

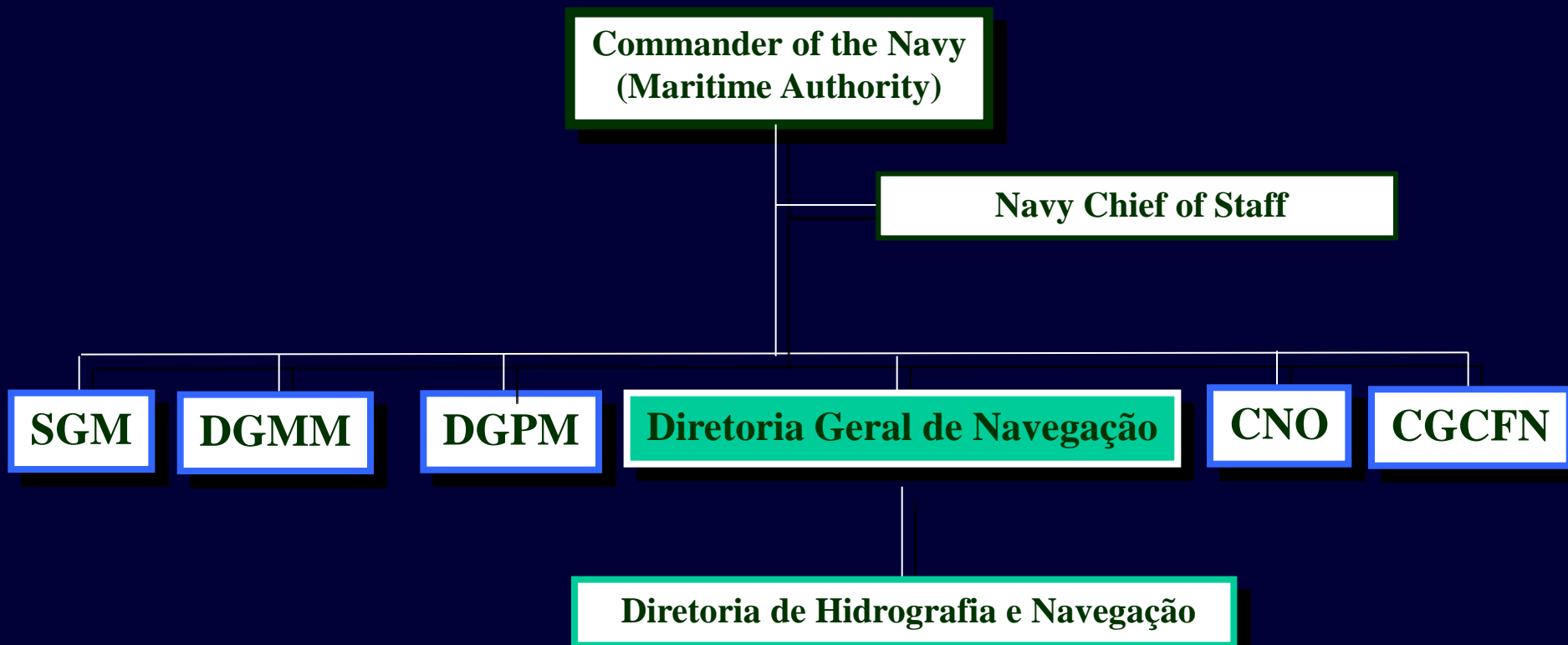


**DIRECTORATE OF HYDROGRAPHY AND NAVIGATION
BRAZILIAN NAVY CENTER OF HYDROGRAPHY**

GEBCO MEETING



DHN Chain of Command



The Brazilian Hydrographic and Marine Meteorological Services



ISO 9001/2008
(November 2008)

Responsibilities

- Hydrography
 - Cartography
 - Nautical Publications
 - Meteorology
 - Maritime Safety Information
 - Oceanography
-
- Capacity building
 - Navigational Aids
 - Survey Fleet



CHM

Centre of Hydrography,
Meteorology and Oceanography



GNHO

Hydrographic
Fleet



CAMR

Lighthouse Authority



BHMN

Logistic Base

Hydrographic/Oceanographic Survey Fleet

6 oceanic ships (1200 tons)

NOc Antares



NHi Sirius



NHoF Alte Graça Aranha



NHo Cruzeiro do Sul



NAPoc Ary Rongel



NPo Alte Maximiano



8 coastal ships (700 tons)

Amorim do Valle



Comandante Varella



Tenente Boanerges



Mario Seixas



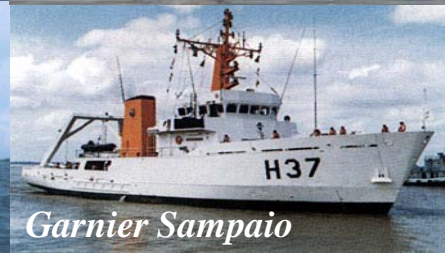
Taurus



Comandante Manhães



Garnier Sampaio



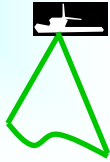
Tenente Castello



Hydrographic Survey Fleet – cont.

10 launches
(132 tons) along
Brazilian coast

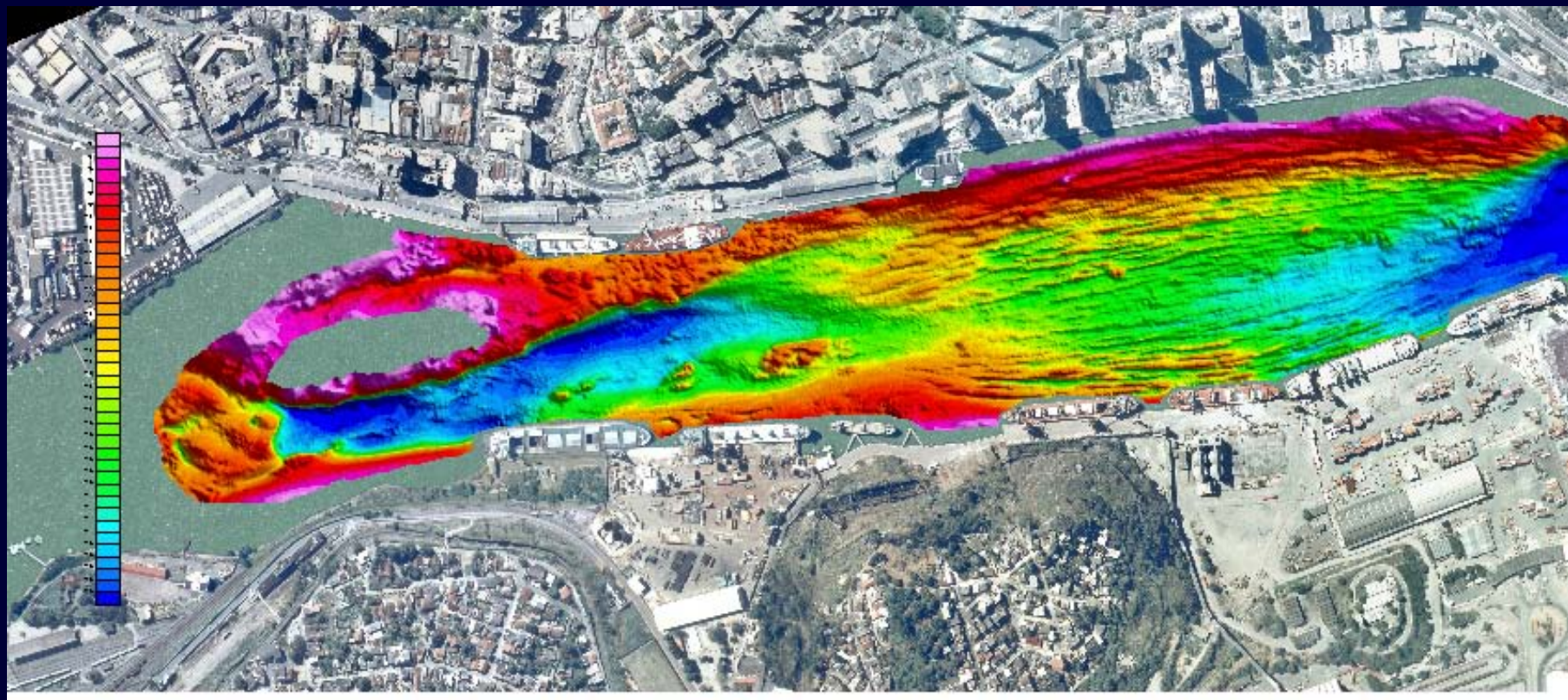
Portable
equipments



Multibeam Bathymetry

EM-302 (2) / EM-1002 / EM 3000 / EM -3002 (installed)

EM-710 (2) / EM-122 / EM 2040 (to be installed)



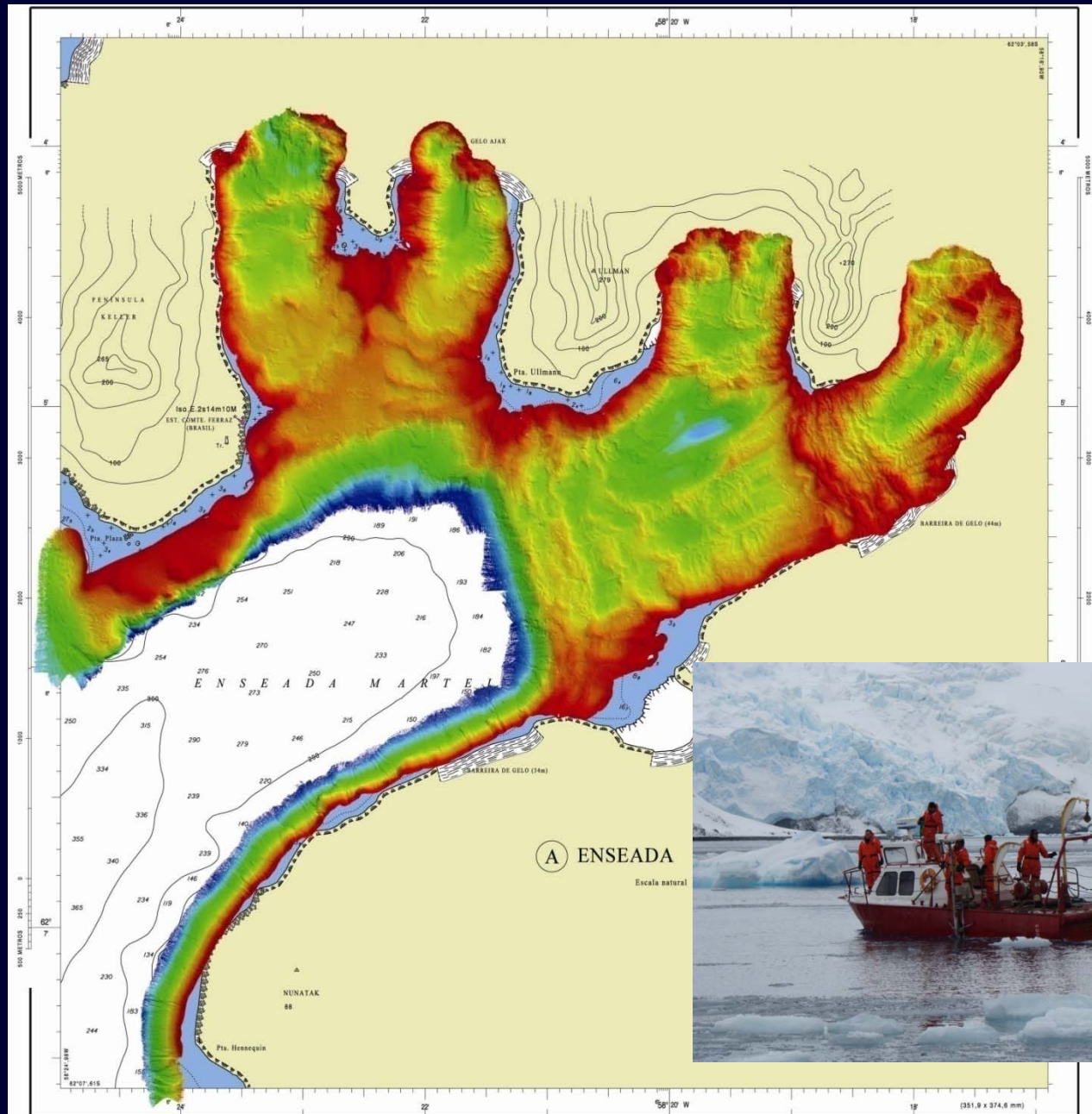
Vitória Harbour - ES

**EM 1000
(2004)**

Multibeam Bathymetry – cont.

Antartica

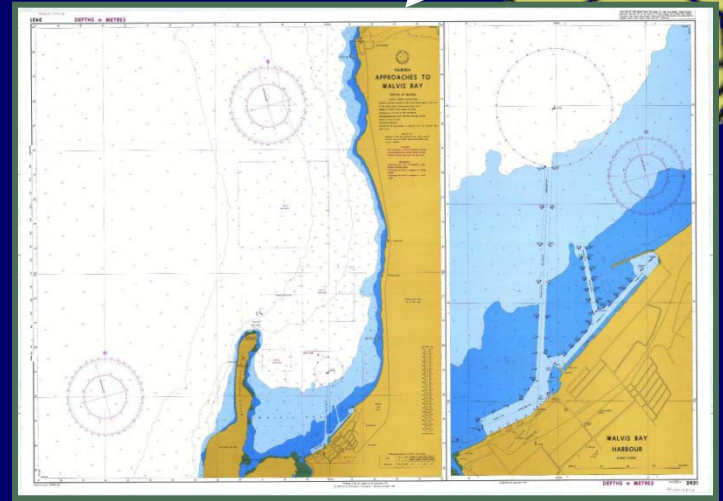
EM 3000
(2008)



Brazilian Hydrographic Service



545 Nautical Paper
Charts

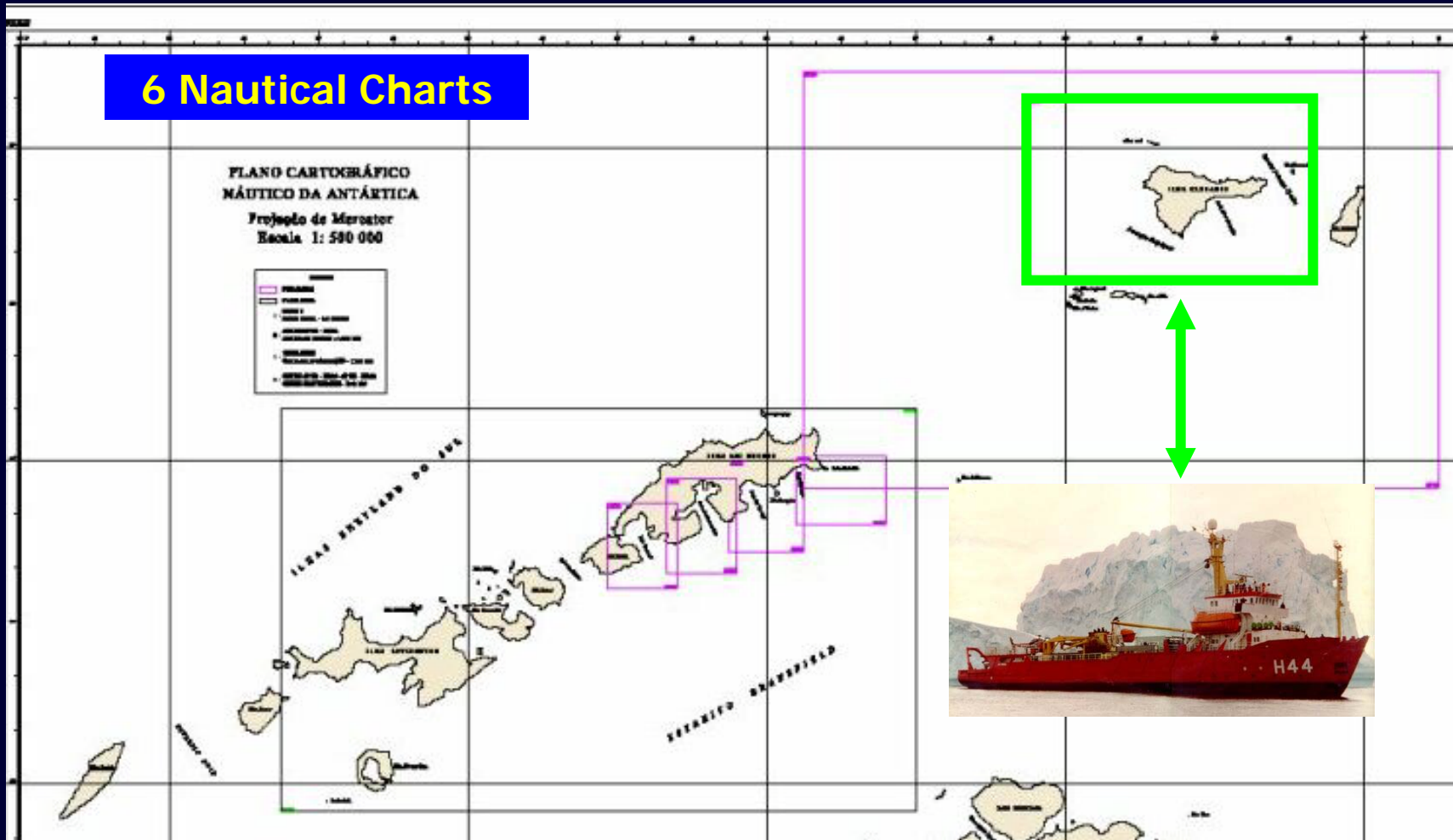
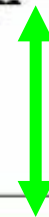
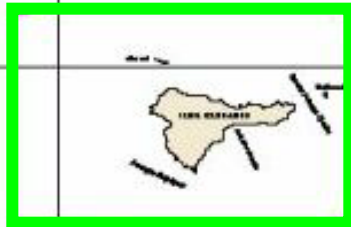


Cartographic Plan for Antarctica

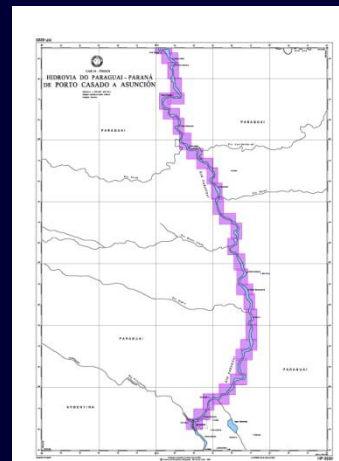
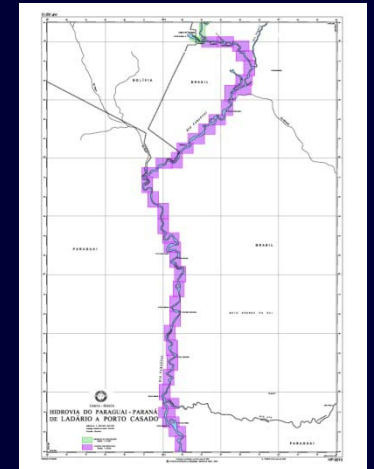
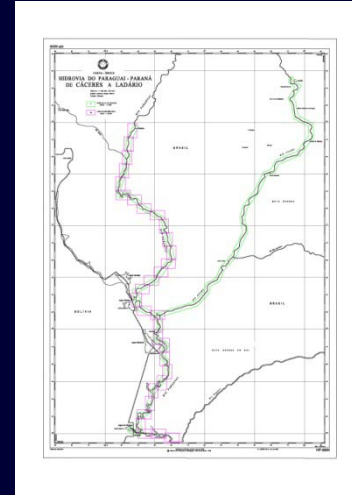
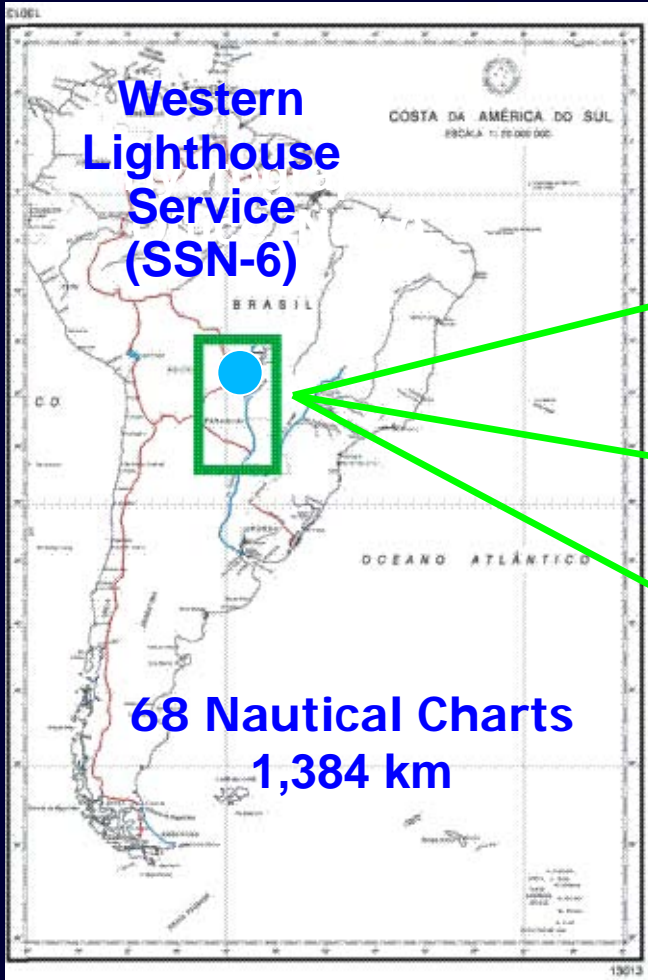
6 Nautical Charts

PLANO CARTOGRÁFICO
MÁUTICO DA ANTÁRTICA
Projeção de Mercator
Escala 1: 500 000

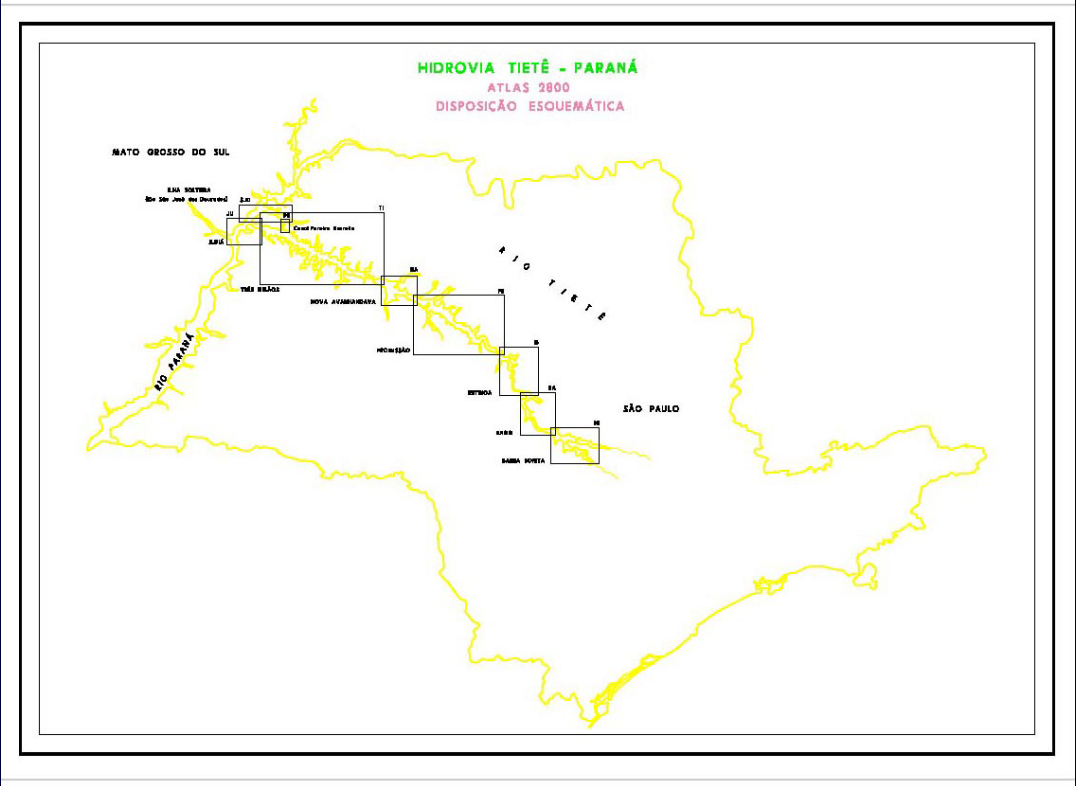
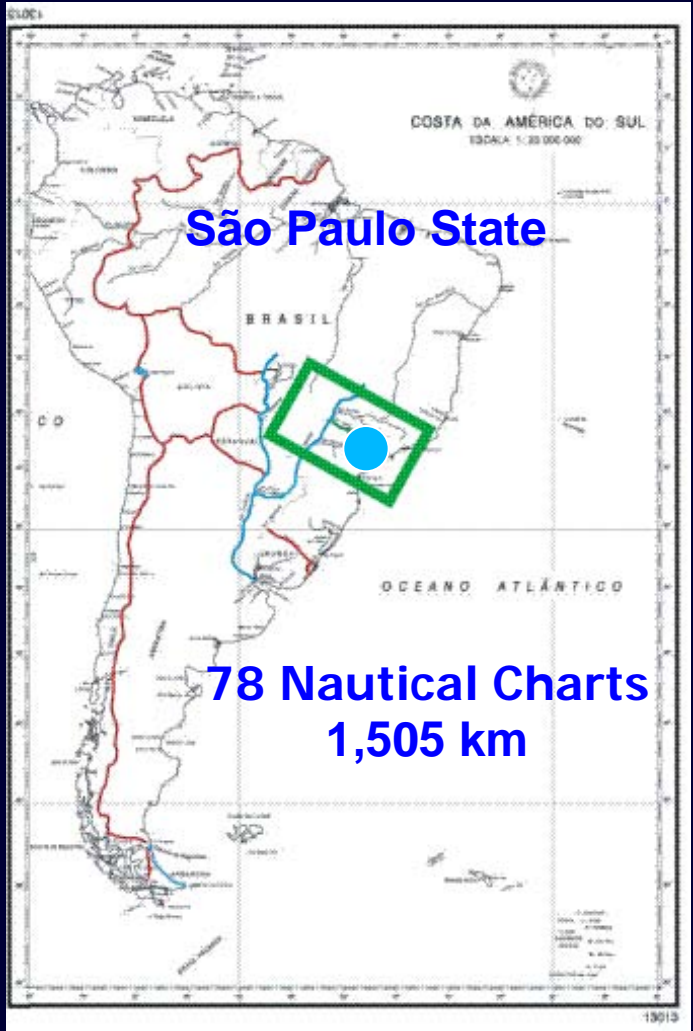
SÍMBOLOS	
[Red line]	FRONTEIRA
[Black line]	DESMARCHE
[Red circle]	ILHAS
[Red square]	ESTRUTURAS DE CONCRETO
[Red triangle]	ESTRUTURAS DE MADEIRA
[Red diamond]	ESTRUTURAS METÁLICAS
[Red star]	ESTRUTURAS DE CIMENTO
[Red cross]	ESTRUTURAS DE ALUMÍNIO
[Red plus]	ESTRUTURAS DE OUTROS MATERIAIS



Cartographic Plan for Paraguai-Paraná River Basin



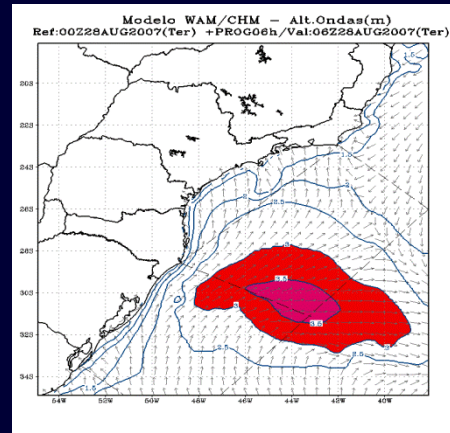
Cartographic Plan for Tietê-Paraná Waterway



Cartographic Production Database

HPD

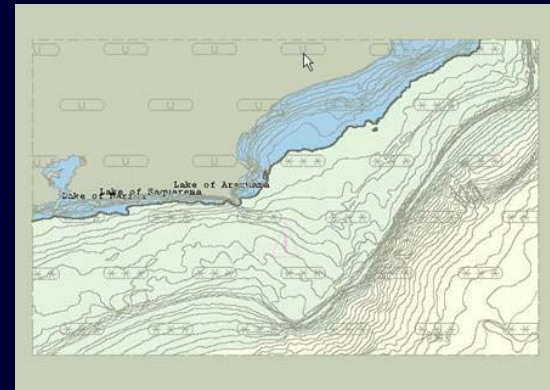
Hydrographic and Navigation Safety Information



Maritime Information
Overlays (MIO)



Print
On Demand



Additional Military Layers
(AML)



Paper Charts

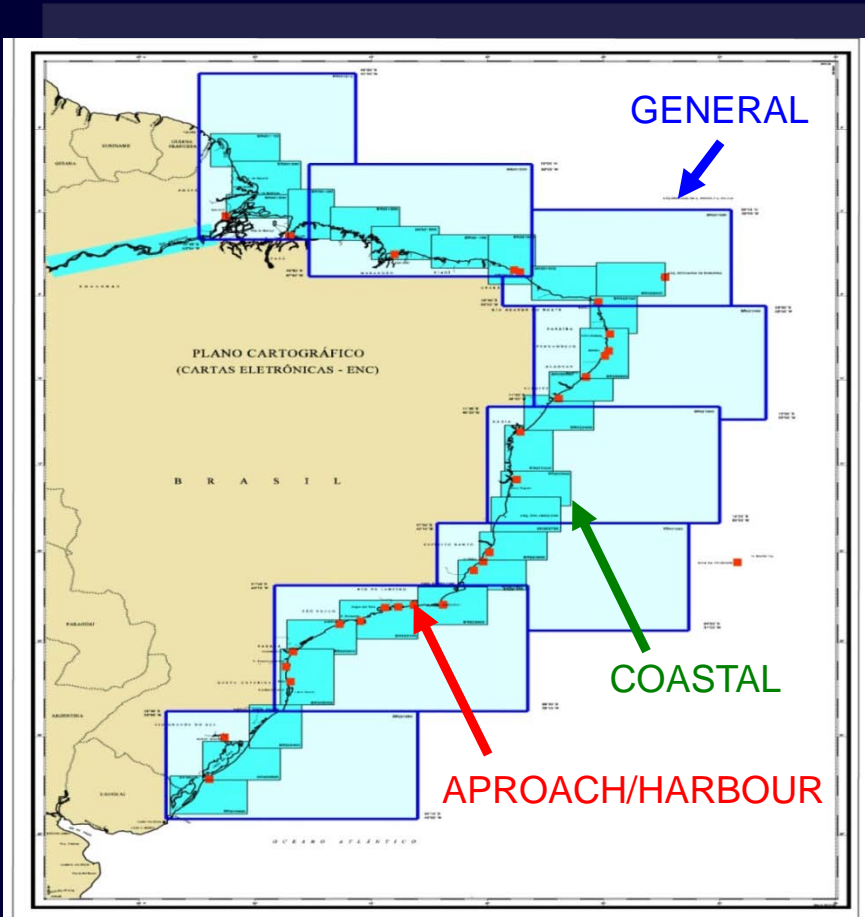


Raster Nautical
Charts (RNC)



Electronic Navigational Charts
(ENC)

Electronic Navigational Charts ENC




157 ENC (General, Coastal, Approach and and Harbours) for the Brazilian Coast and Amazon River (SOLAS Ships)

115 ENC in the market


Notice to Mariners


CENTRO DE HIDROGRAFIA DA MARINHA
AVISOS AOS NAVEGANTES


English version




AVISOS AOS NAVEGANTES E RELAÇÃO DAS CARTAS E PUBLICAÇÕES NÁUTICAS

 **Área Marítima e Hidrovias Paraguai-Paraná em Geral** (PDF)

 **Hidrovia** (PDF)

 **Hidrovia Tietê-Paraná** (PDF)

 **Relação das Cartas e Publicações Náuticas com as Correções até junho de 2010** (PDF)

Nova página de Avisos-Rádio Náuticos e SAR:
<http://www.mar.mil.br/dhn/chm/avgantes/avradio.htm>

[Fale conosco](#)

Maritime Safety Information

CENTRO DE HIDROGRAFIA DA MARINHA
AVISOS-RÁDIO NÁUTICOS E SAR

English version



Satisfação do Usuário
Dê sua opinião sobre:
O recebimento dos Avisos-Rádio Náuticos O nosso serviço

<input type="radio"/> Ótimo	<input type="radio"/> Ótimo
<input type="radio"/> Bom	<input type="radio"/> Bom
<input type="radio"/> Regular	<input type="radio"/> Regular
<input type="radio"/> Ruim	<input type="radio"/> Ruim
<input type="radio"/> Insatisfatório	<input type="radio"/> Insatisfatório

AVISOS-RÁDIO NÁUTICOS
Atualização: em média, 2 vezes ao dia



AVISOS-RÁDIO SAR



[Fale conosco](#)

<http://www.mar.mil.br/dhn/chm/avgantes/avgante.htm>

<http://www.mar.mil.br/dhn/chm/avgantes/avradio.htm>

Marine Meteorological Service



Issues and provides meteorological information (forecast and warnings) for navigators to METAREA V:

- bulletins
- synoptic charts
- severe weather warnings

(International Convention for the Safety of Life at Sea – SOLAS)



Numerical Weather Prediction

Atlantic

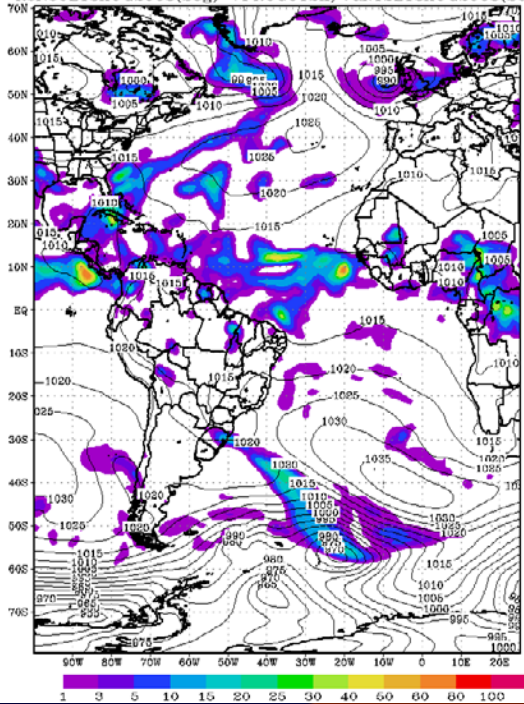


Regional



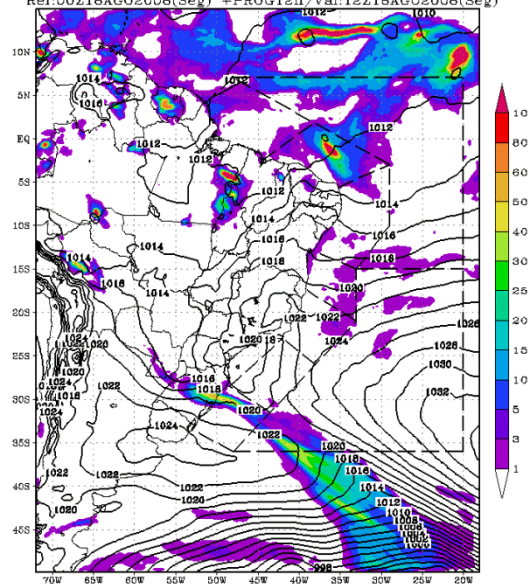
Local

GME/CHM - Press Sup./Precip. Acumul.(12h)
Ref:00Z18AUG2008(Seg) +PROG012h/Val:12Z18AUG2008(Seg)



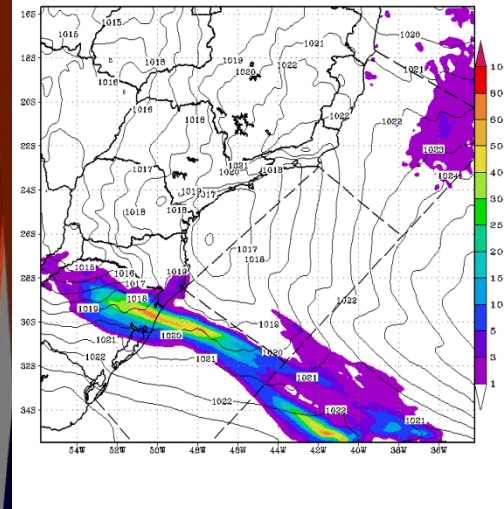
GME 0.75 168h
WW3 / WAM 1.0

Modelo HRM/CHM - Pres. Sup./Prec. Acum.(12h)
Ref:00Z18AG02008(Seg) +PROG12h/Val:12Z18AG02008(Seg)



HRM 0.18 78h
WW3 / WAM 0.3

Modelo HRM/CHM - Pres. Sup./Prec. Acum.(12h)
Ref:00Z18AG02008(Seg) +PROG12h/Val:12Z18AG02008(Seg)



HRM 0.09 78h
WW3 / WAM 0.1

Numerical Ocean Prediction – cont.

Atlantic

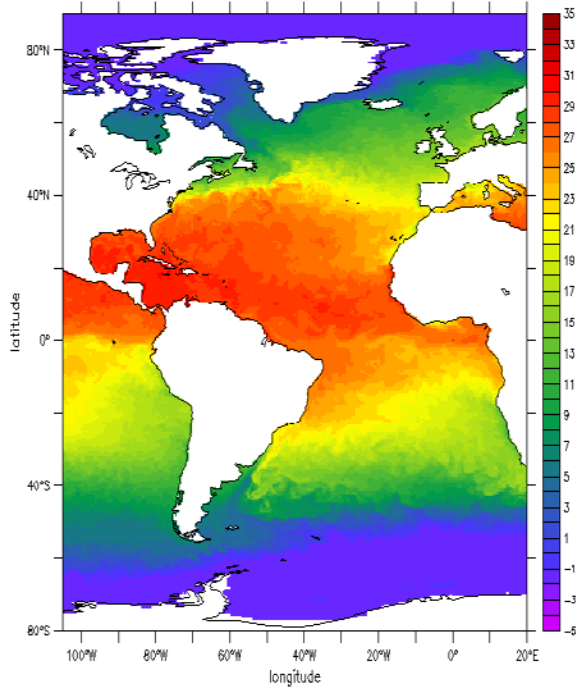


Regional



Local

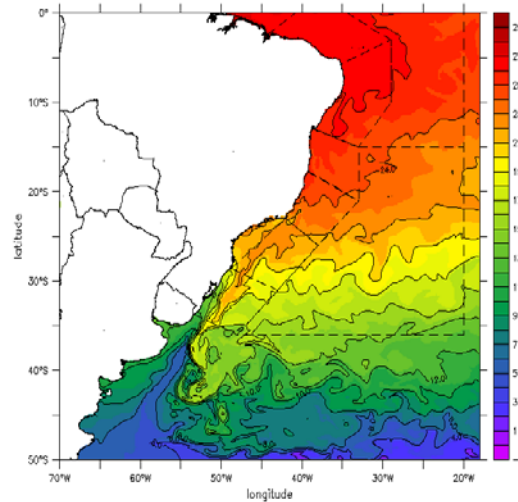
ATLANTIC OCEAN MODEL



HYCOM 1/4°

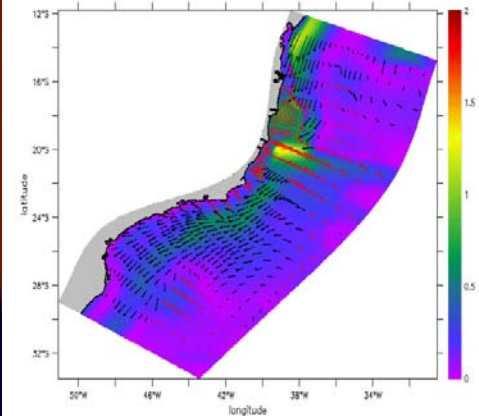
METAREA-V OCEAN MODEL

Ref:00Z10SET2008(QUA) +PROG312h/Val:00Z23SET2008(TER)



HYCOM 1/12

Modelo POM/PETROBRAS-CHM – Altura da Superfície do Mar (m)
00Z30JUL2007(SEC) Analise



HYCOM/ROMS/POM

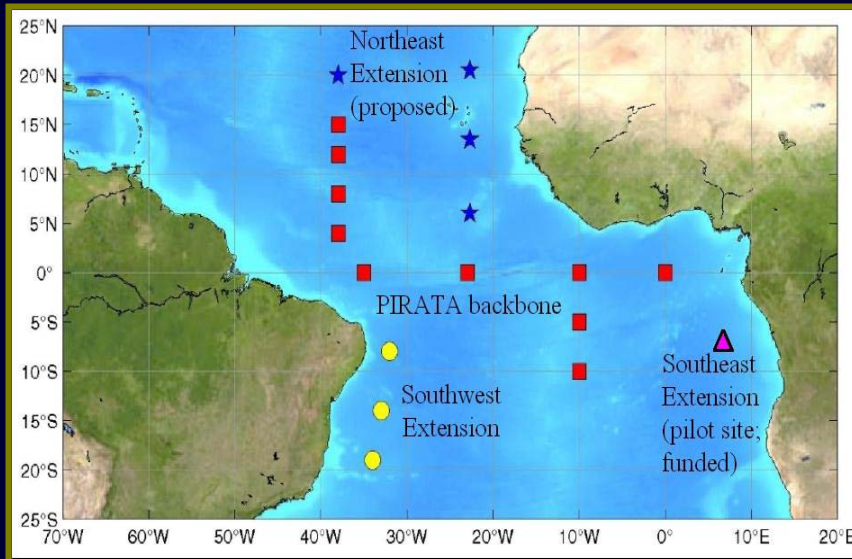
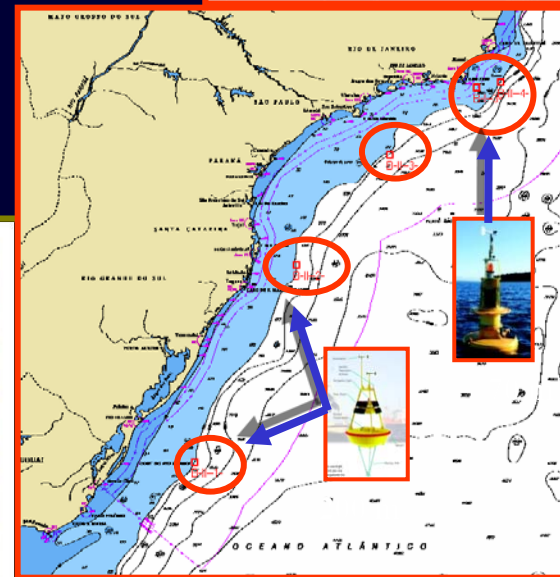
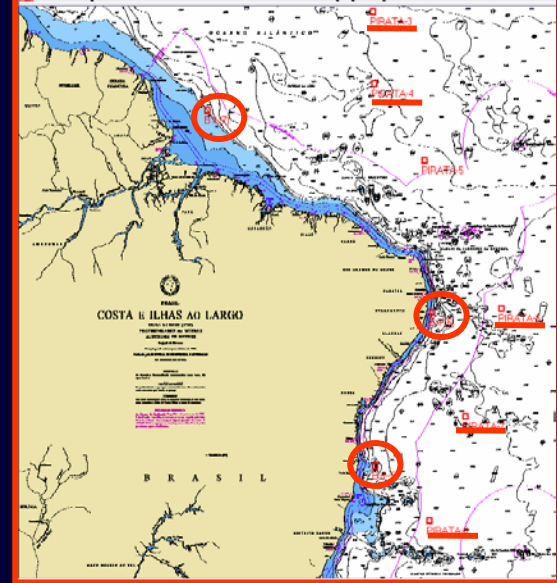
Data Collection (meteo-oceanographic data)

GOOS (COI) - <http://www.goosbrasil.org/>

PNBOIA - Brazilian National Buoy Programme

Moored buoys 08
Drifters 47

PIRATA – INPE/DHN/FR/USA



DBCP
Data Buoy Cooperation Panel



ISABP
International South Atlantic Buoy Program

National Cooperation

Research Centers / Universities



Industries



Operational Institutions



International Organizations



DHN



WMO



IOC



IHO



IMO



IALA

Capacity building

DHN offers:

Cat A (one year hydrography course)

Cat B (one year hydrography course)

Special courses like:

Tide gauge installation and operation course

Hydrographic softwares courses

METOC courses

Bridge meteorological observer

Marine Aids to Navigation and Lighthouse Authorities

Moraes Rego Adm. Center - CAMR

Mission: Contribute to the safety of navigation, by conducting activities related to the systems of aids to navigation within the Brazilian maritime area and navigable waters.

5 major branch offices (SSN), 28 minor branch offices (at Port Captaincies), 24 small buoy tenders, 5 large buoy tenders, 1 ship dedicated to the lighthouses.

Today, the Aids to Navigation installed in Brazil totalize:

213 major beacons (automated lighthouses), including 30 manned lighthouses

15 radiobeacons

572 automated beacons

1015 fixed daymarks

760 light buoys

2267 unlighted buoys

41 radar beacons

11 DGPS Reference Stations

2240 signboards (mainly for river marking)

Getting the job done → Personnel



Officers

173 + 19R

Enlisted

1009 + 24R

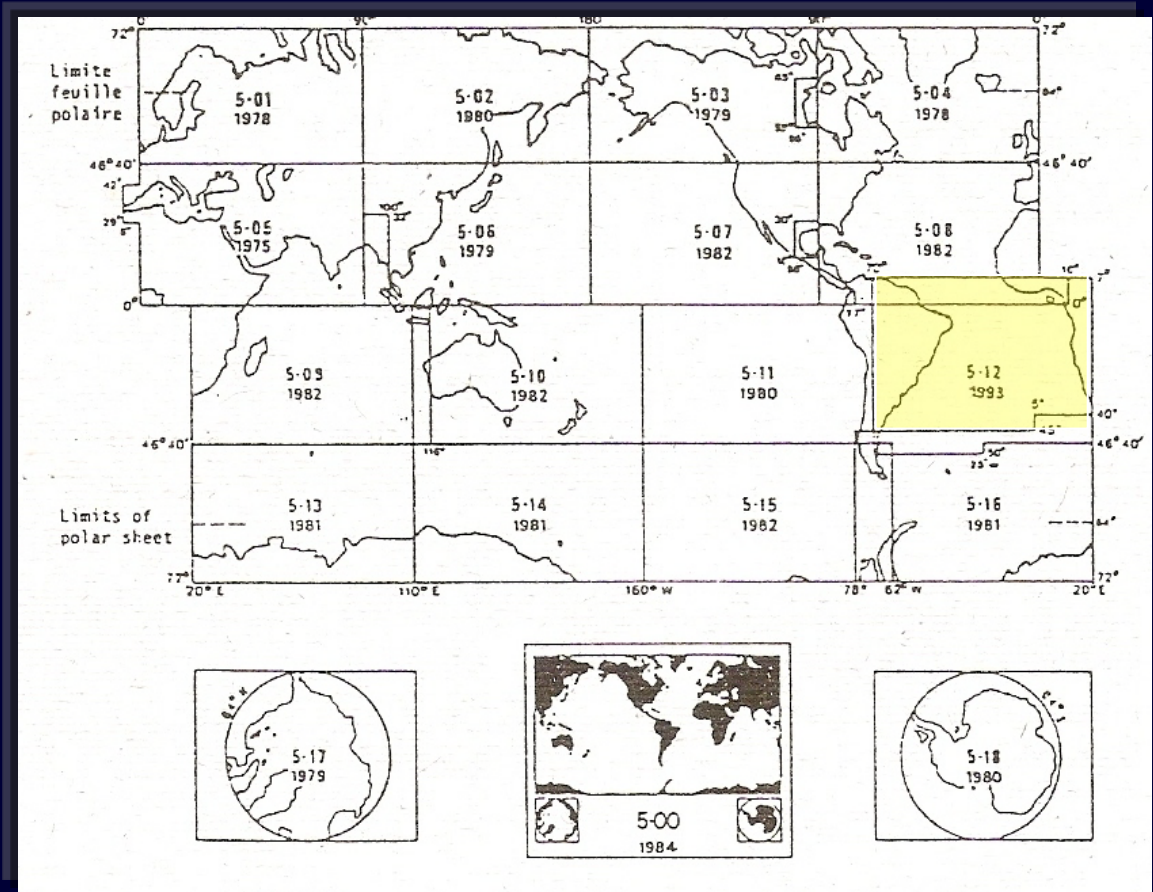
Civilians

215

Total

1440

GEBCO



DHN has the bathymetric information from GEBCO sheets in analogical format. It is been converted to digital format in order to send it to GEBCO database. Nowadays DHN sends recently acquired single and multibeam data to GEBCO database .



www.mar.mil.br/dhn



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Head of Survey Division
Brazilian Navy Center of Hydrography

izabel@chm.mar.mil.br