



Possible oil spill detections Feedback

Earth Observation Services

Lisbon / September 2020



Possible oil spill detections feedback

■ Service Results

- Image delivery
- Near Real Time (NRT) performance
- Detection Trends
- Verification Results

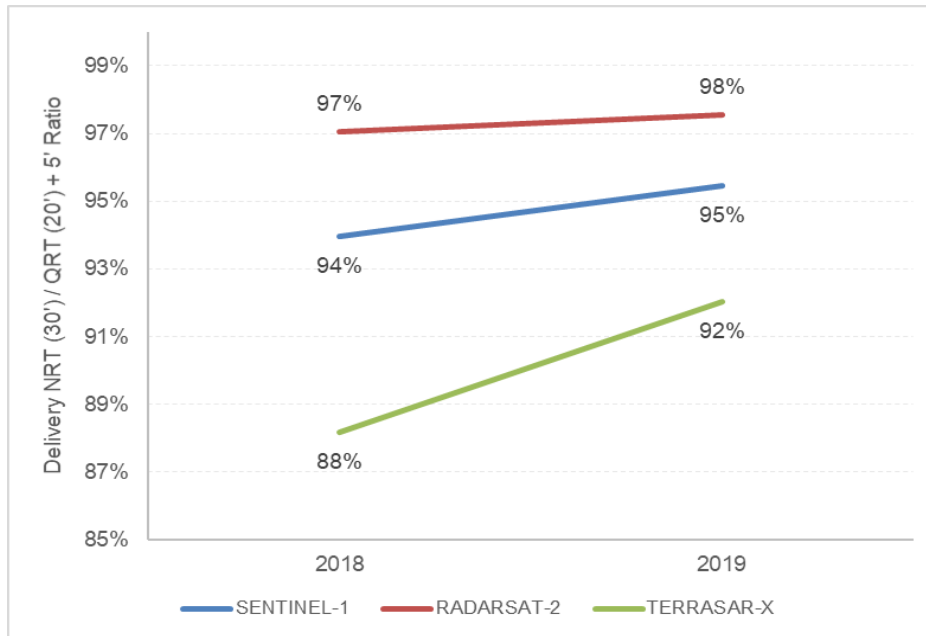
Service Results - Image delivery

Satellite		2019	2018
SENTINEL-1	Delivered images	5961	3848
	% of delivery	(95%)	(94%)
RADARSAT-2	Delivered images	578	515
	% of delivery	(93%)	(90%)
TERRASAR-X	Delivered images	365	275
	% of delivery	(79%)	(89%)
Optical	Delivered images	1	7
	% of delivery	(100%)	(78%)
Total	Delivered images	6905	4645
	% of delivery	(94%)	(93%)

- Optical images were provided in support to oil spill emergencies

- EMSA continues relying mostly on the Sentinel-1A/B to acquire EO data
- The delivery ratio improved by 1% across all the Satellite platforms

Service Results – NRT Performance

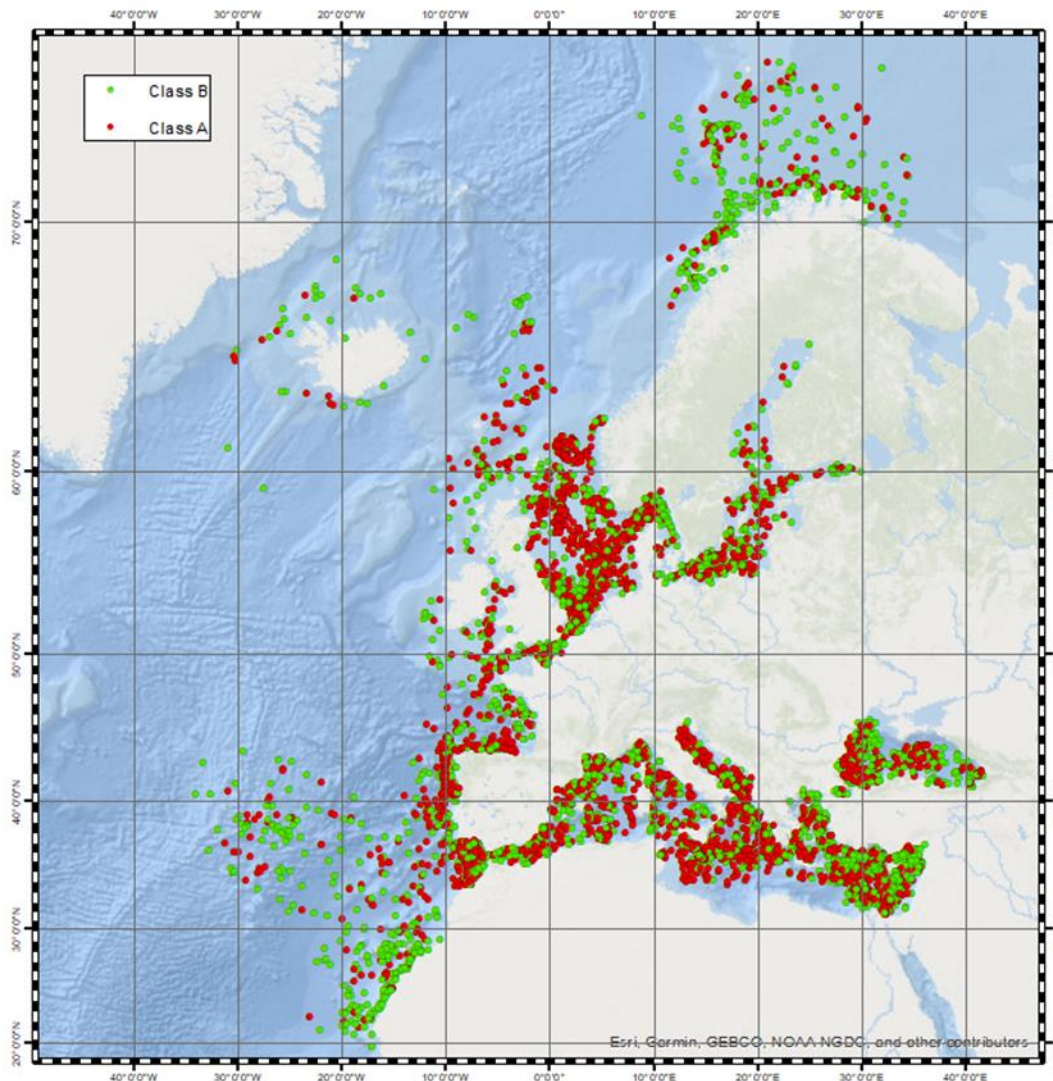


- Overall, 95% of the total alert reports where available to end users for analysis in less than 25 minutes during 2019.

Delivery times for the oil spill notification:

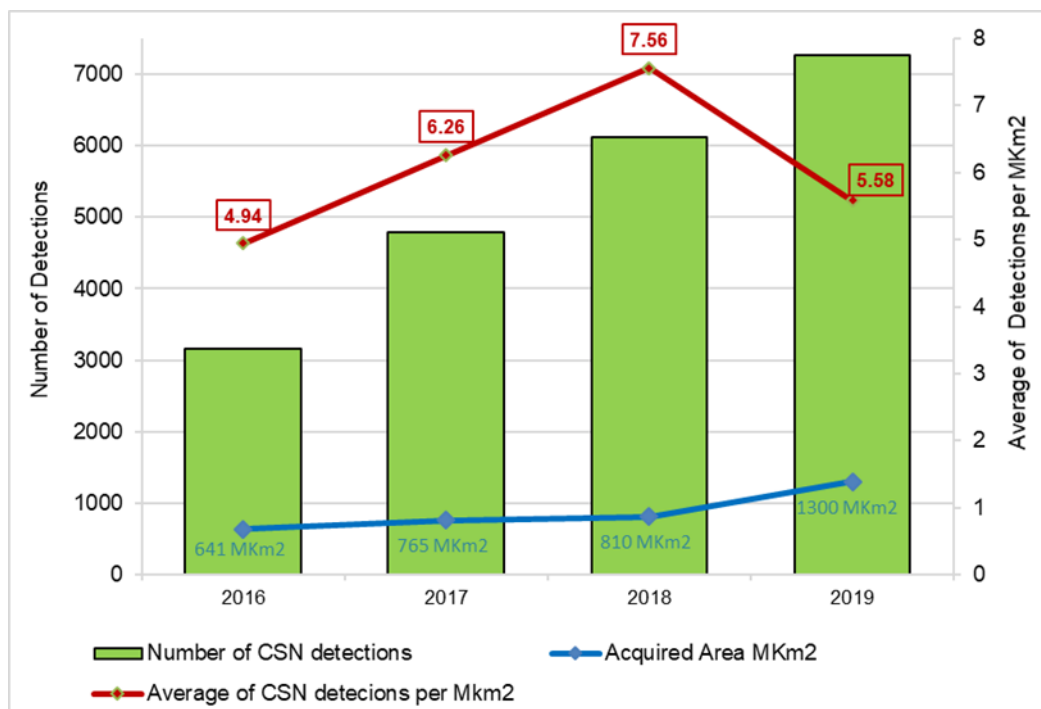
- Comparing the prior NRT (30 minutes) in 2018 with
 - the 2019 request for QRT (20 minutes) plus additional 5 minutes
- it is noted there was a significant improvement for all the satellite missions

Service Results - Detection Trends



- **Class A** – (2019 results: 4405) the detected spill has a higher detection confidence level.
- **Class B** – (2019 results: 2860) the detected spill has a lower detection confidence level.

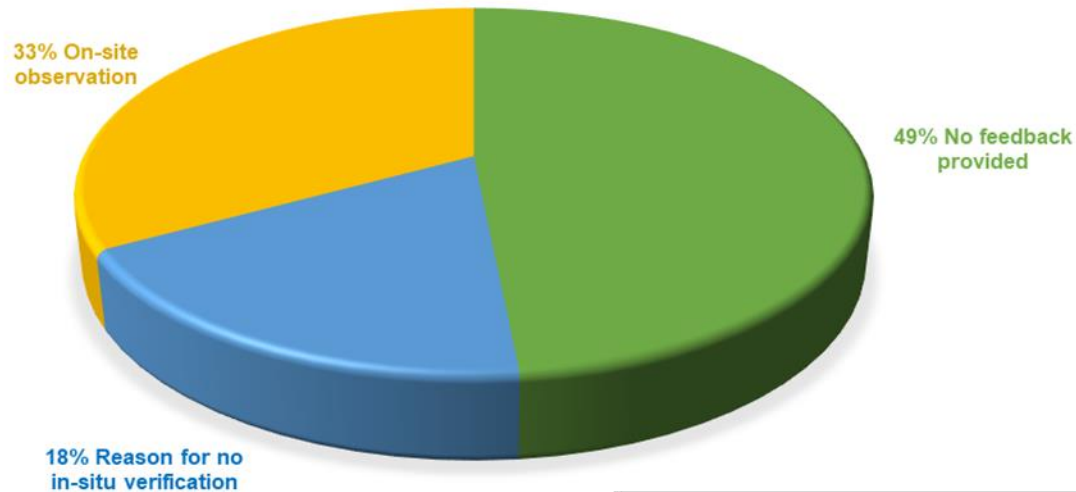
Service Results -Detection Trends



- Total number of possible spills detected, and
- Average number of possible spills detected per million km2

- The area monitored was about 1,300 million square kilometre in 2019 (an increase of 61% comparing with 2018)

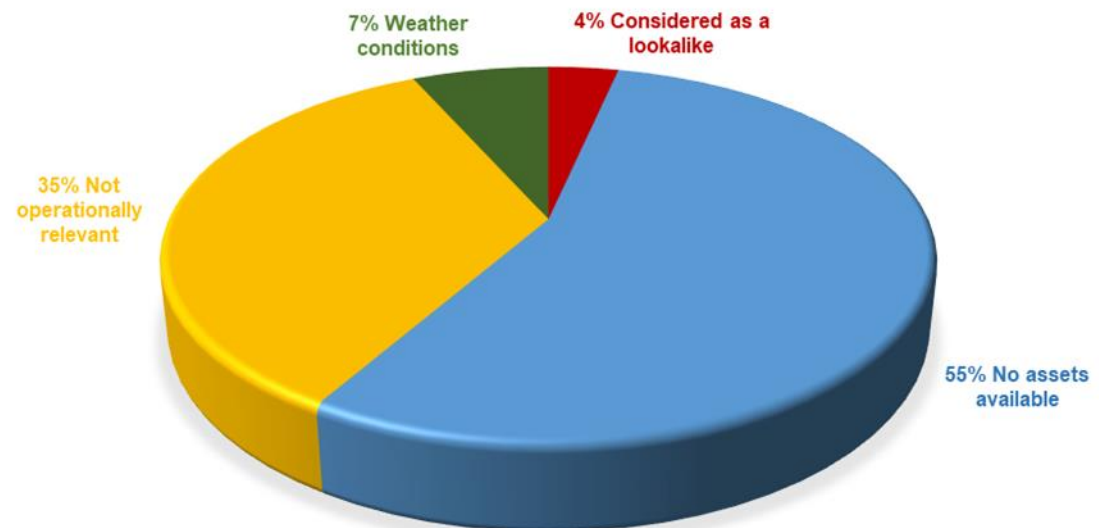
Service Results - Verification Results



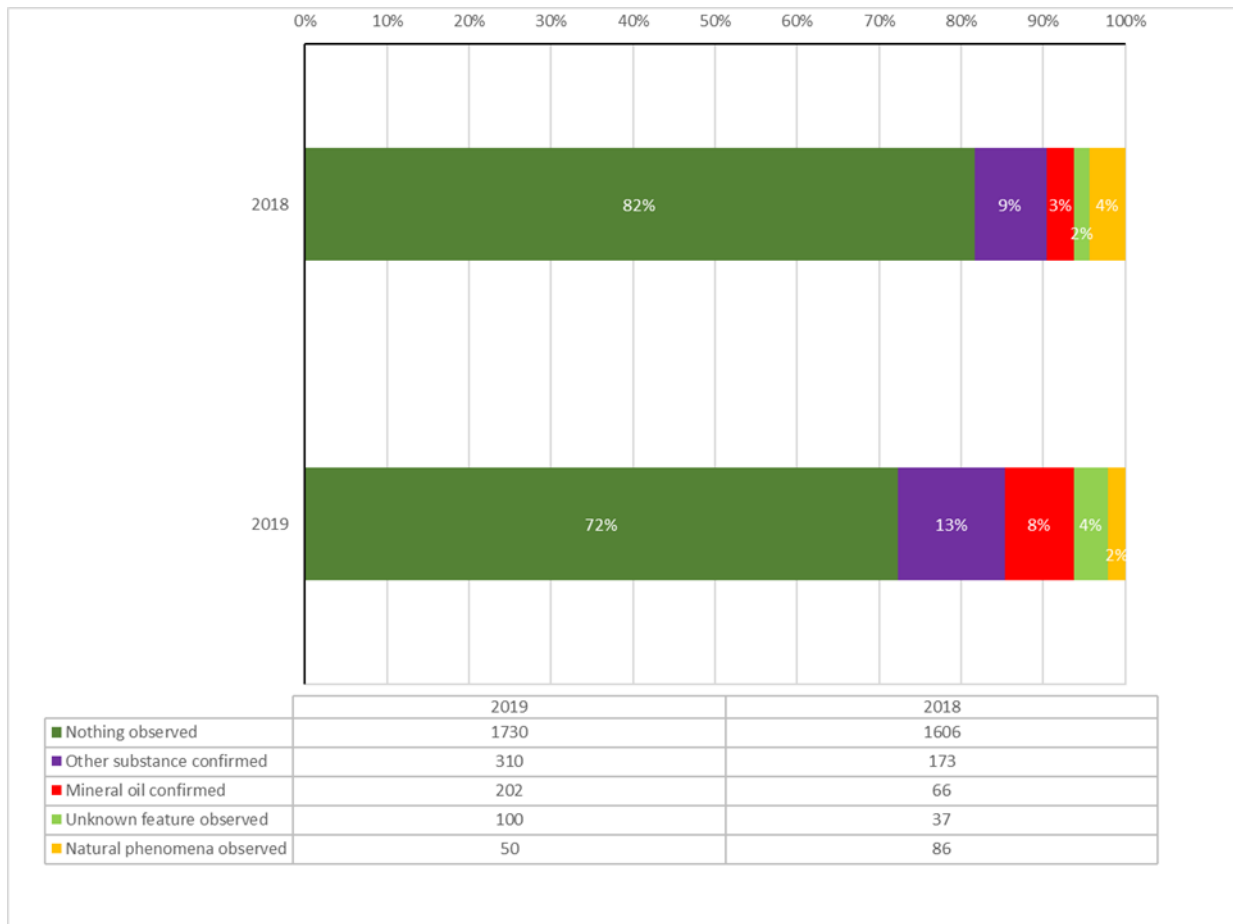
“No in-situ verification performed” (18% of total CSN detections) have the following reasons are highlighted :



Percentage of possible oil spills which have feedback provided by the users is 51%



Service Results - Verification Results



- Number of possible oil spill verified on-site increases by 1%, from 1,968 (32% in 2018) to 2,392 (33% in 2019).
- Out of those checked in 2019:
 - ✓ 202 (8%) were confirmed as “**mineral oil**”
 - ✓ 310 (13%) as “**other substance**”

Service Results - Verification Results



The time of the on-site verification versus the acquisition time of the CSN SAR image: 3 hours difference threshold

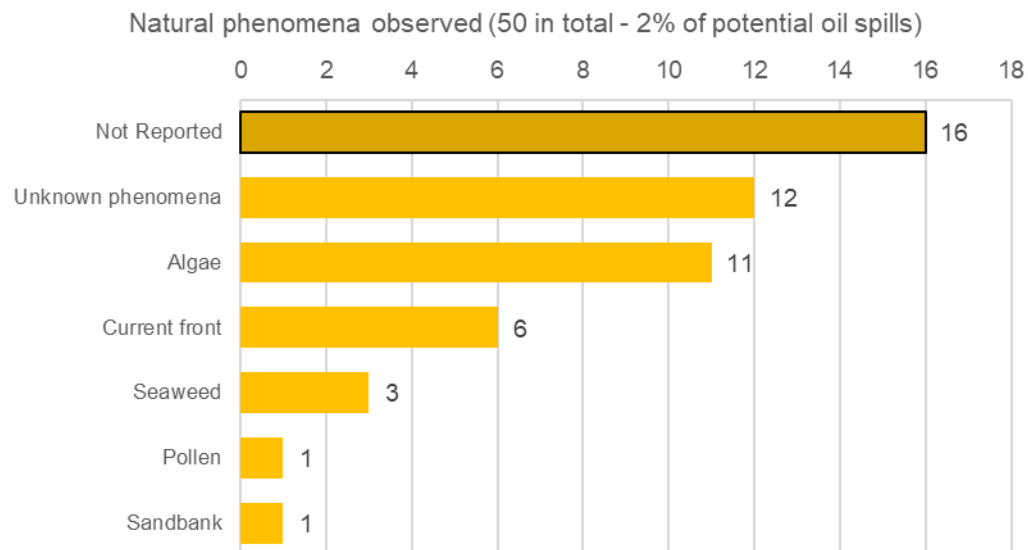
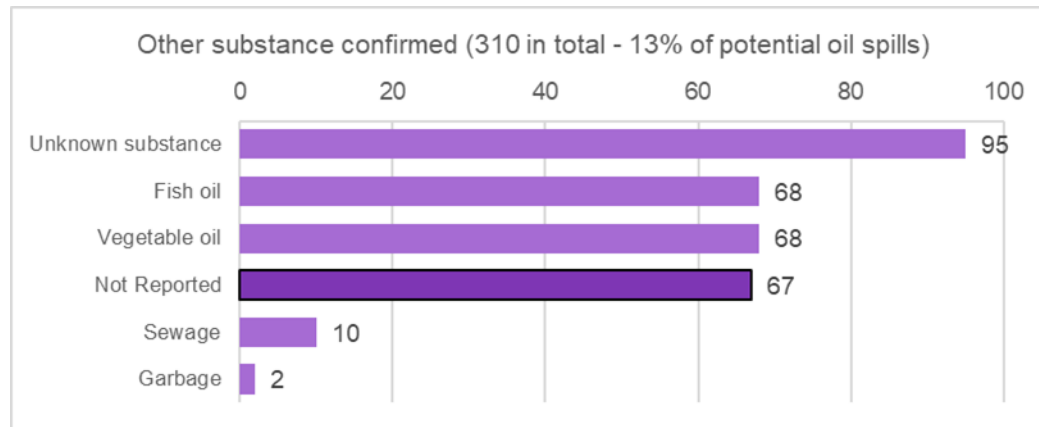
In-situ observation	Observation < 3hours	Observation > 3hours
Nothing observed	226	1504
	(49%)	(78%)
Other substance confirmed	139	171
	(30%)	(9%)
Mineral oil confirmed	46	156
	(10%)	(8%)
Unknown feature observed	29	71
	(6%)	(4%)
Natural phenomena observed	23	27
	(5%)	(1%)
Total	463	1929
	(19%)	(81%)

- % of nothing observed is greatly reduced if verification is performed in the first 3 hours after the satellite acquisition

- Only 19% of the SAR images are verified on-site in the 3-hour period

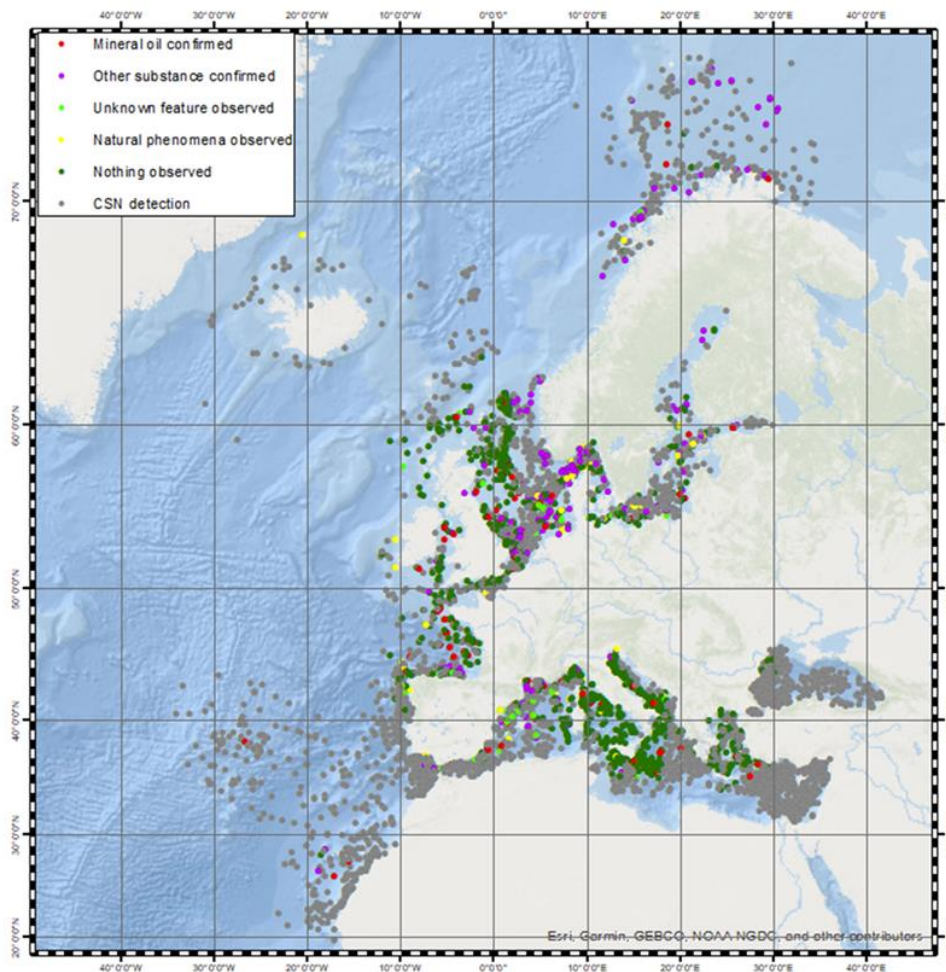
Service Results - Verification Results

Different reported sub types for “other substance confirmed” and the “natural phenomena observed”



Service Results - Verification Results

Location of the possible spills and respective in-situ verification results



- Confirmed mineral oil is highly concentrated in the North Sea, Bay of Biscay and Mediterranean Sea.



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