

How to optimize Port Operation through a Digital Twin?



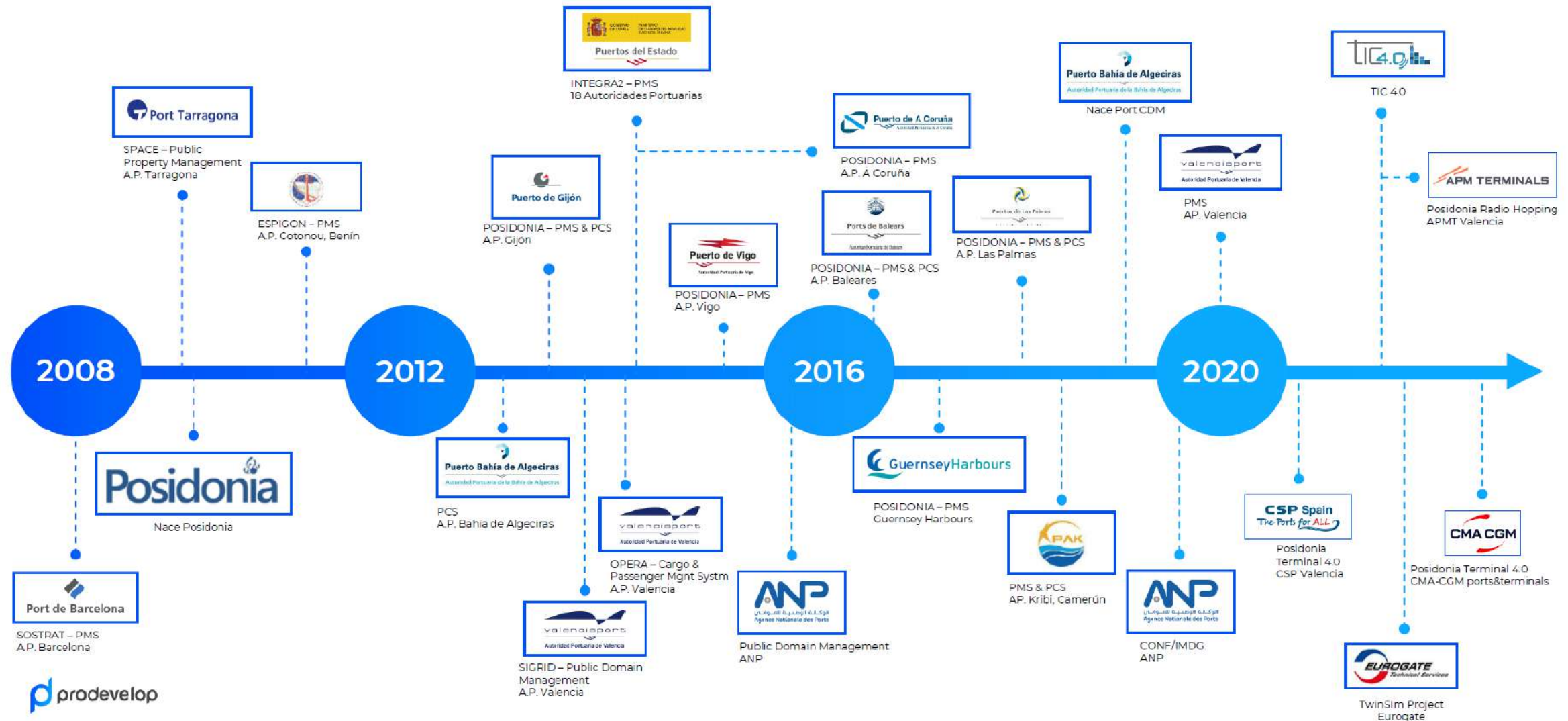
MultiRELOAD



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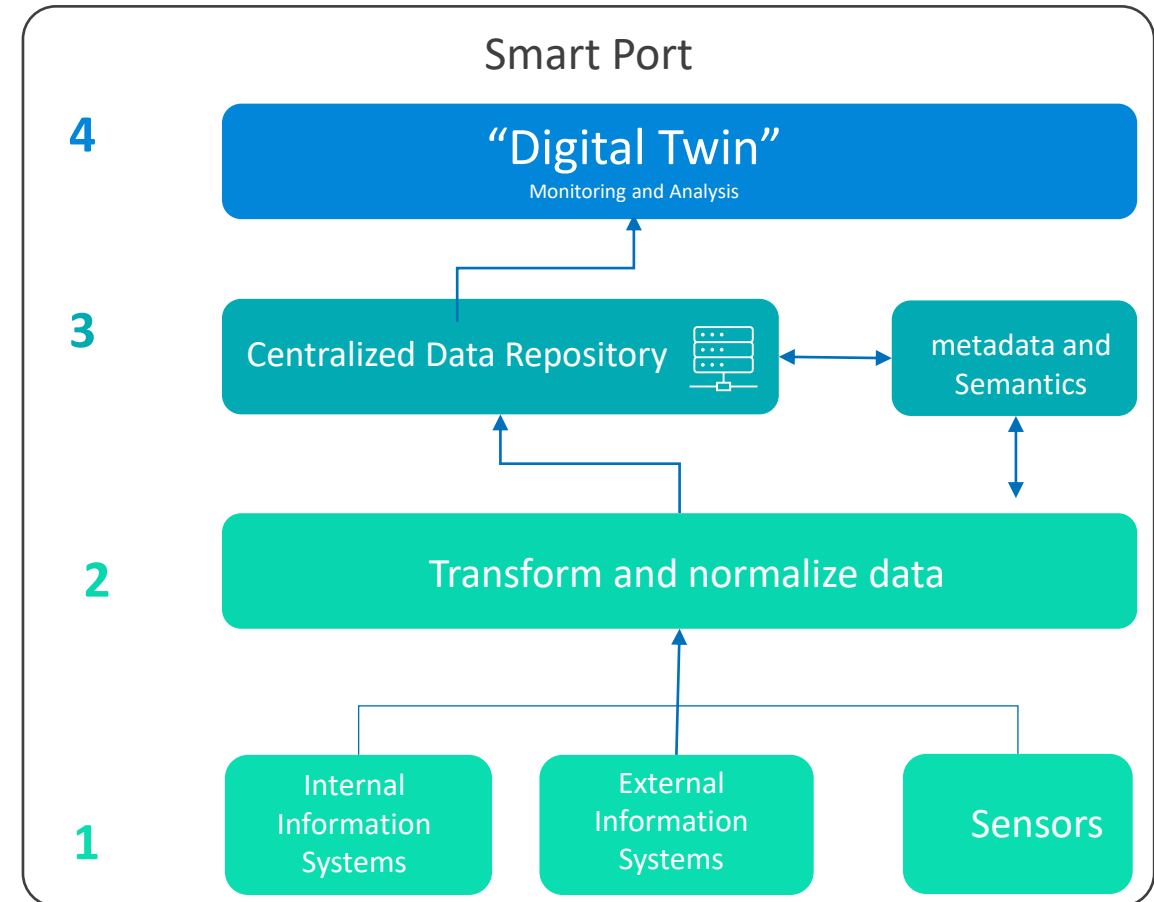
Who we are?



What is a Digital Twin ?

Definition

- A digital twin in a port is a tool that provides a **virtual representation** of a port and its operations.
- It collects data from different **sensors and data sources**.
- Real time and historical data, predictions.
- It replicates the port situation reliably and serves as an aid to decision making.



What is a Digital Twin?

Solutions – Smart Services

Smart lighting

Security

Environment

Energy
efficiency

Traffic
management

Multimodality

Port
Operations

supplies

Berth
Automation

Others


Posidonia
Green

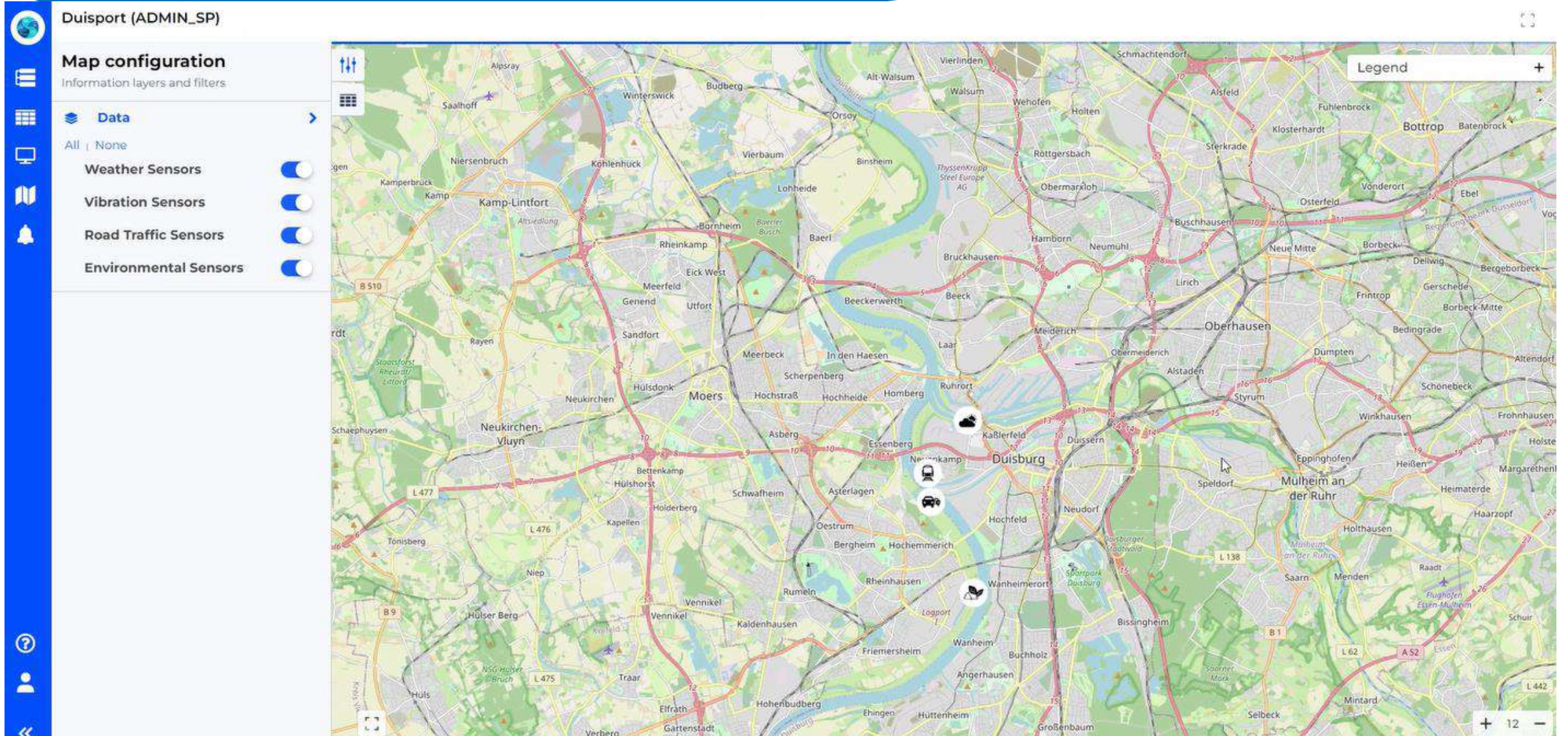
 prodevelop


Posidonia
Operations

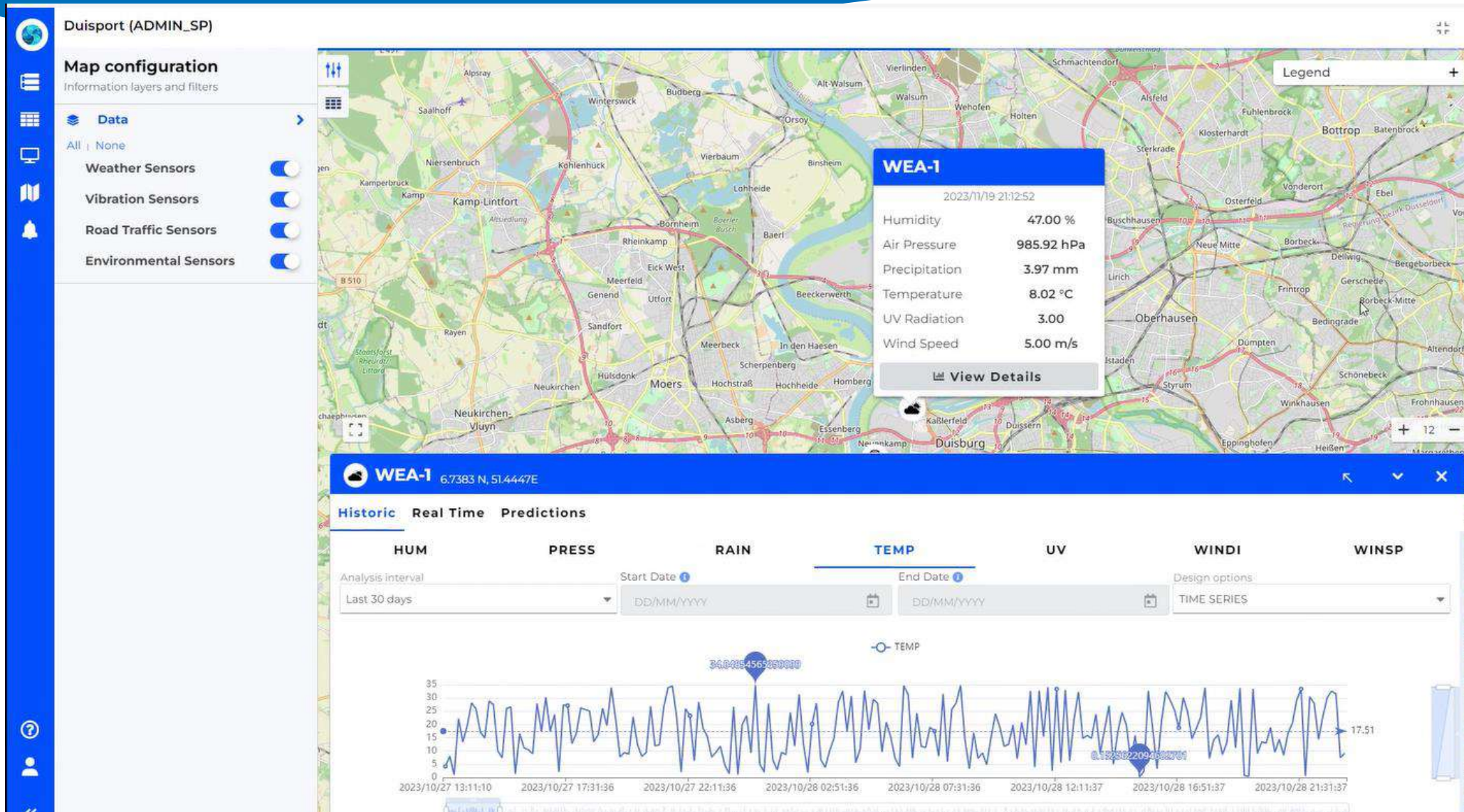
Multireload Demo



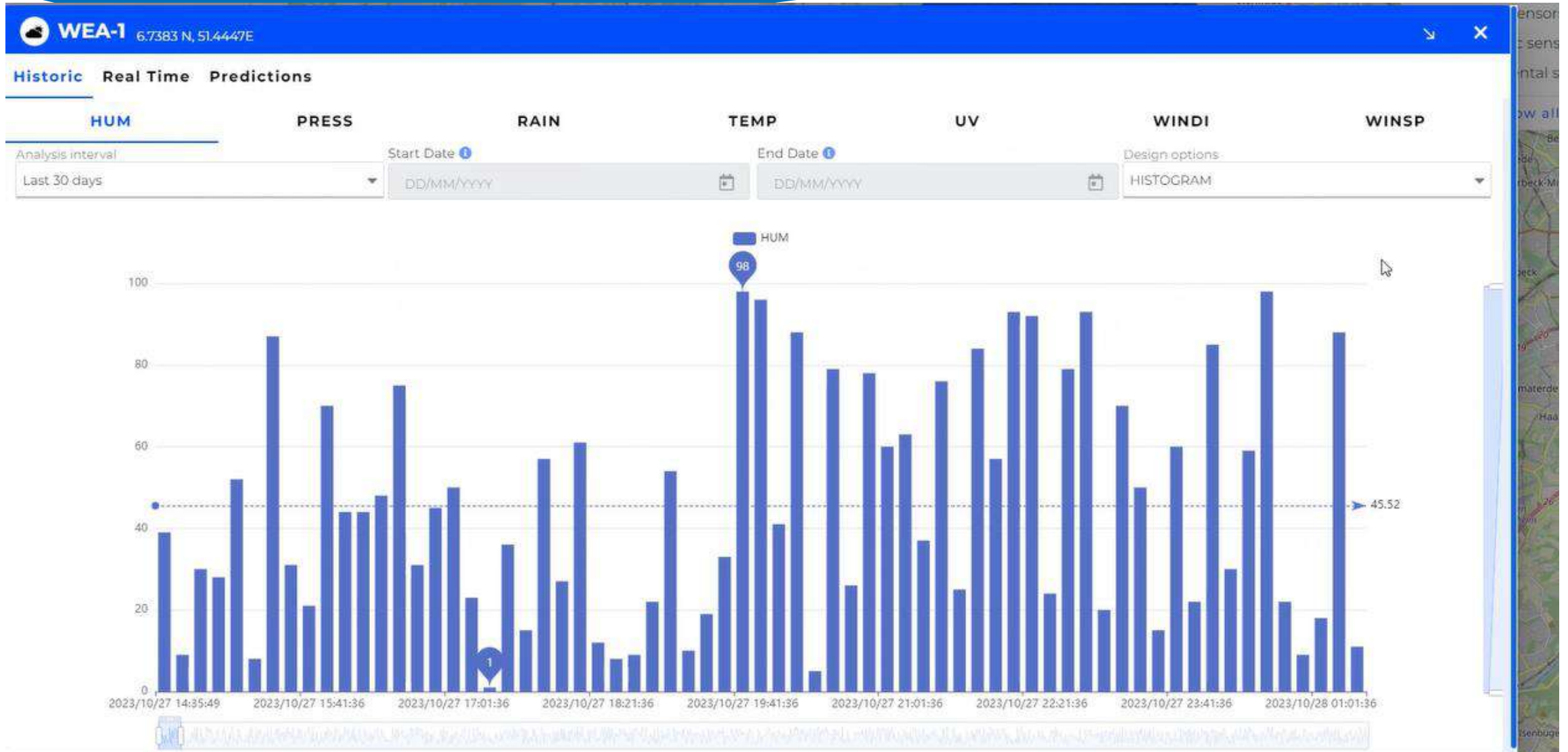
Posidonia Green – Main view



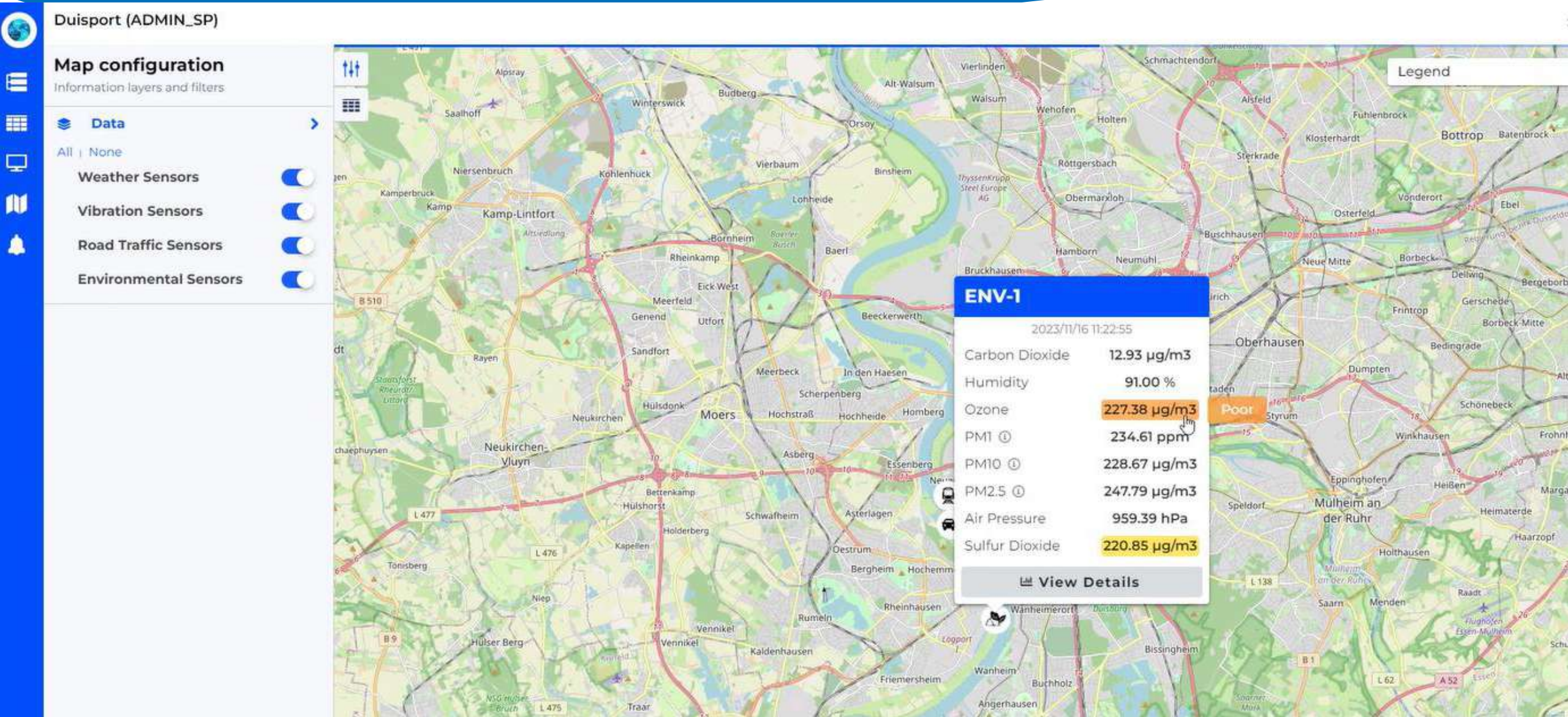
Posidonia Green – Weather (Real time – Historic data)



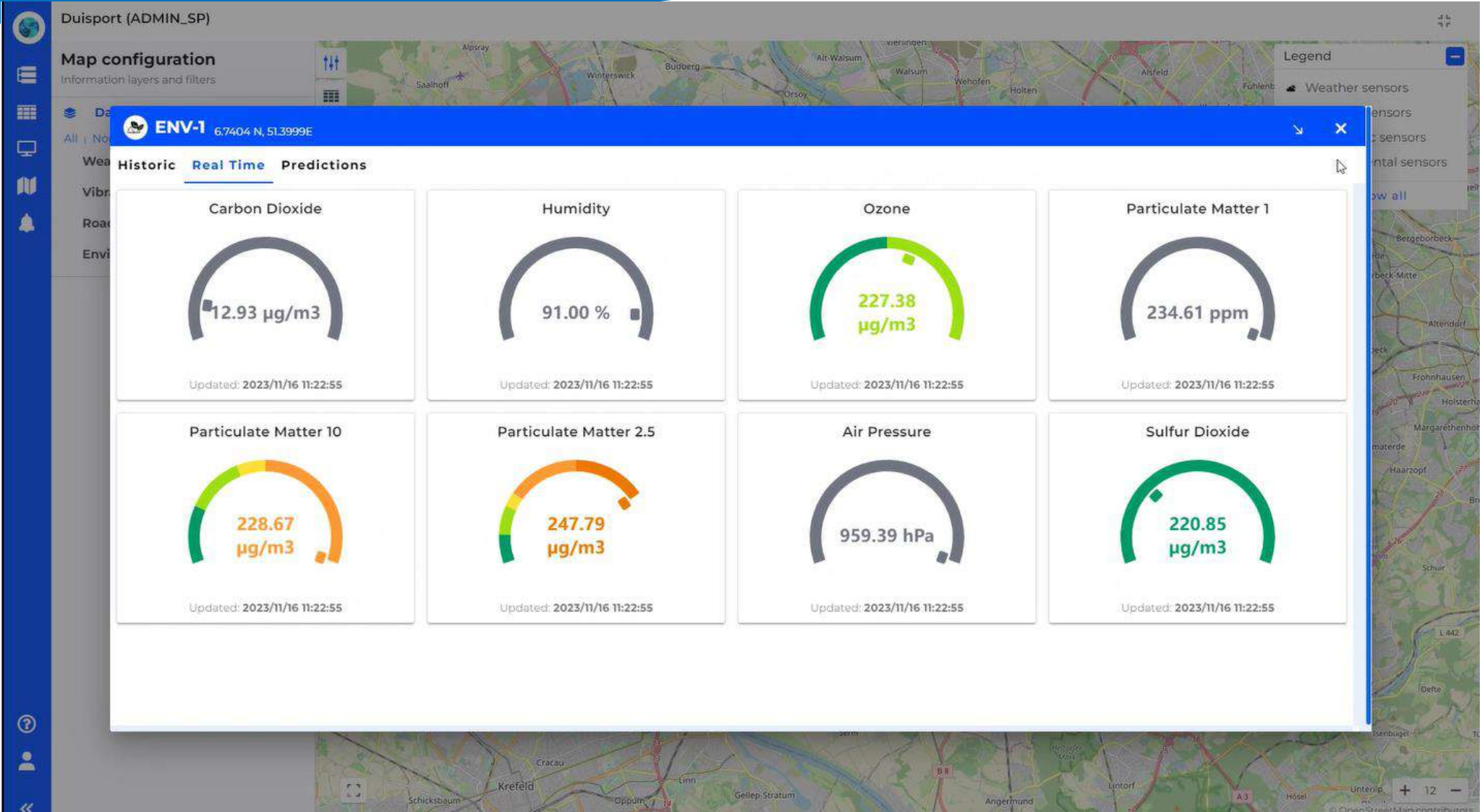
Posidonia Green – historic data



Posidonia Green – environmental data – States-Notifications



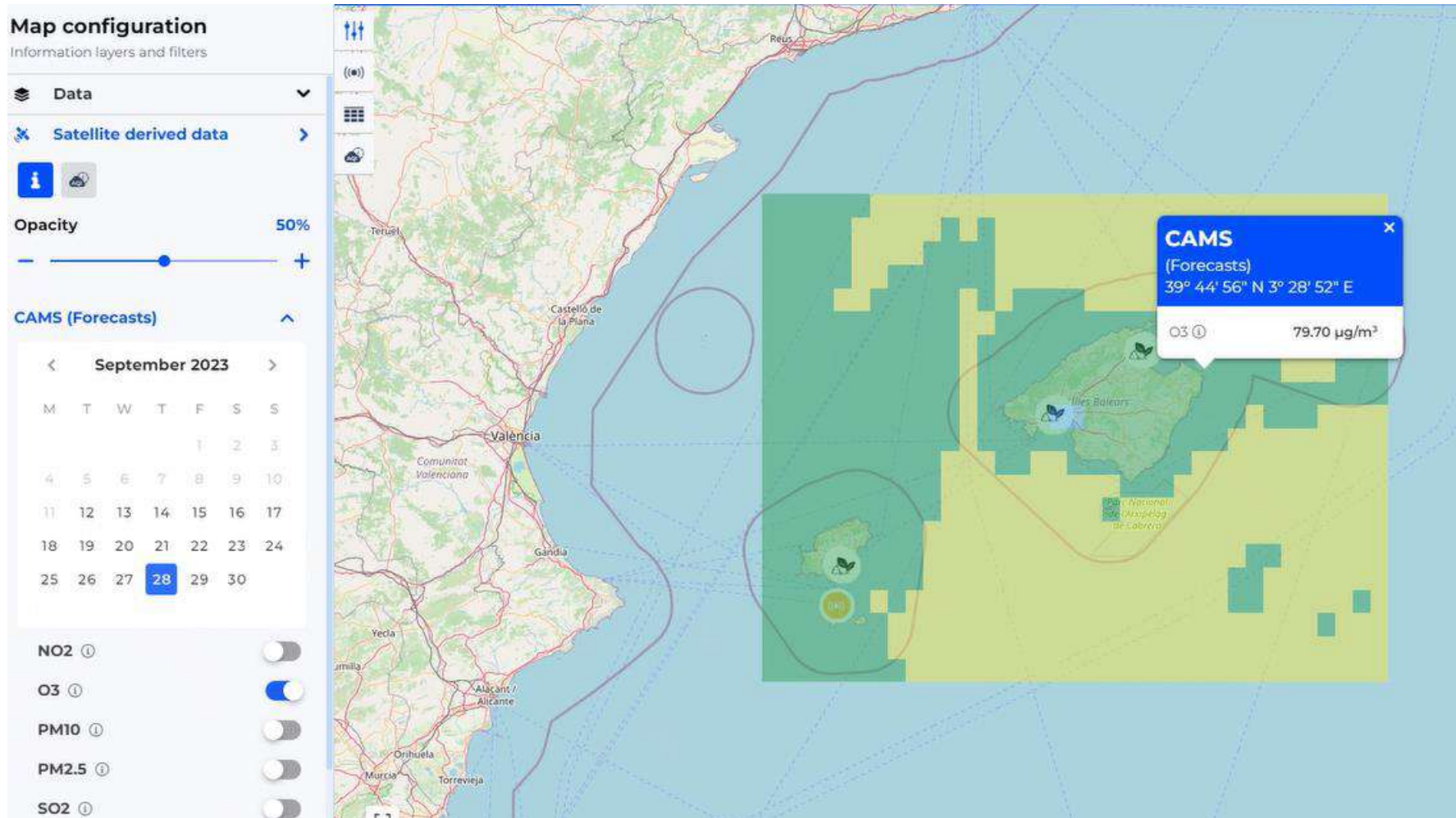
Posidonia Green – KPI



Posidonia Green – Forecast (AI)



Posidonia Green – Satellite images for Air Quality forecast



Posidonia Green – Air Quality Index

AQI information

[AQI values](#) [AQI distribution values](#) [AQI evolution by pollutants](#) [AQI evolution by points](#) [Pollutants' concentration](#)

Measurement point	Date	AQI description	Ozone concentration	Ozone value (AQI)	NO2 concentration	NO2 value (AQI)
<input type="checkbox"/> Islet Malvi Pla	2023-11-03	Moderate	101.57 µg/m3	3	1.97 µg/m3	1
<input type="checkbox"/> Islet Espalmador	2023-11-03	Poor	104.44 µg/m3	3	1.41 µg/m3	1
<input type="checkbox"/> Port of Savina	2023-11-03	Poor	104.44 µg/m3	3	1.41 µg/m3	1
<input type="checkbox"/> Port of Alcudia	2023-11-03	Fair	99.25 µg/m3	2	1.88 µg/m3	1
<input type="checkbox"/> Port of Ibiza	2023-11-03	Fair	99.41 µg/m3	2	1.7 µg/m3	1
<input type="checkbox"/> Port of Mao	2023-11-03	Fair	98.03 µg/m3	2	1.25 µg/m3	1
<input type="checkbox"/> Port of Palma	2023-11-03	Fair	95.38 µg/m3	2	3.29 µg/m3	1
<input type="checkbox"/> Islet Malvi Pla	2023-11-02	Poor	93.7 µg/m3	2	3.44 µg/m3	1
<input type="checkbox"/> Islet Espalmador	2023-11-02	Poor	96.95 µg/m3	2	2.55 µg/m3	1
<input type="checkbox"/> Port of Savina	2023-11-02	Poor	96.95 µg/m3	2	2.55 µg/m3	1
<input type="checkbox"/> Port of Alcudia	2023-11-02	Moderate	115.33 µg/m3	3	3.03 µg/m3	1

Show 11 entries

1 - 11 of 709 entries



Posidonia

Operations

MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

A solution for all phases of vessels traffic in a single interface
Centralizes all the information related to ship

Integrated Port Operations Management System that allows a port to **optimize operational maritime activities** related to the flow of ships in the port's service area, **integrating all relevant actors and information systems.**

Navin hawk

Track

Filter Track

From date * 10/11/2023 08:54

To date * 20/11/2023 08:54

Visualization

AIS positions

Track

Events

Events

2 - Start of anchorage

Update

Vessel

IMO: 9522738

Length: 17

Min draught: 6.5

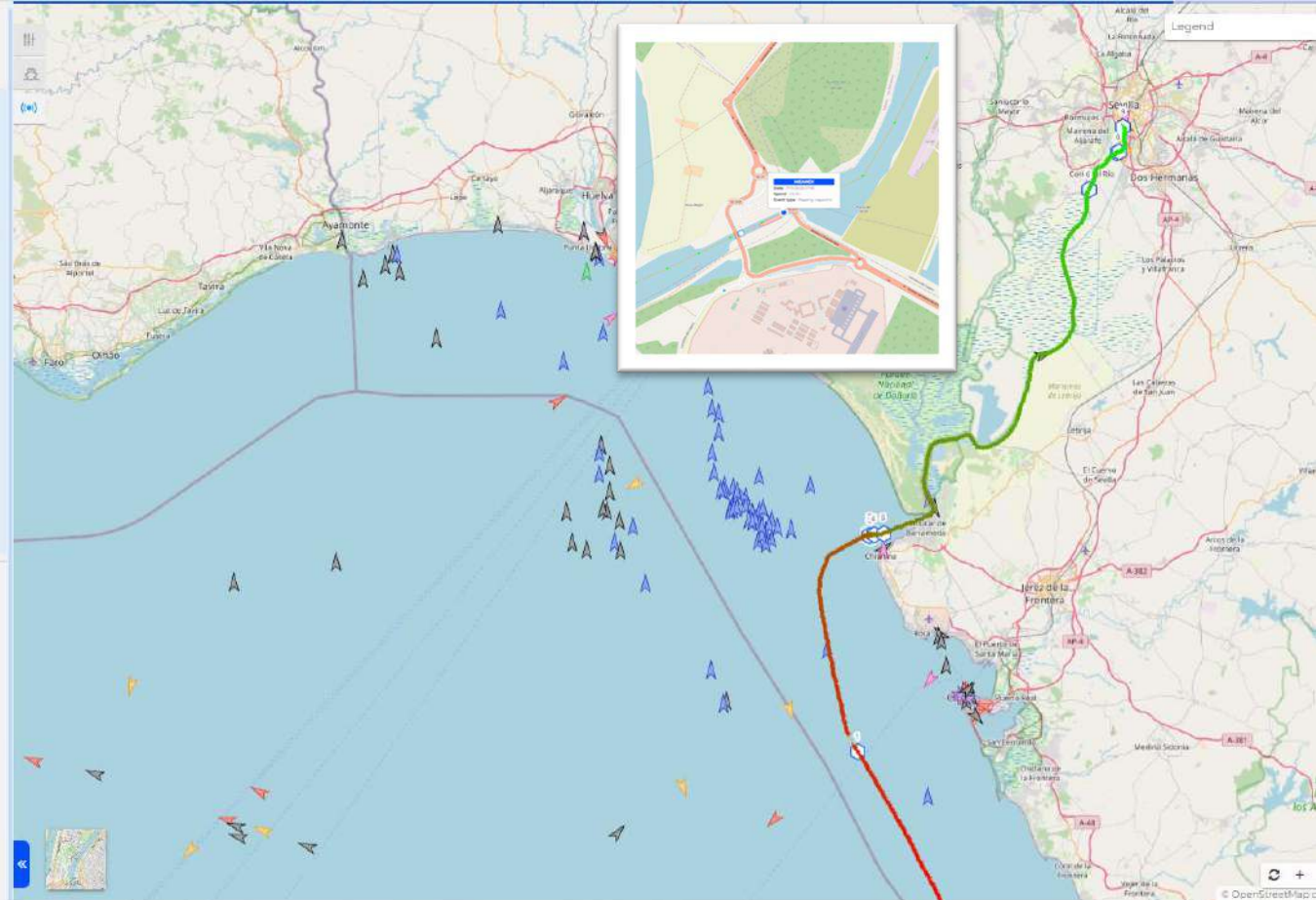
Build date:

Vessel type: Cargo, all ships of this type

Beam: 113

Flag:

Manager:



Vessel tracking

Improved efficiency in the control of port operations, thanks to **automatic event detection** and operator assistance.

Integration with external systems



Posidonia

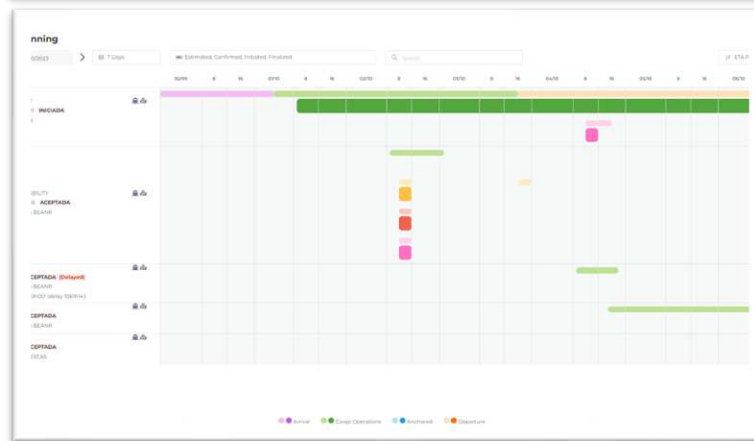
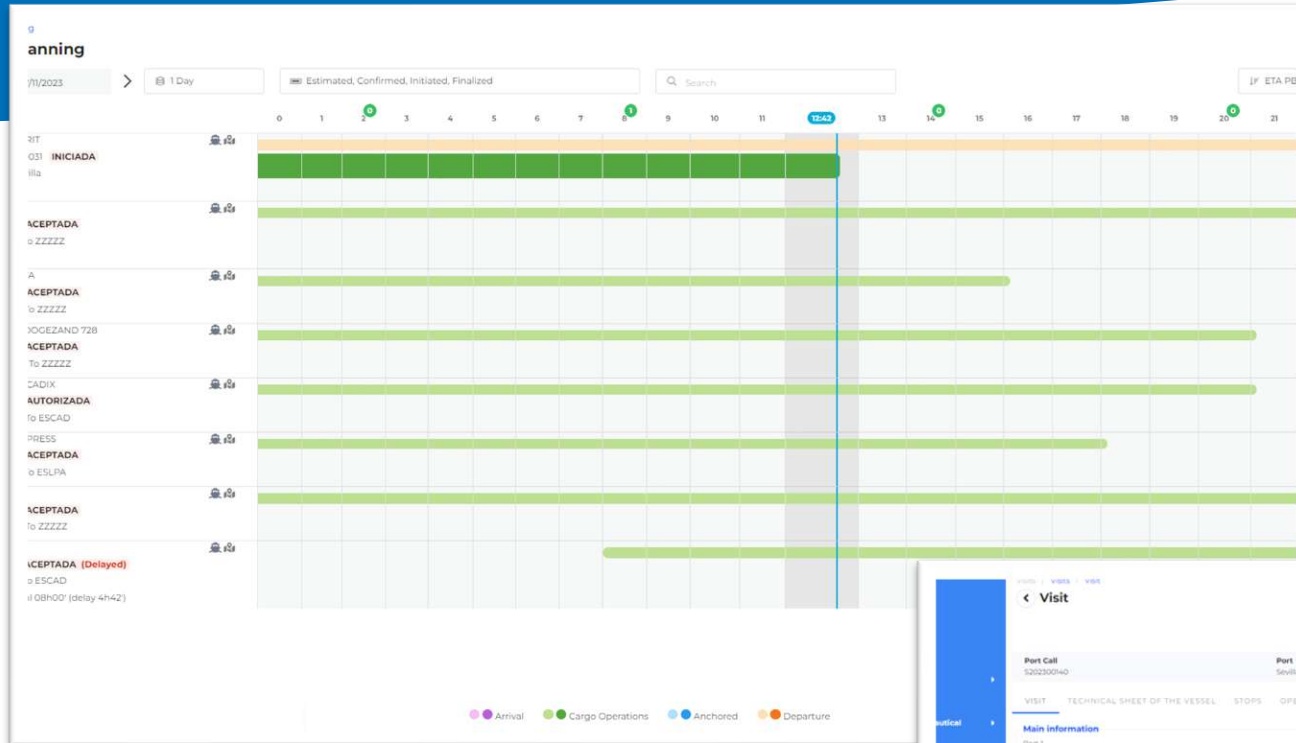
Operations

MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

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This screenshot shows a detailed 'Visit' form for a vessel. The form is organized into sections: 'Main Information', 'Dates', and 'More information'. Key fields include Port (Sevilla), Year (2023), Port Call (S20230040), Status (ACCEPTED), Vessel name (SEVITRADE MARITIMA SL), and Vessel name (S42F43 - PEGASUS). The 'Dates' section shows the Required date (16/7/2023) and Estimated time arrival (ETA) (21/7/2023). The 'More information' section includes checkboxes for Cabotage auth, Manual, and Holiday arrival, as well as fields for Arrival (N° Passengers, N° Stowaway, N° Crew), Captain name, and Captain country. A 'Comments' field is also present at the bottom.



Posidonia

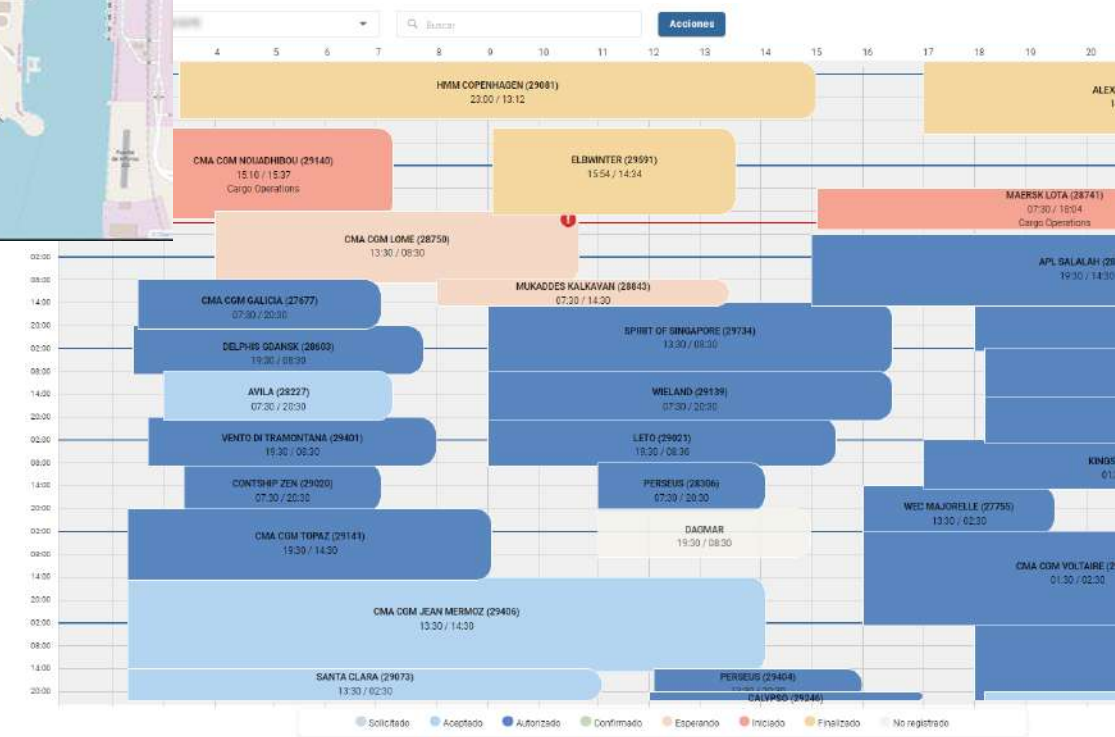
Operations

A solution for all phases of vessels traffic in a single interface

- **Graphical planning of berths:** individual, per-quay or global planning of the port.
- **Processing of the situation of the stopover/berths** according to its status or documentary situation (application, authorization, initiated...).
- Assistance to operations with the use of **mathematical prediction models**



Graphical planning



AI-powered automated berth planning

Prediction models

MAERSK MC KINNEY MOLLER	🕒 ⚓ 📄
29264 Authorized	
From MYTPP To PTSIE	
Estimated Arrival 21/11/2023 12:00 (41h17')	Predicted ETA
MAERSK SELETAR	🕒 ⚓ 📄
29263 Authorized	
From USEWR To EGPSE	
Estimated Arrival 21/11/2023 12:30 (41h47')	



Posidonia

Operations

A solution for all phases of vessels traffic in a single interface

- Event suscription by user, chat and visit performanc
- Graphical and alphanumeric representation of:
 - Visits
 - Stops
 - Events
 - Technical nautical services
 - Asociated resources

DAMPIER SPIRIT INICIADA

No.	Type	Location
1	Berth	TABLA:CRUCEROS TURISTICOS

Notifications

Events

- AAP
- AAB
- FCL
- RTS
- ASP
- ADA
- ASP
- ASM
- LCL
- AAA
- ADB
- ACP

Status:

- Visit or Stop cancelled
- ETA has been exceeded
- Terminal ETC is higher than the ETD Berth planned
- ETA at Pilot Boarding Place updated by the Shipping Line

Cancel Save

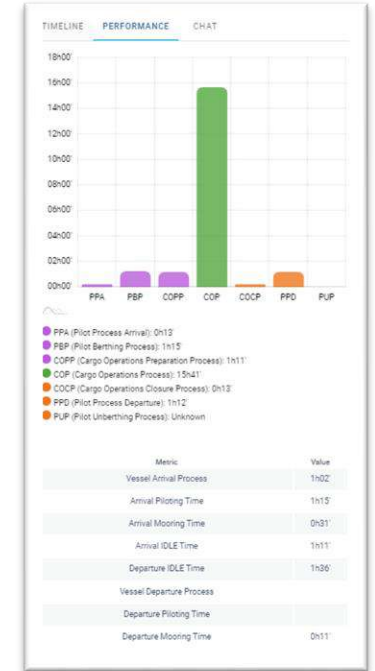
DAMPIER SPIRIT INICIADA

No.	Type	Location	State	Performance
1	Berth	TABLA:CRUCEROS TURISTICOS	Initiated	

CHAT

Constantino Benito: Hola, 09/11/2023 18:00

Type message... Send



Visit planning

03/10/2023 7 Days Estimated, Confirmed, Initiated, Finalized

DAMPIER SPIRIT INICIADA
Moored in Sevilla

SPANACO RELIABILITY ACEPTADA
From MAAGA To BEANR

SANTUCA B ACEPTADA (Delayed)
From MAAGA To BEANR

SPANACO RELIABILITY ACEPTADA

No.	Type	Location	State	Performance
1	Berth	CENT:CONTENEDORES Y RO-RO	Accepted	

Monday, 2 October

17:22:48 pm Berth Updated: Bollard End: 23, Bollard Initial: 10

17:12:46 pm Berth Updated: ETA Berth: 02/10 10:00 am, ETD Berth: 02/10 00:00 am, Terminal: Cent:contenedores Y Ro-ro

17:12:46 pm Port Call Requested: ETA Pilot Boarding Place: 02/10 08:00 am, ETD Pilot Boarding Place: 02/10 02:00 am, From Port Code: MAAGA, To Port Code: BEANR

