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Lightning forks and rejoins itself over Table Mountain and Lion's Head in Cape Town, South Africa. Central Africa is the area of the world where lightning strikes most frequently.
PHOTOGRAPH BY LYNDA SMITH, MY SHOT

REFERENCE

Lightning

Contrary to the common expression, lightning can and often does strike the same place twice.

5 MIN READ

Lightning is an electrical discharge caused by imbalances between storm clouds and the

"Sheet lightning" describes a distant bolt that lights up an entire cloud base. Other visible bolts may appear as bead, ribbon, or rocket lightning.

During a storm, colliding particles of rain, ice, or snow inside storm clouds increase the imbalance between storm clouds and the ground, and often negatively charge the lower reaches of storm clouds. Objects on the ground, like steeples, trees, and the Earth itself, become positively charged—creating an imbalance that nature seeks to remedy by passing current between the two charges.

Lightning is extremely hot—a flash can heat the air around it to temperatures five times hotter than the sun's surface. This heat causes surrounding air to rapidly expand and vibrate, which creates the pealing thunder we hear a short time after seeing a lightning flash.

Americans each year than either tornadoes or hurricanes.

Types of Lightning

Cloud-to-ground lightning bolts are a common phenomenon—about 100 strike Earth's surface every single second—yet their power is extraordinary. Each bolt can contain up to one billion volts of electricity.

A typical cloud-to-ground lightning bolt begins when a step-like series of negative charges, called a stepped leader, races downward from the bottom of a storm cloud toward the Earth along a channel at about 200,000 mph (300,000 kph). Each of these segments is about 150 feet (46 meters) long.

When the lowermost step comes within 150 feet (46 meters) of a positively charged object, it is met by a climbing surge of positive electricity, called a streamer, which can rise up through a building, a tree, or even a person.

When the two connect, an electrical current flows as negative charges fly down the channel towards earth and a visible flash of lightning streaks upward at some 200,000,000 mph (300,000,000 kph), transferring electricity as lightning in the

common types, never leave the clouds but

travel between differently charged areas within or between clouds. Other rare forms can be sparked by extreme forest fires, volcanic eruptions, and snowstorms. Ball lightning, a small, charged sphere that floats, glows, and bounces along oblivious to the laws of gravity or physics, still puzzles scientists.

About one to 20 cloud-to-ground lightning bolts is "positive lightning," a type that originates in the positively charged tops of stormclouds. These strikes reverse the charge flow of typical lightning bolts and are far stronger and more destructive. Positive lightning can stretch across the sky and strike "out of the blue" more than 10 miles from the storm cloud where it was born.

The Impact of a Lightning Strike

Lightning is not only spectacular, it's dangerous. About 2,000 people are killed worldwide by lightning each year. Hundreds more survive strikes but suffer from a variety of lasting symptoms, including memory loss, dizziness, weakness, numbness, and other life-altering ailments. Strikes can cause cardiac arrest and severe burns, but 9 of every 10 people survive. The average American has about a 1 in 5,000

Lightning's extreme heat will vaporize the water inside a tree, creating steam that may blow the tree apart. Cars are havens from lightning—but not for the reason that most believe. Tires conduct current, as do metal frames that carry a charge harmlessly to the ground.

Many houses are grounded by rods and other protection that conduct a lightning bolt's electricity harmlessly to the ground. Homes may also be inadvertently grounded by plumbing, gutters, or other materials. Grounded buildings offer protection, but occupants who touch running water or use a landline phone may be shocked by conducted electricity.

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