

# The perfect storm forecast? UMass researchers predict fewer surprises

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by Adam Gorlick  
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AMHERST, Mass. — Severe weather claims hundreds of lives and costs billions of dollars in damage every year. Now, forecasters believe the menace may have met its match.

Scientists led by engineers at the University of Massachusetts say they will soon be predicting tornadoes, hurricanes and severe thunderstorms faster than ever before — and lowering casualty rates by taking the wind out of the surprise factor.

In a UMass student center packed with professors, administrators and business leaders, officials on Wednesday announced the creation of the \$40 million Center for Collaborative Adaptive Sensing of the Atmosphere.

Within five years, the center will be monitoring low-powered radars attached to cell phone towers throughout the country. The radars will let forecasters watch weather patterns occurring within a mile from the ground, known as the troposphere, where some storms such as tornados first form.

Those kinds of storms escape detection by larger Doppler radars that can only track weather systems brewing in the upper atmosphere.

"The key is looking down low, where the weather actually impacts us as people," said David McLaughlin, the UMass professor who will direct the project that also includes researchers from the University of Oklahoma, Colorado State University and the University of Puerto Rico.

By stringing together a series of small radars throughout a community, forecasters say they will be able to predict the length of a thunderstorm, the path of a tornado and the speed of a hurricane faster and more accurately than they can now.

"We'll be able to track a tornado going down a street," McLaughlin said.

At an estimated cost of \$30,000 per radar, researchers say the technology will be affordable and available to municipalities, television stations, emergency centers and businesses that want to better prepare for potentially disastrous weather.

"We're doing for weather forecasting what cellular telecommunication and the Internet did for how people communicate with each other," McLaughlin said.

The radars will first be set up in Oklahoma by early 2005, where researchers will test the technology tracking tornadoes. The next test site will be Houston, where forecasters will focus on the problem of urban flooding.

"The concept is to first put the radars in areas that are most vulnerable to severe weather," said Kelvin Droegemeier, a meteorology professor at the University of Oklahoma.

If there is an area not covered by the new radars, they would still benefit from the information of an impending storm because it would be fed to standard weather advisory outlets, such as the National Weather Service, Droegemeier said.

The project is being paid for with a \$17 million grant from the National Science Foundation, \$5 million from the state and money from other universities. It is also being financially supported by companies like Raytheon, which will develop the radars, and IBM, which will create software.

Mark Russell, the vice president of engineering for Raytheon, said the first handful of radars will be built with off-the-shelf components. New technology will likely spring from the project, he said, with spinoff radars that could be used to help detect terrorist threats. The radars could detect low-flying planes and pick up chemical and biological particles in the air, he said.

"The technology is very promising," said Ron McPherson, executive director of the American Meteorological Society. "This is certainly doable, and it will be a positive asset to the lives and property of this country." □

