

Rain, Snow, Sleet, and Other Types of Precipitation

All precipitation originates in the atmosphere and falls to the ground

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Some people find precipitation an intimidatingly long word, but it simply means any particle of water—liquid or solid—that originates in the atmosphere and falls to the ground. In meteorology, an even fancier term that means the same thing is hydrometeor, which also includes clouds.

There are only so many forms water can take, so there are a limited number of precipitation types. The main types include:

Rain

Rain, which is liquid water droplets known as raindrops, is one of the few precipitation types that can occur during any season. If air temperatures are above freezing (32 F), rain can fall.

Snow

While we tend to think of snow and ice as two different things, snow is actually millions of tiny ice crystals that collect and form into flakes, which we know as snowflakes.

For snow to fall outside your window, air temperatures above the surface must be below freezing (32 F). It can be slightly above freezing in some pockets and still snow if the temperature isn't substantially above the freezing mark and doesn't stay above it for very long, or the snowflakes will melt.

Graupel

Graupel appears white like snow, but more ragged than hailstones.

If supercooled water droplets freeze onto falling snowflakes, you get what's called "graupel." When this happens, the snow crystal loses its identifiable six-sided shape and instead becomes a clump of snow and ice.

Graupel, also known as "snow pellets" or "soft hail," is white, like snow. If you press it between your fingers, it will usually crush and break apart into granules.

Sleet forms when a thin layer of above-freezing air is sandwiched between two layers of subfreezing air, one deep layer high in the atmosphere and another cold layer below the warmer air. The precipitation starts out as snow, falls into a layer of warmer air and partially melts, and then reenters subfreezing air and refreezes while falling toward the ground.

Sleet is small and round, which is why it's sometimes referred to as "ice pellets." It makes an unmistakable sound when bouncing off the ground or your house.

Hail

Hail is often confused with sleet. Hail is 100% ice but is not necessarily a wintertime event. It usually falls only during thunderstorms.

Hail is smooth, usually round (though parts can be flat or have spikes), and anywhere from pea-size to as large as a baseball. Although hail is ice, it's more of a threat to damage property and vegetation than it is to cause slick travel conditions.

Freezing Rain

Freezing rain forms similarly to sleet, except that the layer of warm air at mid-levels is deeper. Precipitation starts out as either snow or supercooled raindrops, but it all becomes rain in the warm layer. The freezing air near the ground is such a thin layer that the raindrops don't have enough time to freeze into sleet before they reach the ground. Instead, they freeze when they strike objects on the ground whose surface temperatures are 32 F or colder.

If you think rain in freezing rain makes this winter weather harmless, think again. Some of the most disastrous winter storms are due primarily to freezing rain. When it falls, freezing rain covers trees, roadways, and everything else on the ground with a smooth, clear coating of ice or "glaze," which can make for hazardous travel. Ice accumulations also can weigh down tree branches and power lines, causing damage from downed trees and widespread power outages.