ECHO VOYAGER
Extra Large Unmanned Undersea Vehicle
Current Environment

Unmanned Undersea Vehicles (UUVs), due to their limited endurance, require host platforms for launch and recovery. That reliance results in significant size restrictions limiting on-board power availability, precluding incorporation of redundancy for long-term operations, and reducing payload capacity. At the same time, new sensor and system payloads are rapidly being introduced that could expand the UUV mission set. Viable, cost-effective UUVs providing endurance capabilities and meeting modular payload requirements for varied missions are needed to support the demonstration and refinement of capabilities in open ocean environments.

Boeing’s Echo Voyager, a multi-market, pier-launched, modular, long-range Extra Large Unmanned Undersea Vehicle (XLUUV) shifts that paradigm.

The Boeing Solution

Echo Voyager is a game-changing platform, capable of performing as a multi-mission system and playing a pivotal role in future force structure. The vehicle’s advanced autonomy allows it to operate for months at a time without physical human contact and in congested waters. Echo Voyager is complete with a generous internal and external payload volume and available energy capacity. Echo Voyager is the next generation of UUVs.

Buoyancy Control and Trim

The vehicle features an active buoyancy control system with the following features:
- Autonomous buoyancy control capability
- Forward and aft trim control
- Seafloor mooring capability

Obstacle Avoidance

The vehicle features an active obstacle avoidance capability. The capability is enabled by a Forward-Looking Sonar (FLS) and proven autonomous obstacle avoidance algorithms.

Terrain Following

The vehicle’s FLS system along with a DVL enable terrain following mission capability operations near the seafloor.

Modular Payload Capacity

The vehicle’s internal payload support capability includes:
- Size: Up to 34 ft in length
- Volume: Up to ~2,000 cu ft internal volume (14 ft length provides ~900 cu ft internal volume)
- Capacity: 8 ton dry weight, 18 KW battery power
The vehicle can also accommodate external payloads.

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Key navigation performance characteristics:
- Altitude Stability: 0.8 ft / 0.25 m ‡
- Depth Stability: 1.0 ft / 0.3 m ‡
- LBL aided position accuracy: 7.7 ft / 2.3 m ‡
- Unaided position accuracy: 0.15% distance traveled ‡: RMS values

Communications

The vehicle uses encrypted Inmarsat IV, Iridium, Wi-Fi, and/or freewave enabled communications for operational command, control, system status, and mission re-planning during near-surface operations, and acoustic communications for command, control, and status messages during submerged operations.

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