

Weather Glossary

ADVECTION

The horizontal transfer of any property in the atmosphere by the movement of air (wind). Examples include heat and moisture advection.

AIR MASS

An extensive body of air throughout which the horizontal temperature and moisture characteristics are similar.

ALBEDO

The ratio of the amount of radiation reflected from an object's surface compared to the amount that strikes it. This varies according to the texture, color, and expanse of the object's surface and is reported in percentage. Surfaces with high albedo include sand and snow, while low albedo rates include forests and freshly turned earth.

Related term: Dave's Dictionary

BAROMETRIC PRESSURE

The pressure exerted by the atmosphere at a given point. Its measurement can be expressed in several ways. One is in millibars. Another is in inches or millimeters of mercury (Hg).

Related term: atmospheric pressure

BLIZZARD

A severe weather condition characterized by low temperatures, winds 35 mph or greater, and sufficient falling and/or blowing snow in the air to frequently reduce visibility to 1/4 mile or less for a duration of at least 3 hours. A severe blizzard is characterized by temperatures near or below 10Å°F, winds exceeding 45 mph, and visibility reduced by snow to near zero.

CLIMATOLOGY

The study of climate. It includes climatic data, the analysis of the causes of the differences in climate, and the application of climatic data to the solution of specific design or operational problems.

CLOUD

A visible collection of minute particle matter, such as water droplets and/or ice crystals, in the free air. A cloud forms in the atmosphere as a result of condensation of water vapor. Condensation nuclei, such as in smoke or dust particles, form a surface upon which water vapor can condense.

COLD FRONT

The leading edge of an advancing cold air mass that is under running and displacing the warmer air in its path. Generally, with the passage of a cold front, the temperature and humidity decrease, the pressure rises, and the wind shifts (usually from the southwest to the northwest in the Northern Hemisphere). Precipitation is generally at and/or behind the front, and with a fast-moving system, a squall line may develop ahead of the front.

Related terms: occluded front and warm front

CONDUCTION

The transfer of heat through a substance by molecular action or from one substance by being in contact with another.

CONVECTION

Motions in a fluid that transport and mix the properties of the fluid. These properties could be heat and/or moisture. When used to imply only upward vertical motion, it is then the opposite of subsidence.

CONVERGENCE

Wind movement that results in a horizontal net inflow of air into a particular region. Convergent winds at lower levels are associated with upward motion. Contrast with divergence.

CORIOLIS EFFECT

A force per unit mass that arises solely from the earth's rotation, acting as a deflecting force. It is dependent on the latitude and the speed of the moving object. In the Northern Hemisphere, air is deflected to the right of its path, while in the Southern Hemisphere, air is deflected to the left of its path. It is greatest at the poles, North and South, and almost nonexistent at the equator.

CURRENT

A horizontal movement of water, such as the Gulf Stream off the east coast of North America, or air, such as the jet stream.

✓
DOWNBURST

A severe localized downdraft from a thunderstorm or shower. This outward burst of cool or colder air creates damaging winds at or near the surface. Sometimes the damage resembles tornadic damage.

DOWNDRAFT

A sudden descent of cool or cold air to the ground, usually with precipitation, and associated with a thunderstorm or shower.

DRIFTS

Normally used when referring to snow or sand particles are deposited behind obstacles or irregularities of the surface or driven into piles by the wind.

DROUGHT

Abnormal dry weather for a specific area that is sufficiently prolonged for the lack of water to cause serious hydrological imbalance.

DRY LINE

The boundary between the dry desert air mass of the Southwest U.S. and the moist air mass from the Gulf of Mexico. It usually lies north-south across the central and southern High Plains states during spring and summer. The passage of a dry line results in a sharp decrease in humidity, clearing skies, and a wind shift from southeasterly or south to southwesterly or west. Its presence influences severe weather development in the Great Plains.

FLOOD

High water flow or an overflow of rivers or streams from their natural or artificial banks, inundating adjacent low lying areas.

FRONT

The transition zone or interface between two air masses of different densities, which usually means different temperatures. For example, the area of convergence between warm, moist air and cool, dry air.

HAIL

Precipitation that originates in convective clouds, such as cumulonimbus, in the form of balls or irregular pieces of ice, which comes in different shapes and sizes. Hail is considered to have a diameter of 5 millimeter or more; smaller bits of ice are classified as ice pellets, snow pellets, or graupel. Individual lumps are called hailstones. It is reported as "GR" in an observation and on the METAR. Small hail and/or snow pellets is reported as "GS" in an observation and on the METAR.

HUMIDITY

The amount of water vapor in the air. It is often confused with relative humidity or dew point.

Related terms: absolute humidity, relative humidity, and specific humidity

HURRICANE

The name for a tropical cyclone with sustained winds of 74 miles per hour (65 knots) or greater in the North Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and in the eastern North Pacific Ocean. This same tropical cyclone is known as a typhoon in the western Pacific and a cyclone in the Indian Ocean.

LIGHTNING

A sudden and visible discharge of electricity produced in response to the build up of electrical potential between cloud and ground, between clouds, within a single cloud, or between a cloud and surrounding air.

METEOROLOGY/METEOROLOGIST

The science and study of the atmosphere and atmospheric phenomena. Various areas of meteorology include agricultural, applied, astrometeorology, aviation, dynamic, hydrometeorology, operational, and synoptic, to name a few. A scientist who studies the atmosphere and atmospheric phenomena.

PRECIPITATION

Any and all forms of water, liquid or solid, that falls from clouds and reaches the ground. This includes drizzle, freezing drizzle, freezing rain, hail, ice crystals, ice pellets, rain, snow, snow pellets, and snow grains. The amount of fall is usually expressed in inches of liquid water depth of the substance that has fallen at a given point over a specified time period.

RADIATION

The process by which energy is propagated through any medium by virtue of the wave motion of that medium. Electromagnetic radiation, which emits heat and light, is one form. Sound waves are another.

SEVERE WEATHER

Generally, any destructive weather event, but usually applies to localized storms, such as blizzards, intense thunderstorms, or tornadoes.

SEVERE THUNDERSTORM

A thunderstorm with winds measuring 50 knots (58 mph) or greater, 3/4 inch hail or larger, or tornadoes. Severe thunderstorms may also produce torrential rain and frequent lightning.

Related term: supercell

THUNDER

The sound emitted by rapidly expanding gases along the channel of a lightning discharge. Over three-quarters of lightning's electrical discharge is used in heating the gases in the atmosphere in and immediately around the visible channel. Temperatures can rise to over 10,000 °C in microseconds, resulting in a violent pressure wave, composed of compression and rarefaction. The rumble of thunder is created as one's ear catches other parts of the discharge, the part of the lightning flash nearest registering first, then the parts further away.

THUNDERSTORM

Produced by a cumulonimbus cloud, it is a microscale event of relatively short duration characterized by thunder, lightning, gusty surface winds, turbulence, hail, icing, precipitation, moderate to extreme up and downdrafts, and under the most severe conditions, tornadoes.

TORNADO

A violently rotating column of air in contact with and extending between a convective cloud and the surface of the earth. It is the most destructive of all storm-scale atmospheric phenomena. They can occur anywhere in the world given the right conditions, but are most frequent in the United States in an area bounded by the Rockies on the west and the Appalachians in the east.

ULTRAVIOLET

Electromagnetic radiation that has a wavelength shorter than visible light and longer than x-rays. Although it accounts for only 4 to 5 percent of the total energy of insolation, it is responsible for many complex photochemical reactions, such as fluorescence and the formation of ozone.

WARM FRONT

The leading edge of an advancing warm air mass that is replacing a retreating relatively colder air mass. Generally, with the passage of a warm front, the temperature and humidity increase, the pressure rises, and although the wind shifts (usually from the southwest to the northwest in the Northern Hemisphere), it is not as pronounced as with a cold frontal passage. Precipitation, in the form of rain, snow, or drizzle, is generally found ahead of the surface front, as well as convective showers and thunderstorms. Fog is common in the cold air ahead of the front. Although clearing usually occurs after passage, some conditions may produce fog in the warm air.

WAVE(S)

In general, any pattern with some roughly identifiable periodicity in time and/or space. It is also considered as a disturbance that moves through or over the surface of the medium with speed dependent on the properties of the medium. In meteorology, this applies to atmospheric waves, such as long waves and short waves. In oceanography, this applies to waves generated by mechanical means, such as currents, turbidity, and the wind.

Related terms: Rossby waves and cyclonic waves

WIND SHEAR

The rate of wind speed or direction change with distance. Vertical wind shear is the rate of change of the wind with respect to altitude. Horizontal wind shear is the rate of change on a horizontal plane.

