Department of the Navy SBIR/STTR Transition Program

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ONR Approval #2026-9-25-2936

Topic # N242-095
Directional Wave Spectra Sensing Module for Autonomous Underwater Vehicle Gliders
Arete Associates

WHO

SYSCOM: ONR

Sponsoring Program: Code 32

Transition Target: CNMOC / NAVOCEANO

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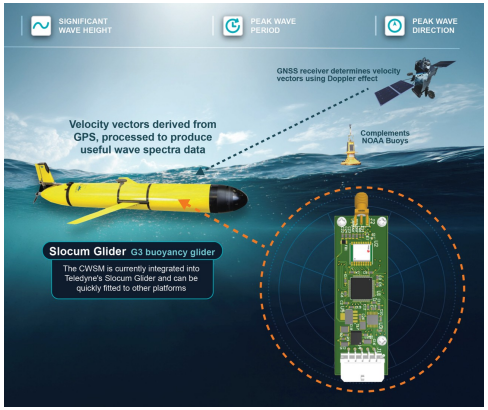
Other Transition Opportunities: CWSM delivers high quality directional wave spectra from long-duration gliders, providing the Navy with continuous environmental awareness in areas where no other measurement assets exist. The initial integration platform is the Teledyne Marine Slocum Glider. Additional Navy unmanned undersea vehicles (UUVs) offer strong transition potential for the Common Wave Sensing Module (CWSM), including systems such as the Mk 18.



Notes: The initial CWSM prototype will be integrated and tested on a Teledyne Marine Slocum Glider. A Rutgers University glider will be upgraded to support CWSM, and in 2027 Rutgers will conduct two offshore field deployments to validate system performance.

WHAT

Operational Need and Improvement: The Navy seeks a capability to measure surface waves from ocean gliders. By augmenting existing remote sensing with real-time, in-situ directional wave spectra from gliders, particularly in remote and harsh environments, Areté's CWSM will improve wave forecasting accuracy and enhance tactical decision making by increasing local battlespace awareness.

Specifications Required: A fully integrated, low power directional wave spectra sensor suitable for ocean gliders. The glider-based spectra should meet the measurement standards defined by the Coastal Data Information Program (CDIP).

Technology Developed: The Common Wave Sensing Module (CWSM) is an open-source hardware and software system for measuring directional wave spectra across diverse autonomous ocean platforms.

Warfighter Value: CWSM provides critical real-time battlespace awareness through high quality wave spectra while maintaining low size, weight, power, and cost (SWaP-C). The module incorporates purpose-built motion-sensing hardware to deliver reliable, on demand battlespace intelligence.

WHEN

Contract Number: N68335-26-C-0189 **Ending on:** Feb 25, 2028

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype V1 Demonstration	Low	Validate dynamical modeling results and RAO calculations	6	3rd QTR FY26
Prototype V2 Demonstration	Low	Field demonstration of glider wave measurements	7	2nd QTR FY27
Prototype V3 Demonstration	Low	Second field demonstration with software updates	7	4th QTR FY27
CWSM Integration into Multiple Gliders	Low	If Option period awarded, Upgrade a small fleet for gliders with new wave sensing capabilities	8	TBD

HOW

Projected Business Model: CWSM will be released as an open-source hardware and software package to enable broad community validation and rapid adoption. Areté will collaborate with the Navy and industry partners to support integration, performance verification, and long-term sustainment.

Company Objectives: Areté seeks transition partners to accelerate deployment of CWSM across Navy oceanographic platforms and to expand the use of this new environmental battlespace data throughout the fleet.

Potential Commercial Applications: CWSM can be integrated into a wide range of oceanographic platforms, including buoys, profiling floats, and uncrewed surface vehicles. The open-source design will ensure accessibility and user-driven enhancements.

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