

SENTINEL-1

CleanSeaNet provides services based on a wide range of SAR satellites, with the vast majority coming from Copernicus Sentinel-1. Composed by a constellation of two satellites, Sentinel-1A and Sentinel-1B, the mission provides systematic monitoring over European waters and has been used by CleanSeaNet since 2015. Today, more than 85% of the images analysed by the CleanSeaNet service are acquired by the Sentinel-1 mission.



EYES ON THE FUTURE

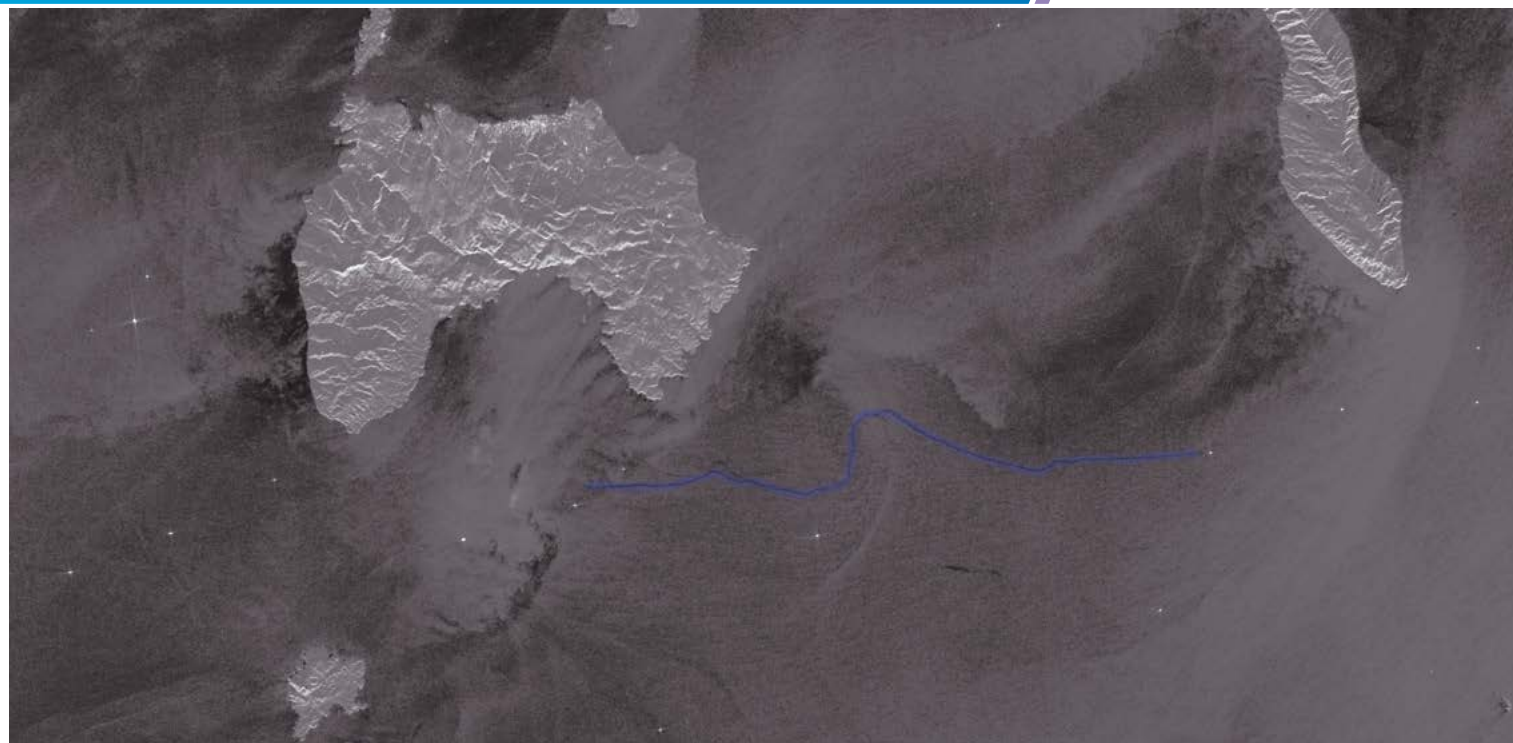
The CleanSeaNet service dialogue between participating states and EMSA is crucial to continuously improve the service provided, which in turn enhances Member States' capabilities in addressing illegal discharges of oil and other substances in the marine environment.

An agreement between EMSA and ESA was renewed in 2020, covering the cooperation between the two agencies for the use of space-based systems and data in support of maritime activities.

MORE ABOUT CLEANSEANET

For additional information on the CleanSeaNet service visit the EMSA website at:

www.emsa.europa.eu/csn-menu.html



emsa.europa.eu

CLEANSEANET

European satellite based oil spill
monitoring and vessel detection service

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SERVICE OVERVIEW

CleanSeaNet is the near real time European satellite based oil spill monitoring and vessel detection service, set up and operated by EMSA since April 2007. It analyses satellite images, mainly from Synthetic Aperture Radar (SAR) but also from optical missions, to detect possible oil on the sea surface, identify potential polluters and monitor the spread of oil during maritime emergencies.



Who can benefit and how?

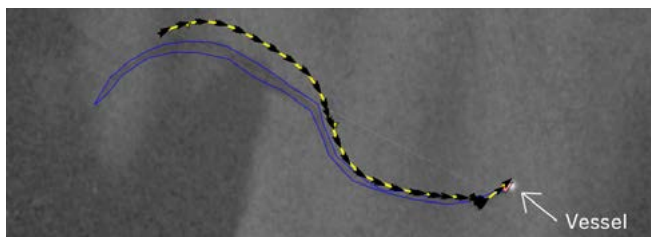
The CleanSeaNet service is available to all participating States including EU Member States and their overseas territories, candidate countries and EFTA/EEA States. Each State has access to the service through a dedicated user web interface.

How does it work?

In co-operation with participating states, EMSA's Earth Observation team plans and orders satellite imagery to meet their service coverage requirements. After a satellite acquisition, trained operators analyse the image, together with supporting information, to identify possible pollutions, to determine the likelihood of the presence of oil on the sea surface and to assist in identifying the source of the pollution. Subsequently an alert report is sent to the affected Member State(s), who will then validate the information by their own means for verification on site and/or inspecting the vessel identified as polluter and will introduce the feedback in the system.

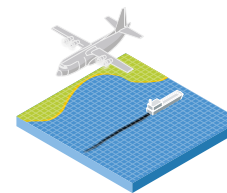
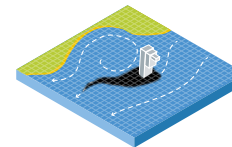
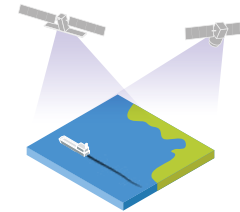
How are oil spills and vessels detected by satellite?

Monitoring is possible using SAR and optical images. With SAR images, oil spills are shown up as dark patches and vessels as bright spots. Images can be acquired regardless of weather conditions, time of day, or cloud cover. Optical sensors produce images that are similar to how the human eye sees the world.



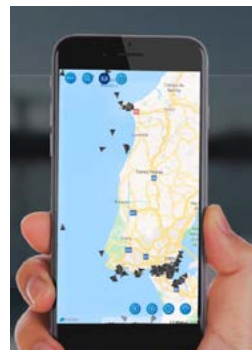
CleanSeaNet service supports three different types of activity undertaken by coastal states

- Routine monitoring**
 Images are planned to cover wide areas all year round, with the primary purpose of detecting vessels discharging substances like oil at sea, possibly illegally
- Emergency response**
 Images can be acquired at short notice following an incident at sea, to check whether there has been a spill and if so to track the spread of oil subsequently
- Specific pollution monitoring operations**
 CleanSeaNet supports EU administrations undertaking pollution monitoring and response operations and exercises.



Combining maritime surveillance information

Vessel traffic information from EU sources and EMSA's Remotely Piloted Aircraft System (RPAS) complement the CleanSeaNet service and contribute to a more efficient monitoring and identification of pollution and polluters.



KEY FACTS ABOUT CLEANSEANET

Since its implementation in 2007, CleanSeaNet has contributed to an efficient marine pollution monitoring of European waters. The service underwent several technical developments throughout the years and EMSA has strengthened its cooperation with national authorities in preparing pollution response plans. Here are some key facts you need to know:



Access to data from **6 SAR satellites**



Access to data from **10 optical satellites**



Image size up to **500 000 km²**



Delivery timelines less than **20 minutes**



One image can cover waters of up to **7 coastal states**



Monitors over **3 million km²** every day



Over **8000 images** delivered every year



Detection of over **7500 possible spills** annually

