

**Report of the 11th Meeting of the e-Navigation Committee**

**26 – 30 March, 2012**

**Executive Summary**

* 98 members, from 25 countries and 2 sister organisations, attended this meeting of the e-NAV Committee, of which 13 members were new and one was an observer;
* The Committee considered 72 input papers;
* 19 Output papers included:
  + Liaison Note to ANM and EEP on AtoN Information – draft Product Specification;
  + Liaison Note to VTS35 on the IVEF Product Specification;
  + 4 papers dealing with the IHO S-100 GI Registry;
  + 3 Liaison Notes to ITU-R WP5B;
  + A Liaison Note to IEC;
  + A Liaison Note to IHO;
  + A draft Guideline on Procedures for the Management of the IALA Domains under the IHO Registry;
  + Suggested revisions to the draft Guideline on the Global Sharing of Maritime Data;
  + A Liaison Note to EEP18 on WWA AtoN Training;
  + 2 draft Information Papers to IMO.
* Some concern was raised about the progress made with e-Navigation at COMSAR16;
* Consideration is being given to merging Working Groups 3 (AIS) and 4 (Communications);
* With the departure of the Chairman and Vice Chairman of Working Group 6 (Portrayal) the group will be subsumed into Working Group 1 (Operations);
* Task 32 (Manage the IALA Domain in the IHO Registry) has been allocated to Working Group 5 (Architecture);
* Changes were proposed to the Committee’s Work programme; one changed Task description (Task 14, see Annex G);
* An inter-sessional meeting is planned between the AIS and Communications WGs (paragraph 10.6).

Table of Contents

Table of Contents 2

Report of the 11th Session of the IALA e-NAV Committee 5

General 5

1 Agenda 5

2 Review of Action Items from e-NAV10 5

3 Review of input papers & inter-sessional Working Group reports 6

4 Reports from other bodies 6

4.1 IALA Council 52nd session 6

4.2 Report of PAP22 7

4.3 Report of COMSAR16 7

5 Presentations 7

5.1.1 e-Navigation – a vision & its practical implementation? 7

5.1.2 Proposed shipboard architecture 8

5.1.3 Brief on the IALA World-Wide Academy (WWA) 8

5.1.4 S-100 / Data modelling 9

5.1.5 Testbed Portal 9

6 Establish Working Groups 9

7 Working Group 1 – Operations 10

7.1 Monitor and co-ordinate input on Strategy & Operations to the IMO process (Task1\*) 10

7.1.1 Report of the IMO Correspondence Group on e-Navigation 10

7.1.2 Comment on the regulatory approach to e-navigation 10

7.1.3 Usability 10

7.1.4 Introduction to IHO’s Registry 10

7.1.5 IALA submission to IMO NAV 58 11

7.2 Review and update IALA Strategy for e-Navigation (Task 2\*) 11

7.3 Maintain and update user requirements (in co-ordination with the VTS Committee) (Task 3\*) 12

7.4 Monitor developments in navigation for polar regions (Task 4\*) 12

7.5 Update Frequently Asked Questions 12

7.6 Update the IALA NAVGUIDE 12

8 Working Group 2 – PNT (WG2) 12

8.1 Review and update the World Wide Radio Navigation Plan (Task 5\*) 12

8.2 Prepare Recommendations and Guidelines on PNT systems and radar AtoN (Task 6\*) 13

8.3 Co-ordinate input to IMO, ITU and IEC on PNT systems (Task 7\*) 13

8.4 Prepare a Guideline on establishment and operation of navigation systems in polar regions (Task 8\*) 13

8.5 Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems (Task 9\*) 13

8.6 Prepare a Guideline on recommended measures for disaster recovery (Task 10\*) 13

8.7 Monitor developments in radar technology and their effect on racons (Task 11\*) 13

8.8 Additional Items 14

9 Working Group 3 – AIS (WG3) 14

9.1 Review and update documentation on AIS (M.1371; A-124, A-126) (Task 12\*) 14

9.2 Co-ordinate input to IMO, ITU, and IEC on AIS (Task 13\*) 14

9.3 Monitor and contribute to development of AIS, including the next generation of AIS (Task 14\*) 15

9.4 Monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS, and terrestrial long range AIS (Task 15\*) 15

9.5 Monitor developments in GMDSS and LRIT (Task 21\*) 15

10 Working Group 4 – Communications (WG4) 15

10.1 Review and update IALA Maritime Radio Communications Plan (Task 17\*) 15

10.2 Prepare Recommendations and Guidelines on communications (Task 18\*) 16

10.3 Co-ordinate input to ITU, IMO, and IEC on communications (Task 19\*) 16

10.4 Prepare a Guideline on the establishment and operation of communications systems in polar regions (Task 20\*) 16

10.5 Monitor developments in GMDSS and LRIT (Task 21\*) 17

10.6 Work Plan 17

11 Working Group 5 – Technical Architecture (WG5) 17

11.1 Develop and maintain shore-based e-Navigation architecture (Task 22\*) 17

11.2 Prepare Recommendations and Guidelines on e-Navigation architecture (Task 23\*) 17

11.3 Co-ordinate input to IMO, IHO, ISO, IEC, and CIRM on e-Navigation architecture (Task 24\*) 17

11.3.1 Finalize shipboard architecture functional requirements as seen from ashore 17

11.3.2 Set-up of an initial CMDS domains map as potential input for the upcoming IMO/IHO Harmonisation Group on Data Modelling (HGDM) 18

11.4 Manage the IALA domains, according to IHO Standards S-100 & S-99 (Task 32\*) 18

11.4.1 Finalization of “Draft IALA Guidelines on Procedures for the Management of the IALA Domains under the IHO Registry” 18

11.5 Summary list of Working Papers of WG5 (Tasks 22-24, 32\*) 19

12 Working Group 6 – Information Portrayal (WG6) 19

12.1 Prepare Recommendations and Guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) (Task 25\*) 19

12.2 Prepare Guidelines on the portrayal of information (Task 26\*) 19

12.2.1 Draft Recommendations and Guidelines for the Portrayal of e-Navigation Information was the primary task for WG6 during e-NAV11. 19

12.2.2 Review of IALA Recommendation V-125 20

12.2.3 Compilation of e-Navigation Portrayal Examples 20

12.3 Monitor developments in ECDIS, INS, and ENCs (Task 27\*) 20

12.4 Other Matters 21

12.4.1 AIS AtoN 21

12.4.2 Input to IALA submission to NAV58 21

12.4.3 SAR Search Areas 21

12.4.4 Inter-sessional Meetings 21

13 Monitor and report progress on related systems (Task 28\*) 21

14 Liaise with other IALA Committees and other bodies (Task 29\*) 21

14.1 NAVGUIDE 2014 21

15 Prepare a combined IALA e-Navigation Plan (all Committees) (Task 30\*) 21

16 Consider the regulatory process for e-Navigation and recommend the best approach (Task 31\*) 21

17 Manage the IALA Domain, according to IHO Standards S-100 & S99 (Task 32\*) 21

18 Future Work Programme (2014 – 2018) 22

19 Review of output and working papers 23

20 Any Other Business 23

20.1 Terms of Reference of WG 23

20.2 Testbed Guidance 23

20.3 Draft Guideline on the Global Sharing of Maritime Data (GSMD) 23

21 Review of session report 23

22 Date and venue of next meeting 24

23 Closing of the meeting 24

24 List of Annexes to the report 24

ANNEX A Agenda 25

ANNEX B LIST OF Participants 28

ANNEX C WORKING GROUP PARTICIPANTS 64

ANNEX D LIST OF INPUT PAPERS 70

ANNEX E LIST OF OUTPUT AND WORKING PAPERS 78

ANNEX F ACTION ITEMS 81

ANNEX G REVISion of the WORK PROGRAMME 84



|  |  |
| --- | --- |
| e-NAV Committee  11th Session | 30 March, 2012 |

Report of the 11th Session of the IALA e-NAV Committee

# General

The 11th meeting of the **e-Navigation Committee** was held from 26 – 30 March, 2012 at IALA, with Bill Cairns as Chairman and Nick Ward as Vice-Chairman. The Secretary for the meeting was Mike Hadley.

Apologies were received from:

|  |  |  |
| --- | --- | --- |
| **Name** | **Organisation** | **Country** |
| David Blevins | Sperry-Marine | USA |
| Raphael Malyankar | Jeppesen | Norway |
| Jens Erik Lolck | Terma AS | Denmark |
| Anders Rydlinger | Transas Marine International | Sweden |
| Roy Stanbrook | IHMA |  |
| Takamasa Yauchi | Oki Consulting | Japan |

**Opening**

Bill Cairns welcomed both newcomers and those returning to IALA and then introduced the Secretary-General, who added his welcome to everyone at the meeting. He remarked that e-Navigation was a ‘hot topic’ at IALA, which was going to have a busy end to the year, including the VTS 2012 Symposium in Istanbul in September. He gave a brief update on the development of the IALA Wold-Wide Academy (WWA), saying that much had happened since e-NAV10. He noted that 98 members had registered for the meeting and, ahead of the week’s work, thanked the meeting for all the hard work that he knew would be done.

The Chairman thanked the Secretary-General and then reviewed the outline programme for the week.

The Secretary then drew attention to the Safety and Administrative brief included in the 1st posting for the meeting and then mentioned some additional items.

# Agenda

The draft agenda (e-NAV11/1/1rev5) was adopted.

# Review of Action Items from e-NAV10

It was noted that the action items from e-NAV10, for the IALA Secretariat, were complete.

For members’ actions, the following comments were made:

Overall, most items were considered complete, recognising that further work was planned during e-NAV11.

**Action 39** - Victor Placido da Conceicao is requested to provide an input paper on disaster recovery to e-NAV11 remains open.

Action Item

Committee members are requested to provide an input paper on disaster recovery to e-NAV12.

**Action 42** - Committee members from Canada and Norway are requested to submit a report on e-navigation issues for Polar Regions to the next session (e-NAV11, March 2012) of the e-Navigation Committee.

It was pointed out that this action was also meant to cover the setting up of a testbed and it was reported that one is being set up to cover the Marine Electronic Highway (MEH) and that it would be operational in April, with results expected to be available for e-NAV12.

Action item

Committee members from Canada and Norway are requested to submit a report on e-navigation issues for Polar Regions to e-NAV12.

Committee members from Norway are requested to submit a report on the results of the MEH testbed to e-NAV12.

It was noted that **actions 43 – 45** had been entered into the report of e-NAV10 in error.

**Action 53** - Members are requested to provide input on the future Work Programme to e-NAV11.

It was noted that the Council has requested that this item be completed by October 2012, which means during e-NAV12.

See item 18.

# Review of input papers & inter-sessional Working Group reports

The Chairman asked the Chairs of Working Groups (WG) to report the activities of their groups, including inter-sessional meetings. Agreement was reached on which WGs papers would be sent to and which WG would take the lead, where a response was required. WG Chairmen also outlined their expectations for the meeting.

# Reports from other bodies

## IALA Council 52nd session

The report (e-NAV11/4/1) was noted, in particular, the:

* Request to provide both strategy and work items for the 2014 – 2018 Work Programme by October 2012;
* The Council did not view with great concern the potential problems facing e-Navigation;
* The need for IALA to focus on the shore based side of e-Navigation;
* The cautionary note about polar routes;
* The comments about the various submitted documents;
* The support for IALA to become a domain owner and submitting organisation under the IHO Registry;
* The comment that the ANM Committee may take over operational aspects of e-Navigation.

## Report of PAP22

The Committee noted the report (e-NAV11/4/2). Specifically:

* the request to use the IALA Dictionary and to help maintain it;
* the suggestion that all Committees should have the IALA Dictionary as a standing agenda item;
* the request to consider whether any e-Navigation questions could be added to the Annual Questionnaire;
* the information required to be provided when requesting a ‘face to face’ inter-sessional meeting;
* the indication, on the part of ANM, for close co-operation with the e-NAV Committee;
* that all Committees ought to be involved in performing an inventory of existing navigation and communication systems in the polar regions;
* the comments made about e-Navigation across all Committees;
* the appointing of Stuart Ruttle as a technical reviewer of documents being submitted to Council.

The Chairman remarked that a high quality reviewer called for high quality output from the Committee.

## Report of COMSAR16

The report (e-NAV11/4/3) was noted. The imbalance between the time allocated to LRIT and e-Navigation in the Working Group was cause for considerable comment and it was noted that some Member States were considering what to do in view of the meeting’s outcome. It was also commented that the lack of progress with e-Navigation may jeopardise the timetable of planned IALA work.

# Presentations

5 presentations were made during the meeting, three during the opening plenary and one at the beginning of the Thursday afternoon plenary. They were:

* e-Navigation – a vision & its practical implementation?
* Proposed shipboard architecture
* Brief on the WWA (p.m. 29th)
* S-100 / Data modelling
* Testbed portal

The presentations form part of the output from the meeting.

### e-Navigation – a vision & its practical implementation?

The presentation was made by Andy Norris and was based on one made to the e-Navigation Underway conference, earlier in the year.

The presentation began with the author’s view of what constituted e-Navigation. It then showed a possible on board e-Navigation structure, introducing the idea of e-Navigation workstations and stating that workstation based bridges would necessarily affect bridge practices. It was then suggested that there could be three levels of applications, before suggesting a possible implementation plan.

In discussion, it was suggested that the thrust of the presentation would be adaptable to an e-Navigation concept of operations. It was also suggested that the ship and shore development should not be viewed separately but be merged. The common interface was accepted but it was proposed that bodies, such as IALA and IHO, could progress development by concentrating on the shore side of e-Navigation. There was strong support for the need to update software, as part of the required usability of e-Navigation.

Not for the first time, it was remarked that e-Navigation is a journey and not a destination.

### Proposed shipboard architecture

The presentation was made by Jan-Hendrik Oltmann

Jan-Hendrik Oltmann presented the German domestic e-Navigation work set-up as well as first results from that. The domestic e-Navigation work set-up is arranged in accordance with the main working areas of e-Navigation, identified by IMO, namely Ship-board Equipment/INS, Maritime Service Portfolios (MSP), Common Maritime Data Structure (CMDS), PNT, AIS/Comms, and which were also identified in the ‘e-Navigation roadmap’ (submitted by e-NAV10 to IMO Correspondence Group on e-Navigation; September 2011). There is in existence or in forming stages a dedicated working group for each of the above main working areas of e-Navigation.

The initial results presented refer to the proposed ‘detailed shipboard architecture’, as specifically requested by the IMO CG on e-Navigation in their draft report to NAV58. This ‘detailed shipboard architecture’ centres around the IMO defined Integrated Navigation System (INS) and the proposed ‘Integrated Radio Communication’ with its pro-posed ‘Radio Resource Management’ module at the core and several radio frontends interfacing to the relevant maritime radio communication bands and their protocols. Attention was also drawn to the layered structure of the ‘detailed shipboard architecture’ and that its lowest layer, ‘Sensor/Source Layer’ would be using the CMDS.

Jan-Hendrik Oltmann suggested that there is a ‘window of opportunity’ for the e-Navigation strategy that is open up to 2018 and is constituted by exploiting the fact that the IMO ECDIS mandatory carriage requirement could be fulfilled by equipping ships with INS instead. Conversely, should that ‘window of opportunity’ be missed, there will be many ships equipped with stand-alone ECDIS systems which may not support e-Navigation applications, and that this situation may effectively bar the introduction of e-Navigation applications for several years.

### Brief on the IALA World-Wide Academy (WWA)

The presentation was made by Stephen Bennett at the beginning of the plenary on 29 March.

Having introduced himself, gave a short presentation about the current status and future intentions for the WWA. He stressed the Academy’s financial independence and how it is integral with IALA, with training and capacity building going ‘hand in hand’. It was said that the WWA intends to follow the IHO’s model for capacity building but is expecting to establish 7 regions, each with a lead state. It will be guided by the 4As: Awareness, Assessment, Analysis & Actions.

It is intended that a brief will be given to each Committee meeting.

Current progress and future intentions for model courses were covered and it was stated that the WWA will have its own website embedded with the IALA website. From its website WWA model courses will be downloadable and the Academy will be taking over responsibility for some existing training oriented Recommendations and Guidelines, as approved by Committees and formally endorsed by the Council.

The model course process and flow was shown*.*

It was noted that a start has been made on a Radionavigation model course. Stephen Bennett confirmed that the WWA would be looking to the Committees to provide the substance of each model course, which the relevant Committee would approve.

It was stressed that the WWA Board has its own, delegated responsibility but will work under the direction of the IALA Council, with briefings being given to each meeting of the Council. In all cases, the aim is for the WWA’s activities to be transparent.

### S-100 / Data modelling

Nick Ward gave an overview of e-NAV11/17/3 (A draft Briefing Note for Council on IALA Participation in IHO Registry), noting that the Chair of WG5 would be giving personal briefings to each of the other WG during the meeting. He indicated that the consequences for IALA’s participation would be taxing and that the impact assessment, contained in the paper, made this clear to the Council.

The anticipated flow diagram for inputting a Product Specification was shown and mention was made of the three significant starts that had been made, in this respect, for IVEF, AIS and AtoN Information.

In the ensuing discussion it was noted that there was no further chance to obtain further channel / modulation before WRC-18, although there will be a chance to bid for further AIS frequencies at WRC-15. It was also noted that the GMDSS review would need to be ready in 2014.

There was further comment about the demanding nature of making and maintaining records under the IHO Registry.

### Testbed Portal

The presentation was made by Thomas Christensen, Danish Maritime Administration

The presentation began with advance information for the e-Navigation Conference in 2013; it will take place between 29 and 31 January 2013. It was explained that the programme is still being compiled and that more information will be provided as time goes by. It is anticipated that a flyer will be included in the June edition of the IALA Bulletin.

Thomas Christensen then demonstrated the current state of an e-Navigation testbed portal, saying that it is intended to collect information about testbeds, include details about their construction and use and their results. He added that portrayal will also be a feature of the portal.

It is intended that selected people / organisations will be given administration rights so that they can edit specific parts of the portal. Further thought is being given to the structure of the portal and feedback was requested and contributors encouraged to declare themselves. There are plans to provide an e-Navigation calendar.

In discussion, it was agreed that the current draft Guideline on testbeds would be a suitable item for posting within the portal but that it should not be shown as an overtly IALA document, when seeking comment.

# Establish Working Groups

Six working groups were established, as outlined below:

|  |  |  |
| --- | --- | --- |
| Working Group | Working Group Chair | Working Group Vice Chair |
| WG 1 Operations and Strategy | David Patraiko | Mahesh Alimchandani |
| WG 2 PNT / Sensors | Alan Grant | Colin Day |
| WG 3 AIS | Rolf Zetterberg | Jorge Arroyo |
| WG 4 Communications | Bill Kautz | Peter Blackhurst |
| WG 5 Technical Architecture | Jan-Hendrik Oltmann | Paul Mueller |
| WG6 Information Portrayal | Lee Alexander | Junji Fukuto |

The WG Chairmen ran through the documents that their WG would be dealing with, with individual authors introducing their papers, as required. After a short discussion it was agreed that the Vice Chair of WG 5 would continue to lead the work of WG5, whilst the Chair of WG5 briefed the other WGs on the implications of participating in the S-100 GI Registry.

It was agreed that when the Committee was not in plenary session the Working Groups would meet separately, throughout the week, although consecutive working was planned for Working Groups 3 and 4.

It was accepted that there would, inevitably, be some cross-over in personnel between the groups.

# Working Group 1 – Operations

## Monitor and co-ordinate input on Strategy & Operations to the IMO process (Task1\*)

### Report of the IMO Correspondence Group on e-Navigation

The committee reviewed the draft report of the IMO CG on e-Navigation, as prepared for submission to NAV 58. It was noted this draft report (dated 7 March 2012) was the latest version available for discussion. The following was concluded:

1. There was general support for the report and its annexes (e-NAV 11/7/3, 4, 5 & 6 refer). It was noted that Annex 1 (gap analysis) was sufficiently mature to inform the development of proposed solutions (Annex 2).
2. The solutions proposed in Annex 2, as driven by agreed user needs, were aligned with the work of the correspondence group to date. They should be prioritised and made the subject of cost benefit and risk analyses.

### Comment on the regulatory approach to e-navigation

The implementation of the IMO e-Navigation strategy is expected to involve the preparation of performance standards, or, as a minimum, harmonisation of equipment. The process for the introduction of new standards can be lengthy. Adopting an effective approach to this challenge will facilitate the introduction of e-Navigation. It is also recognised from the gap analysis that legislation and legal issues may have consequences for the development of e-navigation. The timetable for the actual implementation of e-navigation has not yet been discussed fully, although it is expected that the Strategy Implementation Plan will be completed by 2014.

New standards typically take 4-5 years to introduce. Also, their full implementation may take 10 years or more. Therefore, if several new items of equipment (or complete systems are involved), the overall process of introducing new standards could become unduly lengthy, thereby negating the expected benefits. Various possible solutions are envisaged:

* an over-arching performance standard, referencing existing equipment performance standards and test specifications;
* use of a requirements register and modular structure as an approach to standardisation (e.g. INS);
* harmonized provision of shore-based information (and its transmission to ships) as a component of e-Navigation; or
* generic performance standards and test specifications.

There may be other solutions and the best option may be a combination of one or more of the above approaches. It is worth noting that another option has not received general support.

### Usability

The committee reviewed input paper e-NAV11/7/2 (report of a workshop on usability, hosted by The Nautical Institute in Jan 2012). The committee agreed that the development of a framework for usability for e-navigation solutions was necessary. The choices for an appropriate mechanism to effect this (e.g. ISM code or type approval process) should be further explored by the IMO.

### Introduction to IHO’s Registry

Jan-Hendrik Oltmann outlined the concepts of registries and domains, the responsibility of IHO as a manager of their IHO Registry (S-100) and the role of IALA as a domain owner and submitting organisation. He used the overall e-navigation architecture diagram (NAV 57 WP. 6, page 3 refers) to provide an overview of the operational model. In particular, he explained the links between the Common Maritime Data Structure (CMDS) and the proposed IMO Harmonization Group on Data Modelling. He also pointed out the following:

* The ‘oval shape’ at the centre of the above-mentioned diagram (CMDS) is to be developed using the IHO Registry;
* A user’s (ship or shore) needs are characterised by information needs. For example, a VTS can provide different types of services such as an Information Service, Navigational Assistance Service or Traffic Organisation Service. Each of these is part of a larger Maritime Services Portfolio (MSP);
* The importance of the role of the IALA Domains Manager will be critical to the success of IALA’s participation in the data model;
* User requirements drive CMDS, although CMDS does not contain user requirements; user requirements ‘sit above’ CMDS.

Jan-Hendrik Oltmann also discussed the main and supplementary registries and outlined the roles and functions of each. He also described the proposed roles, responsibilities and procedures for IALA (and its members) as a Submitting Organization under the IHO Registry and managing and operating the associated IALA domains.

Finally, Jan-Hendrik Oltmann outlined the scope of the guideline on IALA procedures under the IHO Registry (input paper e-NAV11/17/11 refers). The Committee requested Jan-Hendrik Oltmann to develop an explanatory document, which would complement his presentation. Such a document is needed to provide guidance to the IALA membership.

The Committee strongly supports the development of an information document that will explain the concept of data modelling in basic terms and which can be used by appropriate international bodies and national administrations to inform future policy decisions. Additionally, IALA will need to develop procedures to manage the IALA domains and its role as a Submitting Organization.

Action Items

Jan-Hendrik Oltmann is requested to develop an explanatory document, which would complement the presentation he made on the IHO Registry.

WG 5 is requested to develop an information document that will explain the concept of data modelling.

### IALA submission to IMO NAV 58

The Committee prepared a submission to IMO NAV 58, commenting on issues such as usability, the regulatory approach, IHO Registry, the development of an integrated PNT concept and portrayal issues (e-NAV11/output/19 refers).

Action Item

The IALA Secretariat is requested to seek approval from the IALA Council by e-mail to forward the comments of the IALA e-Navigation Committee (e-NAV11/output/19) to IMO NAV 58 by 27 April 2012.

## Review and update IALA Strategy for e-Navigation (Task 2\*)

The ‘road map’ for e-Navigation developed at e-NAV10 (e-NAV11/7/1) was reviewed. After some discussion, a revised version was produced (e-NAV11/WG1/WP2 refers). It was agreed that the road map should remain in IALA (for now) and be further developed by the Working Groups. It could also be provided to the next joint PAP and IALA Council Strategy Group meeting (October 2012), if required.

Action Item

The IALA Secretariat is requested to forward the road map for e-Navigation (e-NAV11/WG1/WP2) to e-NAV12.

The IALA Secretariat is requested to forward the road map for e-Navigation (e-NAV11/output/20) to the PAP23.

The IALA Secretariat is requested to forward the road map for e-Navigation (e-NAV11/output/20) to the next joint PAP and IALA Council Strategy Group meeting (October 2012).

## Maintain and update user requirements (in co-ordination with the VTS Committee) (Task 3\*)

This task was not addressed at e-NAV11.

## Monitor developments in navigation for polar regions (Task 4\*)

This task was not addressed at e-NAV11.

## Update Frequently Asked Questions

The FAQs were reviewed. The Committee was of the view that no changes were required to the document at this session.

## Update the IALA NAVGUIDE

Paper e-NAV11/14/2 refers.

The Committee considered the Liaison Note from the ANM Committee, in which the e-NAV Committee had been requested to review and update Chapter 4 (e-Navigation) of the IALA NAVGUIDE (2010 Edition).

The Committee identified the Working Groups that would deal with the various sections. A working paper was developed to capture these tasks and drafted e-NAV11/WG1/WP1. Working Group Chairs were requested to commence work on the sections allocated to their groups, with the aim of completing the review and update by March 2013.

Additionally, a liaison note was prepared for the ANM Committee (e-NAV11/output/16), informing them of the Committee’s intention and offering suggestions for changes in relation to some sections of the NAVGUIDE.

Action Items

The IALA Secretariat is requested to forward e-NAV11/WG1/WP1 (list of sections of the IALA NAVGUIDE and the working groups identified to review and update them) to e-NAV12.

All Working Group Chairs are requested to commence reviewing and updating sections of the IALA NAVGUIDE allocated to their groups in e-NAV11/WG1/WP1, with a view to completing the work by March 2013 (e-NAV13).

The IALA Secretariat is requested to forward liaison note e-NAV11/output/16 outlining the e-NAV Committee’s plan to conduct a review of the IALA NAVGUIDE to the ANM Committee.

# Working Group 2 – PNT (WG2)

## Review and update the World Wide Radio Navigation Plan (Task 5\*)

In collaboration with WG4, updates to the IALA World Wide Radio Navigation Plan have been prepared and further work is required at e-NAV12.

## Prepare Recommendations and Guidelines on PNT systems and radar AtoN (Task 6\*)

The approach to the development of test-bed guidelines was reviewed and feedback provided to WG1.

A liaison note to the EEP committee was prepared to provide content headings for a suggested level 2 radionavigation course (e-NAV11/output/18).

Action Item

The Secretariat is requested to forward the liaison note on the proposed course content for a radionavigation module (e-NAV11/output/18) to the EEP Committee.

## Co-ordinate input to IMO, ITU and IEC on PNT systems (Task 7\*)

The work completed by the intersession correspondence group on the Maritime Integrated PNT system concept and the draft performance standards for ship-borne receiving equipment using multiple radionavigation systems was noted.

An Information Paper on the Maritime Integrated PNT system has been prepared (e-NAV11/output/17).

Action Items

The Secretariat is requested to forward e-NAV11/output/17 (Information Paper on the Maritime Integrated PNT system) to Council for approval, by e-mail (deadline 27 April 2012).

If approved, the Secretariat is requested to send e-NAV11/output/17 (Information paper on the Maritime Integrated PNT system) to NAV58.

## Prepare a Guideline on establishment and operation of navigation systems in polar regions (Task 8\*)

No work was undertaken on this topic during this session.

## Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems (Task 9\*)

A briefing on the development of a hybrid eLoran/GNSS receiver was given by the Korean Maritime University.

An input paper proposing revisions to Recommendation R-129 on Vulnerability of GNSS was not dealt with this session.

Action item

The Secretariat is requested to forward Revision of R-129 (e-NAV11/8/1) to e-NAV12.

## Prepare a Guideline on recommended measures for disaster recovery (Task 10\*)

No work was completed on this topic during this session.

## Monitor developments in radar technology and their effect on racons (Task 11\*)

The work completed by the EfficenSea project to provide position determination through the use of enhanced radar and enhanced racons was noted.

The recent expansion of the operating frequencies for X band radar were noted and a Working Paper has been developed for e-NAV12.

Action Item

The Secretariat is requested to forward e-NAV11/WG2/WP1 (Information Paper on changes to radar frequencies) to e-NAV12.

## Additional Items

* A presentation on the IALA use of the IHO Registry based on S-100 was provided and the Working Group noted the need for its consideration;
* The NI Usability report was considered and comments were passed to WG1;
* The Working Group considered the current version of the e-Navigation road map and provided comments to WG1;
* The Working Group considered two items of the GAP analyses and provided feedback to the Vice Chairman;
* The Working Group reviewed the remaining work required to be completed within the Work Programme and agreed to prepare input documents out of session, via correspondence in preparation for the WG meetings.

# Working Group 3 – AIS (WG3)

The AIS Working Group (WG3) met together with the Communication Working Group (WG4) and several issues were discussed by the combined WGs while others were dealt with in task groups dedicated to WG-specific issues. The work performed during the joint inter-sessional meeting in San Francisco was presented to the entire Working Groups 3 and 4.

Five presentations were made to the combined WGs:

* Envisia - Yann Guichoux, CETMEF, made a briefing on a paper on methods for storage of AIS data. The document is available on the IALA ftp-site;
* EAVDAM – Jens Kristian Jensen, DMA, presented a result from the EfficienSea Project. The EAVDAM software, based on Open Source Software, includes modules for FATDMA planning and co-ordination as well as for coverage prediction;
* Developments and innovations in AIS – Mahesh Alimchandani, AMSA, presented new areas of use for AIS information and new AIS based products and raised some concerns;
* IHO Registry, Jan-Hendrik Oltmann gave a comprehensive introduction to the fundamental principles for the IHO Registry and the Product Specification Register, Portrayal Register, Feature Concept Dictionary Register and the Meta Data Register and described the expected working procedures for IALA;
* Roadmap for e-Navigation and ASM collection, Pieter Paap, Ministry of Infastructure and Environment, presented an update on the ASM collection, (<http://www.e-navigation.nl/asm>).

He also presented a plan for a more detailed e-Navigation roadmap with a “GANTT-type” scheme indicating major milestones and interdependencies.

WG3 + WG4 plans for a joint inter-sessional meeting before e-NAV12. The main topics are to progress MRCP, a draft revision of ITU-R M.1371-4 and initiate work on VDE.

## Review and update documentation on AIS (M.1371; A-124, A-126) (Task 12\*)

The WG developed liaison statements to ITU WP5B (e-NAV11/9/3) and IEC (e-NAV11/9/4) to inform about the on going work on proposed amendments to ITU-R M.1371-4. This work will take into account possible outcomes from IMO NAV58 and be reported to ITU and IEC after e-NAV12.

For Actions see item 10.3.

## Co-ordinate input to IMO, ITU, and IEC on AIS (Task 13\*)

The WG developed liaison notes to IEC and ITU as described above.

## Monitor and contribute to development of AIS, including the next generation of AIS (Task 14\*)

The document e-NAV11/9/2 “Plan for AIS and VHF Data Communications in e-Navigation” was progressed and submitted to the Committee for approval as e-NAV11/Output/10. It is recommended to use the term AIS for the existing AIS functionality (including transmission of Msg 27 for satellite reception) and use the term VHF Data Exchange (VDE) for other data communication capabilities based on “AIS-technology” and/or any other acknowledged standard. The document gives an overview of an a proposed use of the frequency allocations discussed at WRC 12 and maps the different communication methods to user needs developed by the IMO e**-**Navigation Correspondence Group.

The document also gives a brief summary of future work, in particular interactions with external organisations.

Action item

The Secretariat is requested to forward the Liaison Note on the Plan for AIS and VDE (e-NAV11/output/10) to PAP23, EEP18, ANM18 & VTS35 for their information and comment.

## Monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS, and terrestrial long range AIS (Task 15\*)

No work carried out at this meeting.

## Monitor developments in GMDSS and LRIT (Task 21\*)

No work carried out at this meeting.

# Working Group 4 – Communications (WG4)

WG 4 worked together with WG3-AIS to co-ordinate mutual work on the plan for VHF data communications and AIS. The working group reviewed 5 input papers, produced 3 output documents, provided suggestions to WG1 for the roadmap, developed proposed tasks for the 2014-2018 work program, and carried forward 2 working papers to e-NAV12.

As noted in item 9, five presentations were made to the combined working groups:

**Output papers:**

* e-NAV11/output/7 - Liaison note to ITU-R WP5B on Proposed changes to Recommendations ITU-R M.824-3 and ITU-R M.1176;
* e-NAV11/output/8 - Liaison note to the ITU-R WP5B on Plan for Future VHF Data Communications;
* e-NAV11/output/9 - Liaison note to the ITU-R WP5B on the timing of submissions of changes to ITU-R M1371-4;
* e-NAV11/output/10 - Liaison note to PAP and the other Committees on the Plan for AIS and VHF Data Communications in e-Navigation.

## Review and update IALA Maritime Radio Communications Plan (Task 17\*)

Reviewed and edited input paper e-NAV 11/10/2 – Draft update to the Maritime Radio Communications Plan (MRCP). The updated MRCP will be carried forward as working document (eNAV11/WG/WP2).

The Group also reviewed the WWRNP and discussed comments with WG2. WG2 and WG4 agreed this document should be carried forward as a working document to e-NAV-12 for further consideration.

Action Item

The Secretariat is requested to forward e-NAV11/WG4/WP2 (Maritime Radio Communications Plan Ed1 Dec2009) to e-NAV12.

## Prepare Recommendations and Guidelines on communications (Task 18\*)

No work was undertaken on this task.

## Co-ordinate input to ITU, IMO, and IEC on communications (Task 19\*)

The following liaison notes to ITU were drafted:

* e-NAV11/output/7 – Draft liaison note to ITU-R WP5B on Proposed changes to Recommendations ITU-R M.824-3 and ITU-R M.1176;
* e-NAV11/output/8 – Draft liaison note to the ITU-R WP5B on Plan for Future VHF Data Communications;
* e-NAV11/output/9 - Liaison note to the ITU-R WP5B on the timing of submissions of changes to ITU-R M1371-4.

Action Items

The Secretariat is requested to forward e-NAV11/output/7 (Draft Liaison Statement to ITU-R WP5B on Proposed changes to Recommendations ITU-R M.824-3 and ITU-R M.1176) to Council for approval by e-mail (Deadline 1 May 2012).

If approved, the Secretariat is requested to forward e-NAV11/output/7 (Draft Liaison Statement to ITU-R WP5B on Proposed changes to Recommendations ITU-R M.824-3 and ITU-R M.1176) to ITU-R WP5B (Deadline 15 May 2012).

The Secretariat is requested to forward e-NAV11/output/8 (Draft Liaison Statement to ITU-R WP5B on the Plan for Future VHF Data Communications) to Council for approval by e-mail (Deadline 15 May 2012).

If approved, the Secretariat is requested to forward e-NAV11/output/8 (Draft Liaison Statement on the Plan for Future VHF Data Communications) to ITU-R WP5B (Deadline 15 May 2012).

The Secretariat is requested to forward e-NAV11/output/9 (Draft Liaison note to the ITU-R WP5B on the timing of submissions of changes to ITU-R M1371-4) to Council for approval by e-mail (Deadline 15 May 2012).

If approved, the Secretariat is requested to forward e-NAV11/output/9 (Draft Liaison note to the ITU-R WP5B on the timing of submissions of changes to ITU-R M1371-4 to ITU-R WP5B (Deadline 15 May 2012).

## Prepare a Guideline on the establishment and operation of communications systems in polar regions (Task 20\*)

Reviewed and edited document e-NAV11/10/1 on Communications in Polar Areas. The updated draft Recommendations and Guidelines on Polar Communications will be carried forward as a working document (eNAV11/WG4/WP1).

Action Item

The Secretariat is requested to forward e-NAV10/WG4/WP1 (Communications in Polar Areas) to e-NAV12

## Monitor developments in GMDSS and LRIT (Task 21\*)

No work was undertaken on this task.

## Work Plan

WG4 plans for a joint inter-sessional meeting with WG3 for July 9-13, 2012 to progress VHF Data Communications (VDE) work, review and update the MRCP, review and update the Guideline on Polar Communications.

# Working Group 5 – Technical Architecture (WG5)

Input documents were: e-NAV11/20/5, e-NAV11/7/1, e-NAV11/11/1, e-NAV11/11/2, e-NAV11/11/3, e-NAV11/11/4, e-NAV11/11/5, e-NAV11/11/6, e-NAV11/11/7, e-NAV11/11/8, e-NAV11/11/9, eNAV11/11/10, e-NAV11/11/11, e-NAV11/17/1rev1, e-NAV11/17/11.

Action item

The Secretariat is requested to forward e-NAV11/11/2, e-NAV11/11/5, e-NAV11/11/6 and e-NAV11/11/7 to e-NAV12 as input for further consideration under the Task 32 (agenda item 17, Manage the IALA Domains according to IHO Standards S-100 & S-99).

## Develop and maintain shore-based e-Navigation architecture (Task 22\*)

A very important part of the shore-based e-Navigation architecture is the proposed Common Shore-Based System Architecture (CSSA) its participation in and its compatibility with IMO’s envisaged Common Maritime Data Structure (CMDS), which in turn is based on the IHO S-100 standard and the associated IHO Registry operated by the IHO. Hence the new Task 32 refers (see below).

Another important part of the shore-based e-Navigation architecture (i.e. CSSA) is its interaction with shipboard architecture. Hence, the work item under Task 24 (see below).

Since the work on IALA’s participation in the IHO Registry based on S-100 was assigned a high priority by IALA Council, the work on the CSSA was not progressed at the meeting. The relevant existing working drafts are being kept within Working Group and will be considered at future e-NAV Committee meetings.

## Prepare Recommendations and Guidelines on e-Navigation architecture (Task 23\*)

Work on the ‘Draft Revision of IALA Recommendation e-NAV140 on the e-Navigation architecture – the shore perspective (Ed. 2)’ at this Committee was not progressed at the meeting. This input document is kept for future consideration. An initial draft high-level document on e-NAV140 (e-NAV11WG5/WP4) was created.

Action Item

The Secretariat is requested to forward e-NAV11/11/1 (draft revision of Recommendation e-NAV 140) to e-NAV12 under Task 23 (agenda item 11).

The Secretariat is requested to forward the Draft Architecture 101 Information Paper rev 2 (e-NAV11/WG5/WP4) to e-NAV12 and to PAP23, for discussion.

## Co-ordinate input to IMO, IHO, ISO, IEC, and CIRM on e-Navigation architecture (Task 24\*)

### Finalize shipboard architecture functional requirements as seen from ashore

There is a request from the IMO Correspondence Group on e-Navigation for contribution to the on going “development of an e-navigation strategy implementation plan” (MSC 86/23/4 refers). The shore side, when providing technical services as part of the future Maritime Service Portfolios (MSPs), needs to rely on a well defined, harmonized shipboard environment that interacts with the shore-provided technical services in a well defined manner on the functional and physical shipboard interface to the communication links to shore (and other ships).

The WG 5 progressed e-NAV11/11/9 (“shipboard architecture functional requirements as seen from ashore”) to a mature document (e-NAV11/WG5/WP1) which could be used by IALA and/or national members as input into the IMO Correspondence Group on e-Navigation or to IMO NAV(58), as appropriate.

Content-wise, the working paper presents an intermediate shipboard architecture in functional terms as a hypothesis that has been used to facilitate the work of IALA on the shore-based e-Navigation architecture. This hypothetical architecture is offered for consideration knowing that the final ship and shore-based architectures still have to be determined.

This document (e-NAV11/WG5/WP1) at present is kept as a working document awaiting transformation into a note to IMO NAV by IALA and/or national members.

### Set-up of an initial CMDS domains map as potential input for the upcoming IMO/IHO Harmonisation Group on Data Modelling (HGDM)

IMO has stated that the IHO Registry based on S-100 and S-99 should be the “baseline” for IMO’s Common Maritime Data Structure (CMDS). The IHO Registry is structured into several Registers with an assigned meaning each. Each Register is again subdivided into “domains”. Each “domain” has to have a “domain owner”, namely a recognized organization acting as a responsible steward for the “domain” assigned to it in accordance with the rules set out in S-99. To allow the harmonized development of the CMDS it is essential to arrive at a “domain set up” which not only covers all aspects of the maritime domain but which is also making best use of the expertise available in the relevant international organisations in the maritime domain. Hence, a “domain set up” is proposed in e-NAV11/WG5/WP2. This proposal could be used, in due course, by IALA and/or IALA members as input material for the upcoming IMO / IHO Harmonisation Group on Data Modelling (HGDM).

Action Item

Members of Working Group 5 are requested to consider the working paper e-NAV11/WG5/WP2 when preparing for the HGDM.

Korea announced that there is substantial domestic work under way in regard to the emerging Common Maritime Data Structure (CMDS) as based on the IHO Registry (S-100), and that Korea is prepared to share insights with IALA.

Action Item

Korea is requested to prepare a presentation on their contribution to the emerging CMDS and the IHO Registry.

## Manage the IALA domains, according to IHO Standards S-100 & S-99 (Task 32\*)

This task was added by Council 52 (December 2011). In the absence of a dedicated Working Group on this task (see e-NAV11/11/2), the Working Group was requested to progress this Task.

### Finalization of “Draft IALA Guidelines on Procedures for the Management of the IALA Domains under the IHO Registry”

An output document “Draft IALA Guidelines on Procedures for the Management of the IALA Domains under the IHO Registry (Edition 1)” (e-NAV 11/output/12) was finalised.

Action Item

The Secretariat is requested to forward the Draft S-100 GI registry Guidelline (e-NAV11/output/12) as an attachment to the information paper on IALA domains at IHO Registry based on S-100 (e-NAV/output/5) to Council for approval.

If approved, the Secretariat is requested to forward e-NAV11/output/5 & e-NAV11/output/12 to VTS35, EEP19 & ANM19 for information.

## Summary list of Working Papers of WG5 (Tasks 22-24, 32\*)

The following is a list of the Working Papers of WG5, as introduced above, which will be further considered during 2012:

1. e-NAV11/WG5/WP1: “Working Paper on shipboard architecture functional requirements as seen from ashore”
2. e-NAV11/WG5/WP2: “Draft Proposal on CMDS domain set up for the IMO/IHO Harmonisation Group on Data Modelling (HGDM)”
3. e-NAV11/WG5/WP3: “Observations for improving the usefulness of IHO’s S-100 and S-99 standards in the light of e-Navigation”
4. e-NAV11/WG5/WP4: Information Paper on the e-Navigation architecture as seen from ashore.

Action Item

The Secretariat is requested to forward e-NAV11/WG5/WP1 to e-NAV12.

The Secretariat is requested to forward e-NAV11/WG5/WP2 to e-NAV12.

The Secretariat is requested to forward e-NAV11/WG5/WP3 to e-NAV12.

# Working Group 6 – Information Portrayal (WG6)

## Prepare Recommendations and Guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) (Task 25\*)

“Maritime Information Systems (MIS) as a Component of e-Navigation” describes a variety of equipment, systems, services and processes that fall under the scope of e-Navigation. In particular, a series of tables list: the tasks/functions, information needed, sources of information, the communication means to provide this information, and VTS-related information to be shown on board.

This task was completed at e-NAV9.

## Prepare Guidelines on the portrayal of information (Task 26\*)

### Draft Recommendations and Guidelines for the Portrayal of e-Navigation Information was the primary task for WG6 during e-NAV11.

Rather than developing prescriptive rules, the focus is to develop "goal-based" standards whereby over-arching objectives are defined, but freedom to innovate is left to developers and users. A guiding principle is that equipment, systems or services provide information content to all users in a uniform and consistent manner. How that information is displayed or presented will depend on the particular task, situation and needs of the user.

A detailed Outline was completed and agreed. Good progress was achieved on two key sections. In particular, the three levels of e-Navigation applications proposed by Dr. Andy Norris (e-NAV11/11/4) will be incorporated into the section dealing with operational requirements.

Further work will be performed inter-sessionally by the Chair, Vice-Chair and Dr. Seojeong Lee (Korean Maritime University). It is planned that a final draft will be available for detailed review at e-NAV12. Expected publication is 2013.

A liaison note to IHO on the development of Recommendations and Guidelines on e-Navigation Portrayal (e-NAV11/output/13) was drafted.

Action item

The Secretariat is requested to forward the liaison note to IHO on the development of Recommendations and Guidelines on e-Navigation Portrayal (e-NAV11/output/13) to Council for approval.

If approved, the Secretariat is requested to forward the liaison note on the development of Recommendations and Guidelines on e-Navigation Portrayal (e-NAV11/output/13) to the IHO.

### Review of IALA Recommendation V-125

At e-NAV10, the Working Group reviewed the contents of V-125 with respect to e-Navigation portrayal guidelines. A Liaison Note was sent to the VTS Committee was prepared that provides the following observations and recommendations to the VTS Committee for consideration in the next editions of V-125 and V-128. A Liaison Note was received from the VTS Committee (e-NAV11/12/4) that indicated that it agreed with the comments / recommendations provided in e-NAV10/output/25 and outlined what was planned for the next editions of V-125 and V-128.

No further action is required.

### Compilation of e-Navigation Portrayal Examples

A comprehensive reference document that summarizes portrayal examples continues to be compiled. This includes both a Summary Sheet and a Detail Sheet. Four additional e-Navigation portrayal examples were provided by Danish Maritime Authority / Chalmers University. In addition, e-Navigation shore-based portrayal examples were provided by Port of London Authority. Currently, there are 18 submissions. This compilation process will continue. It is anticipated that this compilation will become a "living document" that IALA can maintain to show examples of how e-Navigation can be portrayed. In this regard, Danish Maritime Authority expressed their willingness to establish and maintain a site that would have information both e-Navigation Testbed activities, and e-Navigation Portrayal examples. Dr. Thomas Porathe (Chalmers University) will lead this effort for WG6 as it pertains to e-Navigation Portrayal Examples.

Action Item

e-NAV Committee members are encouraged to submit e-Navigation Portrayal examples in to Lee Alexander in time for e-NAV12. In particular, more shore-based examples are needed.

## Monitor developments in ECDIS, INS, and ENCs (Task 27\*)

A Liaison Note to IHO (e-NAV11/output/13) was prepared. It provides a brief explanation regarding the purpose and scope of the IALA Recommendations and Guidelines on e-Navigation Portrayal of e-Navigation Information. Mention was made that the focus is to develop "goal-based" standards whereby over-arching objectives are defined, but freedom to innovate is left to developers and users. Some examples of the portrayal of e-Navigation related information were provided. IHO was invited to consider the potential impact of e-Navigation on ECDIS. In particular, the current ECDIS 'Standard' and 'Base' Display as well as the IHO S-52 Colours and Symbols Specifications for ECDIS. Consideration should also be given regarding the portrayal of e-Navigation-related information in the future IHO S-101 standard for ENCs.

## Other Matters

### AIS AtoN

Papers e-Nav11/16/2 & e-Nav11/16/3refers.

An update was received from Cdr Hideki Noguchi (the Co-ordinator on the work of the IMO Correspondence Group on AIS AtoN). He explained the policy and definitions of AIS AtoN that will be submitted to IMO NAV58. The draft 'improved' AIS AtoN symbols contained in Annex 2 (e-NAV11/16/3) were reviewed and discussed. The Working Group was encouraged that they seem to agree with current draft IALA Recommendations and Guidelines on e-Navigation Information Portrayal. Further consideration of the proposed symbols may be made at IMO NAV58. Potentially, they will be included in IEC 62288.

### Input to IALA submission to NAV58

A paragraph was provided to Working Group 1 that briefly summarized the work of IALA regarding the development of Recommendations and Guidelines related to the “harmonized” presentation / display of e-Navigation information.

### SAR Search Areas

Dr. Thomas Porathe (Danish Maritime Authority/Chalmers University) gave a very interesting presentation about a demonstration-of-concept project performed for the Danish and Swedish SAR Services. It involved the use of AIS binary messages being sent from the On-scene Commander to SAR vessels containing SAR search area assignments. In addition, the movement of SAR vessels could be monitored. The SAR personnel were enthusiastic about the ability to provide time-critical information in electronic format rapidly and being able to simultaneously display it on ECS equipment.

### Inter-sessional Meetings

There is no plan to hold an inter-sessional meeting before e-NAV12. Instead, work will be progressed via e-mail correspondence.

# Monitor and report progress on related systems (Task 28\*)

See the mention of presentations on Envisia and EAVDAM in item 9.

# Liaise with other IALA Committees and other bodies (Task 29\*)

## NAVGUIDE 2014

See item 7.6.

# Prepare a combined IALA e-Navigation Plan (all Committees) (Task 30\*)

This task is complete.

# Consider the regulatory process for e-Navigation and recommend the best approach (Task 31\*)

See item 7.1.2.

# Manage the IALA Domain, according to IHO Standards S-100 & S99 (Task 32\*)

This Task will, in future, be allocated to Working Group 5 (Architecture).

The Committee considered and agreed the following documents for submission to Council for approval:

* Liaison Note to IHO: Applications to participate in the IHO Registry (e-NAV11/output/4);
* Information Paper on IALA Participation in IHO Registry (e-NAV11/output/5);
* Information Paper on draft Guideline for IALA Procedures Under the IHO Registry (e-NAV11/output/6);
* Draft Guideline for IALA Procedures Under the IHO Registry (e-NAV11/output/12).

Action items

The Secretariat is requested to forward the Liaison Note to IHO on Applications to Participate in the IHO Registry (e-NAV11/output/4) to Council for approval.

The Secretariat is requested to forward the Information Paper to Council on S-100 (e-NAV11/output/5) to Council for approval.

The Secretariat is requested to forward Briefing Note on Guideline for IALA Procedures under S-100 (e-NAV11/output/6) to Council for approval.

The Secretariat is requested to forward the Draft S-100 GI registry Guideline (e-NAV11/output/12) to Council for approval.

# Future Work Programme (2014 – 2018)

The Committee considered the following broad tasks with detailed sub tasks:

1. Contribute to the development of VDE for e-Navigation:
   1. Spectrum issues;
   2. Develop functional requirements;
   3. Develop technical specification;
   4. Implementation issues;
   5. Implement CMDS;
   6. Harmonised implementation of ASM;
   7. Liaise with ITU on ITU Recommendations supporting VDE;
   8. Contribute to ITU studies on Agenda item 1.16 (Before 2014);
   9. Migration plan for ASM and similar.
2. Maintaining AIS and protection of VDL:
   1. Development of ITU-R M.1371;
   2. Guidelines for VDL monitoring;
   3. Guidelines to improve AIS data quality;
   4. Innovative use of AIS.
3. Contribute to an updated GMDSS as required by IMO:
   1. Monitoring and contribute to the review of GMDSS;
   2. Other SAR related functions, and studies of use of AIS for use in distress.
4. Co-ordinate inputs to IMO, ITU, RTCM, CIRM and IEC.
5. Review and update the MRCP.
6. Monitor and review the development of communication systems:
   1. NAVDAT;
   2. HF digitalization;
   3. Satellite communications.

Action item

Committee members are requested to provide further input on the future Work Programme to e-NAV12, noting that this the last opportunity to meet the Council’s deadline for the submission of both strategy and work items.

# Review of output and working papers

Before the review, a presentation on the status and future development of the IALA World-Wide Academy (WWA) was given by Stephen Bennett (WWA Programme Manager) – see item 5.1.3.

Output and working papers were reviewed and their disposition agreed as indicated above.

The Chairmen thanked the Working Groups for their productive efforts during the meeting and for their comments and suggestions in plenary. He then thanked the Working Group Chairs and Vice Chairs.

# Any Other Business

## Terms of Reference of WG

Work on harmonising the WG Terms of reference is on going.

Action item

The Secretariat is requested to forward e-NAV11/11/2 and e-NAV11/20/1 to e-NAV11/20/6 to e-NAV12.

## Testbed Guidance

Paper e-NAV11/20/7 refers and also see item 5.1.5.

## Draft Guideline on the Global Sharing of Maritime Data (GSMD)

Paper e-NAV11/10/6 requested comments on the draft Guideline to be provided to ANM18. A liaison note (e-NAV11/output/14) and comments were made via track changes to the draft Guideline (e-Nav11/output/15).

Action items

The Secretariat is requested to forward the liaison note on the draft Guideline on GSMD (e-NAV11/output/14) to ANM18.

The Secretariat is requested to forward the marked up draft Guideline on GSMD (e-NAV11/output/15) to ANM18.

# Review of session report

The report of the meeting (e-NAV11/output/1) was reviewed and approved by the Committee.

Action item

The Secretariat is requested to forward the report of e-NAV11 (e-NAV11/output/1) to the Council, to note.

# Date and venue of next meeting

e-NAV12 is expected to meet from 24 – 28 September, 2012 at IALA.

# Closing of the meeting

The Secretary-General thanked the Committee for its hard work on what had been a productive week.

The Chairman then added his thanks for what the Committee had achieved during the week. He then gave especial thanks to Victor Placido da Conceicao, who is leaving to take command of a corvette and Junji Fukuto, who was also attending his last meeting. An honourable mention was give to Peter Douglas, who has just stepped down as Chairman of WG4 (Communications) and thanks were expressed to Alan Grant who has stepped into the vacant position.

The Chairman then wished everyone a safe journey home and said that he hoped to everyone again at e-NAV12. He then declared the meeting closed.

# List of Annexes to the report

1. Agenda

A copy of the agenda is at Annex A.

1. Participants

A list of participants is at Annex B.

1. Working Groups – List of participants

A list of working group participants is at Annex C.

1. Input Papers

A list of input papers is provided at Annex D.

1. Output and Working Papers

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

1. Action Items

A list of action items is at Annex F.

1. Revision of the Work Programme

An updated e-Navigation Committee Work Programme for 2010-2014 is at Annex G. Changes made at e-NAV10 have been highlighted.

1. Agenda

The 11th meeting of the **e-NAV Committee** will be held from 26 – 30 March, 2012 at IALA.

The opening plenary will commence at 1400 hours on Monday 26 March and the closing plenary will end at approximately 1300 on Friday 30 March.

Committee Chair, Vice-Chair and Working Group Chairs are requested to meet at 1000 hours on Monday 26 March.

Work items / Tasks being addressed during this meeting are listed in the final table of Annex G of the report of the previous meeting, which was included in the initial invitation to this meeting.

Change from e-NAV10.

**AGENDA**

1. Approval of the agenda
2. Review of action items from last meeting
3. Review of input papers & intersessional Working Group reports
4. Reports from other bodies:
   1. IALA Council – 52nd Session, December 2011
   2. PAP22, October 2011
   3. COMSAR16, March 2012
5. Presentations (15 minutes)
   1. e-Navigation – a vision & its practical implementation? Andy Norris
   2. Proposed shipboard architecture Jan-Hendrik Oltmann
   3. Brief on the WWA Stephen Bennett (p.m. 29th)
   4. S-100 / Data modelling Nick Ward / Jan-Hendrik Oltmann
   5. Testbed portal Thomas Christensen (a.m.30th)
6. Establish Working Groups
7. WG 1 – Operations & Strategy (User requirements)
   1. Monitor and co-ordinate input on Strategy & Operations to the IMO process (Task1\*)
   2. Review and update IALA Strategy for e-Navigation (Task 2\*)
   3. Maintain and update user requirements (in co-ordination with the VTS Committee) (Task 3\*)
   4. Monitor developments in navigation for polar regions (Task 4\*)
8. WG 2 – PNT / Sensors
   1. Review and update the World Wide Radio Navigation Plan (Task 5\*)
   2. Prepare Recommendations and Guidelines on PNT systems and radar AtoN (Task 6\*)
   3. Co-ordinate input to IMO, ITU, and IEC on PNT systems (Task 7\*)
   4. Prepare a Guideline on establishment and operation of navigation systems in polar regions (Task 8\*)
   5. Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems (Task 9\*)
   6. Prepare a Guideline on recommended measures for disaster recovery (Task 10\*)
   7. Monitor developments in radar technology and their effect on racons (Task 11\*)
9. WG 3 – AIS
   1. Review and update documentation on AIS (M.1371; A-124, A-126) (Task 12\*)
   2. Co-ordinate input to IMO, ITU, and IEC on AIS (Task 13\*)
   3. Monitor and contribute to development of AIS, including the next generation of AIS (Task 14\*)
   4. Monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS, and terrestrial long range AIS (Task 15\*)
   5. Monitor developments in the use of AIS in polar regions (e.g. AIS AtoNs) (Task 16\*)
10. WG 4 – Communications
    1. Review and update IALA Maritime Radio Communications Plan (Task 17\*)
    2. Prepare Recommendations and Guidelines on communications (Task 18\*)
    3. Co-ordinate input to ITU, IMO, and IEC on communications (Task 19\*)
    4. Prepare a Guideline on the establishment and operation of communications systems in polar regions (Task 20\*)
    5. Monitor developments in GMDSS and LRIT (Task 21\*)
11. WG 5 – Technical Architecture
    1. Develop and maintain shore-based e-Navigation architecture (Task 22\*)
    2. Prepare Recommendations and Guidelines on e-Navigation architecture (Task 23\*)
    3. Co-ordinate input to IMO, IHO, ISO, IEC and CIRM on e-Navigation architecture (Task 24\*)
12. WG 6 – Information Portrayal
    1. Prepare Recommendations and guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) (Task 25\*)
    2. Prepare Recommendations and guidelines on the portrayal of information (Task 26\*)
    3. Monitor developments in ECDIS, INS, and ENCs (Task 27\*)
13. Monitor and report progress on related systems (Task 28\*)
14. Liaise with other IALA Committees and other bodies (Task 29\*)
    1. NAVGUIDE
15. Prepare a combined IALA e-Navigation Plan (all Committees) (Task 30\*)
16. Consider the regulatory process for e-Navigation and recommend the best approach (Task 31\*)
17. Manage the IALA domain, according to IHO standards S-100 & S-99 (Task 32\*)
18. Future Work Programme (2014 – 2018)
19. Review of output and working papers
20. Any Other Business
    1. Working Group Terms of Reference (ToR)
    2. Test-bed guidelines
    3. Global Sharing of Maritime Data
21. Date and venue of next meeting
22. Review of session report
23. LIST OF Participants

**Australia** **Australian Maritime Safety Authority**

Mr Mahesh ALIMCHANDANI

GPO Box 2181

Canberra ACT 2601

Australia

Phone +61 2 6279 5927

Fax +61 2 6279 5966

Mobile phone: +61 419 668 264

e-mail [mahesh.alimchandani@amsa.gov.au](mailto:mahesh.alimchandani@amsa.gov.au)

e-mail (alternative) [mail2maheshu@gmail.com](mailto:mail2maheshu@gmail.com)

**Bulgaria** **Bulgarian Ports Infrastructure Company**

Mr Galin NIKOLOV

Bul., Shipchenski prohod"

N° 69 et 4

Sofia

Bulgaria

Phone +359 887 070 075

Fax +359 52 632 832

Mobile phone: +359 888 270 550

e-mail [g.nikolov@bgports.bg](mailto:g.nikolov@bgports.bg)

**Canada** **Canadian Coast Guard**

Dr. Lee ALEXANDER

University of New Hampshire

CCOM-JHC, Chase Ocean engineering Lab., 24 Colovos Road

Durham NH 03824

USA

Phone +1 603 862 1745

Fax +1 603 862 0839

Mobile phone: +1 603 866 2822

e-mail [lee.alexander@unh.edu](mailto:lee.alexander@unh.edu)

e-mail (alternative) [leealex@ccom.unh.edu](mailto:leealex@ccom.unh.edu)

**Canadian Coast Guard**

Mr. André CHATEAUVERT

200 Kent Street

Station 5W129

Ottawa, Ontario K1A 0E6

Canada

Phone + 1 613 998 1408

Fax + 1 613 998 8428

Mobile phone: +1 613 612 6934

e-mail [andre.chateauvert@dfo-mpo.gc.ca](mailto:andre.chateauvert@dfo-mpo.gc.ca)

e-mail (alternative) [chateauverta@dfo-mpo.gc.ca](mailto:chateauverta@dfo-mpo.gc.ca)

**Canadian Maritime Pilots' Association**

Capt Simon PELLETIER

155, Queen Street

Suite 1302

Ottawa, ON K1P 6L1

Canada

Phone +1 418 831 0811

Mobile phone: +1 418 265 8311

e-mail [simon.pelletier@videotron.ca](mailto:simon.pelletier@videotron.ca)

**ExactEarth**

Mrs Peggy BROWNING

398 Snapdragon Loop

Bradenton, FL 34212

USA

Phone +1 941 405 9797

e-mail [peggy.browning@exactearth.com](mailto:peggy.browning@exactearth.com)

**ExactEarth**

Mr David MARTIN

60 Struck Ct.

Cambridge, ON

N1R 8L2

Canada

Phone +1 519 622 4445

Mobile phone: +1 519 242 9597

e-mail [david.martin@exactearth.com](mailto:david.martin@exactearth.com)

**ExactEarth**

M. Robert TREMLETT

60 Struck Ct

Cambridge, ON

N1R 8L2

Canada

Phone +1 519 620 5867

Mobile phone: +44 7809 496 447

e-mail [robert.tremlett@exactearth.com](mailto:robert.tremlett@exactearth.com)

**Chile** **Directemar, Armada de Chile**

Capt Marcelo ALBARRAN

Prat 681

Valparaiso

Chile

Phone +56 32 2208404

Fax +56 32 2208413

Mobile phone: +56 9 94991812

e-mail [malmo@directemar.cl](mailto:malmo@directemar.cl)

e-mail (alternative) [malmo@malmo.cl](mailto:malmo@malmo.cl)

**China** **Dalian Maritime University**

Prof Qing HU

No. 1 Linghai Road

Dalian, Liaoning

China

Phone +86 411 84723118 803

Mobile phone: +86 13500799115

e-mail [hq0518@dlmu.edu.cn](mailto:hq0518@dlmu.edu.cn)

**Guangzhou AtoN Dept., Guang Dong Maritime Administration of PRC**

Mr. Siming LUO

No. 438, HuanCun Dong Road, , Lunton, Haizhu District

Guangzhou

Guang Dong

China

Phone + 86 20 34084186

Fax + 86 20 340084186

Mobile phone: +86 139 227 35152

e-mail [lsming@gdmsa.gov.cn](mailto:lsming@gdmsa.gov.cn)

e-mail (alternative) [cherrysu@tom.com](mailto:cherrysu@tom.com)

**Marine Department, Government of the HKSAR**

Mr Michael POON

EE/E&S(1)

Marine Department,

Government of the HKSAR

Phone + 852 2233 7831

Fax + 86 20 340084186

Mobile phone: + 852 2857 6860

e-mail [pmpoon@mardep.gov.hk](mailto:pmpoon@mardep.gov.hk)

**Maritime Safety Administration of P.R. of China**

Mr. Jianbo BAO

150# DongTang Road

Shanghai 200086

China

Mobile phone: +86 139 166 752 56

e-mail [bjb@vip.sina.com](mailto:bjb@vip.sina.com)

**CIRM** **CIRM - Comité International Radio Maritime**

Mr Peter ANDERSEN

Poesvej 2

9200 Aalborg

Denmark

Phone +45 96 34 63 47

Mobile phone: +45 20678350

e-mail [pan@thrane.com](mailto:pan@thrane.com)

**CIRM - Comité International Radio Maritime**

Mr Michael RAMBAUT

Southbank House

Black Prince Road

London SE1 7S3

UK

Phone +44 207 587 1245

Fax +44 207 587 1436

Mobile phone: +44 7798 850 626

e-mail [secgen@cirm.org](mailto:secgen@cirm.org)

**Inmarsat Global Ltd.**

Mr Peter BLACKHURST

99 City Road

London EC1Y 1AX

UK

Phone +44 20 7728 1464

Fax +44 20 7728 1044

Mobile phone: +44 7595 968 769

e-mail [peter.blackhurst@inmarsat.com](mailto:peter.blackhurst@inmarsat.com)

**Denmark** **Danish Maritime Authority**

Mr. Ivan CARLSSON

P.O. Box 1919

Overgaden Oven Vandet 62B

DK-1023 Copenhagen K

Denmark

Phone +45 32 68 96 68

Fax +45 32 57 22 42

Mobile phone: +45 24 28 82 98

e-mail [imc@dma.dk](mailto:imc@dma.dk)

**Danish Maritime Authority**

Mr Thomas CHRISTENSEN

Overgaden oven Vandet 62B

Postboks 1919

DK-1023 Copenhagen K

Denmark

Phone +45 3268 9741

Fax +45 3257 4341

Mobile phone: +45 2511 1854

e-mail [thc@dma.dk](mailto:thc@dma.dk)

**Danish Maritime Authority**

Mr Jens Kristian JENSEN

Overgaden Oven Vandet 62B

P.O. Box 1919

DK-1023 Copenhagen K

Denmark

Phone +45 32 68 96 77

Fax +45 32 57 43 41

e-mail [jkj@dma.dk](mailto:jkj@dma.dk)

**Danish Maritime Authority**

Mr Thomas PORATHE

Chalmers Technical University

SE-412 96 Gothenburg

Sweden

Phone +46 31 7722679

Mobile phone: +46 31 7722679

e-mail [thomas.porathe@chalmers.se](mailto:thomas.porathe@chalmers.se)

**Estonia** **Estonia Maritime Administration**

Mr Alar SIHT

Valge 4

11413 Tallinn

Estonia

Phone +372 6205 580

Fax +372 6205 586

Mobile phone: +372 5043 835

e-mail [alar.siht@vta.ee](mailto:alar.siht@vta.ee)

**Finland** **Finnish Transport Agency**

Ms. Kaisu HEIKONEN

P. O. Box 33

FIN-00521 Helsinki

Finland

Phone +358 20 637 3302

Mobile phone: +358 40 573 4949

e-mail [kaisu.heikonen@fta.fi](mailto:kaisu.heikonen@fta.fi)

**Furuno Finland Oy**

Mr Takuo KASHIWA

9-52 Ashihara-cho

Nishinomiya

Japan

Phone +81 798 63 1172

e-mail [takuo.kashiwa@furuno.co.jp](mailto:takuo.kashiwa@furuno.co.jp)

**Furuno Finland Oy**

Mr Tatsuya KOJIMA

9-52, Kaminocho

Nishinomiya

Hyogo

Japan

Phone +81 798 63 1172

e-mail [tatsuya.kojima@furuno.co.jp](mailto:tatsuya.kojima@furuno.co.jp)

**France** **CETMEF**

Mr Jean-Charles CORNILLOU

Technopôle Brest Iroise

BP 5

29280 Plouzané

France

Phone +33 2 98 05 67 41

Fax +33 2 98 05 66 67

e-mail [jean-charles.cornillou@developpement-durable.gouv.fr](mailto:jean-charles.cornillou@developpement-durable.gouv.fr)

**CETMEF**

Mr Yann GUICHOUX

155 rue Pierre Bouguer

29280 Plouzancé

France

Phone +33 2 98 05 88 03

Fax +33 2 98 05 67 67

e-mail [yann.guichoux@developpement-durable.gouv.fr](mailto:yann.guichoux@developpement-durable.gouv.fr)

**CETMEF**

Mr Pierre-Yves MARTIN

rue Pierre Bourguet

29280 Plouzané

France

Phone +33 2 98 05 67 57

Fax +33 2 98 05 07 67

Mobile phone: +33 6 63 37 42 33

e-mail [pierre-yves.martin@developpement-durable.gouv.fr](mailto:pierre-yves.martin@developpement-durable.gouv.fr)

**CETMEF**

Mr Gilles SOUSSAIN

BP 39

2 Bd du Président Kennedy

13097 Aix en Provence cedex 2

France

Phone +33 4 42 52 74 20

Mobile phone: +33 6 08 24 24 38

e-mail [gilles.soussain@developpement-durable.gouv.fr](mailto:gilles.soussain@developpement-durable.gouv.fr)

**Direction des Affaires Maritimes**

Mr Yves DESNOËS

IFN chez SSBAIF

82 rue des Pyrénées

75020 Paris

France

Phone +33 1 43 48 53 98

Fax +33 1 43 48 53 98

Mobile phone: +33 6 50 43 65 31

e-mail [desnoes@noos.fr](mailto:desnoes@noos.fr)

**Thales Communications and Security**

M. Hervé BRAIK

20 rue Grange Dame Rose

78141 Vélizy cedex

France

Phone +33 1 73 32 13 27

Mobile phone: +33 6 76 66 64 35

e-mail [herve.braik@thalesgroup.com](mailto:herve.braik@thalesgroup.com)

**Thales Communications and Security**

M. Christian RENET

20 rue Grange Dame Rose

78141 Vélizy cedex

France

Phone +33 1 73 32 09 46

Mobile phone: +33 6 72 94 37 25

e-mail [christian.renet@thalesgroup.com](mailto:christian.renet@thalesgroup.com)

**Germany** **DLR - German Aerospace Center - Department of Navigation**

Ms Evelin ENGLER

Kalkhorstweg 53

17235 Neustrelitz

Germany

Phone +49 3981 480-147

Fax +49 3981 480-123

e-mail [evelin.engler@dlr.de](mailto:evelin.engler@dlr.de)

**Federal Maritime and Hydrographic Agency**

Mr Jochen RITTERBUSCH

Bernhard-Nocht-Str. 78

20359 Hamburg

Germany

Phone +49 40 3190 7330

Fax +49 40 3190 5000

e-mail [jochen.ritterbusch@bsh.de](mailto:jochen.ritterbusch@bsh.de)

**Federal Waterways and Shipping Administration**

Mr. Michael HOPPE

Traffic Technologies Centre

Am Berg 3

56070 Koblenz

Germany

Phone + 49 261 9819 2221

Fax + 49 261 9819 2155

e-mail [michael.hoppe@wsv.bund.de](mailto:michael.hoppe@wsv.bund.de)

**Federal Waterways and Shipping Administration**

Mr. Jan-Hendrik OLTMANN

W&S Directorate North/North West

Hindenburgufer 247

24106 Kiel

Germany

Phone + 49 431 3394 5701

Fax + 49 431 3394 6399

Mobile phone: +49 172 152 6928

e-mail [jan-hendrik.oltmann@wsv.bund.de](mailto:jan-hendrik.oltmann@wsv.bund.de)

**German Aerospace Centre**

Dipl.-Ing. Thoralf NOACK

Institute of Communication and Navigation

Kalkhorstweg 53

D-17235 Neustrelitz

Germany

Phone +49 3981 480-136

Fax +49 3981 480-123

e-mail [thoralf.noack@dlr.de](mailto:thoralf.noack@dlr.de)

**German Federal Waterways and Shipping Administration**

Mr. Stefan BOBER

Am Berg 3

56070 Koblenz

Germany

Phone +49 261 9819 2231

Fax +49 261 9819 2155

e-mail [stefan.bober@wsv.bund.de](mailto:stefan.bober@wsv.bund.de)

**Trimble Germany GmbH**

Mr Goran JEDREJCIC

Am Prime Parc 11

65479 Raunheim

Germany

Phone +49 8960 666 906

Fax +49 89 6659 2168

Mobile phone: +49 175 279 07 12

e-mail [goran\_jedrejcic@trimble.com](mailto:goran_jedrejcic@trimble.com)

**IALA** **Programme Manager, WWA**

Mr Stephen BENNETT

10 rue des Gaudines

Saint Germain en Laye

France

Phone +44 243 533 148

Fax +33 1 34 51 82 05

Mobile phone: +44 7787 320 761

e-mail Stephen.Bennett@iala-aism.org

(Secretary) **Technical Co-ordination Manager**

Dr. Mike HADLEY

10 rue des Gaudines

78100 Saint Germain en Laye

France

Phone +33 1 34 51 70 01

Fax +33 1 34 51 82 05

e-mail [mike.hadley@iala-aism.org](mailto:mike.hadley@iala-aism.org)

e-mail (alternative) [advnav@btinternet.com](mailto:advnav@btinternet.com)

**Senior Advisor**

M. Jacques MANCHARD

10 rue des Gaudines

Saint Germain en Laye

78100

France

Phone +33 1 34 51 70 01

Fax +33 1 34 51 82 05

e-mail [jacques.manchard@iala-aism.org](mailto:jacques.manchard@iala-aism.org)

**ICS** **International Chamber of Shipping**

Mr James LANGLEY

38 St Mary Axe

London EC3A 8BH

UK

Phone +44 207 090 1460

Fax +44 207 090 1484

Mobile phone: +44 75 2837 5682

e-mail [james.langley@ics-shipping.org](mailto:james.langley@ics-shipping.org)

**IHMA** **International Harbour Masters’ Association**

Mr John CLANDILLON-BAKER

UK

Phone +44 1 304 61 30 20

e-mail [john@pilotmag.co.uk](mailto:john@pilotmag.co.uk)

**IMO** **International Maritime Organisation**

Capt Gurpreet SINGHOTA

Maritime Safety Division

4 Albert Embankment

London SE1 7SR

United Kingdom

Phone +22 (0)20 7735 7611

Fax +22 (0)20 7587 3210

e-mail [gsinghot@imo.org](mailto:gsinghot@imo.org)

**IMPA** **International Maritime Pilots' Association**

Capt Albrecht KRAMER

Lotsenbrüderschaft Elbe

Elbchaussee 330

22609 Hamburg

Germany

Phone +49 40 82 40 75

Fax +49 40 82 27 81 75

Mobile phone: +49 175 267 5132

e-mail [lbe-hamburg@elbe-pilot.de](mailto:lbe-hamburg@elbe-pilot.de)

e-mail (alternative) [auf.kramer@online.de](mailto:auf.kramer@online.de)

**ITU** **International Telecommunications Union**

Mr Christian RISSONE

ANFR Pôle technique de Brest - Technopôle Brest-Iroise

ZA du Vernis, 265 rue Pierre Rivoalon

29200 Brest

France

Phone +33 2 98 34 12 35

Fax +33 2 98 34 12 20

Mobile phone: +33 6 83 81 23 03

e-mail [rissone@anfr.fr](mailto:rissone@anfr.fr)

**Ireland** **Commissioners of Irish Lights**

Mr. Colin DAY

Harbour Road

Dun Laoghaire

Co. Dublin

Ireland

Phone +353 1 271 5478

Fax +353 1 271 5565

Mobile phone: +353 87 2197007

e-mail [c.day@cil.ie](mailto:c.day@cil.ie)

**Italy** **ELMAN**

Mr Francesco BORGHESE

Via di Valle Caia, 37

Pomezia - Roma

Italy

Phone +39 09 919 4405

Fax +39 06 919 4306

Mobile phone: +39 339 708 7107

e-mail [f.borghese@elmansrl.it](mailto:f.borghese@elmansrl.it)

**Italian Coast Guard**

Lt. Paolo RENZI

Via dei Calafati 17

Cagliari (Sardina)

Italy

Phone +39 07 06 05 17 201

Fax +39 07 06 05 17 218

Mobile phone: +39 33 96 64 77 50

e-mail [paolo.renzi@mit.gov.it](mailto:paolo.renzi@mit.gov.it)

**Italian Coast Guard**

Mr Antonio VOLLERO

Italian Coast Guard Headquarters

Viale Dell' Arte N° 16

Roma

Italy

Phone +39 06 59 08 40 88

Fax +39 06 59 08 44 40

Mobile phone: +39 320 3124422

e-mail [antonio.vollero@mit.gov.it](mailto:antonio.vollero@mit.gov.it)

e-mail (alternative) [antonio.vollero@gmail.com](mailto:antonio.vollero@gmail.com)

**SELEX Sistemi Integrati**

Mr Michele FIORINI

Via Tiburtina, km 12.400

00131 Roma

Italy

Phone +39 06 4150 4505

Fax +39 06 4150 3728

e-mail [mfiorini@selex-si.com](mailto:mfiorini@selex-si.com)

e-mail (alternative) [fiorini.work@gmail.com](mailto:fiorini.work@gmail.com)

**Japan** **Japan Coast Guard, Maritime Traffic Department, AtoN Engineering Division**

Cdr. Hideki NOGUCHI

2-1-3 Kasumigaseki

Chiyoda-ku

Tokyo 100-8918

Japan

Phone +81 3 3591 6361

Fax +81 3 3591 5468

Mobile phone: +81 803468 1198

e-mail [noguchi-i8twy@kaiho.mlit.go.jp](mailto:noguchi-i8twy@kaiho.mlit.go.jp)

e-mail (alternative) [hideki.noguchi@gmail.com](mailto:hideki.noguchi@gmail.com)

**Japan Radio Co., Ltd.**

Mr Yoshio MIYADERA

1-1, Shimorenjaku 5 chome

Mitaka-Shi

Tokyo 181-8510

Japan

Phone +81 42 245 95 38

Fax +81 42 245 99 57

e-mail [miyadera.yoshio@jrc.co.jp](mailto:miyadera.yoshio@jrc.co.jp)

**National Maritime Research Institute**

Dr. Junji FUKUTO

6-38-1 Shinkawa Mitaka

Tokyo 181-0004

Japan

Phone +81 422 41 3132

Fax +81 422 41 3126

e-mail [fukuto@nmri.go.jp](mailto:fukuto@nmri.go.jp)

**Zeni Lite Buoy Co., Ltd.**

Mr. Michael D. CARD

2-176-1 Toyoshima Minami

Ikeda-City

Osaka 563-0035

Japan

Phone +81 80 3058 6543

Mobile phone: +81 8030586543

e-mail [mike.card@zenilite.co.jp](mailto:mike.card@zenilite.co.jp)

**Korea** **Dong Seo University**

Prof Dr (Ms) Su Hyun PARK

Republic of Korea

Phone +82 51 320 1723

Fax +82 51 327 8955

Mobile phone: +82 10 9395 8326

e-mail [subak@dongseo.ac.kr](mailto:subak@dongseo.ac.kr)

e-mail (alternative) [subak63@gmail.com](mailto:subak63@gmail.com)

**Electronics and Telecommunications Research Institute (ETRI)**

Mr Joa Hyoung LEE

138 Gajeongno

Yuseong-gu

Daejeon 305-700

Republic of Korea

Phone +82 42 860 0845

Fax +82 42 860 1085

Mobile phone: +82 17 379 0114

e-mail [jinnie4u@etri.re.kr](mailto:jinnie4u@etri.re.kr)

**GMT Co Ltd**

Mr Yong Won KIM

7th Fl, Pangyo W-City, 9-22 Pangyo-ro

255 Beon-gil, Bundong-gu

Seongnam-si, Gyeonggi-do

Republic of Korea

Phone +82 2 488 6502

Fax +82 2 488 6505

Mobile phone: +82 10 3039 3464

e-mail [ywkim@gmtc.kr](mailto:ywkim@gmtc.kr)

**Korea Maritime University**

Mr Jeongrok KIM

M406, #1, DongSam-dong

Yongdo-gu

Busan 606-781

Republic of Korea

Phone +82 51 404 3010

Fax +82 51 404 3012

Mobile phone: +82 10 2587 0359

e-mail [kimjrok@hanmail.net](mailto:kimjrok@hanmail.net)

e-mail (alternative) [kimjork@korea.com](mailto:kimjork@korea.com)

**Korea Maritime University**

Prof. Yung-Ho YU

#1, Dongsam-dong

Yeongdo-gu

Busan 606-791

Korea

Phone +82 51 410 4345

Mobile phone: +82 10 4026 4345

e-mail [yungyu@hhu.ac.kr](mailto:yungyu@hhu.ac.kr)

**Korea Ocean Research & Development Institute**

Mr Jaeyang PARK

32 1312 beon-gil

Yuseong-daero, Yuseong-gu

Daejeon

Republic of Korea

Mobile phone: +82 1029968653

e-mail [jaeyang.park@gmail.com](mailto:jaeyang.park@gmail.com)

**Korea Ocean Research & Development Institute**

Dr Ki Yeol SEO

32 1312beon-gil

Yuseong-daero, Yuseong-gu

Daejeon

Republic of Korea

Phone +82 10 4614 2354

Mobile phone: +82 10 4614 2354

e-mail [vito@moeri.re.kr](mailto:vito@moeri.re.kr)

e-mail (alternative) [kyseo@kordi.re.kr](mailto:kyseo@kordi.re.kr)

**Ministry of Land, Transport and Maritime Affairs (MLTM)**

Mr Hyung Jun KIM

Maritime Traffic Facilities Division, Office of Logistics & Maritime Affairs

47, Gwanmunro

Gwacheon-city, Gyenggi-do 427-712

Republic of Korea

Phone +82 2 2110 6388

Fax +82 2 504 4076

Mobile phone: +82 10 9144 1720

e-mail [dolphin@korea.kr](mailto:dolphin@korea.kr)

e-mail (alternative) [dolphin1720@naver.com](mailto:dolphin1720@naver.com)

**Woori Marine Co.**

Miss Jinju LEE

C-1104 Woorim Lions Vally 425

Cheongchun-dong, Bupyong-gu

Incheon

Republic of Korea

Phone +82 32 623 6690

Fax +82 32 623 6698

Mobile phone: +82 10 6301 6690

e-mail [jj.lee@woorimarine.com](mailto:jj.lee@woorimarine.com)

e-mail (alternative) [woori@woorimarine.com](mailto:woori@woorimarine.com)

**Nautical**  **Nautical Institute**

**Institute**

Mr David PATRAIKO

202 Lambeth Road

London SE1 7LQ

UK

Phone +44 207 928 1351

Mobile phone: +44 7980 984 038

e-mail [djp@nautinst.org](mailto:djp@nautinst.org)

**Nautical Institute (RIN)**

Prof. Andy NORRIS

12 Chandlers Quay

Maldon, Essex

CM9 4LF

UK

Phone +44 1621 842107

Mobile phone: +44 7931 512 782

e-mail [andy@drandynorris.co.uk](mailto:andy@drandynorris.co.uk)

**Netherlands** **HITT Traffic**

Mr René HOGENDOORN

PO Box 717

7300 AS Apeldoorn

The Netherlands

Phone +31 555 432 501

Mobile phone: +31 610 925 412

e-mail [r.hogendoorn@hitt.nl](mailto:r.hogendoorn@hitt.nl)

**Ministry of Infrastructure and the Environment**

Mr Pieter PAAP

PO Box 5044

2600 Delft

The Netherlands

Mobile phone: +31 6 466 36 190

e-mail [pieter.paap@rws.nl](mailto:pieter.paap@rws.nl)

e-mail (alternative) [pieter.l.paap@quicknet.nl](mailto:pieter.l.paap@quicknet.nl)

**Ministry of Infrastructure and the Environment**

Mr Peter HOOIJMANS

Department Infrastructure

Postbus 9070

6800 ED Arnhem

Netherlands

Mobile phone: +31 653 945 156

e-mail [peter.hooijmans@rws.nl](mailto:peter.hooijmans@rws.nl)

**Rijkswaterstaat**

Mr. Rob LANGEN

Schoemawerstraat 97

2628 VK Delft

The Netherlands

Phone +31 88 7982313

Mobile phone: +31 6 2000 48 97

e-mail [rob.langen@rws.nl](mailto:rob.langen@rws.nl)

**Norway** **Jeppesen GmbH**

Mr. Michael BERGMANN

Frankfurter Str. 233

63263 Neu-Isenburg

Germany

Phone +49 6102 507580

Fax +49 6102 507581

Mobile phone: +49 172 753 6379

e-mail [michael.bergmann@jeppesen.com](mailto:michael.bergmann@jeppesen.com)

**Kongsberg Norcontrol IT AS**

Mr. Steve GUEST

PO Box 1024

Bromsvn. 17

N-3194 Horten

Norway

Phone +47 33 08 48 00

Fax +47 33 04 57 35

Mobile phone: +44 777 3328 929

e-mail [steve.guest@kongsberg.com](mailto:steve.guest@kongsberg.com)

**Norwegian Coast Administration**

Mr. Jon Leon ERVIK

Service Box 2

6002 Alesund

Norway

Phone + 47 52 73 33 12

Fax + 47 52 73 32 01

Mobile phone: +47 91 68 15 38

e-mail [jon.leon.ervik@kystverket.no](mailto:jon.leon.ervik@kystverket.no)

**Norwegian Coastal Administration**

Mr. Jarle HAUGE

P.O. Box 466

NO-5501 Haugesund

Norway

Phone + 47 52 73 32 00

Fax + 47 52 73 33 01

Mobile phone: + 47 951 60 530

e-mail [jarle.hauge@kystverket.no](mailto:jarle.hauge@kystverket.no)

**Norwegian Coastal Administration**

Mr Finn Martin VALLERSNES

Pb. 466

5001 Haugesund

Norway

Fax +47 5273 3201

Mobile phone: +47 9050 7790

e-mail [finn.martin.vallersnes@kystverket.no](mailto:finn.martin.vallersnes@kystverket.no)

**Norwegian Coastal Administration - Maritime Safety Department**

Mr Bjornar KLEPPE

Kongens gt 11

6002 Alesund

Norway

Phone +47 70 23 10 81

Mobile phone: +47 900 28 347

e-mail [bjornar.kleppe@kystverket.no](mailto:bjornar.kleppe@kystverket.no)

**Norwegian Coastal Department**

Mr Sigmund Andreas BREIVIK

P.O. Box 466

5501 Haugesund

Norway

Phone +47 91727225

e-mail [sigmund.breivik@kystverket.no](mailto:sigmund.breivik@kystverket.no)

**Norwegian Coastal Directorate**

Mr John-Erik HAGEN

PO Box 466

N-5501 Haugesund

Norway

Phone +47 70 23 10 00

Fax +47 52 73 32 01

Mobile phone: +47 909 47 630

e-mail [john.erik.hagen@kystverket.no](mailto:john.erik.hagen@kystverket.no)

**Poland** **SPRINT SA**

Mr. Artur BARANOWSKI

Str. Budowlanych 64E

Post Code 80-298

Gdansk

Poland

Phone +48 58 340 77 00

Fax +48 58 340 77 01

Mobile phone: +48 602 488 105

e-mail [artur.baranowski@sprint.pl](mailto:artur.baranowski@sprint.pl)

**Urzad Morski Gdynia**

Mr. Marek DZIEWICKI

ul. Chrzanowskiego 10

81-338 Gdynia

Poland

Phone + 48 58 355 3720

Fax + 48 58 620 19 36

Mobile phone: +48 691 766 172

e-mail [marek.dziewicki@umgdy.gov.pl](mailto:marek.dziewicki@umgdy.gov.pl)

e-mail (alternative) [marekdz@umgdy.gov.pl](mailto:marekdz@umgdy.gov.pl)

**Portugal** **Instituto Hidrografico**

Cdr Antonio Manuel MAURICIO CAMILO

Rua das Trinas, 49

1244-093 Lisboa

Portugal

Phone +351 210 943 080

Fax +351 210 943 299

Mobile phone: +351 917 865 869

e-mail [mauricio.camilo@hidrografico.pt](mailto:mauricio.camilo@hidrografico.pt)

**Instituto Hidrografico**

LCdr. Victor PLACIDO da CONCEICAO

Rua das Trinas, 49

1249-093 Lisboa

Portugal

Phone +351 210 943 084

Fax +351 210 943 299

Mobile phone: +351 914 814 417

e-mail [placido.conceicao@hidrografico.pt](mailto:placido.conceicao@hidrografico.pt)

e-mail (alternative) [placido.conceicao@marinha.pt](mailto:placido.conceicao@marinha.pt)

**Russia** **Transas Ltd.**

Mr Sergey CHEREPANOV

54-4 Maly pr., V.O.

St. Petersburg 199178

Russia

Phone +7 812 325 31 31

Fax +7 812 325 31 32

Mobile phone: +7 911 777 80 10

e-mail [sergey.cherepanov@transas.com](mailto:sergey.cherepanov@transas.com)

**Transas Technologies Ltd**

Mr Alexander SOSONKIN

54-4 Maly pr. V.O.

St Petersburg,199178

Russia

Phone +7 812 325 31 31

Fax +7 812 325 31 32

Mobile phone: +7 911 101 45 66

e-mail [Alexander.Sosonkin@transas.com](mailto:Alexander.Sosonkin@transas.com)

**Scotland** **Northern Lighthouse Board**

Mr. Peter DOUGLAS

84 George Street

Edinburgh

EH2 3DA

UK

Phone + 44 131 473 3100

Fax + 44 131 220 2093

Mobile phone: +44 7836 787 898

e-mail [peterd@nlb.org.uk](mailto:peterd@nlb.org.uk)

e-mail (alternative) [petali@talkZI.com](mailto:petali@talkZI.com)

**Spain** **GMV Sistemas SA**

Mr Marcos LOPEZ CABECEIRA

c/Juan de Herrera, 17

P.T.B. Boecillo

47151 Lalladolid

Spain

Phone +34 619128940 / +34 983546554

e-mail [malopez@gmv.es](mailto:malopez@gmv.es)

e-mail (alternative) [lopezcabeceira@gmail.com](mailto:lopezcabeceira@gmail.com)

**Sweden** **Swedish Maritime Administration**

Mr. Rolf ZETTERBERG

Sjöfartsverket

60178 Norrköping

Sweden

Phone + 46 10 478 4932

Fax + 46 11 19 12 30

Mobile phone: +46 708 19 15 12

e-mail [rolf.zetterberg@sjofartsverket.se](mailto:rolf.zetterberg@sjofartsverket.se)

**Swedish Maritime Administration**

Mr. Johan WINELL

S-601 78 Norrköping

Sweden

Phone +46 11 191 186

Mobile phone: +46 708 191 186

e-mail [johan.winell@sjofartsverket.se](mailto:johan.winell@sjofartsverket.se)

**Swedish Transport Agency**

Mr Sebastian IRONS

Marititme Department

60 173 Norrköping

Sweden

Phone +46 10 4953331

e-mail [sebastian.irons@transportstyrelsen.se](mailto:sebastian.irons@transportstyrelsen.se)

**Swedish Transport Agency**

Capt Philip KEMPE

Maritime Department

Sjöfartsavdelningen

60 173 Norrköping

Sweden

Phone +46 771 503 503

Mobile phone: +46 10 495 32 05

e-mail [Philip.Kempe@transportstyrelsen.se](mailto:Philip.Kempe@transportstyrelsen.se)

e-mail (alternative) [philipkempe@yahoo.com](mailto:philipkempe@yahoo.com)

**Turkey** **Directorate General of Coastal Safety**

Mr. M. Celalettin UYSAL

Meclisi Mebuson CAD N° 18

Salipazari

Istanbul

Turkey

Phone + 90 212 298 5245

Fax +90 212 243 1122

Mobile phone: +90 505 292 1316

e-mail [celalettin.uysal@kiyiemniyeti.gov.tr](mailto:celalettin.uysal@kiyiemniyeti.gov.tr)

e-mail (alternative) [mcelalettinuysal@gmail.com](mailto:mcelalettinuysal@gmail.com)

**UK** **GLA-RRNAV**

Dr Alan GRANT

Trinity House

The Quay, Harwich, Essex

CO12 3JW

UK

Phone +441255 245 141

Mobile phone: +44 774 7768445

e-mail [alan.grant@gla-rrnav.org](mailto:alan.grant@gla-rrnav.org)

**Kelvin Hughes**

Mr David TURNAGE

KH, New North Road

Hainault, Ilford, Essex

1G6 2UR

UK

Phone +44 7834328890

Mobile phone: +44 7834 328890

e-mail [dave.turnage@kelvinhughes.co.uk](mailto:dave.turnage@kelvinhughes.co.uk)

**Maritime and Coast Guard Agency**

Mr Richard WOOTTON

Bay 3/01, Spring Place

105 Commercial Road

Southampton SO15 1EG

UK

Phone +44 238 032 9413

Fax +44 238 032 9290

Mobile phone: +44 7901 517041

e-mail [richard.wootton@mcga.gov.uk](mailto:richard.wootton@mcga.gov.uk)

**(Vice**  **GLA - RRNAV**

**Chairman)**

Dr. Nick WARD

12 Mariners Drive

Swanage

Dorset BH19 2SJ

UK

Phone + 44 1929 426 021

Mobile phone: +44 778 112 4289 or +44 7795 367050

e-mail [nick.ward@gla-rrnav.org](mailto:nick.ward@gla-rrnav.org)

e-mail (alternative) [nick.ward@fsmail.net](mailto:nick.ward@fsmail.net)

**USA** **American Pilots Association**

Mr Paul KIRCHNER

499 South Capitol Street, S.W.

Suite 409

Washington DC 20003

USA

Phone +1 202 484 0700

Fax +1 202 484 9320

Mobile phone: +1 202 841 5190

e-mail [pkirchner@americanpilots.org](mailto:pkirchner@americanpilots.org)

e-mail (alternative) [apaxdir@aol.com](mailto:apaxdir@aol.com)

**Tideland Signal Corporation**

Mr. Paul MUELLER

4310 Director's Row

Houston, Texas 77092

USA

Phone + 1 713 681 6101

Fax + 1 713 682 4635

Mobile phone: +1 713 851 6426

e-mail [paulm@tidelandsignal.com](mailto:paulm@tidelandsignal.com)

**US army Corps of Engineers**

Mr. Brian TETREAULT

1528 Light Street

Baltimore, MD 21230

USA

Phone

Fax

Mobile phone: +1 410 456 0417

e-mail [brian.j.tetreault@usace.army.mil](mailto:brian.j.tetreault@usace.army.mil)

e-mail (alternative) [brian@maritimespatial.com](mailto:brian@maritimespatial.com)

**US Coast Guard**

Mr Jorge ARROYO

2100 2nd Street SW

Washington DC 20593-0001

USA

Phone +1 202 372 1563

Fax +1 202 372 1990

Mobile phone: +1 202 257 8865

e-mail [jorge.arroyo@uscg.mil](mailto:jorge.arroyo@uscg.mil)

**US Coast Guard**

Mr Bill KAUTZ

Commandant (CG-652)

2100 2nd Street SW

Washington DC 20593-0001

USA

Phone +1 202 475 3553

Mobile phone: +1 202 375 9994

e-mail [william.d.kautz@uscg.mil](mailto:william.d.kautz@uscg.mil)

**USCG**

Lt Robert LEWALD

Commandant (CG-5531)

2100 2nd Street SW

Washington DC 20593

USA

Phone +1 202 372 1549

Mobile phone: +1 228 342 3917

e-mail [Robert.D.Lewald@uscg.mil](mailto:Robert.D.Lewald@uscg.mil)

**USA (Chair)** **US Coast Guard**

Mr. William CAIRNS

Commandant (CG-553)

2100 2nd Street SW

Washington DC 20593

USA

Phone +1 202 372 1557

Fax +1 202 372 1930

Mobile phone: +1 202 230 8069

e-mail [william.r.cairns@uscg.mil](mailto:william.r.cairns@uscg.mil)

1. WORKING GROUP PARTICIPANTS
2. Operations and Strategy

|  |  |  |
| --- | --- | --- |
|  | **Name** | **Organization / Country** |
|  | David Patraiko (Chair) | The Nautical Institute |
|  | Mahesh Alimchandani (Vice Chair) | Australian Maritime Safety Authority |
|  | André Châteauvert | Canadian Coast Guard |
|  | Jean-Charles Cornillou | CETMEF / France |
|  | Peter Douglas | NLB / Scotland |
|  | Jon Leon Ervik | Norwegian Coastal Administration |
|  | Steve Guest | Kongsberg Norcontrol IT |
|  | Braik Herve | Thales Communications & Security / France |
|  | Sebastian Irons | Swedish Transport Agency (STA) |
|  | Hyung Jun Kim | MLTM / Korea |
|  | Galin Nikolov | Bulgarian Port Infrastructure |
|  | Jan-Hendrik Oltmann | German Federal Waterways and Shipping Administration |
|  | Paul Kirchner | American Pilots’ Association |
|  | Pieter Paap | The Netherlands Ministry of Infrastructure and for the Environment |
|  | Jochen Ritterbusch | German Federal Maritime and Hydrographic Agency (BSH) |
|  | Gurpreet Singhota | IMO |
|  | Robert Tremlett | eXactEarth / Canada |
|  | Finn Martin Vallersnes | Norwegian Coastal Administration |
|  | Nick Ward | GLA R&RNAV / UK |

1. PNT / Sensors

|  |  |  |
| --- | --- | --- |
|  | **Name** | **Organization / Country** |
|  | Alan Grant (Chair) | GLA RRNAV / UK |
|  | Colin Day (Vice Chair) | Commissioners of Irish Lights |
|  | Ivan M Carlsson | DMA / Denmark |
|  | Marek Dziewicki | Maritime Office Gdynia / Poland |
|  | Evelin Engler | DLR / Germany |
|  | Kaisu Heikonen | FMA / Finland |
|  | Michael Hoppe | German Federal Waterways & Shipping Administration |
|  | Goran Jedrejcic | Trimble Navigation / Germany |
|  | Takuo Kashiwa | Furuno Electric / Finland |
|  | Bjornar Kleppe | NCA / Norway |
|  | Tatsuya Kojima | Furuno Electric / Finland |
|  | Rob Langen | Rijkswaterstaat / The Netherlands |
|  | Pierre-Yves Martin | French Maritime and Inland Waterways Institute |
|  | Thoralf Noach | German Aerospace Centre |
|  | Victor Placido da Conceicao | Instituto Hydrografico / Portugal |
|  | Ki Yeol Seo | Korea Ocean Research & Development Institute |
|  | Luo Siming | Guang Dong Maritime Administration / China |
|  | David Turnage | Kelvin Hughes / UK |
|  | Nick Ward | GLA R&RNAV / UK |
|  | Johan Winell | Swedish Maritime Administration / Sweden |

1. AIS

|  |  |  |
| --- | --- | --- |
|  | **Members** | **Organization / Country** |
|  | Rolf Zetterberg (Chair) | Swedish Maritime Administration |
|  | Jorge Arroyo (Vice Chair) | United States Coast Guard |
|  | Peter Andersen | CIRM / Thrane & Thrane |
|  | Peter Blackhurst | CIRM I/ NMARSAT |
|  | Stefan Bober | Federal Waterways and Shipping Administration / Germany |
|  | Francesco Borghese | ELMAN srl / Italy |
|  | Peggy Browning | exactEarth / Canada |
|  | Michael Card | Zeni Lite Buyo Co Ltd, Japan |
|  | Yann Guichoux | CETMEF / France |
|  | Kaisu Heikonen | Finnish Transport Agency |
|  | Qing Hu | China, Dalian Maritime University |
|  | Jens K Jenssen | Danish Maritime Authority |
|  | Jinju Lee | Woorimarine Co Ltd. / Republic of Korea |
|  | Joa Hyung Lee | ETRI / Republic of Korea |
|  | Albarran Maecew | Directemar, / Chile |
|  | David Martin | exactEarth / Canada |
|  | Yoshio Miyadera | Japan Radio Co Ltd |
|  | Hideki Naguchi | Japan Coast Guard |
|  | Michael Poon | Marine Department / Hong Kong China |
|  | Chistian Renet | Thales / France |
|  | Christian Rissone | ITU |
|  | Alar Siht | Estonian Maritime Administration |
|  | Brian Tetrault | Army Corps of Engineers / United States |
|  | M Celattin Uysal | DGCS / Turkey |
|  | Antonio Vollero | Italian Coast Guard |
|  | Nick Ward | GLA R&RNAV / UK |
|  | Richard Wootton | Maritime & Coastguard Agency / UK |

1. Communications

|  |  |  |
| --- | --- | --- |
|  | **Members** | **Organization / Country** |
|  | William Kautz (Chair) | United States Coast Guard |
|  | Peter Blackhurst (Vice Chair) | CIRM/INMARSAT |
|  | Jorge Arroyo | United States Coast Guard |
|  | Stefan Bober | Federal Waterways and Shipping Administration / Germany |
|  | Francesco Borguese | ELMAN / Italy |
|  | Peggy Browning | eXactearth / USA |
|  | Sigmund Andreas Breivik | Norwegian Coastal Administration |
|  | Michael Card | Zeni Lite Buoy Co. Ltd. / Japan |
|  | Yann Guichoux | CETMEF/France |
|  | Kaisu Heikonen | Finnish Transport Agency |
|  | Qing Hu | China MSA |
|  | Jens Jensen | Danish Maritime Authority |
|  | Phillip Kempe | STA / Sweden |
|  | Joa Hyoung Lee | ETRI / Republic of Korea |
|  | David Martin | ExactEarth / Canada, |
|  | Yoshio Miyadera | Japan Radio Co. Ltd. |
|  | Hideki Noguchi | Japan Coast Guard |
|  | Michael Poon | Marine Department / Hong Kong China |
|  | Christian Renet | Thales / France |
|  | Christian Rissone | ITU |
|  | Brian Tetreault | Corps of Engineers / USA |
|  | Antonio Vollero | Italian Coast Guard |
|  | Nick Ward | GLA R&RNAV / UK |
|  | Richard Wooton | MCA / UK |

1. Technical Architecture

|  |  |  |
| --- | --- | --- |
|  | **Members** | **Organization / Country** |
|  | Jan-Hendrik Oltmann (Chair) | German Federal Waterways and Shipping Administration |
|  | Paul Mueller (Vice Chair) | Tideland Signal / USA |
|  | Bill Cairns | United States Coast Guard |
|  | Sergey Cherepanov | TRANSAS / Russia |
|  | Michele Fiorini | **SELEX Sistemi Integrati / Italy** |
|  | Jarle Hauge | Norwegian Coastal Administration |
|  | René Hogendoorn | HITT Traffic / The Netherlands |
|  | Peter Hooijjmans | The Netherlands Ministry of Infrastructure and for the Environment |
|  | Jaeyang Park | Dongseo University / Republic of Korea |
|  | Paolo Renzi | Italian Coast Guard |
|  | Gilles Soussain | CETMEF / France |
|  | Nick Ward | GLA R&RNAV / UK |
|  | Yung-Ho Yu | Korea Maritime University |

1. Information Portrayal (WG6)

|  |  |  |
| --- | --- | --- |
|  | **Members** | **Organization / Country** |
|  | Lee Alexander (Chair) | University of New Hampshire / USA |
|  | Junji Fukuto (Vice Chair) | National Maritime Research Institute / Japan |
|  | Artur Baranowski | SPRINT / Poland |
|  | Manuel Maricio Camilo | Instituto Hydrografico / Portugal |
|  | John Clandillon-Baker | IHMA |
|  | Michael Bergmann | Jeppesen / Norway |
|  | Yong Won Kim | GMT / Republic of Korea |
|  | Albrecht Kramer | BundeLotsenskammer / Germany / IMO |
|  | James Langley | ICS |
|  | David Lewald | United States Coast Guard |
|  | Hideki Noguchi | Japan Coast Guard |
|  | Andy Norris | Nautical Institute / UK |
|  | Suhyun Park | Dongseo University / Republic of Korea |
|  | Simon Pelletier | IMPA / Canada |
|  | Thomas Porathe | Chalmers University of Technology & DaMSA / Sweden |
|  | Michael Rambaut | CIRM |
|  | Alexander Sosonkin | Transas Technologies Ltd. / Russia |

1. LIST OF INPUT PAPERS

**All papers are posted on the FTP server**

Items highlighted are not on the Committee website.

1. Approval of the agenda

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Presented by** | **Posting** |
| e-NAV11/1/1 rev5 | Draft Agenda | B Cairns (BC) / IALA | At meeting |
| e-NAV11/1/2 | Programme for the week *(to be issued after the Chairman’s Meeting)* | BC / IALA |  |

1. Review of action items from last meeting

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Presented by** | **Posting** |
| e-NAV11/2/1 rev1 | Action Items from e-NAV10 | BC / IALA | 1 |

1. Review of input papers & inter-sessional Working Group reports

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Presented by** | **Posting** |
| e-NAV11/3/1 rev8 | Provisional List of Input Papers *(to be finalised at the Chairman’s pre-meeting)* | BC / IALA | At meeting |

1. Reports from other bodies

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Presented by** | **Posting** |
| e-NAV11/4/1 | IALA Council 52nd Session | BC / IALA | 2 |
| e-NAV11/4/2 | PAP22 Report | BC / IALA | 1 |
| e-NAV11/4/3 | COMSAR 16 Report | BC / IALA | V late |

1. Presentations

| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| --- | --- | --- | --- |
| e-NAV11/5/1 | WWA brief | All | Late |

1. Establish Working Groups
2. Working Group 1 – Operations & Strategy
   1. Monitor and co-ordinate input on Strategy & Operations to the IMO process (Task1\*)
   2. Review and update IALA Strategy for e-Navigation (Task 2\*)
   3. Maintain and update user requirements (in co-ordination with the VTS Committee) (Task 3\*)
   4. Monitor developments in navigation for polar regions (Task 4\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/7/1 | Roadmap Vision (PPT) | 1/2/3/4/5/6 | 1 |
| e-NAV11/7/2 | Report of Nautical Institute e-Navigation Usability Workshop | 1/2/3/6 | 2 |
| e-NAV11/7/3 | Draft report NAV58 | 1 | Late |
| e-NAV11/7/4 | Draft report NAV58 Annex 2 | 1 | Late |
| e-NAV11/7/5 | Draft report NAV58 Annex 3 | 1 | Late |
| e-NAV11/7/6 | Draft report NAV58 Annex 4 | 1 | Late |

1. WG 2 – PNT/Sensors
   1. Review and update the World Wide Radio Navigation Plan (Task 5\*)
   2. Prepare Recommendations and Guidelines on PNT systems and radar AtoN (Task 6\*)
   3. Co-ordinate input to IMO, ITU and IEC on PNT systems(Task 7\*)
   4. Prepare a Guideline on establishment and operation of navigation systems in polar regions (Task 8\*)
   5. Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems (Task 9\*)
   6. Prepare a Guideline on recommended measures for disaster recovery (Task 10\*)
   7. Monitor developments in radar technology and their effect on racons (Task 11\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/8/1 | Revision of Recommendation R-129 | 2 | 2 |
| e-NAV11/8/2 | Draft revised IALA WWRNP | 2/4 | 3 |
| e-NAV11/8/3 | Report of Correspondence Group Meeting of IALA e-NAV working group 2 (28 Feb. - 1 March 2012) | 2 | 3 |
| e-NAV11/8/4 | Performance Standard for Multi-system Navigation Receiver Equipment | 2 | 3 |
| e-NAV11/8/5 | Modular and open concept of Integrated PNT System | 2 | 3 |
| e-NAV11/8/6 | RNAV ENG Training Course Outline  (see e-NAV11/14/1) | 2 | 4 |
| e-NAV11/8/7 | Briefing - Action plan for the ERNP | 2 | 4 |
| e-NAV11/8/8 | GNSS update | 2 | 4 |

1. WG 3 – AIS
   1. Review and update documentation on AIS (M.1371; A-124, A-126) (Task 12\*)
   2. Co-ordinate input to IMO, ITU, and IEC on AIS (Task 13\*)
   3. Monitor and contribute to development of AIS, including the next generation of AIS (Task 14\*)
   4. Monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS and terrestrial long range AIS (Task 15\*)
   5. Monitor developments in the use of AIS in polar regions (e.g. AIS AtoN) (Task 16\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/9/1 | Report of the joint meeting of the AIS TWG and the COMMUNICATION WG of the IALA e-Nav Committee, 12th Intersessional meeting held 5-9 March 2012, in San Francisco, USA | 3/4 | 4 |
| e-NAV11/9/2 | Plan for AIS and VHF Data Communications in e-Navigation | 3/4 | 4 |
| e-NAV11/9/3 | Report on the eighth meeting of ITU-R working party 5b | 3/4 | At meeting |
| e-NAV11/9/4 | Liaison note from IEC to IALA e-NAV Committee | 3/4 | At meeting |

1. WG 4 – Communications
   1. Review and update IALA Maritime Radio Communications Plan (Task 17\*)
   2. Prepare Recommendations and Guidelines on communications (Task 18\*)
   3. Co-ordinate input to ITU, IMO, and IEC on communications (Task 19\*)
   4. Prepare a Guideline on the establishment and operation of communications systems in polar regions (Task 20\*)
   5. Monitor developments in GMDSS and LRIT (Task 21\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/10/1 | Communications in Polar Areas | 4 | 1 |
| e-NAV11/10/2 | IALA MRCP Ed1 Dec2009 | 4 | 1 |
| e-NAV11/10/3 | Next Generation Combined AIS-VHF | 4/3 | 1 |
| e-NAV11/10/4 | Essential Communications Elements of e-Navigation | 4 | 1 |
| e-NAV11/10/5 | Liaison note from ITU WP5B | 4 | 1 |
| e-NAV11/10/6 | Draft GSMD Guideline | C/VC | 1 |
| e-NAV11/10/7 | Revised IALA WWRNP | 4/2 | 2 |

1. WG 5 – Technical Architecture
   1. Develop and maintain shore-based e-Navigation architecture (Task 22\*)
   2. Prepare Recommendations and Guidelines on e-Navigation architecture (Task 23\*)
   3. Co-ordinate input to IMO, IHO, ISO, IEC and CIRM on e-Navigation architecture (Task 24\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/11/1 | Draft revision e-NAV-140 (Ed2) | 5 | 1 |
| e-NAV11/11/2 | Proposed data modelling group | 5 | 1 |
| e-NAV11/11/3 | Report to IMO CG 7Sep11 | 5 | 1 |
| e-NAV11/11/4 | e-Navigation - a vision by Andy Norris | 5 | 1 |
| e-NAV11/11/5 | What does WG5 want from the TSMAD meeting | 5 | 1 |
| e-NAV11/11/6 | IHO-IALA Meeting Report | 5 | 1 |
| e-NAV11/11/7 | The IHO S-100 Standard and e-Navigation Information | 5 | 1 |
| e-NAV11/11/8 | Considerations for IALA's potential role at HGDM | 5 | 1 |
| e-NAV11/11/9 | Functional requirements for shipboard technical architecture as seen from ashore - 'Shopping List' | 5/6 | 1 |
| e-NAV11/11/10 | Liaison note from ANM on e-Navigation Architecture 'PictureBook' Information Paper e-NAV-140 | 5 | 1 |
| e-NAV11/11/11 | Navigation Architecture 'PictureBook' Information Paper e-NAV-140 ANM edits and comments | 5 | 1 |

1. WG 6 – Information Portrayal
   1. Prepare Recommendations and guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) (Task 25\*)
   2. Prepare Recommendations and guidelines on the portrayal of information (Task 26\*)
   3. Monitor developments in ECDIS, INS, and ENCs (Task 27\*)

| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| --- | --- | --- | --- |
| e-NAV11/12/1 | WG6 - Work Plan for e-NAV11 | 6 | 4 |
| e-NAV11/12/2 | WG6 Chair Memo to IALA e-NAV WG6 | 6 | 4 |
| e-NAV11/12/3 | WG6 Report to e-NAV10 | 6 | 4 |
| e-NAV11/12/4 | Liaison note from VTS34 response on Portrayal | 6 | V late |

1. Monitor and report progress on related systems (Task 28\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/13/1 |  |  |  |

1. Liaise with other IALA Committees and other bodies (Task 29\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/14/1 | Liaison Note from EEP on WWA AtoN Training  (see e-NAV11/8/6) | 2 | 1 |
| e-NAV11/14/2 | Liaison note to all committees by ANM on the NAVGUIDE | C/VC | 1 |
| e-NAV11/14/3 | NAVGUIDE 2014 Timetable | C/VC | 1 |
| e-NAV11/14/4 | Action Plan | C/VC | 1 |

1. Prepare a combined IALA e-Navigation Plan (all Committees) (Task 30\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/15/1 |  |  |  |

1. Consider the regulatory process for e-Navigation and recommend the best approach (Task 31\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/16/1 | Regulatory Process | 1 | 3 |
| e-NAV11/16/2 | Cover note for Report of IMO Correspondence Group on AIS-AtoN | INF | V late |
| e-NAV11/16/3 | Report of IMO Correspondence Group on AIS-AtoN | INF | V late |

1. Manage the IALA domain, according to IHO Standards s-100 & S-99 (Task32\*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/17/1 | Draft Report of IHO / IALA meeting – 21 to 24 February 2012 | C/VC | 3 |
| e-NAV11/17/1 rev1 | Report of IHO / IALA meeting – 21 to 24 February 2012 | INF | 4 |
| e-NAV11/17/2 | Draft Liaison Note to IHO | C/VC All | 3 |
| e-NAV11/17/3 | Draft Information Paper to Council on S-100 | C/VC All | 3 |
| e-NAV11/17/4 | IALA participation in IHO S-100 - impact assessment | C/VC All | 3 |
| e-NAV11/17/5 | Liaison note on Product Specification ownership and development | All | 3 |
| e-NAV11/17/6 | Briefing on Guideline for IALA Procedures under S-100 GI Registry | C/VC | 3 |
| e-NAV11/17/6 rev1 | Briefing on Guideline for IALA Procedures under S-100 GI Registry | C/VC | 4 |
| e-NAV11/17/7 | Draft S-100 IVEF Product Specification | C/VC | 3 |
| e-NAV11/17/8 | IALA Recommendation 145 on the IVEF | C/VC | 3 |
| e-NAV11/17/9 | Draft AtoN Information Product Specification | C/VC | 3 |
| e-NAV11/17/10 | Draft AIS Product Specification | 3 | 3 |
| e-NAV11/17/11 | Draft Guideline on participation in the Geospatial Information Registry | C/VC 5 | 4 |
| e-NAV11/17/12 | Liaison note from VTS34 on the IVEF Product Specification | C/VC | V late |

1. Future Work Programme (2014 – 2018)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/18/1 | 2014 – 2018 Work Programme | VC All | 2 |

1. Review of output and working papers
2. Any Other Business
   1. Working Group Terms of Reference (ToR)
   2. Workshop – e-Navigation for AtoN Authorities (May 2013)
   3. Test-bed guidelines

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV11/20/1 | Draft ToR WG1 (Please note change in document numbering) | C/VC | 1 |
| e-NAV11/20/2 | Draft ToR WG2 | C/VC | 1 |
| e-NAV11/20/3 | Draft ToR WG3 | C/VC | 1 |
| e-NAV11/20/4 | Draft ToR WG4 | C/VC | 1 |
| e-NAV11/20/5 | Draft ToR WG5 | C/VC | 1 |
| e-NAV11/20/6 | Draft ToR WG6 | C/VC | 1 |
| e-NAV11/20/7 | Input - Test-bed guidelines | 1/2 | 2 |

**Information Papers**

|  |  |  |
| --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Posting** |
| e-NAV11/INF/1 | IMO CG schedule 2011-2012 | 1 |
| e-NAV11/INF/2 | Meeting dates 2012 - 2014 post C52 | 2 |

1. Date and venue of next meeting
2. Review of session report
3. LIST OF OUTPUT AND WORKING PAPERS

Output papers are submitted for review by a body other than the Committee initiating the paper.

| Number | Title | Status |
| --- | --- | --- |
| e-NAV11/output/1 | Draft e-NAV11 Report | To Council to note |
| e-NAV11/output/2 | Liaison Note to ANM and EEP on AtoN Information – draft Product Specification | To EEP 18 & ANM18 |
| e-NAV11/output/3 | Liaison Note to VTS35 on the IVEF Product Specification | To VTS35 |
| e-NAV11/output/4 | Liaison Note to IHO on Applications to Participate in the IHO Registry | To Council to approve |
| e-NAV11/output/5 | Information Paper to Council on S-100 | To Council to note  To EEP18, ANM18 & VTS35 for information |
| e-NAV11/output/6 | Information Paper on Guideline for IALA Procedures under S-100 | To Council to note |
| e-NAV11/output/7 | Draft Liaison Statement to ITU-R WP5B on proposed changes to Recommendations | To Council to approve.  Deadline for submission 15 May |
| e-NAV11/output/8 | Draft Liaison Statement to ITU-R WP5B on VDE | To Council to approve.  Deadline for submission 15 May |
| e-NAV11/output/9 | Liaison note to ITU-R WP 5B on the timing of submission of changes to 1371-4 | To Council to approve.  Deadline for submission 15 May |
| e-NAV11/output/10 | Liaison Note to PAP & Committees on the Plan for AIS and VDE | To PAP23, EEP18, ANM18 & VTS35 |
| e-NAV11/output/11 | Liaison note to IEC regarding changes to 1371-4 | To Council to approve |
| e-NAV11/output/12 | Draft Guideline on Procedures for the Management of the IALA Domains under the IHO Registry | To Council to approve |
| e-NAV11/output/13 | Liaison note to IHO on Development of Recommendations & Guidelines on e-Navigation Portrayal | To Council to approve |
| e-NAV11/output/14 | Liaison Note to ANM on draft revised GSMD Guideline | To ANM18 |
| e-NAV11/output/15 | Draft revised GSMD Guideline | To ANM18 |
| e-NAV11/output/16 | Liaison note to ANM re NAVGUIDE | To ANM18 |
| e-NAV11/output/17 | IMO INF paper to NAV 58 - PNT | To Council to approve.  Deadline for NAV58 27 April |
| e-NAV11/output/18 | Liaison Note to EEP on WWA AtoN Training | To EEP18 |
| e-NAV11/output/19 | IMO paper to NAV 58 - e-Navigation implementation plan | To Council to approve.  Deadline for NAV58 27 April |
| e-NAV11/output/20 | Roadmap, Strategy items and 2014 – 2018 Work Plan | To PAP23 & PAP / Strategy group |

Working Papers are papers that will remain within the committee for further review.

|  |  |  |
| --- | --- | --- |
| Number | Title | Status |
| e-NAV11/WG1/WP1 | Updating Ch4 of the IALA NAVGUIDE | To e-NAV12 |
| e-NAV11/WG1/WP2 | e-Navigation Roadmap | To e-NAV12 |
|  |  |  |
| e-NAV11/WG2/WP1 | Draft information paper on changes to radar frequency | To e-NAV12 |
| e-NAV11/WG2/WP2 | Draft performance specification for NAV59 | To e-NAV12 |
|  |  |  |
| e-NAV11/WG3/WP1 |  |  |
|  |  |  |
| e-NAV11/WG4/WP1 | Draft Polar Communicationss | To e-NAV12 |
| e-NAV11/WG4/WP2 | IALA MRCP Ed1 29Mar2012 | To e-NAV12 |
|  |  |  |
| e-NAV11/WG5/WP1 | Functional Requirements For Shipboard Technical Architecture As Seen From Ashore | To e-NAV12 |
| e-NAV11/WG5/WP2 | Domain Layout Proposal For HGDM | To e-NAV12 |
| e-NAV11/WG5/WP3 | The following changes are proposed for consideration by IHO v1 | To e-NAV12 |
| e-NAV11/WG5/WP4 | Draft Architecture 101 Information Paper rev2 | To e-NAV12 |
|  |  |  |
| e-NAV10/WG6/WP1 |  |  |

1. ACTION ITEMS

Action Items for the IALA Secretariat

1. The IALA Secretariat is requested to seek approval from the IALA Council by e-mail to forward the comments of the IALA e-Navigation Committee (e-NAV11/output/19) to IMO NAV 58 by 27 April 2012. 11
2. The IALA Secretariat is requested to forward the road map for e-Navigation (e-NAV11/WG1/WP2) to e-NAV12. 12
3. The IALA Secretariat is requested to forward the road map for e-Navigation (e-NAV11/output/20) to the PAP23. 12
4. The IALA Secretariat is requested to forward the road map for e-Navigation (e-NAV11/output/20) to the next joint PAP and IALA Council Strategy Group meeting (October 2012). 12
5. The IALA Secretariat is requested to forward e-NAV11/WG1/WP1 (list of sections of the IALA NAVGUIDE and the working groups identified to review and update them) to e-NAV12. 12
6. The IALA Secretariat is requested to forward liaison note e-NAV11/output/16 outlining the e-NAV Committee’s plan to conduct a review of the IALA NAVGUIDE to the ANM Committee. 12
7. The Secretariat is requested to forward the liaison note on the proposed course content for a radionavigation module (e-NAV11/output/18) to the EEP Committee. 13
8. The Secretariat is requested to forward e-NAV11/output/17 (Information Paper on the Maritime Integrated PNT system) to Council for approval, by e-mail (deadline 27 April 2012). 13
9. If approved, the Secretariat is requested to send e-NAV11/output/17 (Information paper on the Maritime Integrated PNT system) to NAV58. 13
10. The Secretariat is requested to forward Revision of R-129 (e-NAV11/8/1) to e-NAV12. 13
11. The Secretariat is requested to forward e-NAV11/WG2/WP1 (Information Paper on changes to radar frequencies) to e-NAV12. 14
12. The Secretariat is requested to forward the Liaison Note on the Plan for AIS and VDE (e-NAV11/output/10) to PAP23, EEP18, ANM18 & VTS35 for their information and comment. 15
13. The Secretariat is requested to forward e-NAV11/WG4/WP2 (Maritime Radio Communications Plan Ed1 Dec2009) to e-NAV12. 16
14. The Secretariat is requested to forward e-NAV11/output/7 (Draft Liaison Statement to ITU-R WP5B on Proposed changes to Recommendations ITU-R M.824-3 and ITU-R M.1176) to Council for approval by e-mail (Deadline 1 May 2012). 16
15. If approved, the Secretariat is requested to forward e-NAV11/output/7 (Draft Liaison Statement to ITU-R WP5B on Proposed changes to Recommendations ITU-R M.824-3 and ITU-R M.1176) to ITU-R WP5B (Deadline 15 May 2012). 16
16. The Secretariat is requested to forward e-NAV11/output/8 (Draft Liaison Statement to ITU-R WP5B on the Plan for Future VHF Data Communications) to Council for approval by e-mail (Deadline 15 May 2012). 16
17. If approved, the Secretariat is requested to forward e-NAV11/output/8 (Draft Liaison Statement on the Plan for Future VHF Data Communications) to ITU-R WP5B (Deadline 15 May 2012). 16
18. The Secretariat is requested to forward e-NAV11/output/9 (Draft Liaison note to the ITU-R WP5B on the timing of submissions of changes to ITU-R M1371-4) to Council for approval by e-mail (Deadline 15 May 2012). 16
19. If approved, the Secretariat is requested to forward e-NAV11/output/9 (Draft Liaison note to the ITU-R WP5B on the timing of submissions of changes to ITU-R M1371-4 to ITU-R WP5B (Deadline 15 May 2012). 16
20. The Secretariat is requested to forward e-NAV10/WG4/WP1 (Communications in Polar Areas) to e-NAV12 16
21. The Secretariat is requested to forward e-NAV11/11/2, e-NAV11/11/5, e-NAV11/11/6 and e-NAV11/11/7 to e-NAV12 as input for further consideration under the Task 32 (agenda item 17, Manage the IALA Domains according to IHO Standards S-100 & S-99). 17
22. The Secretariat is requested to forward e-NAV11/11/1 (draft revision of Recommendation e-NAV 140) to e-NAV12 under Task 23 (agenda item 11). 17
23. The Secretariat is requested to forward the Draft Architecture 101 Information Paper rev 2 (e-NAV11/WG5/WP4) to e-NAV12 and to PAP23, for discussion. 17
24. The Secretariat is requested to forward the Draft S-100 GI registry Guidelline (e-NAV11/output/12) as an attachment to the information paper on IALA domains at IHO Registry based on S-100 (e-NAV/output/5) to Council for approval. 19
25. If approved, the Secretariat is requested to forward e-NAV11/output/5 & e-NAV11/output/12 to VTS35, EEP19 & ANM19 for information. 19
26. The Secretariat is requested to forward e-NAV11/WG5/WP1 to e-NAV12. 19
27. The Secretariat is requested to forward e-NAV11/WG5/WP2 to e-NAV12. 19
28. The Secretariat is requested to forward e-NAV11/WG5/WP3 to e-NAV12. 19
29. The Secretariat is requested to forward the liaison note to IHO on the development of Recommendations and Guidelines on e-Navigation Portrayal (e-NAV11/output/13) to Council for approval. 20
30. If approved, the Secretariat is requested to forward the liaison note on the development of Recommendations and Guidelines on e-Navigation Portrayal (e-NAV11/output/13) to the IHO. 20
31. The Secretariat is requested to forward the Liaison Note to IHO on Applications to Participate in the IHO Registry (e-NAV11/output/4) to Council for approval. 22
32. The Secretariat is requested to forward the Information Paper to Council on S-100 (e-NAV11/output/5) to Council for approval. 22
33. The Secretariat is requested to forward Briefing Note on Guideline for IALA Procedures under S-100 (e-NAV11/output/6) to Council for approval. 22
34. The Secretariat is requested to forward the Draft S-100 GI registry Guideline (e-NAV11/output/12) to Council for approval. 22
35. The Secretariat is requested to forward e-NAV11/11/2 and e-NAV11/20/1 to e-NAV11/20/6 to e-NAV12. 23
36. The Secretariat is requested to forward the liaison note on the draft Guideline on GSMD (e-NAV11/output/14) to ANM18. 23
37. The Secretariat is requested to forward the marked up draft Guideline on GSMD (e-NAV11/output/15) to ANM18. 23
38. The Secretariat is requested to forward the report of e-NAV11 (e-NAV11/output/1) to the Council, to note. 24

Action items for members

1. Committee members are requested to provide an input paper on disaster recovery to e-NAV12. 6
2. Committee members from Canada and Norway are requested to submit a report on e-navigation issues for Polar Regions to e-NAV12. 6
3. Committee members from Norway are requested to submit a report on the results of the MEH testbed to e-NAV12. 6
4. Jan-Hendrik Oltmann is requested to develop an explanatory document, which would complement the presentation he made on the IHO Registry. 11
5. All Working Group Chairs are requested to commence reviewing and updating sections of the IALA NAVGUIDE allocated to their groups in e-NAV11/WG1/WP1, with a view to completing the work by March 2013 (e-NAV13). 12
6. Members of Working Group 5 are requested to consider the working paper e-NAV11/WG5/WP2 when preparing for the HGDM. 18
7. Korea is requested to prepare a presentation on their contribution to the emerging CMDS and the IHO Registry. 18
8. e-NAV Committee members are encouraged to submit e-Navigation Portrayal examples in to Lee Alexander in time for e-NAV12. In particular, more shore-based examples are needed. 20
9. Committee members are requested to provide further input on the future Work Programme to e-NAV12, noting that this the last opportunity to meet the Council’s deadline for the submission of both strategy and work items. 23
10. REVISION OF THE WORK PROGRAMME

(Changes made at e-NAV11 have been highlighted)

e-Navigation is an holistic concept of enhanced navigation through electronic systems, based on user needs and derived user requirements. In particular, the e-Navigation concept simultaneously targets:

* the harmonization of shipborne and shore-based functionality;
* the harmonization of shore-based operational and technical functionalities and services of different shore-based stake-holders;
* multi-dimensional quality improvements of shore-based operational and technical services;
* demonstration of service levels achieved, using appropriate management and engineering methods.

The e-NAV Committee deals with:

* progressive contributions to IMO and other relevant international bodies to support the IMO stated ‘core goals’ and ‘key strategic elements’ of its e-Navigation concept and to reap its intended, stated ‘benefits’;
* harmonized derivation of user requirements from stated user needs, both existing and new, regarding shore-based operational services as well as technical services and systems, in close liaison with other IALA Committees;
* the appropriate description of operational presentation surfaces to shore-based users, employing the methodology of information portrayal;
* radio navigation and communications services and systems for the provision of integrated electronic navigation information (including AIS, GNSS, etc.);
* the architectural aspects of IMO’s e-Navigation concept, in particular regarding harmonized concepts such as the (IALA) Universal Maritime Data Model (UMDM), the (IALA) Maritime Data Exchange Format (MDEF), and the IALA Common Shore-based System Architecture (CSSA);
* the impact of IMO’s e-Navigation concept on the Work Programme of IALA.

In the work of the Committee, the following general aspects are to be taken into consideration:

* Strategic focus of IALA;
* Harmonized use of definitions and terms;
* Concepts associated with risk Assessment / management;
* IMO e-Navigation strategy;
* Work Programme 2010 – 2014.

| Task | Estimated number of sessions | WG | Deliverable | Strategy element(s) |
| --- | --- | --- | --- | --- |
| Strategy and operations, User requirements) |  |  |  |  |
| 1. Monitor and co-ordinate input on Strategy & Operations to the IMO process | 7 | 1 | Inputs to NAV, COMSAR, STW & CG | 1.2 |
| 1. Review and update IALA Strategy for e-Navigation | 3 | 1 | Input for PAP | 1.2 |
| 1. Maintain and update user requirements (in co-ordination with the VTS & ANM Committees) | 4 | 1 | Inputs to NAV & CG | 1.2 |
| Monitor developments in navigation for polar regions | 2 | ALL | Recommendation on e-Navigation for polar regions | 11 |
| 1. Position, Navigation, and Timing (Sensors): |  |  |  |  |
| 1. Review and update World Wide Radio Navigation Plan | 3 | 2 | Input to NAV & CG | 1.2 |
| 1. Prepare Recommendations and Guidelines on PNT systems and radar AtoN | 5 | 2 | Revised Racon & DGNSS Recommendation | 10.11 |
| 1. Co-ordinate input to IMO, ITU, and IEC on PNT systems | 4 | 2 | NAV & CG inputs  (Liaison with RTCM SC104) | 1.2, 10.11, 15.2 |
| 1. Prepare a Guideline on establishment and operation of navigation systems in polar regions | 2 | ALL | IALA Recommendation on e-Navigation in polar regions | 10.3, 11 |
| 1. Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems | 4 | 2 | Periodic updates to Committee | 13.2, 13.6, 15.1 |
| 1. Guideline on recommended measures for disaster recovery | 2 | ALL | IALA Guideline | 10.11 |
| 1. Monitor developments in radar technology and their effect on racons | 3 | 2 | Updated Racon Strategy | 13.6 |
| AIS |  |  |  |  |
| 1. Review and update documentation on AIS (M.1371; A-124, A-126) | 4 | 3 | Revised recs. | 5, 10.3 |
| 1. Co-ordinate input to IMO, ITU, and IEC on AIS | 3 | 3 | Liaison notes, CG & NAV inputs | 1.2, 15.2 |
| 1. Monitor and contribute to development of AIS, including the next generation of AIS   *Monitor and contribute to the efficient utilization of AIS, development of future VHF Data Exchange (VDE) and technical standards.* | 4 | 3&4 | Periodic updates | 13.6 |
| 1. Monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS, and terrestrial long range AIS. | 5 | 3 | IEC inputs | 1.2 |
| 1. Monitor developments in the use of AIS in polar regions (e.g. AIS AtoN) | 3 | ALL | IALA Recommendation on e-Navigation in polar regions | 11 |
| Communications: |  |  |  |  |
| 1. Review and update IALA Maritime Radio Communications Plan | 5 | 4 | COMSAR & CG input | 1.2, 15.1 |
| 1. Review Recommendations and Guidelines on communications | 4 | 4 | IALA Recommendations and Guidelines | 10.3 |
| 1. Co-ordinate input to ITU, IMO, and IEC on communications | 4 | 4 | CG & COMSAR inputs | 1.2, 15.2 |
| 1. Prepare a Guideline on establishment and operation of communications systems in polar regions | 2 | ALL | IALA Recommendation on e-Navigation in polar regions | 10.3, 11 |
| 1. Monitor developments in GMDSS and LRIT | 3 | 4 | Periodic updates | 13.2 |
| Architecture: |  |  |  |  |
| 1. Develop and maintain shore-based e-Navigation Architecture | 5 | 5  (assisted by 2,3,4 & 6) | Periodic updates to Committee | 10.11 |
| 1. Prepare Recommendations and Guidelines on e-Navigation architecture | 5 | 5 | IALA Recommendations & Guidelines | 10.3, 10.11 |
| 1. Co-ordinate input to IMO, IHO, ISO, IEC & CIRM on architecture | 3 | 5 | CG & NAV inputs | 1.2, 10.11, 15.2 |
| Information Portrayal: |  |  |  |  |
| 1. Prepare Recommendations and Guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) | 5 | 6/4 | IALA Rec. and inputs to NAV & CG. Liaison with IHO | 10.11, 13.2 |
| 1. Prepare Recommendations and Guidelines on the portrayal of information | 5 | 6 | IALA Rec. and inputs to NAV & CG. IHO liaison | 10.3 |
| 1. Monitor developments in ECDIS, INS and ENCs | 3 | 6 | Periodic updates to Committee | 10.3, 13.2, 15.1 |
| General: |  |  |  |  |
| 1. Monitor and report progress on related systems | 4 | 2/3/4 | Periodic updates | 13.4 |
| 1. Liaise with other IALA Committees and other bodies | 4 | C/VC | Liaison notes, PAP | 1.2, 13.4 |
| 1. Prepare a combined IALA e-Navigation Plan (all Committees) | 4 | C/VC | PAP | 1.2, 13.6 |
| 1. Consider the regulatory process for e-Navigation and recommend the best approach | 3 | ALL | Policy paper for Council | 15.2 |
| 1. Manage the IALA domain, according to IHO standards S-100 & S-99 | 4 | All 5 | IALA procedures.  IALA Domain under S-100 | 10.11 |

Monitoring Items

|  |  |  |
| --- | --- | --- |
| Task | Duration | Strategy element(s) |
| M1 None at this time |  |  |

Deferred Items

|  |  |  |
| --- | --- | --- |
| Task | No. of sessions | Strategy element(s) |
| D1 None at this time |  |  |

**e-NAV Committee Work Plan - 2010 – 2014**

| Task | Session | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1. Monitor and co-ordinate input on Strategy & Operations to the IMO process | X | X | X | X | X | X | X |
| 1. Review and update IALA Strategy for e-Navigation | X | X | X |  |  |  |  |
| 1. Maintain and update user requirements (in co-ordination with the VTS & ANM Committees) |  |  | X | X | X | X |  |
| 1. Monitor developments in navigation for polar regions |  |  |  | X |  |  | X |
| 1. Review and update World Wide Radio Navigation Plan |  | X |  | X |  | X |  |
| 1. Prepare Recommendations and Guidelines on PNT systems and radar AtoN | X | X |  | X | X | X |  |
| 1. Co-ordinate input to IMO, ITU, and IEC on PNT systems | X |  |  | X |  | X | X |
| 1. Prepare a Guideline on establishment and operation of navigation systems in polar regions |  | X |  |  | X |  |  |
| 1. Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems |  | X | X |  | X |  | X |
| 1. Guideline on recommended measures for disaster recovery |  |  | X | X |  |  |  |
| 1. Monitor developments in radar technology and their effect on racons | X |  |  | X |  | X |  |
| 1. Review and update documentation on AIS (M.1371; A-124, A-126) |  | X |  | X |  | X | X |
| 1. Co-ordinate input to IMO, ITU, and IEC on AIS | X |  | X |  |  |  | X |
| 1. Monitor and contribute to development of AIS, including the next generation of AIS   *Monitor and contribute to the efficient utilization of AIS, development of future VHF Data Exchange (VDE) and technical standards.* | X | X | X |  |  | X |  |
| 1. Monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS, and terrestrial long range AIS | X | X |  | X | X |  | X |
| 1. Monitor developments in the use of AIS in polar regions (e.g. AIS AtoN) | X |  | X |  |  | X |  |
| 1. Review and update IALA Maritime Radio Communications Plan |  | X |  | X | X | X | X |
| 1. Review Recommendations and Guidelines on communications | X | X |  | X |  | X |  |
| 1. Co-ordinate input to ITU, IMO, and IEC on communications |  | X |  | X | X |  | X |
| 1. Prepare a Guideline on establishment and operation of communications systems in polar regions | X |  |  | X |  |  |  |
| 1. Monitor developments in GMDSS and LRIT |  | X |  |  | X |  | X |
| 1. Develop and maintain shore-based e-Navigation Architecture | X | X | X | X |  | X |  |
| 1. Prepare Recommendations and Guidelines on e-Navigation architecture | X | X | X | X | X |  |  |
| 1. Co-ordinate input to IMO, IHO, ISO, IEC & CIRM on architecture |  |  | X | X |  | X |  |
| 1. Prepare Recommendations and guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) | X | X |  | X | X |  | X |
| 1. Prepare Recommendations and guidelines on the portrayal of information | X |  | X | X |  | X | X |
| 1. Monitor developments in ECDIS, INS and ENCs |  | X |  | X |  | X |  |
| 1. Monitor and report progress on related systems | X |  | X |  | X |  | X |
| 1. Liaise with other IALA Committees and other bodies |  | X |  | X |  | X | X |
| 1. Prepare a combined IALA e-Navigation Plan (all Committees) | X | X |  |  | X | X |  |
| 1. Consider the regulatory process for e-Navigation and recommend the best approach |  |  | X | X | X |  |  |
| 1. Manage the IALA domain, according to IHO standards S-100 & S-99 |  |  |  | X | X | X | X |