



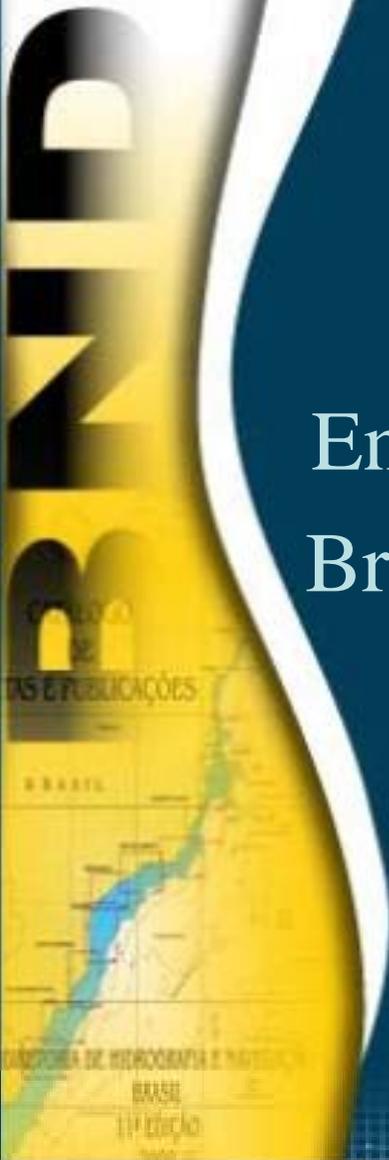
Brazilian NODC visit Oct 19th – 30th 2009





Commander ROSCHER
Head of the Brazilian NODC
Hidrografer

Environmental Information Superintendency
Brazilian Navy Hydrographic Center – CHM





SUMMARY

- DHN / CHM / BNDO Overview
- BNDO
- BNDO related CHM activities





DHN / CHM / BNDO Overview

DHN (Directorate of Hydrography and Navigation) is the military organization of the Brazilian Navy responsible for:

- “... supporting the application of the Naval Power, through activities related with hydrography, oceanography, nautical charting, meteorology, navigation and nautical signalization,
- guarantee the quality of navigation safety in waters over Brazilian duty, and
- supporting brazilian research projects and the ones resulting from internacional compromises”.





DHN / CHM / BNDO Overview

CHM (Navy Hydrographic Center) is subordinated to DHN, and technically executes/supervises the activities of hydrography, nautical charting, oceanography, and meteorology.

BNDO (Banco Nacional de Dados Oceanográficos) is operated by CHM, and, by force of Governmental Law, acts as the “brazilian NODC”.





DHN / CHM / BNDO Overview

<https://www.mar.mil.br/dhn/dhn/index.html>





BNDQ

Main system features:

- My-SQL, migrating to SQL Server 2003.
- Instalers/source-codes stored in the same server.
- Systems run locally, there's no application server (two-layered model).
- No Version control.
- Only developers access sources.
- No Documentation.
- Scheduled planning..





BNDO – Data

Data in BNDO:

- physics/chemistry of seawater: T, S, P, O, nutrients, and pH;
- geology, bottom samples;
- tides: heights and harmonic constants;
- currents: single point and profiles;
- meteorology: includes sea waves data;
- bathymetry, magnetometry e gravimetry (format MGD-77);
- others.





BNDQ – Products/Services

Main Products and Services offered by BNDQ, to public:

- Tide prediction, for a limited number of sites;
- Meteorological statistics;
- Oceanographical statistics;
- Raw data.
- Requests must be submitted specifying Marsden
sqr/sub sqr.





BNDO – Main Systems

- Tides: hourly heights from 1955 on.
- Nautical Signaling;
- Oceanography: (see later);
- Meteorology: coastal and maritime data;
- Generical Consulting: access to almost all the database.





BNDO - Oceanography

Oceanography system:

- Stores XBT, CTD-O, ADCP, bottle data.
- Currently is being used a “test” base, scheduled to evolve in the near future.
- RAW data (currently).





BNDO - Oceanography

Database quality flags:

- **0** undetermined;
- **1** undetermined, but field pre-processed
- **;**
- **2** correct;
- **3** inconsistent;
- **4** doubtful;
- **5** altered via interpolation;
- **6** altered via inference;
- **7** special feature;
- **9** no value.





BNDO - Team

Around 20 employees, being:

- 02 DBA / System Manager
- 03 Programers

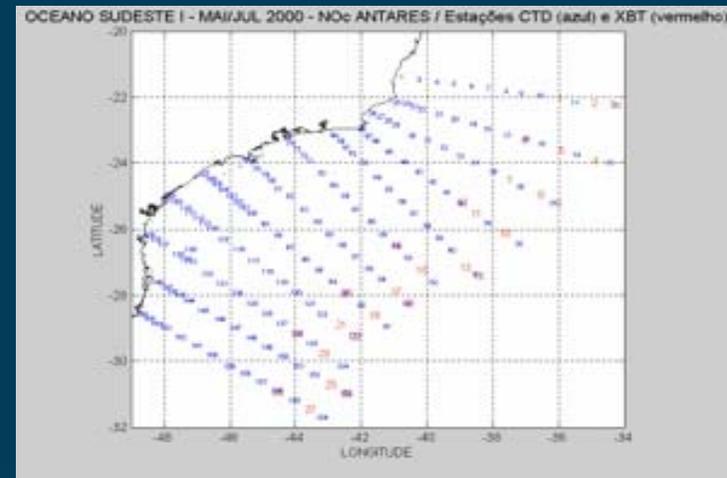




CHM – BNDO related Activities

Emphasis on Oceanography:

- Navy data x Other sources
- QC starts well before collecting the data
- Technical Instructions
- Correct calibration / maintenance
- Training at CHM and at sea
- Officers training (at Brazil / Other countries)
- In-cruise pre-processing
- Post-cruise processing
- Feeding of BNDO





CHM – BNDO related Activities

Basic oceanographic data QC. Mainly manual:

- 1) Initial Instructions x Activities executed;
- 2) Forms correctness;
- 3) Errors verification, reprocessing;
- 4) Intercomparison: CTD x XBT, CTD x Autosal, CTDO x Winkler, ...
- 5) Horiz/Vert plotting
- 6) T-S Diagram
- 7) ADCP analysis
- 8) Analysis Report, with recommendations, as needed (internal only)
- 9) Team of 04 Officers, around 10 employees





::: NATIONAL OCEANOGRÁPHIC PROGRAM

- OCEANOGRAPHIC COMMISSION CONTROL

- National
- International



**O
B
R**

:: DATA EXCHANGE



IODE



COI



ODINCARSA



WMO



Oceano Teacher



GOOS



IHO



:: Contact

BANCO NACIONAL DE DADOS OCEANOGRÁFICOS

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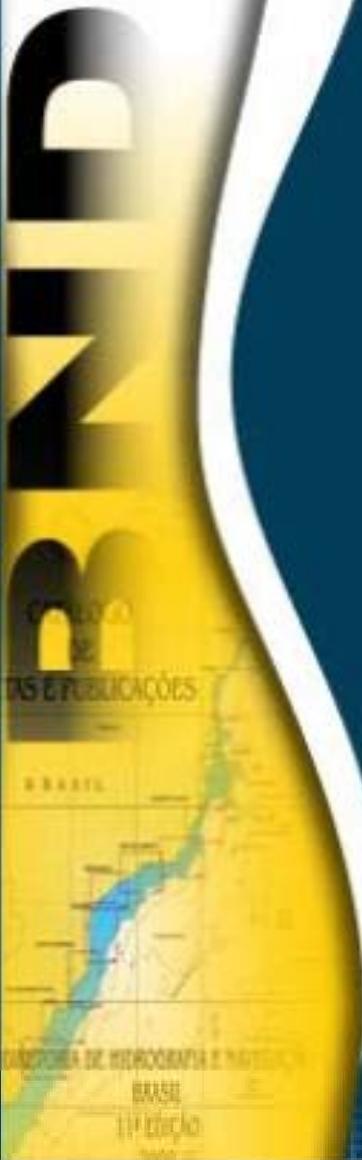
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Do you have any questions ?





I Really appreciate this opportunity You
have given me!

“There will be always a lot to be done”

(DHN `s moto)

