

HOSPITAL / SCHOOL / UNIVERSITY  
**Campus Safety** EXPERT SERIES



**TAKE THE THREAT OF  
LIGHTNING SERIOUSLY**



## TAKE THE THREAT OF LIGHTNING SERIOUSLY

**Be sure to enhance your school or university's existing emergency management program with today's advanced lightning detection solutions.**

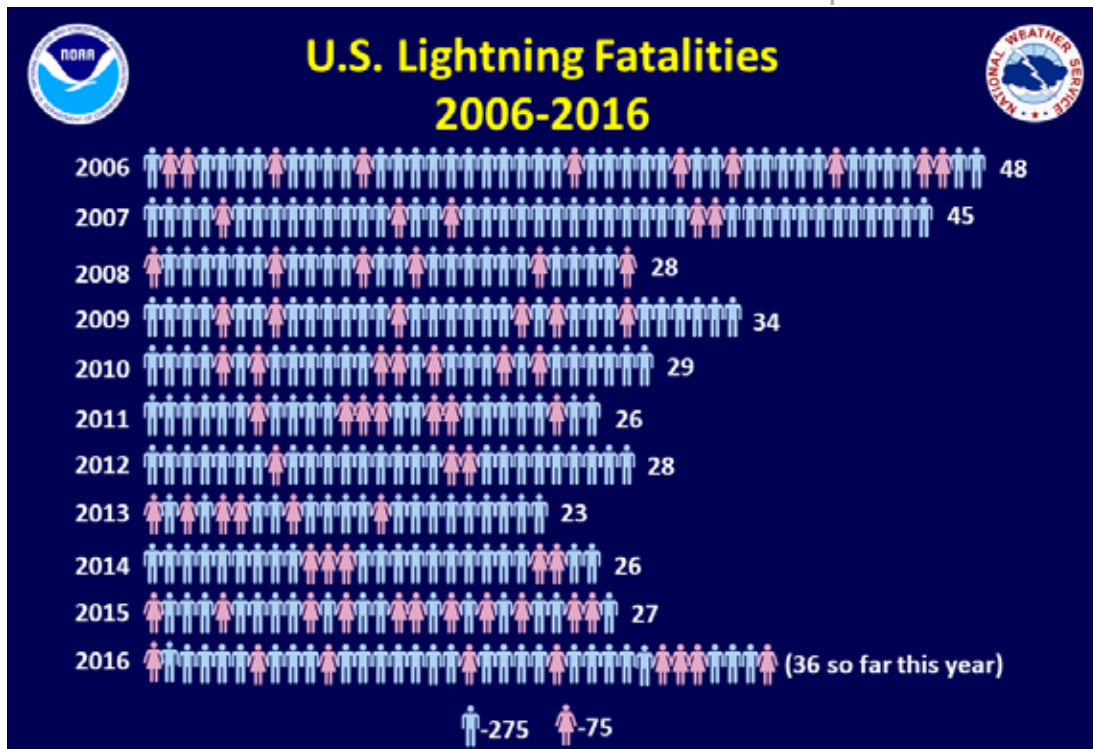
With this year's increase in U.S. lightning fatalities, schools and universities are once again reminded that lightning is a real and present danger. Ignoring this threat can create a significant vulnerability gap in the emergency management program on your campus.

The United States experiences on average 20 million cloud-to-ground lightning flashes per year, and while the majority of deaths occur in the Southeast, lightning can happen in any state and on any campus. The states with the second highest number of lightning fatalities so far in 2016 are Louisiana and New York.

Additionally, lightning can strike as far as 10 miles away from a storm. There

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have even been reports of extreme cases where its range has been as much as 20 miles.

Lightning cannot be prevented, but campuses can adopt detection solutions to warn communities in real-time when the threat of lightning is near. Doing so will ensure your outdoor activities are optimally protected from electrical storms.

### **The Many Challenges of Keeping Students Safe on Campus**

While it is true that games and organized athletic events such as football games leave players, staff and spectators vulnerable to severe weather, campus safety planners need to build a severe weather action plan for all campus recreation spaces and events.

Educational campuses are increasingly difficult places to maintain safe outdoor spaces for a variety of reasons:

- Campuses generally have large land areas with varied terrains and venues
- Colleges and K-12 schools have many unplanned outdoor gatherings of students
- Campus outdoor spaces are frequently used for recreation as well as organized and unorganized athletic practices
- Schools and universities often host non-campus spectators and visitors such as family, friends and community members

## U.S. CITIES WITH THE MOST LIGHTNING FLASHES IN 2015

(Cities with populations of more than 500,000)

Rank	City	Flashes Per Day
1	Tampa, Fla.	320
2	Cape Coral, Fla.	281
3	Norman, Okla.	275
4	Houston	254
5	Oklahoma City, Okla.	227
6	Hialeah, Fla.	227
7	West Palm Beach, Fla.	219
8	Miramar, Fla.	216
9	Jacksonville, Fla.	215
10	Amarillo, Texas	210

An automated severe weather detection system can clear a campus in minutes without the need for public safety staff to travel to each area to issue manual alerts.

### NCAA Offers Best Practices on Lightning Safety

If your college or university has an athletic program, guidelines from the National Collegiate Athletic Association (NCAA) outline best practices on how to protect campuses from this serious natural phenomenon. Even for everyday outdoor activities, such as school recess, marching band practice or pep rallies, your facility should have the ability to be alerted to the threat of lightning.

Today's advanced lightning detection equipment can quickly identify not only cloud-to-ground strikes, but also in-cloud lightning activity. This extra detection is important because although cloud-to-cloud lightning doesn't reach the ground, it is a precursor to ground strikes and severe weather that pose a significant threat to human life.

Hard-wired, direct Internet connection solutions that deliver real-time lightning data provide schools and universities the best protection. By contrast, hand-held lightning equipment falls short when it comes to the exact location of the last lightning strike, making it less clear when students and staff need to head inside. Wi-Fi-enabled equipment also falls short due to connectivity issues, which make it difficult to determine if the system is working or not.

Today's advanced, hard-wired lightning detection systems overcome these limitations. They even issue audio and visual notifications when lightning strikes have been detected 10 miles away, which lets your students, faculty, staff and visitors know about the threat.

With [Earth Networks'](#) Outdoor Alerting System — a robust lightning detection solution — the system issues an alert via horns and strobe lights, providing 360 degrees of audible and visual coverage.

### **The Alert Has Been Issued. Now What?**

Once an alert has been received that indicates lightning has been detected within 10 miles, it's important for schools and universities to respond quickly. That means officials should immediately clear the area and instruct everyone to take shelter (preferably in shelters that are designed and designated as safe structures).

Other appropriate measures include ceasing the playing of music, displaying warning messages on scoreboards and other available electronic signage, and making repeated verbal announcements about the threat of lightning.

The outdoor area should remain clear until 30 minutes after the last lightning strike. Then activities can resume.

### **Educate Students, Teachers and Staff**

It's important to note that long before the threat of lightning arrives at your doorstep, your campus should train everyone in the community about how to appropriately respond to lightning detection alerts. For example, if a school or university has installed the [Earth Networks](#) solution, students, faculty members, staff, administrators and visitors should be taught that when they hear three horn sounds and see the strobes start flashing, they should take cover.

The National Weather Services also advises adults to teach children the rhyme "When thunder roars, head indoors," because if you can hear thunder, you are close enough to be struck by lightning. This simple rhyme can also be taught to college students.

Campuses should also address the common myths associated with lightning:

- **MYTH:** If you are caught outside in a thunderstorm, you should seek refuge under something taller than you, like a tree. **THE TRUTH:** Being under a tall tree makes you extremely vulnerable to lightning. Height, point shape and isolation are dominant factors controlling where a lightning bolt will strike.
- **MYTH:** Metal objects, like umbrellas, baseball bats and bleachers attract lightning. **THE TRUTH:** Metal does not attract lightning. Lightning is

attracted to tall, pointy objects. It is the shape and height of the object that attracts lightning, not the material. However, metal does conduct electricity, so if metal is struck and you are touching it, your risk of electrocution is maximized.

- **MYTH:** Using a mobile app is good enough to monitor lightning. **THE TRUTH:** An app's ability to monitor lightning is limited by its proximity to a cell phone tower. If multiple people are monitoring lightning, there may be differences in their readings, which could cause confusion.
- **MYTH:** Lightning electrifies its victims. If you touch them, you will be electrocuted. **THE TRUTH:** The human body doesn't store electricity. If someone is struck by lightning, it is safe and encouraged to administer first aid
- **MYTH:** Sometimes it's just heat lightning. **THE TRUTH:** There is no such thing as heat lightning. All lightning originates from a thunderstorm. If you can see lightning but don't hear thunder, it is simply because the storm is far away but could be moving towards you. Lightning can strike more than 10 miles from the storm. You should still take precautions.

Adopting today's most advanced lightning detection equipment, as well as addressing these myths and educating students, teachers, staff and visitors on how to respond to lightning will ensure your campus is optimally protected.

For more information on lightning detection, visit [earthnetworks.com](http://earthnetworks.com).



## OTHER WEATHER ISSUES YOU SHOULD ADDRESS

Schools and universities must address a whole host of other weather conditions besides lightning strikes. These include tornadoes, snow storms, wind chill, red flag fire warnings, flooding, hurricanes, extreme heat, high winds, microbursts, hail and more.

Does your campus use the Wet Bulb Globe Temperature (WBGT) index to identify students' vulnerability to heat stress? What about a winter storm that threatens to close down the local streets and highways? Don't you want to know in advance if your campus needs to be closed tomorrow? And then there is wind chill, which can affect athletes as well as others who are playing or working outdoors and walking to school (see *Wind Chill Procedures for Athletic Events* on page 8).

These are just some of the ways a campus can be affected by the weather.

A common place to start monitoring your weather issues is with National Weather Service (NWS) forecasts. One challenge with the NWS, however, is

## WIND CHILL PROCEDURES FOR ATHLETIC EVENTS

	RealFeel (wind chill) above 40 degrees	Full activity, no restrictions
<b>RECOMMENDED</b>	Wind Chill Caution: RealFeel (wind chill) 36 to 20 degrees	<ul style="list-style-type: none"> <li>Stay adequately hydrated.</li> <li>Notify coaches of the threat of cold related illness.</li> <li>Have students and coaches dress in layers of clothing.</li> </ul>
<b>RECOMMENDED</b>	Wind Chill Watch: RealFeel (wind chill) 19 to 10 degrees	<ul style="list-style-type: none"> <li>Stay adequately hydrated.</li> <li>Notify coaches of the threat of cold related illness.</li> <li>Have students and coaches dress in layers of clothing.</li> <li>Cover the head and neck to prevent heat loss.</li> </ul>
<b>RECOMMENDED</b>	Wind Chill Warning: RealFeel (wind chill) 9 to -10 degrees	<ul style="list-style-type: none"> <li>Stay adequately hydrated.</li> <li>Notify coaches of the threat of cold related illness.</li> <li>Have students and coaches dress in layers of clothing.</li> <li>Cover the head and neck to prevent heat loss.</li> <li>Consider postponing practice to a time when RealFeel temp is much higher.</li> <li>Consider reducing the amount of time for an indoor practice session.</li> </ul>
<b>REQUIRED</b>	Wind Chill Alert: RealFeel (wind chill) -11 degrees or lower	<ul style="list-style-type: none"> <li><b>No outside activity, practice or contest should be held.</b></li> </ul>

Source: NYSPHSAA

that it generally uses data from the nearest airport, which could be 10 or 20 miles away from campus, or even further.

Fortunately, there are solutions available that provide hyper-localized weather forecasts so campuses can better predict how the weather will affect them and then prepare and respond.

One such solution is the Weather Station from Earth Networks, which collects all of the localized data that a campus needs to help staff manage campus, athletic and transportation policies and activities. This information is fed into Earth Network's StreamerRT, a web-based weather visualization platform that allows campus personnel to monitor weather situations that could have an impact on planned activities or operations.

Combining local data with NWS data provides a more complete and accurate weather forecast so that your K-12 district or university can better prepare for whatever weather conditions it might face.