

◆ SENSITIVE // FOR OFFICIAL USE ONLY ◆

MARITIME INTELLIGENCE DOSSIER

Area of Interest Report — GULF OF KUTCH

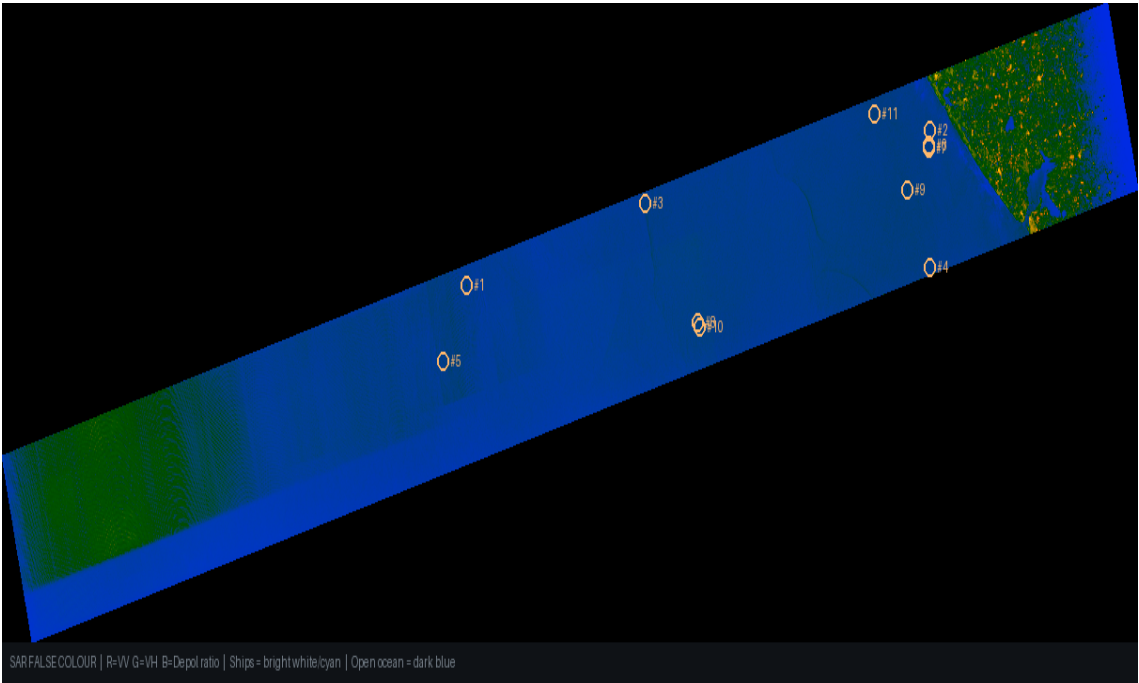


FIGURE 1 — Full-scene SAR false-colour composite. $R=VV \cdot G=VH \cdot B=Depol$ ratio. Circles mark all SAR detections.

MISSION ID	MISSION_GULF_OF_KUTCH_20260624T155807
AOI	GULF OF KUTCH
SCENE TIME	2026-06-24 15:58 UTC
TOTAL DETECTIONS	11
DARK VESSELS	0
UNCERTAIN	11
AIS MATCHED	0

PRODUCED

2026-06-25T05:48:05Z

SECTION 01

Detection Summary

Scene acquired over **GULF OF KUTCH** on **2026-06-24 at 15:58 UTC**. Sentinel-1A IW GRD processed through the Dark Ships 5-phase calibration and YOLO detection pipeline. 11 vessel(s) resolved above confidence threshold.

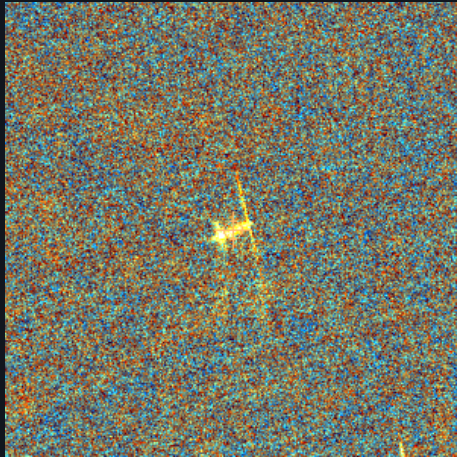
ID	LAT	LON	CONF	STATUS	MMSI
DET-2026062415-GULF-000	21.7538	68.1649	100%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-001	21.9535	69.1672	73%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-002	21.8598	68.5509	57%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-003	21.7778	69.1666	50%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-004	21.6561	68.1155	47%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-005	21.9335	69.1646	43%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-006	21.9309	69.1633	43%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-007	21.7076	68.6651	41%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-008	21.8776	69.1175	40%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-009	21.7011	68.6677	33%	UNCERTAIN (AIS DATA GAP)	—
DET-2026062415-GULF-010	21.9736	69.0471	28%	UNCERTAIN (AIS DATA GAP)	—

SECTION 02

Per-Vessel Intelligence

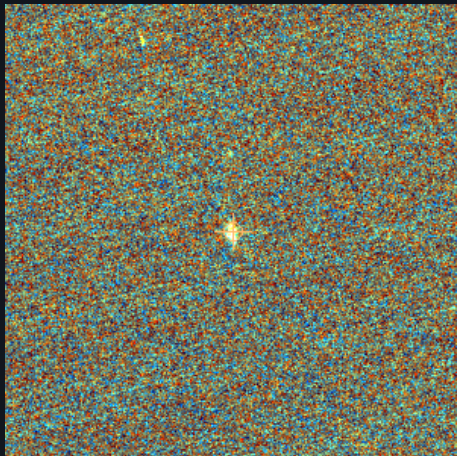
Each vessel card below shows the SAR chip, AIS status, and fused confidence score.

Vessel #1 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-000



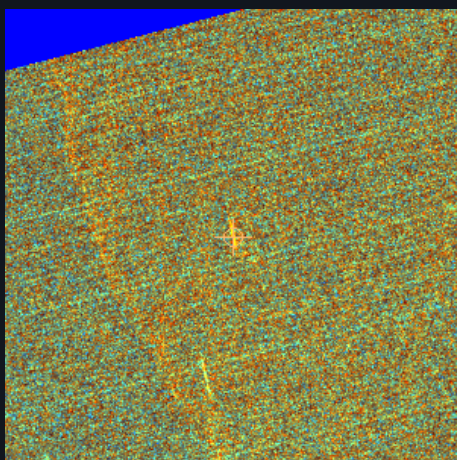
SAR false-colour chip

Lat: 21.7538°N
Lon: 68.1649°E
Conf: 100%
MMSI: —
Det ID:
DET-2026062415-GULF-000

Vessel #2 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-001

SAR false-colour chip

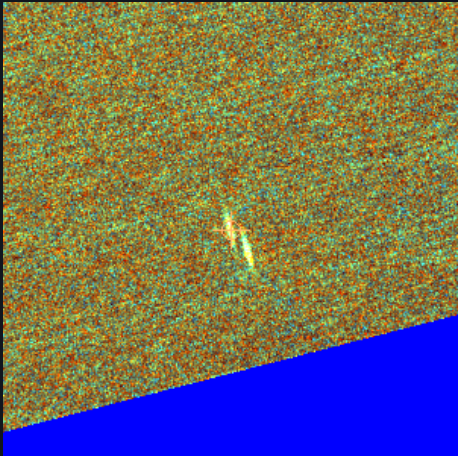
Lat: 21.9535°N
Lon: 69.1672°E
Conf: 73%
MMSI: —
Det ID:
DET-2026062415-GULF-001

Vessel #3 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-002

SAR false-colour chip

Lat: 21.8598°N
Lon: 68.5509°E
Conf: 57%
MMSI: —
Det ID:
DET-2026062415-GULF-002

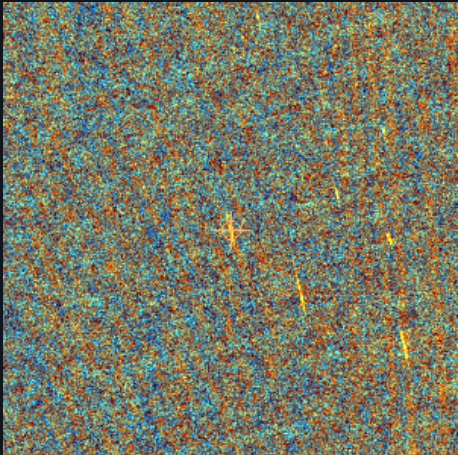
Vessel #4 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-003



SAR false-colour chip

Lat: 21.7778°N
Lon: 69.1666°E
Conf: 50%
MMSI: —
Det ID:
DET-2026062415-GULF-003

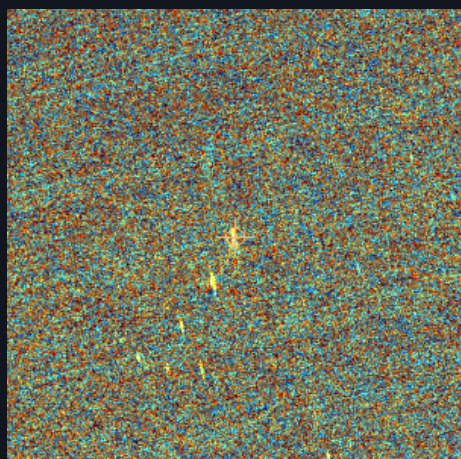
Vessel #5 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-004



SAR false-colour chip

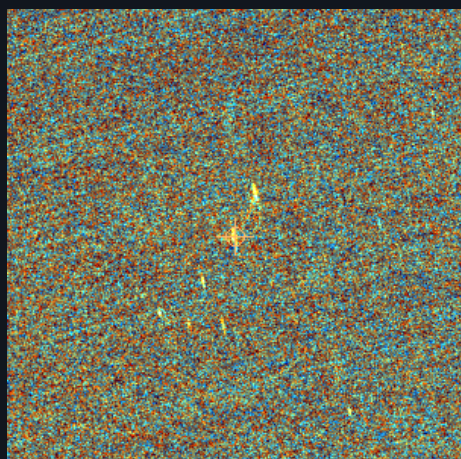
Lat: 21.6561°N
Lon: 68.1155°E
Conf: 47%
MMSI: —
Det ID:
DET-2026062415-GULF-004

Vessel #6 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-005

*SAR false-colour chip*

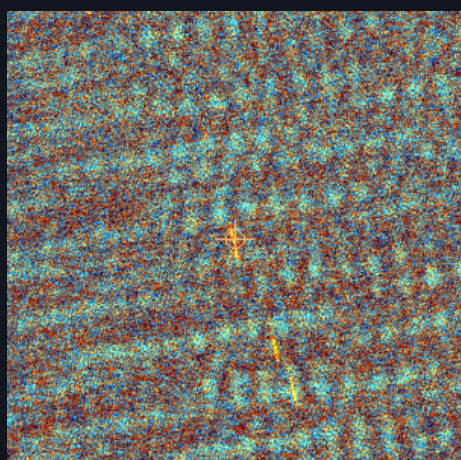
Lat: 21.9335°N
Lon: 69.1646°E
Conf: 43%
MMSI: —
Det ID:
DET-2026062415-GULF-005

Vessel #7 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-006

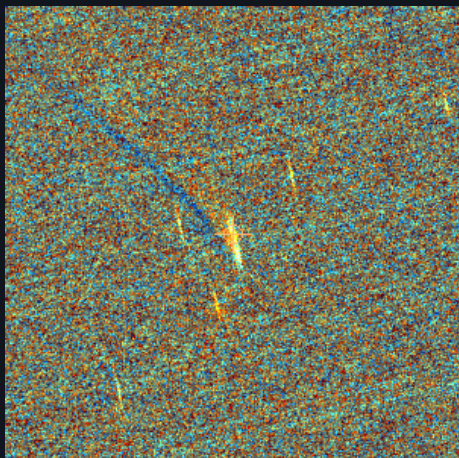
*SAR false-colour chip*

Lat: 21.9309°N
Lon: 69.1633°E
Conf: 43%
MMSI: —
Det ID:
DET-2026062415-GULF-006

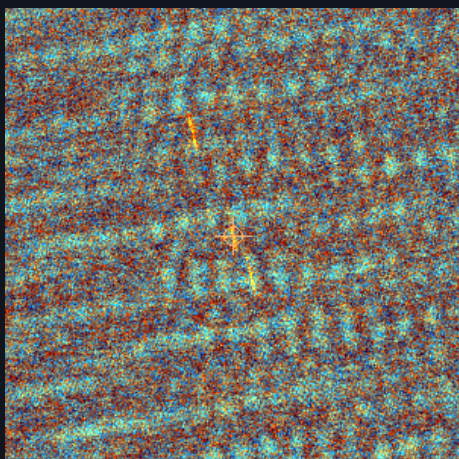
Vessel #8 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-007

*SAR false-colour chip*

Lat: 21.7076°N
Lon: 68.6651°E
Conf: 41%
MMSI: —
Det ID:
DET-2026062415-GULF-007

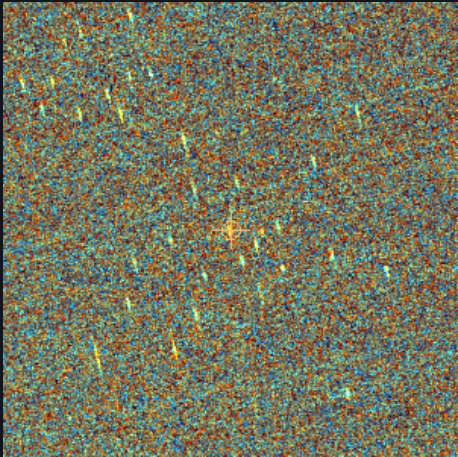
Vessel #9 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-008*SAR false-colour chip*

Lat: 21.8776°N
Lon: 69.1175°E
Conf: 40%
MMSI: —
Det ID:
DET-2026062415-GULF-008

Vessel #10 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-009*SAR false-colour chip*

Lat: 21.7011°N
Lon: 68.6677°E
Conf: 33%
MMSI: —
Det ID:
DET-2026062415-GULF-009

Vessel #11 · UNCERTAIN (AIS DATA GAP) · DET-2026062415-GULF-010



Lat: 21.9736°N
Lon: 69.0471°E
Conf: 28%
MMSI: —
Det ID:
DET-2026062415-GULF-010

SAR false-colour chip

SECTION 03

Technical Methodology & Chain of Custody

ACQUISITION

Sentinel-1A IW GRD downloaded from Copernicus Data Space Ecosystem (CDSE).

CALIBRATION

ESA SNAP GPT 6-step chain: orbit → thermal noise removal → radiometric calibration → multilook → terrain correction (SRTM 1Sec) → dB conversion. Output: Sigma-0 dB GeoTIFF, 10 m GSD.

DETECTION

YOLOv8 ship detector (xView3-SAR + SARFish training set). Conf threshold 0.35. CFAR secondary validation (128×128 guard, 5 dB above local mean).

AIS FUSION

Cross-reference within 2 km / ±30 min of scene midpoint. Dark = no AIS. Uncertain = AIS gap at acquisition time. Matched = confirmed transponder.

FALSE COLOUR

Chip extraction: VV→R, VH→G, (VV-VH)→B, 300×300 px per vessel, 10 m native resolution.

MISSION ID	MISSION_GULF_OF_KUTCH_20260624T155807
REPORT PRODUCED	2026-06-25T05:48:05Z
PIPELINE	Dark Ships v1.0 · Phase 3 Validated (2026-04-13)
VESSELS IN REPORT	11
CLASSIFICATION	SENSITIVE — INTELLIGENCE PRODUCT