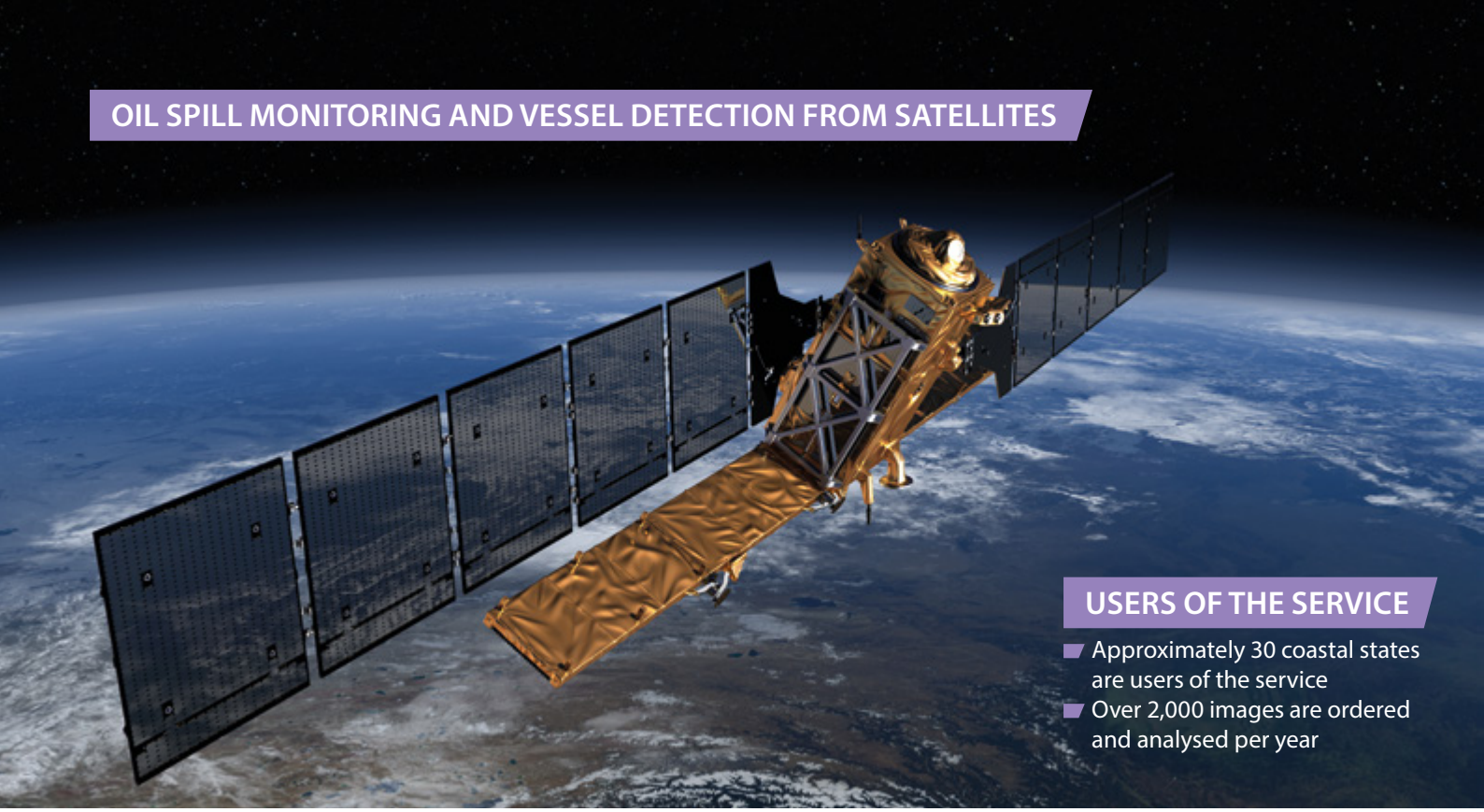
EMSA

THE CLEANSEANET SERVICE

Taking measures to detect and deter marine pollution

EUROPEAN MARITIME SAFETY AGENCY

OIL SPILL MONITORING AND VESSEL DETECTION FROM SATELLITES



USERS OF THE SERVICE

- Approximately 30 coastal states are users of the service
- Over 2,000 images are ordered and analysed per year

COMBATING MARINE POLLUTION

EMSA operates CleanSeaNet, a satellite-based oil spill surveillance and vessel detection service.

The service is available to all EU Member States, EFTA/EEA Member States and acceding and candidate countries. Territorial waters of coastal Member States, and overseas countries and territories may also be monitored.

The CleanSeaNet service analyses Synthetic Aperture Radar (SAR) images from Earth Observation satellites to detect possible oil spills on the sea surface. When a spill is detected, a pollution alert is sent to national authorities. The alerts are available within 30 minutes of the satellite acquiring the image. The national authority then decides how to respond to the alert from CleanSeaNet. A patrol aircraft or vessel may be sent to survey the area and verify the oil spill detection. The vessels detected by satellite in the vicinity of the oil spill may be correlated with vessel traffic reports to increase the likelihood of identifying the probable source of the spill.

CleanSeaNet can also provide access to some additional services including very high resolution optical satellite images, wind speed and direction at the time and place of the image acquisition, as well as meteorological and oceanographic data.

CATCHING POLLUTERS

Ships may produce oily waste from leaks and maintenance work, purification of fuel oil and, in the case of oil bunkers, cleaning their tanks. There are strict regulations about how this oily waste can be disposed of, whether in port facilities by incineration, or discharged into the sea at very low concentrations. Not disposing of the waste this way is illegal.

To support enforcement against illegal discharges, CleanSeaNet:

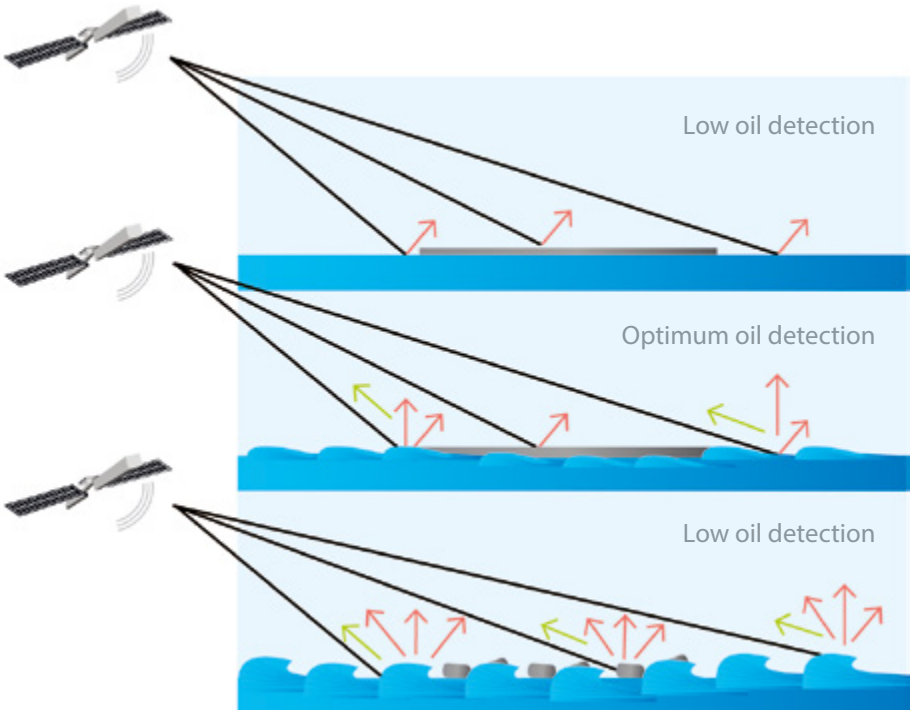
- Alerts coastal states that a spill may be occuring
- Assists in identifying the source of the spill
- Acts as a deterrent to polluters.

OFFSHORE PLATFORM MONITORING

EMSA may be asked by Member States to monitor possible spills caused by offshore installations. This service can cover both routine monitoring for operational spills, and emergency monitoring for large-scale pollution incidents.

RESPONDING TO AN EMERGENCY

In case of a major accidental oil spill at sea, EMSA supports coastal states by providing satellite images to monitor the spill location over an extended period for response and recovery operations.



HOW DOES IT WORK?

Radar sensors measure the roughness of the sea surface. Some substances, for example oil, smooth the sea surface reducing the level of the signal returned to the radar emitter. The radar signal is processed into an image in which oil spills appear as dark areas, and vessels and other offshore structures, including oil and gas platforms, appear as bright spots.

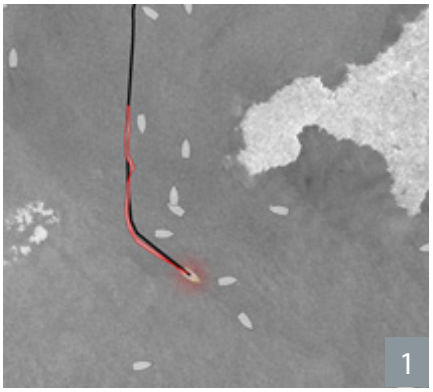
Low and high wind conditions, and other natural phenomenon, can have the same effect as oil spills on the image. The images are therefore analysed by experienced on-duty operators.

- Low winds lead to a weak backscattered signal with low contrast between oil slick and surrounding waters.
- Moderate winds lead to a strong contrast between oil slick and surrounding waters.
- High winds lead to a loss of signal in the ambient noise as oil slicks are often broken and dispersed into the water column.

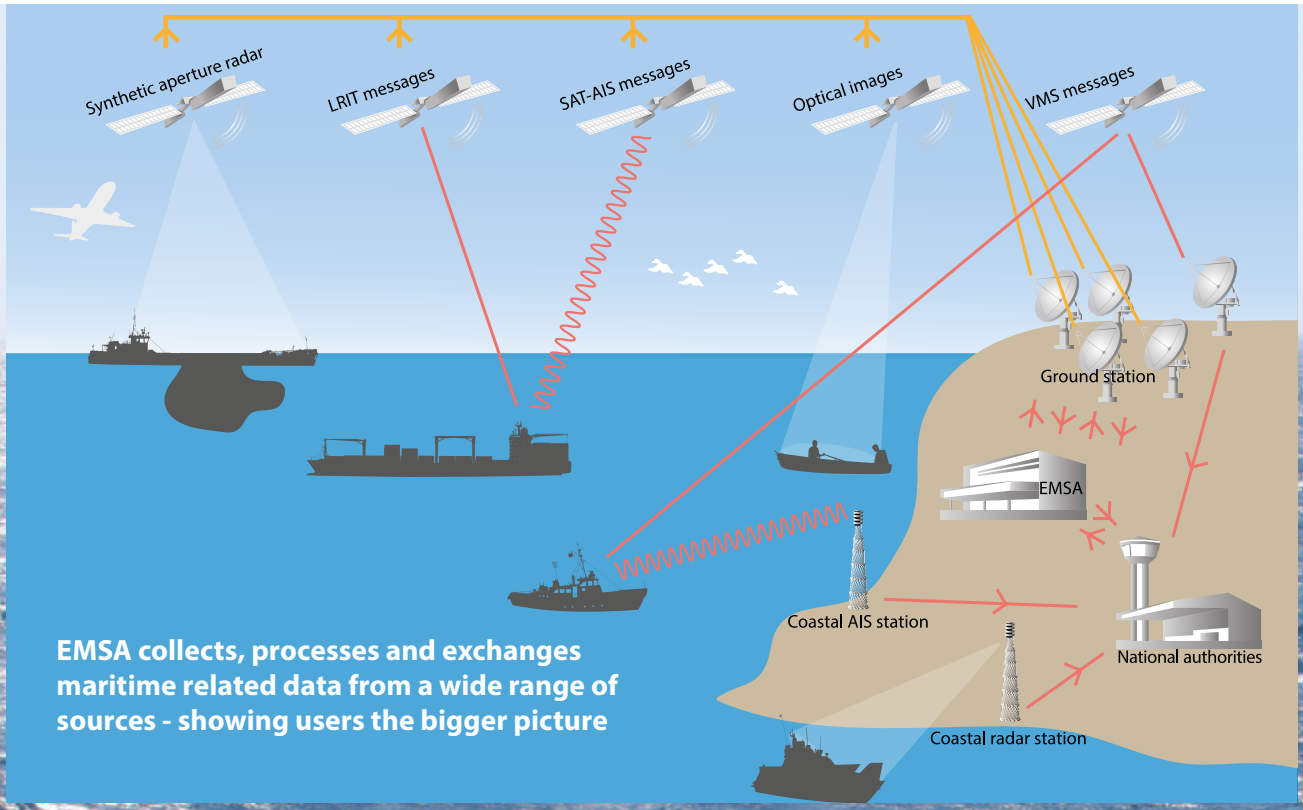
CLEANSEANET IN ACTION

A satellite image has been used as primary evidence in a maritime pollution court decision. A CleanSeaNet satellite image detected a vessel on 25 February 2012 discharging oil in the waters between Land's End and the Scilly Isles. A pollution alert was sent to the UK Maritime and Coastguard Agency and the Falmouth Coastguard contacted the vessel to enquire about the spill.

The master reported that the tanker had been discharging palm oil but had stopped at 13.5 nautical miles from the coast. However, the CleanSeaNet image and alert report clearly showed that the discharge had continued within the 12 nm limit and was therefore illegal. As a consequence, the owner was found guilty and fined.



The images above show: 1) The satellite image in which the oil spill shows up as a dark line. Positions of vessels have been added on top using information from vessel traffic systems. 2) The same information mapped onto a nautical chart shows which vessel is the likely polluter and gives information of the exact location of the spill. 3) A spill as seen from above.



EMSA collects, processes and exchanges maritime related data from a wide range of sources - showing users the bigger picture

ABOUT THE EUROPEAN MARITIME SAFETY AGENCY

The European Maritime Safety Agency is one of the EU's decentralised agencies.

Based in Lisbon, the agency provides technical assistance and support to the European Commission and Member States in the development and implementation of EU legislation on maritime safety, pollution by ships and maritime security.

It has also been given operational tasks in the field of oil pollution response, vessel monitoring and in long range identification and tracking of vessels.

Get in touch

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