Diretoria de Hidrografia e Navegação

Directorate of Hydrography and Navigation

Tides, Water Level and Currents Working Group

BRAZILIAN REPORT

April 26th-29th 2016

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Outline

* Introduction
* Tidal stations network
* Buoys network
* Ocean modeling system
* Tides, Water Level and Currents Products
* S-100 products under development

DHN´s Activities

* Marine Meteorology and Oceanography
* Hydrographic Surveys and Nautical Cartography
* Aids to Navigation

Area of Responsability

Tidal Stations Network

12 Tidal Stations

Trindade and São Pedro
e São Paulo Islands - out of operation

Buoys Network

GOOS-BRASIL

NATIONAL BUOY PROGRAM

MOORED BUOYS

- Current Status -

8 established stations

- 6 in operation
- 2 under maintenance

- Planned to be deployed in 2016
- Planned to be deployed in 2017

MOORED BUOY TYPES

http://www.axystechnologies.com/products/index	3M BUOY (SHELF BUOY)	WATCHKEEPER (COASTAL BUOY)
MANUFACTURER	AXYS TECHNOLOGIES, CANADÁ	
WEIGHT	1.500 KG	800 KG
SENSORS		
ATMOSPHERIC PRESSURE	1	1
WIND (DIRECTION AND SPEED)	2	1
RELATIVE HUMIDITY	1	1
AIR TEMPERATURE	1	1
SEAWATER TEMPERATURE	1	1
SOLAR RADIATION	1	--
WAVE HEIGHT, PERIO AND DIRECTION	1	1
CURRENT PROFILE, UP TO 90M (ADCP)	1	--
FLUOROMETER	--	1
THERMISTOR CHAIN (6 LEVELS)	--	1
DATA TELEMETRY AND SAFETY		
GPS + OUT-OF-SITE ALARM	1	1
DATA TRANSMISSION INMARSAT-C	1	1
DATA TRANSMISSION ARGOS-CLS	1	1
AIS (VIA VHF)	1	--

Buoys Network

NATIONAL BUOY PROGRAM

DRIFTERS

- Current Status -

341 drifters deployed since 2009

42 drifters working as of Apr 20

PNBOIA Data available at:

- **GTS (Global Telecommunication System) (via Argos)** ***(www.wmo.int/web/www/TEM/gts.html);***
- **Argos-cls website** ***(www.argos-system.org)***
- **CHM website** ***(https://www.mar.mil.br/dhn/chm/meteo/prev/dados/dados.htm)***

Centro de Hidrografia da Marinha - Serviço Meteorológico Marinho - Microsoft Internet Explorer fornecido por CHM

Programa PNBOIA - Bóia de Santa Catarina WMO 31374 ARGOS 69150

Selecione o período desejado. (Disponível a partir de JAN 2011)

Mês: março Ano: 2012 ok

ID ARGOS	DATA-HORA DO PRIMEIRO GRUPO DE INFORMAÇÕES	POSIÇÃO (0) fora de posição (1) na posição	VOLTAGEM DA BATERIA (V)	ALAGAMENTO (0) normal (1 -2 -3) alagada	VENTO VELOC sensor 3,7 m (m/s)	RAJADAS (m/s)	VENTO DIREÇÃO (º)	VENTO VELOC sensor 4,7 m (m/s)	RAJADAS (m/s)	VENTO DIREÇÃO (º)
ARGOS ID	DATE-TIME FIRST INFORMATION GROUP	POSITION (0) out of position (1) in the position	BATTERY VOLTAGE (V)	FLOODING (0) normal (1 -2 -3) waterlogged	WIND SPEED sensor 3,7 m (m/s)	GUSTS (m/s)	WIND DIRECTION (º)	WIND SPEED sensor 4,7 m (m/s)	GUSTS (m/s)	WIND DIRECTION (º)
69150	2012/03/05 11:12:20	1	13,50	0	7	9	216	7	8	216
69150	2012/03/05 06:32:53	1	12,50	0	7	10	207	7	9	207
69150	2012/03/05 04:52:20	1	12,60	0	8	9	231	8	9	228
69150	2012/03/05 04:30:17	1	12,60	0	8	9	231	8	9	228
69150	2012/03/05 01:29:01	1	12,60	0	8	10	246	8	9	246
69150	2012/03/04 18:48:31	1	13,70	0	6	7	240	6	7	237
69150	2012/03/04 17:33:24	1	13,70	0	5	6	243	5	6	240
69150	2012/03/04 15:21:32	1	13,70	0	5	6	231	5	6	228
69150	2012/03/04 11:21:34	1	13,50	0	3	4	243	3	4	240
69150	2012/03/04 06:11:48	1	12,50	0	4	5	249	4	6	249
69150	2012/03/04 02:59:21	1	12,60	0	6	7	276	5	7	273

PLANILHA 1 | PLANILHA 2

PNBOIA CONTRIBUTES TO THE GLOBAL DRIFTER PROGRAM

FONTE:http://www.aoml.noaa.gov/phod/graphics/dacdata/globpop.gif

Ocean Modeling System

HYCOM 1/12 - 9 km

HYCOM 1/24- 4 km

Tides, Water Level and Currents Products

- Tide tables
- Tidal Current Charts
- Ocean forecasts

S-100 products under development

- Dynamic depth in an electronic chart
- Tidal currents using hydrodynamic models

S-100 products under development

- Numerical modeling: Delft 3D;
- 3 buoys providing real-time ADCP data and tide gauge stations at Guanabara Bay for calibration and validation;
- High resolution bathymetry

S-100 products under development

- Dynamic depth in an electronic chart - Pilot Project – Baia da Guanabara

Multibean Survey

S-100 products under development

Ship with 5 m keel depth and 2 m safety margin

Low Tide

High Tide

<u>Green</u> - Safety area
Red – Unsafe area
Yelllow – Intermediate area

THANKS