



Brazil

DBCP– 38, Hybrid meeting, Geneva, Switzerland, 1-4 November 2022

Tobias Ferreira

Brazilian Navy Hydrography Center



GOOS-BRASIL

OUR MISSION

A - Collect metocean data using a network of moored buoys, drifters and ARGO floats; and

B - Operate a real time data transmission system and release free data for the public



GOOS-BR SUPPORTS MARINE METEOROLOGICAL SERVICE

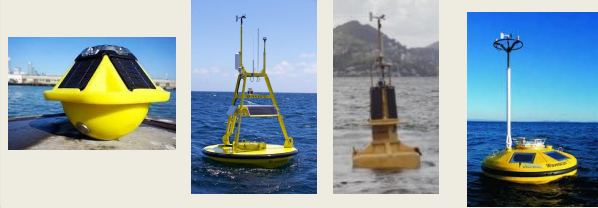




2022 SITUATION



Brazilian Buoys



Foreign Buoys

Moored buoys: 43 deployed

Tide Gauges: 17

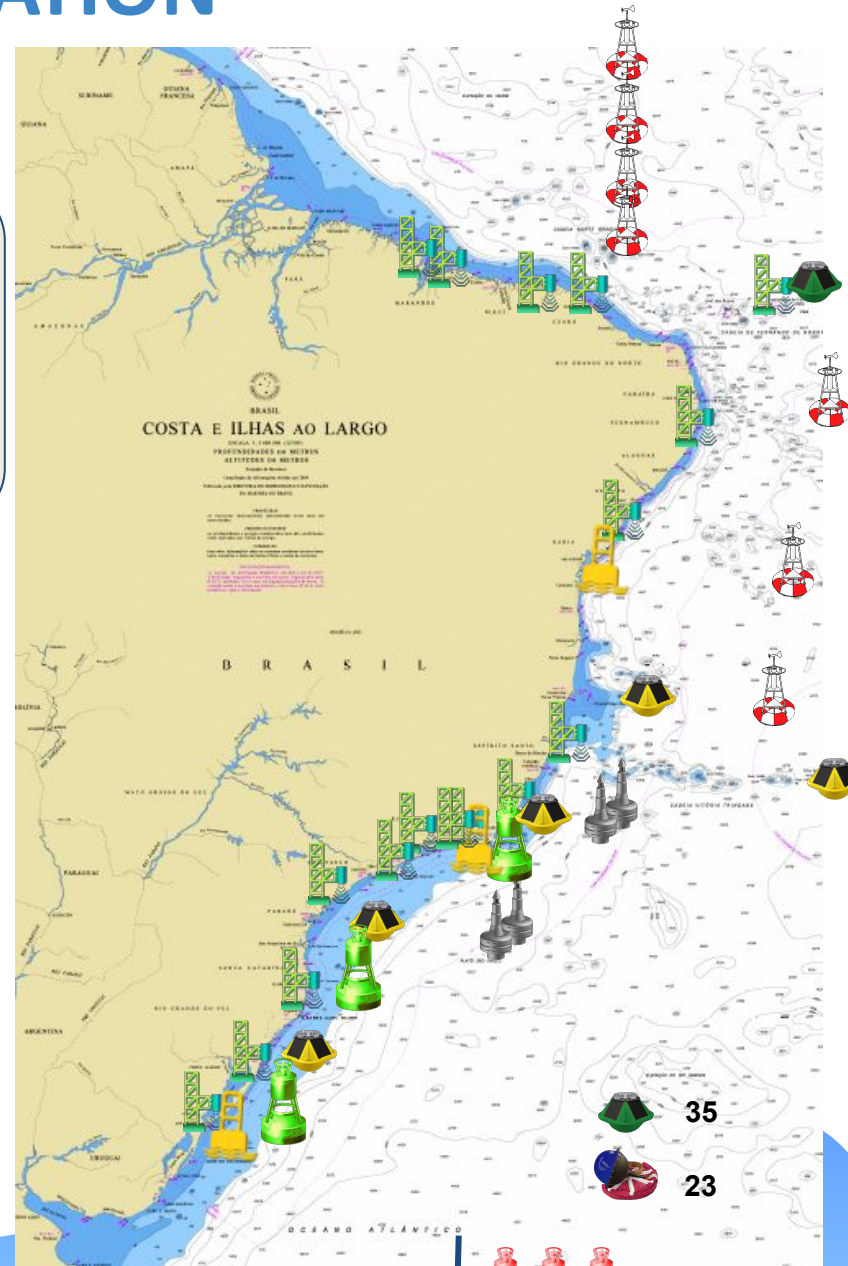


Drifters:

5x5 degree array: 503 deployed

Argo Floats:

ARGO Program: 9 deployed



ANTARCTICA





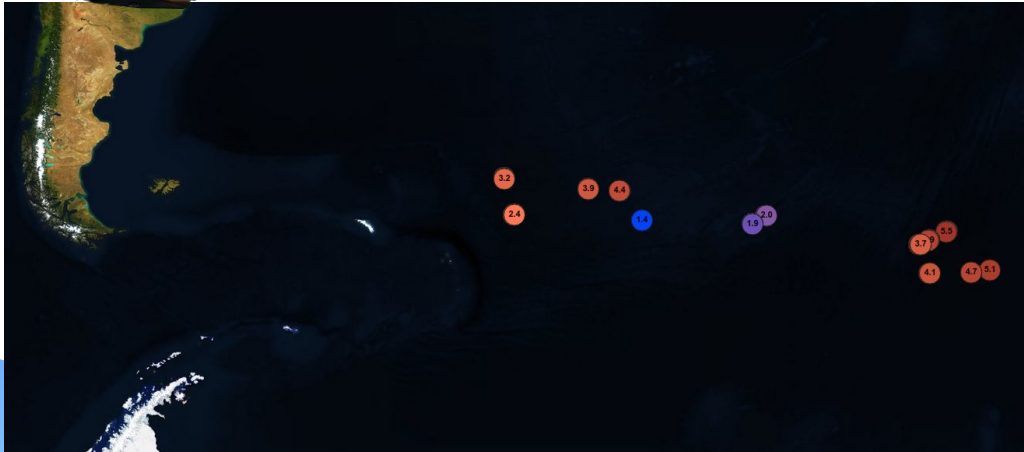
RECENT FUTURE

MORE MOORED BUOYS UNTIL THE END OF 2022

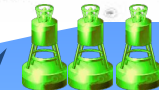
**WAVE DRIFTERS ON DRAKE PASSAGE
- CALIBRATION OF WAVE MODELS**

2 USV IN THE BRAZILIAN COAST

1 GLIDER



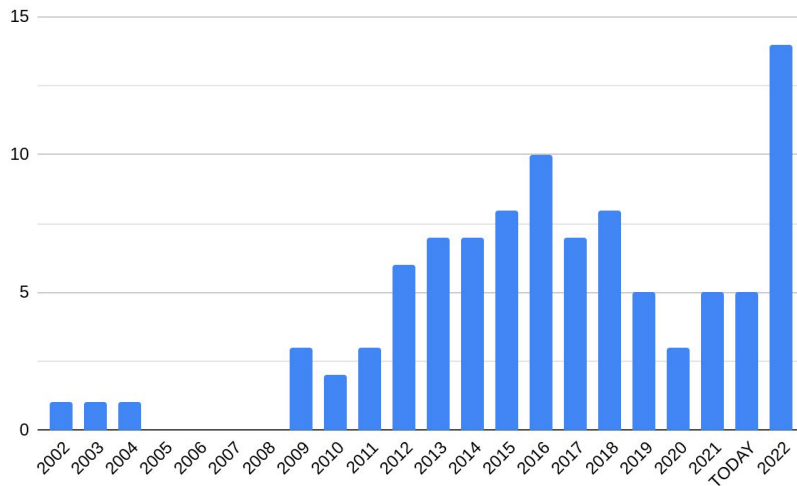
ANTARCTICA





PROBLEMS

OPERATIONAL BUOYS PER YEAR



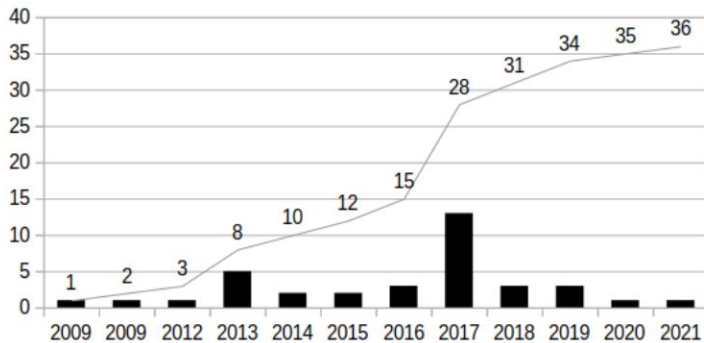
VANDALISM!!!

Main cause: Fishing boat mooring

Increase in the last 4 years.

Design of a buoy cam

■ Anual — Cumulativo

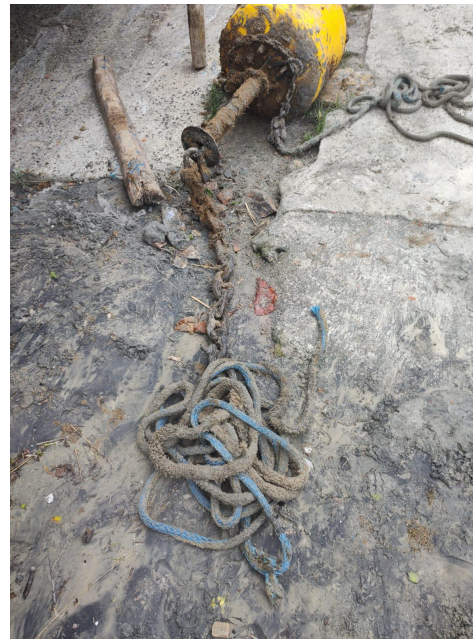


CASES PER YEAR



PROBLEMS

VANDALISM YESTERDAY





TECHNOLOGIES

Development of a Brazilian Buoy

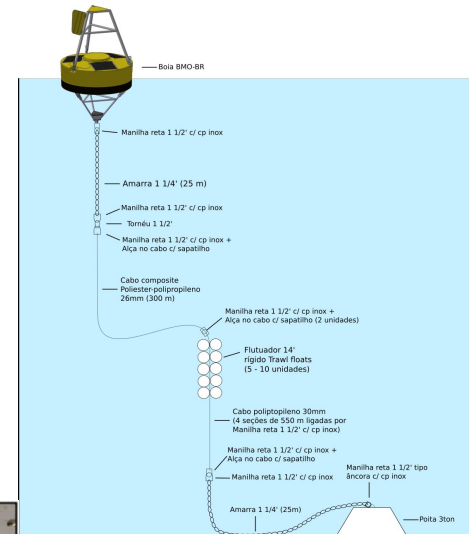


Small wave buoy

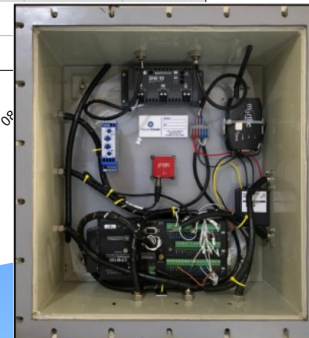
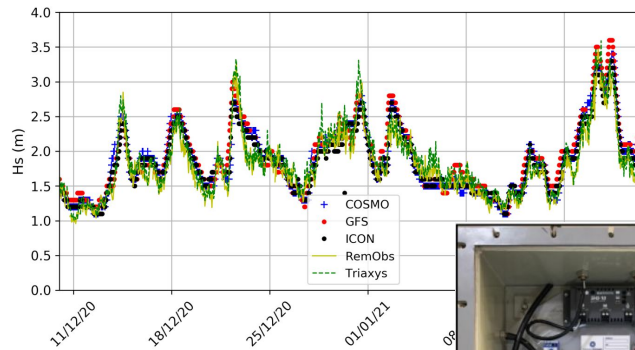
Buoy Cam



Mooring design



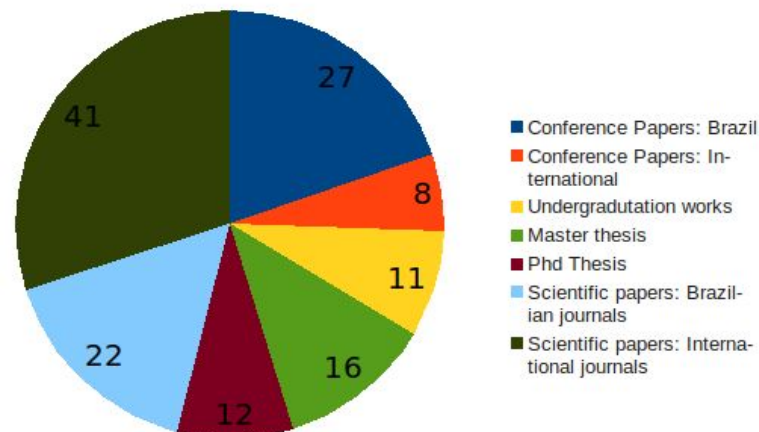
Wave sensor





SCIENCE AND RESULTS

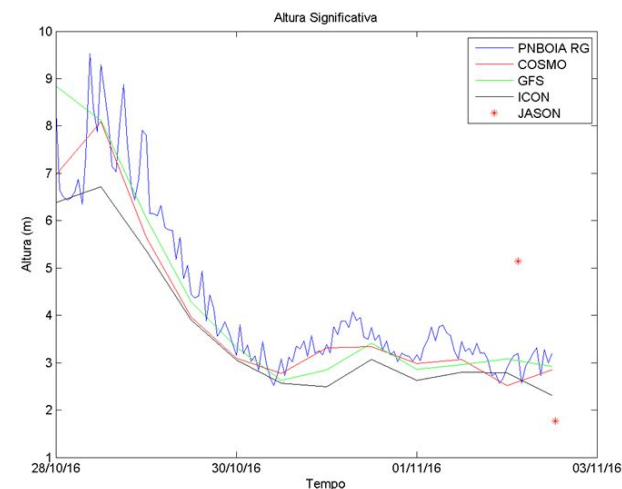
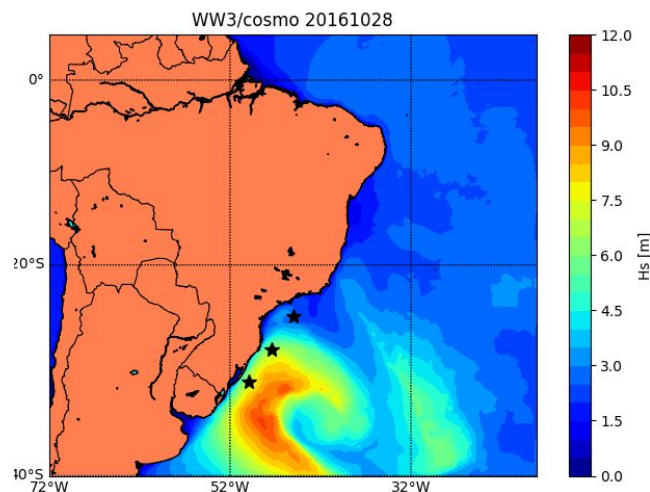
- 21 years of history
- More than 40 years of data
- 150 scientific papers and counting



LARGEST WAVE MEASURED IN THE BRAZILIAN COAST (OCT 2016)

Hs=9.53 m

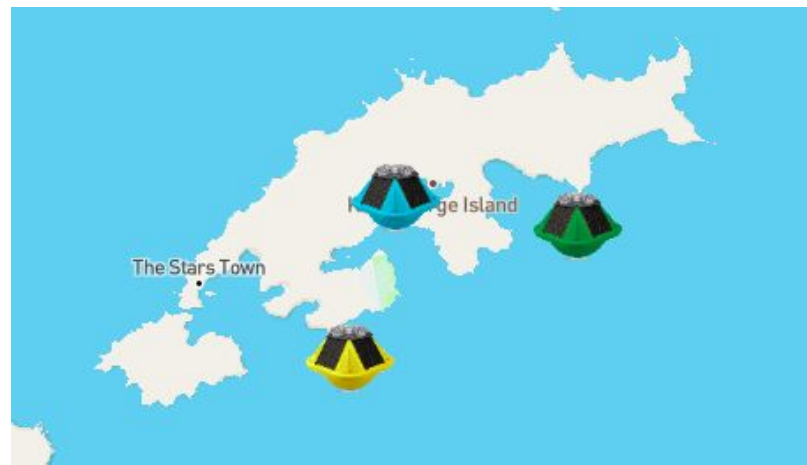
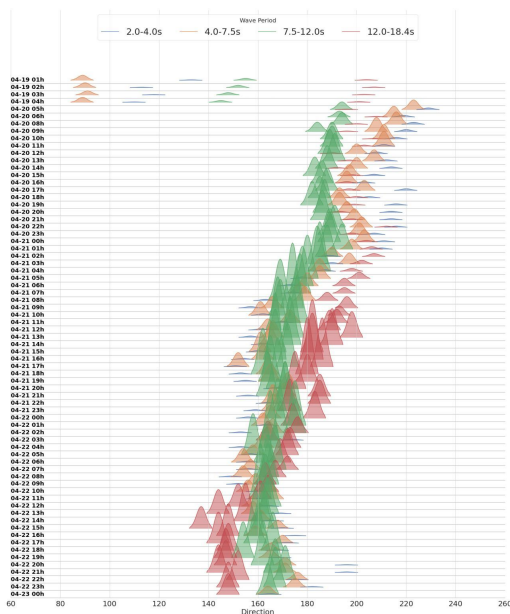
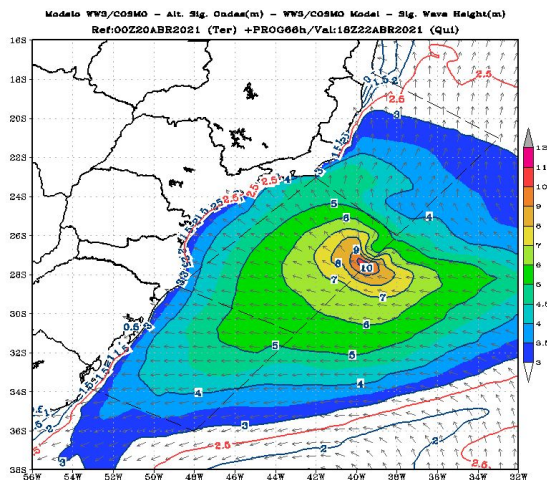
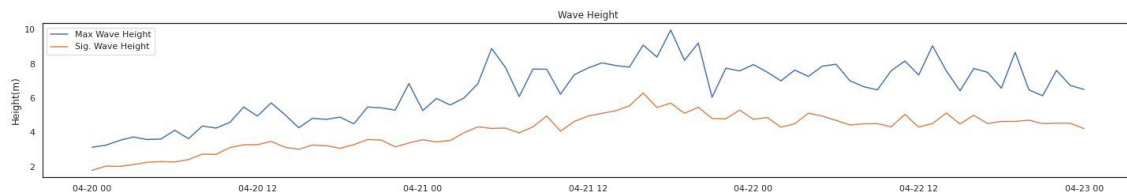
Hmax=14.79 m





SCIENCE AND RESULTS

SUBTROPICAL STORM POTIRA (2021)



www.operantar.live





DATA ACCESS

www.operantar.live



<http://boia-abrolhos.herokuapp.com/>

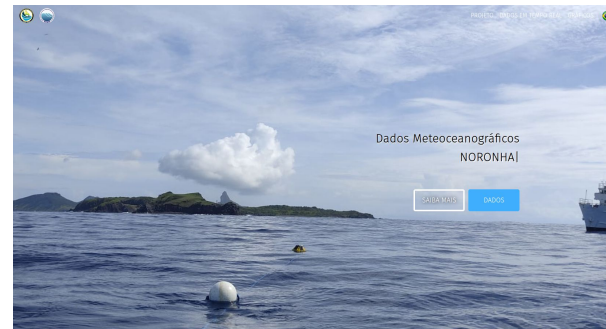
Informações Boia

Últimos dados: 2022-07-15 13:15 UTC

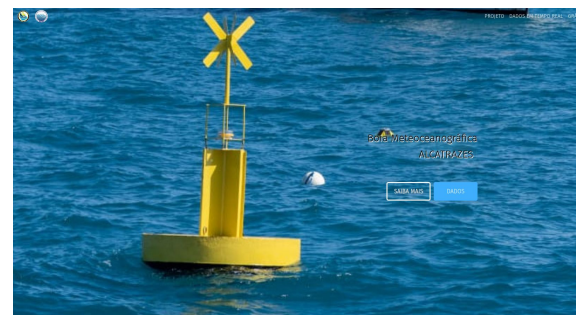
Altura Significativa	Período de Pico	Dir. Média de Onda	Período Médio
0.59	10.2	141	3.9
- metros	- segundos	-	- segundos

Dir. de Pico	Temperatura	Dir. de Vento*	Vel. Vento*
166	24.8	125	4.8
-	- °C	- * (Dados calculado)	- m/s (Dados calculado)

www.noronha.live



<http://alcatrazes.herokuapp.com>



Dados PNBOIA

MARINHA DO BRASIL

Situação

MANUTENÇÃO OPERATIVA



SWOT ANALYSIS

Strengths

Operational program maintained by the government

Real-time data quality control

Work with different technologies

Deployment procedures

Development of technologies in Brazil



Weakness, Gaps and Needs

Avoid Vandalism!!!!

Mooring design

Define best practice techniques considering the reality of our country!

Sensor calibration facilities

Development of low-cost technologies

Development of unique databases for Brazil operational metocean data

**“Restará sempre muito o que
fazer”**



Lt. Tobias
tobias.ramalho@marinha.mil.br
+55 21 21893228

