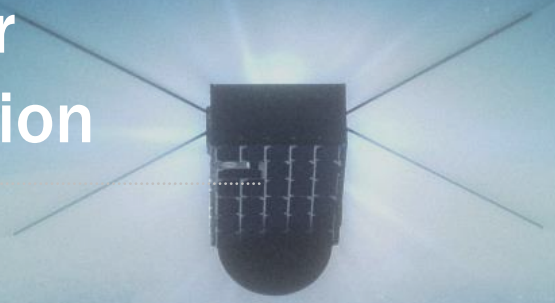
unseenlabs

Pioneer and global leader
in space-based RF detection



Space-based Radio-Frequency (RF) technology for maritime surveillance and dark vessel detection

18 March 2026

SEAFDEC

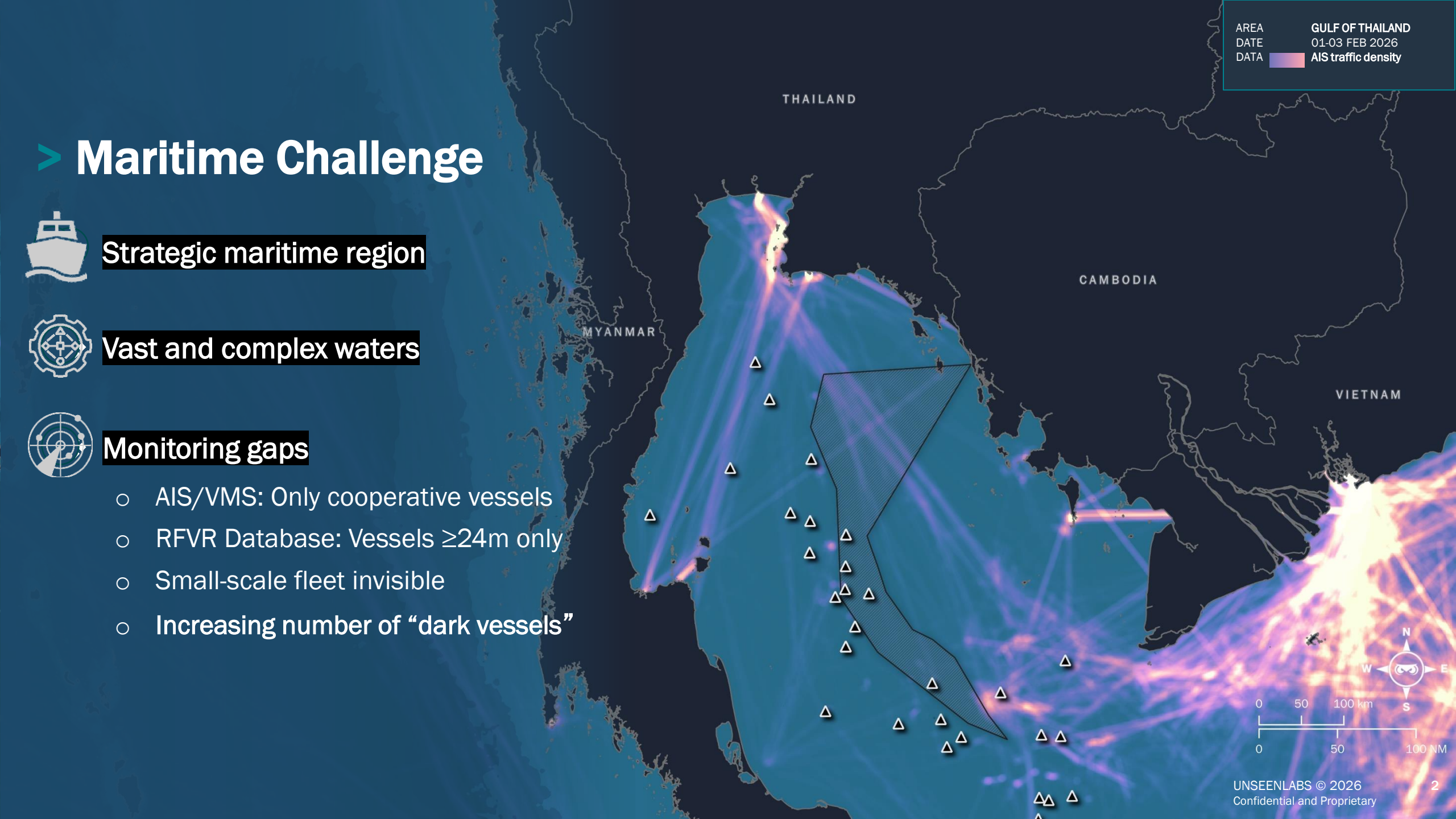
> Maritime Challenge

Strategic maritime region

Vast and complex waters

Monitoring gaps

- AIS/VMS: Only cooperative vessels
- RFVR Database: Vessels ≥24m only
- Small-scale fleet invisible
- **Increasing number of “dark vessels”**



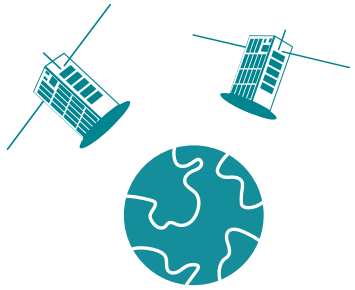
About Unseenlabs

Who we are

A pioneer and global leader in space-based radio frequency detection

What we do

Detect, locate & track radio frequency signals, delivering mission-critical data and intelligence



How we do it

Using a global satellite constellation powered by monosatellite technology, equipped with Artificial Intelligence

Key facts

European company created in 2015 and based in France - Satellites full operational capacity since 2019.
19 operational satellites (+1 to be launched in March), aim to expand to 26 satellites by 2027.
140 people today.

We deliver two types of services

Space-based RF data delivery service as an enabler

We deliver the result of RF data collections that can be used as one additional GeoInt sources, essential to identify and track an object

RF-based geo data analysis service as a revealer

We answer to specific missions leveraging our satellite tasking capabilities, our stored RF data and our RF expert's knowledge

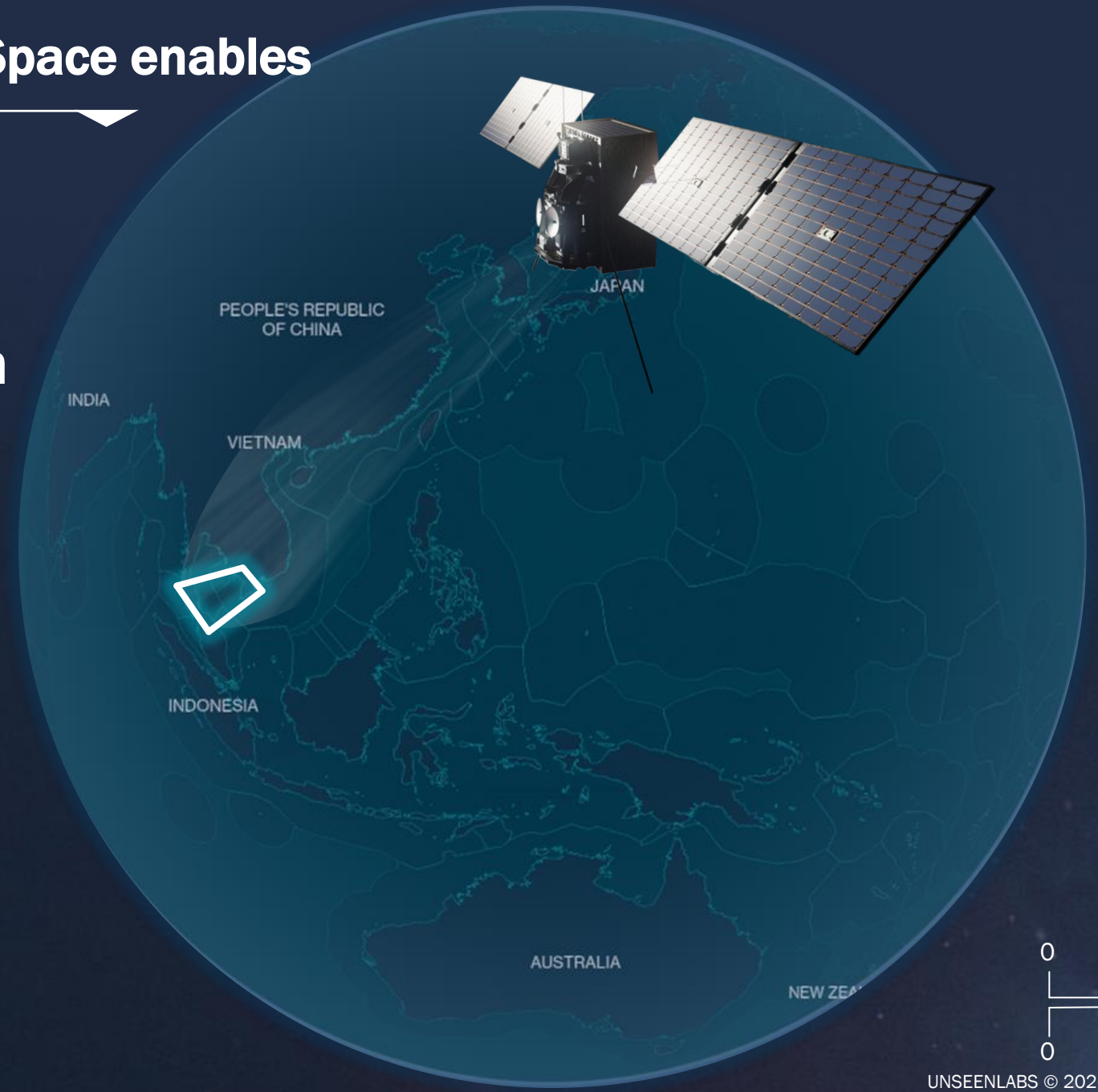
> What Signal Intelligence from Space enables

RF emitters activity detection

ANYWHERE,

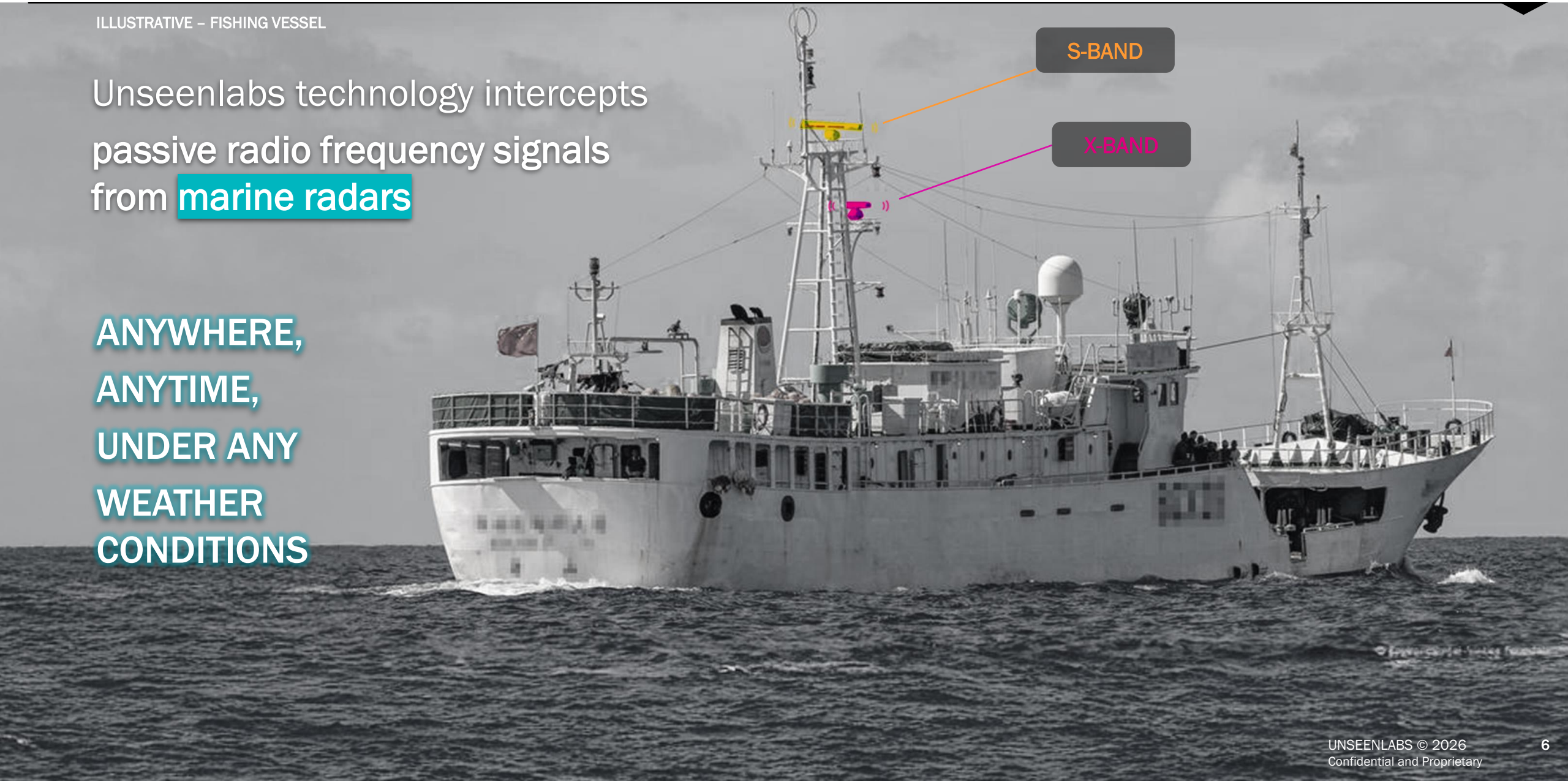
ANYTIME,

IN ANY WEATHER



We detect, geolocate and characterize radio frequency signals

ILLUSTRATIVE – FISHING VESSEL

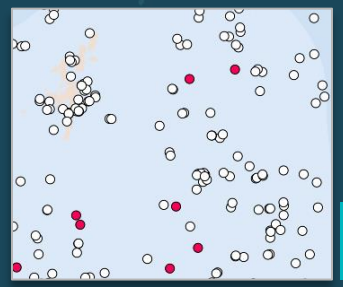


Unseenlabs technology intercepts passive radio frequency signals from marine radars

ANYWHERE, ANYTIME, UNDER ANY WEATHER CONDITIONS

> Space-based RF acts as 1st layer of intelligence on very large areas at sea

ILLUSTRATIVE SIZE REPRESENTATION



RF detection

Optical (1,5 m res.)

SAR (3 m res.)

Currently min. 550 x 550km
60 x 60km for Optical sensors or
50 x 50km for SAR

Source: Optical (SPOT 6/7 standard scene 1.5m resolution) , SAR (RADARSAT 2 Wide Ultra-Fine 3m resolution)

Where SIGINT from space makes the difference

ILLUSTRATIVE – NON-EXHAUSTIVE

Sensor capability: Full | Partial | Limited | Unseenlabs

Surveillance criteria	From Land	From Space			
Sensor	SIGINT (Coastal)	AIS[3]	Optical	SAR[2]	SIGINT[1]
Scan highly **remote areas…**	✗	✓	✓	✓	✓
Covering **very large footprints…**	✗	✓	✗	◐	✓
Under **any weather conditions…**	✓	✓	✗	◐	✓
Achieving **persistent uncooperative targets detections** (AIS OFF)	✓	✗	◐	◐	✓
Capturing a **fraud-proof identification**	✓	✗	✓	✓	✓
Detecting the activity of any emitting object	✓	◐	✗	✗	✓

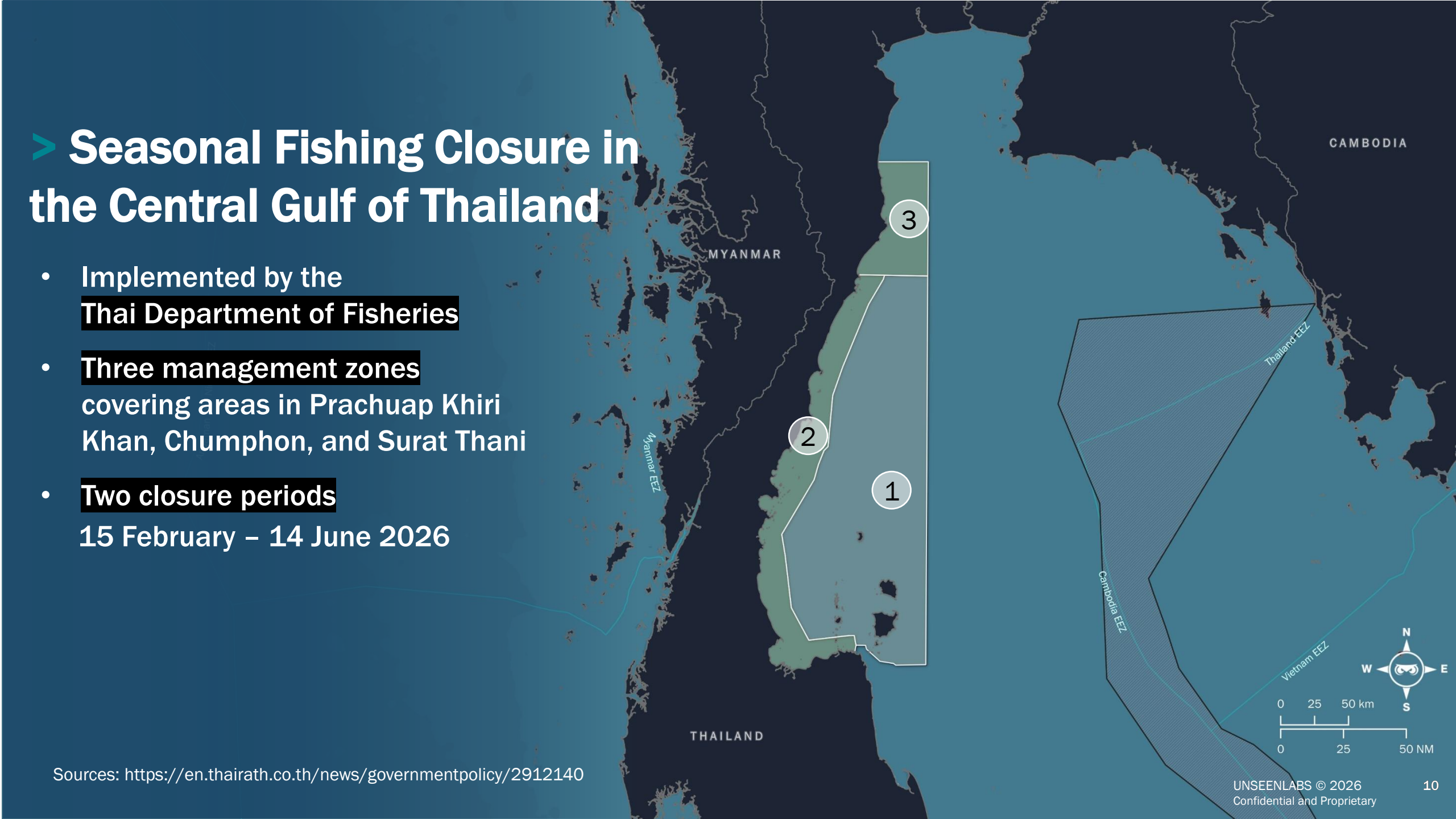
1. Signal Intelligence; 2. Synthetic Aperture Radar; 3. Automatic Identification System
Source: Unseenlabs analysis

SIGINT from space is particularly effective and used **as a 1st layer of information in remote areas to reveal real activities** (incl. uncooperative) **and/or track specific emitters of interest**

> Gulf of Thailand Use case

> Seasonal Fishing Closure in the Central Gulf of Thailand

- Implemented by the **Thai Department of Fisheries**
- **Three management zones** covering areas in Prachuap Khiri Khan, Chumphon, and Surat Thani
- **Two closure periods**
  15 February – 14 June 2026

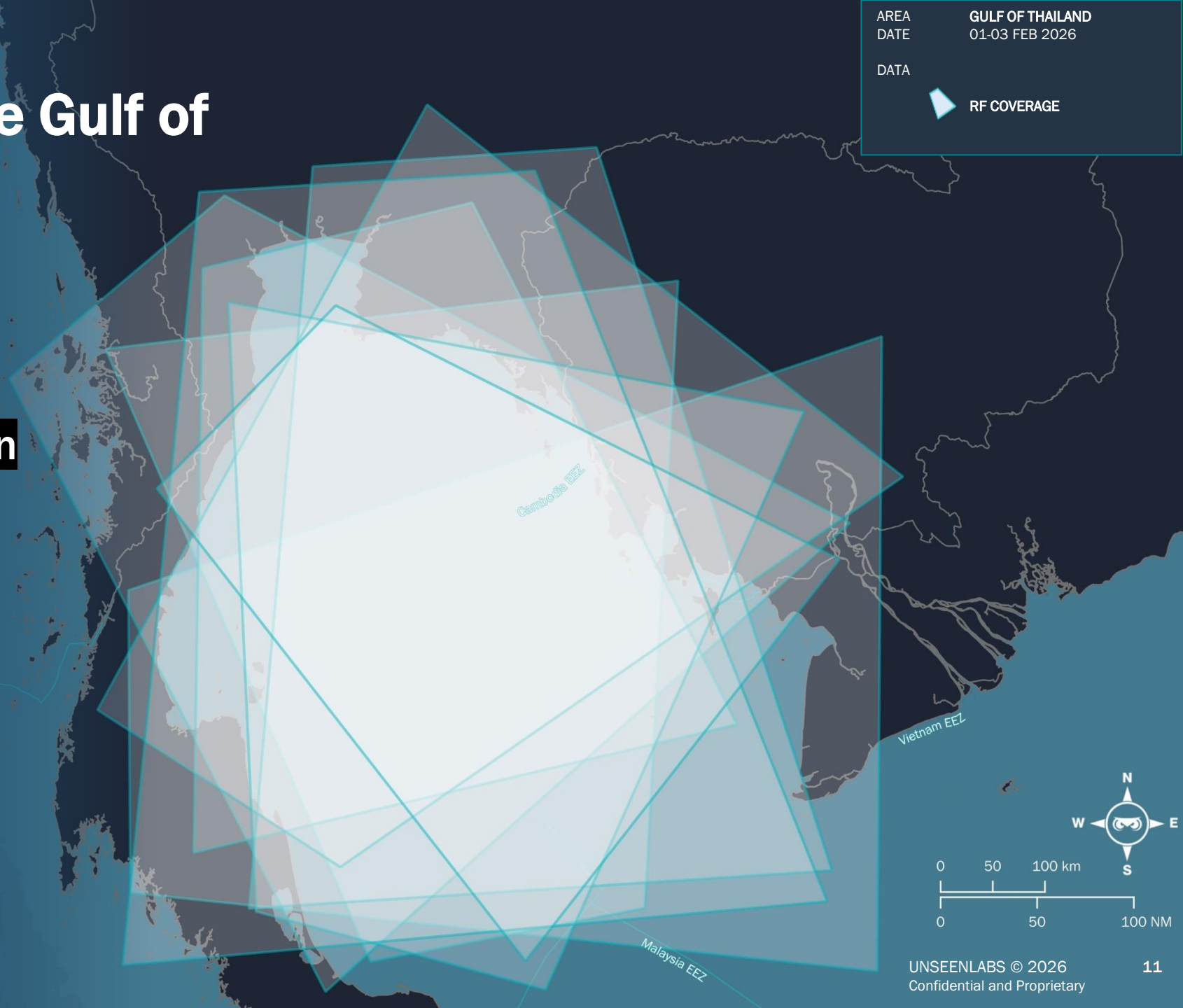


Sources: https://en.thairath.co.th/news/governmentpolicy/2912140

> Data campaign in the Gulf of Thailand

9 data collections
01 to 03 Feb. 2026

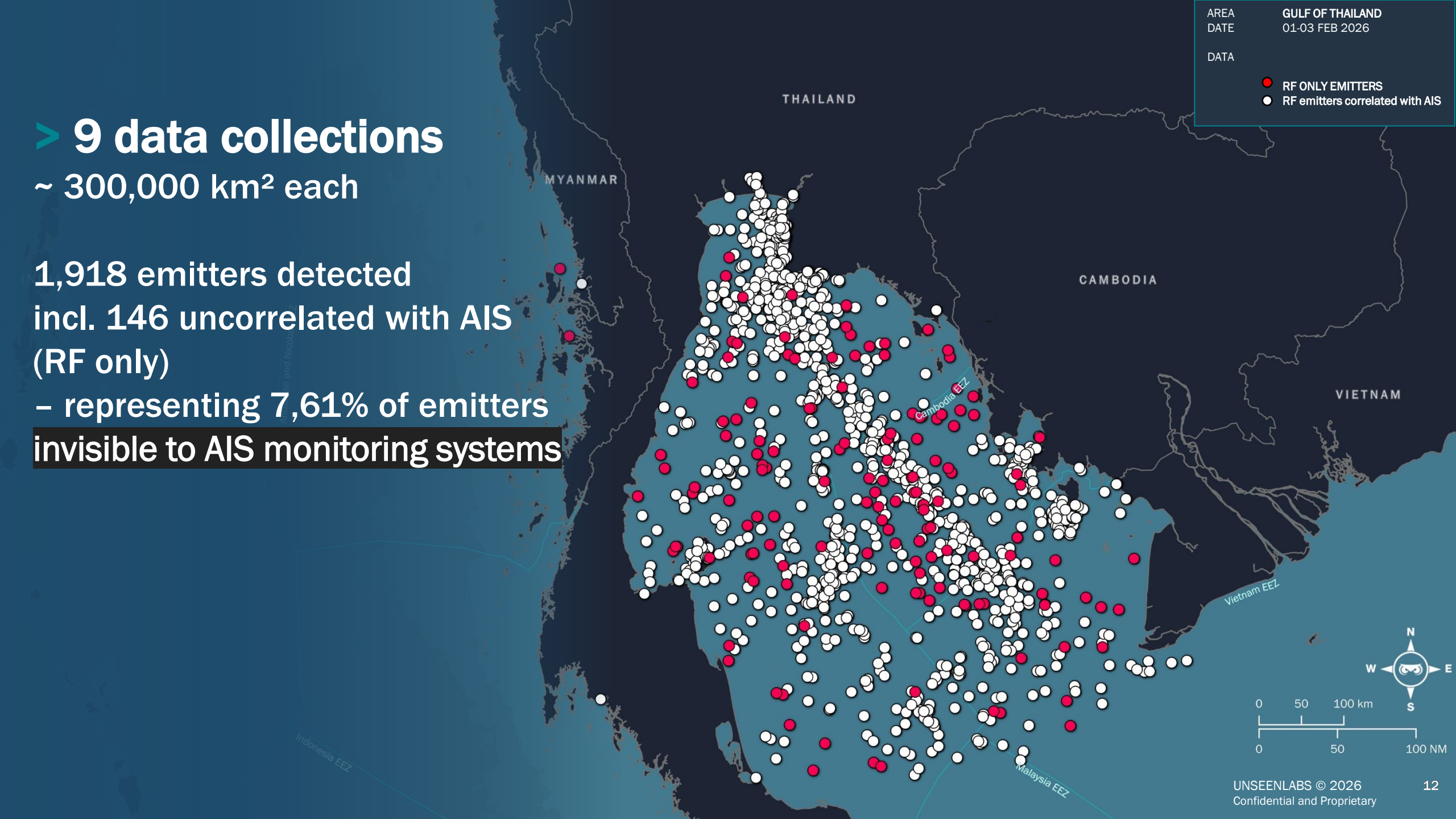
~ 300,000 km² per collection



> 9 data collections

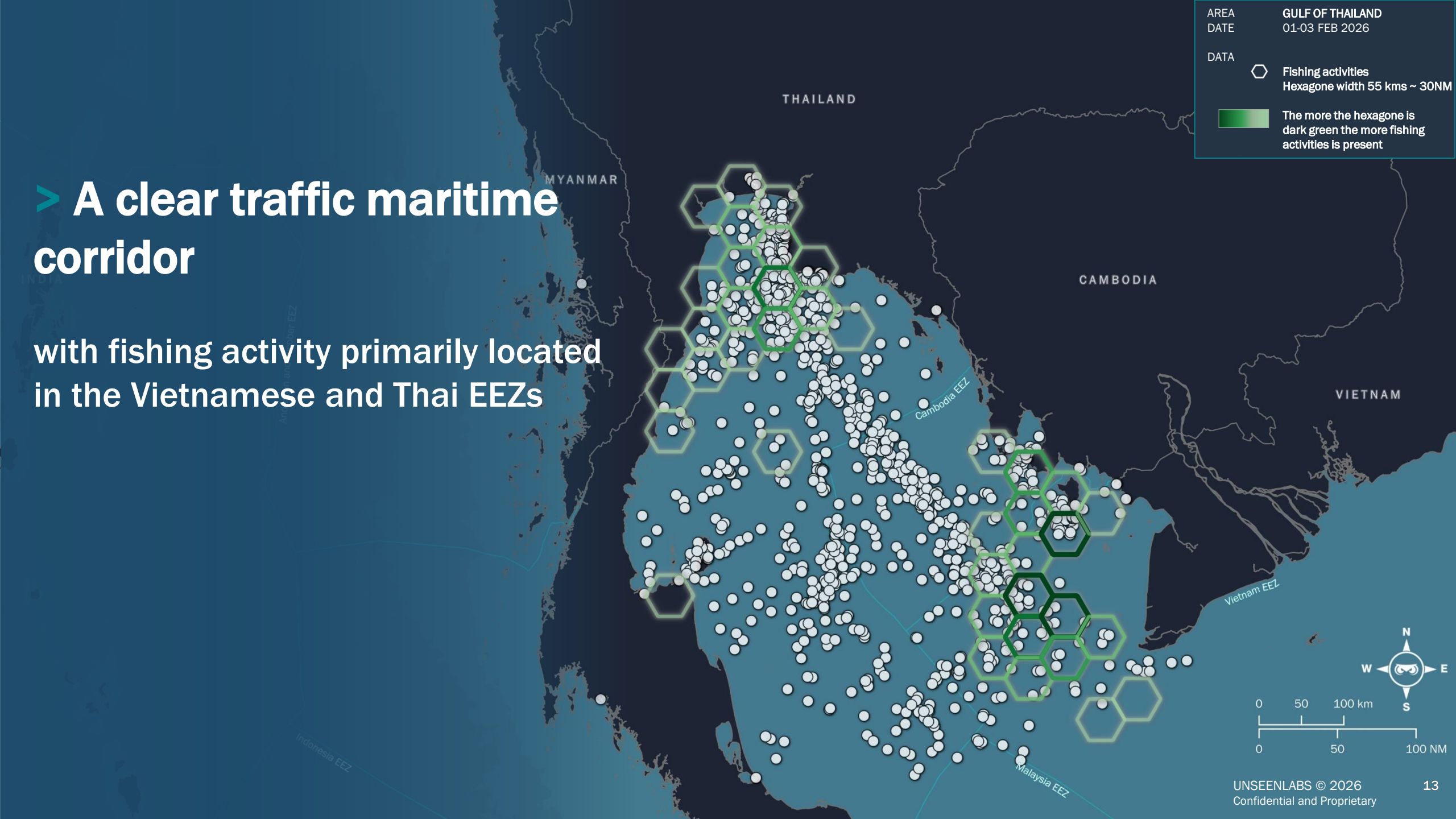
~ 300,000 km² each

1,918 emitters detected
incl. 146 uncorrelated with AIS (RF only)
– representing 7,61% of emitters invisible to AIS monitoring systems



> A clear traffic maritime corridor

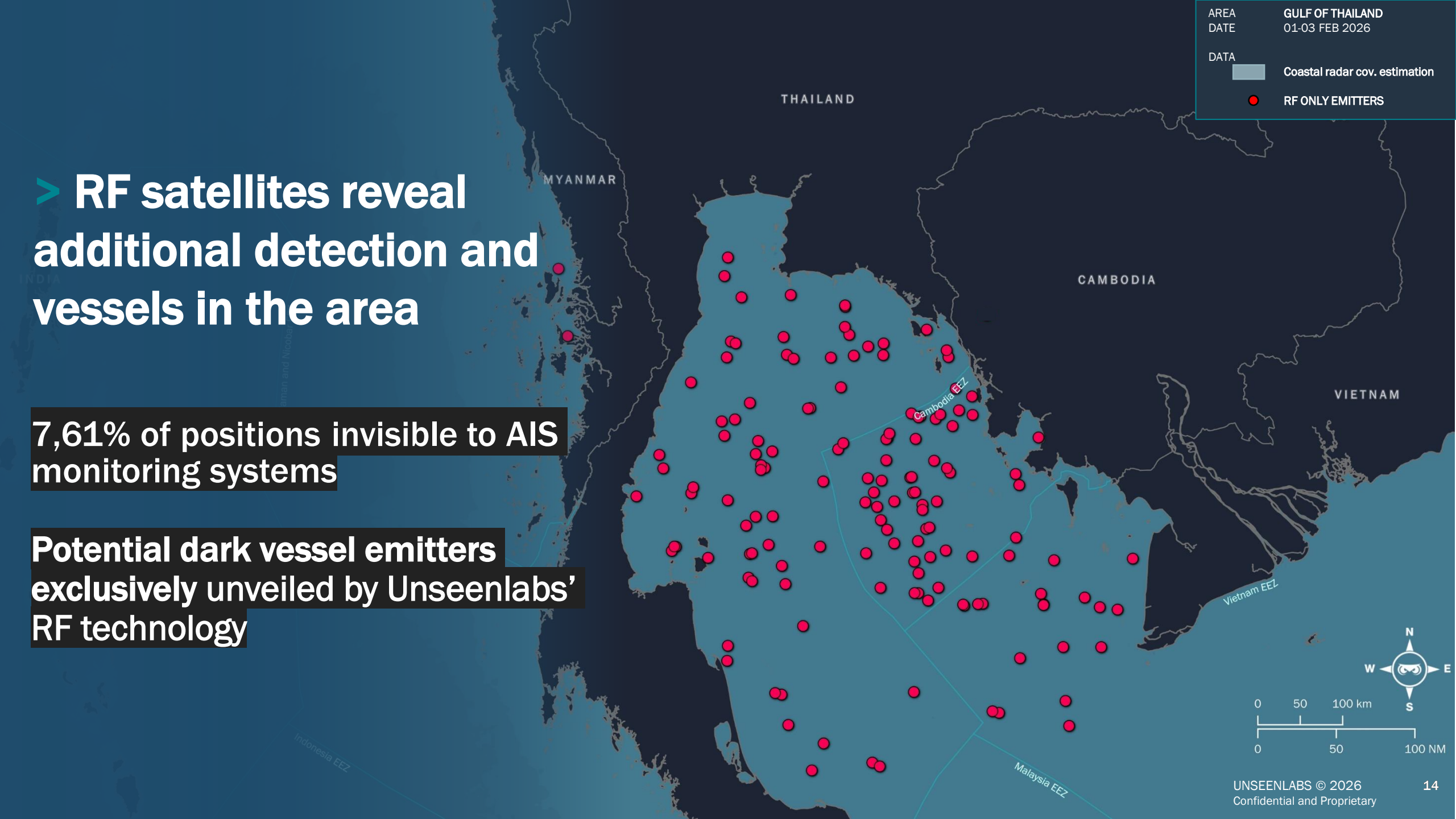
with fishing activity primarily located in the Vietnamese and Thai EEZs



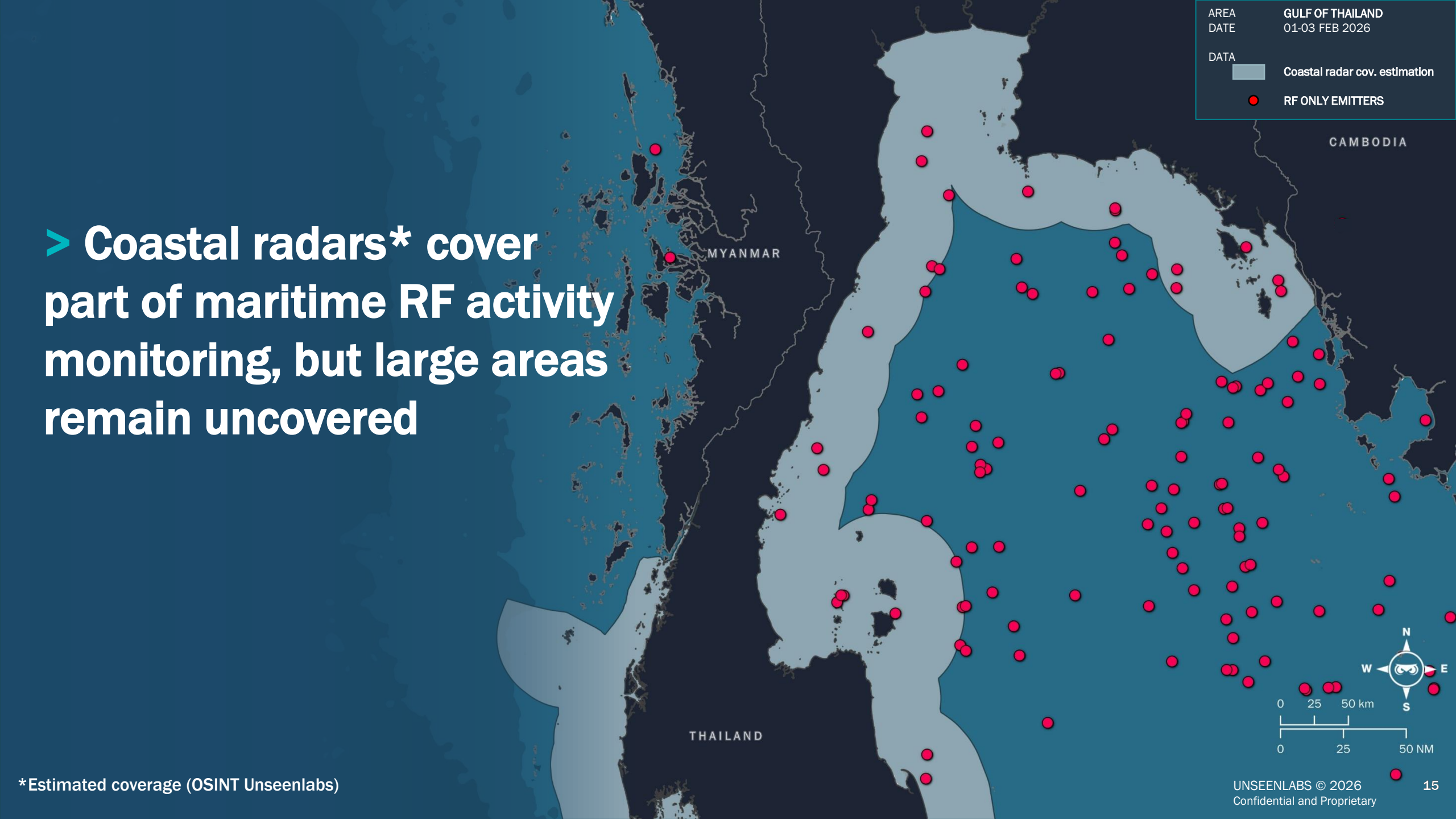
> RF satellites reveal additional detection and vessels in the area

7,61% of positions invisible to AIS monitoring systems

Potential dark vessel emitters exclusively unveiled by Unseenlabs' RF technology



> Coastal radars* cover part of maritime RF activity monitoring, but large areas remain uncovered



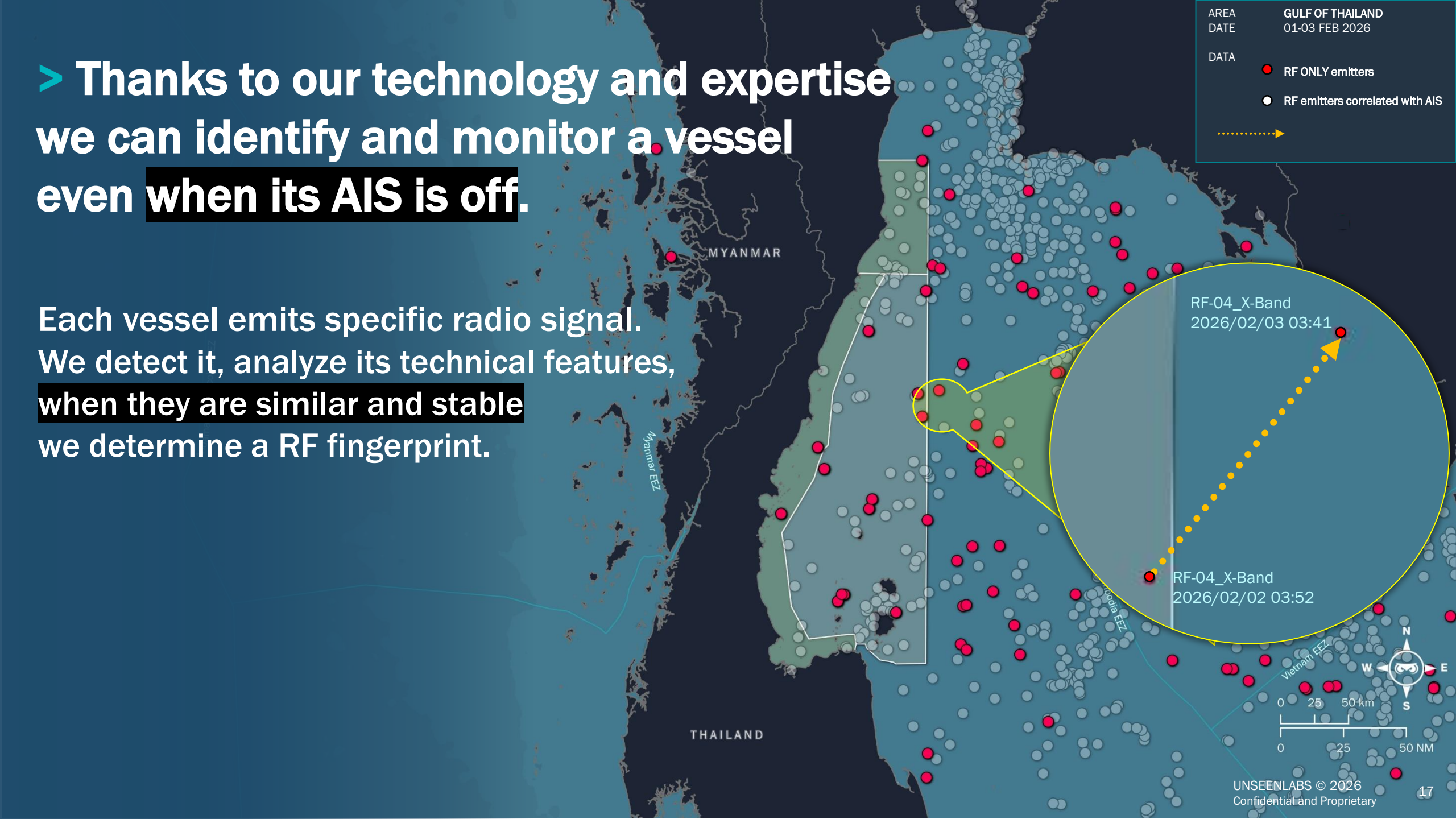
*Estimated coverage (OSINT Unseenlabs)

Focusing on the 3 management zones,
we see that more than
9% of emitters are uncooperative.

Space-based RF area monitoring
fills these coverage gaps,
enabling persistent surveillance
of maritime activity
in key fisheries zones.

> Thanks to our technology and expertise we can identify and monitor a vessel even when its AIS is off.

Each vessel emits specific radio signal.
We detect it, analyze its technical features,
when they are similar and stable
we determine a RF fingerprint.



> By detecting a vessel RF fingerprint and correlating it to AIS information, we can identify and monitor a vessel no matter its size, flag ownership or activities

[RF fingerprint + **AIS correlation**]

=

Vessel identification

Cargo PA PRIX –
MMSI : 352003015

> By detecting a vessel RF fingerprint and correlating it to AIS information, we can identify and monitor a vessel no matter its size, flag ownership or activities

[RF fingerprint + **AIS correlation**]

=

Vessel identification

Fishing TH HOR TAWATCHAI 8 – MMSI : 567254464 detected, tracked & identified

> Based on IUU fishing lists [1] of vessels, we can monitor **specific vessel of interest** even when its AIS is off

FONG KUO NO.819
IMO: 8913992

TYPE	Reefer
FLAG	Panama
IUU fishing	Removed in 2008 in 2 list of vessel of interests[1]
RF DETECTION	3

AREA GULF OF THAILAND
DATE 01-03 FEB 2026
DATA
RF emitters correlated with AIS

CAMBODIA
MYANMAR
THAILAND

RF-06_X-Band
2026/02/02 03:52

RF-06_X-Band
2026/02/02 07:33

RF-06_X-Band
2026/02/01 06:18

N W E S
0 25 50 km
0 25 50 NM

[1] CCAMLR :Commission for the Conservation of Antarctic Marine Living Resources / SEAFO -South East Atlantic Fisheries Organisation

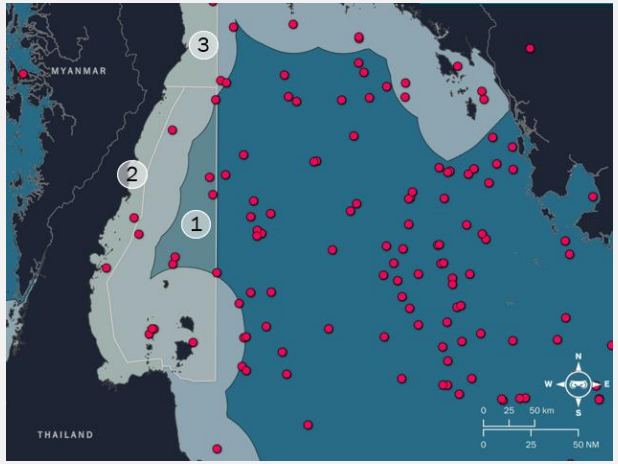
Key Takeaways Strategic Insights & Operational Leverage

A 9-collection campaign revealing 3 key use cases

AREA MONITORING

Monitoring dark vessels

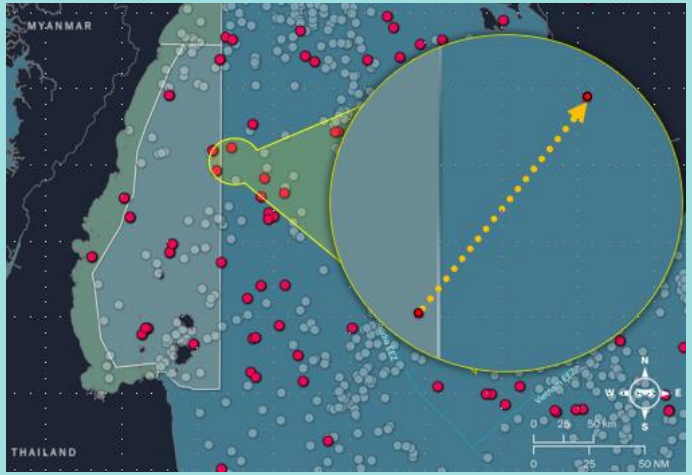
146 uncorrelated emitters representing up to 9% in controlled fishing zones



VESSEL TRACKING

Shadow fleet tracking

Revealing one of the vessels position **even when its AIS is off**



VESSEL INVESTIGATION

IUU fishing vessel monitoring

Revealing **potential sanctioned vessels** positions near strategic zones

> We have an office in Singapore... Let's connect!

Contact Us

5 Shenton Way, #22-04 UIC
Building, 068808, Singapore

agathe.leseur@unseenlabs.fr

@Unseenlabs

www.unseenlabs.com