

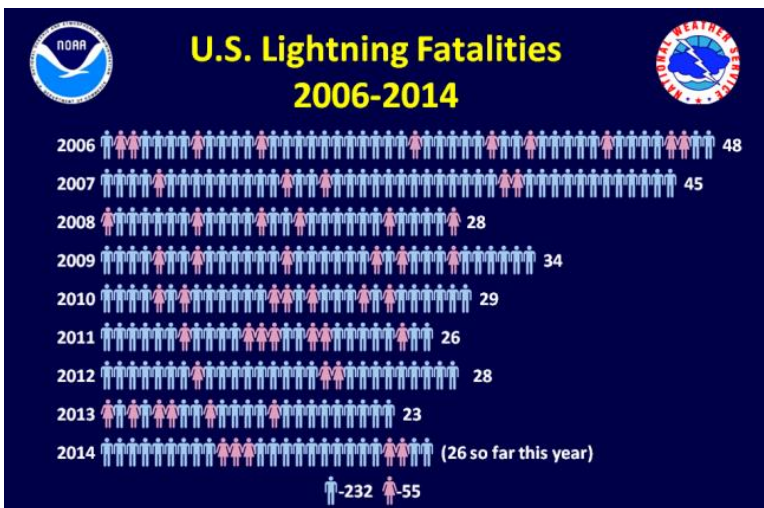
# Lightning

Audio Public Service Announcement (PSA)

Lightning is beautiful to watch from the safety of a building. It can be deadly if you are caught outdoors. Summer is the peak lightning season, but lightning can occur in any season, even in the winter (thundersnow). Lightning strikes 25 million times a year in the U.S., and about 300 people a year are stroke by lightning. Of these, about 30 are fatal. When outdoors, be aware of the weather and the possibility of a thunderstorm. Lightning can strike even if it is not raining and even if skies are clear. A “bolt out of the blue” refers to such strikes. If you are within 5 miles of a thunderstorm, there is a chance that you may be struck. So, when you hear thunder, don't wait until the rain starts before taking shelter.

## “If it’s thunder you hear, then lightning is near”

After a lightning stroke, count the number of seconds before you hear the thunder. Every 5 seconds equals 1 mile. For example, if you count 20 seconds then the lightning occurred 4 miles from your location.



## Safety Tips

- When you here thunder go indoors immediately. Don't be tempted to finish your outdoor activity until the rain arrives – lightning can strike before the storm clouds or rain arrives. If you are within 5 miles of the storm you are in danger.
- When inside, turn off appliances.
- If caught outside, avoid lone tall objects or open fields. If in the water, get out immediately.
- Your safest position is to crouch – staying low and having minimal contact with the ground.
- A car will offer protection because of its metal frame - the lightning charge goes around the outside of the vehicle. However, a convertible or fiberglass vehicle or open windows reduces this protection. When in the car keep your hands on your lap – do not touch anything in the car.

Looking at this chart of lightning fatalities, the majority of deaths occur among men. Almost 5x that of woman. Some activities which led to strikes include: closing a car window, fishing, riding a motorcycle, picking blueberries, fixing a windshield wiper, walking to house, horseback riding, swimming, building a tree house, and trimming a hedge.

## Quick Lightning Tutorial

Lightning occurs with charge separation in a cloud. Negative charges congregate at the base of a cloud. These negative charges attract positive charges near the ground. Positive charges will move up tall objects to be closer to the clouds negative charges (see photo). The joining of these charges produces lightning. Thunder is the sound produced from the rapid heating of the air from the lightning. Thunder can not occur in the absence of lightning.

**Heat Lightning** (often seen – but not heard - on warm humid summer nights) is simply lightning that is far away (cannot hear the thunder).

**Ball Lightning** is somewhat of a mystery. It is a luminous, spherical object that appears to hover. Its existence is debated.

**Saint Elmo's Fire** is simply a glow caused by positive charges congregating on high points closest to the clouds negative charge.



Photo credit: Jason Patzak

An obvious precursor to an electric strike. And the cell phone doesn't help! Positive charges move up the body from the ground to reach the negative charges near the base of a cloud.