

**Report of the 10th Meeting of the e-Navigation Committee**

**26 – 30 September, 2011**

**Executive Summary**

* 104 members, from 24 countries and 9 sister organisations, attended this meeting of the e-NAV Committee, of which 21 members were new;
* The Committee considered 80 input papers;
* The Committee agreed that IALA should apply to become both a submitting organisation and a domain owner for IHO’s S-100 GI Registry (e-NAV10/output/17);
* The Committee was addressed by John Erik Hagen, Chair of the e-Navigation WG at IMO NAV;
* The Committee discussed its potential restructuring, with a view to reducing overall numbers. However, it was decided that the synergy achieved with the current structure was preferred to the alternatives (paragraph 18.1);
* 26 Output papers included:
  + Draft revised Recommendation A-124, with numerous Appendices;

(e-NAV10/outputs/6-14). It was suggested that this document should be considered for issue as a manual.

* + Draft revision of ITU-R M.1371-4 (e-NAV10/output/2);
  + Liaison notes to ITU-R WP5B and IEC relating to ITU-R M.1371-4

(e-NAV10/outputs/3&4);

* + Draft Guideline on the Strategy for Maintaining Racon Service Capability

(e-NAV10/output/15);

* + A draft input to IMO MSC90 (e-NAV10/output/16);
  + A Liaison note to the IMO Correspondence Group on e-Navigation

(e-NAV10/output/21);

* + Liaison notes to ITU & RTCM (e-NAV10/outputs/19&20);
  + Two liaison notes to other Committees (e-NAV10/outputs/5&24);
  + Revised e-Navigation FAQs (e-NAV10/output/22).
* Changes were proposed to the Committee’s Work programme; proposed new Work item and one changed Task description (Annex G);
* An inter-sessional meeting is planned between the AIS and Communications WG (paragraphs 9 & 10.6 );
* A joint meeting with the IHO is being planned for 6-9 March 2012 (paragraphs 11.1&4).

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| e-NAV Committee  10th Session | 30 September, 2011 |

Report of the 10th Session of the IALA e-NAV Committee

# General

The 10th meeting of the **e-Navigation Committee** was held from 26 – 30 September, 2011 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** |
| Jorge Arroyo | USCG | USA |
| Michael Bergman | Jeppesen | Norway |
| Peter Blackhurst | INMARSAT |  |
| Victor Fernando Placido da Conceicao | Instituto Hidrografico | Portugal |
| Christian Eckhardt | Waterways and Shipping Administration | Germany |
| Michael Hoppe | Waterways and Shipping Administration | Germany |
| Chang Young Lee | MLTM | Republic of Korea |
| Hee Yong Lee | GMT Cybernetics | Republic of Korea |
| Paul Mueller | Tideland Signal | USA |
| David Pietraszweksi | RDC | USA |
| Christian Rissone | ITU |  |
| Anders Rydlinger | Transas Marine International | Sweden |
| Brian Tetrault | US Army Corps of Engineers | USA |
| Johan Winnell | SMA | Sweden |

**Opening**

Bill Cairns introduced the Secretary-General, who welcomed everyone to the meeting, especially as most people were making their first visit to the new offices. He said that he hoped that everyone would enjoy the extra space and facilities, although he acknowledged that there still a few teething troubles to resolve, not least the WiFi and that for the plenary room there was a limiting capacity. He thanked the French Ministry for their support in the refurbishment of the offices, before wishing the committee a successful meeting.

The Chairman then reviewed the outline programme for the week, highlighting that an AtoN meta data meeting was arranged for lunchtime on Tuesday.

The Secretary then provided a Health and Safety and Administrative brief.

# Agenda

The draft agenda (e-NAV10/1/1rev2b) was adopted.

# Review of Action Items from e-NAV9

It was noted that the action items from e-NAV9, for the IALA Secretariat, were complete.

One action item for members (no. 44 - Victor Placido da Conceicao is requested to provide an input paper on disaster recovery to e-NAV10) remains open.

Action Item

Victor Placido da Conceicao is requested to provide an input paper on disaster recovery to e-NAV11.

# 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 51st session

The report (e-NAV10/4/1 rev1) was noted, in particular, the:

* The need to provide a simplified e-Navigation architecture ‘picture book’;
* Continuing concern expressed about (WG) inter-sessional meetings;
* The wording of the approval for the additional FAQ;
* The rejection of the plan for a workshop on data exchange and portrayal in March 2012;
* The references to e-Navigation at COMSAR 15 and STW 42;
* The discussion on a new name for eLORAN (TERRANAV), which it was suggested may have been taken by more than one company.

## Report of MSC89

The Committee noted the report (e-NAV10/4/2) and the extensive comments regarding LRIT, the protection of the AIS VHF Data Link (VDL), operating anomalies with respect to ECDIS and the IMO Instruments Implementation Code (III Code).

## NAV57

The report (e-NAV10/4/3) was noted

## Report of PAP20

The report (e-NAV10/4/4) was noted.

## Reducing attendance at e-NAV Committee meetings

The Chairman introduced his paper and discussed the background to it. Although he had initially favoured an approach that would send WG1 (Operations) to the ANM Committee and WG6 (Information Portrayal) to the VTS Committee he said that he now inclined towards an option of creating a new committee with WG3 (AIS) as its core. He then invited comment, with a view to establishing a way forward that could be discussed at PAP and then, perhaps, be forwarded to the IALA Council.

It became clear that the risk to the coherence of the work undertaken by the e-NAV Committee, should AIS become a separate Committee, was a concern to many, as was the suggestion that because those in involved in the future of AIS were also interested in communications there would not be the significant drop in members attending that might be assumed initially.

It was pointed out that with a usual attendance of 20 – 30 WG3 (AIS) was not able to function effectively, as it needed to breakdown into smaller groups to tackle specific issues.

The majority view was that WG3 (AIS) and WG4 (Communications) needed to work together and that the policy with regard to inter-sessional working groups needed to be reviewed, as it was believed that the current Work Programme could not be achieved in e-NAV Committee meetings alone.

The Secretary-General then drew the Committee’s attention to the following points:

* Members are always welcome;
* There is a restriction due to fire regulations of 99 on the plenary room;
* It should be possible to have overflow rooms where observers can see and hear what is happening in plenary;
* There is a limit to the number of breakout rooms available;
* There are governance issues surrounding inter-sessional meetings;
* Thought may need to be given to the overall IALA Committee structure;
* There is currently too much technical work being presented to the Council.

This will be discussed at PAP22 but change may only be possible for the next (2014 – 2018) Work Programme.

The Chairman thanked the meeting for a frank exchange of views, noting that there was no consensus for taking any of the three potential options forward to PAP. He added that it would be interesting to see how the logistics of operating a 100 strong Committee had worked out, by the end of the meeting.

# Presentations

4 presentations were made during the opening plenary:

* Developing an e-Navigation mindset - Andy Norris (presented by Nick Ward);
* Norwegian test results on S-100 - Jarle Hauge;
* Project EfficienSea update - Thomas Christensen;
* ACCSEAS Proposal for a North Sea e-Navigation Test-Bed – George Shaw (presented by Nick Ward).

The presentations form part of the output from the meeting.

### Developing an e-Navigation mindset

The presentation was prepared by Andy Norris who was absent on IEC business; it was given by Nick Ward.

The presentation began with the author’s view of what constituted e-Navigation, making the point that we have had electronic navigation for years but that e-navigation is very different. 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 two levels of applications, before suggesting a possible implementation plan.

In discussion, concern was expressed about the suggestion of the complete replacement for paper charts. There are currently technical issues with ECDIS that are being resolved and it was considered that the time is not yet right for such a replacement. In response it was said that the presentation was looking to the future.

Another comment was that there was a lot of ‘vision’ but that it was from a ship perspective and so the title was misleading; there is a need for a shore side view and it was strange that there was no reference to the definition of e-Navigation. To this there was a comment that the presentation had to be seen in the context of the associated paper (e-NAV10/INF/1).

A further comment was that after an initial adverse reaction the concept promoted was becoming more appealing and that it was worth looking at in the medium term. However, it was important to stress the need for training and procedures.

It was also suggested that the views expressed in the presentation were not the only way forward, to which the response was that the presentation had been prepared to stimulate debate, in which it had clearly achieved its aim.

Finally, the reference to e-Navigation displays was challenged, on the basis that bridge displays are normally task based and that there is no e-Navigation task.

### Norwegian test results on S-100

Jarle Hauge began by introducing his co-author Raphael Malyankar of Jeppesen. He then gave a brief overview of the S-100 standard and the features of the SafeSeaNet-Norway system. The focus of the presentation was on a use case, based on ship reporting a pilot request. The data model and associated XML encoding were touched on. The conclusions drawn were:

* An S-100-compatible information model for this information can be made fairly easily, by re-using S-101 and SNPWG data models and defining new geographic and information objects as needed:
  + Such models are feasible even if the information is not primarily geographic;
  + The Norwegian data model (object and features) have to be harmonized with the appropriate S-100 data models.
* Data format and delivery specifications for it can be adapted to ensure compatibility with S-100;
* The current S-100 rules for data structure and format (exchange sets, data sets, cells, metadata) are not optimized and are inefficient for some types of applications, such as:
  + Lightweight datasets;
  + Message-focused domains (as compared to spatially-focused domains).
* Therefore S-100 should and can be adapted, extended, and made more flexible to accommodate such data.

In the following discussion the presenter said that the project was not aware of any data that could not be modelled in S-100. Some modifications to data had been necessary but nothing that posed a serious challenge had yet been found. The question as to what IALA might want to use S-100 for was not answered. It was pointed out that S-100 is a geospatial standard that can be used for a variety of navigation functions. The standard is flexible, allowing the addition of further columns, via S-99 in a straightforward manner.

The IHO made the point that it was now beyond the point of promoting S-100 and was focussing on assisting people who wanted to use it.

Encouragement was given from the floor for S-100 to be used, to which the Chairman said that he was looking forward to an input paper on the subject.

### Project EfficienSea - update

Thomas Christensen’s presentation was in three parts:

* A brief overview of the project for those not familiar with it;
* A review of recent progress, which included:
  + METOC on route;
  + MSI in chart;
  + Route exchange / route suggestion;
  + Use in Search & Rescue (SAR).
* Future services, which included the introduction of the Maritime Service Portfolio;
* The project’s vision for global co-operation;
* The 2012 IALA / EfficenSea e-Navigation Underway conference.

It was agreed that both a top down and bottom up approach was needed for the project and it was suggested that it would be interesting to see the results of test-beds being used in more geographically diverse locations, such as in the Malacca Strait and the Marine Electronic Highway. The idea found favour but it was pointed out that the project, being EU sponsored could not fund such an ‘international’ test-bed.

### ACCSEAS Proposal for a North Sea e-Navigation Test-Bed

The presentation was prepared by George Shaw of the GLA and was presented by Nick Ward.

ACCSEAS is the acronym derived from ACCessibility for Shipping, Efficiency Advantages and Sustainability. The project is a currently at the proposal stage and, if approved will run from January 2012 until December 2014. Its purpose is to provide a transnational, innovative focus on regional implementation / demonstration of e-Navigation, leaving a lasting legacy of e-Navigation systems. The objectives of the project were reviewed and the anticipated outcomes described. The presentation ended with the Committee members being asked to consider future inputs from the ACCSEAS project outcomes (including feedback on regulatory and institutional issues and standards) to inform the wider international development of e-Navigation.

Asked about the differences between ACCSEAS and EfficienSea, it was said that there are differences in emphasis but there are also some common themes. Particular topics will be resilient PNT and intensive testing of the IVEF standard.

# 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 | Peter Douglas | Colin Day |
| WG 3 AIS | Rolf Zetterberg |  |
| WG 4 Communications | Bill Kautz |  |
| WG 5 Technical Architecture | Jan-Hendrik Oltmann |  |
| WG6 Information Portrayal | Lee Alexander | Junji Fukuto |

It was agreed that when the Committee was not in plenary session the Working Groups would meet separately, throughout the week, although an initial joint session was planned between 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 and Strategy

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

The committee reviewed input papers e-NAV10/7/1 & 3 (the ANM Committee’s rapporteur report on the development of e-Navigation within AtoN Authorities) and e-NAV10/7/2 (Canadian e-Navigation user needs survey). As regards the latter paper, the committee noted that as in the case of Canada, it was essential that the provision of e-navigation take into account navigation in inland waters as well.

The committee also noted e-NAV10/7/8 (paper on software quality by Korea).

A general discussion took place on input papers e-NAV10/7/4, 6 and 7 (draft text for the report from the Correspondence Group to IMO, timetable and the gap analysis). Key points were:

* The gap analysis is an extensive, systematic and detailed work that should form the basis for identifying practical solutions for e-navigation;
* Although the gap analysis rightly identified a range of possible practical solutions, these needed to be consolidated and prioritised;
* There was consensus that the development of a road map for developments within e-navigation would be very beneficial, in order to identify milestones, decisions points and the inter-relationships between activities;
* Simplified ship reporting requirements that alleviate workload was identified as a high priority user need;
* It was identified that the single window concept would be an important tool for simplifying ship reporting requirements;
* Mariners in general find it difficult to understand e-navigation as a concept, and are keen to understand e-navigation in terms of operational tools;
* A ‘concept of operations’ for e-Navigation (as opposed to a highly detailed specification) might aid communities to better understand and accept the concept of e-Navigation during this development phase, and may form an essential part of the SIP communication plan;
* The value of test beds and simulation were reiterated, and therefore greater dissemination of global test beds should be encouraged;
* The merits of open source systems (and their scalability) were acknowledged;
* Regulators were finding it difficult to keep up with innovations in the market;
* For industry to produce more innovative professional tools for navigation and decision support applications, a less regulated environment would have to be considered;
* If a less regulated environment were to prevail, in order to encourage innovation, the development of an S Mode / default setting would be more crucial;
* Information management is a core component of e-Navigation, particularly as the amount of information pertinent to navigation increases;
* Some VTS centres were finding it difficult to upgrade technical systems, due to equipment from different manufacturers and a lack of open and/or common standards;
* Given that many administrations were already developing e-navigation type initiatives, some guidance at this stage may assist in global harmonisation and aid in the eventual implementation of e-navigation.

The committee then developed responses to the various questions posed in the draft text for the report from the Correspondence Group to IMO. A liaison note was prepared to the co-ordinator of the IMO Correspondence Group on e-Navigation (e-NAV10/output/21).

Action Item

The IALA Secretariat is requested to forward the liaison note (e-NAV10/output/21) to the co-ordinator of the IMO Correspondence Group on e-Navigation.

## Review and update IALA Strategy for e-Navigation (Task2\*)

The Committee noted that many administrations and commercial organisations were already starting to provide information and services that they consider consistent with e-Navigation principles. They could therefore benefit from guidance on existing services and lessons learned from test-bed and simulation projects.

Until the IMO e-Navigation strategy is implemented, such interim guidance may aid international harmonisation and identify trends developing within the IMO-led concept.

IALA may wish to consider developing such guidance, maintaining and publishing it on a website, which could address the following issues:

* General information on the progress and constraints of e-Navigation, as defined by the IMO;
* Review of relevant existing regulations;
* Introduction to the IALA guidance on virtual aids to navigation (Guideline No. 1081);
* The use of the IHO S-100 Data Registry;
* The use of ship/shore communication links;
* The limitations of on-board systems and displays;
* Advice on providing training to users;
* Note on expected pace of implementation;
* Advice on scalability issues for different class of craft;
* Information on the concept of ‘single window’;
* Advice on test beds:
  + Provide guidance / coordination for test beds;
  + Advice on identifying user priorities;
  + Advice on identifying goals/objectives for test beds;
  + Directory of existing test bed summaries and contacts;
  + Lessons learned from international test beds;
  + Advice on facilitating ‘user feedback’;
  + Advice on the dissemination of test bed info / conclusions;
  + Notes on funding issues.

Action Item

Committee members are invited to contribute interim guidance / information on existing testbeds for e-NAV11.

The Committee explored a graphical representation of the timeline (road map) for the development and implementation of e-navigation, taking into consideration issues of shipboard equipment, communication links, position fixing, common maritime data structure and maritime services portfolios.

Such a graphical representation will allow key milestone dates and decision points to be identified. The graphic example is a first draft at this stage and may benefit from being developed in a format that will allow further notes, the ability to ‘drill down’ (for more information) and filtered interpretation of key aspects by stakeholders such as administrations, ship owners and training interests.

The draft road map has been provided to the co-ordinator of the IMO CG on e-navigation, as an example of an approach that IALA will further develop (e-NAV10/output/21 Annex C refers).

The committee will continue to develop the road map (e-NAV10/WG1/WP1).

Action Item

The Secretariat is requested to forward e-NAV10/WG1/WP1 (Roadmap Vision V1) to e-NAV11.

Committee members are invited to contribute inputs on the road map for e-NAV11.

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

No work was carried out on this task at e-NAV10.

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

No work was carried out on this task at e-NAV10. However, it was agreed that Canada, Norway and any other interested stakeholders would submit a report on e-navigation issues for polar regions to the next session (e-NAV11, March 2012) of the e-Navigation Committee.

Action Item

Committee member 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.

## Update Frequently Asked Questions

The IALA Council, at its 51st Session (June 2011) made an alteration to a FAQ on the use of traditional aids to navigation in an e-navigation environment. The FAQs were reviewed in general and amended to reflect the new IMO strategy implementation plan deadline (plan to be in place by 2014) and to take into account comments from Council 51.

A revised document was prepared (e-NAV10/output/22 - Revised FAQ).

Action Items

The Secretariat is requested to forward the revised FAQ (e-NAV10/output/22) to the Council for approval.

If approved, the IALA Secretariat is requested to replace the existing FAQ document with e-NAV10/output/22.

# Working Group 2 - PNT / Sensors (WG2)

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

This Task will be addressed during future sessions.

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

A Recommendation regarding an IALA Strategy for Maintaining Racon Service Capability, was prepared (e-NAV10/output/15).

Action Item

The Secretariat is requested to forward the draft Recommendation on an IALA Strategy for Maintaining Racon Service Capability (e-NAV10/output/15) to Council for approval.

The progress made at the Inter-sessional meeting relating to the evolution of a Maritime Integrated PNT system concept was discussed.

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

*A*n Input document to IMO MSC90 requesting that IMO prepare Performance Standards for Multi-system Shipborne PNT Receivers *was prepared* (e-NAV10/output/16)*.* If approved by Council, it was requested that National Administrations be asked to support this document at MSC90.

Action Items

The Secretariat is requested to forward e-NAV10/output/16 (Unplanned output Proposal for IMO to Prepare Performance Standards for Multi-system Shipborne Receivers) to Council for approval.

If approved, the Secretariat is requested to send e-NAV10/output/16 (Unplanned outcome Proposal for IMO to Prepare Performance Standards for Multi-system Shipborne Receivers) to National Members, with a request that the paper be supported at MSC90.

The IMO Correspondence Group Gap Analysis and proposed amendments regarding the future Integrated PNT concept, was reviewed.

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

Will be addressed during future sessions of WG.

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

Briefings on developments with regard to VRS via DGNSS and another with regard to the planned further development of eLoran in Korea were given.

A briefing on further developments in Finland regarding adaptation of a DGNSS transmitter to undertake accurate time transfer was also given.

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

This Task will be addressed during future sessions of WG.

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

A brief was given on planned trials by DaMSA of the enhanced racon within the EfficienSea project.

Action Items

e-NAV Committee members are requested to contribute to the development of an input paper to IMO regarding the Maritime Integrated PNT system concept, by correspondence group on an inter-sessional basis. The Correspondence Group is open to any interested party. The mailing list is managed by Michael Hoppe ([michael.hoppe@wsv.bund.de](mailto:michael.hoppe@wsv.bund.de)).

The Maritime Integrated PNT Correspondence Group is requested to prepare an input paper regarding the potential development of GNSS augmentation services for port and docking as an input to e-NAV11.

# Working Group 3 – AIS (WG3)

The AIS Working Group first met together with the Communication Working Group to discuss how the necessary co-operation between the WGs could be achieved. The conclusion was that some sessions during Committee meetings will be held together and that co-ordination will be made on a case by case basis. At this joint meeting the allocation of frequencies for a new generation of AIS discussed and a proposal was agreed.

Plans for a joint inter-sessional meeting with the Communications WG, in order to progress the strategy for defining the next generation of AIS and other communication systems for e-Navigation, based on the outcome of WRC 12. The WG also plan to develop guidance for the ‘innovative use’ of AIS, in order to protect the main functions of AIS and the VDL.

The ToR for the WG were reviewed and a draft update made (e-NAV10/WG3/WP1).

Action Item

The Secretariat is requested to forward e-NAV10/WG3/WP1 (revised ToR for WG3) to e-NAV11.

The Secretary-General is requested to approve the holding of the inter-sessional meeting.

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

At the request of ITU WP5B, over several meetings, a ‘preliminary draft revision’ of ITU-R M.1371-4 has been worked on. This revision was completed (e-NAV10/output/3) and a covering Liaison Note to ITU was developed (e-NAV10/output2).

Working on an update of IALA Recommendation A124 on The AIS service has been progressed for several meetings and the prioritized parts of it are now complete (e-NAV10ouput/6 – e-NAV10/output/14). Although the revision of some parts has not been completed, it is proposed to publish the new edition, because it contains much needed information.

A Liaison Note to ANM, proposing some minor changes in the text of Recommendation O 139, regarding the use of AIS, was prepared (e-NAV10/output/23).

Work continued on a draft document on the ‘Harmonised implementation of ASM’, with the aim of submitting it to e-NAV11.

Action Items

The Secretariat is requested to forward the proposed revision of ITU-R M.1371-4 (e-NAV10/output/3) and covering Liaison Note (e-NAV10/output/2) to the Council for approval by e-mail (Deadline 1 November 2011).

If approved, the Secretariat is requested to forward the proposed revision of ITU-R M.1371-4 (e-NAV10/output/3) and covering Liaison Note (e-NAV10/output/2) to ITU.

The Secretariat is requested to forward the draft revision of Recommendation A 124 with completed Appendices (e-NAV10/output/6, 7, 8, 9, 10, 11, 12, 13 &14) to Council for approval.

If approved, the Secretariat is requested to publish the revised Recommendation and Appendices (e-NAV10/output/6, 7, 8, 9, 10, 11, 12, 13 & 14) on the IALA website and withdraw the Edition 1.3 version.

The secretariat is requested to forward the Liaison Note proposing some minor changes in the text of Recommendation O 139 (e-NAV10/output/5) to the ANM Committee.

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

The Liaison Note from IEC regarding changes to ITU-R M1371-4 was reviewed and a Liaison Note to IEC was prepared (eNAV10/output/4).

Action Item

The Secretariat is requested to forward the Liaison Note regarding changes to ITU-R M1371-4 to IEC (eNAV10/output/4) to the Council for approval.

If approved, the Secretariat is requested to forward the Liaison Note regarding changes to ITU-R M1371-4 to IEC (e-NAV10/output/4) to IEC.

The Committee considered input to COMSAR16 on the protection of the AIS VDL and prepared a Liaison Note to the IALA IMO Representative, (e-NAV10/output/26), for its format to be reviewed before submission to the IALA Council for approval to send to IMO.

Action Item

The Secretariat is requested to forward e-NAV10/output/26 (Liaison Note to COMSAR on the protection of the AIS VDL) to Jean-Charles Leclair for review.

Following review, the Secretariat is requested to forward e-NAV10/output/26 (Liaison Note to COMSAR on the protection of the AIS VDL) to Council for approval.

If approved, the Secretariat is requested to forward e-NAV10/output/26 (Liaison Note to COMSAR on the protection of the AIS VDL) to IMO, for COMSAR16.

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

The work on the vision of a new generation of AIS was progressed together with the Communications WG. The resulting documents will be kept for further work inter-sessionally.

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

No work was carried out on this Task.

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

No work was carried out on this Task.

## WG ToR

The WG ToR were reviewed (e-NAV10/WG3/WP1).

Action Item

The Secretariat is requested to forward e-NAV10/WG3/WP1 (Revised WG ToR) to e-NAV11.

# Working Group 4 – Communications (WG4)

The WG met during all available sessions and worked together with the AIS WG3-AIS for 3 three sessions to coordinate mutual work. The working group’s Terms of Reference were reviewed, as were 5 input papers. Three output documents were produced, an input provided for a consolidated response to the IMO e-Navigation CG. Three working papers were carried forward to e-NAV11.

Input papers considered were:

* e-NAV 10/7/4 Report to the Correspondence Group;
* e-NAV 10/7/7 Update to Annex 1 – Report to CG 7 Sep 11 (spreadsheet);
* e-NAV 10/9/3 Liaison note ITU-R 345 from ITU-WP5B on Spectrum requirements for e-Navigation under WRC12 agenda item 1.10 and the need for a future WRC agenda item for e-Navigation and GMDSS Modernisation;
* e-NAV 10/9/18 rev1 Liaison note from RTCM on expansion of AIS and VHF data;
* e-NAV 10/10/1 Draft update to the Maritime Radio Communications Plan rev1 (MRCP).

Output papers:

* e-NAV10/output/18 -Liaison note to IALA Council – Three essential elements of e-NAV communications;
* e-NAV10/output/19 - Liaison note to the ITU-R WP5B – Spectrum requirements for e-Navigation under WRC-12 Agenda Item 1.10;
* e-NAV10/output/20 - Liaison note to the RTCM – Items to be addressed at the 10th meeting of the e-NAV Committee.

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

Input paper e-NAV10/10/1 – Draft update to the Maritime Radio Communications Plan (MRCP) was reviewed and edited. The updated MRCP will be carried forward as working document.

Action Item

The Secretariat is requested to forward e-NAV10/WG4/WP2 (draft revised IALA MRCP) to e-NAV11.

In view of the size of the MRCP, the Committee considered that a short paper, describing the essential elements of e-Navigation communication, which could be used as an official briefing document, should be prepared (e-NAV10/output/18).

Action Items

The Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to Council for approval by e-mail (Deadline 1 November 2011).

If approved, the Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to the co-ordinator of the IMO Correspondence group on e-Navigation. (Deadline 1 November 2011).

If approved, the Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to National Members.

The Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to e-NAV11 as an information paper.

The Secretariats is requested to forward e-NAV10/output/20 (Draft Liaison Statement to RTCM on Items to be addressed at the 10th meeting of the e-NAV Committee) to Council for approval.

If approved, the Secretariats is requested to forward e-NAV10/output/20 (Draft Liaison Statement to RTCM on Items to be addressed at the 10th meeting of the e-NAV Committee) to RTCM.

A joint working document was developed with the AIS WG on the combined next generation of AIS and VHF data (e-NAV10/WG4/WP3) will be carried forward to e-NAV11.

Action Item

The Secretariat is requested to forward e-NAV10/WG4/WP3 (Next Generation Combined AIS-VHF) to e-NAV11.

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

No work was carried out on this Task.

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

A Liaison Note to ITU-R WP5B on spectrum requirements for 6 VHF data channels and 2 additional channels for AIS 5 and 6 was prepared (e-NAV10/output/19).

Action Items

The Secretariat is requested to forward e-NAV10/output/19 (Draft Liaison Statement to ITU-R WP5B on Spectrum requirements for e-Navigation under WRC-12) to Council for approval by e-mail (Deadline 1 November 2011).

If approved, the Secretariat is requested to forward e-NAV10/output/19 (Draft Liaison Statement to ITU-R WP5B on Spectrum requirements for e-Navigation under WRC-12) to ITU-R WP5B (Deadline 1 November 2011).

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

A working document (e-NAV10/WG4/WP1) was developed and will be carried forward to e-NAV11.

Action item

The Secretariat is requested to forward e-NAV10/WG4/WP1 (Communications in Polar Areas) to e-NAV11.

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

Input papers e-NAV 10/7/4 - Report to the Correspondence Group and e-NAV 10/7/7 Update to Annex 1 – Report to CG 7 Sep 11 (spreadsheet) were reviewed and a response regarding GMDSS provided for a co-ordinated response to the IMO Correspondence group on e-Navigation (see paragraph 7.1).

## Work Plan

It is intended that a joint inter-sessional meeting be held with the AIS WG, in order to progress the strategy for defining the next generation of AIS and other communication systems for e-Navigation, based on the outcome of WRC-12.

# Working Group 5 – Technical Architecture (WG5)

Relevant input documents were: e-NAV 10/4/3, e-NAV 10/11/1, e-NAV 10/11/2, e-NAV 10/11/3, e-NAV 10/11/3, e-NAV 10/11/4, e-NAV 10/12/1, e-NAV 10/7/4, e-NAV 10/7/7, e-NAV 10/19/7-9, e-NAV 10/INF-1, e-NAV 10/INF-7.

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

Several aspects of the recent developments at IMO and IALA in regard to Technical Architecture were reviewed. As a result, several contributions to the information paper to IALA Council, PAP and other IALA Committees (e-NAV10/output/17 refers) were made.

It was agreed that a meeting should be planned with IHO to set out rules and procedures for IALA as a ‘Submitting Organisation’ and ‘Domain Owner’ within the S-99/S-100 framework. A note to Council (e-NAV10/output/17) seeks approval for IALA to adopt these roles. Preparatory work for this meeting would take place by correspondence, with a view to establishing guidelines and gaining experience by considering trial applications (AtoN metadata, IVEF etc.).

Action Item

The Secretariat is requested to forward e-NAV10/output/17 (IALA Participation in the IHO Geospatial Information Registry) to Council for approval.

If approved, the Secretariat is requested to inform the IALA Representative at IMO and the IHO about e-NAV10/output/17 (IALA Participation in the IHO Geospatial Information Registry).

To prepare for IALA’s contribution to the IMO defined Common Maritime Data Structure (CMDS) (e-NAV 10/4/3 refers), i.e. in order to progress the development of the IALA Harmonized Data Model (IHDM), a layer within the IALA e-Navigation stack, preparations were made for an IHO / IALA Liaison Meeting at IHO Headquarters, Monaco, 6 - 9 March 2012, as follows. This meeting is intended to further the IHO/IALA liaison work on a proposed ‘IALA domain’ at IHO’s GI Registry which started at the Brussels meeting (January 2011) and the Taunton meeting (May 2011) (e-NAV 10/4/3, e-NAV 10/11/1, e-NAV 10/12/1, and Figure 3 and paragraphs 3.20ff in NAV57 WP.6 refer).

The meeting will have the following two parts with the following associated goals:

1st part, Tuesday – Thursday, 6-8 March 2012:

* 1. Create IALA procedures as derived and based on IHO’s S-99 standard using select existing AtoN metadata examples, as well as existing IVEF metadata examples.

NB: It is not intended to progress the content of the AtoN or IVEF metadata examples during this part of the meeting.

2nd part, Friday 9 March 2012:

* 1. Progress the IALA guidelines on AtoN metadata with the goal to enter AtoN metadata in-to the proposed ‘IALA domain’ at IHO GI Registry;
  2. Progress the IALA recommendation on the Inter-VTS Exchange Format (IVEF) with the goal to enter IVEF metadata into the proposed ‘IALA domain’ at IHO GI Registry;

To achieve these goals the results of part 1 will be used, i.e. the procedures and associated findings.

IHO representatives have offered assistance in the application of IHO’s S-99 standard to IALA’s domestic processes and to the development of AtoN / IVEF metadata.

The results and findings of the meeting will be forwarded to e-NAV11.

Action Items

The Chair of WG5 is requested to co-ordinate with IALA and IHO Secretariats in order to set up the joint meeting with IHO, on 6 – 9 March, in Monaco.

## 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 as e-NAV10/WG5/WP1.

Action Item

The Secretariat is requested to forward e-NAV10/WG5/WP1 (Draft Revision of IALA Recommendation e-NAV140) to e-NAV11.

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

There was a request from the IMO Correspondence Group on e-Navigation for a contribution to the on-going ‘gap analysis’ (e-NAV 10/7/4 refers). A contribution to the co-ordinated response (see paragraph 7.1) was prepared for questions 6 and 7.

* Question No. 6: ‘further develop the detailed architecture of both the ship and shore sides, as appropriate, (…) using the overarching e-navigation architecture as a frame-work’.
* Question No. 7: ‘For the development of MSP [Maritime Service Portfolio] to achieve harmonization, modernization, integration and simplification on board and ashore, (…) give (…) general inputs and recommend the approach to be taken’.

Due to the very short time available, the contribution could not be finalised. It was recognised that there were several input and working documents which contain relevant material, which need to be extracted for future submission to the IMO Correspondence group on e-Navigation.

Also, as prompted by Question 6, a working paper was prepared for the ‘detailed ship board architecture’ as seen from ashore (e-NAV10/WG5/WP9 refers). The importance of the shipboard architecture for the shore side was recognised and, in particular the relevant IMO documents on the shipboard Integrated Navigation System (INS) (IMO Resolution MSC.252(83) (MSC83/28, Annex 30) and NAV54/25 Annex 5 refer) were considered. It is intended to finalise the input regarding Questions 6 and 7 at e-NAV 11.

Action Items

Members of WG5 are requested to prepare input documents regarding the architecture related questions No 6 and 7 from e-NAV10/7/4 to e-NAV11.

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

The following is a list of the Working Papers of WG5, as introduced above, which will be further considered at e-NAV11:

1. e-NAV10/WG5/WP1 = e-NAV10/11/2 (draft revision of Recommendation e-NAV 140)
2. e-NAV10/WG5/WP2 = e-NAV10/11/4 (proposed draft terms of reference for an IALA data model and interfacing group)

e-NAV10/WG5/WP3 = e-NAV10/7/4 (questions by the IMO Correspondence Group on e-Navigation)

e-NAV10/WG5/WP4 = e-NAV10/INF/7 (potential migration path for shipboard architecture developed by Andy Norris)

e-NAV10/WG5/WP5 = e-NAV10/11/1

e-NAV10/WG5/WP6 = e-NAV10/12/1

(e-NAV10/WG5/WP5 & e-NAV10/WG5/WP6 reflect the present state of IHO/IALA liaison regarding the proposed ‘IALA domain’ at the IHO GI Registry)

e-NAV10/WG5/WP7 = e-NAV10/INF/7 (S-100 mapping of ship reporting data; Norway)

e-NAV10/WG5/WP8: Working Paper on the potential role of IALA at the IMO/IHO Harmonisation Group on Data Modelling (HGDM; NAV57 WP.6 refers)

e-NAV10/WG5/WP9: Working Paper on shipboard architecture functional requirements (‘shipboard architecture shopping list’) as seen from ashore

Action Items

The Secretariat is requested to forward e-NAV10/WG5/WP1 – e-NAV10/WG5/WP9 to e-NAV11.

The Chair of WG5 is requested to transform the relevant existing working documents into input documents for the Committee inter-sessionally, in time for e-NAV11.

Members of WG5 are requested to prepare input documents to e-NAV11 to further progress and finalize e-NAV10/WG5/WP1 – e-NAV10/WG5/WP9 for submission to e-NAV11.

# 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 shore-based and shipborne 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, shipborne and shore-based sources of information, the communication means to provide this information, and VTS-related information to be shown on-board.

At e-NAV9, this document was completed and sent as a Liaison Note (e-NAV9/output/22) to the IMO e-Navigation Correspondence Group. An earlier version had been provided to the VTS Committee for review and comment. In turn, a Liaison Note was sent back from the VTS Committee (VTS32/output/13). Comments had also been provided from COMSAR 15 (SAR Working Group).

Action taken: Since further work on communications aspects may be needed, this document has been passed to the Communications WG. Unless additional portrayal issues are identified, no further work is planned by WG6.

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

Draft Guidelines for the Portrayal of e-Navigation Information (draft version 3) was prepared. In addition to making a distinction between data and information, it defines portrayal related terms and describes the four basic portrayal options (alpha-numeric, graph, symbol/icon, and geo-spatial). Key reference documents include:

1. IALA Rec. V-125 - Use and Presentation of Symbology at VTS Centre
2. IALA Guideline No. 1072 - AtoN Information Exchange and Presentation

IMO NAV56-11 – New Symbols for AIS AtoN

IMO Res. MSC.191(79) - Performance Standards for the Presentation of Navigation-related Information on Shipborne Navigational Displays

IMO SN/Circ.243 - Guidelines for the Presentation of Navigation-related Symbols, Terms and Abbreviations, 15 December 2004.

IEC 62288 – Presentation of Navigation-related Information on Shipborne Navigational Displays – General Requirements, methods of testing, required test requirements

Work will continue inter-sessionally by correspondence.

### Review of IALA Recommendation V-125

The working group reviewed the content of V-125 with respect to e-Navigation portrayal guidelines. Since VTS Committee is currently engaged in revision of V-128 which may include presentation requirements, a Liaison Note to the VTS Committee (e-NAV10/output/25) 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.

Action item

The Secretariat is requested to forward e-NAV10/output/25 (Liaison Note on e-Navigation Portrayal Guidelines related to IALA Recommendations V-125 and V-128) to the VTS Committee.

### Compilation of e-Navigation Portrayal Examples (two documents)

1. Summary Sheet – A comprehensive reference document that summarizes portrayal examples continues to be compiled. It includes:

Papers submitted to:

IMO (NAV 54 - NAV 57)

IALA eNAV Committee (eNAV4 – eNAV10)

Papers/presentations given at meetings and conferences, including:

IALA 2010 Conference

e-Navigation Underway

Korean Regional e-Navigation Conference

Reports on Trials/Testbed Projects

AIS Baltic Project

BLAST Project

EfficienSea Project

Reports on existing and new system developments

Collision avoidance

VTS

R&D Projects

Work will continue inter-sessionally by correspondence to more fully populate this document.

1. Detail Sheet – It includes four (4) basic categories for compiling information:

Brief Description (PP Pres or 1-2 page information paper)

Functional Capabilities (types of data  information content)

Intended Purpose (including benefits)

Portrayal examples (means or methods of portrayal)

good examples

lessons-learned

some concerns

Action Item

e-NAV Committee members are encouraged to submit examples of e-Navigation Portrayal examples. In particular, more shore-based examples are needed.

### Portrayal of AIS Application Specific Messages

As decided at e-NAV9, the data parameters contained in relevant ITU and IMO standards was used as a basis to identify of what types information should be displayed and how. Using a matrix (spreadsheet) compiled by the Vice Chair of WG3, each data parameters can be portrayed in 1-4 ways: alpha-numeric text, graph, symbol/icon, or geo-spatial (point, line or area). Further work may continue inter-sessionally by correspondence.

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

The IHO S-100 Registry will be used for establishing an e-Navigation Information Portrayal Register. WG6 Chair will co-ordinate with IHO and attend the annual IHO Technical Committee Meeting (HSSC3) (November 2011).

The CDV for IEC 61924-2 for the new INS Performance Standard - MSC 252(83) proposes new icon/symbols for alert status.

## Other Matters

### Gap Analysis – Reference: e-NAV10-7-7 Updated Gap Analysis and Practical e-navigation solution with HEAP 25Jul2011.doc

Due to the size and complexity of this document, there was not sufficient time to conduct a thorough review. However, the initial effort focused on two key aspects:

1. Content that is portrayal-related
2. Comments on key items

The referenced input paper from the IMO e-Navigation Correspondence Group was reviewed and discussed and 24 comments and questions regarding matters that may pertain to portrayal issues, interface and training were added. These additions are embedded in the co-ordinated response (see paragraph 7.1) as Comments. Several questions were raised as to whether some ‘gaps’ are actually not gaps but only describe user needs. In several cases, references were found to the standard 61162 that appear incorrect since 61162 is not intended to address transfer of large documents, for example Sailing Directions. Rather than address training issues piecemeal, a global perspective on the training issues seems needed.

### AIS AtoN

An update on the work of the IMO Correspondence Group on AIS AtoN was received from the Co-ordinator, Cdr. Hideki Noguchi. The current situation of the IMO Correspondence Group work was explained. Although the symbol issues of AIS-AtoN will be discussed after NAV58, one of the contents of the draft IMO policy on AIS-AtoN handled ‘portrayal’ matter. At this moment, the CG is handling the definition of AIS-AtoN. There are some proposals of definition; one proposal is to mirror the definition of IALA Recommendation A-126 that considers the AIS-AtoN as conventional AtoN, such as lighthouse or lighted buoys, which usually provide positioning information. On the other hand, other proposals expand the concept of AtoN to include line, area and other object information. The IMO Correspondence Group is now waiting for comment from its members regarding the proposed definitions.

It was felt that Virtual AtoN have a role in e-Navigation. However, some concerns were expressed in regard to some uses which may be inappropriate:

* Locating a virtual AtoN on a physical lighthouse;
* Indicating lines and areas should be provided by AIS ASMs. Associating the term AtoN could conflict with other existing standards.

### The display of chart-related depth information

Two potential approaches were reviewed / discussed:

1. ‘Bathymetric Blue’ display of high-density bathymetry from recent hydro surveys.
2. ‘Red-Yellow-Green’ display for decision-support (e.g., under-keel clearance).

### 3-D Display

Dr. Thomas Porathe gave a very interesting presentation about an on-going research project (BLAST Project) on egocentric view 3-D conning displays. This type of display presents tactical information in an intuitive way (no mental rotations required) for close range decision support and is intended as a supplementary to the ECDIS and radar.

### Inter-sessional Meetings

There is no plan to hold an inter-sessional meeting before eNAV11. Instead, work will be progressed via e-mail and telephone. However, some WG6 members may meet on the occasion of upcoming Conferences (e-Navigation 2011 and e-Navigation Underway 2012).

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

Presentations were provided on project EfficienSea and the proposed project ACCSEAS.

The ‘Current IMO SOLAS navigation and communication equipment list that may need to be modified for e-Navigation’ that had been completed at eNAV9 was reviewed briefly. Further work may be necessary on some references as they become out-of-date.

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

Actions required were undertaken under other agenda items.

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

This action has been completed.

# Future Work Programme (2014 – 2018)

This was not considered at the meeting. Members were asked to consider possible input for the next meeting

Action Item

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

# Review of output and working papers

Before the review, the meeting was addressed by Mr John Erik Hagen, Chair of the e-Navigation Working Group at IMO NAV. He said that he hoped that everyone had had a chance to reads the recent report from the IMO Correspondence Group on e-Navigation. He said that his standard responses to those who regularly ask him to define e-Navigation is ‘e-Navigation is about increasing safety, security, efficiency and protection of the marine environment. However, it is also about making the life of shore and ship based personnel easier.’

Within the context of development requiring close co-operation with stakeholders, he said that IALA was important to this process and looked forward to the output from the meeting. He remarked that e-Navigation was transiting from the conceptual / theoretical stage to the short listed solutions and that the legal and technical requirements for the final implementation plan would be ‘poste’ at the end of October, in accordance with IMO’s procedures. With respect to risk control options, risk assessment and cost benefit analysis, he said that assistance has been sought from DNV. Reports will be prepared for COMSAR (deadline 9 December 2011), STW and NAV.

He mentioned that a test bed will be set up using the IHO’s S-100 GI Registry to assess data flows between ship and shore. He ended by saying that here will be more information in the Correspondence Group’s next report.

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

In discussion of e-NAV10/output/21 (Liaison Note to the Co-ordinator of the IMO Correspondence Group on e-Navigation) the Committee agreed that the example time line at Annex C was only one suggested solution and that all members of the Correspondence Group would have the opportunity to give their views before anything was formally released.

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

## Composition of the e-NAV Committee

The Committee discussed its potential restructuring, with a view to reducing overall numbers. However, it was decided that the synergy achieved with the current structure was preferred to the alternatives (see also paragraph 4.5).

Action Item

The Chairman of the Committee is requested for inform PAP22 of the Committee’s views on the options for its future composition.

## Terms of Reference of WG

Terms of reference for each of the Working Groups are being collated and will be reviewed at e-NAV11.

## NAVGUIDE (2014)

Papers e-NAV10/19/7, e-NAV10/19/8 & e-NAV10/19/9 refer.

The input papers were considered and a response prepared (e-NAV10/output/23).

Action Item

The Secretariat is requested to forward e-NAV10/output/23 (Liaison Note on the NAVGUIDE 2014) to ANM17.

## Developing a metadata schema for aids to navigation information

An ad-hoc meeting was held to discuss and agree on the way forward to develop an AtoN metadata schema.

Mahesh Alimchandani presented information on the work done to date by Australia in developing such a schema. The group recognised that the endorsement of such a schema would be an IALA policy decision and considered two options to progress the issue. Either request Australia to bring forth the results of its use (via a test bed) or incorporate Australia’s work in IALA Guideline 1072 (on AtoN Information Exchange & Presentation). The group agreed that the latter option was the preferred one. Jan-Hendrik Oltmann added that the schema was a prime example of a product in the Maritime Services Portfolio. Additionally, the group identified the recently-approved Inter VTS Exchange Format (IVEF), as well as outputs from the EfficienSea and ACCSEAS projects as candidates for the Maritime Services Portfolio.

It was agreed that Bill Cairns, Nick Ward, Mahesh Alimchandani and Jan-Hendrik Oltmann would update IALA Guideline 1072 (on AtoN Information Exchange & Presentation) inter-sessionally and submit a revised version to e-NAV11.

Action item

Bill Cairns, Nick Ward, Mahesh Alimchandani and Jan-Hendrik Oltmann are requested to update IALA Guideline 1072 (on AtoN Information Exchange & Presentation) inter-sessionally, by correspondence, and submit a revised version to e-NAV11.

# Review of session report

The report of the meeting (e-NAV10/output/1) was reviewed and approved by the Committee.

Action item

The Secretariat is requested to forward the report of e-NAV10 (e-NAV10/output/1) to the Council, to note.

# Date and venue of next meeting

e-NAV11 is expected to meet from 26 – 30 March, 2012 at IALA.

# Closing of the meeting

In response to a request for any final comments, it was suggested that IALA could still take the URL [www.futurenav.org](http://www.futurenav.org) or [www.futurenav.net](http://www.futurenav.net). It was also suggested that IALA might consider the holding of a seminar on the detailed technical aspects of AIS as it is difficult for even those experienced, to which it was commented that might best be done when the next edition of ITU-R M.1371 (ITU-R M.1371-5) had been approved.

The Chairman then thanked all Working Groups, Chairs and Vice Chairs for their hard work during the week and wished everyone a safe journey home. He then declared the meeting closed.

# List of Annexes to the report

1. Agenda

A copy of the agenda is at Annex A.

Participants

A list of participants is at Annex B.

Working Groups – List of participants

A list of working group participants is at Annex C.

Input Papers

A list of input papers is provided at Annex D.

Output and Working Papers

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

Action Items

A list of action items is at Annex F.

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. e-NAV9 Agenda

The 10th meeting of the **e-NAV Committee** will be held from 26 – 30 September, 2011 at IALA.

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

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

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-NAV9.

**PROVISIONAL 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 – 51st Session, June 2011
   2. IMO – MSC89, May 2011
   3. IMO – NAV57, June 2011
   4. PAP21, April 2011
   5. e-NAV Committee structure
5. Presentations (15 minutes)
   1. Developing an e-Navigation mindset – Andy Norris presented by Nick Ward
   2. Norwegian test results on S-100 – Jarle Hauge
   3. Project EfficienSea update – Thomas Christensen
   4. ACCSEAS Proposal for a North Sea e-Navigation Test-Bed – Alan Grant presented by Nick Ward
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 I (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, ISO, and IEC 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\*)
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. Future Work Programme (2014 – 2018)
18. Review of output and working papers
19. Any Other Business
    1. Composition of the e-NAV Committee
    2. Terms of reference of WG
    3. NAVGUIDE 2014
20. Date and venue of next meeting
21. Review of session report
22. e-NAV9 Participants

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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-NAV10/1/1 rev2 | Draft Agenda | B Cairns (BC) / IALA | 3 |
| e-NAV10/1/2 | 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-NAV10/2/1 | Action Items from e-NAV9 | BC / IALA | 1 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Presented by** | **Posting** |
| e-NAV10/3/1 rev7 | Provisional List of Input Papers *(to be finalised after the Chairman’s Meeting)* | BC / IALA | 6 |

1. Reports from other bodies

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Presented by** | **Posting** |
| e-NAV10/4/1 rev1 | IALA Council 51st Session | BC / IALA | 6 |
| e-NAV10/4/2 | MSC89 Report | BC / IALA | 1 |
| e-NAV10/4/3 | NAV57 Report | BC / IALA | 2 |
| e-NAV10/4/4 | PAP21 Report | BC / IALA | 1 |
| e-NAV10/4/5 | Reducing attendance at e-NAV Committee meetings | BC / IALA | 3 |

1. Presentations

| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| --- | --- | --- | --- |
|  |  |  |  |

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\*)

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| --- | --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/7/1 | Development of e-Navigation within AtoN Authorities | 1 | 1 |
| e-NAV10/7/2 | Attachment to e-NAV10/7/1 (Excel file) | 1 | 1 |
| e-NAV10/7/3 | Development of e-Navigation within AtoN Authorities (PowerPoint) | 1 | 1 |
| e-NAV10/7/4 | Report to the Correspondence Group – 7Sep11 | 1,2,3,4,5,6 | 7 |
| e-NAV10/7/5 | Annex 1 - Report to CG 7Sep11 (Excel spreadsheet) – updated by e-NAV10/7/7 | 1 | 7 |
| e-NAV10/7/6 | CG Schedule for 2011 – 2012 | 1,2,3,4,5,6 | 7 |
| e-NAV10/7/7 | Update to Annex 1 - Report to CG 7Sep11 | 1,2,3,4,5,6 | 8 |
| e-NAV10/7/8 | Software Quality – for e-NAV Correspondence Group report | 1 | 8 |

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\*)

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/8/1 | Racon Strategy | 2 | 1 |
| e-NAV10/8/2 | Enhanced RACON | 2 | 1 |
| e-NAV10/8/3 | Enhanced Radar Positioning | 2 | 1 |
| e-NAV10/8/4 | Proposal for Enhanced RACON and Enhanced RADAR Positioning | 2 | 1 |
| e-NAV10/8/5 | Alternative means of absolute positioning | 2 | 3 |
| e-NAV10/8/6 | Racon Strategy | 2 | 3 |
| e-NAV10/8/7 | GNSS update | 2 | 3 |
| e-NAV10/8/8 | Development of Maritime Integrated PNT System | 2 | 3 |
| e-NAV10/8/9 | Development of Maritime Integrated PNT System - presentation | 2 | 3 |
| e-NAV10/8/10 | New Work Item Proposal for IMO to Prepare Performance Standards for Multi-system Shipborne Receivers | 2 | 4 |
| e-NAV10/8/11 | First draft Performance Standard for Multi-system Receiving Equipment | 2 | 4 |
| e-NAV10/8/12 | Identified gaps for the future integrated PNT-System | 2 | 4 |
| e-NAV10/8/13 | Test results on accurate time transfer via DGNSS MF transmissions | 2 | 6 |
| e-NAV10/8/14 | Accurate time transfer to DGPS stations via communications networks | 2 | 6 |
| e-NAV10/8/15 | Annex A to e-NAV10/8/14 | 2 | 6 |

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 AtoNs) (Task 16\*)

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/9/1 | Liaison note from IEC TC80 WG15 LS ITU-R M.1371-4 | 3 | 1 |
| e-NAV10/9/2 | Liaison note from ITU-R WP5B - 344 | 3,4 | 2 |
| e-NAV10/9/3 | Liaison note from ITU-R WP5B - 345 | 3,4 | 2 |
| e-NAV10/9/4 | Koblenz Output 01 Report of the AIS TWG | 3 | 2 |
| e-NAV10/9/5 | Koblenz Output 02 Draft revision of ITU 1371-4 | 3 | 2 |
| e-NAV10/9/6 | Koblenz Output 03 Liaison note to ITU WP 5b on recommended revision 1371-4 | 3 | 2 |
| e-NAV10/9/6 rev1 | Koblenz Output 03 Liaison note to ITU WP 5b on recommended revision 1371-4 reformatted | 3 | 2 |
| e-NAV10/9/7 | Koblenz Output 04 Liaison note to IEC on recommended revision 1371-4 | 3 | 2 |
| e-NAV10/9/7 rev1 | Koblenz Output 04 Liaison note to IEC on recommended revision 1371-4 rev1 reformatted & reworded | 3 | 2 |
| e-NAV10/9/8 | Koblenz Output 05 Liaison note to ANM on use of AIS for MMOS | 3 | 2 |
| e-NAV10/9/8 rev1 | Koblenz Output 05 Liaison note to ANM on use of AIS for MMOS rev1 reformatted | 3 | 2 |
| e-NAV10/9/9 | Koblenz Output 06 A124-A01 (ANNEX 1 AIS Service Generic Use Cases) | 3 | 2 |
| e-NAV10/9/10 | Ship and Shore VHF installations - interference between AIS and radio mobile | 3 | 3 |
| e-NAV10/9/10 rev1 | Ship and Shore VHF installations - interference between AIS and radio mobile | 3 | 4 |
| e-NAV10/9/11 | A124-M01 (Edition 2.0) | 3 | 5 |
| e-NAV10/9/12 | A124-A04 (ANNEX 4 Interaction+Data Flow model AIS service) | 3 | 5 |
| e-NAV10/9/13 | A124-A05 (ANNEX 5 AIS Service Interfacing model) | 3 | 5 |
| e-NAV10/9/14 | A124-A14 (ANNEX 14 FATDMA planning) | 3 | 5 |
| e-NAV10/9/15 | A124-A16 (ANNEX 16 DGNSS) | 3 | 5 |
| e-NAV10/9/16 | A124-A18 (ANNEX 18 VDL) | 3 | 5 |
| e-NAV10/9/17 | A124-A17 (ANNEX 17 Channel Management) | 3 | 6 |
| e-NAV10/9/18 | Liaison note from RTCM to e-NAV10 Superseded by  e-NAV10/9/18 rev1 | 3 | 6 |
| e-NAV10/9/18 rev1 | Liaison note from RTCM to e-NAV10 | 3,4 | 7 |
| e-NAV10/9/19 | Cover note for e-NAV10/9/19A | 3 | 7 |
| e-NAV10/9/19A | A124-A17 (ANNEX 19 – Satellite AIS considerations)) | 3 | 7 |
| e-NAV10/9/20 | Liaison Note from VTS on Guideline 1026 | 3/All | Late |

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\*)

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/10/1 | IALA MRCP Ed1\_Dec2009 -rev by Kenji | 4 | 8 |

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, ISO, and IEC on e-Navigation architecture (Task 24\*)

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/11/1 | What Does WG5 Want from the TSMAD Meeting | 5 | 1 |
| e-NAV10/11/2 | Draft revision of Recommendation e-NAV-140 (Ed2) | 5 | 1 |
| e-NAV10/11/3 | Draft Information paper for PAP & Committees - Policy Decision Paper | 5,1,2,3,4,6 | 1 |
| e-NAV10/11/4 | Architecture Technical Working Group | 5 | 5 |

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-NAV10/12/1 | IHO-IALA Meeting in May 2011 - Report | 5 | 1 |
| e-NAV10/12/2 | IHB letter covering Paper e-NAV10/12/3 | Secretariat | 5 |
| e-NAV10/12/3 | ECDIS Stakeholders - spreadsheet | Secretariat | 5 |

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

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/13/1 |  |  |  |

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

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/14/1 |  |  |  |

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

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/15/1 |  |  |  |

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

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/16/1 | The Regulatory process for e-Navigation | C/VC | 3 |

1. Future Work Programme (2014 – 2018)

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/17/1 |  |  |  |

1. Review of output and working papers
2. Any Other Business
   1. Relocation of WG1 & WG6
   2. Terms of Reference for WG
   3. NAVGUIDE

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| **Number** | **Title / Author (if required)** | **Action** | **Posting** |
| e-NAV10/19/1 | Draft Terms of Reference for WG1 | C/VC | 1 |
| e-NAV10/19/2 | Draft Terms of Reference for WG2 | C/VC | 1 |
| e-NAV10/19/3 | Draft Terms of Reference for WG3 | C/VC | 1 |
| e-NAV10/19/4 | Draft Terms of Reference for WG4 | C/VC | 1 |
| e-NAV10/19/5 | Draft Terms of Reference for WG5 | C/VC | 1 |
| e-NAV10/19/5 rev1 | Draft Terms of Reference for WG5 |  | 4 |
| e-NAV10/19/6 | Draft Terms of Reference for WG6 | C/VC | 1 |
| e-NAV10/19/7 | Liaison Note from ANM on the NAVGUIDE | C/All | 1 |
| e-NAV10/19/8 | NAVGUIDE Action Plan | C/All | 1 |
| e-NAV10/19/9 | NAVGUIDE Timetable | C/All | 1 |
| e-NAV10/19/10 | Liaison note from VTS re Information Portrayal Group | 6 | Late |

**Information Papers**

|  |  |  |
| --- | --- | --- |
| **Number** | **Title / Author (if required)** | **Posting** |
| e-NAV10/INF/1 | e-Navigation - a vision by Andy Norris | 1 |
| e-NAV10/INF/2 | NI SGCG Feedback for ANM 16 - Consolidated Feedback | 1 |
| e-NAV10/INF/3 | Meeting dates 2010 – 2014, following Council 51 | 2 |
| e-NAV10/INF/4 | Rules of Procedure for IALA Committees (2010-2014) , following Council 51 | 2 |
| e-NAV10/INF/5 | IALA Document Quality Assurance Process, following Council 51 | 2 |
| e-NAV10/INF/6 | ACCSEAS Proposal for a North Sea e-Navigation Test-Bed | 3 |
| e-NAV10/INF/7 | The IHO S-100 Standard and e-Navigation Information  Concept Exploration with Ship Reporting Data | 3 |
| e-NAV10/INF/8 | Notice of Arrival and Pilot Request Specification Subsumed into e-NAV10/INF/7 | 3 |
| e-NAV10/INF/9 | Ad hoc Racon-Radar Correspondence Group | 3 |
| e-NAV10/INF/10 | IMO e-Navigation Correspondence Group schedule 2011-2012 | 3 |
| e-NAV10/INF/11 | Report of Technical Working Group meeting 07-09 June 2011 | 4 |

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-NAV10/output/1 | Draft e-NAV10 Report | To Council to note |
| e-NAV10/output/2 | Liaison note to ITU on Draft revision of Recommendation ITU-R M.1371-4 | To Council to approve |
| e-NAV10/output/3 | Draft revision of ITU-R M.1371-4 | To Council to approve |
| e-NAV10/output/4 | Liaison note to IEC on Request for technical clarifications on ITU-R M.1371-4 | To Council to approve |
| e-NAV10/output/5 | Liaison note to ANM on AIS on MMOS | To ANM17 |
| e-NAV10/output/6 | Revised IALA Rec A-124 on the AIS Service (main document) | To Council to approve |
| e-NAV10/output/7 | Revised IALA Rec A-124 on the AIS Service (Appendix 1) | To Council to approve |
| e-NAV10/output/8 | Revised IALA Rec A-124 on the AIS Service (Appendix 4) | To Council to approve |
| e-NAV10/output/9 | Revised IALA Rec A-124 on the AIS Service (Appendix 5) | To Council to approve |
| e-NAV10/output/10 | Revised IALA Rec A-124 on the AIS Service (Appendix 14) | To Council to approve |
| e-NAV10/output/11 | Revised IALA Rec A-124 on the AIS Service (Appendix 16) | To Council to approve |
| e-NAV10/output/12 | Revised IALA Rec A-124 on the AIS Service (Appendix 17) | To Council to approve |
| e-NAV10/output/13 | Revised IALA Rec A-124 on the AIS Service (Appendix 18) | To Council to approve |
| e-NAV10/output/14 | Revised IALA Rec A-124 on the AIS Service (Appendix 19) | To Council to approve |
| e-NAV10/output/15 | Draft Guideline on the Strategy for Maintaining Racon Service Capability | To Council to approve |
| e-NAV10/output/16 | Unexpected outcome Proposal for IMO to Prepare Performance Standards for Multi-system Shipborne Receivers | To Council to approve |
| e-NAV10/output/17 | IALA Participation in the IHO Geospatial Information Registry | To Council to approve |
| e-NAV10/output/18 | Essential Communications Elements of e-Navigation | To Council to approve by e-mail |
| e-NAV10/output/19 | Draft Liaison Statement to ITU-R WP5B on Spectrum requirements for e-Navigation under WRC-12 | To Council to approve by e-mail |
| e-NAV10/output/20 | Draft Liaison Statement to RTCM on Items to be addressed at the 10th meeting of the e-NAV Committee | To Council to approve |
| e-NAV10/output/21 | Liaison note to the co-ordinator of the IMO CG | To co-ordinator of the IMO CG |
| e-NAV10/output/22 | Revised FAQ | To Council to approve |
| e-NAV10/output/23 | Liaison note to ANM on the NAVGUIDE 2014 | To ANM17 |
| e-NAV10/output/24 | Liaison to Council on IALA e-NAV strategy | To Council & other Committees to note |
| e-NAV10/output/25 | Liaison note to VTS - e-Navigation Portrayal Guidelines | To VTS34 |
| e-NAV10/output/26 | Liaison Note on the Protection of the AIS VDL | To IMO representative |

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

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| Number | Title | Status |
| e-NAV10/WG1/WP1 | Roadmap Vision V1 | To e-NAV11 |
|  |  |  |
| e-NAV10/WG2/WP1 |  |  |
|  |  |  |
| e-NAV10/WG3/WP1 | Updated ToR | To e-NAV11 |
|  |  |  |
| e-NAV10/WG4/WP1 | Communications in Polar Areas | To e-NAV11 |
| e-NAV10/WG4/WP2 | IALA MRCP Ed1\_Dec2009 -rev by Kenji | To e-NAV11 |
| e-NAV10/WG4/WP3 | Next\_Generation\_Combined\_AIS-VHF\_v1 | To e-NAV11 |
|  |  |  |
| e-NAV10/WG5/WP1 | Draft revision e-NAV-140 | To e-NAV11 |
| e-NAV10/WG5/WP2 | Proposed data modelling group | To e-NAV11 |
| e-NAV10/WG5/WP3 | Report to CG 7Sep11 | To e-NAV11 |
| e-NAV10/WG5/WP4 | e-Navigation - a vision by Andy Norris | To e-NAV11 |
| e-NAV10/WG5/WP5 | What Does WG5 Want from the TSMAD Meeting | To e-NAV11 |
| e-NAV10/WG5/WP6 | e-NAV10/12/1 | To e-NAV11 |
| e-NAV10/WG5/WP7 | The IHO S-100 Standard and e-Navigation Information | To e-NAV11 |
| e-NAV10/WG5/WP8 | Considerations for IALA's potential role at HGDM | To e-NAV11 |
| e-NAV10/WG5/WP9 | Functional requirements for shipboard technical architecture, as seen from ashore-'ShoppingList' | To e-NAV11 |
|  |  |  |
| e-NAV10/WG6/WP1 |  |  |

1. ACTION ITEMS

Action Items for the IALA Secretariat

1. [The IALA Secretariat is requested to forward the liaison note (e-NAV10/output/21) to the co-ordinator of the IMO Correspondence Group on e-Navigation. 11](#_Toc305930799)
2. [The Secretariat is requested to forward e-NAV10/WG1/WP1 (Roadmap Vision V1) to e-NAV11. 12](#_Toc305930800)
3. [The Secretariat is requested to forward the revised FAQ (e-NAV10/output/22) to the Council for approval. 12](#_Toc305930801)
4. [If approved, the IALA Secretariat is requested to replace the existing FAQ document with e-NAV10/output/22. 12](#_Toc305930802)
5. [The Secretariat is requested to forward the draft Recommendation on an IALA Strategy for Maintaining Racon Service Capability (e-NAV10/output/15) to Council for approval. 13](#_Toc305930803)
6. [The Secretariat is requested to forward e-NAV10/output/16 (Unplanned output Proposal for IMO to Prepare Performance Standards for Multi-system Shipborne Receivers) to Council for approval. 13](#_Toc305930804)
7. [If approved, the Secretariat is requested to send e-NAV10/output/16 (Unplanned outcome Proposal for IMO to Prepare Performance Standards for Multi-system Shipborne Receivers) to National Members, with a request that the paper be supported at MSC90. 13](#_Toc305930805)
8. [The Secretariat is requested to forward e-NAV10/WG3/WP1 (revised ToR for WG3) to e-NAV11. 14](#_Toc305930806)
9. [The Secretary-General is requested to approve the holding of the inter-sessional meeting. 14](#_Toc305930807)
10. [The Secretariat is requested to forward the proposed revision of ITU-R M.1371-4 (e-NAV10/output/3) and covering Liaison Note (e-NAV10/output/2) to the Council for approval by e-mail (Deadline 1 November 2011). 14](#_Toc305930808)
11. [If approved, the Secretariat is requested to forward the proposed revision of ITU-R M.1371-4 (e-NAV10/output/3) and covering Liaison Note (e-NAV10/output/2) to ITU. 14](#_Toc305930809)
12. [The Secretariat is requested to forward the draft revision of Recommendation A 124 with completed Appendices (e-NAV10/output/6, 7, 8, 9, 10, 11, 12, 13 &14) to Council for approval. 14](#_Toc305930810)
13. [If approved, the Secretariat is requested to publish the revised Recommendation and Appendices (e-NAV10/output/6, 7, 8, 9, 10, 11, 12, 13 & 14) on the IALA website and withdraw the Edition 1.3 version. 14](#_Toc305930811)
14. [The secretariat is requested to forward the Liaison Note proposing some minor changes in the text of Recommendation O 139 (e-NAV10/output/5) to the ANM Committee. 14](#_Toc305930812)
15. [The Secretariat is requested to forward the Liaison Note regarding changes to ITU-R M1371-4 to IEC (eNAV10/output/4) to the Council for approval. 14](#_Toc305930813)
16. [If approved, the Secretariat is requested to forward the Liaison Note regarding changes to ITU-R M1371-4 to IEC (e-NAV10/output/4) to IEC. 14](#_Toc305930814)
17. [The Secretariat is requested to forward e-NAV10/output/26 (Liaison Note to COMSAR on the protection of the AIS VDL) to Jean-Charles Leclair for review. 15](#_Toc305930815)
18. [Following review, the Secretariat is requested to forward e-NAV10/output/26 (Liaison Note to COMSAR on the protection of the AIS VDL) to Council for approval. 15](#_Toc305930816)
19. [If approved, the Secretariat is requested to forward e-NAV10/output/26 (Liaison Note to COMSAR on the protection of the AIS VDL) to IMO, for COMSAR16. 15](#_Toc305930817)
20. [The Secretariat is requested to forward e-NAV10/WG3/WP1 (Revised WG ToR) to e-NAV11. 15](#_Toc305930818)
21. [The Secretariat is requested to forward e-NAV10/WG4/WP2 (draft revised IALA MRCP) to e-NAV11. 16](#_Toc305930819)
22. [The Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to Council for approval by e-mail (Deadline 1 November 2011). 16](#_Toc305930820)
23. [If approved, the Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to the co-ordinator of the IMO Correspondence group on e-Navigation. (Deadline 1 November 2011). 16](#_Toc305930821)
24. [If approved, the Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to National Members. 16](#_Toc305930822)
25. [The Secretariat is requested to forward e-NAV10/output/18 (Essential Communications Elements of e-Navigation) to e-NAV11 as an information paper. 16](#_Toc305930823)
26. [The Secretariats is requested to forward e-NAV10/output/20 (Draft Liaison Statement to RTCM on Items to be addressed at the 10th meeting of the e-NAV Committee) to Council for approval. 16](#_Toc305930824)
27. [If approved, the Secretariats is requested to forward e-NAV10/output/20 (Draft Liaison Statement to RTCM on Items to be addressed at the 10th meeting of the e-NAV Committee) to RTCM. 16](#_Toc305930825)
28. [The Secretariat is requested to forward e-NAV10/WG4/WP3 (Next Generation Combined AIS-VHF) to e-NAV11. 16](#_Toc305930826)
29. [The Secretariat is requested to forward e-NAV10/output/19 (Draft Liaison Statement to ITU-R WP5B on Spectrum requirements for e-Navigation under WRC-12) to Council for approval by e-mail (Deadline 1 November 2011). 16](#_Toc305930827)
30. [If approved, the Secretariat is requested to forward e-NAV10/output/19 (Draft Liaison Statement to ITU-R WP5B on Spectrum requirements for e-Navigation under WRC-12) to ITU-R WP5B (Deadline 1 November 2011). 16](#_Toc305930828)
31. [The Secretariat is requested to forward e-NAV10/WG4/WP1 (Communications in Polar Areas) to e-NAV11. 17](#_Toc305930829)
32. [The Secretariat is requested to forward e-NAV10/output/17 (IALA Participation in the IHO Geospatial Information Registry) to Council for approval. 17](#_Toc305930830)
33. [If approved, the Secretariat is requested to inform the IALA Representative at IMO and the IHO about e-NAV10/output/17 (IALA Participation in the IHO Geospatial Information Registry). 17](#_Toc305930831)
34. [The Secretariat is requested to forward e-NAV10/WG5/WP1 (Draft Revision of IALA Recommendation e-NAV140) to e-NAV11. 18](#_Toc305930832)
35. [The Secretariat is requested to forward e-NAV10/WG5/WP1 – e-NAV10/WG5/WP9 to e-NAV11. 19](#_Toc305930833)
36. [The Secretariat is requested to forward e-NAV10/output/25 (Liaison Note on e-Navigation Portrayal Guidelines related to IALA Recommendations V-125 and V-128) to the VTS Committee. 20](#_Toc305930834)
37. [The Secretariat is requested to forward e-NAV10/output/23 (Liaison Note on the NAVGUIDE 2014) to ANM17. 23](#_Toc305930835)
38. [The Secretariat is requested to forward the report of e-NAV10 (e-NAV10/output/1) to the Council, to note. 24](#_Toc305930836)

Action items for members

1. [Victor Placido da Conceicao is requested to provide an input paper on disaster recovery to e-NAV11. 6](#_Toc305930782)
2. [Committee members are invited to contribute interim guidance / information on existing testbeds for e-NAV11. 11](#_Toc305930783)
3. [Committee members are invited to contribute inputs on the road map for e-NAV11. 12](#_Toc305930784)
4. [Committee member 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. 12](#_Toc305930785)
5. [This Task will be addressed during future sessions. 12](#_Toc305930786)
6. [The IMO Correspondence Group Gap Analysis and proposed amendments regarding the future Integrated PNT concept, was reviewed. 13](#_Toc305930787)
7. [Will be addressed during future sessions of WG. 13](#_Toc305930788)
8. [e-NAV Committee members are requested to contribute to the development of an input paper to IMO regarding the Maritime Integrated PNT system concept, by correspondence group on an inter-sessional basis. The Correspondence Group is open to any interested party. The mailing list is managed by Michael Hoppe (michael.hoppe@wsv.bund.de). 13](#_Toc305930789)
9. [The Maritime Integrated PNT Correspondence Group is requested to prepare an input paper regarding the potential development of GNSS augmentation services for port and docking as an input to e-NAV11. 13](#_Toc305930790)
10. [The Chair of WG5 is requested to co-ordinate with IALA and IHO Secretariats in order to set up the joint meeting with IHO, on 6 – 9 March, in Monaco. 18](#_Toc305930791)
11. [Members of WG5 are requested to prepare input documents regarding the architecture related questions No 6 and 7 from e-NAV10/7/4 to e-NAV11. 19](#_Toc305930792)
12. [The Chair of WG5 is requested to transform the relevant existing working documents into input documents for the Committee inter-sessionally, in time for e-NAV11. 19](#_Toc305930793)
13. [Members of WG5 are requested to prepare input documents to e-NAV11 to further progress and finalize e-NAV10/WG5/WP1 – e-NAV10/WG5/WP9 for submission to e-NAV11. 19](#_Toc305930794)
14. [e-NAV Committee members are encouraged to submit examples of e-Navigation Portrayal examples. In particular, more shore-based examples are needed. 21](#_Toc305930795)
15. [Members are requested to provide input on the future Work Programme to e-NAV11. 22](#_Toc305930796)
16. [The Chairman of the Committee is requested for inform PAP22 of the Committee’s views on the options for its future composition. 23](#_Toc305930797)
17. [Bill Cairns, Nick Ward, Mahesh Alimchandani and Jan-Hendrik Oltmann are requested to update IALA Guideline 1072 (on AtoN Information Exchange & Presentation) inter-sessionally, by correspondence, and submit a revised version to e-NAV11. 24](#_Toc305930798)
18. REVISion of the WORK PROGRAMME

(Changes made at e-NAV10 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 |
| Position, Navigation, and Timing (Sensors): |  |  |  |  |
| Review and update World Wide Radio Navigation Plan | 3 | 2 | Input to NAV & CG | 1.2 |
| Prepare Recommendations and Guidelines on PNT systems and radar AtoN | 5 | 2 | Revised Racon & DGNSS Recommendation | 10.11 |
| 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 |
| 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 |
| Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems | 4 | 2 | Periodic updates to Committee | 13.2, 13.6, 15.1 |
| Guideline on recommended measures for disaster recovery | 2 | ALL | IALA Guideline | 10.11 |
| Monitor developments in radar technology and their effect on racons | 3 | 2 | Updated Racon Strategy | 13.6 |
| AIS |  |  |  |  |
| Review and update documentation on AIS (M.1371; A-124, A-126) | 4 | 3 | Revised recs. | 5, 10.3 |
| Co-ordinate input to IMO, ITU, and IEC on AIS | 3 | 3 | Liaison notes, CG & NAV inputs | 1.2, 15.2 |
| Monitor and contribute to development of AIS, including the next generation of AIS | 4 | 3 | Periodic updates | 13.6 |
| 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 |
| 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: |  |  |  |  |
| Review and update IALA Maritime Radio Communications Plan | 5 | 4 | COMSAR & CG input | 1.2, 15.1 |
| Review Recommendations and Guidelines on communications | 4 | 4 | IALA Recommendations and Guidelines | 10.3 |
| Co-ordinate input to ITU, IMO, and IEC on communications | 4 | 4 | CG & COMSAR inputs | 1.2, 15.2 |
| 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 |
| Monitor developments in GMDSS and LRIT | 3 | 4 | Periodic updates | 13.2 |
| Architecture: |  |  |  |  |
| Develop and maintain shore-based e-Navigation Architecture | 5 | 5  (assisted by 2,3,4 & 6) | Periodic updates to Committee | 10.11 |
| Prepare Recommendations and Guidelines on e-Navigation architecture | 5 | 5 | IALA Recommendations & Guidelines | 10.3, 10.11 |
| Co-ordinate input to IMO, IHO, ISO, IEC & CIRM on architecture | 3 | 5 | CG & NAV inputs | 1.2, 10.11, 15.2 |
| Information Portrayal: |  |  |  |  |
| 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 |
| Prepare Recommendations and Guidelines on the portrayal of information | 5 | 6 | IALA Rec. and inputs to NAV & CG. IHO liaison | 10.3 |
| Monitor developments in ECDIS, INS and ENCs | 3 | 6 | Periodic updates to Committee | 10.3, 13.2, 15.1 |
| General: |  |  |  |  |
| Monitor and report progress on related systems | 4 | 2/3/4 | Periodic updates | 13.4 |
| Liaise with other IALA Committees and other bodies | 4 | C/VC | Liaison notes, PAP | 1.2, 13.4 |
| Prepare a combined IALA e-Navigation Plan (all Committees) | 4 | C/VC | PAP | 1.2, 13.6 |
| Consider the regulatory process for e-Navigation and recommend the best approach | 3 | ALL | Policy paper for Council | 15.2 |
| New |  |  |  |  |
| Manage the IALA domain, according to IHO standards S-100 & S-99 | 4 | ALL | 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 |  |
| Monitor developments in navigation for polar regions |  |  |  | X |  |  | X |
| Review and update World Wide Radio Navigation Plan |  | X |  | X |  | X |  |
| Prepare Recommendations and Guidelines on PNT systems and radar AtoN | X | X |  | X | X | X |  |
| Co-ordinate input to IMO, ITU, and IEC on PNT systems | X |  |  | X |  | X | X |
| Prepare a Guideline on establishment and operation of navigation systems in polar regions |  | X |  |  | X |  |  |
| Monitor developments in satellite and terrestrial EPFSs and non-radionavigation systems |  | X | X |  | X |  | X |
| Guideline on recommended measures for disaster recovery |  |  | X | X |  |  |  |
| Monitor developments in radar technology and their effect on racons | X |  |  | X |  | X |  |
| Review and update documentation on AIS (M.1371; A-124, A-126) |  | X |  | X |  | X | X |
| Co-ordinate input to IMO, ITU, and IEC on AIS | X |  | X |  |  |  | X |
| Monitor and contribute to development of AIS, including the next generation of AIS | X | X | X |  |  | X |  |
| 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 |
| Monitor developments in the use of AIS in polar regions (e.g. AIS AtoN) | X |  | X |  |  | X |  |
| Review and update IALA Maritime Radio Communications Plan |  | X |  | X | X | X | X |
| Review Recommendations and Guidelines on communications | X | X |  | X |  | X |  |
| Co-ordinate input to ITU, IMO, and IEC on communications |  | X |  | X | X |  | X |
| Prepare a Guideline on establishment and operation of communications systems in polar regions | X |  |  | X |  |  |  |
| Monitor developments in GMDSS and LRIT |  | X |  |  | X |  | X |
| Develop and maintain shore-based e-Navigation Architecture | X | X | X | X |  | X |  |
| Prepare Recommendations and Guidelines on e-Navigation architecture | X | X | X | X | X |  |  |
| Co-ordinate input to IMO, IHO, ISO, IEC & CIRM on architecture |  |  | X | X |  | X |  |
| Prepare Recommendations and guidelines on Maritime Information Systems (in co-ordination with the VTS Committee) | X | X |  | X | X |  | X |
| Prepare Recommendations and guidelines on the portrayal of information | X |  | X | X |  | X | X |
| Monitor developments in ECDIS, INS and ENCs |  | X |  | X |  | X |  |
| Monitor and report progress on related systems | X |  | X |  | X |  | X |
| Liaise with other IALA Committees and other bodies |  | X |  | X |  | X | X |
| Prepare a combined IALA e-Navigation Plan (all Committees) | X | X |  |  | X | X |  |
| Consider the regulatory process for e-Navigation and recommend the best approach |  |  | X | X | X |  |  |
| Manage the IALA domain, according to IHO standards S-100 & S-99 |  |  |  | X | X | X | X |