

THE SIREN



A First Responders Group (FRG) Newsletter

Summer 2016

FRG Moves to Combat Electronic Jamming



FRG hosted a five-day, multi-agency operational exercise from July 11-16 at White Sands Missile Range in New Mexico to assess the impact of electronic jamming threats on first responder communications systems and mission response. The First Responder Electronic Jamming Exercise welcomed first responders from more than 40 federal, state and local agencies, including representatives from across DHS.

"The threat of electronic jamming to responder communications systems requires a coordinated response," said FRG Exercise Director Sridhar Kowdley. "That is why we invited our partners from across the homeland security enterprise to join us for this exercise. This was a comprehensive, multi-agency effort from planning to execution."

During the exercise, responder organizations conducted emergency response scenarios while deliberate electronic jamming disabled communications and navigation equipment. Responders worked to mitigate the effect of the jamming while observers collected information on their performance and mission response.

"This exercise has made me 10 times more likely to recognize intentional jamming," said Morgan Hoaglin from the Arizona Department of Emergency Management and Military Affairs.

The results of the exercise are currently being analyzed to identify vulnerabilities in our nation's responder communications networks and determine solutions; design electronic jamming mitigation technologies; identify gaps in first responder training and provide recommendations to close them; inform policy on resilient and redundant communications requirements; and improve the ability of first responders to execute their missions in an electronic jamming environment. A final analysis of the exercise findings will be presented in a consolidated report outlining results, lessons learned, training recommendations and mitigation strategies for first responders. FRG will post a public version of the report by the end of the calendar year.

"We envision this report to be the first step in shaping the DHS strategy related to countering electronic jamming threats facing first responders and developing mitigation strategies at the local, state and federal levels," said Kowdley.

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FRG Takes its Technologies to the Hill

Members of Congress and their staff, first responders and interested staff from across DHS gathered in the foyer of the Rayburn House Office Building on June 15 to view cutting-edge technologies on display at the DHS S&T's First Responder Technology Hill Day.

The event was sponsored by New York Rep. Dan Donovan, Chairman of the Homeland Security Committee Subcommittee on Emergency Preparedness, Response and Communications. Also on hand were Texas Rep. Michael McCaul, Chairman of the Homeland Security Committee and Virginia Rep. Morgan Griffith and their staffs, who listened to presentations by the S&T's program managers and industry partners, and took part in hands-on demonstrations of technologies that offer innovative solutions to address the challenges first responders face every day.



This event provided a unique opportunity for S&T to showcase more than a dozen of its capabilities, either in development or that have been successfully transitioned and are currently in use within DHS, state and local governments and the private industry. Some of the demonstrated tools and technologies included protective gear for responders with body-worn cameras that capture video if they are going into a hostile environment, and sensors that monitor their health status during an emergency.



The [Next Generation First Responder Integration Demo](#) showed the possibilities of interoperable technology. For example, the unmanned aerial system can view a building from above to inform responders on the ground before they enter.



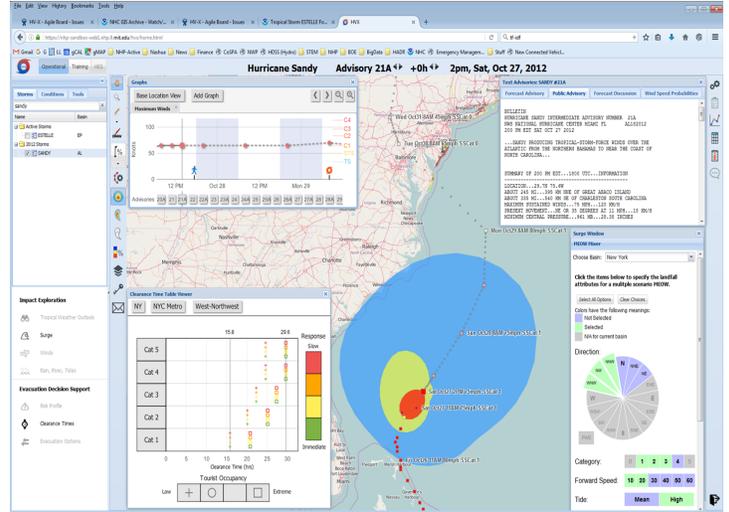
Another capability demonstrated was the aptly-named [Finding Individuals for Disaster and Emergency Response — FINDER](#) — which uses low-power microwave radar to detect small movements from breathing, as well as the heartbeat of a victim buried beneath rubble during search and rescue missions following earthquakes, tornados, tsunamis and other disasters.

S&T's world class scientists and engineers and their government and industry partners work closely with the nation's emergency response community and DHS components to identify and prioritize mission capability gaps, and facilitate the rapid development of critical solutions to address their needs.

New Developments in FRG's Hurricane Evacuation Tool

FRG's National Hurricane Program technology modernization is building the next generation hurricane evacuation decision support tool, called HVX, for international, state, local and tribal emergency managers (EMs). On July 12, the beta version of HVX was released to a focus group of Federal Emergency Management Agency (FEMA) regional hurricane program managers to collect user feedback as part of an iterative, transparent and collaborative design process. This open architecture, web-based platform replaces an aging legacy system, integrating training and providing more capability and decision support specific products that will streamline the EM's ability to understand forecasted impacts and to optimize the evacuation decision process.

The transition of this initial version is the beginning of extensive iterative testing and roll-out of HVX features that will occur over the coming months. HVX provides core evacuation decision support products and new EM-centric decision aids including advanced tools for clearance time viewing, evacuation zone-based impacts, storm surge selection and a timeline-based view of threats. The new platform will also provide integrated tools for planners to create and explore Hurricane Evacuation Studies. HVX will not only provide advanced tools for operational evacuation decision-making, but also the capability for desktop simulations and gaming for interactive training to practice making those critical decisions, resulting in a system that is a single integrated solution for both training and operations.



Annual FRRG Meeting Brings Nationwide Experts Together

When developing technology for first responders, getting their input early and often is critical to ensuring that FRG is on the right track. What are their current capability gaps? Are FRG's prototypes on track to meet their needs, or if not, how can FRG change course? FRG relies heavily on input from all response disciplines throughout the development lifecycle — from conceptualization to field testing to commercial transition — so that the end result is something that will enhance their performance and safety in the field.

A big part of this process is FRG's [First Responder Resource Group](#) (FRRG), a volunteer working group of nearly 140 responders from across the country. While FRG works with them individually throughout the year, FRG brings them all together in one place to identify the current capability gaps that will inform the next wave of FRG's research and development. The meeting also allows FRRG members to evaluate the progress of technologies in the pipeline that were borne out of their previous feedback. This year's gathering took place in Washington, D.C. on July 12-14.



"One of the most important takeaways for me is the opportunity to work across the aisle with other first responders in the many disciplines we have," said Adam Miller of the Huntingdon County (PA) Sheriff's Office. "Looking at the common set of problems that we all share, if we can work together here to build up our requirements, then other people can work hard at solving our requirements."

Soheila Ajabshir, Geographic Information Systems specialist with the Miami-Dade County (FL) Department of Emergency Management & Homeland Security agreed, "When I come here, it is like a candy store. You can get whatever information you want. At the same time, you can throw out all different ideas. There's no limit!"

Over the course of three days, FRRG members received updates and demonstrations of several FRG programs and projects, including [Lost Person Locator](#), [POINTER](#), [Firefighter Accountability and Proximity System](#), [SAVER](#) and [Next Generation First Responder](#). The responders then broke into working groups to identify capability gaps and technology requirements related to various response issues. The work products from this will be captured in Statements of Objectives reports that will serve as the basis for FRG's Fall 2016 Broad Agency Announcement industry solicitation and 2017-18 development cycle.

"The Science and Technology Directorate is not just going to one entity — whether it's police or fire, large city or small city — they're bringing all of them together," said Paul McDonagh, Assistant Chief of Seattle (WA) Police Department. "None of us have 'the answer' but I think collectively we're getting a more accurate answer."

FIND Software: Using Statistics to Help Locate a Lost Person



On June 18-19, FRG's Responder Technologies Division held an operational field assessment (OFA) of its FIND software, which uses statistics from past search and rescue (SAR) cases to determine where a missing person is most likely to be found. FIND is part of a suite of tools (including [Lost Person Locator](#)) for first responders who may be rapidly deployed to support a SAR operation.

The OFA took place in [Deschutes County](#), Oregon, with S&T's [National Urban Security Technology Laboratory](#) and the Deschutes County Sheriff's Office. Using a fictional plane crash scenario with a volunteer acting as a victim, the field teams used FIND's communications log to track team locations and status updates. A person's health status, age, experience, access to survival gear and other

factors were analyzed and assembled into specific behavior profiles that improved the team's planning and decision making.

"The most appealing thing about the FIND software, as a SAR coordinator, is that it helps meet the challenges we face on a mission by mission basis," said Lt. Bryan Husband, special services coordinator with the Deschutes County Sheriff's Office. "It's the ability to create a map and task descriptions



and then get it to the field teams very quickly. It can be a challenge to generate this map and tasks and then get it done in a timely fashion."



DHS Project Manager Christine Lee added, "We are very happy with the results of the OFA. It has already been tested in several exercises and proved its ability to improve the search time. The feedback gained from the OFA will be used to enhance the FIND software so SAR professionals may enter specific search criteria based on firm data from similar past cases. This could offer a much greater likelihood of a positive outcome."



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