

**IHO HYDROGRAPHIC COMMITTEE ON ANTARCTICA (HCA)
10th Meeting, Cambridge, United Kingdom, 20-22 September 2010**

NATIONAL REPORT – BRAZIL

1. Hydrographic Office / Service: Directorate of Hydrography and Navigation (DHN)
2. Surveys: Tide reduction: Maxwell Bay (national chart 25122), Admiralty Bay (national chart 25121) and Elephant Island (near Refugio Emilio Goeldi–national chart 25115) were visited by a recognition team, in order to define the best places to install tidal stations and type of equipments.
It remains the intention expressed in 2009 report of updating national charts 25121 (Admiralty Bay) and 25122 (Maxwell Bay) by the performance of surveys using multibeam echosounder, as well as the performance of surveys during the crossings of the secondary corridors of the HCA Long Term Survey Plan, specially the parts which access Admiralty Bay (chart 25121) and Maxwell Bay (chart 25122) in addition to the main corridor between Elephant and King George Islands.
Bathymetric surveys were not performed in 2009.
3. New charts & updates: 2 (two) new ENCs:
- New Electronic Navigational Chart BR325110 – Elephant Island and Surroundings - Compilation Scale 1:180.000 - limits: 60° 45' 00"S; 62° 05' 00"S; 057° 45' 00"W and 053° 30' 00"W.
- New Electronic Navigational Chart BR425121 – Admiralty Bay – Compilation Scale 1:45.000 - limits: 62° 18' 00"S; 62° 20' 00"S; 058° 12' 00"W and 058° 40' 00"W.
4. New publications & updates: xxx
5. MSI: xxx
6. S-55 Not applicable to INT Region M.
7. Capacity Building:
- a) Training needed: xxx
- b) Training and courses offered:

COURSE	DESCRIPTION	DURATION	REQUIREMENTS
C-Espc-HN	To qualify the student to be a technician in Hydrography and Navigation issues. Contents: Astronomy, Meteorology, Navigation, Cartography, Geodesy,	42 weeks	Elementary school

COURSE	DESCRIPTION	DURATION	REQUIREMENTS
	Tides Hydrographic Surveys, Oceanography, Topography and Practical Hydrography		
C-Ap-HN	To increase the capacity of the student to be a technician in Hydrography and Navigation. Contents: Astronomy, Meteorology, Navigation, Cartography, Geodesy, Tides, Hydrographic Surveys, Oceanography, Topography and Practical Hydrography	35 weeks	High School C-Espc-HN
CAHO (IHO Cat."A")	To provide the student with the capacity to plan, to conduct and to execute the activities related with the Hydrographic Service. Contents: Oceanography, Topography, Meteorology, Geodesy, Marine Geology, Aids to navigation, Cartography, Tides, Navigation, Submarine Acoustic, Remote Sensing and Photogrametry, Production of the Nautical Chart, Hydrography, Error Theory, Practical Hydrography and Aerophotogrametry.	50 weeks	To be graduated in Naval Sciences, Cartography, Physics, Mathematic, Statistics, Geology, Geophysics, Oceanography, Meteorology, Computer Science and correlated sciences
Oceanography	To use the concepts and the physical properties of the oceans in an oceanographic survey for application in naval operations	95 hours	Graduation in Naval Sciences or Cartographic Engineering
Hydrography	To plan, to execute, to process and to analyze hydrographic survey.	164 hours	Graduation in Naval Sciences or Cartographic Engineering.
Tide	To introduce the tide theory learning how to predict and how to get a harmonic analyses to a hydrographic survey use.	83 hours	Graduation in Naval Sciences or Cartographic Engineering.
Cartography Projections	To identify and to use cartographic projection systems commonly applied in hydrography.	51 hours	Graduation in Naval Sciences or Cartographic Engineering.
NC Production	To describe the processes of the construction and updating of a Nautical Chart.	37 hours	Graduation in Naval Sciences or Cartographic Engineering, Cartography.
Training in single beam acquisition and processing	To promote a day by day follow up of the single beam acquisition and of the processing tasks onboard.	-	Graduation in Naval Sciences or Cartographic Engineering, Hydrography

COURSE	DESCRIPTION	DURATION	REQUIREMENTS
Training in multibeam acquisition and processing	To promote a day by day follow up of the multibeam acquisition and of the processing tasks onboard.	-	Graduation in Naval Sciences or Cartographic Engineering, Hydrography
Training in Side Scan operation	To promote a day by day follow up of the side scan operation onboard.	-	Graduation in Naval Sciences or Cartographic Engineering, Hydrography
Training in gauges operation	To promote a day by day follow up of the gauge operation onboard.	1 week	Graduation in Naval Sciences or Cartographic Engineering, Tide.
Training in GPS survey and post processing	To plan a GPS network, to carry out a classical survey, to post-process baselines and to adjust geodetic coordinate network stations.	1 week	Graduation in Naval Sciences or Cartographic Engineering, Hydrography.
Training in oceanographic data acquisition and processing	To promote a day by day follow up of the oceanographic data processing and acquisition.	2 weeks	Undergraduate in Naval Sciences, Oceanography, or Coastal Engineering.

c) Projects under development:

- Workshop on geospatial data processing and management – 2011.

8. Oceanographic activities

General: By the end of 2010 until early 2011, it will be conducted the fourth oceanographic survey at Antarctic Waters, during OPERANTAR XXIX, performed by the Navy Ship ARY RONGEL. The Navy Ship ALMIRANTE MAXIMIANO has been equipped with ADCP and CTD/rosette system for Oceanographic Research for the next OPERANTAR XXIX.

GEBCO/IBC's activities: routine GEBCO soundings are performed by the Navy Ship ARY RONGEL during all the annual OPERANTAR operations.

Problems encountered: it was detected the need of a greater number of spares equipments and parts to adequately perform the oceanographic measurements, due to the isolation and harsh conditions of the Antarctic region.

9. Other activities:

Participation in IHO Committees / Working Groups:

- Committee on Hydrographic Requirements for Information Systems (CHRIS).
- Hydrographic and Cartography in Inland Waters Working Group (HCIWWG).
- IHO Strategic Plan Working Group (ISPWG).
- On-line Hydrographic Dictionary (S-32).

- Wide Electronic Navigational Chart DATABASE (WEND)
- Tidal and Water Level Working Group (TWLWG) carried out in DHN.
- Sub-Committee on Undersea Feature Names (SCUNF).
- Advisory Board on the Law of the Sea (ABLOS).
- Transfer Standard Maintenance And Application Development Working Group (TSMAD).
- Chart Standardization And Paper Chart Working Group (CSPCWG).
- Standardization of Nautical Publication Work Group (SNPWG).
- Capacity Building, Sub-Committee (CBSC).
- Hydrographic Services and Standard Committee (HSSC).
- World-Wide Navigational Warnings (WWNWS).
- General Bathymetric Chart of the Oceans (GEBCO) Guiding Committee.
- Technical Sub-Committee on Oceans Mapping (TSCOM).

Meteorological data collection:

- Participation of Meteorological Officers of the Brazilian Marine Meteorological Service during the Southern summer expedition to provide forecast in support of the Navy Ship ARY RONGEL during all the annual OPERANTAR operations.
- Provide special daily forecast in support of research and logistic activities in "Comandante Ferraz" Antarctic Station and shelter points based on numeric weather products.

Tide prediction: Tide prediction to the Station "Comandante Ferraz" in the "Martel Inlet".

10. Conclusions

DHN continues its commitment to carrying forward hydrographic activities through the work of the Hydrographic Commission on Antarctica.