

## Supporting State and Local Hurricane Response

Hurricanes in the U.S. have resulted in more than 2,000 deaths and hundreds of billions of dollars in infrastructure damage over the last 20 years. Reducing this impact relies on state, local and tribal emergency managers (EM) to make informed decisions if and when their jurisdictions need to evacuate. Currently, hurricane risk mitigation relies on legacy systems that require significant resources and time to provide swift and actionable results, affecting EM's decision-making process.

In order to provide EMs a comprehensive planning and decision-making environment, the National Hurricane Program (NHP)—which links hurricane planning, hurricane forecasts and hazards, decision support tools and training—is making an effort to modernize the current systems. The Department of Homeland Security (DHS), Science and Technology Directorate (S&T) and the Federal Emergency Management Agency (FEMA) funded an evaluation of these systems to identify areas for improvement. The evaluation showed that there are several existing gaps, which resulted in the NHP Technology Modernization project.

## Streamlined Organization, Planning and Response Capabilities

The NHP Technology Modernization project was initiated in September 2013, through a partnership between DHS S&T, FEMA, the Massachusetts Institute of Technology Lincoln Laboratory and Sandia National Laboratory. The project will develop decision aids, leveraging new methods and simulation tools and integrating these with new visual analytic capabilities to enable EMs at the state, local and tribal level to conduct more effective planning, training and operational decision-support for hurricane evacuation.

The project partners are researching and developing the following improvements to the system:

- An NHP guidance document to promote consistency and best practices among EMs.
- Faster updates to Hurricane Evacuation Studies (HES) leading to greater accuracy regarding evacuation zones and clearance times.
- An integrated decision support platform that

collects all of the necessary forecast and planning data to provide decision support tools and products.

- EM-specific decision products that transfer meteorological data to decision space software and local context of the EM.
- An immersive training system available to a wide array of EMs that integrates with real-time decision-making tools.
- Program feedback metrics for EMs and the NHP that measure the processes and outcomes of EMs evacuation decisions.
- Concepts for linking products that provide infrastructure and resiliency information.



## Program Impact

The investment by DHS S&T and FEMA in technology and training upgrades for NHP will improve the ability of state and local communities to protect the public during storms. It will also reduce unnecessary evacuations and help minimize the economic impacts of an evacuation.

Specifically, NHP expects the following outcomes:

- Reduced loss of life and unnecessary preparation and/or execution of evacuations.
- Improved update rates for HES, reduced costs for implementation and increased fidelity of the evacuation zones and clearance times.
- Widespread training of EMs focused on making realistic evacuation decisions with real tools they will use in a response effort.



# DHS Science and Technology Directorate

## National Hurricane Technology Modernization Project



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To learn more about the National Hurricane Technology Modernization Project, contact [sandt.rsd@hq.dhs.gov](mailto:sandt.rsd@hq.dhs.gov).

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