

Coastal Glider



FEATURES	<ul style="list-style-type: none"> • Large 5 kg Payload • Transits between salt and fresh water without re-ballasting • Modular Sensor Bay • Variable Speed, up to 2 kts • Automatic Emergency Recovery
SENSORS	<ul style="list-style-type: none"> • Virtually any package that fits in a watertight 8.6 L bay • Five external sensor mounting locations (two forward and three aft) • Regulated and unregulated power supplied to sensor bay. • Onboard user defined data storage
COMMS	<ul style="list-style-type: none"> • Satellite - Iridium • UHF - Freewave radio modem • LAN (WiFi)
MANEUVERS	<ul style="list-style-type: none"> • Waypoint • Spiral • Hover • Station Keep / Loiter • Drift / Reposition • Min / Max Depth • Heading, Speed • Sleep

Overview

The Exocetus (x-o-ce-tus) Coastal Glider Autonomous Underwater Vehicle (AUV) utilizes a buoyancy engine to achieve forward motion. There are no external moving parts or propeller. The vehicle glides forward in a saw tooth manner by descending and ascending with changes in buoyancy.

The vehicle was developed over a 6-year period through a contract from the Office of Naval Research. Its design is the result of extensive hydrodynamic and maneuvering modeling. Eighteen gliders were delivered to the US NAVY, and the glider fleet has thousands of operating hours.

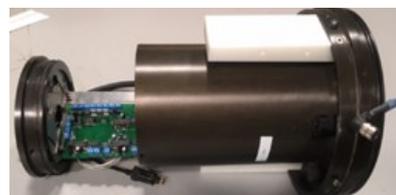
Design Benefits

Designed for Coastal Waters - The vehicle features a buoyancy engine which automatically compensates for variations in water density. Water density varies in coastal waters due to fresh water rivers and tidal action. Conventional gliders must be manually calibrated in advance for changes in water density, and thus do not operate well in coastal waters. The large buoyancy engine also enables operation in relatively high coastal currents, up to 2 kts.

Modular Sensor Design - The Coastal Glider sensor interface readily accommodates a variety of sensors. The modular design includes a watertight, universal sensor bay with power for sensor electronics, a bus connection to the vehicle's computer to record data, changeable bulk head connectors for sensor cables and a hull that accommodates sensors with minimal changes or no changes to the glider housing.

Large Payload - The 5 kg (11 lbs) payload is exceptional for a glider of this size, allowing integration of any number of sensors. Payload can be further increased by adding syntactic foam in flooded areas fore and/or aft.

Emergency Recovery System - A lift bag automatically inflates if battery power is depleted or if a leak is detected, causing the vehicle to surface for recovery. The system utilizes an independent power supply for added redundancy.



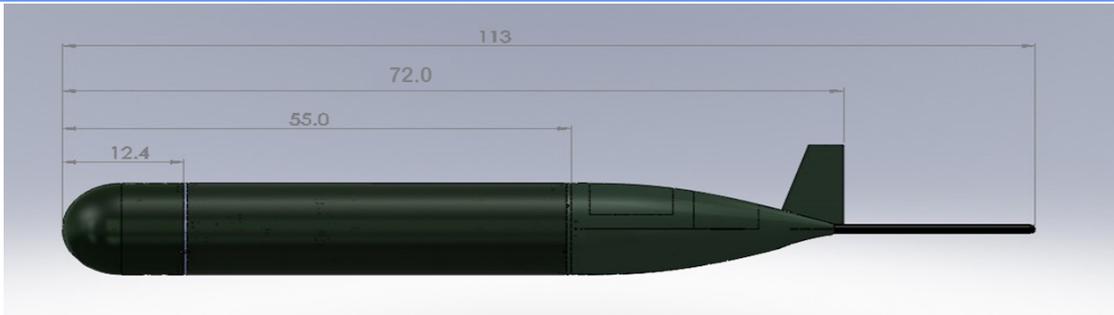
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Dimensions	Length: 182.9 cm (72 in), excluding antenna Diameter: 32.4 cm (12.75 in) Wingspan: 106.2cm (41.8 in)
Weight	109 kg (240 lbs)
Payload	5 kg (11 lbs). Can be increased by adding syntactic foam in flooded areas
Horizontal Speed	Commandable from 0.7 to 2 kts
Current	Up to 2 kts. Station Keep: 2 kt current
Depth Capability	200 m (650 ft)
Shallow Water	Operates in 10 m (32 ft) shallow water <small>(with reduced speed and maneuvering)</small>
Salinity Range	10 - 37 ppt without manual re-ballasting. Can transit between fresh and salt water
Mission Duration	15 days with alkaline batteries 60 days with lithium batteries
Sea State	Launch: 0 to 3; operating: Unrestricted
Environmental	Air temperatures: -2.2° to 51.7° C (28° to 125° F) Sea temperatures: -2.2° to 37.8° C (28° to 100° F)
Sensor Electronics Bay	Length: 19.1 cm ID x 30.5 cm (7.5 in ID x 12 in length) Volume: 8.6 L (525 in ³)
Sensor Bay Power	12 VDC (3 amp max) through a GPIO switch 5 VDC, 3.5 VDC through an expansion board 18 - 33 VDC unregulated raw
Batteries, Primary	Alkaline: 3,850 W-Hrs (14 MJ), weight: 32 kg (70 lbs) Lithium: 18,600 W-Hrs (67 MJ), weight: 32 kg (70 lbs)
Base Sensors	Acoustic Altimeter; CTD or SVT&P
Acoustic Sensors	Mounting points: nose, tail, port, starboard
Communications	Iridium satellite Freewave radio modem (line of sight) 802.11 LAN (near ship / in shop)
Shipping	2 containers, 132 cm x 71 cm x 71 cm (52 in x 28 in x 28 in) each Transports glider, handling cart and launch equipment

