

You Light Up My Life

Cloud-to-ground lightning occurs when negative charges at a cloud's base are attracted to positive ones on the ground. A surge is created which carries the current to the ground.

This bolt typically contains about 1 billion volts and between 10,000 to 20,000 amps of current. Next, a "return stroke" reveals the bright flash.

The average lightning stroke is about 6 miles long and can travel diagonally to the ground as well as traveling vertically, so...

Lightning can occur even with a clear sky overhead. A thunderstorm need only be within 10 miles for cloud-to-ground lightning to originate from high altitude thunderheads.

The flash appears wider than it really is because of the glowing air surrounding it.

The "return stroke" can reach 50,000° F (to put that in perspective, the surface of the sun has been recorded at only about 11,000° F).

Thunder is basically the air around the lightning exploding due to sudden high temperature. Lightning "cooks" the surrounding air to between 15,000 and 50,000 degrees.

Thunder can be heard up to 10 miles away, depending on the terrain, humidity, and other ambient noise.

Lightning is more common in the summer than in the winter because it's generated by atmospheric temperature changes. In winter, both the upper and lower atmospheres remain cold. In summer, the upper atmosphere might stay cold while the lower one warms up.

The "flash to bang" method is one way to judge the distance to the lightning strike. When you see the "flash" of the lightning, count the number of seconds until the "bang" of the thunder. Divide the number of seconds counted by 5 and the results is the number of miles the lightning is away

Lightning can have a number of effects on trees that it strikes.

A young cypress tree is fairly dense throughout and will act as a lightning rod conducting the electrical charge to the ground. Frequently the only sign is shredded bark (*top photo, left side of trunk*). The tree will "scar" over a strike in time (*top photo, center of trunk*) and will continue to live and grow.

An older cypress tree will have some dead areas in the center of the tree, creating "air pockets," and the heat from a lightning strike will heat those air pockets rapidly, creating a pressure cooker with no release valve. Because the dense, living wood is on the outside of the tree, the pressure has no where to go and the results is the tree literally explodes (*center photo*), blowing holes out through weak spots in the trunk and frequently blowing the top off of the tree. The dead wood at the center of the tree may also burn for several days.

Slash pine reacts in much the same way. But because pines tend to be more sensitive than cypress, even a young, dense tree (*bottom photo*) will frequently not survive the experience. Older pines with the air pockets are more likely to burn completely.

