

The background of the image is a deep purple with a network of glowing, intersecting lines in shades of cyan and magenta, creating a diamond-like pattern. The text is centered in the middle of the frame.

AVEVAWORLD

ACCELERATE INDUSTRIAL INTELLIGENCE



TECHNOMAR

BRAVA energia

Offshore Simultaneous Operations Digital Synergy with AVEVAPI, EDTOOLS, TMS and T2S

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Brava Energia

Brava Energia is one of Brazil's most relevant Oil & Gas producers, formed in 2024 through the merger of 3R Petroleum and Enauta Energia.

Key Highlights

Pioneering deepwater: First and only independent company to develop a greenfield deepwater production system in Brazil.

Multi-basin presence: Offshore operations in Santos, Campos and Espirito Santo basins.

Key offshore assets: Atlanta field (Santos Basin) and Papa-Terra field (Campos Basin), among others.

SimOps champion: Brava co-developed Technomar's T2S platform to manage complex simultaneous offshore operations across multiple vessels.





TECHNOMAR

Technomar is a **high-tech engineering company** performing projects, numerical simulations, model tests, and training for vessels, floating and subsea system.

Renewables

Oil & Gas

Shipping



A large blue and red FPSO ship, the Atlanta, is shown at sea. The ship has a complex yellow and white structure on its deck, including a tall derrick. The name 'FPSO ATLANTA' and 'YINSON' are visible on the side of the hull. The ship is sailing on a blue sea under a clear blue sky.

Atlanta Field

Atlanta Field — Overview

Located in the Santos Basin, ~185 km southeast of Rio de Janeiro, at ~1,550 m water depth. Brava Energia holds an 80% working interest as field operator.

FPSO Atlanta — Yinson as Operator

Yinson Production owns and operates FPSO Atlanta under a 15-year firm charter (+5yr optional) with Brava Energia (until 2039), with a total contract value of up to USD 1.98 billion.

First oil: December 31, 2024. FPSO capacity: 50,000 bpd production and 1.3 million barrels storage.

Technomar's Role

Technomar's T2S platform integrates real-time data from FPSO Atlanta (Yinson) and the Brava SimOps team, enabling safe and efficient simultaneous operations monitoring across all vessels in the field.



SIMOPS



Started at Atlanta field EPS Petrojarl1 and definitive FPSO Atlanta operated by Yinson



Simultaneous monitoring of Driller, FPSOs, shuttle tankers and support vessels.



Real-time data analysis, and accurate monitoring during offloading and drilling.



From FPSO Atlanta success to Papa-Terra FPSO TLWP 3R-2 and 3R-3.



Operational efficiency and support new installations, drillers and flotel.

My name is Ricardo Portella

SIMOPS Integrated Solutions

- **MODELING - EDTools** - Engineering Design Tools

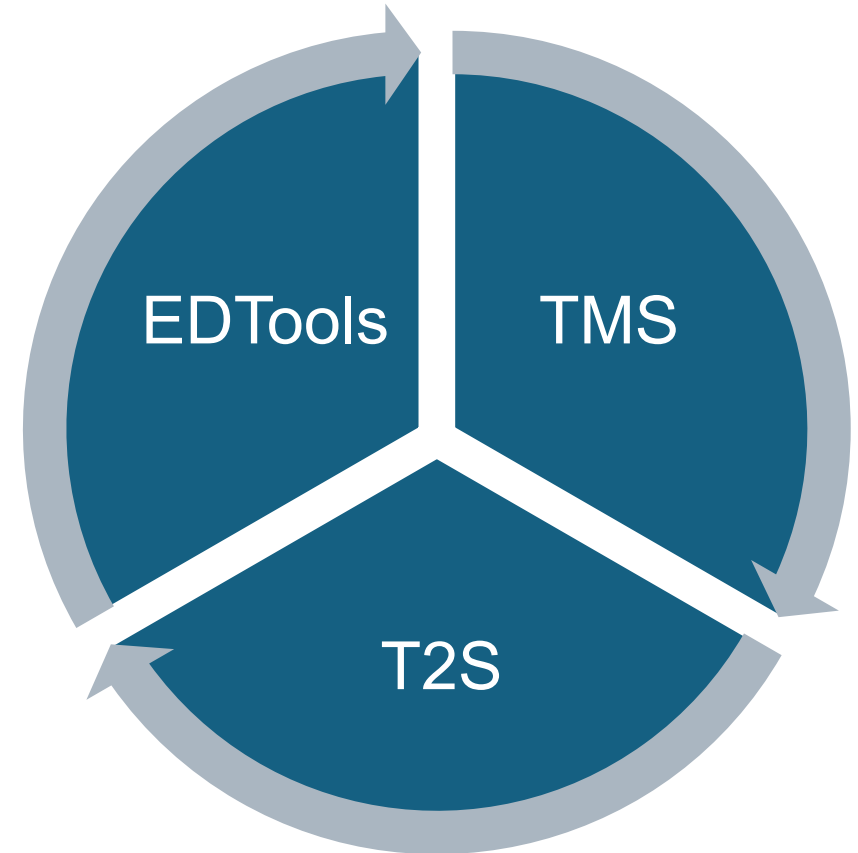
FPSOs, DrillShips, Shuttle Tankers: 3D parametric modeling general arrangement setup, equilibrium conditions, hydrodynamic coefficients – **Engineering Data**

- **SIMULATION - TMS** - Maritime Simulator

Time domain simulation, and outputs dynamic performance and safety metrics for **installations and offloading** operations.

- **MONITORING - T2S** - Traffic Service

Real-world data vs simulations to monitor ships, validate models, and retro-feed information, closing the loop for calibration.



This integrated approach ensures that the solutions provide a comprehensive evaluation of ship performance and safety to offshore operations.

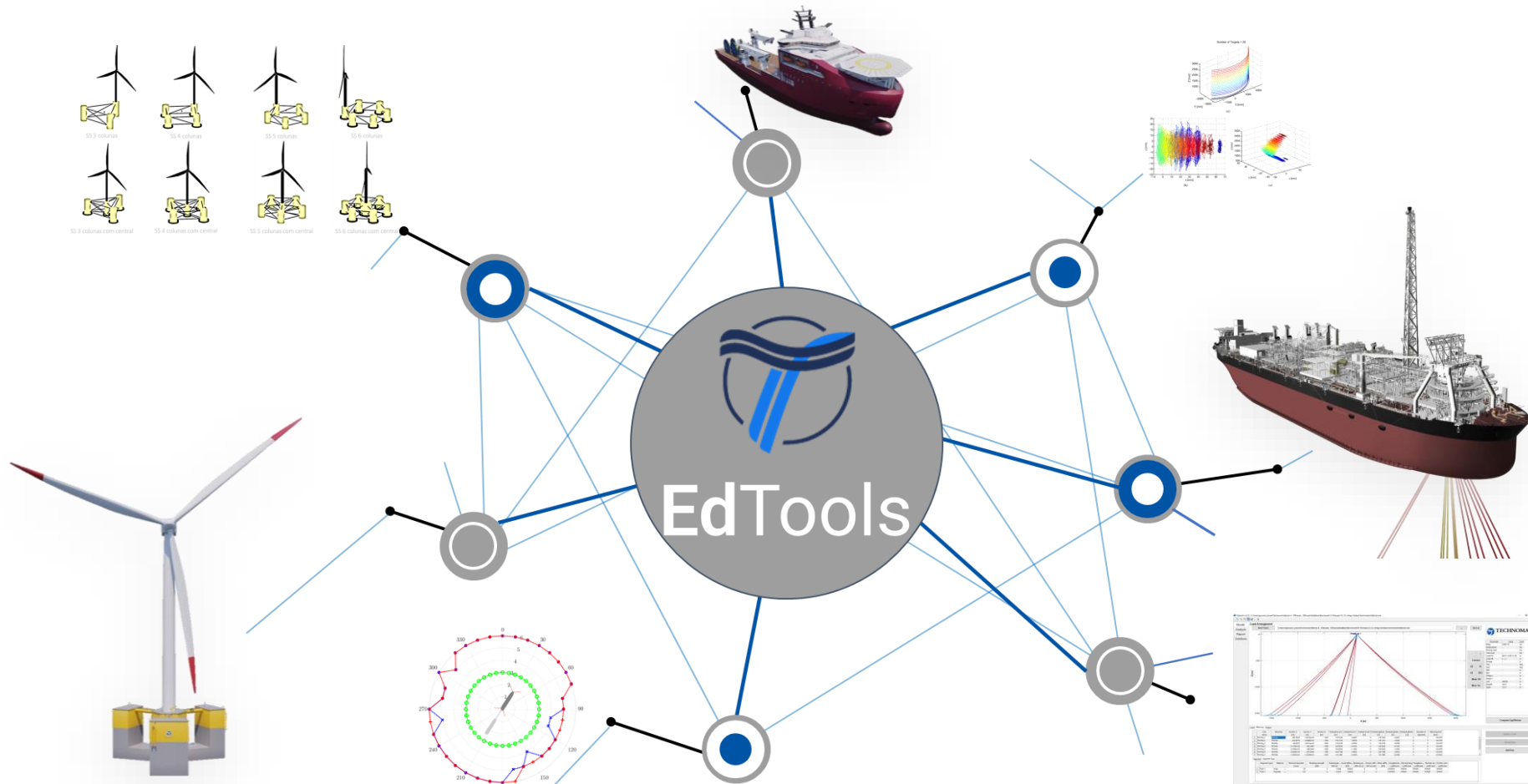
Engineering Design Tools – EDTools®

EDTools® translates complex models into **simplified parameters**.

Parametric Models of vessels and offshore system.

Real-time results: **Performance, remaining life and costs**, among other KPIs.

Adaptable and **customizable web interface**.



Technomar Maritime Simulator – TMS®

Technomar designs, installs and operates **Maneuvering Simulators**.

The company has **already installed more than 25** maneuvering simulators for several clients.

The simulators can be **customizable on client needs**.



DNV-GL
Statement No: 001/200804
DNV GL id No: 10656456

STATEMENT OF COMPLIANCE

Particulars of Product
Function Area: Bridge Operation Simulator
Name and type designation: Technomar Maritime Simulator TMS

Particulars of Manufacturer
Manufacturer: TECHNOMAR ENGENHARIA LTDA
Manufacturer address: Av. Pedrosa de Morais, 631 - Conj. 112
Pinheiros
São Paulo 05419-905
Brazil

This is to confirm:
That the above product is found to comply with Class A- Standard for Certification of Maritime Simulators No. DNVGL-ST-0033 May 2019.

Application
The above Standard is based on requirements in the STCW Convention, Regulation 1/12 and corresponding industry standard and guidelines.

This Statement is valid until **2025-08-04**, provided the requirements for the retention of the Statement will be complied with.

Issued at **Rio de Janeiro** on **2020-08-04**

 for DNV GL

Eduardo Vianna Pillar
Auditor

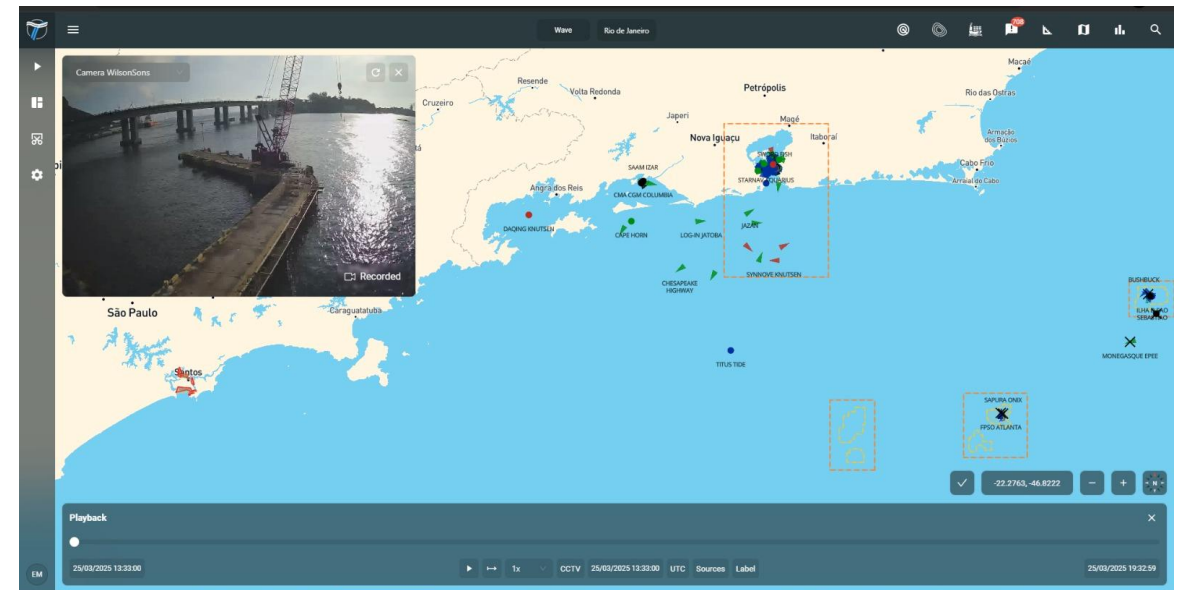
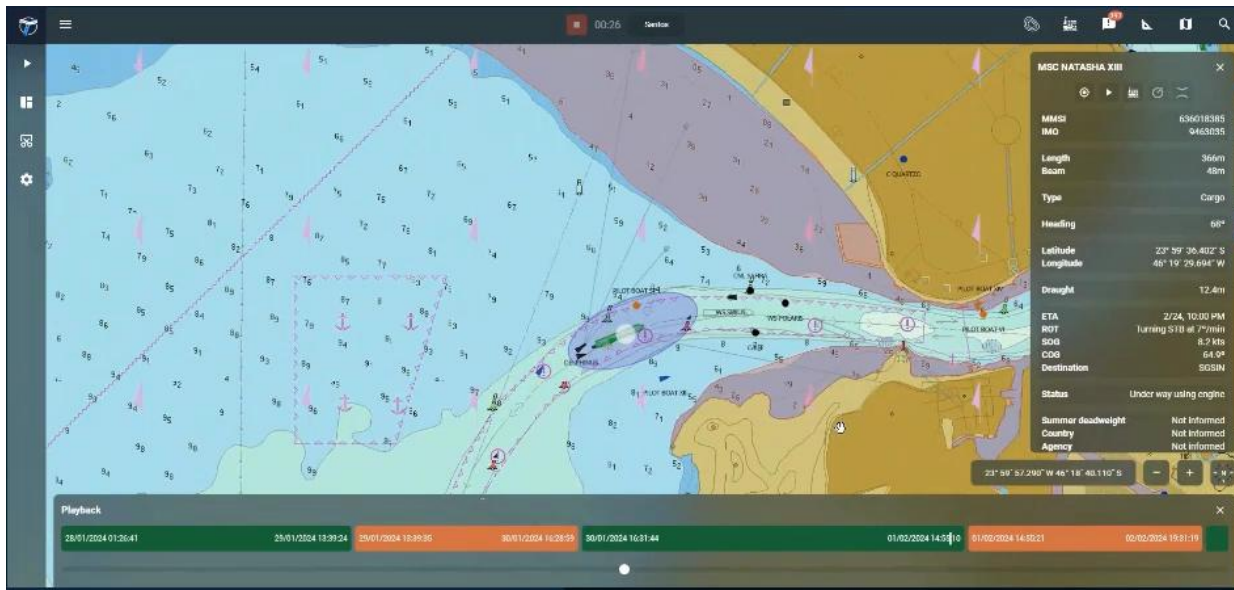
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Technomar Traffic Service – T2S®

Technomar has developed the **Technomar Traffic Service (T2S)** software for monitoring and simulating vessel traffic in port areas and offshore fields



Solution

Digital Twin



Integrated monitoring system based on Digital Twin.

Parametric Modeling



Parameterized modeling of floating units (dimensions, mass, inertia, hydrodynamic optimization).

Operations Simulation



Simulation of operations with vessels.

Real-Time Monitoring



Real-time monitoring of FPSOs, shuttle tankers, support vessels and drillers.

Validation



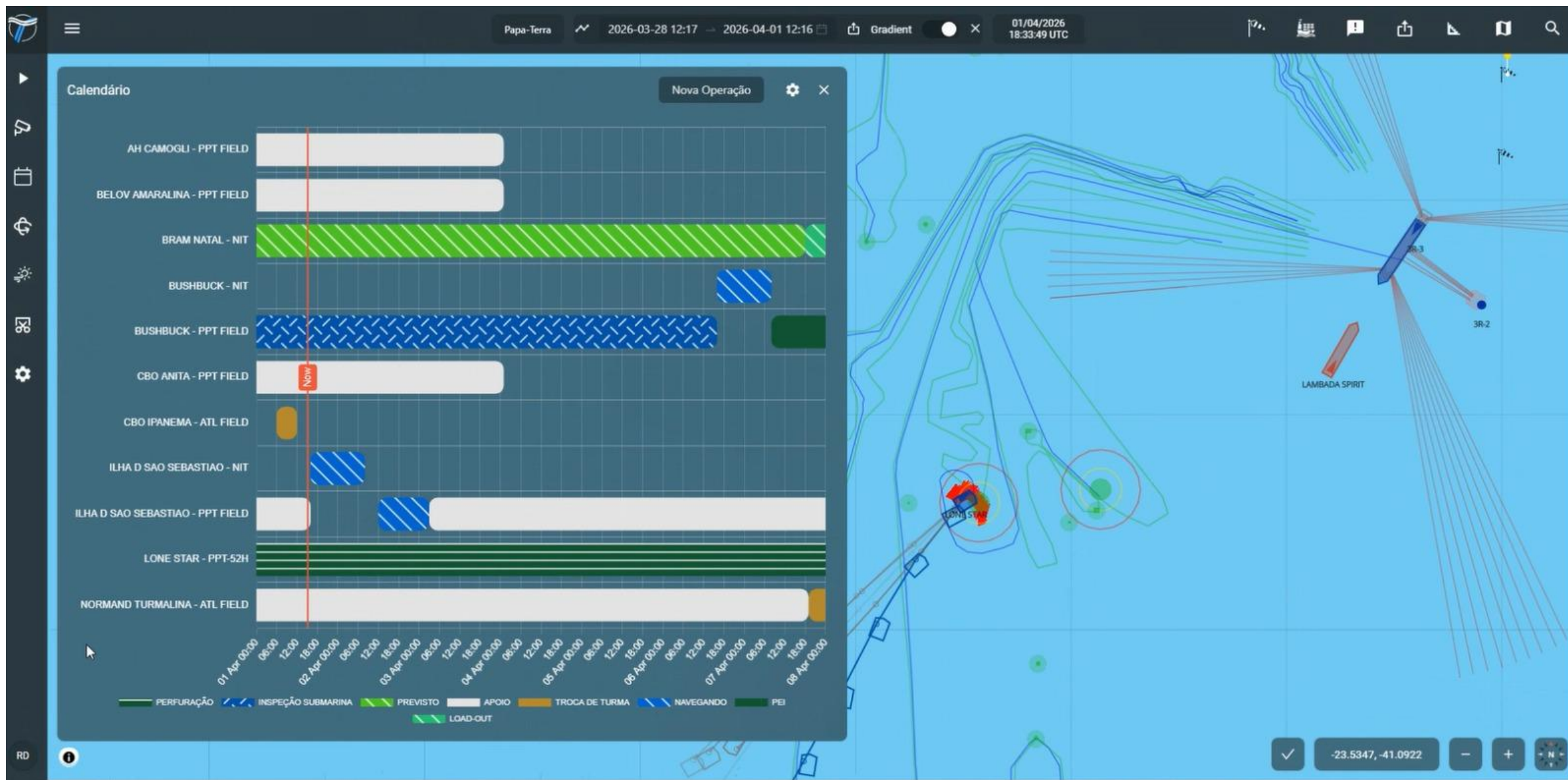
Integration with model test, simulations and real data.

Deployment

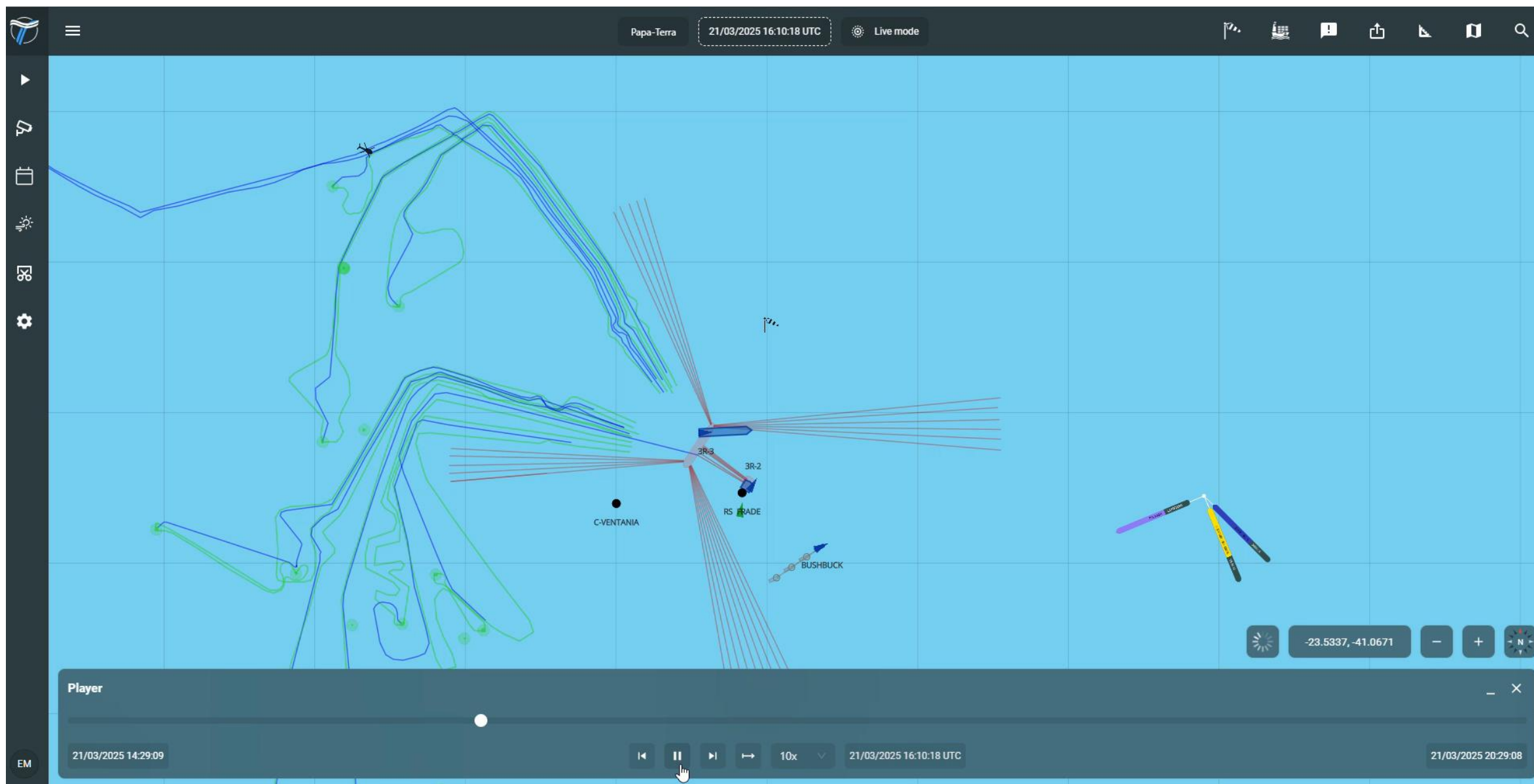


Initially FPSO PJ1, now FPSO Atlanta and PapaTerra with TLWP 3R-2 and FPSO 3R-3.

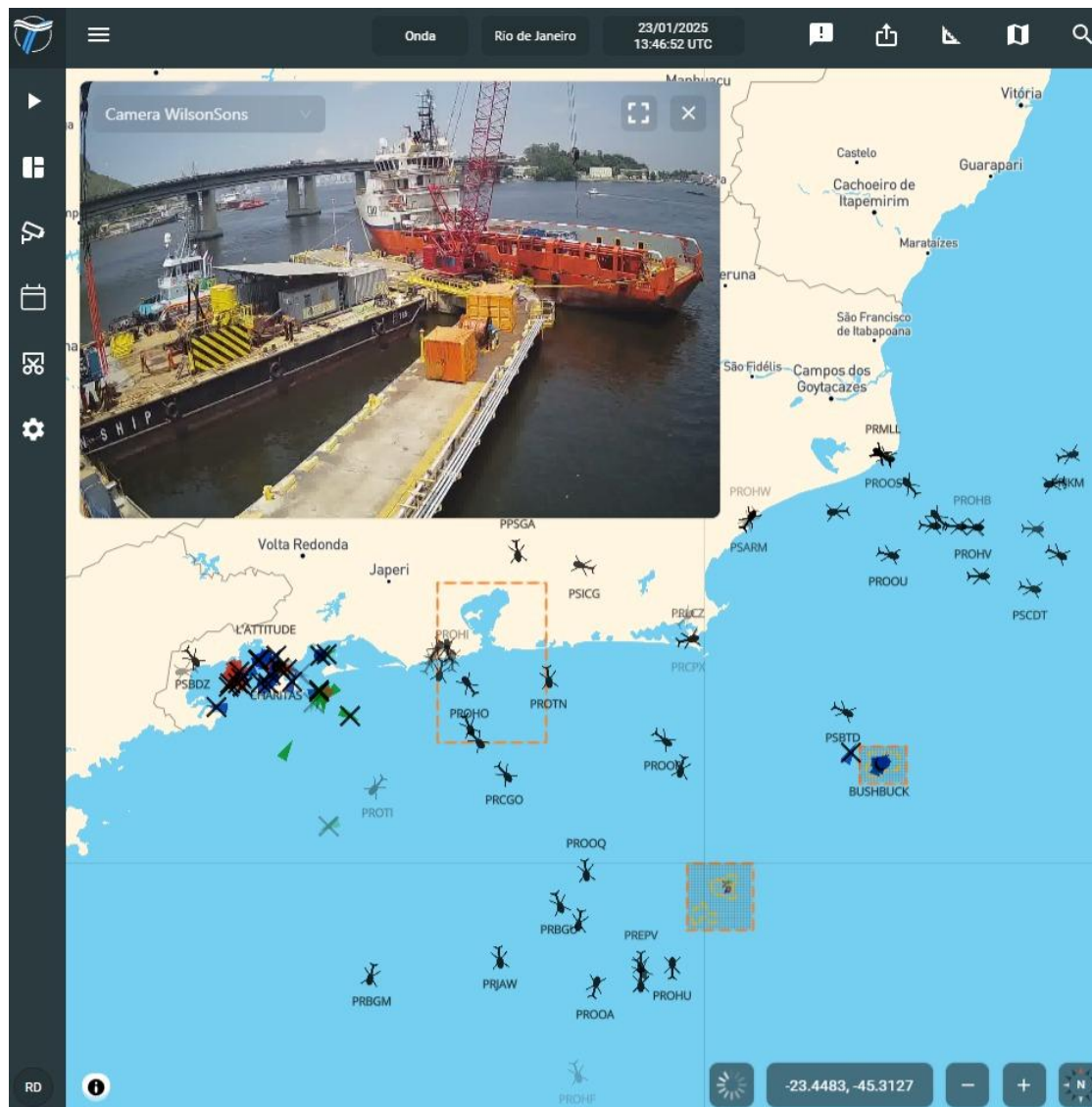
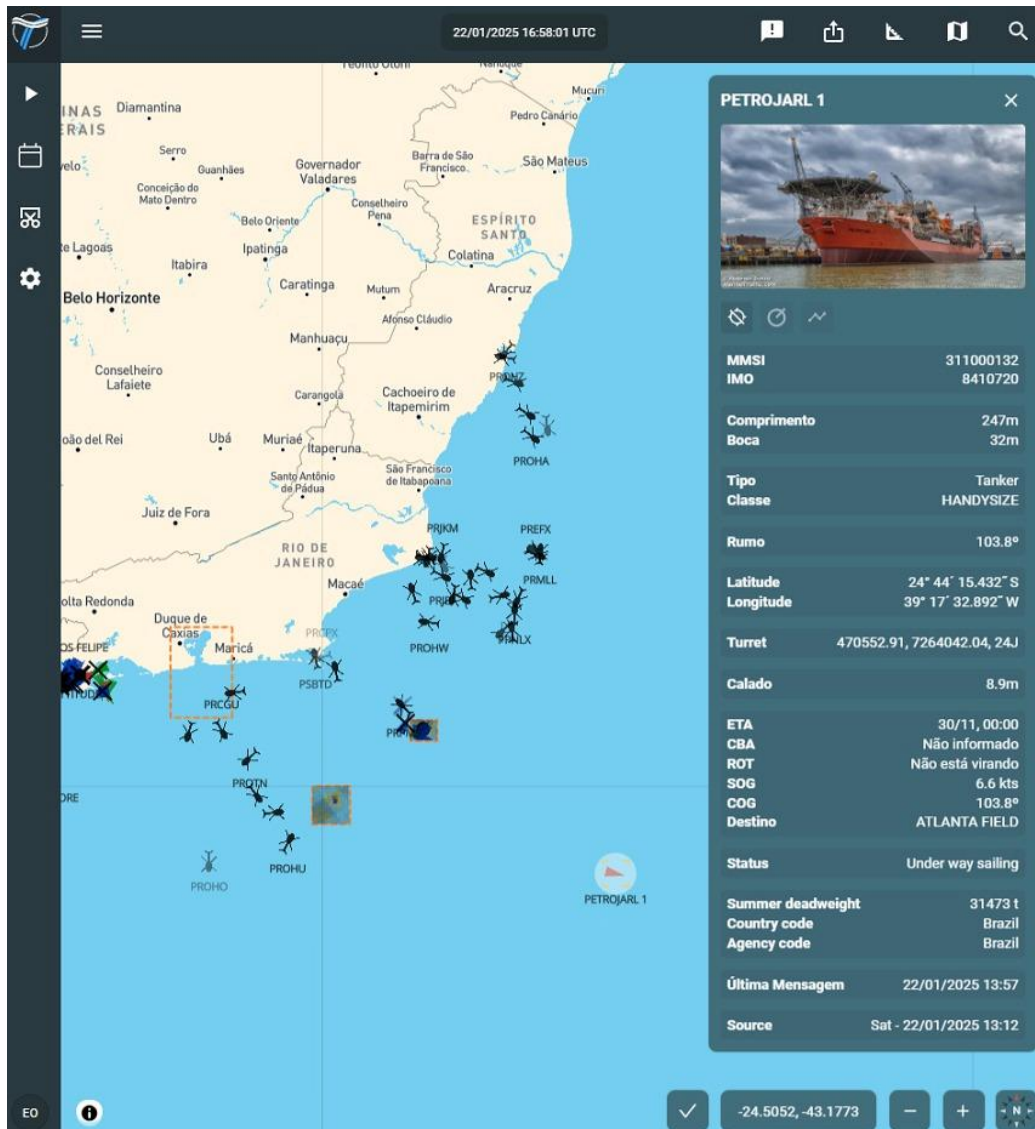
T2S Schedule



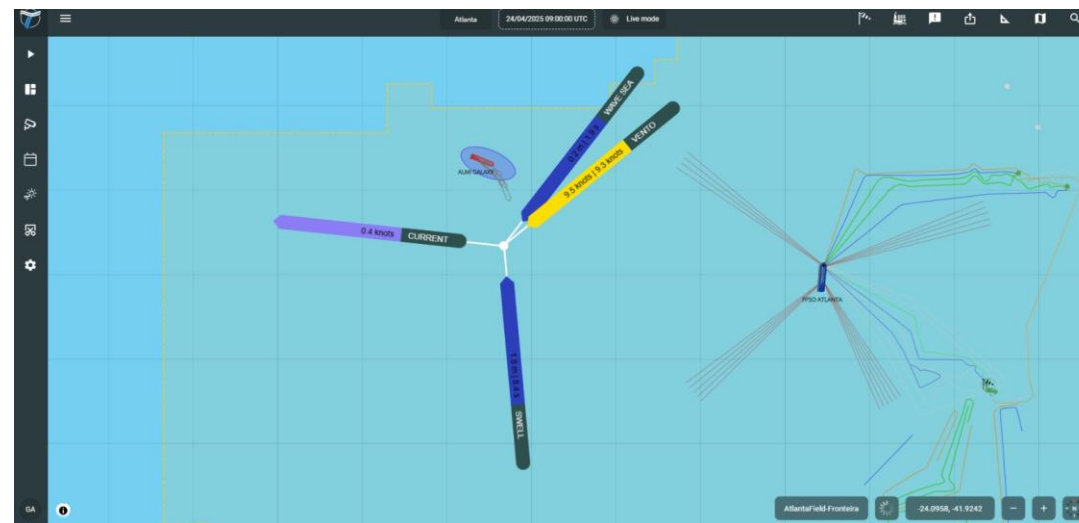
T2S - Ships and aircraft monitoring



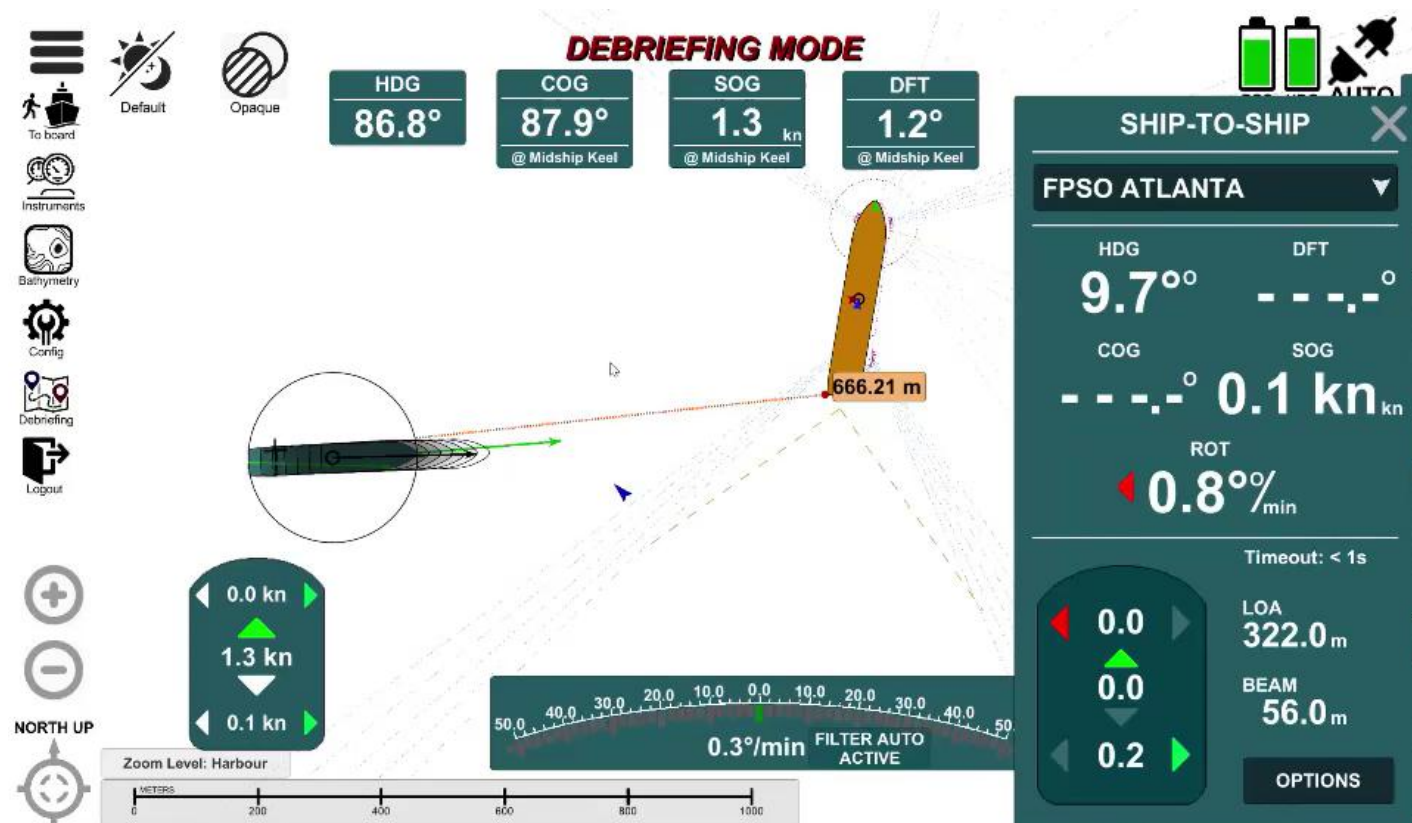
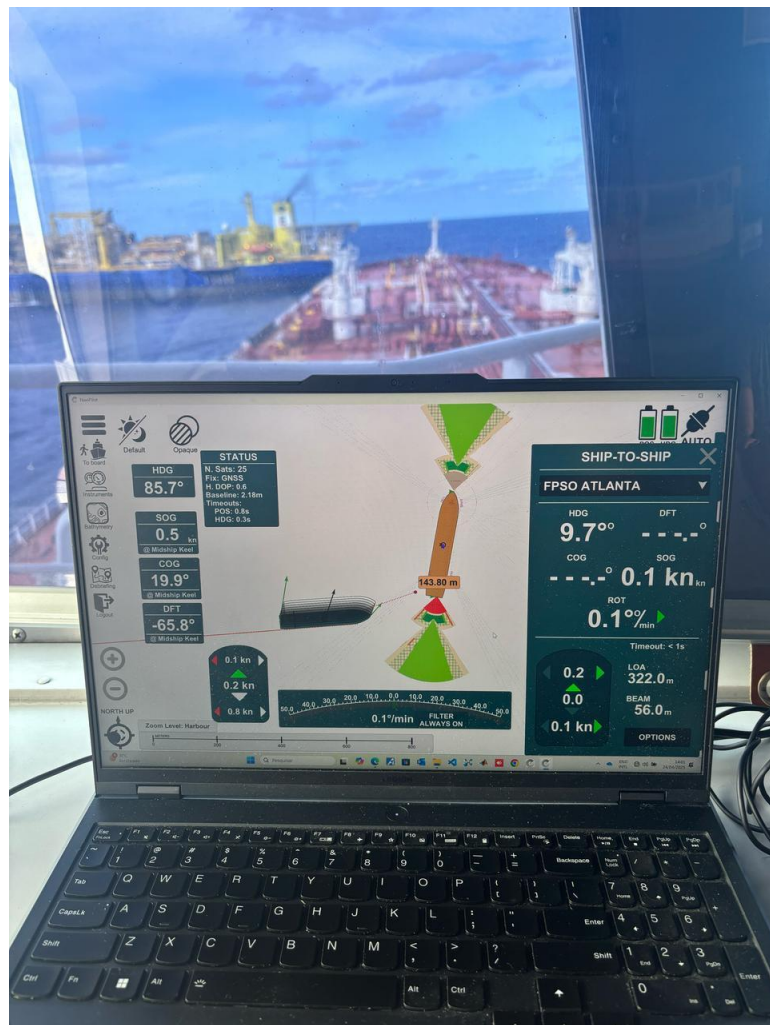
T2S - Cameras Integration



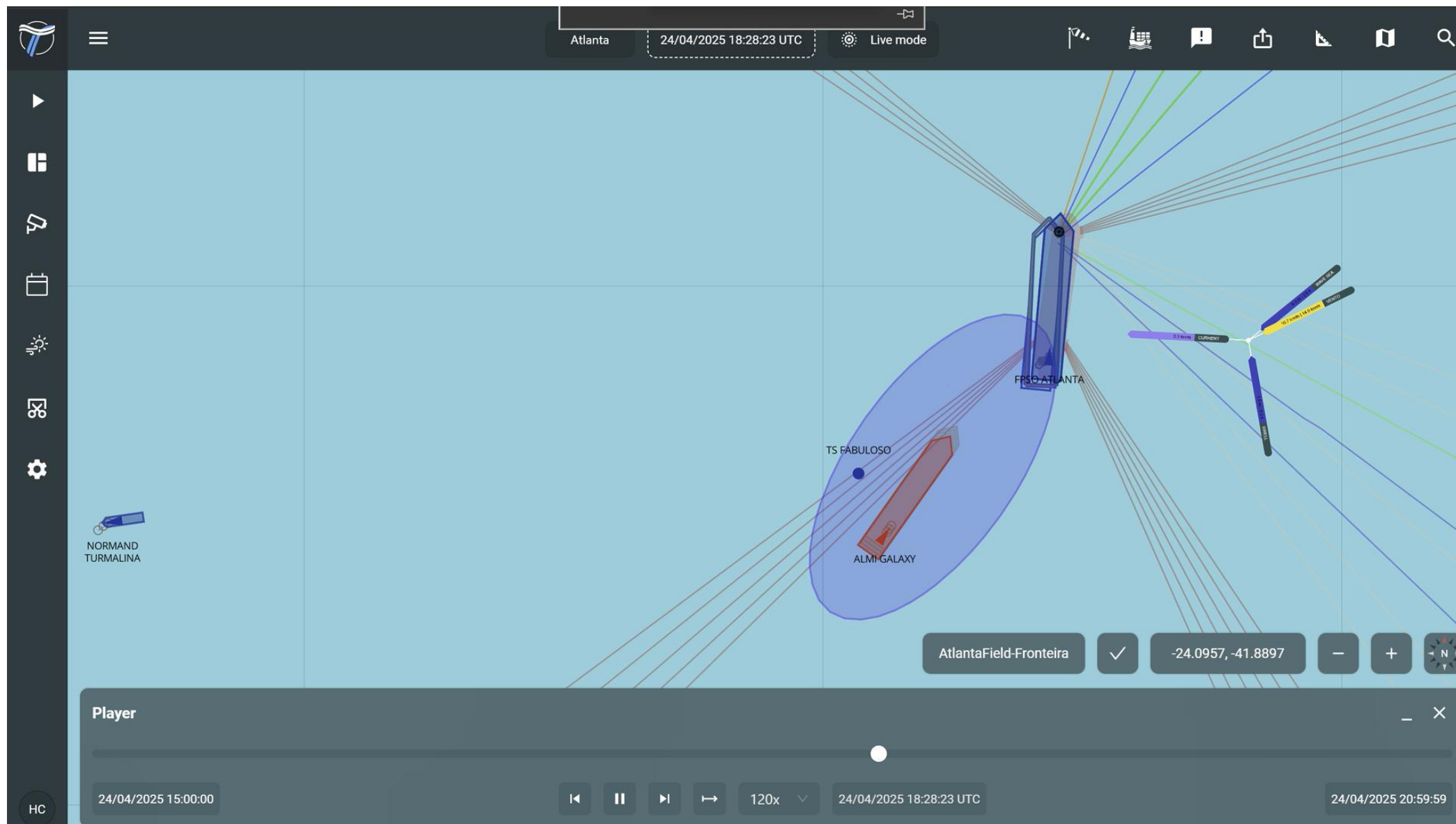
T2S – Offloading Monitoring



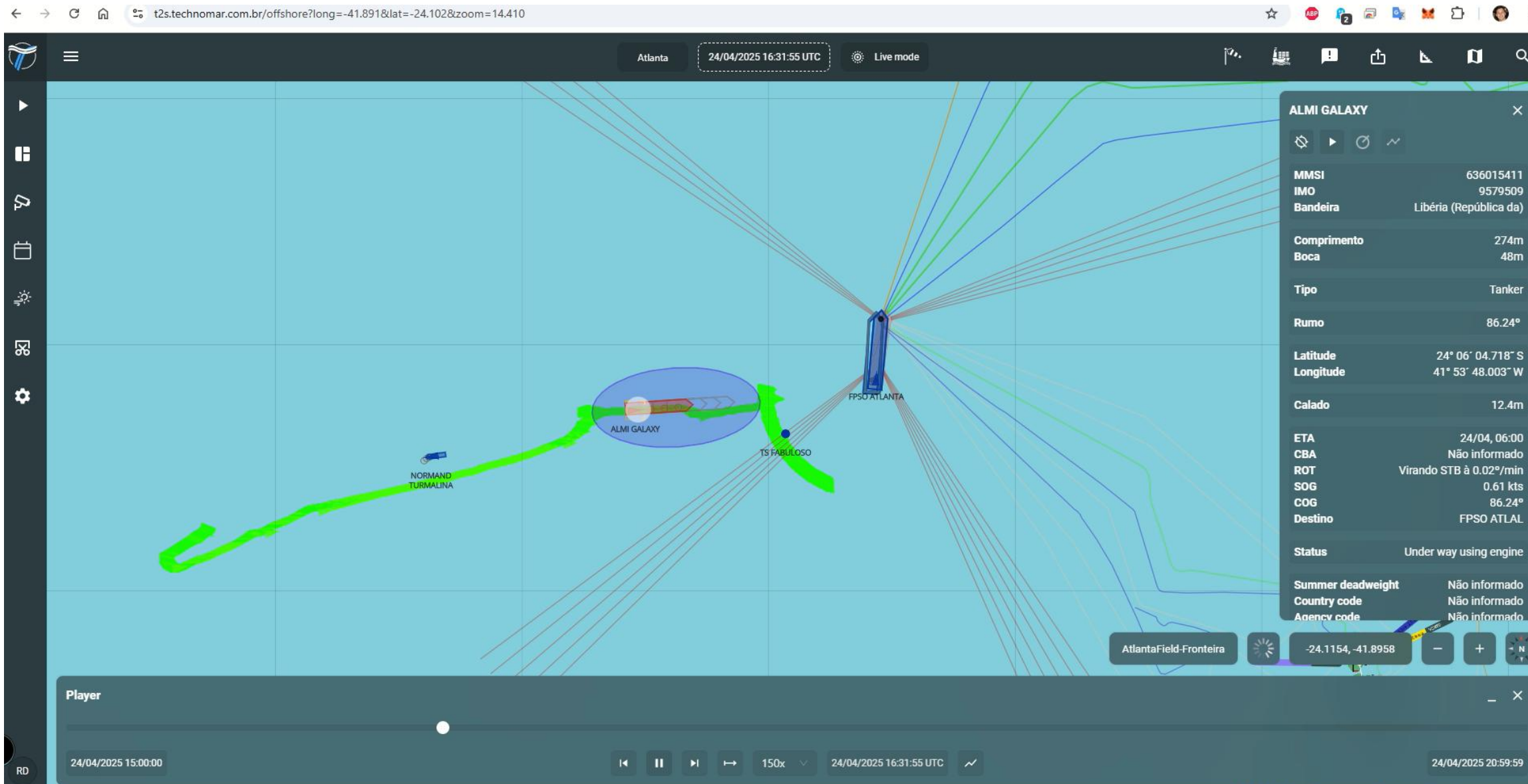
T2S – Offloading Monitoring



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T2S – Offloading Monitoring

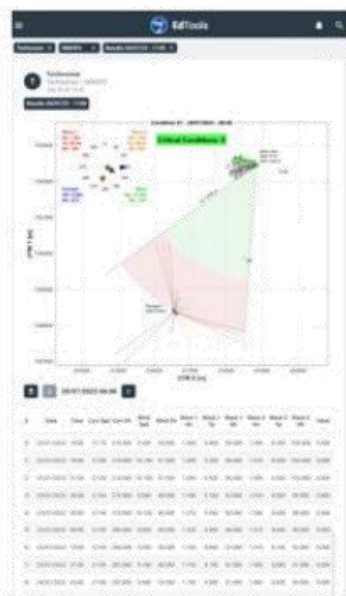


SIMOPS Solution

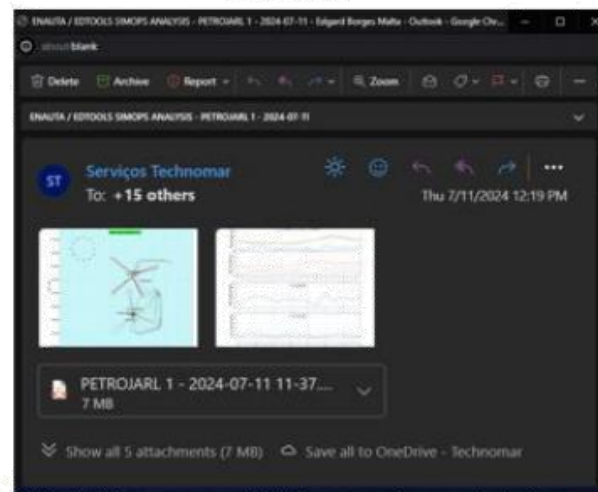
T2S interface



Edtools Web



Automatic Emails



WhatsApp Bots



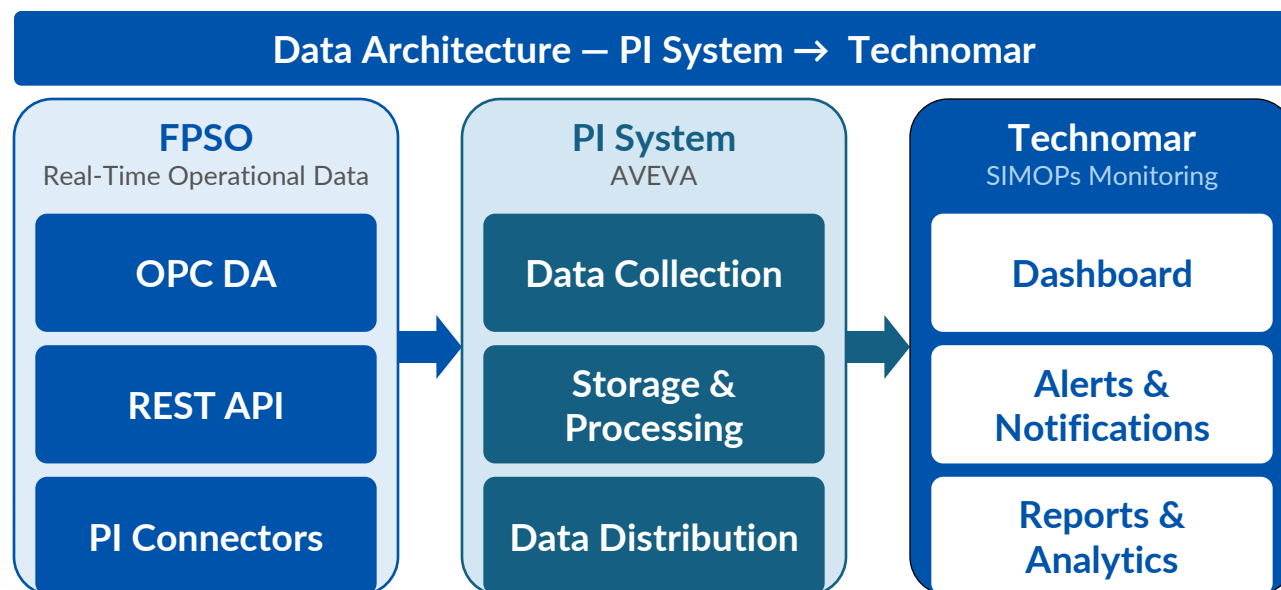


TECHNOMAR
ENGENHARIA

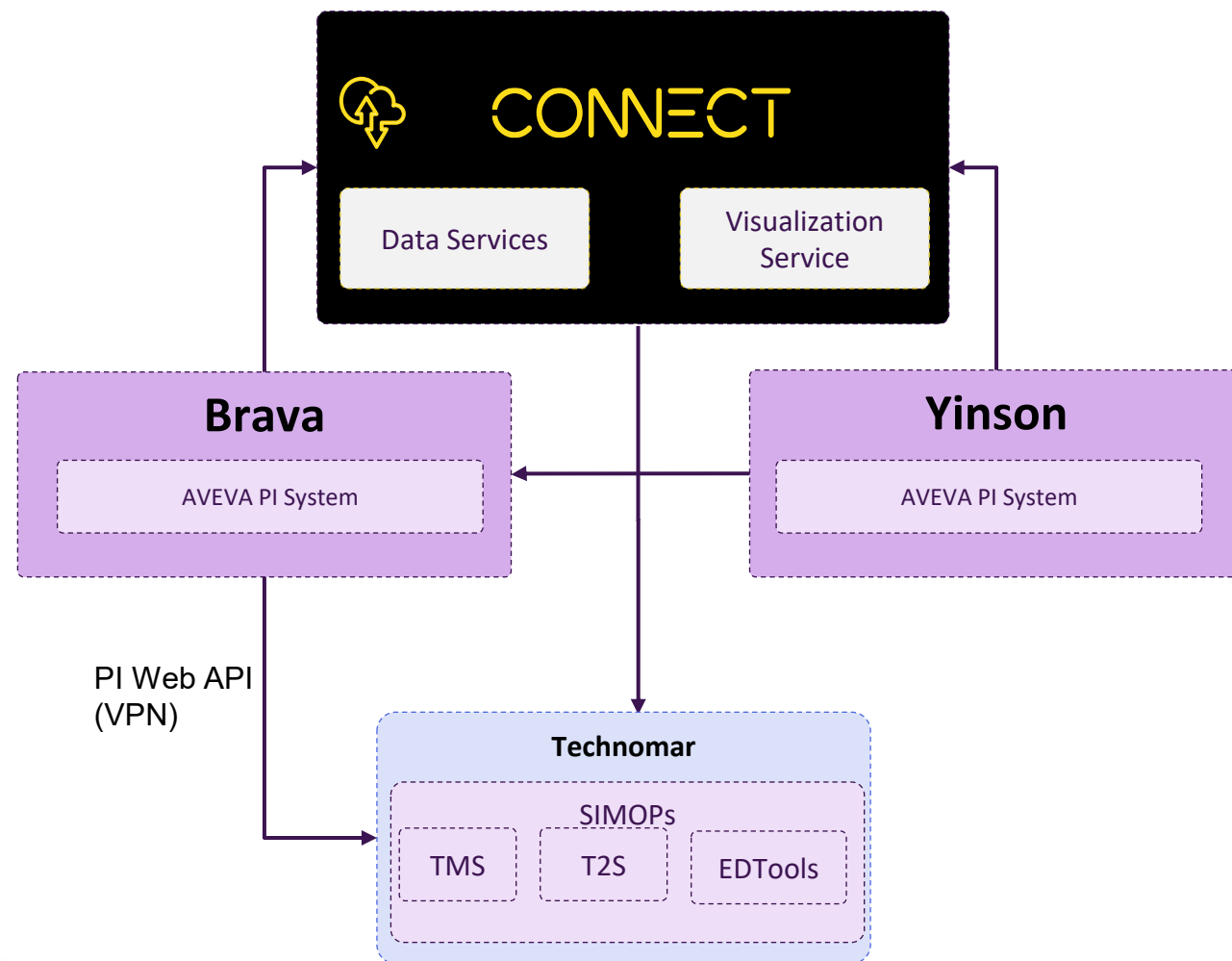
BRAVA energia

Data Architecture

Technomar's SIMOPs system is a tool to manage simultaneous operations in offshore environments, ensuring safety and efficiency. The integration of systems enhances the monitoring of these operations, providing a comprehensive and real-time view of activities.



Data Architecture



TECHNOMAR
ENGENHARIA

BRAVA energia

Improvements with Connect

PI Brava + PI Yinson → T2S Technomar

Benefits with Connect

Clean Separation of Concerns

PI Systems remain the reliable source of truth. The PI Connector acts as a controlled gateway pushing only necessary integrated data to T2S.

Easier Application Integration

SIMOPs Monitoring, Dashboards, Risk Management, and PI Vision receive well-structured data with AF context instead of raw tags.

Reduced Risk

No direct heavy querying from T2S on critical PI Systems.

Easier Troubleshooting

Monitor the connector independently from the PI Systems.

When Direct PI Access Makes Sense

Low-Latency Bidirectional Needs

When you need very low-latency bidirectional communication (write-back from T2S to PI).

Simple Use Cases

Extremely simple use case with very few tags and no need for AF model.

Strong In-House Development

You already have strong in-house capability to build and maintain custom integrations.

Results



Safety: FPSO Atlanta and Papa-Terra operating with zero incidents, ensuring uninterrupted oil production of the definitive production system.



Vessel Optimization: Support vessels on the Atlanta field were reduced, cutting operational costs and improving logistics efficiency.



Offloading Performance: Offloading operations increased, enabled by SIMOPS planning that coordinated simultaneous activities with more environmental condition scenarios.



FPSO Transition: SIMOPS enabled a seamless handover from Petrojarl to FPSO Atlanta, with oil production continuity maintained throughout installation.

Brava Energia boosts offshore production

Challenge

- Complex FPSO transition (Petrojarl I to new FPSO Atlanta) operating simultaneously and risk of costly production shutdown.
- Weather-dependent offloading limits and production curtailments in the Atlanta and Papa Terra deepwater fields
- High number of support vessels (PSVs and AHTS) driving up daily charter costs

Solution

- SIMOPS platform: Advanced planning, real-time monitoring, high-accuracy weather simulations and AVEVA PI System — enabling safe simultaneous operations and data sharing via Connect (Brava, Yinson & Technomar)

Results

- **Company-wide production up 46%** (55.7k to 81.3k boe/d), driven by Atlanta & Papa Terra
- **+15% annual offloadings** — \$110–130M in additional export value per year
- **-30% fewer support vessels** — \$11–15M in annual cost savings
- **Zero incidents** during EPS-to-FPSO transition — ~\$100M in avoided downtime (1.5M barrels production)



Future

- Objective: To make the solution a global reference in offshore operations.
- Expansion: Application in other oil and gas fields.
- New Features: Predictive maintenance and advanced automation.
- Port Integration: Optimization of logistics and management of vessels in terminals.
- Renewable Energy: Adaptation for monitoring offshore wind farms.





Obrigado

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