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Satellite Imagery and Vessel Monitoring Through UNITAR

Introducing UNITAR's Capacity Building Work on Enhancing Maritime Security

8th High-Level Meeting on Djibouti Code of Conduct, Mauritius, Nov 2025

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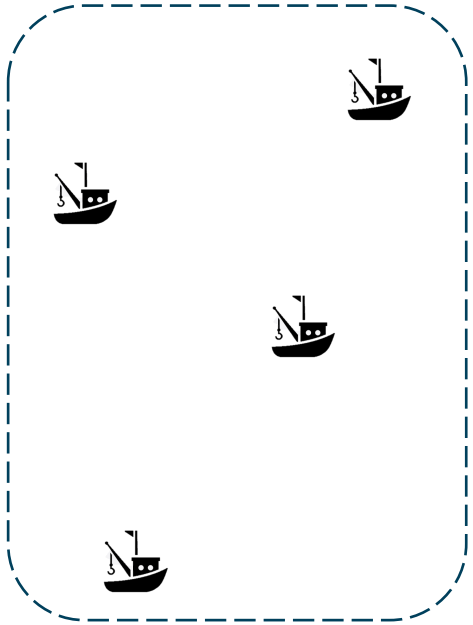
UNITAR Division for Peace

About UNITAR

The United Nations Institute for Training and Research (UNITAR) provides innovative learning solutions to individuals, organizations and institutions to enhance global decision-making and support country-level action for shaping a better future.

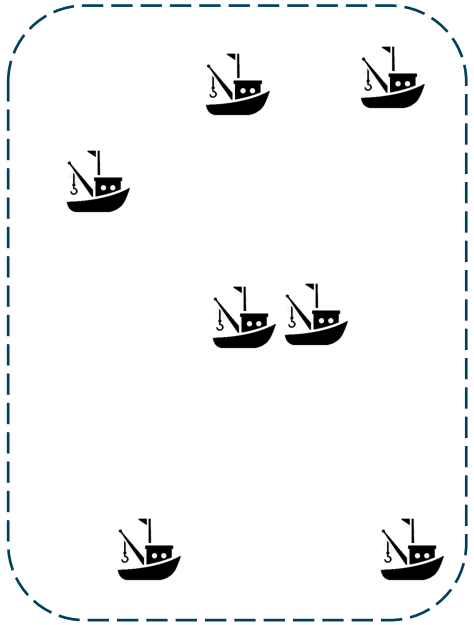
Leveraging on having UNOSAT as programme of UNITAR; The United Nations Operational Satellite Applications Programme (UNOSAT) delivers satellite imagery analysis, geospatial solutions, and capacity-building services to strengthen evidence-based decision-making in humanitarian response, development, peace, and security operations.

Training Fundamental Goals



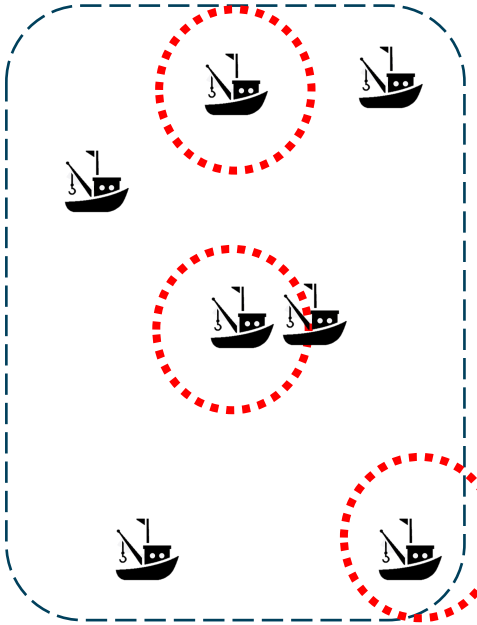
AIS data ONLY input from the vessels in a specific region

Space & Ground based AIS



Satellite imagery input for the same region, including dark vessels.

Space imagery



Satellite imagery analysis identifying and verifying dark vessels information.

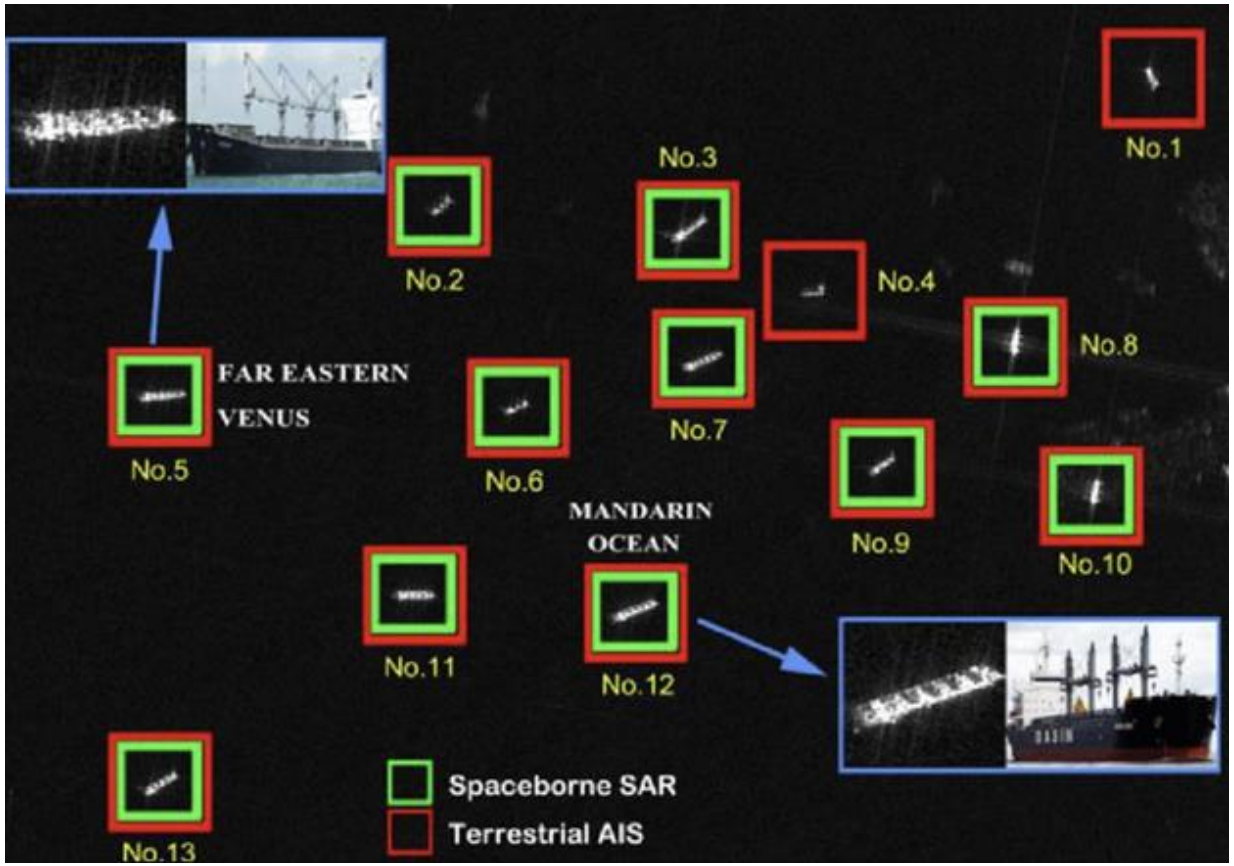
Data Analytics

Integrating conventional monitoring systems (AIS, VMS, etc...) alongside space-based imagery coupled with analytics to enhance maritime surveillance

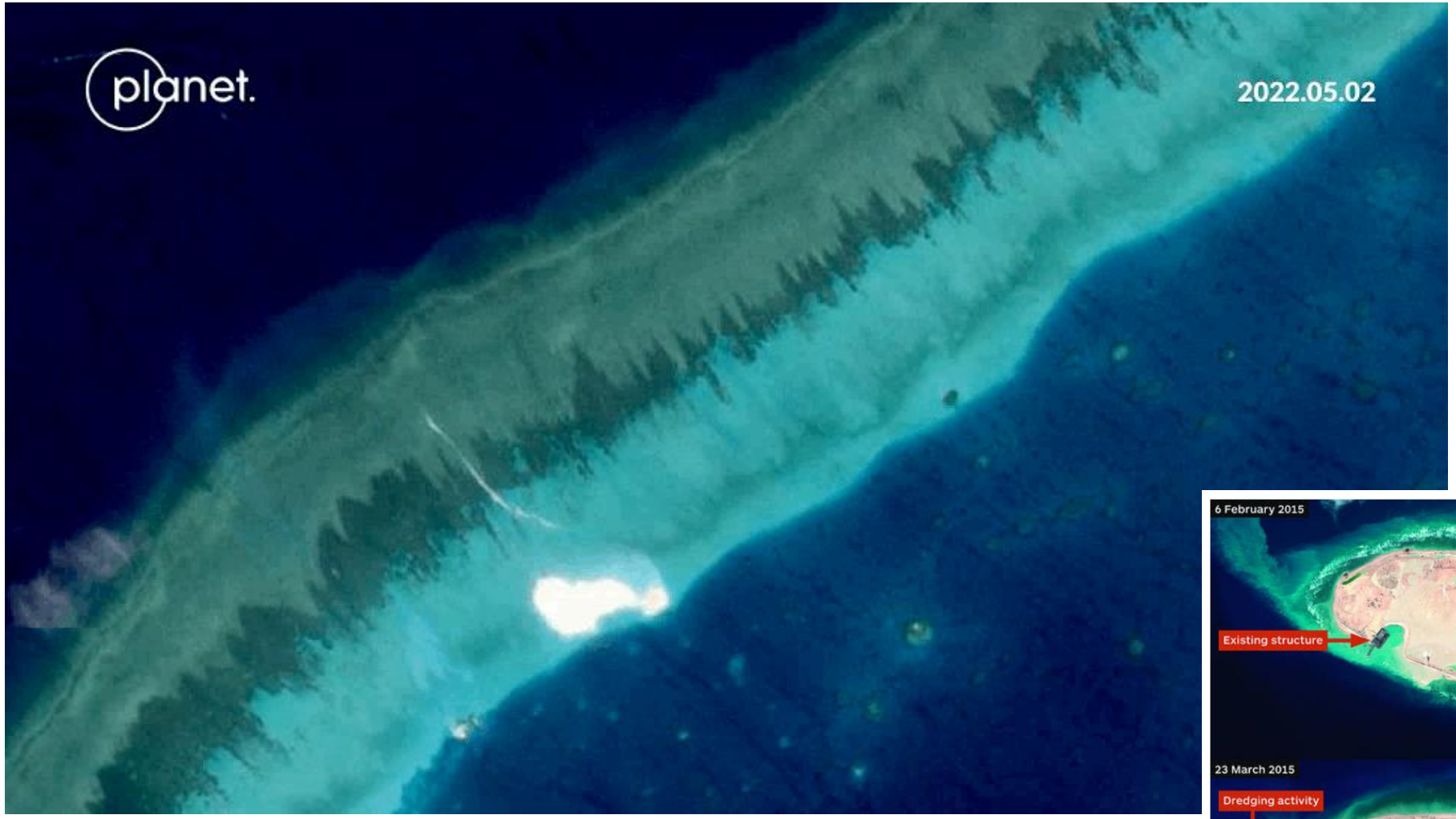
Enhancing Maritime Surveillance Using Space

Enabling Dark Vessels' Detection

Satellite imagery is the **only** technological source to identify and locate dark vessels.



Utilizing optical imagery or SAR and matching their input with AIS and VMS data to identify and locate Dark vessels.



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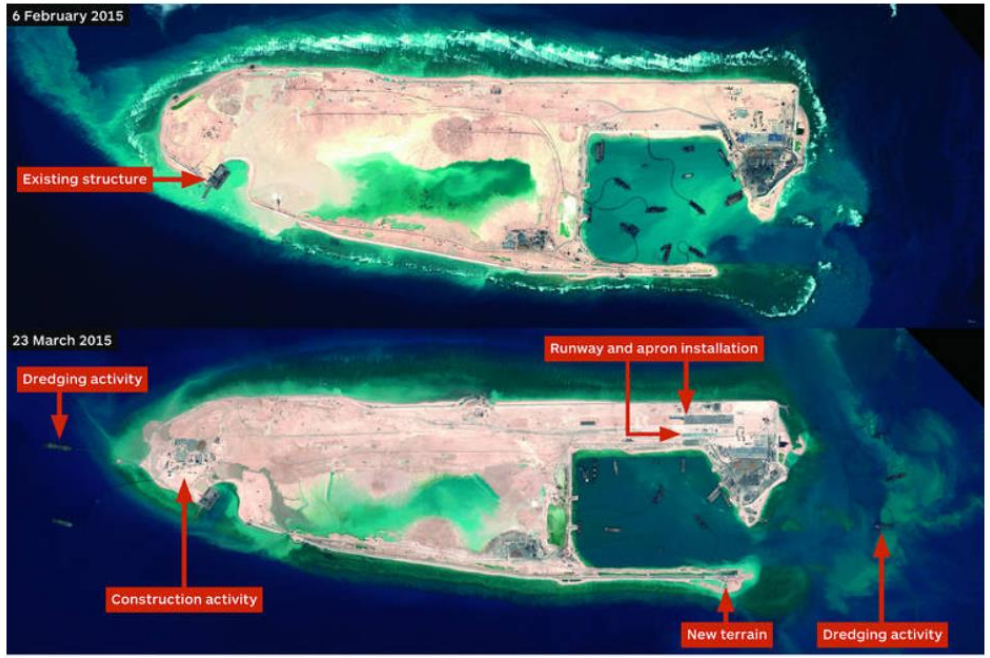

Satellite imagery of runway construction at Fiery Cross Reef in the Spratly Islands dated Feb. 6 and March 23 by Airbus Defence and Space. PHOTO: CNES 2015, DISTRIBUTION AIRBUS DS/IHS: 1535921

Dark vessels and their activities, detected via satellite, provide crucial forensic evidence to expose and prove illicit operations at sea.

Combined Terrestrial, Aerial, and Spatial System Architecture for Maritime Security

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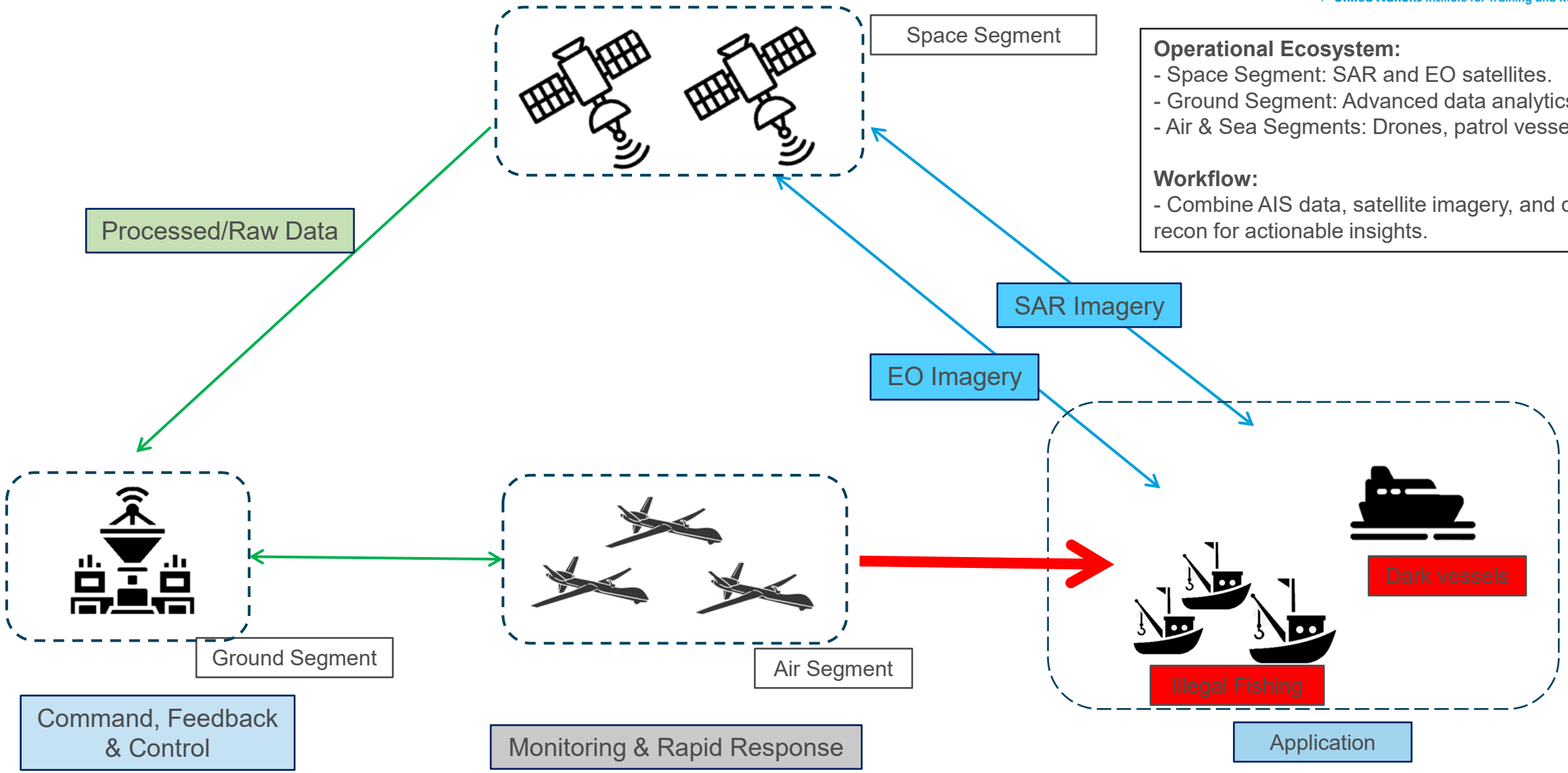


Operational Ecosystem:
- Space Segment: SAR and EO satellites.
- Ground Segment: Advanced data analytics.
- Air & Sea Segments: Drones, patrol vessels.

Workflow:
- Combine AIS data, satellite imagery, and drone recon for actionable insights.

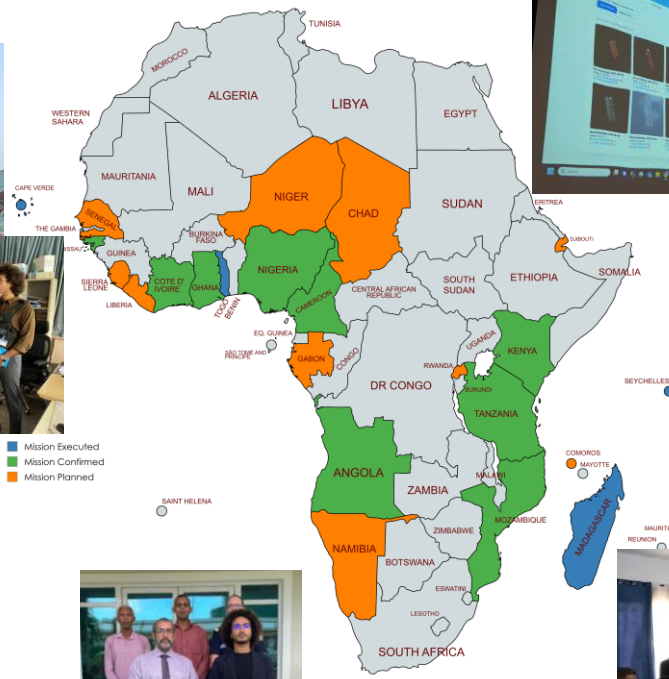
Capacity Building

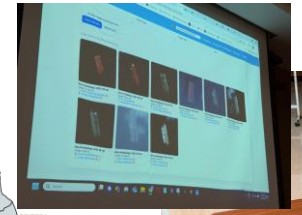
- Introduction to Satellite Systems for Enhancing Security
- Applications of Satellite Imagery in Daily Operations
- Hands-On Training with Open Source & Commercial Satellite Imagery Tools.

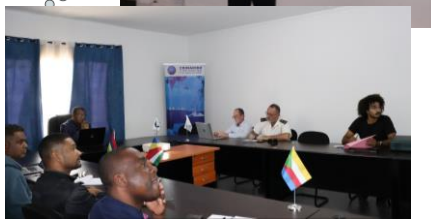
Technical Assessment
- Tailoring System Architecture
- Local Research Input Points

Introductory Trainings
- Basics Knowledge Transfer
- Fundamental Capacity Building

Advanced Trainings
- 10+ Specialized Modules
- Operational Level Readiness







Hands-on Demonstration

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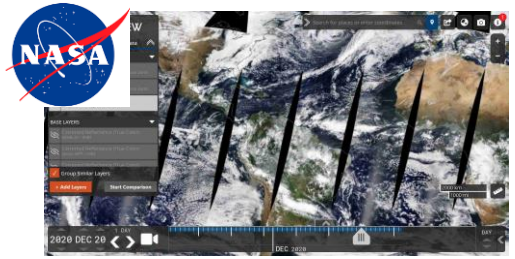
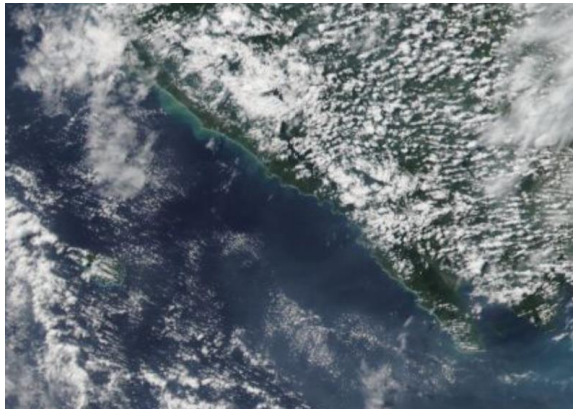
AOI definition & Intel analysis



Open-source validation



Pre-acquisition research

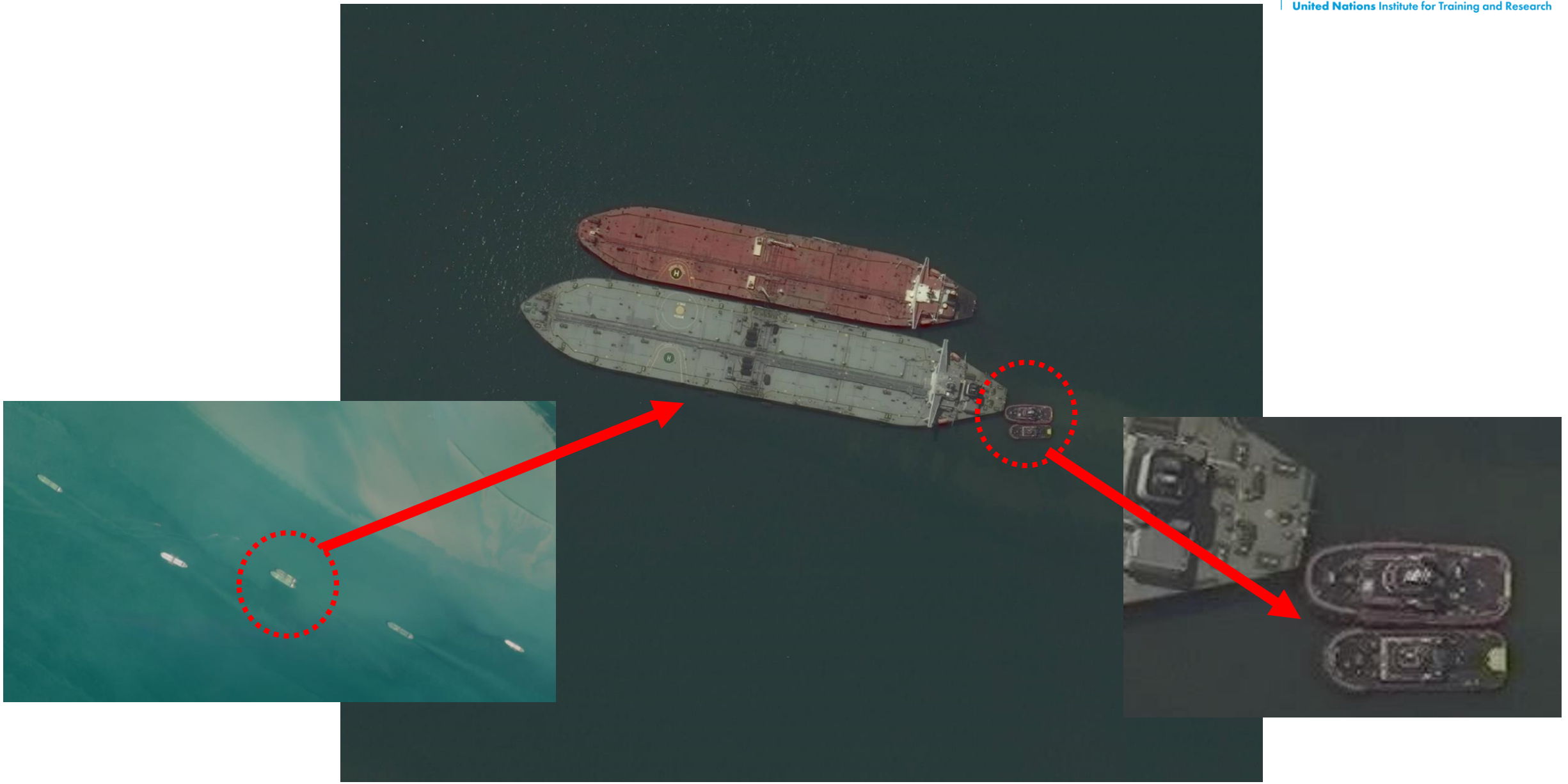
sentinelhub
by PLANET LABS

Open-source validation

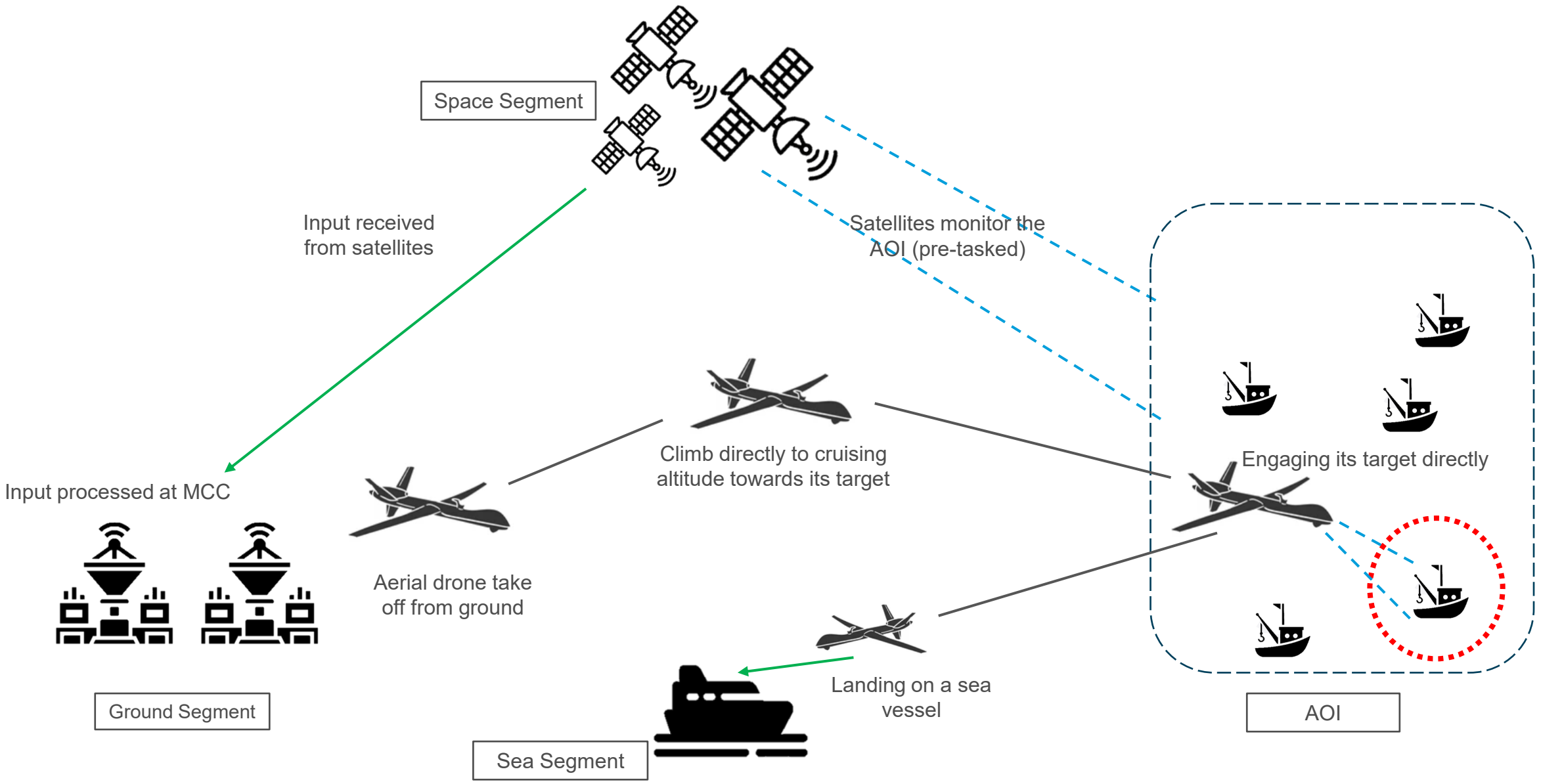
Satellite image procurement

3rd party procurement
(if needed)

Hands-on Demonstration



Demonstration Missions Planning and Execution



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Thank You

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