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NOTE

From:	General Secretariat of the Council
To:	Delegations
Subject:	Frontex report on the functioning of Eurosur - Part I

Delegations will find enclosed the Frontex' report on the functioning of Eurosur (part I).

FRONTEX
EUROPEAN BORDER AND COAST GUARD AGENCY

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Report

to the European Parliament and the Council on Art 22(2) of Regulation (EU) No 1052/2013

The functioning of Eurosur

Frontex - European Border and Coast Guard Agency
www.frontex.europa.eu | Pl. Europejski 6, 00-844 Warsaw, Poland | Tel. +48 22 205 95 00 | Fax +48 22 205 95 01

CONTENTS

ALUG	Eurosur Analysis Layer User Group
AIS	Automatic Identification System
BCP	Border Crossing Point
C2	Command and Control
CIRAM	Common Integrated Risk Analysis Model
CPIP	Common Pre-Frontier Intelligence Picture
EBCG	European Border and Coast Guard Agency (Frontex)
ECN	Eurosur Communication Network
EEAS	European External Action Service
EFCA	European Fishery Control Agency
EFS	Eurosur Fusion Services
EMSA	European Maritime Safety Agency
ESP	European Situational Picture
EU	European Union
EUNAVFORMED	European Union Naval Force Mediterranean
EU SaT CeN	EU Satellite Centre
Europol	European Police Office
EUBAM Libya	European Union Border Assistance Mission to Libya
EMT	European Monitoring Team
FCOI	Frontex Compatible Operational Image
FPS	Frontex Positioning System
FRAN	Frontex Risk Analysis Network
FRO	Fundamental Rights Office
FSC	Frontex Situation Centre
FTF	Foreign Terrorist Fighter
GPS	Global Positioning System
HQ	Frontex headquarter
HCG	Hellenic Coast Guards
IATO	Interim Authorization to Operate
ICC	International Coordination Centres
IMDatE	Integrated Maritime Data Environment
JO	Frontex' Joint Operation(s)
JORA	Joint Operation Reporting Application
LCC	Local Coordination Point
LRIT	Long Range Identification and Tracking

MAOC	Maritime Analysis and Operations Centre
MAS	Multipurpose Aerial Surveillance
MRCC	Maritime Rescue Coordination Centres
MS	Member States
NCC	National Coordination Centres
NSP	National Situational Pictures
OPLAN	Operational Plan
OPV	Off Shore Patrol Vesse
RAU	Risk Analysis Unit
SAC	Schengen Associated Country(ies)
SAR	Search and Rescue
SLA	Service Level Agreement
VDS	Vessel Detection Service
VHR	Very High Resolution
VMS	Vessel Monitoring System

Foreword by the Executive Director of Frontex

During the two years since the release of the last biannual report, Frontex has transformed into the European Border and Coast Guard Agency with expanded tasks and tools under its new regulation. During this time, the Eurosur framework remained one of the core business functions maintained by Frontex, and was further developed and widened. I am pleased to present the new biannual report on the functioning of Eurosur, which provides an opportunity to review Frontex achievements within the Eurosur implementation and consider the way forward.

This report focuses on the Agency's activities undertaken to fulfil the tasks entrusted by Eurosur between 2016 – 2017 in order to reflect the latest developments and recognise the many milestones that paved the way to what Eurosur is today. This report recognises the many aspects of Agency's work and achievements directly influenced by the Eurosur regulation.

Eurosur Fusion Services support and further enhance surveillance activities performed by the Member States. They have proven themselves to be a valuable set of tools to assist in rescue operations, as well as in contributing intelligence to track down smugglers of drugs and other illegal materials.

The Eurosur reporting application is constantly evolving, with new functionalities and improvements implemented in response to the identified needs of the Member States and Frontex. Soon, the Eurosur Communication Network will process classified information thanks to upgrades to its infrastructure.

In 2017, the enhancement of situational picture was achieved by the incorporation of real time data through the Multipurpose Aerial Surveillance activities (MAS). The primary objective of MAS, as one of the Eurosur Fusion Services, is to enrich the situational picture provided to Frontex, Member States, Schengen Associated Countries and EU institutions through real-time surveillance of the EU external borders and its pre-frontier area.

Following the signing of the Delegation Agreement between Frontex and the European Commission, Frontex became an Entrusted Entity for the implementation of the Border Surveillance Component of the Copernicus Security Service. The Agency acts as single and central point for the acquisition, fusion and delivery of Copernicus services until 2020. The Border Surveillance Component complements the portfolio of services already delivered by Frontex through Eurosur Fusion Services.

I look forward to further implementation and integration of the Eurosur framework, which will remain one of the core business functions maintained by our Agency.

Fabrice Leggeri
Frontex Executive Director

1. Introduction

On 22 October 2013, the Council of the European Union adopted the legislative proposal for a Regulation establishing the European Border Surveillance System (Eurosur) – Regulation (EU) No 1052/2013. The decision entered into force on 2 December 2013.

As of 2 December 2013 the European Border and Coast Guard Agency Frontex operates the Eurosur Framework on a 24/7 basis to comply with the tasks set by the Eurosur Regulation to:

a) establish and maintain the communication network for Eurosur;
b) establish and maintain the European situational picture;
c) establish and maintain the common pre-frontier intelligence picture;
d) coordinate the common application of surveillance tools.

In 2010, Frontex was tasked to initiate a pilot project for the creation of an information sharing and cooperation mechanism, enabling Member States authorities carrying out border surveillance activities and the Agency to collaborate at operational and strategic levels.

Over the period 2008 – 2011, the Member States, Frontex and the European Commission have tested the project and established the main technical component, namely the Eurosur network.

At the beginning of 2012, Frontex established a cross-divisional Eurosur Programme that was conducted in very close collaboration with the Commission and the Member States, especially with the National Coordination Centres (NCCs) under development. The objectives were to set up a core Eurosur network interlinking NCCs and Frontex, to develop effective information exchange, and to facilitate the integration of Eurosur functionalities with Frontex business processes. Furthermore, the Programme was aimed at preparing Frontex and the Member States for the entry into force of the Eurosur Regulation, thereby also supporting the development of the related legislation. The Eurosur Programme ended on 30 June 2013 after having successfully met its main objectives.

After the closure of the Eurosur Programme, the elements of the Eurosur framework were integrated into the legal framework and regular business process of Frontex and managed on a day-to-day basis. This also included the structured and regular exchange of information between Member States and Frontex. The integration of external stakeholders such as the Member States was done at the technical, operational/tactical and strategic level utilising established structures (e.g. Management Board) or expert platforms (e.g. Eurosur Expert Group).

In line with Article 22 (2) of the Regulation the Agency shall submit a report on the functioning of EUROSUR on 1 December 2015 and every two years thereafter. Pursuant to these provisions, in December 2015, Frontex submitted its first report on functioning of the EUROSUR. The report acknowledged the fact that the Eurosur Regulation has considerably expanded the tasks of Frontex and the services provided, mainly through Eurosur Fusion Services, in particular the European Situational Picture (ESP) as well as the Common Pre-Frontier Intelligence Picture (CPIP) by using the Common Surveillance Tools and specifically developed analytical tools. In addition the first implementation report outlines number of tasks carried out inside Frontex for purposes of sound Eurosur implementation, from allocation of human and financial resources to work on technical infrastructure, network and services used extensively by the Eurosur stakeholders.

This report aims to focus on the Agencies activities undertaken to fulfil the tasks entrusted by Eurosur between 2016 - 2017 in order to reflect the latest developments and recognize the long way and many milestones that paved the way to what Eurosur is today. As such this report will recognize many aspects of Agencies work and achievements directly influenced by Eurosur Regulation. As the Agency's mandate and hence the scope of entrusted tasks has significantly expanded over the course of the last two years, the Eurosur implementation remains one of the core business functions maintained by Frontex.

This report only refers to **components under the responsibility of Frontex**.

It is important to indicate that the preparation and submission of this report is connected with the Eurosur Evaluation process led by the European Commission (EC) as provided in the Article 22 (3) of the Regulation. That evaluation report will cover the implementation of Eurosur in the Member States (National Coordination Centres, National Situational Pictures etc.). According to the provision the evaluation is to include an examination of results achieved against objectives and an assessment of the continuing validity of the Regulation in order to prepare appropriate proposals for amendment if necessary.

As a result Frontex will effectively contribute to the assessment of the Eurosur functioning through this Frontex report as well as provide its inputs to the Eurosur Evaluation report prepared by the EC.

1.1. Eurosur – the operational framework

1.1.1. Role and responsibilities of the National Coordination Centers (NCCs)

Between 2016 and 2017, the role of NCC as stipulated by the Eurosur Regulation is still the cornerstone of the Eurosur functioning. As such the NCC coordinates and exchanges information among all authorities with a responsibility for external land and sea border surveillance at national level, as well as with the other NCCs and the Agency. The organisational structure and staffing of the NCC is adapted to the national circumstances, in particular depending on the impact levels attributed to external border sections and how the NCC is integrated in the organisation of the host authority. The activities of the NCC are directed by a Head of the NCC. When a Member State is hosting an operational activity coordinated by the Agency (e.g. a joint operation), it may use the infrastructure provided by the NCC or subordinated centres. In coordination with Frontex, the Host Member State (MS) assures the tactical and overall implementation of the JO, and is responsible to define the ports of disembarkation of the migrants intercepted.

1.1.2. Saving migrants' lives, principle of non-refoulement

Saving lives of persons found in distress at sea is the basic principle of the Law of the Sea, hence, it has always been, and has to be one of the main priorities when implementing Frontex Joint Operations (JOs).

This has been emphasized also by the Regulation (EU) 656/2014; consequently, in line with this regulation the International Coordination Centres (ICC) which are responsible for managing JO – activities and the (Maritime) Rescue Coordination Centres (RCC) are in permanent contact with each other. All Operational Plans of maritime JO include very clear provisions as regards the MS' obligations to respect the principles in line with Regulation (EU) 656/2014 including the principle of non-refoulement.

Furthermore, within JO Triton and Poseidon there have been conducted workshops on Search and Rescue activities with the participants of the operations, and moreover Frontex has developed a project to implement training on Search and Rescue.

In addition having regard to the respect of fundamental rights in general, the participants of JOs are briefed at the ICC Level as well as LCC Level on aspects related to the application of fundamental rights in practice during JOs. Besides, all Frontex team members are instructed and receive detailed information on the Frontex Complain Mechanism regarding the possible violation of Fundamental Rights.

1.2. Eurosur – results on the ground

Through delivery of the Eurosur Fusion Services (EFS), Frontex has fulfilled the requirement to ensure the coordination of the common application of surveillance tools. Thus ever since its launch in 2014, EFS have facilitated situational awareness of Member States and other Frontex stakeholders. Frontex Fusion Services currently include 13 services with 3 new services still under development. Over this course of time the EFS have served to save lives at sea and fight the cross border crime as well as to support decision-making, planning and execution of missions. In addition to success stories below, EFS supports the daily functioning of Joint Operations with a wide range of services, including the Joint Operations Reporting Application (JORA). The solutions offered to the Frontex stakeholders via EFS are dynamically evolving in response to users' needs, feedback and newest state of art technologies.

1.3. Eurosur in numbers

Since the adoption of the Eurosur Regulation, this framework has become a well-established tool for improving Member States situational awareness and increase their reaction capability at the external borders of the EU.

From 01/01/2011 and until 04/11/2017, the Eurosur network application has recorded a total of **184.560 events**, while **12.925 documents were stored** in its repository. Also within this timeframe, a total of **215.085 incidents were inserted into the JORA (Joint Operations Reporting Application) system**, from a total of **124 Joint Operations and also outside of JOs**. Some of the incidents reported into JORA are being fed by Frontex into the Eurosur network application.

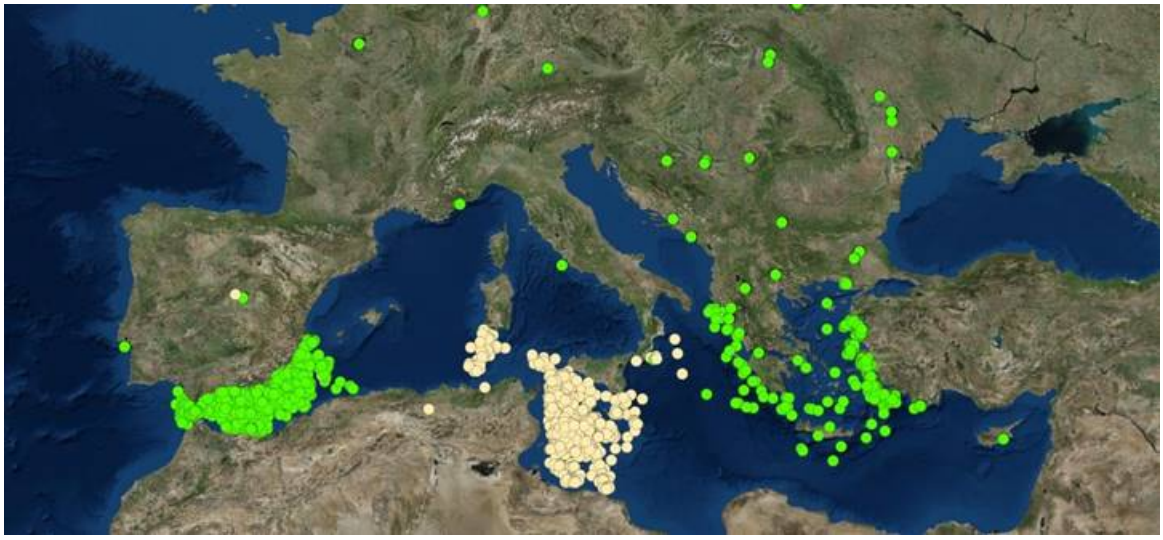


Image 1: Reported incidents visualised in JORA.

2. Implementation of the Eurosur Regulation – Operational and Technical Functioning

2.1. Article 7 – Eurosur Communication Network (ECN)

Thirty NCCs and Frontex are currently connected through the Eurosur Communication Network, exchanging information with each other and with Frontex, and accessing information and services provided to the community by Frontex.

The Eurosur Application constantly evolves, with new functionalities and improvements implemented in response to the identified needs of the Member States and Frontex.

The effort to prepare the Eurosur Communication Network to process EU classified Information up to RESTREINT UE/EU RESTRICTED has been ongoing since December 2013 ad is reaching its final stages. The technical infrastructure of the Network has been reviewed and upgraded for that purpose, most notably the communication in the Network is now protected with EU-approved encryption solution. The "Interim Authorization To Operate" (IATO) was obtained on 21 December 2017, and the network started storing, processing and exchanging RESTREINT UE/EU RESTRICTED as of 11 January 2018. The final accreditation is expected by the end of 2018.

Due to the end-of-support for a third party component used in Eurosur Application, the user interface of the application has been redesigned and optimised; the related version will be put in production early next year.

2.2. Articles 10 and 11 – European Situational Picture and Common Pre-frontier Intelligence Picture (ESP, CPIP)

The information on the events layer as a statistical summary can be found in Chapter 4.

2.2.1. Operational Layer

From the beginning of the Eurosur network implementation, emphasis was put on the integration between the existing JORA incident reporting and the Eurosur network application. Frontex ensured early that there is no duplication of incident reporting during Frontex coordinated Joint Operations, which contributed significantly to the compilation of a reliable and coherent European Situational Picture.

Further integration works are ongoing as requested by the Member States aiming at increased effectiveness, reduced operator workload and improved user experience. Detailed gap analysis and business process reengineering is currently being prepared and will also be realized. Based on the results of this activity, further design and development activities will be planned.

Also **Environmental Services** are provided as part of the provisions set in Art. 10.5 (c) of the Eurosur Regulation (more information provided in paragraph 3.3)

The core idea of the **Frontex Compatible Operational Image** (FCOI) is to provide secured transmission of the operational data from the technical equipment deployed in the JOs to the Coordination Centres in Host MS and Frontex in real or close to real time.

Under this heading a number of activities were carried out aiming to develop a unique gateway consolidating information from different sources and to provide a technical infrastructure compatible with the available assets and equipment; this contributed to the operational layer because it provided information to the decision makers and displayed tactical and operational data for situational awareness, command and control (C2), increasing the reaction capability.

The main activities related to FCOI were:

- workshops in different Member States covering theoretical and practical briefings, training, field visits, tests of equipment on different aerial and naval means, and comprehensive tests of data transmission;
- the progressions on testing available Member States equipment and their potential capabilities on close to real time motion picture secure transmission from the deployed aerial, maritime and terrestrial assets under real operational conditions;
- the continuation on tests of cellular transmission solution;
- the Training provided by an external provider on satellite communication;

Frontex Positioning System (FPS) is a single, integrated, real-time automated system for tracking assets deployed in the Frontex coordinated JO by displaying the position of the assets and calculating running costs of assets, thus providing automated procedures for assimilating and reporting financial data within JO, as well as maintaining the situational picture.

For this purpose assets deployed in JOs will be equipped with a portable GPS/satellite/GSM transceiver to be installed on board of the asset. Encrypted information on assets (time, position, speed, course, height, type) sent via portable equipment is received in ICC/NCC or other locations defined in the operational plan and is displayed on screen of the portable operational module in close to real time, thus increasing the awareness on resources and providing responsible officials with timely, accurate and complete information on which they can base decisions.

The current status of FPS:

- the tests for the transceivers have been finalized and forty five transceivers have already been delivered to Frontex, ready for use in real operational conditions;
- The updated version of FPS application is installed (some details concerning the transfer to restricted network still pending);
- In the frame of JOs Triton 2017 and Poseidon 2017 about 10 encrypted transceivers are already in use;
- Integration with EUROSUR application is ongoing;
- A training for end users (ICC staff and crew members) is foreseen for 2018.

2.2.2. Analysis layer

The Eurosur Analysis Layer was established in order to support a risk and intelligence driven approach for border management. Since its activation it has been constantly evolving based on the Member States and Frontex' long-term analytical requirements. Given the importance of risk analysis activities, the Eurosur risk analysis community established a mechanism to engage its stakeholders. This was accomplished in 2012 through the establishment of the Eurosur Analysis Layer User Group (ALUG). This working level group has since served to organize the cooperation between the analytical entities and/or relevant national department representing that role in the NCCs and Frontex. One of the main contributions of this community has been the facilitation of discussion on risk analysis by offering a platform for sharing experiences and exchanging views and methodological approaches. Regular Eurosur ALUG meetings and tailored workshops are essential for the work conducted under its framework.

There has been a consistent increase in the amount and the quality of the products and services shared within the Analysis Layer. In 2016, 390 analytical reports were uploaded by the NCC and the Frontex Risk Analysis Unit. The main type of reports shared were Imagery Analysis reports (319) followed by Key Developments (37), analytical Monitors (28) and Briefing Notes (6). In 2017 there was a significant increase in the sharing of Imagery Analysis reports (429 - an increase by 34% in comparison with 2016). The total for the remaining reports was quite similar to 2016 of reports – Analytical Monitors (50), Key Developments (11) and Briefing Notes (3).

2.3. Article 12 - Common application of surveillance tools

2.3.1. Eurosur Fusion Services - effectively enhancing situational awareness of the EU Member States

Frontex, in cooperation with other EU Agencies such as the European Maritime Safety Agency (EMSA), the EU Satellite Centre (EU SatCen) and European Fisheries Control Agency (EFCA) as well as commercial partners are delivering a fully-fledged package of the Eurosur Fusion Services (EFS) for supporting and further enhancing surveillance activities of the Member States. As of 2016 EFS comprises a set of 13 fully functional services offered to Member States and Schengen Associated Countries, enhancing their situational awareness at the external borders. In between 2015 - 2017 the services have been improved incorporating additional data sources to the services provided. One of the most significant examples is that as of 19 January 2017, Vessel Monitoring System (VMS) data has been made available to Frontex as part of the Frontex Service Level Agreement with EFCA. The data from the system facilitates the satellite-based transmission of fishing vessel position information to relevant authorities and thus also improves the service capabilities.

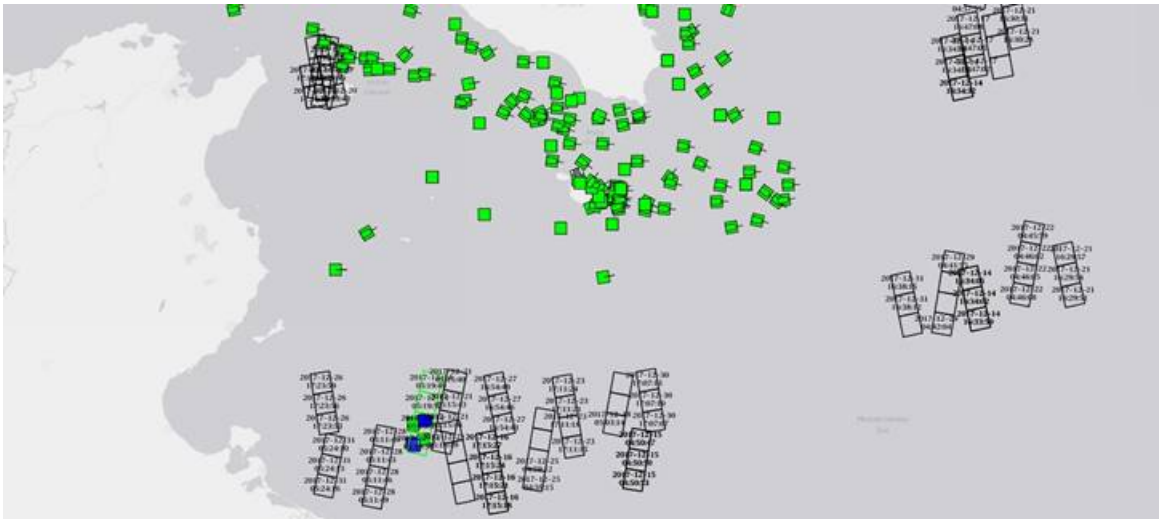


Image 2: Vessel Detection Service – examples of areas of activations in the Central Mediterranean Sea.

The services address the needs of the Member States under a wide range of domains. In the maritime domain users are provided with a set of vessel information services. **Vessel Detection Service** detects objects at sea thanks to an advanced satellite radar technology. Throughout the reporting period, the Vessel Detection Service functionalities were improved allowing operators to browse additional information about a particular acquisition and providing a better visualization. **Vessel Monitoring and Tracking Service** provides a constantly updated database on vessels and their positions, whereas **Tracking Vessels of Interest Service** delivers daily situational reports on selected vessels. During the reporting period the number of service users for tracking vessels of interest service has significantly increased, also including Europol. Fully operational since 2015, the **Anomaly Detection Service** has evolved into a very valuable tool to support operators with identifying potentially suspicious behavior of vessels. Access is provided to Law Enforcement authorities for a geographical area of interest based on specific requests.

Based on the position of a vessel of interest, taking into account its type and meteorological conditions, the **Maritime Simulation Module Service** can provide a prediction of a vessel's position in a given time frame using also the environmental layer as the input data. In addition to that, over the course of 2017 Frontex has also implemented multipurpose surveillance activities, referring to aforementioned **Maritime Aerial Surveillance** concept, by providing a real time surveillance data streaming to Frontex headquarters and requesting MS and Agencies (in 2017 EFCA). All these services in the maritime domain contribute to providing vital support especially in the context of SAR operations for saving lives at sea.

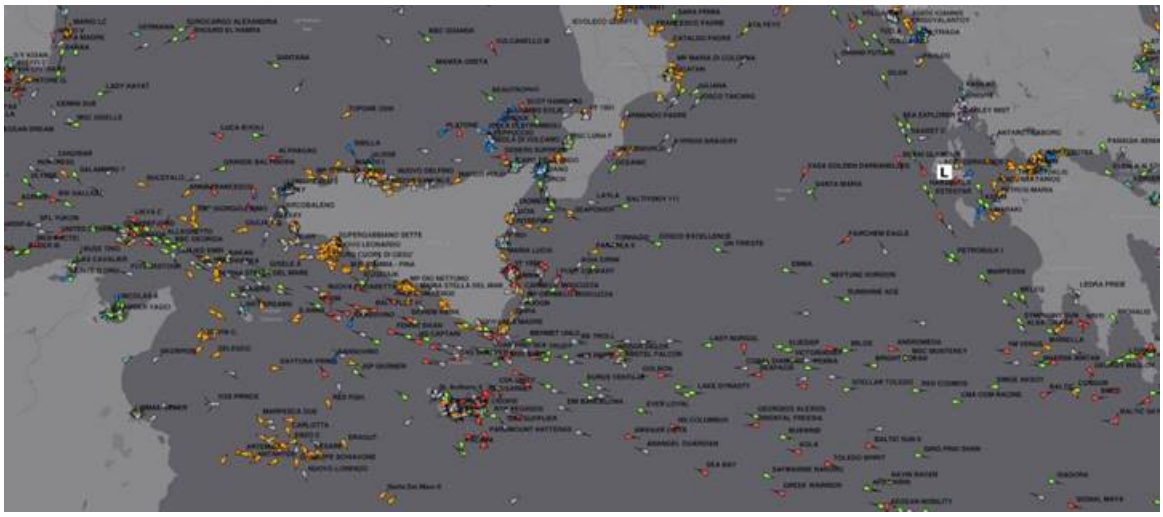


Image 3: Vessel Monitoring and Tracking Service - situational picture in the Central Mediterranean Sea.

EFS delivers also a range of earth observation services. **Satellite Imagery Service** provides satellite images of areas of interest to Member States. **Coastal Monitoring Service, Pre-frontier Monitoring Service,** and **Reference Imagery / Mapping Service** provide an in-depth analysis of such imagery. Three new services are under development, and will also serve to address the MS' needs for the analytical services and products.

Visual Data Discovery Service provides Member States with sets of detailed statistical information, while **Meteo Service** is a source of an advanced meteorological forecasts to be used alone or to enhance other services.

Frontex also provides the Environmental Layer as an integral part of the Eurosur Fusion Services in compliance with Art. 10 (European Situational Picture) and Art. 12 (Common application of surveillance tools) of the Eurosur Regulation. The layer contains information about atmospheric as well as oceanographic conditions and forecasts.

The information is used for different purposes, such as operational activities and satellite acquisition planning. The information contained in the Environmental Layer is also used for supporting prediction about potential disembarkation areas, and supporting in the execution of Search and Rescue (SAR) operations.

During the reporting period additional content is provided in the Environmental Layer as historical data upon request for analytical purposes and weather alerts and warnings visualized in the application.

Multipurpose Aerial Surveillance (MAS)

It is worth to highlight that in 2017 the enhancement of situational picture was achieved by the incorporation of real time in-situ data through the so-called Multipurpose Aerial Surveillance activities (MAS), implemented until December 2017. The primary objective of MAS, being one of the Eurosur Fusion Services, is to enrich the Situational Picture provided to Frontex, Member States, Schengen Associated Countries and EU bodies (e.g. EFCA) through real-time surveillance of the EU external borders and its pre-frontier area. In the course of the real-time surveillance, MAS contributed to:

- border security,
- search and rescue operations,
- detection and tackling of cross-border crime,
- the implementation of the Coast Guard functions,
- improved inter-agency and MS cooperation,
- improved information exchange between all partners,
- fishery surveillance.

The MAS concept is based on the collection of data and a full motion video by means of sensors installed on an aircraft, which are livestreamed to the European Monitoring Team (EMT) at Frontex. The streaming of a full motion video in real-time to coordination centres located in different places (Warsaw, Vigo, Lisbon, Rome) fostered a new generation of surveillance operations, whereby a real-time coordinated response had to be put in place.

Image 4: Image taken by the MAS asset.

The EMT mirrored the structure of a Eurosur National Coordination Centre (NCC) in the FSC European Monitoring Room, aggregating multiple authorities and supporting their decision-making capability. It consisted of duty officers with different backgrounds (i.e. law enforcement, search and rescue, fisheries control). The EMT received in real time the video streaming from the aircraft and disseminated the information to the coordination centres of the partners in order to manage the follow-up activities. Furthermore, information was inserted in real time in different platforms (JORA, Fishnet) in order to create a real-time awareness picture.

The Multipurpose Aerial Surveillance service was launched on 8 June 2017 with its first operational flight taking place on 15 June 2017. Following the successful implementation of MAS 1 pilot project, 2 airplanes operating under MAS were deployed in the Central Mediterranean until December 2017. This service will continue functioning in 2018 as part of the Eurosur Fusion Services (EFS).

In general the number of services is expected to grow in 2018 and onwards responding to the need to incorporate the newest state of art technologies and in-situ component for real time monitoring purposes.

2.3.2. EFS validation and quality assurance – operational exercises

Since 2015 FSC organizes and runs the Eurosur Fusion Services (EFS) operational exercises on regular basis. In comparison to the previous reporting period, in between 2015 - 2017 the number of services tested and areas covered has increased. In addition these exercises have become more complex involving participation and cooperation of several countries and combination of various type of assets (maritime, aerial, land etc.) used in real operational environment The exercises are performed in response to continuous business analysis of the operational use-cases and requirements from the MS/SAC. At the same time these exercises serve as validation activity of new or extended services. They also contribute to test the national capacities of the respective authorities, e.g. the capacities to respond to real phenomena with the use and support from the EFS tools and services.

The application of EFS services to different regions with the real case scenarios and their integration into maritime border surveillance is an important part of the maritime perspective and border surveillance for the MS. Gathering extensive amount of the source data, the national perspective and experience helps to bring the EFS to the next, more advance level.

Frontex and Member States share and put together the assets, human and technical resources and know-how in order to use all the national and European tools, systems and services. An important part of the exercise is gathering in-situ data from the national systems and from the assets directly which serves later on for analysis of capabilities and accuracy of the EFS and design of further extensions in the provision of the EFS.

Some samples of the EFS operational exercises carried out in 2017:

- On 20 – 22 March 2017, the 2nd Atlantic Operational exercise was carried out in Portimão, Portugal. The exercise was hosted by Guarda National Republicana (GNR), NCC. During the exercise, the naval assets and the mobile observation station were deployed, to reinforce the detection capacity. The boarding exercise and the tactical response and interception were conducted by respective National Authorities based on the information obtained from the services.

- On 5 – 26 April 2017, the EFS Campaign in Black Sea was organized by FSC. The 1st trilateral and Black Sea "EFS Operational Exercise" was organized in cooperation with Romanian and Bulgarian Border Guard authorities in Bulgaria and Romania, followed by Balkan FSC Information Exchange Conference held in Sofia, and FSC/Eurosur Fusion Services Workshop held in Bucharest.

- On 19 – 20 July 2017, the Eurosur Fusion Services Baltic Exercise took place in Latvia, being the first ever joint effort of Frontex, Poland and Latvia in the Baltic Region. The exercise was launched at the initiative of Latvian authorities. The operational activity was live streamed at the Maritime Coordination Centre in Ventspils (Latvia).

These exercises served to assess increases of the reaction capabilities of the MS, and to the improvements of the situational awareness through the provision and successful implementation of the EUROSUR Fusion Services by the Member States.

2.3.3. Copernicus Programme

Pursuant to the Delegation Agreement signed between Frontex and the European Commission on 10 November 2015, Frontex became an Entrusted Entity for the implementation of the Border Surveillance Component of the Copernicus Security Service. The purpose of Copernicus, being a programme managed and coordinated by the European Commission, is to provide Europe with accurate and reliable, up to date data collected from satellites and in situ sensors, and consequently increase situational awareness. As a consequence of the abovementioned agreement, the Agency acts as single and central point for the acquisition, fusion and delivery of Copernicus services until 2020.

The Border Surveillance Component complements the portfolio of services already delivered by Frontex through Eurosur Fusion Services (EFS). Eight services were incorporated under Copernicus umbrella and are strongly enhanced by the programme.

Service	Description
S1 – Coastal Monitoring	Punctual and ad-hoc imagery analysis reports, vectorised data and imagery of coastal strips (beaches and ports) identified through risk analysis to support the operational assessment of irregular migration and cross-border crime related activities
S2 –Pre-frontier Monitoring	Punctual and ad-hoc imagery analysis reports, vectorised data and imagery of the pre-frontier area identified through risk analysis to support the operational assessment of irregular migration and crossborder crime related activities.
S3 – Reference Imagery/Mapping	Very High Resolution (VHR) satellite imagery and vectorised data covering specific third country areas identified through risk analysis. This imagery is required for current and future analysis of irregular migration and cross-border crime related activities.
S4 – Maritime Surveillance of an Area of Interest	Identity and track of Vessels of Interest using Earth Observation data combined with In-Situ Data provided by open source, and by platforms and sensors.
S5 – Vessel Detection Service	Satellite based vessel detection (SAR) and identification (optical) correlated with collaborative systems (AIS, LRIT)
S6 – Vessel Tracking and Reporting Service	Combined terrestrial / satellite AIS, LRIT and VMS feed
S7 - Vessel Anomaly Detection Service	Alerts generated automatically when suspicious behaviour is detected
S8 – Environmental Assessment – for Risk Analysis	Environmental information to support operational planning, decision making processes, and satellite acquisition planning.

In addition to that, in the framework of Copernicus Frontex also benefits from the Copernicus Data Warehouse, an earth observation data hub available free of charge giving access to imagery provided by the Copernicus Space component and the contributing missions.

Thus, Copernicus framework supports Frontex to meet the objective of increasing the situational awareness by mapping, monitoring and providing risk assessment, in order to improve the EU internal security and fulfilment of Eurosur objectives.

2.4. Samples of the EFS use cases

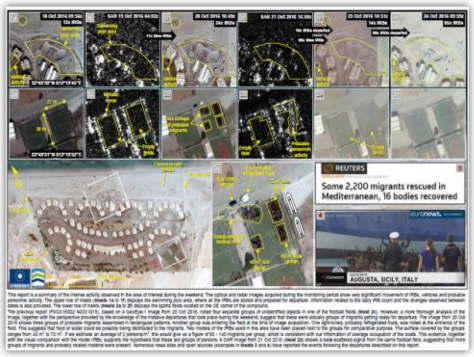
2.4.1. Migrants Rescue, September 2016

In September 2016 the EFS Vessel Detection Service (VDS), contributed to saving people in distress at sea north of Morocco. Spanish authorities were notified by Moroccan officials of a boat lost in the area, but without an indication of the exact location. In the meantime, a VDS satellite scan of the area that took place at the same time pointed to an object at sea. The information was swiftly forwarded to Spanish authorities by Frontex and used in a search and rescue operation. A boat with 35 migrants, including women and children, was encountered in the indicated zone and the people were rescued by a French OPV deployed in the JO Indalo.

Image 5: Picture from the radar detection

This case shows how an application of the state-of-the-art satellite radar technology in border surveillance could provide vital support to the extremely difficult task of tracking a small boat on the open sea.

2.4.2. Analytical warnings on imminent departures, October 2016



In October 2016, HUMINT indicated a possible departure in the coast of Libya. A Coastal Monitor Service was activated and the area had been monitored for several weeks. During the monitoring period multiple analytical reports and warnings were issued and shared with the ITA and MLT NCCs and EUNAVFOR MED Operation SOPHIA. The knowledge shared on the imminent departures from the Libya coast, contributed to saving lives at sea, improving reaction capabilities and gaining more knowledge on modus operandi of smugglers.

2.4.3. Support in dismantling a criminal organization, November 2016

In November 2016, a Pre-frontier Monitoring Service contributed to the dismantling of a criminal organization. This analytical service validated and identified specific areas, safe houses and vehicles activity associated with a cigarette smuggling criminal organization.

2.4.4. Interception of a facilitator's boat, April 2017

On 16 April 2017 a group of migrants arrived to the coast of Italy, close to Melito di Porto Salvo. Their journey was facilitated by smugglers. A detailed information on the smugglers' boat was provided by migrants to the Italian authorities and cross-checked through targeted monitoring. Using the obtained information, a simulation of the movements of the vessel was performed using Maritime Simulation Module. The service helped to locate the vessel and subsequently successfully intercept it on the sea.

Image 6: A simulation of the movements of the smugglers' vessel using Maritime Simulation Module.

2.4.5. Migrant rescue, June 2017

On 24 June 2017 two small rubber boats with 73 people on board were detected by Joint Operation Indalo 2017 asset performing a VDS follow-up flight. The recently enhanced Vessel Detection Service confirmed boats' position north of the North African coast, showing its capacity to detect even small objects (5-7m) on the sea. The people on the boats were rescued and brought to safety of the Spanish port of Motril.

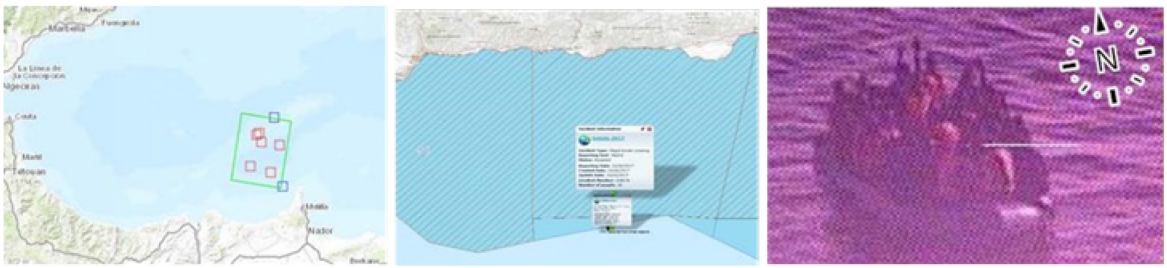


Image 7: VDS supports the detection of a boat with migrants north of Morocco.

2.4.6. Migrant rescue, October 2017

In October, MAS contributed to SAR operations involving 19 different vessels, which resulted in the rescue of approximately 716 migrants. On 12 October, the Maltese authorities expressed their gratitude to the European Surveillance Team for their assistance with the sighting of a small fishing boat in the proximity of Lampedusa resulting in the rescue of 38 people.

2.4.7. Migrant rescue, November 2017

In November, a total of 8 vessels were detected and intercepted in the Central Mediterranean resulting in the rescue of approximately 314 migrants. Search and rescue operations were carried out in multiple locations in the Central Mediterranean sea involving Italian, Norwegian and Portuguese authorities, as well as JO Triton and NGO assets.

Image 9: On 6 November, MAS identified one migrant vessel with 104 persons on board sinking.

2.4.8. Cross-border crime

On 15 June 2017, the Hellenic Coast Guards (HCG) detained a cargo vessel (Golendri) with smuggled cigarettes and arrested 6 suspects to be smugglers. The combined use of two Eurosur Fusion Services (EFS) based on HCG request complemented the national monitoring activities and directly contributed to the monitoring of the smuggling vessel from Montenegro to Crete and proves how EFS can contribute to Frontex and Member States efforts in combatting cross border crime.

Image 10: Interception of Vessel 'Golendri' with a cargo of smuggled cigarettes worth over 6 million EUR.

In July 2017, MAS-Central-MED 2 project contributed to the interception of a cargo vessel 'Falkvag' involved in criminal activities. The vessel was spotted by the MASCentral-MED 2 aerial asset and its movements were monitored by the FSC Vessel Tracking team. All information collected was delivered to the Spanish National Coordination Centre. 6 containers of smuggled cigarettes were seized as a direct result of cooperation between the FSC European Monitoring team, the JO Indalo team, and the Spanish authorities. As it was stated by Spanish media, "this was the biggest quantity seized in the history of Spanish customs".

Image 11: Interception of Vessel 'Falkvag' with a cargo of smuggled cigarettes worth over 12 million EUR.

2.5. Eurosur related trainings

Frontex in cooperation with EU MS and SAC developed and carried out the EU course for NCC Operators, providing the training and certification of NCC Operators, in order to ensure a harmonized implementation of Eurosur Regulation. At this stage there are 29 certified NCC Operators, 4 certified NCC operators' course assessors and 8 certified NCC trainers. The staff is regularly involved in deployments at FSC level. A new course will be carried out in 2018. The exchange progr amme for NCC Operators will be initiated in 2019, taking into account the certified staff. Course is carried out in close cooperation with FSC, ICT and FRO.

Furthermore, Frontex has been providing two types of Eurosur training since 2011: the Application Training for Eurosur users, and Technical Training to the ICT administrators. Currently up to 6 two-day sessions are held each year, providing training to up to 90 persons from NCCs and Frontex.