



# Copernicus Maritime Surveillance Service

## Copernicus Maritime Security Workshop

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# Background

## Copernicus Services



Security

Border  
Surveillance



Maritime  
Surveillance



External Actions



### **Restricted access**

specific conditions; delivered directly and securely to user; free of charge to users



Land Monitoring



Marine Environment Monitoring



Atmosphere Monitoring



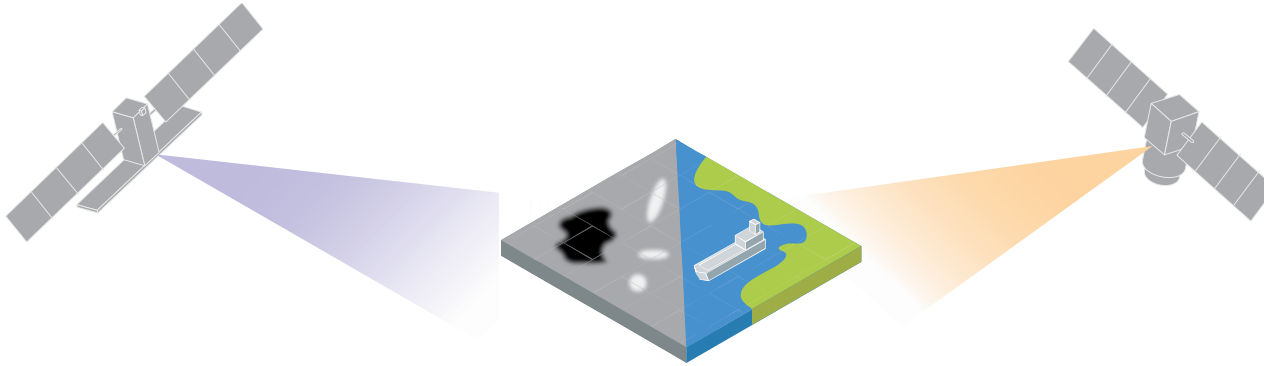
Emergency Management



Climate Change

### **Full and open access**

data accessible to all; mostly available online; free of charge to users



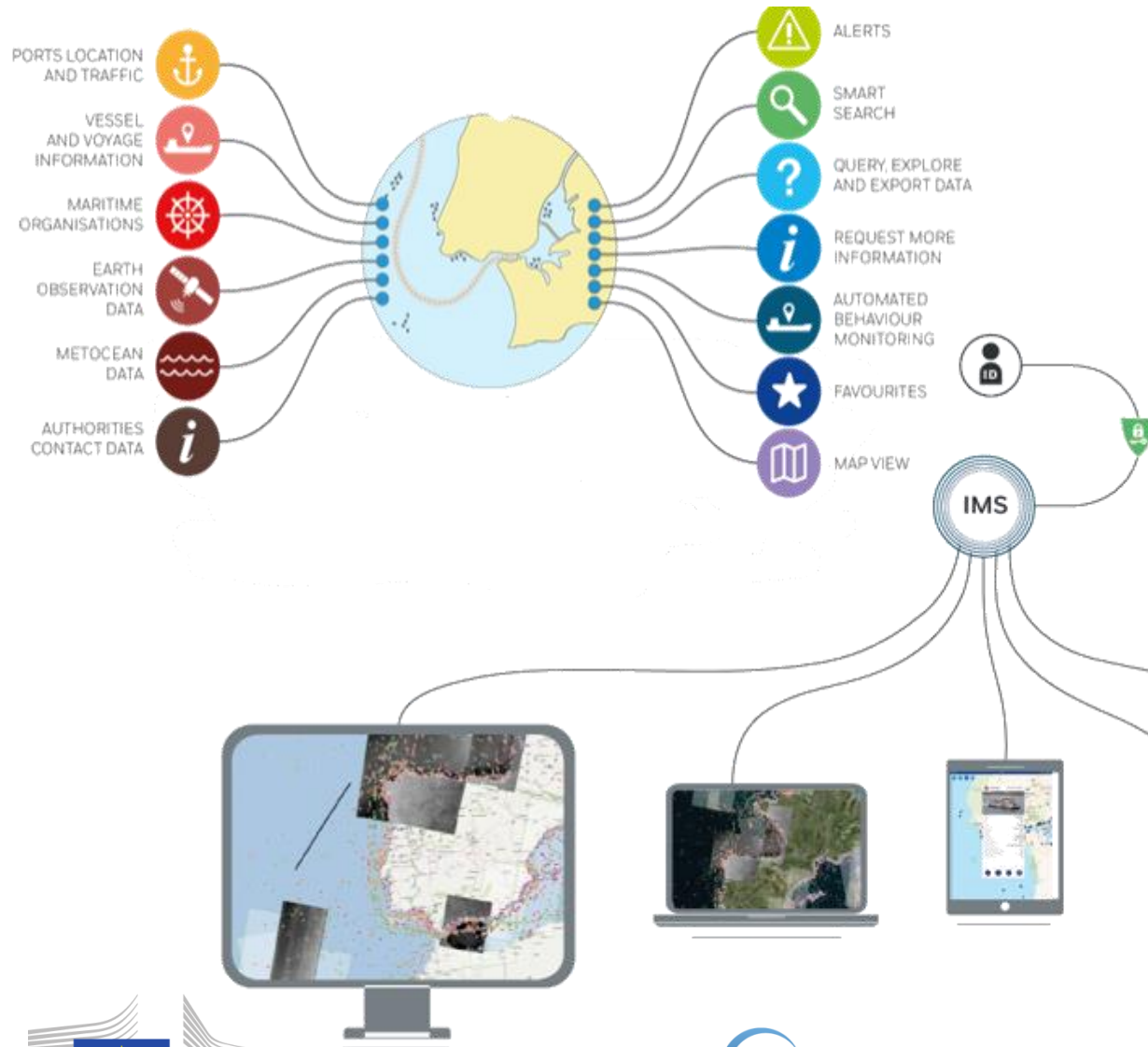
## Radar (SAR) Satellites

- Access to 5 satellites: *Radarsat-2*, *Sentinel-1A*, *Sentinel-1B*, *TerraSAR-X*, *TanDEM-X*
- All weather capability
- Day and night operations
- Broad range of resolutions (1m to 100m) and coverage (up to 500 000 km<sup>2</sup>)

## Optical Satellites

- Access to 14 satellites: *Deimos-2*, *GeoEye-1*, *Pleiades-1A/1B*, *SPOT 6/7*, *WorldView-1/2/3*, *SuperView-1/4*
- Enable target identification
- Wealth of data in different spectral bands
- Focused on very high resolutions (0.3m to 10m)

# Integrated Maritime Services (IMS)



- Many different types of data, including data provided by the user
- Comprehensive and up-to-date maritime picture
- Customized service tailored specifically to the user's requirements.

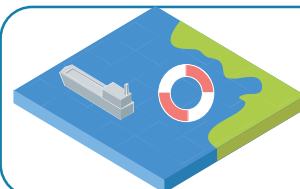
# Functions areas

## EO Services delivered

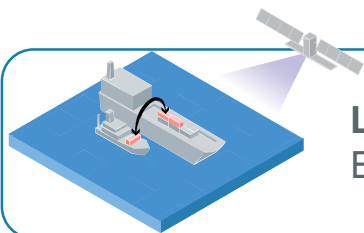
**1 January – 30 April 2019: 1209 EO services provided**



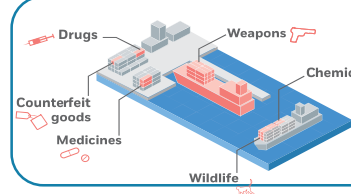
**Fisheries Control**  
EO Services: 69



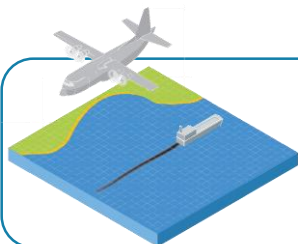
**Maritime Safety and Security**  
EO Services: 103



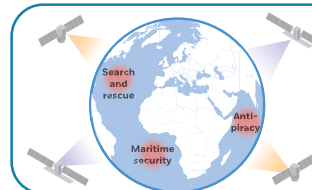
**Law Enforcement**  
EO Services: 654



**Customs**  
EO Services: 254



**Marine Environment**  
EO Services: 125



**Support to International Organisations**  
EO services: 4



# Fisheries Control

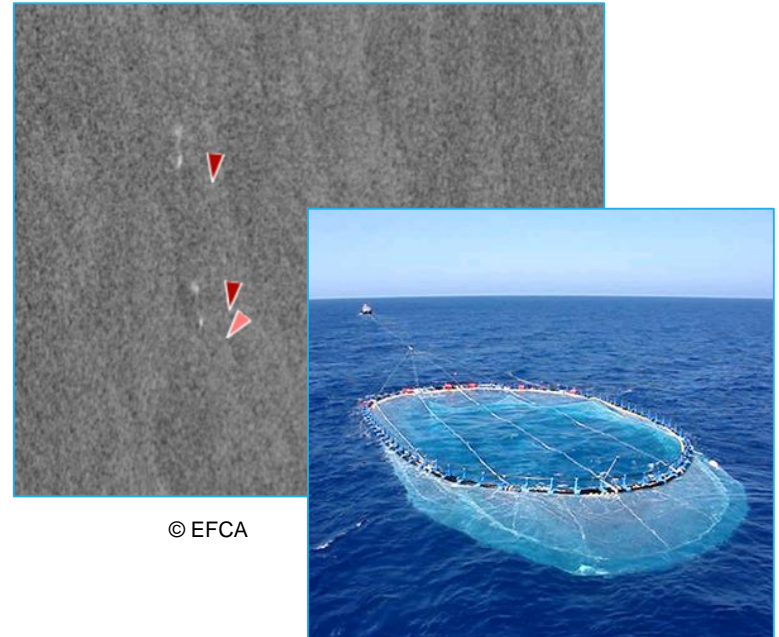
- Wide area surveillance using radar imagery
- Providing vessel detection services algorithms for the identification of potential inspection targets
- High resolution imagery to support specific operations

## Fishing ports



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## Monitoring of fishing activities

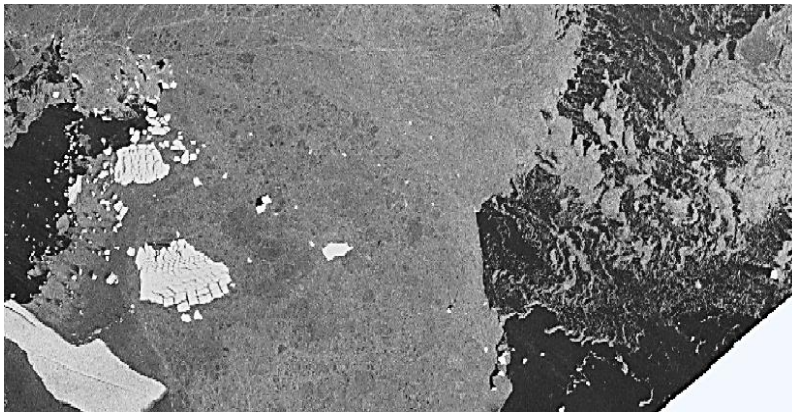


© EFCA

# Maritime Safety and Security

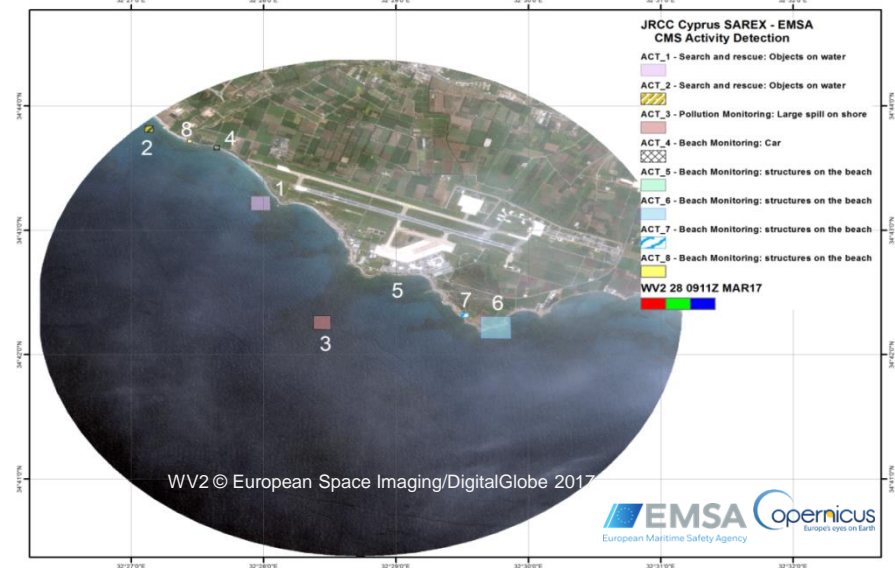
- Enhancing the maritime traffic picture using Earth Observation products
- NRT monitoring of ice and icebergs for safety of navigation purposes
- Support to search and rescue operations

## Safe navigation route



Ice Monitoring –RADARSAT-2 Data and Products © MacDONALD, DETTWILER AND ASSOCIATES LTD, 2016 – All Rights Reserved" and "RADARSAT is an official mark of the Canadian Space Agency

## Activity detection

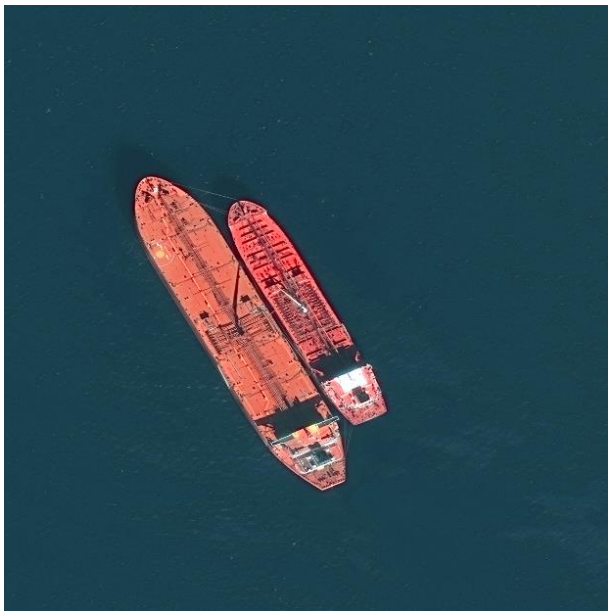




# Law Enforcement

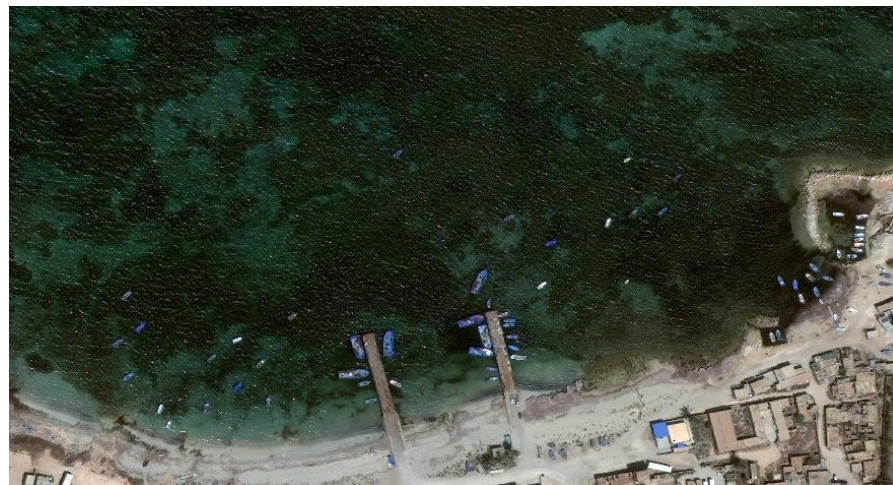
- Used by coast guards, navies, and law enforcement authorities
- Provides near-real-time maritime domain awareness
- Useful in remote areas and when vessels don't report positions

## Ship-to-ship transfers



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## Small vessels departing from remote locations

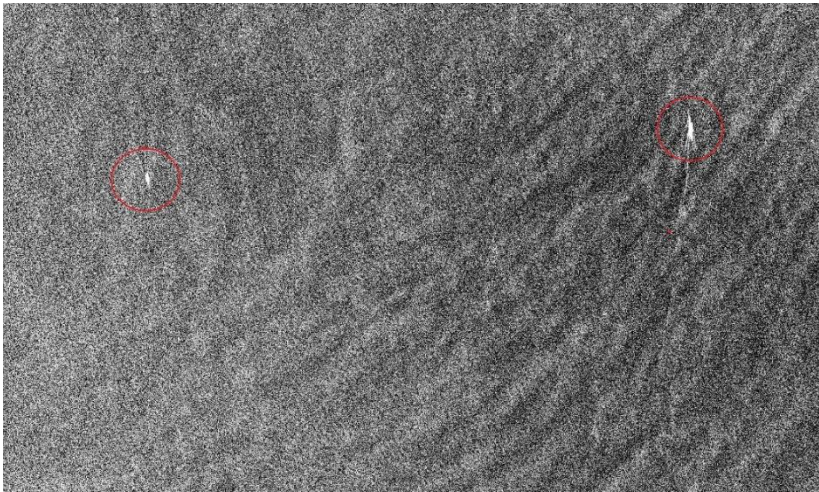


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- Detection of potentially suspicious vessels
- Monitoring the ship-to-ship transfers and movement of goods
- Early warning/identification of criminal trafficking of goods

## Detection of suspicious vessels



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## Vessel reporting in 3rd country port

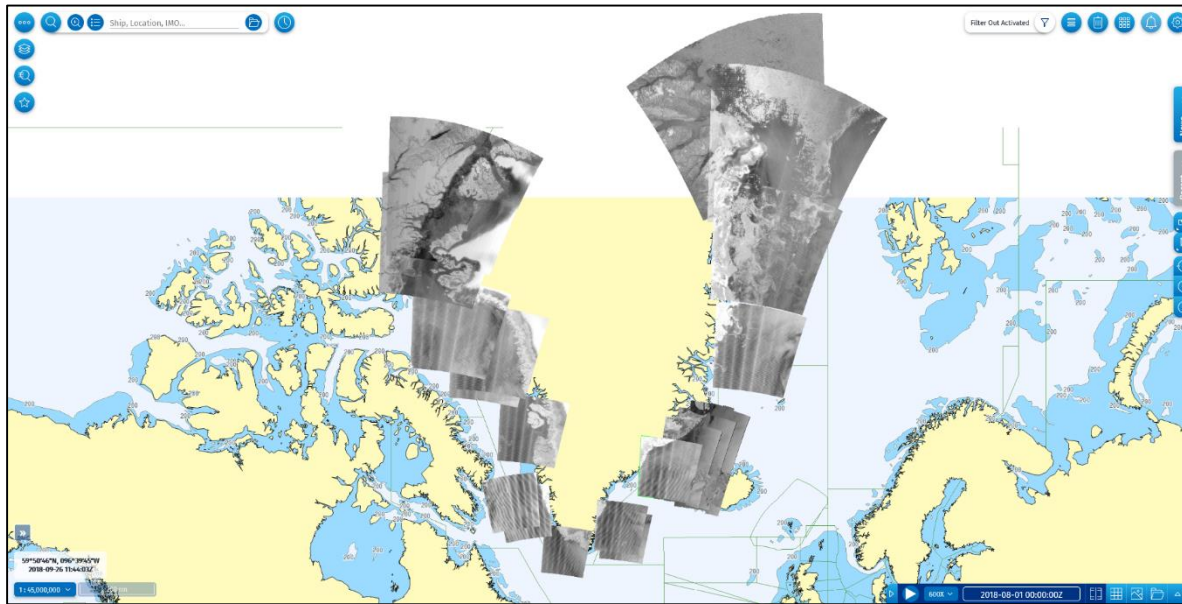


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# Marine Environment (Pollution Monitoring)

- Strengthen coastal member state responses to illegal ship-sourced discharges and accidental spills
- Detection and monitoring of marine pollution and polluting vessels

## Monitoring Greenland



@ EMSA

# Support to International Organisations

- Works with international organisations, bi-laterally and multi-laterally
- Benefits dealing with international problems affecting Europe
- Shares data and intelligence between partner organisations

## Port monitoring



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## Anti-piracy



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## Skiffs on beach



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# Capacity building and user uptake



## Training activities

- Added value of CMS products
- Operational context and use
- Use of EMSA operational systems

## User Groups and Workshops

- Discussion on service improvements
- Identification of user needs and requirements
- Sectorial workshops to share user experiences

## Communications

- Product catalogue & Service overview
- Function specific info sheets
- Service related infographics





# Total user organisations: 32

- Croatia
  - MRCC Rijeka
- Cyprus
  - JRCC Cyprus
- Denmark
  - Danish Defence Command – JACO
  - Danish Defence Command
- France
  - French Customs – DNRED
  - French Gendarmerie Maritime
  - IPEV
  - Marine nationale / French Navy – CECLANT
  - CROSS / MRCC Garde
  - CROSS / MRCC Gris-Nez
  - CROSS / MRCC La Réunion
  - CROSS / MRCC New Caledonia
- Germany
  - Polizei Niedersachsen / German Waterways Police
  - BSH / German Federal Maritime and Hydrographic Agency
- Iceland
  - Icelandic Coast Guard
- Ireland
  - Irish Air Corps
- Italy
  - Presidency of the Council of Ministers
  - Italian Navy
- Malta
  - National Security Authority
- Portugal
  - Marinha Portuguesa / Portuguese Navy – CADOP
  - MRCC Delgada
- Spain
  - SASEMAR
  - Spanish Customs – AEAT
  - Armada Española / Spanish Navy – COVAM
- Sweden
  - Swedish Coast Guard
- The Netherlands
  - Netherlands Coast Guard
- United Kingdom
  - NMIC MCA
  - MMO
- European
  - European Fisheries Control Agency (EFCA)
  - Maritime Analysis and Operations Centre – Narcotics (MAOC(N))
  - Emergency Response Coordination Centre (ERCC)
- International
  - United Nations Office of Drugs and Crime (UNODC)



Image credit: European Space Imaging/DigitalGlobe 2015

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