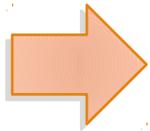


Rede de Monitoramento do Nível do Mar **SIMCOSTA**

PROF. DR. GLAUBER ACUNHA GONÇAVES
LTGEO/C3/FURG

OBJETIVO GERAL

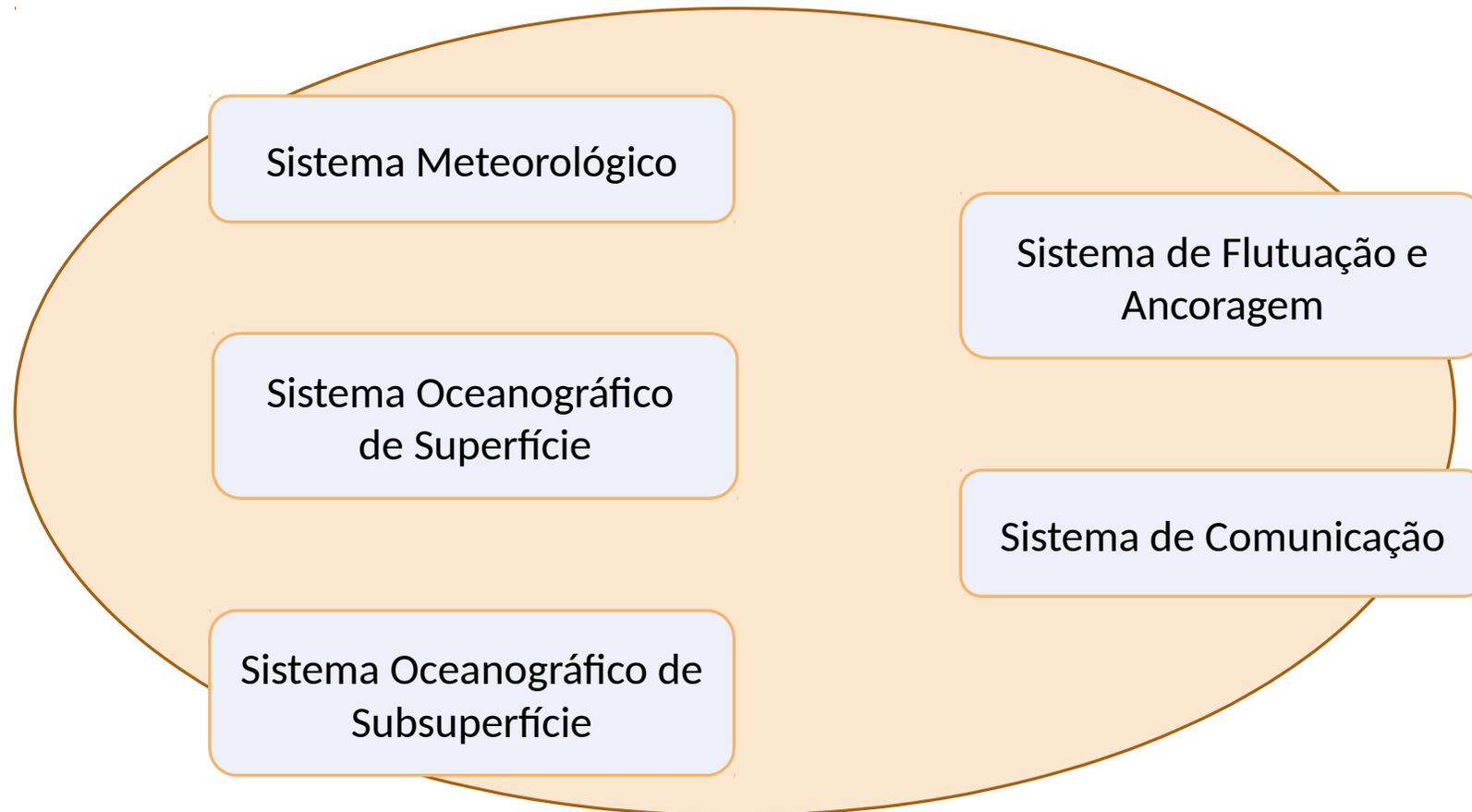


Gerar uma base de dados atualizada, confiável, diversificada, e acessível das massas d'água na costa brasileira

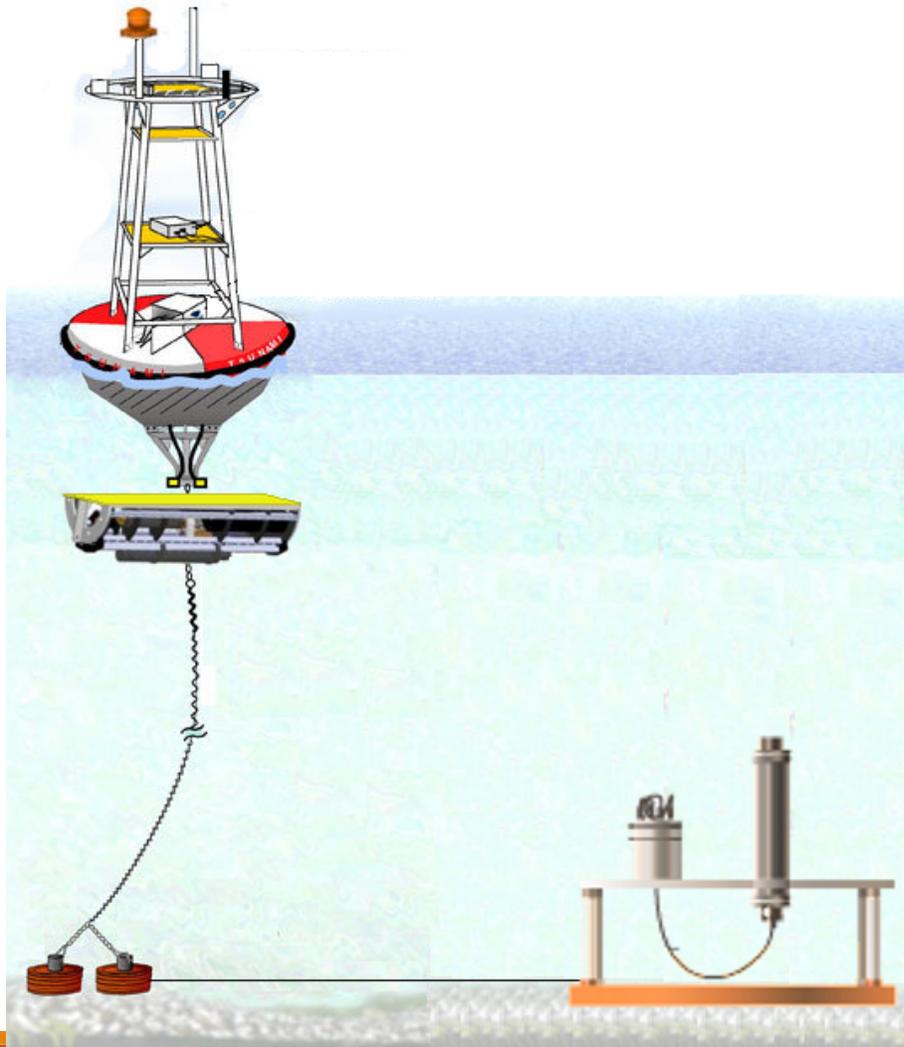


Sistema de Monitoramento da Costa Brasileira

MÓDULO OFFSHORE

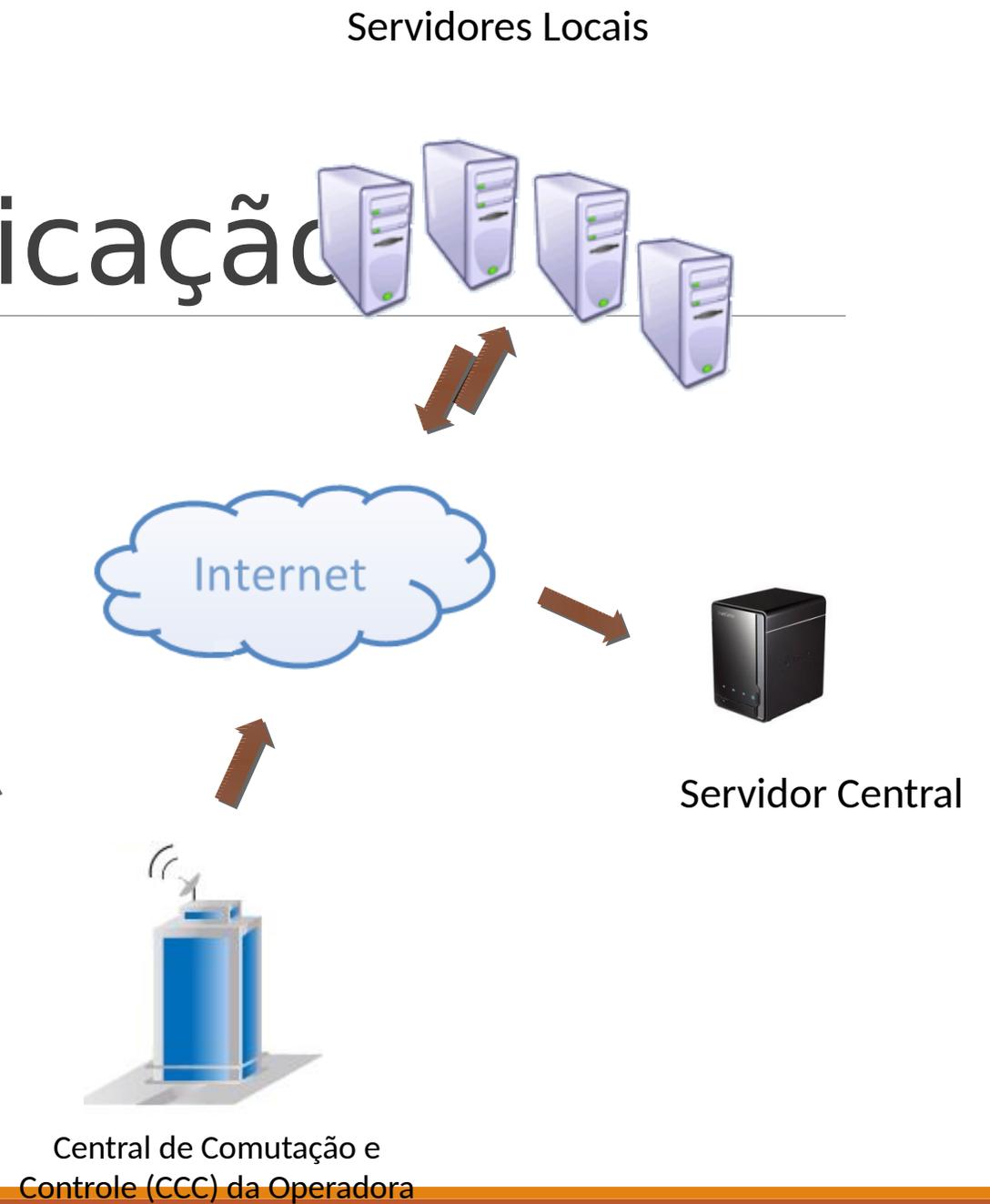
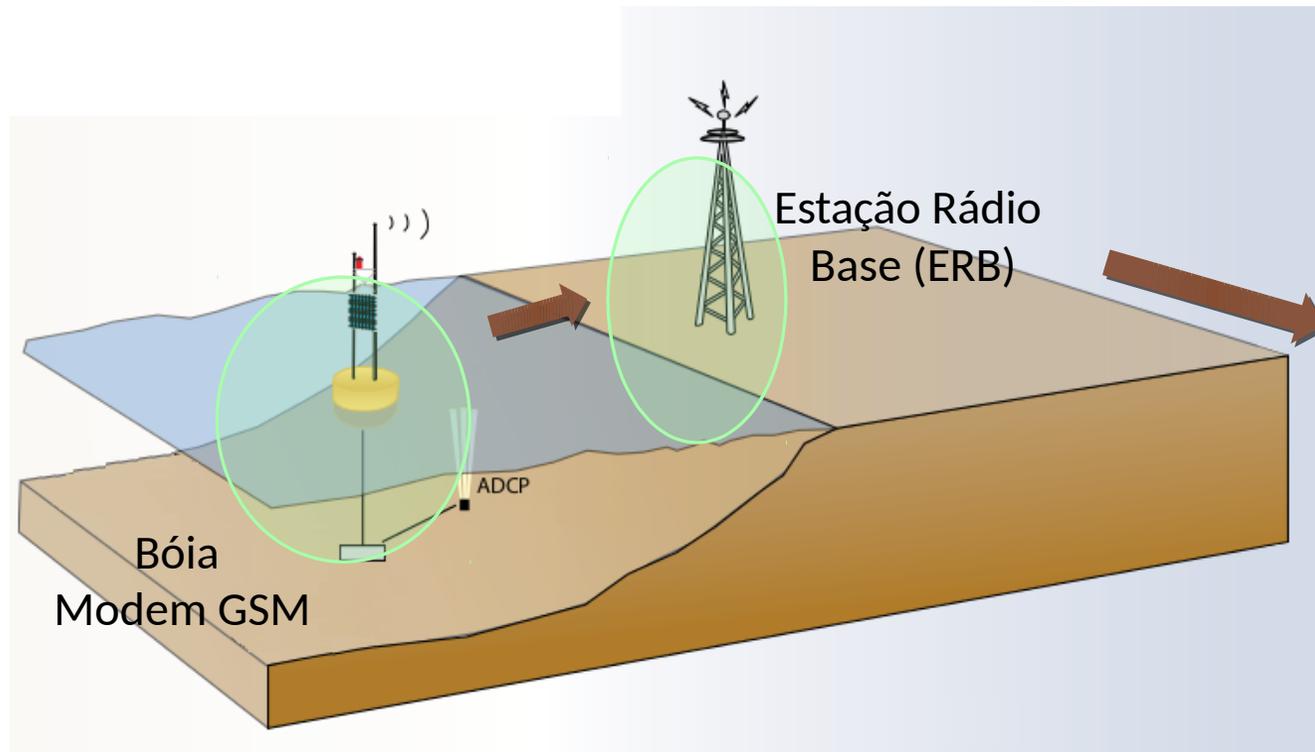


Concepção Física



- Precipitação pluviométrica
- Pressão atmosférica
- Direção do vento
- Velocidade do vento
- Umidade relativa do ar
- Radiação solar
- Temperatura do ar
- Concentração de CO₂
- Backscatter
- Clorofila
- Matéria Orgânica Dissolvida Colorida
- Nitrato
- O₂ dissolvido
- Profundidade
- pH
- Salinidade
- Temperatura da Superfície do Mar
- Turbidez
- Ondas
- Perfis de Corrente

Tecnologia Comunicação



Portal de Informações www.simcosta.furg.br

The screenshot displays the SIMCosta website interface. At the top, there is a navigation bar with the SIMCosta logo, language options (EN, PT), and a 'Cadastre-se' button. Below the navigation bar, the main content area is divided into two sections: 'Mapa Interativo' and 'Informações'.

Mapa Interativo: This section features a satellite map of Brazil with various states labeled. Yellow icons representing equipment are placed on the map, corresponding to the list on the right. The map includes a 'Mapa' and 'Satélite' toggle, a search bar, and zoom controls. At the bottom of the map, there are buttons for different states: RS, SC, PR, SP, and RJ.

Informações: This section provides a list of equipment locations, each with a corresponding icon (a yellow boat or a red location pin). The list includes:

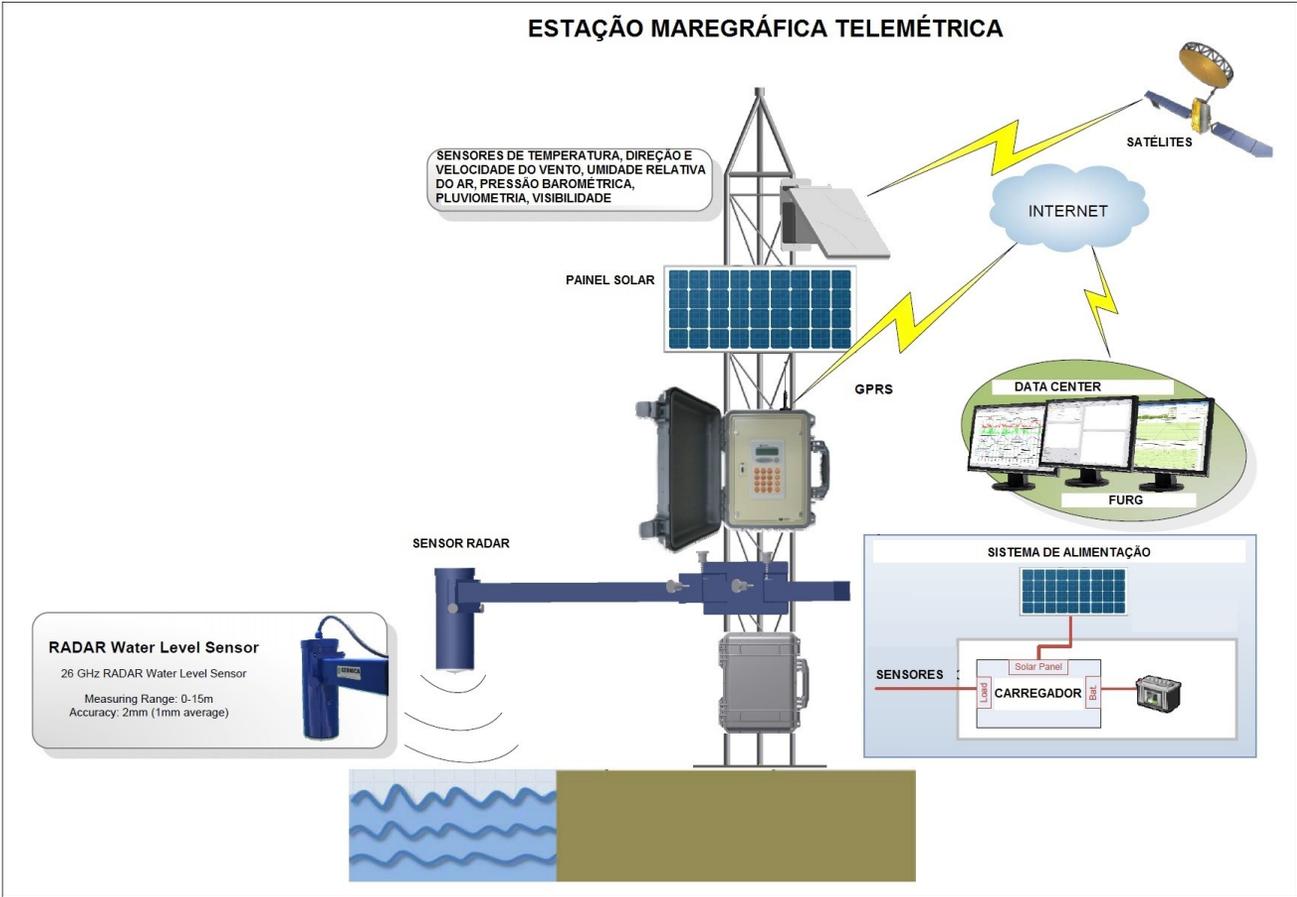
- PR-1 - PONTAL DO PARANÁ
- PR-2 - PONTAL DO PARANÁ
- RJ-1 - RIO DE JANEIRO
- RJ-2 - RIO DE JANEIRO
- RJ-3 - RIO DE JANEIRO
- RS-1 - RIO GRANDE
- RS-2 - RIO GRANDE
- RS-5 - RIO GRANDE
- SC-1 - FLORIANÓPOLIS
- SP-1 - SÃO SEBASTIÃO

www.simcosta.furg.br



Sistema de Monitoramento da Costa Brasileira

MÓDULO ONSHORE



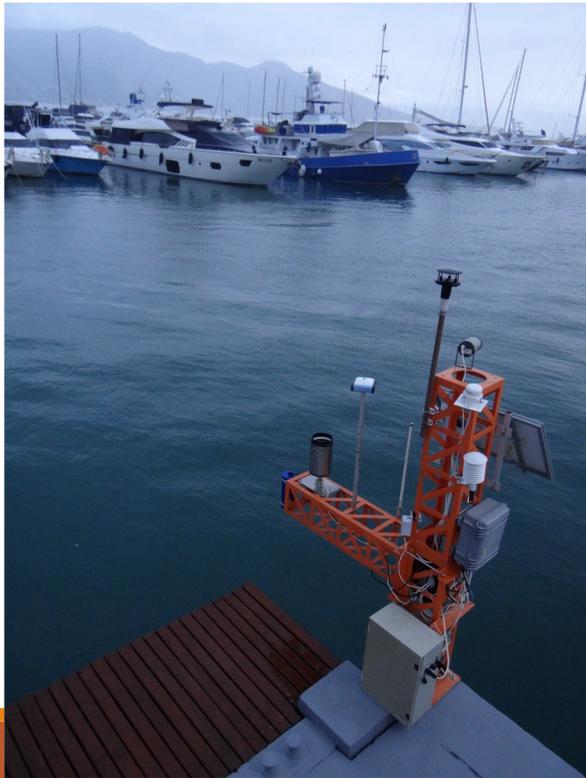


A Rede de Observação do Nível do Mar na Costa Brasileira



Missão de
implantação da
rede 2017 - 2018







Sistema de Controle da Rede

Geonica TeleTrans Version: 1.3 (Build 31698) - Service: 1.3 (Build 31762)

Station Manager

- Add Station
- Delete station
- Edit station
- Backup Station
- Exec station

2667 R.Gran01, 4001 Sea Port Ti..., 4002 Solar Energ...

System Tasks

Task	Station	Operation	Status	Next Execution	Repeat	Repeat each

System Events

Current event

Station: 2667
Date and time: 2/23/2015 10:09:21 AM
Description: Task was cancelled by user. Ask for instantaneous values

Type	Task ID	Mode	Date	Station	Description
Warning	80	Automatic	2/23/2015 10:09:2...	2667	Task was cancelled by user. Ask for instantaneous values
Info	80	Automatic	2/23/2015 10:08:0...	2667	Started: Ask for instantaneous values
Error	80	Automatic	2/20/2015 2:38:48 ...	2667	Error: Error connecting to the station. Ask for instantane...
Info	80	Automatic	2/20/2015 2:37:25 ...	2667	Started: Ask for instantaneous values
Error	80	Automatic	2/20/2015 2:36:55 ...	2667	Error: Error connecting to the station. Ask for instantane...
Info	80	Automatic	2/20/2015 2:35:34 ...	2667	Started: Ask for instantaneous values
Error	80	Automatic	2/20/2015 2:35:04 ...	2667	Error: Error connecting to the station. Ask for instantane...
Info	80	Automatic	2/20/2015 2:33:31 ...	2667	Started: Ask for instantaneous values
Info	80	Automatic	2/20/2015 2:18:37 ...	2667	Finished: Ask for instantaneous values
Info	80	Automatic	2/20/2015 2:18:31 ...	2667	Started: Ask for instantaneous values

Communication Channels

Channel	Date	Comm...	ID Station	Statio...	Status	Description

Execute command in the Station 2667 - R.Gran01

Param	Value	Sample number	Sample period	Store period
Wind Spd.	2.8 m/s	422	1 seg	10 min
Wind Dir.	273 °	422	1 seg	10 min
Air Temp.	25.6 °C	422	1 seg	10 min
Rel. Hum.	86 %	422	1 seg	10 min
Dew Point	23.0 °C	421	1 seg	10 min
Atm Pressu	1004.4 mb	421	1 seg	10 min
Visibility	39916 m	421	1 seg	10 min
Rain	0.0 mm	421	1 seg	10 min
Precip.Int	0.0 mm/h	421	1 seg	10 min
Water L.1	1206.09 cm	421	1 seg	10 min
GPSLat.	-32.188 °	420	1 seg	10 min
GPSLongit.	-52.082 °	420	1 seg	10 min
Battery	12.08 V	421	1 seg	10 min

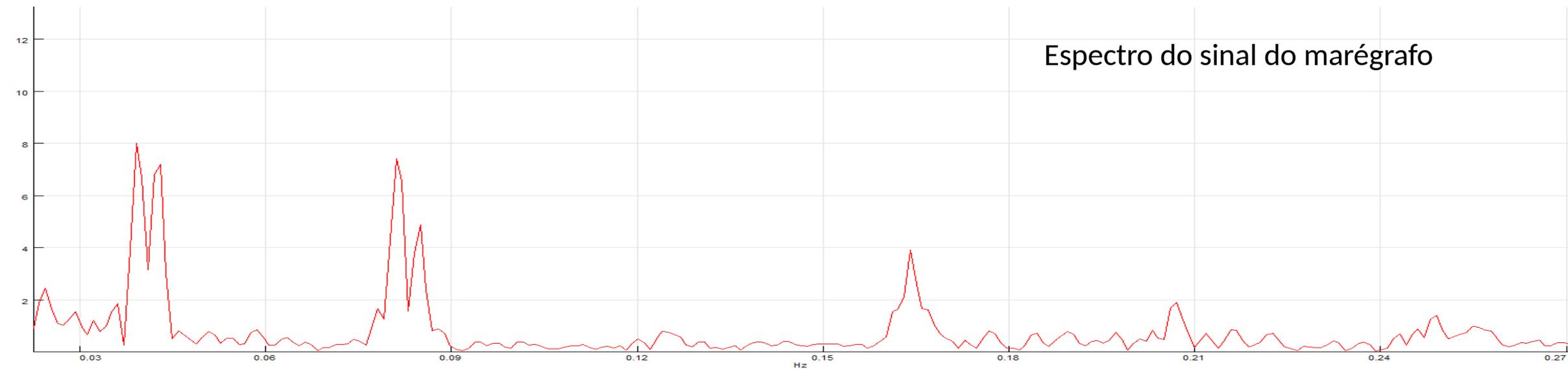
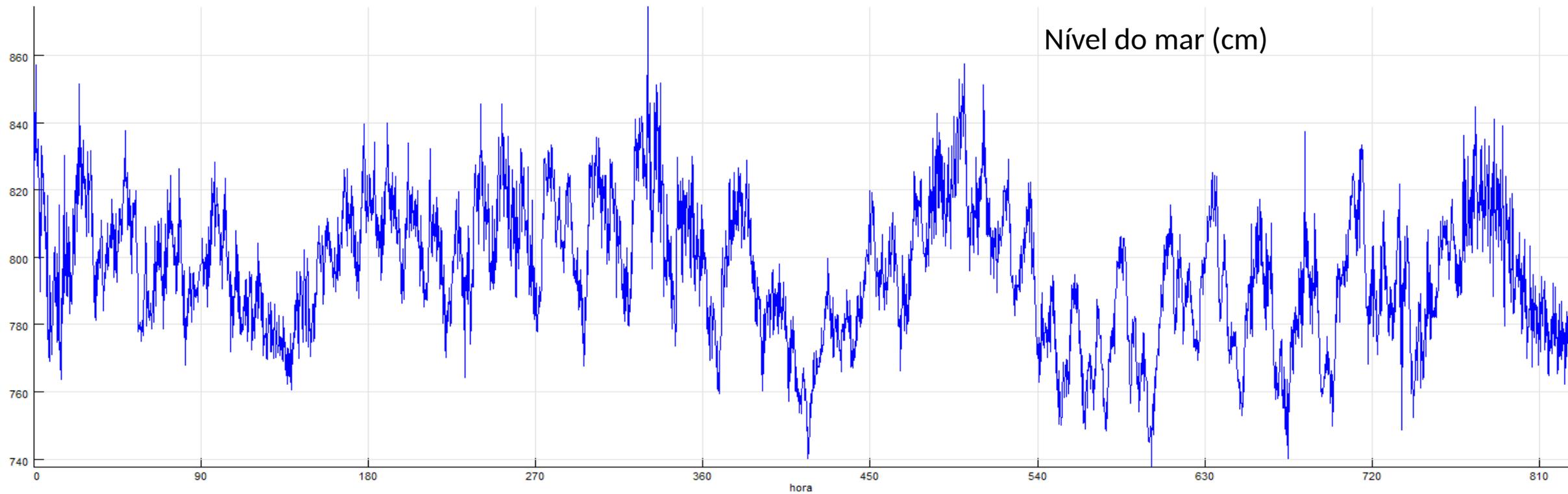
Instantaneous values request

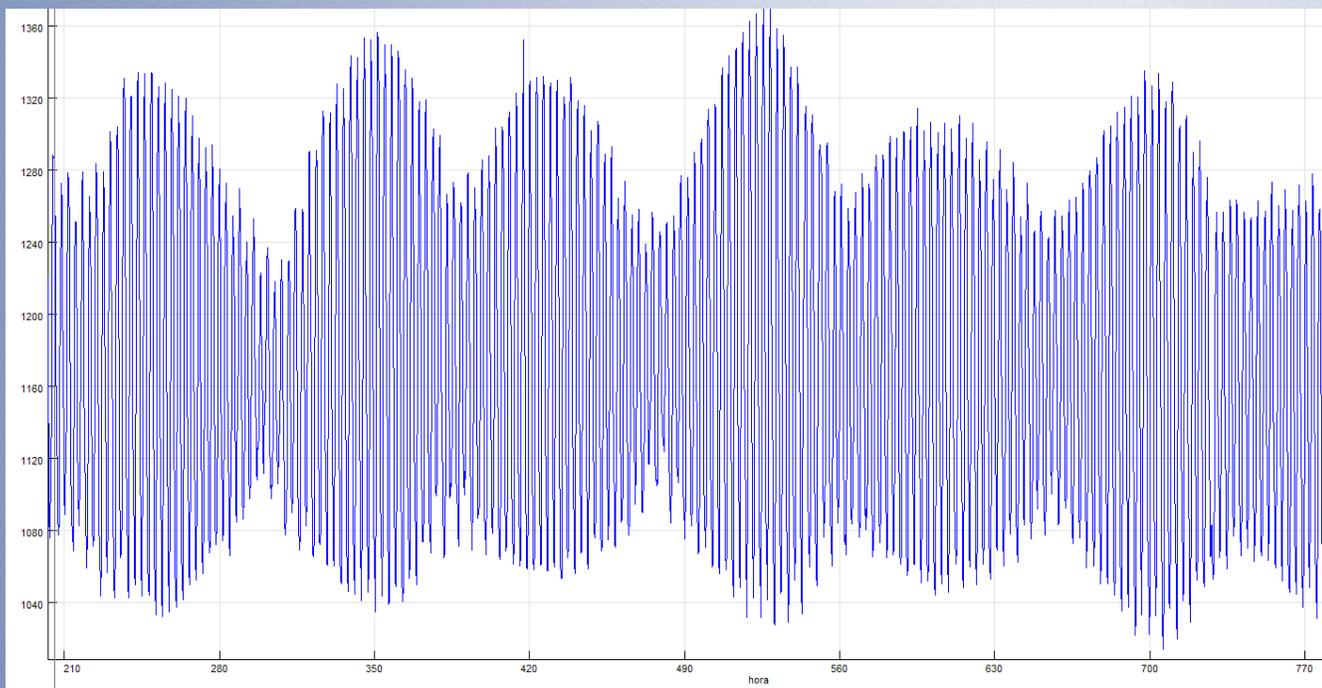
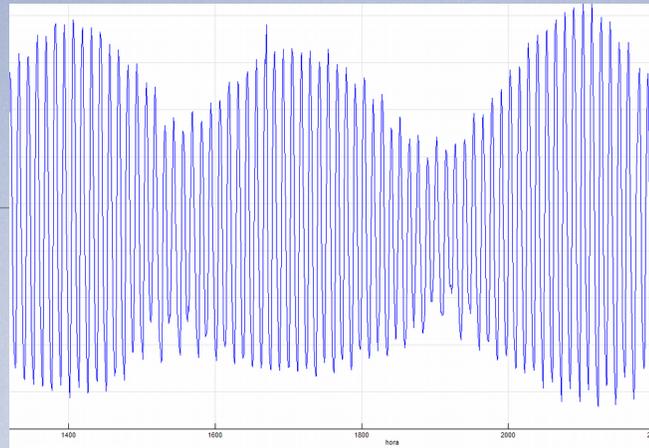
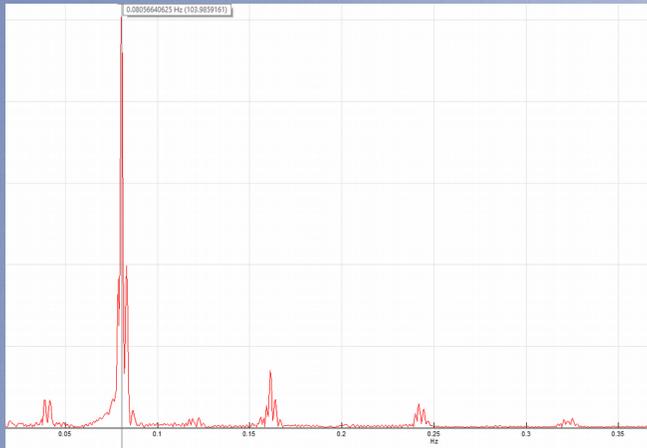
Variables	Statistics
Station number: 2667	Total time: 2.418 s
Date/Hour of station: 1/28/2015 9:37:02 PM	Receiving total time: 2.418 s
Configuration control: 61620	Sending total time: 0 s
	Processing time: 0 s

Advanced test, Synchronize date-hour, Instantaneous values, Stored values, Image, Request configuration, Send configuration, Send FirmWare, Calibration, Stop

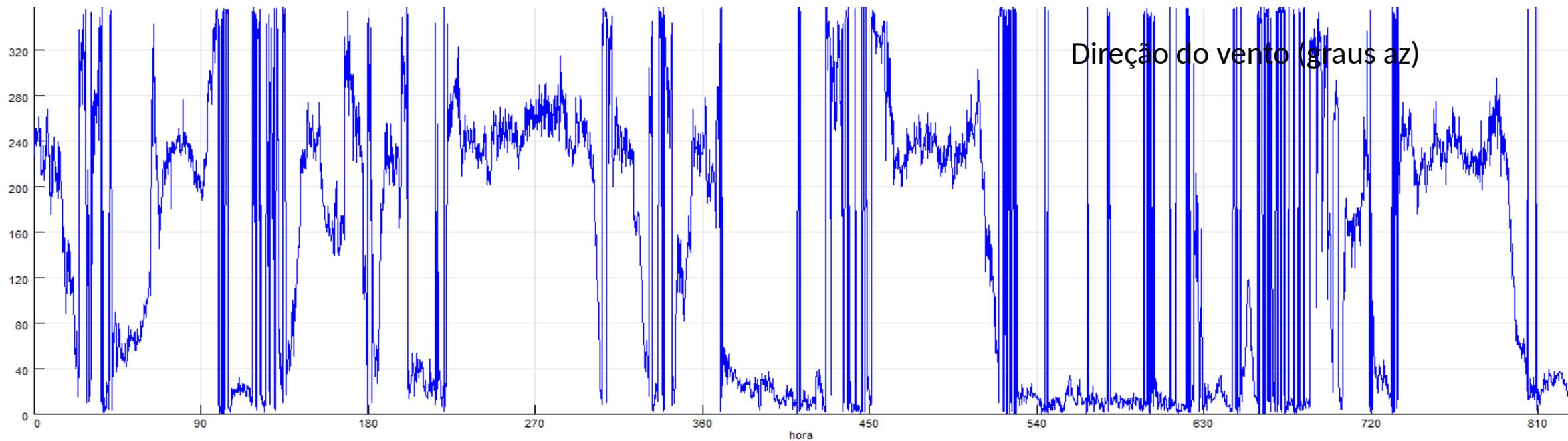
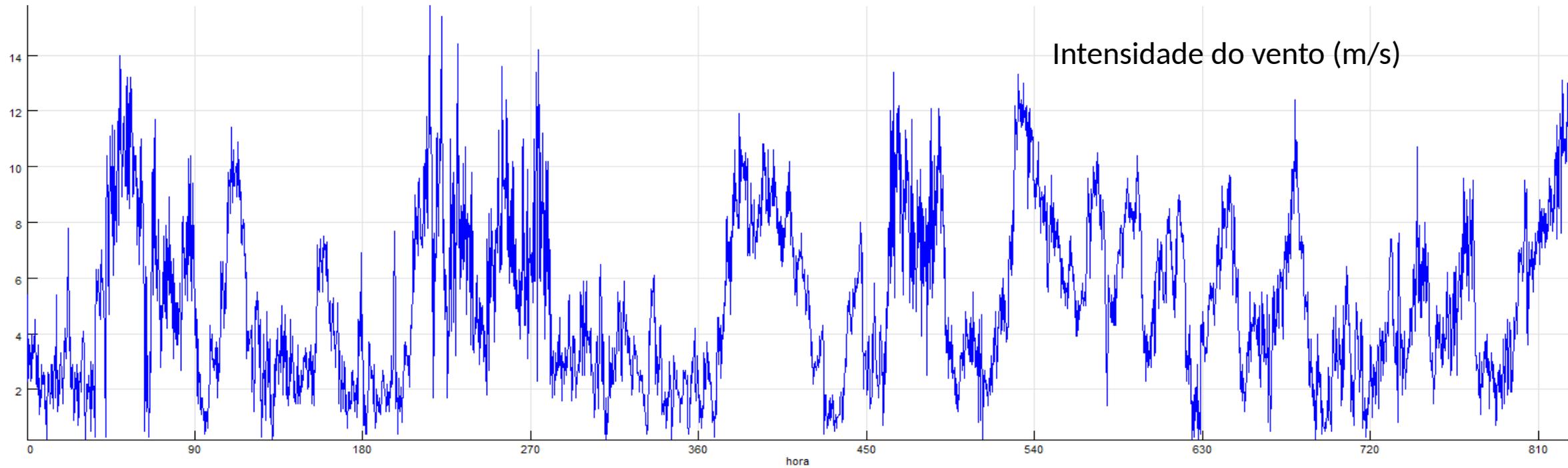
1/28/2015 7:32:57 PM

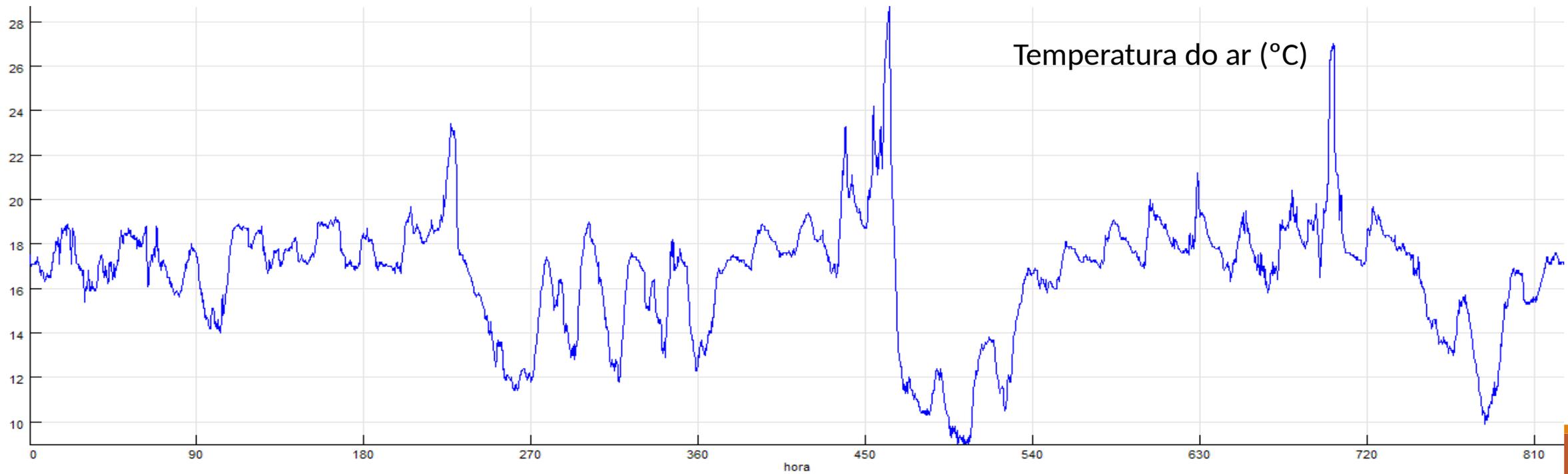
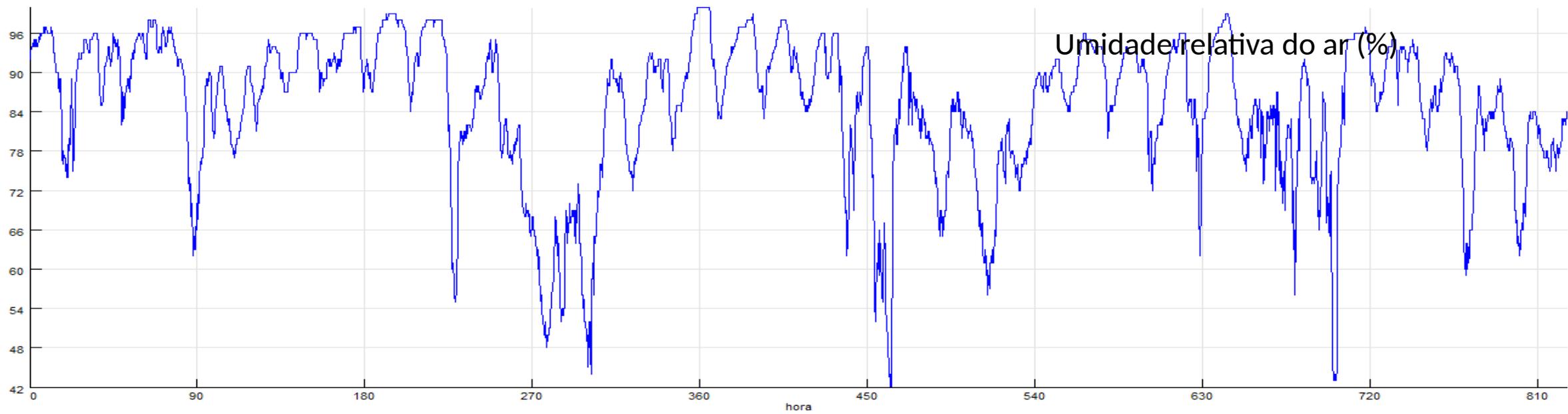
- SISTEMA DE TELEMETRIA INTEGRADO
- SERVIDOR DE DADOS AMBIENTAIS
- SISTEMA DE TRATAMENTO DE DADOS E VISUALIZAÇÃO CIENTÍFICA/OPERACIONAL
- SISTEMA DE ALERTA PARA DEFICIÊNCIA DE ALIMENTAÇÃO, COMUNICAÇÃO E OUTLIERS.





Em
Belém





Nivel da bateria (V)

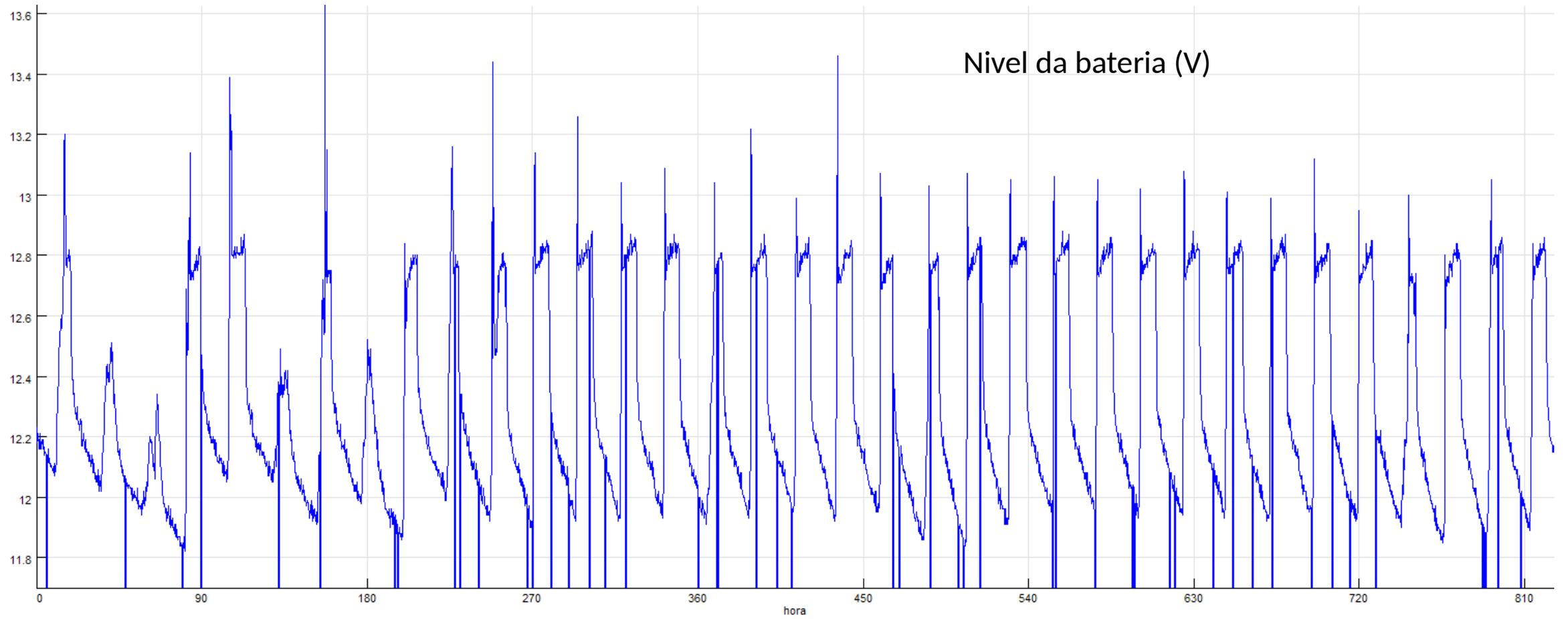
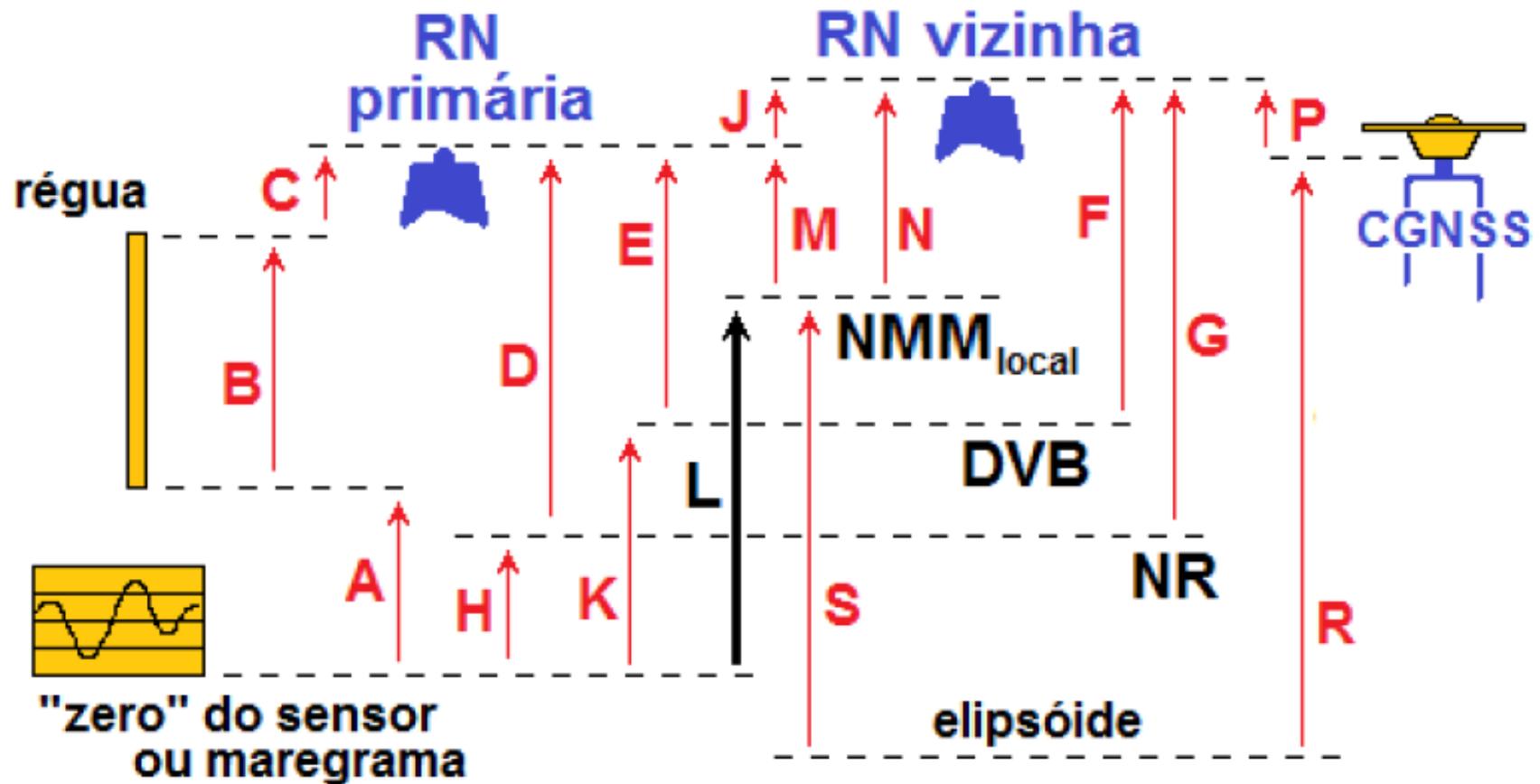


Imagem das câmaras CCD das estações
Tramandaí e Rio Grande (in memoriam)



O Controle Geodésico



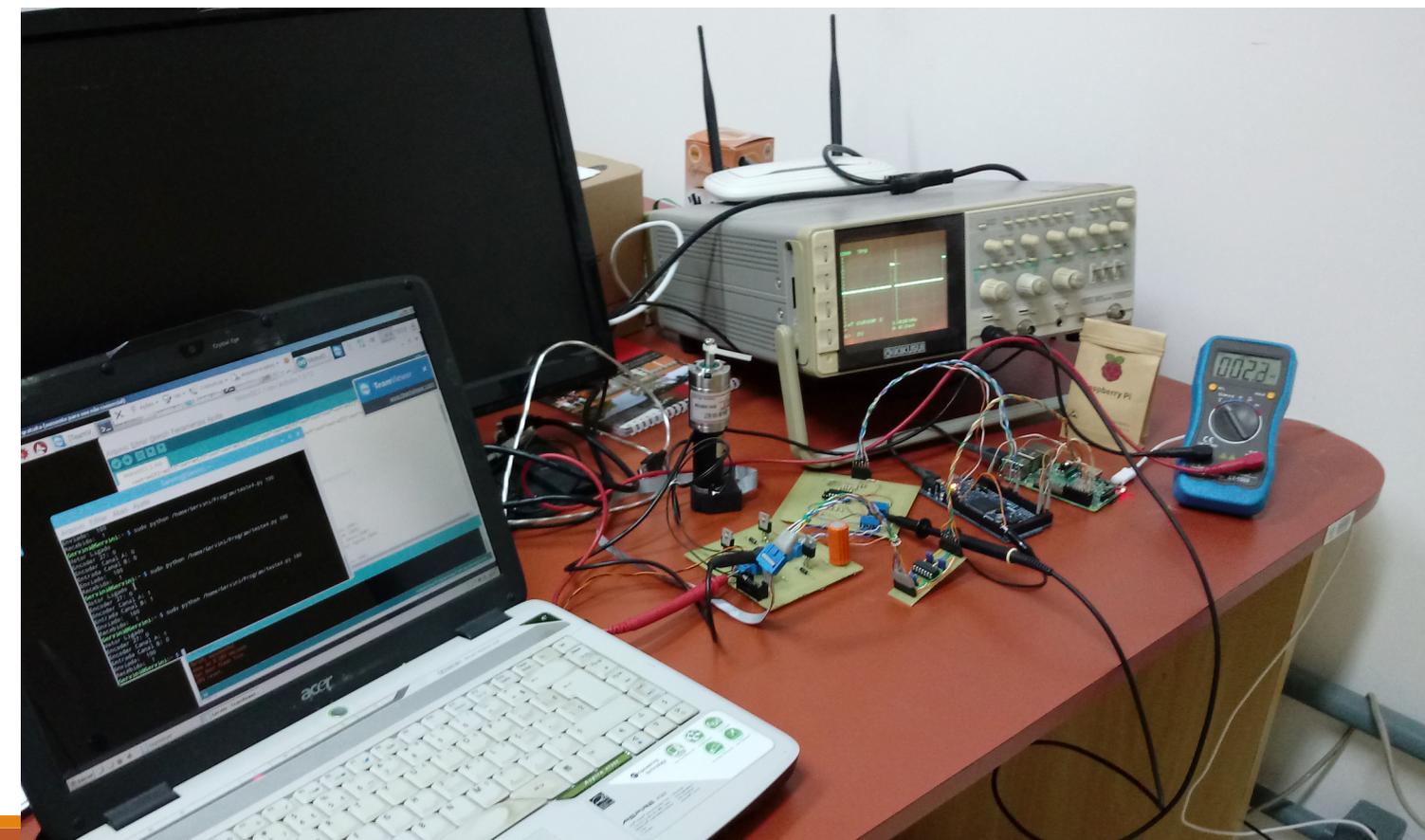
Investimentos no Presente

NOVA PLATAFORMA:

- DATA LOGGER
- CONTROLE E CALIBRAÇÃO
- COMUNICAÇÃO
- SISTEMA DE VIGILÂNCIA

Solução:

- Raspberry PI
- Arduino Mega
- Software Python



Resgate da Estação Rio Grande -RS



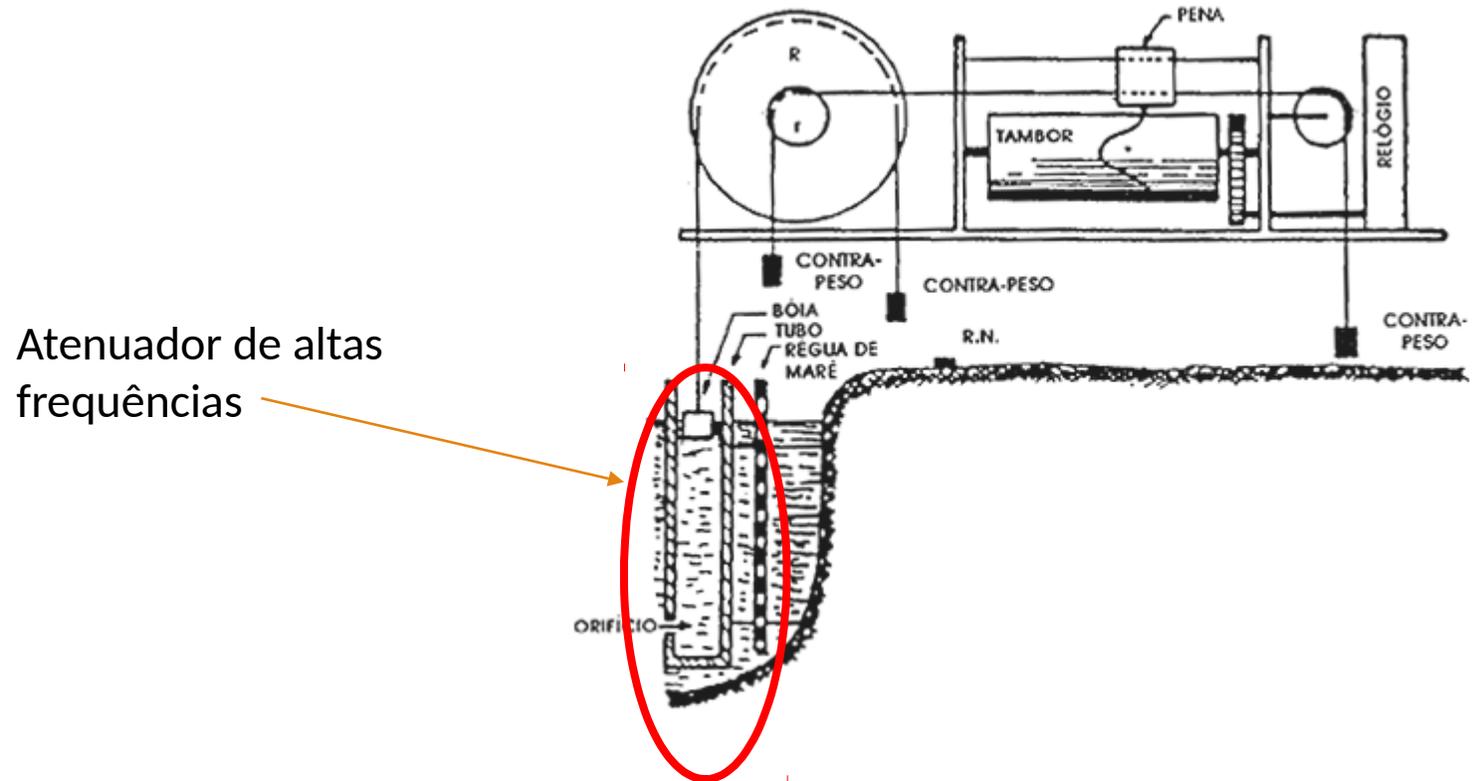
Avaliação de Sistemas de Alta Frequência para Observação do Nível do Mar na Costa: Parâmetros de Múltiplo Interesse

GLAUBER A GONÇALVES

LTGEO/C3/FURG

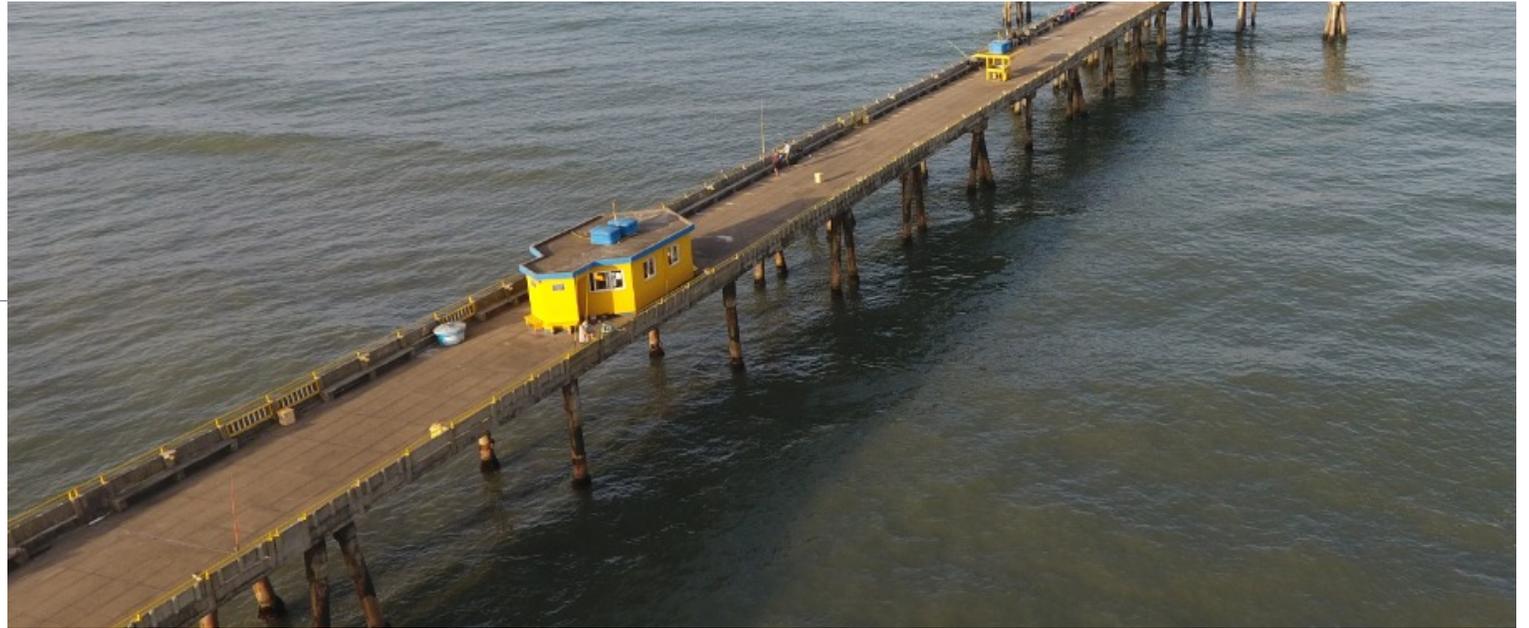
Ou ...

Para que operar um marégrafo gravando dados a taxa de 1hz?



Alguns sítios, no entanto ...





Estrutura de controle da obra dos Molhes da Barra do Rio Grande e Plataforma de Pesca de Tramandaí



frequência, permitem o uso do instrumento em configurações capazes de captar dados importantes para projeto, controle e segurança de estruturas na linha de costa.

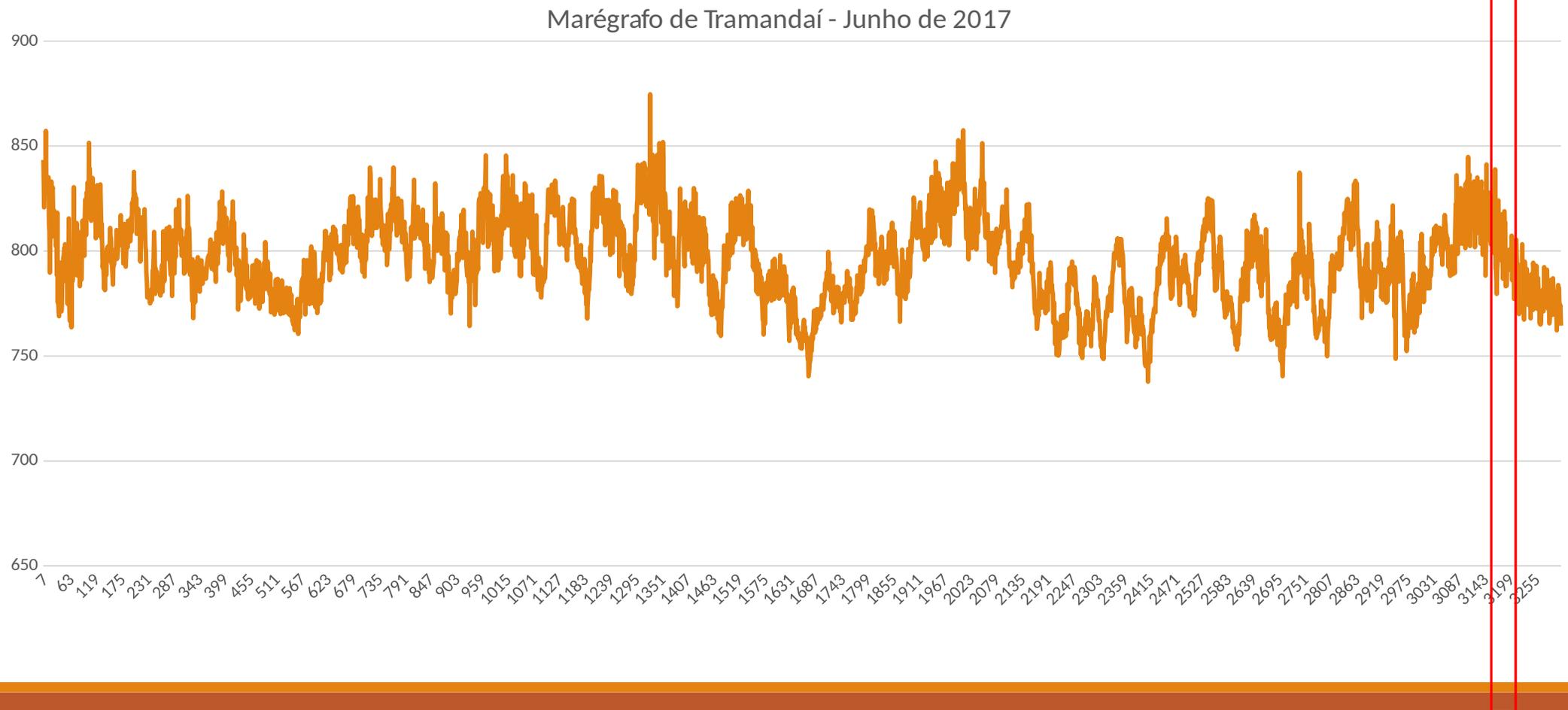
Mensagens básicas

Est;Data_hora;Veloc do vento [m/s];Direc do vento [°];Temp do ar [°C];Humid relativa [%];Press atm [mb]; Visib [m];Chuva [mm];Nivel de Agua[cm];

2668;07/09/2016;14:53:25.000;1,1;297;32,1;66;1.013,8;0;0,0;932,27;
2668;07/09/2016;14:53:26.000;0,9;283;32,1;66;1.013,8;0;0,0;932,23;
2668;07/09/2016;14:53:27.000;0,9;279;32,1;66;1.013,8;0;0,0;932,22;
2668;07/09/2016;14:53:28.000;0,7;273;32,1;66;1.013,8;0;0,0;932,24;
2668;07/09/2016;14:53:29.000;0,6;297;32,1;66;1.013,8;0;0,0;932,22;
2668;07/09/2016;14:53:30.000;0,6;294;32,1;66;1.013,8;0;0,0;932,28;
2668;07/09/2016;14:53:31.000;0,7;291;32,1;66;1.013,8;0;0,0;932,13;
2668;07/09/2016;14:53:32.000;0,3;237;32,1;66;1.013,8;0;0,0;932,12;
2668;07/09/2016;14:53:33.000;0,4;224;32,1;66;1.013,8;0;0,0;932,14;
2668;07/09/2016;14:53:34.000;0,6;234;32,1;66;1.013,8;0;0,0;932,13;
2668;07/09/2016;14:53:35.000;0,3;273;32,1;66;1.013,8;0;0,0;932,03;
2668;07/09/2016;14:53:36.000;0,7;348;32,1;66;1.013,8;0;0,0;932,03;
2668;07/09/2016;14:53:37.000;1,3;330;32,1;66;1.013,8;0;0,0;931,97;
2668;07/09/2016;14:53:38.000;1,9;317;32,1;66;1.013,8;0;0,0;931,98;
2668;07/09/2016;14:53:39.000;1,5;304;32,1;66;1.013,8;0;0,0;932,02;
2668;07/09/2016;14:53:40.000;1,0;341;32,1;66;1.013,8;0;0,0;932,02;
2668;07/09/2016;14:53:41.000;0,6;336;32,1;66;1.013,8;0;0,0;931,83;
2668;07/09/2016;14:53:42.000;0,4;304;32,1;66;1.013,8;0;0,0;931,84;

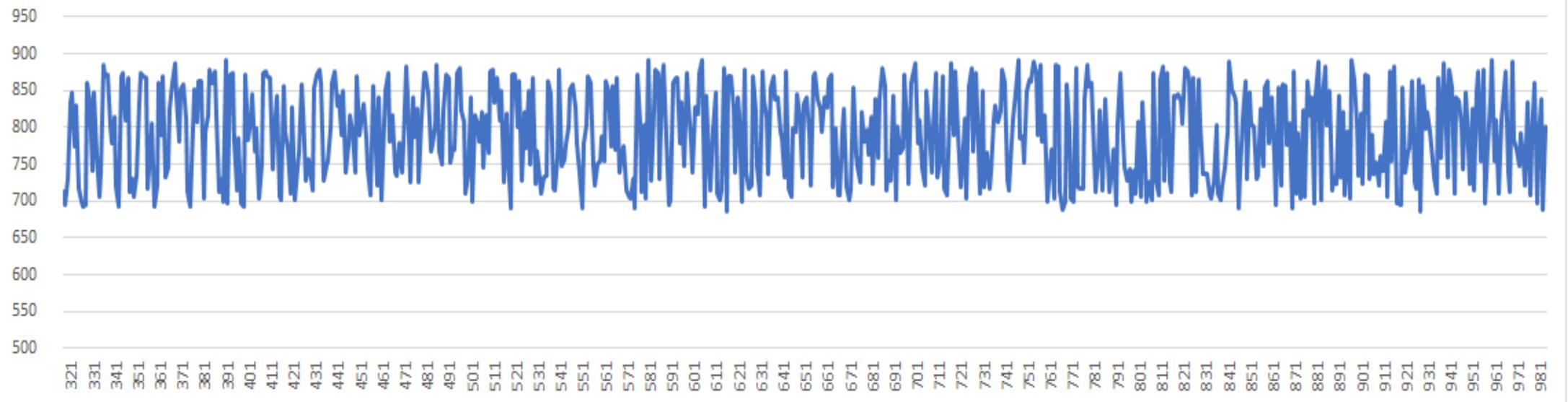
Volume de dados: 7,4 MB/dia

Registro de Nível - Dado primário - Mai/2017

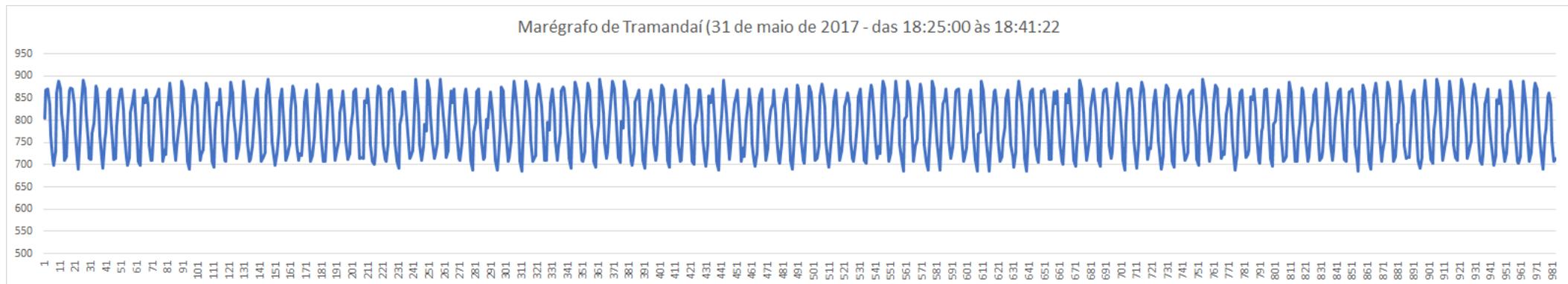


15 minutos de dados

Marégrafo de Tramandaí (30 de maio de 2017 - das 23:15:06 às 23:31:28)

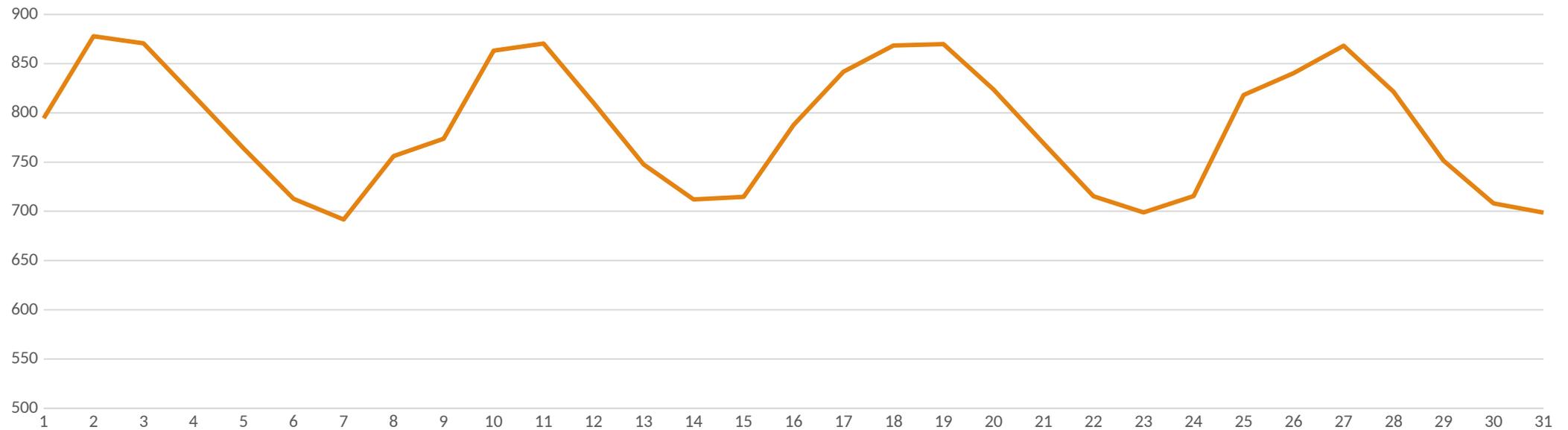


15 minutos de dados no dia seguinte

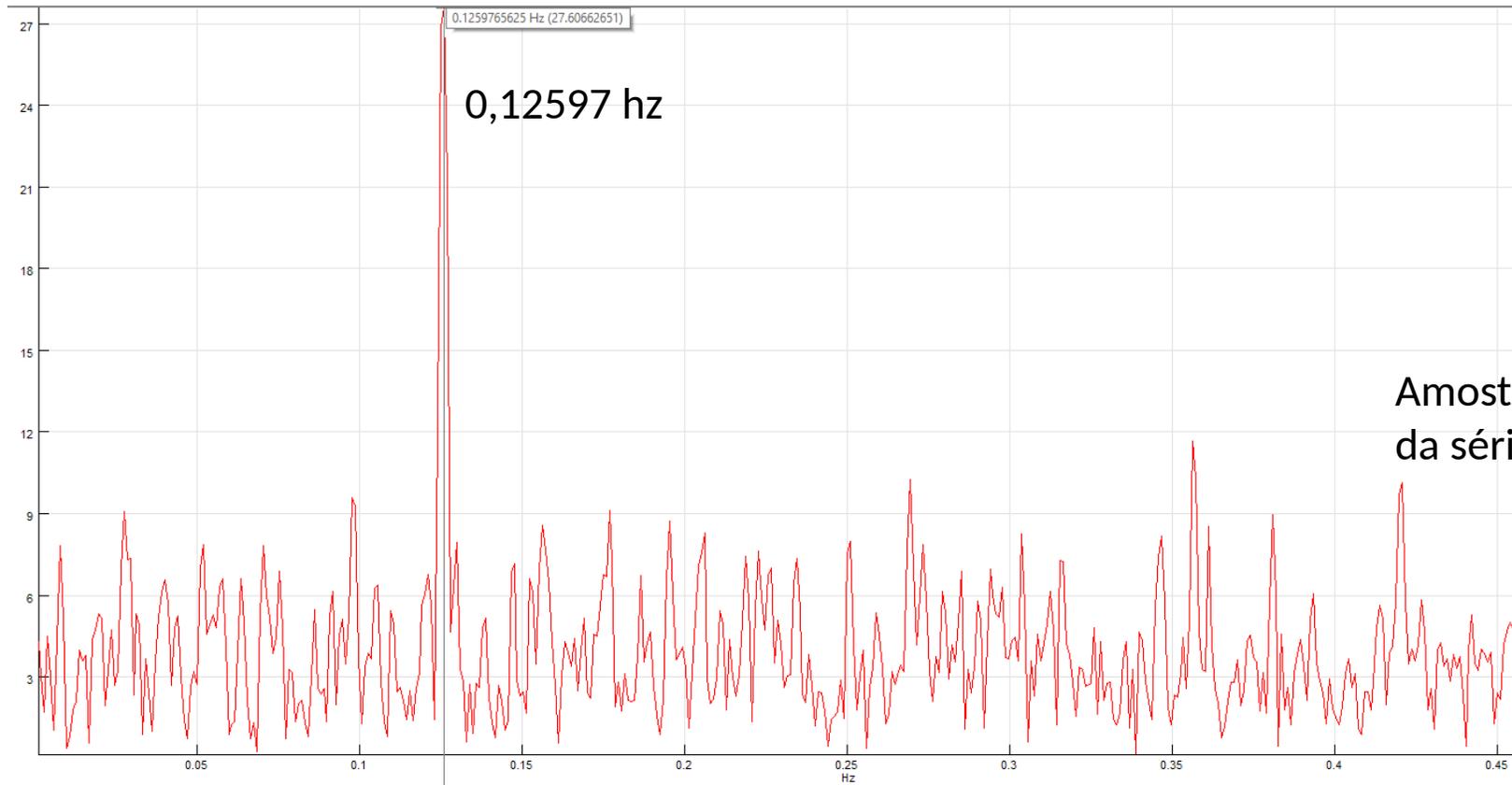


30 segundos de dados

Marégrafo de Tramandaí (31 de maio de 2017 - das 18:31:00 às 18:31:30)



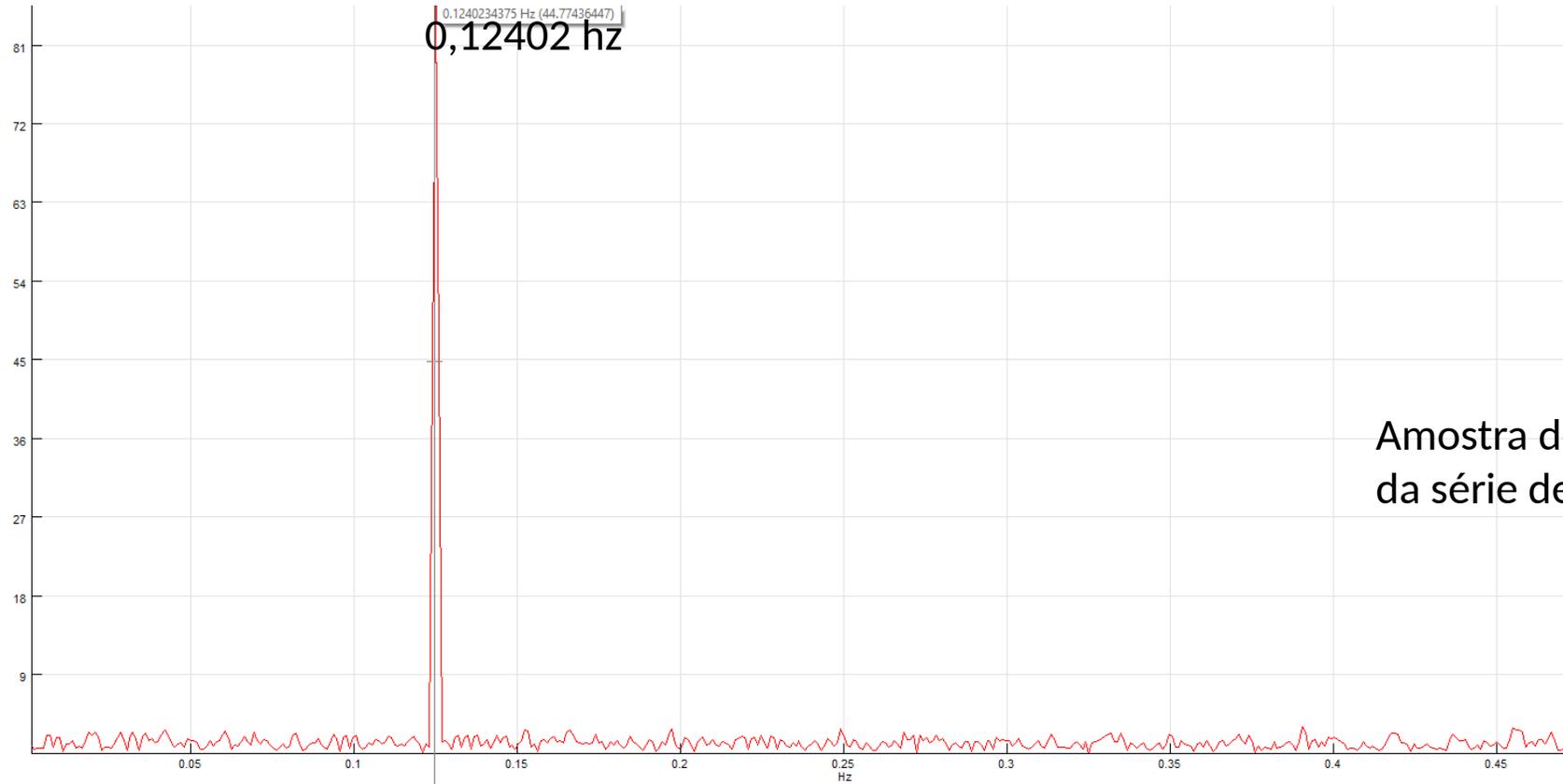
Espectro de Onda - Dia 30 - 23h



0,12597 hz

Amostra de 15 minutos
da série de dados

Espectro de Onda - Dia 31 - 18h



Amostra de 15 minutos
da série de dados

Aplicação em Simulações

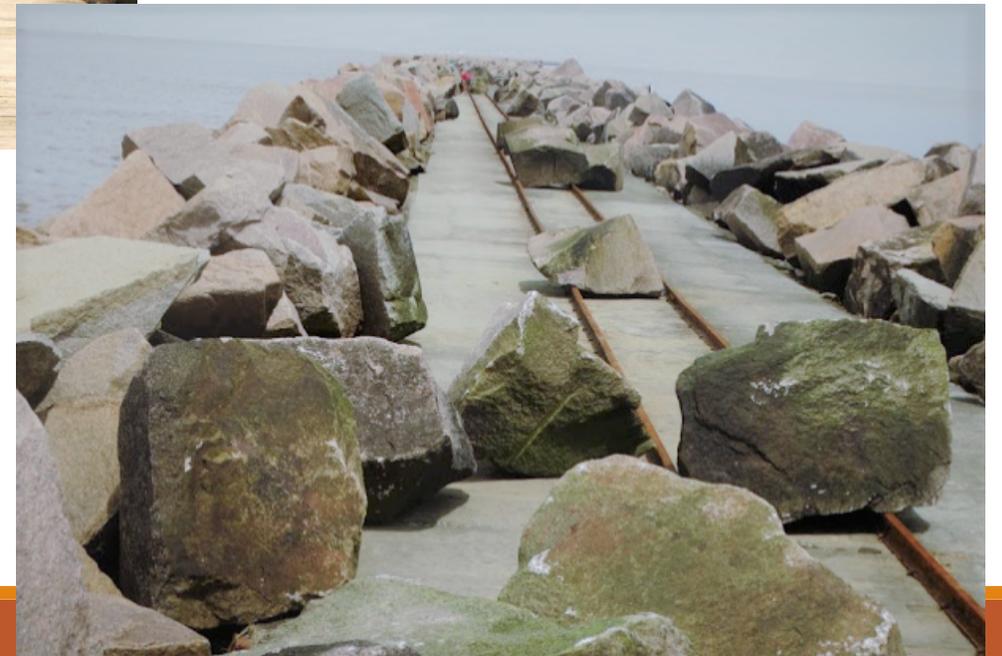
**SIMULAÇÃO DE INTRUSÃO DE
ÁGUA MARINHA SOBRE
OCUPAÇÃO URBANA NO LIMITE
DA LINHA DE COSTA**

**Estudo de Caso:
Litoral Norte do RS
Praia de Sta. Terezinha - Imbé - RS**

O evento de outubro de 2016



“Foram contabilizadas mais de 120 pedras de grandes proporções que atrapalham o caminho das vagonetas. Algumas com cerca de 4 Toneladas.” JC, 04.11.2016



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glauberacunha@gmail.com
www.c3.furg.br