



Homeland Security

Science and Technology

Maritime Security Center (MSC)

A DHS Science and Technology Center of Excellence



MARITIME SECURITY CENTER

A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE

Maritime Security Center (MSC)

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Research Areas

- Mobile Maritime Domain Awareness (MDA)
- Maritime Risk, Threat Analysis, and Resilience
- Integrated Education

Mission: To enhance our nation's Maritime Domain Awareness (MDA), the resiliency of our Marine Transportation System (MTS), and the technical skills and leadership capabilities of our current and prospective maritime security workforce.

Quick Facts

- Established in 2014, the new Center builds on knowledge gained under the Center for Maritime, Island and Remote and Extreme Environment Security (MIREES).
- MSC has 50 research partners nationwide.
- The Center will develop and apply a multi-sensor integrated approach to enhance MDA and MTS resiliency.
- MSC will leverage established test beds in New York Harbor and the Caribbean.
- The Center will offer maritime security-centric educational programs tailored to college-level and professional development audiences.

Research Focus Areas

- MDA Research
 - Expand situational awareness against threats in the maritime homeland security realm for inland and coastal water applications
- Maritime Risk, Threat Analysis, and Resilience Research
 - Develop Port Resiliency Assessment Tools to assist MTS stakeholders in preparing for port and supply chain disruptions
- Integrated Education
 - Transfer research and expertise into highly relevant, innovative maritime security-centric educational programs.



Deploying acoustic detection devices in New York Harbor, with the assistance of the U.S. Coast Guard Auxiliary

Academic Research Partners

Stevens Institute of Technology
Massachusetts Institute of Technology
University of Miami
University of Puerto Rico – Mayaguez
Louisiana State University
Elizabeth City State University
Florida Atlantic University

Industry and Government Partners

Mattingley Group
Pacific Basin Development Council
Port Authority of New York
and New Jersey

MSC Highlights



Satellite Sensing – Center for Southeastern Tropical Advanced Remote Sensing (CSTARS) at the University of Miami leads the Center’s research in the area of Satellite synthetic aperture radar systems for enhanced MDA. Open ocean satellite-based surveillance is a key capability in the development of

MDA, particularly with respect to ship detection, classification and identification. Satellite synthetic aperture radars (SARs) have been demonstrated to be able to detect vessels of medium to large lengths. New satellite systems have improved imaging modes and spatial resolutions to allow detections of even smaller boats and non-emitting targets.

The Center’s Satellite MDA research includes the testing of satellite data and products for integration into DHS’s Coastal Surveillance Systems operating at the Air & Marine Operations Center (AMOC).

Port Resilience – Florida Atlantic University is leading the Center’s efforts to develop a cost-effective port resiliency assessment and planning tool that can be adapted, through a choice of interchangeable event modules to assess and plan for evolving threats and hazards to a port and its watersize and landscape distribution capacity.

The Summer Research Institute (SRI) is designed to provide high-achieving undergraduate and graduate-level students with a unique opportunity to learn about the maritime domain and the MTS, through relevant, hands-on research projects in conjunction with MSC researchers and the center’s industry and government homeland security partners.

Over the next two years, the SRI will build upon MSC’s ongoing research to enhance MDA and maritime system resilience, and will incorporate the Center’s emerging projects in the areas of mobile MDA and cybersecurity for maritime applications.

