

Outcomes of NCSR 2

Submitted by IHB

SUMMARY

Executive Summary: This document provides details of the outcomes of NCSR 2, which are relevant to WWNWS-SC

Action to be taken: Paragraph 2.

Related documents: NCSR 2/23 dated 26 March 2015

1. NCSR 2 was held at IMO Headquarters in London 9 – 13 March 2015. The following items are of relevance to WWNWS-SC:

- Agenda Item 3: Routing of ships, ship reporting and related matters;
- Agenda Item 6: E-navigation strategy implementation plan;
- Agenda Item 8: Analysis of developments in maritime radiocommunications systems and technology;
- Agenda Item 10: Further development of the GMDSS master plan on shore-based facilities;
- Agenda Item 11: Guidelines on Maritime Safety Information (MSI);
- Agenda Item 18: Amendments to the IAMSAR Manual;
- Agenda Item 22: Any Other Business.

The relevant discussions are summarized hereinafter.

Agenda Item 3 - Routing of ships, ship reporting and related matters

a. The Sub-Committee approved the establishment of two-way routes in the south-west Coral Sea, the establishment of a new area to be avoided in the south-west Coral Sea and the establishment of five new areas to be avoided in the region of the Aleutian Islands. These provisions will now be submitted to the Maritime Safety Committee (MSC) for adoption at its 95th session in June 2015. Implementation will be not less than six months after adoption by the MSC. The Sub-Committee also approved two model document templates for proposing new or modified ships' routing and reporting systems. The templates include requirements to provide information on the state of hydrographic surveys and nautical charts in the area concerned by the proposal and a recommendation that "*Governments, who do not have the necessary hydrographic information, may, at a very early stage in the formulation of the routing system, seek the assistance of the IHO in obtaining such information*".

Agenda Item 6 - E-navigation strategy implementation plan

b. The NCSR finalized a draft consolidated guideline on Software Quality Assurance (SQA) and Human Centred Design (HCD) for e-navigation that had been prepared by a Correspondence Group. The Sub-Committee agreed that there was no requirement for input from the Sub-Committee on Human Element, Training and Watchkeeping (HTW) at the present time and endorsed the draft guideline with a view to approval by the MSC.

c. The endorsement of the SQA and HCD guideline completed the planned output on e-navigation for the biennium 2014-2015. Future work on e-navigation by the Sub Committee will be subject to the approval of the MSC of new outputs for the subsequent biennial agendas (see References B and C).

Agenda Item 8 - Analysis of developments in maritime radiocommunications systems and technology

d. The NCSR agreed that a definition of interoperability based on the functional requirements of the future GMDSS was needed. Views were expressed that this concept should be applicable to all the GMDSS service providers and that it might be included in a future revision of SOLAS chapter IV - *Radiocommunications*. The NCSR endorsed a draft outline of the detailed review of the GMDSS to be progressed by an intersessional Correspondence Group on the review and modernization of the GMDSS. Concerns expressed by some representatives regarding costs associated with the approval of additional GMDSS service providers for MSI coordinators, SAR authorities and ships were noted and it was agreed that the Correspondence Group should consider this issue with the aim to identify possible sources for costs.

Agenda Item 10 - Further development of the GMDSS master plan on shore-based facilities

e. The NCSR agreed in principle on new definitions of GMDSS sea areas A3 and A4 and recognized certain consequential matters needed to be considered with regard to the new definitions. These could include HF carriage requirements, promulgation of MSI by HF, obligations for shore authorities; provision of services and implications for the GMDSS Master Plan. It was recognized that these matters could be considered by the Correspondence Group on the review and modernization of the GMDSS and the Joint IMO/ITU Experts Group on Maritime Radiocommunications Matters.

Agenda Item 11 - Guidelines on Maritime Safety Information

f. The Sub-Committee received reports from the Chair of the IMO NAVTEX Panel, in which details of proposed new NAVTEX transmitters were provided, and the Chair of the IHO WWNWS-SC, in which was highlighted the results of the yearlong survey which revealed an apparent lack of system knowledge and a potential gap in GMDSS training for on-board users. The Sub-Committee noted that amendments to the GMDSS Master Plan had been distributed in GMDSS/Circ.17 and Administrations were encouraged to check their national data for accuracy. It is expected that GMDSS/Circ.18 would be issued in September 2015, allowing time for amendments to be submitted. It was agreed to merge agenda items 10 and 11 in future sessions under a new item "*Updating of the GMDSS Master Plan and guidelines on MSP*".

Agenda Item 18 - Amendments to the IAMSAR Manual

g. The amendments to the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual, resulting from the work of the 12th meeting of the IHO Document Review Working Group conducted last year, and which aligns the publication with IMO

Resolutions A.705(17), as amended, *Promulgation of Maritime Safety Information*, and A.706(17), as amended, *World-Wide Navigational Warning Service*, and with the Joint IMO/IHO/WMO Manual on MSI, were accepted without change. The revised manual will be submitted to MSC 95 for approval.

Agenda Item 22 - Any other business

h. The IHO submitted a document reporting on the monitoring of ECDIS issues and chart coverage (NCSR 2/22/2). The IHO also highlighted that some port authorities were requiring the carriage of paper charts in addition to the adequate set of ENCs, carried in accordance with the requirement set out in SOLAS regulation V/19.2.14. The Sub-Committee noted with concern that situation. The Cook Islands highlighted the recent successful meeting of the South West Pacific Hydrographic Commission (SWPHC) held in Rarotonga. In relation to the indication in the IHO report that an IHO-led crowd-sourced bathymetry programme was being developed, The Cook Islands cautioned to ensure a quality assurance mechanism would guarantee the quality of crowd-sourced bathymetry data, whilst acknowledging the potential value of such data to improve nautical charts.

2. The Sub-Committee is invited to note the information provided and take action as appropriate.

Annex:

A. Extract from NCSR2/23.

6 E-NAVIGATION STRATEGY IMPLEMENTATION PLAN

6.1 The Sub-Committee noted the outcome of MSC 94 related to e-navigation (MSC 94/21, paragraphs 9.15, 9.16, 18.16 and 18.17).

Harmonization of Guidelines related to Human-Centred Design (HCD), Usability Testing, Evaluation and Assessment (UTEA) and Software Quality Assurance (SQA)

6.2 The Sub-Committee recalled that NCSR 1 had established a Correspondence Group on Harmonization of Guidelines related to e-navigation under the coordination of Australia in order to consolidate into a single and harmonized guideline the draft *Guidelines on Human Centred Design (HCD) for e-navigation systems*, the draft *Guidelines on Usability Testing, Evaluation and Assessment (UTEA) for e-navigation systems*, and the draft *Guidelines on Software Quality Assurance (SQA) in e-navigation*.

6.3 The Sub-Committee considered the report of the correspondence group (NCSR 2/6) containing the draft text of the single and harmonized *Guideline on Software Quality Assurance and Human-Centred Design for e-navigation*.

6.4 A number of delegations supported the proposed draft Guideline, in general, with the view to finalization at this session, and recommended retaining the word "e-navigation" as part of the title of the draft guideline and throughout the document. Other delegations were of the view that some elements of the draft guideline were not sufficiently clear and needed further consideration by the NCSR or the HTW Sub-Committee.

6.5 After some consideration, the Sub-Committee agreed to refer the draft guideline to the Navigation Working Group for finalization and advice relating to the need to forward the draft guideline to the HTW Sub-Committee for consideration of human element aspects.

Other issues

6.6 The Sub-Committee noted with appreciation the information contained in the following documents submitted by the Republic of Korea:

- .1 NCSR 2/INF.9, providing the results of a study on enhancing maritime logistics efficiency utilizing maritime VHF digital communication technology and facilitation method;
- .2 NCSR 2/INF.10, providing the results of a study on ship operator centred collision prevention and alarm system; and
- .3 NCSR 2/INF.11, outlining the requirements of S-Mode development based on the opinions of masters and deck officers.

Instructions to the Navigation Working Group

6.7 The Sub-Committee instructed the Navigation Working Group, taking into account decisions, comments and proposals made in plenary, to consider document NCSR 2/6 and, based on the text provided in the annex to this document, finalize the draft MSC circular on *Guideline on Software Quality Assurance and Human-Centred Design for e-navigation*, for consideration by the Sub-Committee and subsequent approval by the Committee.

Report of the Navigation Working Group

6.8 On receipt of the report of the Navigation Working Group (NCSR 2/WP.4), the Sub-Committee took action as summarized in the ensuing paragraphs.

6.9 The Sub-Committee endorsed a draft MSC circular on *Guideline on Software Quality Assurance and Human-Centred Design for e-navigation*, as set out in annex 4, and invited the Committee to approve it.

6.10 In doing so, the Sub-Committee agreed with the group's view that the guideline did not cover any issues related to the human element or training, which are required to be considered by the HTW Sub-Committee. In this context, the Sub-Committee noted the view of the delegation of Norway that any design process had an effect on the human element and that the guideline should be sent to the HTW Sub-Committee for review.

6.11 Taking into account that the work related to the development of the e-navigation Strategic Implementation Plan had been completed, the Sub-Committee agreed to invite the Committee to delete the planned output on "E-navigation Strategy Implementation Plan (5.2.6.1)" from its biennial agenda under agenda item 20.

Extension of the target completion year for this item

8.12 Recognizing that it was very important to consider developments in maritime radiocommunication systems and technology and that further proposals might be submitted, the Sub-Committee agreed to invite the Committee to extend the target completion year for this output to 2017 when discussing its biennial agenda under agenda item 20.

9 FIRST OUTLINE OF THE DETAILED REVIEW OF THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)**Outcome of the twenty-first session of the ICAO/IMO Joint Working Group**

9.1 The Sub-Committee noted that the ICAO/IMO Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue had considered issues related to the review and modernization of the GMDSS (NCSR 2/15, section 7.1) and that the Secretariat had informed the meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters, held in October last year, about the outcome of discussions at the meeting of the ICAO/IMO Joint Working Group.

Report of the tenth meeting of the Joint IMO/ITU Experts Group

9.2 The Sub-Committee considered document NCSR 2/13 (Secretariat), providing the report of the tenth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters, which took place from 6 to 10 October 2014 under the chairmanship of Mr. K. Fisher (United Kingdom). It was noted, in particular, that the comments and recommendations of the Experts Group were forwarded to the Correspondence Group on the Review of the GMDSS.

9.3 Having noted that MSC 94 had approved the intersessional meeting of the Joint IMO/ITU Experts Group to be held in 2015 (MSC 94/21, paragraph 18.35), and the Council's endorsement (C 113/D, paragraph 8.2), the Sub-Committee endorsed the holding of the eleventh meeting of the Experts Group, from 5 to 9 October 2015, at IMO Headquarters in London, and instructed the Communications Working Group to prepare the draft terms of reference for that meeting.

Report of the Correspondence Group on the Review of the GMDSS

9.4 The Sub-Committee considered the report of the Correspondence Group on the Review of the GMDSS, submitted by the United States (NCSR 2/9/Rev.1) and containing an outline of the Detailed Review of the GMDSS.

9.5 Following a brief discussion, the Sub-Committee referred the relevant part of the report of the IMO/ITU Experts Group and the report of the Correspondence Group to the Communications Working Group for detailed consideration and to advise the Sub-Committee, as appropriate.

Additional satellite systems in the GMDSS

9.6 France and Spain (NCSR 2/9/2) expressed the view that the use of additional mobile satellite communication systems posed several operational problems and that this matter should be examined closely in terms of interoperability and operating costs. Furthermore, the integration of different future mobile satellite systems should also be considered, in particular, the repercussions for the operational requirements as well as for the search and rescue infrastructure.

9.7 The Sub-Committee recalled that related matters had been discussed when dealing with agenda item 8 on Analysis of developments in maritime radiocommunication systems and technology (see paragraphs 8.7 to 8.10 above).

9.8 During the ensuing discussion, views were expressed by some delegations that there was a need to address all technical, operational and financial issues related to the introduction of new satellite providers in the GMDSS and that matters specifically related to the evaluation of Iridium should be distinguished from the overall review of the GMDSS.

9.9 Following the discussion, the Sub-Committee referred document NCSR 2/9/2 to the Communications Working Group for detailed consideration when considering the issue of additional satellite systems in the GMDSS.

HF DSC and NBDP in sea area A3

9.10 Australia (NCSR 2/9/1) presented its experience with High Frequency (HF) Digital Selective Calling (DSC) since 1 July 2002, and invited the Sub-Committee to examine the current status of Narrow-Band Direct Printing (NBDP) in the GMDSS for sea area A3, as currently defined under the existing SOLAS regulation IV/10.2.1.3

9.11 Following a brief discussion, the Sub-Committee referred document NCSR 2/9/1 to the Communications Working Group for detailed consideration and to advise the Sub-Committee, as appropriate.

Coordination of the work on the review and modernization of the GMDSS with the work on the implementation of the e-navigation Strategy Implementation Plan

9.12 The Sub-Committee noted with appreciation the information provided by the Republic of Korea (NCSR 2/INF.7) on a study analyzing the results of a survey conducted among seafarers and relating to the need for coordinating the work on the review and modernization of the GMDSS with the work on the implementation of the e-navigation Strategy Implementation Plan.

Instructions for the Communications Working Group

9.13 The Sub-Committee instructed the Communications Working Group, taking into account decisions, comments and proposals made in plenary, to:

- .1 review the report of the Correspondence Group on the Review of the GMDSS (NCSR 2/9/Rev.1), taking into account the report of the tenth meeting of the Joint IMO/ITU Experts Group (NCSR 2/13) and document NCSR 2/9/2 relating to the issue of recognition of additional satellite systems in the GMDSS, and advise the Sub-Committee, as appropriate;
- .2 consider the proposal for the cessation of NBDP carriage requirements for vessels sailing in sea area A3, and its removal from SOLAS regulation IV/10.2.1.3 (NCSR 2/9/1), and advise the Sub-Committee, as appropriate;
- .3 prepare draft terms of reference for the correspondence group for the intersessional work to be done between NCSR 2 and NCSR 3, as well as for the purpose of reporting to the eleventh meeting of the Joint IMO/ITU Experts Group; and

- .4 prepare draft terms of reference for the eleventh meeting of the Joint IMO/ITU Experts Group, scheduled to take place from 5 to 9 October 2015,

and submit its report on Thursday, 12 March 2015.

Report of the Communications Working Group

9.14 On receipt of the report of the Communications Working Group (NCSR 2/WP.5), the Sub-Committee took action as summarized in the ensuing paragraphs.

Report of the correspondence group and related documents

9.15 The Sub-Committee noted the views of the correspondence group related to the first outline of the Detailed Review of the GMDSS (NCSR 2/WP.5, paragraphs 4.1 to 4.19). In doing so, the Sub-Committee invited:

- .1 SOLAS Contracting Governments to present updated information on shore-based MF/HF DSC stations, as contained in the GMDSS Master Plan, to the next (i.e. eleventh) meeting of the Joint IMO/ITU Experts Group; and
- .2 Member States and international organizations to send SAR experts to the next meeting of the Joint IMO/ITU Experts Group, and, vice versa, to send radiocommunication experts to the next (i.e. twenty-second) meeting of the ICAO/IMO Joint Working Group.

9.16 Having noted the contributions of SAR experts to the work of the Communications Working Group at this session, the Sub-Committee recognized the value of the simultaneous presence of navigation, communication and SAR experts, as appropriate, at NCSR meetings.

Proposal for the cessation of NBDP carriage requirements for sea area A3 vessels

9.17 The Sub-Committee invited SOLAS Contracting Governments to present information and statistics on the use of NBDP in distress communications for vessels sailing in sea area A3 to the next meeting of the Joint IMO/ITU Experts Group.

Re-establishment of the Correspondence Group on the Review of the GMDSS

9.18 The Sub-Committee re-established the Correspondence Group on the Review of the GMDSS, under the coordination of the United States*, with the following terms of reference:

"Taking into account the revised Plan of Work for the GMDSS Review and Modernization project (NCSR 1/28, annex 11), documents NCSR 2/9/Rev.1 and NCSR 2/WP.5, paragraphs 4.1 to 4.17 containing the report of the Communications Working Group at NCSR 2, and the outcome of discussions at the twenty-second meeting of the ICAO/IMO Joint Working Group on Search and Rescue (14 to 18 September 2015), as appropriate, the Correspondence Group on the Review of the GMDSS should:

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- .1 develop proposals on issues identified at NCSR 2, including:
 - .1 consideration of the costs associated with the approval of additional GMDSS service providers; and
 - .2 development of reliable and correct data regarding shore-based infrastructure for the MF/HF communications system;
- .2 develop the document containing the draft outcome of the Detailed Review of the GMDSS, also taking into account the outcome of NCSR 1 and of the tenth meeting of the Joint IMO/ITU Experts Group which took place in 2014;
- .3 submit an interim report to the Joint IMO/ITU Experts Group's eleventh meeting (5 to 9 October 2015) for its consideration; and
- .4 taking into account the outcome of discussions in the Joint IMO/ITU Experts Group, submit a report, including the document containing the (revised) draft outcome of the Detailed Review, to NCSR 3 by 11 December 2015."

9.19 In this context, the Sub-Committee authorized the correspondence group, as an exceptional case, to submit its report for NCSR 3 by 11 December 2015 (i.e. two weeks beyond the deadline for bulky documents), and invited the Committee to endorse the action taken.

Terms of reference for the eleventh meeting of the Joint IMO/ITU Experts Group

9.20 The Sub-Committee approved the terms of reference for the eleventh meeting of the Joint IMO/ITU Experts Group, to be held at IMO headquarters in London from 5 to 9 October 2015 (NCSR 2/WP.5, annex 3).

10 FURTHER DEVELOPMENT OF THE GMDSS MASTER PLAN ON SHORE-BASED FACILITIES

10.1 The Sub-Committee noted the information provided by the Secretariat on amendments to the GMDSS Master Plan, as disseminated through GMDSS/Circ.17 on 11 March 2015, and encouraged Administrations to check their national data, contained in GMDSS/Circ.17, for accuracy and to provide the Secretariat with any necessary amendments, as soon as possible.

10.2 The Sub-Committee further noted that the Secretariat was planning to issue GMDSS.1/Circ.18 in September 2015, providing Member Governments time enough after this session of the Sub-Committee to comment on the information contained in GMDSS.1/Circ.17.

Promulgation of Maritime Safety Information (MSI) – IMO NAVTEX Coordinating Panel

10.3 The Sub-Committee noted with appreciation the report of the Chairman of the IMO NAVTEX Coordinating Panel (NCSR 2/10) providing a summary of the current operational issues associated with the NAVTEX service world-wide and which are being addressed by the Panel, and the Panel's actions/activities since NCSR 1.

Future consideration of the GMDSS Master Plan

10.4 Noting that the information related to the GMDSS Master Plan, which needed to be updated on a regular basis, was very important, the Sub-Committee agreed that there was no need for a separate output and to consider this matter in future when discussing the output "Guidelines on MSI provisions" (see also paragraph 11.3 below).

11 GUIDELINES ON MSI (MARITIME SAFETY INFORMATION) PROVISIONS

Outcome of the sixth session of the IHO World-Wide Navigational Warnings Service Sub-Committee (WWNWS Sub-Committee)

11.1 The Sub-Committee noted with appreciation the information provided by IHO (NCSR 2/11) on the matters discussed and decisions taken at the sixth session of the IHO WWNWS Sub-Committee which was held from 18 to 22 August 2014.

11.2 In this context, with regard to the results of the year-long WWNWS customer survey questionnaire and, in particular, the finding that the comments and problems submitted by users were system and equipment related, reflecting a lack of understanding on the part of users, the Sub-Committee expressed the view that if this was to be discussed by various bodies within the Organization, a proposal for a new unplanned output would have to be submitted to the Committee for approval.

Merging of outputs relating to the GMDSS Master Plan and Maritime Safety Information (MSI)

11.3 Recalling that under agenda item 10 it had agreed that the consideration of issues related to the "Further development of the GMDSS Master Plan on shore-based facilities" could in future take place under the output "Guidelines on MSI provisions" (see paragraph 10.4 above), the Sub-Committee agreed to invite the Committee to merge the two outputs and rename the merged output "Updating of the GMDSS Master Plan and guidelines on MSI", when discussing its biennial agenda under agenda item 20.

12 RESPONSE TO MATTERS RELATED TO THE RADIOCOMMUNICATION ITU-R STUDY GROUP

12.1 The Sub-Committee noted that, since NCSR 1, ITU-R Working Party 5B (WP 5B) had held one meeting, in November 2014, and that in relation to this meeting a number of Radiocommunication ITU-R Study Group matters were of relevance to the Sub-Committee including, among others, the following:

- .1 editorial amendments to Recommendation ITU-R M.1371-4 on Automatic Identification System (AIS);
- .2 regulations for novel applications using AIS technology;
- .3 ongoing consideration of amendments to Recommendation ITU-R M.493-13 on Digital Selective Calling (DSC); and
- .4 ongoing work on new, and revision of existing recommendations and reports on a variety of topics.

Regulations for novel applications using AIS technology

12.2 The Sub-Committee referred a liaison statement received from WP 5B (NCSR 2/12) regarding the expanded usage of AIS devices and, in particular, novel applications using AIS technology to the Communications Working Group for consideration and preparation of a liaison statement back to WP 5B, as appropriate.

Revision of Recommendation ITU-R M.493-13

12.3 The Sub-Committee referred a liaison statement received from WP 5B (NCSR 2/12/1) regarding the revision of Recommendation ITU-R M.493-13 on DSC system for use in the Maritime Mobile Service to the Communications Working Group for consideration and preparation of a liaison statement back to WP 5B, as appropriate.

12.4 In this context, the Sub-Committee noted that COMSAR 9, COMSAR 10, COMSAR 12, COMSAR 13, COMSAR 14, COMSAR 16 and NCSR 1 all had sent liaison statements on this matter to WP 5B and that these should be taken into account when finalizing the liaison statement referred to in paragraph 12.3.

12.5 Further in this context, the Sub-Committee noted the concerns expressed by the United Kingdom about the proposed inclusion of Class M for man overboard devices.

Instructions for the Communications Working Group

12.6 The Sub-Committee instructed the Communications Working Group, taking into account decisions, comments and proposals made in plenary, to consider:

- .1 document NCSR 2/12 regarding expanded usage of AIS devices, and prepare a liaison statement on this matter back to WP 5B, as appropriate; and
- .2 document NCSR 2/12/1 regarding the revision of Recommendation ITU-R M.493-13 on DSC, taking into account liaison statements sent by the COMSAR and NCSR Sub-Committees in previous years, and prepare a liaison statement on this matter back to WP 5B, as appropriate,

and to submit its report on Thursday, 12 March 2015.

Report of the Communications Working Group

12.7 On receipt of the report of the Communications Working Group (NCSR 2/WP.5), the Sub-Committee took action as summarized in the ensuing paragraphs.

12.8 The Sub-Committee approved the draft liaison statement to WP 5B on the "revision of Recommendation ITU-R M.493-13", as set out in annex 6, and instructed the Secretariat to convey it to ITU, as well as inviting the Committee to endorse this action.

12.9 The Sub-Committee noted that the group, due to lack of time, did not consider the liaison statement on uncontrolled novel applications using AIS technology (NCSR 2/12), and instructed the Joint IMO/ITU Experts Group to consider it and advise the Sub-Committee, as appropriate.

13 RESPONSE TO MATTERS RELATED TO THE ITU WORLD RADIOCOMMUNICATION CONFERENCE

ITU's Conference Preparatory Meeting for WRC-15

13.1 The Sub-Committee noted that:

- .1 MSC 94 had approved the draft IMO position on relevant ITU World Radiocommunication Conference 2015 (WRC-15) agenda items concerning matters relating to maritime services (NCSR 1/28, annex 14), and instructed the Secretariat to convey it to ITU's Conference Preparatory Meeting (CPM) (MSC 94/21, paragraph 9.30); and
- .2 ITU-R had finalized and delivered the draft CPM report, for consideration by the CPM, scheduled to take place from 23 March to 2 April 2015.

Draft IMO position on relevant WRC-15 agenda items

13.2 The Sub-Committee considered the draft IMO position on relevant WRC-15 agenda items annexed to the report of the tenth meeting of the Joint IMO/ITU Experts Group (NCSR 2/13, appendix 3 of the annex), and noted the discussions as reflected in paragraphs 82 to 116 of the annex to document NCSR 2/13.

13.3 In considering the draft IMO position on relevant WRC-15 agenda items, the Sub-Committee discussed agenda item 10 on potential maritime-related agenda items for the next World Radiocommunication Conference, scheduled to be held in 2019 (WRC-19). In the ensuing discussion, the following views were expressed:

- .1 IMO should support the inclusion of an agenda item for WRC-19 on the review of the GMDSS, which should also include the consideration of regulatory provisions related to the inclusion of additional satellite providers in the GMDSS;
- .2 IMO would not be in a position to provide information to ITU-R, at least not at the start of the study cycle between WRC-15 and WRC-19, since no final decisions would have been taken regarding the review of the GMDSS and the introduction of additional satellite providers into the GMDSS;
- .3 if protection of the frequency band 406–406.1 MHz, in use by Cospas-Sarsat, would not be adequately addressed under agenda item 9.1, issue 9.1.1, IMO should support proposals for the inclusion of an agenda item at WRC-19 to consider measures to protect the systems operating in the mobile satellite service in the band 406-406.1 MHz; and
- .4 it was very important for IMO to ask for an agenda item promoting the safety of navigation.

13.4 After some discussion, the Sub-Committee agreed that the draft IMO position regarding agenda item 10 of WRC-15 should be further considered by the Communications Working Group.

Instructions for the Communications Working Group

13.5 The Sub-Committee instructed the Communications Working Group, taking into account decisions, comments and proposals made in plenary, to consider the background to and the sections of the draft IMO position that are concerned with agenda item 10 of WRC-15, as set out in document NCSR 2/13, appendix 3 of the annex, and advise the Sub-Committee, as appropriate.

Report of the Communications Working Group

13.6 On receipt of the report of the Communications Working Group (NCSR 2/WP.5), the Sub-Committee took action as summarized in the ensuing paragraphs.

13.7 The Sub-Committee noted the discussions of the group on two proposals pertaining to agenda item 10 of WRC-15 concerning future WRC agenda items (NCSR 2/WP.5, paragraphs 6.1 to 6.3).

13.8 Some delegations were of the view that a number of issues, such as those emanating from the review of the GMDSS, the inclusion of new satellite providers in the GMDSS, the introduction of the MEOSAR system, or issues related to the development of e-navigation or the Polar Code, could still be considered for inclusion in the agenda of WRC-19.

13.9 After some discussion, the Sub-Committee:

- .1 endorsed the draft IMO position on relevant WRC-15 agenda items concerning matters relating to maritime services, as set out in annex 7, for approval by MSC 95 and consequential submission to WRC-15, scheduled to take place from 2 to 27 November 2015;
- .2 instructed the Joint IMO/ITU Experts Group, taking into account submissions to WRC-15, to consider issues related to agenda item 10 of WRC-15 at its next meeting, scheduled to take place from 5 to 9 October 2015; and
- .3 invited the Committee to authorize the Joint IMO/ITU Experts Group to submit any additional information relevant to the IMO position on WRC-15 directly to ITU, for consideration by the Conference.

13.10 The Sub-Committee further agreed to invite the Committee to instruct the Secretariat, when proposals were submitted for consideration by the Conference and which had not been foreseen when developing the IMO position, to consult with IMO Member States present at WRC-15 and to take appropriate action on new issues not included in the IMO position in order to protect IMO's interest. This was very important because of the Organization's concern with promoting the safety of navigation.

14 ANALYSIS OF INFORMATION ON DEVELOPMENTS IN INMARSAT AND COSPAS-SARSAT

Cospas-Sarsat services

Outcome of the ICAO/IMO Joint Working Group

14.1 The Sub-Committee noted the information provided in the report of the ICAO/IMO Joint Working Group (JWG) on Harmonization of Aeronautical and Maritime Search and Rescue in relation to Cospas-Sarsat matters (NCSR 2/15) and:

- .1 requested Cospas-Sarsat to provide information for RCCs on the operational and technical implications of the introduction of the MEOSAR system; and
- .2 referred consideration of the required period of time for storage of Cospas-Sarsat data for potential future access by accident investigators to the SAR Working Group, for advice.

Status of the Cospas-Sarsat Programme

14.2 The Sub-Committee noted with appreciation a status report on the Cospas-Sarsat Programme (NCSR 2/14/2), including system operations, significant developments, space and ground segments, beacons, false alerts and results of MCC-SPOC communication tests.

14.3 The delegation of Argentina made a statement in relation to the status report, as set out in annex 12.

Proposed modification to resolution A.810(19)

14.4 The Sub-Committee considered the liaison statement from Cospas-Sarsat (NCSR 2/14) with regard to homing on the frequency 121.5 MHz, proposing modification to resolution A.810(19).

14.5 In this context, the Sub-Committee noted that:

- .1 the JWG had already considered this liaison statement (NCSR 2/15, annex, paragraphs 7.2.6 to 7.2.10) and had agreed that keeping the same level of performance of the 121.5 MHz final homing capability was the area of concern. The JWG had invited Cospas-Sarsat, interested Member Governments and international organizations to submit information to NCSR 2 for its review providing tested and documented evidence that this proposal had no detrimental effect on 121.5 MHz homing capability, as demonstrated through appropriate testing, and to document evidence and provide it for review by the Sub-Committee;
- .2 no additional information had been submitted for consideration at this session of the Sub-Committee and, in any case, the revision of resolution A.810(19) would require submission of a proposal for a new unplanned output to the Committee, which should be considered and approved by the Committee before embarking on any work related to the proposed revision; and

- .3 a proposal for a new unplanned output to update resolution A.810(19) and chapter IV of the SOLAS Convention in order to include the deployment of the Cospas-Sarsat MEOSAR system and the issuance of a second generation 406 MHz distress beacon had been submitted for consideration by MSC 95 (MSC 95/19/5).

14.6 The Sub-Committee recognized that any changes to the scope of the proposal referred to in paragraph 14.5.3 above to include the revision of resolution A.810(19), as indicated in document NCSR 2/14, would require the Committee's approval.

14.7 After some discussion, the Sub-Committee agreed with the JWG that keeping the same level of performance of the 121.5 MHz final homing capability was the area of concern and that evidence was needed that the proposed modification of the current IMO requirement for a continuous 121.5 MHz homing signal had no detrimental effect on 121.5 MHz homing capability. It was further agreed that this should be demonstrated through appropriate testing, which should be documented and provided for review to the Sub-Committee when it considers the revision of resolution A.810(19) at a future session, and that some Cospas-Sarsat participant States had offered to undertake this work.

MEOSAR developments

14.8 The Sub-Committee considered a summary provided by the United States (NCSR 2/14/3) of issues relevant to IMO which were discussed at a recent Cospas-Sarsat Council meeting, an update on the status of the Cospas-Sarsat MEOSAR system and second generation distress beacons, and the relationship with IMO documents.

14.9 In this context, the Sub-Committee noted that the Cospas-Sarsat Council had invited national administrations to review the documents on the development of the next generation 406 MHz distress beacons in order to promote early identification and ensure that potential concerns are addressed at an early stage. Accordingly, the Sub-Committee encouraged maritime administrations and, in particular, SAR experts to work closely together with their national representatives at Cospas-Sarsat meetings in order to give appropriate attention to SAR needs when setting the requirements for Cospas-Sarsat.

14.10 The Sub-Committee further noted information provided by Argentina on MEOSAR developments in that country.

14.11 The Sub-Committee also noted that the United States had submitted a proposal for a new unplanned output for consideration by MSC 95 pertaining to the review and updating of relevant IMO documents (MSC 95/19/5).

Inmarsat

14.12 The Sub-Committee noted with appreciation the information submitted by IMSO (NCSR 2/14/1) providing analysis and assessment of the performance by Inmarsat Global Ltd of the Company's obligations for the provision of maritime services within the GMDSS, as overseen by IMSO. The information covered the period from 1 November 2013 to 31 October 2014. The Sub-Committee agreed that, during this period, Inmarsat had continued to provide fully operational maritime mobile satellite distress and safety communication services for the GMDSS and fulfilled the Company's public service obligation as stated in the Public Services Agreement (PSA).

Establishment of the SAR Working Group

14.13 The Sub-Committee established the SAR Working Group under the chairmanship of Mr. Nigel Clifford (New Zealand) and instructed it, taking into account decisions, comments and proposals made in plenary, to consider paragraph 2.16 of document NCSR 2/15 pertaining to the required period of time for storage of Cospas-Sarsat data for potential future access by accident investigators, and advise the Sub-Committee, as appropriate.

Report of the SAR Working Group

14.14 On receipt of the report of the SAR Working Group (NCSR 2/WP.6), the Sub-Committee instructed the JWG to further consider in detail the issue regarding the required period of time for storage of Cospas-Sarsat data for potential future access by accident investigators.

15 GUIDELINES ON HARMONIZED AERONAUTICAL AND MARITIME SEARCH AND RESCUE PROCEDURES, INCLUDING SAR TRAINING MATTERS

Report of the twenty-first session of the ICAO/IMO Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue

15.1 The Sub-Committee noted that, as agreed by COMSAR 17 and authorized by MSC 92, and confirmed by NCSR 1 and MSC 94, the twenty-first session of the ICAO/IMO Joint Working Group (JWG) on Harmonization of Aeronautical and Maritime Search and Rescue was held at IMO Headquarters, from 15 to 19 September 2014, under the chairmanship of Mr. D. Edwards (United States).

15.2 The Sub-Committee briefly considered the relevant part of document NCSR 2/15 (Secretariat) providing the report of the JWG's twenty-first session. In considering the action requested in paragraph 2.12, the Sub-Committee recalled that the matter of mandatory audits pertaining to SAR-related matters had been discussed at NCSR 1 and that there was no support to make changes to IMO's new, mandatory Member State audit scheme as this was not within the purview of the Sub-Committee. Although it was recognized that SAR-related matters had to be harmonized, the Sub-Committee agreed that the SAR Working Group and the JWG should not give further consideration to the harmonization of the ICAO and IMO audit schemes.

15.3 After some discussion, the Sub-Committee referred paragraphs 2.1 to 2.5, 2.9 to 2.11, and 2.18 to 2.21 of the report of the JWG to the SAR Working Group for detailed consideration and advice.

15.4 The Sub-Committee noted that ICAO's Co-Secretary of the JWG, Mr. Francois Robert, had recently retired from ICAO and thanked him for the work done for the SAR community in general, and, in particular, for his contribution to the JWGroup.

Draft revision of SAR.7/Circ.11 – List of IMO documents and publications which should be held by a Maritime Rescue Co-ordination Centre (MRCC)

15.5 The Sub-Committee referred document NCSR 2/15/1 (Secretariat), containing the proposed update of SAR.7/Circ.11 on the List of IMO documents and publications which should be held by a Maritime Rescue Co-ordination Centre (MRCC), to the SAR Working Group, instructing it to prepare the draft revised SAR.7 circular.

16 FURTHER DEVELOPMENT OF THE GLOBAL SAR PLAN FOR THE PROVISION OF MARITIME SAR SERVICES

16.1 The Sub-Committee noted the information provided by the Secretariat on the status of the Global SAR Plan as available in IMO's Global Integrated Shipping Information System (GISIS).

16.2 The Sub-Committee further noted that the Global SAR Plan had been updated by several Member Governments during the period between NCSR 1 and this session of the Sub-Committee. It was further noted that the status of the availability of SAR services changed day by day and, therefore, entering updated information directly into GISIS was of utmost importance. Having available updated information would enable RCCs to act promptly without losing precious time when dealing with a distress situation.

16.3 In light of the foregoing, the Sub-Committee encouraged Member Governments to check the available information in GISIS on a regular basis and update the information immediately when changes had been notified to them.

Extension of the target completion year for this item

16.4 Recognizing that it was very important to consider the further development of the Global SAR Plan and that proposals might be submitted, the Sub-Committee agreed to invite the Committee to extend the target completion year for this output to 2017 when discussing its biennial agenda under agenda item 20.

17 PROCEDURES FOR ROUTEING DISTRESS INFORMATION IN THE GMDSS

17.1 Noting that no documents had been submitted on this item for several years, the Sub-Committee agreed to invite the Committee to delete this planned output when discussing its biennial agenda under agenda item 20.

18 AMENDMENTS TO THE IAMSAR MANUAL

18.1 The Sub-Committee considered the relevant part of document NCSR 2/15 (Secretariat), providing the report of the twenty-first session of the ICAO/IMO Joint Working Group (JWG) on Harmonization of Aeronautical and Maritime Search and Rescue relating to the proposed amendments to the IAMSAR Manual. After some discussion, it referred appendixes D, E and F of the document to the SAR Working Group for detailed consideration and advice.

18.2 The Sub-Committee further considered comments by Greece (NCSR 2/15/3) on document NCSR 2/15 and, in particular, on the proposed amendments to the SAR Agreement Template in IAMSAR Manual Volume I, appendix I, and identifying some provisions that might lead to misinterpretation. Accordingly, additional amendments were proposed.

18.3 After some discussion, the Sub-Committee referred document NCSR 2/15/3 to the SAR Working Group, instructing the Group to take it into account when considering the relevant proposed amendments to the IAMSAR Manual.

Instructions for the SAR Working Group

18.4 The Sub-Committee instructed the SAR Working Group, taking into account decisions, comments and proposals made in plenary, to consider the draft proposed amendments to the IAMSAR Manual, as provided in document NCSR 2/15, appendixes D, E and F, taking into account document NCSR 2/15/3, for approval by MSC 95 and consequential inclusion in the 2016 edition of the IAMSAR Manual, and to submit its report on Thursday, 12 March 2015.

Report of the SAR Working Group

18.5 On receipt of the report of the SAR Working Group (NCSR 2/WP.6), the Sub-Committee took action as summarized in the ensuing paragraphs.

18.6 The Sub-Committee endorsed the draft MSC circular on amendments to the IAMSAR Manual, as set out in annex 8, and requested the Committee to approve it, taking into account ICAO's concurrence with the inclusion of the proposed amendments to the IAMSAR Manual, for inclusion in the 2016 edition of the Manual.

18.7 The Sub-Committee requested the Secretariat to make the IAMSAR Manual, Volume III, Action Cards available for separate purchase and to make arrangements for the electronic version of the Action Cards to be printed.

18.8 The Sub-Committee noted the information provided by the JWG regarding proposed amendments to a future edition of the IAMSAR Manual (NCSR 2/15, annex, section 3.2 and appendix G).

ANNEX 7

DRAFT IMO POSITION ON WRC-15 AGENDA ITEMS CONCERNING MATTERS RELATING TO MARITIME SERVICES

General

Over 90% of world trade is transported by sea. This totals some 7.5 billion tonnes (32,000 billion tonne miles), of which about 33% is oil, 27% is bulk (ore, coal, grain and phosphates), the remaining 40% being general cargo. Operating these merchant ships generates an estimated annual income of \$380 billion in freight rates within the global economy, amounting to 5% of total world trade.

The industry employs over 1.2 million seafarers.

Agenda item 1.1

1.1 *To consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with resolution 233 (WRC-12);*

Background

Consideration of the following frequency bands is of particular concern to the maritime community:

- .1 406- 406.1 MHz in use for Cospas-Sarsat;
- .2 1518-1559 MHz in use for satellite terminals on board SOLAS ships;
- .3 1559-1610 MHz in use for RNSS;
- .4 1626.5-1660.5 MHz in use for satellite terminals on board SOLAS ships;
- .5 1668-1675 MHz in use as uplink paired with the downlink 1518-1525 MHz for satellite communications;
- .6 2900-3100 MHz in use for Maritime radionavigation (S-band radar); and
- .7 3400-4200 MHz partly in use for feeder links of Inmarsat.

The S-band radar is of particular importance for safety of navigation (safety of life service) and for use in adverse weather conditions, for instance heavy rain. Previous ITU-R studies on sharing with the band 2900 to 3100 MHz are no longer valid, because new generation equipment had not been taken into account.

IMO position

To exclude the frequency bands 406-406.1 MHz, 1518-1559 MHz, 1559-1610 MHz, 1626.5-1660.5 MHz, 1668-1675 MHz, 2900-3100 MHz and 3400-4200 MHz, or any other frequency bands that are used by maritime safety systems, as candidate bands under WRC-15, agenda item 1.1, due to the potential adverse impact to maritime safety and the efficient movement of international commerce.

If the band 2 700-2 900 MHz was decided to be a candidate band under WRC-15, agenda item 1.1., IMO requests ITU to address the impact on the band 2 900-3 100 MHz, including the consequential coexistence between different types of radars that may result from potential IMT use between 2 700-2 900 MHz.

To ensure that emissions from IMT operating in adjacent bands to the frequency bands mentioned above do not affect the operation of the existing maritime systems

Agenda item 1.8

1.8 *To review the provisions relating to earth stations located on board vessels (ESVs), based on studies conducted in accordance with resolution 909 (WRC-12);*

Background

Currently, around 12,000 vessels use VSATs for broadband communication. This service is limited to distances off shore of 125 kilometres for the frequency band 14-14.5 GHz and 300 kilometres for the frequency band 5925-6425 MHz in accordance with resolution 902 (WRC-03). The agenda item is to review the provisions related to ESVs. Ships have a particular need for broadband communications when entering and leaving ports. For example:

- .1 for the synchronization of databases;
- .2 to transmit port-entry and -exit documents electronically, as harmonized, among others, in IMO's Convention on Facilitation of International Maritime Traffic (FAL Convention) and in accordance with the maritime single window concept to enhance the efficiency of port operations; and
- .3 for communication of the crew with their families.

IMO position

IMO requests that modifications to resolution 902 (WRC-2003) will permit ESVs to be operated by the mariner in an uncomplicated, straightforward manner and closer to the shore, in accordance with the outcome of studies to maintain compatibility with other services that may be affected.

Agenda item 1.12

1.12 *To consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with resolution 651 (WRC-12);*

Background

Over one million marine radars operate in the frequency band 9 200-9 500 MHz. The GMDSS Radar Search and Rescue Transponders (Radar SART) operates also in this frequency band which is included in provision No. 31.2 of article 31 of the Radio Regulations and appendix 15 to the Radio Regulations, listing the frequencies for distress and safety communications for the GMDSS and protection against harmful interference. The maritime radionavigation service in the band 9 300-9 800 MHz is protected by RR provision No. 5.476A.

Previous ITU-R studies on sharing with the band 9 200 to 9 500 MHz are no longer valid, because new generation equipment had not been taken into account.

IMO position

Protection of the maritime radionavigation service, operating in the frequency band 9 200-9 500 MHz, is essential for "safety of navigation" and "safety of life" and in accordance with Nos.1.59 and 4.10 of the Radio Regulations. IMO requests that if the band 9 200-9 500 MHz is considered under agenda item 1.12, for Earth exploration satellite (active) service, due consideration is given to ensure that there is no potential of harmful impact on global shipping.

Agenda item 1.14

1.14 *To consider the feasibility of achieving a continuous reference time-scale, whether by the modification of coordinated universal time (UTC) or some other method, and take appropriate action, in accordance with resolution 653 (WRC-12);*

Background

Time as measured by the rotation of the earth is running slightly slower than time measured by atomic clocks (as used in GNSS) and the correction for this is to add "leap seconds" when the difference approaches one second. This has occurred 26 times over the past 40 years, the most recent being in June 2015. The corrected time is known as Coordinated Universal Time (UTC) and the arrangements for inserting the leap second are given in Recommendation ITU-R TF.460-6.

Work in the ITU-R has considered the future elimination of leap seconds resulting in UTC gradually diverging from earth rotation time without limit but no agreement has so far been reached. The advantage of eliminating the leap second is that it would remove the cost and disruption involved in adjusting equipment. The disadvantage would be that the definition of UTC would change which might have regulatory consequences.

IMO makes extensive use of UTC in its requirements and will continue to do so in future.

Some manufacturers have reported difficulties in updating equipment when having to take into account the leap seconds.

Celestial navigation is a requirement of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended and is important to the maritime community, which requires time based on Earth rotation. Inertial navigation, which is currently used by naval ships and may be introduced on merchant ships, requires an accurate time reference.

IMO recognizes that there are advantages and disadvantages of the various methods to address this agenda item and recommends Administrations to consider the methods considering that the issue goes beyond maritime matters

IMO position

IMO requests that the importance of the maritime systems is acknowledged in deciding on this agenda item and attempt to minimize the impact on maritime services.

Agenda item 1.15

1.15 *To consider spectrum demands for onboard communication stations in the maritime mobile service in accordance with resolution **358 (WRC-12)**;*

Background

IMO Member Governments have identified the need for the consideration of improvement and expansion of onboard communication stations in the maritime mobile service in the UHF bands.

UHF onboard communications is much used on board ships, including on board emergencies, fire fighting, berthing, passenger control, etc. There are six frequencies based on 25 kHz channel spacing and an additional four frequencies based on 12.5 kHz channel spacing available, as listed in provision No.5.287 of the Radio Regulations, but these are not always available in all countries and are not sufficient in all cases. The technology is currently defined as analogue FM by Recommendation ITU-R M.1174-2, which is found to be very robust in operations in metal ships. A revision of this Recommendation, to introduce digital technologies could provide more voice channels in one frequency but the performance in the operational environment must be evaluated together with the compatibility with existing equipment based on analogue technology.

IMT is also permitted to use this frequency band under provision No.5.286AA of the Radio Regulations and may be a future source of interference.

IMO position

IMO supports measures which would make more efficient use of the frequency band available for onboard systems and would welcome an international solution for the identification of the channels in provision No.5.287 of the Radio Regulations.

Agenda item 1.16

1.16 *To consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with resolution **360 (WRC-12)**;*

Background

AIS is widely used and accepted for shipping but in some parts of the world the capacity of the channels is reaching its limit, due to the introduction of new applications. The continued introduction of new applications and increasing number of AIS devices, as for example, for fishing and leisure use, will require new channels which have been made available by WRC-12 for experimentation.

The need for digital information exchange (VDE) in the maritime domain, where the VHF Mobile band plays a key role in ship-to-ship communication and coastal ship-shore communication, continues to increase.

A 2008 study in the area of Tokyo bay (Tokyo wan) showed that 27.4% of AIS slots were used. In 2012 the loads of 38% were reached. This 10% increase within four years shows that in Japan the limiting factor of 50% as noted in IALA Recommendation A-124 appendix 18 "VDL Loading Management" could be reached quite soon.

IMO position

Modifications should not be required to existing AIS equipment on board existing vessels. New applications using AIS technology should be allowed to evolve, supported by communication primarily on the new frequencies identified by WRC-12, while protecting the integrity of the original operational purpose of AIS on the existing AIS frequencies. This will also address the concerns expressed previously on congestion by moving various applications to alternative channels in the existing VHF mobile band.

IMO supports the VDES concept, without committing the Organization regarding future requirements on the use of the VHF frequency band.

Agenda item 2

2 *To examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with resolution 28 (Rev.WRC-03), and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in annex 1 to resolution 27 (Rev.WRC-12);*

Background

There are a number of Recommendations incorporated by reference in the Radio Regulations. IMO has reviewed all these Recommendations.

IMO position

IMO has studied the Recommendations of relevance and commented on each as given in annex 1. Incorporation by reference is of importance to IMO because of the close relationship between many of the ITU-R Recommendations related to GMDSS equipment and its operation, to IMO performance standards. IMO requests early indication of any changes proposed by ITU to the mechanism of incorporation by reference and to the list of incorporated Recommendations.

Agenda item 4

4 *In accordance with resolution 95 (Rev.WRC-07), to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;*

Background

There are a number of Resolutions and Recommendations in the Radio Regulations. IMO has reviewed all these Resolutions and Recommendations.

IMO position

IMO has studied the Resolutions and Recommendations of relevance and commented on each as given in annex 2.

Agenda item 9

9 *To consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with article 7 of the Convention:*

9.1 *on the activities of the Radiocommunication Sector since WRC-12;*

9.2 *on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and*

9.3 *on action in response to resolution **80 (Rev.WRC-07)**;*

Agenda item 9.1, issue 9.1.1

Background

Under agenda item 9.1, issue 9.1.1 ITU-R is invited to study, in accordance with resolution 205 (Rev.WRC-12), the Protection of the systems operating in the mobile-satellite service in the band 406-406.1 MHz.

The Cospas-Sarsat satellite 406 MHz EPIRB is a mandatory distress alerting device on board SOLAS ships which is frequently carried as the second means of alerting. For ships not subject to the SOLAS Convention it is also often the primary means of distress alerting outside A1 sea area.

There is evidence that the required transmitted output power of the Cospas-Sarsat 406 MHz EPIRB (together with the other devices ELTs and PLBs) is greater than the system design minimum value, apparently, because of other emissions from outside and inside the frequency band.

Besides UWB and cable TV systems, there are developing plans for Power Line Transmission Systems, operating in a frequency band up to 470 MHz, which can have the potential of producing in-band interference to the Cospas-Sarsat system.

The proposed frequency bands for use for Public Protection and Disaster Relief (PPDR), under agenda item 1.3, include a band 380-470 MHz which also has the potential of producing in-band interference to the Cospas-Sarsat system.

There is also a possible development for IMT systems to operate in the band 410-430 MHz which may cause an increased amount of out of band emission to the band 406-406.1 MHz.

IMO position

It is essential to preserve the MSS frequency band 406-406.1 MHz free from any emissions that would degrade the operation of the 406 MHz satellite transponders and receivers, with the risk that satellite Emergency Position Indicating Radio Beacon (EPIRB) signals would go undetected.

Agenda item 9.1, issue 9.1.6

Background

Under agenda item 9.1, issue 9.1.6 ITU-R is invited to study, in accordance with resolution 957 (WRC-12), toward review of the definitions of fixed service, fixed station and mobile station.

Under this agenda item ITU-R is invited to conduct the necessary studies to review the definitions of fixed service, fixed station and mobile station contained in article 1 of the Radio Regulations for possible modification. Furthermore, ITU-R is invited to study the potential impact on regulatory procedures in the Radio Regulations (coordination, notification and recording) and the impact on current frequency assignments of other services resulting from possible changes to the definitions contained in article 1.

IMO position

Ensure that measures taken at WRC-15 under this agenda item do not have an adverse impact on the maritime services and maritime applications.

Agenda item 10

10 *To recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with article 7 of the Convention.*

Background

Resolution **808 (WRC-12)** containing the Preliminary agenda for WRC-18 lists, as item 2.1 for inclusion in the agenda for WRC-18, to consider regulatory actions, including spectrum allocations, to support GMDSS modernization and implementation of e-navigation in accordance with resolution **359 (WRC-12)**.

Due to the complexity of the work related to the review of the GMDSS, IMO plans to complete the modernization plan for the GMDSS in 2018. The first stage on further work to be undertaken on the implementation of e-navigation is expected to take place in the period 2016 to 2019. Taking into account the above, it is not expected to be possible defining detailed regulatory actions in a time available before WRC-18.

Not directly related to the GMDSS modernization, IMO has received an application to introduce a new satellite service provider into the GMDSS. If a new satellite service provider is recognised for use in the GMDSS, consequential regulatory actions may need to be considered by the ITU.

At the time a new satellite service provider is recognised for use in the GMDSS, IMO supports inclusion of an agenda item to consider consequential regulatory actions in this regard in the agenda of a future conference.

Draft IMO position

TBD

Note: The Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters has been instructed to consider issues related to agenda item 10 of WRC-15, taking into account proposals sent to WRC-15, at its meeting from 5 to 9 October 2015. The Experts Group has been authorised by the Maritime Safety Committee to send any additional information to the IMO position on WRC-15 directly to ITU for consideration by the Conference.

ANNEX 1

RECOMMENDATION ITU-R M.476-5

Direct-printing telegraph equipment in the maritime mobile service*
(Question ITU-R 5/8)

(1970-1974-1978-1982-1986-1995)

No longer needed by IMO. Probably no longer needed by the maritime community.

RECOMMENDATION ITU-R M.489-2

Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz

(1974-1978-1995)

Needed by IMO to support the carriage requirements of SOLAS IV and needed by the maritime community in general. Will likely be needed into the foreseeable future.

RECOMMENDATION ITU-R M.492-6

Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service

(Question ITU-R 5/8)

(1974-1978-1982-1986-1990-1992-1995)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.541-9

Operational procedures for the use of digital selective-calling equipment in the maritime mobile service

(Question ITU-R 9/8)

(1978-1982-1986-1990-1992-1994-1995-1996-1997)

Needed by IMO. Likely to be needed into the foreseeable future.

* This Recommendation is retained in order to provide information concerning existing equipment, but will probably be deleted at a later date. New equipment should conform to Recommendation ITU-R M.625 which provides for the exchange of identification signals, for the use of 9-digit maritime mobile service identification signals and for compatibility with existing equipment built in accordance with this Recommendation.

Note by the Secretariat: The references made to the Radio Regulations (RR) in this Recommendation refer to the RR as revised by the World Radiocommunication Conference 1995. These elements of the RR will come into force on 1 June 1998. Where applicable, the equivalent references in the current RR are also provided in square brackets.

RECOMMENDATION ITU-R M.585-6

Assignment and use of identities in the maritime mobile service

(1982-1986-1990-2003-2007-2009-2012)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.625-3

**Direct-printing telegraph equipment employing automatic identification
in the maritime mobile service****

(Question ITU-R 5/8)

(1986-1990-1992-1995)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.633-4

**Transmission characteristics of a satellite emergency position-indicating
radio beacon (satellite EPIRB) system operating through
a satellite system in the 406 MHz band**

(1986-1990-2000-2004-2010)

Used by IMO to support the Performance standards for EPIRBs.

RECOMMENDATION ITU-R M.690-1

**Technical characteristics of emergency position-indicating radio beacons (EPIRBs)
operating on the carrier frequencies of 121.5 MHz and 243 MHz**

(Question ITU-R 31/8)

(1990-1995)

Required by IMO to define the homing signal characteristics for the satellite EPIRB required by SOLAS chapter IV. Likely to be used by the maritime community for some time to come for EPIRBs and man overboard devices.

** Newly developed equipment should conform to the present Recommendation which provides for compatibility with existing equipment built in accordance with Recommendation ITU-R M.476.

RECOMMENDATION ITU-R M.1084-4

**Interim solutions for improved efficiency in the use of the band
156-174 MHz by stations in the maritime mobile service**

(Question ITU-R 96/8)

(1994-1995-1997-1998-2001)

Used by IMO for the description of VHF channels.

RECOMMENDATION ITU-R M.1171

Radiotelephony procedures in the maritime mobile service

(1995)

Required by IMO and the maritime community as long as coast stations offer a public correspondence service. The number of such coast stations is however declining.

RECOMMENDATION ITU-R M.1172

**Miscellaneous abbreviations and signals to be used for radiocommunications
in the maritime mobile service**

(1995)

No longer required by IMO which uses the Standard Marine Communication Phrases but required by the maritime community.

RECOMMENDATION ITU-R M.1173

**Technical characteristics of single-sideband transmitters used in the maritime mobile
service for radiotelephony in the bands between 1 606.5 kHz (1 605 kHz Region 2)
and 4 000 kHz and between 4 000 kHz and 27 500 kHz**

(1995)

Required by IMO and the maritime community and likely to be required into the foreseeable future.

RECOMMENDATION ITU-R M.1174-2

**Technical characteristics of equipment used for onboard vessel communications in
the bands between 450 and 470 MHz**

(1995-1998)

Required by the maritime community and useful to IMO. This recommendation is related to agenda item 1.15 for which IMO has developed a position.

RECOMMENDATION ITU-R M.1638

**Characteristics of and protection criteria for sharing studies for radiolocation,
aeronautical radionavigation and meteorological radars operating in the
frequency bands between 5 250 and 5 850 MHz**

(2003)

Not required by IMO but may be required by the maritime community where radars in this band are used.

ANNEX 2

RESOLUTION 13 (Rev.WRC-97)

Formation of call signs and allocation of new international series

Retain.

RESOLUTION 18 (Rev.WRC-12)

Relating to the procedure for identifying and announcing the position of ships and aircraft of States not parties to an armed conflict

Retain.

RESOLUTION 205 (Rev.WRC-12)

Protection of the band 406-406.1 MHz allocated to the mobile-satellite service

Subject to Agenda item 9.1.1

RESOLUTION 207 (Rev.WRC-03)

Measures to address unauthorized use of and interference to frequencies in the bands allocated to the maritime mobile service and to the aeronautical mobile (R) service

Retain.

RESOLUTION 222 (Rev.WRC-12)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service, and procedures to ensure long-term spectrum access for the aeronautical mobile-satellite (R) service

Retain.

RESOLUTION 331 (Rev.WRC-12)

Operation of the Global Maritime Distress and Safety System

Retain.

RESOLUTION 339 (Rev.WRC-07)

Coordination of NAVTEX services

Retain.

RESOLUTION 343 (REV. WRC-12)

Maritime certification for personnel of ship stations and ship earth stations for which a radio installation is not compulsory

Retain to ensure common operations between Convention and non-Convention ships.

RESOLUTION 344 (Rev.WRC-12)

**Management of the maritime mobile service identity
numbering resource**

Retain.

RESOLUTION 349 (Rev. WRC-12)

**Operational procedures for cancelling false distress alerts in the
Global Maritime Distress and Safety System**

Retain.

RESOLUTION 352 (WRC-03)

**Use of the carrier frequencies 12 290 kHz and 16 420 kHz for
safety-related calling to and from rescue coordination centres**

Retain.

RESOLUTION 354 (WRC-07)

Distress and safety radiotelephony procedures for 2 182 kHz

Retain.

RESOLUTION 356 (WRC-07)

ITU maritime service information registration

Retain.

RESOLUTION 358 (WRC-12)

**Consideration of improvement and expansion of onboard communication stations in
the maritime mobile service in the UHF bands**

Subject of agenda item 1.15.

RESOLUTION 359 (WRC-12)

**Consideration of regulatory provisions for modernization of the Global Maritime
Distress and Safety System and studies related to e-navigation**

Subject of agenda item 10.

RESOLUTION 360 (WRC-12)

**Consideration of regulatory provisions and spectrum allocations for enhanced
automatic identification system technology applications and
for enhanced maritime radiocommunication**

Subject of agenda item 1.16.

RESOLUTION 758 (WRC-12)

**Allocation to the fixed-satellite service and the maritime-mobile satellite service
in the 7/8 GHz range**

Subject of agenda item 1.9.2.

RESOLUTION 909 (WRC-12)

**Provisions relating to earth stations located on board vessels which operate
in fixed-satellite service networks in the uplink
bands 5 925-6 425 MHz and 14-14.5 GHz**

Subject of agenda item 1.8.

RESOLUTION 612 (Rev. WRC-12)

**Use of the radiolocation service between 3 and 50 MHz to
support high-frequency oceanographic radar operations**

Retain.

RECOMMENDATION 7 (Rev.WRC-97)

**Adoption of standard forms for ship station and ship earth station licences
and aircraft station and aircraft earth station licences**

Retain.

RECOMMENDATION 37 (WRC-03)

**Operational procedures for earth stations
on board vessels (ESVs) use**

Subject of agenda Item 1.8.

RECOMMENDATION 316 (Rev.MOB-87)

**Use of ship earth stations within harbours and other waters
under national jurisdiction**

Retain.

PROPOSED AMENDMENTS TO IAMSAR MANUAL VOLUME II

1 Contents

- Add or amend text starting on page iii:

2.18 ~~Inmarsat SafetyNET~~ Maritime safety information services

2.19 Broadcast services

Renumber existing 2-19 through 2-33 as 2-20 through 2-34

2-35 Additional device considerations

2-36 RCC actions to consider

2-37 Social media

- Renumber existing **Chapter 7** and **Chapter 8** as **Chapter 8** and **Chapter 9**
- Insert new Chapter 7:

Chapter 7 Multiple aircraft SAR operations

7.1 Overview

7.2 Area of SAR action

7.3 Aircraft coordinator

7.4 Communications

7.5 Search mission

7.6 Evacuation missions

7.7 Long range operations

7.8 Effects of the environment and weather

Appendix T Multiple aircraft SAR operations

2 Abbreviations and Acronyms

- Delete the following text on page vii

~~**AES**.....aeronautical earth station~~

~~**GES**.....coast earth station~~

~~**GES**.....ground earth station~~

- Add on page xiii the following text:

SLDMB.....self-locating datum marker buoy

3 Glossary

- Delete the following text on page xi

~~**Coast earth station (CES)** — Maritime name for an Inmarsat shore-based station linking ship earth stations with terrestrial communications networks.~~

- Amend the Glossary as follows:

Cospas-Sarsat System	A satellite system designed to detect and locate activated distress beacons transmitting on in the frequency band of 406.0-406.1 MHz.
Direction Finding (DF)	Homing on signals to pinpoint a position. Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object.
Datum marker buoy (DMB)	Droppable floating beacon used to determine actual total water current, or to serve as a location reference. There are two types, the radio type and the self-locating datum marker buoy type.
Emergency Locator Transmitter (ELT)	Aeronautical distress beacon for alerting and transmitting homing signals. A generic term (related to aircraft) describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated.
Fetch	The distance the waves have been driven by a wind blowing over which the wind blows in a constant direction, without obstruction.
Maritime Safety Information Service	The internationally and nationally coordinated network of broadcasts containing information which is necessary for safe navigation.
Maritime Safety Information (MSI)	Navigational and meteorological warnings and forecasts and other urgent safety related messages broadcast to ships, as defined in regulation IV/2 of the 1974 SOLAS Convention.
Page NAVAREA	One of 16 areas into which the world's oceans are divided by the International Maritime Organization for dissemination of navigation and meteorological warnings. A geographical sea area established for the purpose of

coordinating the broadcast of navigational warnings. The term NAVAREA followed by a roman numeral may be used to identify a particular sea area. The delimitation of such areas is not related to and shall not prejudice the delimitation of any boundaries between States.

Personal locator beacon (PLB)

~~Personal radio distress beacon for alerting and transmitting homing signals.~~ A portable device, manually activated, which transmits a distress signal on 406 MHz, and may have an additional homing signal on a separate frequency.

Search and rescue point of contact (SPOC)

~~Rescue co-ordination centres and other established and recognized national points of contact which can accept responsibility to receive Gospas Sarsat alert data to enable the rescue of persons in distress.~~ A point of contact for SAR, designated by the national administration, that is responsible for receiving distress alert information and providing the information to the appropriate SAR authorities.

Self-locating datum marker buoy (SLDMB)

Droppable floating beacon, equipped with a global navigation satellite system (GNSS) sensor that transmits its location periodically, used to determine actual total water current, or to serve as a location reference.

Rescue co-ordination centre (RCC)

Note: The term RCC will be used within this Manual to apply to either aeronautical, maritime or joint centres; ARCC, MRCC or JRCC will be used as the context warrants.

Vessel Monitoring System (VMS)

~~A tracking system which provides for environmental and fisheries regulatory organizations to monitor position, time at a position, course and speed of commercial fishing vessels~~
Systems primarily used by environmental, fisheries and regulatory organizations, but also used by other organizations, to monitor the position, time of the position provided, course and speed of vessels

4 Chapter 1

- Amend page 1-2, paragraph 1.2.3(a), final sentence as follows:

The SMC plans the search and rescue operations and coordinates the transit of SAR facilities to and from the scene."

- Amend page 1-3, paragraph 1.2.4, 7th line as follows:

~~Conceivably, t~~ The OSC may have to assume SMC duties and actually plan the search and/or rescue if the OSC becomes aware of a distress situation directly..."

- Amend page 1-3, paragraph 1.2.4, bullets as follows:
 - assume operational coordination of all SAR facilities on scene;
 - receive the search and/or rescue action plan from the SMC;
 - modify the ~~search~~-action plan based on prevailing environmental conditions and keeping the SMC advised of any changes to the plan (~~do in consultation~~ discuss proposed modifications with the SMC when practicable);
 - provide relevant information to the other SAR facilities;
 - implement the ~~search~~-action plan;
 - monitor the performance of other units participating in the search operation; and
 - ~~—co-ordinate safety of flight issues for SAR aircraft;~~
 - ~~—develop and implement the rescue action plan (when needed); and~~
 - make consolidated reports (SITREPs) back to the SMC.
- Amend page 1-4, paragraph 1.3.2 as follows:

A list of potential SAR resources is contained in ~~the International Aeronautical and Maritime Search and Rescue IAMSAR Manual on Volume I, Organization and Management.~~"

- Amend page 1-8, paragraph 1.6.10 as follows:

Add to the end of the paragraph: A rescue action plan is also required.

- Amend page 1-8, paragraph 1.6.11, 3rd line as follows:

...ensuring that the search and rescue plans ~~is~~ are received, understood, and followed..."

- Amend page 1-13, paragraph 1.8.15 as follows:

Add Mass rescue operations to the subject matter list.

5 Chapter 2

- Amend page 2-5, paragraph 2.5.13, 4th line as follows:

... maritime safety information (MSI). Some Inmarsat ~~east earth stations (CESs)~~ LESs also offer EGC...

- Replace page 2-5, paragraph 2.6.7 with the following:

2.6.7 Cospas-Sarsat position information can be determined by several methods. The LEOSAR system uses a Doppler plot resulting from relative motion between the 406 MHz distress beacon signal source and the orbiting satellites. Alert messages provide two positions an equal distance on each side of the satellite track, and a confidence level (annotated as a percentage) to help in assessing which position is correct. Cospas-Sarsat is transitioning to a system (MEOSAR) which will calculate position based on time difference of arrival and frequency difference of arrival of the beacon signal at multiple satellites. This method will provide a single position. Some 406 MHz distress beacon messages may also include information derived from the Global Navigation Satellite System (GNSS). RCCs should consult the Cospas-Sarsat Handbook on Distress Alert Messages for Rescue Coordination Centres (RCCs), Search and Rescue Points of Contact (SPOCs) and IMO Ship Security Competent Authorities (C/S G.007, available on the Cospas-Sarsat website.) and other appropriate Cospas-Sarsat documentation for more information.

- Amend page 2-6, paragraph 2.6.9, first paragraph as follows:

2.6.9 In the original (LEOSAR) Cospas-Sarsat system, signals from 406 MHz distress beacons can be stored aboard a satellite and relayed to ground later if no LUT receiver is immediately within view of the satellite, enabling the system to operate in a global mode with fewer LUTs required. In the MEOSAR system which will augment the Cospas-Sarsat System, the signal from a 406 MHz distress beacon will be relayed through multiple satellites and received by an extensive network of LUTs providing near instantaneous notification and location of distress events.

- Amend page 2-6 paragraph 2.7.4, first line as follows:

2.7.4 Inmarsat type-approved ship earth stations (SEs) and aeronautical earth stations (AESs) transmit via the satellites to land earth stations (LEs), ~~also known as coast earth stations (CESs) for maritime functions and ground earth stations (GESs) for aeronautical functions.~~

- Replace section 2.10 **Mobile telephones – satellite and cellular** with the following:

2.10 Mobile telephones – satellite and cellular

2.10.1 Mobile (Cellular) telecommunications devices (such devices include basic mobile/cell phones; 'smart-phones'; 'Blackberry™' and similar devices; notebook; tablet and laptop computers using WiFi or telecommunications devices either as add-on or built in.) are in widespread use around the globe. Terrestrial mobile telecommunications devices can provide users with services such as telephone, text (Short Message Service – SMS), image (photo and video) capture and audio messaging – called Multimedia Message Services, email and data services (e.g. internet connection), and geographical position fixing and basic navigation capabilities (e.g. 'Satnav').

2.10.2 Mobile telecommunications devices can be used for reporting emergencies both at sea or on land. Cellular telecommunications are often easily available and familiar to users and can sometimes provide an effective signal over considerable distances on or near large bodies of water – depending on the location, height and power of the terrestrial aerial infrastructure.

2.10.3 A mobile/cell telephone can be a satellite or cellular telephone.

A satellite telephone communicates through satellites that can provide regional or global coverage.

A mobile phone (also known as a cellular phone, cell phone) is a phone that can make and receive telephone calls over a radio link. It does so by connecting to a cellular network provided by a mobile phone operator, allowing access to the public telephone network.

Many aspects of the guidance below regarding cellular telephones can also apply to the satellite telephone. Cellular telephones work well for point-to-point conversations within range of a supporting cellular network. Some cellular telephones can shift to satellite communications when they are moved outside terrestrial networks. However, these devices would have limitations in the maritime or remote environments, and therefore the advantages and use of dedicated marine and/or aviation communications and alerting systems should continue to be stressed by national administrations.

The following are some limitations which SAR authorities should make cellular telephone users in the aviation and maritime communities aware of, so that they see the advantages of using dedicated systems:

- use of a VHF radio in a distress situation for a MAYDAY call not only alerts SAR personnel, but other vessels, aircraft or stations within range, often enabling faster assistance from a variety of closer potential rescuers;
- the user must know or look up any needed telephone number if they want to use a cellular telephone for that purpose;
- radio signals can be used effectively to help locate survivors using either land or mobile DF equipment, but cellular telephones require close time-consuming coordination with service providers to identify the cell from which a call was placed (usually a 10-15 mile radius);
- VHF radios allow receipt of safety advisories, while cellular telephones do not;
- battery-powered cellular telephones are good for only a limited amount of talk time before batteries need to be changed or recharged;
- cellular telephone service providers can deny service to selected cellular telephones without advance notice (e.g. for late payment of fees);
- in disaster areas, cellular systems quickly become saturated with callers, making calls to others in the same area nearly impossible; and
- where installed, cellular phone coverage in the maritime environment can be limited, intermittent, or non-existent, based on several factors to include cellular tower accessibility and orientation in relationship to a cellular telephone call initiated from an offshore or coastal area.

2.10.4 The services available to mobile telecommunications devices are provided over terrestrial radio systems which are connected to computer servers which record the activity, cell site connection and general locality of the user. This formation provides data which is of use to Search and Rescue authorities who may need to identify the location of persons in actual or possible danger e.g. overdue vessel, aircraft or persons on land.

2.10.5 When receiving an alert via cellular telephone, SAR personnel should obtain the following information:

- caller's complete cellular telephone number;
- caller's cellular service provider;
- roam number if needed to recall the user;
- other means of available communications; and
- an alternative point of contact.

2.10.6 The caller might be advised to ensure the phone is left on to receive further communications, or agree on a communications schedule. The caller might also be advised that the cellular number may need to be broadcast if an assistance broadcast is made. (Caution should be used in actually broadcasting the number, since this would enable anyone for any reason to call and tie up communications.)

2.10.7 Survivors from distressed vessels, vehicles or crashed aircraft may be able to use mobile telecommunications devices to communicate in an emergency or call for assistance; or active devices may transmit occasional 'polling' emissions that could provide information as to the current location; or, the last activity of a device may provide a clue to calculate a last known position. Therefore, use of procedures to exploit location data from these devices to communicate with or determine the location of survivors can be important for effective SAR response, particularly when conventional means of communication or location information are not available or are inconsistent or inaccurate.

2.10.8 Cellular service providers may be able to provide some of the following help in finding the position of callers in an emergency:

- call trace to the receiving cell while the call is connected, and an estimate of maximum range from the tower;
- approximate position based on the assessment of signal strength or time difference of arrival to several tower sites or from the cell phone's GNSS-derived positioning obtained either through direct means, in which a call is placed by the cellular user or by dialling the cellular number of the individual in distress (if known), or through indirect means via the phone's standby connectivity to the cellular network (provided the phone is powered on), which can be of particular use in instances where an individual may not be able to place or answer a call;
- cell tower location(s) of the last series of calls placed by the caller (useful for proximity searches), its associated traffic data, if available; and
- notification when a call is made from the user's number (useful in overdue cases).

2.10.9 SAR authorities should make all appropriate arrangements (i.e. legal, logistic, etc.) with cellular service providers in their SRR to obtain the critical information in 2.10.8 in as quick a manner as possible and to establish regulations that require wireless providers to provide this information either through network-based or handset-based (e.g. built-in GNSS receiver) capabilities. Similar arrangements and protocols should also be made with emergency or public safety service agencies so that SAR-related emergencies may be directed to the appropriate SAR authority along with the caller's name, location, and other pertinent information when and where available.

2.10.10 RCCs should provide all possible assistance to other RCCs requesting information about users of mobile telecommunications devices that are or may be in distress. This may include requesting information from communications service providers in their country on behalf of RCCs in other SRRs.

2.10.11 National administrations should consider establishing free of charge, abbreviated telephone numbers to connect callers with emergency or public safety service agencies (e.g. "1-1-2", "9-1-1", "9-9-9") or direct cellular call connection numbers to SAR authorities (e.g. "1-6-1-6" in France and "1-5-3-0" in Italy) in order to provide emergency services and SAR authorities with an expedient means of notification from cell phone users in an emergency, and to publicize this information widely.

2.10.12 Search planning techniques can be used in situations where a mobile telecommunications device can only be located using the terrestrial radio signal information obtained from the aerial site the device was or is connected to. Where Global Navigation Satellite Systems (GNSS) information is available on the location of a mobile telecommunications device (i.e. the user has a GNSS enabled device with positioning service activated), the SMC may simply be able to send a rescue unit to the reported position or apply normal Datum Point search planning procedures and techniques to the GNSS position. However, information on the signal-derived location may also be a useful corroboration of any GNSS position.

Satellite Communications Services

2.10.13 Many mobile satellite communications services are not regulated for the provision of aeronautical or maritime distress alerting, nor are they suitable substitutes for approved means of distress communications. RCCs must still be capable of coordinating the response to incidents alerted via these services. There are numerous non-GMDSS international services (systems) used aboard aircraft and vessels for the provision of voice, fax, email, and data communications. Quite often these services automatically interface with public communications networks.

2.10.14 Most satellite service providers maintain a network operations centre that is staffed 24/7. RCCs should maintain contact information for these centres to assist in establishing follow-on communications and obtaining vital data in the event of an alert being transmitted via one of their services. If an alert is transmitted via one of these services, either directly to a RCC or relayed to a RCC via another source, the SMC should then action the alert to resolve the incident.

- Amend page 2-13, paragraph 2.19.2, 2nd line as follows:

...continue to be voluntarily used ~~into the next century~~...

- Delete paragraphs 2.17.4 to 2.17.7 related to NAVTEX and WWNWS.

- Replace section 2.18 **Inmarsat SafetyNET** with the following:

2.18 Maritime Safety Information Services

2.18.1 The World Wide Navigational Warning Service (WWNWS) is the internationally and nationally coordinated service for the promulgation of navigational warnings. Navigational warning means a message containing urgent information relevant to safe navigation, broadcast to ships in accordance with the provision of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended.

2.18.2 The two principal methods used for broadcasting maritime safety information (MSI), which include navigational warnings and meteorological information, in accordance with the provision of SOLAS are NAVTEX and SafetyNET.

2.18.3 All NAVAREA, Sub-area and coastal warnings should be broadcast only in English in the international NAVTEX and SafetyNET services in accordance with IMO resolution A.706(17), as amended. In addition to the required broadcast in English, NAVAREA, Sub-area and coastal warnings may be broadcast in a national language using a national service.

- Insert new section 2.19 **Broadcast Services** before section **Radio Telegraph** as follows:

2.19 Broadcast Services

2.19.1 NAVTEX is used to promulgate navigation and meteorological warnings and other safety-related information to vessels and may be used by SAR services and for SAR purposes.

2.19.2 International SafetyNET is used to promulgate navigation and meteorological warnings and other safety-related information to vessels and may be used by SAR services and for SAR purposes.

2.19.3 Every RCC should make arrangements with an associated NAVAREA or National Coordinator to promulgate warnings on SAR-related information. Such information may include areas to be avoided or where search and rescue operations are being carried out.

2.19.4 The International SafetyNET Manual describes the structure and operation of the International SafetyNET service. This includes examples and coding which must be followed for preparing SafetyNET broadcasts, including SAR broadcasts.

2.19.5 It may be appropriate and advisable to promulgate distress alert relays over both NAVTEX and SafetyNET. All SOLAS ships and many fishing and other vessels sailing within NAVTEX coverage areas can be expected to carry 518 kHz NAVTEX receivers. Some may also carry equipment to receive SafetyNET broadcasts.

2.19.6 Normally, the most practical way to handle SAR broadcasts over SafetyNET is to send them to all vessels within a desired radius of a specified position.

2.19.7 The use of an all-ships broadcast to identify a vessel to divert for SAR operations should be considered as an initial action. It may require time to obtain responses from available vessels, and to select an appropriate one or more for the task, and can affect quite a few vessels. Although SafetyNET is a reliable, economical and important SAR tool, it must be used wisely. It is often prudent to supplement an all-ships broadcast with direct communications as a next step using vessels identified via LRIT, AMVER or another ship reporting system. Factors that may be considered when tasking vessels should include the location of vessels in relation to the incident area, relative ability of vessels to conduct a rescue and appreciation of the impact of diversions on the responding vessels.

- Renumber existing 2-19 through 2-33 as 2-20 through 2-34

- Add new section 2.35 **Additional device considerations** as follows:

2.35 Additional device considerations

2.35.1 These are additional devices that are seen in the maritime environment including those that are classified as a distress signal and/or locating device. These devices can include:

(a) Radar SART (Search and Rescue Transponders)

- Transmissions from these devices are classed as distress signals and visible to vessels and aircraft operating radar in the 9 GHz bandwidth
- Radar SARTs should activate an RCC's distress procedures and the appendix F - Distress Phase checklist

(b) Devices with AIS component

- Devices that have AIS locating capability include Man Overboard (MOB) devices, AIS SART and EPIRBs. These AIS devices are required to have an MMSI which is programmed by the manufacturer in a serialised manner. This MMSI is not connected with a vessel MMSI. Registration data may not be available but where it does exist it is strongly encouraged to be provided to RCCs..
- AIS SART (Search and Rescue Transmitters)

AIS-SARTs are part of the GMDSS and have been able to be used as an alternative to radar (X-band) SARTs. These are visible to AIS equipped vessels, and some shore stations (e.g. VTS) monitoring AIS. They are designated only as a locating signal and are intended to be used following transmission of distress alerting signals. However, as an AIS SART activation may be related to a vessel or person(s) that has activated a device to draw attention to their location because of an emergency situation that they could not make known by other means, it may need to be investigated.

(c) AIS MOB (Man Overboard Device)

- AIS Man Overboard (AIS MOB) devices are intended as personal locating devices for use by, for example, ship's crew members, offshore energy industry personnel, small boat users, divers, etc. These devices are small, portable and/or can be fitted to life jackets and personal flotation devices. AIS MOB devices transmit AIS locating signals in the same way as AIS SARTs.
- The sighting or reporting of an AIS MOB signal may indicate that a person or persons activated the device to draw attention to their location perhaps because of an emergency, for example, a man overboard from a vessel or offshore installation. The AIS MOB is primarily intended to enable the vessel, craft or installation from which a person has fallen, to locate them and for other nearby vessels to be able to assist if necessary.

- AIS MOB devices are used by small craft, for example, pleasure boats and small fishing vessels that may be operating single-handed or where crew numbers are small and so reports of AIS MOB sightings should be investigated.

(d) EPIRB – AIS

- EPIRB-AIS devices are 406 MHz distress alerting devices that contain an additional AIS transmitter developed using the same AIS-SART technology, where the AIS component is used as an aid in locating that EPIRB-AIS. EPIRB-AIS devices will be displayed in the same way as an AIS-SART.
- Add new section 2.36 **RCC Actions to consider** as follows:

2.36 RCC actions to consider

- RCCs should consider initiating Uncertainty Phase actions if an AIS signal is observed or reported to a RCC. This decision should be considered in conjunction with other available intelligence including but limited to other indications of a situation requiring a search and rescue response, local experience and considerations.
- Dependent on the decision to initiate a SAR phase the following additional action can be considered. If reported by a vessel:
 - Details and position of reporting vessel
 - Range and Bearing of radar SART transmissions or position of AIS SART
 - Vessels ability to proceed to position and ETA
- Other elements to consider:
 - When was SART transmission observed?
 - Are there any targets on radar or AIS in the direction of SART?
 - Check own AIS display (if available) for vessels in vicinity that can assist
 - If further search action is required conducting an electronic search for AIS SART/MOB devices, a sweep width should be calculated using IAMSAR Volume II, appendix N-10, Distance to Horizon formula:

$$\text{Horizon NM} = \sqrt{\text{Receiver height in feet}}$$

$$\text{Horizon} = \sqrt{\text{Receiver height in Metres}}$$

- Add new section 2.37 **Social media** as follows:

2.37 Social media

2.37.1 Social media are not part of the international distress alerting system and is not monitored as a primary means of distress notification. However, the public uses social media to create online communities to share information, ideas, personal messages and other content. This can raise a public expectation that SAR authorities, especially for prolonged SAR incidences with news media interest, should either provide information to or accept information from social media sites.

2.37.2 As a loosely-defined collaborative Internet network of hundreds or thousands of websites, there are no international protocols or policy to manage distress alerting via social media. The exchange of information on social media can occur real-time but often there is a lag time as participants enter and depart a website and commence and conclude their communication. Also, the large number of social media websites and associated time and personnel resource demands makes it impractical for SAR authorities and RCCs to monitor these websites.

2.37.3 The SMC should be aware of the possible uses and RCC workload impact of social media in supporting a search and rescue response. These can range from the ability of persons to report information to family or friends as well as requesting intelligence from the community in regard to persons that are subject of a search and rescue response. SMCs should also be aware that social media may result in uncoordinated contributions and have the potential to distract SMCs from operational response, preventing effective coordination. SMCs should be able to rely on other resources to manage the operation of social media. This may be part of a coordinated national policy but at a minimum should be addressed within a SAR Authority's media policy. Also, commercial industry, such as passenger ship and airline companies may be making use of social media and, therefore, SAR authorities should collaborate on the flow of information with others that may be involved in a search and rescue response.

2.37.4 Social media can be effectively utilized for disaster preparation, alerting and recovery, but this issue is different from distress alerting. For example, a designated disaster social media website can:

- (a) Support a disaster response when the responding/organizing authorities develop a social media website through which all distress notifications are received (The challenge is notifying the public of the existence of this specific social media website, and how to navigate to the site).
- (b) Provide relief to call centres during extended disasters which may receive large traffic volume.
- (c) Provide additional information critical to those in distress as well as those who are reporting persons in distress.
- (d) Provide a way for people to "leave messages" that may not reflect an urgent distress situation, but are still important and would allow SAR authorities to respond when able to the person posting the request.
- (e) Provide updated disaster response information on one website.

(f) Provide information on what and to whom changes in situation(s) should be reported.

(g) Provide information on who to contact to receive more information.

Note: Care and caution should be adhered to during the use of information and material obtained from social media during response to SAR incidents

2.37.5 The SMC should make use of the capability of social media, as appropriate, but also should rely on other resources to manage the operation of social media. Also, commercial industry, such as passenger ship and airline companies may be making use of social media and, therefore, SAR authorities should collaborate on the flow of information with them.

6 Chapter 3

- Amend page 3-1, paragraph 3.1.2, 2nd line as follows:

during the first 24 hours...

- Amend page 3-6, paragraph 3.4.8, last sentence as follows:

This especially applies to when an initial Cospas-Sarsat alert where provides an A and a B position, the A and the B positions can be in different SRRs.

- Amend page 3-7, paragraph 3.5.6 (h) as follows:

Add additional text at end of current sentence:

Try to obtain information about persons in distress who may be carrying mobile telecommunications devices. Attempt to communicate with them by mobile/cell telephone call, text or email and/or contact the mobile communications service provider and request information about the device(s) last known location and use.

Note: Legislative restrictions may require that another agency have to undertake this task on behalf of the SAR services.

- Amend page 3-8, paragraph 3.5.9 as follows:

Add new bullet point after first bullet item:

If normal radio or satellite communications are unavailable or not connecting, and terrestrial telecommunications are likely to be within range, attempt or make calls, texts or emails to any distressed person(s) known to be carrying a mobile telecommunications device.

- Amend page 3-12, paragraph 3.8.5 (c) as follows:

(c) The probability of the search object remaining close to the position of the distress incident decreases with time. Floating search objects drift, and survivors on land may be walking. If the search object is mobile, the size of the search area must increase with time. Delay may dramatically increase search area size, possibly beyond what the available search facilities can cover. For survivors adrift in rapid water currents, the best chance of locating them is soon after they have gone adrift, while the search area is still small. For areas of high drift rate or whenever there is potential for an extended search for objects which drift, early deployment of one or more datum marker buoys, particularly self-locating datum marker buoys (SLDMB), can assist in determining the area to search and for relocating drifting objects.