

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.

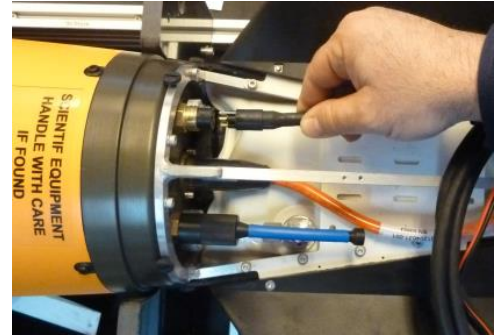
An integrated hardware/software suite allows constant supervision & mission control from any place in the world by using a server 24/7 available for vehicles calls. When the SEA EXPLORER surfaces, it sends ashore its GPS position, collected data and receives new mission commands via Iridium telemetry.

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 strobe light (by default) GPS / Satellite (Iridium) / Radio
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 CTD (Sea-Bird) DO (Sea-Bird) Chlorophyll (WetLabs) CDOM (WetLabs) Turbidity (WetLabs)
Optional sensors:	Hydrocarbon (ALSEAMAR) Methane (Franatech) Sewage & Pesticides (ALSEAMAR) Acoustic Recorder (ALSEAMAR) Altimeter Others upon request



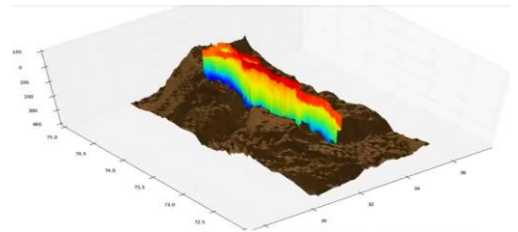
Deploying and recovering the glider from small boat



Recharging the glider with external connector

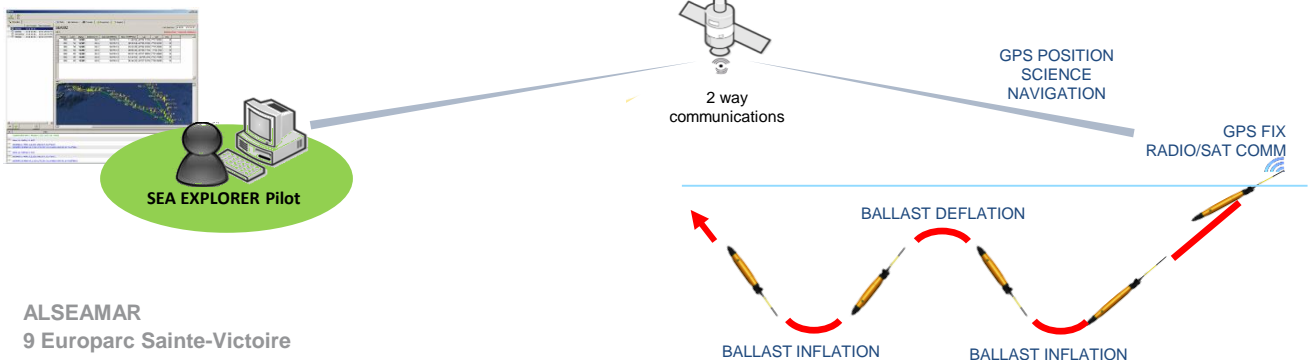


Fast & easy payload change



3D-mapping of collected data

Glider navigation principle



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