Operationalising EO & AI for Early Warning

Edoardo Camilli

AI4COPSEC

CEO at Hozint, WP5 leader at AI4COPSEC

Security enhancement through heterogeneous data fusion and improved AI/ML-powered Copernicus maritime and border surveillance services

CENTAUR

2nd Workshop

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Edoardo Camilli
CEO at Hozint - Horizon Intelligence
On behalf of project partners

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PROJECT 101190021 _ AI4COPSEC

Project overview

AI4COPSEC is an innovative Horizon Europe research project focused on enhancing maritime and border surveillance through advanced artificial intelligence technologies.
The project aims to demonstrate the potential of machine learning and GeoAI models to improve existing **Copernicus services**.

AI4COPSEC integrates state-of-the-art AI solutions with Copernicus satellite data to address urgent environmental and security challenges. With a focus on self-supervised deep learning models, geomatics, and social media data, AI4COPSEC seeks to revolutionize maritime surveillance and environmental crisis response through cutting-edge technological innovations.

36 months

10 partners

4 million €

Consortium

AI4COPSEC is coordinated by **Simula Research Laboratory** and **eOdyn** (technical coordinator) and supported by an interdisciplinary consortium of **ten partners** from seven European countries.

Each partner brings specific expertise in the field of maritime surveillance, intelligence and artificial intelligence technologies.

simula

eOdyn

HOZINT
HORIZON INTELLIGENCE

itml
innovation applied

AISTECH
access to intelligent space technologies

UNIVERSITÀ POLITECNICA DELLE MARCHE

magellan circle

IMT Atlantique
Bretagne-Pays de la Loire
École Mines-Télécom

SATCEN
EUROPEAN UNION SATELLITE CENTRE

AI4COPSEC

Promotes synergies between space data, non-space data (IoT, in situ, OSINT) and AI to enhance CSS.

Use Cases

Search and Rescue

Supporting Search and Rescue (SaR) entities and operations, by developing a rapid alert system, optimised drift modelling, and advanced ship detection/identification.

Oil Spill

Addressing the challenges posed by oil spills at EU level, by developing a rapid alert and response system, optimised oil spill drift modelling, and advanced pollution detection.

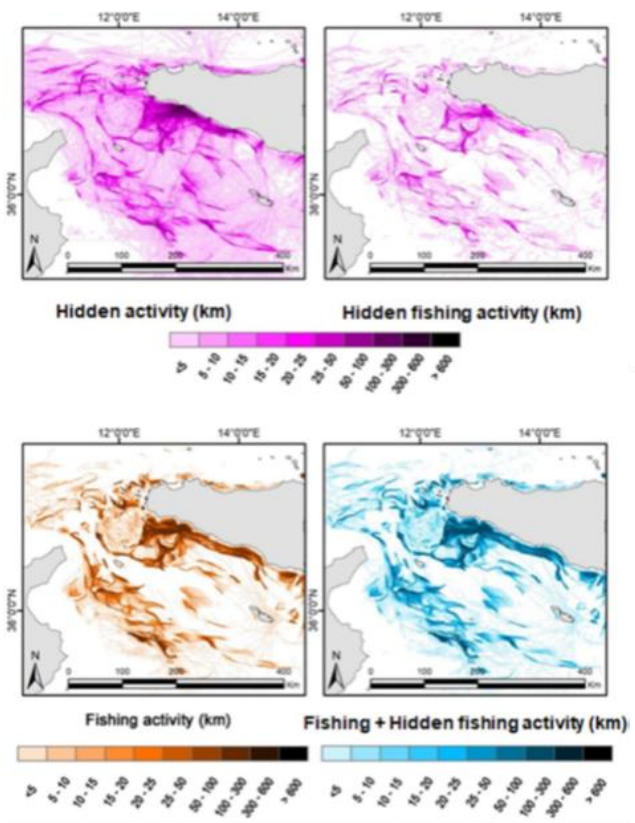
Irregular Migration

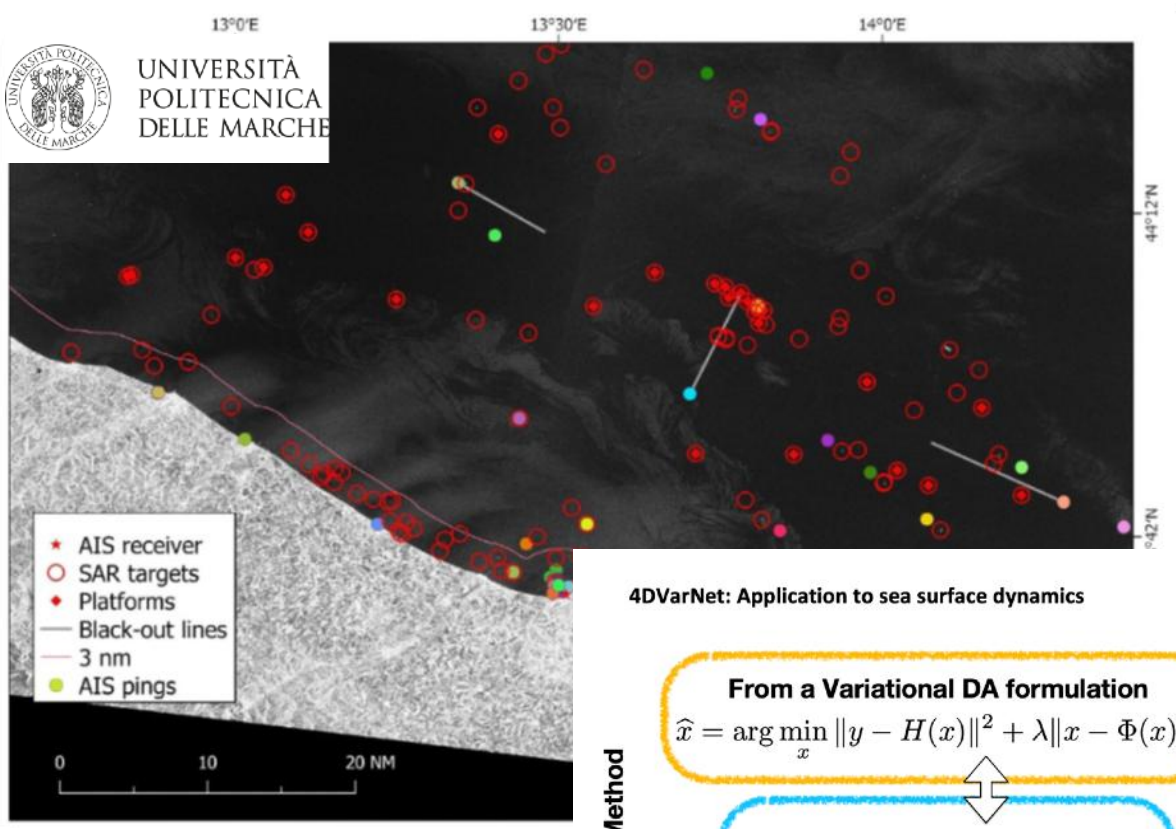
Supporting border and maritime authorities, by developing a rapid alert and detection system for pre-defined suspicious activities at sea, along with accurate predictions of the most likely maritime routes followed by migrants' vessels.

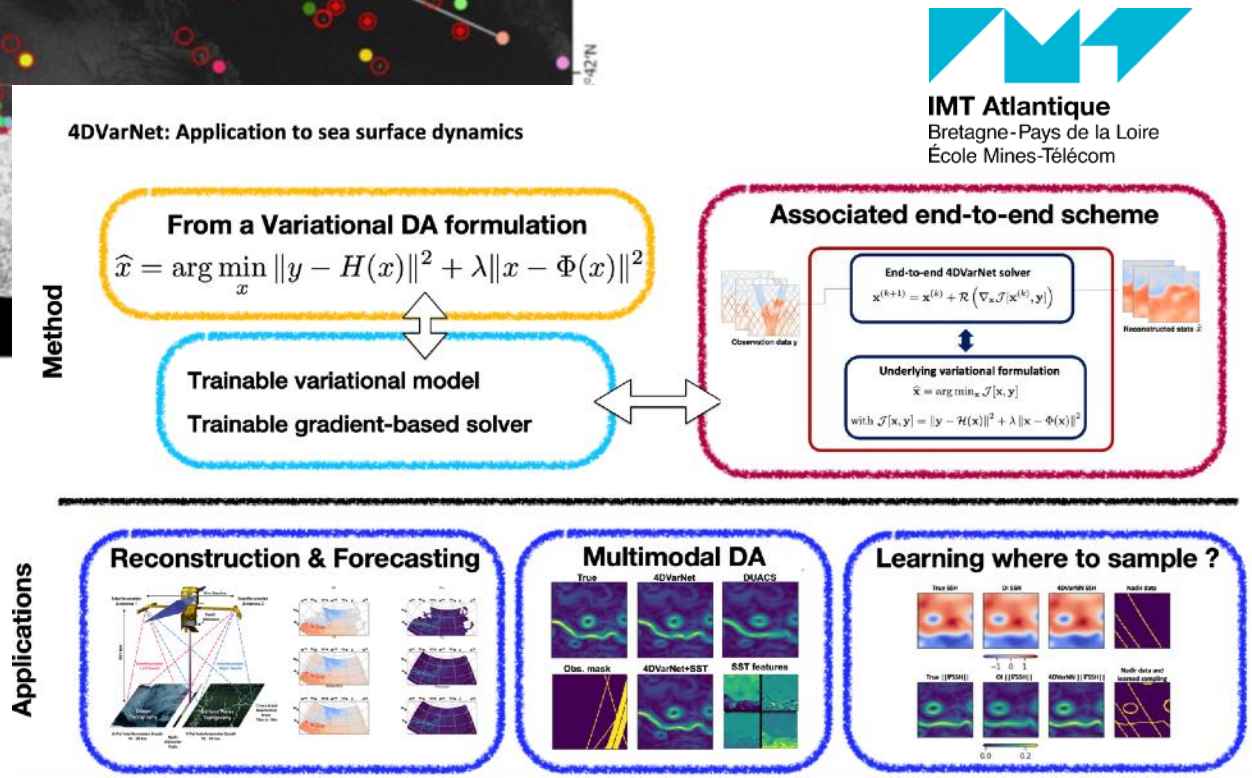
Illegal Fishing

Addressing the challenges posed by Illegal, Unreported, and Unregulated (IUU) fishing at EU level, by developing a rapid detection system for small-scale fishing in restricted zones, advanced AIS shutdown detection, and rapid ship & event alerts

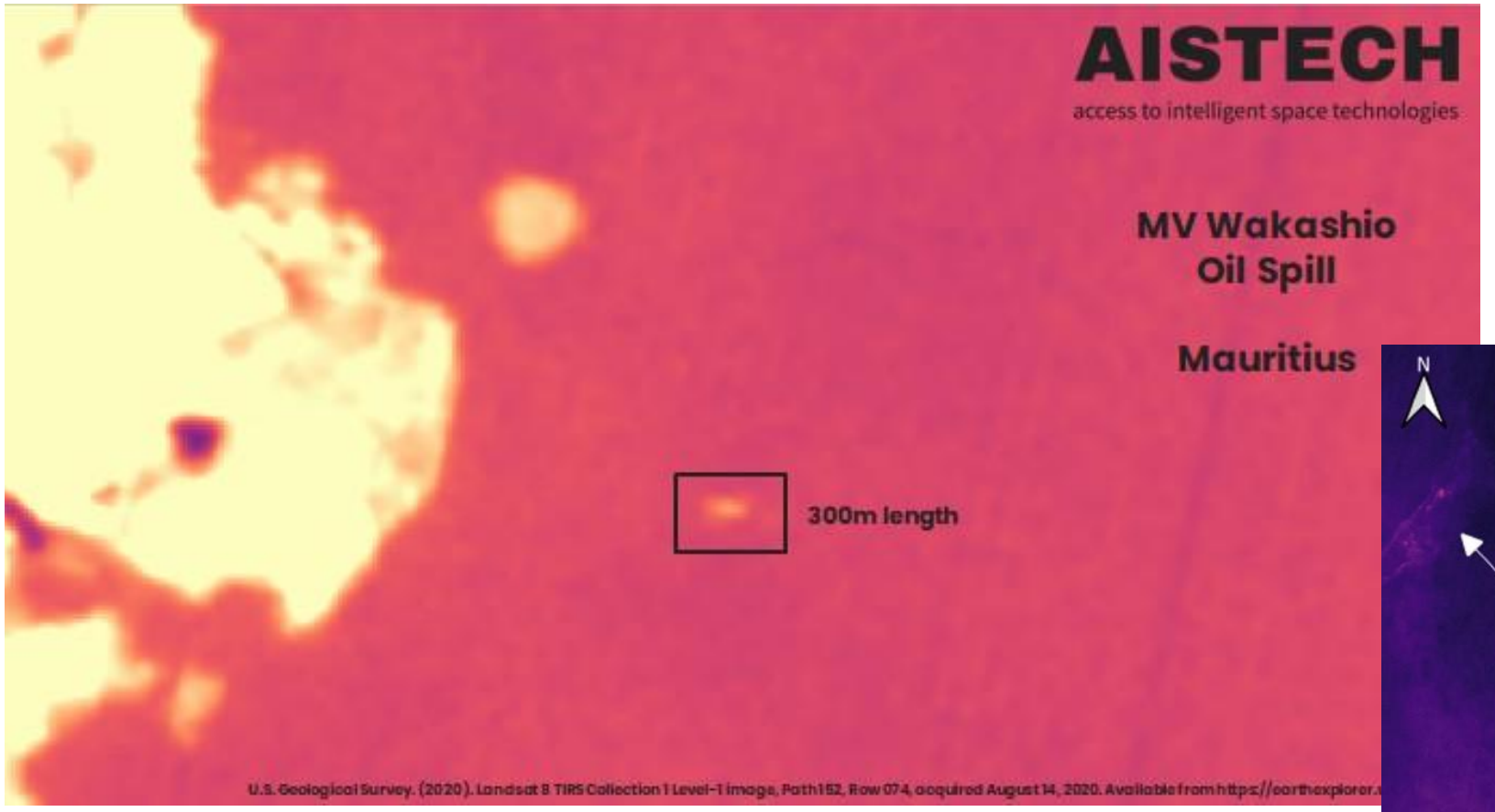
Space data and data fusion

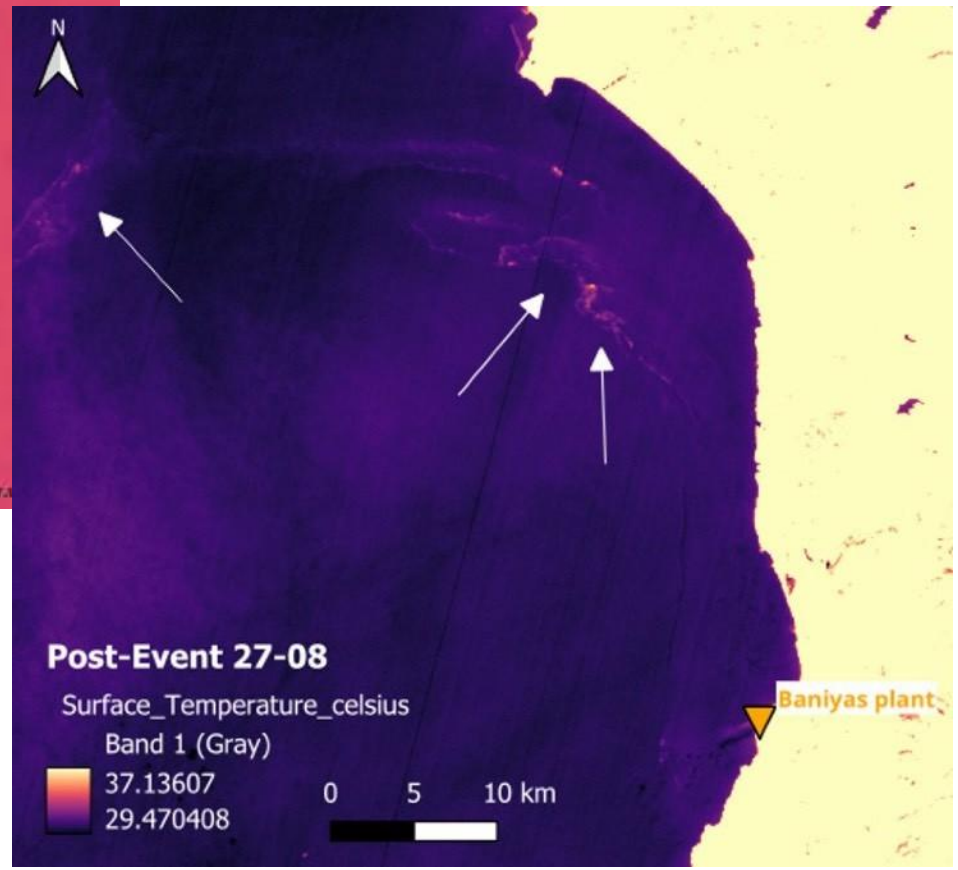






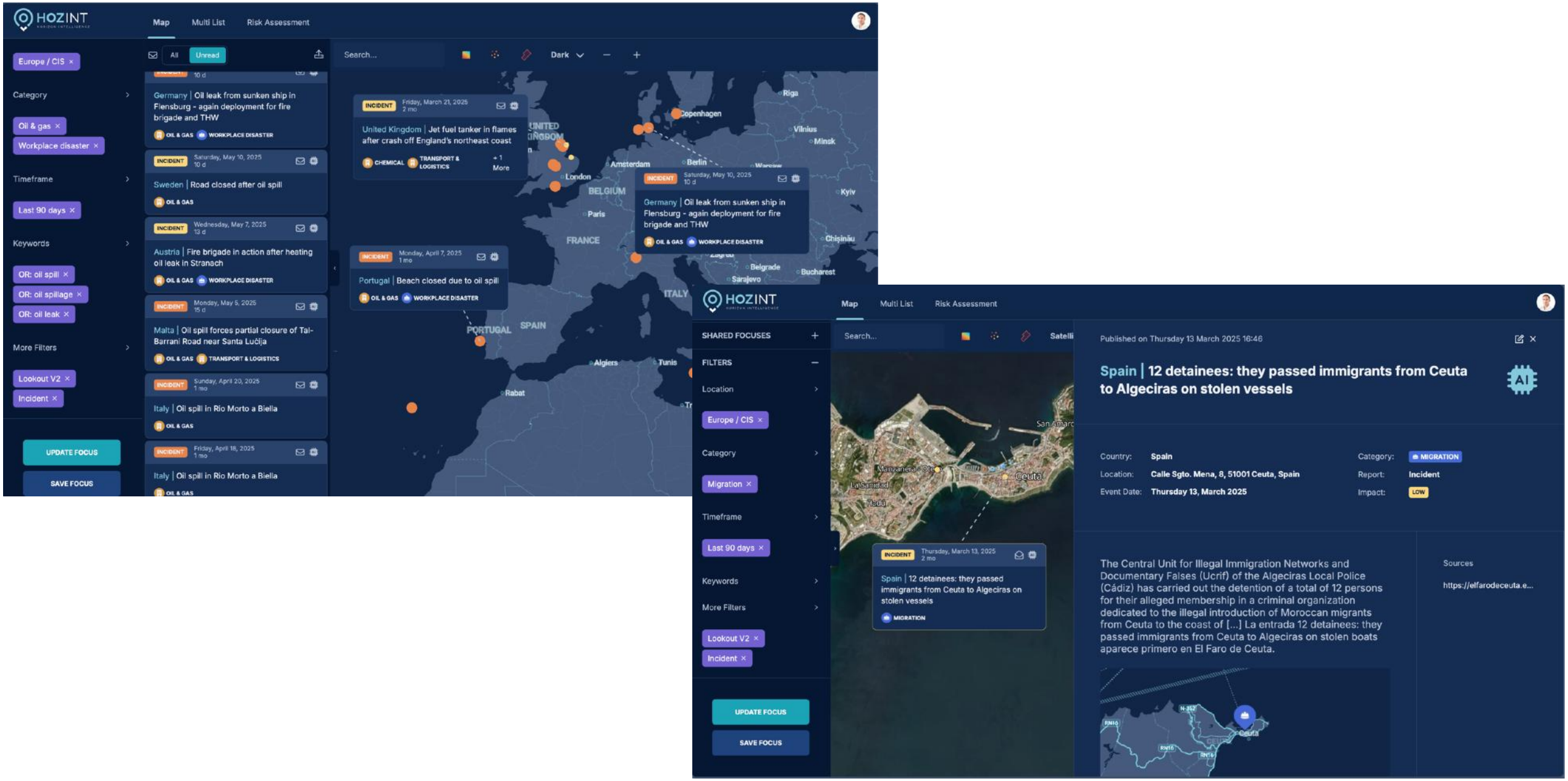
Space data and contributive missions (Thermal imagery)



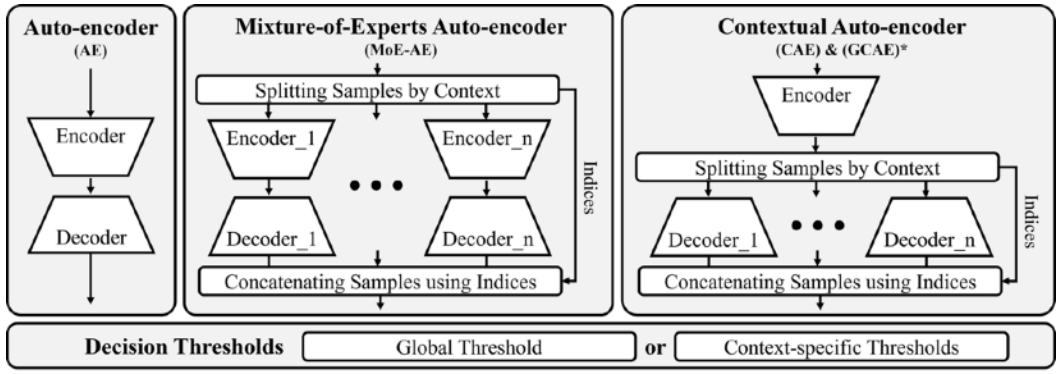


Landsat 8 acquisition, courtesy of the U.S. Geological Survey (USGS), Processed by Aistech.

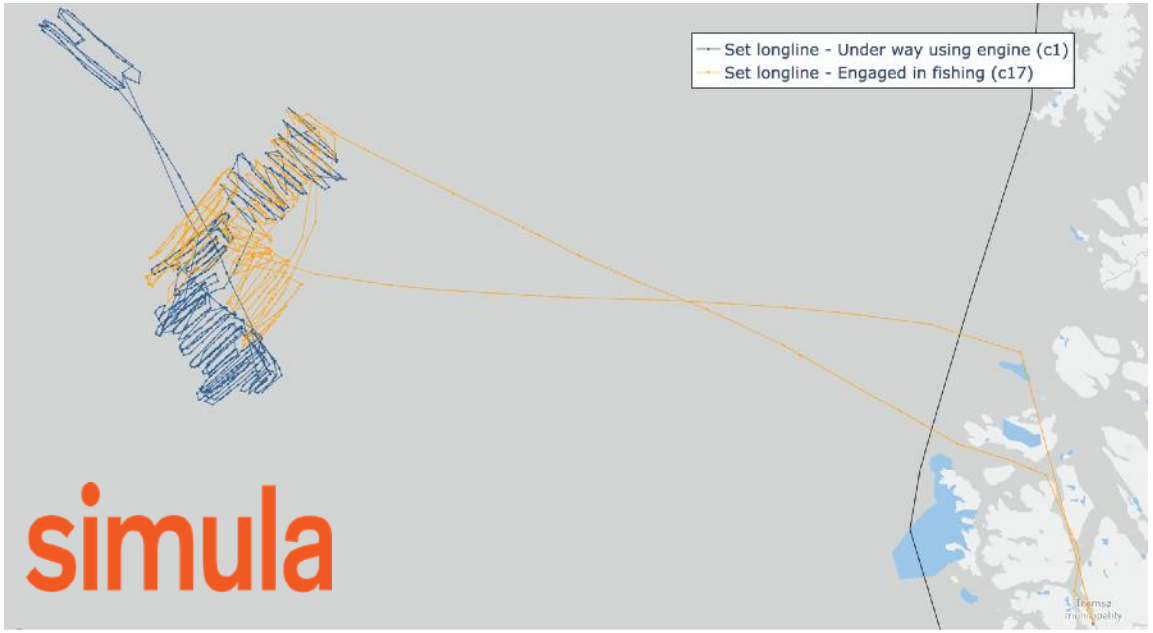
Open source data - Intelligence

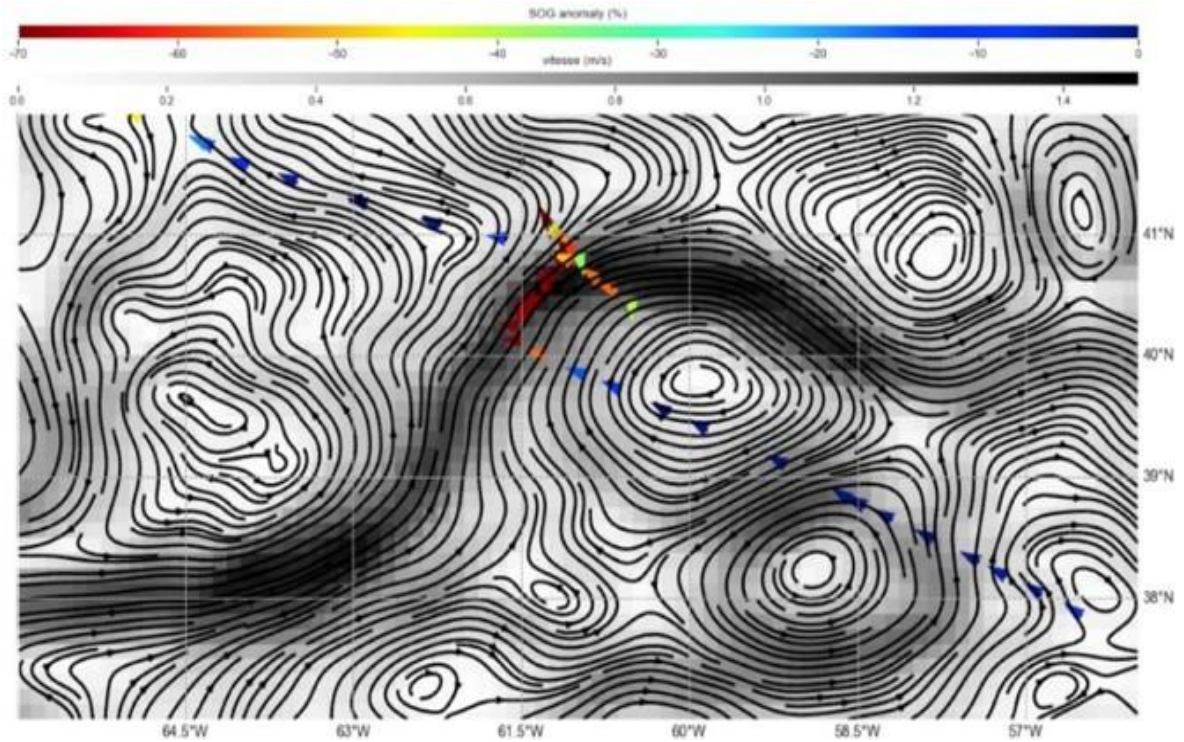


Anomaly detection and context awareness using AI

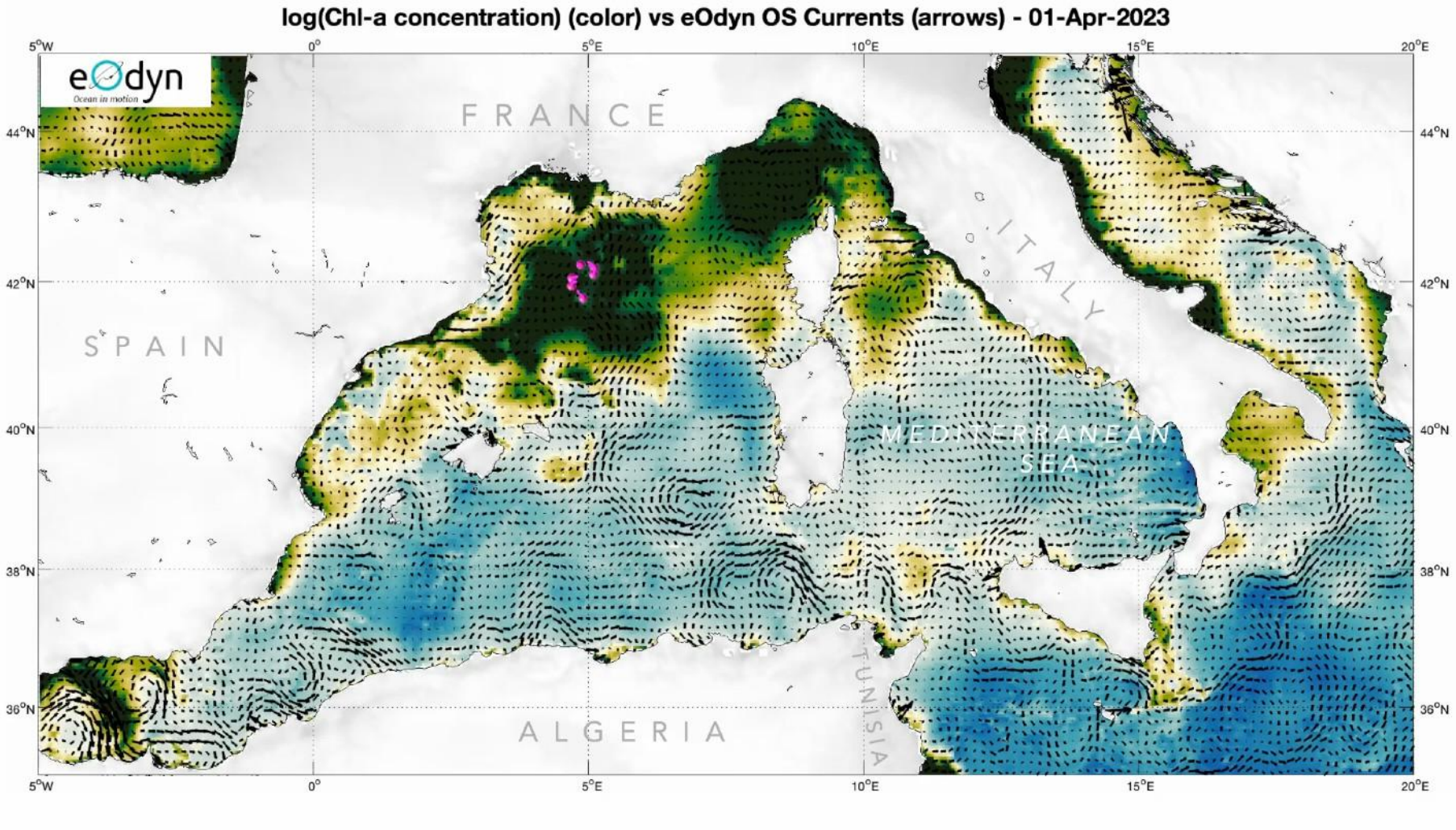


Context-Aware AutoEncoders (A form of Self-Supervised DL) overcome traditional AE for anomaly detection in maritime traffic surveillance





IoT and in situ data



AI4COPSEC impact…

Environment/Social

Marine pollutions

Illegal fishing

Search and Rescue / migrations

Operations

Enhanced efficiency

Costs savings

…maximized

Guardia Civil

EUROPEAN UNION SATELLITE CENTRE

SatCen

Analysis for decision making

magellan circle

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Thanks!

Do you have any questions?

www.ai4copsec.eu

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