

**JCOMM EXPERT TEAM ON
MARITIME SAFETY SERVICES (ETMSS)
THIRD SESSION**

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**FINAL REPORT
(DRAFT)**

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NOTE

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GENERAL SUMMARY OF THE WORK OF THE SESSION

1. Opening of the session

The third session of the Expert Team on Maritime Safety Services (ETMSS) of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) was opened by the Chairperson of the Expert Team, Mr Henri Savina, at 09:30 hrs on Monday, 4 October 2010, at the Arctic and Antarctic Research Institute (AARI) of Roshydromet, in St. Petersburg, Russian Federation.

Prof Ivan Frolov, Director of AARI, welcomed the Expert Team (ET) to AARI noting that, for many decades, AARI has participated in JCOMM and in its predecessor, the WMO Commission on Marine Meteorology. He mentioned that this activity was beneficial for all ice services in its work to create a common language for ice services and common standards. He views the activity of the ETMSS as one of the most important activities in JCOMM. On 4 March, AARI celebrated its 90th anniversary and Ivan Frolov expressed his hope to continue a successful activities for the next decade of AARI in support to the maritime matters. He expressed hope and confidence that this would be a successful meeting and that the participants would have a pleasant stay in St. Petersburg.

Mr Valery Martyschenko welcomed the ET on behalf of Roshydromet. He remarked that the Russian Federation traditionally pays high attention to marine meteorological activities including support and development of sustained and standardized systems and services for efficiency and safety of navigation and offshore activities, in the 12 seas, including the Polar Regions and Pacific Ocean. He mentioned the national commitment on the creation of a unified system of marine ocean information, and the enhancement of the NAVTEX stations. The work of JCOMM and in particular its SFSPA constituents is of a high priority for Roshydromet. He also wished the members a fruitful meeting and good time in St. Petersburg.

On behalf of the Secretary-General of WMO, Mr Edgard Cabrera welcomed the participants to the third session of the ETMSS. He pointed out that JCOMM-III has noted how the work of the Expert Team is important for both WMO and IOC in the support of mariners at sea. He informed that the IMO/WMO Worldwide Metocean Information and Warning Service (WWMIWS) Resolution, is in process to adoption (cf. pdf file attached to this report), as part of the effort to continue to deliver quality maritime safety products to the mariners. In this sense the work of the ETMSS and ETSI is a priority. Edgard Cabrera thanked AARI and Roshydromet for their welcome to the historical city and port of St. Petersburg and wished the Team a great success in the meeting.

Mr Henri Savina welcomed the participants to the session and expressed his considerable appreciation to Roshydromet, the local organizers, Vasily Smolyanitsky and all the staff for the excellent organization and support for hosting the meeting. He noted that this was the first meeting of the Team with core members, selected during JCOMM-III. He further listed the main issues of the agenda to be discussed during the meeting. Finally, Henri Savina stressed that the success of this meeting depends largely on the contribution of each and every participant.

1.2 Adoption of the agenda

The Team adopted its agenda for the session based on the provisional agenda. This agenda is given in Annex I.

1.3 Working arrangements

The Team agreed on its hours of work and other practical arrangements for the session. The documentation was introduced by the Secretariat, and the participants introduced themselves, to facilitate future interactions. The list of participants is given in Annex II.

2. Reports

2.1 ETMSS Chairperson, SFSPA Coordinator reports

Dr Ming Ji, the SFSPA Coordinator, presented his report noting that the expected results of the WMO, as given at JCOMM-III, for SFSPA are: improving prediction, information and services; reducing risks of environmental hazards; supporting climate service; strengthening capacity building (CB); and enhancing partnerships and cooperation. He informed the ET that the IOC high-level outcomes, as given at JCOMM-III, relate to: natural hazards; adaptation to climate change; and management procedures and policies.

Based on these thrusts and cross-cutting priorities, and in consideration of the JCOMM-III direction to move toward a project-oriented approach to its work instead of activity-based, the Programme Area Coordinator met with the Chairpersons of ETSI, ETWS, ETOOFS and ETMSS to develop a workplan identifying seven projects related with ETMSS (Annex V).

Dr Ji informed the meeting of the priority activities of the ETOOFS, ETWS, ETMSS and ETSI that serve to achieve the results identified in the workplan.

The ET was informed that the JCOMM Services Website is now merged into the SFSPA website on the main JCOMM website (www.jcomm.info) to be more sustainable. The ET Chairs and their teams must maintain the content on their own Team section. Cross-cutting information such as calendars, people and general news, and the ability to search and organize documents, will be maintained centrally.

The Chairperson summarized the main achievements during its previous session, and in particular:

- The cooperation with the International Maritime Organization (IMO) and International Hydrographic Organization (IHO), especially with the IHO World-Wide Navigational Warning Service Sub-Committee (IHO/WWNWS), to coordinate the expansion of the Global Maritime Distress and Safety System (GMDSS) into the Arctic waters and the revision of relevant regulatory publications (IMO Resolution A705(17) on Promulgation of MSI, IMO Resolution A706(17) on the IMO/IHO WWNWS, joint IMO/IHO/WMO Manual on MSI, the International SafetyNET Manual);
- The submission to the IMO Maritime Safety Committee (MSC) of the IMO/WMO World-Wide Met-ocean Information and Warning Service (WWMIWS), including ToRs for METAREA Coordinator, to complement the existing IMO Resolution A.706(17);
- The preparation of a first draft catalogue on Met-ocean Object Classes and Attributes;
- The Maritime Safety Services Enhancement Workshop, (Melbourne, Australia, May 2010), including a QM training, focused on Internal Audit procedures, provided to Issuing Services by a QM specialist supporting the Australian Bureau of Meteorology;
- Amendments for the Manual on Marine Meteorological Services (WMO-No. 558).

Recalling the very short intersessional period and the limitation of human resources, the Chairperson also stressed the need to focus on the JCOMM requirements prioritized by the SFSPA Coordinator and the ETs Chairperson into 7 projects (see details in Annex V):

- Develop the MPERSS capabilities including the Arctic Ocean **[Project #19]**
- Support Issuing Services for GMDSS and AMOCs for MPERSS in the Arctic Ocean. **[Project #20] (with ETSI)**

- Update WMO No. 471 and 558 for sea state in MSI **[Project #21] (with ETWS)**
- Preparation of a Catalogue on Met-ocean Object Class for ENC and e-Navigation **[Project #22] (with ETSI)**
- Facilitate implementation of Quality Management Systems (QMSs) among Members for the provision of Marine Safety Services **[Project #23]**
- Coordinate and support the implementation of the GMDSS in the Arctic Ocean. **[Project #28] (with ETSI)**
- Enrich the GMDSS website (NAVTEX products, Arctic MSI) **[Project #35]**

2.2 IMO report

Mr Nick Ashton presented the report on behalf from IMO on overall activities and actions in relation with the safety at sea. Focus has been given in the report to information relevant for the GMDSS, SAR and response to marine pollution, Information on projects or activities like e-navigation, the modernization of the GMDSS, or other planned evolutions or emerging technologies with potential consequences for the NMHS issuing GMDSS MSI.

Action: Secretariat, Permanent, Enhance the coordination with IMO and monitor the GMDSS scoping exercise regarding provision of Met-ocean MSI.

2.3 IHO report

The IHO representative introduced his report. He provided information related to the revised IHO Committee Structure and informed the meeting was held in Ottawa, Canada, 4-6 October 2010, the IHO had established a new Regional Hydrographic Commission for the Arctic (ARHC) with Savithri Dominion, Hydrographer, Canadian Hydrographic Service, as the Commission's Chair.

He provided a brief report on the meetings of the IHO WNWNS Sub Committee (formerly CPRNW) which had taken place since the ETMSS-II meeting and acknowledged the important contribution that the WMO/ETMSS representative had made to the success of these meetings. This report focused on the document review, the establishment of the Arctic NAVAREAs/METAREAs, contingency planning and the introduction of a Quality Management Survey in the NAVAREA report template.

He reported on the Capacity Building Training Course developed by the WNWNS and its delivery in Jamaica, Mozambique, Spain, Ghana, Oman, Namibia and Australia in the 2007-2010 period and the plans to deliver in Brazil and the Caribbean in 2011.

He also highlighted the proposal from the United Arab Emirates that "Thuraya" should be included in the discussions at IMO on the Scoping Exercise for the Review of the GMDSS. During discussion it was noted that if additional services providers enter in the GMDSS in accordance with Resolution A.1001 (25) there will be cost implications for NAVAREA Coordinators / METAREA issuing services. He reported on the business continuity plans being prepared by the NAVAREAs to cover all elements in the delivery of MSI and considered that it is important issue for METAREA issuing services.

Finally, he passed on a request from the WNWNS that they would appreciate any assistance that ETMSS could provide in ensuring the use of standardized terminology in meteorological warnings and forecasts (particularly in forecasts) as these were a common cause NAVTEX broadcasts overrunning their 10 minute transmission slots and the ensuing possibility of ships not receiving the "locking" signal for the subsequent broadcast.

2.4 Inmarsat report

Mr Vladimir Maksimov presented Inmarsat report and gave general overview on all existing maritime communication systems and services, Inmarsat role in the GMDSS, implementation of new Arctic NAVAREAs and plans of the company to develop new family of maritime distress and safety services on FleetBroadband (FB) platform that is a new generation of maritime broadband services from Inmarsat.

The presentation covered the issue of Inmarsat network including ground segment, space segment of operational satellites and mobile terminals. General information was given on each operational maritime communication system with the emphasis on Inmarsat-C that is the cornerstone of the GMDSS on satellite communications supporting five out of nine functions defined in Chapter IV of SOLAS Convention. Detailed information was given on Inmarsat-C characteristics and services, on how Inmarsat-C supports each GMDSS functional services and explanation was given on Mini-C ships' terminals.

Two satellite coverage areas were presented – one area provided by four Inmarsat, I3 (third generation) satellites to support existing and evolved services (including GMDSS services) and the other area provided by three Inmarsat, I4 satellites to support broadband services. A separate statistics were presented on the EGC SafetyNET services showing number of meteorological, navigational and SAR messages and its size per month and per ocean regions.

After five new Arctic NAVAREAs/METAREAs were defined and approved by IMO, Inmarsat performed a series of communication tests to establish a practical limit of Inmarsat coverage in the Arctic. Test messages were sent to all ships in the areas concerned asking to report their positions where Arctic MSI may be made available. Twenty-two reports from ships were received reporting their latitude from 73⁰N to 77⁰N with the highest latitude of 79.23⁰N.

Separate information was presented on Inmarsat-C Land Earth Stations (LESs) in each ocean region and which LES supports Short Access Code (SAC) 41 to send Meteorological reports from ships to met offices. This service is not mandated by IMO and is optional for LESs. That is why it is important to know which Inmarsat-C LES support it. On the other hand all maritime Inmarsat-C and mini-C terminals support SAC services.

Large part of the presentation was on Inmarsat plans to develop a new generation of maritime safety services on FleetBroadband platform. FB family of mobile terminals includes three models – FB500, FB250 and FB150 with different antenna size and weight, different characteristics and services that include voice and fax, standard IP, IP streaming and ISDN data. As a first step forward to implement safety services on FB in advanced of GMDSS, Inmarsat developed and implemented a new service – “505 Emergency Calling” that is available on all FB models on all three satellite regions. A 505 is a short-code dialling to one of three strategically located RCCs – USA, the Netherlands and Australia. The service does not have priority and pre-emption and it is not a substitute for the GMDSS. No charge applies for the service.

Inmarsat shared its plans on the development of new distress voice services (similar to F77 services) and distress data services (similar to Inmarsat-C) covering distress alerting, distress priority messaging and promulgation of MSI.

Since there will be new maritime safety services on FB platform, based also on previous experience on Inmarsat-C EGC SafetyNET services and being proactive on development of the new system Inmarsat asked a few questions that would help the company to design it:

- Will new EGC services be required in addition to the existing services (there are eight services now – C2=00, 04, 13, 14, 24, 34 and 44);
- Is it required to distinguish between NAV, MET, SAR and other services (now some services use the same service code for MET, NAV and Piracy information);

- Is it required to define new (additional) addressing mechanism? MSI is addressed now to NAVAREAs/METAREAs, circular and rectangular areas and coastal areas. Would it be useful to define also sub-areas (e.g. Baltic Sea, Caspian sea, etc.), some fixed areas (e.g. some rivers, lakes, inland waterways, etc.);
- Should IMO performance standards on EGC SafetyNET receivers for future systems should be changed/revisted (antenna installation, power supply, alarms, automatic printing, etc.);
- Should different models of ships terminals have the same user interface on safety services;
- How “pull” approach to request required MSI should perform in addition to the existing “push” technology?

Action: Core Members and IHO WWNWS by November 2010 to provide a response to ETMSS chair on the development of new family of maritime distress and safety services on Inmarsat FleetBroadband (FB) platform

3. Implementation of QMS for MSI

Quality Management Systems (QMS) for aviation have been undertaken within a global regulatory environment. Although such regulations do not presently exist for marine services, IMO is moving in this general direction. In order to ensure the use of best practises and the improvement of value for mariners, JCOMM promotes the implementation of Quality Management Systems (QMS) within the NMS preparing MSI.

3.1 Review of outcomes of the training course and proposals for the way forward

Quality Management training course, focussed on Internal Audit procedures, was provided to Issuing Services by a QM specialist supporting the Australian Bureau of Meteorology during the MSSE Workshop in May 2010.

Team members were presented with a report on the outcomes of the training course. The training course examined the major drivers to adopt a quality management approach to the delivery of marine weather & ocean services including:

- I. The scope of the quality management system (QMS)
- II. Steps for implementation
- III. The current status of the implementation
- IV. The challenges

The meeting noted the JCOMM-III recommendation 11/1 – “Implementation of Quality Management Systems for Met-ocean Data, Products and Services by Members/Members States” and that the Commission has recommended that Quality Management principles should be incorporated into the regulatory documents on Met-ocean Services as soon as possible, including the publication WMO-No. 558 (Manual on Marine Meteorological Services).

After a review of the outcomes of the workshop, the meeting agreed to wait for the proposals that will be prepared by Mr Bryan Boase, for consideration of the Management Committee for moving forward in the process for QMSs implementation by Issuing Services.

Action: Secretariat and QM activity leader, by December 2010, to incorporate the QM principles into the regulatory documents on Met-ocean Services, including into the WMO-No.558 and coordinate the support to NHMS for implementation of MSI Issuing Services.

3.2 Users feedback and performance measurements

Metrics are an essential component of QMS. The measurement (or estimation) of the usefulness and impacts of the provision of MSI or other services is a complex and multi-faceted process, involving surveys and user feedback, through regular written questionnaires (as was now the case), future on-line surveys through the website, and direct feedback from ships masters, owners and agents, using the PMOs and other ship visitors.

The Team has reviewed the present questionnaire in the light of the outcomes of the MSSE workshop, with a view to develop with ETOOFS and IHO/WWNWS a complete survey methodology, to provide the feedback necessary for performance assessment of the system. The aim is to conduct a survey in 2011 in order to present the analysis during JCOMM-IV in 2012.

The meeting noted that the JCOMM questionnaire (Annex VI) was distributed by WMO through the normal GMDSS channels. It was agreed to update the questionnaire and to clarify on the content (eg. storm surge and ice accretion) with focus on topics of interest to the mariners.

Actions: Secretariat, Chair and Vice-Chair, by December 2010, to develop a complete survey methodology for QMS and performance assessment of the system, in coordination with ETOOFS and IHO/WWNWS; and Secretariat, Chair, Vice-Chair and ETSI Chair, by 2011, to undertake the QMS survey and share results during JCOMM-IV.

3.3 Review of self-assessment report template

The Team reviewed the self-assessment report template for METAREA Issuing Services and agreed that the metrics it contains represents an essential component of a Quality Management System. It was also agreed that this self assessment report will be used annually.

Action: Secretariat, Chair and Vice-Chair, by December 2010, to modify the self-assessment report template with particular reference to the QMS.

4. Implementation of the GMDSS in the Arctic Areas

4.1 Status of implementation (including NAVAREA)

The Team was pleased to note the progress being made by all three Issuing Services, covering the five new METAREAs, on 1 July 2010 date for extended testing of GMDSS broadcasts and a target implementation date on 1 June 2011, both likely to be met. The common issues identified during the MSS workshop were considered.

Canada XVII and XVIII

METAREA Coordinator for areas XVII and XVIII presented an update on the status of operational implementation of the new Arctic METAREAs. Detailed information is available in the self-assessment reports provided by Canada to the WMO METAREA Coordinator. In summary, Canada started initial operational capability on 6 July 2010. As Issuing Service, Canada will have monitoring of the SafetyNet bulletin transmission and reception in place, operating in real-time, during the fall of 2010. Canada will be ready for full operational capability through SafetyNet and HF NBDP on 1 June 2011.

During the presentation, several questions were raised about roles and responsibilities and this portion of the report will attempt to capture those discussions and decisions.

- Once new maps are available depicting the new marine areas referenced in the new Arctic MSI, Issuing Services should send those to the WMO to update publication No. 9.
- Coordination of Ice Edge will be important between Preparation and Issuing Services, along with adjacent Issuing Services. Through ETSI, common definitions and

coordination of operational practices will be developed to minimize any potential inconsistencies.

- It is critical to maintain integrity of the content of the Preparation Service's MSI. Therefore it is strongly urged that the Issuing Services should relay the information as provided. Issuing Services may need to bring the information into a unified bulletin, however, it is important that the integrity of the information is retained. The Issuing Service and Preparation Service will enter into discussions to clarify roles and responsibilities to ensure MSI is in the standard format and language required.
- Cross-border coordination will be important not only for the Ice Edge, but for Meteorological information as well. The three Arctic METAREA coordinators agreed to begin discussions, through e-mail and opportunistic meetings in the coming year, to develop best practices for sharing information and ensure an appropriate and practical level of operational coordination.
- Canada, in consultation with USA, will be making a formal proposal in the coming months to the WMO METAREA coordinator, regarding the provision of MSI for Hudson Bay, Davis Strait and Labrador Sea, currently in METAREA IV. Advice will be sought on creating a sub-area or developing geographic addressing which will facilitate Canada in its request to become an Issuing Service for this area. Services would potentially begin as early as 2012, marine transportation season. Technical advice and authorization from the SafetyNet Panel could be required. Canada will seek assistance from the ETMSS Chairperson to facilitate this interaction.
- Contingency responsibility lies with the Issuing Service. This also means ensuring INMARSAT uploading, which is typically a contracted responsibility to a third party. Issuing Services should either establish back up contracts with alternative providers or develop an agreement with a neighbouring Issuing Service to act as a back up in case of a failure at the primary SafetyNet service provider. HF NBDP contingency will be a work in progress understanding redundancy is limited at this time. Contingency for monitoring the bulletin traffic is only expected to be next business day, with potential monitoring back up established with parallel NAVAREA Issuing Service.
- A question was posed about whether or not the SafetyNet broadcasts should include a disclaimer, directing marine users to domestic services for additional information. Since SafetyNet is intended for MSI, and the relevant MSI is contained in the broadcast, the addition of a disclaimer may just add to bulletin length. Until consensus is reached among the METAREA community on this matter, Canada will not be including a disclaimer along with their marine weather MSI bulletins.

METAREA XIX

The coordinator for METAREA XIX presented this report. In 2007, Norway accepted official recognition as the Issuing Service for marine weather forecasts and warnings for METAREA XIX as part of the Global Maritime Distress and Safety System (GMDSS). Norwegian Coastal Administration (NAC) is the Issuing (and preparation) Service for Associated NAVAREA XIX.

The METAREAs are dynamic – a decreasing ice cover will lead to increasing demand for weather and ice information, both temporarily and partially. Norway's approach will be to start with weather information for ice free areas and information on the ice edge.

The broadcast of METAREA information beyond 76N will be through Telenor Maritime Radio, responsible for Norwegian Coastal Radio. An agreement between Telenor Maritime Radio, NAC and met. no is signed. Transmission via HF-NBDP (Narrow Band Direct Printing) is tested and will be the broadcasting system N of N76. A Certificate of Authorization to participate as an Information Provider in the International SafetyNET Service has been issued to met. no from IMO.

NAC and met. no are both preparing for testing periods. Today's HF NBDP will not cover properly the northernmost areas (N of approx. 81N). The agreement mentioned in paragraph 4 includes enhancement of broadcast system, and will be ready by 1 October 2010. NAVAREA, METAREA, and NAVTEX coverage diagrams, including service areas and times of transmission are being developed as products and transmission times are negotiated.

Sea ice information will consist of NAVTEX bulletins describing the ice edge. An overlap of 300 NM is planned between adjacent METAREAs, except between METAREAS XVIII and XIX; because this area is not navigable.

Difficulties to reach an agreement with the LES provider were reported.

METAREA XX and XXI

The session noted that the Roshydromet is the Preparation Service for METAREA XX and METAREA XXI. The Hydrographic Enterprise of the Russian Federal Agency of Marine and River Transport is the designated Preparation Service for associated NAVAREAs XX and XXI and the Issuing service both for METAREAs and NAVAREAs XX and XXI. Since 2001 the Arctic and Antarctic Research Institute (AARI) of Roshydromet is leading and coordinating the preparation of weather and ice MSI for the SafetyNET network for the Northern Sea Route areas (west region and east region) which are a part of the METAREA XX and XXI defined in 2007.

Activity for 2010 is in accordance with the June 2010 IMO/IHO declaration of an International SafetyNET service to METAREA XX and XXI to be in "Initial Operational Capability" and includes routine delivery of MSI (meteorological and ice) from the beginning of July 2010. The MSI marine forecast bulletins state a) hydrometeorological marine warnings in effect, b) synopsis for the weather and sea state (for open water – wind waves and swell, for sea ice – brief description of sea ice conditions in plain text in accordance with the JCOMM ETSI recommendations), and c) forecast of weather conditions for one day. SafetyNET broadcast service consists of two broadcasts per day at 0600 UTC and 1800 UTC. Sea ice information is prepared and issued 3 times a week (Monday, Wednesday and Friday) at 1800UTC. In addition to WMO GTS and GMDSS web-site, archive of the bulletins is available at <http://www.aari.ru/gmdss/bulletin/index.php>. Simultaneously, an update to the national mandatory documentation for GMDSS services including new schemes of services for METAREAs, is under preparation in accordance with the latest WMO/IHO/IMO decisions.

One of the remaining critical problems being currently resolved, is the restriction of the broadcast of METAREAs XX and XXI information north of 76N. At the moment Inmarsat-C is used to transmit the information on the safety of navigation to the ships in the NSR western and eastern zones with negotiations for extending radio services underway. Another issue is due to a fact that the Arctic METAREAs are characterized by the ice cover occurrence during the whole year which is the serious obstacle for navigation and a factor of risk. The Russian approach is that the sufficient safety level can be reached only with individual (customer oriented) support with provision of detailed ice information, but the goal of the GMDSS ice information circular transmission is to warn on the ice with definite characteristics in a certain area to prevent incidental entry of vessels into this area. In case of absence of icebreaker support, the minimum ice information issued under the GMDSS does not assure the safety of ship navigating through ice. In this case for the ship entering ice covered areas, special information is provided, including satellite images, detailed ice charts and forecasts. This additional ice information may be superimposed on the navigation chart in the Electronic Navigation Chart (ENC) system or used standalone.

Roshydromet expects to transition to a "Full Operational Capability" service to METAREA XX and XXI by June 2011 in accordance with the June 2010 IMO/IHO announcement regarding the expansion of the IMO/IHO World-Wide Navigational Warning Service (WWNWS) into the Arctic waters.

Regarding preparations for the Arctic METAREAs, Canada will be operating seasonally for METAREA XVII and XVIII and will transition to Full Operational Capability (FOC) by June 2011, with SafetyNet and HF NBDP services; Norway is preparing to provide year round MSI for METAREA XIX through HF NBDP and all that remains is to secure a SafetyNet upload service during the fall and winter of 2010/2011 to ensure FOC by June 2011; the Russian Federation will be prepared for FOC for METAREA's XX and XXI by June 2011, providing MSI seasonally, through SafetyNet and probably NAVTEX (alternative communication methods are being considered for north of 75°N).

Action: Secretariat by November 2010, to forward the METAREA status report to IHO WNWWS for inclusion in the Joint IHO-WMO report to COMSAR 15.

Action: Secretariat to raise ASAP the Norwegian SafetyNet concerns to IMO SafetyNet Coordination.

4.2 Sea ice information in MSI

The Team was presented with the results of ETSI work in respect to sea ice information in MSI, including the outcomes of the ETSI forth session in March 2010 (JCOMM Meeting Report No. 74) and noted that after considerable discussions it was agreed by the ETSI that the "ice edge" is the primary warning information and is the only information that the ice services will consider mandatory for sea ice to provide in the context of GMDSS. Beyond this level of information, each individual ice service can decide what to provide depending on its own unique circumstances and practices. Based on restrictions on GMDSS bandwidth the ETSI also agreed to limit the delineation of the ice edge to a maximum of 10 points per sub-area.

The Team noted that ETSI reviewed the new Guidance Document for the IMO/WMO World-Wide Met-Ocean Information and Warning Service and agreed that it is consistent with the views of the ETSI members with respect to the provision of ice information. However, the ETSI also noted that the Guidance Document which reflects the content of WMO No. 558 is currently deficient in describing ocean products for the Polar Regions. The ETSI agreed that it will provide information to describe other information that may be available to users as part of additional services for efficiency and safety of ice navigation, if transmission of information is not restricted to GMDSS SafetyNET and HF fax, and with this respect listed:

- Routine ice charts with daily – weekly periodicity, providing regional recommendations (graphic HFfax and binary SIGRID-3/JPEG/S-57/etc product);
- Routine and customized ice charts with various complexity, scale and periodicity (hours - 7 days), providing tactical and regional recommendations (binary SIGRID-3/JPEG/S-57/etc product);
- High-resolution annotated satellite imagery, commonly providing tactical recommendations to the masters (1 hour – 1 day, binary JPEG/GeoTIFF product);
- Prognostic (hours - 7 days) ice charts for ice parameters critical for safety and success of navigation (binary JPEG/S-57/etc product);
- Supplementary synoptic and prognostic (hours - 7 days) meteorological charts or grids (binary JPEG/GRIb or textual products);
- Medium to long-term ice and meteorological phenomena forecasts with a lead-time of more than 7 days (commonly based on empirical models) (mostly textual products).

The guidance material should also provide a reference to WMO No. 574 – Sea Ice Information Services in the World. The ETSI will provide the appropriate final wordings on the above item for inclusion into IMO/IHO/WMO guidance material, including a single common

definition of "ice edge" accepted by all Preparation Services.

Action: Secretariat, ETSI, Chair and Vice-Chair by December 2010, to provide the appropriate final wordings for development of IMO/IHO/WMO guidance material with regards to the ice-navigational ocean products.

Further under this agenda item the ETSI Chair presented the first draft list of sea ice abbreviations for NAVTEX. The Team recalled that ETSI had previously adopted a recommendation (ETSI-III, 2007) to the NAVTEX manual that sea ice information should be issued in plain language and agreed to keep this recommendation in effect. However, recognizing the need for brevity and clarity for marine communications, JCOMM-II noted (Recommendation 9/1) that external factors [related to communications] so that abbreviations are often necessary to fit the essential information into the time available. The draft list of sea ice abbreviations is partly based on the regional practices in the Baltic Sea and Canadian Arctic and in its present form includes 4 tables with 2-3 symbols abbreviations for sea and lake ice concentration, thickness and stages of development, topography and additional parameters. The ETSI plans to prolongate its work on the draft by reviewing the consistency of the abbreviation list, circulating it to sea ice services and its testing in regional practices. The final draft list will be approved by the ETSI intersessionally and passed to ETMSS for further inclusion into the NAVTEX manual as a possible alternative for a plain text for time critical and carrier-reliable transmissions.

Action: Chair, ETSI Chair to review ASAP the sea ice abbreviation list in coordination with sea ice services for inclusion in NAVTEX Manual.

5. Revision and re-issue of the WMO Documentation

5.1 Cross revision of publication WMO-No.558 & WMO-No.471

The guidance and regulatory publications, especially the *Manual on Marine Meteorological Services* (WMO-No.558) and the *Guide to Marine Meteorological Services* (WMO-No.471), can be considered as ISO documents by NMHS. It is then of major importance to ensure that those publications are updated appropriately. A number of revisions to both the Manual and Guide, relating to the GMDSS, has been recommended by JCOMM-III and approved by EC-LXII in June 2010. These are now being promulgated to Members. It was planned that a complete new edition of the Manual, to incorporate all amendments adopted over the past decade or more, but also to correct noted anomalies, errors and inconsistencies, be prepared over the next month. In order to facilitate the update of those documents the WMO Executive council approved a fast track procedure and a procedure for adoption of amendments between JCOMM sessions.

Action: Secretariat and Core Members by 2011 to prepare a clean copy of WMO-No.471 and WMO-No.558 including all amendments and circulate for comments / review.

5.2 Other WMO publications

The session recalled that the WMO publication 'Sea Ice Services in the World' (WMO-No. 574) is providing to mariners and other users the latest snapshot of the sea ice services available world-wide, by this effectively extending the WMO publication No. 9, Volume D – Information for Shipping and noted that JCOMM ETSI starting from 2007 agreed on updating the electronic version of the publication annually using the similar to WMO-No. 558 or WMO-No. 471 "fast track" procedure to revise the document with a final version published on the JCOMM Services web-site (CD-ROM versions of the publication and/or supplements will also be prepared by the WMO Publishing Department). The following structure is currently agreed by ETSI for the publication (JCOMM Meeting Report No. 74):

- Table for noting supplements received
- Introduction

- Foreword
- Foreword to third edition
- Part I General (Section “The Nature of Sea Ice”, “Ice Observing Methods”, “Integrated Observational Systems”, “Ice Information Services”, “International Cooperation”)
- Part II Regional and National Practices (information on 21 ice services using a common template)
- Annex I-XIII Sample charts and output products of national services
- List of abbreviation
- ‘Sea-ice products by areas of the World Ocean available via the Ice Logistics Portal’
- Hemispheric map showing max/min ice extent plus dots showing location of ice services

Noting that the latest annual 2010 edition contains updates provided by national ice services up to March 2010 and is available at http://wdc.aari.ru/wmo/docs/wmo_574/wmo_574.pdf, the session agreed to advise the ETSI chair on the appropriate changes to electronic copy of the publication to ensure its compatibility with references in the WMO publication No. 9, Volume D – *Information for Shipping* with further availability of the publication at JCOMM Services web-site.

Action: Secretariat by December 2010, to include the appropriate reference to WMO 574 on WMO-No.9, Vol. D. as well as to other documents on the QMS System.

Action: Secretariat by December 2010, to remind the Members about the importance of updating WMO-No.9, Vol. D.

5.3 Presentation of the joint IMO/IHO/WMO documentation

The IHO representative reported on the status of the following publications/documents: IMO Resolutions A.705(17); A.706(17); A.664(16); A.701(17); MSC.305(87); COMSAR Circular Circ.36; and the Joint IMO/IHO/WMO Manual on MSI; IHO Publication S-53; International SafetyNET Manual; NAVTEX Manual; and the IHO WWNWS Subcommittee Terms of Reference.

Action: Secretariat by December 2010, to discuss with the UNESCO-IOC ICG on Global TWS the need for COMSAR Circular Circ.36.

The meeting was also informed on the status of the WWMIWS which has been submitted to IMO MSC 88.

Action: Secretariat by November 2010, to request all issuing services on the readiness to be a METAREA coordinator or to propose alternatives.

Action: Team and Secretariat by November 2010 to contribute to the IHO documents review working group.

6. Strategy and work plan for development of enhanced MSI

6.1 WMO contribution to e-navigation and the review of the GMDSS

The agenda item was preceded by a technical tour to TRANSAS ENC producing company. During the tour participants were acknowledged with the latest standards in ECDIS implementations including sea ice and satellite imagery modules for NaviSailor 4000 (developed in cooperation with AARI).

The Team was informed by Mr Nick Ashton on the status of the IMO e-Navigation strategy. He highlighted that e-Navigation as a concept, is being developed under the guidance of IMO. The most recent work is outlined in ETMSS-III/Doc.6.1 Appendix B, and indicates that MSI, and specifically meteorological information, is now an integral aspect of the concept.

The Team agreed that it is important that WMO fully engage with the e-Navigation process to ensure that it is able to embrace opportunities to both enhance the use of meteorological information and utilise the capabilities of WMO. In addition, such engagement should ensure that WMO is aware of any regulations which could oblige WMO and NMHS to supply services or use communication systems for which they have not prepared.

The revision of the GMDSS is much less structured, and whilst IMO are currently treating this and e-Navigation as separate issues, it is difficult to see how such a separation can be maintained. Despite this, it is equally important that WMO also engage with this review.

Actions: Secretariat, IMO and Vice Chairperson, by 2011, to maintain and enhance the WMO engagement with the e-Navigation process and with the revision of the GMDSS.

The IHO representative gave a presentation on IHO's Geospatial Data Registration Framework S-100 and indicated its potential use by other authorities for their maritime needs.

The Meeting took note of the report prepared by the ETSI Task Group on ENC Ice Objects (TG ENCIO) for IHO TSMAD (presented by Konstantin Ivanov, TRANSAS) on the progress in implementation of the Ice Objects Catalogue for presentation of the sea ice information within ECDIS. The latest "Ice Objects Catalogue" version 5.0 (JCOMM Meeting Report No.74, March 2010) is an addition to IHO S-57, by August 2010 is registered in the IHO Register of Registers, and is currently under testing by the Canadian Ice Service and the Arctic and Antarctic Research Institute in cooperation with ENC providers TRANSAS and CARIS. The session also noted that the Catalogue is now seen as a formal section of the S-100 and its implementation in TRANSAS NaviSailor 4000 is proposed as a demonstration Suite for JCOMM-IV.

The Session further noted with interest information from Sergey Gubernatorov (Jepperson Russia, Marine Academy) on the existing practices of provision and presentation within ECDIS of MMO data coming from the ECWMF and other meteorological centre in WMO GRIB format and agreed to check the standards for that and similar WMO formats for gridded data for further potential incorporation into S-100.

Action: Secretariat by 2011, to make compatible WMO/WIS format with IHO S-100 and liaising with other WMO programmes.

6.2 Preparation of the catalogue of marine & oceanographic parameters/attributes

Since 1999, ETMSS has been working on the implementation of graphical/numerical Maritime Safety Information (MSI) broadcast within the GMDSS. The WMO Executive Council, at its sixty-first session (June 2009), encouraged WMO Members to investigate low-cost options for on-demand approaches that are compatible with Electronic Navigation Charts (ENC). In addition, the imminent increase of ENC systems on SOLAS vessels as regulatory material and the emergence of the e-navigation concept within IMO reinforce the priority given to this requirement.

ETSI has already developed the *Sea Ice Objects Catalogue* in accordance with IHO standards. ETMSS has initiated the development of a catalogue on *Met-ocean Object Classes and Attributes*. The Team has reviewed the draft catalogue.

Action: Secretariat by December 2010, to review the “Met-Ocean Object Classes and Attributes” catalogue by completing the list of parameters (esp. for tsunami and sea state).

6.3 GMDSS web site

The Chairperson presented the JCOMM GMDSS-Weather Website (<http://weather.gmdss.org>), which provides access, in complement to the official dissemination channels, to the met-ocean MSI prepared for SafetyNET, and sometimes for NAVTEX, dissemination. Appropriate links to the publication WMO-No. 9, Volume D – *Information for Shipping*, are also included. Météo-France has been managing and hosting this website, which has been in operation for 6 years. This website will also include the GMDSS products for Arctic areas.

Action: Issuing Services and Secretariat, by March 2011, to make sure that all Issuing Services make available NAVTEX products on the GTS, provide Météo-France with the ad-hoc metadata and provide the same information for all the NAVTEX stations in their METAREA(s).

Action: Secretariat by December 2010, to renew the two web domains for GMDSS (www.gmdss.org) and MAES (www.maes-mperss.org).

7. Sea state information in MSI

There is a significant room for improving the provision of sea state that should be considered as the most important parameter, in Maritime Safety Information (MSI). At the moment, the majority of Issuing Services preparing GMDSS MSI provide information on the significant wave height only, generally using the Douglas scale. This is very limited in comparison with data available from the NWP and certainly the constraints and needs of ships at sea. Many accidents occurred in coastal or open seas due to sea state, where significant wave heights were far below the thresholds fixed for the vessels, but in situations where the sea state was complex (e.g. cross seas) or unusual (e.g. steep sea, risk of abnormal or freak waves). Key parameters should be proposed to provide more useful information for the safety of ships, especially in complex and dangerous seas.

Action: Chair, Vice-Chair, ETWS Chair, Secretariat, by 2011, to take in consideration user needs to define if feasible parameters, indexes and thresholds to be included in the guidance or regulations related to sea state information on MSI.

8. Tsunami-related MSI

The Team members were provided with a presentation summarizing the genesis of tsunamis and outlining the necessity for rapid dissemination of related MSI.

It was noted that there is international coordination of Tsunami Warning Systems. An Intergovernmental Coordination Group (ICG) has been established under the auspices of UNESCO's Intergovernmental Oceanographic Commission (IOC) for each affected ocean basins:

- Indian
- Pacific
- Caribbean
- NE Atlantic & Mediterranean

The IOC has established the Tsunami and Other Ocean Hazards Related to Sea Level Warning & Mitigation Systems (TOWS) Working Group and a number of task teams (meeting 10 Dec.) to harmonize and standardize terminology, warning formats and procedures as far as possible between the oceans.

The Meeting noted the requirement to update WMO-No.558 and WMO-No.471 with appropriate information.

Action: Australia and Japan to review and propose ASAP if appropriate draft amendments for information relating to tsunamis contained in WMO-No.558 and WMO-No.471.

9. SAR and Marine Pollution

There is ample room for improvement in the emergency response both for search and rescue (SAR) and marine pollution. The services rely on trajectory models which in turn are dependent on surface currents from ocean models as well as sea state from wave models and wind from numerical weather prediction models. The services are thus dependent on a suite of computationally demanding forecast models. As most accidents and incidents occur near shore spatial resolution is a key factor in providing reliable forecasts of drift trajectories, whether for search areas or for mitigation of oil spills. The Team made suggestions for enhancing the visibility of the MPERSS outside WMO.

Presentations were made by the US Coastguard on work and modeling for both Search & Rescue and spill modeling.

The national operational oceanographic and meteorological agencies actively support the national response agencies for Search and Rescue (SAR) and hazardous material (HAZMAT). The SAR/HAZMAT response agencies are primarily responsible for searching and recovering mariners lost at sea (SAR) and mitigating the effects of oil or hazmat spills. To these end, the response agencies need to optimize the deployment of limited resources to the incident. Prediction of the drift of the survivors or spill from the initial time of incident through to the end of the next response epoch is required to optimally locate the limited resources to the projected locations of survivors or spill. The two major drivers of the drift trajectory are surface currents and surface winds. Both SAR objects and surface oil spills drift 100% with the currents over the top 1-meter, and with much reduced portion of the surface winds. Field experiments have determined that objects drift of the order 1-10% of the winds as adjusted to the standard meteorological level of 10-meters. With these two forces fields in hand drift predictions can be made.

The responsibilities of the national operational oceanographic and meteorological agencies are: 1) produce synoptic and forecasted surface current and wind fields; and 2) make those fields available to the trajectory drift models. They may run the trajectory drift models for the response agencies or the response agencies may run the trajectory drift models. An archive of the synoptic fields will need to be maintained for a minimum of 7 days to cover the time back to start of the incidents. The required minimum forecasted period is 12 hours for SAR and 48 hours for oil and hazmat response. Additional parameters used in SAR and oil spill operations include: sea surface temperature, surface air temperature, waves, relative humidity, visibility, and precipitation.

Action: Vice-Chair and Secretariat by 2011, to promote the support of SAR and HAZMAT response agencies by the national operational oceanographic and meteorological agencies.

The use of this modeling may vary widely between member states according to local regulation and mandate; in some countries the NMS has responsibility for the operation and output of SAR and spill models whereas in others this responsibility lies with a different body (such as Coastguard) and the NMS is limited to providing such inputs as are requested.

The role of MPERSS was discussed, in the light of the extension of the ETMSS ToRs to include the work of MPERSS. In particular the issue of the 'visibility' of MPERSS was discussed,

and how best to try to ensure that MPERSS (which is currently a WMO concept) could be more aligned with the concept of METAREAS / NAVAREAS.

Actions: Review the MPERSS areas to maintain consistency with NAVAREAS/METAREAS. Vice-Chair (Oyvind Breivik) engages more fully with IMO and EMSA (and other appropriate bodies) in relation to the work of MPERSS. Formally request Canada, Norway and Russian Federation to accept responsibility as AMOCs for the Arctic areas. Secretariat November 2010

Action: Secretariat and Vice-Chair by 2011, to review the MPERSS areas to maintain the NAVAREAS/METAREAS consistency and engages more fully with IMO and EMSA in relation to the work of MPERSS.

Action: Secretariat, Canada, Norway and the Russian Federation, by 2011, to formally accept responsibility as AMOCs for the Arctic areas.

10. Rolling review of requirements (Observations)

The WMO Secretariat introduced the WMO Rolling Requirements Review (RRR) Process noting that the RRR jointly reviews users' evolving requirements for observations and the capabilities of existing and planned observing systems. Statements of Guidance, as to the extent to which such capabilities meet requirements, are produced as a result. Initially, the process was applied to the requirements of global NWP and the capabilities of the space-based sub-system but more recently the range of requirements has been expanded and the technique has begun to be applied successfully to surface based observing systems and other application areas.

The fifth session of the CBS Expert Team on the Evolution of the Global Observing System (ET-EGOS) held in Geneva from 30 November to 4 December 2009, nominated Ali J. Mafimbo as a Point of Contact (PoC) for the Statement of Guidance (SoG) for Ocean Applications.

The latest JCOMM input to the Rolling Review of Requirements (RRR), with specific Actions Nos. 35, 36, 37 and 38 in the ET-EGOS Action sheet-Annex IV of the final report is available on the WMO website at: <http://www.wmo.int/pages/prog/www/CBS-Reports/IOS-index.html>. Each JCOMM relevant Team is invited to check the relevant fields in the requirements document for met-ocean forecasts and services provided as an excel table, by looking at the areas relevant to their work under column "R" (Use) and update the information given either by adopting those aspects with which the Team agree, retaining existing values where the Team think they are justified, or propose other values and report back to PoC. This process should be undertaken through a consultative forum where the issues are crosscutting.

The Team noted the absence of several parameters which are critical to the issue of MSI and agreed to review and revise as necessary, the stated requirements and provide comments to the focal point and Secretariat by the end of October 2010

Action: Secretariat to circulate ASAP the last version of the Excel sheet of the WMO Rolling Review of Requirements for comments by Core Members.

11. ETMSS ToRs

The Team reviewed its Terms of Reference and membership, and the work programme. The meeting noted that according to its work plan, the increasing responsibilities of the Team, particularly MPERSS, and the implementation of WMMIWS (including the establishment of the METAREAS coordinators), further meetings or fora should be organized in the next two years.

Action: Secretariat to consolidate comments and circulate through the core members to potential amendments by JCOMM-IV.

Action: Secretariat by 2011 to consolidate comments on ETMSS ToR and circulate through the Core Members for potential amendments by JCOMM-IV.

12. Any Other Business (AOB)

No matters were raised.

13. Closure of the session

13.1 Adoption of the report

The meeting agreed to accept conditionally the draft summary prepared by the Secretariat during the meeting. This report will be transmitted to the participants for final review, corrections and approval. The list of actions identified during the session is given in Annex III.

13.2 Closure

The third session of the JCOMM Expert Team on Maritime Safety Services closed at 12h10 on Friday, 8 October 2010.

AGENDA

- 1. Opening of the session**
 - 1.1. Opening
 - 1.2. Adoption of the agenda
 - 1.3. Working arrangements
 - 2. Reports**
 - 2.5 ETMSS Chairperson, SFSPA Coordinator & Secretariat reports
 - 2.6 IMO report
 - 2.7 IHO report
 - 2.8 Inmarsat report
 - 4. Implementation of QMS for MSI**
 - 3.4 Review of outcomes of the training course and proposals for the way forward
 - 3.5 Users feedback and performance measurements
 - 3.6 Review of self-assessment report template
 - 4. Implementation of the GMDSS in the Arctic Areas**
 - 4.3 Status of implementation (including NAVAREA)
 - 4.4 Sea ice information in MSI
 - 5. Revision and re-issue of the WMO Documentation**
 - 5.4 Cross revision of publication WMO-No.558 & WMO-No.471
 - 5.5 Other WMO publications
 - 5.6 Presentation of the joint IMO/IHO/WMO documentation
 - 6. Strategy and work plan for development of enhanced MSI**
 - 6.4 WMO contribution to e-navigation and the review of the GMDSS
 - 6.5 Preparation of the catalogue of marine & oceanographic parameters/attributes
 - 6.6 Demonstration suite of products on the GMDSS web site
 - 7. Sea state information in MSI**
 - 8. Tsunami-related MSI**
 - 9. SAR and Marine Pollution**
 - 10. Rolling review of requirements (Observations)**
 - 11. ETMSS ToRs**
 - 12. Any Other Business (AOB)**
 - 13. Closure of the session**
 - 13.1 Adoption of the report
 - 13.2 Closure
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ACTION ITEMS

Paragraph	Action	By whom	Target
2.2	Enhance the coordination with IMO and monitor the GMDSS scoping exercise regarding provision of Met-ocean MSI	Secretariat	Permanent
2.4	Provide a response to ETMSS chair on the development of new family of maritime distress and safety services on Inmarsat FleetBroadband (FB) platform	Core Members, IHO WVNWS	November 2010
3.1	Incorporate the QM principles into the regulatory documents on Met-ocean Services, including into the WMO-No.558 and coordinate the support to NHMS for implementation of MSI Issuing Services	Secretariat, QM activity leader	December 2010
3.2(1)	Develop a complete survey methodology for QMS and performance assessment of the system, in coordination with ETOOFS and IHO/WVNWS	Secretariat, Chair, Vice-Chair	December 2010
3.2(2)	Undertake the QMS survey and share results during JCOMM-IV	Secretariat, Chair, Vice-Chair, ETSI Chair	2011
3.3	Modify the self-assessment report template with particular reference to the QMS	Secretariat, Chair and Vice-Chair	December 2010
4.1(1)	To forward the METAREA status report to IHO WVNWS for inclusion in the Joint IHO-WMO report to COMSAR 15	Secretariat	November 2010
4.1(2)	Raise the Norwegian SafetyNet concerns to IMO SafetyNet Coordination	Secretariat	ASAP
4.2(1)	Provide the appropriate final wordings for development of IMO/IHO/WMO guidance material with regards to the ice-navigational ocean products	Secretariat, ETSI, Chair and Vice-chair	December 2010
4.2(2)	Review the sea ice abbreviation list in coordination with sea ice services for inclusion in NAVTEX Manual	Chair, ETSI Chair	ASAP
5.1	Prepare a clean copy of WMO-No.558 and WMO-No.558 including all amendments and circulate for comments / review	Secretariat, Core members	2011
5.2(1)	Remind the Members about the importance of updating WMO-No.9, Vol. D	Secretariat	December 2010
5.2(2)	Include the appropriate reference to WMO 574 on WMO-No.9, Vol. D. as well as to other documents on the QMS System	Secretariat	December 2010
5.3(1)	Discuss with the UNESCO-IOC ICG on Global TWS the need for COMSAR Circular Circ.36	Secretariat	December 2010
5.3(2)	Request all issuing services on the readiness to be a METAREA coordinator or to propose alternatives	Secretariat	November 2010

Paragraph	Action	By whom	Target
5.3(3)	Contribute to the IHO documents review working group	ETMSS, Secretariat	November 2010
6.1(1)	Maintain and enhance the WMO engagement with the e-Navigation process and with the revision of the GMDSS	Secretariat, IMO and Vice Chairperson	2011
6.1(2)	Make compatible WMO/WIS format with IHO S-100 and liaising with other WMO programmes	Secretariat	2011
6.2	Review the "Met-Ocean Object Classes and Attributes" catalogue by completing the list of parameters (esp. for tsunami and sea state)	Secretariat	December 2010
6.3(1)	Make sure that all issuing services make available NAVTEX products on the GTS, provide Météo-France with the ad-hoc metadata and provide the same information for all the NAVTEX stations in their METAREA(s)	Issuing Services, Secretariat	March 2011
6.3(2)	Renew the GMDSS and MAES web domains	Secretariat	End of 2010
7	Take in consideration user needs to define if feasible parameters, indexes and thresholds to be included in the guidance or regulations related to sea state information on MSI	Chair, Vice-Chair, ETWS Chair, Secretariat	2011
8	Review and propose if appropriate draft amendments for information relating to tsunamis contained in WMO-No 558 and WMO-No 471	Australia and Japan	ASAP
9(1)	Promote the support of SAR and HAZMAT response agencies by the national operational oceanographic and meteorological agencies	Vice-Chair, Secretariat	2011
9(2)	Review the MPERSS areas to maintain the NAVAREAS/METAREAS consistency and engages more fully with IMO and EMSA in relation to the work of MPERSS	Secretariat, Vice-Chair	2011
9(3)	Formally accept responsibility as AMOCs for the Arctic areas	Secretariat, Canada, Norway, Russian Federation	2011
10	To circulate the last version of the Excel sheet of the WMO Rolling Review of Requirements for comments by Core Members	Secretariat	ASAP
11	Consolidate comments on ETMSS ToR and circulate through the core members for potential amendments by JCOMM-IV	Secretariat	2011

ACRONYMS AND OTHER ABBREVIATIONS

AARI	Arctic and and Antarctic Research Institute of Roshydromet (Russian Federation)
AIS	Automatic Information System
ALRS	Admiralty List of Radio Signals
ATWS	Australian Tsunami Warning System
AusTWC	Australian Tsunami Warning Centre
CARTWS	Caribbean and Adjacent Seas Tsunami Warning System
CAS	Commission for Atmospheric Sciences (WMO)
CB	Capacity Building
CBS	Commission for Basic Systems (WMO)
CCI	Commission for Climatology (WMO)
CG	Correspondence Group
Chy	Commission for Hydrology
COMSAR	Sub-Committee on Radiocommunications and Search and Rescue (IMO)
CPRNW	IHO Commission on the Promulgation of Radio Navigational Warnings
DPM	Disaster Prevention and Mitigation (WMO)
DRM	Disaster Risk Management
ECDIS	Electronic Chart Display Information System
EGC	Enhanced Group Calling
EMA	Emergency Management Australia
ENC	Electronic Navigational Chart
ET	Expert Team
ETMAES	Expert Team on Marine Accident Emergency Support (JCOMM)
ETMSS	Expert Team on Maritime Safety Services (JCOMM)
ETSI	Expert Team on Sea Ice (JCOMM)
ETWS	Expert Team on Wind Waves and Storm Surges (JCOMM)
FB	FleetBroadband platform (Inmarsat)
GEO	Group on Earth Observation
GEOSS	Global Earth Observation System of Systems
GCOS	Global Climate Observing System
GLOSS	Global Sea-level Observing System
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GPS	Global Positioning System
GTS	Global Telecommunication System (WWW)
HF	High Frequency
HGMIO	Harmonizing Group on Marine Information Objects
IALA	International Association of Lighthouse Authorities
ICG	International Coordination Group
ICS	International Chamber of Shipping
IHO	International Hydrographic Organization
IIP	International Ice Portal
IMMSC	International Maritime Met-ocean Services Conference
IMO	International Maritime Organization
IMSO	International Mobile Satellite Organization
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IOTWS	Indian Ocean Tsunami Warning and Mitigation System
ISO	International Standards Organization
ITIC	International Tsunami Information Center (IOC)
ITSU	International Coordination Group for the Tsunami Warning System in the Pacific
JMA	Japan Meteorological Agency
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology

LES	Land Earth Station (Inmarsat)
MIO	Marine Information Objects
MMS	Marine Meteorological Services
MSC	Maritime Safety Committee (IMO)
MSI	Maritime Safety Information
NAVTEX	International system for reception of marine safety information
NBDP	Narrow Band Direct Printing
NEAMTWS	Northeast Atlantic and Mediterranean Tsunami Warning System
NIS	National Ice Services
NMHS	National Meteorological and Hydrological Service
NMS	National Meteorological Service
NOAA	National Oceanic and Atmospheric Administration (USA)
NTWC	National Tsunami Warning Centre
NWPTA	Northwest Pacific Tsunami Advisory
OFS	Operational Ocean Forecasting Systems
PMSI	Polar Maritime Safety Information
PTWC	Pacific Tsunami Warning System
QM	Quality Management
QMS	Quality Management System
RTAC	Regional Tsunami Advisory Centre
RTWC	Regional Tsunami Warning Centre
SAR	Search and Rescue
SCG	Services Programme Area Coordination Group (JCOMM)
SOLAS	International Convention for the Safety of Life at Sea
SOT	Ship Observations Team (OPA)
SPA	Services Programme Area
TEWS	Tsunami Early-Warning System
TLO	Top Level Objectives
TMSI	Tsunami Maritime Safety Information
ToR	Terms of Reference
TWI	Tsunami Watch Information
TWS	Tsunami Warning Systems
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
URD	User Requirement Document
URL	Uniform Resource Locator
VOS	Voluntary Observing Ship
WCP	World Climate Programme
WMO	World Meteorological Organization
WWMIWS	World-Wide Met-ocean Information and Warning Service (IMO/WMO)
WWNWS	World-Wide Navigational Warning Service (IHO/IMO)
WWW	World Weather Watch (WMO)

MARITIME SAFETY SERVICES PROJECTS INCLUDED IN THE JCOMM SERVICES AND FORECASTING SYSTEMS PROGRAMME AREA WORKPLAN

Project #19: Developing the MPERSS capabilities including the Arctic Ocean

Project Leaders: Henri Savina, Oyvind Breivik

Project Description:

The primary objective of Marine Pollution Emergency Response Support Systems (MPERSS) is to have in place a coordinated, global system for the provision of meteorological and oceanographic information for marine pollution emergency response operations outside waters under national jurisdiction. The areas covered have the same geographical distribution as those for the GMDSS, and Area Meteorological Coordinators have been identified for all of them.

Expected Outcomes:

- New MPERSS capability for the Arctic Ocean
- Recognition of MPERSS services outside the WMO (e.g., IMO)
- Updated user requirements for MPERSS

Key Activities:

- Coordinate with Issuing and Ice services to implement the MPERSS for the Arctic Ocean
- Interact/outreach to key International bodies (e.g., IMO/MEPC)

Timeline, Major milestones:

- Initial MPERSS capability established – July 2011

ETs, Other Contributing Organizations:

- ETMSS, ETSI, ETOOFS

Project #20: Supporting Issuing Services and AMOCs for GMDSS in the Arctic Ocean

Project Leader(s): *Vasily Smolyanitsky, Henri Savina*

Project Description:

The Arctic METAREAs are characterized by the ice cover occurrence during the whole year which is a serious obstacle for navigation and a factor of risk. The ice Services provide support for both for efficiency of ice navigation and the safety of navigation in the ice covered waters. The goal of the GMDSS in the Arctic is to warn the navigators on the danger of encountering the ice within the route of navigation and to support further decision-making of changing the route or requesting ice-breaker support and/or support from the Issuing ice Services. Canada, Norway and Russian Federation are Preparation Services for METAREA XVII-XXI and adjacent parts of METAREA I and IV with support from Denmark and USA.

Following WMO/IHO/IMO decisions the GMDSS in the new Arctic METAREAs should be maintained in an Initial Operational Capability (IOC) since 1 July 2010 and implemented in Full Operational Capability (FOC) since 1 July 2011. To that effect ETSI will a) update relevant IHO and WMO publications for a complete and unambiguous definitions of ice information to be included into the GMDSS text broadcasts and “disclaimer” for additional information for ice navigation, b) establish operating procedures to coordinate text ice information between adjacent Arctic METAREAs to ensure continuity of the ice edge at the METAREA boundary. Simultaneously, additional (graphic and/or binary) sea ice information on Ice Logistics Portal (www.bsis-ice.de/Iceportal) will be organized by METAREAs with links from Ice Logistics Portal to GMDSS website and reciprocal links from GMDSS website. The ETSI will also review and provide amendments on the IMO/WMO Guidance Document for the World Wide Met-Ocean Information for reference to WMO No. 574 – Sea Ice Services in the World, monitor provision of ice information in the Antarctic, monitor and determine what countries transmit graphic ice charts by radiofax and advise WMO Secretariat to update Publication No. 9 accordingly.

- **Expected Outcomes:**
 - Experimental suite of Met-Ocean products for the Arctic (text)
 - Experimental suite of Met-Ocean products for the Arctic (graphic)
- **Key Activities:**
 - Development of integrated sea ice-marine weather text products
 - Development of integrated sea ice-marine weather graphic products
- **Timeline/milestones:**
 - July 2011: Text suite available
- **ETs, Other Organizations and participants:**
 - ETSI, ETMSS, ETOOFS

Project #21: Update WMO 471 and 558 for sea state in MSI

Project Leader(s): Henri Savina, Val Swail

Project Description:

There is a significant room for improving the provision of sea state, which should be considered as the most important parameter, in Maritime Safety Information (MSI). At the moment, the majority of Issuing Services preparing GMDSS MSI provide information on the significant wave height only, generally using the Douglas scale. This is very limited in comparison with data available from the NWP and certainly the constraints and needs of ships at sea. Many accidents occurred in coastal or open seas due to sea state, where significant wave heights were far below the thresholds fixed for the vessels, but in situations where the sea state was complex (e.g. cross seas) or unusual (e.g. steep sea, risk of abnormal or freak waves). Key parameters should be proposed to provide more useful information for the safety of ships, especially in complex and dangerous seas. Type of parameters, and the related thresholds if any, should be defined in association with the ship masters, owners and manufacturers. The provision of improved sea state products should then be promoted among the Issuing Services and the WMO recommendations and guidelines updated accordingly.

• **Expected Outcomes:**

- Guidelines and recommendations for updating WMO 471 and 558 on Sea State in MSI
- Promote the provision of improved sea state products among the issuing services

• **Key Activities**

- Review the documents
- Update key parameters/guidance
- Coordinate with the user survey (Proj. #4)

• **Timeline, Major milestones:**

- ETWS to provide input: May 10
- ETMSS to incorporate inputs into the survey: Dec. 2010

• **ETs, Other Contributing Organizations**

- ETMSS, ETWS, ETOOFS

Project #22: Catalogue on Met-Ocean Object Class for ENC and e-Navigation

Project Leader(s): *Henri Savina*

Project Description:

Since 1999, ETMSS has been working on the implementation of graphical/numerical Maritime Safety Information (MSI) broadcast within the GMDSS. The WMO Executive Council, at its sixtieth session (Geneva, June 2008) re-emphasized the continuing importance to mariners in receiving graphical products via radio transmissions and requested JCOMM to continue researching methods for transmitting graphical products to marine users. On the other hand, the WMO Executive Council, at its sixty-first session (Geneva, June 2009), encouraged WMO Members to investigate low-cost options for on-demand approaches those are compatible with Electronic Navigation Charts (ENC). In addition, the imminent increase of ENC systems on SOLAS vessels as regulatory material and the emergence of the e-navigation concept within IMO should reinforce the priority given to this requirement and the need to find appropriate resources to develop a suitable service. Both the ETMSS and ETSI have been working on this issue and ETSI has already developed the *Sea Ice Objects Catalogue* in accordance with IHO standards. The ETMSS has initiated the development of a catalogue on *Met-Ocean Object Classes and Attributes*, which would be an essential tool to enable NMHSs to develop products specifically for Electronic Navigation Chart Systems, allowing the implementation of software to decode and display met-ocean information by the manufacturers of these systems, using the S-57 and S-100 chart data exchange standards.

The IMO e-Navigation concept reinforce the need to go forward on this issue, to be able to finalize the catalogue on Met-Ocean Object Class for ENC and e-Navigation, especially for parameters included in MSI. A strong support and contribution from ETSI is expected, as the Team has already developed such catalogue for sea ice. WMO, through the Secretariat and ETMSS, need also to be proactive in dealings with IHO and IMO on e-navigation development, to ensure compatibility between e-navigation and future metocean services by Members.

- **Expected Outcomes:**
 - Met-Ocean object class for parameters included in MSI (wind, wave height, etc...) and additional met-ocean parameters (surface current,...), based on templates from the Ice Objects Catalogue.
- **Key Activities:**
 - Coordinate with IHO to validate requirement
 - Finalize the draft object catalogue
- **Timeline/milestones:**
 - Oct 2010: Meeting between WMO/IHO/IMO
 - Jan 2012: Finalize the met-ocean object class
- **ETs, Other Organizations and participants:**
 - ETMSS, ETWS, ETSI, IHO, IMO

Project #23: Facilitate implementation of QMS among members of the provision of MMS

Project Leader(s): Henri Savina

Project Description:

Quality Management Systems (QMS) for aviation has been undertaken within a global regulatory environment. If such regulations do not presently exist for marine services, IMO is moving in this general direction. In order to ensure the use of best practices and the improvement of value for mariners, JCOMM promotes the implementation of Quality Management Systems (QMS) within the NMS preparing MSI. JCOMM should take the lead within WMO in the provision of support to developing countries in implementing QMS as they further developed their marine services. A process for moving forward will be prepared and guidelines for implementation of QMS by Issuing Services will also be drafted by Bryan Boase, member of MAN with specific responsibility for QMS. Those documents will be reviewed by ETMSS and MAN.

As a first step, a QM training, focussed on Internal Audit procedures, was provided to Issuing Services by a QM specialist supporting the Australian Bureau of Meteorology during the Workshop for Enhancement of Maritime Safety Services in May 2010. That allowed awareness and demystification of QMS practices for participants, and acquisition of an insight into the practical implementation of a QMS within an NMHS. Participants were formally provided with an *"introduction to internal QM auditing processes"* certificate at the end of this item, which indicated they had had an introduction to internal QM auditing processes.

• **Expected Outcomes:**

- Issuing Services are trained for QMS
- Guidance documents for QMS implementations

• **Key Activities:**

- QMS trainings
- Preparations for guidance documents on implementations

• **Timeline, Major milestones:**

- MSS training workshop – May 2010
- Draft documents on QMS implementations – Sept. 2010 (ETMSS-3)

• **ETs, Other Contributing Organizations:**

ETMSS, ETSI, ETOOFS, MAN

Project #28: Coordinate and Support the implementation of GMDSS in the Arctic Ocean

Project Leader(s): *Vasily Smolyanitsky, Henri Savina*

Project Description:

Recognizing the increased use in the Arctic region by the marine community, the IMO decided to expand the GMDSS into the whole Arctic Ocean, enhancing a proposal submitted by the Russian Federation. It therefore established in 2006 a joint IMO/IHO/WMO Correspondence Group (CG) on Arctic Maritime Safety Information (MSI) services to address this issue. Five (5) new NAV/METAREAs have been defined. Canada (METAREAs XVII & XVIII), Norway (METAREA XIX) and the Russian Federation (METAREAs XX & XXI) offered to act as the new Issuing Services for these new areas. The aim of "Full Operational Status" being declared at COMSAR 15 in March 2011 was proposed by the CG. The Expert Team on Maritime Safety Services has been active in this joint IMO/IHO/WMO Correspondence Group in ensuring that all relevant issues for the METAREA Issuing Services are properly addressed. In addition, the focal points for METAREAs I, II and IV also agreed to provide assistance to the new METAREA Issuing Services in developing their operating plans for the implementation of the GMDSS in the Arctic areas. During the workshop on Enhancement of Maritime Safety Services (Melbourne, May 2010), the status of implementation of the system was reviewed, including any difficulties or major issues encountered. The workshop was pleased to note the progress being made by all three Issuing Services, covering the five new Metareas, with a July 2010 date for extended testing of GMDSS broadcasts, and a target July 2011 implementation date, both likely to be met. A number of common issues across the Arctic Metareas were noted. Some were agreed as requiring wider discussion within the ETMSS, such as possible review and modification of Metarea boundaries, protocols for ensuring consistency between GMDSS and national products, coordination and consistency across Metarea boundaries, and the service gap over Hudson Bay.

- **Expected Outcomes:**
 - GMDSS services implemented in the Arctic METAREAs in 2011
- **Key Activities:**
 - Revise WMO Manuals and Guides for Marine Meteorological Services for Sea Ice
 - Procedures for coordinated delivery of services in the Arctic METAREAs
 - Support issuing services for implementation of the GMDSS
- **Timeline/milestones:**
 - June 2010: Revise Manuals and Guides
 - Oct 2010: Procedures established
 - July, 2011: GMDSS services implemented in the Arctic Ocean
- **ETs, Other Organizations and participants:**
 - ETSI, ETMSS

Project #35: Enrichment of the GMDSS website

Project Leader(s): Henri Savina

Project Description:

The JCOMM GMDSS-Weather Website (<http://weather.gmdss.org>) continues to provide access, in complement to the official dissemination channels, to the in-force official Maritime Safety Information (scheduled forecasts and warnings) prepared for the GMDSS. Météo-France has developed, manages and hosts this website, which has been in operation since 2004. Most of the MSI prepared for SafetyNET dissemination by the METAREA Issuing Services are included (the messages prepared for the Arctic to be added when available). A number of NAVTEX bulletins (around 10 %) are also already available (e.g., METAREAs I, II, III, IV and XI) [see for example <http://weather.gmdss.org/II.html>]. The aim is to provide access to most of the NAVTEX products in the near future. In this context, Issuing Services are urged to ensure that NAVTEX messages prepared for transmitters within their area of responsibility are available on the GTS and to collect the related metadata for inclusion on the GMDSS website. The objective is to reach a rate between 50 and 70 % before JCOMM-IV in 2012.

• **Expected Outcomes:**

- Inclusion of significant part of the MSI prepared for NAVTEX dissemination
- Link to graphical products (e.g., IPY website)

• **Key Activities:**

- Make necessary arrangements for the availability of the NAVTEX products on the GTS (50-70%)
- Collection of metadata related to the NAVTEX products

• **Timeline, Major milestones:**

- 10% May 2010
- 30% Oct. 2010 (By ETMSS-3)
- 50-70% by JCOMM-IV

• **ETs, Other Contributing Organizations:**

- ETMSS

MARINE METEOROLOGICAL SERVICES MONITORING PROGRAMME QUESTIONNAIRE

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

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

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

Please complete the following questionnaire by placing a cross (x) under the appropriate column heading and providing additional information or comments as appropriate.

		Not used	Good	Average	Poor	Issuing Met Service	Station
1 Reception of GMDSS info. Please rate the quality of reception: (should be filled at least by SOLAS vessels)							
A	via INMARSAT SafetyNET						
	1 st station						
B	via Navtex (518 kHz)						
	2 nd station						
	3 rd station						

Comments

		Not used	Good	Average	Poor	Issuing Met Service	Station
2 Reception of other Safety information (This section should be filled at least by non-SOLAS vessels)							
A	via Navtex (490 or 4209.5 kHz) ¹						
	1 st station						
	2 nd station						
	3 rd station						
B	via HF Radio						
		Not used	Good	Average	Poor	Issuing Met Service	Station
C	via VHF Radio						
D	via visual signals						
E	via e-mail						
F	via GMDSS web site (http://weather.gmdss.org) ²						
G	Via any other web interface						

Comments

¹ Information on the reception of Maritime Safety Information via the 4th or more stations should be provided in the Section 10.

² GMDSS web site provides access to Maritime Safety Information world-wide

	Not used	Good	Average	Poor	Issuing Met Service	Station
3 Storm and Gale warnings. Please rate the following:						
A Comprehension of warnings						
B Accuracy of warnings						
C Terminology used						
D Usefulness (anticipation, parameters, thresholds...)						

Comments

	Not used	Good	Average	Poor	Issuing Met Service	Station
4 Sea Ice and Icebergs Information (for mariners in areas with floating ice). Please rate the following:						
A Clarity of information						
B Accuracy of information						
C Timeliness						
D Terminology used						

Comments

	Not used	Good	Average	Poor	Issuing Met Service	Station
5 Wave and Storm Surge Information. Please rate the following:						
A Clarity of information						
B Accuracy of information						
C Timeliness						
D Terminology used						

Comments

	Not used	Good	Average	Poor	Issuing Met Service	Station
6 Other parameters in Weather and Sea bulletins. Please rate the following:						
A Comprehension of bulletins (including abbreviations)						
	Not used	Good	Average	Poor	Issuing Met Service	LES/Navtex Station
B Accuracy of bulletins						
C Are bulletins on time?						
D Terminology used in bulletins?						
E Usefulness (parameters,)						

Comments

	Not used	Good	Average	Poor	Issuing Met Service	Station
7 Graphic/numeric broadcasts (e.g. Facsimile). Please rate the following:						
A Are charts received on time?						
B Accuracy of information on charts						
C Comprehension of symbols						
D Quality of reception						
E Is this a useful service?	Yes <input type="checkbox"/>			No <input type="checkbox"/>		

If Yes, please comment on how the service could be improved.

Comments

Not used	Good	Average
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8 Land Earth Stations (LES) Inmarsat	(This section should be filled only by Voluntary Observing Ships)			
A Rate your success in contacting a LES to send your weather observation messages (OBs)				LES: _____
B Do you experience delays in sending your OBs?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
C Do any LES refuse to accept your OBs?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	LES (if Yes): _____	

Comments

9 Other related problems (if any) – include ship's position, date and time.
10 Any other comments not considered under the previous items and suggested improvements (e.g. met-ocean information in ECDIS, other required met-ocean parameters not mentioned under previous items)

Use additional sheets if necessary.

For each case, complete one questionnaire

After completion, please return to the following address:

Marine Meteorology and Ocean Affairs Division
 Weather and Disaster Risk Reduction Services Department
 World Meteorological Organization
 7 bis, avenue de la Paix
 Case postale No. 2300
 CH-1211 Geneva 2
 Switzerland
 Telefax: +41 22 730 8128
 E-mail: mmo@wmo.int