

MSC NEWSLETTER – SEPTEMBER 2015



Stevens Research Engineers work in conjunction with Plum Island Animal Disease Center (PIADC) personnel to deploy passive acoustic detection devices adjacent to Plum Island in a recent experiment.

Stevens Conducts Sensor Technology Experiments in Conjunction with PIADC to Detect and Track Underwater and Surface Intrusions. Stevens Institute of Technology has been collaborating with the Plum Island Animal Disease Center (PIADC) to conduct research to leverage and advance current technologies in support of the Plum Island mission and operations and which may also have broader application to the U.S. Department of Homeland Security (DHS) objectives.

As part of this research, Stevens and PIADC personnel conducted a number of experiments on the use of sensor technologies to detect and track underwater and surface intrusions. The objective of the experiments is to gather and integrate data from a collection of various sensor systems in order to understand and bolster security capabilities if needed.

The experiments included active participation by the U.S. Coast Guard Research and Development Center and local law enforcement to study the use of optics, radar, AIS, underwater passive acoustic detection systems, and seismic sensors. Plum Island offers the potential to be a viable test location for emerging technologies of interest to Stevens as a DHS Center of Excellence for maritime security.

Commander of the Port of NY/NJ Visits MSC for a Briefing on the Center's Tools and Emerging MDA Sensor Platforms. Captain Michael H. Day, the newly appointed Commander of U.S. Coast Guard Sector New York and Captain of the Port of New York/New Jersey, recently met with Dr. Hady Salloum, Director MSC and Stevens Institute of Technology faculty and researchers to learn about the Center's research in Maritime and Port Security applications.

Captain Day's visit included an overview of the Center's activities to develop Mobile, Modular, Maritime Domain Awareness (M3DA) sensor platforms for DHS stakeholders and component agencies, as well as presentations by Dr. Alan Blumberg, Director Davidson Laboratory, who demonstrated the capabilities of the Stevens New York Harbor Observing and Prediction Systems (NYHOPS) to provide real-time and 72 hour forecasts of meteorological and oceanographic conditions in the New York Harbor, Long Island Sound and the coastal waters of New Jersey and by Beth Austin-DeFares, MSC Director of Education, who discussed the Center's Maritime Security professional development and degree-granting programs.

Prior to assuming leadership of Sector New York, Captain Day was the Deputy Commander, U.S. Coast Guard Sector San Francisco. Earlier in his career, he was the Chief of Waterways Oversight in the Port of New York / New Jersey and the designated Coast Guard on-scene commander in the evacuation of lower Manhattan during the September 11, 2001 terrorist attack.



Captain Michael H. Day, Commander USCG Sector New York and Captain of the Port of NY/NJ visits MSC for a briefing on the Center's research.



French Naval Academy midshipmen Aymeric de Méhérenc de Saint Pierre (left), and Alberic de Champs de Saint Leger (center), conduct research in acoustic classification methods, with Maritime Security Doctoral Fellow Alex Pollara (right), and Dr. Alexander Sutin, Stevens Research Professor.

French Naval Academy Officer Cadets Conduct Research at the Maritime Security Center.

French Naval Academy midshipmen Aymeric de Méhérenc de Saint Pierre and Alberic de Champs de Saint Leger have joined researchers from Stevens Institute of Technology and the Maritime Security Center (MSC) to complete a twelve-week field-based internship and research project as part of their scientific training and degree requirements for the Ecole Navale (Naval Academy).

The collaborative research project is focused on the development of acoustic classification methods based on vessel acoustic signatures collected in the Hudson River by students in the MSC Summer Research Institute. The internship and research project will provide the officer cadets with the basics of scientific knowledge and the technical skills needed to lead missions aboard French Navy vessels. The internship is also intended to enhance the operational and technical leadership capabilities of the midshipmen and to provide them with the effective communications skills needed to convey operational and vessel technology needs to naval architects and engineers.

Working under the mentorship of Dr. Alexander Sutin, Stevens Research Professor and Fellow Acoustical Society of America and Alex Pollara, DHS Maritime Security Doctoral Fellow, Aymeric and Alberic are actively working to develop programs for the signal processing of acoustic data. Their research is expected to lead to a joint publication in this area of study. The midshipmen will return to France and resume their studies at the Ecole Navale in mid-November.

MSC Summer Research Students Participate in the Evaluation of First Responder Tools in NUSTL's OpEx.

Students in the Center's 6th Annual Summer Research Institute (SRI) were given the unique opportunity to participate in the National Urban Security Technology Laboratory's (NUSTL) first annual [Urban Operational Experimentation \(OpEx\)](#), held July 28 - 30, 2015 in New York City. The Urban OpEx brought together first responders from around the U.S. to test, evaluate and experiment with the latest tools and technologies in robotics, X-ray scanning, and chemical, biological and radiological detection systems to name a few.

The experiments were conducted over three days and were held at Floyd Bennett Field, NYC Office of Emergency Management and at NUSTL in New York City. Working in teams, the students observed first responders testing and evaluating a series of tools that could potentially enhance their situational awareness and capabilities in the field. The students then compiled their notes and provided them to [NUSTL](#) for their review. The summer research students included Blaise Linn, Samantha Hetherington, Tyler Mackanin, Jack Giambalvo, Cory Weidmann, Robert Garvin, and William Cusick.

Early in the OpEx event, the students had the opportunity to meet Dr. Robert Griffin, Deputy Undersecretary, DHS Science and Technology Directorate and with Dr. Adam Hutter, Director, NUSTL, who each commended the students for their participation.



MSC SRI students attend the demonstration of RepKinight, a social media analysis tool at the NYC Office of Emergency Management during the National Urban Security Technology Laboratory's Operational Experimentation for first responders

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