Climate Glossary

American Meteorological Society Glossary of Meteorology

30 Year Normal — The NRCS Snow Survey and Water Supply Forecasting (SSWSF) Program normal is a measure of central tendency for a data type (such as snow water equivalent) at a site location, over a 30-year period. The 30-year interval was chosen in agreement with World Meteorological Organization (WMO) standards.

The SSWSF Program has chosen the median as the default normal for all data types. Both the median and average are available for all data types in reporting applications.

See also *Normal*

Air Temperature — See *Temperature, Air.*

Albedo — The ratio of the amount of radiation reflected by a body to the amount of radiation incident upon it; expressed as a percentage.

Climate — The synthesis of weather, or averaging of weather conditions over a given time period.

Degree Days, Cooling — A value used to estimate the energy requirements for air conditioning of homes and buildings. One cooling degree day is given for each degree the daily mean temperature is above 75 degrees Fahrenheit.

Degree Days, Growing — Growing degree days (GDD) measures the day-to-day accumulation of the difference between the average daily temperature and a threshold temperature for a specific crop. GDD's give an indication of the amount of heat available for crop growth.

Degree Days, Heating — A value used to estimate the energy requirements for heating homes and buildings. One heating degree day is given for each degree the daily mean temperature is below 65 degrees Fahrenheit.

Dewpoint — The temperature to which air is cooled for water vapor to begin condensing.

Drizzle — Very small, numerous, and uniformly dispersed water drops that may appear to float while following air currents. Unlike fog droplets, drizzle falls to the ground.

Duration — The period or time increment to which an observed or computed value applies.

Evaporation — The physical process by which a liquid is transformed to a gaseous state.

Evapotranspiration — The combined process of evaporation and transpiration.

Fog — A visible collection of minute water droplets suspended in the atmosphere near the earth's surface. Fog reduces visibility below one kilometer (0.62 miles).

Freeze — A freeze occurs at any time the surface air temperature reaches 28 degrees or less. This temperature causes damage to most vegetation except certain species which are resistant to freezing.

Freeze Free Period — Freeze free period is the number of consecutive days where the air temperature does not fall below 28 degrees Fahrenheit.

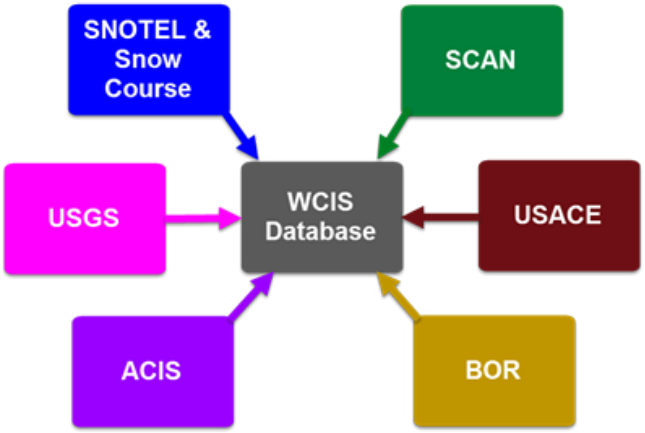
Freeze, Killing — A killing freeze occurs at or below 24 degrees Fahrenheit and causes permanent damage to almost all vegetation.

Freeze Free Period, Killing — Killing freeze free period is the number of consecutive days where the air temperature does not fall below 24 degrees Fahrenheit.

Frost	Frost is the process of deposition of frozen atmospheric water vapor on surfaces whose surface air temperature is below 32 degrees Fahrenheit. A frost can occur at any time the surface air temperature falls to 32 degrees Fahrenheit or less. This temperature may cause damage to very young vegetation or vegetation that has no resistance to frost. Most fruit falls in this category.
Frost Free Period	Frost free period is the number of consecutive days where the surface air temperature does not fall below 32 degrees Fahrenheit.
Frost, First	First Frost is the first date following the growing season that the minimum temperature drops below an index temperature, usually 32 degrees Fahrenheit. The first frost usually occurs in the fall of the year, but it may occur during the winter months, or in some locations may not occur at all.
Frost, Last	Last Frost is the last date preceding the growing season that the minimum temperature drops below an index temperature, usually 32 degrees Fahrenheit. The last frost usually occurs in the spring of the year but may occur very early in the summer or not at all in some locations. First and Last frosts are analyzed at three temperatures (32, 28, and 24 degrees Fahrenheit) specifically relating to damage caused to vegetation by the sub-freezing temperatures.
Growing Season	Growing Season is the number of consecutive days where the temperature has not gone below an index temperature for specific vegetation. If vegetation is more resistant to cold temperatures the index temperature would be lower. The index temperatures used in growing season analysis usually include 24, 28, and 32 degrees Fahrenheit.
Growing Season Period	Growing Season Period is the period of time, beginning date and ending date, that defines the period that the temperature has not dropped below the index temperature.
Hail	Precipitation in the form of balls or irregular lumps of ice with a diameter of 5 mm or more, always produced by convective clouds, nearly always cumulonimbus.
Humidity, Relative	A measure of the amount of water in the air compared to the amount of water vapor the air has the potential to hold. (Note: the potential of air to hold water changes with air temperature. Therefore, relative humidity can change as air temperature changes without an actual change in the amount of water vapor.)
Index Temperature	A temperature which denotes the beginning of a specific event such as 28 degrees Fahrenheit. The 28 degree temperature denotes a freeze that can damage plants.
Master Station	Much of the data collected at SNOTEL sites are transmitted to one of two master stations. At the master station, the remote site data are checked for completeness. If complete, an acknowledgment message, returning over the same path, tells the remote site not to transmit again during this polling period. The entire process takes place in less than a tenth of a second. Two master stations -- at Boise, Idaho, and Dugway, Utah -- cover the 10 western states, an area of about 1 million square miles. The master stations then transmit data to the Water and Climate Information System.
Normal	The SSWSF Program has chosen the median as the default normal for all data types. Both the median and average are available for all data types in reporting applications. The Snow Survey and Water Supply Forecasting (SSWSF) normal is a measure of central tendency (median or average) for a data type, such as snow-water equivalent, at a site location. The statistics are calculated over a 30-year period and updated every decade, in agreement with World Meteorological Organization (WMO) standards. See also *30-Year Normal*
Period of Record	The time interval during which meteorological and climatic data have been gathered at a climatic station.

Precipitation	Any type of water that forms in the Earth's atmosphere and then drops onto the surface of the Earth under the force of gravity. The most common types of precipitation are rain, hail, and snow.
Probability	Probability is a statistical process that provides for the analysis of data to determine the potential of an individual value to occur at a specified time, in a given year, or in a given period of time. An example might indicate that a certain value has a 10 percent chance of occurrence in any year, or that the value has a chance of returning once in a period of ten years.
Rain	Precipitation in the form of liquid water drops which have diameters greater than 0.02 in (0.5 mm).
Relative Humidity	See *Humidity, Relative*
Reservoir Storage	The volume of usable water stored in a reservoir.
Sleet	A type of precipitation consisting of transparent or translucent pellets of ice 5 mm or less in diameter. Sleet forms when raindrops fall through a layer of below-freezing air near the earth's surface.
Soil Temperature	See *Temperature, Soil.*
Solar Radiation	A type of precipitation consisting of transparent or translucent pellets of ice 5 mm or less in diameter. Sleet forms when raindrops fall through a layer of below-freezing air near the earth's surface.
Solar Radiation, Incoming	Incoming solar radiation is the total electromagnetic radiation emitted by the sun striking the earth.
Snow	Precipitation composed of white or translucent ice crystals, chiefly in complex branch hexagonal form and often agglimerated into snowflakes.
Snow Depth	The actual depth of snow on the ground.
Snow Water Equivalent	Snow Water Equivalent (SWE) is a common snowpack measurement. It is the amount of water contained within the snowpack. It can be thought of as the depth of water that would theoretically result if you melted the entire snowpack. For example, say there is a swimming pool that is filled with 36 inches of new powdery snow at 10% snow water density. If you could turn all the snow into water magically, you would be left with a pool of water 3.6 inches deep. In this case, the SWE of your snowpack would equal 36" x 0.10 = 3.6 inches. The NRCS measures SWE at many remote SNOTEL sites and uses the data for streamflow forecasting. However, many scientists and recreationists are interested in snow **depth** instead of SWE. The relationship between the two values is explained here. To determine snow depth from SWE you need to know the density of the snow. The density of **new** snow ranges from about 5% when the air temperature is 14°F, to about 20% when the temperature is 32°F. After the snow falls its density increases due to gravitational settling, wind packing, melting and recrystallization. Most snow that falls in the Cascade Mountains of Washington and Oregon tends to be higher density snow. In the Cascades, snowpack densities are around 20-30% in the winter to 30-50% in the spring. However, east of the Cascades, the snowpack density is much less. Typical values are 10-20% in the winter and 20-40% in the spring. To determine the depth of snow using snow water equivalent and density, use the following formula: [SWE] ÷ [Density] = Snow Depth (Density must be in decimal form. For example: 25% = 0.25) Snow Water Equivalent Infographic

Solar Radiation	The total amount of energy emitted by the sun.
Streamflow: Adjusted Volume	Volume of streamflow that would occur without the influences of major upstream reservoirs or diversions, otherwise known as unregulated or naturalized flow. Reservoirs and diversions are used as an adjustment based on size of reservoir/diversion relative to total streamflow volume and availability of historical records. Adjusted Volume datasets include streamflow points that are: 1) adjusted due to presence of major upstream reservoirs/diversions with historical records; 2) not adjusted due to lack of major upstream reservoirs/diversions; 3) not adjusted or partially adjusted due to lack of historical records for all major upstream reservoirs/diversions. Volumetric NRCS water supply forecasts are for Adjusted Volume.
Streamflow: Diversion Discharge	Flow rate as measured in or along a diversion structure.
Streamflow: Forecast Point	Point within a watershed for which volume, threshold, and/or stage forecasts are published by the NRCS Snow Survey and Water Supply Forecasting Program.
Streamflow: Observed Volume	Volume of streamflow as observed at a gaging station. In a watershed with major reservoir storage and/or diversions, the observed volume can be significantly different from the adjusted volume.
Temperature	A measure of the internal energy of molecular motion in a substance.
Temperature, Air	A measure of the hotness or coldness of air. It is measured on some definitive temperature scale. Two scales are commonly used. The Fahrenheit and Centigrade temperature scales establish the freezing of water at 32/0 degrees respectively and boiling point at 212/100 degrees respectively. The Fahrenheit scale is used most frequently in the U.S. and Centigrade throughout the rest of the world. Air temperature is usually measured with either a liquid-in-glass maximum and minimum thermometer mounted in a vented, wooden box or with an electronic sensor.
Temperature, Soil	Measurement of the hotness or coldness of soil. At SCAN and SNOTEL sites soil temperatures are commonly measured at 2, 4, 8, 20, and 40 inches, with the 4-inch reading being the most frequently observed.
Temperature Anomaly	A departure from a reference value or long-term average. A positive anomaly indicates that the observed temperature was warmer than the reference value, while a negative anomaly indicates that the observed temperature was cooler than the reference value.
Temperature Threshold	A temperature that denotes the boundary condition for a specific event. For example, a crop specific temperature below which the growth of that crop is minimal.
Transpiration	The process by which water in plants is transferred to the atmosphere as water vapor.
Water and Climate Information System	The Water and Climate Information System (WCIS) is composed of the database, applications, tools, and infrastructure which support the extensive data collection network of the Natural Resources Conservation Service (NRCS) Snow Survey and Water Supply Forecasting (SSWSF) Program. WCIS is administered by the National Water and Climate Center (NWCC). Data collected at automated and manual data collection sites across the U.S. are transmitted either to intermediate Master Stations or directly back to centralized database servers, which are located in a secure, fail-safe environment. Snowpack, precipitation, streamflow, and reservoir data are also collected from the U.S. Army Corps of Engineers (USACE), the U.S. Bureau of Reclamation (BOR), the Applied Climate Information System (ACIS), the U.S. Geological Survey (USGS), and other entities and entered into the WCIS database.



Depending on the type of information, data are processed on both an hourly and a daily basis and made available to WCIS applications, such as Report Generator, Update Report, and displayed on the Interactive Map.

Water Supply Forecast — A water supply forecast is a prediction of streamflow volume that will flow past a point on a stream during a specified season, typically in the spring and summer.

Weather — The instantaneous or short-term state of the atmosphere.

Wind — The motion of air relative to the surface of the earth. Wind speed and direction, the two primary elements, are usually measured with an anemometer and wind vane, respectively.

Wind Rose — A type of analysis that describes wind measurements graphically and tabularly as a combination of the cardinal direction that the wind was coming from and the average speed from that direction for a particular time interval. A wind rose depicts the frequency of occurrence of winds in each of the specified wind direction sectors and wind speed classes for a given location and period of time.

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