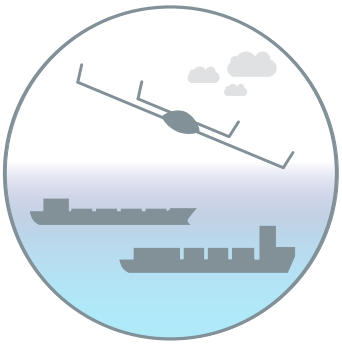
RPAS SERVICE

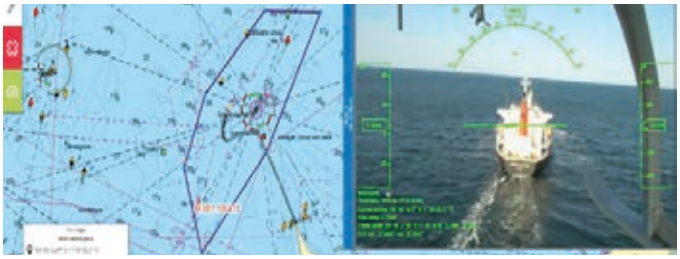
MARITIME SURVEILLANCE

EMSA
European Maritime Safety Agency

THE MARITIME CHALLENGE



Broad swathes of EU coastal areas and outermost regions are regularly monitored thanks to near real time, satellite-based Earth Observation. While this kind of monitoring is very valuable, it is only available at certain times depending on the satellite's orbit. When dealing with challenging and sometimes dangerous operations in harsh sea conditions, authorities need to be able to respond quickly. In these situations, satellites may not be the most efficient form of monitoring. Remotely Piloted Aircraft Systems (RPAS) can overcome this limitation and can be used as a complementary tool in the overall surveillance chain. This helps to increase maritime situational awareness for Member States as it enhances the maritime picture with additional sources of data and makes operations safer for coastal authorities mainly during bad weather conditions.



THE EMSA SERVICE

RPAS can be used as platforms for Radar and EO and IR cameras in order to scan wide areas and pursue suspicious behaviour at sea. The aircraft also carry other sensors, namely AIS, which enable the aircraft to detect, identify and categorise vessels of interest, to receive messages from ships far from shore or for locating distressed vessels or survival craft. The fusion of the data, collected by the different sensors, provides an additional data stream. In turn, it complements the existing maritime surveillance systems of the Member States. Their high level of deployability and availability means RPAS increase the operational surveillance capability.

EMSA's RPAS service provides long endurance and long range drones used in the civil maritime surveillance domain to support the execution of coast guard functions. Both the aircraft and the sensors are designed to respond to user requirements and needs. The provision of cost-efficient RPAS services in the maritime domain includes assets, tools and relevant expert staff to pilot the aircraft and to capture and disseminate the data.

The data flows generated by the service are provided free of charge to any requesting authority belonging to EU Member States, Iceland, Norway and the European Commission, i.e. there are no contractual costs for the user.

The service can also be provided to European agencies, such as Frontex and EFCA. Each deployment is for a minimum of two months and the RPAS comes under the command (operational instruction) of the relevant Member State authority or agency. Actual flight control/management will be undertaken by qualified pilots from the service provider. In order to facilitate operational efficiency and effectiveness, the relevant Member State authority should provide an appropriate take-off/landing area, on-site facilities (e.g. internet, water, etc.) as well as support in obtaining the RPAS permit to fly from the national aviation authority for the deployment concerned.

It should be highlighted that the RPAS (platform and sensor payload) is multi-purpose in nature and can be used for a range of activities. These include vessels and people in distress, the monitoring and detection of marine pollution including oil spills and litter, as well as the general identification and tracking of vessels of all sizes and their activities including identifying potentially illegal activities (e.g. illegal fishing, drug trafficking, illegal migration, etc.). The EMSA service is scalable so that it can be provided to several Member States in parallel.

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KEY CHARACTERISTICS

Advantages of using RPAS include:

- Large coverage, long endurance of sea areas surrounding EU or EFTA countries or even EU adjacent sea basins, for extended periods
- Capability to stay on site to support local operation, to follow the development of the maritime picture, and to monitor the position of vessels in distress
- Rapid flight activation: depending on RPAS type, flights can begin very quickly once the operation has started and the contractor has been mobilised
- Flight data can be complemented with other maritime data available to EMSA in order to provide a more complete maritime picture
- Designed to operate during day and night and in a broad range of environmental conditions, i.e. variable temperature, high humidity, crosswind, rain and (as there is no human pilot onboard) potentially dangerous environments
- Aircraft-to-aircraft notification by transponder to increase aviation safety.

The sensor payload can include the following:

- Electro-optical cameras to record the maritime scene, e.g. photographic evidence linking the AIS signal to a vessel and/or general observation of vessel activities, detection of oil and litter
- Thermal infrared cameras for vessel identification, locating people in distress, general observation of vessel activities particularly at night, support to oil slick monitoring and pollution response operations
- AIS transponder to identify vessels and determine their position.