



# Best practices

Disaster Mitigation Working in North Carolina

## WolfAlert:

### Keeping the Wolfpack Aware

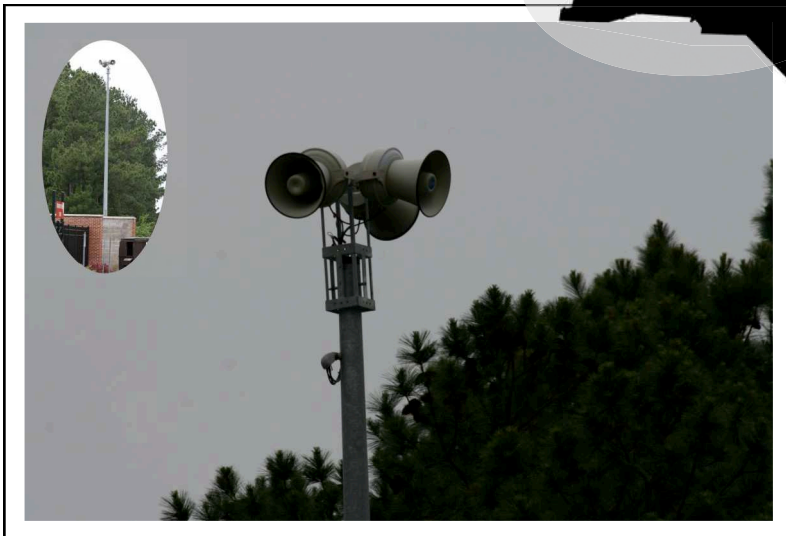


Photo by Christopher Smith FEMA

*Though fairly small and inconspicuous, the WolfAlert speakers are clearly heard throughout NC State's campus. While intended primarily for outdoor use, the speakers are often loud enough to be heard within many of the campus buildings.*

**Raleigh, NC** - On April 16, 2011, Chris Crew was at home looking out of his second floor window wondering where his wife and daughter were. As the State Hazard Mitigation Officer for North Carolina's Division of Emergency Management, Crew had watched for two days as a series of devastating storms tore through the southeast, causing significant destruction and numerous fatalities. Now, on the computer screens behind him, radar images clearly displayed the telltale signs of a

tornado forming over the town of Sanford only 40 miles away. Though a strong wind was blowing, the sky outside Crew's home was clear.

A few blocks away, Crew's wife, Dee Penven-Crew, was attending a meeting at the Raleigh Little Theatre, planning for the theater's 75<sup>th</sup> anniversary party. The Crews' daughter, Caitlin, was on her way to the theater to meet her mother. While there had been warnings that severe weather was a distinct

possibility for the area that day, neither really suspected what was about to occur. As Caitlin was driving, the sky darkened and a heavy rain began to fall, followed by pounding hail mixed with what appeared to be debris.

"As I was driving down the street, the radio was saying there was a severe tornado warning for the area," said Caitlin. "Not three minutes later, they were saying that tornadoes were touching down on the ground and everybody had to take cover."

As Caitlin reached the theater and began to make her way inside, she heard the distinct sound of sirens from the North Carolina State University campus. That was the moment Caitlin realized the situation was truly serious. Joining her mother inside, they called Crew to inform him they were safe and that they could hear sirens from the NC State campus. While talking to his wife and daughter on the phone, Crew watched as the radar screens on his computer displayed another unmistakable tornado signature forming directly above downtown Raleigh.



Photo by Christopher Smith FEMA

Crystal McDuffie stands beside the WolfAlert alarm system control panel. Alarms can be broadcast throughout the entire campus or to specific areas, depending on the nature of the emergency.

Control Center is unavailable, WolfAlert has a portable console that allows remote access to the system. In worst-case scenarios, such as where the backup might fail, the network is even accessible through the telephone. Though they have only had to use the audible warning system twice since its installation, including the April 16 tornadoes, the NC State Emergency Communications Office is always working to ensure its readiness.

“We test the system on the first Monday of every month,” said McDuffie. “We always send people out to different areas of the campus to make sure that everything is coming through clearly over the speakers. We don’t rely purely on the automated confirmation that the test was completed, we have people out there listening.”

The emergency management staff can take over more than 170 campus electronic billboards during crises to deliver messages and updates. They also provide a texting service to subscribers that is capable of sending out mass texts over cellular phones to inform the receivers of any dangerous situations occurring on campus. In addition, they can also send e-mails to subscribers at the same time. On average, 25,000 to 30,000 students and faculty subscribe to the text and e-mail service. The final piece of the WolfAlert puzzle is the NC State website which can display information regarding any situation occurring on campus.

Earlier that day, Crystal McDuffie, Emergency Communications Director for NC State, and Captain Jack Moorman, NC State’s Campus Police Commander of Support Services, had been busy coordinating their day. The NC State emergency staff uses a system they call WolfAlert (so named in honor of the student body’s nickname “The Wolfpack”) to keep the campus and its population safe. The WolfAlert system is comprised of a number of different elements, combining a variety of warning methods with several information gathering services.

“Part of WolfAlert is a service we have through a private company that monitors the weather for us and sends us notifications when any serious weather systems are approaching the campus,” said Moorman. “Along with that service, we also have 24/7 access to a meteorologist who provides us with technical analysis of what the

weather is most likely going to do.”

When a significant weather event or other dangerous circumstance threatens the NC State campus, the emergency management staff and campus police have a number of ways to notify the campus population. WolfAlert’s audible warning system involves a series of 14 speaker stations installed at key locations throughout the campus. Each speaker covers a large circumference, with several of these areas overlapping each other. In addition to functioning as a siren system, the alarm network can send out a variety of prerecorded warning messages for different types of situations, such as tornadoes, accidents or fires. If an emergency develops that is not covered by the pre-recorded messages, the system is also capable of broadcasting live announcements.

If the Emergency Communications

On April 16, the emergency management staff utilized a majority of these tools to provide the campus population with as much information and warning as possible. Thanks to the WolfAlert system and NC State's emergency management staff, the campus population was aware of the potential danger well before the threat was imminent. The tornadoes that struck Raleigh that day passed near the NC State campus and caused no harm or damage to NC State. Another university, only two miles away, was not so fortunate, sustaining a significant amount of damage that forced the school to close for the remainder of the spring semester.

Dee and Caitlin, along with the other people in the Raleigh Little Theatre taking shelter in the theater's basement, were thankful for the warning provided by the WolfAlert system. Dee feels sure that hearing those sirens kept them safe.

The importance of an effective warning system cannot be stressed highly enough — tragedy occurred at a mobile home park in Raleigh on April 16 where residents of the park had little warning before the deadly tornado struck.

Crew stressed that there is more to a successful warning system than the ability to produce sirens or audible notifications and pointed to NC State's WolfAlert as a model.

"There are clear examples of this system working," said Crew. "I think the solution is not to depend on any one warning technique but a variety of them, as the WolfAlert system demonstrates. And any warning systems we have now, or will develop in the future, will only be as good, and only as effective, as we're willing to make them by practicing and drilling and conducting public education and outreach campaigns, so that people will know what to do and where to go and how to behave when they hear those alarms."



*NC State's Emergency Communications Center control room*