

Glossary

air mass A large body of air that has about the same temperature and humidity throughout. An air mass may be hundreds of kilometers wide and 3 to 10 kilometers high.

air pressure The force exerted by the weight of a column of air pushing down on an area; also called atmospheric or barometric pressure. Air has weight because of the force of Earth's gravity pulling down on it.

anemometer A weather instrument used to measure wind speed. Wind speed may be measured in either knots or miles per hour.

aneroid barometer A type of barometer that uses an airtight metal chamber to measure changes in air pressure. *Aneroid* means "without liquid."

atmosphere The blanket of air that surrounds Earth. Weather occurs in the layer of the atmosphere closest to Earth, called the troposphere.

barometer A weather instrument used to measure air pressure. A "rising barometer" indicates an increase in air pressure and clearing weather. A "falling barometer" indicates a decrease in air pressure and an approaching storm.

Beaufort wind scale A system of rating wind speed based on the effect of the wind on outdoor objects such as trees and flags. The scale rates wind speed from 0 to 12, with 0 representing dead calm and 12 representing hurricane-force winds.

cirrus cloud A high, feathery cloud made of ice crystals. Cirrus clouds mean fair weather for now, but perhaps a change within a day.

cloud A mass of water droplets or ice crystals that have clustered in the atmosphere. Clouds form when water vapor high in the air cools and condenses on dust particles.

cold front The leading edge of a moving mass of cooler air. A cold front may bring thunderstorms, followed by cool and clearing weather.

condensation The process by which a gas changes to a liquid. Water vapor condenses when it is cooled.

convection current The circular movement of air or water caused by uneven heating. On a large scale, convection currents contribute to global winds. On a small scale, convection currents cause local winds.

cumulonimbus cloud A huge, vertical cloud that can produce a thunderstorm. Cumulonimbus clouds are also called thunderheads.

cumulus cloud A puffy, white cloud with a flat bottom. Cumulus clouds are also called fair-weather clouds.

desalination The process of obtaining fresh water from ocean water by removing the salt. One method of desalination involves heating water until it evaporates, which leaves the salt behind. The water vapor is cooled and the condensed fresh water is collected.

dew Droplets of water that form when water vapor condenses on a cool surface. Unlike precipitation, dew does not fall from the sky but forms on surfaces.

dew point The temperature at which dew forms. The higher the humidity, the closer the dew point is to the air temperature.

evaporation The process by which a liquid changes to a gas. Warmer temperatures increase the rate of evaporation.

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filtration The process of cleaning water by passing it through layers of sand and gravel. Filtration can remove solid particles from water but does not remove bacteria.

fog A stratus cloud that forms next to the ground. Fog forms when warm, moist air comes in contact with the cool ground.

front The boundary where two air masses meet. Weather changes at fronts.

frost Ice crystals that form when water vapor condenses on a surface that is at or below freezing. Frost forms when water vapor becomes a solid (ice) without first becoming a liquid.

global winds Steady winds that blow over long distances from a specific direction. Global winds move air masses and bring changes in the weather.

humidity The amount of water vapor that is part of the air. Humidity varies from place to place and from one day to the next.

hurricane A very large and violent tropical storm. Hurricanes begin as thunderstorms over tropical ocean water and gain energy from warm, moist, rising air.

isobars Curved lines on a weather map that connect locations that have the same air pressure. *Iso-* means "equal," and *bar* means "pressure."

lightning The sudden discharge of static electricity in the atmosphere. Lightning can occur within a cloud, between clouds, and between a cloud and the ground.

liquid barometer A type of barometer that uses a column of liquid to measure changes in air pressure. The first barometers were tubes of liquid, usually mercury, that rose and fell as air pressure changed. Thus, one unit of measure for reporting air pressure is "inches of mercury."

local winds Winds that blow for a short period of time over short distances. Sea breezes and land breezes are examples of local winds.

nimbostratus cloud A low, gray cloud that produces rain or snow. Nimbostratus clouds are so thick and dark that they can block out sunlight.

occluded front Where a warm air mass is caught between two cold air masses. An occluded front can bring strong winds and heavy precipitation.

precipitation Water that falls to Earth's surface. Precipitation occurs when water falls from clouds as rain, hail, sleet, or snow.

rain Liquid precipitation that falls from clouds. Raindrops are 1–3 mm in diameter. Drops of drizzle are less than 1 mm in diameter.

rain gauge An instrument used to measure rainfall. Rainfall is measured in inches in the United States.

relative humidity The amount of water vapor that is part of the air, compared with the maximum amount that could be part of the air at that temperature. Relative humidity is expressed as a percentage. When the relative humidity is high, the air feels uncomfortable.

sling psychrometer A weather instrument used to measure relative humidity. A sling psychrometer has two thermometers, one with its bulb covered in moist felt. A psychrometer allows wet-bulb and dry-bulb temperature readings at the same time.

station model A standard system of symbols that shows the current weather conditions at a particular weather-reporting station. Hundreds of weather stations around the country submit station models to the National Weather Service, which uses the information to develop forecasts.

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stationary front The boundary between a cold air mass and a warm air mass, neither of which has the power to move the other. The weather can stay the same for days along a stationary front.

stratus cloud A flat, gray, layered cloud that covers the sky. Stratus clouds mean rain or drizzle is likely.

thunder The rumbling or crackling sound produced by lightning. Because light travels faster than sound, you will often hear a clap of thunder after you see the lightning flash that produced it.

thunderstorm A storm with lightning, thunder, rain, and sometimes hail. Severe thunderstorms can spawn tornadoes.

tornado A dark funnel of strong winds that spiral upward. Tornadoes form during severe thunderstorms, when warm, moist air rises, and cool air from different directions rushes in and begins rotating.

warm front The leading edge of a moving mass of warmer air. Warm fronts bring precipitation, followed by milder weather.

water cycle The continuous movement of water in the environment through evaporation, condensation, and precipitation. The Sun is the "engine" that drives the water cycle.

water vapor Water in a gas state. Water vapor is invisible. Air contains varying amounts of water vapor.

weather The condition of the atmosphere at a given place and time. Weather patterns form due to the uneven heating of Earth's curved surface by the Sun.

weather map A map that shows the current weather conditions over a large area, based on the information provided by many weather reporting stations. Different types of weather maps show different types of information: cloud cover, precipitation, temperature, air pressure, weather fronts, and so on.

wind The horizontal movement of air. Wind is caused by the unequal heating of Earth's surface and the air above it.