

SEAEXPLORER

Autonomous Underwater Vehicle - Glider



Application fields:

- Oceanography & Science
- Pollution Detection
- Water Quality Monitoring
- Marine Mammals Assessment
- And many more ...

Key features & benefits:

- Months of endurance to gather data in a cost effective manner
- Large interchangeable, wet & dry, payload sections
- High speed (fastest glider)
- Dedicated nose cone including 4 puck ports
- Wingless concept: no break, nor entanglement
- Extraordinary maneuverability
- All internal actuators (Leak-safe)
- Propulsion: hydraulic driven ballast
- Rechargeable Lithium batteries
- Shallow and Deep operations



General principles:

The vehicle is driven by changes of buoyancy, resulting in very high endurance and stealth actuation.

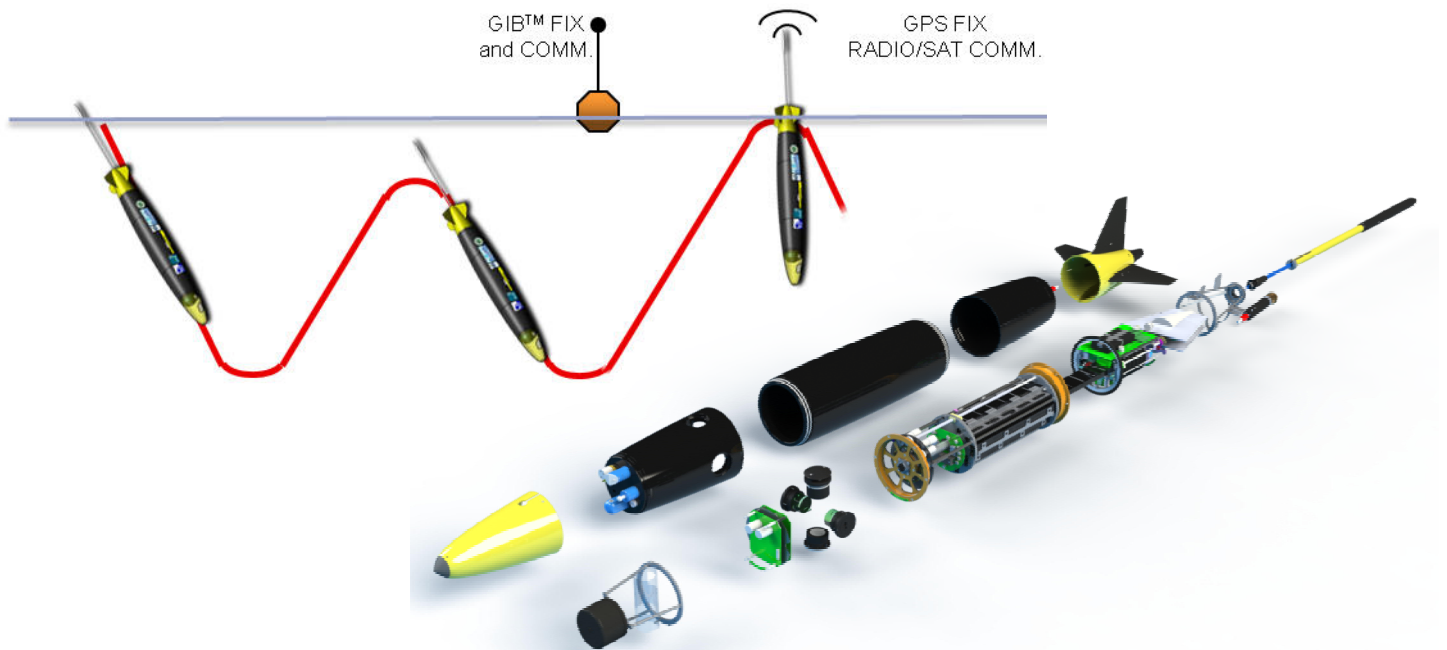
The vehicle glides without wings, facilitating launch and recovery operations, avoiding wing break and limiting miscellaneous entanglements (plastic debris, seaweed, fishing nets...).

The modular design allows fast and easy change of the payload by just changing the vehicle nose assembly. The payload area offers large volumes in a wet and a hyperbaric section.

A networked hardware and software suite allows constant supervision and mission control of the vehicle from anywhere in the world by using a server 24h/24 available for vehicles calls. When the SeaExplorer surfaces, it sends collected data ashore and receives new mission commands via Iridium.

Optimized sleeping mode of both navigation & payload sensors delivers very long endurance.





General Design:

Six sections. From aft to rear:

- Wet payload (3Kg)
- Dry payload (5Kg) + Payload electronics
- Batteries + actuators
- Ballast unit + Navigation electronics
- Connectors and Bladders (wet section)
- External Antenna

System components:

Glider(s)

Local Radio receiver (vessel)

Modem for Iridium communications (land)

Battery charger

Launch And Recovery System (optional)

Examples of sensor payloads:

Oceanography:

CTD SeaBird + Optode
2 x Wetlabs ECO pucks
2 x puck ports available

Acoustics:

CTD Aandera + Optode
Acoustic transducer
Acoustic recorder
Altimeter
3 x puck ports available

Specifications:

Wing span:	Wingless for extended survivability: no break during launch & recovery, no entanglement with plastic debris, seaweed, fishing nets ...
Speed:	1 knot
Payload:	9L / 8kg in two sections (wet/dry)
Architecture:	2 separated low power CPUs for payload & navigation
Embedded software:	Payloads: Opensource Navigation: Proprietary
Depth rating:	700 m (850 m survival)
Pitch in navigation:	+/-15°
Turn radius:	15m (allows virtual mooring)
Battery life:	Several months depending on sensors
Local Radio range:	> 1km @ 868 or 900 MHz
Satellite comms:	Worldwide (Iridium)
Body size: (DxL)	0.25 m x 2.2 m + 0.7 m foldable antenna
Weight:	59 kg in air
Ballast volume:	1L (+/-500ml)
Data format:	CSV (native) netCDF converter on server
Safety:	Autonomous Drop-weight Option: Locator Pinger and/or Argos
Sensors:	CTD (Aanderaa or SeaBird) 4 "puck type" ports available DO (Aanderaa or SeaBird) Scattering (WetLab) Fluorescence (WetLab or Micromodule)
Optional sensors:	Current profiling (RDI) Acoustic recorder (ACSA) GIB positioning (ACSA) Altimeter (Benthos)...