LIGHTWEIGHT RPAS SERVICES SUPPORTING POLLUTION RESPONSE

GENERAL DESCRIPTION

Lightweight Remotely Piloted Aircraft Systems (RPAS) are deployed aboard most EMSA Oil Spill Response Vessels (OSRVs), providing aerial support for emergency response, exercises, and drills. Each RPAS is a lightweight Vertical Take-Off and Landing (VTOL) system capable of operating from limited deck space, delivering real-time aerial situational awareness and direct support to response operations. A certified RPAS pilot is available on board within 24 hours of emergency activation.

KEY CHARACTERISTICS

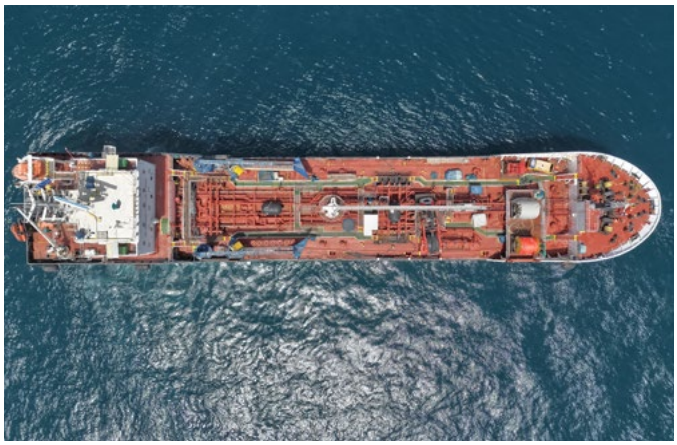
The use of the RPAS on board is directed by the OSRV On-Scene Commander, at the behest of the national authorities in charge of the response. The RPAS can be used to support oil spill response operations by:

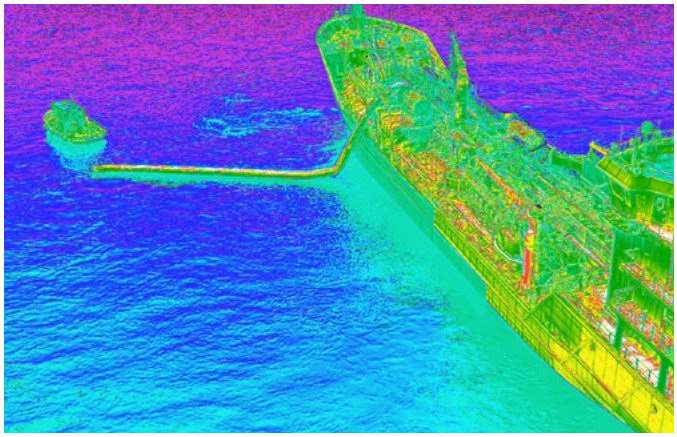
- identifying the source of pollution;
- locating surfacing pollution;
- providing overview of geographical extent and thickness of pollution;
- supporting real-time pollution monitoring through provision of high resolution, live video footage;
- increasing the efficiency of clean-up operations by guiding the vessel and monitoring the efficiency of oil collection and dispersant spraying;
- providing support to operational on-scene coordination of multiple resources.

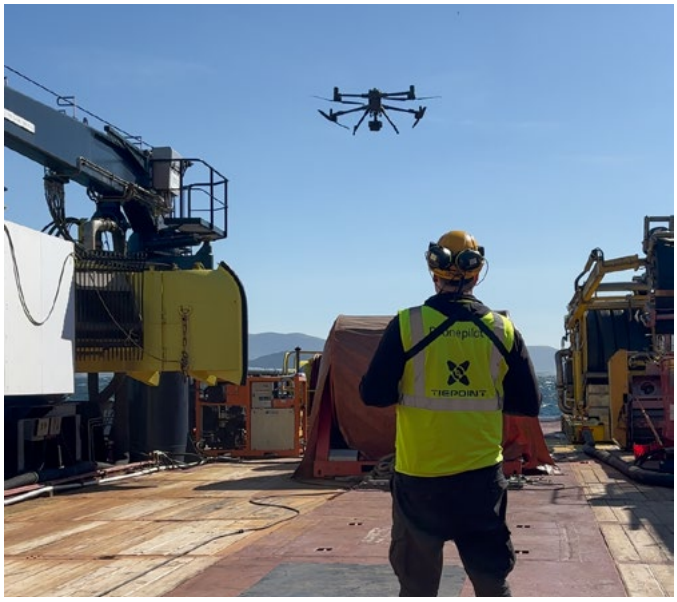
The pilot is responsible for the mission operation, including planning activities together with the OSRV oil spill coordinator and Member State liaison officer, performing safety briefs with vessel crew, maintenance to ensure equipment is operational, checking of authorisations and airspace for performing flights, collecting and distributing data.

MAIN COMPONENTS

- 1 x DJI Matrice 400 aircraft, batteries and battery charger;
- 1 x Ground Control Station, a lightweight hand-controller;
- 1 x Ground Data Terminal (laptop), providing a visualisation tool on board the vessel to show live video and associated data;
- Electro-Optical (EO) sensor for the visible spectrum with a 34× optical and 400× hybrid zoom, offering precise long-range inspection and detailed imaging. A wide-angle camera enhances situational awareness and supports 4K video;
- Infra-red (IR) thermal sensor with a resolution of 1280x1024, a 32× digital zoom and multiple colour palettes;
- In addition, a laser rangefinder provides accurate distance measurements, while a near-infrared (NIR) auxiliary light boosts low-light and night-scene performance.







TECHNICAL SPECIFICATIONS

MAXIMUM TAKE OFF WEIGHT	15.8 kg
MAXIMUM FLIGHT ENDURANCE	45 minutes
MAXIMUM HORIZONTAL SPEED	25 m/s
MINIMUM TAKE-OFF AND LANDING AREA	2m x 2m
MAXIMUM WIND FOR TAKE-OFF AND LANDING	12m/s (24 knots)
RAIN PERFORMANCE	Moderate Rain (5mm/h)
PROPULSION SYSTEM	4 electrical motors with propellers, powered by battery
DATA SHARING	Locally via visualization tool (laptop on bridge of vessel) or streaming over internet to the EMSA RPAS data centre, in case internet connection is available