2nd HSSC MEETING
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Paper for Consideration by HSSC

IALA ACTIVITIES IN SUPPORT OF e-NAVIGATION

Submitted by:	IALA
Executive Summary	This paper gives a brief overview of IALA and its e-Navigation (e-NAV) Committee, describes the Committee's formation, outputs and current activities. Mention is made of IALA's interest in the potential use of S-100 GII Registry for e-Navigation related information.
Related documents	S-100 and Draft S-99

1   INTRODUCTION

IALA exists to support its members and, to this end, hosts four principal Committees, which meet in the order:

1   Vessel Traffic Services (VTS),

2   e-Navigation (e-NAV),

3   Engineering, Environment and Preservation of Historic Lighthouses (EEP)

4   Aids to Navigation Management (ANM).

These Committees come together for a working week twice per year and also conduct inter-sessional work. IALA operates a four yearly work programme, which runs between successive IALA Conferences.

1.1   e-Navigation Committee

Since its inception in 2006, one of the principal activities of the e-NAV Committee has been to support the IMO initiative in e-Navigation. To achieve its goals, which are set every four years and then monitored on a six-monthly basis by the IALA Council, the e-NAV Committee currently consists of six Working Groups:

1   Operations & Strategy

2   Position, Navigation & Timing (PNT) / Sensors

3   Automatic Identification System (AIS)

4   Communications

5   Technical Architecture

6   Information Portrayal

As interest has grown in e-Navigation the Committee has gradually increased in size from an initial 72 to, at its last meeting (20-24 September 2010), 98 delegates, who came from 26 national administrations / members and 7 sister organisations, which included IMO and IHO.

2   FORMATION AND PAST ACTIVITIES (MAY 2006 – APRIL 2010)

The e-NAV Committee was formed from two previous Committees; Radionavigation and AIS.

During the period May 2006 – March 2010, the e-NAV Committee was committed to participation in the 1st IMO Correspondence Group on e-Navigation and provided substantial support to the development of IMO's e-Navigation strategy and construction of the e-Navigation implementation plan, which it now being put into effect. Its initial objectives were to provide input on users' requirements and the display / presentation (ashore and afloat), assist in the definition data standards (ship to ship, ship to shore and shore to ship) and establishing an open, telematics architecture for e-Navigation, which would include

conceptual, logical and physical layers. From the outset, the Committee took an holistic approach to shipping and did not just concentrate on SOLAS vessels. Generically, e-Navigation was considered to cover all ship and shore data and there was early recognition of the important role that ENCs would play in its development and also the need for a reliable back-up system to GNSS.

There was also a realisation that e-Navigation could not be developed in isolation and that IALA would need to co-operate with other organisations. Thus sister organisations, such as CIRM, ICS, IHO, IMO, IMPA, IMSO and the Nautical Institute have played and continue to play a key role in the Committee's activities.

Towards the end of the period, the Committee produced the IALA Maritime Radio Communications Plan (to assist members with possible requirements for the 2011 World Radio Conference), the IALA World Wide Radio Navigation Plan (to assist members in planning their radionavigation requirements) and a first draft of an IALA Universal Maritime Data Model, based on users' needs. It also provided input on the users' requirements on the formation of the 2nd IMO Correspondence Group on e-Navigation.

3 PRESENT WORK PROGRAMME

3.1 Overview

The e-NAV Committee currently 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.

3.2 Specific Tasks

Each working group has its allotted tasks.

3.2.1 Operations & Strategy

Monitor and co-ordinate input on Strategy & Operations to the IMO process, review and update IALA Strategy for e-Navigation, maintain and update user requirements and monitor developments in navigation for Polar Regions.

3.2.2 PNT / Sensors

Review and update the World Wide Radio Navigation Plan, prepare Recommendations and Guidelines on PNT systems and radar Aids to Navigation (AtoN), co-ordinate input to IMO, ITU and IEC on PNT systems, prepare an IALA Guideline on establishment and operation of navigation systems in polar regions, monitor developments in satellite and terrestrial EPFSs

and non-radionavigation systems, prepare an IALA Guideline on recommended measures for disaster recovery and monitor developments in radar technology and their effect on racons

3.2.3 AIS

Review and update documentation on AIS, co-ordinate input to IMO, ITU and IEC on AIS, monitor and contribute to development of AIS, including the next generation of AIS, monitor developments in the technical definition of AIS stations at IEC, satellite detection of AIS, and terrestrial long range AIS and monitor developments in the use of AIS in polar regions (e.g. AIS AtoN).

3.2.4 Communications

Review and update the IALA Maritime Radio Communications Plan, co-ordinate input to ITU, IMO and IEC on communications, prepare an IALA Guideline on establishment and operation of communications systems in Polar Regions and monitor developments in GMDSS and LRIT.

3.2.5 Technical Architecture

Develop and maintain a shore-based e-Navigation Architecture, prepare IALA Recommendations and Guidelines on e-Navigation architecture and co-ordinate input to IMO, ISO, and IEC on architecture.

3.2.6 Information Portrayal

The importance of marine Information overlays (MIO) was recognised during the previous period and led to the formation of the Information Portrayal Working Group. Its specific tasks are to prepare IALA Recommendations and Guidelines on Maritime Information Systems (in co-ordination with the VTS Committee), prepare IALA Recommendations and Guidelines on the portrayal of e-navigation related information, and to monitor developments in ECDIS, INS and ENCs

3.3 Current activities

The e-NAV Committee has, so far, met once in the current work programme (2010 – 2014). Outcomes from the IMO and the needs of the Correspondence Group, which is required to meet deadlines for various IMO sub-committees, are driving current work. In addition, IMO is looking to other intergovernmental and non-governmental organizations to contribute to and support its work. For instance, at NAV56, the sub-committee invited IALA and the IHO to finalize gap analyses on shore-side aspects of e-Navigation.

Before NAV57 (6th to 10th June 2011), the correspondence group is expected to:

- finalize the e-Navigation system architecture and progress the gap analyses focusing on technical, regulatory, operational and training aspects;

- elicit feedback regarding training and watchkeeping issues;

- outline an overall conceptual, functional and technical architecture focusing on communication and SAR issues;

- produce a provisional draft of an e-Navigation Strategy Implementation Plan as well as identifying and describing an "enabling data framework."

The IALA e-NAV Committee will be involved in each of these activities.

The Information Portrayal working group will evaluate proposals for displaying e-Navigation related-information, including AIS application-specific messages, virtual aids to navigation, and marine information overlays (MIOs). It has also taken the lead on the discussion of a default or standard mode (S-Mode) of display.

Given the planned opening of the S-100 GI Registry in January 2011, IALA is investigating whether it might also be able to support the IALA data model. IALA believes that this

approach has merit, however further investigation is required in order to evaluate the IHO registry and determine whether the IALA UMDM and the IHO Registry can be harmonised. IALA is also interested in determining how the development of its Universal Maritime Data Model (UMDM) could be harmonized with the S-100 GII Registry. In this regard, IALA takes note of the planned publication of S-99.

4   ACTION REQUIRED OF HSSC

The HSSC is requested to note the information provided.