

GLOSSARY

acid rain

Precipitation that has absorbed acid components from air pollutants in the atmosphere.

advection

The transference of an atmospheric property such as heat by horizontal air movements.

Alberta clipper

A small, fast-moving low-pressure system that forms in western Canada and travels southeastward into the United States. These storms, which usually bring little precipitation, generally precede an Arctic air mass.

aphelion

The point on a planet/asteroid/comet's orbit farthest from the Sun. For Earth, it occurs early in July.

apogee

The point on the Moon's orbit, or that of any other Earth satellite, which is farthest from Earth.

astronomy

The scientific study of the universe beyond the Earth.

atmosphere

The layers of gases, composed primarily of nitrogen and oxygen, that surround a star, like the Sun, or a planet, like the Earth.

atmospheric pressure

The pressure asserted by the mass of the column of air directly above any specific point. Also called air pressure or barometric pressure.

aurora borealis

Aurora borealis is created when material cast off the surface of the Sun collides with the Earth's atmosphere. Also called northern lights, they are frequently visible over the northern U.S. and in Canada.

barometer

An instrument for measuring atmospheric pressure.

blizzard

A severe winter storm characterized by winds of 35 miles-per-hour or more with sufficient falling and/or blowing snow to reduce visibility to less than one-quarter mile.

Celsius

A temperature scale in which zero is the freezing point of water and 100 is the boiling point.

climate

The historical record of average daily and seasonal weather events.

condensation

The process of gas changing to liquid. In meteorology it occurs when water vapor changes to dew, fog, or a cloud.

conjunction

Time of apparent closest approach to each other of any two heavenly bodies as seen from a third.

convection

Transfer of heat within the air by its movement. The term is used specifically to describe vertical transport of heat and moisture, especially by updrafts and downdrafts in an unstable atmosphere.

cyclone

An area of low pressure around which winds blow counterclockwise in the Northern Hemisphere. Also the term used for a hurricane in the Indian Ocean and in the Western Pacific Ocean.

deciduous

Trees and shrubs that shed their leaves annually.

derecho

A widespread and usually fast-moving windstorm comprised of a complex of thunderstorms. Derechos produce damaging straight-line winds via downbursts over areas hundreds of miles long and more than 100 miles across.

dew

Moisture that has condensed on objects near the ground, whose temperatures have fallen to the dew point temperature.

dew point

The temperature to which the air must be cooled for water vapor to condense.

downburst

A severe localized downdraft from a thunderstorm.

ecology

The science of relationships between plants, animals, and the environment.

El Nino

A major warming of the equatorial waters in the Pacific Ocean. El Nino events usually occur every three to seven years, and are characterized by shifts in "normal" weather patterns.

equinox

The time at which the Sun passes directly above the equator. In the northern hemisphere, the vernal equinox occurs on or around March 21, and the autumnal equinox on or about September 22.

evaporation

The physical process by which liquid is transformed into vapor.

Fahrenheit

The standard scale used to measure temperature in the United States in which the freezing point of water is 32 degrees and the boiling point is 212 degrees.

flash flood

A flood that occurs within a few hours (usually less than six) of heavy or excessive rainfall, dam, or levee failure.

fog

The visible aggregate of minute water droplets suspended in the atmosphere near the Earth's surface.

front

The transition zone between two distinct air masses. The basic frontal types are cold fronts, warm fronts, occluded fronts, and stationary fronts.

frost

The covering of ice, due to condensed water vapor, that is formed on exposed surfaces whose temperature falls below freezing.

frostbite

The freezing of exposed parts of the body causing local damage to the skin.

Fujita scale

System developed by Dr. Theodore Fujita to classify tornadoes based on wind damage. Scale is from F0 for weakest to F5 for strongest.

galaxy

A cluster of stars, dust, and gas held together by gravity.

gibbous

The Moon with more than half, but not all, of its apparent disc illuminated.

glaze

A coating of ice, generally clear and smooth but usually containing some air pockets, formed on exposed objects by the freezing of a film of super cooled liquid water deposited by rain, drizzle, or fog.

gravity

The force of attraction between two objects that is influenced by the mass of the two objects and the distance between the two objects.

greenhouse effect

Warming of the atmosphere as solar radiation strikes the Earth, is re-emitted as infrared radiation, and is trapped in the atmosphere primarily by water vapor and carbon dioxide.

habitat

The place in which an organism lives and obtains the materials it needs to survive.

hail

Small balls or chunks of ice having diameters that range from 0.2 to 3+ inches and fall from thunderstorms.

halo

A colored ring or arc seen around the sun or moon caused by light refracting and reflecting through ice crystals in the air.

heat index

The apparent temperature that describes the combined effect of high temperatures and high humidity.

high

The center of an area of high pressure, accompanied by anticyclonic and outward wind flow in the Northern Hemisphere.

humidity

A measure of the water vapor content of the air.

hurricane

A severe tropical cyclone with sustained wind speeds in excess of 74 miles per hour.

hydrologic cycle

The transport and transformation of gaseous, liquid, and solid water in the Earth's atmosphere.

invasion or irruption

A sudden and rapid increase in a species' population.

inversion

An increase in temperature with height.

ice pellets

Frozen raindrops or drizzle droplets also known in the U.S. as sleet.

isobar

A line of constant barometric pressure on a weather map.

isotherm

A line of equal temperature on a weather map.

jet stream

Strong winds concentrated within a narrow band in the atmosphere. The jet stream often "steers" surface features such as fronts and low-pressure systems.

knot

One nautical mile per hour (1.15 statute mph).

La Nina

A cooling of the equatorial waters in the Pacific Ocean.

light year

The distance light can travel in one year, which is 9,500,000,000,000 kilometers.

low

The center of an area of low pressure, accompanied by cyclonic and inward wind flow in the Northern Hemisphere.

lunar eclipse

An astronomical event that occurs when a full moon passes through the Earth's shadow.

mean temperature

The average of a series of temperatures taken over a period of time, such as a day or month.

meteor

A streak of light seen at night when a particle from space enters the Earth’s atmosphere at high velocity, causing the air along its path to glow; also called a “shooting” or “falling” star.

meteorology

The study of the atmosphere and atmospheric phenomena.

Milky Way

The spiral-shaped galaxy of which Earth is a part. It is about 100,000 light-years in diameter and about 10,000 light-years in thickness.

mist

Microscopic water droplets suspended in the air that produce a thin grayish veil over the landscape. It reduces visibility to a lesser extent than fog.

normal

The long-term average value of a meteorological element for a certain area, or period of time; usually averaged over 30 years.

opposition

Time when two heavenly bodies appear on opposite sides of the sky, as viewed from a third body.

ozone

A form of oxygen containing three molecules; usually found in the stratosphere, and responsible for filtering out much of the sun’s ultraviolet radiation.

parhelion

A bright spot in the sky caused by refraction of sunlight by ice crystals.

perigee

The point in the orbit of the Moon, or any other Earth satellite, closest to the Earth.

perihelion

The point on a plane/asteroid/comet’s orbit that is nearest the Sun. For Earth, it occurs early in January.

phenology

The study of the response of living organisms to seasonal and climatic changes occurring in the environment.

photosynthesis

The process by which plants use carbon dioxide, nutrients, and sunlight to produce sugar.

precipitation

Liquid or solid water molecules that fall from the atmosphere and reach the ground.

prevailing wind

The direction from which the wind blows most frequently.

radar

An instrument used to detect precipitation by measuring the strength of the electro-magnetic signal reflected back. RADio Detection And Ranging.

radiation

Energy emitted in the form of electromagnetic waves. Radiation has differing characteristics depending upon the wavelength. Examples include visible light, ultraviolet, infrared, and x-rays.

relative humidity

The amount of water vapor in the air, compared to the amount the air could hold if it was totally saturated.

rime ice

A white and opaque granular deposit of ice formed by the rapid freezing of super cooled liquid water drops as they impinge upon exposed objects. It is more dense and harder than hoar frost, but lighter, softer, and less transparent than glaze.

severe thunderstorm

A strong thunderstorm with wind gusts in excess of 58 miles per hour and/or hail with a diameter of 3/4” or more.

sleet

A type of frozen precipitation consisting of small transparent ice pellets.

snow

Frozen precipitation composed of ice particles in complex hexagonal patterns.

solar system

The Sun and all of the planets, comets, satellites, asteroids, and meteors which revolve around it.

solstice

The point on the Sun’s apparent path when it is farthest north or south of the Earth’s equator.

straight line winds

Thunderstorm winds most often found with the gust front. They originate from downdrafts and can cause damage that occurs in a “straight line,” as opposed to tornadic wind damage that has circular characteristics.

striations

Grooves or channels in cloud formations, arranged parallel to the flow of air and therefore depicting the airflow relative to the parent cloud.

sublimation

The change from ice directly to water vapor or from water vapor to ice without going through the liquid water phase.

thermometer

An instrument for measuring temperature.

thunder

The sound wave produced as a stroke of lightning heats the air, causing it to rapidly expand.

tornado

A violent rotating column of air below the base of a thunderstorm, and in contact with the ground.

transpiration

The process by which water in plants is transferred to the atmosphere as water vapor.

virga

Streaks or wisps of precipitation falling from a cloud but evaporating before reaching the ground.

waterspout

A tornado over water that is normally small and relatively weak. They are most common over tropical or subtropical waters.

wind chill

An apparent temperature that describes the combined effect of wind and cold temperatures on exposed skin.

References:

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BASINS AND MAJOR WATERSHEDS IN MINNESOTA



Basins

Cedar River	Missouri River
Des Moines River	Rainy River
Lake Superior	Red River of the North
Lower Mississippi River	St. Croix River
Minnesota River	Upper Mississippi River