

**IHO HYDROGRAPHIC COMMITTEE ON ANTARCTICA (HCA)**  
**9<sup>th</sup> Meeting, Cape Town, South Africa, 12-14 October 2009**

**NATIONAL REPORT – BRAZIL**

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|-----------------------------------|---|
| 1. Hydrographic Office / Service: | Directorate of Hydrography and Navigation (DHN)   |
| 2. Surveys:                       | <p>Coverage of new surveys: providing continuity to the survey procedures intended to support the development of the INT Chart 9151, the NApOc Ary Rongel, performed single beam surveys to the south of King George Island during 2008-2009 cruise. The area surveyed is delimited by the following approximate coordinates: LAT 062° 20' and 062° 35'S; LONG 058° 45' and 057° 20'W.</p> <p>According to the intention expressed in the Brazilian 2008 report to perform the survey, a single beam survey has been carried out in the surroundings of the Comandante Ferraz Antarctica Station. The surveyed area comprises the whole interior of Martel Cove (National Chart 25121), between the depths of 10 and 100 m .</p> <p>Future planning includes the performance of a multi beam survey for the update of national charts 25121 and 25122; 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</p> |
| 3. New charts & updates:          | <p>3 (three) Charts:</p> <ul style="list-style-type: none"> <li>- New Edition of National Paper Chart 25121 – Admiralty Bay o - 1:40.000 - limits: 62° 18' 00"S; 62° 20' 00"S; 058° 12' 00"W and 058° 40' 00"W.</li> <li>- New Edition of International Paper Chart INT 9150 – Elephant Island and Surroundings - 1:200.000 - limits: 60° 45' 00"S; 62° 05' 00"S; 057° 45' 00"W and 053° 30' 00"W.</li> <li>- New Electronic Navigational Chart BR525121 – Martel Cove– Compilation Scale 1:12.000 - limits: 62° 03.58' S; 62° 07' 61"S; 058°16.90' W and 058° 24.98' W.</li> </ul>   |
| 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, Tides Hydrographic Surveys, Oceanography, Topography and Practical Hydrography	42 weeks	Elementary school
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, and Practical Hydrography.	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.	404 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	To describe the processes of the	37 hours	Graduation in Naval

COURSE	DESCRIPTION	DURATION	REQUIREMENTS
Production	construction and updating of a Nautical Chart.		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
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 on Antarctic meteorology	To describe atmospheric concepts and Antarctic characteristics so it is possible to provide better support to external activities in Antarctica	1 week	To be selected to work at "Comandante Ferraz" Antarctic Station

c) Projects under development:

- Chart Production & ENC Training course – OUT2009;
- Cartographic production update – 2009
- Multi beam course – 2009;
- Workshop on shallow water hydrography – 2010 ;
- Workshop on geospatial data processing and management – 2011.

8. Oceanographic activities

General: In early 2009, it was completed the fourth consecutive annual oceanographic survey at Antarctic Waters, during OPERANTAR XXVII, performed by the Navy Ship ARY RONGEL.

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

New equipment: during the second consecutive annual oceanographic survey at Antarctic Waters (OPERANTAR XXVII, 2008-9), there was an increase in the number/quality of sensors employed at the oceanographic stations.

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:  
CHRIS, GEBCO-SCUNF, S-32, S-44, WEND, CBC, HCIWWG, ISPWG.

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