



**2010**

## **MAY TO DECEMBER BULLETIN**

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### **REGIONAL HYDROGRAPHIC COMMISSIONS**

#### **33<sup>rd</sup> MEETING OF THE US-CANADA HYDROGRAPHIC COMMISSION (USCHC)**

Ottawa, Canada, 17-18 May 2010.

The 33<sup>rd</sup> Meeting of the US-Canada Hydrographic Commission was held in Ottawa hosted by Canada. As is the custom, the meeting was co-chaired by the Dominion Hydrographer of Canada and the Director of Coast Survey of the USA, Dr. Savi NARAYANAN and Captain John LOWELL respectively.

The meeting discussed a range of topics including ongoing consideration of ways to achieve consistent ENC coverage in the trans-boundary areas between Canada and the USA. Extensive discussion also took place on the impending establishment of an Arctic Hydrographic Commission, and, in particular, where the northern boundary between the USCHC and the new Arctic Commission might lie.

The Canadian delegation was supplemented by a representative from the Canadian Coastguard, who presented information on the potential use of Virtual aids to Navigation. Other members of the delegation represented the Canadian Department of Foreign Affairs and the legal counsel to the Dominion Hydrographer, both of whom provided a perspective on the delimitation of the Arctic Hydrographic Commission.

The Canadian Assistant Deputy Minister of Oceans and Science, Dr. Siddika MITHANI, joined for part of the meeting and asked a number of probing questions about the role of the Commission and the importance of global hydrography more generally.

The 34th meeting of the Commission will be hosted by the USA in the vicinity of Washington, DC in March or April 2011.



*33<sup>rd</sup> Meeting of the US-Canada Hydrographic Commission.  
Dr. Siddika MITHANI flanked by Dr. Savi NARAYANAN and Captain John LOWELL*

**15<sup>th</sup> MEETING OF THE BALTIC SEA REGIONAL HYDROGRAPHIC COMMISSION (BSHC)**  
Gdynia, Poland, 21-23 September 2010.

The 15<sup>th</sup> Meeting of the BSHC was held in Gdynia, Poland, on 21-23 September, under the Chairmanship of Mrs. Charlotte WIIN HAVSTEEN (Denmark). All full members of the Commission attended, the UK attended as an Observer and the IHB was represented by Steve SHIPMAN (PAH). The Polish hosts provided an excellent venue and support for the meeting.

The meeting had a full agenda and considered matters related to:

- Report from the IHB;
- Information on and co-ordination of hydrographic activities in the Baltic Region;
- Strategic aspects concerning administrative and marketing activities of HOs;
- Cooperation with other organizations;
- Reports from the BSHC WGs:
  - Chart Datum WG;
  - ENC Harmonisation WG;
  - Baltic Sea INT Chart Committee;
  - Re-Survey Monitoring WG;
  - Bathymetric Database WG;
  - Harmonisation of the Conveying and Presentation of Depth Information WG;
- Status of Hydrographic Surveying and Nautical Charting Worldwide (C-55).



*Attendees at BSHC15.*

*Opening of the BSHC15 meeting*



A new WG was established under the chairmanship of Denmark to review the status of Marine Spatial Data Infrastructures in the Baltic Region.

At the end of the meeting Captain Henryk NITNER of Poland was elected Chairman of the BSHC and the 16<sup>th</sup> meeting was provisionally scheduled to be held in Sweden in September 2011.

**29<sup>th</sup> MEETING OF THE NORTH SEA HYDROGRAPHIC COMMISSION**  
SHOM, Brest, 28-29 September 2010.

The 29<sup>th</sup> meeting of the North Sea Hydrographic Commission (NSHC) was held at SHOM, the French Hydrographic Service in Brest, France, on 28-29 September. Twenty-three (23) delegates participated in the meeting representing France, Germany, Denmark, Netherlands, Sweden, Norway, Iceland, Ireland and UK. The Bureau was represented by Vice Admiral Alexandros MARATOS.

The Meeting considered various matters including the status and quality of the production of ENCs, the use of CUBE as a way of delivering the results of a survey, the construction of new survey vessels, the new TSS and route system through the Baltic approaches. Also strategic aspects of the work of the HOs, the Commission's cooperation in various projects and the progress made by various working groups with their tasks were examined and certain actions were decided. The progress made with regard to the signature of the IHO/EU MoU for cooperation was also reviewed. The President of the Directing Committee reported on the main activities of the Organization during the intersessional period.

The next NSHC meeting will be held in Norway in June 2012. The Director of SHOM, Ingénieur général Bruno FRACHON, was elected Chairman of the Commission.



**1<sup>st</sup> MEETING OF THE ARCTIC REGIONAL HYDROGRAPHIC COMMISSION (ARHC)**  
Ottawa, Canada, 4-6 October 2010.

The first meeting of the Arctic Regional Hydrographic Commission (ARHC) was held in Ottawa, Canada, organized by the Canadian Hydrographic Service, on 4-6 October. Twenty-one delegates attended the meeting coming from Canada, Denmark, Norway, Russian Federation and USA. VAdm. Alexandros MARATOS participated representing the Bureau. Various presentations were made by the participants and invited guests in order to highlight the importance of this region to safety and environmental issues and to examine possible problems that exist and how to face them. The President of the Directing Committee briefly presented issues of the Organization of interest to the participants and in particular the co-operation with other organizations.

The most important part of the meeting was the approval of the Statutes of the Commission. The signature of the Statutes by the five bordering countries, which became the members of the Commission, took place on 6<sup>th</sup> October during a special ceremony. The signed Statutes were handed to the President of the Directing Committee to be kept by the Bureau acting as the repository of these Statutes.

Dr. Savithri NARAYANAN, the Dominion Hydrographer was elected Chairperson of the ARHC. The 2<sup>nd</sup> meeting will take place in September 2011, and will be hosted by Norway.



*The participants of the 1<sup>st</sup> Meeting of the ARHC.*



**10th MEETING OF THE SOUTH WEST PACIFIC  
HYDROGRAPHIC COMMISSION (SWPHC)**  
Honiara, Solomon Islands, 9-10 November 2010.

The 10<sup>th</sup> meeting of the South West Pacific Hydrographic Commission (SWPHC) took place in Honiara from 9 to 10 November 2010, under the chairmanship of Ingénieur général Bruno FRACHON (France). The meeting was organized and hosted by the newly created Solomon Islands Maritime Safety Agency (SIMSA). Six of the eight Member States were represented at the meeting, plus observers from the Solomon Islands, the Pacific Islands Applied Geoscience Commission (SOPAC) and an industry representative from the region. The IHB was represented by Captain WARD.



*10<sup>th</sup> meeting of the SWPHC in Honiara, Solomon Islands*

At the meeting national reports and IHO activities were reviewed, especially those of the International Hydrographic Bureau, the IHO Inter Regional Coordination Committee and the IHO Hydrographic Services and Standards Committee. SIMSA provided a report on its progress and plans to re-establish an in-country hydrographic capability that had progressively ceased to exist over the last two decades. The participants discussed various topics of interest to the region and in particular they referred to the progress of surveying operations, the coverage and technical details of Electronic Navigational charts (ENCs), the coordination of INT chart production, and the delivery of Maritime Safety Information (MSI).

Capacity Building for the region was discussed at length and several actions were identified and prioritized. As a result, a number of Capacity Building proposals will be presented to the next meeting of the IHO Capacity Building Sub-Committee.

Papua New Guinea was elected to chair the Commission for the next two-year term, with Australia to serve as Vice-Chair.

The Commission decided to hold its 11<sup>th</sup> meeting in Brisbane, Australia during the week commencing 13 February 2012.

**11<sup>th</sup> MEETING OF THE MESO-AMERICAN AND  
CARIBBEAN HYDROGRAPHIC COMMISSION (MACHC)**  
Paramaribo, Suriname, 10-11 November 2010.



1. The 11<sup>th</sup> Meeting of the Meso-American and Caribbean Hydrographic Commission (MACHC) was held at the Marriot Courtyard Hotel in Paramaribo, Suriname, hosted by the Hydrographic Office of Suriname.
2. The following MACHC Members and Associate Members were present: Antigua & Barbuda, Belize, Brazil, Colombia, Dominica, El Salvador, France, Guatemala, Haiti, Jamaica, Mexico, The Netherlands, St. Kitts & Nevis, Suriname, UK, USA and Venezuela. Representatives from Chile, Gulf of Honduras Project, PAIGH, KONSBERG, JEPPESEN and FURGO attended as observers.
3. The Opening Ceremony included addresses by Mr. MICHEL, the Maritime Authority of Suriname, the Chairman, Vice-Admiral PALMER (Brazil) and Captain GORZIGLIA (IHB Director) who thanked the Suriname authorities for their effort in organizing the meeting of the Commission in Paramaribo. The keynote speech was given by the Minister of Transport, Communication and Tourism of Surinam, Mr. Falisie PINAS B. TECH, who declared the 11<sup>th</sup> MACHC Meeting open.
4. The meeting was preceded on 8-9 November by meetings of the Electronic Charts Committee and the INT Charts Committee, who presented reports to the plenary meeting.
5. The Chairman summarized the work carried out since the last meeting and a detailed review of the agreed actions was made. The IHB Director presented a report on a general overview of the Organization and the Bureau activities and performance.
6. National Reports were provided by Antigua & Barbuda, Belize, Brazil, Colombia, El Salvador, France, Guatemala, Jamaica, Netherlands, St. Kitts & Nevis, Suriname, UK, USA and Venezuela.
7. Special consideration and time were devoted to Capacity Building, with a special session in support of Haiti that was held in the afternoon of 9 November where the Haitian representatives submitted a project for assistance. The project was considered and discussed by the Commission and a co-ordinated set of actions was then decided to provide technical support to the development of the critical areas concerning safety of navigation in that country. The CB Co-ordinator (UK) presented the projects carried out during the period pertaining to the approved CB Programme for 2010. A revised CB Programme for 2011-2012 was subsequently approved. The co-ordinator of the Gulf of Honduras project made a comprehensive presentation on the development of the project and its present status. The Commission decided to include support to the GoHP in the IHO CB Work Programme with a financial contribution of 11,000 Euros.
8. The plenary adopted the proposals and conclusions presented by the MACHC Committees and established an Action List which will be worked on during the intersessional period. UK was elected as the MACHC representative on the Editorial Board of the International Hydrographic Review.

9. The next meeting of the Commission will be held in 2011 in St. Kitts & Nevis, during the first week in December, with Mexico as an alternative.

10. The day following the closure of the meeting was "Industry Day", when the MACHC delegates had the opportunity to see technical presentations made by the hydrographic companies present. These presentations were followed by a visit to the facilities of the Maritime Authority of Suriname (MAS).

### **9<sup>th</sup> MEETING OF THE SOUTH EAST PACIFIC HYDROGRAPHIC COMMISSION (SEPHC)**

Cartagena de Indias, Colombia, 15 - 17 November 2010.

The 9<sup>th</sup> Meeting of the South East Pacific Hydrographic Commission took place at the Capilla del Mar Hotel in Cartagena de Indias, Colombia, from 15 to 17 November 2010. At the opening ceremony, the Director of the *Centro de Investigaciones Oceanográficas e Hidrográficas (CIOH)*, Captain Esteban URIBE, representing the Director General of DIMAR and Chairman of the SEPHC, Rear Admiral Leonardo SANTAMARÍA, welcomed the participants and opened the meeting. Captain GORZIGLIA, IHB Director, made a few opening remarks highlighting the importance of the meeting as several important issues had occurred since the last meeting which required careful consideration by the Commission.

The Delegations of Chile, Colombia and Peru were led by the national Hydrographers, whereas the Delegation of Ecuador was led by the Head of the Hydrographic Department of INOCAR. Observers from two hydrographic companies also participated in the meeting.

A detailed report on the activities conducted since the last meeting was presented by Colombia. Participants discussed each agreed action concluding that almost all action items had been completed.

The IHB Director provided a full report on the status of the IHO Work Programme, with emphasis on matters related to the SEPHC. The presentation reviewed all 3 IHO Programmes and highlighted those elements that the Commission should consider in its deliberations. Following the report several matters were further detailed, commented and discussed under dedicated agenda items. Special reference was made to: the IHO website and the 2011 WHD; the IHO structure and the next IHC; INT Chart and ENC coverage and Capacity Building issues.

During the meeting, all delegations presented their national reports, highlighting their progress as well as describing their experience in the execution of hydrographic surveys using MB echosounders and nautical chart production and printing, where print-on-demand captured great attention. special consideration was given to analysing the outcome of the workshop on data bases conducted in 2008; the overall CB programme for the commission and the outcome of the IRCC2 meeting, particularly those elements related to the RHCS.

Participants agreed to:

- a) Create a WG that, working by correspondence, will have the responsibility to follow up CB matters; Peru was nominated as the regional CBSC representative;
- b) Nominate Ecuador to coordinate a regional group on HSSC subjects;
- c) Introduce video-conferences to improve coordination and follow-up of agreed actions;
- d) Nominate Chile to lead the representation of the region at the WEND WG;
- e) Organize a workshop to discuss ENC cells, consistency and availability in Chile, April 2011; and
- f) Set up a reporting procedure to assess progress every three months.

Finally, it was agreed to hold the next Meeting in the first week of April 2011 in Valparaiso, Chile, at which time the Hydrographer of Chile will become the SEPHC Chairman.



*Participants at the IX SEPHC Meeting held in Cartagena de Indias, Colombia.*

### **11<sup>th</sup> EASTERN ATLANTIC HYDROGRAPHIC COMMISSION CONFERENCE** Accra, Ghana, 24-26 November 2010.

The 11<sup>th</sup> EAHC Conference was hosted by the Government of Ghana, at the Regional Maritime University (RMU). 32 participants attended the event that took place at the RMU facilities in Accra. Participants were from the following countries:

- Members of the EAHC: France, Morocco, Nigeria, Portugal and Spain;
- Associate Members of the EAHC: Guinea, Guinea Bissau, Rep. of Congo and Togo;
- Observers: Ghana;
- Other Observers were: UK and the IHB.

Mr. Mike HAMMAH, Honorable Minister of Transport of the Republic of Ghana, opened the conference with a keynote address; Welcome Addresses were then made by Mr. Alock ASAMOAH, Rector of the RMU and Captain Hugo GORZIGLIA, IHB Director. The IHB was also represented by Ing. en Chef Michel HUET (IHB).

Following the opening ceremony the Chairman, Commodore Gunda INUSA, Hydrographer of Nigeria, began the conference work by adopting the agenda, timetable and the list of documents. Vice Admiral Agostinho RAMOS DA SILVA (Portugal) was elected Vice Chair of the conference and, in accordance with the procedures set down in the Statutes of the Commission, took over the EAHC chairmanship at the end of the 11th Conference, for a period of two years.

Amongst other matters, the Conference agenda included items related to the management of the Commission, and a detailed examination of the actions agreed at the last meeting was made. In analysing the scope of the actions, several were considered to be of a permanent nature and it was therefore decided to keep them on the new action list to be prepared by the end of the conference.

The IHB Director provided a complete report on the status of the IHO Work Programme, highlighting matters related to the EAHC. The presentation reviewed all 3 IHO Programmes, highlighting the elements that the Commission should consider in its deliberations. Following the report several matters were further detailed, commented and discussed under dedicated agenda items. Special reference was made to: cooperation with the PMAWCA; the IHO website and the 2011 WHD; the IHO structure and the next IHC; INT Chart and ENC coverage; cooperation with non Member States and particularly the need for these countries to be more committed to the IHO objectives for their benefit in complying with SOLAS V Regulation 9.

Following the presentation of National Reports, the Commission allocated time to discuss all matters related to capacity building. The activities included in the CBWP for 2010 and 2011 were examined and noted. In this context, an assessment of the situation was made, from which it was evident that the Commission was not taking advantage of the IHO Capacity Building efforts and the action agreed in 2008 to consolidate the region's needs had not been executed during the intersessional period due

to the absence of input from the countries. The Commission decided to start developing a CB strategy following a proposal made by France as CB Regional coordinator.

A report on MSI was also examined and it was noted that some progress had been made with regard to the operation of NAVAREA II. The plans for implementing systems and the training on MSI at the RMU held in 2009 were considered positive steps towards progress in this matter.

During the discussions several actions were identified and constitute a good reference for the work of the Commission. This List of Actions will be provided attached to the minutes and posted on the IHO website for easy reference.

As part of the Conference programme, participants were invited by the Ghana Port and Harbour Authority to visit the Port of Tema, an excellent opportunity that allowed personal contact with the personnel involved in the hydrographic and cartographic activities of the port, the only national capacity in these disciplines. The visit also included a visit to the Port Control and navigation inside the Port.

Finally it should be noted that the 12<sup>th</sup> EAHC Conference is scheduled to take place in Lisbon, Portugal, the first week of November 2012.



*The participants of the 11<sup>th</sup> EAHC.*

## COMMITTEES / SUB-COMMITTEES / COMMISSIONS

### 2<sup>nd</sup> PREPARATORY MEETING FOR THE PROPOSED UN COMMITTEE ON GLOBAL GEOGRAPHIC INFORMATION MANAGEMENT (UN-CGGIM)

UN Headquarters, New York, 10-11 May 2010

Several recent UN Resolutions have highlighted the fundamental importance that geographic information management provides in support of the diverse global issues facing UN Member States, and in particular disaster management, climate change and vulnerability. As a result, preliminary discussions are now taking place to create a UN Committee on Global Geographic Information Management (UNCGGIM). The principle purpose of the committee would be to provide UN Member States with a voice in discussing and resolving geographic information issues that currently are only dealt with on a regional basis. The committee, through the UN, would provide clear guidance on global spatial data infrastructures, requirements and priorities, help promote the necessary levels of government support and put in place any necessary capacity building.

A first consultative meeting was held in Bangkok, in October 2009. A second meeting, comprising representatives from 15 UN Member States together with representatives from the principal international organizations concerned with global geographic information management was held at the UN Headquarters to continue the discussions. Captain WARD represented the IHO at the 2<sup>nd</sup> meeting.

Captain WARD informed the 2<sup>nd</sup> meeting about the IHO's role and the well established mechanisms and standards that are in place to enable the exchange and availability of hydrographic information. He also pointed out the work that the IHO is doing in promoting Maritime SDI and encouraging all its Member States to support national and regional spatial data infrastructures.



*Mr Paul CHEUNG, Director of the UN Statistics division opens the 2nd Preparatory Meeting for the CGGIM, assisted by Mr Kyoung-Soo EOM, Head of the UN Cartographic Section; Mr Amor LAARIBI of the UN Statistics division is in the background.*

The 2<sup>nd</sup> meeting considered a first draft of Terms of Reference for a UN Committee on Global Geographic Information Management and agreed that the next step must be to gain the support of all UN Member States and that this would be best achieved by holding a UN Global Geographic Information Management Forum. The Republic of Korea offered to host such a forum in Seoul in September 2011.

**8th IHO CAPACITY BUILDING SUB-COMMITTEE MEETING**  
New Orleans, USA, 14-16 June 2010.

The Eighth meeting of the IHO CBSC was held at the Westin Hotel in New Orleans, USA, from 14 to 16 June, under the Chairmanship of Mr. KRASTINS, Latvia.

Participants from Australia, Brazil, China, France, Germany, Korea, Japan, Mozambique, Norway, Peru, South Africa, Thailand, UK and USA attended the meeting, as well as a representative from PAIGH. The IHB was represented by Captain GORZIGLIA and Captain BERMEJO (CBSC Secretary). Representatives of CARIS and ESRI attended the meeting and made presentations.

The following items were discussed:

1. Joint activities.

The Chairman reported on the joint activities of the IHO with other organizations, such as the IMO, IOC, WMO and IALA. He highlighted the common projects that IHO/IMO have undertaken since 2008 and the progress made with future activities which IMO have included in its Integrated Technical Cooperation Programme. He also thanked the Republic of Korea and Japan for their contribution to the Capacity Building efforts and referred to the cooperation with PAIGH, particularly aimed at supporting Haiti with joint activities co-funded by both the PAIGH and the CBSC.

2. Technical visits carried out.

Letters were addressed to the countries visited in the period 2003-2009, requesting progress reports on proposals and suggestions. Unfortunately, out of the 33 letters sent, only 3 responses had been received at the IHB. The Chairman commented that this lack of interest was very concerning and proposed that the CBSC request the IRCC to remind the Regional Hydrographic Commission Chairmen to properly monitor these visits and to provide the technical reports and follow-up required. That would enable the CBSC to decide whether the activity should continue to be funded or not.

3. CB Work Programme.

The RHC representatives provided reports on CB activities in their regions, highlighting the experience gained. Full reports were submitted by MACHC, SAIHC, SWAtHC, SWPHC and France.

The CBSC agreed that the IHB should not be involved in the organization of the events and that the full responsibility should be borne by the Regional Hydrographic Commissions. Ideally, a CB Coordinator should be appointed in the RHCs to take care of the development and organization of the projects. A small working group (France, Australia, UK, USA) was therefore tasked to prepare a specification for a consultant or for the employment of a Regional CB Coordinator, in order to provide support in strategically important regions and to prepare submissions of project proposals, administer the execution of regional activities and monitor the follow-up. The CBSC discussed a document submitted by the IHB - "Project Implementation Plan and Payment Procedure" – aimed at achieving a better management of the projects, and decided to establish a Draft Group, formed by the Chairman, South Africa and UK to refine the document and produce a new draft by 1<sup>st</sup> September 2010.

The amended Work Programme for 2010 and the Work Programme for 2011 were reviewed and endorsed. It was also agreed that the "Procedures for submission of Projects" needed revising to make them less complicated and easier to use. A Drafting Group formed by Australia, Norway, USA and Germany was tasked to produce a revised version by September 2010.

The PAIGH representative and the French CBSC member informed the CBSC about a request for support received from the Haitian authorities. Besides the support that the USA has already initiated, the CBSC agreed that it was prepared to consider at any time requests for support to related projects that may be submitted by MACHC, such as the organization of a Basic Hydrography and Nautical Charting Workshop. It was agreed to inform the Chairman of MACHC (RHC to which Haiti pertains) of this decision and to request from MACHC a report on the specific projects to be supported. The next MACHC meeting in November should address this topic.

The 9<sup>th</sup> CBSC Meeting will be held in Niteroi, Brazil, along with the 3<sup>rd</sup> IRCC meeting, from 23 to 25 May 2011.

**SECOND MEETING OF THE IHO INTER- REGIONAL COORDINATION COMMITTEE (IHO-IRCC2)**  
New Orleans, USA, 17-18 June 2010

The Second Meeting of the IHO Inter-Regional Coordination Committee was held at the Westin Hotel, New Orleans, USA, from 17 to 18 June 2010. The Chairs or Representatives from all Regional Hydrographic Commissions, - except the RSAHC - , Committees, except GEBCO, Sub-Committees and other bodies as well as delegates from individual IHO Member States and NGOs accredited to the IHO were present.

IGA BESSERO, Director General of SHOM (France) and Chair of the IRCC, opened the meeting and welcomed IRCC Members and Observers, remarking that the IRCC was a new structure and its main challenge would be to develop its proper place within the IHO in order to be an active contributor to a more efficient organization. He concluded by thanking the various institutions of the USA for the organization of the meeting.

Captain TREHUBENKO, USN, welcomed the participants and explained the administrative arrangements. Captain LOWELL, Office of Coast Survey, NOAA also welcomed participants and made a presentation about the critical situation in the area due to the oil spill in the Gulf of Mexico, caused by a leak of a submarine oil well. He added that the US Hydrographers were particularly satisfied to see their capabilities and competence being recognized by the society.

The Chairman provided a general overview of events and activities since IRCC1 which were relevant to the Committee within the scope of the IRCC Work Programme. Then he invited the Chairs of the IRCC Bodies to report briefly on their activities and to make recommendations or introduce other items relevant for IRCC consideration.

After having discussed the reports and recommendations/proposals, the Committee agreed on actions to be carried out by its bodies individually, as well as on tasks to be completed by the Committee as a self-standing body. Also the Committee agreed to ask the IHB to take action to amend the IHO resolutions.

Following the kind invitations received from Brazil (DHN) and from UK (UKHO), the Committee agreed to hold its next meeting (IRCC3) on 26-27 May 2011, in Rio de Janeiro, Brazil, immediately after the CBSC meeting that will take place on the three previous days.

**WORLD-WIDE NAVIGATIONAL WARNING SERVICE SUB-COMMITTEE**  
Sydney, Australia, 9-13 August 2010

The second meeting of the WWNWS Sub-Committee was held in Sydney, Australia, from 9 - 13 August 2010. The meeting was attended by 36 delegates from 15 IHO Member States, the International Hydrographic Bureau (IHB), the World Meteorological Organization (WMO), the International Mobile Satellite Organization (IMSO), and Inmarsat Global Ltd. The delegates included representatives of 13 NAVAREA Co-ordinators, 1 Sub-Area Co-ordinator and 2 National Co-ordinators.

WWNWS2 reviewed the draft revision of the NAVTEX Manual prepared by the Document Review WG and made some further amendments. This draft would be further reviewed by WWNWS prior to circulation to IHO Member States for approval and subsequent submission to COMSAR 15.

WWNWS reviewed progress on the expansion of the WWNWS into the Arctic Areas and the transition to Initial Operating Capability in July. The IHO and WMO will collect further information from the NAVAREA Co-ordinators and METAREA Issuing Services prior to making a status report to COMSAR 15 where it is planned to hold a 'celebratory event' to mark this significant development.

The Commission received MSI self assessments from all twenty-one NAVAREAs. Reports were also received from the Chairman of the IMO NAVTEX Panel, the IMO SafetyNET Panel and the World Meteorological Organization (WMO) all of whom attended the meeting.

The progress on IMO COMSAR's "*Scoping Exercise to establish the need for a review of the elements and procedures of the GMDSS*" was noted. It was agreed that WWNWS needed to be in a position to contribute once the extent of the review was established.

The meeting received updated information on the delivery of the MSI training courses. Since the last meeting courses had been delivered in Oman for the NIOHC and RSAHC, and in Namibia for the SAIHC. A course for the SWPHC was delivered in Sydney during the week following the WWNWS meeting. Two further courses are planned for 2011.

The full report of the meeting (when finalized) and all meeting documents are available from the IHO web site at:

[http://www.iho.int/mtg\\_docs/com\\_wg/CPRNW/WWNWS2/WWNWS2.htm](http://www.iho.int/mtg_docs/com_wg/CPRNW/WWNWS2/WWNWS2.htm).



*The IHB President and WWNWS  
Chairman in Command*



*WWNWS2 - Sydney, Australia*

**IHO HYDROGRAPHIC COMMISSION ON ANTARCTICA (HCA)**  
10<sup>th</sup> Meeting, Cambridge, United Kingdom, 20-22 September 2010.

The 10<sup>th</sup> Meeting of the Hydrographic Commission on Antarctica (HCA) took place at the facilities of the British Antarctic Survey (BAS) in Cambridge, United Kingdom, on 20-22 September 2010, organized by the UKHO, with the support of the BAS.

Dr. Nick OWENS, Director of the BAS, welcomed the participants and highlighted the importance of the work of the HCA. The Chairman, Capt. GORZIGLIA (IHB Director), thanked him for his kind words and also welcomed the 16 IHO Member States (Argentina, Australia, Brazil, Chile, Ecuador, France, Germany, India, Korea (Rep. of), New Zealand, Norway, Peru, South Africa, Spain, United Kingdom and USA), the 5 international organizations and projects (COMNAP, IAATO, IALA, GEBCO, IBCSO) and the representative from the UK Foreign and Commonwealth Office who actively participated in the meeting.

The Commission is still composed of 23 IHO Member States and therefore the participation of 16 representatives constituted an appropriate quorum. In accordance with Article 5.2 of the Statutes, the Commission elected Commodore Rod NAIRN (Australia) as Vice Chairman of the HCA.

The Commission reviewed the status of the actions agreed at the last meeting, discussed the progress achieved and noted that almost all tasks had been completed. Those topics requiring further discussion were considered under the various agenda items during the meeting. The reports provided by IAATO, IALA, GEBCO and IBCSO as well as those provided by IHO Member States were commented upon. The reports on the progress made regarding the INT chart scheme, ENC scheme and production, the C-55 status with regard to Antarctica and an Antarctic GIS under development at the IHB, were also considered and discussed. Several actions were identified to further progress the tasks. The Commission regretted that there was no representation nor any reports from IMO, IOC and the AT Secretariat.

IHO Hydrographic Commission on Antarctica  
British Antarctic Survey, Cambridge, UK  
20 - 22 September 2010



*HCA Group photo taken at the BAS entrance, Cambridge, UK.*

The Commission noted with satisfaction the constant support and contribution provided by IAATO. At this meeting the IAATO delegation was composed of four members clearly demonstrating IAATO's interest in the HCA work. The Commission discussed at great length the outcome of the seminar organized by HCA at the last IAATO Annual Meeting in June 2010, as well as the technical visits paid to IAATO ships before their departure for Antarctica, briefing Captains on the procedure to collect and render hydrographic data collected as Ships of Opportunity. With regard to this last topic, IAATO offered to collate and make available all old bathymetric data collected by IAATO ships; it was agreed to continue the practice of ships' visits and a group was established to study complementary future actions to implement the existing procedure.

There was specific discussion on the availability of ENC covering Antarctic waters. It was agreed to include information in the IHO report to the next ATCM concerning the status of ENC production and a call to enhance ENC availability as a mechanism to improve safety to navigation and protection of the marine environment in the region. It was also agreed to prepare a paper to be submitted to IMO to

report on the real ENC coverage of the Antarctic waters by 2012 due to the lack of bathymetric data, datum mis-adjustment and other relevant factors. The IHB - as the coordinator of the INT Chart of Antarctica - was requested to develop and propose a large-scale ENC scheme for consideration by the HCA.

The Hydrographic Survey Prioritisation Working Group continues to analyse the requirements and its work will be somewhat improved with input from a new assessment on Maritime Shipping Routes and survey requirements that will be made by the HCA Members. Input is also awaited from IAATO who agreed to review the HCA survey plans.

The Commission further agreed on a number of other actions to be carried out during the inter-sessional period, with clear identification of the responsibilities and deadlines.

Following a kind invitation from the Australian Hydrographic Service, the Commission decided to hold the 11<sup>th</sup> HCA meeting in Hobart, Tasmania, Australia on 5 – 7 October 2011.

## **2<sup>nd</sup> MEETING OF THE IHO HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE (HSSC)**

Rostock, Germany, 26-29 October 2010.

The second meeting of the Hydrographic Services and Standards Committee (HSSC) was held in Rostock from 26-29 October 2010, hosted by the German Hydrographic Service. The HSSC oversees the technical programme of the IHO. The meeting was preceded by an informal Chair Group meeting comprising the chairs of the various HSSC Working Groups. The Chairman of HSSC, Captain Vaughan NAIL (UK), presided at both meetings.

The meeting was attended by 62 delegates from 26 Member States together with representatives from seven Non-Governmental International Organizations (NGIO's) and sister intergovernmental organizations.



*Delegates and Representatives at HSSC-2*

During the meeting the work of HSSC's ten subordinate Working Groups was examined. Of particular note was the endorsement of S-99 - management rules and procedures for the operation of the S-100 Geospatial Information Registry (GI Registry). As a result, the HSSC decided to recommend that IHO Member States adopt S-99 as an active standard from 1 January 2011.

The Committee was informed that the S-100 GI Registry is already being used by a number of HSSC Working Groups to develop such things as the S-101 ENC Product Specification and a new digital standard for nautical publications data. Other organizations, outside the IHO, such as the Inland ENC Harmonization Group (IEHG), the UN Department of Administration of the Law of the Sea (UN Division for Ocean Affairs and Law of the Sea (DOALOS)) and the World Meteorological Organization group on Ice Thickness and Snow on Ice (WMO-ITSI) are also using the IHO GI Registry to support their product specifications developments for Inland ENCs, extended continental shelf claims and sea

ice reporting, respectively. At the same time, the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the IMO Correspondence Group on e-Navigation are expressing an increasing interest in using the S-100 GI Registry to support their complementary maritime data requirements and the e-Navigation concept in the future. This is all very much in keeping with the philosophy behind introducing S-100 as a flexible, extensible, contemporary standard to encourage the widest possible use of hydrographic data and information standards beyond the fields of hydrography and nautical charting.



*The IALA and CIRM representatives confer at HSSC-2*

Other notable topics discussed included proposals concerning the HSSC input to the IHO Strategic Planning Process, and in particular ways to reduce the number of recommended Performance Indicators to a more manageable level. The Committee also provided input by way of a list of strategic topics that were forwarded to the Directing Committee as part of developing the 2013-2017 Plan.

The Committee learned of certain shortcomings in the way that the governing IHO standards for ECDIS may have been inappropriately implemented by some equipment manufacturers and the potential consequences for safety of navigation. As a result, the committee agreed that the ECDIS test data set should be enhanced and recommended that an urgent meeting be arranged between the relevant stakeholders, including IHO, ECDIS manufacturers, equipment type-approval authorities, and maritime administrations.

In addition to the formal meeting, many useful informal side discussions and coordination meetings took place.

## WORKING GROUPS

### **JOINT TRANSFER STANDARD MAINTENANCE AND APPLICATION DEVELOPMENT WORKING GROUP (TSMAD) & DIGITAL INFORMATION PORTRAYAL WORKING GROUP MEETING.**

Rostock, Germany, 3-7 March 2010

The 2<sup>nd</sup> combined TSMAD and DIPWG meeting took place at the Penta Hotel in Rostock, Germany, during the first week of May. The meeting was well attended and included thirty participants from member organizations, fourteen from industry / academia and three from the IHB. The meeting was co-chaired by Barrie GREENSLADE (UKHO) and Colby HARMON (US NOAA).

One of the important objectives of the meeting was to progress the development of the new S-101 ENC Product Specification, especially in areas relating to portrayal, ENC content, data supply, data integrity and ENC updating. The meeting also provided a good forum for discussing issues that were raised at the S-101 stakeholders forum meeting that took place at the UKHO earlier in the year.

Other issues of interest included;

- A presentation on a Port ENCs Product Specification (PENC). Port ENCs are used by Port ECDIS in conjunction with bathymetric gridded layers.
- A presentation by Thomas PORATHE from Mälardalen University, Sweden, demonstrating how 3-D Nautical GIS can be used to improve situation awareness and decision making for mariners.



## TIDAL AND WATER LEVEL WORKING GROUP (TWLWG)

Stavanger, Norway, 27-29 April 2010

The 2<sup>nd</sup> meeting of the TWLWG was held in Stavanger, Norway, from 27 to 29 April 2010. Representatives from Australia, Brazil, Chile, China, Denmark, Estonia, Finland, France, Korea, Norway, Portugal, South Africa, Spain, UK, and the IHB attended the meeting. Tor TØRRESEN of Norway represented the IOC-GLOSS.

Mr. Herman IVERSEN, Section Manager Data Acquisition, at the Norwegian Hydrographic Service (NHS), welcomed delegates to Norway and briefed the meeting on the role and activities of the NHS. Mme Lucia PINEAU-GUILLOU (SHOM) deputised for the Chairman, Mr Stephen GILL (USA-NOAA) who was unable to attend due to illness. The meeting wished him a speedy recovery.

Topics discussed included: a standard for digital tide tables; the dynamic application of tides in ECDIS; a standard for the transmission of real-time tidal data; Capacity Building; water level issues in non-tidal areas such as the Baltic and the definition of Mean Sea Level. The meeting report and all papers and presentations are available from the TWLWG section of the IHO web site.

The meeting accepted the kind invitation of the Republic of Korea to host the 3<sup>rd</sup> TWLWG meeting on Jeju Island, Republic of Korea from 5-7 April 2011.



*TWLWG2 – The Team.*



*TWLWG2 – Tides can be fun.*

## DIGITAL INFORMATION PORTRAYAL WORKING GROUP (DIPWG)

Second Meeting, Rostock, Germany, 3-7 May 2010

[held jointly with the 20<sup>th</sup> TSMAD Meeting]

The second meeting of the IHO Digital Information Portrayal Working Group (DIPWG2) was hosted by the German Federal Maritime and Hydrographic Agency (BSH) at the Penta Hotel Rostock, from 3-7 May 2010. This meeting was held jointly with the 20<sup>th</sup> TSMAD Meeting, with Mr. Colby HARMON (USA-NOAA) chairing DIPWG2 and Mr. Barrie GREENSLADE (UKHO) chairing TSMAD20. The 50 attendees from HOs, the private sector and IHB were welcomed by the BSH Director of Nautical Hydrography, Dr. Mathias JONAS. DIPWG is one of the subsidiary working groups of the IHO Hydrographic Services and Standards Committee (HSSC) and is tasked to maintain IHO specifications for colours, symbols and display rules used to show SENC information on ECDIS in a safe and ergonomic manner. The main points discussed at DIPWG2 are summarized below.

A progress report was presented on the development, under contract to the IHB, of S-100 symbol and portrayal models. The symbol model defines the symbol structure of the future S-100 portrayal register, which will contain the equivalent of the existing S-52 symbol library. The portrayal model is a profile of the abstract standard ISO 19117 which will provide flexible means to define portrayal catalogues for S-100 based product specifications. The existing look-up tables and conditional symbology procedures will be encoded in XML format.

A Report on a survey conducted among US mariners revealed that a more explicit symbolization than the existing star symbol to depict the S-57 attribute CATZOC (Category of Zones of Confidence), e.g. Year of survey and Survey order, would be preferred. Also that traditional paper chart symbols in colour would be preferred over simplified symbols, as the former symbols are already familiar to the mariner. The general view was that improvements to S-52 should be made along these lines. Discussions were held on whether to keep the existing three colour palettes, in particular the night palette, or to move to a single palette.

A progress report was provided by the USA on the development of a combined Paper Chart and ECDIS Chart 1, which will show both paper chart and ECDIS (S-52) symbols side-by-side. This work requires the mapping of some 1500 symbols between INT 1 and S-52. Sections of the new document will be posted on the IHO website, as and when they are complete, for review by DIPWG members.

The portrayal of nautical publications was discussed, following a request from the Standardization of Nautical Publications Working Group (SNPWG). The general view was that DIPWG can make recommendations for the design of specific symbols once the features, attributes and conditions that they represent are more clearly defined by SNPWG. General principles were agreed for standardising the ECDIS pick reports as well as for incorporation of S-52 into S-101 and the Portrayal Register.

The next joint DIPWG meeting is planned to be held in April/May 2011 in Incheon, Rep of Korea, again in conjunction with TSMAD.



**10<sup>th</sup> MEETING OF THE BALTIC AND AZOV SEAS WORKING GROUP (BASWG)**  
Istanbul, Turkey, 27-28 May 2010

The 10<sup>th</sup> meeting of the BASWG took place in Istanbul, Turkey on 27 - 28 May 2010, under the Chairmanship of Rear Admiral Mustafa IPTES, Director of the Office of Navigation, Hydrography and Oceanography of Turkey. There were 25 delegates at the meeting representing Turkey, Russian Federation, Ukraine, Bulgaria and Georgia. Vice Admiral Alexandros MARATOS represented the IHB.

The WG discussed issues concerning the Statutes of the WG, the production of INT charts and ENCs, the promulgation of MSI, bilateral co-operation and the Capacity Building needs of the States bordering the region. The decisions of the meeting will be brought to the attention of the MBSHC for endorsement. Rear Admiral IPTES was re-elected Chairman for the next biennium 2011-2012. The venue and dates of the next meeting will be arranged by the Chair in consultation with Georgia and Russian Federation.



*The participants of the 10<sup>th</sup> BASWG.*

**TSMAD SUB WORKING GROUP MEETING ON  
S-101 ENC PRODUCT SPECIFICATION**  
Taunton, UK, 17-19 August 2010

The UK Hydrographic Office hosted a TSMAD Sub Working Group meeting to review and progress the development of the S-101 ENC Product Specification. The meeting was chaired by Julia POWELL (NOAA) and was attended by members from the UKHO, 7Cs, CARIS, ESRI, Jeppesen and the IHB. David ACLAND from the Standardization of Nautical Publications Working Group (SNPWG) also attended the meeting as many of the agenda items were also of relevance to this group.

The meeting carried out a review of the current version of the product specification document under development, and several items that need to be resolved to ensure that S-57 ENC data can be converted to S-100 (phase 1) datasets. The requirements for the development of a (freeware) data converter (S-57 to S-100) were also discussed. It is anticipated that this application will be available during the second quarter of 2011.

Other issues also discussed included, metadata, the continued need to record cell limits, portrayal, data themes, and an S-101 test-bed application.

## OTHER BODIES

### **JCOMM - MARITIME SAFETY SERVICES ENHANCEMENT WORKSHOP**

Australian Bureau of Meteorology, Melbourne, Australia, 3-6 May 2010

The Joint World Meteorological Organization (WMO) / Intergovernmental Oceanographic (IOC) Technical Commission for Oceanography and Marine Meteorology (JCOMM) held a Maritime Safety Services Enhancement Workshop at the Australian Bureau of Meteorology in Melbourne, Australia from 3 – 6 May 2010. Mr. Chris PAYNE of the Australian Maritime Safety Authority (AMSA), the NAVAREA X representative to the IHO WNWNS Sub-Committee, represented the IHO and presented the IHO report to the meeting.

The thrust of the IHO report concerned the experiences and progress in implementing the IMO/IHO World-Wide Navigational Warning Service (WWNWS). The successful implementation being considered a direct result of the establishment of the WWNWS Sub-Committee (formerly CPRNW) to bring together the Maritime Safety Information (MSI) providers, international agencies such as IMO, IMSO, WMO, IHO and Inmarsat as well as the establishment of MSI training courses under the IHO's Regional Hydrographic Commissions (RHC) to provide practical guidance in the promulgation of MSI.

The IHO report also provided updated information with respect to the WWNWS document review, e-Navigation, GMDSS and the establishment of the new Arctic NAVAREAs. The IHO requested WMO input and guidance with respect to the Initial Operational Capability (IOC) declaration for the Arctic METAREAs and the test message format destined to be promulgated to the Arctic areas. The workshop raised an action item on WMO with respect to this matter.

Although the focus of the Workshop was on ISO 9001:2008 and a Quality Management System for use in the promulgation of MSI, the agenda also included self assessment reports by METAREAs and matters concerning improvements in the provision of GMDSS MSI from a meteorological perspective. The Chairman invited the IHO representative to provide a report on NAVAREA X and this was done using the WWNWS Sub-Committee self-assessment template as a guide.

### **XXXIII<sup>rd</sup> ANTARCTIC TREATY CONSULTATIVE MEETING (ATCM)**

Punta del Este, Uruguay, 3-14 May 2010.

The Antarctic Treaty Consultative Parties and related Antarctic international bodies meet annually to discuss matters pertaining to the management of the Antarctic Treaty area and to further develop the Antarctic Treaty System. On this occasion, one of the most important issues discussed - related to the IHO areas of responsibility - was the report of the Chairs of the "Antarctic Treaty Meeting of Experts on the Management of Ship-borne Tourism in the Antarctic Treaty Area".

Participants allocated time for the discussion of 69 Working Papers (WP), 130 Information Papers (IP) and 11 Secretarial Papers (SP) submitted by various countries, international organizations involved in the Antarctic in different domains and the AT Secretariat. Over 250 people from 28 Consultative Parties plus 4 from Contracting Parties and one Observer attended the meeting. 9 out of the 13 international organizations were present, including the IHO, represented by Captain GORZIGLIA who attended from 3-7 May.

Captain GORZIGLIA introduced IP 51, the IHO report on *Cooperation in Hydrographic Surveying and Charting of Antarctic Waters*, which described some of the key activities including the outcome of the Seminar on Hydrography at the Annual Meeting of COMNAP, held in Punta Arenas, Chile in August 2009, where two initiatives had been proposed and adopted by COMNAP. The Report also emphasized the importance of addressing environmental and scientific issues - in addition to safety of navigation issues - and noted that only 67 out of 102 INT Charts in the Region M scheme have so far been produced. The IHO representative noted that, despite the willingness expressed by Antarctic Treaty representatives at various meetings, hydrographic surveys and production of nautical charts of Antarctica were not, in practice, being given the required priority. This was reflected in the reports examined at the last HCA meeting, where only 7 out of 23 HCA Members reported that some systematic hydrographic surveys had been conducted in the last season. Captain GORZIGLIA also referred to the IHO contribution to the ATME held in New Zealand in December 2009. Finally, he

announced that the 10<sup>th</sup> Meeting of the HCA would be held from 20-22 September 2010, in Cambridge, UK.

Several delegations commented on the report. Argentina thanked the IHO for the report and noted that South Georgia should not be included in Annex B - "IHO Collection and Rendering of Hydrographic Data Form" since that territory is not within the Antarctic Treaty Area. (The IHB has amended the form accordingly). The United Kingdom considered that the focus for hydrographic work must remain on the needs of mariners for safe operation, but agreed that there was certainly room for greater coordination of hydrographic and scientific information on Antarctica as highlighted in WP 11 - *Forwarding of hydrographic data collected during the IPY*. New Zealand acknowledged IHO's important contributions at the Antarctic Treaty Meeting of Experts (ATME) on Ship-borne Tourism in the Antarctic Treaty Area. Chile noted the lack of priority and rapid fulfilment of nautical chart priorities by Parties.

The Uruguay delegation submitted WP 11 - *Forwarding of hydrographic data collected during the IPY*. This paper had been prepared by Uruguay, worked on jointly with the HCA Chairman (IHB) and submitted by Uruguay following ATCM procedures. This paper generated a wide discussion resulting in a Resolution aimed at gathering hydrographic data collected during the IPY, with strong support from ATCM Delegations.

The ATCM considered Recommendation 4 of the ATME on Ship-borne Tourism:

*That the Treaty Parties should continue to contribute to hydrographic surveying and charting information and consider advising vessels intending to operate in the Antarctic Treaty area that many areas have not been surveyed to modern standards,*

and ATME Recommendation 17:

*The IHO-HCA should continue to be invited to annual ATCMs to report the status of hydrographic survey and nautical chart production in Antarctic waters. Parties also agreed that, as appropriate, the ATCM should be represented at IHO-HCA meetings. Where an IHO-HCA meeting was to be held in a country that was also a Consultative Party, then that Consultative Party should consider attending the HCA meeting",*

and noting the majority of the Southern Ocean remains unsurveyed, endorsed both Recommendations.

Finally, during the event a very productive informative meeting was held with the Executive Secretary of IAATO and the COMNAP Executive Secretary, to further develop actions in progress.

The next ATCM Meeting will be held in Buenos Aires, Argentina, 20 June-1 July 2011.



*Captain Orestes PEREIRA, Hydrographer of Uruguay, with Captain GORZIGLIA, IHB Director, at the XXX<sup>rd</sup> ATCM Meeting.*

**REPORT ON THE IHO PARTICIPATION AT THE 33<sup>rd</sup> ANNUAL COUNCIL MEETING OF BOARD OF DIRECTORS, PORT MANAGEMENT ASSOCIATION OF WEST AND CENTRAL AFRICA**  
Banjul, The Gambia, 10-14 May 2010.

The IHO was represented at the 33<sup>rd</sup> Annual Council Meeting of Board of Directors, Port Management Association of West and Central Africa, held in Banjul, The Gambia, 10-14 May 2010, by Commodore INUSA, Nigerian Hydrographer and EAtHC Chair. Port Managers from the Republic of Cameroon, Togo, Côte d' Ivoire, Cape Verde, Ghana and Nigeria were present.

The IHO representative delivered a good will message to the Association on behalf of the IHO. Some of the problems identified as being responsible for the poor development of hydrography in most African Ports include: the lack of national hydrographic infrastructures, shortage of manpower, insufficient hydrographic data and information and the inability to update Electronic Navigational Charts (ENC) as required by IMO among others. Consequently, this affects the development and the sustainability of hydrographic practices in the African region. In light of the above, the IHO representative informed the gathering that IHO is making efforts to facilitate the development of hydrography in Africa through the initiation of a structured capacity building program.

Furthermore, the IHO representative reported that capacity building initiatives would further be discussed and coordinated at the 11<sup>th</sup> EAtHC meeting scheduled for the last week of November 2010 in Ghana. Lastly, the IHO representative wished the Council a fruitful discussion and viable resolutions that would enhance the development of hydrography in African Ports and Africa in general.



*Commodore INUSA delivering the Good Will Message.*

## **87<sup>th</sup> SESSION OF THE IMO MARITIME SAFETY COMMITTEE**

IMO Headquarters, London, UK, 12 – 21 May 2010

The 87<sup>th</sup> session of the IMO Maritime Safety Committee (MSC87) was held at the IMO Headquarters in London from 12 to 21 May 2010. The President and the Professional Assistant (Hydrography) represented the IHO.

MSC87 considered the reports of the COMSAR and NAV Sub-Committees and took the following actions of relevance to the IHO:

- Approved five new, and two revised, Traffic Separation Schemes (TSS);
- Approved one new Area To Be Avoided (ABTA);
- Approved amendments to two mandatory Ship Reporting Systems;
- Approved the revised text of the International SafetyNET Manual which will come into force on 1 January 2012;
- Adopted the MSC resolution on “Guideline on operational procedures for the promulgation of maritime safety information concerning acts of piracy and piracy counter-measure operations”;
- Adopted the MSC resolution on the revised performance standards for enhanced group call (EGC) equipment, amending resolution A.664(16); and
- Endorsed the issue of COMSAR Circular 51 on the list of NAVAREA Co-ordinators.

Based on a submission by Brazil, France, Norway and the IHO the MSC agreed to issue an MSC Circular urging IMO Member States who are not yet members of the IHO to join the IHO.

The full report of MSC87 will be made available on the IHO web site.

## **43<sup>rd</sup> IOC EXECUTIVE COUNCIL**

Paris, France, 08 - 16 June 2010.

The 43<sup>rd</sup> Executive Council (EC) of IOC met from 08 to 16 June 2010, in Paris, France to review progress and to adopt resolutions pertaining to the IOC Programs. The 40 Member States, Members of the Executive Council, were represented. Since the last Assembly in 2009, two countries have become members of IOC: Democratic Republic of Congo and Grenada. The Head or Deputies of the following Hydrographic Offices were also present: Brazil, Canada, Chile, Ecuador, France, Germany, Peru, Turkey and Venezuela. The IHO was represented by Captain GORZIGLIA, IHB Director.

On 8<sup>th</sup> June, the 50<sup>th</sup> Anniversary of the IOC was celebrated. The Minister of Green Technologies and Climate Negotiations of France - Mrs. Valerie LETARD, the Director General of UNESCO - Mrs. Irina BOKOVA, the President of the UNESCO Executive Council -Ms. Eleonora MITROFANOVA, the Director of the Fontenoy Foundation - Mrs. Maud FONTENOY and the President of NAUSICAA and former Minister of the Sea of France - Mr. Guy LENGAGNE and the IHO Representative gave Welcome Addresses. Tributes were made to the former IOC Presidents and IOC Executive Secretaries. The book “Troubled Waters”, a compilation of articles representing the history of IOC over its 50 years of existence, was presented amongst other activities, including a film. In brief, this day was specifically devoted to celebrating the IOC Anniversary. The IHO was the only intergovernmental organization that was invited to deliver a Welcome Address.

The IHO representative made a few comments on the IOC’s Executive Secretary’s Report as some IHO/IOC joint activities were not mentioned. During the meeting a special agenda item was included to discuss Shallow Water Bathymetric Data for Digital Elevation Models. Under this point, the GEBCO GC Chair presented a paper reporting on the present GEBCO situation and the efforts in capacity building, mainly through the GEBCO Nippon Foundation project and the progress in coastal shallow water bathymetry development and the significant contribution made by HOs in providing data from ENCs. The IHO representative presented a paper on the progress made by IHO and IOC on Coastal Bathymetry. The presentation included actions undertaken by IHO, by IOC as well as joint actions. Also details related to the COAST-MAP-IO project were given. The presentation ended with some conclusions and recommendations aimed at improving the IHO/IOC relationship and joint work. The Papers were well received and several IOC EC Member States made comments. Both speakers provided replies to the questions raised. The Executive Council thanked the speakers for the clear and well illustrated presentations, and acknowledged the contribution made by IHO and GEBCO.

The IOC noted that the IHO RHCs might wish to consider inviting the Chairs of the International Regional Coordination Groups on Tsunamis to RHC meetings when appropriate, to better coordinate at a regional level the particular needs on shallow water bathymetry. This matter will be considered at the IRCC2 meeting.

Following discussions with the new IOC Executive Secretary and IOC President, it seems that the relationship between the IHO and IOC is entering an excellent period and that there will be increased cooperation in the respective fields of competence.

It was announced that the 26<sup>th</sup> IOC Assembly will be held from 21 June to 09 July 2011.



*IHB Director, Captain Hugo GORZIGLIA at the IOC 50<sup>th</sup> Anniversary ceremony.*

### **IHO/HCA PARTICIPATION IN THE ANNUAL IAATO MEETING**

Turin, Italy, 21-24 June 2010

The International Association of Antarctic Tour Operators (IAATO) is a global network of tour operators that came together in 1991 to advocate, promote and practise safe and environmentally responsible private-sector travel to the Antarctic. At the 21<sup>st</sup> Annual Meeting of IAATO that took place in Turin, Italy, 21-24 June 2010, the IHO/HCA made a presentation on the Importance of Hydrographic Activities in Antarctica.

Close to 100 IAATO Members and Observers were present. The IHO was represented by the HCA Chairman and IHB Director, Captain Hugo GORZIGLIA, together with Mr. Andy WILLETT, member of the UK delegation to the HCA and Chair of the HCA Hydrographic Survey Prioritization Working Group, respectively.



The aim of the presentation was to raise awareness, at the operational level, on the importance of hydrographic activity in the Antarctic, to ensure that IAATO had a better understanding of the existing risks associated with the present status of charting in the region and to report on what IHO/HCA is doing to fill the gaps and, finally, to jointly explore WHAT and HOW IAATO can contribute to IHO/HCA efforts to improve the situation.

The first presentation covered IHO and IHO/HCA involvement in Antarctica; the role, priorities and achievements of HCA; SOLAS V Regulation 9 and the Antarctica and the IHO/IAATO relationship. A second presentation included a description of the Maritime Shipping Routes (MSRs) and approach to charting priorities; work done and future work plans. Some case studies were offered as well as how hydrographic knowledge reduces the risk. Finally, some proposals were considered that could be implemented by IAATO to contribute to improving the availability of reliable nautical charts of Antarctic waters. In particular, the Guidelines for the Collection and Rendering of Hydrographic Data obtained by “Ships of Opportunity” in Antarctic waters were explained.

The presentation was followed by an interesting discussion. Participants appreciated the opportunity to discuss in detail matters concerning safety to navigation and their potential involvement in contributing to improve the hydrographic knowledge of Antarctic waters.

There was particular interest with regard to technologies to be incorporated on cruise ships. Data collected was felt to be a concrete potential contribution from IAATO to the IHO/HCA, if such data is collected following standards.

It was confirmed that IAATO stands ready to continue cooperating with and participating in IHO/HCA meetings.

In conclusion, the participation of the IHO/HCA representatives in the IAATO Annual Meeting has opened up new opportunities for mutual cooperation and collaboration aiming at improving safety to navigation and protection of the marine environment in Antarctic waters.

**11<sup>th</sup> UNITED NATIONS OPEN-ENDED INFORMAL CONSULTATIVE PROCESS ON  
OCEANS AND THE LAW OF THE SEA (UNICPOLOS)**  
UN Headquarters, New York, 21-25 June 2010

The 11<sup>th</sup> UNICPOLOS meeting was held at the United Nations in New York, from 21 – 25 June 2010. The IHO was represented by Steve SHIPMAN (PAH).

The theme for the 11<sup>th</sup> meeting was “Capacity Building in Ocean Affairs and the Law of the Sea, including Marine Science”. The meeting comprised 4 plenary sessions covering: General Statements; Inter-Agency cooperation and coordination; Process for the selection of topics and panellists so as to facilitate the work of the UN General Assembly; and consideration of the outcome of the meeting. There were 4 “Discussion Panels” covering: Assessing the need for capacity building in ocean affairs and the law of the sea including marine science; Overview of capacity building activities / initiatives in ocean affairs and the law of the sea including marine science; Challenges for achieving effective capacity building ocean affairs and the law of the sea including marine science and transfer of technology; and New approaches, best practices and opportunities for improved capacity building in ocean affairs and the law of the sea.



*St George slays the dragon outside the UN  
headquarters in New York*

The IHO reported on its Capacity Building activities. The outcome of the meeting is a “co-chairpersons” summary of the issues and ideas raised during the plenary sessions which will be forwarded to the UNGA to assist them in formulating their resolution on Oceans and the Law of the Sea during their meeting in late 2010. Further information on the meeting and copies of the presentations made during the discussion panels are available from the following web site:



[www.un.org/depts/los/consultative\\_process/consultative\\_process.htm](http://www.un.org/depts/los/consultative_process/consultative_process.htm)

The co-chairpersons report will also be made available on this site.

The International Institute for Sustainable Development (IISD) has provided some brief reports of each day's proceedings and photographs of the speakers and these are all available from their web site at: [www.iisd.ca/oceans/icp11](http://www.iisd.ca/oceans/icp11)

*PAH with H.E. Mrs. Isabelle F. Picco, Ambassador Extraordinary and Plenipotentiary, and Permanent Representative of the Principality of Monaco before the United Nations and Mr Tidiami COUMA, Secretary for External Relations at the Monaco Ministry of Foreign Affairs.*



## **INTERNATIONAL MOBILE SATELLITE ORGANIZATION (IMSO) – 21<sup>st</sup> ASSEMBLY**

London, UK, 12-16 July 2010

The 21<sup>st</sup> Session of the IMSO Assembly was held at the Offices of Inmarsat Global Ltd in London from 12 to 16 July 2010. The IHO was represented by Alexandros MARATOS, President, and Steve SHIPMAN, (Professional Assistant – Hydrography). The meeting was also attended by the Secretary Generals of the International Maritime Organization (IMO), the International Telecommunications Union (ITU), the International Civil Aviation Organization (ICAO) and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). The Chief Executive of Inmarsat Global Ltd, Mr. A. SUKAWATY also addressed the meeting.

The Deputy Director General of IMSO, in his report on the GMDSS to the Assembly, included comment on the activities of the IHO WWNWS Sub-Committee and the Document Review Working Group. The IHO took the opportunity to publicly thank both IMSO and Inmarsat Global Ltd for their attendance and participation in meetings of the WWNWS Sub-Committee and, in particular, for their significant contribution to the work of the Document Review Working Group.

The Director General of IMSO, Captain Esteban PACHA of Spain, was re-elected as Director General for a further term of 4-years.



*21<sup>st</sup> Session of the IMSO Assembly*



*Admiral MARATOS with Captain PACHA, Director General of IMSO*

**56<sup>th</sup> SESSION OF THE IMO SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV)**  
 IMO Headquarters, London, UK, 26-30 July 2010.

The 56<sup>th</sup> session of the IMO Sub-Committee on Safety of Navigation (NAV) was held at IMO Headquarters in London from 26-30 July 2010. The IHO was represented by Vice Admiral MARATOS, President, Captain WARD, Director and Lt. Cdr. SHIPMAN, ProAH. Several heads and representatives of hydrographic offices also attended the meeting as part of national delegations. The IHO gave a presentation on the opening day entitled “The IHO Data Registry (S-100) and how it can support e-Navigation and the proposed Universal Maritime Data Model.” The IHO also provided each delegation with a copy of IHO Publication S-66 Edition “Facts about Electronic Charts and Carriage Requirements” which it introduced to the Sub-Committee under “Any Other Business”.

NAV56 approved nine new Traffic Separation Schemes (TSS) with seven associated recommended routes; deleted one TSS; approved four other new or amended Routeing Measures; and approved three new or amended Reporting Systems all of which will now be passed to the Maritime Safety Committee (MSC) for adoption at its 88<sup>th</sup> session in November/December 2010. Implementation will be not less than six months after adoption by the MSC.

NAV56 continued its work on the development of an implementation plan for e-navigation focussing attention on the report of the intersessional Correspondence Group (CG). The CG was re-established with revised Terms of Reference and will report to COMSAR 15 in March and NAV57 in June 2011.



NAV56 approved the text of an SN Circular on “Guidelines for Safety Zones and Safety of Navigation around Offshore Installation and Structures”. NAV56 also approved a revised text of SN Circular 266 on the “Maintenance of Electronic Chart Display and Information System (ECDIS) Software” and finalised the text of an MSC Circular on “Procedures for updating shipborne navigation and communication equipment”.

Following discussion on a paper submitted by the IHO the Sub-Committee agreed that the Maritime Safety Committee (MSC) should be invited to expand the scope of the NAV Work Programme

Item on “Symbols for AIS Aids to Navigation” to include discussion on the policy for their use.

The Chairman, Mr. Michael SOLLOSI of the United States, was re-elected for 2011. Mr. Kostiantyn BILLIAR of Ukraine was elected as the Vice Chairman for 2011.

### **IALA COMMITTEE ON E-NAVIGATION**

St. Germain-en-Laye, Paris, 20 - 24 September 2010.

Captain WARD and Mr. PHARAOH represented the IHO at the 8<sup>th</sup> meeting of the IALA Committee on e-Navigation held at the IALA headquarters in St Germain-en-Laye.

The IALA Committee on e-Navigation was formed to develop IALA policy and technical proposals for subsequent consideration by IMO, the organization that is developing the e-Navigation concept. In accordance with the Cooperation Agreement between IHO and IALA, the IHO is providing advice and assistance in relation to hydrographic and nautical charting aspects.

Captain WARD provided a briefing to the full meeting of the committee on the IHO’s S-100 Geospatial Information Registry and its potential to be an underpinning data registry for the e-Navigation data architecture to be considered in due course by the IMO. Captain WARD and Mr. PHARAOH also contributed to the work of the committee’s subordinate Working Group 5 that is studying data architecture.



*IALA e-navigation Committee meeting at IALA HQ.*

### **WMO/IOC-JCOMM-ETMSSIII**

Saint Petersburg, 4-8 October 2010.

The Expert Team on Maritime Safety Services (ETMSS) is part of the World Meteorological Organization (WMO) and Intergovernmental Oceanographic Commission’s (IOC) Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM). The ETMSS participates in, and provides the Meteorological input to, the World-Wide Navigational Warning Service (WWNWS) Sub-Committee. ETMSS meets every 4 years and held its 3<sup>rd</sup> meeting at the Arctic and Antarctic Research Institute of the Russian Federation in St. Petersburg, from 4 - 8 October 2010. The IHO was represented by Lt. Cdr. Steve SHIPMAN (PAH).



*ETMS-III Delegates*

Delegates from the WMO Secretariat, Australia, Canada, China, Finland, France, Japan, Morocco, Norway, Russian Federation, UK, USA, and Inmarsat attended the meeting which was chaired by Mr. Henri SAVINA of Météo France.

The meeting received reports from the International Maritime Organization (IMO), IHO, JCOMM's Services and Forecast Systems Program Area (SFSPA), Inmarsat Global Ltd and the new Arctic METRAREA Issuing Services (Canada, Norway and the Russian Federation). The meeting reviewed

the status of relevant WMO and Joint IMO/IHO/WMO documentation and agreed on the actions necessary to bring the WMO documentation into full alignment with the recently updated joint documentation. The meeting endorsed the need for continuing the close cooperation between WMO and IHO through their ETMSS and WWNWS. The meeting also considered the actions requested of it by WWNWS2 and took the steps necessary to complete the tasks requested.

The IHO provided a brief on the IHO's Universal Hydrographic Data Model (S-100). Dr. Vasili SMOLIANITSKY of the Russian Federation and Chairman of the JCOMM Expert Team on Sea Ice (ETSI) provided information on the inclusion of "Ice objects" in S-57 and S-100. The meeting agreed that it would be beneficial if other WMO data sets, such as gridded data, were compatible with S-100.



*Entrance to the Hermitage Museum – St. Petersburg*

### **17<sup>th</sup> ABLOS BUSINESS MEETING**

IHB, Monaco, 25 and 28 October 2010.

The 17<sup>th</sup> ABLOS Business Meeting was held at the IHB, in Monaco, on the mornings of 25 and 28 October, either side of the 6<sup>th</sup> ABLOS Biennial Conference. The meeting decided to start preparing a revised draft 5<sup>th</sup> edition of the TALOS Manual (IHO publication C-51). The meeting elected Chris CARLETON, IHO – UK, as the new Chair and Professor Sunil BISNATH, IAG – Canada, as Vice Chair. They assumed their positions following the closure of the meeting. The report of the 17<sup>th</sup> Business Meeting will be available from the ABLOS section of the IHO web site once it has been finalised by the ABLOS members. The 18<sup>th</sup> Business meeting will be held in Chile, in October 2011.



## **88<sup>th</sup> SESSION OF THE IMO MARITIME SAFETY COMMITTEE (MSC88)**

IMO Headquarters, London, UK, 24 November – 3 December 2010.

The 88<sup>th</sup> session of the IMO Maritime Safety Committee (MSC88) was held at the IMO Headquarters in London from 24 November to 3 December 2010. The President and the Professional Assistant (Hydrography) represented the IHO.

MSC88 considered the reports of the COMSAR and NAV Sub-Committees and took the following actions of relevance to the IHO:

- Approved nine Traffic Separation Schemes (TSS) and associated recommended routes and deleted one existing TSS;
- Approved four new/amended routeing measures;
- Approved three new/amended Ship Reporting Systems;
- Approved the draft SN Circular on Guidelines for safety zones and safety of navigation around offshore installations and structures;
- Approved the revision to the SN Circular on the Maintenance of Electronic Chart Display and Information System (ECDIS) software (SN.1/Circ.266/Rev1) and authorised the IMO Secretariat to issue further revisions following notification by the IHO of updated information on the latest relevant IHO Standards;
- Approved the draft MSC Circular on Guidance on procedures for updating shipborne navigation and communication equipment.

MSC88 accepted a proposal for the adoption of an IMO Assembly Resolution on an IMO/WMO Worldwide Met-ocean Information and Warning Service (WWMIWS). This resolution will complement the existing resolution A.706(17), as amended, on the IMO/IHO Worldwide Navigational Warning Service (WWNWS). This matter will be finalised at COMSAR15 in March 2011.

The MSC considered a submission from Japan and the United States proposing an extension of the NAV work programme “New symbols for AIS aids to navigation” to become “Development of policy and new symbols for AIS aids to navigation”. This followed a submission made by the IHO at NAV56 raising concerns about the adoption of symbology for Virtual AtoN without consideration of a policy for their use. The revised name was approved by the MSC and the completion date for the work by NAV remains as 2013.

MSC88 discussed a paper from Japan, Norway, the United Kingdom, the International Chamber of Shipping (ICS), and the International Federation of Shipmasters' Associations (IFSMA) on “Operating anomalies identified within ECDIS” and decided to issue an MSC Circular bringing the matter to the attention of Administrations. Further input on this matter has been requested at MSC89 in 2011.

The full report of MSC88 will be made available on the IHO web site.

## CONFERENCES / SEMINARS

### CANADIAN HYDROGRAPHIC CONFERENCE

Quebec City, Canada, 21 - 23 June 2010.

Captain WARD represented the IHO at the Canadian Hydrographic Conference. The conference was attended by 400 delegates representing all facets of the hydrographic community.

The first day of the conference coincided with World Hydrography Day (WHD), providing the opportunity for Captain WARD to speak briefly at the conference dinner, held on the “Louis-Jolliet” cruise boat down the St. Lawrence River, about the significance of WHD and the theme for 2010: “*Hydrography – supporting maritime trade*”.

Captain WARD chaired the longest session at the conference entitled “*Developments in Modern Navigation*”, where a half day was devoted to e-Navigation and associated topics covering digital data. Dr. Lee ALEXANDER of the University of New Hampshire presented a paper: “*Hydrographic Products and Services as a Fundamental Component of E-Navigation*”, co-authored with Captain WARD.



*Mike CASEY of IIC Technologies and formerly CHS, and Dr. David WELLS from the University of Southern Mississippi enjoy a break between speakers at CHC2010.*

## TECHNICAL SEMINAR ON S-100 DEVELOPMENTS

Incheon, Republic of Korea, 19-21 July 2010.

At the invitation of the Director General of the Korea Hydrographic and Oceanographic Administration (KHOA), Mr. SIM Dong-Hyun, Captain WARD led a seminar at the Korean hydrographic office to bring KHOA's key technical stakeholders up to date concerning the adoption of S-100 as an IHO standard, the introduction of the S-100 Registry and the development of various S-100 dependent Product Specifications, such as S-101, the next-generation ENC Product Specification. Over thirty representatives from KHOA, and the Korea Oceanographic and Hydrographic Association, the Korea Ocean Research and Development Institute, Korea environmental Science and Technology Institute, and other contract support providers to KHOA participated in the seminar.



*Captain WARD opens the technical seminar on S-100 developments*

After the seminar, Captain WARD called on the Vice Minister of the Korea Department of Transport and Maritime Affairs, Mr CHOI Jang-Hyun, and expressed his admiration at the impressive technical achievements that the delegates had described during the seminar. He thanked the Minister for Korea's continuing support of the IHO Capacity Building programme and the ongoing secondment of a KHOA officer to the International Hydrographic Bureau in Monaco. Captain WARD ended his meeting with Minister CHOI, by encouraging KHOA and its partners to continue to share their expertise and experience through active participation in the technical bodies of the IHO.

## 6<sup>th</sup> ABLOS CONFERENCE

The 6<sup>th</sup> ABLOS Conference entitled "*Contentious Issues in UNCLOS – Surely Not?*" was held at the IHB, in Monaco, from 25 to 27 October 2010. The Conference attracted a capacity audience of 90 delegates from 28 countries with 28 papers being presented during 9 sessions. The Keynote address "The Relevance of Hydrography to UNCLOS; an Indonesian Perspective" was delivered by Professor Hasjim DJALAL of Indonesia. The delegates and accompanying persons were the guests of the Government of Monaco at a reception held in the Atrium of the Casino. Most of the papers submitted and presentations given during the Conference are available for download from the IHO web site: [www.iho.int](http://www.iho.int) > *Committees* > *ABLOS* > *6<sup>th</sup> Conference*.



## 20<sup>th</sup> CONGRESS OF THE INTERNATIONAL MARITIME PILOTS ASSOCIATION (IMPA)

Brisbane, Australia, 14-19 November 2010

En route from the 10<sup>th</sup> Meeting of the South West Pacific Hydrographic Commission, Director WARD represented the IHO at the 20<sup>th</sup> Congress of the International Maritime Pilots Association in Brisbane.

IMPA, which represents the world's maritime pilots, was recognised by the IHO as a Non Governmental International Organization (NGIO) in 2008. IMPA delegates have attended all HSSC meetings since 2009 as observers. The IMPA Congress is held every two years and was attended by over 300 delegates from around the globe. As well as covering many other aspects of maritime pilotage, the Congress devoted a whole day to electronic technology. Director Ward provided a comprehensive description of the IHO and its technical programme on that day.



*IMPA President Captain Mike WATSON (USA)*

## VISITS TO IHB

### VISIT TO IHB BY STUDENTS FROM THE GDYNIA MARITIME UNIVERSITY, POLAND.

IHB, Monaco, 17 May 2010.

A group of 9 students from the Faculty of Navigation of the Gdynia Maritime University, Poland, visited the International Hydrographic Bureau in Monaco on Monday 17 May 2010.

The group was led by Dr. Andrzej SZKLARSKI. welcomed Captain Hugo GORZIGLIA, IHB Director welcomed the group and offered a presentation on the importance of hydrography, its international scope and the role of the International Hydrographic Organization (IHO) in coordinating the efforts of all Hydrographic Offices of IHO Member States.

The students expressed a deep interest in the work of the IHO and raised a few questions at the end of the presentation. A very cordial discussion took place while a coffee break was offered by the IHB to the participants. A copy of the presentation was provided to the students for further study which was very well appreciated.



*Participants with the IHB Director, Captain Hugo GORZIGLIA.*

### VISITS BY GROUPS OF SCHOOL CHILDREN TO THE IHB

**18-25 June 2010.**

In order to inform the young people of today on hydrography and its importance, the IHB contacted the Department of Education in Monaco and arranged for 19 classes of 14 year olds, i.e. all classes of children of that age from the local Monaco schools, to visit the IHB during the period 18 to 25 June, as part of the 2010 World Hydrography Day celebrations. This provided the opportunity to present them the IHB/IHO activities and in particular hydrographic surveys and the navigational chart. In total approximately 400 school children were able to visit the IHB on that occasion.



*School children visit the IHB.*

**VISIT TO THE IHB BY THE PREPARATORY COMMISSION ON THE COMPREHENSIVE TEST BAN TREATY ORGANIZATION**  
29-30 June 2010.

The Preparatory Commission of the Comprehensive Test Ban Treaty Organization (CTBTO) was set up in 1996 with its headquarters in Vienna, Austria. It is an interim inter-governmental organization tasked with building up the verification regime of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) in preparation for the Treaty's entry into force. So far 182 States are signatories to the treaty and 151 of those States have gone on to ratify the treaty. Over the last decade, the CTBTO has established a global monitoring and analysis service that includes a number of hydro-acoustic sensors that monitor for sea or ocean-based nuclear testing.



*Left to right: Capt. GORZIGLIA, Mr. GRENARD, VAdm. MARATOS, Mr. HARALABUS, Capt. WARD.*

Mr. Patrick GRENARD (France), Chief of the Engineering and Development Section of the Preparatory Commission of the CTBTO and Mr. Georgios HARALABUS (Greece), Project Manager of the Acoustic Monitoring Group visited the IHB in June 2010 for informal discussions with the Directing Committee. The visit enabled Mr. GRENARD (France) and Mr. HARALABUS (Greece) to learn about the role of the IHO and the important part that its Member States' representatives play in the collection and distribution of hydrographic information that is relevant to the ocean-based CTBTO monitoring programme and the input that the IHO and its Member states can make in providing technical advice on hydrography and nautical charting matters.

As a result of the visit, it is likely that the IHO will be invited to assist and advise the CTBTO on relevant hydrographic issues in the future.

## **ACADEMICS FROM THE REPUBLIC OF KOREA VISIT THE IHB**

23 August 2010.

On 23 August 2010, the IHB received the visit of Dr. Jong Yeon KIM, from the Department of Geography Education of the Chungbuk National University. Dr. KIM is researching the marine geographic names policy that was applied by the scientific community before the establishment of the former IHB in June 1921. Dr. KIM was able to consult the technical publications in the IHB Library which had been published at that time

Also from 23 to 26 August 2010, Professor Sungjae CHOO and two academic assistants, graduates from the Kyung Hee University, visited the IHB. This team was requested by the Korea Hydrographic and Oceanographic Administration (former NORI) to consult the IHO archives of the 1920's in order to find what was the policy that existed in the marine community at that time with regard to maritime geographic naming. On the occasion of this visit, Professor CHOO presented the IHB with the Proceedings of the 16<sup>th</sup> International Seminar on Sea Names that took place on 20-22 August 2010, in The Hague, The Netherlands.

## **VISIT BY A DELEGATION FROM THE FRENCH INSTITUTE OF HIGHER NATIONAL DEFENCE STUDIES**

21<sup>st</sup> October 2010.

On Thursday 21 October 2010, a Delegation from the French Institute of Higher National Defence Studies [*Institut français des Hautes Etudes de Défense Nationale (IHEDN)*] visited the IHB as part of the programme of their visit to the Principality of Monaco. The event was coordinated by the External Relations and International Economic and Financial Affairs Department of the Government of Monaco.

The IHEDN is a French public institution recognized for its quality work in the domain of training of public and private-sector decision-makers and its involvement in a wide scope of national defence subjects.

Captain GORZIGLIA, IHB Director, welcomed the 13 visitors and, together with Captain WARD (IHB Director) and Engineer HUET (IHB), gave a presentation on the importance of hydrography, its role associated with various activities having a social and economic impact on national development as well as Coastal States' obligations with regard to the provision of hydrographic and cartographic data, information, products and services, together with the marine safety information component. The presentation was completed with a detailed description of the IHO's objectives and the work of all its various components.

The visitors thanked the IHB for the presentations and were very pleased to have had the opportunity to broaden their knowledge of a discipline of national, regional and international importance under the coordination of the IHO.

## IHB VISITS

### VISIT TO THE CENTRE FOR COASTAL AND OCEAN MAPPING, UNIVERSITY OF NEW HAMPSHIRE Durham, NH, USA, 18 June 2010

Captain WARD visited the Centre for Coastal and Ocean Mapping / Joint Hydrographic Centre (CCOM/JHC) at the University of New Hampshire in June, where he gave a presentation to students and staff from the faculty.

CCOM/JHC was established at the University of New Hampshire to create a national centre for expertise in ocean mapping and hydrographic sciences. CCOM is guided by a Memorandum of Understanding with the National Oceanic and Atmospheric Administration (NOAA), and the JHC operates in partnership with NOAA's National Ocean Service.



*Captain WARD with students from the IHO-IOC GEBCO training course in deep ocean bathymetry.*

After the presentation Captain WARD met students in their final weeks of the current IHO-IOC GEBCO training course in deep ocean bathymetry being conducted at CCOM/JHC. The General Bathymetric Chart of the Oceans (GEBCO) program operates under the auspices of the IHO and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The deep ocean bathymetry training course, which runs regularly, is funded by the Nippon Foundation of Japan.

### VISIT TO UNITED KINGDOM HYDROGRAPHIC OFFICE 20 October 2010.

Captain GORZIGLIA (IHB Director) and Mr. NAKABAYASHI (Professional Assistant at the IHB) visited to United Kingdom Hydrographic Office (UKHO) on 20 October 2010, to brief the trainees attending the Japan Capacity Building Project funded by the Nippon Foundation about the IHO and the importance of Hydrography.

The course started on 6<sup>th</sup> September 2010 and its first module finished on the 8<sup>th</sup> October. The three five week modules shall finalize on the 17<sup>th</sup> of December 2010.

An open exchange of views took place with the students, followed by a presentation offered by Capt. GORZIGLIA that covered the areas of influence of Hydrography and the responsibilities Governments have with relation to the provision of hydrographic data, information, products and services. The vital coordination and standardization role of the IHO was highlighted. Finally the students were requested to act as ambassadors of the IHO and the profession when back at home.

Captain GORZIGLIA also handed mementos and certificates of the Module 1 of the course and thanked UKHO and its instructors for contributing to enhance the level of hydrography .



*Captain GORZIGLIA and Mr. NAKABAYASHI with the students: Mr. SILVERA (Uruguay), Mr. SMAGIN (Ukraine), Ms. PURINA (Latvia); Ms. RYAN (New Zealand); Mr. NGUYEN (Vietnam) and Mr. KATETONG (Thailand).*

### **TECHNICAL VISIT TO GEORGIA** 13-17 December 2010.

PAH, as part of the Black and Azov Seas Working Group (BASWG) team, together with representatives from Spain, as NAVAREA III Coordinator, and Turkey, as Chair of BASWG, paid a technical visit to the Republic of Georgia from 13 - 17 December 2010. This visit had been requested by Georgia to assist them with:

- a) the development of their hydrographic service; and
- b) to fully understand the process required to become an IHO Member State.

The Georgia State Hydrographic Service (GSHS) currently maintains Navigational Aids but has only limited hydrographic survey and chart preparation capabilities. The technical visit was based in Batumi, where GSHS has a regional office and included a visit to the head office in Poti. Following the visit a technical report, prepared by the visit team, will be submitted to the Chair of BASWG for onward dissemination to Georgia.



*Left to right: Steve SHIPMAN (PAH) with Lt. Cdr. Ricardo GRELA VALCÁRCEL (Spain) and Captain PATA (Georgian MSA) overlooking Batumi.*



*Visit team and staff outside the Poti headquarters of the Georgian State Hydrographic Service.*

## NEW HYDROGRAPHERS



### NEW DIRECTOR OF THE HELLENIC NAVY HYDROGRAPHIC SERVICE

Commodore Alexandros THEODOSIOU was born in Chalkida, Evvoia Island, on 30th October 1957. He joined the Naval Academy in 1976 as a Naval Cadet and graduated in 1980, receiving his commission as an Ensign.

He has served onboard different types of ships, as follows:

DD	Assistant ASW Officer / NAVO	July 1980 - August 1982;
FPBG	Navigation / Comms Officer	August 1982 - September 1983;
DDG	Weapons / Navigation Officer	February 1985 - December 1989;
MSC	Commanding Officer	December 1989 - July 1991;
DDG	Weapons Officer	August 1991 - December 1991;
MSC	Commanding Officer	January 1994 - January 1996;
LST	Commanding Officer	August 2002 - October 2003.

He has also held the following posts:

Minesweeper Squadron III - Commander	June 1996 - April 1998;
HNGS - Ops & Training Division - Section Chief	April 1998 - May 2000;
NATO SHAPE OPS Division - EW Project Officer	May 2000 - August 2002;
HNDGS Log Division/ Transportation Br. - Staff Officer	November 2003 - December 2004;
HNDGS Log Division ECAP SSL PG (Chairman)	
Athens Multinational Sealift Coordination Centre Director	December 2004 - April 2005;
SNMCMG2 - Commander	May 2005 - June 2006;
COMHELMINE - Commander	July 2008 - March 2010.

He attended a number of military and civilian schools among which the following:

1. Naval Postgraduate School in Monterey, California, USA, (1991-1993), where he earned a Master's Degree in Management Science (Total Quality Leadership - related Thesis);
2. Hellenic Navy Specialization & Education School (Sep 1983-Feb 1985) graduated as Weapons Officer for DDGs;
3. MCMVs Commanding Officers Course, BE-NL Mine Warfare School (Belgium), September 1990;
4. Hellenic Naval War College, graduated in 1996 ;
5. Mine Warfare Staff Officers Course, BE-NL Mine warfare School (Belgium), Jan-May 1997.

He has been awarded medals in accordance with his rank.

As from March 2010, he was appointed Director of the Hellenic Navy Hydrographic Service.

He is married and has three children.



## **NEW HYDROGRAPHER OF SPAIN**

Captain Guillermo MOREU MUNAIZ

Captain Guillermo MOREU MUNAIZ took up the post of Director of the Instituto Hidrográfico de la Marina on 14 July 2010.

Captain MOREU was born in Pontevedra in August 1955. He joined the Navy in 1974 and graduated on 16 July 1979 from the Naval Military School (Escuela Naval Militar) with the rank of Lieutenant; he was promoted to the rank of Captain in June 2006.

During his professional career, he has held various posts, amongst which command posts such as: Deputy Commander of the Hydrographic Vessel "Malaspina", and Commander of the Hydrographic Vessels "Antares" and "Malaspina".

He has served on various Spanish ships: Destroyers "Blas de Lezo", "Gravina" and "Churruca", the School-Ship "Juan Sebastián de Elcano", and Hydrographic Vessels "Tofiño" and "Malaspina".

He completed the Course in Hydrography for Officers in 1987, and the Hydrographic Engineering course in 1995.

His shore service has included the Spanish Hydrographic Institute and the Hydrographic School "Alejandro Malaspina", the Joint Staff Defence in Madrid, Fleet Staff in Rota - Cádiz, Naval Military School in Marín - Pontevedra, and several Maintenance Departments of the Spanish Navy in Madrid and Ferrol - Coruña.



## **NEW HYDROGRAPHER OF TURKEY**

Rear Admiral Hakan ERAYDIN

Rear Admiral Hakan ERAYDIN was born in Bodrum in 1962. He graduated from Naval Academy in 1983. He conducted the duty of communication officer at TCG YÜCETEPE Destroyer from 1983 to 1985 and the duty of Combat Information Center (CIC) Officer from 1985 to 1987.

After he conducted the duty of Operational Training Officer in Fast Patrol Boat Division from 1987 to 1988, he received the Master of Science degree at Naval Postgraduate School between 1988 and 1991 in California/USA.

He assumed various duties of Engineering Department as Branch Officer at TCG YAVUZ and TCG TURGUTREİS Frigates from 1991 to 1994. Following his education at Naval War College between 1994 and 1996, he worked as the Chief Engineer at TCG YILDIRIM from 1996 to 1998.

He worked at Western European Union in Brussels/BELGIUM from 1998 to 2001. After returning to Turkey, he worked as a Faculty Member of "Management" Discipline at Naval Academy for a year. He graduated from Armed Forces Academy in 2002.

He worked as Section Chief at the Plans and Principles Department of Naval Forces Command from 2002 to 2003, as Executive Assistant to the Commander in Chief of the Navy from 2003 to 2005, the Naval High School Commandant from 2005 to 2007 period and Head of General Plans and Policy Department of Ministry of National Defence from 2007 to 2010.

Hakan ERAYDIN was promoted to Rear Admiral (LH) in July 30, 2007. He is married to Mrs. Deniz TALUM and they have a daughter named Cansu.

Rear Admiral ERAYDIN (LH) speaks English.



**NEW HYDROGRAPHER OF ECUADOR**  
**Cdr. Jorge Alejandro CÁRDENAS AMORES**

**Personal data**

Date of Birth : 17 July 1963.  
Post held : Director of the *Instituto Oceanográfico de la Armada* (Naval Oceanographic Institute).  
Marital Status : married, three children.  
Languages : Spanish/English.

**Education**

- Graduate in Naval Science (Naval University, Ecuador);
- Master in Marine Meteorology (Naval Postgraduate School, USA);
- Magister in Naval and Maritime Science (Naval War College, Chile);
- Military Academy Professor with Specialisation in Logistics (Naval War College, Chile).

**Has completed and qualified in the following courses:**

- Environmental Management (Ecuador);
- Staff Course (Ecuador);
- Strategy and Crisis Management (Chile);
- Officer of the Combat Information Centre (USA);
- Antisubmarine War Officer (USA);
- Satellite Imaging Evaluator (USA);
- Modelling of the “El Niño” Phenomenon (Peru);
- Internal Auditor for the ISO 9001 standard at the *Veritas* Office (Ecuador);
- Oceanic Buoys Operator (Norway);
- International Maritime Organisation courses (Ecuador);
- Peace Operations in CECOPAC (Basic course) [Chile];
- EM 2000 and EM 302 Kronsberg Multibeam Systems Operator (Norway).

**Professional experience**

- Training Officer on board the training ship “Esmeralda” of the Chilean Navy;
- Head of the missile boats Communications Division;
- Head of the missile boats and training ship “Guayas” Operations Department;
- Deputy Commander of BAE “Orión”;
- Professor at the Naval School;
- Head of the Marine Science Department and Scientific Deputy Manager of INOCAR;
- Professor at the Naval War College;
- Visiting Professor at the Naval War College in Chile;
- Head of the Strategic Planning Centre of the Naval Operations Command;
- Commander of BAE “Orión”;
- Technical Deputy Manager of the Naval Oceanographic Institute;
- Currently Director of the Naval Oceanographic Institute.

**NEW HEAD OF THE MARITIME HYDROGRAPHIC  
DIRECTORATE OF ROMANIA**

**Captain Adrian Gh. FILIP**



Captain Adrian FILIP was born in 1960 in Arad, Romania. After graduating with a Bachelor of Science Degree in Naval Radioelectronics from the "Mircea cel Batran Naval Institute", in Constanta, he received his commission and was appointed as the Sensors Officer onboard the 198 Missile Patrol Boat, 133 Missile Patrol Boat Squadron.

From 1984 to 1992 he served as a radioelectronics staff officer for the 126 Torpedo Patrol Boat Squadron followed by the 133 Missile Patrol Boat Squadron.

In 1994 he graduated from the War Academy in Constanta and was appointed as Commanding Officer of an OSA I class Missile Patrol Boat.

After completing the Joint Operations Course at the NATO-PfP Regional Training Centre in 1999, he served as Commanding Officer on a TARANTUL class Missile Patrol Boat until 2001, when he became the Chief Operations Officer, 9th Joint Operational Command.

In the year 2000 he was accepted into the Command and Staff War College. Upon graduation he was appointed as the Sensors and Communications Officer onboard the "Delfinul" Submarine, but serving as acting Commanding Officer until 2003. He was then appointed as Chief of Staff, 126 Training Squadron.

From 2004 to 2005 he coordinated the Navy's simulation training program, setting in 2005 the foundations of the Information, Simulation and Evaluation Centre. In this position he coordinated the development of information systems for naval operations, at the time, pioneering the operational training program for naval ships and national evaluation programs for naval platforms and personnel.

In 2007 he was appointed as Commanding Officer of the newly created Centre for Training, Simulation and Evaluation, which he led until 2009. During this period of time he also earned his qualifications as Level I NATO evaluator for interoperability, and Level 11 NATO Operational Capabilities for naval forces.

As from 2008 he has been a PhD student in military science and information at the National Defence University "Carol I".

In 2009 he completed the International Relations Course at the Romanian Diplomatic Institute and the National Defence College, and was then appointed as Head of Training within the Romanian Naval Forces Staff Headquarters.

He was appointed as Head of the Maritime Hydrographic Directorate on 15 July 2010

He is married and has a daughter, who is an engineer.



## **NEW DIRECTOR OF THE NORWEGIAN HYDROGRAPHIC SERVICE**

Evert FLIER has been appointed Director of the Norwegian Hydrographic Service.

Director FLIER has served as an Officer in the Royal Netherlands Navy (RNIN) since June 1989, and has more than 20 years of operational and managerial experience from a variety of programmes within the RNIN and the Dutch Ministry of Defence. He has held operational and executive positions onboard frigates for eleven years. As part of an exchange programme with the Norwegian Navy, he sailed as Executive Officer onboard a missile torpedo boat. He was project manager for navigational equipment at the Directorate for Material Royal Netherlands Navy, taught navigation and safety at sea at the Royal Netherlands Naval Academy, served as Commanding Officer on a naval instruction vessel and was staff officer at the Ministry of Defence.

Director FLIER holds a Master's Degree in Security and Defence from the Netherlands Defence College and a Bachelor's Degree in Information and Technology from the Technical University in Eindhoven, The Netherlands.

Since August 2008, Director FLIER has served as Head of Internal Training at the NATO Joint Warfare Centre in Stavanger, Norway.

## **NEW CHIEF OF THE DEPARTMENT OF NAVIGATION AND OCEANOGRAPHY - RUSSIAN MINISTRY OF DEFENCE (CHIEF OF THE HYDROGRAPHIC SERVICE OF RUSSIAN NAVY)**

Captain Alexander V. SHEMETOV was born on 16 October 1957. After having graduated from the Naval College, Navigation Faculty in Saint Petersburg, in 1979 he served as Navigator on board nuclear submarines.

After graduation from the Naval Academy in 1988 he served as the Flag Navigator Officer of the nuclear submarine unit and then as the Head Navigator of the North Fleet.

In 2006 Captain A. SHEMETOV was assigned to the Main Naval Headquarters as the Head Navigator of the Navy.

On 4 August 2010 he was appointed Head of the Department of Navigation and Oceanography of the Russian Ministry of Defence.

He is married and has 2 children.

## NEW HYDROGRAPHER OF FRANCE

***Ingénieur général de l'armement de 1<sup>e</sup> classe (Vice Admiral) Bruno FRACHON,  
Chief Executive of SHOM<sup>1</sup>***



Born in 1957, Bruno FRACHON is a graduate of the *Ecole Polytechnique* (Polytechnic Engineering School) (year 76) and of the *Ecole nationale supérieure de techniques avancées* (Graduate School of Advanced Techniques) – Marine Environment option (ENSTA-81).

*Ingénieur de l'armement* Bruno FRACHON, specialized in Hydrography and Oceanography, began his career in 1982 at SHOM where his work covered a broad spectrum of operational, technical and management tasks.

His experience at sea covers hydrographic surveys in the Atlantic, in the Channel and in the West Indies, as well as oceanographic campaigns in the Atlantic. He was also in charge of geodetic and topographic work in the West Indies.

Within the SHOM Directorate, he was responsible for cooperation policies and for relations with national and foreign institutions in the domain of oceanography, in particular in its applications to Defence.

He was Head of the Military Centre of Oceanography, in charge of the meteo-oceanographic support of the naval forces and of the development of corresponding products and services.

As from 2001, Bruno FRACHON held various posts of responsibility in the field of technical policy at the *Direction Générale de l'Armement (DGA)*. He was Director of the Defence Analysis Centre, in charge of operational analysis studies and systems analysis, required for major decisions as regards weapon systems.

He was appointed Chief Executive of SHOM on 24 June 2010.

Bruno FRACHON is Officer of the Legion of Honour and Officer of the National Order of Merit.

He was auditor of the 33rd National Session of the *Centre des hautes études de l'armement (CHEAr)*, and up until 2010 he taught at the University Paris-II. He is a member of the French National Committee of Geodesy and Geophysics.

Bruno FRACHON and his wife, Irene, live in Brest with their two daughters and two sons. With his family for crew, he regularly sails along the French and British coasts.

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<sup>1</sup> French Naval Hydrographic and Oceanographic Service



**NEW HYDROGRAPHER OF POLAND**  
as of July 2010

**Captain Henryk NITNER**

**CHIEF, HYDROGRAPHIC OFFICE OF THE POLISH  
NAVY**

**Biographical Résumé**

Born 2 April 1955 in Lubań, West Poland, Captain Henryk NITNER commenced his naval career in 1974 as a Midshipman at the Department of Navigation and Naval Weapon Systems, Naval Academy in Gdynia. Having earned the Master of Science degree and being commissioned in 1979, the then young Sub-lieutenant PN reported to the *ORP Wodnik*, a training ship, assumed the initial position of Assistant Officer and, subsequently, the position of Commanding Officer of one of the ship's departments. Following this tour of duty, between 1983 and 1985, Captain NITNER reported back to the Naval Academy to study hydrography, which

has become his life's passion since. In 1985, following the studies, he reported to the Hydrographic Support Squadron and was appointed Executive Officer for Hydrographic Surveys of the *ORP Heweliusz*, a survey ship; then, as the Squadron's Chief Hydrographer. In 1991, Head of Hydrographic Department at the Naval Board of Hydrography, PN Headquarters, became Captain NITNER's new assignment followed, in 1995, by the same position at the reactivated Hydrographic Office of the Polish Navy (HOPN/BHMW). Between 1997 and 1998, Captain NITNER took up Postgraduate Hydrographic Studies at the Naval Academy. In August 2005, he was relieved as the Head of Hydrographic Department, HOPN, and appointed Deputy Chief, HOPN. Finally, Captain NITNER took over as Chief, HOPN (Polish Hydrographer) on 1 July 2010.

As the Head of Hydrographic Department, HOPN, Captain NITNER was instrumental in implementing the production of Electronic Navigational Charts (S-57 Standard ENCs) and NATO required digital hydrographic products in HOPN. As a result of efforts made by many specialists, with Captain NITNER being one of them, Poland has met all its international obligations with regard to the ENC coverage, finding itself in the exclusive group of several dozen or so countries boasting this achievement. Currently, Captain NITNER is deeply involved in the process of upgrading hydrographic hardware and software, fitted up in the Polish Navy survey ships, and in the production of digital, hydrographic products, used in support of Polish or NATO-lead naval operations. Captain NITNER participates in the works of various organizations responsible for hydrography and safety at sea. He is the author and co-author of many professional and academic publications.



## **NEW HYDROGRAPHER OF THE HYDROGRAPHIC AND OCEANOGRAPHIC SERVICE OF THE CHILEAN NAVY (SHOA)**

**Captain Patricio CARRASCO HELLWIG**

Captain CARRASCO HELLWIG graduated from the Naval Academy in 1982. He obtained a University Degree in Naval and Marine Sciences and is a qualified Engineer in Armaments, with a Bachelor's Degree in Navigation (1988) and Hydrography (1989).

In 1992 he qualified as a Hydrographer at the Hydrographic School of the Spanish Hydrographic Institute, a course which has been internationally recognized by the International Federation of Surveyors (FIG) and the International Hydrographic Organisation (IHO).

In 1994 he attended a Training Course in Pedagogy at the Naval Education Directorate and in 1996 he qualified as an Instructor in Hydrography. In November 2000 he accomplished the Naval War College Information Course.

Amongst the various national and international courses, training, seminars, conferences and technical

meetings that he has attended, the Course on Coastal Surveys with Multibeam Echo Sounders Systems in 1997 at the University of New Brunswick, (Canada) and the Course on Projects Preparation and Evaluation at the "*Instituto Latinoamericano y del Caribe de Planificación Económica y Social*" (ILPES) in 2002 should both be highlighted

Between 1992 and 1997, as a Specialist Officer, he held various posts in the Hydrographic and Oceanographic Service of the Navy, amongst which: Head of the Hydrographic Surveying Department, Head of the Planning Office; Head of the Hydrographic Group in several Commissions in the field in the whole country, including the Southern Ice Fields and the Antarctic.

In 1998 he was appointed Instructor and Head of the 1<sup>st</sup> year Course at the Naval School "Arturo Prat" and in 1999 his presence was again required at SHOA, where he served as Head of the Special Projects Office. Between 2001 and 2002 he was the Head of the Hydrographic Surveying Department; between 2002 and 2005 he was Head of Research and Development and in 2006 took up the post of Head of the Technical Area, being in charge of four Departments totalling 130 people. Between 2007 and 2009 he served as Deputy Director.

During his service in all the above mentioned posts, he designed, conducted and monitored various projects, concerning changes of high technology equipment, design and adoption of new production procedures and systems; the implementation of a corporate database, the archiving of data, management of information and restructuring of computer systems, which have become known by the whole organisation and whose results have received international recognition. He is currently the Chairman of the Marine Cartography Commission of the International Cartographic Association (ICA).

In October 2009 he was appointed Deputy Director of the Polytechnic Naval Academy, and carried out those duties from 16 December 2009 until 04 March 2010, when he was appointed Director of the Hydrographic and Oceanographic Service of the Navy.



**NEW HYDROGRAPHER OF THAILAND**  
**VAdm. Prayuth NETRPRAPA**

**Date / Place of Birth:** 7 June 1951, Samutsakorn, Thailand.

**Education**

1972 – 1976: Royal Thai Naval Academy, Royal Thai Navy  
BSc. Hydrography;  
1981 – 1982: Asian Institute of Technology, Thailand  
MSc.;  
1997: Naval War College, Royal Thai Navy.

**Career Positions**

1989 – 1991: Commanding Officer of H.T.M.S. Chantara , and  
Chief of Data Processing Section, Technical Division,  
Hydrographic Department.  
1991 – 1994: Deputy Director of Technical Division, Hydrographic  
Department.  
1994 – 1995: Commander of Chieng-mai Seismic Research Station  
1995 – 1998: Director of Hydrographic Survey Division,  
Hydrographic Department.  
1998 – 2001: Director of Department of Seamanship and  
Navigation, Royal Thai Naval Academy.  
2001 – 2003: Deputy Dean of Academic Branch, Royal Thai  
Naval Academy.  
2004 – 2008: Assistant Director General, Hydrographic Department.  
2008 – 2010: Deputy Director General (1), Hydrographic  
Department.  
2010: Director General, Hydrographic Department.

**Training Courses, Conferences and Seminars**

- USA: Hydrographic Training, NAVOCEANO 1986.  
- Japan: International Monitoring System Training, Tokyo 1997.  
- Austria: On-Site Inspection Training, Vienna 1998.  
- France: Intergovernmental Oceanographic Commission Meeting , Paris, 2005.  
- Sri Lanka: North Indian Ocean Hydrographic Commission Meeting, Colombo, 2006.  
- Monaco: 17<sup>th</sup> International Hydrographic Conference, 2007.  
- Thailand: North Indian Ocean Hydrographic Commission Meeting, Pattaya,  
2007.

## INFORMATION OF INTEREST

### **MARINE ELECTRONIC HIGHWAY Technical Steering Committees** Singapore, 24-25 May 2010

The MEH Demonstration Project aims to establish a practical example of the potential for digital information networks that can provide environmental and related information in real time to both mariners transiting the Straits of Malacca and Singapore Straits as well as other agencies and interested parties. The Project includes detailed hydrographic surveys of some of the critical depth areas in the Straits, the development of ECDIS compatible Marine Information Overlays (MIOs), the establishment of a unified data centre to provide real time information and updates, and the establishment of a number of environmental monitoring stations including tide gauges and current meters.

The MEH Demonstration Project is being funded by the Global Environment Facility (GEF) and the International Bank for Reconstruction and Development (IBRD) and is supported by the IMO as managers of the Project. Additional financial support is being provided by the Republic of Korea. The three littoral States – Indonesia, Malaysia and Singapore are all providing practical support and input to ensure the implementation of the Project. The IHO is represented by the IHB and has been providing technical advice on the hydrographic aspects of the Project. Captain WARD represents the IHB.



*Mrs. W. INDRANINGSIH, Assistant Deputy Minister, Ministry of Environment, Indonesia chairs the TSC on Environment Systems and Information. Dr Parry OEI, the Hydrographer of Singapore and Mr James PAW, MEH Project Manager from the IMO, are sitting to her left and right.*

The Technical Steering Committee (TSC) on shore-based infrastructures and facilities and the TSC on environment systems and information met in Singapore on 24 and 25 May 2010. About 25 delegates attended representing Indonesia, Malaysia and Singapore and the IMO, the IHO, and the World Bank.

The main activities of the TSC meetings were to review the roles of the committees and to provide advice to the Project Manager on the data and infrastructure input from the littoral States.

The MEH Project Manager reported that a high-accuracy hydrographic survey in the vicinity of One Fathom Bank has been completed and the results will be available shortly for inclusion by the littoral States in the region's existing ENC's and charts. He also reported that contracts would be placed shortly for the equipment required to establish a data coordination centre in Batam, Indonesia.

The next phase of the MEH Project is the identification of environmental data that will then be used in various Marine Information Overlays to be made available through the data coordination centre when it becomes operational in 2011.

**COAST-MAP-IO PROJECT**  
**IOC-IHO Assessment Mission conducted in Kenya and the Comoros**  
24 May – 2 June 2010.

A technical assessment mission was conducted by an IOC-IHO expert team in Kenya and the Comoros from 24 May to 2 June 2010, as part of the Coast-Map-IO project funded by the Italian Government. The team had the opportunity to meet representatives of all the institutions in Kenya and the Comoros likely to be concerned with, or involved in, this project. The aim of the Coast-Map-IO project is to enable countries bordering the Indian Ocean to acquire and fully exploit coastal bathymetric data for the development of various products required for preparedness and mitigation of ocean-based extreme events, such as tsunamis. The aim of the visit was to assess the level of capacity, focal points and national partner agencies, as well as existing data sources for coastal bathymetry and land topography in these two countries. The objectives of the project are:



*Welcome by the Permanent Secretary, Ministry of Lands,  
Kenya*

- To enhance available expertise to locally produce and maintain an accurate bathymetric and topographic database on either side [-200 to +50 meters] of the high tide-line;
  - To provide modelling capacity for Tsunami arrival, run-up and inundation in coastal areas;
- To provide the necessary tools and training for national agencies responsible for Disaster Management and Preparedness to exploit the bathymetric and terrestrial datasets for the development of targeted maps and services, including inundation maps, determination of set back lines, coastal ecosystem mapping, and zonation for coastal users.

**Kenya** - The team was welcomed by Her Excellency Dorothy N. ANGOTE (Ms.) CBS, Permanent Secretary, Ministry of Lands. The team had the opportunity to meet and have discussions with the Survey of Kenya<sup>2</sup> and to present the Coast-Map-IO project to the Kenyan National Hydrographic and Oceanographic Committee. The team noted that the Hydrographic Division of the Survey of Kenya would be a suitable candidate to take responsibility for the Coast-Map-IO database.

**Comoros** - The team was welcomed by Mr. Abdillah MOUIGNI, Secretary General, Ministry of Transport, Tourism and Investments. The team also presented the Coast-Map-IO project to Mrs. Anliyat MZE AHMED, programme specialist at the United Nations Development Programme (UNDP). The team identified the COSEP<sup>3</sup> as the appropriate institution to take responsibility for the Coast-Map-IO database.

<sup>2</sup> Mr. Ephantus MURAGE MUNDIA, Director of Surveys, Ministry of Lands

<sup>3</sup> Col. Ismael MOGNE DAHO, Director of COSEP (Centre des Opérations de Secours et de la Protection Civile).

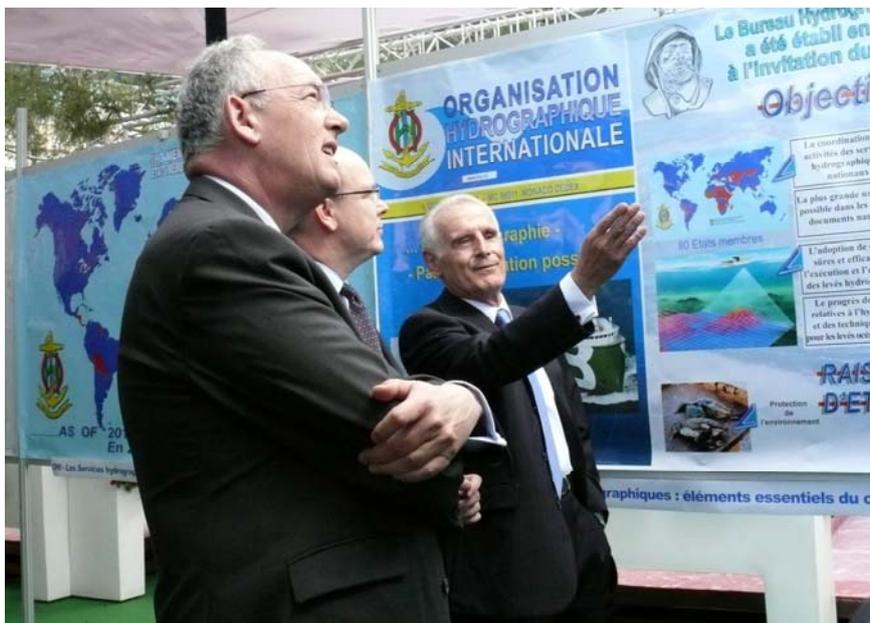
The establishment and management of the seamless COAST-MAP-IO bathymetric and topographic database will require the provision of additional training and equipment to the Survey of Kenya and the Comoros/COSEP.

Following the mission, the assessment team made a number of recommendations to the IOC regarding the implementation of the COAST-MAP-IO project in Kenya and the Comoros.



*Participants in Meeting at COSEP, Comoros*

### **WORLD HYDROGRAPHY DAY Monaco, 21<sup>st</sup> June 2010**



The World Hydrography Day (WHD) was celebrated in Monaco on Monday 21<sup>st</sup> June. The theme of this year's WHD was "Hydrographic Services – the essential element for maritime trade". A Press Release was provided to the media in Monaco, in which the hydrographic activities in relation to the theme were explained as well as the importance of hydrography for the safety of navigation, protection of the marine environment development and security. A reception was given by the Bureau at the Yacht Club of Monaco. H.S.H. Prince Albert II, the Minister of State and members of the Government of Monaco honoured the event by their presence. Ambassadors, Consuls, representatives of the local maritime industry and others were also present. The President of the Directing Committee made a brief speech presenting the important role of hydrography in maritime trade and safety at sea.

As part of this year's celebration and in order to inform the young people of today about hydrography and its importance, the Bureau contacted the Department of Education in Monaco and arranged for 19 classes of 14 year olds, about 450 students, to visit the Bureau between 18 and 25 June, in order to present them our activities and in particular the navigational chart, its use and importance.

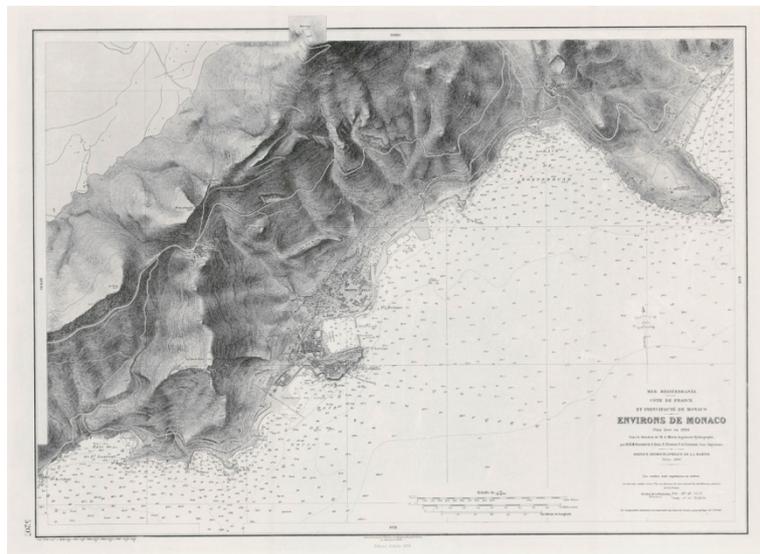
## TRANSFER OF IHB FRENCH NAUTICAL CHART COLLECTION TO THE MARITIME MUSEUM OF SAINT-TROPEZ, FRANCE

As the final part of disposing of the IHB's collection of superseded paper nautical charts, approximately 1500 French charts were transferred to the Maritime Museum of Saint-Tropez on 25 June 2010. Saint-Tropez is on the southern coast of France about 150 km southwest of Monaco.

This follows some 15,000 other nautical charts that were transferred from the IHB to the *Bibliothèque Nationale de France* (French National Library) in 2008, in order to limit the IHB's paper chart collection to current INT charts supplemented by the global Admiralty series and at the same time provide greater public access to these superseded charts for historical and reference purposes. The initial transfer of charts to the *Bibliothèque Nationale de France* did not include any French charts, because the library already held such copies in its collection.

The IHB is grateful to SHOM for its approval and support for the donation of the French charts, some of which date back to the 19<sup>th</sup> century.

The *Bibliothèque Nationale de France* and the Maritime Museum of Saint-Tropez are very appropriate places to display and provide public access to these old charts that have thus been given a new lease of life.



*Chart of Monaco, SHOM, 1923 Edition*

### **MARINE ELECTRONIC HIGHWAY - Project Steering Committee** Singapore, 13-15 July 2010.

The 3<sup>rd</sup> meeting of the Project Steering Committee (PSC) of the Straits of Malacca and Singapore Marine Electronic Highway (MEH) Demonstration Project took place in Singapore from 13 to 15 July. About 40 delegates attended the meeting representing the IHO, World Bank, International Chamber of Shipping (ICS), the International Association of Independent Tanker Owners (INTERTANKO), the Malaysian Ship Owners Association, the Republic of Korea and the three Coastal States – Indonesia, Malaysia and Singapore.

The three littoral States – Indonesia, Malaysia and Singapore - are all providing practical support and input to ensure the implementation of the Project. The IHO is represented by the IHB and is providing technical advice on the hydrographic aspects of the Project. Captain WARD represents the IHB. The ICS and INTERTANKO are supporting the Project by arranging vessels for any required trials and demonstrations.

US\$8.3 million of the Project costs are being provided by the World Bank Global Environment Facility and the International Bank for Reconstruction and Development (IBRD), US\$2.7 million by the three littoral states and US\$0.85 million from a grant by the Republic of Korea through the Ministry of Land, Transport and Maritime Affairs.

The MEH Demonstration Project aims to provide a practical demonstration of the potential for digital information networks that provide environmental and related information in real time to both mariners transiting the Straits as well as other agencies and interested parties. The Project has already paid for high-quality hydrographic surveys of some of the most limiting depth areas in the Straits in the “One Fathom Bank” area and will establish a unified data centre to provide real time information and updates.

The main tasks of the 3<sup>rd</sup> meeting of the Project Steering Committee were to review progress and in particular the establishment of the first data centre in Batam, Indonesia and the arrangements for practical demonstrations in 2011 – the final year of the Project.



*Mr. Peter HINCHCLIFFE - Secretary General, ICS and Mr. James PAW - IMO Project Manager, prepare to address the PSC meeting in Singapore.*

## GEBCO MEETINGS 2010

Navy Club, Lima, Peru, 11-18 September 2010.

The 2010 GEBCO meetings were all held at the Centro Naval de Peru (Navy Club) in Lima, Peru, from 11 to 18 September 2010: 11-14/9 - the Sub-Committee on Undersea Feature Names (SCUFN); 13-17/9 - the Technical Sub-Committee on Ocean Mapping (TSCOM); 13-17/9 - the interim Sub-Committee on Regional Undersea Mapping (ISCRUM); 18/9 - the GEBCO Guiding Committee (GGC). A Bathymetric Science Day was held on Wednesday 13 September at the offices of the Directorate of Hydrography and Navigation of the Peruvian Navy.



The meeting was attended by several Nippon Foundation - GEBCO scholars who were now at home and putting their training to good use. The number of students and their active participation in GEBCO were most encouraging. The full reports of the meeting will be made available on the GEBCO web site - [www.GEBCO.net](http://www.GEBCO.net).

### SCUFN



The 23<sup>rd</sup> SCUFN meeting was held under the chairmanship of Dr. Hans Werner SCHENKE from the “Alfred-Wegener-Institut für Polar und Meeresforschung” (AWI – Germany). There were 28 participants, including 9 of the 12 SCUFN members, i.e. from Argentina, Brazil, Germany, Japan, Rep of Korea, New Zealand, Pakistan, Russia, and USA. The meeting noted the absence of Lic. José Luis FRIAS SALAZAR (Mexico – IOC side) at two consecutive meetings and who, according to the SCUFN Terms of Reference, is regrettably considered to have resigned from the sub-committee. The main issues discussed at the meeting are summarized below.

- The meeting noted that the following language versions of IHO-IOC B-6 “Standardization of Undersea Feature Names” (2008 edition) have been completed and published, and are available from the IHO and GEBCO websites: English/French, English/Spanish, English/Russian, English/Korean and English/Japanese. The Chinese observers at the meeting offered to prepare an English/Chinese version, to be presented at the next meeting.
- A number of undersea feature name proposals were considered, including:
  - 13 proposals from AWI, Germany, in the north-eastern Pacific, the Arctic and the Scotia Sea;
  - 2 proposals from the Peruvian HO (DHN), in the south-eastern Pacific;
  - 2 proposals from the Scott Polar Research Institute (SPRI), UK, in the Southern Ocean;
  - 9 proposals from the Korean Committee on Marine Geographical Names (KCMGN), mainly in the central western Pacific;
  - 11 proposals from the Brazilian HO (DHN) in the south-western Atlantic;
  - 11 proposals from the Japan HO (JHOD) in the north-western Pacific;
  - 3 proposals from the Russian HO (DNO) in the Arctic.

In total, the Sub-Committee recommended the acceptance of 41 new undersea feature names for inclusion in the GEBCO Gazetteer.
- There was some discussion on the appropriateness of including generic terms of genetic origin in the terminology section of B-6. The sub-committee eventually recommended the adoption of the following two new generic terms, with their respective definitions: Mud Volcano and Rift.
- A detailed review of the Gazetteer “Reserve Section”, containing all pending names, was conducted on the basis of new information received at the IHB, as the SCUFN Secretariat. As a result, the sub-committee recommended the transfer of a number of those names to the official GEBCO Gazetteer and deletion of several other names in the Reserve Section.

### **TSCOM/iSCRUM**

The TSCOM meeting commenced with presentations by past GEBCO Nippon Foundation students on their current work activities and associated projects.

Education and outreach was discussed as this is an important issue for generating interest in ocean sciences. Presentations on various projects such as the JASON Project (which promotes “education through exploration” - <http://www.jason.org/public/whatis/start.aspx>) were provided. The meeting also discussed the possible support for masters and postdoctoral fellowship programs in ocean mapping and earth sciences.

The issue of facilitating data discovery through the provision of well documented metadata and associated services was discussed.

iSCRUM discussed how closer collaboration between regional mapping efforts could be better coordinated and how they could be aligned with GEBCO mapping efforts. Presentations were provided on the status of several International Bathymetric Chart (IBC) projects.

GEBCO held its fifth “Science Day” seminar on 15th September at the Peruvian Directorate of Hydrography (Callao). Very interesting presentations were provided by Izabel KING JECK, Brazilian Navy; Martin JAKOBSSON, Stockholm University, Sweden; Shin TANI, Japan Cabinet Secretariat for Ocean Policy; Megan JONES, University of California, USA; Paul ELMORE, US Naval Research Laboratory, USA and Jenifer AUSTIN FOULKES, Manager Google Ocean, Google, USA.

Jenifer FOULKES provided an update on the status and future plans for Google Ocean. This was followed by a discussion on the future cooperation between Google and GEBCO.

### **XXVIIth GGC**

The XXVII<sup>th</sup> GGC meeting was held on Saturday 18 September 2010 under the chairmanship of Dr. Robin FALCONER. Nine of the 10 GGC members were present together with the chairs of the Sub-Committees and invited Observers. The meeting took note of the absence of Lic. José Luis FRIAS SALAZAR (Mexico – IOC side) and noted that, as was the case with the SCUFN, he was now considered to have resigned from the Committee. The Chairman will consult with IOC regarding a replacement. The following topics, inter alia, were discussed:

- GEBCO GLOBE Project;
- World Mapping;
- Nippon Foundation – GEBCO new management structure and projects;
- Committee/Sub-Committee/WG structures;
- IHO Publication B-7 *GEBCO Guidelines*; and

reports were received from the following bodies:

- IHB;
- IHO Data Centre for Digital Bathymetry (IHO-DCDB);
- Intergovernmental Oceanographic Commission (IOC);
- GEBCO Digital Atlas Manager;
- GEBCO Bathymetric Editor;
- SCUFN;
- TSCOM;
- iSCRUM;
- Outreach WG; and
- Nippon Foundation-GEBCO Training Project Management Committee.

It was announced that Professor Bob WHITMARSH, who has held the position of GEBCO Permanent Secretary since 2000, would be stepping down at the end of 2010. It was agreed that Mr. David CLARK, formerly the Assistant Director of the NGDC in Boulder, Colorado, would assume the role of Permanent Secretary as from 1 January 2011.

The GGC noted the reports from the Sub-Committees and WGs. The IHB highlighted in its report the need for the GGC to prepare its draft Work Programme and budget for the period 2008-2012 and to submit this for discussion at the next Inter-Regional Co-ordination Committee meeting (IRCC3) in June 2011.

The GGC was pleased to note that Google Ocean had once again been able to attend the TSCOM meeting and concluded that the continuing close cooperation with Google Ocean could only help to improve GEBCO's visibility and global education regarding the importance of bathymetry.

The outline structure for the revision of the "GEBCO Guidelines" (IHO Publication B-7) was agreed. The draft revised text would be prepared by Steve SHIPMAN (IHB) seeking input as required from the Guiding Committee members. The revised text would be considered by the Guiding Committee prior to submission to IHO and IOC.

It was agreed that the "Interim Sub-Committee on Regional Undersea Mapping (iSCRUM)", set up at the 2009 meeting in Brest, France, should be formally established. A WG was set up to prepare draft Terms of Reference (ToR) and Rules of Procedure (RoP) for SCRUM and, in conjunction with this, to review the existing ToR and RoP for TSCOM to ensure consistency and avoid overlap/conflict. Following approval by the GGC these will be submitted to IHO and IOC. Information had been received that the IOC Consultative Group on Ocean Mapping (CGOM) had been disbanded. It was considered that SCRUM could provide an appropriate home for the International Bathymetric Charts (IBC) and that this would further enhance both regional and global mapping of the oceans. The GGC Chairman and the IHB will discuss this matter with IOC.

It was agreed to proceed with the GEBCO Globe Project. Robert ANDERSON, as Manager, was authorised to expend \$9500 to procure a prototype globe which included the improvements made since the 2009 meeting. This prototype should be displayed on the NOAA stand at the American Geophysical Union meeting in San Francisco in December 2010. The Manager will also seek the production of a range of globes, of varying sizes and costs, to meet many different educational roles. The globes should clearly indicate their GEBCO origin but an independent sales and distribution arrangement was preferred.

Further production runs of the GEBCO world map in both full and a reduced A3 size were approved. These would be printed in several venues around the world in order to reduce distribution costs.

It was agreed that the SCUFN meeting in 2011 would be held separately from the other GEBCO bodies. The GGC, TSCOM and SCRUM meetings will be held in the USA on dates still to be decided.

**IHO-IMO-IOC-WMO-IAEA-IALA CAPACITY BUILDING  
COORDINATION MEETING**

WMO, Geneva, Switzerland, 14-15 October 2010.

The Fourth Meeting of the Officers from the IHO, IMO, IOC, WMO, IAEA and IALA, responsible for Capacity Building matters, met at the WMO premises in Geneva, Switzerland, on 14-15 October 2010.

The following were present:

- IHO:** Mr. Janis KRASTINS (Chair CBSC), Capt. Hugo GORZIGLIA (IHB Director),  
Capt. Federico BERMEJO (IHB Professional Assistant - Capacity Building);
- IMO:** Mrs. Pamela TANSEY (Senior Deputy Director, Technical Cooperation Division);
- IOC:** (unable to attend due to last minute problem);
- WMO:** Capt. Edgar CABRERA (Chief, Marine Meteorology and Ocean Affairs Division) and Mrs. Aida DIONGUE-NIANG;
- IAEA:** Dr. Rita MAZZANTI (representative at Geneva);
- IALA:** Mr. Gary PROSSER (Executive Secretary) and VAdm. Jean-Charles LECLAIR (Advisor).

The meeting was opened by Dr. Jeff LOVE, Director of the WMO Weather Disaster Risk Reduction and Services Department. The meeting was then chaired by Captain CABRERA who welcomed the participants, and in particular those attending for the first time. The WMO gave a presentation on the general concepts and strategies followed by the WMO with regard to training.

The following topics were discussed at the meeting:

- a) Status of accomplishment of the 2010 Capacity Building Work Programmes;
- b) Experience gained and procedures in place to improve effectiveness in the provision of capacity building;
- c) Status of joint cooperation projects and other Regional Case Studies experiences;
- d) Presentation of Capacity Building Work Programmes for 2011;
- e) Experience in dealing with funding agencies. This included an excellent presentation made by an expert from the WMO on strategies to be followed when dealing with funding agencies and donors.

Finally, information and views were exchanged aimed at exploring the way ahead; moreover, it was confirmed that initiatives would carry more weight if projects were supported by more than one agency. It was also noted that an initiative involving all participating agencies might not prove to be realistic, but there were several areas which would benefit from bilateral and trilateral approaches.

The following Action List was approved:

- 1.- To inform the outside world that the participating organizations work closely together on capacity building matters;
- 2.- WMO will coordinate arrangements until the next meeting and will draft and circulate the minutes of the meeting;
- 3.- The six organizations will share their future draft working programmes regarding CB/TC, as soon as they are available, to be used as a planning information source;
- 4.- As a permanent objective, all organizations to explore areas of future cooperation;
- 5.- Action will continue to encourage coordination of ongoing joint cooperation projects keeping the organizations' lists of national focal points updated, as a mechanism to improve communication;
- 6.- IHO to provide input to IMO by the end of 2010 for the IMO TC Programme for the period 2012 – 2013;
- 7.- The next coordination meeting will take place on 27-28 October 2011, at the IALA Headquarters, in Paris, France.



*Left to right: Dr. MAZZANTI, Capt. BERMEJO, Mr. KRASTINS, Mrs. DIONGUE-NIANG, VAdm. LECLAIR, Mrs. TANSEY, Mr. PROSSER, Capt. GORZIGLIA and Capt. CABRERA.*

**NORWAY HOLDS E-NAVIGATION WORKSHOP AT THE IHB**  
IHB, Monaco, 4-5 November 2010.

Norway, as chair of the IMO Correspondence Group (CG), held a workshop at the IHB on 4 and 5 November 2010 to discuss matters related to the data model(s) to be used within e-navigation.

The workshop was attended by more than 50 delegates representing many IMO Member States and numerous international shipping organizations. Full details including most of the papers presented were made available on the web site: 'www.e-nav.no'. The report of the workshop was subsequently passed to all members of the CG for consideration as part of the final report to NAV57 in June 2011.

An important conclusion of the workshop included in the Chairman's summary report was "...it was concluded that S-100 should be considered as a baseline, as an important element in the e-navigation concept." This statement underlined the fundamental role that the IHO S-100 standard and its associated S-100 GI registry may have under the e-Navigation concept.



*Kirsti SLOTSVIK, Director NCA, opening the workshop together with (from l to r) Captain WARD, IHB, John Erik HAGEN, Chair IMO CG and Captain SINGHOTA, IMO.*



*Delegates at the workshop.*

## COAST MAP IO WRAP-UP MEETING

Bangkok, Thailand, 29-30 November 2010

The Coast-Map-IO Wrap-up meeting took place at the Tai-Pan Hotel in Bangkok, Thailand, on 29 and 30 November 2010. The Coast-Map-IO project aims at enabling countries bordering the Indian Ocean to acquire and exploit coastal bathymetric data for the development of various products, e.g. inundation maps, required for preparedness and mitigation of ocean-based extreme events, such as tsunamis. Coast-Map-IO is a project of the Intergovernmental Oceanographic Commission (of UNESCO), funded by the Government of Italy. The IHB has contributed to the project through provision of expertise in bathymetry.

The meeting was hosted by the UNESCO/IOC Regional Secretariat for the Western Pacific and chaired by Dr. Dmitriy Travin from the IOC Secretariat in Paris. Eleven countries, out of the 12 countries participating in the project were represented at the meeting (by their HOs when they exist - underlined), i.e. Bangladesh, Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Myanmar, Seychelles, Sri Lanka and Thailand (Tanzania did not attend). Other participants included representatives of:

- The Italian Government through the Italian Embassy in Bangkok;
- Donor or partnership organizations involved in related projects in the Western Indian Ocean, e.g. World Bank, Caris;
- Training institutions, e.g. AWI from Germany;
- UN Development Programme (UNDP), Asia-Pacific Regional Centre.



This meeting concluded a series of technical assessment visits conducted in the 12 concerned countries, and a training programme on all topics of interest to Coast-Map-IO, such as hydrographic surveying (including multibeam surveys), bathymetric data management, digital elevation modeling, tsunami modeling and inundation mapping. As a result of the training programme, 175 persons from the 12 countries have been trained through 15 training courses of two / three weeks. The assistance provided by the Indian HO (NHO) and the Indian Government, as well as by the French HO (SHOM) to the training programme has significantly contributed to its success and should be noted. In addition to the above, some equipment (hardware and/or software) was provided to several participating countries, within the limited budget kindly made available by the Italian Government for Coast-Map-IO (approx. 1.3 M€).

However, the funds provided did not allow completing the project in most cases, in particular building national seamless Coast-Map-IO bathymetric and topographic databases covering priority areas and from which inundation maps can be constructed through tsunami modeling. Only Thailand was able to complete the whole process. The meeting reviewed the work done in each country and identified the remaining tasks, which will require appropriate funding. An option could be for the relevant countries to submit project proposals to donor agency(ies) such as the World Bank. Improving hydrographic capabilities within the Indian Ocean region could also be progressed through the relevant Regional Hydrographic Commissions, i.e. NIOHC and SAIHC.