

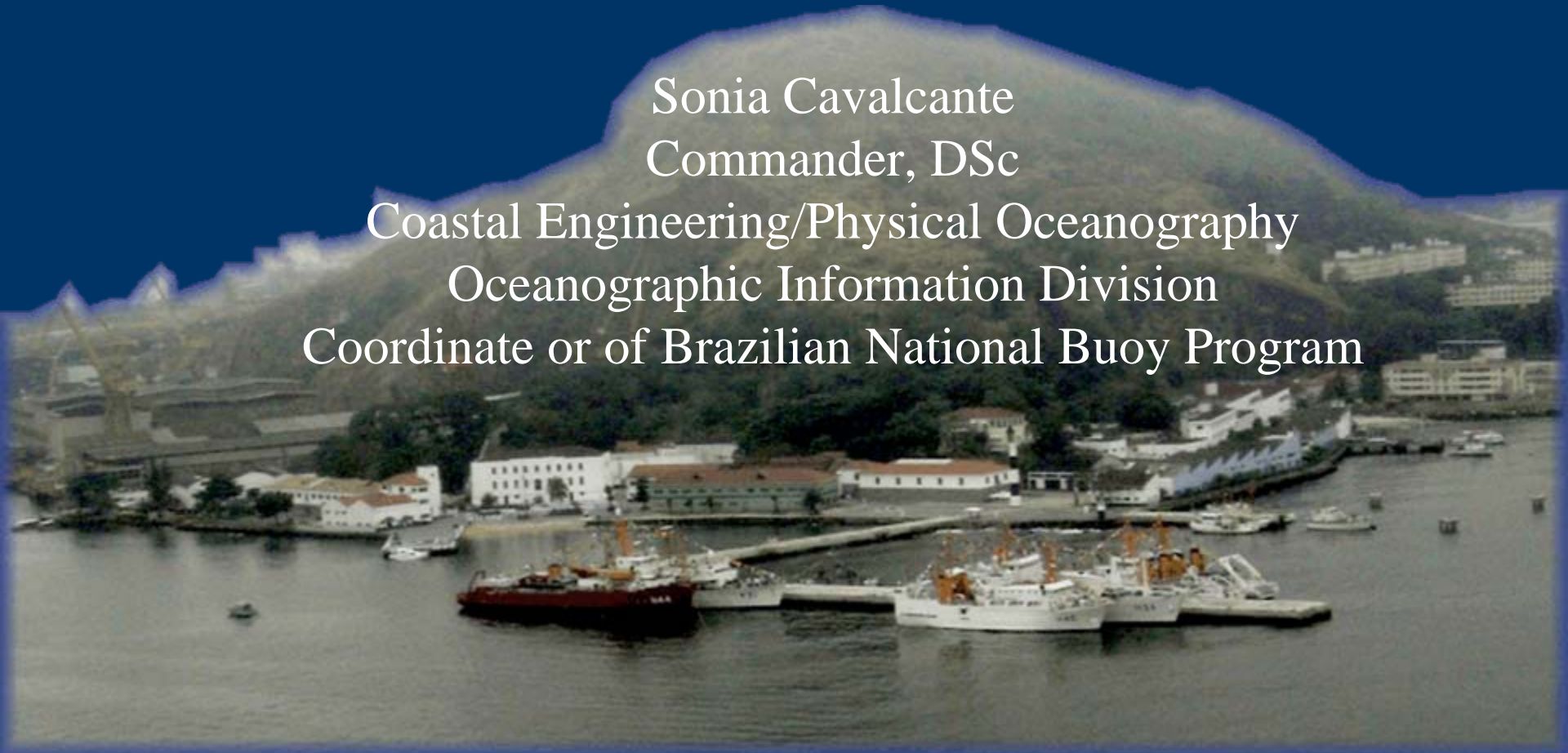


**BRAZILIAN NAVY
DIRECTORATE OF HYDROGRAPHY AND
NAVIGATION – NAVY HYDROGRAPHIC CENTER**

CHM

Sonia Cavalcante
Commander, DSc

Coastal Engineering/Physical Oceanography
Oceanographic Information Division
Coordinate or of Brazilian National Buoy Program



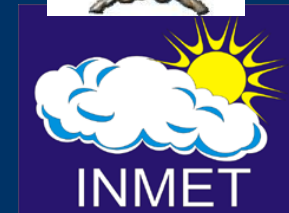


Programa GOOS BRASIL

SISTEMA BRASILEIRO DE OBSERVAÇÃO DOS OCEANOS E CLIMA (GOOS-BRASIL)

• Approved, by Interministerial Commission for the Sea Resources (CIRM) held on April 30th, 1997.

- PNBOIA
- GLOSS
- PIRATA
- MOVAR
- ONDAS



Sistema Brasileiro de Observação dos Oceanos e Clima

PROGRAMA GOOS - BRASIL

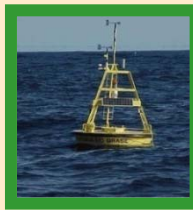
PIRATA - Prediction and Research moored Array in the Tropical Atlantic



Boia fixa ATLAS

PNBOIA Programa Nacional de Boias;

Boia fixa Plataforma



Boia de deriva



Boia fixa Costeira

REDE ONDAS



Ondógrafo



NOc Antares (H-40)



NHoF Alte Graça Aranha (H-34)



NHo Amorim do Valle (H-35)



NB Comte. Varella (H-18)

US Dept of State Geographer
 © 2012 Inav/Geosistemas SRL
 Data SIO, NOAA, U.S. Navy, NGA, GEBCO
 © 2012 MapLink/Tele Atlas



PROGRAMA NACIONAL DE BÓIAS (PNBOIA) ISABP / DBCP

The National Buoy Program has the goal of collecting oceanographic and meteorological data in the Atlantic Ocean, by a buoy network in support to meteorological and oceanographic activities in Brazil.

a) Maintain and enlarge the moored and drifting buoys network; and

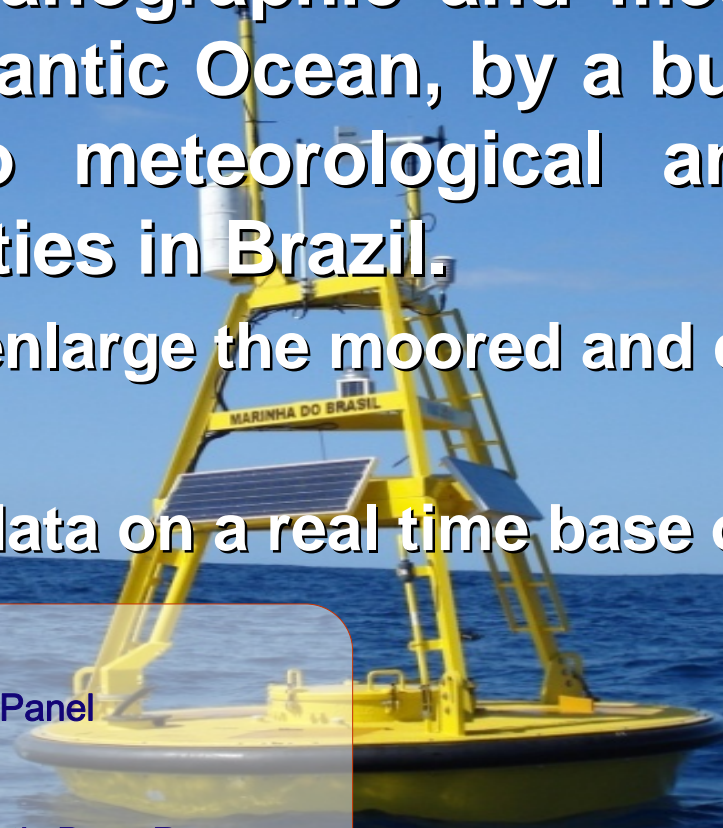
b) Disseminate data on a real time base on GTS.



DBCP
Data Buoy Cooperation Panel



ISABP
International South Atlantic Buoy Program





Activities

- Including one moored buoy in the Operational Program (Fortaleza –NE coast), seeking a covering of all Brazilian coast on a interval of 500 km;
- Acquisition of two new buoys to have the network completed;
- Planning upgrade 35 units and deployment of GDP drifting buoys;
- Acquisition of 10 ARGO drifter and preparing a deployment strategy.



MOORED BUOYS NETWORK

- **Continental Shelf Buoy (200m)**

- To be acquired:

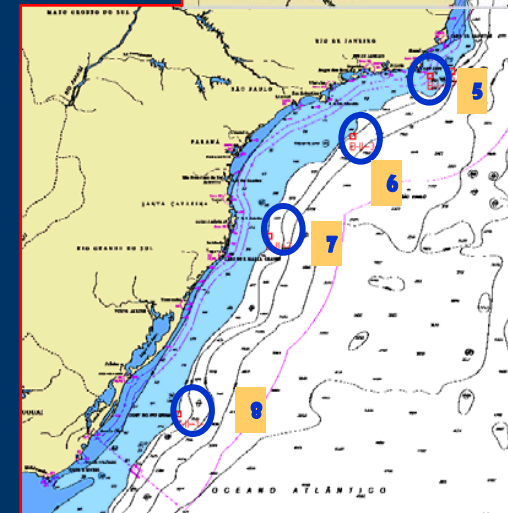
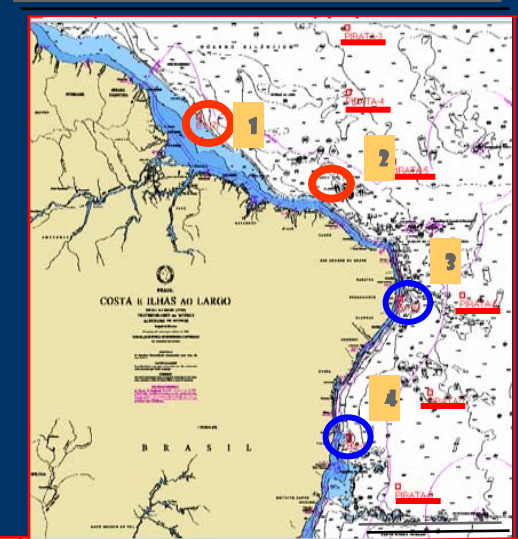
- 1-Barra Norte – AM
- 2-Fortaleza– CE

- **Operational:**

- 3 -Recife - PE
- 4-Porto Seguro – BA
- 5-Cabo Frio – RJ
- 6-Platô de Santos – SP
- 7-Santa Catarina

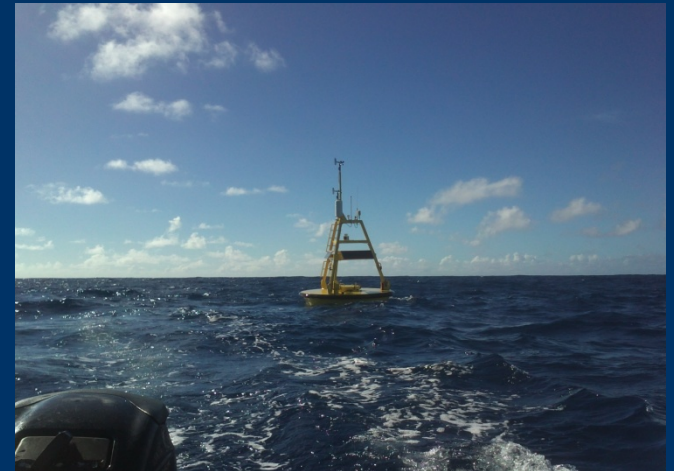
- **Coastal Buoys (70m)**

- 5-Cabo Frio – RJ –





activities on moored buoys



Deployment of 4 buoys :one replacement, one reestablishment and two new covering. As a result we have now 6 operating buoys.



Data dissemination – moored buoys

PNBOIA

- GTS (Global Telecommunication System) (via Argos) (www.wmo.int/web/www/TEM/gts.html);

- Sítio do Argos-cls (www.argos-system.org)

- CHM webpage – Meteorologia – Previsão - Dados Observacionais:

<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)

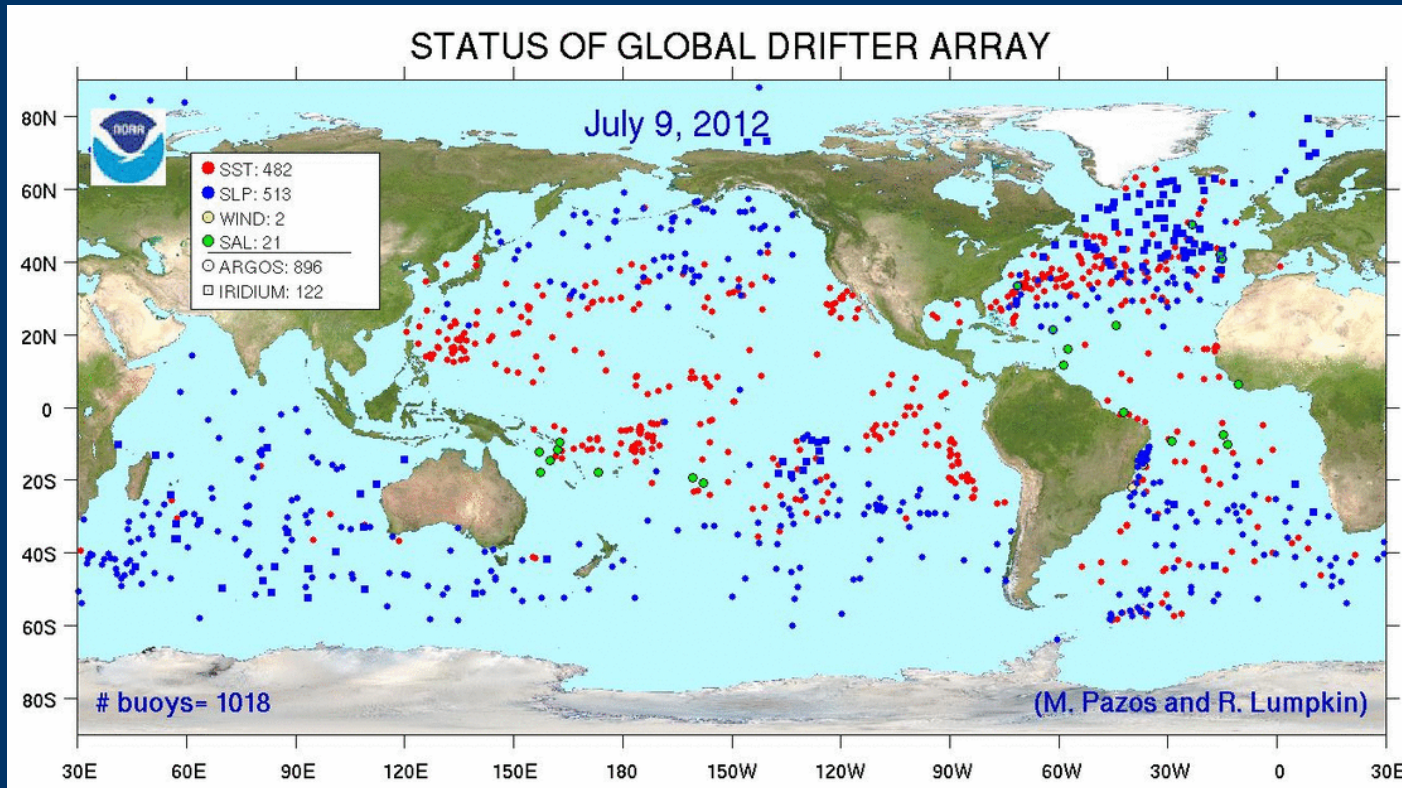
Mês: março Ano: 2012 ok

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



BÓIAS DE DERIVA (THE GLOBAL DRIFTER PROGRAM)

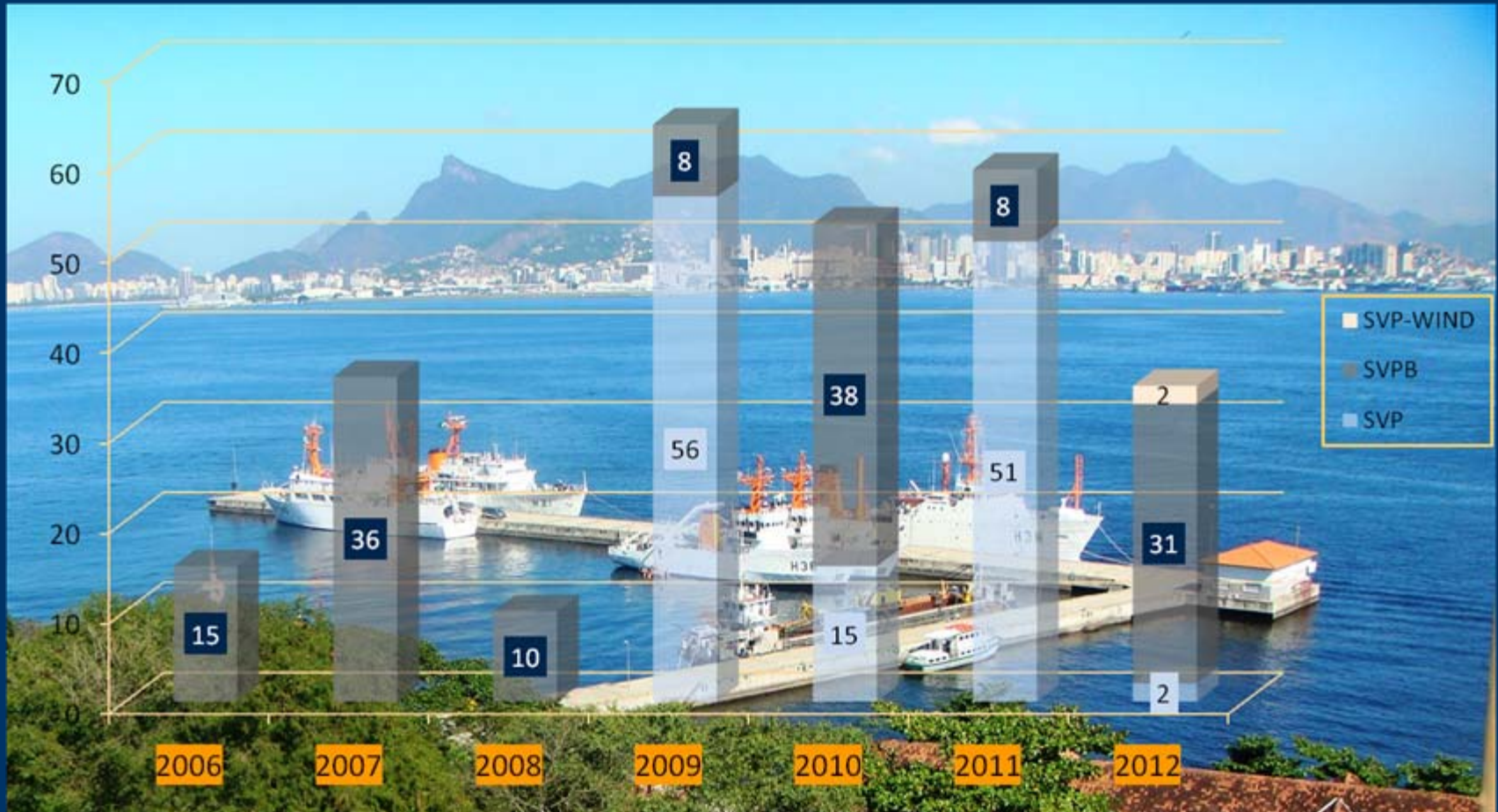


FONTE: <http://www.aoml.noaa.gov/phod/graphics/dacdata/globpop.gif>



PNBOIA - Programa Nacional de Boias

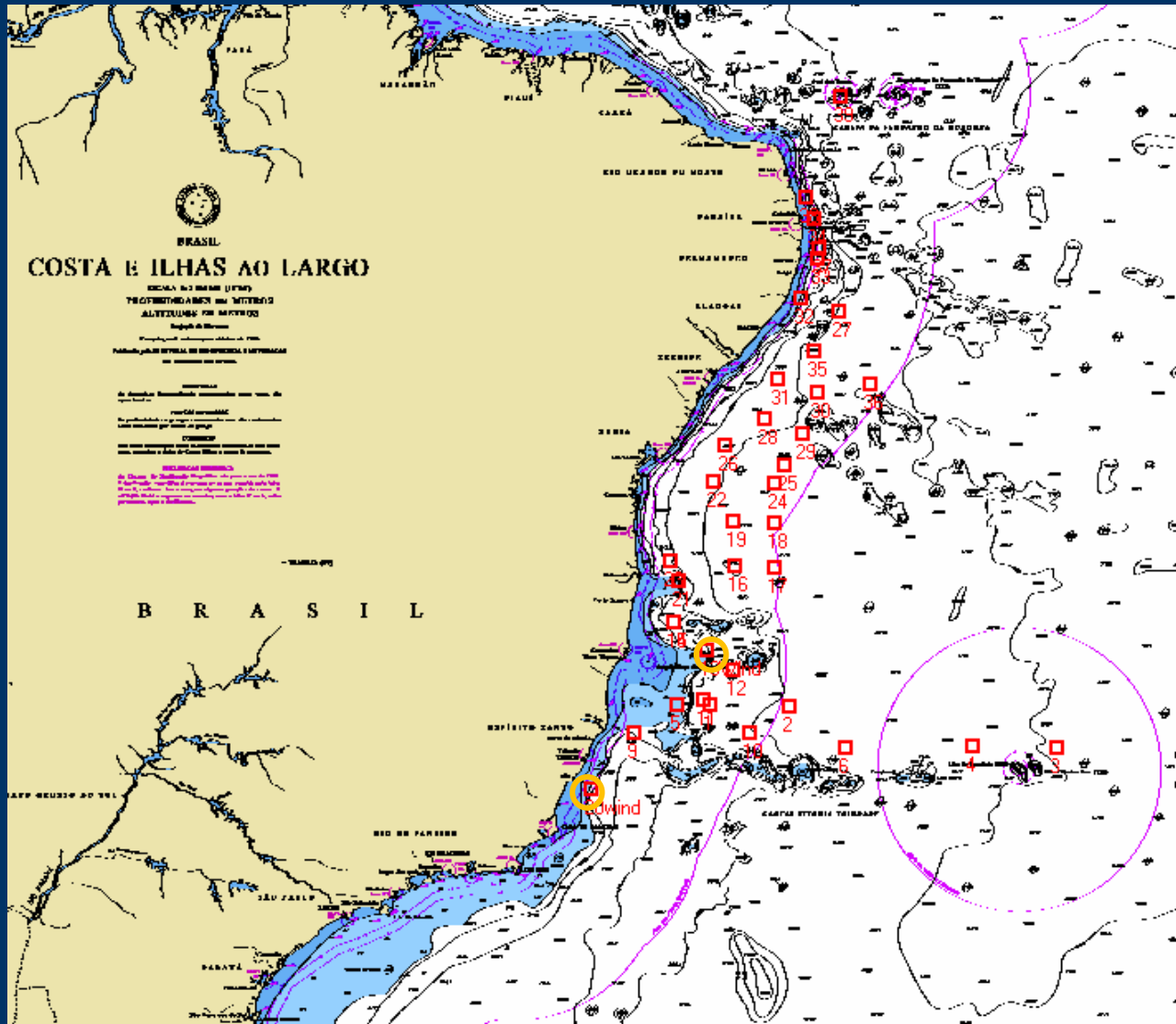
Drifting Buoys Deployments



Previsão de lançamento em 2013: 30 SVP, upgrade of 35 SVP-B for 2013

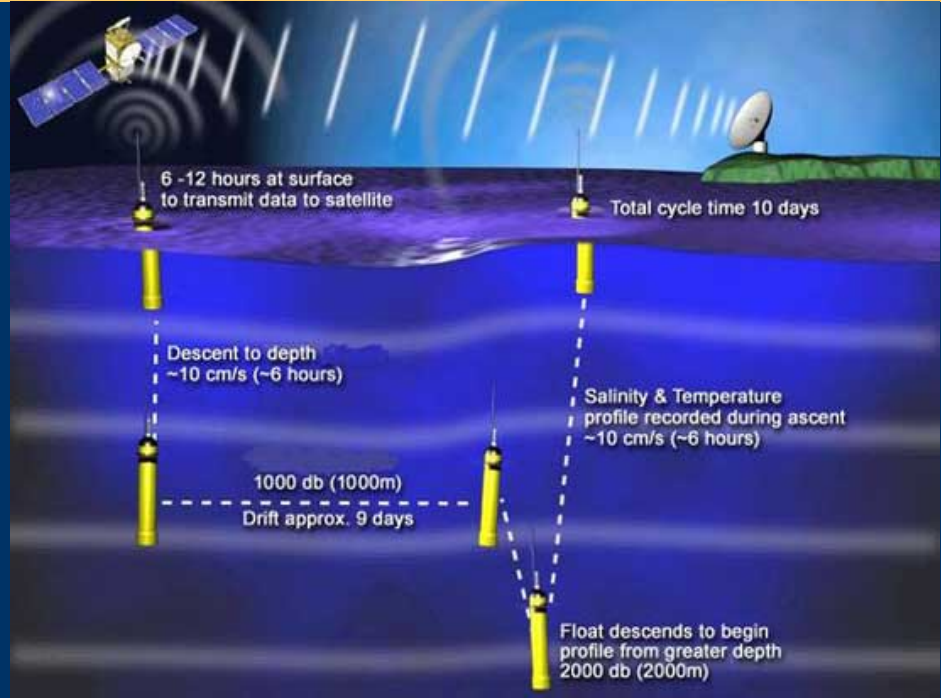
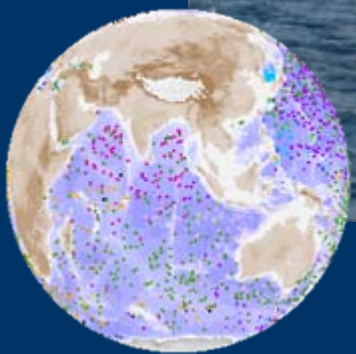
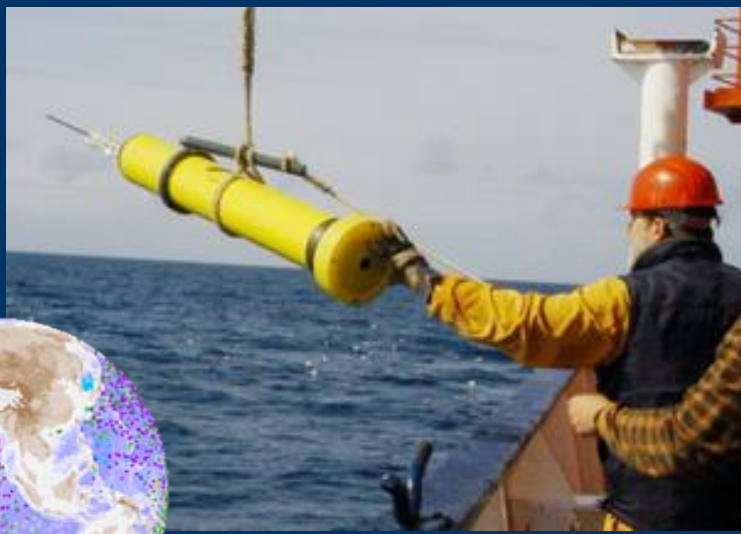
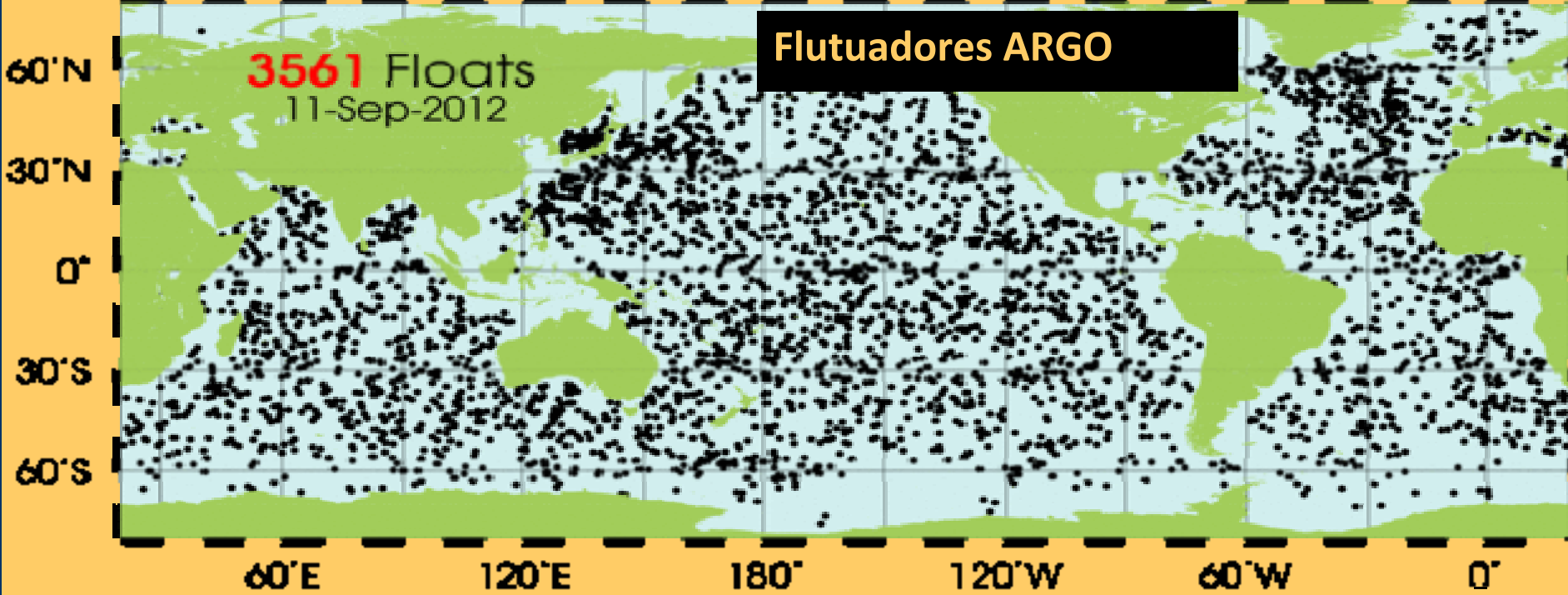


Drifting Buoys Deployments



Flutuadores ARGO

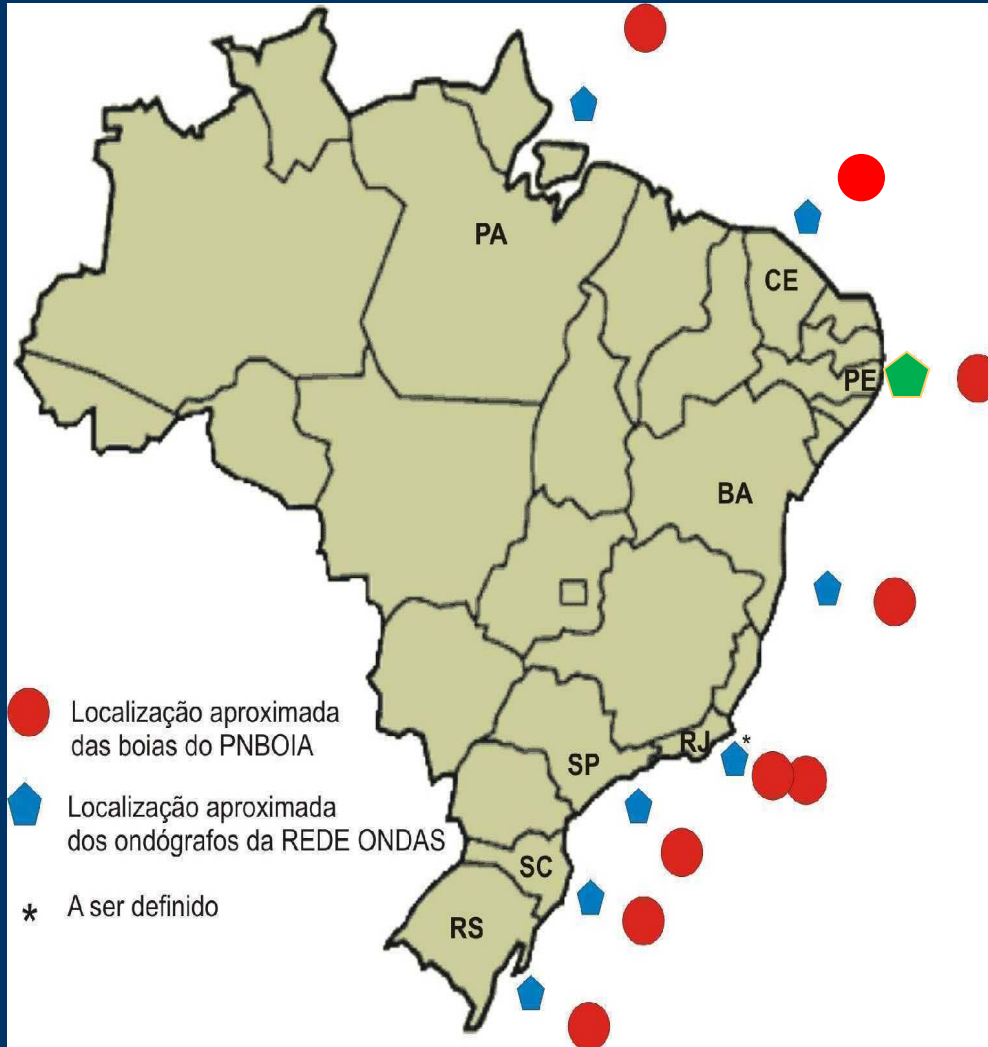
3561 Floats
11-Sep-2012





Rede Ondas

Rede de Monitoramento de Ondas em Águas Rasas



Objetivo: monitorar a agitação marítima na costa do Brasil, a fim de coletar dados que auxiliem no planejamento das atividades marítimas.

Coordenação : FURG
Participantes: SECIRM, CHM, IEAPM, FURG, UFSC, UFPE, etc





REDE ONDAS – Is it possible wave data into GTS?

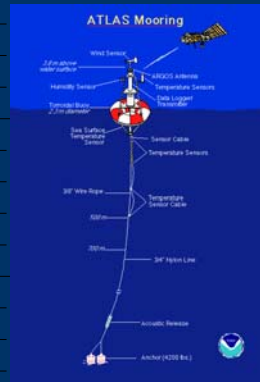
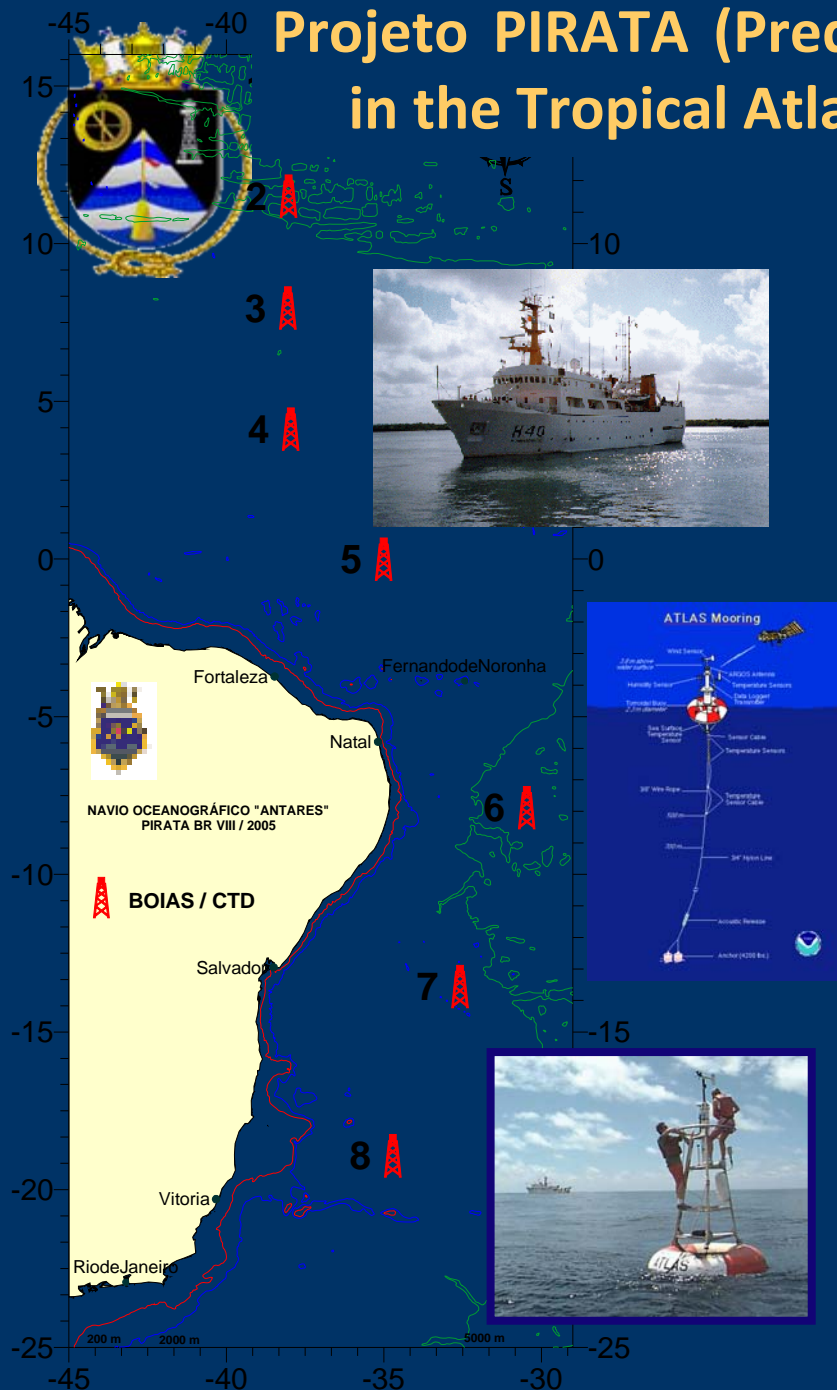


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Projeto PIRATA (Prediction and Research Moored Array in the Tropical Atlantic)



State members:

- Brasil – Instituto Nacional de Pesquisas Espaciais – INPE / Diretoria de Hidrografia e Navegação – DHN;
- EUA – National Oceanic and Atmospheric Administration Office of Global Programs – NOAA/OPG; and
- França – Institut de Recherche pour le Développement - IRD e Météo-France of France.

Coordination : Instituto Nacional de Pesquisas Espaciais (INPE) - Centro de Previsão de Tempo e Estudos Climáticos ([CPTEC](#))

Execution : DHN – Comissões anuais do Noc. Antares para manutenção das cinco bóias fundeadas na zona equatorial e três bóias fundeadas ao longo da costa leste/nordeste de Brasil, e equipes do INPE e parceiros.



Página do GOOS- Brasil

http://www.goosbrasil.org/produtos/pnboia_data.html

GOOS-BRASIL

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- [PNBOIA](#)
- [GLOSS-BRASIL](#)
- [Argo](#)
- [Antares](#)
- [MOVAR](#)

Dados

- [PIRATA](#)
- [PNBOIA](#)
 - [Bóias ativas](#)
 - [Bóias fundeadas](#)
 - [Bóias inativas](#)
 - [Espaguete \(ativas\)](#)
- [GLOSS-BRASIL](#)
- [Argo](#)
- [Antares](#)

Acesse os dados do PNBOIA

Clique no nome do arquivo para acessar os dados.

ARGOS ID	#WMO	Lançamento	Dados
78859	31786	XX/10/2009	bd31786
71506	31785	XX/10/2009	bd31785
71502	31784	XX/10/2009	bd31784
78868	31779	01/09/2009	bd31779
71871	31778	02/09/2009	bd31778
71870	31921	01/08/2009	bd31921
78866	31745	XX/07/2009	bd31745
78865	31742	XX/07/2009	bd31742
78864	31741	XX/07/2009	bd31741
71859	31758	22/06/2009	bd31758
71858	31756	21/06/2009	bd31756
71857	31755	21/06/2009	bd31755
71856	31706	21/06/2009	bd31706
71882	31548	15/06/2009	bd31548
71883	31998	14/06/2009	bd31998

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Projetos

As atividades de monitoramento do Atlântico Sudoeste Superior e tropical são realizadas através dos seguintes projetos:

- [GOOS-BRASIL](#)
- [Antares](#)
- [MOVAR](#)
- [Arqo](#)

Links úteis

Outros dados operacionais podem ser também obtidos através destes sites:

Bem-vindo à pagina da OCEATLAN!

Conheça a OCEATLAN

A Aliança Regional para a Oceanografia no Atlântico Sudoeste Superior e Tropical (OCEATLAN) representa o esforço regional de instituições da Argentina, Brasil e Uruguai, em prol do desenvolvimento da oceanografia operacional que pauta as atividades previstas para execução no âmbito do Sistema de Observação do Oceano Global (GOOS).

As atividades da OCEATLAN incorporam projetos que visam o

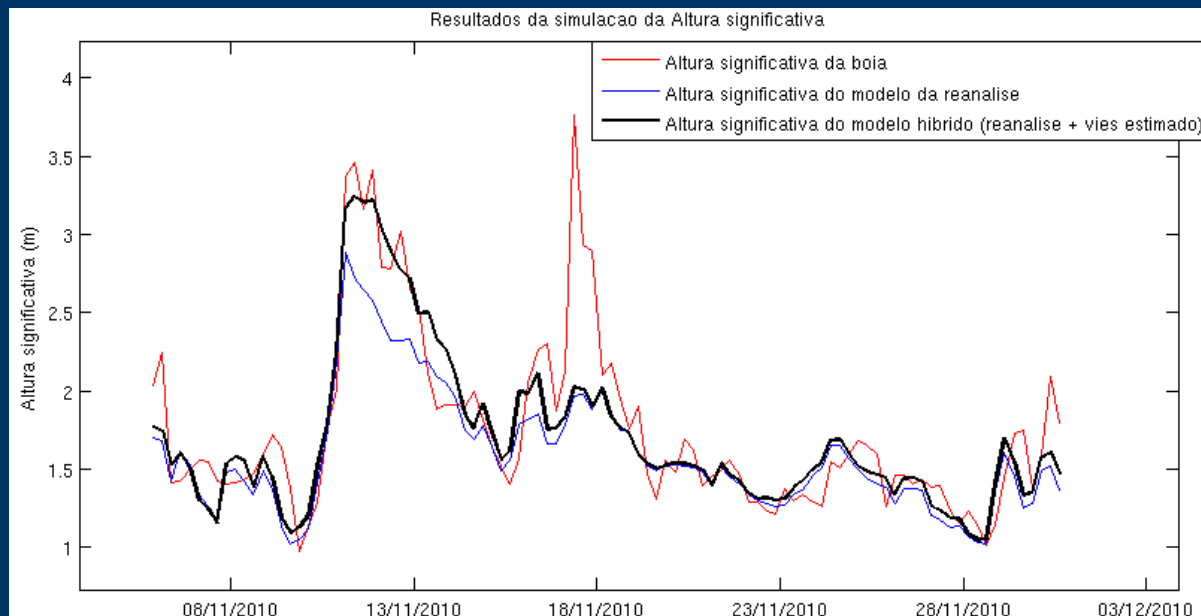
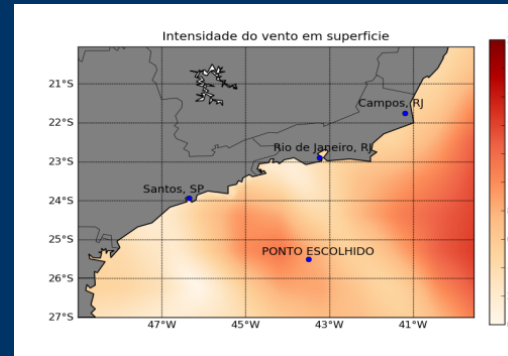
Done

Internet 100%

start 2 Windows... 2 Microsoft... Internet ... Anexo D Proj... 21:41



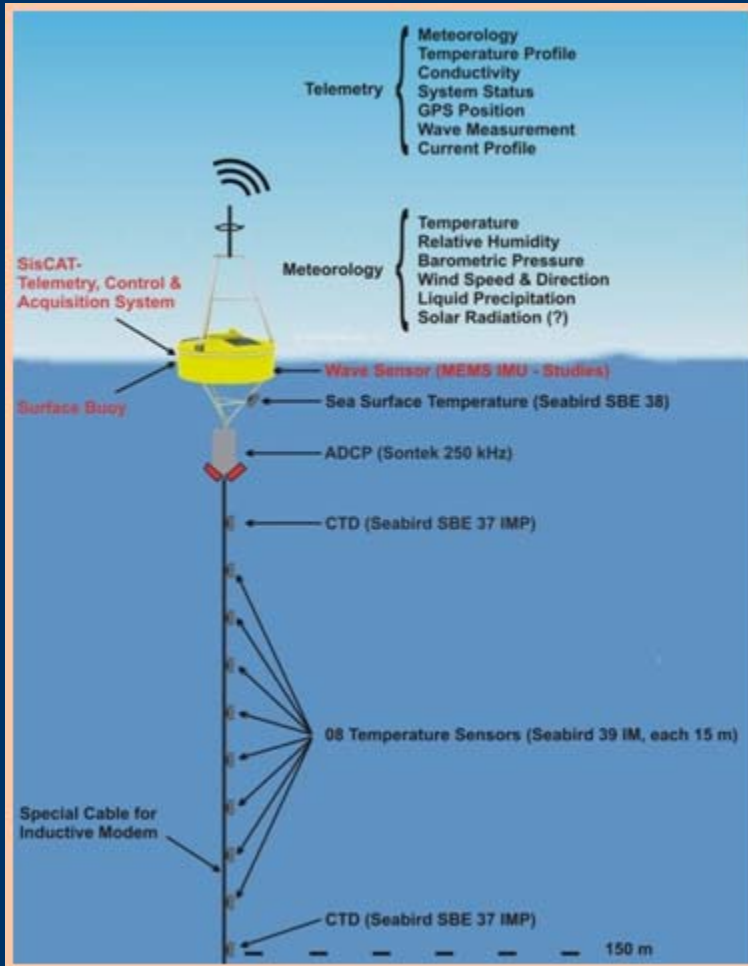
Statistical Modeling - Hindcast



Rio Grande wave data analysed by Ricardo Martins Campos, PhD Student



Brazilian buoys



HOLoS Brasil Serviço Naval Ltda.
Rua Octavio Catanhede,s/n - Ilha Fundão
Rio de Janeiro – RJ – Brasil CEP: 21941-971
Fone: 55-21-22709259
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THANKS

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