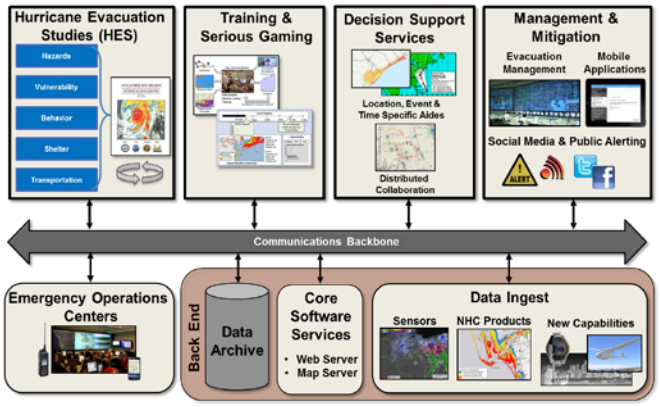
DHS Science and Technology Directorate
National Hurricane Program Technology Modernization
HURREVAC-eXtended Portfolio

An advanced platform for end-to-end hurricane evacuation planning, training, and execution

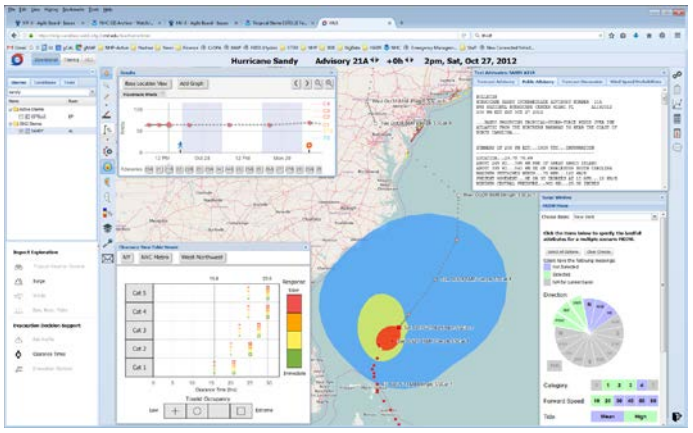
Emergency Managers (EM) handle the challenge of planning for tropical cyclone impacts by developing detailed evacuation plans, preparing staff through training exercises, and evaluating real-time forecasts to determine if evacuations are necessary. Each of these tasks is currently performed on separate platforms that do not share the same interfaces, data standards, or product integration. The primary conclusion from a 2013 Department if Homeland Security Science and Technology Directorate (DHS S&T) funded technology gap analysis was that an upgraded hurricane decision support platform should be developed to enhance current, more limited, capabilities. DHS S&T, in collaboration with the Federal Emergency Management Agency, via the National Hurricane Program Technology Modernization effort, has been working to create a new EM Hurricane decision-support platform called HV-X.



Component Architecture of HV-X

HURREVAC-eXtended (HV-X) Capabilities

The goal of the National Hurricane Program (NHP) Technology Modernization effort, in terms of the integrated HV-X platform, is to create a flexible system with new and updated technology that enables EMs to make timely and accurate evacuation related decisions. The new system will be applicable in a variety of contexts, including evacuation studies, planning, training, evacuation decision-making and response. The ability to utilize HV-X as a multi-purpose tool allows users to become more familiar with the interface, reducing the need for training on multiple tools and processes. The HV-X extends the capability and utility of the existing HURREVAC tool in many ways:



- Utilization of a web-based, thin client architecture built with open-source software components; increasing ease of use, data collaboration and deployment, allowing for operation on mobile devices.
- Creation of open-source geospatial data sharing services to maximize the available data sources, and minimize the overhead of integrating new data.
- Creation of a series of navigation aids that assist the user in seamlessly accessing, analyzing and viewing data temporally and spatially.
- Incorporation of evacuation zone-based decision analytics to enable users to better assess impacts and uncertainty for their area.
- Use of a storm surge explorer for viewing both planning and operational storm surge flood risk data, including the ability to view storm surge risk areas for applicable combinations of Maximum Envelopes of Water or MEOWs, which allows for improved understanding of storm surge risk from an approaching hurricane.
- Integration with a modular Hurricane Evacuation Study (HES) process that will not only allow for interrogation of the HES components, but will also provide the ability to utilize sub-modules of HES within HV-X.
- Integration of serious gaming capabilities into the platform, including automated simulation capabilities, decision-focused training modules, and feedback mechanisms for improved decision-making.
- Creation of a simplified storm track simulation and advisory generator to enable EMs to create new training scenarios at their desktop.

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