



Interview of the day

Pierre Éric POMMELLET,
President of GICAN

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Innovation - Special Forces

Daily Exclusive: ExoJet, the thruster designed for and with the Special Forces

They may only be 30 cm high and less than 20 cm long, but they are packed with innovation: attached to both thighs.

[→ read the article](#)

Innovation - Maritime surveillance from space

Surveillance: a future multi-domain satellite constellation

A few months ago, Rennes-based start-up Unseenlabs announced plans to launch a satellite constellation in 2026, featuring innovations in maritime, land and space surveillance.

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Industry - Weapon systems

SM40 launch!

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Industry - MOC

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With ten employees, TechVar is a quiet leader in the field of mechatronic systems. Founded in 2007 in the Var département, in the south of France.

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Special reports - Drones

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The SMDM / Aliaca light tactical UAV heads to sea

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Talks

Opportunities in the global naval defence market: trends and disruptions

Over an hour, four guests from the navy and industry shared their thoughts on geopolitical tensions, European defence and technological developments ...

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Interview of the day

Pierre Éric POMMELLET, President of GICAN

What is your outlook as we enter this 2024 edition?

The shipbuilding industry is evolving; it is faced with an ever-increasing number of war zones and the fact that innovation in military technology is picking up speed.

Since the last edition of Euronaval in 2022, international tensions have continued to grow, particularly in Europe, both on land and at sea. Every country

needs to take this geopolitical reality into account if they are to have the means to defend their sovereignty.

In terms of technology, certain systems that were still only blossoming ten years ago, such as artificial intelligence and drones, now constitute the cutting edge of innovation.

In November 2024, Euronaval is set to be the naval industry's most important international meeting for countries wishing to ensure their security, as well as for manufacturers with the technological means to fulfil these requirements.



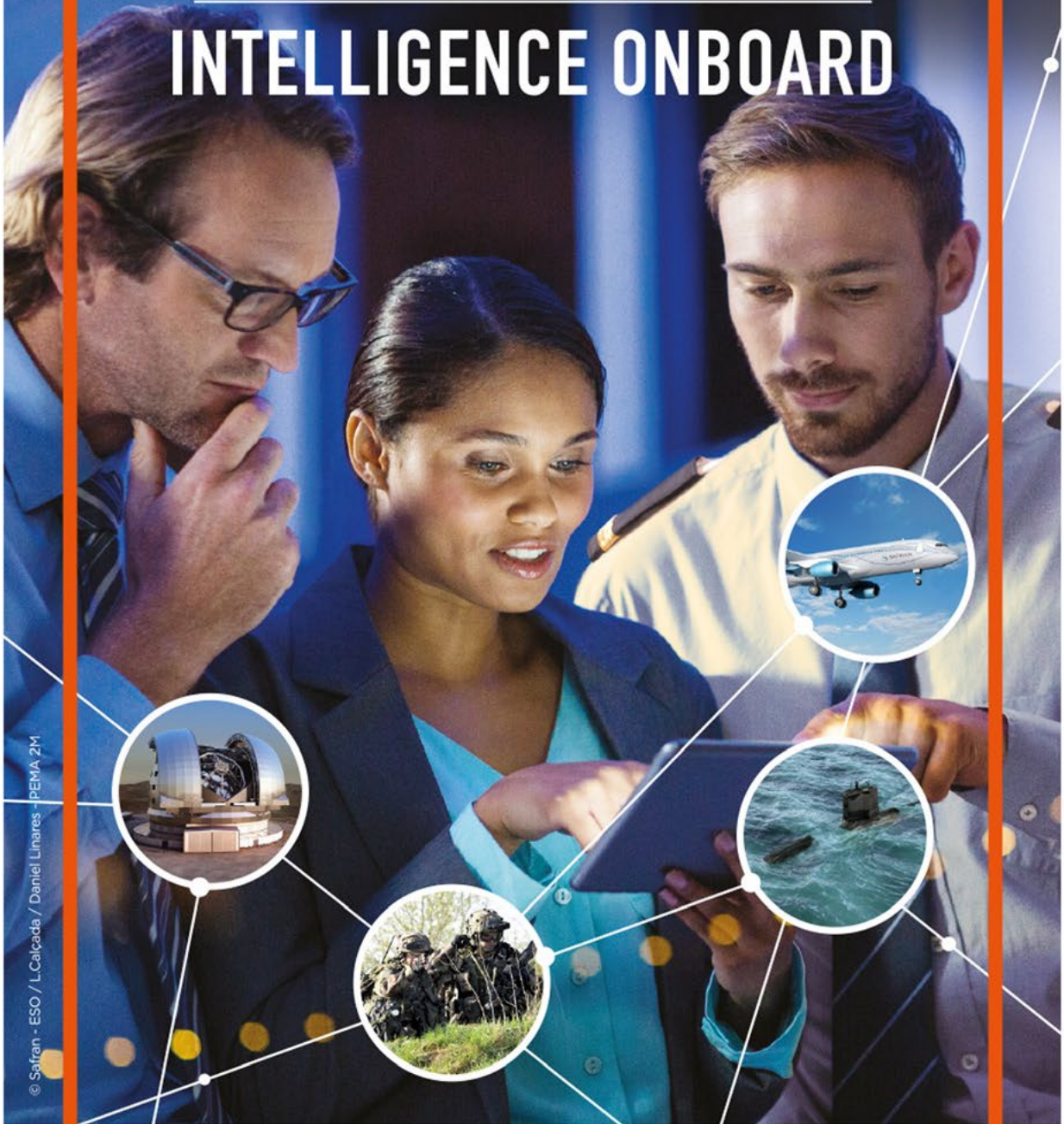
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[→ read the rest of the interview](#)

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Daily Exclusive: Exojet - the thruster designed for and with the Special Forces

They may only be 30 cm high and less than 20 cm long, but they are packed with innovation: attached to both thighs, Alseamar thrusters offer divers a «magnetic coupling motor: no friction, hence lower energy consumption», explains Rémi Lecomte, sales and development manager for Special Forces for Exojet, which is being presented to the public for the first time.



©Alseamar

Another advantage: should a fishing line or algae become stuck in the propeller, the protective grille can be removed by simply turning it 90 degrees – a simple manoeuvre requiring no special tools. The propeller can be clipped on and removed from the motor just like a magnet.

The motor is powered by a single battery, which can be coupled to two others. The diver has 1 hour and 10 minutes of autonomy per battery at a speed of two knots, or twice the speed of a trained combat swimmer. Custom-made for

the Exojet, the lithium battery is reliable and can be safely transported on board an aircraft or a nuclear submarine. The manufacturer guarantees a minimum lifespan of five years, based on a hundred battery charges annually. When the battery is drained or fails, the diver can cut the power feed from one battery and connect a second unit, rapidly and while submerged.

A remote control box worn on the left forearm completes the unit, allowing speed settings, real-time remaining operating time based on the selected speed, or breakdown warnings.

The result of the full-time work of five engineers and technicians over a two-year period, the Exojet has been designed with and for the Special Forces. The DGA's sole aim: a lower price than the US competitor and optimised maintenance costs. The prototype has undergone testing since last February by French combat swimmers. It enables them to descend to a depth of 50 metres, in temperatures ranging from -2 to 35°C.

A first delivery of 20 Exojets is scheduled in September 2025. The Armed Forces are expected to order a total of approximately fifty units.

Aude Leroy

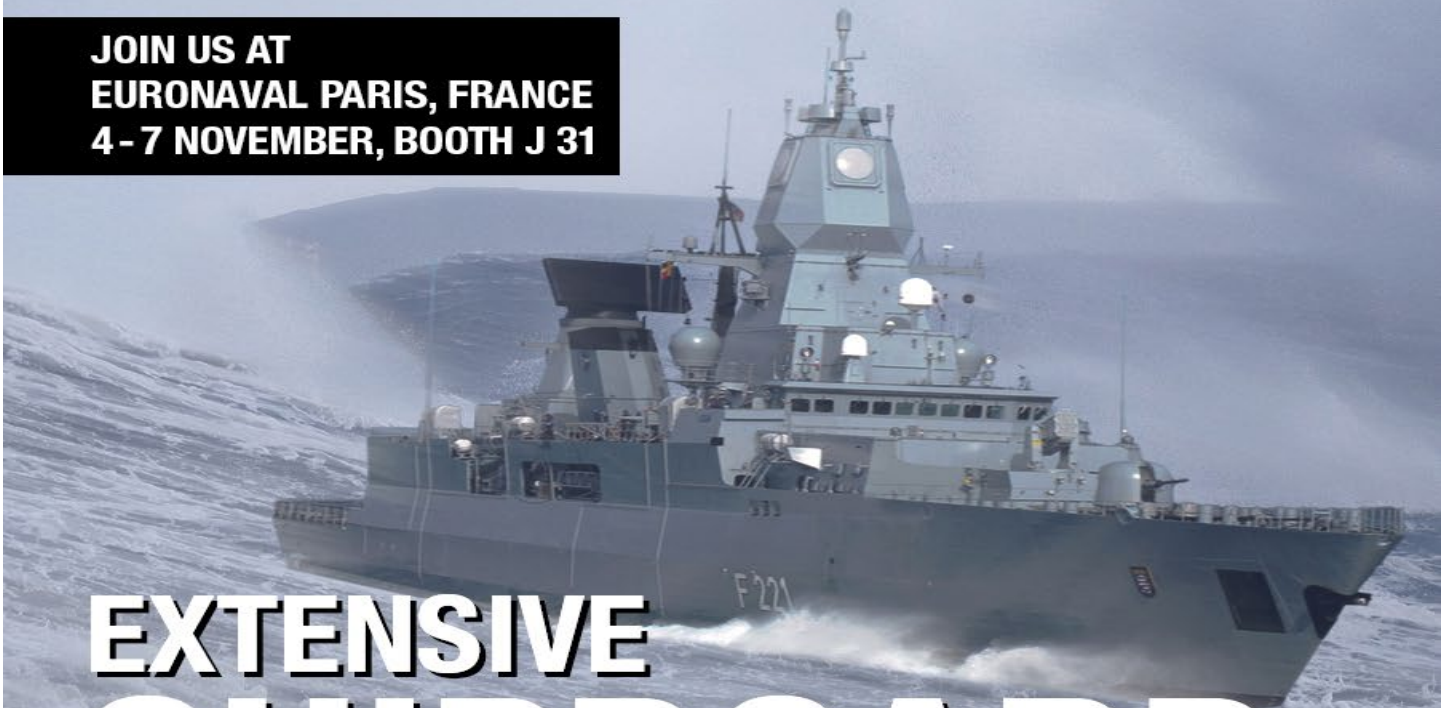
Key figures:

Harness + battery + remote control + 2 thrusters: 20 km on land, 4 kg under water

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Innovation : Maritime surveillance from space

Surveillance: a future multi-domain satellite constellation

A few months ago, Rennes-based start-up Unseenlabs announced plans to launch a satellite constellation in 2026, featuring innovations in maritime, land and space surveillance.



©Unseenlabs

It will be a future world first. In 2026, Unseenlabs will deploy a constellation of satellites for maritime, land and space surveillance. The technology — developed in-house — is described as «*a payload onboard the satellites*» capable of detecting radio frequency (RF) signals.

Developed since 2015, when the start-up was created, this technology became operational in 2019 with the launch of the first satellite, followed by a constellation of 13 nanosatellites weighing 10 kg. For maritime surveillance, this set of satellites is located in low Earth orbit (LEO), at an altitude of 500 km, offering a revisit time of 4 to 6 hours. The data is then delivered to the various customers.

«We send them maps showing the positions of all the ships. We show them the maritime activity in their area of interest. It's up to them to decide whether or not to intervene within this perimeter», explains Cannelle Gaucher, communications manager at Unseenlabs.

Initially, only the position of ships that had activated their automatic identification system (AIS) was detected: *«Even if the AIS is mandatory, some ships avoid activating it to carry out illegal activities such as piracy, illegal fishing, fuel dumping... But in other cases, the AIS becomes unintentionally invisible»*, observes Cannelle Gaucher, who underlines the considerable lack of data in terms of maritime surveillance.

The satellites developed by Unseenlabs are a solution to this problem, since they are not based on the RF signals emitted by the AIS, but on the emissions of the electronic systems on board the ships.

With the next constellation of 150-kg satellites, the company will be able to extend this surveillance system to land, air and space. According to Cannelle Gaucher, this promises to be a major challenge: *"The number of signals is going to be enormous, so our engineers are working on processing all the signals picked up simultaneously. This is the issue we face with the next generation"*.

S. Rose Joannis

Key figures:

- \$24 billion: estimated global cost of piracy in 2021
- 15 to 20% of catches come from illegal fishing
- 1% of those responsible for illegal fuel dumping at sea are prosecuted



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Industry Insights - Weapon systems

SM40 launch!

Unveiled at the show, the SM40 submarine-launched anti-ship missile is displayed in model form because although it is already being marketed, development according to MBDA's customers' specifications is still in the final stages.



©MDBA

The SM39 is reaching the end of its life, and the SM40 will succeed it: a “mini” MM40B3C, it is shortened to fit into the SM39 Underwater Vehicle (which reduces cost), installed on board all Naval Group submarines.

Developed with own funds, the engineers have redesigned its wings so that it can be perfectly housed in the vehicle. But, above all, this latest addition to the Exocet family has 2.5 times the range of its predecessor: 120 km instead of 50 km. *“This is because surface vessel sonars can now detect targets at very long distances, such as the Captas 4”*, explains

Stefano Bertuzzi, Director of Naval Systems, who points out: *“Firing from so far away also allows an attack by stealth on a ship.”*

Fitted with a new self-guidance system, the thruster has also been upgraded to ensure the SM40’s resilience in an electronic battlefield.

MBDA prides itself on the 4,000 Exocet missiles (MM38, MM40, SM39, AM39) it has sold to 36 customers around the world. The 4,000th unit is intended for the French Navy.

Aude Leroy



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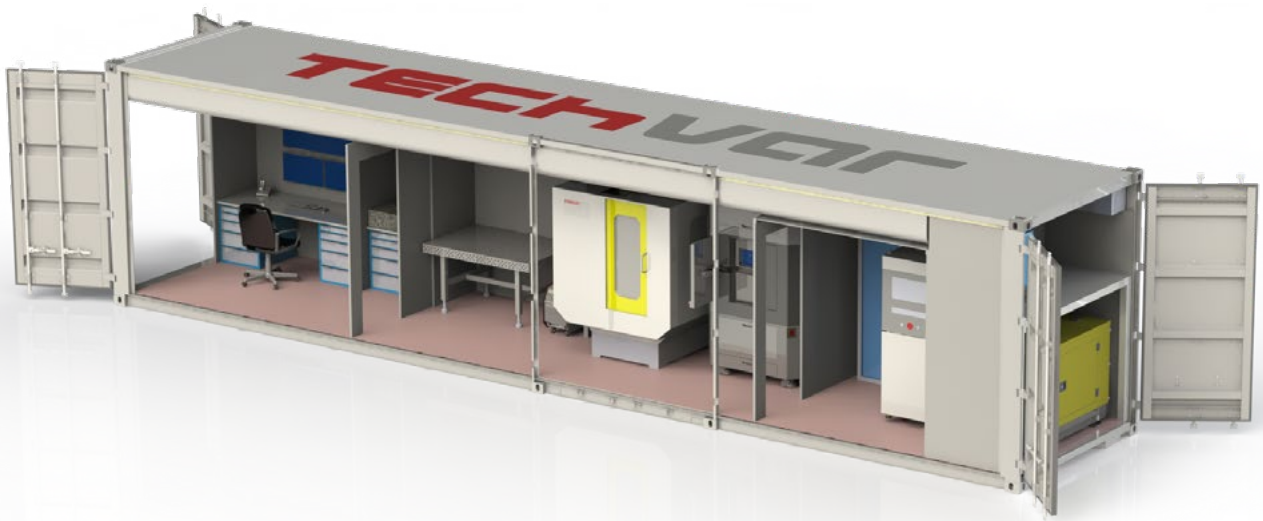
STAND
G76

The graphic features a dark blue background with a glowing blue circular radar or sonar display on the right side, showing concentric circles and a central target. The text is white and centered.

Industry Insights - MOC

TechVar, a small but high-performance and innovative company

With ten employees, TechVar is a quiet leader in the field of mechatronic systems. Founded in 2007 in the Var département, in the south of France, the company manufactured the entire electrical structure and internal electronics of the first oceanic drone demonstrator DDO (Démonstrateur de Drone Océanique), designed and developed privately by Naval Group in a mere two years.



©TechVar

This prototype will form the basis on which the company will design the extra-large uncrewed underwater vehicle (XL UUV) following the inking of the framework agreement with the French Defence Procurement & Technology Agency (DGA) in December 2023. This innovative project enabled TechVar to rapidly build new expertise, says its CEO, Raphaël Lauzier: *“We had to find a way to produce a circuit-breaker that can reset itself, automatically. We drew on our technological building blocks. We are not simply a design office; we go the entire way through to the delivery of the functional product.”*

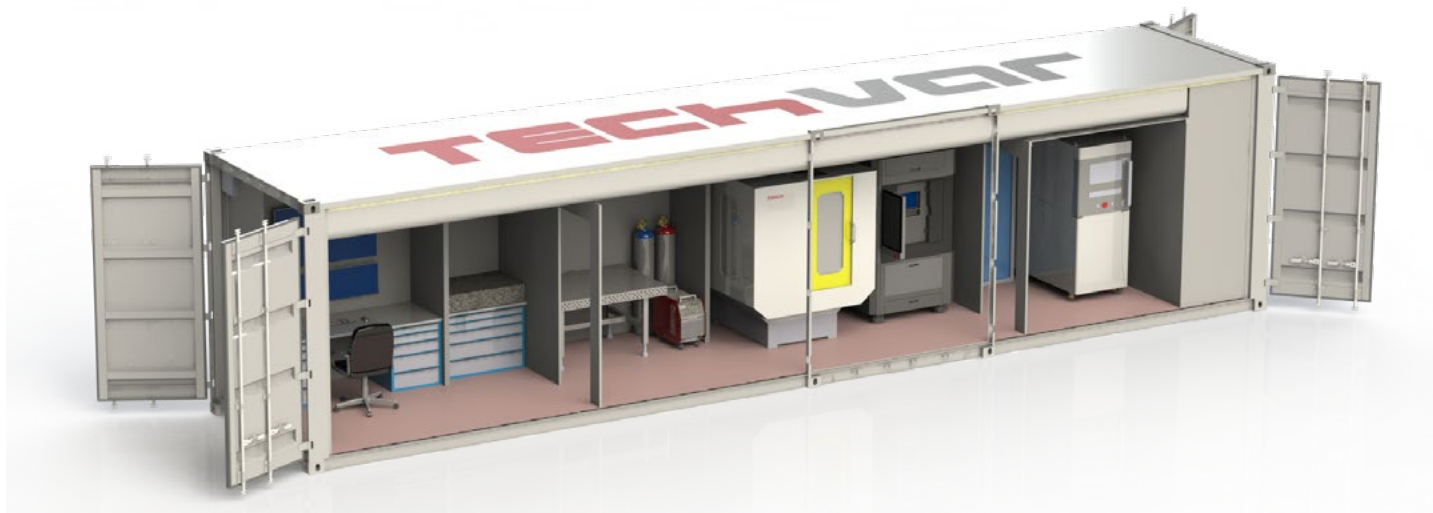
Another strength of the French SME is its ability to reverse-engineer and counter obsolescence: *“On a ship, everything becomes obsolete after 20 years, whereas the ship is designed to last”*, explains Raphaël Lauzier, *“so we either integrate new components onto the electronics boards, or we recreate them so that the new components function, or we design complete new systems by integrating communication, new data, etc.”* To modernise SSNs, TechVar created interface boxes to launch torpedoes, enabling the legacy systems to ‘talk’ to the new ones, for several types of torpedo. This very specific task led the company to invent new tools.

Mobile MRO Centre

Hence the TechVar Embedded Workshop (TEW): a mobile, modular, multi-technology maintenance and production station. Integrated inside a shipping container, this kind of mobile workshop was the outcome of a discussion with a customer about MRO issues. It is not uncommon in the military world to see an aircraft bring one or more spare parts to an external site in the event of a breakdown.

To fill this gap, the TEW comes with the production facilities of a state-of-the-art factory to produce complex parts to high requirements. This laser component manufacturing bench works like a 3D printer, but with metal (steel, stainless steel, titanium, aluminium, etc). The technology can be used aboard ship within certain sea states: no excessive heeling or impacts, and no rough seas. While the container can be installed on the deck of a supply ship or an amphibious assault ship, it can also be installed in a port area, as it is autonomous in power and communications.

A satellite video platform allows workers in the TEW to receive help from experts anywhere on the planet.



©TechVar

TechVar's CEO is in the midst of arranging financing for the demonstrator, which will be provided for testing in military (Navy, Army) or civilian applications (offshore, such as on oil rigs or isolated industrial sites). More cost-effective than a machining centre, the TEW should cost approximately 1 million Euros.

As proof of its interest, the French Navy's Fleet Support Service awarded the unit its Innovation prize last June in Toulon.

Aude Leroy

Special reports - Drones

Daily Exclusive: Beware of the Black Bird

The idea behind the Black Bird system is to combine deep water and the air, with the aim of operating from the ocean depths.

[→ read the article](#)

SeaQuest-S: From deterrence to interposition

Focus on SeaQuest-S, one of Naval Group's new uncrewed surface vehicles (USVs).

[→ read the article](#)

The Tracus System, A drone swarm for naval training

SeaOwl Technology sets a new benchmark in counter-drone systems with Tracus, a fleet of autonomous surface vehicles (ASVs) for naval forces.

[→ read the article](#)

SEAMOS MR-5K: Optronic solution to protect ships against drones

Exavision's SEAMOS MR-5K optronic solution is offering new maritime surveillance features addressing the needs of counter-drone warfare.

[→ read the article](#)

The SMDM / Aliaca light tactical UAV heads to sea

The Aliaca range of light tactical unmanned aerial vehicles (TUAVs) has found a berth on French Navy patrol vessels and other ships too.

[→ lire l'article](#)

Daily Exclusive: beware the Black Bird



The idea behind the Black Bird system is to combine deep water and the air, with the aim of operating from the ocean depths.

The system comprises a small unmanned aerial vehicle (UAV) contained in a watertight vehicle (called autonomous underwater vehicle, or AUV), a remote control relay buoy (X-SUB) and a remote control system (called the Ground Control System, or GCS).



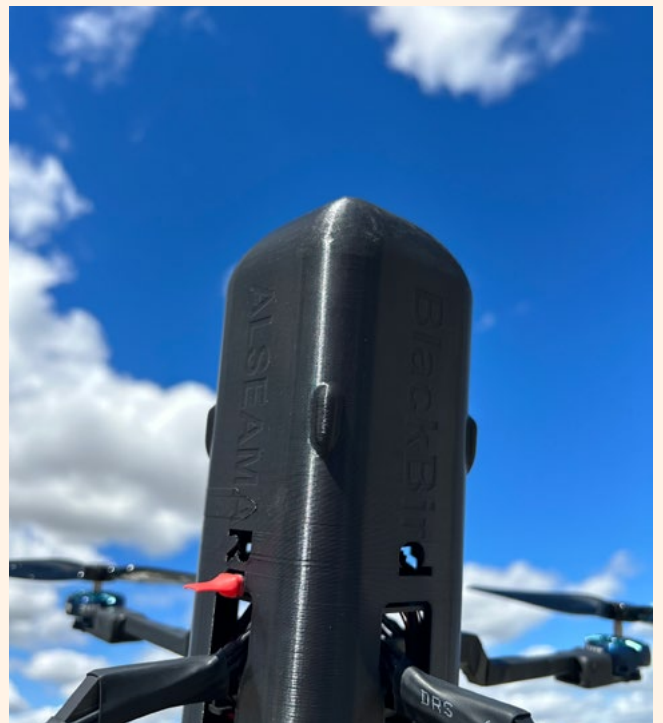
©Alseamar

In use, the AUV, which looks like a large capsule, emerges from the hull of the submerged submarine. Once it reaches the surface, the UAV is ejected and deployed towards its operational target, while remaining connected to the submarine, deep underwater.

To ensure communication between the UAV and the subma

rine, the releasable radio-communication buoy (X-SUB) is used as a remote antenna. It allows the discreet transfer of data on electro-magnetic signals (converted into RF signals) between the UAV and the submarine: *“This antenna, which is immobile on the sea surface, significantly reduces surface give-aways”*, explains Olivier Jacques, the underwater expert at Alseamar. *“No trace, no wake: it is undetectable in calm sea conditions.”*

The buoy is connected to the submarine by means of a fibre-optic cable as thin as a fishing line. It is 7 km long and unreels as the submarine continues its journey. Finally, the UAV is remotely operated from the submarine, enabling various parameters to be modified during the course of the mission.



©Alseamar

Capable of flight at different heights, the intelligence UAV weighs between 1 and 2 kg. It can fly several kilometres away while remaining connected. It is ideal for coastal overflights, monitoring drug trafficking or illegal fishing, or even observing commercial shipping, which can prove strategi

cally important and of interest in wartime. Its small size (60 cm) allows several units to be carried on the submarine. It is a single-use system, and drops into the water and sinks at the end of the mission.

The economic aspect was taken into account at a very early stage, and the Black Bird system will cost much less than an hour's flight using a recce aircraft or satellite service. Five Black Bird systems have already been produced. In the event of a major order, the systems will be produced *"in the form of a puzzle, to prevent copying of our know-how."*

Aude Leroy



©Alseamar

Facts and figures:

- Between 40 and 45 minutes of UAV flight autonomy
- 4 inches - that's the diameter of the buoy antenna
- Above the buoy, a balloon automatically inflates with CO₂. A copper mesh on its surface boosts high-frequency sensitivity.
- The balloon deflates and is automatically isolated thanks to a smart mechanical system.
- Sea trials expected in Q4 2025
- Only presentation: 14 July, in the Cour des Invalides, in Paris

SeaQuest-S: from deterrence to interposition

Focus on SeaQuest-S, one of Naval Group's new uncrewed surface vehicles (USVs)

It's called SeaQuest-S (for Small), is 9.30 metres long and comes with a folding 4-metre mast. The mast, called Panoramic Sensor Integrated Module (PSIM), is the pride of the engineers who designed it: this single unit can support *"an entire set of navigation, information (for the first production unit), and security sensors, the complete Control Command section as well as on-board intelligence and its computers"*, explains Alexandre Humeau, sales director at Sirehna, a Naval Group subsidiary; *"the customer installs the payloads that they want, in stages, based on their needs: the mast is one of the major value-adds of this uncrewed surface vehicle."*

The two other modules of SeaQuest-S are the front section,



©Naval Group

which can accommodate a swarm of drones, additional fuel or even weapons: *"We are not saying that it is armed"*, adds

Pierre-Antoine Fliche, of Naval Group's Drones, Autonomous Systems and Submarine Weapons (DSA) Department, "*but that it is ready for combat and can carry a certain range of options.*" The rear compartment houses communications, but everything is interchangeable, depending on the needs of the customer, be they governmental or civilian.

The other significant innovation is that the system is specifically designed to be stowed on a front-line vessel, in the space originally intended for a commando raiding craft (CRC), for example, aboard a frigate, a logistics or transport ship, or even a minesweeper. The advantage is that no changes are required to the ship's structure, nor modifications to the lifting equipment. Deployed from on board ship or land, alone or as a swarm, SeaQuest-S can withstand up to sea state 5 even though the mission profile is generally up to sea state 3.

Its main means of defence is escape, thanks to its 350 hp (Diesel) inboard «waterjet» thrust motor, which gives it excellent speed and manoeuvrability. It travels at 35 knots/hour on missions lasting approximately five hours. It has a range of over 200 nautical miles. This allows it to cover sensitive areas, to act as a remote sensor for a frigate – to which it supplies the information it gathers directly, or to detect an intruder or presence.

Fitted with a composite, carbon-reinforced hull, the first production unit was launched in July 2024.

Aude Leroy

Facts & figures:

- Created on only 18 months
- 9.30 m long
- Approx. 5 tonnes (more than a CRC)

The Tracus System, a drone swarm for naval training

SeaOwl Technology sets a new benchmark in counter-drone systems with Tracus, a fleet of autonomous surface vehicles (ASVs) for naval forces.

The Red Sea, the Persian Gulf, the Black Sea: increased threats in various maritime operational theatres against commercial shipping has driven the French Navy to boost its counter-drone capabilities: *“These are small vessels, mostly remotely operated, which deliver explosives to a target. To counter them, it must be possible to detect, identify and destroy them”*, explains Matthieu Glade, CEO of SeaOwl Technology.



©SeaOwl

A subsidiary of the SeaOwl group, the company is responsible for the development of high-technology systems in the field of defence and energies associated with the maritime sector.

The Tracus system was designed in collaboration with the French Navy as a training tool, and was developed over a

four-month period. It comprises an autonomous fleet made up of 5 to 20 vehicles capable of simulating multiple usage scenarios: *“Some are easy to detect, while others are much less so. We can make identification very easy, or almost impossible. As for destruction, we ensure that it is very difficult.”*

The equipment consists of small watercraft fitted with autopilots manufactured by the subsidiary, with onboard systems that make them navigation-capable: *“The unit navigates autonomously following the orders it has been assigned”*, says the CEO. *“We have created several types of mission, using single or multiple drones. We sell a multi-purpose system capable of providing several levels of training based on basic, complex and extremely complex training scenarios.”*



©SeaOwl

The Tracus system was tested for the first time in the Mediterranean, as part of Exercise Wildfire: *“The operation was a great success for the French Navy, and a technological ac-*

complishment that is driving us forward”, says Matthieu Glade.

At the end of September, the French Navy launched a large-scale live-fire training exercise involving several front-line ships and frigates.



©SeaOwl

The Tracus system was used to simulate attacks on the Navy frigates. It will be used again in future exercises in 2025, and the CEO has already received *“strong expressions of interest in the system from several leading naval forces. Its performance is therefore set to go much further.”*

S. Rose Joannis

SEAMOS MR-5K: Optronic solution to protect ships against drones

Launched at Euronaval 2022, Exavision's SEAMOS MR-5K optronic solution is offering new maritime surveillance features addressing the needs of counter-drone warfare.

To ensure that yesterday's innovations do not become out of date today, Exavision is keeping pace with navy requirements. And counter-drone warfare is one of the emerging priorities.

This year, the 100% French-owned company – acquired by Ineo Defense at the end of 2021, becoming part of the Equans group – is presenting an upgraded version of its SEAMOS MR-5K optronic solution, a multi-sensor camera system (optical, thermal IR and laser) combining optics and electronics.



©Seamos

Exavision is targeting its technology at Offshore Patrol Vessels (OPVs), i.e. vessels such as coastguard fleets, corvettes or uncrewed surface vehicles (USVs).

To achieve this, the company, which specialises in medium- and long-range optronic solutions (between 5 and 30 km) has integrated AI to recognise and track air and sea targets.

This optronic system, mounted on a gyro-stabilised turret on patrol boats, can monitor the surrounding area over a range of 5 to 6 km.

SEAMOSMR-5K has opted for uncooled thermal technology, which is less expensive and has a shorter range, but does not require compulsory preventive maintenance, i.e. a return to the factory every 3 to 4 years, which is necessary for all thermal IR cameras with cooled sensors.

For infrastructures such as large commercial ports or maritime bases, Exavision offers a similar land-based solution, called NEMOSYS, with a range of up to 30 km, also suitable for counter-drone operations.

Paul Laquière

SMDM / Aliaca :

le drone tactique léger qui prend le large

La gamme de drones tactiques légers Aliaca séduit les patrouilleurs de la marine française et même au-delà.



©Charles Wassilieff Marine Nationale Défense

The Aliaca range of light tactical unmanned aerial vehicles (TUAVs) has found a berth on French Navy patrol vessels and other ships too.

A lightweight and discreet TUAV with a low logistical footprint is just what the French Navy needed for its ocean patrol vessels (OPV).

Since 2020, SurveyCopter, an Airbus Defence and Space subsidiary with 30 years' experience in the design, production and operational support of light tactical unmanned aerial systems (TUAS), has equipped 19 French patrol vessels with its Aliaca system. Each system comprises two UAVs, a catapult, a net and two antennas.

The Aliaca system has been certified and qualified by the French Defence procurement and technology agency DGA and has been in operation with the French Navy since 2022, as part of the Navy's SMDM mini-drone programme. It is available in land-based or naval versions, with thermal or electric propulsion.



©Charles Wassilieff Marine Nationale Défense

These 16-kg UAVs are mainly used for intelligence, surveillance and reconnaissance (ISR) missions in the Mediterranean, the Gulf of Guinea and French overseas territories.

The electrically-powered Aliaca UAV can travel up to 50 km around the ship and offers an endurance of 3 hours. The electric version is extremely stealthy, allowing the vehicle to fly into close proximity with suspect vessels, such as pirate ships, illegal fishing vessels, go-fast vessels and smugglers.

Its daylight and IR cameras enable it to detect boats sailing without AIS, the VHF radio automatic identification system used to identify ships.

For now, the main customer for SurveyCopter's Aliaca family

is the French Ministry for the Armed Forces. In December 2023, the French Navy signed an order for 15 additional Aliaca systems. SurveyCopter's light UAV system is of particular interest to patrol boats that cannot carry helicopters. However, the systems are also finding a home on frigates, as flying a drone is still much cheaper than using a helicopter.



©Charles Wassilieff Marine Nationale Défense

This year, two French F732 surveillance frigates, the Nivôse in Réunion and the Germinal in the French West Indies, have adopted the Aliaca system to complement their helicopters. Following these encouraging developments with the French

Navy, SurveyCopter has made no secret of its ambitions to offer its system to other European navies.

Paul Laquière

Euronaval Talks 1

Opportunities in the global naval defence market: trends and disruptions

Over an hour, four guests from the navy and industry shared their thoughts on geopolitical tensions, European defence and technological developments and disruptions



These past few years have marked a significant paradigm shift for naval power. No longer an uncontested space from which to carry out force protection and strikes, the maritime domain is now witnessing uninhibited expressions of power and significant rearmament.

Alix Valenti



read the full Talk 1

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