

12-4-2001

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University of Dayton

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### Recommended Citation

University of Dayton, "Chemical, Biological Sensors Can Be Mounted on Existing Weather Networks, Says UD Expert" (2001). *News Releases*. 10270.

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Dec. 4, 2001  
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## NEWS RELEASE

### CHEMICAL, BIOLOGICAL SENSORS CAN BE MOUNTED ON EXISTING WEATHER NETWORKS, SAYS UD EXPERT

DAYTON, Ohio — Workers clearing debris at ground zero in New York plan their actions, in part, by reading real-time weather data relayed by six sensors deployed around the site. They check wind direction and speed, for example, before crane operators dislodge large pieces of the wreckage of the Twin Towers.

The same kind of information could be used effectively on a broader scale if chemical or biological warfare becomes a part of the modern American landscape, said an expert on the systems.

“Once something like that happens outdoors, how it spreads is completely dependent on the weather,” said Amin Ismail, associate professor of engineering technology at the University of Dayton and developer of the WeatherActive software that allows data to be accessed from a remote sensor station, collected and analyzed in real time. “If you combine real-time weather information with modeling software, you give local authorities the ability to have a very accurate picture of where hazardous materials, toxic chemicals and debris are and where they are going to move.

“The timely distribution of this type of information is essential if you’re going to give priority to evacuating those most in danger. And it can help in planning for decontamination.”

Ismail is vice president of engineering for Praxis Software, a Dayton company he started with his wife, Rhonda Copley, a 1989 UD graduate in electrical engineering who serves as president of Praxis. The company’s WeatherActive software is used by about 600 weather monitoring stations to deliver and process real-time streaming weather data using telemetry that includes radio waves, satellites, phone lines and the Internet.

A new generation of smart sensors, designed to detect toxins and then automatically issue a warning by page, fax or e-mail, can be deployed on the same system that supports weather sensors. Ismail has modified the software to incorporate data from sensors designed to detect chemical toxins, whether they come from terrorists or industrial accidents.

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With their partner, Meteorlogix, the world's largest commercial weather services provider, Ismail and Copley are demonstrating the new capabilities to city officials around the country. The Meteorlogix public safety solutions merge live weather data with maps to improve models, streamline efficiency and reduce losses.

"The ability to combine the real-time sensor data with the Meteorlogix MxInsight MetroWatch public safety weather management system adds significant value," said Ron Sznaider, vice president of product marketing at Meteorlogix. "Use of more local and more timely weather observations, combined with additional weather data sets such as precipitation intensity and active storm tracking, all integrated into a Geographical Information System (GIS), can elevate the effectiveness of the plume modeling system."

The new weather-enabled decision support systems can also assist businesses in mitigating their weather-related risks. "Local authorities now have real-time access to the information they need to make more informed decisions," Copley said. "We're not talking about just terrorism. In industrialized cities, accidents happen. Adding this type of weather information to GIS-based spatial plume dispersion algorithms can produce much more accurate results than general regional weather data.

"Authorities can bring in hyper-local information through networks of weather stations, radar and custom forecasting in and around cities," she said. "They can actually see how plumes are moving in the same way they can evaluate storm movement."

The system can also be made portable. Praxis has equipped several vans with real-time weather and auxiliary sensors. Hazmat users can test soil moisture and even use infrared to remotely measure temperatures to determine if a reaction is taking place inside a barrel or tanker to ensure safety and save time during clean-up.

"The system is expandable," Ismail said. "We can integrate virtually any kind of sensor into the network."

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