AN OUNCE OF PREVENTION:

StormReady®

EQUIPS COMMUNITIES FOR SEVERE WEATHER

by Greg Waxberg

WIKIMEDIA COMMONS/JUSTIN HOBSON

Category F5 tornado viewed from the southeast as it approached Elie, Manitoba, on Friday, June 22, 2007.

A severe thunderstorm, hurricane, or tornado is approaching your community. What do you do? Peace of mind that you *do* know what to do is of the utmost importance in these kinds of situations, and the NWS's StormReady® program helps people prepare for severe weather, be it a fast-moving tornado, slow-moving hurricane, flood, or any other predicament.

StormReady was born out of frustration. "Communities had no standards to follow when it came to weather," said Steve Piltz, who was Warning Coordination Meteorologist (WCM) for the Tulsa, Oklahoma, Weather Forecast Office when he suggested the idea. "There were times when emergency managers knew what to do, but they were the lone voices, so there was not much budgetary support. By developing StormReady, we made sure they received help from local and national authorities."

Lans Rothfusz, Meteorologist-in-Charge in Tulsa at the time, also recalls that the office wanted to improve its warning system, as well as coordination and communication with the NWS. "We needed to approach warnings as an entire system, rather than just the NWS doing its job, and there were several positives for taking a new approach. Instead of pushing emergency managers to do what we thought they needed to do, we dangled recognition in front of them like a carrot. There is value in a community knowing it has done something well, and other communities would ask how they can do it," he said.

The question was which guidelines needed to be in place to merit that recognition. "StormReady became a list of things that a community could do, without much cost, to be well prepared for severe weather," Rothfusz said. Included on the list are six guidelines:

1. **Communication**: A 24-hour warning point and an emergency operations center
2. **Information Reception**: Communications systems to receive NWS forecasts and warnings (the number of systems is based on population)
3. **Hydrometeorological Monitoring**: Ways to monitor local conditions (the number of ways is based on population)
4. **Local Warning Dissemination**: Ways to disseminate warnings to the community (the number of ways is based on population)
5. **Community Preparedness**: Community seminars to promote weather safety (number of seminars based on population); SKYWARN spotter training every two years
6. **Administrative**: A written hazardous weather plan that lists the severe weather that could impact an area and, for each type, a plan for taking action; visit NWS offices and host visits by NWS officials

Launched in 1999, the program took advantage of the widely available technology of the Web. The Internet boom in the 1990s paved the way for Web-based communications that are at the heart of StormReady, such as live radar. At first, seven contiguous counties in Oklahoma received recognition.

Now in its 15th year, StormReady has expanded to over 2,100 locations across the United States, encompassing cities, counties, colleges and universities, Indian Nations, commercial sites (such as airports, hospitals, and malls), military sites, and government sites (state and national parks). "Emergency managers see that StormReady works and want to be recognized by political leaders for their efforts," said StormReady Program Coordinator Donna Franklin.

NOAA

The NWS StormReady® poster.

Rothfusz is delighted by the success of local, state, and federal authorities working together. "We knew that emergency managers and communities would gravitate to StormReady, especially when one community saw another getting recognition. Some communities were a slam dunk based on what they had done prior to StormReady, but I got more satisfaction from watching communities that had struggled with severe weather preparation achieve success," he said.

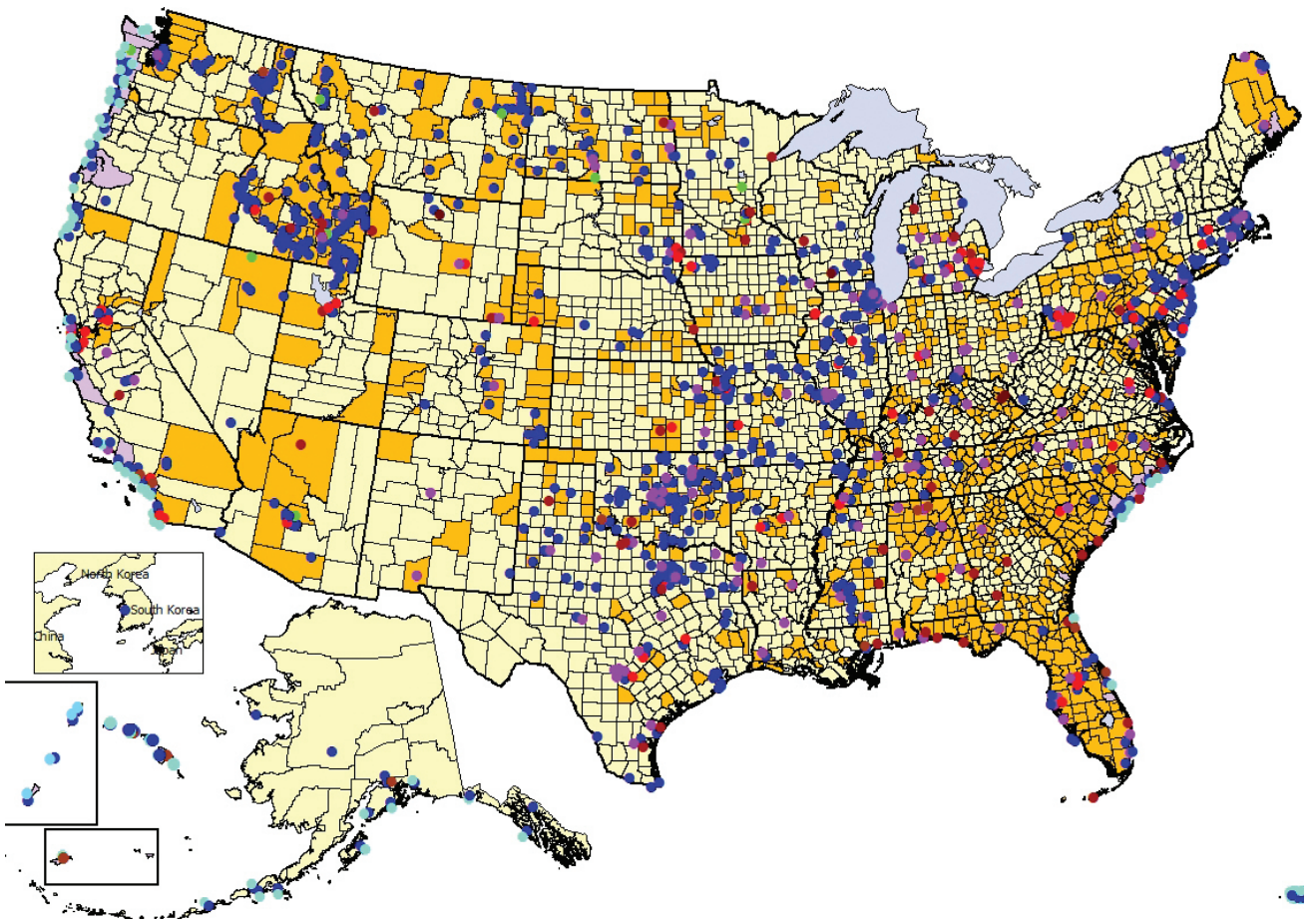
Rothfusz also praises John Ogren, Acting Regional Director of the NWS Central Region, for his work when NWS senior leadership asked him to make StormReady a national program. "As a pilot project in Tulsa, StormReady focused on severe thunderstorms, tornados, and flash floods. We modified the recognition criteria so that StormReady could meet a nationwide scale of all hazards, including hurricanes, winter storms, and extreme heat and cold," Ogren said.

There have been two additions to StormReady. One is the group of 300 StormReady Supporters—entities that promote StormReady principles and guidelines in their severe weather safety and awareness plans. Second is the StormReady Community Hero Award, which is given to individuals in StormReady communities who go above and beyond to save lives and property during severe weather. Seven awards have been presented since 2002.

One of the most recent StormReady sites is Calvin College in Grand Rapids, Michigan, 35 miles east of Lake Michigan. The city is affected by lake-effect snow (the product of warm water and cold air), freezing rain, and occasional tornados. After becoming familiar with StormReady in his previous job with police communications, Dispatch Manager David VanHouten of Calvin's Campus Safety Department made it a priority to obtain recognition for the college. Calvin was already providing annual SKYWARN training for its campus safety dispatchers and had been using regular Internet radar to monitor weather.

As part of the application process, VanHouten upgraded to a real-time, high-definition, state-of-the-art subscriber system, NOAA GRLevel3 Radar. "A normal online radar system is not updated by the minute. New images, based on what you are actually seeing outside, are delayed by five to 15 minutes," he explained. Calvin also upgraded its

NWS



This map, as of July 31, 2013, depicts all StormReady communities in the United States. Gold counties are StormReady; red dots: commercial sites; blue dots: communities/towns/cities; green dots: Indian Nations; purple dots: universities; brown dots: military/government sites.

NPS/JACKIE SKAGGS

Taken at the base of the Teton Range in Grand Teton National Park, Park Superintendent Mary Gibson Scott (second from right) and Park StormReady Project Lead Heather Voster (second from left) receive their StormReady Community designation sign from Kevin Lynott (far right) and Chris Jones (far left) of the National Weather Service office in Riverton, Wyoming.

weather radios to All Alert certified weather radios: "They monitor many types of alerts and allow you to program what types of warnings you want to receive and which counties you want to receive them for. Our campus safety radios also have the capability to monitor NOAA Weather Radio."

Calvin College's emergency operations center was upgraded with the new weather radio and a computer that can monitor radar and issue emergency alerts and updates through Rave Alert. This emergency notification system notifies everyone on campus through text messages, e-mail, and voice messages. VanHouten also made sure that a natural gas generator can power all of the center's systems in the event of a power failure.

Since Calvin College became StormReady, dispatchers are better prepared for severe weather and the accompanying phone calls, and are more confident about using Rave Alert, which has already been utilized during severe weather. News coverage has prompted inquiries from other educational institutions in the area. VanHouten also reported that "StormReady signs at the entrances of our campus let our campus community, parents of our students, and visitors know that we take their safety very seriously."

Another educational institution, the University of Mississippi in Oxford, Mississippi, is located in the far north part of the state and became StormReady at the same time as the city of Oxford. "Since

HEATHER VOSTER

StormReady Community sign displayed at the entrance to Teton Interagency Dispatch Center, Grand Teton National Park in Moose, Wyoming, along with a Midland NOAA All Hazards weather radio.

COURTESY OF REX HEALTHCARE

Executives of Rex Healthcare in Raleigh, North Carolina, one of the first hospital systems in the country to be designated StormReady, received recognition from the NWS in 2009.

the city surrounds the university, it was just as easy to get the city and university recognized at the same time," said Jimmy Allgood, Director of the City of Oxford Emergency Management Agency. Oxford's population is 20,000. The university enrolls 16,000 to 18,000 students, but fewer than 5,000 live on campus. "Because the university's enrollment just about doubles the city's population, the university and city work together to make sure everyone is warned. The students are the university's responsibility, but they are also our citizens," Allgood said.

Oxford's greatest threats are severe thunderstorms, tornados, and ice storms; tornado warning sirens were installed in 2003, followed by the city's all-call system and the university's text messaging system. In addition, Oxford has GSS (Global Security Systems) ALERT FM, for which the public can purchase a receiver and receive messages from the NWS and local emergency management agency, and also the local emergency management AM radio station that broadcasts information to the community, city, and university.

To achieve StormReady recognition, the university met all criteria for warning systems, but had to update its emergency plan to include all local agencies, specific plans of action, and contact lists for key personnel. Allgood observes that StormReady made everyone in the community more weather-aware, and is grateful to the NWS office in Memphis for assisting with the recognition. "We are a lucky community," he said. "The city, county, and university work so closely together, especially on severe weather awareness, so that nothing falls through the cracks."

Similar to the university, Grand Teton National Park in Moose, Wyoming (in the northwest part of the state, which is subject to severe thunderstorms, flooding, and winter storms), is located within Teton County, which was already StormReady. The park works closely with Teton County Emergency Management, so, "with the systems Teton County has in place to keep the community safe, the park wanted to further those preparedness efforts in its area of responsibility," said Heather Voster, Assistant Center Manager for the Teton Interagency Dispatch Center.

Before StormReady, the park could receive warnings by teletype, local radio, and phone calls from the NWS office in Riverton, Wyoming (in the central part of the state). Updates included installation of NOAA weather radios around the park; signing up for e-mail, text messages, and NWSChat, an instant messaging program; and establishing a phone tree to concession companies.

Voster believes these changes made a significant impact. "Our communication with the concession operations, the public, and the NWS has been greatly improved. When dispatchers receive a

severe weather alert, or when monitoring the radar we see a strong storm cell approaching, we notify the field personnel and potentially impacted concession operations so they may respond accordingly," she said. While the public does visit at their own risk, the park makes every effort to provide them with information by notifying concessions, posting alerts at park entrances, making announcements at the Visitors Centers, broadcasting information to all employees, and publishing weather information in the park's visitor guide.

Another StormReady tourist destination is Hershey Entertainment Complex in Hershey, Pennsylvania, 90 miles west of Philadelphia, which is an area prone to severe thunderstorms, occasional tornado watches, and storm systems. The recognition covers five Hershey attractions (including Hersheypark), but not Hershey Resorts or Hershey Gardens, so the complex keeps them updated with weather information.

According to Jason White, Complex Director of Safety and Security, Hershey was monitoring wind speeds, lightning strikes, and radar; sending spotters to report unusual atmospheric conditions; and following procedures to close the attractions, but the complex did not have information like it does under StormReady, which affords it with the most current data from the NWS. "We can now make timely decisions about whether to close any attractions. We have also sent many employees through SKYWARN training, so they learn exactly what conditions to look for," White said. The procedures that Hershey now has in place are used throughout the year.

Arguably, a medical facility should be StormReady, and that is exactly the case with Rex Healthcare/Hospital in Raleigh, North Carolina, one of the first hospital systems in the country and the first in North Carolina to be recognized. "Hospitals have an inherent responsibility to protect their patients and be ready when severe weather threatens," said Emergency Preparedness Manager Alan Foster. "Our decision to pursue the StormReady designation was not for the recognition, but to tap into the expertise of the NWS in developing our severe weather monitoring capabilities."

Foster reports that Rex's previous plans were adequate for response and recovery, but the NWS suggested adding Web-based radar capability that plots Rex's facilities on a radar map. Rex also enhanced its process for alerting hospital staff by adding weather alert radios to all facilities and investing in a Web-based notification system that delivers emergency messages to all staff or select groups. A third major change was SKYWARN training for key staff members.

"Prior to our enhanced monitoring and notification capabilities, our reaction time was slowed by time and labor-intensive phone calls," Foster said. "In the spring of 2011, a major tornado came within a couple miles of the hospital. Our staff was notified and took appropriate measures to reduce risk if the hospital sustained a direct impact. While we didn't receive any structural damage, we did sustain some water damage to a few patient care and computer areas. There was no impact to our patient care or operational capability."

There is no substitute for being prepared when severe weather hits. In Franklin's words, "Being StormReady shows that you've met a stringent set of guidelines. Partnering with the NWS is the optimal way to be ready for any weather that calls for fast communication." W

WIKIMEDIA COMMONS/UNITED STATES' NATIONAL WEATHER SERVICE (NWS) / REDRAWN BY RENATA3

Logo of SKYWARN, a program of the NWS.

GREG WAXBERG is a writer and magazine editor for The Pingry School and an award-winning freelance writer.