



i4sea



**WE ELIMINATE
UNCERTAINTIES**





EFFICIENCY AND SAFETY
IN THE DIGITAL AGE



i4sea

**ELIMINAMOS
INCERTEZAS**

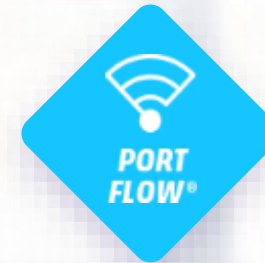




EFFICIENCY AND SAFETY IN THE DIGITAL AGE



ALL ESSENTIAL TOOLS IN A SINGLE PLATFORM



GLOBAL – WW3 / GFS / ECMWF WAM / TPXO

ATM OCEAN® OCEAN AND WEATHER 7 DAYS FORECASTS



REGIONAL

LOCAL

HYPERLOCAL



*Real time ocean and weather
information from local sensors.*



Cloud based platform

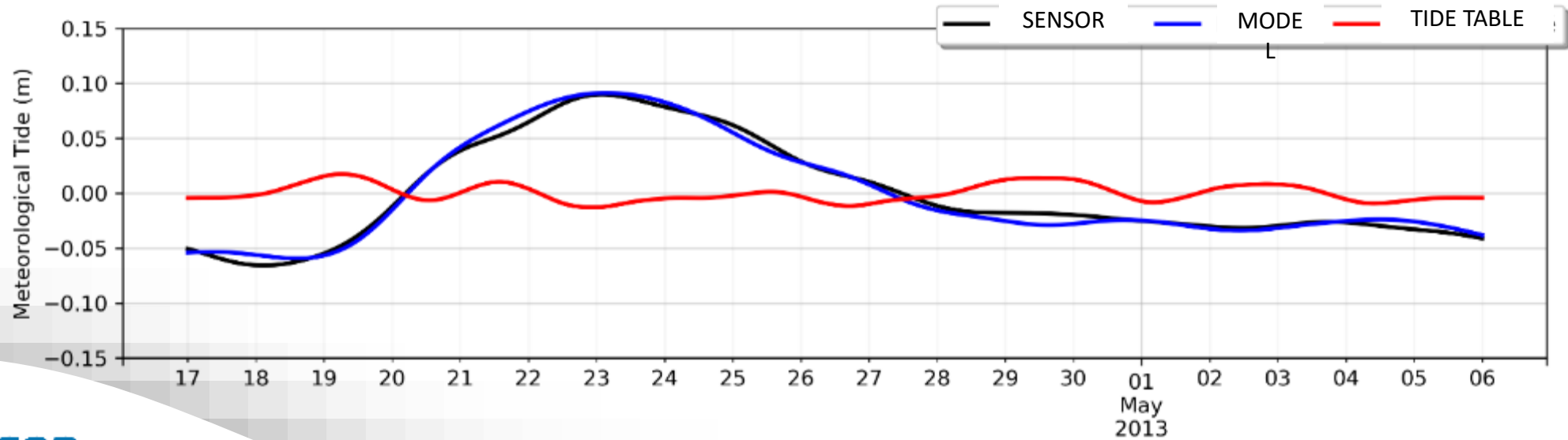
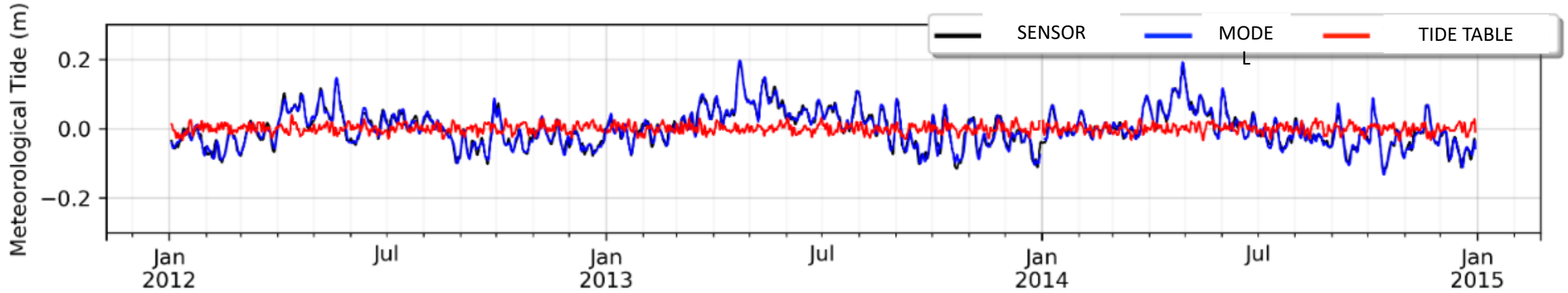
MET OCEAN SENSORS

- *Wave sensors*
- *Tide Sensors*
- *Weather stations*
- *Currentmeters*



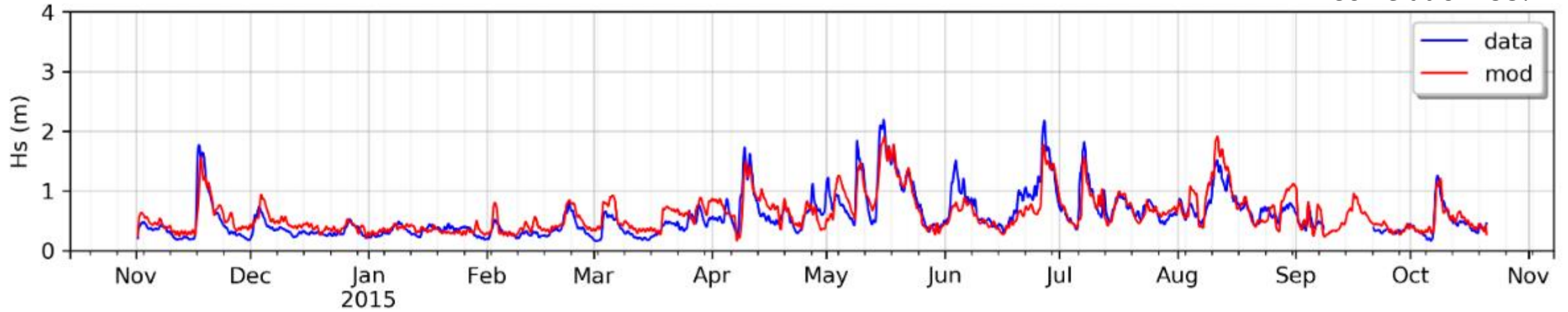
VALIDATION TIDES

Correlation: 98%



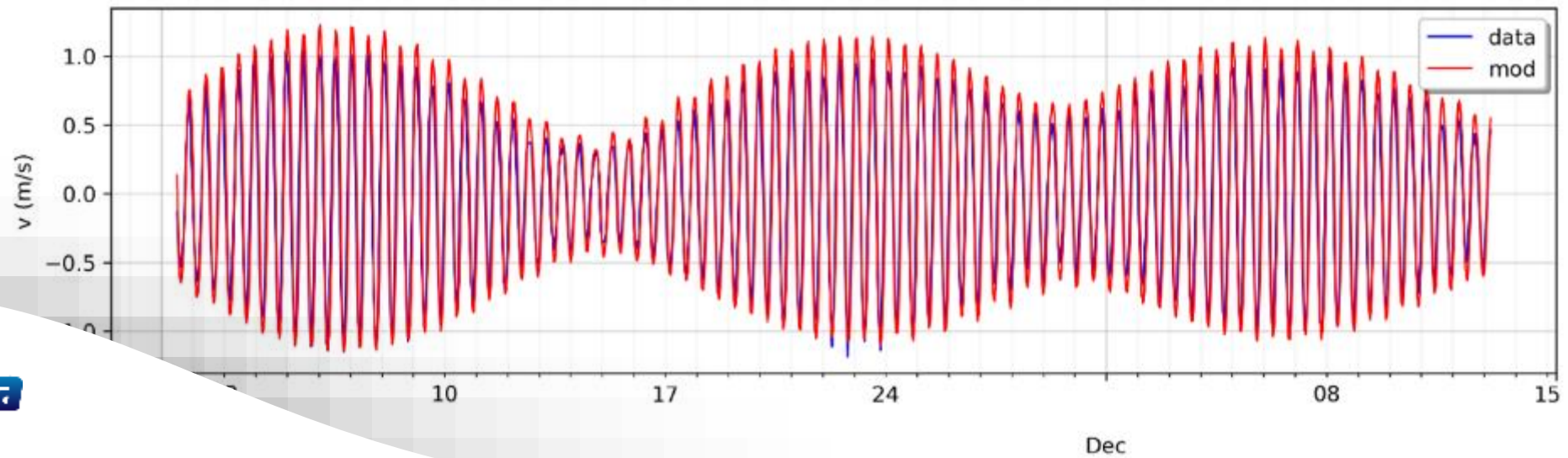
VALIDATION Wave height

Correlation: 95%



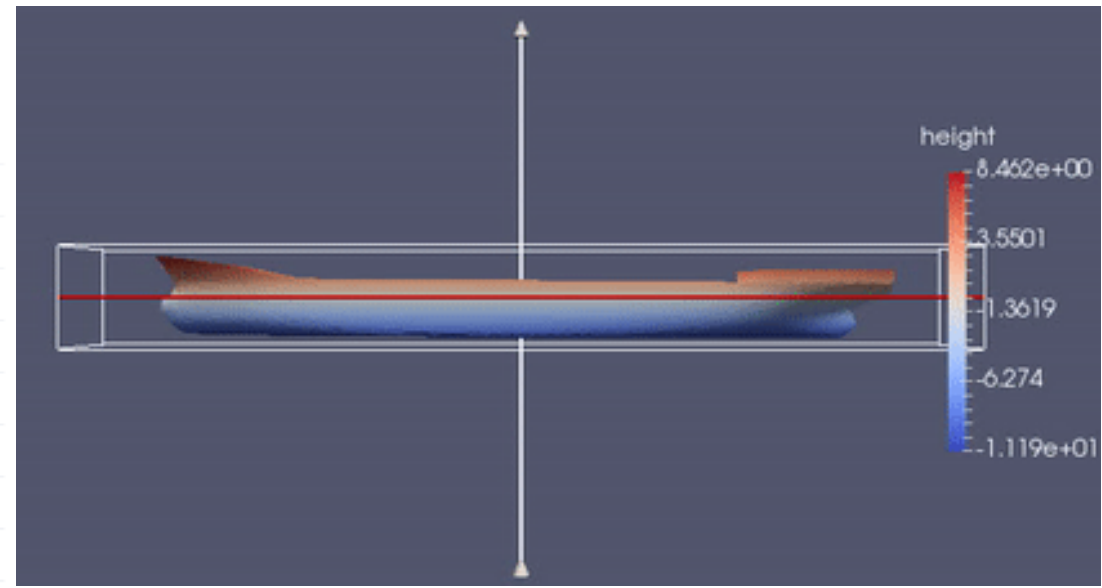
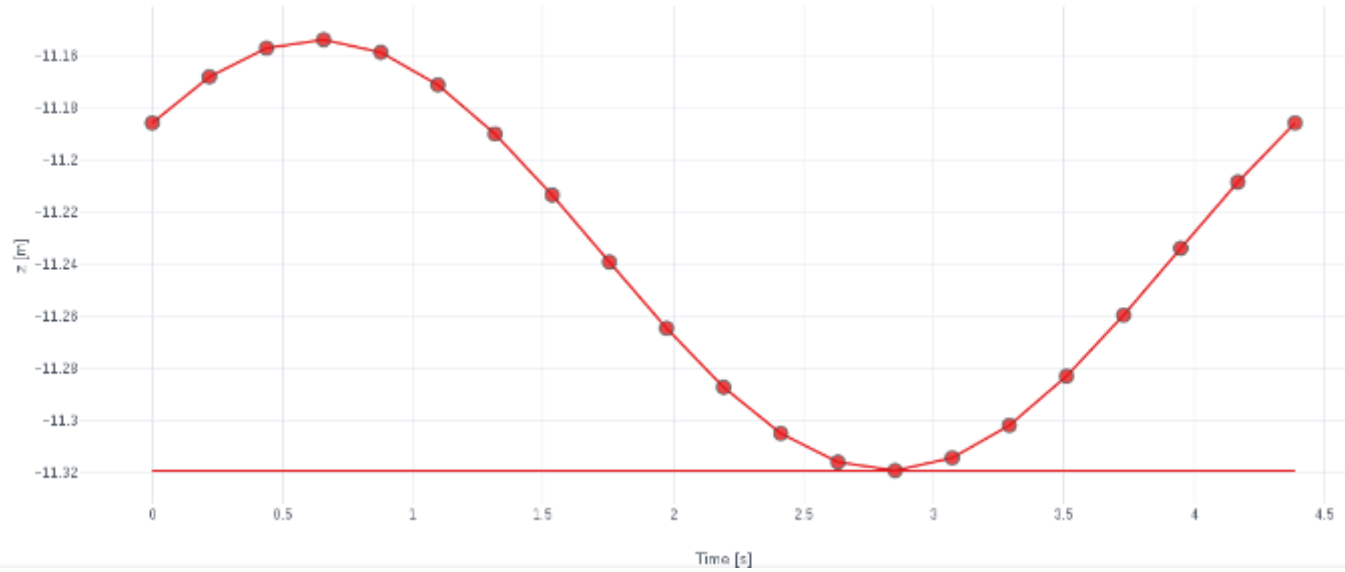
Currents

Correlation: 96%



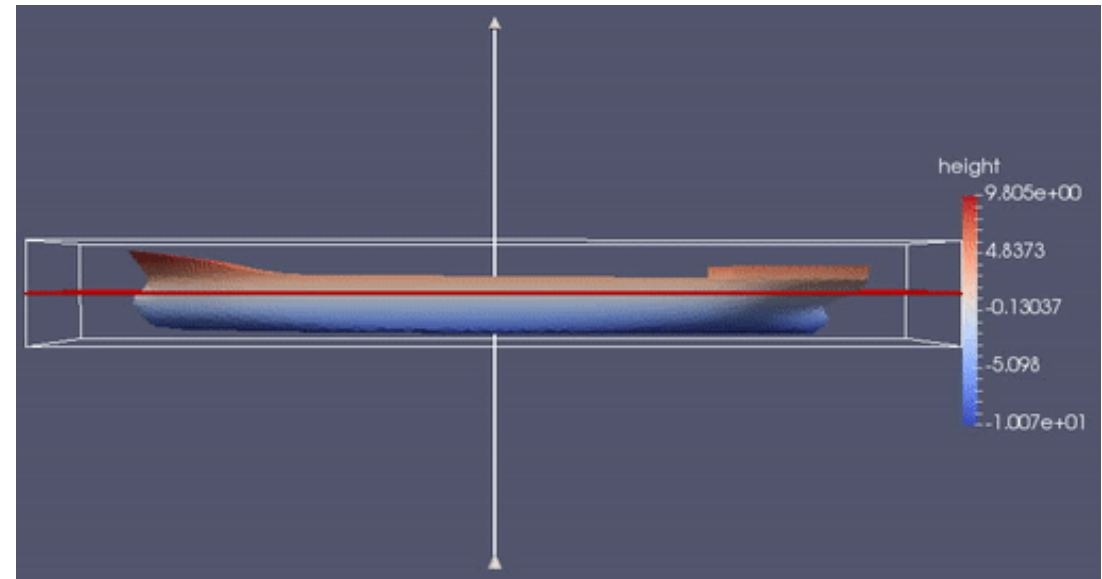
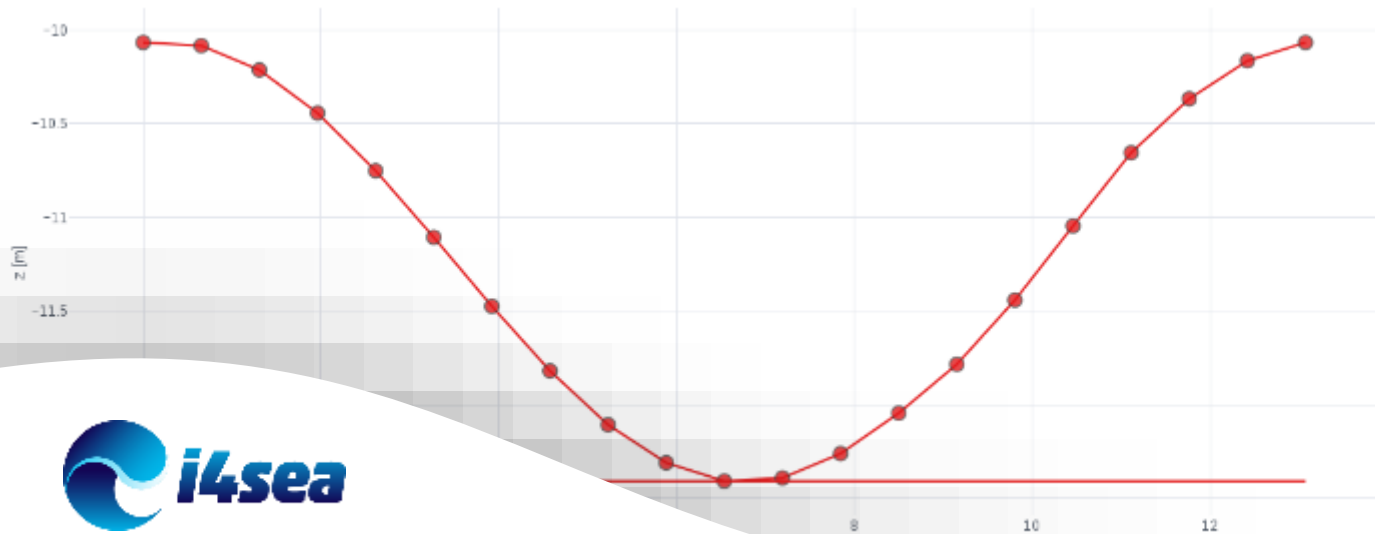
T = 5s, H=1 m

0,15m variation



T = 14s, H=1 m

2,5m movement



Prime UKC[®]
DYNAMIC DRAFT



DEPTH + TIDES

STATIC DRAFT

$$DRAFT_e = D + T - [(D + T) \times Sf]$$

DYNAMIC DRAFT

$$DRAFT_d = D + T - R_{wave} - R_{dens} - R_{wind} - R_{squat} - R_{turn} - UKC_m$$

SAFETY FACTOR = 11,6%

WAVE RESPONSE

"SQUAT", INCLUDING TRIM

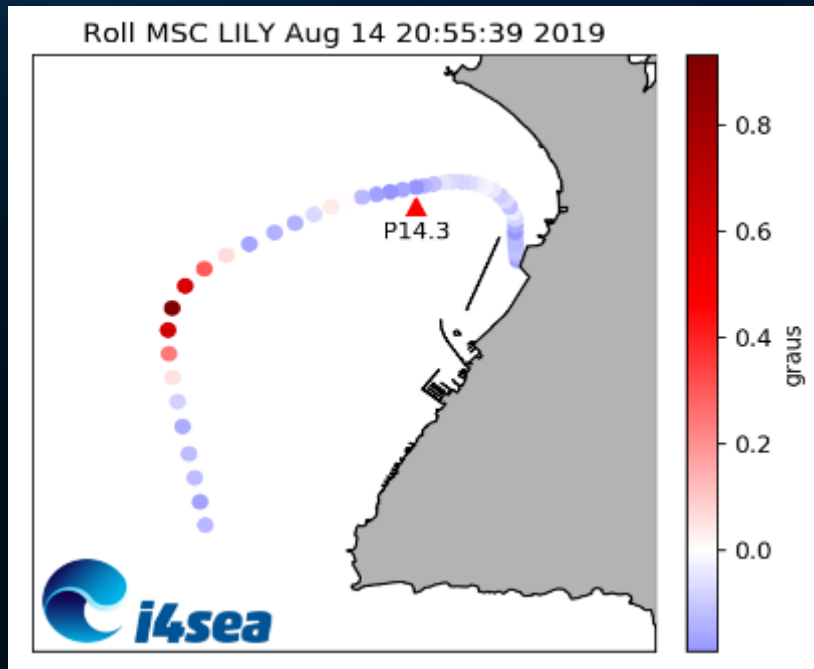
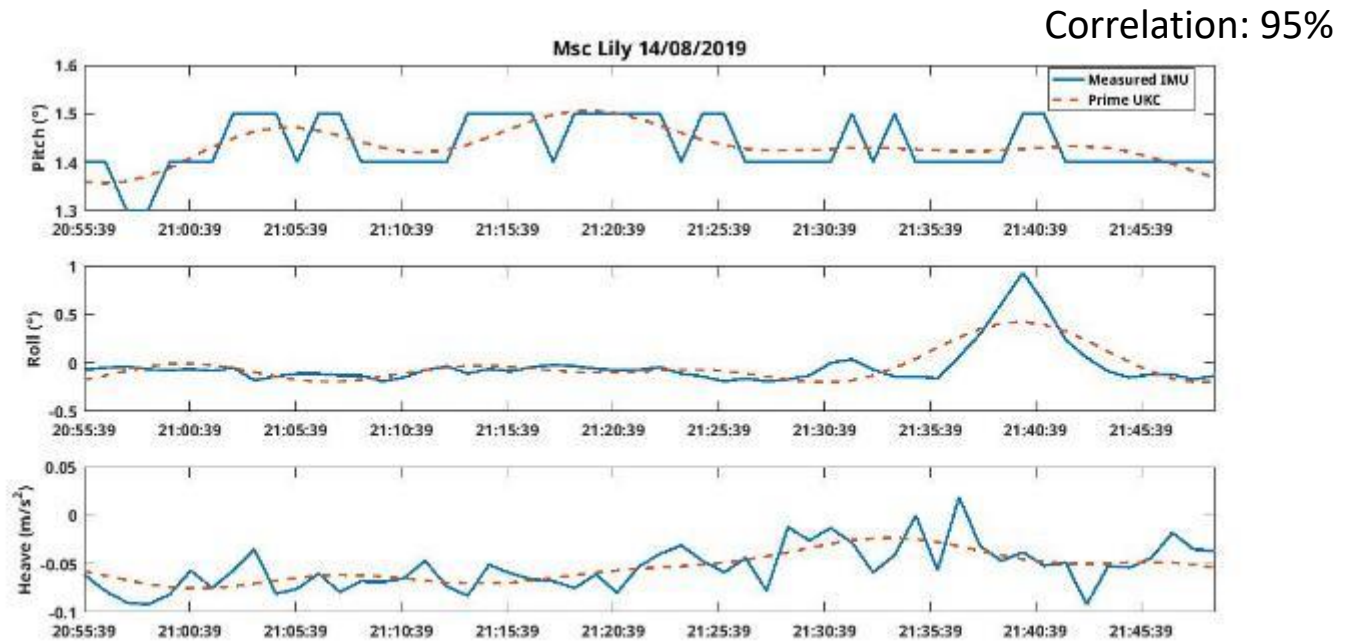
WIND AND TURN RESPONSE

DENSITY

**MINIMUM UNDER KEEL
CLEARANCE = 1 m**



*FASE I
Vertical movements
sensor*



BEST WINDOW® ***INTEGRATED PLANNING***





Terminal de Contêiner

CAIS1 - Agua de Meninos

Create Line Up

Schedule Maneuver

PrimeUKC Request

Line Up

Operational Window

MSC LILY - 16/10/2019 20:38 a 18/10/2019 20:38 - Berth: CAIS1

Risk Alert: maneuver scheduled in a restricted time

16 - 19 de Out de 2019

Hoje



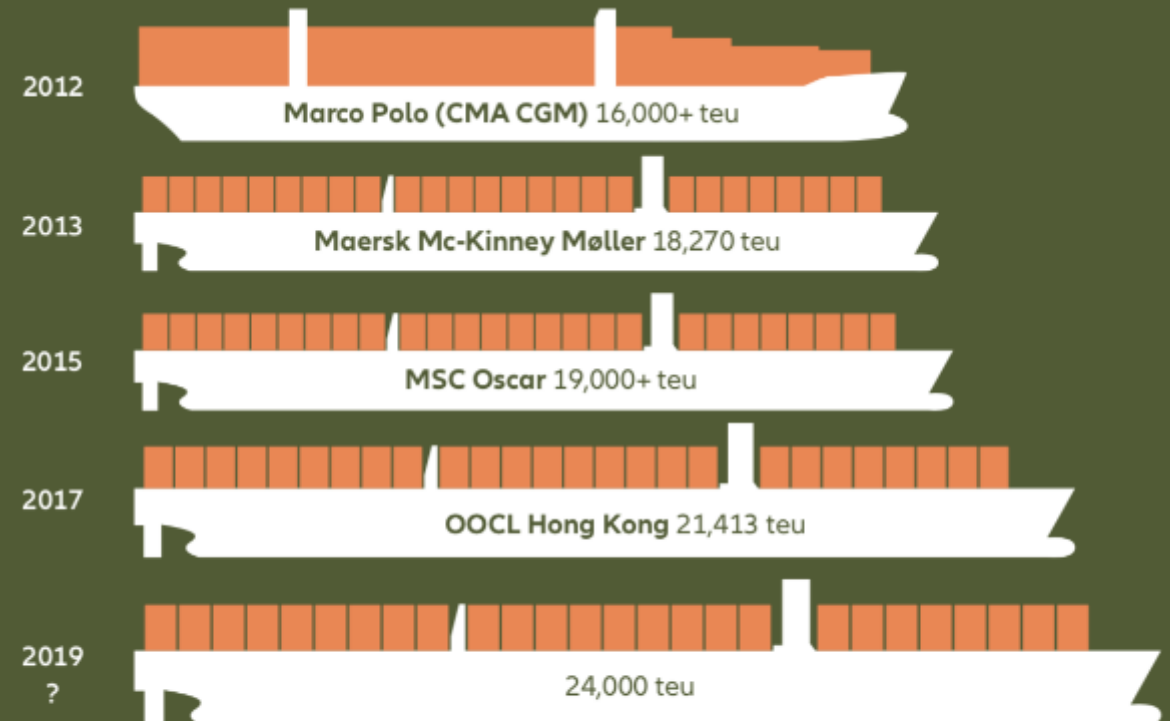
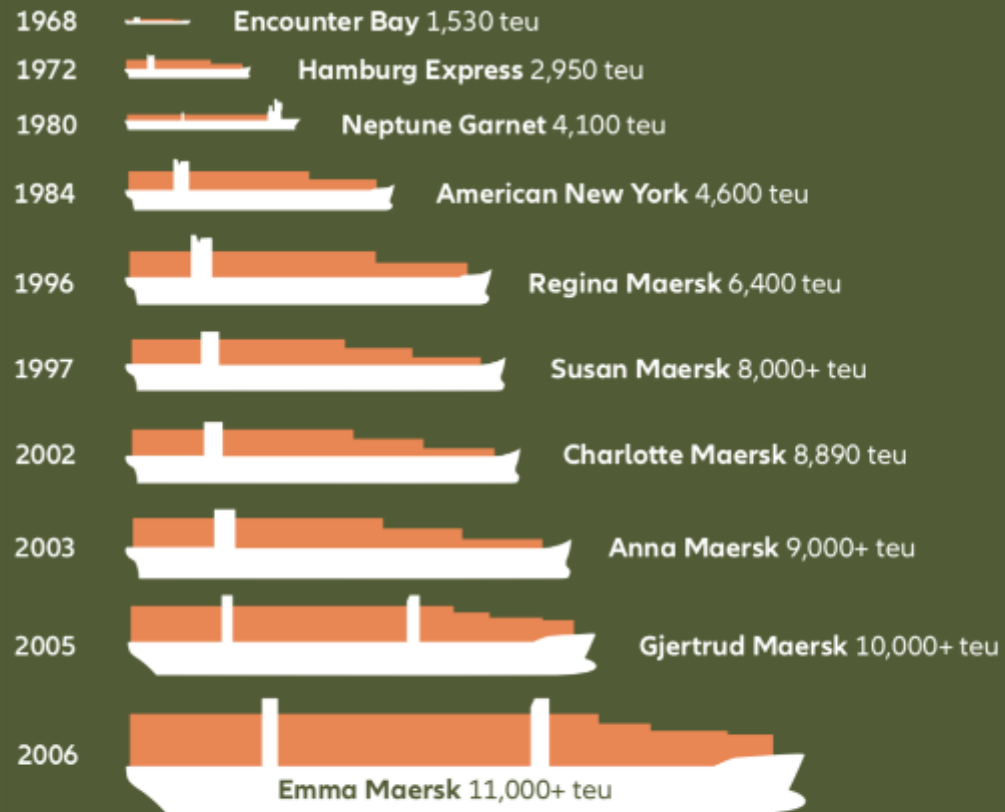
	Qua 16/10	Qui 17/10	Sex 18/10	Sáb 19/10
dia inteiro				
00				
01				
02				
03				
04				
05				

7:00 - 7:45
MSC LILY (Atracação)



50 YEARS OF CONTAINER SHIP GROWTH

Container-carrying capacity has increased by almost **1,500%** since 1968





<https://bit.ly/2DYP0On>

~65% *Port time at a berth*

40 - 65%

Time at berth used for operations



6x increase

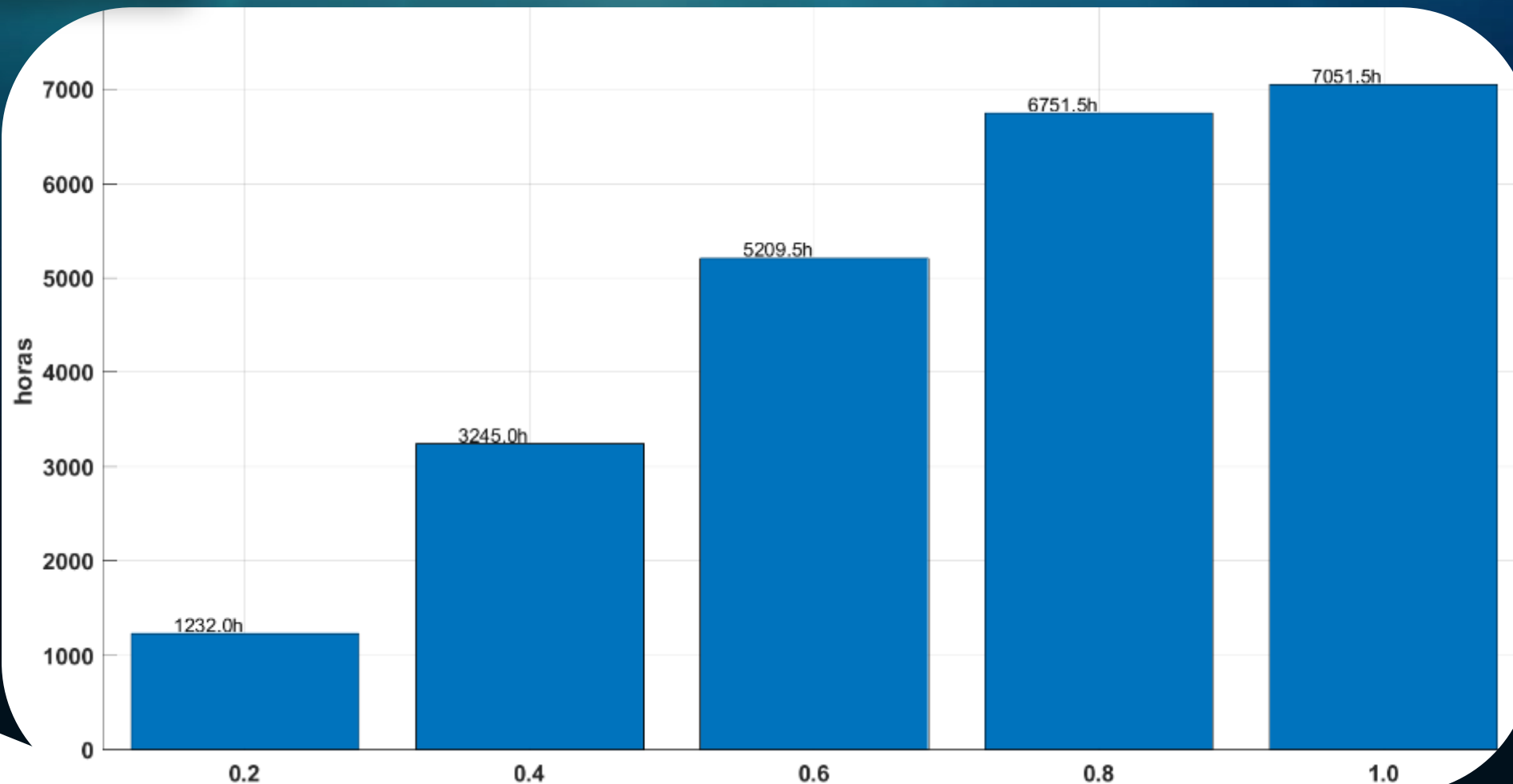
in berth availability



PORTO
COTEGIPE



- *With the forecast and management of moments with low currents.*



5 x increase
in berth availability



+800 TEUs/ship



+ 1,0 meter in draft

SAFELY

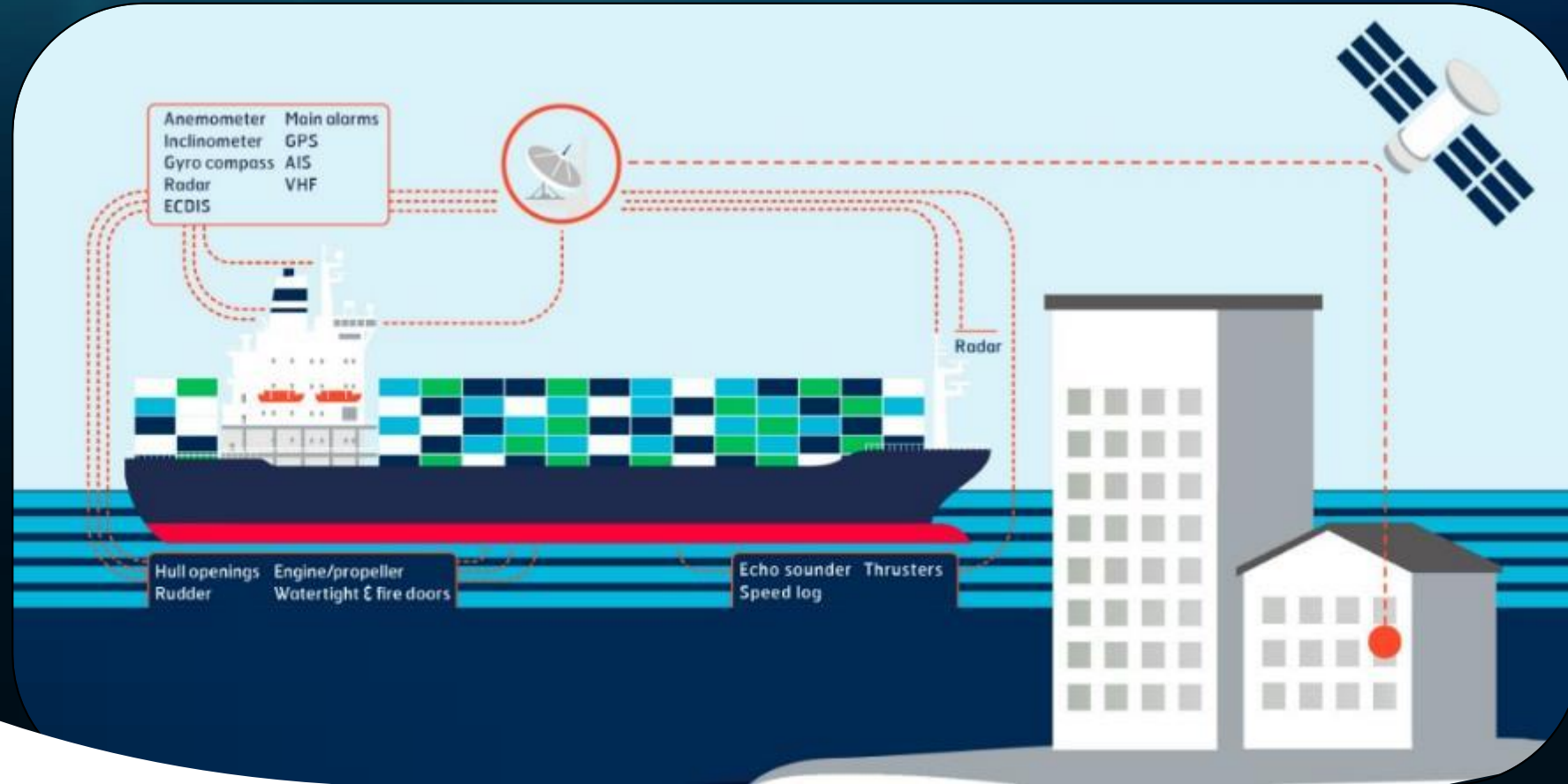


FASE II

Real-time data

- Speed and heading
- AIS
- Under Keel Clearance
- Gyroscope and accelerometer

Partnership with
inmarsat





BEST WINDOW*



ATM OCEAN*



TERMINAL ANALYTICS*



PRIME UKC*

Region:

Baía de todos os santos - Proximidade do Porto de Sal

Station:

PONTO 14.3

Ship:

Bomar Resolve

Risk chart (%)

Wave height (0,29 m)

Wave period (7,4 s)

Wind (6,65 Knots)



Total risk (%)

JS chart by amCharts





Cavalo Marinho I
2017-08-27 08h

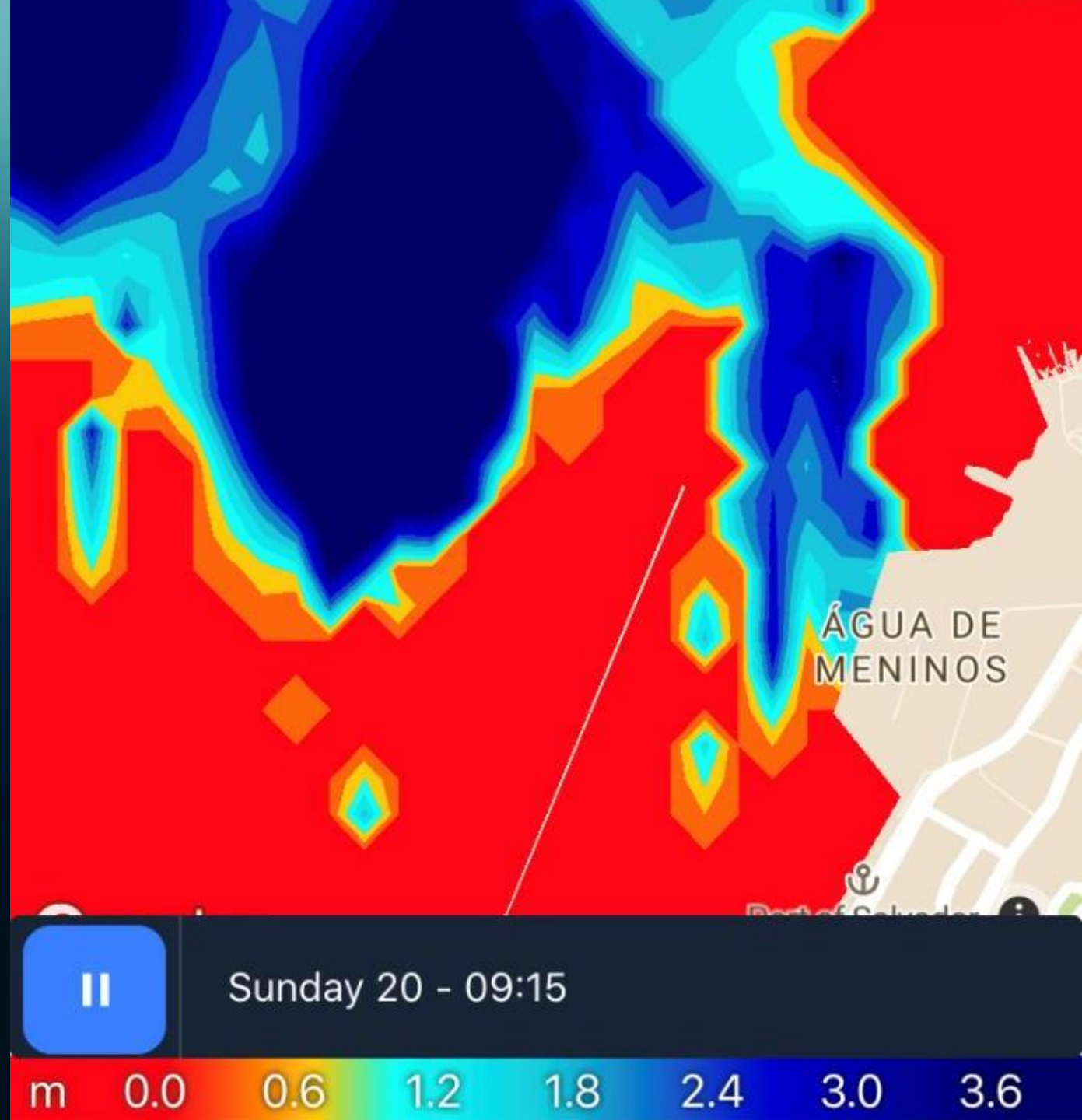
1 m/s



Aid for Pilots

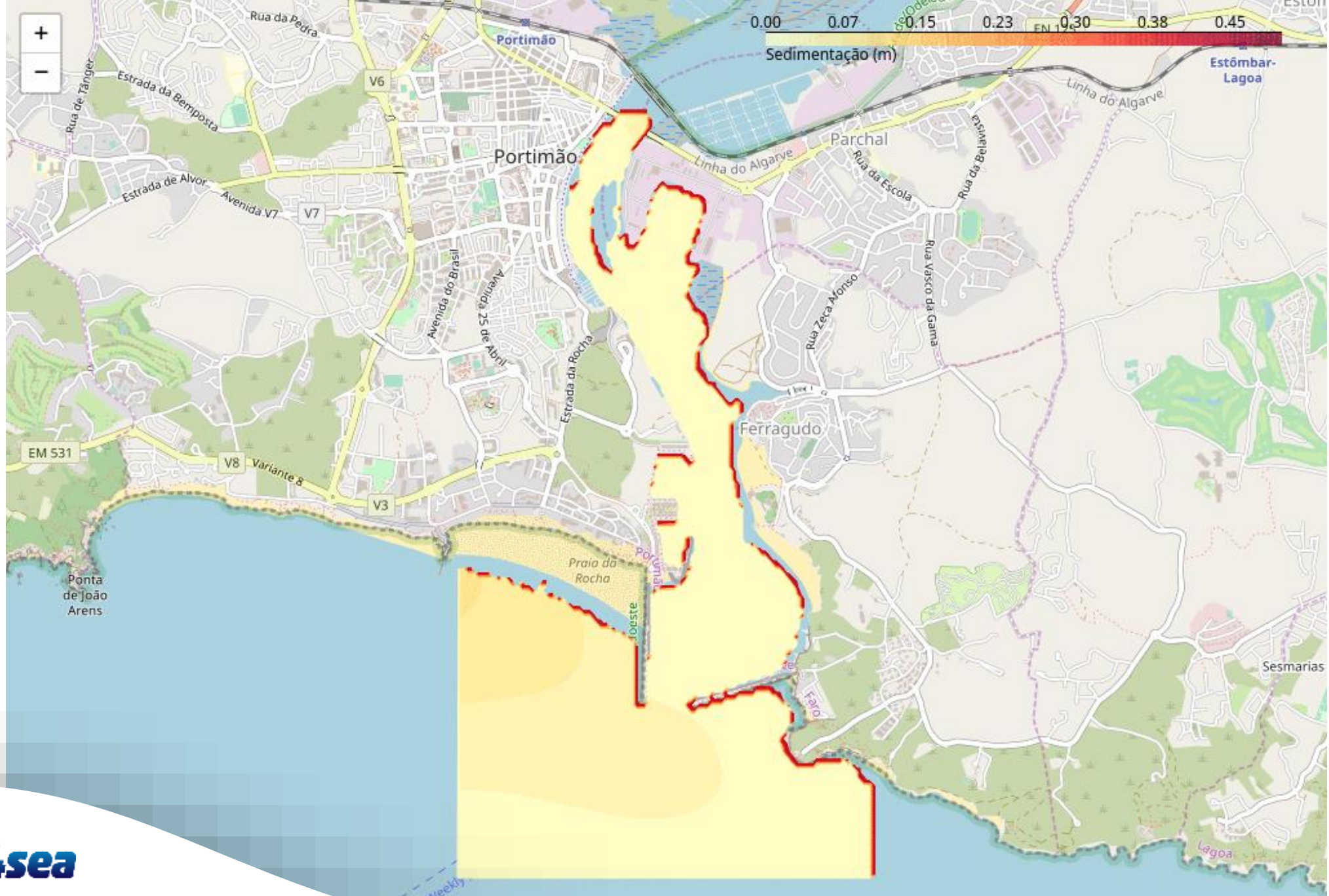
UKC's "go" and "no go" maps

- *UKC map for each ship*
- *Real time and forecast*



SMART DREDGING® ***DREDGING MANAGEMENT***





TERMINAL ANALYTICS®
SMART DATA ANALYSIS



PORT FLOW[®] *AGILE COMMUNICATION*



*PORT
AUTHORITY*



PILOTS



*MARITIME
AUTHORITY*



SHIPLINERS



OUR CLIENTS





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