

**13th Conference of the Hydrographic Commission on Antarctica
Cadiz, Spain, 3-5 December 2013**

MINUTES

Notes: 1) A list of acronyms used in these Minutes is at Annex A.
2) A list of all actions from HCA13 is at Annex E.

1.- OPENING

Docs: HCA13-01A rev1 [List of Documents](#) (also Annex C) (IHB)
HCA13-01B rev4 [List of Participants](#) (also Annex B) (IHB)

The 13th Conference of the Hydrographic Commission on Antarctica (HCA) took place at the Navy Officers' Club in San Fernando near Cadiz, Spain, from 3 to 5 December 2013. The conference was organized by the *Instituto Hidrográfico de la Marina* (IHM), of Spain. Fourteen HCA Member States¹, out of 23, were represented at the Conference, plus observers from Colombia, COMNAP, IAATO, IALA, GEBCO, IBCSO and the MSDIWG, together with three expert contributors from Caris, Fugro-Pelagos and Kongsberg Maritime. In total, 34 delegates were in attendance.

Participants were welcomed by Admiral Santiago BOLIBAR Piñeiro, Spanish Admiral of the Fleet. In his welcoming address, he stressed in particular the need to direct appropriate government funding to conduct hydrographic surveys in the hostile Antarctic environment. He noted with regret that the 2013-14 Spanish campaign of the Spanish Navy BIO "Hespérides" in Antarctica had to be cancelled for economic reasons, and thus no hydrographic surveys could be carried out during that period.

Opening Remarks were provided by IHO President and HCA Chair Robert WARD. He thanked Admiral BOLIBAR for the support of the Spanish Navy and Captain José Ramón FERNÁNDEZ de Mesa y Tembory, Director of IHM, for organizing the Conference. He noted with pleasure that this Conference had attracted more participants than usual. He recalled that a recurrent issue in Antarctica was how to obtain more bathymetric data both through collecting new data and by locating existing data. He stressed the need for coordination to ensure that all the seas are surveyed and charted appropriately; that in these times of funding reductions, it was more necessary than ever to share the burden of conducting hydrographic surveys in Antarctica. He suggested that new avenues must be found for the HCA to have a greater influence with the ATCM. He noted the heavy agenda that was facing attendees and encouraged conversation between stakeholders inside and outside the Conference.

Captain FERNÁNDEZ also welcomed all participants, adding that he was honored to host HCA-13.

IHB Assistant Director Michel HUET, HCA Secretary, reviewed the documentation available to the conference, noting that all documents had been posted on the IHO website (www.iho.int/mtg_docs/rhc/HCA/HCA13/HCA13Docs.htm).

Outcome:

- The Commission noted the documents introduced.

2.- HCA MEMBERSHIP STATUS

Docs: HCA13-02A [HCA Membership and Observers List](#) (IHB)

¹ Argentina, Australia, Brazil, Chile, France, Germany, New Zealand, Norway, Peru, Republic of Korea, Spain, South Africa, United Kingdom and United States.

The Chair (President WARD) indicated that HCA currently comprised 23 IHO Member States. As 14 HCA members were in attendance, the quorum to hold a conference was attained (one third of the total number being eight). Should a vote be necessary, decisions would be taken by a simple majority of members present.

Colombia indicated their wish to become part of the ATCM consultative parties, which is a prerequisite for an IHO Member State to become a member of HCA. It was agreed that, meanwhile, Colombia would be accepted as an Observer State to HCA.

Outcome:

- The Commission noted the paper.

3.- APPROVAL OF THE AGENDA

Docs: HCA13-03A rev4 [Agenda and Timetable](#) (also Annex D) (IHB)
 HCA13-03C rev1 [Programme](#) (Spain)

The agenda was agreed without change.

Outcome:

- The Commission approved the agenda (see Annex D).

4.- ELECTION OF VICE-CHAIRMAN

The Chair reminded that, according to the HCA statutes, a Vice-Chair must be elected at each HCA conference.

Mr. John J. HAUTMANN Jr. (USA) confirmed his acceptance to continue as HCA Vice-Chair. There were no other candidates. Mr. HAUTMANN was elected by acclamation.

Outcome:

- Mr. John J. HAUTMANN Jr. (USA) was re-elected as Vice-Chairman of HCA.

5.- STATUS OF LIST OF ACTIONS RESULTING FROM HCA-12

Docs: HCA13-INF2 [Minutes of HCA-12](#) (Montevideo, Uruguay, 2012) (IHB)
 HCA13-05A rev2 [Status of Actions List from HCA12](#) (IHB)
 HCA13-05B [IHO guidelines for the collection and rendering of hydrographic data by Ships of Opportunity operating in the Antarctic Region](#) (New Zealand)

The Chair and the Secretary reviewed all actions arising from the 12th HCA Conference. Most of the actions had been completed and the pending items would be addressed as part of the conference agenda. Particular comments were made as follows (Action nos. are those in HCA13-05A):

- Action HCA11/2 – *Guidelines for ships of opportunity data collection*. The ad hoc group set up at HCA-12 and led by New Zealand (Stuart CAIE), with participation from Chile, UK, Uruguay and IAATO, had completed the “*IHO guidelines for the collection and rendering of hydrographic data by Ships of Opportunity operating in the Antarctic Region*” (HCA13-05B). The Commission adopted these guidelines as a reference HCA document to be posted on the IHO website. It was

further agreed that the Chair would communicate the guidelines to the Arctic Regional Hydrographic Commission (ARHC).

Outcome:

- The Commission noted paper HCA13-05B.
- **Action HCA13/01: IHB** to post the Ships of Opportunity Guidelines (Doc. HCA13-05A), on the HCA page of the IHO website as an HCA reference document.
- **Action HCA13/02: HCA Chair** to present the Ships of Opportunity Guidelines (Doc. HCA13-05A) to the Arctic Regional Hydrographic Commission (ARHC), for its consideration at ARHC-4 in January 2014.

- Action HCA12/10– *Investigation of external funding opportunities to accelerate the Antarctic survey and charting programmes.* The Chair mentioned that an IHB-UK meeting took place at the IHB on this matter in December 2012. However, no further progress had been made since then.
- Action HCA12/12– *Overlaps, gaps and large scale (major port/points of entry) coverage, in the existing ENC coverage.* The HPWG Chair (Andrew WILLETT, UK) reported that no progress had been made on this issue and suggested the action be carried over, which was agreed.

Outcome:

- **Action HCA13/03: HPWG** to analyse existing ENC coverage and to respond to WENDWG letter dated 18 September 2012 (HCA12-07.2B) concerning overlaps, gaps and large scale (major port/points of entry) coverage. (carried over from HCA12)

- Action HCA12/13 – *Sending a selection of high resolution images depicting nautical charting and surveying activities to the IHB for PR purposes.* The Secretary reported that such images had been received at the IHB from Spain only. It was agreed that the action would be carried over.

Outcome:

- **Action HCA13/04: HCA Members** to send a selection of print-quality images to the IHB for PR purposes.

- Actions HCA12/15&16 – *Provision of details of HCA Members' planned surveys.* The HPWG Chair suggested postponing this action to the next season, as he had received minimal response. This was agreed.

Outcome:

- **Action HCA13/05: IHB** to request HCA Members to provide details of their planned surveys for the 2014-15 season to the HPWG Chair as soon as possible; required parameters to be based on those indicated in Australian Hydroscheme format.
- **Action HCA13/06: IHB** to provide access to the information on HCA Members' planned surveys for the 2014-15 season to IAATO and other relevant entities.

- Routine Action HCA/2 – *Visit of hydrographic surveyors to IAATO ships.* Chile (Christián L. DÍAZ) reported that SHOA paid a visit to an IAATO ship, when calling in Valparaiso in her way to Antarctica. The Republic of Korea (KIM Sookwan) suggested that Ushuaia was the best port to conduct such visits. Argentina (Fabian VETERE) remarked that, as there are no hydrographers posted to Ushuaia, Buenos Aires, where the national hydrographic office is located, could also be a possible location for conducting briefings. The Chair referred to a distance learning package,

recently developed with support from Fugro-Pelagos, from which a distance survey learning package could possibly be derived.

This concluded the review of action items arising from HCA12.

Outcome:

- The Commission noted papers HCA13-INF2 and HCA13-05A.
- The Commission agreed the Minutes of HCA12 as a true record.
- The Commission noted the list of actions reviewed.

6.- INTERNATIONAL ORGANIZATIONS' REPORTS

6.1 Antarctic Treaty Consultative Meeting (ATCM) (www.ats.aq)

*Docs: HCA13-INF3 [IHO Report submitted to ATCM-36](#) (Brussels, Belgium, 2013) (IHB)
HCA13-INF4 [Outcomes from ATCM-36](#) (IHB)*

There was no representative of the ATCM Secretariat at the conference and no report was received. The Chair reported on his attendance to the 36th ATCM in Brussels. A tentative proposal presented in the plenary session seeking support from ATCM on hydrography did not succeed. Following the presentation of the IHO/HCA report, there were no interventions/comments. The comprehensive IHO report was summarised in a single paragraph of the 300 page report of the ATCM-36 proceedings.

The usefulness of maintaining a liaison with ATCM, through the provision of IHO reports to, and participation in ATCM meetings, was discussed and even questioned. The Chair stressed the lack of concrete results regarding ATCM actions and decisions to support hydrographic activities in Antarctica. He reported that the Antarctic Treaty Secretariat (ATS) had stated they were not empowered to speak for the organization; same for the representative of Spain to ATCM. IAATO (Kim CROSBIE) suggested that besides providing an IHO/HCA report to ATCM, the issue of hydrography should also be discussed in another related forum: the Operational Matters Working Group (likely to be chaired by Mr José RATEMALES at ATCM-37).

After discussion, the meeting agreed that continuing a campaign to raise awareness at the ATCM was important and that the engagement of national Hydrographers with their respective national delegates to ATCM was essential. It was decided that improved support from ATCM on data collection and charting in Antarctica would be sought through the involvement of the ATCM Operational Matters WG and through Argentina paying a visit to the ATCM secretariat in Buenos Aires, with a view to reinvigorate the relationships with HCA and see how they can be progressed.

Australia (Brett BRACE) drew attention to ATCM Recommendation XV-19/1989 dealing with Hydrography and which seems to be still valid. It may only require ratification by the Republic of Korea in order to enter into effect. It was agreed that the Chair would clarify this point with ATS.

It was noted that the 37th ATCM will take place in Brasilia, Brazil, from 28 April to 7 May 2014.

Outcome:

- The commission noted the two papers.
- **Action HCA13/07 - Argentina** to pay an informal visit to the Antarctic Treaty

Secretariat (ATS) in Buenos Aires, to foster a continuing relationship between ATS and HCA so as to raise awareness of hydrography and charting issues and thereby improve support from ATCM.

- **Action HCA13/08 - Chair** to write to ATS seeking guidance on the validity of ATCM Recommendation XV-19/1989 and to confirm that it only requires ratification by the Republic of Korea in order to enter into effect. [*Post-meeting note: Recommendation XV-19/1989 is likely to be superseded upon agreement by ATCM-37 of the consolidated list of Recommendations on Operational Matters submitted by COMNAP to ATCM-36. HCA contributed to this submission.*]
- **Action HCA13/09 - Chair** to include a proposal in the IHO report to ATCM-37 that the ATCM Operational WG considers the future development of appropriate guidelines concerning the contribution that vessels and craft that operate in poorly surveyed or charted waters in Antarctica can make to improve the fundamental hydrographic dataset.
- **Action HCA13/10 - HCA Member States** to brief their ATCM delegates on the IHO report and any other IHO submissions to ATCM-37.

6.2 Council of Managers of National Antarctic Programs (COMNAP) (www.comnap.aq)

Docs: HCA13-06.2A [COMNAP Report](#)
HCA13-06.2B [COMNAP's response to a proposed IHO-COMNAP MoU](#)

COMNAP (Miguel A. OJEDA) reported that the main purpose of COMNAP is to develop and promote best practice in managing the support to scientific research in Antarctica. COMNAP provides the Antarctic Treaty System with practical and technical advice drawn from the National Antarctic Programs' pool of expertise. The COMNAP Ship Position Reporting System (SPRS) is a voluntary system for exchange of information about National Program ship operations and capabilities.

The Chair announced that COMNAP were unable to enter into an MOU-like agreement between IHO/HCA and COMNAP. COMNAP has indicated that because it is an international association of governmental organizations it cannot establish MOU with other organizations. COMNAP however stressed that they will ensure continued cooperation with HCA.

The 25th COMNAP Annual General Meeting (AGM) took place on 8-11 July 2013 in Seoul, Rep. of Korea. The 26th COMNAP AGM will be held on 27-29 August 2014 in Christchurch, New Zealand.

Outcome:

- The Commission noted the two papers.

6.3 International Association of Antarctic Tour Operators (IAATO) (www.iaato.org)

Docs: HCA13-06.3A [IAATO Report \(to ATCM-36\)](#)
HCA13-INF5 [IAATO Overview of Antarctic Tourism: 2012-13 Season and Preliminary Estimates for the 2013-14 Season](#)

IAATO (Kim CROSBIE) gave a [presentation](#). IAATO is a global network of tour operators that banded together in 1991 to advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic.

The total number of passengers and clients carried by IAATO operators during the 2012-13 Antarctic tourism season was of 34,316 on 54 various types of vessels. This is a significant increase from the previous 2011-12 season (26,519). The estimates for the 2013-14 season were of 35,354 passengers. The vast majority of tourism voyages operate in the Antarctic Peninsula region.

All commercial passenger ships in the IAATO fleet subject to SOLAS are now equipped with a web-based satellite vessel tracking system, to enhance contingency response. Vessel tracking information will be made available to HCA members, via the IHB, for chart and survey priority purpose.

Dr Crosbie also referred to a survey conducted in the Antarctic Peninsula through successful collaboration of an IAATO member vessel (XPlore) with the HOs of Chile and France. The results have been made available to the relevant HCA chart-producer members via the IHB and will be used to improve charts in the concerned area.

The 24th IAATO Annual Meeting took place on 22-25 April 2013 in Punta Arenas, Chile. The 25th IAATO Annual Meeting will be held on 27-29 May 2014 in Providence, RI, USA.

Outcome:

- The Commission noted the two papers.

6.4 Scientific Committee on Antarctic Research (SCAR) (www.scar.org)

There was no SCAR representative at, nor SCAR report given to the conference.

Following the retirement of Dr Henk BROLSMA who had represented SCAR at HCA meetings since 2007, there were doubts on whether SCAR was willing to continue cooperating with HCA. It was agreed that the IHB would seek clarification on this matter.

Outcome:

- **Action HCA13/11 - IHB** to contact SCAR to check whether they are willing to continue cooperating with HCA as an observer organisation.

6.5 International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) (www.iala-aism.org)

Docs: HCA13-06.5A [IALA activities affecting HCA](#)

IALA (Garry PROSSER) gave a [presentation](#). IALA sets international standards on Aids to Navigation: Buoyage, VTS and AIS. It contributes to the IMO concept of a Sustainable Maritime Transportation System, through Vessel Traffic Services (VTS); Marine traffic monitoring and analysis tools; and S-100 Product Specification. Mr Prosser mentioned a recent IALA workshop on polar activities. He referred to newly developed IALA marine traffic monitoring and analysis tools, known as IALA-NET (data sharing) and IALA Risk Management toolbox. He noted IALA's involvement in the IHO S-100 Registry as a submitting organization and as domain owner.

Outcome:

- The Commission noted the presentation.

MEETING OF THE HCA HYDROGRAPHY PRIORITIES WORKING GROUP (HPWG)

<i>Docs:</i>	<i>HCA13-HPWG0</i>	<u>Agenda (HPWG Chair)</u>
	<i>HCA13-HPWG1</i>	<u>Review of Region M Small-Scale ENC Scheme (New Zealand)</u>
	<i>HCA13-HPWG2</i>	<u>Existing Overview ENC Coverage (HPWG Chair)</u>
	<i>HCA13-HPWG3</i>	<u>Proposed Overview ENC Scheme based on INT Chart 1: 2M series (HPWG Chair)</u>
	<i>HCA13-HPWG4</i>	<u>Existing General ENC Coverage (HPWG Chair)</u>
	<i>HCA13-HPWG5</i>	<u>Proposed General ENC Scheme based on INT 1:500K series (HPWG Chair)</u>
	<i>HCA13-HPWG6</i>	<u>Proposed Coastal ENC Scheme (Antarctic Peninsula) based on INT 1:90K - 1:350K series (HPWG Chair)</u>
	<i>HCA13-HPWG7</i>	<u>Proposed Coastal ENC Scheme (Antarctica) based on INT 1:90K - 1:350K series (HPWG Chair)</u>
	<i>HCA13-HPWG8</i>	<u>Proposed Approach, Harbour & Berthing ENC Scheme (HPWG Chair)</u>
	<i>HCA13-07.3A</i>	<u>HPWG Report (HPWG Chair)</u>
	<i>HCA13-08.1D</i>	<u>Proposal for a new INT Chart in Region M - Area of Larsemann Hills – Medium Scale - IHB letter to Hydrographers of Australia, China, India and Russia (Action HCA12/9)</u>
	<i>HCA13-08.1E</i>	<u>New INT Chart - Larsemann Hills (HPWG Chair)</u>

A meeting of the HCA Hydrography Priorities Working Group (HPWG) was convened on the afternoon of 3 December and the morning of 4 December to consider proposals for new or revised ENC schemes as well as proposed changes to the INT chart scheme. The HPWG meeting was chaired by Andy WILLETT, UK.

New Zealand (Stuart CAIE), referring to HCA13-HPWG1, provided justifications for NZ producing Usage Band 2 (General) ENCs equivalent to INT 900, as opposed to the ENCs based on the other INT 900 series which have been published as Usage Band 1 (Overview) ENCs in accordance with the small-scale ENC scheme agreed at HCA in 2007. The rationale provided by NZ was accepted by the meeting.

The issue of including a new INT chart in the scheme to cover the approaches to the area of the Larsemann Hills was discussed, based on papers HCA13-08.1D and HCA13-08.1E. Four scientific stations are located in this area, that is: Law-Racovita (Romania/Australia); Zhongshan (China); Progress 2 (Russia); and Bharati (India). After discussion, the preferred option was for a chart at scale 1:50,000 as proposed by Australia.

The HPWG Chair's report (HCA13-07.3A) proposed the inclusion of several new INT charts in the scheme and a few changes to the existing scheme. All proposed changes were accepted.

The HPWG Chair's report also proposed two additions in the Maritime Shipping Routes (MSR) for the Antarctic Peninsula and the adoption of a new MSR for the South Orkney Islands. These proposals were accepted.

Outcome:

- HPWG agreed the proposed agenda (HCA13-HPWG0) and noted the eight papers.
- HPWG agreed the proposed revised ENC scheme for Usage Band 1 (Overview) based on the INT 900 series, as in HCA13-HPWG3 and with clipping as proposed (subject to sharing data of ENC published), with the exception of the ENCs equivalent to INT 900 (NZ21490W and NZ21490E) which can continue to be published as Usage Band 2

(General) ENCs.

- HPWG agreed the proposed revised ENC scheme for Usage Band 2 (General) based on the INT series at 1:500,000, as in HCA13-HPWG5 and with clipping as proposed (subject to sharing data of ENC published). The meeting further agreed that Russian ENC RU3A2XI0, based on INT 9010 at 1:350,000, should preferably be moved to Usage Band 2 for consistency purpose.
- HPWG agreed the proposed revised ENC scheme for Usage Band 3 (Coastal), as in HCA13-HPWG6 (Antarctic Peninsula) and HCA13-HPWG7 (Antarctic Continent) and with clipping as proposed (subject to sharing data of ENC published).
- HPWG agreed the proposed ENC schemes for Usage Bands 4 (Approaches) and 5 (Harbour), as in HCA13-HPWG8, including that Russian ENC RU4BTXL0, based on RU 42909 at scale 1:200,000, should preferably be moved to Usage Band 3, and that Chilean ENC CL3MA850, based on INT 9120 at scale 1:50,000, should preferably be moved to Usage Band 4.
- HPWG agreed the inclusion of a new INT chart in the scheme to cover the approaches to the area of the Larsemann Hills, with details as follows:
 - Scale: 1:50,000 at 68°S
 - Limits: 69°29.00'S to 69°04.10'S - 76°34.00'E to 75°48.09'E
 - Dimensions: 980 x 640mm
 - Producer: Australia
- HPWG agreed that the limits of INT 9128 (Spain producer) be amended as follows (thus covering the nearby Bulgarian scientific station):
 - 62°40.27'S to 62°37.46'S - 60°26.00'W to 60°20.98'W
- HPWG agreed, following a joint IAATO & UK proposal, the inclusion of a new INT chart in the scheme at scale 1:35,000 covering Lemaire Channel (most visited area of 2012/13 season), providing a good overlap with INT 9104 (Chile producer), with UK as producer (possibly in 2015) and details to be provided by UK.
- HPWG agreed, following HPWG Chair's proposal, that the existing charts (UK producer) INT 9117, INT 9118 and INT 9119 be amalgamated into one single A0 INT chart, with INT number 9117 and details to be provided by UK.
- HPWG agreed, following HPWG Chair's proposal, to include the following national charts in the INT chart scheme:
 - Spanish chart 7002 at scale 1:10,000
 - Chilean chart 15351 at scale 1:30,000
 - Chilean chart 15352 at scale 1:7,000
- HPWG agreed the inclusion as part of the Maritime Shipping Routes (MSR) for the Antarctic Peninsula, of the following new routes:
 - Cierva Cove;
 - Orne Harbour (75% surveyed by UK during the 2012-13 season).
- HPWG agreed a new MSR for the South Orkney Islands, as prepared by HPWG Chair in consultation with IAATO.
- **The Commission subsequently endorsed all proposals agreed by HPWG, as described above.**
- **Action HCA13/12 - IHB** to include in S-11 a new INT chart covering the area of Larsemann Hills, with following details:
 - Scale: 1:50 000 at 68°S
 - Limits: 69°29.00'S to 69°04.10'S - 76°34.00'E to 75°48.09'E
 - Producer: Australia
- **Action HCA13/13 - IHB** to amend in S-11 the limits of chart INT 9128 (scale 1:5 000;

producer: Spain) to 62°40.27'S - 62°37.46'S and 060°26.00'W - 060°20.98'W. **IHB** to also correct the depiction of INT 9121 (scale 1:40 000; producer: Spain) in S-11.

- **Action HCA13/14 - HPWG Chair** to provide the IHB with details of the new INT chart of Lemaire Channel (scale 1:35 000; producer: UK), i.e. INT number, title, limits, scale latitude and format.
IHB to then include the new INT chart in S-11.
- **Action HCA13/15 - HPWG Chair** to provide the IHB with details of the new INT chart amalgamating the existing INT 9117, INT 9118 and INT 9119 into one single A0 chart with number INT 9117 and UK as producer.
IHB to then amend S-11 accordingly.
- **Action HCA13/16 - HPWG Chair** to provide the IHB with details of the three new INT charts, to be derived from ES 7002 (scale 1:10 000; producer: Spain), CL 15351 (scale 1:30 000; producer: Chile) and CL 15352 (scale 1:7 000; producer: Chile), i.e. INT number, title, limits, scale latitude and format.
IHB to then include the three new INT charts in S-11.
- **Action HCA13/17 - HPWG Chair** to include Cierva Cove and Orne Harbour in the Long Term Survey Plan and the Survey Short List, including the MSR graphic.
IHB to then post the revised documents on the IHO website.
- **Action HCA13/18 - HPWG Chair** to check with Greece if they wish to continue participating in HPWG.

7.- DATA GATHERING

7.1 Presentation on recent developments in survey equipment with a focus on the Antarctic environment (Kongsberg Maritime)

Docs: HCA13-07.1A [Kongsberg Maritime - Operations in Antarctica and Arctic](#)

Kongsberg Maritime (Jan Haug KRISTIENSEN) gave a [presentation](#) “*Operations in Antarctica and Arctic*”. Kongsberg Maritime develops multibeam systems (EM series) which equip a number of vessels operating in polar waters, including the Spanish BIO Hesperides that carried out a recent survey in the area of Deception Island. Some of these systems are specially designed to fit on ice-breakers.

Outcome:

- The Commission noted the presentation.

7.2 Presentation on commercial expertise, experience and opportunities in hydrography with focus on the Antarctic environment (Fugro Pelagos)

Docs: HCA13-07.2A [Fugro Pelagos - Expertise and Experience in Hydrographic Surveying with Focus on High Latitudes](#)

Fugro Pelagos (Don VENTURA) gave a [presentation](#) “*Expertise and Experience in Hydrographic Surveying with Focus on High Latitudes*”. Fugro (Fugro Pelagos is its US branch) provides the people, equipment, expertise and technology that support the exploration, development, production and transportation of the world’s natural resources. Fugro’s activities include conducting hydrographic surveys by means of vessels, aircrafts and Autonomous Underwater Vehicles (AUVs). Integration of MBES data with topographic and bathymetric LiDAR data allows delivery of seamless dataset. Airborne Lidar Bathymetry (ALB) is particularly appropriate for shallow waters surveys to a maximum depth of 50-80m in clear waters, with the resulting survey data meeting IHO order 1a or 1b. Fugro Pelagos has

also contributed to the development of distance learning hydrographic surveying courses being developed by Plymouth University (UK).

Mr VENTURA described a concept proposal whereby Fugro Pelagos would undertake LiDAR bathymetric surveys in selected areas of the Antarctic Peninsula, using a combination of government and commercial resources. The proposal was favourably received by the meeting and the Commission adopted the following declaration:

“In considering how to achieve its agreed survey and charting priorities for the Antarctic region, HCA encourages multi-party multi-disciplinary collaborative projects that involve government, IGO’s, NGO’s, industry and donor organisations. Such projects should, wherever possible:

- *maximise the benefits for all parties*
- *minimise costs by harnessing existing infrastructure*
- *incorporate multi-parameter data collection programmes from the same platform.*

In this context, the outline proposal paper (HCA13-07.2A) presented at HCA13 is an example that might fulfill such requirements.”

Outcome:

- The Commission noted the presentation and supported the above declaration.

7.3 HCA Hydrography Priorities Working Group (HPWG)

Docs: HCA13-07.3A [HPWG Report](#) (HPWG Chair)

HCA13-07.3B [Revised Long Term Survey Plan](#) (HPWG Chair)

HCA13-07.3C [Revised Survey Short List](#) (HPWG Chair)

HPWG Chair (Andy WILLETT) reported on HPWG activities and drew attention to the revised HCA Long Term Survey Plan (HCA13-07B) and Survey Short List (HCA13-07C) that reflected new survey requirements in the Antarctic Peninsula. Both documents were agreed by the meeting.

HPWG Chair also summarised the outcomes of the HPWG meeting that took place earlier in the meeting. All proposals agreed at the HPWG meeting were endorsed by the Commission (see outcomes and actions from the HPWG meeting at pages 7-9).

Outcome:

- The Commission noted the report and the two papers.
- The Commission agreed the revised HCA Long Term Survey Plan (HCA13-07B) and Survey Short List (HCA13-07C).
- The Commission endorsed all proposals agreed at the HPWG meeting, as shown at pages 7-9.

7.4 Crowd Sourced Bathymetry initiatives - progress reports

Docs: HCA13-INF6 [Establishing the DCDB as a Global Digital Bathymetry Reference Data Store](#) (IHB)

The Chair introduced details of a pilot project to use the concept of crowd-sourcing to address the lack of hydrographic data in all regions of the world, including Antarctica. The pilot project, led by the IHO secretariat as a proof of concept study, will involve the collection of basic hydrographic data from a small number of vessels equipped with a simple, very low-

cost data logger (costing about USD200). The data will then be uploaded to the IHO Data Center for Digital Bathymetry (DCDB) where it will be made publicly available for subsequent viewing and use.

Outcome:

- The Commission noted the paper.

8.- HCA ACTIVITIES IN THE LIGHT OF THE IHO WORK PROGRAM

8.1 INT chart scheming and Production

<i>HCA13-08.1A</i>	<u>INT Chart Scheme and Production Status in Antarctica (IHB)</u>
<i>HCA13-08.1B rev1</i>	<u>INT Charts not yet published (IHB)</u>
<i>HCA13-08.1C rev1</i>	<u>Layout of INT Production Status in Antarctica (IHB)</u>
<i>HCA13-08.1D</i>	<u>Proposal for a new INT Chart in Region M - Area of Larsemann Hills – Medium Scale - IHB letter to Hydrographers of Australia, China, India and Russia (Action HCA12/9)</u>
<i>HCA13-08.1E</i>	<u>New INT Chart - Larsemann Hills (HPWG Chair)</u>

IHB (Michel HUET) reported that, as of November 2013, 71 INT charts had been published, from a total of 111 charts in the scheme for Region M. Since the previous conference, three new charts had been published by Brazil (INT 9126 and INT 9127) and Ecuador (INT 9129). 18 INT Charts were planned for publication in the period 2013 – 2015 as either new publication or new edition.

The Commission reviewed HCA13-08.1B focusing on INT charts not yet published. The review results are summarized in the table below.

INT No.	Producer	Scale 1:	Comments
9000	IT	500 000	No information available
9022	AU	500 000	Publication planned in late 2014 or 2015
908	GB	2 000 000	Publication planned after 2015
909	NO	2 000 000	Publication planned in 2014
905	DE	2 000 000	Publication planned in 2014
9140	AR	150 000	Publication planned after 2015
9103	CL	50 000	Publication planned in 2014
9104	CL	50 000	Publication planned in 2014
9107	GB	50 000	Publication planned in 2014
9108	CL	50 000	No date for the time being
9110	CL	30 000	No date for the time being
9111	AR	25 000	Publication planned in 2015
9117	GB	10 000	Publication planned after 2014
9118	GB	30 000	Publication planned in 2015
9131	GB	75 000	No date for the time being
9132	GB	75 000	Publication planned in 2014

9133	GB	75 00	No date for the time being
9157	CL	150 000	Publication planned after 2015
9159	GB	150 000	Publication planned after 2014
9160	GB	150 000	Publication planned after 2014
9161	CL	150 000	No date for the time being
9162	CL	150 000	Publication planned after 2014
9164	CL	150 000	Publication planned after 2014
9171	GB	500 000	Publication planned after 2015
9100	AR	25 000	No date for the time being
9101	AR	10 000	Publication planned in 2015
9112	GB	Various	Publication planned after 2015
9113	GB	Various	Publication planned after 2015
9114	GB	Various	Publication planned after 2015
9115	AR	50 000	Publication planned after 2015
9116	GB	Various	Publication planned after 2015
9119	Unallocated	25 000	No date for the time being
9125	BR & PE	40 000	Publication planned in 2014
9128	ES	5 000	Publication planned in 2014 or 2015
9130	GB	75 000	Publication planned after 2015
9151	CL & BR	200 000	Publication planned after 2015
9152	CL & BR	200 000	Publication planned after 2015

See also the outcomes and actions from the HPWG meeting relating to INT charts, as shown at pages 7-9.

Outcome:

- The Commission noted the five reports/papers.
- The Commission noted the current status of INT chart production.

8.2 ENC Scheming and Production

Docs: HCA13-08.2A [ENC Schemes and Production Status in Antarctica \(IHB\)](#)

IHB (Michel HUET) reported on the ENC status for Region ‘M’. From the information available at the IHB, 87 ENCs had been published as of November 2013, based on national charts and INT charts. These ENCs include 13 “overview”, 18 “general”, 20 “coastal”, 17 “approaches”, 18 “harbour” and 1 “berthing”. An additional 23 ENCs are planned for publication in 2013-15. The status of ENC production according to the IHB was as follows:

HCA Member	ENC published	ENC planned (2013/2015)
Argentina	None	- 1 “coastal” ENC (AR307240) based on INT 9156 and AR H-724 - 1 “harbour” ENC based on INT 9142.

HCA Member	ENC published	ENC planned (2013/2015)
Australia	<ul style="list-style-type: none"> - 8 “general” ENCs based on INT 9038 (AU270040), INT 9035 (AU270050), INT 9035 & 9033 (AU270060), INT 9033 & 9030 (AU270070), INT 9030 & 9031 (AU270080), INT 9031 (AU270090), INT 9020 (AU270100 and AU270110) and Aus 597 (AU2597P0) - 4 “approaches” ENCs based on INT 9014 (AU467142 and AU468142 and INT 9036 (AU468062 and AU468063) - 3 “harbour » ENCs based on INT 9036 (AU5600P1), INT 9014 (AU5603P1) and INT 9021 (AU5601P1) 	None
Brazil	<ul style="list-style-type: none"> - 1 “coastal” ENC based on INT 9150 (BR325110) - 3 “approaches” ENC based on BR 25119 (BR425119), BR 25120 (BR425120) and BR 25121 (BR425121) - 1 “harbour” ENC based on BR 25121 (BR525121) 	None
Chile	<ul style="list-style-type: none"> - 1 “coastal” ENC (CL3MA850) - 1 « approaches » ENC based on INT 9124 (CL4MA600) - 6 “harbour” ENCs based on INT 9102 (CL5MA890) and INT 9155 (CL5MA800 and CL5MA860) and and INT 9123 (CL5MA930, CL5MA950 and CL5MA970) 	- 1 “harbour” ENC based on CL 15352
France	<ul style="list-style-type: none"> - 1 “approaches” ENC based on INT 9016 (FR475940) - 1 “harbour” ENC based on INT 9017 (FR575930) - 1 “berthing” ENC based on INT 9017 (FR67593A) 	None
Germany	<ul style="list-style-type: none"> - 1 “general” ENC based on INT 9055 (DE260001) - 1 “coastal” ENC based on INT 9057 (DE3600010) 	- 1 “overview” ENC based on INT 905
Italy	<ul style="list-style-type: none"> - 2 “coastal” ENCs based on INT 9004 (IT300884) and INT 9005 (IT300881) - 1 “harbour” ENC based on INT 	- 1 “general” ENC based on INT 9000

HCA Member	ENC published	ENC planned (2013/2015)
	9005 (IT400881)	
Japan	<ul style="list-style-type: none"> - 1 “general” ENC based on INT 9045 - 4 “coastal” ENCs based on INT 9046 (JP30ODCO, JP30ODCS, JP30PKEO, JP30PKES) - 4 “approaches” ENCs based on INT 9047 (JP40P0TS, JP40P0TU, JP40PKES, JP40PKEU) - 2 “harbour” ENCs based on INT 9047 (JP50PAME, JP50PKEU) 	None
New Zealand	<ul style="list-style-type: none"> - 2 “overview” ENCs based on INT 65 (NZ14065E and NZ14065W) - 2 “general” charts based on INT 900 (NZ21490E and NZ21490W) 	<ul style="list-style-type: none"> - 3 “coastal” ENCs based on INT 9008 (NZ314908), INT 9009 (NZ314909) and INT 9012 (NZ314912) - 5 “approaches” ENCs based on INT 9001 (NZ414901), INT 9003 (NZ414903), INT 9006 (NZ414961 and NZ414962) and INT 9007 (NZ414907) - 4 “harbour” ENCs based on INT 9002 (NZ514902), INT 9003 (NZ514903) and INT 9006 (NZ514961 and NZ514962)
Norway	- 1 “overview” ENC based on INT 904 (NO1A5500)	- 1 “overview” ENC based on INT 909
Russian Federation	<ul style="list-style-type: none"> - 2 “overview” ENCs based on INT 903 (RU1A2K00) and INT 902 (RU1B0PF0) - 6 “general” ENCs based on INT 9172 (RU2A1AD0), INT 9060 (RU2ANEN0), INT 9050 (RU2A0ES0), INT 9040 (RU2BNM40), INT 9025 (RU2BLQN0) and INT 9010 (RU2A2X10) - 3 “coastal” ENCs based on INT 9051 (RU3A2J30), INT 9041 (RU3BNMF0) and INT 9011 (RU3BRXL0) - 1 “approaches” ENC based on INT 9026 (RU4BKR40) - 2 “harbour” ENCs based on INT 9042 (RU5BNMH0) and INT 9027 (RU5BJR80) 	- 4 “harbour” ENCs based on RU 48922 (RU5BNMH2), RU 48919 (RU5BNMH1), RU 48956 and RU 48956-A
South Africa	- 1 “coastal” ENC based on INT 9056 (ZA300300)	None
Spain	1 “harbour” ENC based on	- 1 “approaches” ENC based on INT

HCA Member	ENC published	ENC planned (2013/2015)
	Spanish national chart 7002 (which will be converted to INT chart) (ES507002)	9121 - 1 “harbour” ENC based on INT 9128
UK	- 9 “overview” ENCs based on INT 24 (GB104024C), INT 64 (GB104064B), INT 75 (GB104075), INT 63 (GB104063), INT 74 (GB104074), INT 906 (GB104906), INT 907 (GB104907), and on national charts BA 4213 (GB104213) and BA 3200 (GB103200) - 5 “coastal” ENCs based on INT 9158 (GB372110), INT 9153 (GB372220), INT 9154 (GB372210), INT 9163 (GB302974) and INT 9061 (GB303629) - 2 “approaches” ENCs based on INT 9106 (GB47211A) and INT 9109 (GB47201A) - 2 “harbour” ENCs based on INT 9158 (GB57211A and GB57211B)	None
USA	- 1 “coastal” ENC based on INT 9062 (US30029K) - 1 “approaches” ENC based on INT 9105 (US5AN01)	None

IHB (Michel HUET) noted a number of inconsistencies between the ENC production status as reported in the minutes of HCA12 and the information in the national reports to HCA13. He suggested that the information contained in HCA13-08.2A be checked and updated by HCA members. This was agreed.

See also the outcomes and actions from the HPWG meeting relating to ENCs, as shown at pages 7-9.

Outcome:

- The Commission noted the report.
- **Action HCA13/19 – HCA Members** to check and update the information contained in doc. HCA13-08.2A that will be circulated with the draft minutes of HCA-13 and to amend where needed.

8.3 Presentation on recent chart production system developments, with focus on charting in Antarctica (Caris)

Docs: HCA13-08.3A [The “Icy” CARIS - Ping-To-Chart Solution](#)

Caris (Geerten BLESSING) gave a [presentation](#) “The ‘Icy’ CARIS Ping-To-Chart Solution”. Caris has developed software tools in support of Hydrographic Survey Processing and

Visualization; Port & Waterway Management; and Chart Production (paper chart and ENC), which are widely used by Hydrographic Offices. Mr. BLESSING described these tools and their use for data processing, analysis, production and discovery.

Outcome:

- The Commission noted the presentation.

8.4 Interaction with IOC

8.4.1 The IOC-IHO GEBCO Project

Docs: [HCA13-08.4.1A](#) [GEBCO Report](#)
[HCA13-08.4.1B](#) [Undersea Feature Naming in Antarctica \(IHB\)](#)

The Chair noted that both parent organisations of GEBCO (IHO and IOC) intend to exercise a greater level of governance over the GEBCO project in future.

On behalf of GEBCO, Boris DORSCHHEL (AWI, Germany) gave a [presentation](#) and reported on the GEBCO meeting held recently (Venice, Italy, October 2013). An improved GEBCO bathymetric grid is being prepared and should soon replace the existing GEBCO_08 grid. Other topics addressed by the meeting included GEBCO contribution to the EU EMODNet project and Google Ocean, new data source including crowd-sourcing, and regional compilations including IBCSO.

IHB (Michel HUET) reported that the GEBCO Gazetteer (Publication B-8) is now on-line at http://www.gebco.net/data_and_products/undersea_feature_names/ and presented the main functionalities of the on-line gazetteer. The on-line gazetteer provides search capabilities that enable access to any registered undersea feature name and display its associated details, including showing the feature geometry on a background bathymetric map. Name searches can be made using a specific term, such as Cook, or a generic term, such as Seamount. B-8 can be derived directly from the underlying database. The on-line gazetteer is maintained by the GEBCO Sub-Committee on Undersea Feature Names (SCUFN), with its secretariat at the IHB. It includes some 250 undersea feature names in the HCA area, for use on GEBCO products like IBCSO but also on INT charts and ENCs. HCA members and observers were invited to submit undersea feature name proposals to SCUFN, via the IHB (info@iho.int), using the form available on the GEBCO website: (www.gebco.net/data_and_products/undersea_feature_names/#features_link3).

Outcome:

- The Commission noted the two reports and the presentation.

8.4.2 The IHO-IOC-SCAR IBCSO Project

Docs: [HCA13-08.4.2A](#) [IBCSO Report](#)

On behalf of IBCSO (International Bathymetric Chart of the Southern Ocean), Boris DORSCHHEL (AWI, Germany) gave a [presentation](#) on this IHO-IOC-SCAR sponsored bathymetric mapping project. Version 1.0 of IBCSO was released in third quarter of 2012. See <http://www.ibcso.org/>. IBCSO is under the coordination of the GEBCO Sub-Committee on Undersea Regional Mapping (SCRUM).

The objective of IBCSO is to gain better knowledge of the sea floor topography in the Southern Ocean. This was achieved through collection and compilation of bathymetric data

from hydrographic offices, scientific institutions and data centers to create the first regional digital bathymetric model that covers all circum-Antarctic waters. The digital bathymetric model of IBCSO Version 1.0 has a 500 m x 500m resolution based on a Polar Stereographic projection with true scale at 65° S and covers the area south of 60° S. It is publicly available together with a digital chart for printing. The IBCSO database includes more than 4200 million soundings, of which about 15% are multibeam soundings. Dr DORSCHER explained the gridding method used for IBCSO and showed, through examples, that the IBCSO grid provides improved description of the topographic seafloor compared with the GEBCO_08 grid.

Outcome:

- The Commission noted the report and the presentation.

8.5 Hydrographic surveying, nautical charting, nautical publications and information status.

8.5.1 Presentation of National Reports - Experiences with new techniques and equipment - Project proposals to speed-up compilation and production

Docs: HCA11-08.5.1A National Reports, from Argentina, Australia, Brazil, Chile, Colombia (as observer), France, Germany, Korea (Rep. of), New Zealand, Norway, Peru, Russian Federation, South Africa, Spain, United Kingdom and United States.

HCA members briefly introduced their national reports. Presentations were available from Argentina, Australia, Brazil, Chile, Colombia (as observer), France, Germany, New Zealand, Norway, Peru, South Africa, United Kingdom and United States. The following particulars were noted (see national reports for more details):

Argentina and Australia – More survey work is expected during the next seasons than in previous years.

New Zealand and Spain - Less survey work is expected during the next seasons than in previous years.

South Africa – Noting that INT 9056 (ZA300300) was located in a non touristic area, South Africa (Abri KAMPFER) sought advice on the appropriate periodicity of updating the coastline. After discussion, it was considered that judgement on this issue should remain with the producer nation.

Outcome:

- The Commission noted all national reports and presentations.

8.5.2 C-55 Status: Hydrographic surveying, nautical charting and provision of MSI – Antarctic GIS

Docs: HCA13-08.5.2A [C-55 Status and GIS for Antarctica – Progress Report \(IHB\)](#)

The Chair reported, via a [presentation](#), on a GIS-based solution that was under development at the IHB to address C-55 requirements. Noting the limitations of the existing C-55, for example the lack of spatial information on location or the fact that it includes information related to safety of navigation only, the IHB has undertaken the development of an IHO GIS,

a web server and web mapping services in support of RHCs, ENC availability, INT chart coordination, status of surveys, charting and hydrographic capabilities.

IHB (Michel HUET) continued and reported that the HCA GIS and its database that had been under development at the IHB for some time by an officer seconded by the Japan Hydrographic and Oceanographic Department (JHOD) were now complete. He gave a presentation of a live Antarctic GIS on the IHO website (<http://hca.iho.int/>). The database comprises a number of layers of geospatial information, including surveys, INT charts and ENCs, that can be selected and displayed as needed. It provides metadata and geometry for each layer. For example, in a given area it allows showing the INT chart and/or ENC coverage plus the available hydrographic survey metadata, thus stressing the areas in need of surveys. IHB however noted that the survey information in the database dates back to 2007, at the latest, and therefore needs updating.

It was agreed that the HCA GIS was of utmost importance for the furtherance of surveying and nautical cartography activities in Antarctica.

Outcome:

- The Commission noted the report and the presentation.
- **Action HCA13/20 – IHB** to include in the HCA Antarctic GIS Database additional layers of information on planned surveys and geographic names on land.
- **Action HCA13/21 - IHB** to seek, via an HCA Letter, information from HCA Members and Observers on past surveys conducted in Antarctic waters, for inclusion in the HCA Antarctic GIS Database.
- **Action HCA13/22 - HCA Members** to consult the HCA Antarctic GIS at <http://hca.iho.int/> and provide their comments to the IHB.

8.5.3 Presentation of MSDI activities, with focus on applicability to Antarctica

Docs: HCA13-08.5.3A [MSDI in Antarctica - "Interoperability at Work?"](#) (MSDIWG Secretary)

John PEPPER, as secretary of the IHO MSDIWG (Marine Spatial Data Infrastructure Working Group) gave a [presentation](#) on MSDI and its applicability to Antarctica. He explained the details of an MSDI and noted that, although an HCA MSDI did not exist yet, this commission, in his view, already addressed the four pillars for building an MSDI which are: 1) Policy & Governance (People); 2) Technical Standards (Standards); 3) Information Systems (ICT) ; and 4) Geographic Content (Data).

IAATO (Kim CROSBIE) suggested that SCAR be approached on this issue. COMNAP (Miguel A. OJEDA) saw in this a topic for the ATCM Operational Matters Working Group to deal with. Argentina (Rolando RIOS) considered that the main issue was to get data and sharing it. South Africa (Abri KAMPFER) believed there was a need for awareness of the various steps to build an MSDI.

Outcome:

- The Commission noted the presentation.
- **Action HCA13/23 - HCA Chair** to report on the HCA progress and perspective on MSDI issues, as part of the IHO report to ATCM-37.

8.6 Capacity Building Issues

There was no paper submitted for this item and no comment from the meeting.

8.6.1 Nautical Publications and Information. IHO/HCA web page

IHB (Michel HUET) noted that links to National Catalogues of Charts and Nautical Publications are provided from the HCA page of the IHO website. See http://www.iho.int/mtg_docs/rhc/HCA/HCA_Misc/Links/Links.htm. There was no further comment.

9.- **HCA STATUTES**

Docs: HCA13-INF1 [Current HCA Statutes](#) (IHB)

The commission reviewed the HCA Statutes and agreed the following changes:

Article 1.2, first sentence. Instead of “The HCA is responsible for hydrographic surveying and nautical charting matters in International Region M.”, read (changes underlined): “The HCA is the coordinating body for hydrographic surveying and nautical charting matters in International Region M.”.

Article 3.6. Instead of “To implement the INT chart scheme for the region and to monitor its suitability.”, read (changes underlined): “To coordinate INT chart and ENC schemes for the region and to monitor their suitability.”

Outcome:

- The Commission agreed revised HCA statutes.
- **Action HCA13/24 - IHB** to amend articles 1.2 and 3.6 of the HCA statutes, as agreed at HCA-13, and post the revised statutes on the IHO website.

10.- **ANY OTHER BUSINESS**

There was no topic to discuss under this item.

11.- **TIME AND PLACE OF NEXT CONFERENCE**

At the 12th HCA conference (Montevideo, Uruguay, October 2012), the Commission accepted an offer from Ecuador to host the 14th HCA conference in early December 2014. Following a suggestion from the Chair, it was agreed to postpone the 14th Conference until March/April 2015. The IHB would seek confirmation from Ecuador, not represented at HCA-13, that their offer still stands. Otherwise, the IHB in Monaco would be the alternative venue. The 15th HCA conference was tentatively planned in New Zealand in March/April 2016.

Outcome:

- 14th HCA conference to be hosted by the Instituto Oceanográfico de la Armada (INOCAR), Ecuador, in March/April 2015, with Monaco as fall back.
- 15th HCA conference to be held in New Zealand in March/April 2016.

12.- **APPROVAL OF ACTION LIST**

The conference reviewed the list of actions arising from HCA13. The agreed list is at Annex E.

13.- CLOSURE

On behalf of the conference, the Chair warmly thanked the *Instituto Hidrográfico de la Marina* (IHM), of Spain, for the excellent arrangements for HCA13. He also thanked all participants and observers for their valuable contribution to the meeting. He concluded that, in his view, the meeting was very successful.

The meeting closed at 16:30 on 5 December 2013.

LIST OF ACRONYMS AND ABBREVIATIONS

ALB	Airborne Lidar Bathymetry
ARHC	Arctic Regional Hydrographic Commission (IHO)
ATCM	Antarctic Treaty Consultative Meeting
ATS	Antarctic Treaty Secretariat
AUV	Autonomous Underwater Vehicles
AWI	Alfred-Wegener-Institut für Polar- und Meeresforschung (Germany)
BIO	Buque de Investigación Oceanográfica (Spain)
C-55	<i>Status of Hydrographic Surveying and Nautical Charting Worldwide</i> (IHO publication)
COMNAP	Council of Managers of National Antarctic Programmes
CSB	Crowd Source Bathymetry
EMODNet	European Marine Observation and Data Network
ENC	Electronic Navigational Chart
EU	European Union
GEBCO	General Bathymetric Chart of the Oceans (IHO-IOC)
GIS	Geographic Information System
HCA	Hydrographic Committee on Antarctica (IHO)
HO	Hydrographic Office
HPWG	Hydrography Priorities Working Group (HCA)
IAATO	International Association of Antarctic Tour Operators
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IBCSO	International Bathymetric Chart of the Southern Ocean (IOC-IHO-SCAR)
ICT	Information and communications technology
IGO	Inter-Governmental Organization
IHB	International Hydrographic Bureau
IHM	Instituto Hidrográfico de la Marina (Spain)

IHO	International Hydrographic Organization
INT	International (Charts) (IHO)
IOC	Intergovernmental Oceanographic Commission (UNESCO)
JHOD	Japan Hydrographic and Oceanographic Department
LINZ	Land Information New Zealand
MBES	Multi Beam Echo Sounder
MSDI	Marine Spatial Data Infrastructure
MSDIWG	Marine Spatial Data Infrastructure Working Group (IHO)
MOU	Memorandum OF Understanding
MSR	Maritime Shipping Route
NGO	Non-Governmental Organization
PR	Public Relations
RHC	Regional Hydrographic Commission (IHO)
S-11	<i>Guidance for the Preparation and Maintenance of INT Chart Schemes, and Catalogue of INT Charts</i> (IHO publication)
S-100	<i>Universal Hydrographic Data Model</i> (IHO publication)
SCAR	Scientific Committee on Antarctic Research
SCRUM	Sub-Committee on Regional Undersea Mapping (GEBCO)
SCUFN	Sub-Committee on Undersea Feature Names (GEBCO)
SOLAS	Safety Of Life At Sea (IMO convention)
VTs	Vessel Traffic Service
WEND	Worldwide ENC Database (IHO)

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LIST OF DOCUMENTS

Document	Content	Responsible
HCA13-01A rev1	List of Meeting Documents	HCA Secretary
HCA13-01B rev4	List of Participants	HCA Secretary
HCA13-02A	HCA Membership and Observers List	HCA Secretary
HCA13-03A rev4	Agenda and Timetable	HCA Chair
HCA13-03B rev1	Programme	Spain
HCA13-05A rev2	Status of Actions List from the 12th HCA Conference	HCA Secretary
HCA13-05B	IHO guidelines for the collection and rendering of hydrographic data by Ships of Opportunity operating in the Antarctic Region	New Zealand
HCA13-06.2A	COMNAP Report	COMNAP
HCA13-06.2B	COMNAP's response to a proposed IHO-COMNAP MoU	HCA Chair
HCA13-06.3A	IAATO Report Presentation	IAATO
HCA13-06.5A	IALA activities affecting HCA - Presentation	IALA
	HPWG Meeting (3 Dec 1600 - 4 Dec 1030)	
HCA13-HPWG0	Agenda	HPWG Chair
HCA13-HPWG1	Review of Region M Small-Scale ENC Scheme	New Zealand
HCA13-HPWG2	Existing Overview ENC Coverage	HPWG Chair
HCA13-HPWG3	Proposed Overview ENC Scheme based on INT Chart 1: 2M series	HPWG Chair
HCA13-HPWG4	Existing General ENC Coverage	HPWG Chair
HCA13-HPWG5	Proposed General ENC Scheme based on INT 1:500K series	HPWG Chair
HCA13-HPWG6	Proposed Coastal ENC Scheme (Antarctic Peninsula) based on INT 1:90K - 1:350K series	HPWG Chair
HCA13-HPWG7	Proposed Coastal ENC Scheme (Antarctica) based on INT 1:90K - 1:350K series	HPWG Chair
HCA13-HPWG8 (.xls)	Proposed Approach, Harbour & Berthing ENC Scheme	HPWG Chair
HCA13-07.1A	Kongsberg Maritime - Operations in Antarctica and Arctic Presentation	Kongsberg
HCA13-07.2A	FugroPelagos - Expertise and Experience in Hydrographic Surveying with Focus on High Latitudes Presentation	FugroPelagos
HCA13-07.3A	HPWG Report - presentation	HPWG Chair
HCA13-07.3B	Revised Long Term Survey Plan	HPWG Chair
HCA13-07.3C	Revised Survey Short List	HPWG Chair
HCA13-08.1A	INT Chart Scheme and Production Status	IHB

HCA13-08.1B rev1	INT Charts not yet Published	IHB
HCA13-08.1C rev1	Layout of INT Chart Production Status	IHB
HCA13-08.1D	IHB letter to AU-CN-IN-RU on a proposed new INT chart at Larsemann Hills	IHB
HCA13-08.1E	New INT Chart - Larsemann Hills - <i>presentation</i>	HPWG Chair
HCA13-08.2A	ENC Schemes and Production Status in Antarctica	IHB
HCA13-08.3A	The “Icy“ CARIS - Ping-To-Chart Solution Presentation	CARIS
HCA13-08.4.1A	GEBSCO Report Presentation	GEBSCO
HCA13-08.4.1B	Undersea Feature Names in Antarctica	IHB
HCA13-08.4.2A	IBCSO Report Presentation	IBCSO
	National Reports	
HCA13-08.5.1Aa	National Report, Argentina Presentation	Argentina
HCA13-08.5.1Ab	National Report, Australia Presentation	Australia
HCA13-08.5.1Ac	National Report, Brazil Presentation	Brazil
HCA13-08.5.1Ad	National Report, Chile Presentation	Chile
HCA13-08.5.1Af	National Report, France Presentation	France
HCA13-08.5.1Ag	National Report, Germany Presentation	Germany
HCA13-08.5.1Aj	National Report, Korea (Rep of)	Korea
HCA13-08.5.1Ak	National Report, New Zealand Presentation	New Zealand
HCA13-08.5.1Al	National Report, Norway Presentation	Norway
HCA13-08.5.1Am	National Report, Russian Federation	Russia
HCA13-08.5.1An	National Report, South Africa Presentation	South Africa
HCA13-08.5.1Ao	National Report, Spain	Spain
HCA13-08.5.1Ap	National Report, United Kingdom Presentation	UK
HCA13-08.5.1Aq	National Report, United States Presentation	USA
HCA13-08.5.1Ar	National Report, Peru Presentation	Peru
HCA13-08.5.1As	National Report, Colombia Presentation	Colombia
HCA13-08.5.2A	GIS for Antarctica – Progress Report - <i>Presentation</i>	IHB
HCA13-08.5.3A	MSDI in Antarctica - “Interoperability at Work?” (MSDIWG Secretary) Presentation	MSDIWG Secretary
	Information Papers	
HCA13-INF1	Current HCA Statutes	HCA Chair

HCA13-INF2	Minutes of the 12th HCA Conference (Montevideo, Uruguay, 2012)	HCA Secretary
HCA13-INF3	IHO Report submitted to ATCM-XXXVI (Brussels, Belgium, 2013) FR ES	HCA Chair
HCA13-INF4	Outcomes from ATCM-XXXVI	HCA Chair
HCA13-INF5	IAATO Overview of Antarctic Tourism: 2012-13 Season and Preliminary Estimates for 2013-14 Season	IAATO
HCA13-INF6	Establishing the DCDB as a Global Digital Bathymetry Reference Data Store Presentation	HCA Chair

AGENDA AND TIMETABLE

- Notes: a) Meeting to start at 09:00 on 3December at the *Navy Officers' Club* in San Fernando
b) Dress code for the HCA Conference will be civilian clothes (coat and tie) for the meetings, and casual for a social event (dinner) on the second day. The Spanish delegation, as hosts, will be wearing uniform.
c) Presenters of papers are shown in parentheses ().

Tuesday 3 Dec	HCA-13
0900	<p>1. Opening <i>Docs: HCA13-01A List of Documents (Secretary)</i> <i>HCA13-01B List of Participants (Secretary)</i> Introductions: <i>What keeps you awake at night? (Everyone)</i> <i>What outcomes are you expecting from the meeting (Everyone)</i></p>
0915	<p>2. HCA Membership Status <i>Docs: HCA13-02A HCA Membership and Observers List (Secretary)</i> Discussion: <i>Are any changes required? (Everyone)</i></p>
0930	<p>3. Approval of Agenda <i>Docs: HCA13-03A Agenda and Timetable (Chair)</i> <i>HCA13-03B Programme (Host)</i></p>
0940	<p>4. Election of Vice-Chairman</p>
0950	<p>5. Status of List of Actions resulting from HCA-12 <i>Docs: HCA13-INF2 Minutes of the 12th HCA Conference (Montevideo, Uruguay, 2012) (Chair)</i> <i>HCA13-05A Status of Actions List from the 12th HCA Conference (Secretary)</i></p>
1020	Group Photo followed by Coffee Break
1100	<p>5. Status of List of Actions resulting from HCA-12 (continued)</p>
1200	<p>6. International Organizations' Reports 6.1 ATCM <i>Docs: HCA13-INF3 IHO Report submitted to ATCM-36 (Chair)</i> <i>HCA13-INF4 Outcomes from ATCM-36 (Chair)</i> Discussion: <i>What went wrong at ATCM-36? (Everyone)</i> <i>What action is required from HCA members before ATCM-37? (Everyone)</i></p>
1230	Lunch
1400	<p>6.2 COMNAP <i>Docs: HCA13-06.2A COMNAP Activities affecting HCA</i> <i>HCA13-06.2B COMNAP's response to a proposed IHO-COMNAP MoU</i></p>
1420	<p>6.3 IAATO <i>Docs: HCA13-06.3A IAATO Report (to ATCM 36)</i> <i>HCA13-INF5 IAATO Overview of Antarctic Tourism: 2012-13 Season and Preliminary Estimates for 2013-14 Season</i></p>

1440	6.4 SCAR
1500	6.5 IALA <i>Docs: HCA13-06.5A IALA activities affecting HCA</i>
1530	Adjourn HCA-13 Coffee Break
1600	Hydrography Priorities Working Group (HPWG) meets <i>Docs: HCA13-HPWG0 Agenda</i> <i>HCA13-HPWG1 Review of Region M Small-Scale ENC Scheme (New Zealand)</i> <i>HCA13-HPWG2 Existing Overview ENC Coverage (HPWG)</i> <i>HCA13-HPWG3 Proposed Overview ENC Scheme based on INT Chart 1: 2M series (HPWG)</i> <i>HCA13-HPWG4 Existing General ENC Coverage (HPWG)</i>
1730	END OF DAY ONE
Wednesday 4 Dec	HCA-13 (continues)
0900	HPWG continues to meet <i>Docs: HCA13-HPWG5 Proposed General ENC Scheme based on INT 1:500K series (HPWG)</i> <i>HCA13-HPWG6 Proposed Coastal ENC Scheme (Antarctic Peninsula) based on INT 1:90K - 1:350K series (HPWG)</i> <i>HCA13-HPWG7 Proposed Coastal ENC Scheme (Antarctica) based on INT 1:90K - 1:350K series (HPWG)</i> <i>HCA13-HPWG8 Proposed Approach, Harbour & Berthing ENC Scheme (HPWG)</i>
1030	HPWG meeting ends Coffee Break
1100	HCA-13 Resumes 7. Data Gathering 7.1 Presentation on recent developments in survey equipment with a focus on the Antarctic environment (Kongsberg) <i>Docs: HCA13-07.1A Kongsberg Maritime - Operations in Antarctica and Arctic</i>
1130	7.2 Presentation on commercial expertise, experience and opportunities in hydrography with focus on the Antarctic environment (Fugro) <i>Docs: HCA13-07.2A FugroPelagos - Expertise and Experience in Hydrographic Surveying with Focus on High Latitudes</i>
1200	7.3 HCA Hydrography Priorities Working Group Docs: HCA13-07.3A HPWG Report (HPWG Chair) <i>HCA13-07.3B Revised Long Term Survey Plan (HPWG Chair)</i> <i>HCA13-07.3C Revised Survey Short List (HPWG Chair)</i>
1230	Lunch
1400	7.4 Crowd Sourced Bathymetry initiatives - progress reports <i>Docs: HCA13-INF6 Establishing the DCDB as a Global Digital Bathymetry Reference Data Store (Chair)</i>

1420	Discussion: <i>What is the way ahead for data gathering initiatives in Antarctica?(Everyone)</i>
1430	<p>8. HCA Activities in the light of the IHO Work Program</p> <p>8.1 INT Chart Scheming and Production</p> <p><i>Docs: HCA13-08.1A INT Chart Scheme and Production Status in Antarctica (Secretary)</i></p> <p><i>HCA13-08.1B INT Charts not yet published (Secretary)</i></p> <p><i>HCA13-08.1C Layout of INT Production Status in Antarctica (Secretary)</i></p> <p><i>HCA13-08.1D Proposal for anew INT Chartin Region M - Area of Larsemann Hills – Medium Scale - IHB letter to Hydrographers of Australia, China, India and Russia (IHB)</i></p> <p><i>HCA13-08.1E New INT Chart - Larsemann Hills (HPWG Chair)</i></p>
1445	<p>8.2 ENC Scheming and Production</p> <p><i>Docs: HCA13-08.2A ENC Schemes and Production Status in Antarctica (Secretary)</i></p>
1500	<p>8.3 Presentation on recent chart production system developments, with focus on charting in Antarctica (Caris)</p> <p><i>Docs: HCA13-08.3A The “Icy“ CARIS - Ping-To-Chart Solution</i></p>
1530	Coffee Break
1600	<p>8.4 Interaction with IOC</p> <p>8.4.1 The IHO-IOC GEBCO Project</p> <p><i>Docs: HCA13-08.4.1A GEBCO Report</i></p> <p><i>HCA13-08.4.1B Undersea Feature Naming in Antarctica (Secretary)</i></p> <p>8.4.2 The IHO-IOC-SCAR IBCSO Project</p> <p><i>Docs: HCA13-08.4.2A IBCSO Report</i></p>
1620	<p>8.5 Hydrographic surveying, nautical charting, nautical publications and information status</p> <p>8.5.1 Presentation of National Reports - Experiences with new techniques and equipment - Project proposals to speed-up compilation and production</p> <p><i>Docs: HCA13-08.5.1A National Reports</i></p>
1730	END OF DAY TWO
From 2030	Dinner offered by IHM, restaurant “Venta de Vargas”, San Fernando
Thursday 5 Dec	HCA-13 (continues)
0900	Visit to IHM, Cadiz (<i>Everyone</i>)
1030	IHM visit ends Depart by bus from IHM to San Fernando
1100	8.5.1 Presentation of National Reports - continued
1140	<p>8.5.2 C-55 Status: hydrographic surveying, nautical charting and provision of MSI – Antarctic GIS</p> <p><i>Docs: HCA13-08.5.2A C-55 Status and GIS for Antarctica – Progress Report (IHB)</i></p>

1200	8.5.3 Presentation of MSDI activities, with focus on applicability to Antarctica <i>Docs: HCA13-08.5.3A MSDI in Antarctica - "Interoperability at Work?" (MSDIWG Secretary)</i>
1230	Lunch
1400	8.6 Capacity Building Issues
1415	8.6.1 Nautical Publications and Information. IHO/HCA web page
1425	9. HCA Statutes <i>Docs: HCA13-INF1 Current HCA Statutes (Chair)</i> Discussion: <i>Are any changes required? (Everyone)</i>
1440	10. Any other Business
1500	11. Time and Place of next Conference HCA-14 to be hosted by Ecuador in early December 2014
1505	12. Approval of Action List
1530	13. Closure END OF MEETING
1530	Coffee Break

ACTIONS RESULTING FROM THE 13th HCA MEETING

Agenda Item	Action	Details
5.	HCA13/01	IHB to post the Ships of Opportunity Guidelines (Doc. HCA13-05B), on the HCA page of the IHO website as an HCA reference document.
5.	HCA13/02	HCA Chair to present the Ships of Opportunity Guidelines (Doc. HCA13-05B) to the Arctic Regional Hydrographic Commission (ARHC), for its consideration at ARHC-4 in January 2014.
5.	HCA13/03	HPWG to analyse existing ENC coverage and to respond to WEND-WG letter dated 18 September 2012 (HCA12-07.2B) concerning overlaps, gaps and large scale (major port/points of entry) coverage. (carried over from HCA12)
5.	HCA13/04	HCA Members to send a selection of print-quality images to the IHB for PR purposes.
5.	HCA13/05	IHB to request HCA Members to provide details of their planned surveys for the 2014-15 season to the HPWG Chair as soon as possible; required parameters to be based on those indicated in Australian Hydroscheme format.
5.	HCA13/06	IHB to provide access to the information on HCA Members' planned surveys for the 2014-15 season to IAATO and other relevant entities.
6.1	HCA13/07	Argentina to pay an informal visit to the Antarctic Treaty Secretariat (ATS) in Buenos Aires, to foster a continuing relationship between ATS and HCA so as to raise awareness of hydrography and charting issues and thereby improve support from ATCM
6.1	HCA13/08	Chair to write to ATS seeking guidance on the validity of ATCM Recommendation XV-19/1989 and to confirm that it only requires ratification by the Republic of Korea in order to enter into effect. [<i>Post-meeting note: Recommendation XV-19/1989 is likely to be superseded upon agreement by ATCM-37 of the consolidated list of Recommendations on Operational Matters submitted by COMNAP to ATCM-36. HCA contributed to this submission.</i>]
6.1	HCA13/09	Chair to include a proposal in the IHO report to ATCM-37 that the ATCM Operational WG considers the future development of appropriate guidelines concerning the contribution that vessels and craft that operate in poorly surveyed or charted waters in Antarctica can make to improve the fundamental hydrographic dataset.
6.1	HCA13/10	HCA Member States to brief their ATCM delegates on the IHO report and any other IHO submissions to ATCM-37.
6.4	HCA13/11	IHB to contact SCAR to check whether they are willing to continue cooperating with HCA as an observer organisation.
HPWG	HCA13/12	IHB to include in S-11 a new INT chart covering the area of Larsemann Hills, with following details: <ul style="list-style-type: none"> - Scale: 1:50 000 at 68°S - Limits: 69°29.00'S to 69°04.10'S - 76°34.00'E to 75°48.09'E - Producer: Australia

Agenda Item	Action	Details
HPWG	HCA13/13	IHB to amend in S-11 the limits of chart INT 9128 (scale 1:5 000; producer: Spain) to 62°40.27'S - 62°37.46'S and 060°26.00'W - 060°20.98'W. IHB to also correct the depiction of INT 9121 (scale 1:40 000; producer: Spain) in S-11.
HPWG	HCA13/14	HPWG Chair to provide the IHB with details of the new INT chart of Lemaire Channel (scale 1:35 000; producer: UK), i.e. INT number, title, limits, scale latitude and format. IHB to then include the new INT chart in S-11.
HPWG	HCA13/15	HPWG Chair to provide the IHB with details of the new INT chart amalgamating the existing INT 9117, INT 9118 and INT 9119 into one single A0 chart with number INT 9117 and UK as producer. IHB to then amend S-11 accordingly.
HPWG	HCA13/16	HPWG Chair to provide the IHB with details of the three new INT charts, to be derived from ES 7002 (scale 1:10 000; producer: Spain), CL 15351 (scale 1:30 000; producer: Chile) and CL 15352 (scale 1:7 000; producer: Chile), i.e. INT number, title, limits, scale latitude and format. IHB to then include the three new INT charts in S-11.
HPWG	HCA13/17	HPWG Chair to include Cierva Cove and Orne Harbour in the Long Term Survey Plan and the Survey Short List, including the MSR graphic. IHB to then post the revised documents on the IHO website.
HPWG	HCA13/18	HPWG Chair to check with Greece if they wish to continue participating in HPWG.
8.2	HCA13/19	HCA Members to check and update the information contained in doc. HCA13-08.2B that will be circulated with the draft minutes of HCA-13 and to amend where needed.
8.5.2	HCA13/20	IHB to include in the HCA Antarctic GIS Database additional layers of information on planned surveys and geographic names on land.
8.5.2	HCA13/21	IHB to seek, via an HCA Letter, information from HCA Members and Observers on past surveys conducted in Antarctic waters, for inclusion in the HCA Antarctic GIS Database.
8.5.2	HCA13/22	HCA Members to consult the HCA Antarctic GIS at http://hca.iho.int/ and provide their comments to the IHB .
8.5.3	HCA13/23	HCA Chair to report on the HCA progress and perspective on MSDI issues, as part of the IHO report to ATCM-37.
9.	HCA13/24	IHB to amend articles 1.2 and 3.6 of the HCA statutes, as agreed at HCA-13, and post the revised statutes on the IHO website.