



IALA ARM COMMITTEE

REPORT OF THE 10TH SESSION OF THE IALA ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

14 to 18 October 2019

Thomas Southall and Kevin Gregory
Committee Secretaries

18 October 2019

10, rue des Gaudines – 78100 Saint Germain en Laye, France
Tél. +33 (0)1 34 51 70 01 – Fax +33 (0)1 34 51 82 05 – contact@iala-aism.org

www.iala-aism.org

International Association of Marine Aids to Navigation and Lighthouse Authorities
Association Internationale de Signalisation Maritime

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**Report of the 10th Session of the IALA
AtoN Requirements and Management (ARM) Committee
14 to 18 October 2019
Executive Summary**

The 10th Session of the ARM Committee was held at IALA Headquarters from 14 to 18 October 2019.

The session was attended by 79 participants from 22 countries and two sister organisations. Ten participants attended for the first time and there were five observers.

The Committee continued the work for the 2018-2022 work period. Working in three working groups, the Committee considered 52 input papers including presentations and produced 52 output and working documents.

The Committee completed the development of the S-201 Aids to Navigation Information Product Specification representing the culmination of seven years work.

The Committee finalised liaison notes to:

- The China MSA and ENG Committee on AtoN provision in cold climates,
- China MSA on meteorological and hydrological monitoring in port waters,
- The ENG Committee on self-deploying wreck marker buoys,
- The PAP on Cyber Security, and
- The ENAV Committee on Maritime Resource Names.

At ARM10 plenary task 1.5.10 Mobile AtoN and associated virtual AtoN was discussed. It was agreed to include Virtual AtoN in this work and to progress this element within the MBS.

The Terms-of-Reference for the ARM Committee was also reviewed and updated.

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Report of the 10th Session of the IALA

AtoN Requirements and Management (ARM) Committee

INTRODUCTION

The 10th session of the AtoN Requirements and Management (ARM) Committee was held from 14 to 18 October 2019 at IALA. The Chairman was Phil Day and the Vice Chairman was Dave Lewald. The Secretary for the meeting was Thomas Southall.

1. OPENING

The Committee Chair, Phil Day, welcomed both new participants and those returning to Committee for the tenth session of the ARM Committee (ARM10).

1.1 Approval of the agenda

The agenda (ARM10-1.3.1) was adopted.

1.2 Welcome address from the Secretary-General/Deputy Secretary-General

The Secretary-General welcomed all participants to Saint Germain-en-Laye and welcomed both new and returning participants. The Secretary-General thanked the Chair and Vice-Chair of the Committee for their hard work in preparing for this meeting and for facilitating the friendly and hardworking atmosphere for which the Committee is known.

This is a very busy period for IALA. The VTS, ENG and ENAV Committees have met and there is a record number of participants at the ARM Committee, it is the best time of the year for the Secretariat to have so many Committee participants attending the various meetings. The new Committee structure is now becoming established and all participants were thanks for their cooperation as the new arrangements were settling in. The VTS Committee finalised the revised IMO Resolution A.857(20) on Guidelines for Vessel Traffic Services at its recent meeting. This will change VTS completely in the future and, importantly, raises the status of the IALA Standards within the IMO and brings their importance closer to SOLAS.

The recent R-Mode workshop was a great demonstration of the cross-Committee working producing excellent results. Similarly, the recent e-Navigation Underway Asia Pacific event was excellently hosted by the Korean Ministry of Oceans and Fisheries. It was particularly pleasing to see the industrial members very active in the event and to see some results of e-Navigation application making seafarers lives easier, safer and more efficient.

There are a lot of interesting IALA events approaching, especially the Heritage Seminar which will take place alongside ENG11 in spring 2020. A workshop on DGNSS on the future of Marine Radio Beacon DGNSS will be held between the 27 and 31 January 2020 in Edinburgh, United Kingdom. The combined VTS and ENAV Symposium to be held between the 25 and 29 May 2020 in Rotterdam, the Netherlands. Registration will be open soon via the symposium website - www.iala-rotterdam2020.nl. An IALA Workshop on Cyber Security to be held between the 26 and 30 October 2020 in Quebec, Canada. Finally, the next IALA BATT/LITE event will take place in Australia in 2021.

A Diplomatic Conference will be held in Kuala Lumpur, Malaysia. This should be the final Diplomatic Conference where the participants will have the credentials from their respective Head of State to sign the final act of the new Convention for IALA paving the way for the change of status from a Non-Governmental Organization to an Inter-Governmental Organization. This will result in IALA gaining the same status as organisations such as the IMO and IHO.

The Secretary-General wished all participants a fruitful week and reminded everyone that the Secretariat was ready to help in any way possible.

1.3 Administration and safety briefing

Thomas Southall provided a Safety and Administration briefing. Presentation ARM10-1.1 refers.

The Secretary provided Committee participants with safety and administrative information.

The following question was asked:

Does anyone present have the knowledge of any patents, including pending Patents, held either by themselves or by other organisations or individuals, the use of which may be required to practice or implement the content of IALA Documents being developed or worked on in this Committee?

No patents were noted.

The following statement on the IALA General Data Protection Policy was made:

IALA has a policy regarding compliance with the General Data Protection Regulations. IALA will include a list of participants with their contact information in the report of this meeting. Any participant who wishes to remove their information from the participants list should advise the Committee Secretary as soon as possible.

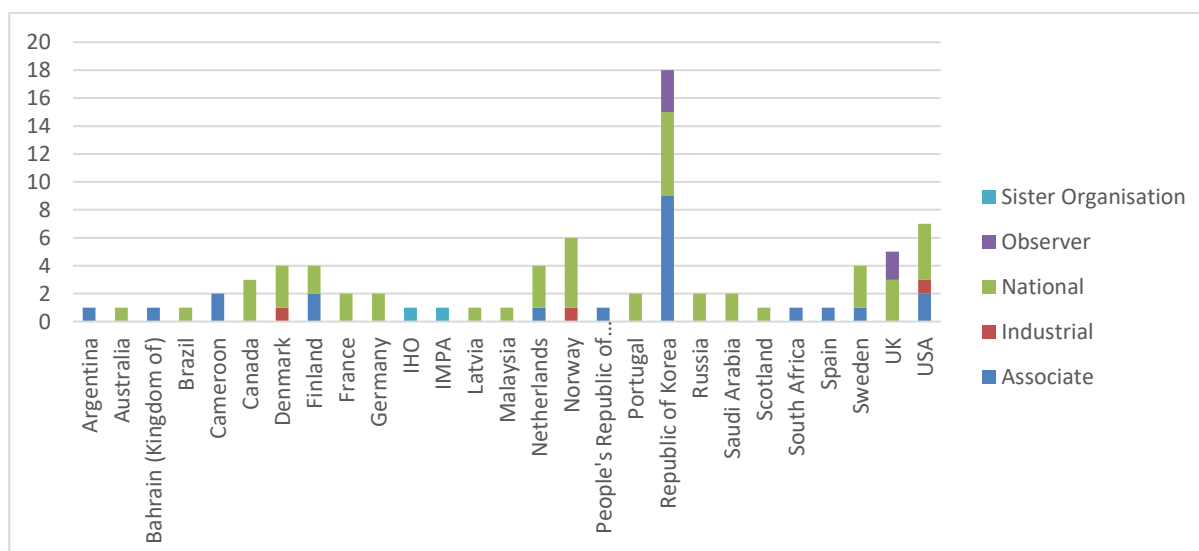
1.4 Introductions and Apologies

The session was attended by 79 participants from 22 countries and two sister organisations attended ARM10. Ten participants attended for the first time and there were five observers.



The list of Committee participants who attended ARM10 is attached in Annex B. New participants were welcomed in addition to those returning to the Committee. The Committee noted two apologies from participants who were unable to attend listed in Annex B.

The following chart shows an analysis of participants.



1.5 Programme for the week

The programme for the week, paper ARM10-1.5, was approved.

2. REVIEW OF ACTION ITEMS FROM ARM9

Input paper ARM10-2.1.1 refers. All action items for the IALA Secretariat and participants from ARM9 were noted as complete. The IALA questionnaire is due to be published imminently having undergone final review.

3. REVIEW OF INPUT PAPERS

It was noted that all input papers were available on the IALA website. It was observed that the input papers for each Working Group (WG) were identifiable from the document number.

4. REPORTS FROM OTHER BODIES

4.1 Report on IALA Council

The Committee noted the report of the 69th Session of the IALA Council held in Rotterdam in June 2019. Papers ARM10-4.2.1 refers.

4.2 Report of the IALA Policy Advisory Panel

The Policy Advisory Panel (PAP) met in September at IALA Headquarters. PAP brings together the Chairs and Vice-Chairs of each Committee with the purpose of ensuring cross-Committee coordination and the provision of policy advice to Council.

The PAP considered various matters. These included reviewing the IALA questionnaire and it was agreed that the VTS element would be removed and that the questionnaire would be carried out every two years.

The forthcoming IALA Cyber Security Workshop was also discussed and Committee participants were encouraged to submit information on best practices on cyber security including precautions or controls have been implemented and why.

4.3 Reports on IMO meetings

The Committee noted paper ARM10-4.2.2 which provided information on the 101st meeting of the IMO Maritime Safety Committee.

4.4 Report on e-Navigation Underway

The Committee noted the provision of a new consolidated e-Navigation Underway website which brings together all conferences of the series www.e-navap.org. E-Navigation Underway Asia Pacific was held in September 2019 back-to-back with an e-Navigation capacity building workshop.

E-Navigation Underway North America will be held between the 12 to 13 November 2019 in Tampa, United States of America. An introductory presentation (ARM10-4.3) was provided giving information on the conference arrangements.

The e-Navigation Underway International conference will not be held in 2020 but a new 'Digital@Sea' event will take place.

4.5 Report on the IALA-IHO Technical Coordination Meeting

IALA and the IHO have regular technical cooperation meetings with the next due to take place during the ARM Committee. The agenda includes a range of matters related to charting requirements for new light characteristics, updates to the IHI GI Registry, MRN and matters related to S-100 and S-200 matters.

4.6 IALA Heritage Lighthouse Award

The Committee reviewed the Liaison Note from the ENG Committee (ARM10-3.16) which provided information on the nomination process for the IALA heritage lighthouse award. Committee participants attention was drawn to a new heritage section on the IALA website, <https://www.iala-aism.org/heritage/> where further information, and an application form can be found.

5. REPORTS FROM RAPORTEURS

Each Working Group Chair provided an update on developments and areas of work within their respective areas.

6. PRESENTATIONS

Four presentations were made during the opening plenary session. The presentations are available on the IALA Committee website.

6.1 Report from the IALA World-Wide Academy

Paper ARM10-6.1 (presentation) refers.

The presentation was given by Kevin Gregory providing an update on the work and activities of the IALA World-Wide Academy.

6.2 Integrated Maritime Autonomous Transport Systems

Paper ARM10-6.2 (presentation) refers.

The presentation was given by Professor Thomas Porathe providing information on integrated maritime autonomous transport systems.

6.3 AtoN distribution during North China Sea freeze-up

Paper ARM10-6.3 (presentation) refers.

The presentation was given by Professor Ke Ranxuan related to AtoN distribution during freeze-up in the North China Sea.

6.4 Smart Navigation Status and e-Navigation prediction tool

Paper ARM10-6.4 (presentation) refers.

The presentation was given by Jin Park related to an update on the Smart Navigation project.

6.5 Introduction to ARM11 in Buenos Aires, Argentina

Paper ARM10-6.5 (presentation) and association information sheet (ARM10-6.5.1) refers.

The presentation was given by Raul Escalante providing practical information related to ARM11 to be held in Buenos Aires, Argentina.

6.6 IALA World-Wide Academy Missions

Paper ARM10-6.6 (presentation) refers.

The presentation was given by Gerardine Delanoye providing information on how IALA World-Wide Academy Technical Missions are conducted.

6.7 Australian Autonomous Vessels Forum

Paper ARM10-6.7 refers.

A verbal briefing was provided by Mahesh Alimchandani on the outcomes of the two-day Australian Autonomous Vessels Forum held in Canberra, Australia.

7. REVIEW OF WORK PROGRAMME AND WORKING GROUP EXPECTATIONS

7.1 Work review

The ARM Committee Task Plan for the 2018-2022 work period was reviewed (ARM10-7.2).

The following shows a summary of progress on the Task Plan at the end of ARM10.

Strategy Technical Domain	Tasks	Status
Standard 1010 – AtoN planning and service requirements	21 tasks	All tasks on schedule
Standard 1020 – AtoN Design and delivery	2 Tasks	All tasks on schedule
Standard 1050 Training and Certification	2 Tasks	All tasks on schedule
Standard 1060 Digital communications technologies	2 Tasks	All tasks on schedule
Standard 1070 Information services	14 Tasks	All tasks on schedule
Other	4 Tasks	All tasks on schedule

Action item:

The IALA Secretariat is requested to forward the ARM Committee Task Plan for 2018-2022, ARM10-13.1.1, to ARM10.

8. ESTABLISH WORKING GROUPS

Three working groups were established, as outlined below. A list of working group participants is at Annex C. The terms of reference for the ARM Committee were reviewed and updated.

Working Group (WG)	Working Group Chair / Vice Chair
WG1 – Navigational Requirements	Guttorm Tomren / Johan Westerlund
WG2 – Information Services and Portrayal	Dave Lewald / Martin Bransby
WG3 – Risk Management	Roger Barker / Cathrine Steenberg

9. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

9.1 Response to input papers

The Working Group reviewed the list of input papers, and a number of output papers were produced, including the below liaison notes/working papers:

9.1.1 ARM10-3.17.1 Proposal on Auto Releasing New Danger Marking Buoy

The Committee considered input paper ARM10-3.17.1 from ENG regarding a proposal on Auto Releasing New Danger Marking Buoy. A liaison note was drafted. The system and its potential applications needs further consideration, and ENG should consider whether to advise the proponent to submit a proposal to the IMO, since it is not within the domain of IALA to propose carriage requirements for vessels.

Task group; Johan Westerlund

Action item:

The IALA Secretariat is requested to forward ARM10 13.2.3 to ENG in response to the input document 'Proposal on Auto Releasing New Danger Marking Buoy' (ARM10-3.17.1).

9.1.2 ARM10-3.10 Providing Standardized Real-time Hydrological and Meteorological Information in Port Waters

The Committee considered input paper ARM10-3.10 from China MSA regarding hydrological and meteorological information in Chinese ports. A liaison note was drafted requesting China MSA to consider providing their Harbour Environment Monitoring System data via existing and planned internationally agreed mechanisms for internationally trading ships and continue using their existing delivery mechanism.

Task group; Alfredo Dominguez, Dave Merrill, Mahesh Alaimchandani

Action item:

The IALA Secretariat is requested to forward the Liaison Note (ARM10-13.2.4) in response to the input document 'Providing Standardized Real-time Hydrological and Meteorological Information in Port Waters' (ARM10-3.10) to Council for approval and, following approval, to the China MSA.

9.1.3 ARM10-3-11 Practice on AtoN distribution during freeze-up in the north China Sea

The Committee considered input paper ARM10-3-11 from China MSA regarding provision of AtoN in severe ice conditions during winter. While several competent authorities have many years of experience of providing AtoN services in extreme cold, there is currently no general IALA guidance on the subject. The China MSA is suggested to visit such competent authorities to study current practices, while a proposal to consider giving guidance for AtoN provision in cold climates is forwarded to the ENG committee. Guideline 1108 on the Challenges of Providing AtoN services in Polar Regions provides specific guidance on AtoN services in Polar regions, but is partly applicable for provision of AtoN in any cold weather environment.

Task leader; Johan Westerlund

Action item:

The IALA Secretariat is requested to forward the Liaison Note (ARM10-13.2.2) on Practice on AtoN distribution during freeze-up in the north China Sea to Council for approval and, following approval, to the China MSA.

The IALA Secretariat is requested to forward the Liaison Note (ARM10-13.2.1) on AtoN provision in Cold Climates to the ENG committee.

9.1.4 ARM10-3.13 Input paper on Vertical Divergence of Light for Marking Mooring Buoys

After ARM9 a liaison note (ARM9-3.1) was sent to ENG asking for advice concerning the vertical divergence of lights from mooring buoys. In the note ENG described that only under tension when a vessel was moored would a mooring buoy heel so much that the divergence would become a problem. Since the vessel would be displaying its own lights the light of the mooring buoy would not be relevant at that time. ARM noted the response and considers the question resolved.

Task group: Gaelle Nassif

9.1.5 ARM10-3.14 Liaison note to ARM on Recommendation E-111 on Port Traffic Signals

A liaison note was received from ENG in response to the survey results provided by ARM considering the use of Port Traffic Signals in context of Recommendation E-111. ENG thanks ARM for performing the survey and will use the results in their work on revising the E-111.

9.1.6 ARM9-3.15 Liaison note on Tidal Current Signal System

A liaison note from ENG10 requesting that ARM review and provide comments on the draft guideline for ENG11. Due to work load the work group did not have opportunity to review the draft guideline during, the draft guideline will instead be reviewed during ARM11.

Action item:

The IALA Secretariat is requested to forward papers ARM10-13.2.7 and ARM10-13.2.7.1 on tidal current signal systems to ARM11 as input.

9.2 Reformat and review the IALA MBS incorporating MAtoN (Task 1.5.1)

The task group commenced work on revising the MBS making use of the initial scoping for the task performed at ARM9. The work is on-going and will continue at ARM11.

Task group; James Collocott, Gaelle Nassif, Natascha Mc Mahon, Mahdi Al-Mosawi, Peter Douglas, Laura Snoep, Hristo Lang, Anas Hariri, Hidekazu Sakashita

Action item:

*The **IALA Secretariat** is requested to forward working papers ARM10-13.2.8, ARM10-13.2.8.1 and ARM10-13.2.8.2 on the review of the IALA MBS incorporating MAtoN to ARM11.*

9.3 Undertake a gap analysis of IALA guidance associated with the MBS, including 1078, The Use of AtoN in the Design of Fairways (June 2011). Identify further work to add to the task plan (Task 1.5.3)

This task was progressed. The work will need to take into consideration discussions on several different topics such as the marking of breakwaters, information regarding mooring buoys, marking of inland waterways, as well as any other updates to the MBS. Work will continue at ARM11.

Task group: James Collocott, Gaelle Nassif, Natascha Mc Mahon, Mahdi Al-Mosawi, Peter Douglas, Laura Snoep, Hristo Lang, Anas Hariri, Hidekazu Sakashita

Action item:

*The **IALA Secretariat** is requested to forward Guideline 1078 on the use of AtoN in the design of fairways (ARM10-13.2.9) as a working paper to ARM11.*

9.4 Develop a guideline for the Use of Mobile AtoN (Task 1.5.10)

The draft guideline was progressed during ARM10, taking into consideration the guiding principles established at ARM10 and the working papers ARM10-8.4, 8.5 and 8.6. Work will continue at ARM11.

At ARM10 closing plenary Mobile AtoN and associated virtual AtoN was discussed. It was agreed to include Virtual AtoN in this work and to progress this element within the MBS.

Task group: Alfredo Dominguez, Dave Merrill, Mahesh Alaimchandani

Action item:

*The **IALA Secretariat** is requested to forward the draft guideline on the use of Mobile AtoN (ARM10-13.2.10) to ARM11 as a working paper.*

9.5 Develop guidance on AtoN provision in polar regions (Task 1.5.6)

The ARM Committee did not start work on this task during ARM10. At ARM9 the Committee discussed the issue regarding the definition of IALA region A/B in the polar area and asked LAP to review the document for any legal implications prior to ARM10. The committee received no feedback from LAP prior to ARM10 so the task will be considered at ARM11.

9.6 Review Recommendation R-0139 on Marking of Man-made Offshore Structures

Work on this task was progressed taking into consideration the input paper ARM10-3.9 Marking of Breakwaters. Work is planned to continue at ARM11.

Task group: Peter Dam, Jun-Ki Bae, Anthony Maffia, Aigars Gailis, DaeWoong Kang, Mohammad Arma Noramin Rashid

Action item:

*The **IALA Secretariat** is requested to forward the draft Recommendation R0139 on marking of man made offshore structures (ARM10-13.2.11) to ARM11 as working paper.*

9.7 Review R0143 Provision of virtual aids to navigation and G1081 Virtual AtoN to reflect developments (Task 1.6.1)

Work on this task progressed during the week and will continue at ARM11.

Task group: Yves Jaques, Joonatan Ahlroos, Kjell Johansson, Mats Hörström.

Action item:

The IALA Secretariat is requested to forward the working paper on draft Recommendation R0143 and Guideline 1081 on Virtual AtoN (ARM8-12.2.10) to ARM11.

9.8 In association with ENG review G1116 Selection of Rhythmic Characters and Synchronisation of Lights for [Marine] Aids to Navigation (Dec 2015) (Task 2.1.1)

The task group concluded that Recommendation E-110 will not need to be revised until a new character for MAtoN has been decided. Work on G1116 was concluded.

Task group: Guttorm Tomren, Johan Westerlund.

Action items:

The IALA Secretariat is requested to forward the draft Guideline G1116 on the selection of rhythmic characters and synchronization of lights for marine aids to navigation to ARM10-13.2.12 to ARM11 for further work in conjunction with work on MAtoN.

9.9 Revise G1052 Quality Management in Aids to Navigation Service Delivery (Task 1.4.1)

Work on this task started and progressed and is likely to be finalised at ARM13.

Action item:

The IALA Secretariat is requested to forward the draft Guideline G1052 on quality management in aids to navigation service delivery (ARM10-13.2.13) to ARM11 as a working paper.

9.10 Revise G1054 Preparing for a Voluntary IMO Audit on Aids to Navigation Service Delivery (Task 1.1.2)

Preliminary input for this task was provided by the WWA. Work on this task is planned to begin at ARM11. The annex must be coordinated with the VTS committee and completed at ARM11 in order to meet a July 2020 IMO deadline for IMSAS.

Action item:

The IALA Secretariat is requested to forward the working paper on the draft annex to the IMO IMSAS Manual (ARM10-13.2.14) to ARM11.

10. WORKING GROUP 2 – INFORMATION SERVICES AND PORTRAYAL (WG2)

The working group considered 19 input documents and reviewed the ARM task list from a Working Group 2 perspective.

10.1 Develop guidance on cyber security for AtoN authorities in collaboration with all other Committees (Task 1.2.6)

Task Leader: Martijn Ebben

Examples of cyber security systems development and incidents were gathered. This is by no mean complete and IALA members are requested to send examples to Martijn Ebben in preparation for the IALA workshop on Cyber Security being held 26-30 October 2020 in Quebec, Canada.

It was also noted that many aspects of all IALA Committee's work considers cyber-security aspects and that this should be coordinated by the PAP.

Action items:

That **Committee Participants** are invited to submit examples of cyber security systems development and incidents to ARM11, or to Martijn Ebben.

The **IALA Secretariat** is requested to forward the liaison note on cyber security (ARM10-13.3.3) to the IALA Cyber Security Workshop Steering Committee.

The **IALA Secretariat** is requested to forward the liaison note on cyber security (ARM10-13.3.2) to the PAP.

10.2 Review G1084 Procedure of the Authorisation of AIS AtoN (Task 2.2.1)

No work was undertaken on this task at ARM10.

10.3 Provide guidance on the management of requirements and requirements traceability (Task 2.2.2)

This task was completed at ARM9. Published as Guideline G1133.

10.4 Review relevant sections of NAVGUIDE as requested by Secretariat (Task 3.2.1)

Natasha McMahon requested that the Working Group work on this throughout the period and provided guidance on which aspects of the NAVGUIDE were to be considered by Working Group 2; however, no work was undertaken during ARM10.

10.5 Review G1050 Management and Monitoring of AIS Information (Dec 2005) (Task 4.1.1)

No work was performed on this during ARM10 due to the current uncertainties around the monitoring of Mobile AtoN and Autonomous Maritime Radio Devices (AMRD). Work to commence once these issues have been addressed.

10.6 Maritime Connectivity (Task 4.2.1)

No input was available from suitable technical experts. The Working Group Chair will invite the Secretary General of the Maritime Connectivity Platform Consortium to the next ARM meeting; moreover, Jin Hyoung Park, chair of the Maritime Connectivity Platform Consortium's Working Group on the Maritime Identity Register, was unavailable at ARM10.

Action item:

The **Chair of Working Group 2** is requested to invite the Secretary-General of the Maritime Connectivity Platform Consortium to ARM11.

10.7 Develop guidance on Maritime Services (Task 5.1.1)

Task Leader: Jon Leon Ervik, assisted by Lene Vesterlund, Chi-Kyoung Lee, Gumjun Son and Seong-sang Yu.

A discussion on Maritime Service (MS) roles and responsibilities between organisations was held. It is recommended that IALA should lead on MS17 (AtoN) and MS18 (PNT); moreover, it is recommended that the method of liaison between IALA and IMO should be through information papers and liaison notes. Operational and technical services should be defined through what we have now to start with, instead of "reinventing the wheel."

Other work within the Working Group looked at the initial strategy to develop Maritime Services within the IALA domain.

10.7.1 Background

When developing the International Maritime Organization (IMO) e-Navigation strategy to improve safety and efficiency of maritime transportation, it became clear that information services provided from coastal states to ships would be an essential part of this initiative.

The draft guideline developed with support from IALA members was submitted to the IMO/IHO Harmonisation Group on Data Modelling (HGDM) and was the foundation of the IMO resolution.

The resolution is a reproduction of the IALA draft guideline (“Guidance on the definition and harmonization of the format and structure of maritime services in the context of e-Navigation”). IMO MSC 101 also endorsed the circular on initial descriptions of Maritime Services (MS) in the context of e-Navigation.

The basic descriptions were submitted by IALA, IMPA, WMO and IHO. The MS without coordination body were submitted by Norway. The template and context of the MS is basically harvested from the IALA draft guideline.

The ARM Committee recognises the latest developments in IMO related to operational descriptions of MS. MSC 101 adopts the draft MSC resolution on Guidance on the definition and harmonisation of the format and structure of Maritime Services in the context of e-Navigation. The IMO resolution contains a guideline, as well as a template for describing the MS. The ARM committee has followed the development of MS descriptions in IMO.

Based on the new, central role/initiative in IMO, as expressed in the MSC resolution, the ARM committee recognises that IALA can contribute and provide subject matter expertise to the development and implementation of MS within the IALA remit. IALA will consider requests from other domain coordinating bodies to assist on other MS.

10.7.2 Focus / strategy / task

Currently, the IMO MS related to VTS is divided into three services, MS1, MS2 and MS3. The IALA VTS committee is currently revising the guideline for VTS and in the future this might be merged into one MS service containing all known maritime services for VTS.

The ARM Committee has the capacity to coordinate the development within already existing relationships and cooperation with experts from coordinating bodies, industrial and national members. The ARM committee will support IMO in the development towards operationalization of MS.

The descriptions of the MS form the basis for the development of product specifications. Some of the product specifications are under development in ARM, with support from experts and IHO.

The committee should be tasked to focus on the support and delivery to IMO progress. This also includes the need for IALA to liaison with relevant coordinating bodies.

VTS and ARM committees are responsible for content and development (operational requirements) of Maritime Services within their expertise, e.g. Maritime Services related to VTS is the responsibility of the VTS committee. Management of product specifications and the support and delivery to IMO progress will be the responsibility of the ARM committee.

10.7.3 New Maritime Services under IALA

The work on ship reporting has already been fruitful. The committee has provided input to IMO NCSR and IMO FAL regarding Maritime Service no. 8 (MS8 - ship reporting). IALA members have emphasised the need for coordination of MS8. This has also been part of the background for including this task in the ARM Committee work program. The ARM committee will continue to develop a guideline.

IALA has been developing S-201 (AtoN Product Specification) (and its derivative S-125 (Nautical Services Product Specification)). It is recommended that the ARM Committee continues to support IHO on the provision of MS11 (Nautical Chart Service) and MS12 (Nautical Publications Service). MS17 (AtoN Service) is to be developed within the ARM committee.

Similarly, MS18 (PNT Service) will also be developed. To that end, one Product Specification has been created (S-240 – DGNSS Station Almanac Product Specification) which supports further development of this Service.

Additional considerations should focus on interoperability as an important aspect of e-Navigation and the implementation of Maritime Services as well as include mechanism to identify and submit new services based on user needs revealed by members.

10.7.4 Recommendations / conclusions

The ARM Committee will provide a roadmap that reflect the support and development towards operationalisation of Maritime Services, using practical solutions based on user needs. Examples of test and evaluation of prototype e-Navigation services are *inter alia* the Smart Navigation project in Korea, STM and SESAME projects.

A development and delivery roadmap and strategy should take into considerations and/or include the elements highlighted in this document.

The roadmap work will commence in ARM 11.

Action item:

The IALA Secretariat is requested to forward the paper on the development of Maritime Services (ARM10-13.3.5) to ARM11 as a working document.

10.8 New Guideline on Operational considerations for S-200 (S-201 AtoN information and S-230 Application Specific Messages) (Task 5.1.2)

As work on S-201 has just been completed at ARM10, there was no new work during the period.

10.9 Continue to Develop Product Specification S-201 in the Task Group already assigned (Task 5.1.3)

Task leader: Sewoong Oh, assisted by Eivind Mong, Kimmo Heiskari, Dave Lewald, Jan-Hendrik Oltmann, Minsu Jeon, Martijn Ebben and Peter Hooijmans.

Work on the S-201 PS was completed by the task group. This is the culmination of many years of work at the ENAV Committee and latterly at ARM. The task group is to be commended for its efforts on this long-running task.

Action item:

The IALA Secretariat is requested to action the S-201 Product Specification (ARM10-13.3.1) as it deems appropriate.

10.10 Develop Annex C to S-201 (Task 5.1.4)

Task leader: Sewoong Oh, assisted by Eivind Mong.

The S-201 PS contains basic information on implementation; however, this will be improved with the release of version 2 of S-201 PS.

10.11 Develop Requirements for S-125 (Task 5.1.5)

Now that the work on version 1 of S-201 is complete, a scoping exercise will commence at ARM11.

10.12 Coordination with IHO/WMO for S-100, S-200, and MRN management (S-100/S-200 message coordination with other Committees on S-2xx development) (Task 5.1.6)

Workshop proposal was approved at Council 69 and will be held in Norway (exact location TBD) in June 2020. A steering Group has been appointed.

10.13 Develop guidance on MRN for users (Task 5.1.7)

This work was completed at ARM9; however, the Working Group notes a number of liaison notes from the ENAV Committee that make suggestions for the Guideline. The Working Group discussed that as a working principle, minor amendments would be noted and implemented when enough were available for another release; however, if there were fundamental changes to be made, these would be implemented as expeditiously as possible.

Further work was considered and a number of major revisions are envisaged both from internal ARM discussions and from the ENAV Committee. These will be addressed at ARM11 and sent to ENAV25 the following week.

Action items:

The IALA Secretariat is requested to forward the Liaison Note on the revision of Guideline 1043 and Maritime Resource Names (ARM10-13.3.4) to the ENAV Committee.

The IALA Secretariat is requested to forward the MRN Guideline tracking sheet (ARM10-13.3.8) to ARM11 for further work.

The IALA Secretariat is requested to forward the draft G1143 edition 2 (ARM10-13.3.7) to ARM11 as a working paper.

The IALA Secretariat is requested to advise the Chair of the ENAV Committee that it can expect a very late document on the subject of MRN to ENAV25 from ARM11.

10.14 Develop MRN Registry Submission & Maintenance Guideline for IALA Secretariat (Task 5.1.8)

This task was completed at ARM9; however, the IALA Deputy Secretary-General requested that this be repackaged in a different format as a “desk-instruction” or procedure rather than as a Guideline that could be confusing. As there were to be fundamental changes to the Guideline at ARM11 it was decided to postpone this work until then.

10.15 Develop Recommendation to cover MRN Guidelines (Task 5.1.9)

As the Guideline G1143 now requires substantial rework, it was decided to postpone the drafting of an associated Recommendation until the next meeting, to be written in conjunction with the revision of Guideline G1143; hence, no work was undertaken during this period.

10.16 Coordinate Committee support for IALA representation at IHO working groups in cooperation with Secretariat (HSSC, S-100WG, NIPWG) (Task 5.1.10)

Task leader: Dave Lewald

The task leader attended IHO as IALA rapporteur. The Working Group also welcomed Tony Pharaoh of the IHO to the meeting. Work is ongoing throughout the period.

10.17 Monitor the development of S-201 Testbed (Task 5.1.11)

Sewoong Oh presented an update on the Republic of Korea’s prototype S-200 test bed that has already been implemented as a demonstrator of some aspects of S-200. A web-based demonstration of the test bed was shown. The Working Group agreed that this work should be considered when developing S-200 within the ARM Committee.

ARM members are invited to submit updates to Sewoong Oh on the progress of this topic to be presented at each ARM meeting. These updates will be used as inputs to the development of S-201. Work in this item will take place throughout the period. Sewoong Oh briefed that a template would be available at ARM11 and that future suggestions should be submitted on that.

Action item:

*That **Committee participants** are requested to submit updates on the development of S-201 to Sewoong Oh for ARM11.*

10.18 Review G1072 AtoN Information Exchange and Presentation (Dec 2009) and consider if contents of G1105 can be incorporated (Task 5.2.1)

Task leader: Jan-Hendrik Oltmann

A review of G1072 and G1105 was conducted. It was concluded that revision and restructuring of IALA documentation relating to portrayal and symbology (in both VTS and AtoN) for shore-based users is necessary. The output goal would be a normative collection of unified or harmonised information portrayal features of the operational presentation surfaces (HMIs) to shore-based users (to be stored in the Portrayal Register of IHO GI Registry): G1133 refers. A secondary goal is updating and filing portrayal and symbology information to the IHO registry.

NB. 1072 and 1105 are point-in-time documents that have been overtaken by events. The task group recommends discontinuing G1072 and significant revision to G1105, to be coordinated with the VTS committee.

NB. Consideration of the provisions within V-125 (symbology and portrayal at VTS shore stations) should be incorporated.

Action items:

The IALA Secretariat is requested to withdraw G1072 on AtoN Information Exchange and Presentation.

That Committee participants are invited to contribute to a concept on future IALA documents regarding portrayal and symbology.

10.19 Develop Guideline on ship reporting from the shore-side perspective (Task 5.2.2)

Task leader: Fred Pot, assisted by Michael Strandberg, Jarle Hauge, Soyeong Lee, AN Kwang and Yu Yung-Ho.

An initial discussion in Working Group plenary asked the question of whether this work should continue within IALA through the S-100 format. If the answer was yes, then how does IALA do this as there are so many formats of data out there for ship reporting? Another issue was how does IALA approach IMO FAL/NCSR on this issue? The Working Group decided that work should continue on this matter.

Other work within the group determined that the description of this task in the ARM Work Plan (Task 5.2.2) be changed to:

“Develop Guideline on Ship Reporting from the shore-side perspective.”

Expected outputs of the Working Group are a Guideline on ship reporting web services, including:

- Specification of ship reporting web services, portal specifications and governance;
- Minimum cyber security requirements for transmission of, and access to, ship report information;
- Guidance on migration from current ship reporting system to a harmonised and secure electronic Ship Reporting system.

This work should consider IEC63173 Route Exchange work (S-421).

Action items:

The IALA Secretariat is requested to change the title of task 5.2.2 to “Develop Guideline on Ship Reporting from the shore-side perspective.”

The IALA Secretariat is requested to forward the sub group report on ship reporting from the shore-side perspective as a working paper (ARM10-13.3.9) to ARM11.

10.20 Develop guidance on the symbology and portrayal of AtoN (with WG1) (Task 5.3.1)

Task leader: Seewong Oh

As S-201 is complete, the task leader will implement guidance *within* the S-201 Product Specification Annex E at future ARM meetings.

10.21 Participate in an ENG led joint workshop on cyber security (Task 6.2.2)

The ARM Chair is co-ordinating this on behalf of the ARM Committee. The workshop will take place in Quebec, Canada during the period 26-30 October 2020. Cross-refer task 1.2.6 (section **Error! Reference source not found.**).

Action item:

The IALA Secretariat consolidate all documents relating to the cyber security workshop from all committees and forward them as input to the cyber security workshop steering committee.

10.22 Action items from input documents

10.22.1 Review of Input Documents from ENAV on a “laypersons guide to e-Navigation” (ARM10-3.1.1)

Task leader: Peter Hooijmans

It became clear on reviewing this document that Guidance is required on e-Navigation operational service descriptions.

From the start of the development of e-Navigation, it was recognised that e-Navigation Maritime services consist of operational services and technical services, where technical services can make use of product specification as building blocks. The Maritime Services describe the service on a high level and link them to the IMO objectives etc. However, in order to develop a MS into an actual operational service it is necessary that more information is provided for the development. Therefore, an operational services description is needed. An operational service description gives a description of the service from the user point of view. The operational services description shall provide information about:

- The goal of the service;
- The information need; and
- The operational user requirements.

The operational service description is the responsibility of the “business side” of the service. They should describe the desired service and provide the developers with information that is of sufficient input to be translated into a technical service description. This information is in some way described in G-1128 “The specification of e-Navigation technical services” as “service specification.” G-1128 also contains a template for a service specification.

The integration of the service specification within G-1128 and the naming of the document does not make it clear that there is a role for the operational domain of IALA in this regard. Hence, no service descriptions are produced and no technical services are developed. A solution to overcome this current situation is to make a separate guideline for the development of an e-Navigation operational service description. This guideline should fill the void between MS and the service specification as described in G-1128.

The working group will liaise with the ENAV committee to conduct an information gap analysis between the MS guideline and G-1128. Based on the gap analysis, a template could be made to assist in the transition of information from business to IT.

A draft Guideline was started and will continue on this work at ARM11.

This work will be considered under ARM task 5.1.1 (Develop guidance on MS).

Action items:

The IALA Secretariat is requested to add text to the expected output of task 5.1.1 to include producing guidance on “producing an e-Navigation Operational Service Description”.

The IALA Secretariat is requested to forward draft guideline on producing an e-Navigation Operational Service Description (ARM10-13.3.6) as a working paper to ARM11.

The IALA Secretariat is requested to bring the section of the ARM10 report on ‘a laypersons guide to e-Navigation’ to the attention of the ENAV Committee.

10.22.2 Autonomous Maritime Radio Devices (ARM10-3.19, ARM10-3.19.1, ARM10-3.19.2, ARM10-3.20, ARM10-3.20.1)

The Working Group reviewed the documents and noted that edits performed by ENAV and there are no objections to these.

Action item:

The IALA Secretariat is requested to accept the ENAV changes in the input documents related to Autonomous Maritime Radio Devices (ARM10-3.19.1, ARM10-3.19.2 and ARM10-3.20.1) and forward them to Council for approval, and following approval, to the ITU as appropriate.

11. WORKING GROUP 3 – RISK MANAGEMENT (WG3)

As a number of new members attended the Working Group, the Chair started by giving an introduction to the Working Group and emphasized the importance of the work carried out by the members within the field of risk management with the aim of improving safety at sea for all mariners.

Thereafter, each Working Group member gave an introduction of themselves and their background.

The Working Group Chair then went through the Task Plan 2018-2022 and the Working Group commenced its work by agreeing on the draft agenda based on Task Plan 2018-2022:

- Review of G1018 Risk Management and also review of G1123, G1124, and G1138 (Task 1.2.1)
- Review of R0142 Maritime Data Sharing IALA Net (Task 1.2.2)
- Review of G1086 Global Sharing of Maritime Data (Task 1.2.3)
- Review of R0138, G1058 and G1097 (Task 1.2.4)
- Develop Recommendation for marine data sharing for risk assessment analysis (Task 1.2.5)
- Develop document to promulgate IALA risk management tool box to IMO (Task 1.2.7)
- Review of G1020 in collaboration with WWA (Task 3.1.1)
- Review relevant sections of the NAVGUIDE (Task 3.2.1)
- Cooperation with WWA in providing Risk Seminars (Task 6.1.1)

11.1 Review G1018 Risk Management to ensure compatibility with risk toolbox. Includes full review of underlying Risk Toolbox documentation G1123, G1124, G1138 (Task 1.2.1)

A small task group of the Working Group continued the thorough and comprehensive revision of the current Risk Management guideline G1018, which was later discussed in a Working Group plenary session.

The aim for the guideline is to be an overarching document for the Risk Assessment Toolbox and the revision of the Guideline should consider all tools in the IALA Risk Assessment Toolbox. Special emphasis must be on guidance of which method or tool to apply to a specific case and how to come to a decision on acceptability. Specific guidance on how to use each tool, should be moved to the guidelines for PAWSA, IWRAP, SIRA, and Simulation.

The Chair at this stage reiterated his comments to the Working Group at previous meetings the importance of a full review of the risk management documentation to ensure that the flow of information required by the user is clear and succinct and without unnecessary duplication. As such he detailed the work required this week will include the specific attention to the core structure of the risk management portfolio of documentation.

The work with G1018 will continue at ARM11.

Task group: Ernst Bolt, Valtteri Laine, Woo-Seong Shim

The Guideline for SIRA (G1138) was reviewed, resulting in a suggestion for an even more simplified version of SIRA together with a version which more closely reflects the requirements of the IMO FSA (Formal Safety Assessment). The SIRA Guideline as such will require further consideration if this suggestion is progressed.

The work on G1138 will continue at ARM11.

Task group: Edward Rogers, Arlindo Santos

The Guideline for IWRAP (G1123) was reviewed and a clean draft was presented in Working Group plenary for discussion.

The work on G1123 will continue at ARM11.

Task group: Justin Kimura, Jakob Bang, Jörg Kuchta, Ke Ranxuan, Raul Escalente

The Guideline for PAWSA (G1124) was thoroughly reviewed with special focus on structure and reorganising the document keeping parts of the original guideline as guidance and other parts, especially the Annex A Chapter 2 and onwards, as a manual. The Working Group suggest that consideration should be given to ownership of the PAWSA manual. As an IALA training course document should it be owned by the WWA/Secretariat? Whenever, a request is made for the IALA Secretariat to deliver the PAWSA books, the manual will be supplied along with these.

The task group later presented a draft version of the guideline in Working Group plenary. The task group encouraged the Working Group to consider that it may be appropriate to have a consistent structure amongst the IALA toolbox guidelines particularly as to when to use a specific tool and a collated matrix in the Risk Management guideline (G1018) when one tool may be preferable to another.

The work on G1123 will continue at ARM11.

Task group: Sarah Robinson, Thomas Porathe, Artur Marques, Xavier Hernoë

Action Items:

*The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.1 Guideline 1018 Ed.4 Risk Management as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.2 Guideline 1123 Ed.1 The use of IWRAP MkII as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.3 Guideline 1124 Ed.1 The use of PAWSA MkII as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper "PAWSA Work Group Summary 14-18 October" (ARM10-13.4.4) as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.5 Guideline 1138 Ed.1 The use of SIRA as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper "IALA SIRA Recommendations" ARM10-13.4.6 as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper "IMO FSA IALATool Box Schematic" (ARM10-13.4.7) as input to ARM11.*

11.2 Review R0142 Maritime Data Sharing IALA Net to reflect new title "Maritime data sharing" and the storage and use of historical [AIS and other] data for risk analysis (Task 1.2.2)

The Dean of the WWA, who has to date specific competence in IALANET, gave a short presentation of the background of the IALANET and future possibilities for continue and develop the service of sharing and providing data for the National Authorities.

The Working Group fully supports the continuing development of IALANET. However, a number of issues and concerns were discussed among the Working Group members and the Dean.

The Dean advised that an interface may be developed to allow for direct and simple link between IWRAP and IALANET making it easier to read available AIS data.

Many countries are reluctant to share data for many reasons, primarily national policy. As such it is unfortunately a fact that there exists a gap in AIS coverage provided by IALANET.

Quality of data is a concern and especially how to highlight poor quality data as it potentially can have a fundamental impact on the results of the assessment.

IALANET is currently restricted in use to National Authorities, who have contributed to the database. However, ideally, the data should also be available to all members. A possible opening of the IALANET to other users should be considered during the future development of the service for the purpose of expanding and improving the use of IWRAP and risk management in general.

Review of R0142 did not provide any cause for making changes. The Recommendation basically is short and to the point emphasising the importance of sharing data. However, the recommendation needs to be reformatted into the new IALA template for recommendations.

Action Items:

*The **IALA Secretariat** is requested to reformat Recommendation R0142 On Maritime Data Sharing IALANET into the new IALA format for recommendations.*

11.3 Review G1086 Global Sharing of Maritime Data (June 2012) in collaboration with task 1.2.2 (R0142 review) (Task 1.2.3)

The IALANET will undergo some additional development in near future and therefore any further revision and modification of the Guideline will be postponed until later in the working period in order to accommodate any future changes of the use of IALANET. Despite this, a small task group made a preliminary review of G1086 identifying early needs for revision. The outcome of the review will serve as input to later Committee meetings.

Action Items:

*The **IALA Secretariat** is requested to forward the Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information (ARM10-14.4.8) to ARM11.*

11.4 In cooperation with ENG (task 1.2.1) revise R0138 and G1058 and G1097 on simulation use by AtoN authorities (Task 1.2.4)

The Guideline for simulation G1058 was reviewed by a small task group and suggested modifications were presented and discussed in Group Plenary. Further improvement must be expected once the review of G1018 has been completed, whereas the draft guideline will be forwarded for ARM11 as a working paper.

Further analysis and review of the Guideline G1097 and the Recommendation R0138 will be postponed until the next Committee meeting ARM 11.

Task group: Miyoung Kang, JaeHoon Jeong

Action Items:

*The **IALA Secretariat** requested to forward the input paper ARM10-14.4.9 Recommendation R0138 Ed.1 The Use of GIS and Simulation by Aids to Navigation Authorities as input to ARM11.*

*The **IALA Secretariat** is requested to forward the working paper ARM10-14.4.10 Guideline 1058 Ed.2 Use of Simulations a Tool for Waterway Design and AtoN Planning as input to ARM11.*

*The **IALA Secretariat** is requested to forward the input paper ARM10-14.4.11 Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN-working paper (ENG9-12.10.1) as input to ARM11.*

11.5 Develop Recommendation for marine data sharing for risk assessment analysis or incorporate with R0142 task 1.2.2 (Task 1.2.5)

Task 1.2.5 is considered to be almost identical to Task 1.2.2. Hence, this Task 1.2.5 is closed and the content of the task will be handled under Task 1.2.2.

11.6 Develop document to promulgate IALA risk management tool box to IMO (SN circular) (Task 1.2.7)

Task 1.2.7 will be started when the full review of guideline G1018 together with the supporting toolbox guidelines have been brought to a significant level of maturity (Task 1.2.4).

11.7 Review G1020 Training Related to [Marine] Aids to Navigation (Dec 2005) (Task 3.1.1)

A draft version of the IALA Model Course L1.3 on Risk Management Tool Ed 2 was sent to WWA for final amendment after ARM9. The Model Course has since been approved by Council.

11.8 Review relevant sections of NAVGUIDE as requested by Secretariat (Task 3.2.1)

In conjunction with other working groups, Working Group 3 has been assigned to various sections to be included in the revised NAVGUIDE and commenced early assessment of the requirements. In addition, on completion of the revision of G1018 suggested amendments to the NAVGUIDE text will be provided.

11.9 Cooperate with WWA in providing Risk Seminar(s) (Task 6.1.1)

Coordination and cooperation between the WWA, its lecturers and Working Group 3 is essential for providing guidance to National Members as well as education through the Risk Management Courses provided by WWA.

The WWA Secretariat informed that there is a growing interest for Risk Management Courses around exceeding available resources. The WWA is currently looking into possibilities to respond to the interest.

The Working Group Chair confirmed that Working Group 3 are continuing to fully support, where appropriate, the WWA in delivery of Risk Management Seminars.

12. REVIEW OF OUTPUT AND WORKING PAPERS

The Committee produced 52 output and working documents. Output papers were reviewed and their disposition agreed as indicated in ANNEX E.

13. ANY OTHER BUSINESS

No other business was raised.

14. DATE AND VENUE OF NEXT MEETINGS

The 11th session of the ARM Committee (ARM11) will be held from 9 to 13 March 2020 in Buenos Aires, Argentina.

Committee participants were reminded of the following IALA events:

- IALA Workshop on the future of Marine Radio Beacon DGNSS to be held between the 27 and 31 January 2020 in Edinburgh, United Kingdom.
- IALA Heritage Seminar to be held between the 20 and 24 April 2020 in Salvador, Brazil.
- The combined VTS and ENAV Symposium to be held between the 25 and 29 May 2020 in Rotterdam, the Netherlands. Registration will be open soon via the symposium website - www.iala-rotterdam2020.nl.
- Joint IHO/IALA workshop on S-100/S-200 development and portrayal in June 2020 in Norway.

- IALA Workshop on Cyber Security to be held between the 26 and 30 October 2020 in Quebec, Canada.

Other IALA events will be publicised on the IALA website.

For other IALA related events see the news and calendar sections on the IALA web site.

15. CLOSING OF THE MEETING

The Committee Chair thanked the Vice-Chair, Working Group chairs, and all participants for their hard work and effective output during the session. He thanked the IALA Secretariat for their support.

16. LIST OF ANNEXES

1 Agenda

A copy of the agenda is at ANNEX A.

2 Participants

A list of participants is at ANNEX A.

3 Working Group Participants

A list of working group participants is at ANNEX A.

4 Input Papers

A list of input papers is at ANNEX D.

5 Output and Working papers

A list of output and working papers is at ANNEX E.

6 Action Items

A list of action items is at ANNEX F.



10th Meeting of the AtoN Requirements and Management Committee (ARM)

The 10th meeting of the **ARM Committee** (ARM10) will be held from 14-18 October 2019, at IALA, Saint-Germain-en-Laye, France.

The opening plenary will commence at 1300 on Monday 14 October 2019, and the closing plenary will end at approximately 1300 on Friday 18 October.

Committee Chair, Vice-Chair and Working Group Chairpersons are requested to meet at 0900 on Monday 14 October.

Agenda

1. Introduction
 - 1.1. Administration and Safety Briefing
 - 1.2. Welcome address from the Secretary-General/Deputy Secretary-General
 - 1.3. Approval of agenda
 - 1.4. Apologies and introductions
 - 1.5. Programme for the week
2. Review of action items from last meeting
 - 2.1. Review of action items from ARM9
3. Review of input papers
4. Reports from other bodies
 - 4.1. IALA
 - 4.1.1. IALA Council Minsu Jeon
 - 4.1.2. IALA Policy Advisory Panel Dave Leewald
 - 4.2. IMO Minsu Jeon
 - 4.2.1. IMO Council
 - 4.2.2. IMO MSC
 - 4.2.3. IMO NCSR
 - 4.3. E-Navigation Underway Minsu Jeon/Fred Pot
 - 4.4. IHO/IALA liaison Minsu Jeon
 - 4.5. Heritage Lighthouse Award
5. Reports from rapporteurs
 - 5.1. Working Group 1
 - 5.2. Working Group 2
 - 5.3. Working Group 3
6. Presentations
 - 6.1. Report from WWA Kevin Gregory

- | | | |
|------|--|----------------|
| 6.2. | Integrated Maritime Autonomous Transport systems | Thomas Porathe |
| 6.3. | AtoN distribution during North China Sea freeze-up | Prof Ranxuan |
| 6.4. | Smart Navigation Status & ETA prediction tool | Jin Park |
| 6.5. | Introduction to ARM 11, Buenos Aires, Argentina | Raul Escalante |
7. Work Programme (2018 - 2022)
 8. WG1 - Navigational requirements
 9. WG2 - Information Services and Portrayal
 10. WG3 - Risk management
 11. Any Other Business
 12. Establish Working Groups
 13. Review of output and working papers
 - 13.1. ARM task plan
 - 13.2. WG1
 - 13.3. WG2
 - 13.4. WG3
 14. Review of session report
 15. Upcoming IALA events
 16. Date and venue of next meeting
 17. Close of the meeting

Country	
ARM Chair	Northern Lighthouse Board Captain Phil DAY Scotland e-mail (main): phild@nlb.org.uk
ARM Vice Chair	US Coast Guard Mr Dave LEWALD USA
WG1 Chair	Norwegian Coastal Administration Mr Guttorm TOMREN Norway Phone +47 7023 1150 e-mail (main): guttorm.tomren@kystverket.no
WG1 Vice chair	Korea Research Institute of Ships & Ocean Engineering (KRISO) Dr Jin Hyoung PARK Republic of Korea
WG1 Vice chair	Swedish Maritime Administration Mr Johan WESTERLUND Sweden e-mail (main): johan.westerlund@sjofartsverket.se
WG2 Vice chair	GLA Research and Development (GRAD) Mr Martin BRANSBY UK e-mail (main): Martin.Bransby@gla-rad.org
WG3 Chair	Trinity House Captain Roger BARKER UK e-mail (main): roger.barker@thls.org
WG3 Vice chair	Force Technology Ms. Cathrine STEENBERG Denmark e-mail (main): cms@force.dk
Argentina	Hidrovia S.A. Mr Raul ESCALANTE Argentina e-mail (main): rescalante@gba-hidrovia.com.ar

Australia	Australian Maritime Authority Mr Mahesh ALIMCHANDANI Australia e-mail (main): Mahesh.Alimchandani@amsa.gov.au
Bahrain (Kingdom of)	Middle East Navigation Aids Service (MENAS) Mr Mahdi AL MOSAWI Bahrain (Kingdom of) e-mail (main): mahdi@menas.com.bh
Brazil	Diretoria de Hidrografia e Navegação - Brazilian Navy Mr Alex BABINSCK Brazil e-mail (main): babinsck2000@yahoo.com.br
Cameroon	Autorité Portuaire Nationale Mrs Nadine EPARA Cameroon e-mail (main): nadineepara@yahoo.fr Autorité Portuaire Nationale Ms Marie Christelle FOE AMBANI Cameroon e-mail (main): christellefoe@gmail.com
Canada	Canadian Coast Guard Mr Yves JACQUES Canada e-mail (main): Yves.jacques@dfo-mpo.gc.ca Canadian Coast Guard Ms Natasha MC MAHON Canada Canadian Coast Guard Mr Eivind MONG Canada e-mail (main): eivind.mong@dfo-mpo.gc.ca
Denmark	Danish Maritime Authority Mr Jakob BANG Denmark e-mail (main): cjb@dma.dk Danish Maritime Authority Mr Peter DAM Denmark e-mail (main): ped@dma.dk

	Danish Maritime Authority Mr Michael STRANDBERG Denmark e-mail (main): mst@dma.dk
Finland	Finnish Transport and Communications Agency Mr Valtteri LAINE Finland e-mail (main): valtteri.laine@traficom.fi
	Finnish Transport and Communications Agency Mr Risto LANG Finland e-mail (main): risto.lang@ftia.fi
	Finnish Transport Infrastructure Agency Mr Joonatan AHLROOS Finland e-mail (main): joonatan.ahlroos@ftia.fi
	Finnish Transport Infrastructure Agency Mr Kimmo HEISKARI Finland
France	CEREMA Ms Gaëlle NASSIF France
	Direction des Affaires Maritimes Mr Xavier HERNOË France
Germany	Federal Waterways & Shipping Administration Mr Jörg KUCHTA Germany e-mail (main): joerg.kuchta@wsv.bund.de
	Federal Waterways & Shipping Administration Mr Jan-Hendrik OLTSMANN Germany e-mail (main): jan-hendrik.oltmann@wsv.bund.de
IHO	International Hydrographic Organization (IHO) Mr Anthony PHARAOH Monaco e-mail (main): addt@iho.int
IMPA	International Maritime Pilots' Association (IMPA) Captain Jean-Daniel GILLES France
Japan	Japan Coast Guard

Hidekazu SAKASHITA
Japan
e-mail (main): jcghkokugikaihatsu3-3u5j@mlit.go.jp

Latvia **Latvian Hydrographic Service**
Mr Aigars GAILIS
Latvia

Malaysia **Light Dues Board Peninsular Malaysia, Marine Department**
Mr Mohd Arma Noramin RASHID
Malaysia
e-mail (main): arma@marine.gov.my

Netherlands **Ministry of Infrastructure and Water Management**
Mr Ernst BOLT
Netherlands
e-mail (main): ernst.bolt@rws.nl

Ministry of Infrastructure and Water Management
Mr Peter HOOIJMANS
Netherlands
e-mail (main): peter.hooijmans@rws.nl

Ministry of Infrastructure and Water Management
Ms Laura SNOEP
Netherlands
e-mail (main): laura.snoep@rws.nl

Port of Rotterdam Authority
Mr Martijn EBBEN
Netherlands
e-mail (main): m.ebben@portofrotterdam.com

Norway **Kongsberg Norcontrol AS**
Ms Lene VESTERLUND
Norway
e-mail (main): lene.vesterlund@kongsberg.com

Norwegian Coastal Administration
Mr Jon Leon ERVIK
Norway

Norwegian Coastal Administration
Mr Jarle HAUGE
Norway
e-mail (main): jarle.hauge@kystverket.no

Norwegian Coastal Administration
Prof Thomas PORATHE
Norway
e-mail (main): thomas.porathe@ntnu.no

Norwegian Coastal Administration

Mr Oyvind SCHRODER
Norway

**People's
Republic of
China**

Navigation - Aids Technology Research Center of Jimei University

Dr Prof Ranxuan KE
People's Republic of China
e-mail (main): keranxuan@126.com

Portugal

Direcção de Faróis - Portuguese Lighthouse Authority

LCDR Artur DIAS MARQUES
Portugal
e-mail (main): artur.dias.marques@marinha.pt

Direcção de Faróis - Portuguese Lighthouse Authority

Mr Arlindo SANTOS
Portugal
e-mail (main): arlindo.ferreira.santos@marinha.pt

**Republic of
Korea**

Korea Institute of Aids to Navigation (K-AtoN)

Mr JunKi BAE
Republic of Korea
e-mail (main): whitemind89@katon.or.kr

Korea Institute of Aids to Navigation (K-AtoN)

Mr JaeHoon JEONG
Republic of Korea
e-mail (main): hifriend@kaan.or.kr

Korea Institute of Aids to Navigation (K-AtoN)

Mr YeongJae KIM
Republic of Korea
e-mail (main): mmukyj@korea.kr

Korea Research Institute of Ships & Ocean Engineering (KRISO)

Dr Sewoong OH
Republic of Korea
e-mail (main): osw@kriso.re.kr

Korea Research Institute of Ships & Ocean Engineering (KRISO)

Dr Woo-Seong SHIM
Republic of Korea
e-mail (main): pianows@kriso.re.kr

Korean Register of Shipping

Mr KaeMyoung PARK
Republic of Korea

Korean Register of Shipping

Mr Gumjun SON
Republic of Korea

Korean Register of Shipping

Mr Seongsang YU
Republic of Korea

Ministry of Oceans and Fisheries

Dr Kwang AN
Republic of Korea
e-mail (main): ankwang@mmu.ac.kr

Ministry of Oceans and Fisheries

Mr DaeWoong KANG
Republic of Korea
e-mail (main): onlykdw@korea.kr

Ministry of Oceans and Fisheries

Ms MiYoung KANG
Republic of Korea
e-mail (main): gorae77@korea.kr

Ministry of Oceans and Fisheries

Mr Chi-Kyoung LEE
Republic of Korea
e-mail (main): ndkyoung@korea.kr

Ministry of Oceans and Fisheries

Ms SoYeong LEE
Republic of Korea
e-mail (main): sylee@mmu.ac.kr

Ministry of Oceans and Fisheries

Prof. Yung-Ho YU
Republic of Korea
e-mail (main): yungyu@kmou.ac.kr

The PROST Inc

Mr Gyeongmin JO
Republic of Korea
e-mail (main): gmjo@thepro.net

UST21

Mr Chan hoe HUR
Republic of Korea
e-mail (main): hurch@ust21.co.kr

UST21

Mr Sik SHIN HYUN
Republic of Korea
e-mail (main): shiki02@gmail.com

Russia**Principal Department of Navigation & Oceanography**

Mr Nikolai IAKOVENKO
Russia
e-mail (main): lakovenkonik@mail.ru

	Principal Department of Navigation & Oceanography Mr Evgenii IAROSLAVTSEV Russia e-mail (main): yarik-2009@yandex.ru
Saudi Arabia	Saudi Ports Authority-MAWANI Capt Anas HARIRI Saudi Arabia Saudi Ports Authority-MAWANI Capt Raed MUAR Saudi Arabia
	Scotland Northern Lighthouse Board Mr Peter DOUGLAS Scotland e-mail (main): peterd@nlb.org.uk
South Africa	South African Maritime Safety Authority Mr James COLLOCOTT South Africa e-mail (main): jcollocott@samsa.org.za
Spain	ESSP-SAS Mr Jaime ALVAREZ VELASCO Spain e-mail (main): jaime.alvarez@essp-sas.eu
Sweden	Swedish Maritime Administration Mr Kjell JOHANSSON Sweden Swedish Transport Agency LCDR Mats HÖRSTRÖM Sweden e-mail (main): mats.horstrom@transportstyrelsen.se
UK	Hawkshill Consulting Limited Ms Sarah ROBINSON UK Nash Maritime Ltd Dr Ed ROGERS UK e-mail (main): e.rogers@nashmaritime.com
USA	BM Bergmann-Marine Mr Fred W. POT USA e-mail (main): fred.pot@bergmann-marine.com

National Geospatial Intelligence Agency

Ms LeeAnne GORDON

USA

e-mail (main): LeeAnne.E.Gordon@nga.mil

Tideland Signal Corporation

Mr Alfredo DOMINGUEZ

USA

e-mail (main): alfredod@tidelandsignal.com

US Coast Guard

CDR Justin KIMURA

USA

e-mail (main): justin.a.kimura@uscg.mil

US Coast Guard

Mr Anthony MAFFIA

United States

e-mail (main): anthony.j.maffia@uscg.mil

US Coast Guard

Mr Dave MERRILL

USA

e-mail (main): david.merrill@uscg.mil

Apologies for absence

Name	Organisation	Country/Category of membership
Bill Cairns	American Pilots Association	USA/Associate
Trevor Harris	Trinity House	UK/National

New Participants

Name	Organisation	Country/Category of membership
Valtteri Laine	Finnish Transport & Communication Agency	Finland/Associate
Laura Snoep	Ministry of Infrastructure and the Environment	Netherlands/National
Marie Christelle FOE AMBANI	Autorité Portuaire Nationale	Cameroon
YeongJae KIM	Korea Institute of Aids to Navigation (K-AtoN)	Korea
Anthony MAFFIA	US Coast Guard	USA
Capt Raed MUAR	Saudi Ports Authority-MAWANI	Saudi Arabia

Capt Anas HARIRI	Saudi Ports Authority- MAWANI	Saudi Arabia
Alex BABINSCK	Brazilian Navy	Brazil
Evgenii IAROSLAVTSEV	Principal Department of Navigation & Oceanography	Russia
Nikolai IAKOVENKO	Principal Department of Navigation & Oceanography	Russia

Working Group 1

Navigational Requirements

	Participants	Organisation / Country
1	Guttorm Tomren (Chair)	Norwegian Coastal Administration, Norway
2	Johan Westerlund (Vice Chair)	Johan Westerlund, Sweden
3	Peter Douglas	Northern Lighthouse Board, Scotland
4	Dave Merrill	US Coast Guard, USA
5	Peter Dam	Danish Maritime Administration, Denmark
6	Risto Lang	Finnish Transport and Communications Agency, Finland
7	Joonatan Ahlroos	Finnish Transport Infrastructure Agency, Finland
8	Alex Babinsck	Diretoria de Hidrografia e Navegação - Brazilian Navy
9	Kjell Johansson	Swedish Maritime Administration, Sweden
10	Aigars Gailis	Maritime Administration of Latvia, Latvia
11	Natasha McMahon	Canadian Coast Guard, Canada
12	Yves Jaques	Canadian Coast Guard, Canada
13	DaeWoong Kang	Ministry of Oceans and Fisheries
14	Junki Bae	Korea Institute of Aids to Navigation, Korea
15	Gaelle Nassif	CEREMA, France
16	Mahdi Al-Mosawi	Middle East Navigation Aids Service (MENAS)
17	James Collocott	South African Maritime Safety Authority
18	Laura Snoep	Ministry of Infrastructure and Water Management
19	Anthony Maffia	US Coast Guard
20	Mats Hörström	Swedish Transport Agency
21	Mohammad Arma Noramin Rashid	Light Dues Board Peninsular Malaysia, Marine Department
22	DaeWoong Kang	Ministry of Oceans and Fisheries, Korea
23	Hidekazu Sakashita	Japan Coast Guard
24	Alfredo Dominguez	Tideland Signal Corporation
25	Mahesh Alaimchandani	Australian Maritime Authority
26	Oyvind Schroder	Norwegian Coastal Administration
27	Nikolai Iakovenko	Principal Department of Navigation & Oceanography, Russia
28	Evgenii Iaroslavtsev	Principal Department of Navigation & Oceanography, Russia

29	Anas Hariri	Saudi Ports Authority-MAWANI, Saudi Arabia
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Working Group 2 Information Services and Portrayal

	Name	Organisation / Country
1	Dave Lewald (Chair)	US Coast Guard
2	Martin Bransby (Vice Chair)	GLA Research and Development, UK
3	Leeanne Gordon	National Geospatial Intelligence Agency, USA
4	Anthony Pharaoh	International Hydrographic Organisation
5	Lene Vesterlund	Kongsberg Norcontrol AS, Norway
6	Fred Pot	Marine Management Consulting, USA
7	Kimmo Heiskari	Finnish Transport Infrastructure Agency, Finland
8	Michael Strandberg	Danish Maritime Authority, Denmark
9	Jan-Hendrik Oltmann	Federal Waterways & Shipping Administration, Germany
10	Sewoong Oh	Korea Research Institute of Ships & Ocean Engineering, Republic of Korea
11	Eivind Mong	Canadian Coast Guard, Canada
12	Jon Leon Ervik	Norwegian Coastal Administration, Norway
13	Minsu Jeon	IALA secretariat
14	Martijn Ebben	Port of Rotterdam Authority
15	Jean-Daniel Gilles	International Maritime Pilots' Association
16	Peter Hooijmans	Netherlands Ministry of Infrastructure and Water Management
17	Jarle Hauge	Norwegian Coastal Administration, Norway
18	Jaime Alvarez Velasco	European Satellite Services Provider

Working Group 3 Risk Management

	Name	Organisation / Country
1	Roger Barker (Chair)	Trinity House
2	Cathrine Steenberg (Vice Chair)	Force Technology
3	Xavier Hernoë	Direction Affaires Maritimes, France
4	Ranxuan Ke	Navigation – Aids to Navigation Research, People's Republic of China
5	Valtteri Laine	Finnish Transport and Communication
6	Sarah Robinson	Hawkshill Consulting Limited

7	Jakob Bang	Danish Maritime Authority, Denmark
8	Ernst Bolt	Ministry of Infrastructure and Water Management, Netherlands
9	Jaehoon Jeong	Korean Institute of Aids to Navigation, Republic of Korea
10	Kang MiYoung	Ministry of Oceans and fisheries, Republic of Korea
11	Woo-Seong Shim	Korea Research Institute of Ships & Ocean Engineering (KRISO)
12	Justin Kimura	U.S. Coast Guard – Office of Navigation Systems
13	Edward Rogers	Nash Maritime Ltd.
14	Artur Marques	Direção de Faróis, Portugal
15	Arlindo Santos	Direção de Faróis, Portugal
16	Thomas Porathe	Norwegian University on Science and Technology, Norway
17	Jörg Kuchta	Federal Waterways & Shipping Administration
18	Raul Escalante	Hidrovia S.A., Argentina

ANNEX D LIST OF INPUT PAPERS

All papers are posted on the Committee section of the IALA website

Meeting	Agenda Item	Input Paper Title	Source	Presented by / WG
ARM10-	1.3.1	Provisional Agenda	IALA Secretariat	Plenary
ARM10-	2.1.1	Action items from ARM9	IALA Secretariat	Plenary
ARM10-	2.1.2	Report 9th Session IALA ARM Committee	IALA Secretariat	Plenary
ARM10-	3.1	Liaison to ARM and VTS - Maritime Services in the context of e-Navigation (ENAV23-12.1.3)	ENAV23	WG2
ARM10-	3.1.1	A lay-persons description of e-Navigation (ENAV23-12.1.4)	ENAV23	WG2
ARM10-	3.2	Liaison Note to ARM - Maritime Resource Names (MRN) (ENAV23-12.1.5)	ENAV23	WG2
ARM10-	3.2.1	IHO Level Guidance on how to manage the IHO Maritime Resource Names (MRN) (ENAV23-12.1.5.1)	ENAV23	WG2
ARM10-	3.3	Liaison Note to ARM and VTS on R-Mode (ENAV23-12.1.13)	ENAV23	WG2
ARM10-	3.3.1	R-Mode Stakeholder Requirements (ENAV23-12.1.15)	ENAV23	WG2
ARM10-	3.4	IALA Workshop on Cyber Security	IALA Secretariat	Plenary
ARM10-	3.5	Discussion of S-125 development	KRISO	WG2
ARM10-	3.6	MRN guideline for AtoN Domain	KRISO	WG2
ARM10-	3.7	S-201 Test bed Project of ROK	KRISO	WG2
ARM10-	3.8	Update of S-201 AtoN Product Specification	KRISO	WG2
ARM10-	3.9	Marking of Breakwaters - by Korea and Australia	AMSA and Republic of Korea	WG1
ARM10-	3.10	Providing Standardized Real-time Hydrological and Meteorological Information In Port Waters	MSA China	WG1
ARM10-	3.11	Practice on ATON distribution during freeze-up in the north China Sea	MSA China	WG1
ARM10-	3.12	Liaison Note from VTS47 on IALA Cyber Security Workshop	VTS47	
ARM10-	3.13	Liaison Note to ARM Marking of Mooring Buoys pp	ENG10	WG1
ARM10-	3.14	Liaison Note to ARM Port Traffic Signals pp	ENG10	WG1
ARM10-	3.15	Liaison Note to All Committees on Tidal Display Signal System pp	ENG10	WG1

ARM10-	3.15.1	Annex 1 - Draft Guideline on Tidal Current Signal System	ENG10	WG1
ARM10-	3.16	Liaison Note to ARM on Heritage Nominations PP	ENG10	Plenary
ARM10-	3.17	Liaison Note to ARM on Proposal on Auto Releasing Wreck Marking Buoy	ENG10	WG1
ARM10-	3.17.1	Liaison Note to ARM on Proposal on Auto Releasing Wreck Marking Buoy	ENG10	WG1
ARM10-	3.18	Introduction to SMART-Navigation Services_1.0	Jin Hyoung PARK (KRISO)	WG2
ARM10-	3.19	Liaison Note to ARM on a statement from ITU to IALA on Assignment and use of identities in the maritime mobile service for AMRD Group B	ENAV24	WG2
ARM10-	3.19.1	Working document towards a preliminary draft revision of Annex 2 of Recommendation ITU-R M.585-7	ENAV24	WG2
ARM10-	3.19.2	ARM10-3.19.2 ITU Liaison Statement to IALA on the revision of Recommendation ITU-R M.585-7	ENAV24	WG2
ARM10-	3.20	Liaison Note to ARM on statement from IALA to ITU on working document towards a preliminary draft revision of Rec ITU-R M.1371-5	ENAV24	WG2
ARM10-	3.20.1	Liaison Statement to ITU on working document towards a preliminary draft revision of Recommendation ITU-R M.1371	ENAV24	WG2
ARM10-	4.2.1	Report Council 69 Final	IALA Secretariat	Plenary
ARM10-	2.2.2	IALA report on MSC101	IALA Secretariat	Plenary
ARM10-	7.1	Committee Work Programme for 2018-2022	IALA Secretariat	Plenary
ARM10-	7.2	ARM Task Plan	ARM9	Plenary
ARM10-	8.1	WP MBS Review gap analysis initial (ARM9-12.2.9)	ARM9	WG1
ARM10-	8.2	WP 1078 - The use of AtoN in the design of fairways (ARM9-12.2.10)	ARM9	WG1
ARM10-	8.3	WP Draft Guideline G1081-Ed.1.1 Provision of Virtual Aids to Navigation May2013 (ex ARM9-12.2.10bis)	ARM9	WG1
ARM10-	8.4	WP Draft IALA Guideline on MAtoN (ARM9-12.2.11)	ARM9	WG1
ARM10-	8.5	WP NCA Input paper proposal MAtoN symbol (ARM9-12.2.13)	ARM9	WG1
ARM10-	8.6	WP RPT-02-MB-19 Mobile AtoN light character trial report v1.0 (ARM9-12.2.14)	ARM9	WG1
ARM10-	8.7	WP DRAFT-1116-Ed.1-Selection-of-Rhythmic-Characters-and-Synchronisation-of-AtoN (ARM9-12.2.15)	ARM9	WG1
ARM10-	9.1	WP - Draft Guidelines on Maritime Services (ARM9-12.2.16)	ARM9	WG2

ARM10-	9.2	WP- Ship Reporting TG Summary of ARM9 Discussions v1.3 (ARM9-12.2.17)	ARM9	WG2
ARM10-	9.3	WP Draft S-201 Annex C - Implementation guide (ARM9-12.2.24)	ARM9	WG2
ARM10-	10.1	WP IALA Guideline RiskManagement 1018 (ARM9-12.2.18)	ARM9	WG3
ARM10-	10.2	WP Guideline 1123 Ed1 The use of IWRAP MKII-June 2017 (ARM9-12.2.19)	ARM9	WG3
ARM10-	10.3	WP Guideline 1124 Ed1 The use of PAWSA MKII June 2017 (ARM9-12.2.20)	ARM9	WG3
ARM10-	10.4	WP Guideline 1138 Ed.1 The use of SIRA Dec2017 (ARM9-12.2.21)	ARM9	WG3
ARM10-	10.5	WP Recommendation RO138 (O-138) Ed1 Use of GIS and Simulation by AtoN Authorities Dec 2007 (ARM9-12.2.22)	ARM9	WG3
ARM10-	10.6	WP Guideline G1058 Ed.2 (ARM9-12.2.23)	ARM9	WG3
ARM10-	10.7	WP Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN-working (ARM9-3.9.1)	ARM9	WG3

Output documents are submitted for review/action by a body other than the Committee initiating the document. Working Papers are documents that will remain within the committee for further review.

Meeting	Agenda Item	Output Paper Title	Source	Action
ARM10-	13.1.1	Revised Task Plan	Chair	ARM11
ARM10-	13.1.2	Revised ARM ToR	Chair	PAP / IALA Secretariat
ARM10-	13.2.1	Liaison Note to ENG regarding Aton Provision in Cold Climates	WG1	ENG
ARM10-	13.2.2	Liaison Note to CMSA regarding AtoN Provision in Cold Climates	WG1	Council and then CMSA
ARM10-	13.2.3	Liaison Note to ENG regarding Self Deploying Wreck Marker	WG1	ENG
ARM10-	13.2.4	Liaison Note to CMSA regarding Met and Hydro Monitoring in Port Waters	WG1	Council and then CMSA
ARM10-	13.2.5	WP New Guideline on the Use of MAtoN	WG1	ARM11
ARM10-	13.2.6	WP Guideline 1052 Quality Management in MAtoN Service Delivery (revision)	WG1	ARM11
ARM10-	13.2.7	WP Liaison Note to All Committees on Tidal Display Signal System	WG1	ARM11
ARM10-	13.2.7.1	WP Annex 1 - Draft Guideline on Tidal Current Signal System	WG1	ARM11
ARM10-	13.2.8	WP R1001 Ed1 The IALA Maritime Buoyage System_XXX (1)	WG1	ARM11
ARM10-	13.2.8.1	WP _WG1_Task Team_MBS_V3	WG1	ARM11
ARM10-	13.2.8.2	WP MBS Review gap analysis initial	WG1	ARM11
ARM10-	13.2.9	WP 1078 - The use of AtoN in the design of fairways	WG1	ARM11
ARM10-	13.2.10	WP Draft Guideline for the Use of Mobile AtoN	WG1	ARM11
ARM10-	13.2.11	WP WG1 Marking of man made offshore structure	WG1	ARM11
ARM10-	13.2.12	WP 1116-Ed.1-Selection-of-Rhythmic-Characters-and-Synchronisation-of-Lights-for-AtoN_December-2016	WG1	ARM11
ARM10-	13.2.13	WP 1052-Ed.3-Quality-Management-Systems-for-Aids-to-Navigation-Service-Delivery_Dec2013	WG1	ARM11
ARM10-	13.2.14	WP Annex 1 IMSAS - IHO-IALA GD20191016	WG1	ARM11
ARM10-	13.2.15	WP Draft Guideline G1081-Ed.1.1 Provision of Virtual Aids to Navigation May2013	WG1	ARM11
ARM10	13.3.1	S-201 1.0.0 overview	WG2	IALA Secretariat

ARM10	13.3.1.1	S-201 Product Specification - 1.0.0 October 2019 - main document.docx	WG2	IALA Secretariat
ARM10	13.3.1.2	S-201 DCEG - Annex A.doc	WG2	IALA Secretariat
ARM10	13.3.1.3	S-201 Data Product Format Schemas - Annex B1.zip	WG2	IALA Secretariat
ARM10	13.3.1.4	S-201 Data Product Format Schemas Document-Annex B2.docx	WG2	IALA Secretariat
ARM10	13.3.1.5	S-201 Implementation guideline - Annex C.docx	WG2	IALA Secretariat
ARM10	13.3.1.6	S-201 Feature Catalogue - Annex D1.docx	WG2	IALA Secretariat
ARM10	13.3.1.7	S-201 Feature Catalogue - Annex D2.xml	WG2	IALA Secretariat
ARM10	13.3.1.8	S-201 Portrayal Catalogue - Annex E.zip	WG2	IALA Secretariat
ARM10	13.3.1.9	S-201 Conversion guideline - Annex F.docx	WG2	IALA Secretariat
ARM10	13.3.1.10	S-201 Data Validation tests - Annex G.docx	WG2	IALA Secretariat
ARM10	13.3.2	Liaison Note to PAP on the Cyber Security Workshop	WG2	PAP
ARM10	13.3.3	Liaison Note to Cyber Security Workshop Steering Committee	WG2	All Committees
ARM10	13.3.4	Liaison Note to ENAV regarding MRN	WG2	ENAV
ARM10	13.3.5	WP ARM Maritime Service Guideline development V1.0	WG2	ARM11
ARM10	13.3.6	WP Draft Guideline on producing an e-Navigation Operational Service Description	WG2	ARM11
ARM10	13.3.7	WP DRAFT_1143 Ed.2 Unique Identifiers for Maritime Resources_EMLG edits	WG2	ARM11
ARM10	13.3.8	WP MRN GuidelineTrackingSheet	WG2	ARM11
ARM10	13.3.9	WP SRTG ARM10 Report v1.6	WG2	ARM11
ARM10	13.4.1	WP Guideline_1018_RiskMan_work	WG3	ARM11
ARM10	13.4.2	WP Guideline 1123 Ed1 The use of IWRAP MKII- June 2017 (ARM9-12.2.19)-1	WG3	ARM11
ARM10	13.4.3	WP Guideline 1124 Ed1 The use of PAWSA MKII June 2017 (ARM9-12.2.20)WorkingfromARM10	WG3	ARM11
ARM10	13.4.4	WP PAWSA Work Group Summary 14-18 October	WG3	ARM11
ARM10	13.4.5	WP Guideline 1138 Ed.1 The use of SIRA Dec2017 (ARM9-12.2.21)	WG3	ARM11
ARM10	13.4.6	WP IALA_SIRA_Recommendations	WG3	ARM11

ARM10	13.4.7	WP IMO_FSA_IALAToolBox_Schematic	WG3	ARM11
ARM10	13.4.8	WP 1086 Ed1 Global Sharing of Maritime Data_22Jun2012	WG3	ARM11
ARM10	13.4.9	WP Recommendation RO138 (O-138) Ed1 Use of GIS and Simulation by AtoN Authorities Dec 2007 (ARM9-12.2.22)	WG3	ARM11
ARM10	13.4.10	WP Guideline G1058 Ed.2 (ARM9-12.2.23)_working_17oct2019	WG3	ARM11
ARM10	13.4.11	WP Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN-working (ARM9-3.9.1)	WG3	ARM11
ARM10	14.1	ARM10 Report	Secretariat	Council

ANNEX F ACTION ITEMS

Action Items for Secretariat

1. The **IALA Secretariat** is requested to forward the ARM Committee Task Plan for 2018-2022, ARM10-13.1.1, to ARM10. 9
2. The **IALA Secretariat** is requested to forward ARM10 13.2.3 to ENG in response to the input document 'Proposal on Auto Releasing New Danger Marking Buoy' (ARM10-3.17.1). 9
3. The **IALA Secretariat** is requested to forward the Liaison Note (ARM10-13.2.4) in response to the input document 'Providing Standardized Real-time Hydrological and Meteorological Information in Port Waters' (ARM10-3.10) to Council for approval and, following approval, to the China MSA. 10
4. The **IALA Secretariat** is requested to forward the Liaison Note (ARM10-13.2.2) on Practice on AtoN distribution during freeze-up in the north China Sea to Council for approval and, following approval, to the China MSA. 10
5. The **IALA Secretariat** is requested to forward the Liaison Note (ARM10-13.2.1) on AtoN provision in Cold Climates to the ENG committee. 10
6. The **IALA Secretariat** is requested to forward papers ARM10-13.2.7 and ARM10-13.2.7.1 on tidal current signal systems to ARM11 as input. 10
7. The **IALA Secretariat** is requested to forward working papers ARM10-13.2.8, ARM10-13.2.8.1 and ARM10-13.2.8.2 on the review of the IALA MBS incorporating MAtoN to ARM11. 11
8. The **IALA Secretariat** is requested to forward Guideline 1078 on the use of AtoN in the design of fairways (ARM10-13.2.9) as a working paper to ARM11. 11
9. The **IALA Secretariat** is requested to forward the draft guideline on the use of Mobile AtoN (ARM10-13.2.10) to ARM11 as a working paper. 11
10. The **IALA Secretariat** is requested to forward the draft Recommendation R0139 on marking of man made offshore structures (ARM10-13.2.11) to ARM11 as working paper. 11
11. The **IALA Secretariat** is requested to forward the working paper on draft Recommendation R0143 and Guideline 1081 on Virtual AtoN (ARM8-12.2.10) to ARM11. 12
12. The **IALA Secretariat** is requested to forward the draft Guideline G1116 on the selection of rhythmic characters and synchronization of lights for marine aids to navigation to ARM10-13.2.12 to ARM11 for further work in conjunction with work on MAtoN. 12
13. The **IALA Secretariat** is requested to forward the draft Guideline G1052 on quality management in aids to navigation service delivery (ARM10-13.2.13) to ARM11 as a working paper. 12
14. The **IALA Secretariat** is requested to forward the working paper on the draft annex to the IMO IMSAS Manual (ARM10-13.2.14) to ARM11. 12
15. The **IALA Secretariat** is requested to forward the liaison note on cyber security (ARM10-13.3.3) to the IALA Cyber Security Workshop Steering Committee. 13
16. The **IALA Secretariat** is requested to forward the liaison note on cyber security (ARM10-13.3.2) to the PAP. 13
17. The **IALA Secretariat** is requested to forward the paper on the development of Maritime Services (ARM10-13.3.5) to ARM11 as a working document. 15
18. The **IALA Secretariat** is requested to action the S-201 Product Specification (ARM10-13.3.1) as it deems appropriate. 15
19. The **IALA Secretariat** is requested to forward the Liaison Note on the revision of Guideline 1043 and Maritime Resource Names (ARM10-13.3.4) to the ENAV Committee. 16
20. The **IALA Secretariat** is requested to forward the MRN Guideline tracking sheet (ARM10-13.3.8) to ARM11 for further work. 16

21. The **IALA Secretariat** is requested to forward the draft G1143 edition 2 (ARM10-13.3.7) to ARM11 as a working paper. 16
22. The **IALA Secretariat** is requested to advise the Chair of the ENAV Committee that it can expect a very late document on the subject of MRN to ENAV25 from ARM11. 16
23. The **IALA Secretariat** is requested to withdraw G1072 on AtoN Information Exchange and Presentation. 17
24. The **IALA Secretariat** is requested to change the title of task 5.2.2 to “Develop Guideline on Ship Reporting from the shore-side perspective.” 17
25. The **IALA Secretariat** is requested to forward the sub group report on ship reporting from the shore-side perspective as a working paper (ARM10-13.3.9) to ARM11. 17
26. The **IALA Secretariat** consolidate all documents relating to the cyber security workshop from all committees and forward them as input to the cyber security workshop steering committee. 18
27. The **IALA Secretariat** is requested to add text to the expected output of task 5.1.1 to include producing guidance on “producing an e-Navigation Operational Service Description”. 18
28. The **IALA Secretariat** is requested to forward draft guideline on producing an e-Navigation Operational Service Description (ARM10-13.3.6) as a working paper to ARM11. 18
29. The **IALA Secretariat** is requested to bring the section of the ARM10 report on ‘a laypersons guide to e-Navigation’ to the attention of the ENAV Committee. 18
30. The **IALA Secretariat** is requested to accept the ENAV changes in the input documents related to Autonomous Maritime Radio Devices (ARM10-3.19.1, ARM10-3.19.2 and ARM10-3.20.1) and forward them to Council for approval, and following approval, to the ITU as appropriate. 19
31. The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.1 Guideline 1018 Ed.4 Risk Management as input to ARM11. 20
32. The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.2 Guideline 1123 Ed.1 The use of IWRAP MkII as input to ARM11. 20
33. The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.3 Guideline 1124 Ed.1 The use of PAWSA MkII as input to ARM11. 20
34. The **IALA Secretariat** is requested to forward the working paper “PAWSA Work Group Summary 14-18 October” (ARM10-13.4.4) as input to ARM11. 20
35. The **IALA Secretariat** is requested to forward the working paper ARM10-13.4.5 Guideline 1138 Ed.1 The use of SIRA as input to ARM11. 20
36. The **IALA Secretariat** is requested to forward the working paper “IALA SIRA Recommendations” ARM10-13.4.6 as input to ARM11. 20
37. The **IALA Secretariat** is requested to forward the working paper “IMO FSA IALATool Box Schematic” (ARM10-13.4.7) as input to ARM11. 20
38. The **IALA Secretariat** is requested to reformat Recommendation R0142 On Maritime Data Sharing IALANET into the new IALA format for recommendations. 21
39. The **IALA Secretariat** is requested to forward the Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information (ARM10-14.4.8) as input to ARM11. 21
40. The **IALA Secretariat** requested to forward the input paper ARM10-14.4.9 Recommendation R0138 Ed.1 The Use of GIS and Simulation by Aids to Navigation Authorities as input to ARM11. 21
41. The **IALA Secretariat** is requested to forward the working paper ARM10-14.4.10 Guideline 1058 Ed.2 Use of Simulations a Tool for Waterway Design and AtoN Planning as input to ARM11. 21
42. The **IALA Secretariat** is requested to forward the input paper ARM10-14.4.11 Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation af AtoN-working paper (ENG9-12.10.1) as input to ARM11. 21

Action Items for Participants

43. That **XXXX** are requested to work intersessionally to progress the work on guideline for the Use of Mobile AtoN (Task 1.5.10). **Error! Bookmark not defined.**
44. That **Committee Participants** are invited to submit examples of cyber security systems development and incidents to ARM11, or to Martijn Ebben. 13
45. The **Chair of Working Group 2** is requested to invite the Secretary-General of the Maritime Connectivity Platform Consortium to ARM11. 13
46. That **Committee participants** are requested to submit updates on the development of S-201 to Sewoong Oh for ARM11. 16
47. That **Committee participants** are invited to contribute to a concept on future IALA documents regarding portrayal and symbology. 17



10, rue des Gaudines – 78100 Saint Germain en Laye, France
Tel. +33 (0) 1 34 51 70 01 – Fax +33 (0) 1 34 51 82 05 – contact@iala-aism.org
www.iala-aism.org

International Association of Marine Aids to Navigation and Lighthouse Authorities
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