



United States Navy

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Team SPAWAR Gliders Embarked Aboard USNS Pathfinder for At-Sea Testing

SAN DIEGO – The Naval Meteorology and Oceanography Command's USNS Pathfinder (T-AGS 60) embarked Littoral Battlespace Sensing (LBS) Gliders Oct. 21 while ported at Naval Base San Diego. The unmanned undersea vehicles, also known as UUVs, are undergoing at-sea testing Oct. 22 to Nov. 6.

Team SPAWAR's major contribution to USNS Pathfinder's capabilities will be realized over the next six months. The Battlespace Awareness and Information Operations Program Office (PMW 120) will be acquiring and providing up to 150 LBS gliders for deployment aboard the Navy's seven T-AGS ships, which includes USNS Pathfinder.

"We will be charting new territory in really deep water," explained Brian Granger, a SPAWAR Systems Center (SSC) Pacific engineer and lead for the glider testing. "For the first time we'll be testing the gliders at a depth of 1,000 meters to characterize the sea floor at 3,500 meters."

The T-AGS class of oceanographic survey ships has sizeable daily operating costs. Granger noted the ability to employ multiple gliders will be a "force multiplier" in terms of gathering a vast amount of data for the same operating cost.



SPAWAR Systems Center Pacific engineers (left to right) Daniel Braun, Eric Sanchez and David Barney perform pre-deployment inspections on Littoral Battlespace Sensing gliders Oct. 21 aboard USNS Pathfinder (T-AGS 60). The gliders are currently undergoing testing during a two-week at-sea deployment aboard the oceanographic survey ship. U.S. Navy photo by Rick Naystatt

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According to Randy Case, PMW 120's LBS-UUV assistant program manager, the gliders can provide capability that exceeds what is available today. "They have the potential to contribute far more substantially toward the Navy's Information Dominance goal of deploying remotely piloted, unattended and autonomous systems that can be adaptively networked to dominate the operating environment than their current mission of conducting oceanographic surveys."

The program office has built a remote glider command and control infrastructure around a government off-the-shelf UUV that is adaptable to various oceanographic missions by removing and replacing the sensor payload. "It shouldn't be very difficult to see where this technology could be applied elsewhere in the Information Dominance domain," said Case.

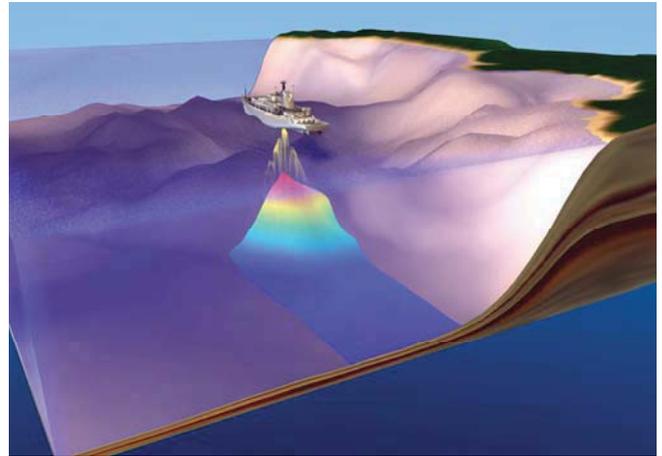
USNS Pathfinder provides persistent environmental surveillance that allows mission planners to better calculate how to execute mine warfare and antisubmarine operations.

For example, the data collected enhances navigation – and specifically subsurface navigation for submarines – because only a small percentage of the world's oceans is charted to modern standards. Atmospheric and oceanographic data collected is used to determine thresholds and limitations for special warfare operations.

"Glanders are unmanned underwater vehicles that have no propeller. They travel in a saw-tooth pattern using changes in buoyancy for propulsion," explained Clayton Jones of Teledyne Webb Research, which is under contract to produce the gliders for PMW 120. "This low-speed propulsion minimizes energy consumption, enabling long endurance missions despite a limited battery payload."

Each glider will host a payload suite of sensors that will measure the physical characteristics of the water column as the glider routinely descends and ascends in the ocean. The gliders can operate up to 30 days autonomously with a standard battery and can operate up to eight months with a lithium battery.

The contract for the first 15 gliders was awarded in August and delivery of the first batch to the Naval Oceanographic Office (NAVOCEANO) is expected to begin first quarter of fiscal year 2011. SSC Pacific provided PMW 120 with system engineering expertise during the program's development phase and will continue to provide technical assistance during the production and sustainment phases. The glider team consists of SSC Pacific, Portland State University and Applied Operations Research, Inc. personnel.



An illustration depicting the underwater mapping capability of USNS Pathfinder (T-AGS 60) and other ships of her class. T-AGS 60 class oceanographic survey ships provide persistent environmental surveillance that allows mission planners to better calculate how to execute those missions, such as mine warfare and antisubmarine operations. U.S. Navy Graphic

USNS Pathfinder is designed to gather underwater data in coastal or deep ocean waters. The ship is operated for the Oceanographer of the Navy by civilian contract mariners employed by an operating company for Military Sealift Command. NAVOCEANO scientists and technicians perform surveys aboard the ship for the Naval Meteorology and Oceanography Command.

This will be the first time the glider team will be able to conduct a sea test on the platform to which glider will be deployed upon. After testing off the coast of Southern California, the goal is to conduct T-AGS "final exam" testing during a Western Pacific deployment in spring 2011.

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