





# WE CONNECT SPACE AND **EARTH**



Rolf Skatteboe

President and CEO



# **We Connect Space and Earth**

KSAT is the leading provider of Ground Network Services and Earth Observation Services

HQ in Tromsø, Norway, 450 Employees

Branches in Svalbard, Oslo, Stockholm and Colorado



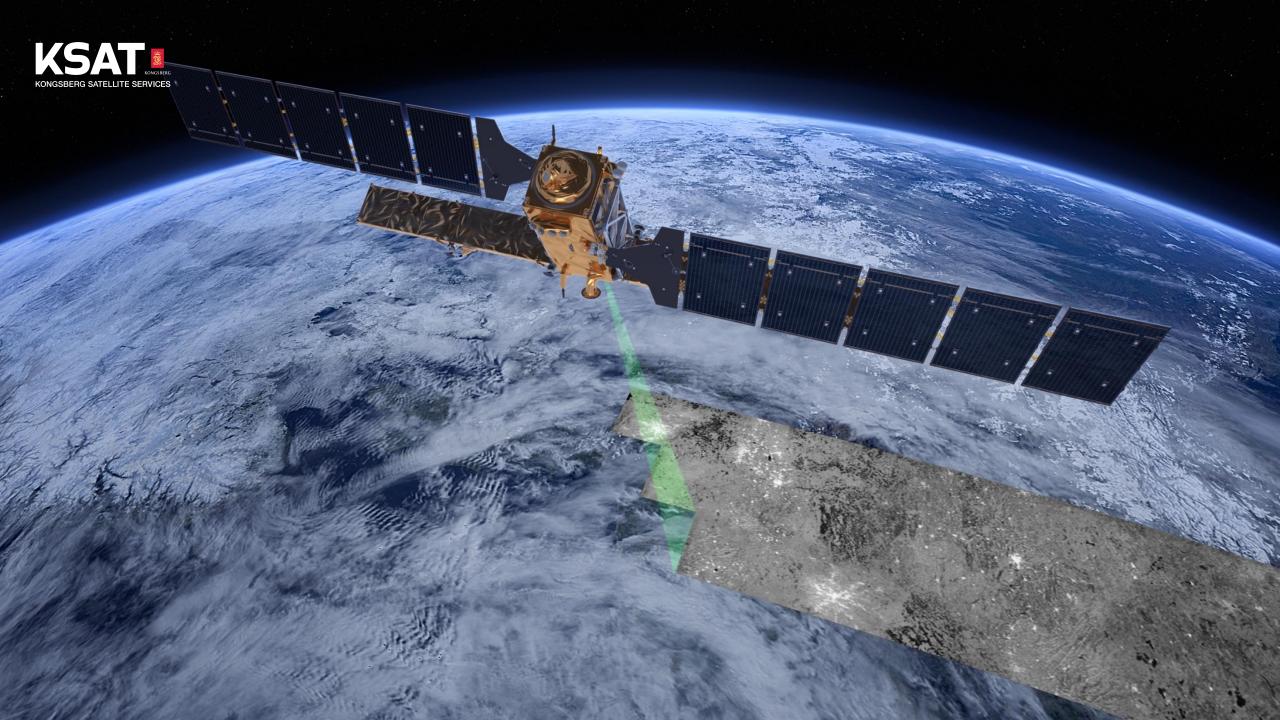












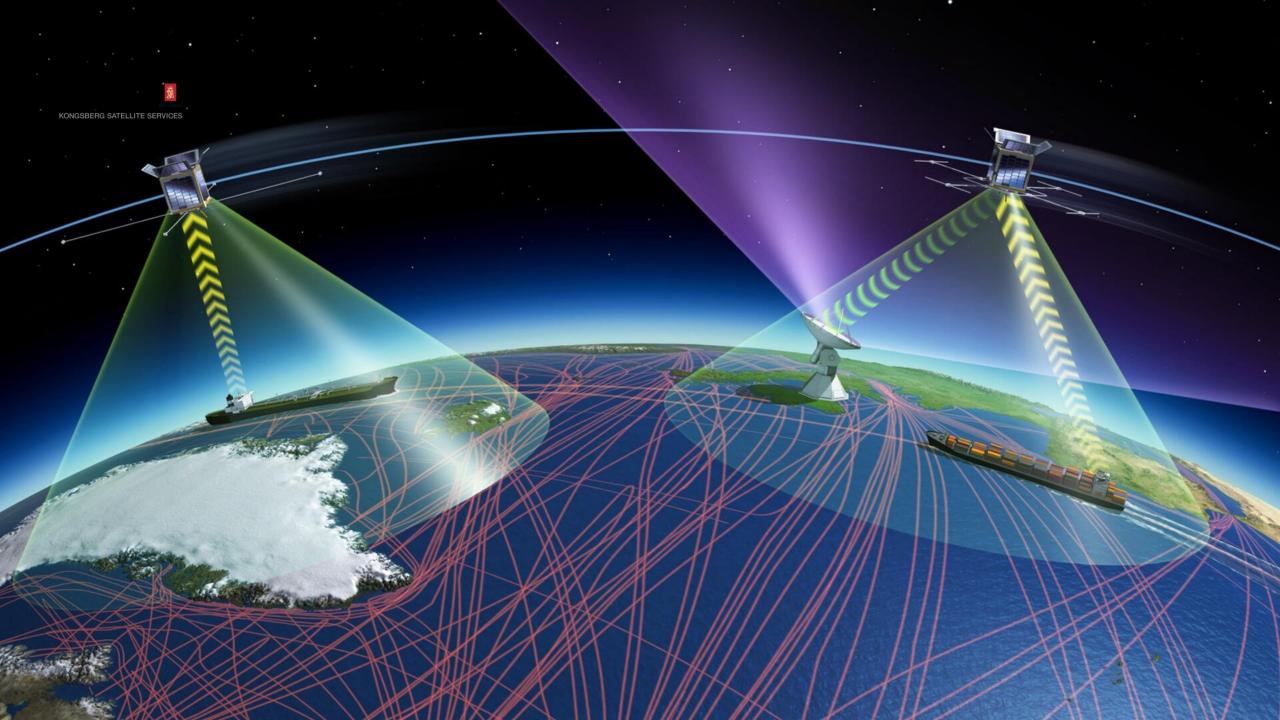




of delivering information to the NICFI deforestation project.















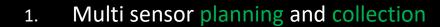
# Envisat@ESA

Oil spill outside the Norwegian coast, ships in the area. Warning with excact position, size and confidence level is given.

# **Ship and Oil Spill detection**



# One stop shop solution @KSAT:



- 2. Multi sensor detection and description
- 3. Multi sensor association and validation to confirm target
- 4. Multi sensor tracking across time and space
- 5. Near real time dissemination











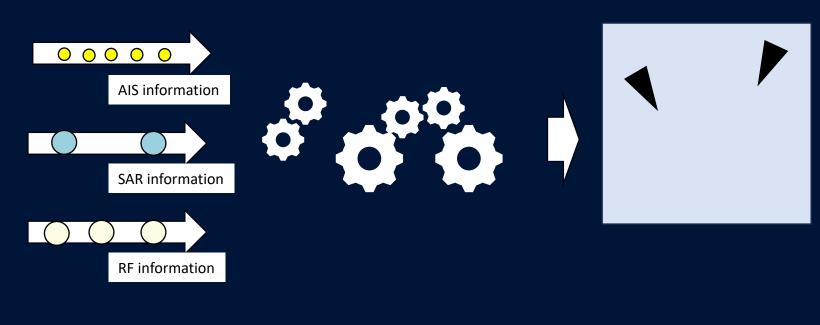




## **Various satellite sensors**

Simplified overview: Relevance for maritime monitoring

| Score:<br>Good<br>Medium<br>Low | Radar  | Optical  | Radio<br>Frequency<br>(RF) | AIS       |
|---------------------------------|--------|----------|----------------------------|-----------|
| Detection<br>Accuracy           | Good   | Good     | Medium                     | Good      |
| Description<br>Accuracy         | Medium | Good     | Good                       | Good      |
| Data<br>integrity               | Good   | Good     | Good                       | Low       |
| Timeliness                      | Good   | Medium   | Medium                     | Very Good |
| Relevance                       | Medium | Good     | Good                       | Medium    |
| Reliability                     | Good   | Very Low | Good                       | Good      |



1. **Data** is continuously produced

2. Processing various data to information

3. A **dynamic service** with upto-date information and uncertainty description



KSAT Global Network

NorSat-3
Navigation Radar
Detector (NRD)
and AIS

NorSat-TD
ar (Technology
demonstrator) AIS,
VDES and SmallCAT

NorSat-4
AIS and Optical

N3X Navigation Radar Detector (NRD)

and AIS

MilSpace 2 RF and AIS





MicroSAR SAR and AIS

> AOS Constellations Eidel/SpN/KDA

Arctic Ocean Surveillance

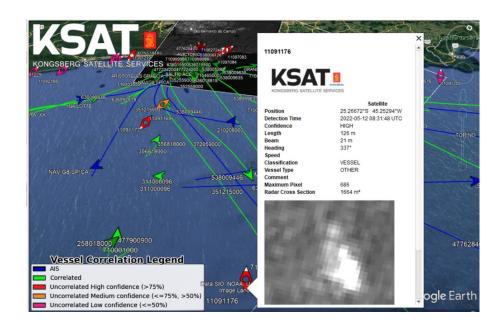








# Tipping & cueing SAR, AIS and Optical







Receive tipping information (SAR - AIS)

Estimate future location of vessels of interest

Generate tasking of high resolution optical satellites

Collect, process and exploit imagery

### Design and Implementation



Support for Satellite Design



Ground Segment Design & Impl.

# Launch, Early Orbit & Commisioning



Support for LEOP & commisioning



Planning & Tasking



ing & Collection



Processing & Exploitation

Running Operations – TCPED in Near Real-Time



Dissemination

### Decommisioning



Support for Decommisioning



Ground Segment Services, including Satellite Operations, Ground Network Services and Earth Observation Services

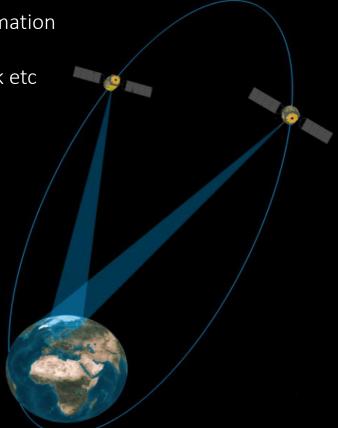


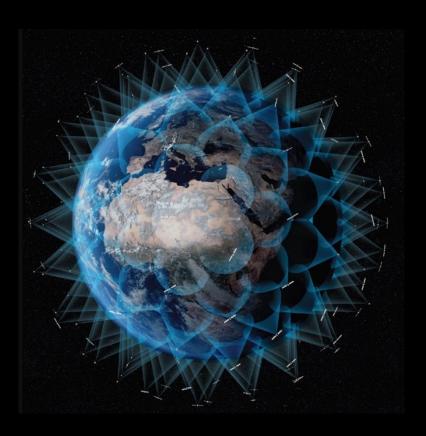
# Communications in the Arctic

Arctic Satellite Broadband Mission, ASBM

- Increased data volumes + timely information

• Satellite constellations; Oneweb, Starlink etc









# **NORWEGIAN NATIONAL VALUE CHAIN**





