ALSEAMAR
ALCEN

SEA EXPLORER Underwater Glider

Low-logistics & Multi-mission glider

Application Fields

Oceanography & Science: Environmental Research & Monitoring

Oil & Gas: Exploration & Environmental Baseline Studies

Defense & Security: Acoustic Monitoring & Patrolling

Key Features

Large-scale (thousands of km) & enduring (weeks to months) observing system, covering the entire water column

Autonomous vehicle & near real-time data transmission: onshore piloting using satellite telemetry

Very cost-effective data collection device: easy to operate, no surface supervising boat required

Key Benefits

Economical & Low-Logistics:
- Rechargeable Battery = Substantial [Budget + Time] savings (No energy pack replacement / No vehicle opening / No re-ballasting)
- Interchangeable payload sections

Enhanced Performances:
- Large ballasting volume: high speed & maneuverability
- Large payload sections
- Shallow and deepwater operations

Reliability:
- Low leakage risk: glider rarely opened (rechargeable battery) & internal actuators (no external moving parts)
- Wingless design: no break, nor entanglement

General Principle

The SEA EXPLORER is a powerful autonomous sensing platform dedicated to collecting water column data profiles with very large spatio-temporal coverage (from regional to local scale).

Driven by changes in buoyancy, the vehicle silently glides without wings, facilitating launch & recovery operations, avoiding wing breaks and limiting risks of entanglements (plastic debris, seaweed, fishing nets…).

The modular design allows fast & easy change of the payload by just replacing the vehicle nose section. The payload bay offers large volumes in wet and hyperbaric sections.

An integrated hardware/software suite allows constant supervision & mission control from any place in the world by using a server 24/7 available for vehicles calls. When the SEA EXPLORER surfaces, it sends ashore its GPS position, collected data and receives new mission commands via Iridium telemetry.

innovation & services at sea

Specifications

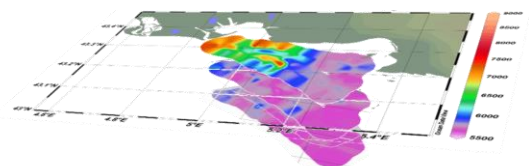|	
Body size: (DxL)	0.25 m x 2 m + 0.7 m foldable antenna
Wingspan:	56.5 cm. Wingless for extended survivability
Weight:	59 kg in air
Ballast volume:	1 L (+/-500ml)
Speed:	Up to 1 knot horizontal
Payload:	9 L / 8 kg in two sections (wet/dry)
Architecture:	2 separated low-power CPUs for payload & navigation
Embedded software:	Payload: Opensource C++ / Linux Navigation: Proprietary
Depth rating:	700 m (850 m survival)
Pitch in navigation:	+/- 15 to 40° (+/- 20° typical)
Turn radius:	20 m (allows virtual mooring)
Battery:	Rechargeable Li-ion
Battery endurance:	Up to 2 months with self-logging GPCTD
Recharging time:	20 hours
Communications:	Triple antenna with flashing strobe light GPS / Satellite (Iridium) / Radiofrequency
Local Radio range:	1km @ 902 to 928 MHz (Subject to ship antenna and sea conditions)
Data format:	Compressed CSV (native)
Data downloading:	Ethernet cable through external connector
Safety:	Autonomous Drop-weight Option: Locator Pinger (ULB) and/or Argos
Sensors:	4 "puck type" ports available
Optional sensors:	CTD (Sea-Bird) DO (Sea-Bird) Chlorophyll (WetLabs) CDOM (WetLabs) Turbidity (WetLabs) Hydrocarbon (ALSEAMAR) Methane (Franatech) Sewage & Pesticides (ALSEAMAR) Acoustic Recorder (ALSEAMAR) Altimeter Others upon request

Deploying and recovering the glider from small boat
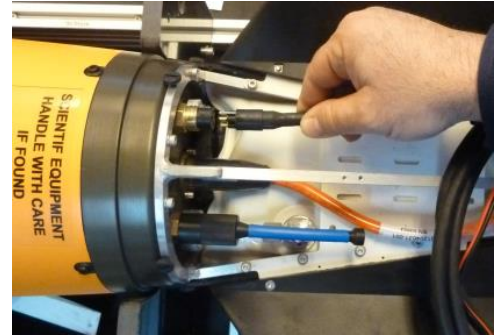
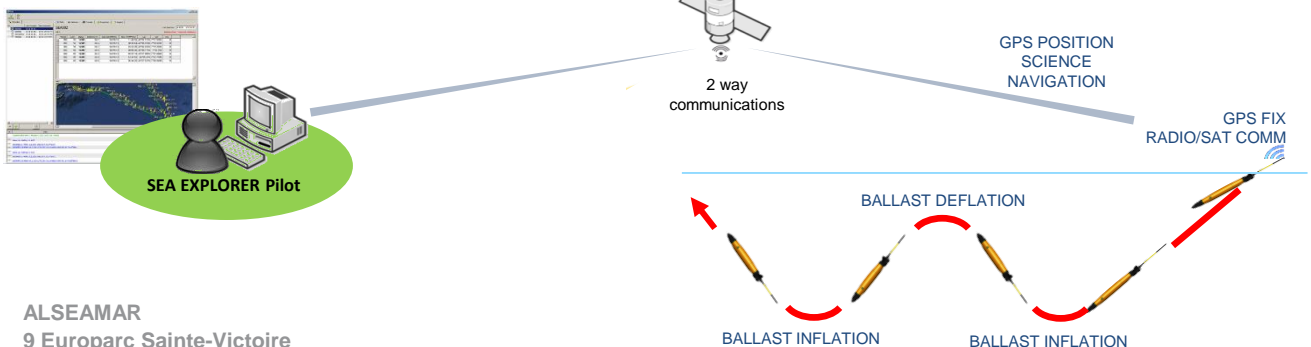*Recharging the glider with external connector*

Fast & easy payload change

3D-mapping of collected data

Glider navigation principle

SEA EXPLORER Pilot

Iridium / Rudics telemetry

2 way communications

GPS POSITION
SCIENCE
NAVIGATION

GPS FIX
RADIO/SAT COMM

BALLAST DEFLATION

BALLAST INFLATION

BALLAST INFLATION

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