its business largely by correspondence and will meet where possible, at least partially, during sessions of the Management Committee which the chairs of the SCG, OCG and OOPC and possibly the Rapporteur will be attending.
- (iv) **Reporting and implementation aspects:** The team will report to the Management Committee through the SCG. It will make recommendations for further or additional actions required that fall outside the SPA, either in other areas of JCOMM or its related scientific/technical/operational panels or linkages. To the extent possible the SCG will endeavour to establish the framework, mechanisms, systems, etc. to incorporate planned new services into the JCOMM coordination paradigm and to assist, facilitate, advise, encourage, etc. JCOMM Members to implement the new services.
- (v) **Duration of the team:** The team will commence for an indefinite period, subject to a review of its progress and achievements to be presented to JCOMM-II. The Management Committee will advise JCOMM if and how formal representation of the team in the Commission may be best arranged to provide the most effective coordination as either a temporary or more long term activity within the JCOMM Programme Area framework.

List of Action Items

Service PA Coordinator

Para	action	With whom	when
2.8(i)	Provide the Secretariat with suggestions regarding a JCOMM logo	Group members	asap
3.6	Prepare a document on graphical information transmission via Inmarsat for consideration by ETMSS-I	Chair ETMSS	By ETMSS-I
8.3	Review the future structure, etc, of WMO-No.9 Vol. D and submit proposals to MAN-II	ad hoc Task Team on Volume D, chair ETMSS, and Secretariat	at ETMSS-I by MAN-II
8.4	Consider the possibility that a revised Volume D should also contain a chapter which essentially contained the information now given in the handbook, appropriately updated	Task Team on Vol.D	by MAN.-II
8.5	Take into account in their work that the revision of Vol. D has implications for other information publications	Expert Teams	when appropriate
9.2.3	Seek the final approval of the co-presidents of JCOMM for the establishment of the Task Team on Development of Ocean Services		asap
9.2.6	Review the existing WMO/CEOS requirements data base contents from the perspective of its members' respective specialist areas, and prepare a first draft annotation and updating, for subsequent review by the expert teams	small task team comprising chairs of ETs on MSS WS and SI and MPERSS rapporteur	before their forthcoming sessions but within approximately 12 months

Expert Team on Maritime Safety Services

Para	actions	By whom	With whom	when
3.6	Appoint a rapporteur to undertake a full review of the subject of graphical information presentation to users and inform the team accordingly	ETMSS		at ETMSS-I
3.8	Request Mauritius and Kenya to jointly prepare a session document	ETMSS	Secretariat	Asap
3.8	Jointly prepare a document on the possible designation of KMS as a Preparation Service	Kenya and Mauritius		by ETMSS-I
3.10	Establish an ad hoc task team to consider requirements for HF radio broadcasts including a survey for an eventual revision of the Manual on MMS.	ETMSS		at ETMSS-I
3.11	consider having a unique web site for GMDSS services	Chair ETMSS	Secretariat	at ETMSS-I
8.3	Review the future structure, etc, of WMO-No.9 Vol. D and submit proposals to MAN-II	chair ETMSS	TT on Vol. D, chair SCG, Secretariat	at ETMSS-I , by MAN-II
9.1.2	Consider including in the survey on marine meteorological services questions relating to service delivery/receipt via Internet	ETMSS		by Dec 2003 (before next survey in June 2004)

Para	actions	By whom	With whom	when
9.1.3	additionally develop a broader survey questionnaire, appropriate to all marine users	ETMSS		by Dec 2003 (before next survey in June 2004)

Expert Team on Wind Waves and Storm Surges

Para	action	By whom	With whom	When
4.2(ii)	Update the Guide to Wave Analysis and Forecasting in the form of a <i>dynamic part</i> , including selected papers from related workshops and a paper on the Maxwave Project	ETWS		As appropriate
4.2 (iii)	Seek an overall coordinator/editor for the planned Guide to Storm Surge Forecasting	ETWS		Urgently
4.2(v)	Prepare a JCOMM Technical Report on the wave model verification project	ETWS	Project participants	when feasible
4.2(v)	Prepare an information page on the wave model verification project, for access via the JCOMM web site	ETWS		when feasible
4.2 (vi)	Prepare a short document for OCG-I outlining the status of actions regarding wave observational data	Karen Doublet, Val Swail,	Secretariat	by OCG-I (done)
4.2 (vii)	Prepare for ETWS-I planned tentatively for June 2003 in Halifax, Canada	Chair ETWS	Secretariat	2002/2003
4.3	Continue to contribute to and support such workshops as the Hanoi training workshop as and when appropriate	ETWS		continuous
5.5	Recognizing the direct value of the GDSIDB to scientific programmes, as well as to services and other sea-ice activities, the meeting stressed the importance of continue the work on GDSIDB	ETSI		inter-sessional

Expert Team on Sea Ice

Para	Action	By whom	With whom	when
5.5	Recognizing the direct value of the GDSIDB to scientific programmes, as well as to services and other sea-ice activities, the meeting stressed the importance of continue the work on GDSIDB	ETSI		inter-sessional
5.6(i)	Include in the agenda of ETSI-I a separate item on the dissemination of sea ice information to shipping and other marine users, including through INMARSAT SafetyNET, as part of the GMDSS	Chair ETSI	Secretariat	by ETSI-I
3.7 5.6(ii)	Prepare a report on dissemination of sea ice information for ETMSS-I	ETSI	Secretariat	by ETMSS-I
5.7	Prepare information documents on the status of ETSI activities for DMCG-I and OCG-I	Chair ETSI	Secretariat	by OCG-I and DMCG-I

MPERSS

para	Action	By whom	With whom	when
6.3	Prioritize the tasks and assign them to individuals	MPERSS Rapporteur	SCG chair	as soon as the members of the Task Team were identified
6.3	Establish a sub-set of the <i>ad hoc</i> Task Team on MPERSS as the core of the technical Organizing Committee for the second MPERSS Workshop	MPERSS Rapporteur	SCG chair	as soon as the members of the Task Team were identified
6.3	Draft a programme for the second MPERSS Workshop, identifying keynote speakers, preparing a Workshop brochure, etc	technical organizing committee		18 months before the workshop, i.e. October 2002
6.4	Develop a MPERSS web site using the JCOMM portal established at IOC.	MPERSS Rapporteur	SCG chair	asap, then continuous
6.5	Address the matter of the relationship between MPERSS on the one hand, and Maritime Safety Information (MSI) and Search and Rescue (SAR) events on the other it and make relevant recommendations	<i>ad hoc</i> Task Team on MPERSS		when feasible

JCOMM Product Bulletin

Para	action	By whom	With whom	When
7.4	Prepare a technical proposal on the future JEB that could be submitted to potential interested national agencies	Dr Tourre	IT specialists	mid-May 2002
7.5	Draft terms of reference for the future Editorial Board and make suggestions regarding its composition	Dr Tourre		mid-May 2002
7.6	Keep the relationship between the Bulletin and the IGOSS SOC duties and achievements in mind when making proposals regarding the future of the SOC network	drafting group on SOC	Secretariat	When appropriate
7.7	Prepare an agenda and identify keynote speakers for the JCOMM product workshop	Dr Tourre	Organizing Committee composed by the future Editorial Board	18 months before the workshop, i.e. October 2002
7.7	Address the question of the co-sponsorship of the JCOMM product workshop	Secretariat	Dr Tourre	by mid-2003.

Secretariat

Para	action	With whom	when
2.3	Write to Météo France with the proposal on MPERSS and JEB, to seek its formal agreement as well as the preferred dates		when appropriate (asap)
3.8	Request Mauritius and Kenya to jointly prepare a session document	Chair ETMSS	asap

Para	action	With whom	when
3.11	consider having a unique web site for GMDSS services	Chair ETMSS	at ETMSS-I
4.2(i)	make available the <i>Guide to Wave Analysis and Forecasting</i> (WMO-No. 702) through the WMO web site		asap
4.2 (vi)	Prepare a short document for OCG-I outlining the status of actions regarding wave observational data	Karen Doublet, Val Swail	by OCG-I (done)
4.2 (vii)	Prepare for ETWS-I planned tentatively for June 2003 in Halifax, Canada	Chair ETWS	2002/2003
5.6(i)	Include in the agenda of ETSI-I a separate item on the dissemination of sea ice information to shipping and other marine users, including through INMARSAT SafetyNET, as part of the GMDSS	Chair ETSI	by ETSI-I
3.7 5.6(ii)	Prepare a report on dissemination of sea ice information for ETMSS-I	Chair and members ETSI	by ETMSS-I
5.7	Prepare information documents on the status of ETSI activities for DMCG-I and OCG-I	Chair ETSI	by OCG-I and DMCG-I
6.2	Seek co-presidents approval for the establishment of the <i>ad hoc</i> Task Team on MPERSS		1 May 2002
6.3	Send a letter to the experienced AMOCs seeking their contribution, or their designation of an alternate as contributor, to the work of the Task Team on MPERSS		1 June 2002
7.6	Keep the relationship between the Bulletin and the IGOSS SOC duties and achievements in mind when making proposals regarding the future of the SOC network	drafting group on SOC	when appropriate
7.7	Address the question of the co-sponsorship of the JCOMM product workshop	Dr Tourre	by mid-2003.
8.3	Review the future structure, etc, of WMO-No.9 Vol. D and submit proposals to MAN-II	TT on Vol.D, chair ETMSS, chair SCG	at ETMSS-I by MAN-II
8.4	Consider the possibility that a revised Volume D should also contain a chapter which essentially contain the information now given in the handbook, appropriately updated	Task Team on Vol.D	by MAN.-II
9.1.2	Distribute the survey to ships through the national PMOs		at the next survey in June 2004
9.1.3	Forward the broad survey questionnaire to maritime NMS, for distribution to their various marine user communities		2004
9.2.3	Approach the agencies listed, to seek the nomination of appropriate experts to the team		asap after the approval of co-presidents
9.2.6	Provide the small task team with the relevant extract from the existing data base		asap

List of Acronyms and Other Abbreviations

AARI	Arctic and Antarctic Research Institute (Russia)
ACSYS	Arctic Climate System Study
AIRSS	Arctic Sea Ice Regime Shipping System
AMOC	Area Meteorological and Oceanographic Coordinators
AOPC	Atmospheric Observations Panel for Climate
BoM	Australian Bureau of Meteorology
BSIM	Baltic Sea Ice Meeting
BUFR	Binary Universal Form for Representation of Meteorological Data
CBS	Commission for Basic Systems (WMO)
CEOS	Committee on Earth Observation Satellites
CG	Coordination Group
CLiC	Climate and Cryosphere project (WCRP)
CLIMAR	Workshop on Advances in Marine Climatology
CMM	Commission for Marine Meteorology (WMO)
COADS	Comprehensive Ocean Atmosphere Data Set
COOP	Coastal Ocean Observing Panel (GOOS)
DMCG	Data Management Coordination Group
ECDIS	Electronic Chart Display Information System
ET	Expert Team
ETMSS	Expert Team on Maritime Safety Services
ETSI	Expert Team on Sea Ice
ETWS	Expert Team on Wind Waves and Storm Surges
GCOS	Global Climate Observing System
GDSIDB	Global Digital Sea Ice Data Bank
GMDSS	Global Maritime Distress and Safety System
GIS	Geographic Information Systems
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GOS	Global Observing System (WWW)
HF	High Frequency
IGOSS	Integrated Global Ocean Services System
IHO	International Hydrographic Organization
IHP	International Hydrological Programme (UNESCO)
IICWG	International Ice Charting Working Group
IMO	International Maritime Organization
IMSO	International Mobile Satellite Organization
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
JMA	Japan Meteorological Agency
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JEB	JCOMM Electronic Product Bulletin
JMA	Japan Meteorological Agency
KMD	Kenya Meteorological Department
LDEO	Lamont-Doherty Earth Observatory
MAN	Management Committee
MARPOLSER	International Seminar/Workshop on the Marine Pollution Emergency Response Support System

MDB	Marine Data Bank (U.K.)
MMS	Marine Meteorological Services
MPERSS	Marine Pollution Emergency Response Support System (WMO)
MPI	Marine Pollution Incident
MSI	Maritime Safety Information
NAVTEX	International system for reception of marine safety information
NCEP	National Centers for Environmental Prediction (NOAA)
NMS	National Meteorological Service
NOAA	National Oceanographic and Atmospheric Administration (USA)
NSIDC	National Snow and Ice Data Center (USA)
OCG	Observations Coordination Group
OGP	International Association of Oil and Gas Producers
OOPC	Ocean Observation Panel for Climate (of GOOS, GCOS, WCRP)
PA	Programme Area
PMO	Port Meteorological Officer
QC	Quality Control
RA	Regional Association (WMO)
SAR	Synthetic Aperture Radar
SCG	Services Coordination Group
SIGRID	Format for the archival and exchange of sea-ice data in digital form
SOC	Specialized Oceanographic Centre (IGOSS)
SOLAS	International Convention for the Safety of Life at Sea
SPA	Services Programme Area
SST	Sea Surface Temperature
SST/SI WG	Sea Surface Temperature/Sea Ice Working Group (AOPC/OOPC)
TCP	Tropical Cyclone Programme (WMO)
TOR	Terms of Reference
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCP	World Climate Programme (WMO)
WCRP	World Climate Research Programme (WMO/IOC/ICSU)
WDC-A	World Data Center A
WMO	World Meteorological Organization
WWW	World Weather Watch (WMO)