

# Thunderstorms and Lightning

## ARE THUNDERSTORMS DANGEROUS? ABSOLUTELY!

Although hurricanes and tornadoes receive most of the recognition, lightning occurs most often in the United States. Over 40 million lightning strikes occur every year, which result in nearly 100 deaths.

Lightning bolts can strike trees, power lines, buildings, people, and any electrically conductive elevated object. Lightning can cause fire or severe burns to anything that it contacts. Persons struck by lightning receive a severe electrical shock and may be burned. They do not retain an electric charge, so they can be handled safely. A person struck by lightning can often be revived by prompt cardio pulmonary resuscitation (CPR).

## WHAT IS LIGHTNING?

The action of rising and descending air within a thunderstorm separates positive and negative charges. Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas.

An average flash could illuminate a 100-watt light bulb for more than three months.

The air near a lightning strike is heated to 50,000°F, which is hotter than the surface of the sun. The rapid heating and cooling of the air near the lightning channel causes a shock wave that results in thunder.

## LIGHTNING SAFETY RULES

Thunderstorms are very unpredictable and can pop up at anytime. Remember that tornadoes can occur in areas of severe thunderstorm development. There are a few common sense measures you can take that can help you survive some of the hazards associated with thunderstorms:

- Watch for environmental clues, such as increasing wind, flashes of lightning, sounds of thunder, darkening skies, and AM radio static.



Photo above courtesy of S. Albers.

- Avoid being the tallest object.
- Do not stand under or near an isolated tree or small group of trees.
- Get inside a sturdy structure before the storm approaches.
- Unplug all unnecessary appliances BEFORE the storm approaches.
- DO NOT use the telephone during the storm, unless it's an emergency!
- Don't stand by open windows, doors, or patios during a thunderstorm.
- Get out of boats, away from water, and off the beaches.
- If lightning is occurring and a sturdy shelter is not available, get inside a hard-topped automobile and keep the windows up. The rubber tires DO NOT protect you — it's the roof.
- Do not take a bath or shower during a storm. Water and copper tubing are excellent conductors of electricity.
- Golfers should immediately leave the golf course and seek shelter, but never under trees.
- Hail can occur. If you don't have a garage for your vehicle, thick blankets tied down to the hood, roof, and trunk will offer some protection.
- Lightning can travel sideways for up to 10 miles. If you hear thunder, take cover. Be cautious even when the sky looks blue and clear. Many deaths from lightning occur ahead of the storm because people wait to the last minute before seeking shelter.

**REMEMBER: If you can hear thunder, you are close enough to the storm to be struck by lightning!!!**

- If you feel your skin tingle or your hair stands on end, squat low to the ground on the balls of your feet. Place your hands on your knees with your head between them. Make

yourself the smallest target possible, and be sure to minimize your contact with the ground!

**NEVER** touch downed power lines – always consider them energized and dangerous. Stay safe – keep yourself and others away. Call 9-1-1 immediately.

## ON THE WATER OR IN A BOAT DURING A THUNDERSTORM?

Thunderstorms over coastal waters are generally unpredictable. Even with the best weather reports, boaters can still be caught in open waters. Either with or without a lightning protection system, it is critical to take these precautions to protect yourself:

1. Stay in the center of the cabin. If no cabin, stay low in the boat. Don't be a stand-up lightning rod!
2. Keep arms and legs IN the boat.
3. Discontinue fishing, water skiing, scuba diving, swimming or other water activities at the first sign of threatening conditions.
4. Disconnect and do not use or touch major electronic equipment, including the radio, for the duration of the storm.
5. Lower, remove, or tie down the radio antenna and other protruding devices if they are not a part of the lightning protection system.
6. To the degree possible, avoid making contact with two components connected to the system at the same time. For example, the gear levers and the spotlight may both be connected to the system. If you have a hand on both when lightning strikes, the path of the electric current could be directly through you.
7. If a boat has been or is suspected of having been struck by lightning, check out the electrical system and compasses to ensure that no damage has occurred.

### Sources:

[www.cdc.gov/nasd/menu/topic/lightning.html](http://www.cdc.gov/nasd/menu/topic/lightning.html);

[www.noaa.gov/lightning.html](http://www.noaa.gov/lightning.html)

Photo (top) by Steve Albers, [www.windows.ucar.edu/tour/](http://www.windows.ucar.edu/tour/).