



EURMARS

An advanced platform to improve the **European Multi Authority border Security efficiency and cooperation.**

EURMARS CHALLENGE

The main challenge addressed by EURMARS is the prediction, surveillance and management of attempts to execute irregular migration entailing the disembarkation of migrants and refugees and the prevention of operation of smuggling and trafficking networks. Relevant to this challenge is the overall management of search and rescue operations balancing potential illegal activities impact while considering of human rights and international obligations at sea. Due to the sensors envisioned to be deployed in EURMARS, the project aims to tackle also the challenge of oil spills observation & monitoring.

The parallel and concurrent challenge to this context is the coordination and cooperation among different authorities and agencies at the national and EU level, such as coast guards, border guards, customs, police, fisheries, environmental protection and maritime safety entities. These actors have different mandates, responsibilities and capacities, which may create gaps or overlaps in their operations.

EURMARS CONSORTIUM



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101073985

FOR MORE INFORMATION

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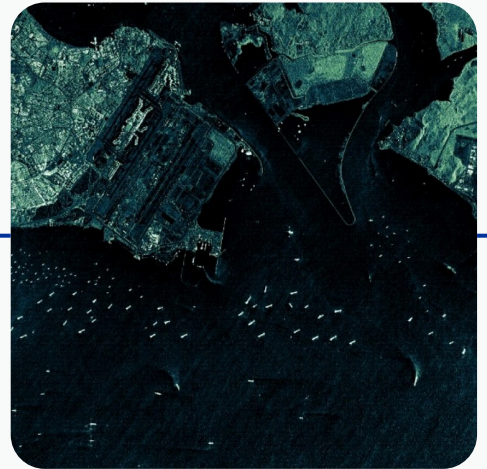


EURMARS

PILOT USE CASES

PUC1

**Maritime Border Control:
Detection of trafficking and other
illegal activities**

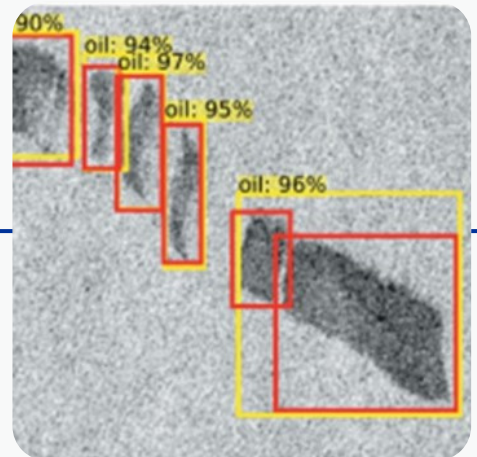


PUC2(a)

Search & Rescue Operations

PUC2(b)

**Maritime structures and oil
spills surveillance &
monitoring**



PUC3

**Land Border Control, Illegal
Crossing Outside of Business
Contingency Plans**



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EURMARS

Current Status

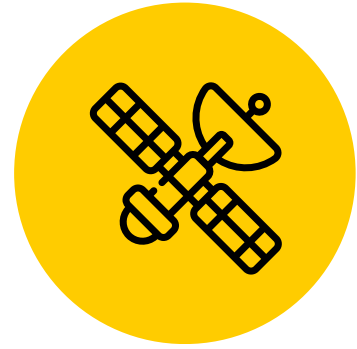
1 EURMARS Platform Architecture

Robust and scalable architecture developed, laying the groundwork for advanced maritime monitoring capabilities.



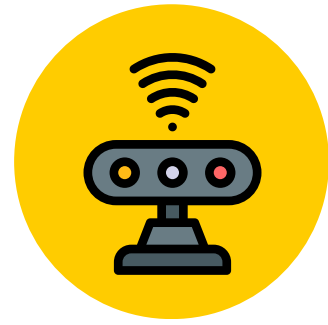
2 Satellite Integration Opportunities

Extensive analysis conducted to explore synergies with various satellite systems, enhancing the platform's observational power.



3 Maritime Ground Sensor Platform

A prototype developed for real-time maritime monitoring, enabling effective scenario analysis in marine environments.



4 Vessel/Vehicle Classification & Behavior Analytics

Advanced analytics module rigorously tested for accuracy in classifying and predicting maritime vessel behaviors.



5 Simulation Software

Created to emulate sensor outputs, aiding in the planning and optimization of sensor deployment for maritime surveillance.



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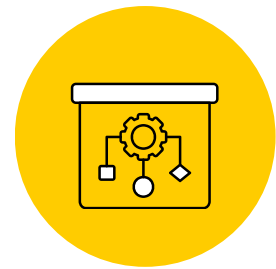
Risk Assessment Module

First prototype launched, offering advanced risk analysis capabilities for maritime scenarios.



Primary Fusion Module

Implemented for integrating diverse data sources, providing enriched information through georeference-based fusion.



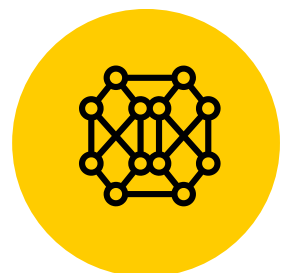
Oil Spill Mapping Algorithm

Developed using SAR imagery for timely and accurate detection of marine oil spills.



YOLO Algorithm for Vessel Detection

Leveraged cutting-edge YOLO algorithm to detect vessels using a combination of optical and SAR imagery.



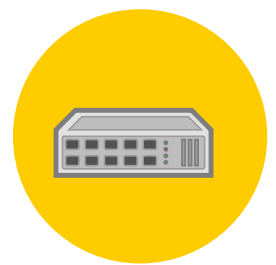
3D-LiDAR Simulator

Enhanced for precision in simulating vessel-specific scenarios, offering valuable insights for maritime monitoring.



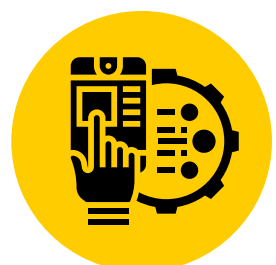
Common Data Hub

Established for seamless integration of AIS (VDES) data and environmental data, facilitating comprehensive maritime surveillance.



Basic User Interface

Developed with user-centric design, featuring map representations, user management tools, sensor overviews, alert visualizations, and decision-support functionalities.



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