

Meeting: CSN 20th User Group Meeting

Place and date: Lisbon, 10 March 2021

Agenda item: CSN 2020 Service results: support to ENP countries

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Submitted by EMSA

Summary	This paper provides summary information on the CleanSeaNet (CSN) services delivered in the context of the European Neighbourhood Policy (ENP) through the SAFEMED IV and BCSEA projects in 2020.
Action to be taken	The CSN User Group is invited to take note of the information provided.

1 Background

The scope of this paper is to present the results of CleanSeaNet (CSN) services delivered in 2020 in the context of the European Neighbourhood Policy (ENP). In 2020, ENP policy was implemented through the continuation of the BCSEA and SAFEMED IV projects, initiated in January 2017 and March 2017 respectively, and both scheduled to last until 31st December 2021.

For SAFEMED IV the following beneficiary countries signed the CSN Conditions of use:

- Jordan (2017)
- Tunisia (2018)
- Morocco (2018)
- Libya (2019)

For BCSEA the following beneficiary countries signed the CSN Conditions of use:

- Azerbaijan (2017)
- Georgia (2017)
- Iran (2019)
- Turkey (September 2020)

Services ordered for SAFEMED IV and BCSEA projects are visible to the CleanSeaNet community in the SEG interface.

2 SAFEMED and BCSEA service results

In 2020, the CleanSeaNet service was provided to the SAFEMED IV project using SAR imagery exclusively from the SENTINEL-1 mission. For BCSEA, the service was delivered using SAR imagery from Radarsat-2 mission for Azerbaijan and Georgia, from SENTINEL-1 mission to Turkey and Georgia and from TERRASAR-X for Iran. The SENTINEL-1 mission for the BCSEA project was used for the first time during 2020.

Table 1 indicates the number of ordered and delivered services and shows that the overall delivered ratio during 2020 was 93%. For SAFEMED IV project there was an increase of 26% on the delivered images while for the BCSEA project the increase reached 60%, when comparing 2020 and 2019.

Table 1 - CleanSeaNet images ordered and delivered in 2020 for SAFEMED and BCSEA

Project	Satellite	Ordered images	Delivered images	Delivery Ratio
SAFEMED IV	SENTINEL-1A/B	200	192	96%
BCSEA	RADARSAT-2	83	70	84%
	TERRASAR-X	56	52	93%
	SENTINEL-1A/B	32	32	100%
	Total	171	154	90%
Total BCSEA and SAFEMED		371	346	93%

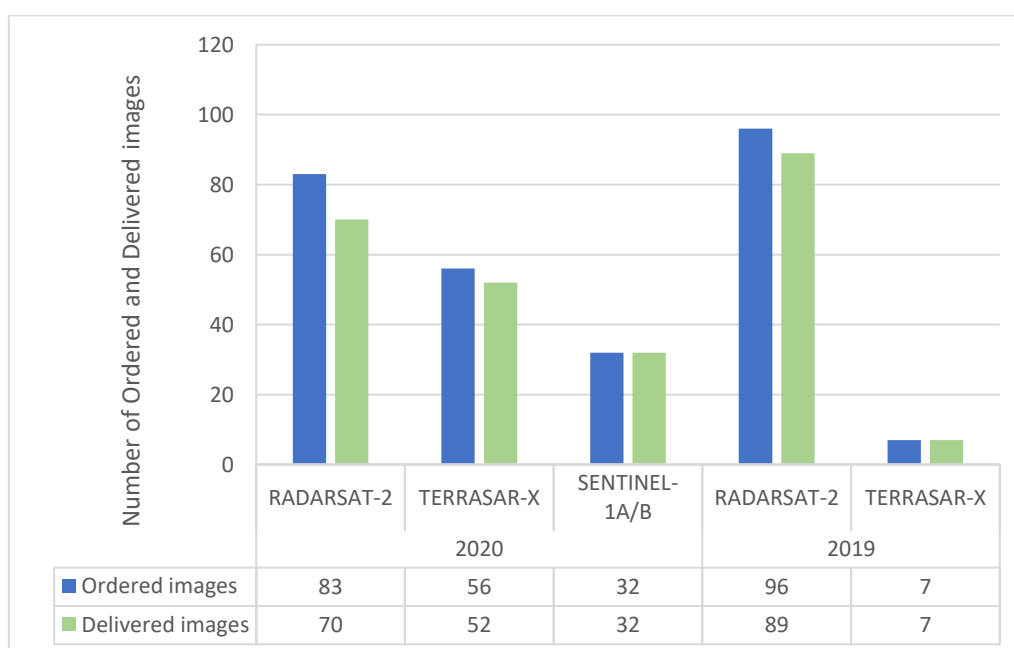


Figure 1 - CSN images for BCSEA in 2020 and 2019.

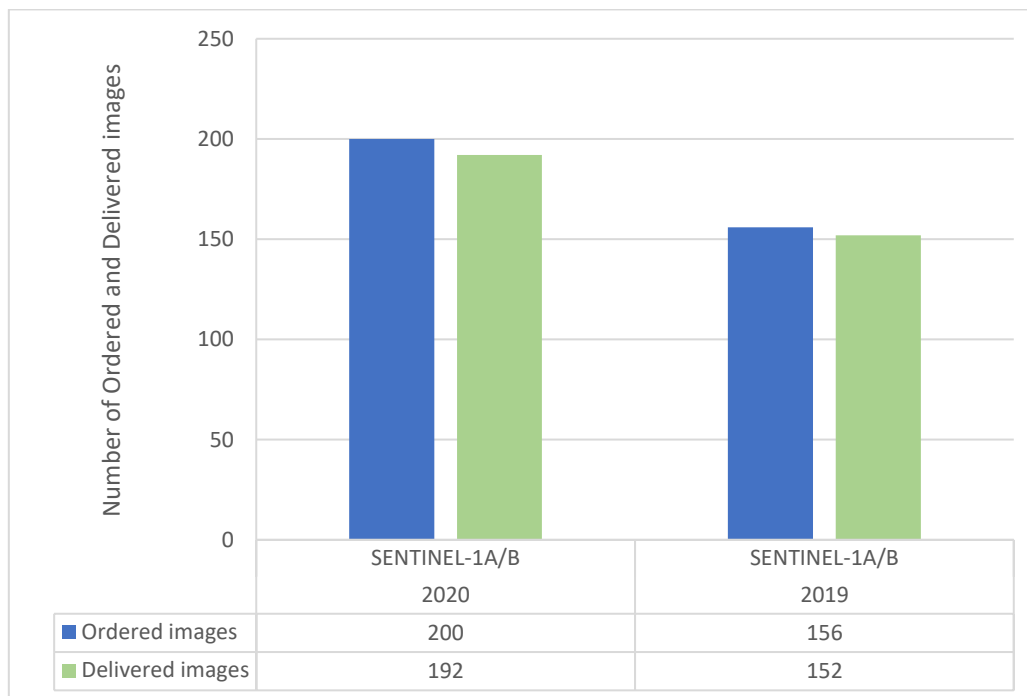


Figure 2 - CSN images for SAFEMED in 2020 and 2019.

2.1 Quasi real time (QRT) performance

The service QRT performance is characterised by the delivery time of the alert report which contains all necessary operational information for the coastal States to take any initial action. Recent EMSA's contracts, signed in 2018, introduced requirements for faster delivery of information to end users. Oil spill analysis sent to users are now faster and for most images the service is available within 20 minutes. Larger products require additional time for processing (i.e. images over 150 000 km²) and take additional minutes. Figure 3 shows the CleanSeaNet QRT performance of services delivered to SAFEMED and BCSEA beneficiary Countries.

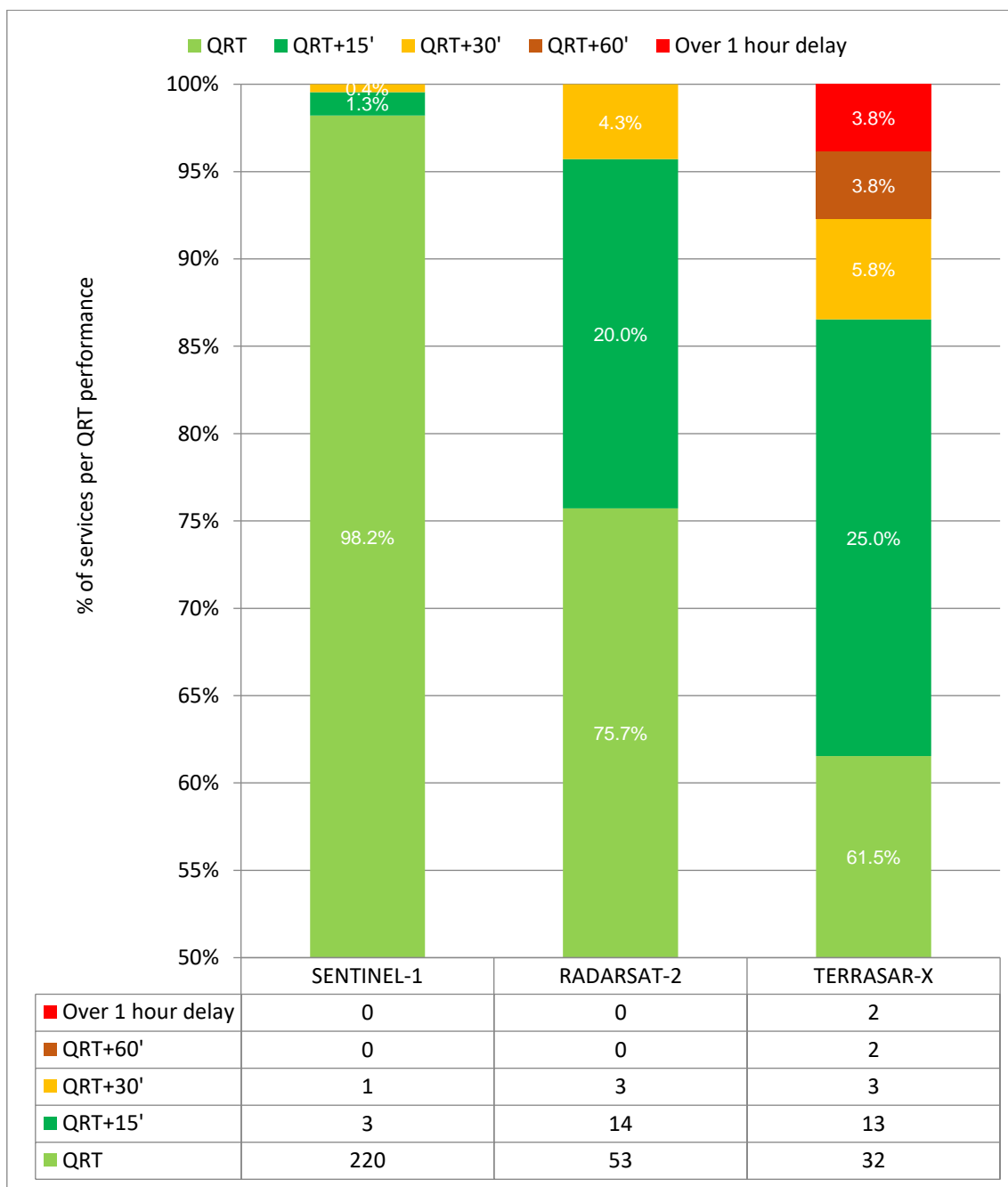


Figure 3 - CSN QRT Performance for SAFEMED and BCSEA in 2020.

In 2020 for RADARSAT-2 and TERRASAR-X the QRT performance was low with, respectively, 75.7% and 61.5% delivery ratio. This reduced QRT performance is due to the fact that these images are used mostly for the monitoring over the Caspian Sea, where significant number of spills are systematically detected, which entail additional time for analysis and quality control (i.e. it is not uncommon that one image presents more

than 12 oil spills). In this case, as it is important to maintain the level of quality of the delivered products, the overall analysis takes additional time. If the QRT plus 15 minutes is considered, there is an increase up to 95.7% for RADARSAT-2 and up to 86.5% for TERRASAR-X.

2.2 CleanSeaNet service detections

In 2020, for the 192 CSN services delivered to SAFEMED countries, a total of 144 possible oil spills were detected. For the 154 BCSEA CSN services, the total number of oil spills was 342. CleanSeaNet detections are separated into two classes:

- **Class A** – the detected spill has a higher detection confidence level.
- **Class B** – the detected spill has a lower detection confidence level.

The distribution in Class A and B is shown in Figure 4.

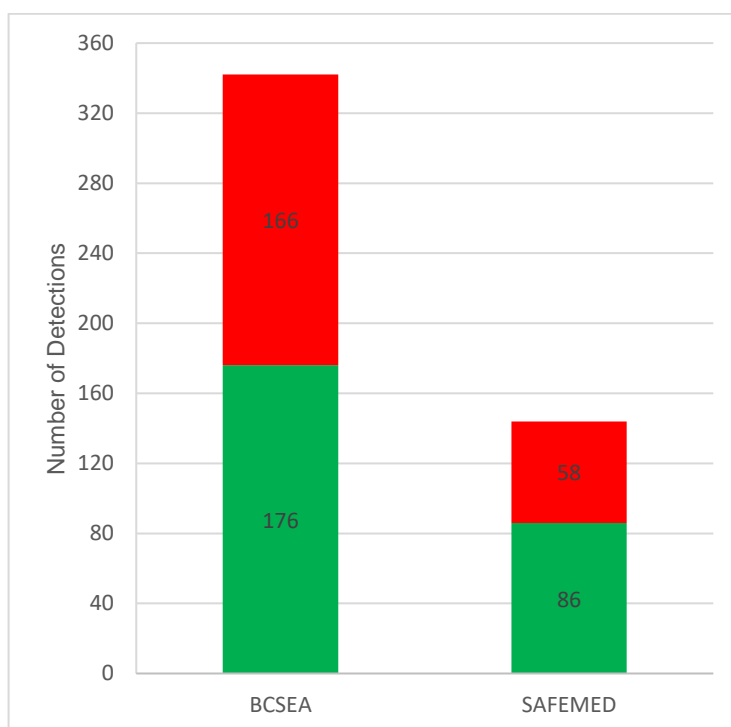


Figure 4- CleanSeaNet possible pollution detected in 2020, distributed per **Class A** and **Class B**.

Figure 5 and Figure 6 show the spatial distribution of possible oil spills detected in images ordered for the SAFEMED and BCSEA projects, respectively.

The alert areas for the countries in the projects are also displayed. It shall be noticed that these countries will also receive alerts for services ordered for CSN, given that their alert areas are intersected. In the same way, the CSN countries receive alerts for images ordered under SAFEMED and BCSEA which intersect their alert areas.

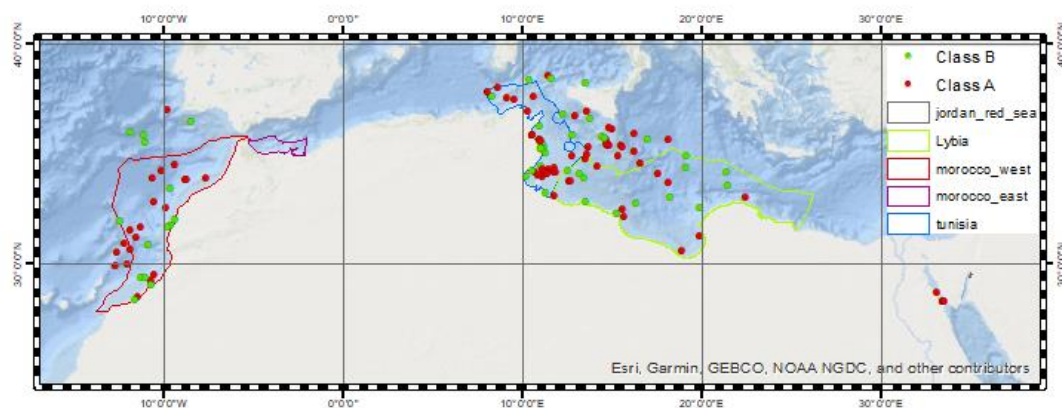


Figure 5- Map of possible spills in images delivered for SAFEMED, in 2020.

With regards to Turkey, the CSN services through the BCSEA project were initiated in September 2020, and the correspondent alert area can be seen in the below Figure 6.

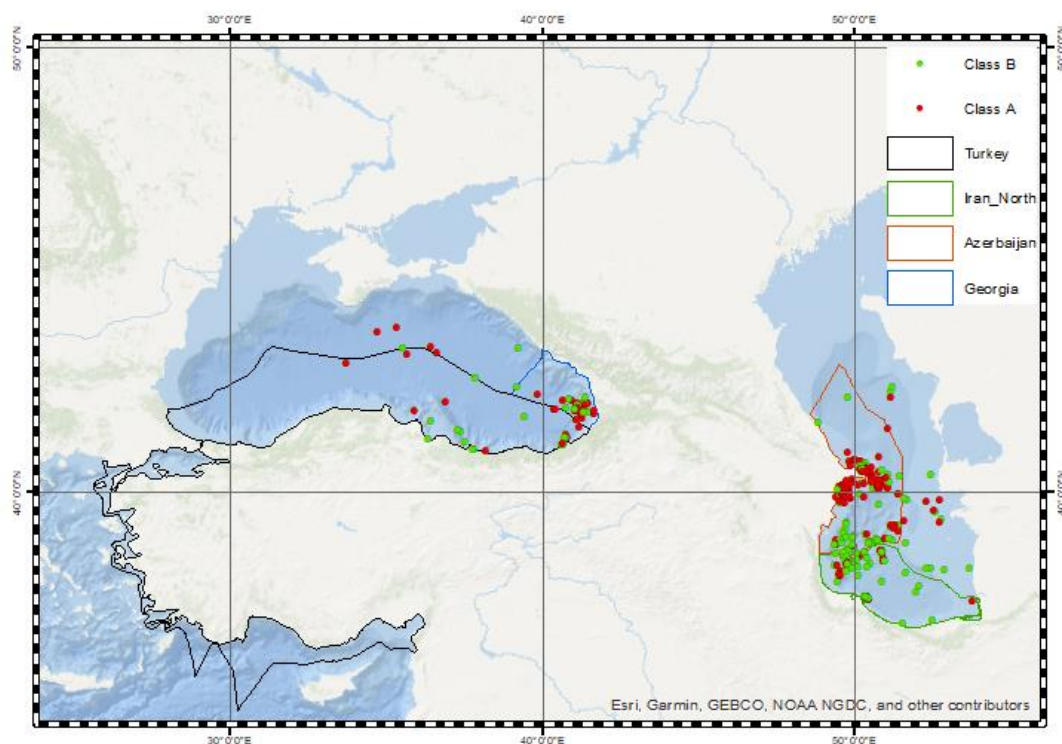


Figure 6- Map of possible spills in images delivered for BCSEA, in 2020.

2.3 Verification results

ENP beneficiary countries do not provide feedback using the SEG (SafeSeaNet Ecosystem GUI) – provision of feedback was done by filling a feedback document containing similar fields to those available in the graphical interface. Table 2 indicates the number of such feedbacks provided by ENP users, and its distribution by report type.

Table 2- Feedback provided manually via word document in 2020.

Verification Results	SAFEMED	BCSEA
Mineral oil	0	0
Other substance	0	2
Unknown feature	0	0
Natural phenomena	0	0
Nothing observed	71	92
Total Nr of Feedbacks	71	92¹
Total of CSN detections	144	342

3 Actions required

The CSN User Group is invited to take note of the information provided.

¹ Feedback have been provided without on-site verification