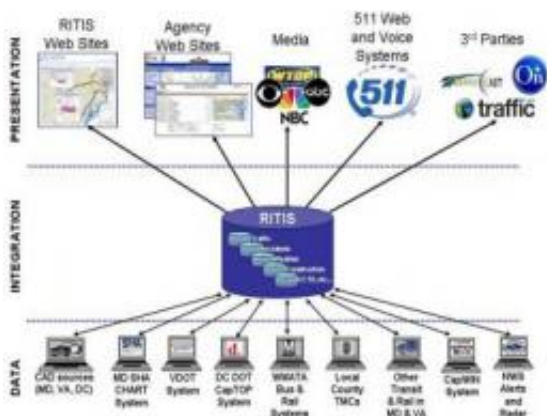# How advanced tech helped East Coast snow emergency crews

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Advanced UMD technology helped East Coast emergency crews cope with the "Snow Maggedon." The technology combines data from dozens of sources and displays in real-time on a single screen. Credit: UMD CATT Lab

Transportation and emergency management agencies throughout the Mid-Atlantic region had a high-tech edge coping with this season's blizzards - an advanced visualization and data fusion system developed by the University of Maryland. The University plans to make the service available to the general public in the future.

The technology gave hundreds of officials at command centers and in the field a consolidated real-time stream of traffic, accident and weather information from dozens of sources, all displayed on a single screen. Field personnel using a special "hardened" technology got the data in

their vehicles and filed real-time reports that instantly updated the system.

The Regional Integrated Transportation Information System (RITIS) provides a single real-time view far more comprehensive than previously available. The CapWIN Mobile Client gives first responders two-way access to the information.

Both technologies were developed and are operated by the University of Maryland's Center for Advanced Transportation Technology (CATT), part of the Clark School of Engineering.

"RITIS really came into its own during this crisis," says principal investigator Michael Pack, who directs the CATT Laboratory. The system got its first widespread trial run during last year's presidential inauguration.

"Many transportation and safety officials now use RITIS every day, but the numbers really went up during the blizzards as more emergency management organizations took advantage of the technology," Pack says. "We could actually see our system on live television during near round-the-clock coverage from the Maryland State Highway Administration headquarters. It was prominently displayed on large screens in the Statewide Operations Center, and it could often be seen over the shoulders of reporters and even behind Governor O'Malley."

Pack says their system's Web site logged over 1.2 million hits during and after the two major snowstorms from approximately 600 visitors, mainly emergency operations, safety and transportation officials from the District of Columbia, Maryland, Virginia and Pennsylvania.

Hundreds of additional field personnel accessed the system feed through the CapWIN Mobile Client, portable, two-way communication

technology that CATT operates in conjunction with a coalition of the region's transportation and safety officials.

Users of the RITIS system during the snow storms included the Maryland Emergency Management Agency, the Federal Emergency Management Agency, the Federal Highway Administration, state police in the region and the Metro transit system, to name a few.

During the East Coast blizzards, hundreds of command centers and field personnel got real-time data combined into a single stream from dozens of sources displayed on a single screen, accompanied by sophisticated visualizations. Credit: UMD CATT Lab

THE RITIS DISPLAY

"We gave emergency personnel both the big picture and lots of detail through our real-time visualizations," Pack explains. "We monitor traffic conditions throughout the region via weather and traffic sensors embedded in the pavement. We monitor commercial vehicles outfitted with GPS to get a sense of travel times up and down the east coast from New Jersey to South Carolina. We monitor accidents on the road and

display them via sophisticated graphics, including detailed information about who is responding, what is being done to fix the situation and the effects on traffic. Our display includes detailed weather data, as well."

This information is then provided to a vast array of agencies throughout the region to help them make informed decisions on how to respond to the situation, coordinate their efforts and better inform the public.

Even at the height of the storm, the CATT Lab was staffed by employees and trained students. When one server failed, they managed to by-pass it and restore service, even though some key personnel were snowed in at home.

"We knew there were a good number of emergency first responders counting on us, and we didn't want to let them down," Pack says. "From feedback, we know we're doing a great deal to facilitate communications and response at all levels of government in this region and across many disciplines."

CapWIN MOBILE CLIENT

Hundreds of first responders in the field use the CapWIN Mobile Client to communicate using real-time data communications and to access critical operational information through their mobile computers.

"The technology is two-way," explains Roddy Moscoso, CapWIN deputy director. "During the blizzards, CapWIN users not only accessed the RITIS feed, they created incident reports and updated the data. The bottom line is that law enforcement and transportation first responders had enhanced coordination capability."

The CapWIN Mobile Client is designed for the special demands of field use and includes detailed mapping capabilities that display RITIS events,

live traffic data and road temperature. Users in the field can file reports giving the emergency management centers a "first responder view" of the situation on the ground.

Plans are underway to make the RITIS system available online to the general public within the next 12 months.

  More information: http://www.CapWIN.org

Provided by University of Maryland