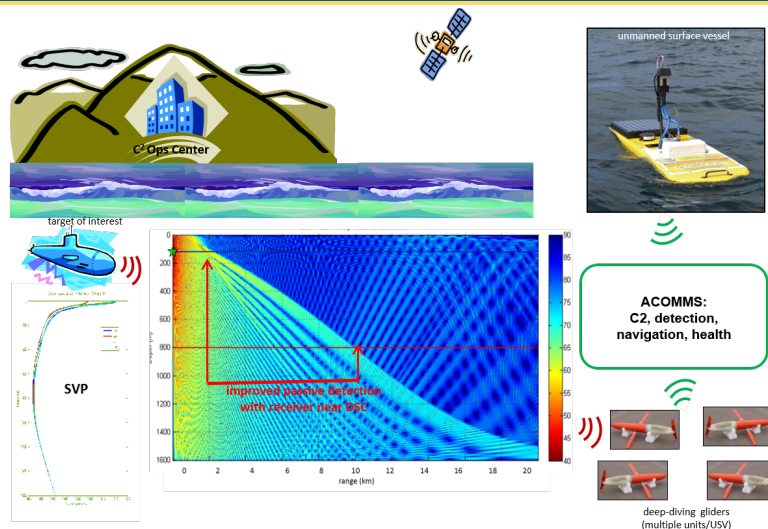


Long-endurance Wide-area Maritime Surveillance System



Conceptual design of unmanned maritime surveillance system

Approach

- Build-test-build approach to development:
 - modify existing systems take advantage of strengths
 - field test and data collection in real-world environments
 - adjust system as needed based on field results. Retest...
- Cross-disciplinary research offers relevant opportunities for students
 - Controls for unmanned systems
 - Environmental sensing/adaptation
 - Underwater and engineering acoustics
 - Potential applications AI and machine learning methods

Motivation and Background

- Dominance of the Undersea Domain requires new approaches that unmanned systems can bring to the table that were not available just a few years ago
- Undersea and surface gliders are mature systems with proven capabilities and reliable track records
- Leveraging the strengths of both UUV/USV systems can make an even better combined system...gains are greater than the sum the individual parts
- New small, cheaper (but capable) technologies and sensors available now that can add or improve capabilities not feasible just a few years back
- A force multiplier

Operation Impact

- Multi-month surveillance over wide areas; scalable wrt mission needs
- Proven platforms, reliable independent operations requiring little support tail
- Reconfigurable on the fly, adjusts to dynamic environments or changes in operational needs
- Continuous acoustic sensing at optimal depths
- Real time *in-situ* sensing through the water column and near-surface atmosphere for accurate battlespace environment assessment
- Remotely piloted & semi-autonomous operations requiring minimal oversight
- Onboard computing capability for compiling information and modeling
- Distributed network that can adjust to partial system failures, organic backup



FY19 Call for Proposals

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