**INTERNATIONAL
HYDROGRAPHIC ORGANIZATION**

**ORGANISATION
HYDROGRAPHIQUE
INTERNATIONALE**

**4b, quai Antoine 1er
BP 445
MC 98011 MONACO CEDEX
PRINCIPAUTE DE MONACO**

**Tel: +377 93 10 81 00
Fax: +377 93 10 81 40
e-mail: info@iho.int
web: www.iho.int**

IHO HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE

**8TH MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE
(HSSC-8)
IHO Secretariat, Monaco, 14-18 November 2016**

FINAL MINUTES

Notes: 1) *The numbering of sections is the same as in the agenda, although the order of taking the items was not exactly followed.*
   2) *The decisions and actions are listed in Annex B only. When reading the text in the main part of the report, click on the hyperlink to view the associated action if any. Then, when in Annex B, press* ==ALT+ left arrow== *on your keyboard to return to the original section in the main part of the report.*
   3) *All documents referred to in these report are available and "hyperlinked" to the HSSC page of the IHO website (www.iho.int > Committees & WGs > HSSC > HSSC-8).*

Annexes: A *Terms of Reference of the Project Team on the Standards for Hydrographic Surveys (HS PT).*
   B *List of Decisions and Actions arising from HSSC-8*

1.   OPENING AND ADMINISTRATIVE ARRANGEMENTS

Docs: HSSC8-01A   *List of Documents* (IHO Secretariat)
               HSSC8-01B   *List of Participants* (IHO Secretariat)
               HSSC8-01C   *HSSC – List of Contacts* (IHO Secretariat)
               HSSC8-01DRev1   *TORs for HSSC and related Working Groups* (IHO Secretariat)

The eighth meeting of the Hydrographic Services and Standards Committee (HSSC) took place in Monaco hosted by the IHO Secretariat from 14 to 18 November 2016. The meeting was opened by Robert Ward, Secretary General of the IHO, and Dr Mathias Jonas, National Hydrographer of Germany, and Chair of the HSSC.

The Chair welcomed all the participants, and Dr Parry Oei, Chair of the Inter-Regional Coordination Committee (IRCC) in particular, reminding that the first HSSC meeting had taken place in Singapore. He noted that standardization is one pillar of the IHO and S-100 is the flagship framework that will support many navigational services and products for the future. He noted the strong participation from both Member States (MS) and industry partners, and especially welcomed the representative from INTERTANKO as a new participant, looking forward to the user perspective that he would bring to the discussion.

The Secretary General of the IHO pointed out that the meeting is an important opportunity to provide guidance for Programme 2 of the IHO. He highlighted the close dependency between MS and industry and noted that the activities related to the development of standards are beneficial for the various stakeholders. He acknowledged the changes to the organization of the IHO that had just come into force, and noted that they will not have an impact on the way the IHO does business in the short term, but will have a positive impact on the overall functioning of the organization in the long term. He expected that the IHO Secretariat will continue to support the IHO to the best of its abilities. He proposed that HSSC uses the opportunity to highlight the importance of its work to the 1st Session of the Assembly in April 2017. He noted that it was highly commendable that most of the work of the programme is done on a voluntary basis, which is not the model used by most other international organizations. He invited members to consider what resources are required when proposing items for the work programme, and wished the meeting successful discussions.

The HSSC Secretary referred the participants to the list of documents posted on the IHO website and invited feedback on the online registration system and noted that it is currently open for registrations to the 1st Session of the IHO Assembly. He reminded that participants must first open an account in the system before they can register for meetings.

Outcome:
- The Committee noted the administrative arrangements and the related documents.
→**Action HSSC8/01**

2.	**APPROVAL OF AGENDA**

Doc: *HSSC8-02ARev1*   *Agenda and Timetable* (IHO Secretariat)

It was agreed to report on agenda item 7.10 (Report from the International Harbour Masters Association) just after item 7.3 (IALA Status Report).
Sweden stated that documents need to be delivered on time as this makes preparation for the meeting at national level, much easier. The HSSC Secretary agreed with the comment made by Sweden and indicated that there were two options:
-    if papers are not made available within the prescribed timeframe, they are not considered at all as it is the rule in force in some other international organizations;
-    alternatively, this Committee can remain a bit more flexible and consider late papers on a case-by-case basis, noting that all contributors work on a voluntary basis.
Sweden agreed with the comments and accepted the flexible approach. The Committee reiterated the need to abide by the timelines and agreed to consider the few late submissions received for this session.

Outcome:
- The Committee approved the agenda with minor changes in the sequence of items to be considered.
→**Decision HSSC8/02**

3.	**MATTERS ARISING FROM MINUTES OF 7th HSSC MEETING**

Docs: HSSC8-03A   *Minutes of HSSC-7*(IHO Secretariat)
         HSSC8-03B   *Status of Actions List from HSSC-7* (IHO Secretariat)

The Chair noted that the minutes of HSSC-7 had been agreed as reported in IHO Circular Letter (CL) CL 02/2016 and were included in the list of documents for ease of reference only.

The Secretary reported that most of the actions had been either completed or would be addressed under the relevant agenda items.

Outcome:
 - The Committee noted the report and agreed that all pending actions would be reviewed under the appropriate agenda items, pending actions being renamed as appropriate.

→**Actions HSSC8/03, HSSC8/04, HSSC8/05**

4. HSSC ADMINISTRATION

4.1 Input from HSSC to the IHO Strategic Plan

Doc: HSSC8-04A   Input from HSSC to the IHO Strategic Plan (HSSC Chair/IHO Secretariat)

The Secretary reported that the Chair Group (CG) had convened in Paris, France, from 1 to 2 June, to discuss the IHO Strategic Plan and prepare the HSSC contribution to the next inter-sessional Work Programme. The CG agreed that a full-scale revision of the current Strategic Plan was not required but proposed some amendments that have been included at Annex A to the report to HSSC-8.
He also reported on the outcome of the consultation of the IHO MS, HSSC and IRCC that were summarized in IHO CL31/2016. PRO-4 submitted by UK for a full new edition of the Strategic Plan (IHO ACL 10/2016 refers) will be considered by the 1ˢᵗ Session of the IHO Assembly (A-1).

Outcome:
 - The Committee endorsed the proposals for the revision of the Strategic Plan as outlined in the CG report.

→**Decision HSSC8/06**

4.2 Input from HSSC to the IHO 3-year Work Programme

Doc: HSSC8-04B   Input from HSSC to the IHO 3-year Work Programme (HSSC Chair/IHO Secretariat)

Outcome:
 - The Committee endorsed the proposals for the IHO 3-year Work Programme as outlined in the CG report including the risk assessment and the proposal to revert to an annual reporting cycle in line with the periodicity of the Council meetings.

→**Decision HSSC8/07**

4.3 Preparation of the HSSC Report to the Assembly

Doc: HSSC8-04C   Preparation of the HSSC Report to the Assembly (HSSC Chair/IHO Secretariat) - Presentation

The Committee considered the outline of the report and decided to prepare, throughout the HSSC-8 meeting, the key messages to be delivered to A-1. Several options were considered to deliver these messages during the oral presentation, including two videos: "*Introduction to S-100*", produced by KHOA and "*Sea Traffic Management*", produced by the Swedish Maritime Administration.
The key messages endorsed by the Committee are:

-    *IHO standards for ECDIS reached maturity and stability*
-    *The E-navigation concept expands the technical and operational options to maintain ship's operation significantly. The IHO encompasses this technological leap with its scope of standards*
-    *The S-100 concept is for much more than just the next generation ENC and ECDIS*

The Secretary also reported on PRO-6 submitted by ROK related to IHO Resolution 2/2007 (IHO ACL 10/2016 refers).

> **Outcome**:
> - The Committee endorsed the proposed outline of the HSSC report to A-1, the key messages to be delivered to A-1 and noted the proposal made by ROK related to IHO Resolution 2/2007 as amended.
> →**Decisions HSSC8/08, HSSC8/09, HSSC8/10**

5.	REPORTS BY HSSC WORKING GROUPS
5.1	S-100 (S-100WG)

Docs: *HSSC8-05.1ARev2*   *Report and Recommendations of S-100WG (including Project Teams - S-100WG Chair) - Presentation*

       HSSC8-05.1C   *Potential Impacts of S-100, S-101 and other S-100 based product specifications on IEC 61174 and IMO MSC.232(82) (S-100WG Chair) - Presentation*

       HSSC8-05.1D INF4   *Activities of KHOA on creation of S-10X test data sets and S-100 sea trial (KHOA)*

       HSSC8-05.1E INF5   *Demonstration of the S-100 Registry*

The S-100WG Chair thanked MS and expert contributors for their continued work and support and KHOA in particular for the substantial resources that they have committed to the development of the Registry application. She reported that the S-100WG has produced a new Edition 3.0.0 of S-100 for endorsement at HSSC-8 that includes clarifications, corrections and extensions. Most extensions have been included in response to requirements from WG/Project Teams developing Product Specifications. As a result of changes in the new edition, updates will be required to the Registry and to the Feature and Portrayal Catalogue Builders.

In response to a request from IALA, the S-100WG Chair suggested that provisions for data streaming services might be included into the next planned new Edition 4.0.0 of S-100 subject to agreeing that they are within the scope of S-100.

The S-100WG Chair also informed the Committee that a first draft of the S-100 interoperability specification had been produced and discussed at the S-100 Test Strategy Meeting held in Rostock, Germany in September 2016.

Finally, the S-100WG Chair reported that the Feature Catalogue Builder was due for completion in 2017 while the Portrayal Catalogue Builder would require further refinements.

Concerning the establishment of S-100 Registry Domain Control and Executive Control Bodies; the Committee decided to maintain a lean structure for the present, and not implement the full structure as described in S-99.

Chile congratulated the S-100WG for the progress and commented that the Registry should be a top priority and should be completed to enable other WGs to progress their work. Therefore, Chile invited the Committee to consider what resources would be required to complete the work. The S-100WG Chair noted that NIPWG and WMO are in the process of registering their feature proposals. Other WGs will be invited to do the same soon. The Secretary informed the Committee that an amount of about 100 k€ was available in the IHO Special Project Fund. The Chair invited the S-100WG Chair to identify additional work packages suitable for outsourcing in order to progress the completion of the Registry. France suggested that the S-100WG should consider using the Resource Description Framework (RDF) semantic web standard for further developments.

> **Outcome**:
> - The Committee noted the report and endorsed the new Edition 3.0.0 of S-100.
> →**Decisions HSSC8/11, HSSC8/14**
> →**Actions HSSC8/12, HSSC8/13, HSSC8/15, HSSC8/18**

The S-100WG Chair also reported on the work of the different subordinate Project Teams (PT): the S-101 (*ENC*), the S-121 (*Maritime Limits and Boundaries)* and the UKCM (*Under Keel Clearance Management Information*) Project Teams (PT). Singapore encouraged INTERTANKO, CIRM and others who have actively participated in the work of the UKCM PT to ensure that the UKCM project benefits from their input as this service is clearly expected by the mariners with a high priority. Considering the expectations from the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS), the Committee strongly recommended the S-121 PT to adhere to the original objectives, so the Product Specification can be completed as soon as possible in accordance with the initial scope. The expansion of the S-121 scope will be considered later.

Outcome:
- The Committee noted the status of the developments related to S-101 and reiterated the need for the PT to consider its compatibility with the current IMO Performance Standards.
→**Actions HSSC8/19, HSSC8/20**

- The Committee noted the progress reports on the activities of the S-121 and UKCM Project Teams.
→**Action HSSC8/16**
→**Decision HSSC8/17**

This agenda item was concluded with some considerations on test bed projects, information on the S-57 to S-101 converter, on the S-101 viewer developed by KHOA, as well as on the preliminary outcome of a first sea trial by KHOA of S-100-based products (Doc. HSSC8-05.1D INF4 refers). This was followed by a live presentation of the IHO Geospatial Information Registry (registry.iho.int) by Mr Jeff Wootton, recently appointed as Technical Standards Support Officer to the IHO Secretariat. He reported that 330 proposals from Member Organizations had been processed so far, and of these, fifty-five were rejected and returned to the originators for various reasons such as they already existed in the Registry, or they were not correctly documented.

5.2 Data Protection Scheme (DPSWG)

*Doc: HSSC8-05.2A**Rev1*** *Report and Recommendations of DPSWG (DPSWG Chair) - Presentation*

The DPSWG Chair reported that the main activity of the WG so far had been the support and maintenance of the existing IHO Data Protection Scheme and the development of a new edition of S-63 (draft planned in March 2017 for HSSC endorsement in November 2017) that will make the implementation of the S-63 standard easier for end users and less prone to errors. Work has also been carried out on an S-100 implementation of the standard. This has prompted the WG to consider the future structure/composition of the WG. Three possible options were presented for HSSC consideration, the first one, recommended by the DPSWG Chair, being supported by IEC and the Chairs of the S-100WG and ENCWG.

Outcome:
- The Committee noted the report and endorsed option 1 (Doc. HSSC8-05.2A**Rev1** refers) for restructuring the activities related to data protection.
- With regard to cyber security, the Committee agreed that this issue needed some monitoring for the time being and, subject to requirements from IMO and/or stakeholders, possible further consideration across the entire data chain as well as bridge systems.
→**Decision HSSC8/21**
→**Action HSSC8/22**

5.3 ENC Standards Maintenance (ENCWG)

Docs: HSSC8-05.3A *Report and Recommendations of ENCWG* (ENCWG Chair) - *Presentation*

HSSC8-05.3B *Checking the IHO S-52 Presentation Library edition 4.0 in ECDIS* (ENCWG Chair)

HSSC8-05.3C**Rev1** *Development of an Additional Bathymetry Layer standard based on S-57/S-52* (Germany) - *Presentation*

HSSC8-05.3D *T&P Notices for ENCs* (INTERTANKO)

The ENCWG Chair reported that it had not been possible to complete the revision of S-65 and S-66 for endorsement by the Committee. For various reasons (lack of resources, loss of a valuable industry contributor, technical issues identified in S-52 and S-64 by OEMs going through ECDIS type approvals), the work on S-58 had also been delayed.

In response to Action HSSC7/14, the ENCWG Chair reported that the WG considered that a new version of the check dataset should not be created for Ed 4.0 of the S-52 Presentation Library as the WG had agreed that the ECDIS Chart 1 symbols should be used to check the ECDIS display.

The ENCWG Chair also reported that ECDIS S-Mode activities were being monitored by the WG but noted that IMO is unlikely to consider this until the 2018/19 timeframe.

Italy confirmed that Port State Control (PSC) authorities use the check datasets for vetting purposes and questioned whether the WG can provide guidance for PSC bodies to help them when inspecting ECDIS in a consistent and informed way.

The ENCWG Chair also reported on the ECDIS Chart 1 advisory letter which advises mariners to use Chart 1 to check that their systems portrayal is displaying correctly and requested that HSSC endorsed this method of checking. Germany and INTERTANKO welcomed the proposal and thanked the ENCWG for this positive proposal.

Outcome:

- The Committee agreed that revised editions of S-65 and S-66 should be submitted directly to the Member States for approval as the edits are factual and S-65 / S-66 are advisory documents only.

→**Decision & Action HSSC8/23**

- Although it was noted that it should not create a precedent with regard to the applicability of the IHO Resolution 2/2007 as amended, the Committee agreed that the new edition of S-58 should be submitted to the Member States for approval, provided the ENCWG makes a proposal on the date of entry-into-force of the new edition after consultation with stakeholders.

→**Decision & Action HSSC8/24**

- With regard to S-52, the Committee agreed with the ENCWG proposal to use ECDIS Chart 1 for checking ECDIS display.

→**Decision HSSC8/25**
→**Action HSSC8/26**

Germany introduced a proposal co-sponsored by CIRM for the development of an Additional Bathymetry Layer (ABL) standard based on S-57/S-52. It was justified by the fact that currently most large scale ENCs only include few depth areas and contours and that there is a need for higher resolution bathymetry in port approaches and port areas to support more precise navigation. Private service providers are producing ABL products which are based on S-57. These bathymetric ENCs layers (bENCs) are being used on Portable Pilot Units (PPU), in many pilotage areas of the world as they offer significant advantages. Many ENC productions systems already support the production of bENCs but because there is no standard their production remains inhibited. So it was suggested that the development of an ABL standard would provide a good interim solution for use in S-57 ECDIS until an S-100 capable ECDIS is developed which will support the provision of S-102 layers to the mariner.

This topic raised fruitful discussions. For instance, Australia reported that they prefer to produce UB6 ENCs with high density bathymetry having the same coverage as UB5 cells while RTCM mentioned the Port ENCs which are similar to bENCs. Italy reported on the existing Additional Military Layer (CLB – Contour Line Bathymetry) that aims to be displayed as overlays already. Several concerns were raised about the data source to generate such high density contour lines, about the quality of the information and the liability. It was made clear that it would not be a carriage requirement. The HSSC Chair summarized the discussions stating that there was a clear requirement for high density bathymetry, and this could be achieved through the implementation of an additional layer that complies with the existing encoding and portrayal rules but is complementary to the ENC. He noted that it is likely that there are several ways that this can be achieved, but in the interests of standardisation, a single method should be agreed, if the Committee decides to move forward.

Outcome:
- The Committee acknowledged the proposal from Germany and CIRM related to high density contour lines ENCs and tasked the ENCWG to explore existing and possible options that could meet user requirements.

→**Action HSSC8/27**

The representative of INTERTANKO shared important user (mariners, PSC, etc.) concerns related to T&P notices *versus* ENC updates and Marine Information Overlays. This generated a lot of discussions and the Committee acknowledged the need to improve the situation. The HSSC Chair noted though that there was an important operational dimension that goes beyond the remit of HSSC, related to the fact that some ENC Producers do not produce equivalent T&P notices for their ENCs. The lack of proper guidance or IHO authoritative documentation for end users was also noted.

Outcome:
- The Committee acknowledged the concerns raised by INTERTANKO related to the equivalent of T&Ps for ENCs.

→**Action HSSC8/28**

5.4	Nautical Information Provision (NIPWG)

Doc: HSSC8-05.4A Report and Recommendations of NIPWG (NIPWG Chair) - Presentation

The NIPWG Chair provided a status report on the development of the different S-1xx-based Product Specifications relating to the provision of nautical information, noting that the merging of the NPUBS domain with the HYDRO domain of the S-100 infrastructure was effective.
With regard to the development of the S-122 (*Marine Protected Areas*) Product Specification, the RTCM representative mentioned the [Esri] Ecological Management Units (EMU) concept, which could be considered either by NIPWG or MSDIWG.
The NIPWG Chair also confirmed the organization of a workshop on the Visualization of Nautical Information, planned in May 2017 at the University of New Hampshire, USA.

Outcome:
- The Committee noted the NIPWG report and followed the recommendation made by INTERTANKO to put on hold the development of a Product Specification for regulatory information.
- The Committee invited the NIPWG to place priority on the development of S-122 (*Marine Protected Areas*) and S-123 (*Radio Services*).

→**Decisions HSSC8/29, HSSC8/30**
→**Action HSSC8/31**

5.5	Nautical Cartography (NCWG)

Docs: *HSSC8-05.5A*   *Report and Recommendations of NCWG (NCWG Chair) - Presentation*

          HSSC8-05.5BRev1   *Changes to S-4 for Edition 4.7.0 (NCWG Chair)*

          HSSC8-05.5C   *S-11 Part A Draft Ed. 3.0.0 (NCWG Chair)*

The NCWG Chair reported on the activities of the WG and indicated that several changes of office bearers had occurred during 2016. He invited the Committee to endorse the proposed revision of S-4 and S-11 Part A.

The NCWG Chair confirmed that the high priority work item on "the future of the paper chart" was addressed at NIPWG-2 and will be progressed at NIPWG-3. India commended the work carried out by the WG and noted that there are many producers that are only able to produce paper charts, and the alternative of withdrawing support for the production of paper charts was not an option.

The NCWG was also invited to consider the submission paper by INTERTANKO on T&Ps, if appropriate.

Outcome:

- The Committee endorsed the proposals submitted by the NCWG on S-4, S-11 Part A and also tasked the IHO Secretariat to issue a reminder to IHO Member States that Notices to Mariners should be promulgated in English.

- The Committee tasked the NCWG to check the impact of the IHO Resolution 3/1919 as amended on S-4 when this IHO Resolution is approved

→**Decisions HSSC8/32, HSSC8/34**

→**Actions HSSC8/33, HSSC8/35, HSSC8/36, HSSC8/37**

5.6	Data Quality (DQWG)

Docs: *HSSC8-05.6A*   *Report and Recommendations of DQWG (DQWG Chair) - Presentation*

          HSSC8-05.6B INF6   *Proposals for Visualizing Uncertainty of Bathymetric Data in S-101 ENCs and Annex (Germany) - Presentation*

The DQWG Chair presented the report and recommendations of the working group, thanking the active members for their work, but regretting the loss of the main expert contributor. He reported that the outcome from the main task, related to the data modelling of quality indicators for bathymetric information within S-101, was now included in the S-101 baseline document.

It was also reported that the DQWG had drafted guidance on how to deal with temporal variance of quality for bathymetric data in general.

IEC and INTERTANKO together raised the fact that CATZOC had always been a source of confusion for mariners and therefore was not well accepted and so, there was an urgent need to improve the situation in the future for S-101 and other S-100-based products, including the portrayal of quality indicators, eventually through a research funded project.

The ENCWG Chair informed that the main drivers of discontent from mariners are caused by the fact that many HOs are not populating CATZOC values in the ENCs.

In support of this discussion, Germany gave a presentation on the outcome of a research project contracted to the Fraunhofer Institute for Computer Graphics Research IGD, Rostock, Germany, aiming to develop generic proposals for the visualization of data quality for S-101 ENCs, based on the classification proposed by the DQWG.

It was also reported that considering the remaining work items, the continuation of the work of the DQWG would be discussed at the next DQWG meeting in June 2017.

Outcome:
- The Committee noted the report of the DQWG and tasked the NCWG to consider the report on the visualization of data quality indicators submitted by Germany. The Committee agreed to refer CATZOC issues to the IRCC.

→**Actions HSSC8/38, HSSC8/39**

5.7	Hydrographic Surveys Scoping Project Team (H2S PT)

Doc: HSSC8-05.7A   Report of the HSSC Hydrographic Surveys Scoping Project Team (H2S PT Chair) - Presentation

The report of the scoping study on hydrographic surveys was presented by Brazil, Chair of the H2S PT. Following the discussions on the recommendations of the H2S PT, the HSSC Chair invited an ad hoc group (Australia, Brazil, France, Sweden, USA), to draft the Terms of Reference (TORs) of a new PT, whose main task will be to conduct a comprehensive review of S-44 (*IHO Standards for Hydrographic Surveys*) and then to propose recommendations on the way forward for expanding the scope of work, with the possible creation of an Hydrographic Surveys Working Group in the future.

Outcome:
- The Committee noted the report of the H2S PT (which was disbanded) and established a new Project Team on the Standards for Hydrographic Surveys (HS PT) under the terms of reference in Annex A which will report back to the HSSC-9 meeting.

→**Decision & Action HSSC8/40**

5.8	Tides, Water Level and Currents (TWCWG)

Doc: HSSC8-05.8A   Report and Recommendations of TWCWG (TWCWG Chair) - Presentation

The TWCWG Chair presented the report and recommendations of the working group. She included in the report proposals to revise the names for S-104 (*Water Level Information for Surface Navigation*) and S-112 (*Dynamic Water Level Data Transfer*) and indicated that test datasets had been produced for S-104, S-111 and S-112 and uploaded to the IHO website. The TWCWG also suggested that the NetCDF format should be considered in S-100-based product specifications in the future as it meets the need of the oceanographic and scientific community and is commonly used.
The TWCWG was commended for the progress made on three main work packages of its work plan which include the following product specifications: S-104, S-111 (*Surface Currents*) and S-112.

Outcome:
- The Committee noted the report of the TWCWG and endorsed the recommendations of the report.

→**Decision HSSC8/41**
→**Action HSSC8/42**

5.9	Hydrographic Dictionary (HDWG)

Doc: HSSC8-05.9A   Report and Recommendations of HDWG (HDWG Chair) - Presentation

The HDWG Chair highlighted the progress made with the IHO Hydrographic Dictionary (HD), thanks to the excellent work undertaken by the seconded officer from Peru at the IHO Secretariat, who has sorted out many inconsistencies with the existing documents. The HDWG Chair also reminded that the transformation of the HD to the wiki version had led to the loss of ability to maintain cross language links. Thanks to the work carried out by the seconded officer from Peru, the HD documents have been

harmonised, and a common unique identifier has been allocated which can be used for linking common language items.

The HDWG Chair introduced attractive suggestions for the development and improvement of the HD in the future such as optional translations in an unlimited number of languages, to be implemented under the responsibility of national HOs. The US noted though that no-one had the opportunity to assess this new strategy prior to the HSSC-8 meeting and as a consequence, this new policy should first be considered at the HDWG meeting to be planned early 2017.

The location and the maintenance of authoritative definitions (IHO Geospatial Information Registry vs S-32 – *Hydrographic Dictionary*) were also questioned.

Outcome:
- The Committee noted the report of the HDWG and agreed on the way forward.

→**Actions HSSC8/43, HSSC8/44**
→**Decision HSSC8/45**

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6. INTER-ORGANIZATIONAL BODIES

6.1 IHO-IAG Advisory Board on the Law of the Sea (ABLOS)

Doc: HSSC8-06.1A   *Status Report on ABLOS activities* (ABLOS Chair) - *Presentation*

The HSSC Assistant Secretary reported on the activities of ABLOS on behalf of the ABLOS Chair. Following the presentation, India made a number of suggestions for upgrading publications S-5 – *FIG-IHO-ICA Standards of Competence* and C-51 - *Manual on Technical Aspects of the UN Convention on the Law of the Sea* -.

Some concerns were also raised on definitions within C-51 that are not fully in line with existing definitions in S-32 – *Hydrographic Dictionary*.

It was noted that ABLOS should be kept informed on the progress made by the S-121 Project Team (*Maritime Limits and Boundaries*) in the development of its Product Specification (Action HSSC8/16 refers).

Outcome:
- The Committee noted the report of ABLOS.

→**Actions HSSC8/46, HSSC8/47, HSSC8/48**

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7. DECISIONS OF OTHER BODIES AFFECTING HSSC

7.1 IRCC (incl. MSDIWG)

Docs: HSSC8-07.1A   *IRCC activities affecting HSSC (including MSDI)* (IRCC) - *Presentation*

HSSC8-07.1B INF2 Rev1   *Development of a S-100 Product Specification for Navigational Warnings: S-124 Progress Report* (FR) - *Presentation*

HSSC8-07.1C INF3   *Proposal for Terms of Reference of a SCUFN Project Team for the Development of an S-100 Product Specification for Undersea Feature Names and Registering SCUFN terms in the IHO GI* (CA) – *Presentation*

The IRCC Chair reported on the main outcome of the IRCC-8 meeting that were of interest for the HSSC. He highlighted in particular the increasing developments of S-57-based products and charts for the non-SOLAS market and encouraged IHO Member States to share their experience on this matter,

as potential dangerous inconsistencies have already been discovered. During the discussion, it was noted that the US is in the process of issuing a marine order stating that paper charts will not need to be carried as backup if there is a Class A ECS based on RTCM-type approved hardware and data to supplement the ENC/ECDIS. IEC confirmed that hardware is now powerful enough to use the native ENC format (ISO 8211) directly.

Following some discussion, the IRCC Chair confirmed that it was important to monitor the development of the information grid concept supported by OGC, taking into account, as suggested by the MSDIWG Chair, the work already done at the TSMAD meeting in 2009.

The US also reported on the IRCC-8 discussion on the GEBCO Seabed 2030 project, aiming to produce a 100 m-resolution grid by 2030 covering all the seas and oceans.

Outcome:
- The Committee noted the IRCC report.

→ **Actions HSSC8/49, HSSC8/50, HSSC8/52**

France provided a status report on the activities carried out by the S-124 Correspondence Group (CG) and its work plan aiming to finalize the draft S-124 PS (*Navigational Warnings*) in 2019.

The IEC representative noted that the modernization of the IMO GMDSS (*Global Maritime Distress and Safety System*) is very unlikely to alter the current carriage requirements. He suggested that the S-124 data could also be used for generating messages (geo coordinates for instance) via NAVTEX and SafetyNET. These statements were supported by INTERTANKO who also raised concerns about the possible clutter of warnings on the ECDIS screen. Denmark made reference to the EU-funded *Efficiency-2* research project, which includes S-124-type data, and to the navigational warnings and T&Ps that are made available on the e-navigation prototype portal for the Baltic Sea (https://balticweb.e-navigation.net/).

Outcome:
- The Committee noted the progress made by the S-124 CG on the development of an S-124 PS.
- The Committee also made it clear that S-124 is <u>not</u> intended to become an interim solution for providing "equivalent" T&Ps in ENC updates.

Canada reported on the proposal made by SCUFN (*GEBCO Sub-Committee on Undersea Feature Names*) to establish a Project Team, the main objective being to harmonize various definitions existing in IHO publications and repositories (S-4, S-32, IHO GI Registry) under the S-100 framework.

Outcome:
- The Committee supported the establishment of the Undersea Feature Names Project Team (UFN PT), endorsed its Terms of Reference, and agreed to include the UFN PT in the work plans of the S-100WG, NCWG and HDWG, as a component to be supported as appropriate.

→ **Action HSSC8/51**

7.2	IMO

Docs: HSSC8-07.2A   *Report on IMO activities affecting HSSC (including e-navigation) (IMO/IHO Secretariat) - Presentation*

HSSC8-07.2B   *Comments on Doc. HSSC8-07.2A - IMO activities affecting HSSC (including e-navigation) - Activation of the IMO/IHO Harmonization Group on Data Modelling (HGDM) (IHO Secretariat)*

HSSC8-07.2C INF7   *Additional Comments on Doc. HSSC8-07.2A: Activation of the IMO/IHO Harmonization Group on Data Modelling (HGDM)*

The HSSC Secretary welcomed Mr Hiroyuki Yamada, Senior Deputy Director of the Maritime Safety Division of the IMO, and provided the background information which supports the proposal to be made

to the IMO NCSR-4 meeting, on the activation of the IMO/IHO Harmonization Group of Data Modelling (HGDM).

The IMO representative suggested some amendments and confirmed that the IMO Secretariat would cooperate with the IHO. The HSSC Chair stressed the fact that if the HGDM were activated as proposed, this would request the involvement of IHO Member States.

It was noted that the S-100WG Chair was cautious of extending S-100 for supporting all aspects of the single window concept at this stage.

Outcome:
- The Committee noted the report and endorsed the draft proposal to NCSR-4 on the activation of the IMO/IHO Harmonization Group of Data Modelling (HGDM).
- The Committee noted that an unambiguous requirement to update ECDIS software to the latest version of the relevant standards would require amending SOLAS Chapter V and that it was up to IMO Member States to make appropriate proposals for moving forward on this matter.

→ **Action HSSC8/53**
→ **Decisions HSSC8/54, HSSC8/55**

Noting a significant increase of the number of ships' reports on ENC/ECDIS data presentation and performance check, UK indicated that it was likely that the checks were being used by vetting inspectors although the IHO website made it clear that these check datasets should not be used for this purpose. It was noted that the current ENC/ECDIS data presentation and performance check would no longer be applicable with the revised set of ECDIS standards. The IEC indicated that a test on "expected results" was required in any case.

Outcome:
- The Committee tasked the ENCWG to consider further the issue of ENC/ECDIS data presentation and performance check.

→ **Actions HSSC8/56, HSSC8/57**

7.3   IALA

Doc: HSSC8-07.3A   IALA activities affecting HSSC (IALA) - Presentation

The IEC representative presented the report of IALA on behalf of the Chair of the WG1 (Harmonization) of the IALA ENAV Committee and highlighted the main results within the S-200 domain.

The S-201 Product Specification (*Aids to Navigation Information*) is making good progress and Edition 0.0.1 is now available on the IALA website for review.

It was reported that the issue on the Unique Identifiers for Maritime Resource Names still needed further work within IALA to define harmonized approaches.

As IALA suggested that the S-100WG considers expanding the scope of S-100 to address data streaming, the HSSC Chair and the S-100WG Chair indicated that they were not convinced that it was within the scope of S-100, while CIRM reminded that data streaming is related to maritime service portfolios (MSP) and would need to be considered by the HGDM if and when it is activated (see paragraph 7.2).

Outcome:
- The Committee noted the report and welcomed the nomination of Mr Guttorm Tomren (Norwegian Coastal Administration) as IALA liaison to HSSC, S-100WG and ENCWG.

→ **Action HSSC8/58**

7.4   IEC

Doc: HSSC8-07.4A   IEC activities affecting HSSC (IEC) - Presentation

The Chair of the IEC TC80 reported on the status of the IEC 61174 ECDIS standard and the IEC TC80 plans about S-100 and e-Navigation. He also provided useful technical information on the development of specifications for a Route Exchange standard format to be used between ship and shore.
The Committee was pleased to note that, although type approvals based on the 4th edition of IEC 61174 have been going on for over one year, no issues within IHO related items were reported so far.

Outcome:
- The Committee noted the IEC presentation and welcomed the intention of the IEC/TC80/WG17 to develop the Common Maritime Data Structure (CMDS) under the S-100 framework, as well as the possibility to become a Domain owner in the IHO GI Registry.

→ **Decision HSSC8/59**

7.5   CIRM

Doc: HSSC8-07.5A   CIRM activities affecting HSSC (CIRM) - Presentation

The President of CIRM updated the HSSC participants on the on-going work undertaken with BIMCO for the development of guidelines to be used for the validation of ship equipment software updates. He also reported on the current draft procedures for the annual performance test (APT) of ECDIS.
Other issues were reported such as the cyber security threats and the level of competence of staff.
UK, as CIRM Member, informed that they have been involved in the development of the APT and have proposed that annual checks will benefit to shipping companies and will improve safety.
The President of CIRM also reported on the development of an E-Navigation Training Certification which is targeted primarily for the mariners and will be focused on identifying the limitations of shipborne equipment in order to prevent them from being over confident with the equipment.

Outcome:
- The Committee noted the CIRM presentation and the work in progress on the guidelines for software maintenance and ECDIS annual performance test.

→ **Action HSSC8/60**

7.6   Inland ENC Harmonization Group (IEHG)

Doc: HSSC8-07.6A   Status Report on Inland ENC Development and Standardization (IEHG) - Presentation

The IEHG representative presented a status report highlighting the results obtained from the European Union (EU) project CoRisMa with regard to Inland ENCs.
Thanks to the launch of the new EU River Information Service (RIS) COMEX project, it is expected to re-activate the development of S-401 (*Inland ENC*), in the wake of the on-going developments of S-101.
Brazil, having many inland waterways, offered his support to the IEHG in the development of the S-401 Product Specification.

Outcome:
- The Committee commended the rapid progress that the IEHG is able to make for the IEHG S-401 (*Inland ENC*) and requested the S-100WG to cooperate closely during the development phases of the Feature Catalogue Builder and Portrayal Catalogue Builder to ensure appropriate alignment of the features required by both IHO S-101 and IEHG S-401 standards.

7.7   ISO

Doc: HSSC8-07.7A   ISO activities affecting HSSC (ISO/IHO Secretariat) - Presentation

Assistant Director Tony Pharaoh reported that the IHO is a Class A liaison member of ISO/TC211, and has contributed to its standards development activities. He highlighted the important resources that are available for users of the standards and specifications. These include a harmonised UML model that can be downloaded from the ISO web site in an Enterprise Architect format. The model is also available as HTML web pages. He also informed the meeting of the "UML best practices" WIKI which has been developed to assist users/implementers of the harmonised model.

Finally, he reported on the outcome of action HSSC7/43 on the impact of revised standards: an IHO presentation was made at the 41st ISO/TC211 plenary meeting, and this had resulted in the adoption of the Resolution (744) concerning the revision of ISO Standards and Specifications *("ISO/TC 211 strongly recommends that revisions of standards and technical specifications include an informative annex which describes how backward compatibility is addressed. This annex may include crosswalks, mappings or similar mechanisms, which evidence the degree of compatibility")*.

Outcome:
- The Committee noted the report on ISO/TC211 activities affecting HSSC and invited the IHO Secretariat to ensure the liaison with the MSDIWG on this matter.

7.8   OGC

Doc: HSSC8-07.8A   OGC activities affecting HSSC (OGC) - Presentation

The representative from Teledyne-Caris, Chair of the OGC Marine Domain Working Group (Marine DWG), reported on the MoU to be signed soon between the OGC and the IHO. The objectives, mission and role of the Marine DWG were described as well as the scope of key activities to be undertaken by the Marine DWG in relation with the IHO. Following the offer made to the IHO to pass wider geospatial research topics to the Marine DWG for perusal in the Marine DWG work program, the HSSC Chair reminded that parallel or competing standardization needed to be avoided so joint projects were strongly encouraged.
Canada, who is progressing the development of an MSDI, suggested considering a possible work item on the harmonization of metadata. This was supported by the Chair of the MSDIWG.

Outcome:
- The Committee noted the presentation on OGC activities affecting HSSC and welcomed the future signing of the MoU between the IHO and the OGC (IHO CL 53/2016 refers).

Useful references were delivered during HSSC-8 and have been posted under Doc. HSSC8-07.8.

7.9   IOGP

Doc: HSSC8-07.9A   IOGP activities affecting HSSC (IOGP) - Seabed Survey Data Model SSDMv2

The representative from Teledyne-Caris, representing IOGP under this agenda item, reported that the Seabed Survey Data Model SSDMv2 is designed for the surveyor. This standard has been sent for comments and approval and has been made compliant with EPSG (European Petroleum Survey Group) standards and consistent with other IOGP Standards.

7.10   IHMA

Doc: HSSC8-07.10A IHMA activities affecting HSSC (IHMA) - Presentation

The IHMA representative reported that Hydrographic Offices have to get information from ports and obtaining this information is often quite difficult. It is frequently presented in an inconsistent way and IHMA has been working to find standard way to share the port information. They are focusing on both vessel and berth specific information, and trying to cover topics such as general information, weather and tides, reports, regulations, safety, nautical services and vessel services. Furthermore they recognise that any specifications should be in line with IMO regulations and S-100 framework. The IHMA has established a task force comprising Shell, MSC and Maersk.

IEC cautioned that there may be some overlap with some European projects such as MonaLisa and highlighted the route exchange format (see paragraph 7.4 above), noting that there might be some overlap with this work.

IHMA mentioned that they were looking for international standardization and for the development of unique identifiers (worldwide vessel number, worldwide berth number, etc.).

UK commented that there was potentially a good Product Specification (PS) to be developed here. Most of the concepts that will be required for such a PS already exist or are being discussed by HSSC WGs. It was further suggested that the IHO could build on the work that IHMA is currently doing to improve its own model, including definitions.

The HSSC Chair concluded the discussion stating that if a PS had to be developed, it should be done by the IHMA (or another appropriate body) as the IHO (or HOs) has a different remit and does not have the capacity to hold and maintain all the additional information required (that is not required for navigational charts). IHMA could have their own Domain in the Registry, administered by them.

Outcome:
- The Committee thanked the representative of IMHA for his interesting presentation and invited IHMA to consider the future development of an S-100-based Product Specification.

7.11   JCOMM

Doc: HSSC8-07.11A JCOMM activities affecting HSSC (JCOMM) - Presentation

Outcome:
- The Committee noted the update on S-411 (*Sea Ice Information*) and sea ice services, provided by Germany and on S-412 (*Weather Overlays*) given by the S-100WG Chair.

7.12   RTCM

Doc: HSSC8-07.12A RTCM activities affecting HSSC (RTCM) - Presentation

The RTCM representative reported on the activities of the Special Committee 133 in charge of data exchange for navigation-related internet connected applications and on the new RTCM standard for internet-based automatic identification system services (AIS-i).

These developments aim principally to enhance maritime security and safety of the small-craft community based on a coherent framework through enhanced identification and tracking capabilities for supplying situational awareness of vessel traffic in high traffic areas.

There are presently no known regional or international standards for data used in navigation-related internet connected applications.

The US welcomed these developments and confirmed that they were being used in the US.

Outcome:
- The Committee welcomed the presentation by RTCM and noted the development of a new RTCM standard for Internet-based AIS services.

7.13   ICPC

Doc: HSSC8-07.13A ICPC activities affecting HSSC (ICPC) - Presentation

Under the umbrella of the MoU signed with the IHO in April 2016 (IHO CL 18/2016 refers), the ICPC representative gave a smart presentation on the protection of submarine cables in relation with deep sea mining operations and IHO activities and standards, taking into account the outcome of discussions on various issues raised since the beginning of the HSSC-8 meeting.

There were fruitful discussions on the best ways and means to address the concerns and priorities raised by the ICPC, as they can relate to some work items of the S-100WG, NCWG, NIWPG, ENCWG and CSBWG.

The Committee noted the intention of the ICPC IHO Focus Group to participate and contribute to some IHO WGs meetings. As an example, the ICPC commended NIPWG for the preparation of a draft submarine cable text box to be provided to mariners by Hydrographic Offices in appropriate publications such as Mariner's Handbook or annual Notice to Mariners.

It was also suggested to examine the possibility of improving current charting standards and to consider the possible development of an S-100-based Product Specification for submarine cables information.

As for the provision of crowd-sourced bathymetric data to the GEBCO community, ICPC acknowledged that there were a number of issues, still to be considered: in some cases, survey data belong to cable companies, and on top of that, the release of these data for inclusion into the DCDB is not always possible due to some UNCLOS regulations.

The HSSC Secretary confirmed that there was no obligation for merging databases as a pre-requisite for developing a product specification. The US welcomed the idea of developing a product specification as it would, for sure, streamline the inclusion of cable information on navigational charts. India and USA supported the idea that cable information should be considered by the MSDIWG as well. Several participants (Denmark, South Africa…) welcomed the signature of the MoU, as a better cooperation is urgently needed to make sure that cable positions on charts are correct, whether theses cables are active or disused. Following a suggestion made by Italy, the ENCWG Chair responded that one of the most efficient ways to improve the situation would be that cable information is exchanged in S-57 format.

Outcome:
- The Committee welcomed the presentation made by ICPC and noted the number of topics, still to be addressed, as part of the implementation plan of the ICPC-IHO MoU signed in April 2016.

➔ **Actions HSSC8/66, HSSC8/67, HSSC8/68 HSSC8/69, HSSC8/70**

7.14   DGIWG and NATO GMWG

Docs: HSSC8-07.14A DGIWG activities affecting HSSC (UK Rep.)
HSSC8-07.14B NATO GMWG activities affecting HSSC (UK Rep.)

The DGIWG and the NATO GMWG status reports were presented by UK, on behalf of Mr Tom Richardson (UKHO).

Some concerns were raised on the best ways to enhance the cooperation with these groups and avoid duplication of effort. USA noted that there was an overlap between members of these groups and IHO working groups and so considered that the situation was "under control", as well as the compatibility with the development and the maintenance of NATO Stanags against IHO standards.

Outcome:
- The Committee welcomed the announcement by UK to continue acting as liaison with the DGWIG and the NATO GMWG for ensuring the cooperation with the HSSC in the co-ordinated development of interoperable standards.
- The Committee decided to allocate S-501 to S-525 as AML Product Specification identifiers.

→ **Decision HSSC8/71**

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8. REVIEW OF NEW DEVELOPMENTS AND OTHER INFORMATION PAPERS

Docs: HSSC7-08 INF1   *Hydrographic Surveying and S-100 standards for competitive shipping (SE) - Presentation*
            HSSC8-08 INF8   *Miscellaneous: Digital Ship – Investment pours into Unmanned Ship*

Sweden gave an interesting presentation in support of the information paper on hydrographic surveys and S-100 standards for competitive shipping, topics that were submitted for a possible presentation at the 1st Session of the Assembly. Netherlands supported the proposal for an amended version.

The HSSC Secretary drew the attention of the participants on the Digital Ship article related to unmanned ships. CIRM informed that the Technical Research Centre of Plymouth had been tasked to investigate this topic further.

Outcome:
- The Committee welcomed the presentation by Sweden of the FAMOS (*Finalising Surveys for the Baltic Motorways of the Sea*) and the STM (*Sea Traffic Management*) EU-funded projects

→ **Action HSSC8/72**

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9. LIAISON WITH EXTERNAL STAKEHOLDERS

Doc: HSSC8-09A   *Status of potential Stakeholders' events in 2017 (IHO Secretariat) - Presentation*

Outcome:
- The Committee noted the report on Stakeholders' events and was reminded that the IHO Secretariat maintains a list of Stakeholders on the IHO website. The Committee agreed to wait for the outcome of the proposal to activate the IMO/IHO HGDM for further consideration of the next IHO Stakeholders' Forum.

→ **Actions HSSC8/73, HSSC8/74**

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10. REVIEW AND ENDORSEMENT OF HSSC WORK PLAN AND LIST OF ACTIONS

Docs: HSSC8-10A   *Status report on IHO Publications on Standards, Specifications and Guidelines (IHO Secretariat)*
            HSSC8-10B   *Draft HSSC Work Plan 2017-18 (IHO Secretariat)*

Outcome:
- The Committee invited further comments from the IHO Member States on the status report on IHO Publications on Standards, Specifications and Guidelines.
- The Committee adopted the HSSC work plan for 2017-18 taking into account the disbandment of the DPSWG and the inputs from the HSSC Chair Group's review.
- The Committee expressed its gratitude to Jonathan Pritchard (UKHO) for his contribution to leading the DPSWG over many years.

→ **Action HSSC8/75**

11. ANY OTHER BUSINESS

There was no any other business.

12. DATE & LOCATION OF THE NEXT MEETINGS

Outcome:
- Considering that the IHO Council will meet in October, from 2017, the Committee agreed on the following schedule:

HSSC-9:	6-10 November 2017 - Ottawa, Canada
HSSC-10:	May 2018 - Rostock, Germany - (dates to be decided)
HSSC-11:	Dates and location to be decided
HSSC-12:	May 2020 - Taunton, UK, subject to the availability of the new building

→**Decision HSSC8/76**
→**Action HSSC8/77**

13. CLOSURE OF THE MEETING

The HSSC Chair concluded the meeting thanking the HSSC Members, stakeholders and expert contributors for their contribution and as "coordinators" of the work that is being done under the HSSC. He commended the progress made on the development of some S-100-based product specifications even if there is still a way to go. He highlighted that this reinforces the obligation for HSSC and its working groups to make a smart use of smart resources. He noted the challenges ahead for the HS PT, the importance of liaising closely with the IMO and the possible activation of the IMO/IHO HGDM and thanked the expert contributors from the "real world of end-users" as their inputs were very helpful and encouraging.

Lastly, the HSSC Chair expressed, on behalf of all participants, his sincere gratitude to the staff of the IHO Secretariat and wished a safe return journey to all participants.

PROJECT TEAM ON STANDARDS FOR HYDROGRAPHIC SURVEYS (HS PT)

TERMS OF REFERENCE
November 2016

Reference: 8th meeting of the HSSC, Monaco, November 2016

1 - Introduction

S-44 provides minimum standards for hydrographic surveys for nautical charting and other associated uses. It therefore needs to be reviewed on a periodical basis in order to take account of the developments in requirements and in surveying equipment and procedures. The following note is taken from the Preface to the 5th Edition (2008) of S-44:
"Finally it was the view of the WG that S-44 provides "Standards for Hydrographic Surveys" and that it is the responsibility of individual Hydrographic Offices / Organizations to prepare "Specifications" based on these Standards. Specifications will be more system specific and as such will be quite dynamic as systems change."

2.   Objective

To maintain IHO standards which apply to hydrographic surveys: to prepare a draft 6th Edition of IHO publication S-44 - *Standards for Hydrographic Surveys* for approval by IHO Member States (MS).

When undertaking this task the Project Team (PT) should consider, as a minimum, the following matters, in support of safety of navigation data products and services:

(i)   Review the existing edition of S-44 (5th edition) and identify any deficiencies in either the standards or explanatory content;

(ii)   Following review, update the content and structure of S-44 to the extent identified during the review, with the intention of publishing revisions as a 6th edition of S-44;

(iii)   On completion of publication of a 6th edition of S-44, submit a proposal and recommendation to the Hydrographic Services and Standards Committee (HSSC) on whether the PT should continue as a standing working group and, if so, what tasks have been identified to justify transition to a standing working group.

3.   Authority

This PT is a subsidiary of the HSSC. Its work is subject to HSSC approval.

4.   Composition and Chairmanship

a)   The PT shall comprise representatives of IHO MS, Expert Contributors (EC), observers from accredited non-governmental international organizations (NGIO), and a representative of the IHO Secretariat. A membership list shall be maintained and posted on the IHO website.

b)   EC membership is open to entities and organizations that can provide a relevant and

constructive contribution to the work of the PT.

c)   The Chair and Vice-Chair shall be a representative of a MS. The election of the Chair and Vice-Chair shall be decided at the first meeting after each Assembly and shall be determined by vote of the Members present and voting.

d)   If a Secretary is required it should normally be drawn from a Member of the PT.

e)   If the Chair is unable to carry out the duties of the office, the Vice-Chair shall assume the Chair with the same powers and duties.

f)   ECs shall seek approval of membership from the Chair.

g)   EC membership may be withdrawn in the event that a majority of the Members represented in the PT agrees that an EC's continued participation is irrelevant or unconstructive to the work of the PT.

h)   All Members shall inform the Chair in advance of their intention to attend meetings of the PT.

i)   In the event that a large number of EC Members seek to attend a meeting, the Chair may restrict attendance by inviting ECs to act through one or more collective representatives.

5. Procedures

a)   The PT should work by correspondence, teleconferences, group meetings, workshops or symposia. The PT should meet about once a year. When meetings are scheduled, and in order to allow any PT submissions and reports to be submitted to HSSC on time, PT meetings should not normally occur later than nine weeks before a meeting of the HSSC.

b)   Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the PT, only Members may cast a vote. Votes at meetings shall be on the basis of one vote per Member represented at the meeting. Votes by correspondence shall be on the basis of one vote per Member represented in the PT.

c)   The PT should liaise with other IHO bodies, international organizations and industry to ensure the relevance of its work and timely notice of changes to the standards.

d)   The PT should report to HSSC on its activities and submit a rolling two-year work plan, including expected time frame.

LIST OF DECISIONS & ACTIONS ARISING FROM HSSC-8

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AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
1.	**Opening and Administrative Arrangements**				
	Contact List	HSSC8/01 (Former HSSC7/01)	**IHO Member States** and **Stakeholders** to provide the IHO Sec. with their updates to the HSSC List of Contacts.	**Permanent**	
2.	**Approval of Agenda**				
	Deadlines for submission of proposals	HSSC8/02	**HSSC** reiterated the timelines fixed by the Instructions for the Submission of Reports and Proposals for Consideration by HSSC and agreed to decide the consideration of late submissions, on a case-by-case basis.		Decision
3.	**Matters arising from Minutes of 7th HSSC Meeting**				
	S-1xx Portrayal Issues	HSSC8/03 (Former HSSC7/18)	**NCWG** to compile portrayal requirements relating to product specifications in general as part of its programme of work.		On going

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	S-122 test beds	HSSC8/04 (Former HSSC7/20)	For S-122 (*Marine Protected Areas*), and assuming that sufficient information is available, **NIPWG,** in liaison with NCWG and S-100WG, to make use of test beds opportunities (e-navigation projects as appropriate).		On going
	E-navigation implementation	HSSC8/05 (Former HSSC7/37)	**ENCWG and S-100WG** to monitor any possible impact of the work on the agreed e-navigation outputs on ECDIS related standards and S-100 related standards respectively.		On-going
4.	**HSSC Administration**				
4.1	**Input from HSSC to the IHO Strategic Plan**				
	IHO Strategic Plan	HSSC8/06	**HSSC** endorsed the proposals for the revision of the IHO Strategic Plan as reported in IHO CL 31/2016 and ACL 10 without any further inputs.		Decision
4.2	**Input from HSSC to the IHO 3-year Work Programme**				
	IHO 3-year Work Programme	HSSC8/07	**HSSC** endorsed the proposals reported by the HSSC Chair Group in HSSC8-04B.		Decision
4.3	**Preparation of the HSSC Report to the Assembly**				
		HSSC8/08	**HSSC** approved the proposed outline of the HSSC Report to A-1.		Decision

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at **9 Dec. 2016**)
		HSSC8/09	**HSSC** endorsed the principles of the changes proposed in PRO-6 by ROK, related to IHO Res. 2/2007, and recommended that they be considered alongside a more holistic review taking into account the impacts on all parties involved.		Decision
		HSSC8/10	**HSSC** decided on arrangements/timeline for the completion of the HSSC report and agreed on the key messages to the A-1.		Decision
5.	**Reports by HSSC Working Groups**				
5.1	**S-100 (S-100WG)**				
		HSSC8/11	**HSSC** endorsed the draft Edition 3.0.0 of S-100. **S-100WG Chair** to provide a redline version and a clean copy to the IHO Secretariat. **IHO Sec**. to issue a CL to IHO Member States seeking their approval of the draft Edition 3.0.0 of S-100.	**15 Dec. 2016** **End of Dec. 2016**	Decision
		HSSC8/12	**IHO Sec. in liaison with S-100WG** to promote the operational status of the IHO S-100 Registry.	**End of Dec. 2016**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
		HSSC8/13	**HSSC** invited **KHOA** to consider supporting further development of S-100 Registers (Product Spec. and Data Producer Code Registers) and stabilization of the Feature Concept Dictionary and Portrayal Registers.	**Dec. 2016**	
		HSSC8/14	**HSSC** decided to establish: - a Cross-Domain Control Body and an Executive Control Body for the IHO Registry, - and an Expert Group for the HYDRO domain, and invited the **S-100WG** to propose their membership and TORs accordingly.	**HSSC-9**	Decision
		HSSC8/15	**S-100WG**, **NIPWG** to submit formal requests to the IHO Sec., through the HSSC Chair, for financial support from the IHO special project fund for the relevant items of their respective work plans.	**NIPWG-3, S-100WG-2**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
		HSSC8/16	**HSSC** requested the **S-121 Project Team** (*Maritime Limits and Boundaries*) to abide by its TORs and the current work plan agreed at HSSC-7, and to submit a draft Product Spec. for consideration by the S-100WG (by end of March 2017). Extension of the Product Spec. to be considered in the future, after approval of Ed. 1.0.0 of S-121 (*Maritime Limits and Boundaries*).	**March 2017**	
		HSSC8/17	**HSSC** allocated S-129 to the Product Spec. on Under Keel Clearance Management (UKCM) information and invited INTERTANKO to participate in the UKCM PT.		Decision
		HSSC8/18	**FR** invited to submit a proposal to the S-100WG on using Resource Description Framework (RDF) semantic web standards for further S-100 developments.	**S-100WG2 ,** then report to **HSSC-9**	
	S-101&IMO Performance Standards	HSSC8/19 (Former HSSC7/06)	**S-100WG** invited to investigate if S-101 ENCs will meet the current IMO Performance Standards so there is no need to consider proposing amendments to the IMO.	**S-100WG2**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	S-101&IMO Performance Standards	HSSC8/20	**HSSC** to revisit the discussion on the above issue at an ECDIS/E-navigation Stakeholder Day after NCSR-4, subject to the outcome of the proposal to activate the IMO/IHO Harmonization Group on Data Modelling (HGDM).	**HSSC-9**	
5.2	**Data Protection Scheme (DPSWG)**				
	Protection Scheme	HSSC8/21	**HSSC** decided to disband the DPSWG and to transfer to the S-100WG the development of the protection scheme (S-63 equivalent component) of S-100 based-products (amendment to the Work Plan made accordingly). **HSSC** decided to task the ENCWG for the maintenance and monitoring of the existing S-63 standard (amendment to the ENCWG TORs and Work Plan made accordingly).	**End of Nov. 2016**	Decision
	Staffing and support	HSSC8/22	**S-100WG and ENCWG in liaison with the DPSWG (former) Chair** to report on the resources and profiles necessary to address the work items in both groups, and define work packages that could be possibly out-sourced.	**HSSC-9**	
5.3	**ENC Standards Maintenance (ENCWG)**				

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	S-65, S-66	HSSC8/23	**HSSC** endorsed the principles of the revision of S-65 and S-66. **ENCWG Chair** to provide a red-line version and a clean copy of the new draft Editions to the IHO Secretariat. **IHO Sec**. to issue a CL to IHO Member States seeking their approval of the new draft Editions accordingly.	**By the end of Nov. 2016**	Decision
	S-58	HSSC8/24	**HSSC** endorsed the principles of the new edition of S-58. **ENCWG Chair** to provide a red-line version and a clean copy of the new draft Edition to the IHO Secretariat, including a proposal for the date of entry-into-force taking into account feedbacks received from industry, RENCs and ENC Producers. **IHO Sec**. to issue a CL to IHO Member States seeking their approval of the new draft Edition accordingly.	**By the end of Dec. 2016**	Decision
	ECDIS Chart 1, S-52	HSSC8/25	**HSSC** endorsed the ENCWG proposal to use ECDIS Chart 1 for checking ECDIS operating with Edition 4.0 of the IHO S-52 Presentation Library.		Decision

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	ECDIS Chart 1, S-52	HSSC8/26	**IHO Sec. in liaison with ENCWG Chair** to revise the IHO webpage on "*ECDIS Data Presentation and Performance Check in Ships*", to include the ECDIS Chart 1 procedure and to issue a media release.	**End of Dec. 2016**	
	High density contour lines ENCs	HSSC8/27	**HSSC** agreed to initiate some work regarding bENCs, exploring various existing options, under a new task and work item of the **ENCWG.**	**HSSC-9**	
	Equivalent T&Ps for ENCs	HSSC8/28	**NCWG** and **ENCWG** to draft a single educative IHO authoritative document addressing the issue of "equivalent" T&Ps for ENCs, in view of its distribution to HOs, Port State Control authorities and mariners after approval.	**March/May 2017** **Submission to HSSC-9**	
5.4	**Nautical Information Provision (NIPWG)**				
	S-122, S-123	HSSC8/29	**HSSC** endorsed the development schedules proposed by NIPWG with a high priority for S-122 (*Marine Protected Areas*) and S-123 (*Radio Services*).		Decision
	Regulatory Information	HSSC8/30	**HSSC** decided not to proceed with the development of Product Spec. for Regulatory Information until further requests from IMO.		Decision
	Ecological Marine Units	HSSC8/31	**MSDIWG** invited to consider the concept of Ecological Marine Units promoted by ESRI.	**HSSC report to IRCC-9**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
5.5	**Nautical Cartography (NCWG)**				
	NCWG TORs	HSSC8/32	**HSSC** approved the clarification of the NCWG TORs proposed by the working group.		Decision
	S-4	HSSC8/33	**HSSC** endorsed the proposed revisions to S-4 Edition 4.6.0 and invited the **NCWG Chair** to provide a red-line version and a clean copy of draft Edition 4.7.0 to the IHO Sec. **IHO Sec**. to issue a CL to IHO Member States seeking their approval of draft Edition 4.7.0.	**End of Dec. 2016**	
	S-11 Part A	HSSC8/34	**HSSC** endorsed the draft revision of S-11 Part A including the proposal to move the current S-11 Part A Annexes to S-11 Part B, and publish separate English and French versions of S-11 Part A.		Decision
	S-11 Part A	HSSC8/35	**NCWG Chair** to provide final version of draft Edition 3.0.0 of S-11 Part A to the IHO Sec. (English version only, including editorial amendments identified by the IHO Sec.). **IHO Sec**. to issue a CL to IHO Member States seeking their approval of draft Edition 3.0.0 of S-11 Part A (English version only).	**End of Dec. 2016**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	S-11 Part B	HSSC8/36	**IHO Sec**. to implement the consequential changes to S-11 Part B, subsequently to the adoption of Edition 3.0.0 of S-11 Part A.	**When Ed. 3.0.0 of S-11 Part A is adopted**	
	Notice to Mariners	HSSC8/37	**IHO Sec.** to issue a reminder to IHO Member States that Notices to Mariners should be promulgated in English, in addition to national languages, in accordance with S-4 (B-631.4).	**January 2017 (as part of HSSC Outcomes)**	
5.6	**Data Quality (DQWG)**				
	CATZOC	HSSC8/38	**HSSC** to invite IRCC to remind IHO Member States the importance of populating ENCs with <u>assessed</u> CATZOC values (1 to 5)	**HSSC report to IRCC-9**	
	Portrayal of bathymetry quality in S-101	HSSC8/39	**NCWG** to consider the paper on the "*visualization of bathymetric uncertainties data in S-101*" and develop appropriate recommendations on the way forward.	**NCWG-3** **HSSC-9**	
5.7	**Hydrographic Surveys Scoping Project Team (H2S PT)**				
	Hydrographic Survey Project Team	HSSC8/40	**HSSC** established a Project Team on Standards for Hydrographic Surveys (HS PT), tasked to revisit S-44 and make recommendations on the way forward for expanding the scope for a possible HSWG. **IHO Sec.** to issue a CL calling for nomination to the HS PT.	**Dec. 2016**	Decision
5.8	**Tides, Water Level and Currents (TWCWG)**				

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	S-104, S-112	HSSC8/41	**HSSC** approved the revised names of the S-100 based Product Specifications for S-104 (*Water Level Information for Surface Navigation*) and S-112 (*Dynamic Water Level Data Transfer*).		Decision
	NetCDF format	HSSC8/42	**TWCWG** to investigate the use of the NetCDF format within the IHO and provide recommendations to the S-100WG as appropriate, for further considerations.	**TWCWG2, May 2017**	
5.9	**Hydrographic Dictionary (HDWG)**				
	Hydrographic Dictionary Strategy	HSSC8/43	**HDWG Chair** to call a HDWG meeting in early 2017 to develop and finalize a new draft policy of the Hydrographic Dictionary, based on the principles presented at HSSC-8, for further endorsement at HSSC-9.	**January 2017** **HSSC-9**	
	Definitions Registries	HSSC8/44	**HDWG** to consider the location of authoritative definitions, considering the GI Registry, S-32, and recommend the way forward on the maintenance as well.	**HDWG meeting, early 2017**	
	Hydrographic Dictionary Wiki Demonstrator	HSSC8/45	**HSSC** approved the proposal to develop a Wiki crowdsourcing demonstrator for the Hydrographic Dictionary.		Decision
6.	**Inter-Organizational Bodies**				
6.1	**IHO-IAG Advisory Board on the Law of the Sea (ABLOS)**				

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	LOS Definitions	HSSC8/46	**ABLOS** to identify and submit words and definitions to be considered by the HDWG for inclusion in S-32.	**HSSC-9**	
	Standards of Competence	HSSC8/47	**IN** to submit proposals on the need to upgrade Standards of Competence on TALOS matters in accordance with the submission procedures for S-5A&B.	**Next revision cycle of S-5**	
	C-51	HSSC8/48 (Former HSSC7/29)	**IN** to submit proposals to ABLOS, on the need to expand and update the scope of Chapters 4 and 5 of C-51 for the preparation of future Editions.	**ABLOS-24**	
7.	**Decisions of other bodies affecting HSSC**				
7.1	**IRCC (incl. MSDIWG)**				
	Coordinate Reference Systems	HSSC8/49	**IHO Sec on behalf of HSSC** to monitor the development of the OGC Candidate Standard through the Marine Domain WG.	**HSSC-9**	
	Coordinate Reference Systems	HSSC8/50	**OGC** invited to report to HSSC (and MSDIWG) on the development of the Discrete Global Grid Systems (DGGS) aiming to replace Coordinate Reference Systems (CRS) and its possible impact on the IHO standards, products and services.	**HSSC-9**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	Undersea Feature Names	HSSC8/51	**HSSC** endorsed the TORs of the UFN Project Team submitted by SCUFN and included liaison with this PT as work items in the Work Plans of NCWG, HDWG and S-100WG. **IHO Sec.** to issue a CL calling for nomination in the UFN Project Team.	**January 2017**	
	ECS	HSSC8/52	**HOs** (NHC Members, USA, …) to keep HSSC informed on the development of chart services and specifications for non-SOLAS users (leisure market).	**HSSC-9**	

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
7.2 IMO					
	E-navigation, HGDM	HSSC8/53	**HSSC** endorsed the draft (V3) submission to NCSR 4 on activating the IMO/IHO Harmonization Group on Data Modelling (HGDM) (annexed to HSSC8-07.2C) including the suggestions made by the IMO Rep. at HSSC8, and agreed on the way forward related to the draft submission to NCSR 4: **HSSC members** invited to liaise with their national maritime administrations to consider: -co-sponsoring the submission, -commenting on the submission, -supporting the submission, -nominating representatives to the HGDM, -nominating candidates for chairing the HGDM.	**30 Nov 2016 20 Jan 2017 NCSR4 NCSR4 NCSR4**	
	E-navigation, HGDM	HSSC8/54	**HSSC** decided to remain supportive in the development of the maritime single window concept, on request only, due to resources concerns.		Decision
	E-navigation	HSSC8/55	**HSSC** confirmed currents arrangements to develop and provide IHO input to relevant on-going and planned outputs related to e-navigation.		Decision

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	Port State Control	HSSC8/56	**IHO Sec.** to issue a CL inviting HOs to liaise with their national maritime administration and provide feedback on PSC issues related to the carriage and operation of ECDIS, for further consideration **by the ENCWG** at its next meeting.	**Mid-December 2016 (response to IHO by mid-Feb. 2017)** **ENCWG2**	
	Back-up arrangements for ECDIS	HSSC8/57	**HSSC** reminded Member States to ensure that the information on national requirements for ECDIS back-up arrangements using paper charts is kept current.	**Permanent**	
7.3 IALA					
	Unique Identifiers, Data Streaming	HSSC8/58 (Former HSSC7/42)	**IALA** to submit its requirements on Maritime Resource Name scheme to the S-100WG, as well as additional input on data streaming requirements, then report to HSSC-9.	**S-100WG2** **HSSC-9**	
7.4 IEC					
	Liaison with TC80/WG17	HSSC8/59	**S-100WG Chair** to act as IHO liaison with the IEC/TC80/WG17		Decision
7.5 CIRM					
	E-navigation training	HSSC8/60	CIRM to consider informing the IBSC through IRCC on the development of e-navigation training	**IRCC-9**	
7.6 Inland ENC Harmonization Group (IEHG)					

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	S-401	HSSC8/61	**Brazil** offered its support to the IEHG, considering the harmonization issues in South America.	**HSSC-9**	
	Portrayal Catalogue Builder, S-401	HSSC8/62	**S-100WG Chair** to liaise with IEHG for testing the Portrayal Catalogue Builder with S-401 (*Inland ENC*), as appropriate.	**HSSC-9**	
7.7 ISO					
7.7	Monitoring of ISO/TC 211 activities	HSSC8/63	**HSSC** invited the IHO Sec. to continue monitoring ISO/TC211 activities and to inform the MSDIWG of relevant developments.	**Permanent**	
7.8 OGC					
	Outreach of marine geospatial information	HSSC8/64	**HSSC and MSDIWG** invited to pass wider geospatial research topics to the OGC Marine Domain WG for inclusion in its work programme	**HSSC report to IRCC-9 HSSC-9**	
	MSDIWG and OGC	HSSC8/65	**HSSC** to invite MSDIWG to liaise with OGC Marine Domain WG	**HSSC report to IRCC-9**	
7.13 ICPC					

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 9 Dec. 2016)
	Interaction with ICPC Focus Group	HSSC8/66	**HSSC** welcomed the offer of the ICPC Focus Group to interact with the S-100WG, NIPWG, NCWG and MSDIWG, as appropriate. **ICPC Focus Group** to consider participation in the S-100WG2/ENCWG2 meeting (initial liaison between ICPC's point of contact to HSSC and S-100WG Chair).	**S-100WG2, March 2017**	
	Cables, Development of standardized information in nautical publications	HSSC8/67	**ICPC Focus Group** to submit amendments to the proposal to Submarine Cables Text Box for consideration **by NIPWG**.	**End of Nov. 2016 (for NIPWG3)**	Done
	Cables and Deep Sea Mining	HSSC8/68	**ICPC Focus Group** to submit a proposal to NCWG for adapting S-4 charting specifications for submarine cables taking into account deep sea mining.	**End of January 2017 (for NCWG3)**	
	GEBCO 2030	HSSC8/69	**IHO Sec.** to invite ICPC to comment on the next version of the draft GEBCO roadmap for "Seabed 2030".	**When new version of the roadmap available**	
	ICPC-IHO Action Plan	HSSC8/70	**ICPC Focus Group** to consider in liaison **with the IHO Sec.** the development of a roadmap contributing to the implementation of the IHO-ICPC MoU.	**HSSC-10**	
7.14	**DGIWG and NATO GMWG**				

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at **9 Dec. 2016**)
	AML	HSSC8/71	Considering the existence of the AML Domain, **HSSC** allocated S-501 to S-525 as AML product specification identifiers		Decision
8.	**Review of new developments and other information papers**				
		HSSC8/72	**HSSC Chair/ IHO Sec.** to liaise with SE for a possible SMA presentation to A-1 (STM/FAMOS, …)	**January 2017**	
9.	**Liaison with External Stakeholders**				
	Outreach	HSSC8/73	**IHO Sec.** to liaise with UKHO for the representation of the IHO at CIRM/Sea Asia/MTEC events.	**December 2016**	
	Outreach	HSSC8/74	**IHO Member States** to consider representing IHO interests in the stakeholders' meetings organized by Digital Ship and inform the IHO Sec. of their intentions.	**December 2016**	
10.	**Review and Endorsement of HSSC Work Plan and List of Actions**				
	Status of IHO Publications	HSSC8/75 (Former HSSC7/49)	**IHO Member States** to provide their additional requirements, if any, and contributions for translation in French and/or Spanish of IHO Publications (Doc. HSSC8-10A refers).	**Permanent**	
12.	**Date & Location of the next meetings**				

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at **9 Dec. 2016**)
	HSSC-9 HSSC-10 HSSC-12	HSSC8/76	**HSSC** welcomed the confirmation from Canada for hosting HSSC-9 (Ottawa, Nov. 2017) and Germany for hosting HSSC-10 (Rostock, May 2018) as well as the UK provisional offer for hosting HSSC-12 (May 2020).		Decision
	HSSC-11	HSSC8/77	**HSSC Members** were invited to consider the possibility to host HSSC-11, in May 2019.	**HSSC-9**	