



Security

Copernicus Maritime Surveillance

**In-situ Copernicus WG on
Geospatial Data meeting
14 November 2023**



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Implemented by



European Maritime Safety Agency

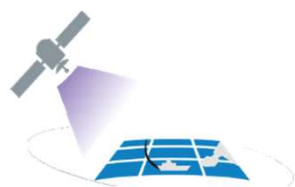


Security

EMSA Earth Observation Services

EMSA EO services

EMSA User communities



CleanSeaNet



**Maritime
Surveillance**



**Border
control**



**Emergencies - Coast
Guard Cooperation**

SATELITE MISSIONS



SAR

SENTINEL-1A
PAZ 1
TERRASAR-X
TANDEM-X
RADARSAT-2
ICEYE



OPTICAL

GEOEYE-1
PLEIADES 1A and 1B
WORLDVIEW-1, 2 and 3
SPOT 6

SERVICE PROVIDERS



SAR

KSAT
CLS
EGEOS
EDISOFT



OPTICAL

AIRBUS/EUSI
KSAT
EDISOFT

EO DATA CENTRE



DELIVERY TO USERS VIA:
WEB PORTAL
MOBILE APP
SYSTEM TO SYSTEM
ALERTS AND
NOTIFICATIONS



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Security

Copernicus Maritime Surveillance

CMS Overview

EMSA has been the Entrusted Entity for the Copernicus Maritime Surveillance (CMS) security service since 2015. This implementation is done on behalf the European Commission (**DG-DEFIS**) and currently established through a Contribution Agreement, with an envelope of EUR 73 million, that defines the activities and the budget for the **period between 2021 and 2027**, with 2028 as transition year before a possible new agreement is signed.



MARITIME SAFETY



MARITIME SECURITY



LAW ENFORCEMENT



CUSTOMS



MARINE POLLUTION
MONITORING



FISHERIES CONTROL



INTERNATIONAL
COOPERATION



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CMS Community

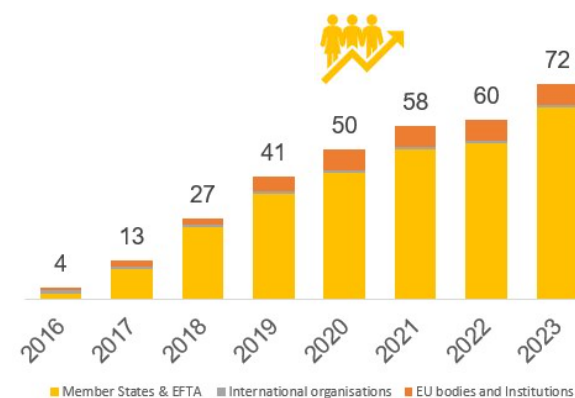


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2023

- 64 National Administrations (All EU Coastal States & EFTA)
- EFCA
- EUROPOL
- MAOC-N
- EMASOH
- EUNAVFOR ATALANTA
- EUNAVFOR IRINI
- EEAS(*) and UNODC(*)





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SAR DATA

QUASI REAL TIME* DELIVERY (20') TO USERS



Barcelona, Spain - TSX ST © DLR e.V. 2019, Distribution Airbus Defence and Space GmbH

OPTICAL DATA

NEAR REAL TIME* DELIVERY (30') TO USERS



Ponta Delgada - Azores, Portugal - WV2 © 2018 European Space Imaging/DigitalGlobe, a MAXAR company



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(*) Depending on acquisition size and value added products



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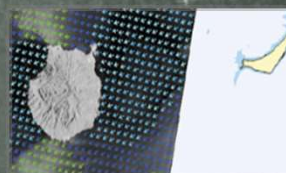
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Quasi real time - products extracted from satellite data

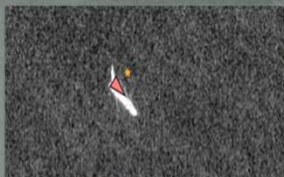
Satellite image



Wind and wave



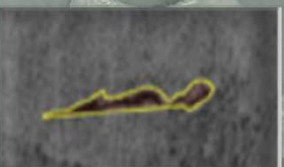
Vessel Detection



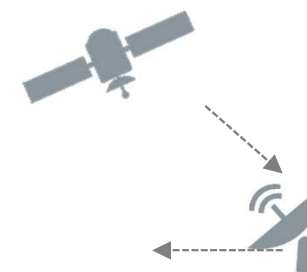
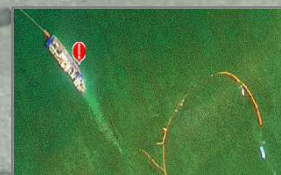
Feature detection



Oil spill Detection



Activity detection



20 minutes after satellite acquisition(*)

Information is delivered to Copernicus maritime Surveillance users via Secure web interface



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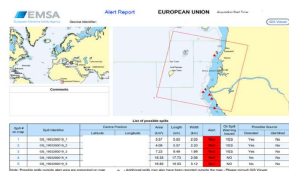


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Fusion products

Oil spill Alert reports



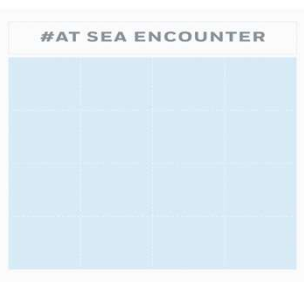
Vessel traffic correlation



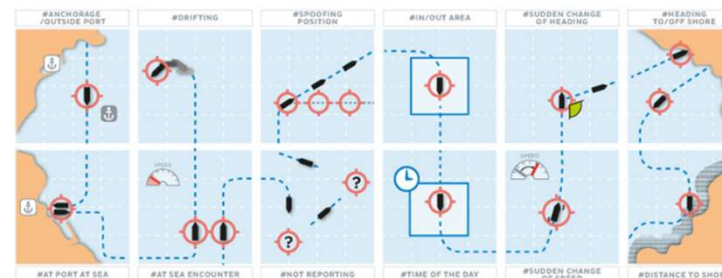
Dark Vessels Detection



Automated Behaviour Monitoring algorithms



DATA PROCESSED BY EMSA INFORMATION SERVICES
(activities on 27/09/2021)



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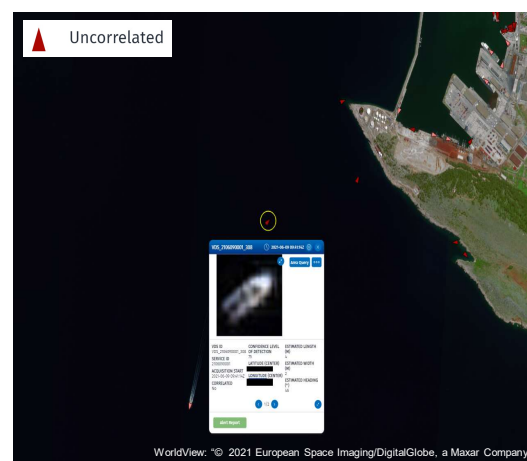
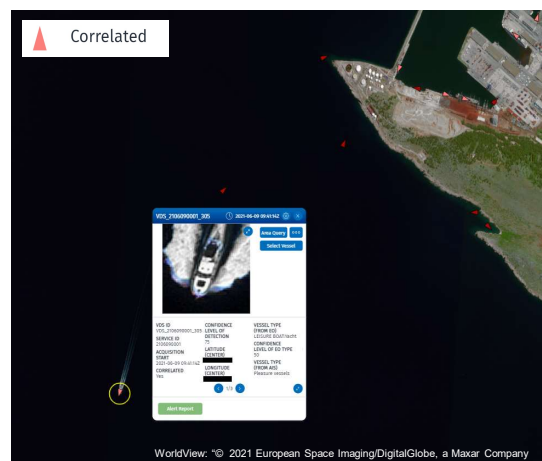


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Identification of non-reporting / non-cooperative targets (dark vessels)

- Vessel detections derived from SAR and Optical images are correlated with vessel traffic information.
- Using EMSA systems, the user will have an overview of which vessels are reporting and which are not.



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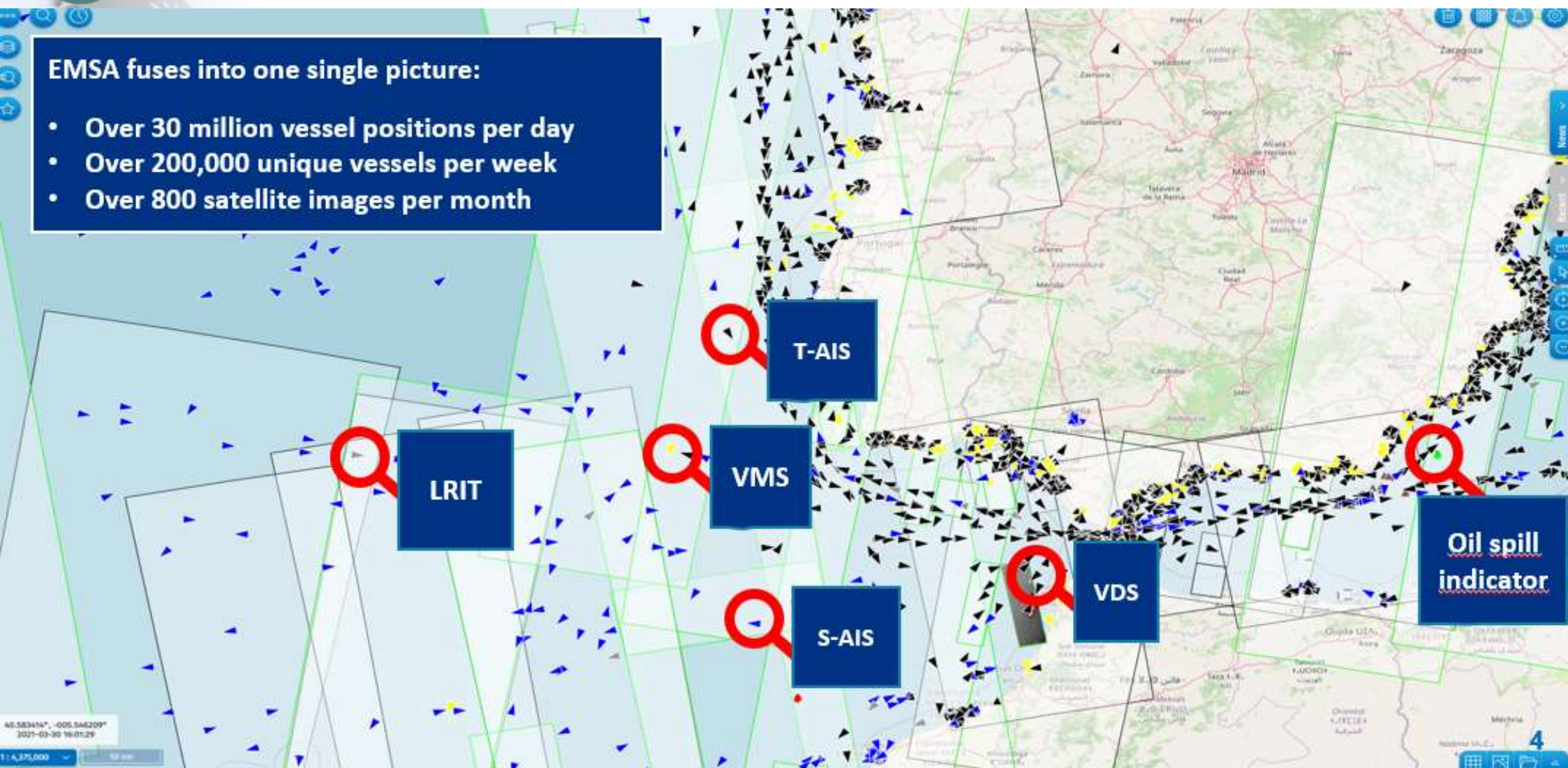




Maritime Domain Awareness

EMSA fuses into one single picture:

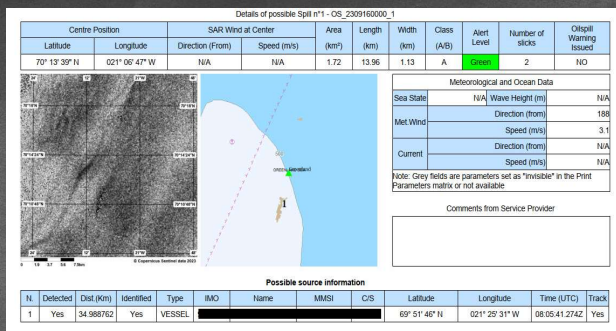
- Over 30 million vessel positions per day
- Over 200,000 unique vessels per week
- Over 800 satellite images per month





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Arctic Monitoring

CMS contributes to the protection and preservation of the environment, a key pillar of the EU's Arctic policy, with support being provided to Danish authorities (JACO) with dedicated monitoring over Greenland waters.

The area monitored in the arctic is, with over 2 million square kilometres in total and a coastline that's more than 44 thousand kilometres long. The ecosystem in the region is extremely vulnerable to pollution with significant environmental risks in what concerns impacts to the marine environment.

CMS provides quasi-real-time images and added value products allowing Danish authorities to swiftly monitor and assess any potential pollution incidents in the area.

Moreover, Greenland – and the Arctic as a whole – is experiencing increased ship traffic. This presents challenges for safety of navigation and search and rescue activities. EO products provided by CMS to governmental authorities bring significant value to operations, optimize surveillance efforts and leverage EU's commitment for a peaceful, sustainable, and prosperous Arctic.

© European Maritime Safety Agency, contains modified Copernicus Sentinel-1 data, (2023)



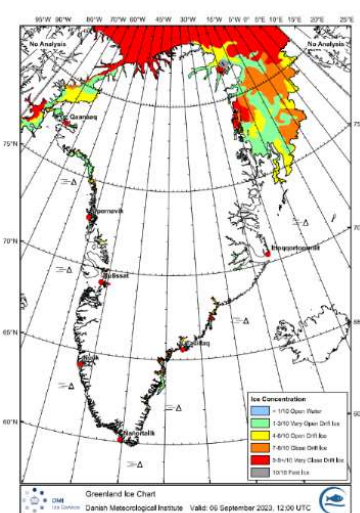
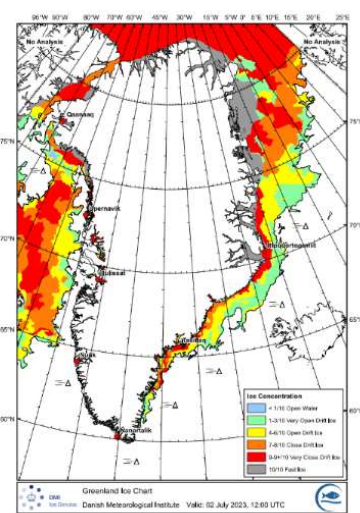
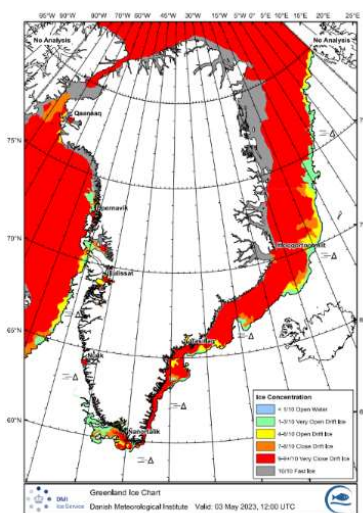
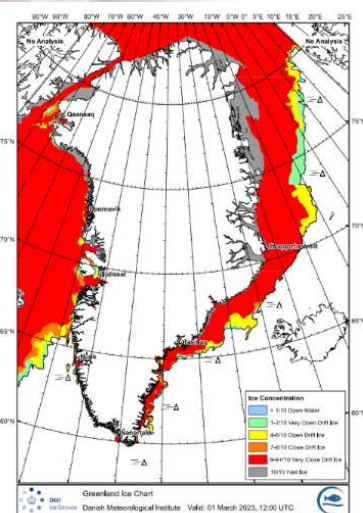
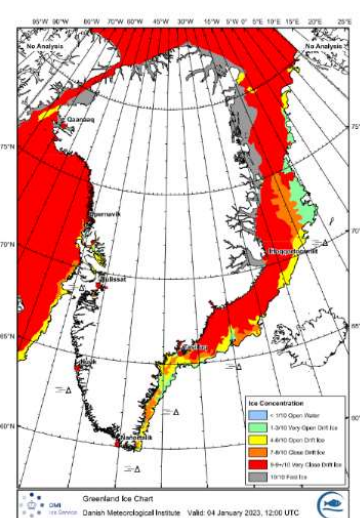
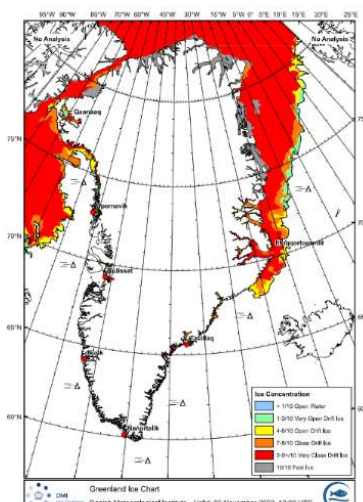
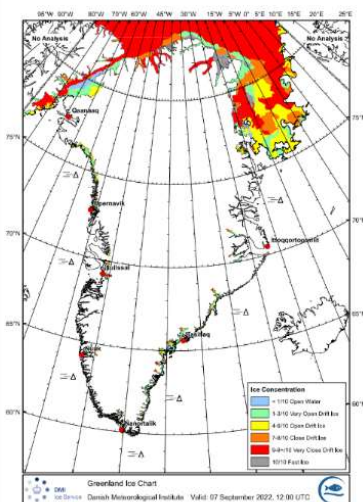
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Secure



Source: Denmark Joint Arctic Command





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Source: Denmark Joint Arctic Command



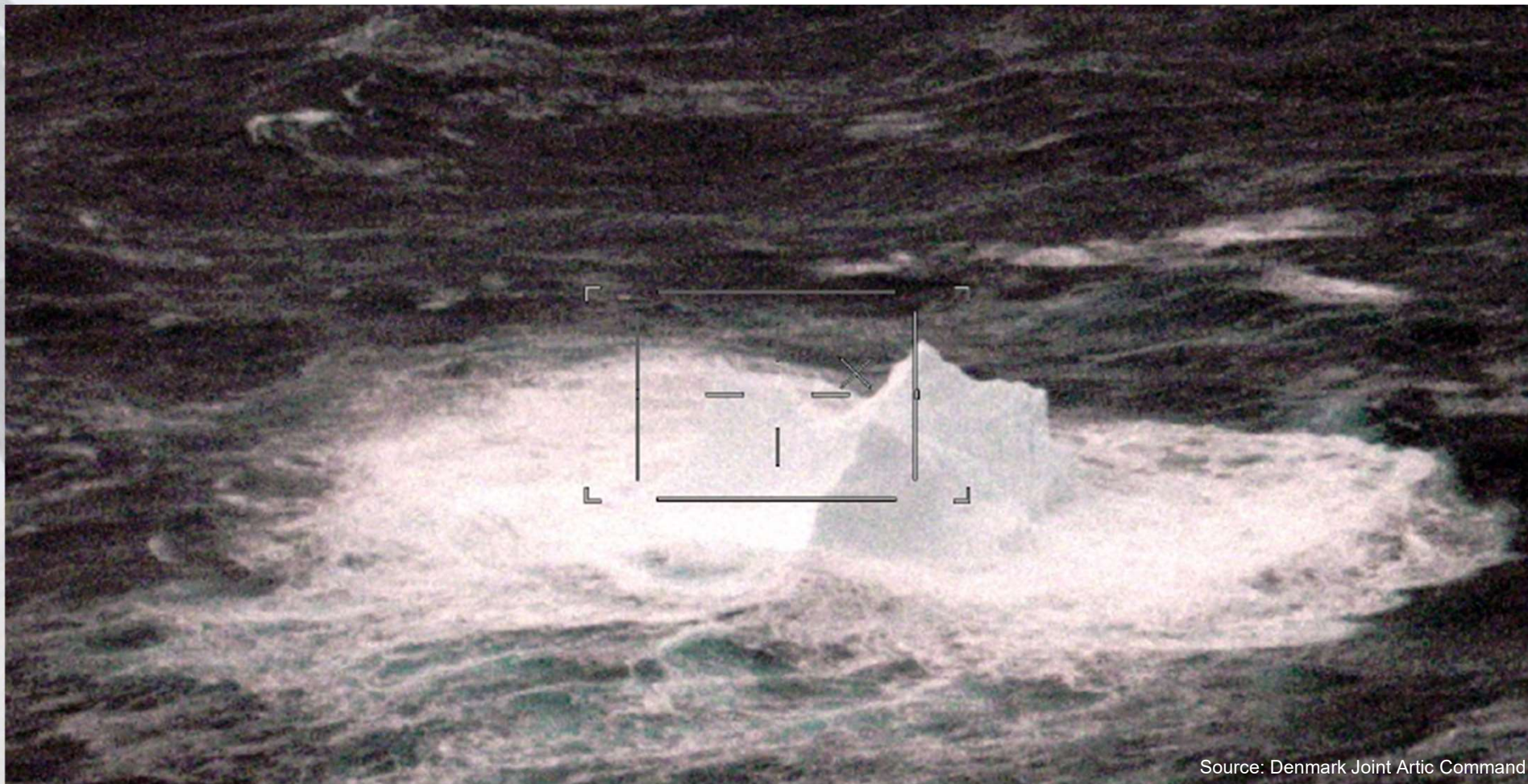
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Source: Denmark Joint Arctic Command



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