

# CMS IN SUPPORT OF ICELANDIC COAST GUARD FUNCTIONS

CMS User Group Meeting  
9 October 2018

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Cooperation, Arctic Security Cooperation, Search and  
Rescue, Law Enforcement, Marine Environmental  
Response, Nordic Countries Liaison Officer*



LANDHELGISGÆSLA ÍSLANDS  
ICELANDIC COAST GUARD



# SUPPORTED FUNCTIONS

- **Maritime Safety and Security**
- Law Enforcement
- Fisheries Control
- Customs Support
- Protection of the Marine Environment







# AREA OF RESPONSIBILITY

## **TERRITORIAL WATERS:**

12 nautical miles

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## **EXCLUSIVE ECONOMIC ZONE:**

200 nautical miles

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## **SEARCH & RESCUE REGION**

### **ICELAND SRR:**

1.9 million km<sup>2</sup>

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# ACTIVITY AND REQUIREMENTS

**FISHING GROUNDS  
AND CLOSURES**

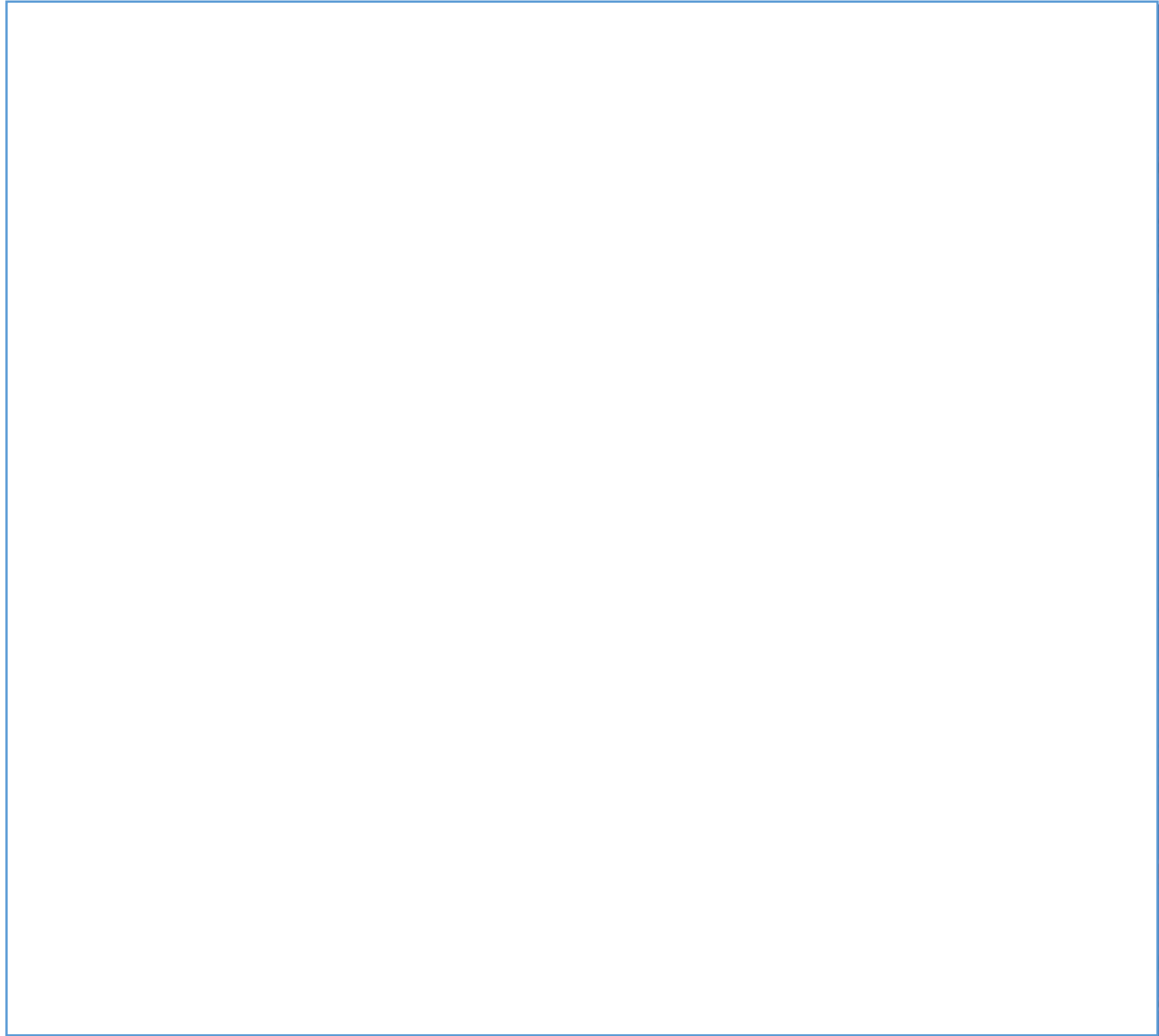
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**COMMERCIAL  
TRAFFIC**

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**PLEASURE CRAFTS  
RESEARCH VESSELS  
FOREIGN STATE VESSELS  
ICEBERGS**

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# OVERVIEW OF ACQUISITIONS

KML file gives a good overview of ordered EO scenes.

Higher resolution near shore with better weather conditions (6/15 m)  
App. 500/900 nm<sup>2</sup>

Lower resolution off shore (50 m)  
⇒ Larger area  
App. 70x80 nm (5.600 nm<sup>2</sup>)



# CHAIN OF ACTION

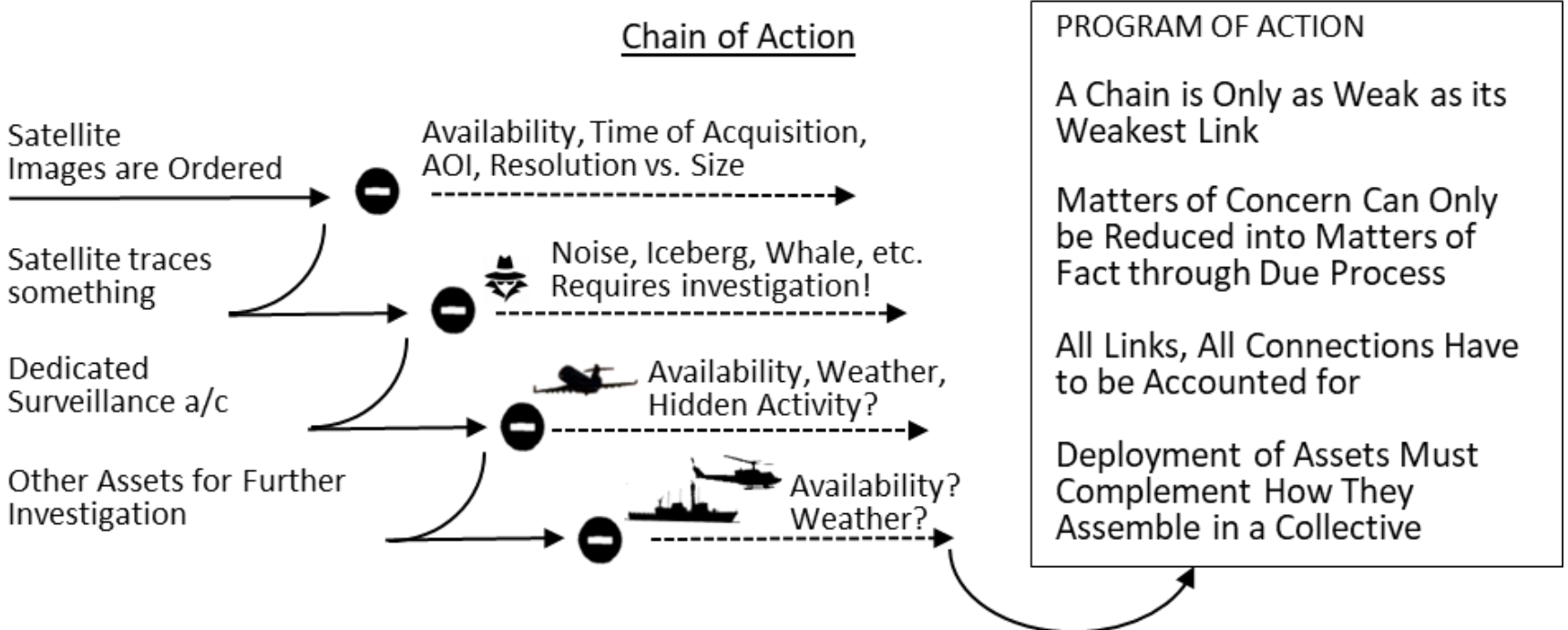


Fig. Inspired by Bruno Latour,  
On Technical Mediation, 1994



# CHAIN OF ACTION

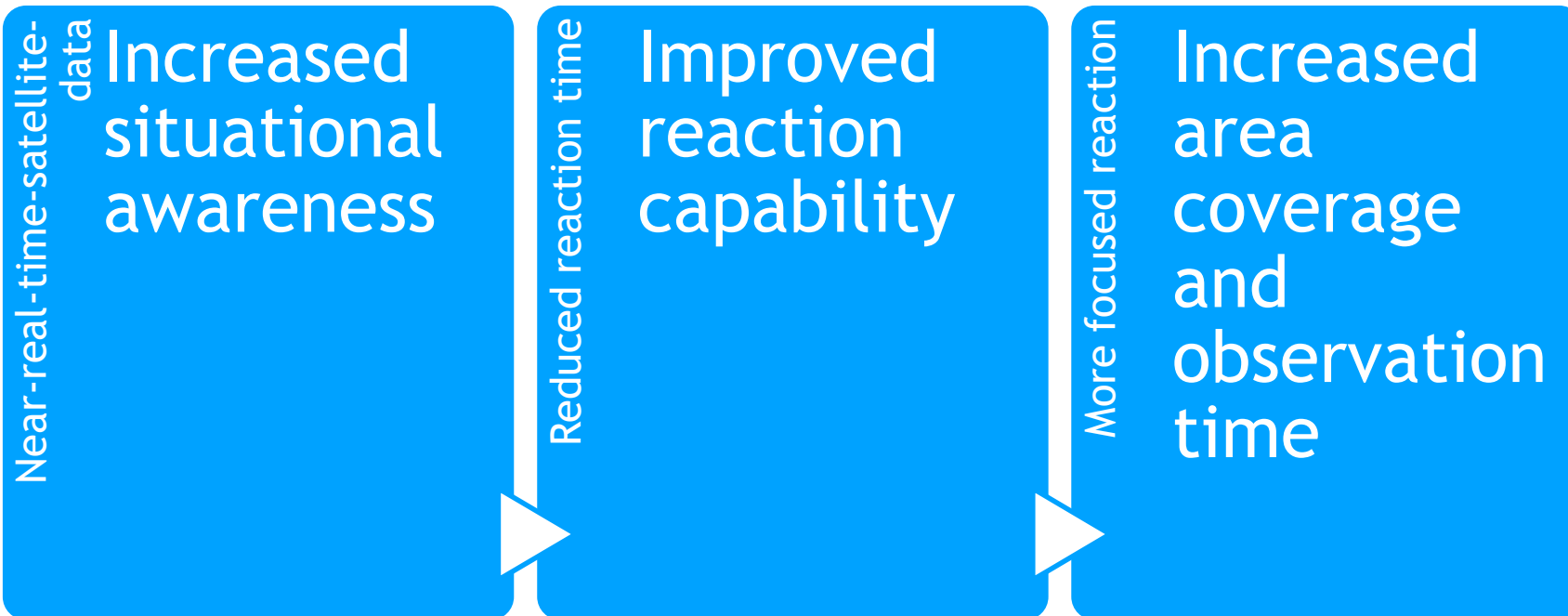
## Earth Observation Services

Data from Earth Observation satellites offer a unique view of our oceans, seas, and coasts. Satellites, and their on-board sensors, provide routine, **cost effective**, reliable and wide area maritime surveillance. Alternatively satellites can be pointed to a targeted location for monitoring specific operations or to gather data in response to intelligence information. Satellites have access to remote areas, are independent of air traffic control and need no permission to fly, in comparison with traditional manned aircraft and [Remotely Piloted Aircraft Systems \(RPAS\)](#). These characteristics are extremely important considering that this information is used for coordination and support of on-scene assets, such as patrol vessels and aircraft.





# CHAIN OF ACTION



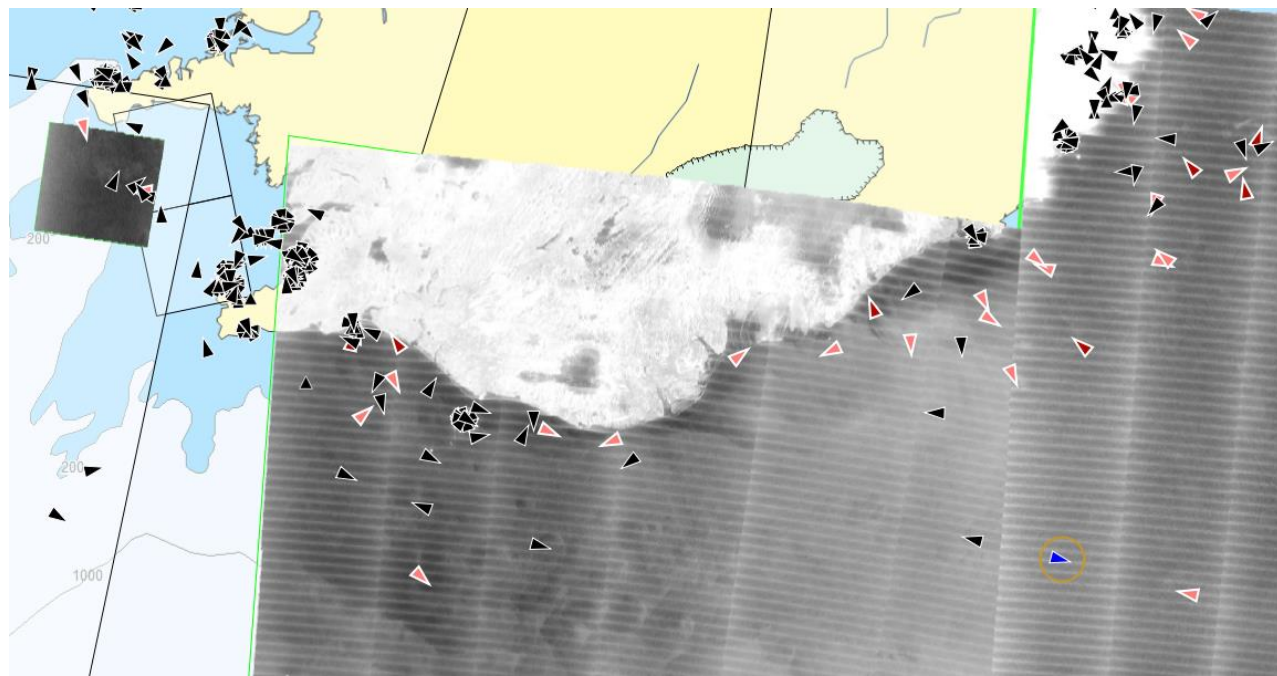




## DELIVERY APPROACH:

SafeSeaNet Ecosystem  
Graphical User Interface  
(SEG)

- End users: Coast Guard, Transport Authority, Environment Agency
- Where? Operations Centre, Operations Department, Flight Department, on board ICG vessels.
- GUI System Benefit: Operational users direct use.
- Service Requests Submissions: Regularly adapted to specific needs.
- System development and Improvements: Evaluation and feedback for each operation.





# IN-SITU VERIFICATION



## Image

August 24

Service: IMS\_Customs

Sensor resolution: small boats

## Uncorrelated target

Estimated length 31 m

Confidence level 75%

## In situ detection

Dead whale found

Danger to ships traffic





# IN-SITU VERIFICATION



## Image

June 1

Service: IMS\_Fisheries

RADARSAT-2

Sensor resolution: medium size vessels

## Value added product

Uncorrelated target

Estimated length 63 m

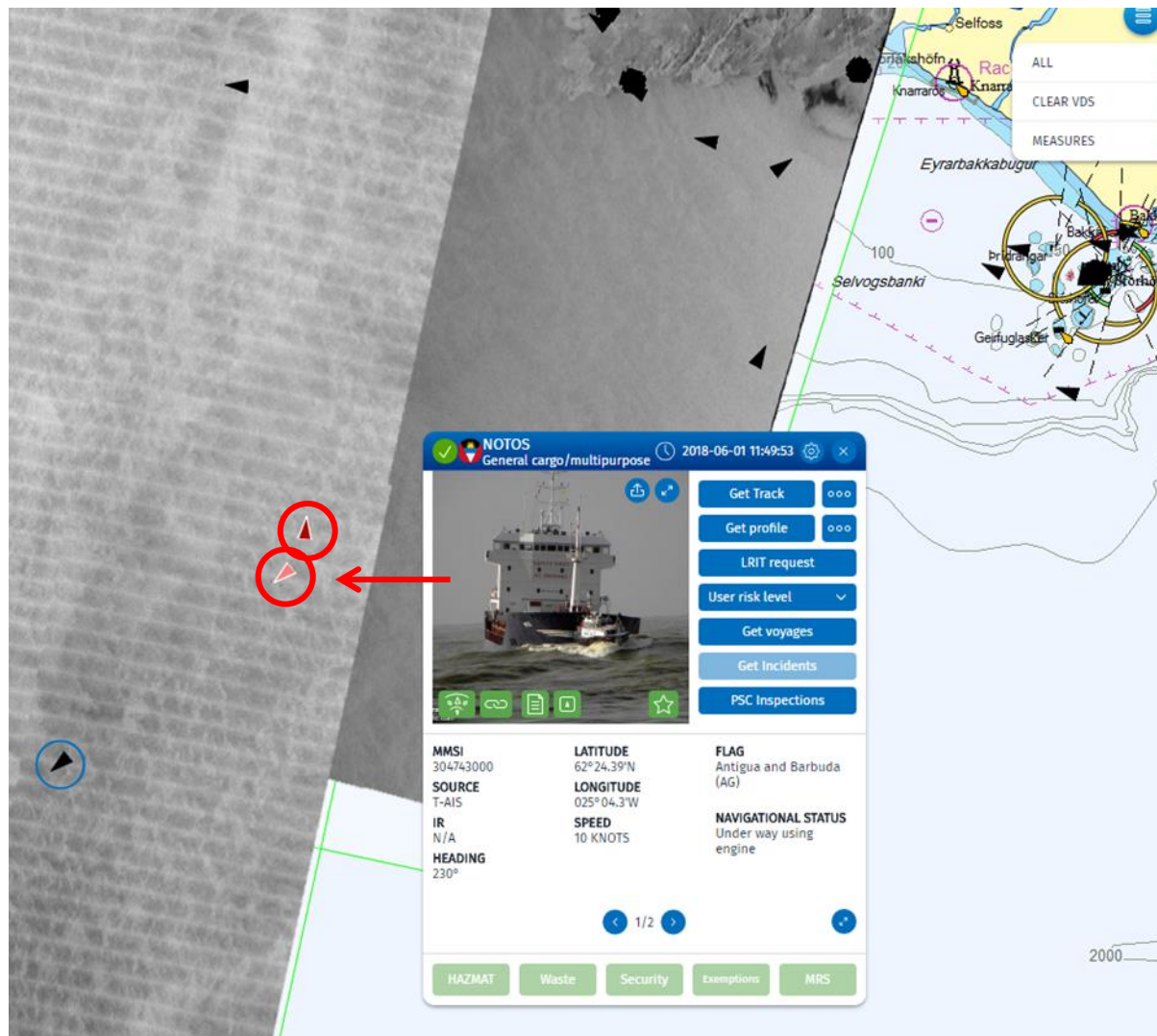
Confidence level 100%

Surveillance a/c diverted

In situ detection

Foreign state fishery survey vessel

Actual length 76 m







# MARITIME SAFETY

## Images

September 10

Service: IMS\_LAW and CLEANSEANET

Satellites: RADARSAT and SENTINEL

Sensor resolution: medium

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## Uncorrelated targets

Estimated length 100 - 170 m

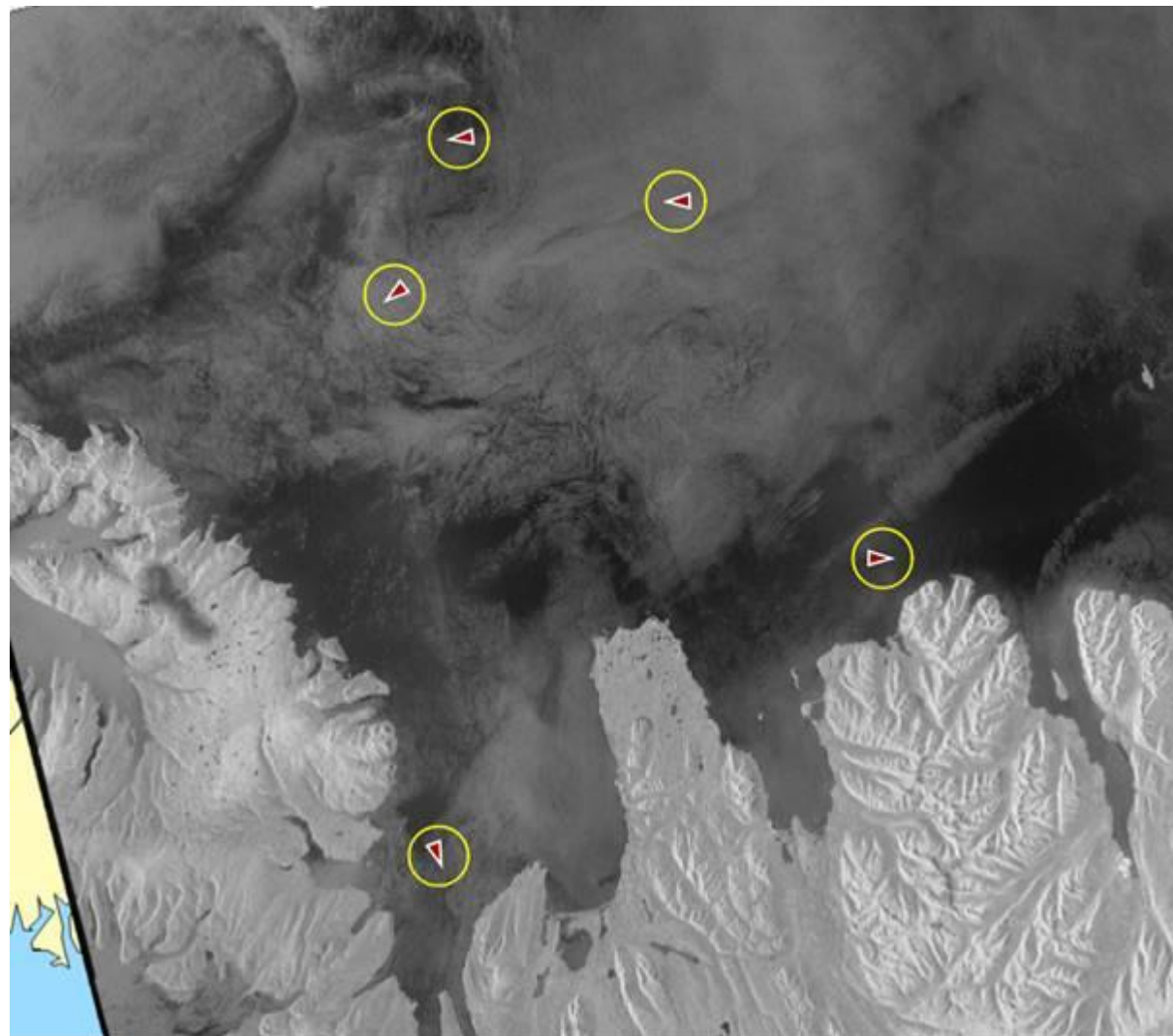
Confidence level 30% - 100%

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## Icebergs

Cost-effective way to detect  
icebergs being a hazard to navigation

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# MARITIME SAFETY

Automatic Identification System (AIS) turned off covering-up other deficiencies

If no AIS - no alarms are received due to deficiencies related to:

Lack of Crew registrations

Expired seaworthiness certificate

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Specific case related to non transmitting vessel:

- 33 pax. too many on board
- Lacking crew registrations
- Not fully manned
- Did not report leaving harbour
- Did not report number of persons on board
- Seaworthiness certificate was expired
- The coast guard managed to stop the vessel and charge the captain

In this example the coast guard got a tip but the point is that satellite imagery might help us detect these bad eggs



# SEABED CONSTRUCTOR

- Multi-Purpose Offshore Construction Vessel searching for valuable minerals in the WWII merchant vessel „Minden“ in 2017
- A permit for marine research was not applied for until its operation had been investigated by the coast guard.





# YANTAR



- June 2016 – ICG MSA spots the Russian research vessel Yantar south of Iceland.
- Operated by the Russian Navy.
- Operates down to 6000 m.



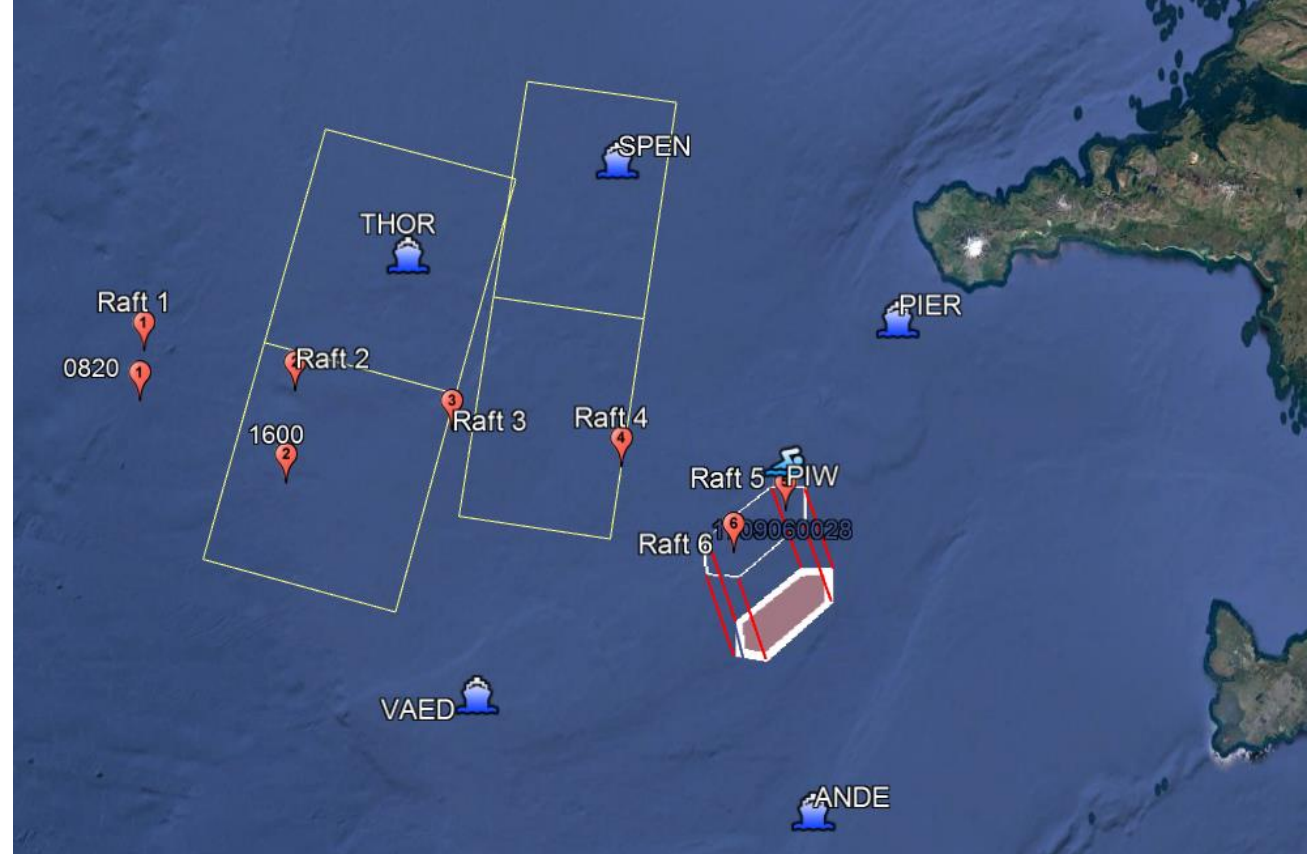




# OPTICAL IMAGE

In support of search operation during ACGF exercise “Arctic Guardian”

- Resolution <1m
- Short notice
- Life-raft search
- Cancelled due to cloud cover







# FEEDBACK EX

July 2018

Test of the IMS\_CUSTOMS  
image

(sensor resolution 7,7 m)

FRB with length of 8 m, was  
not detected

FALSE NEGATIVE?



823



2018-07-31 07:12:35

Satellite: RADARSAT-2

OT 49

THANK  
YOU!

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