Weather & Environmental Terms Glossary

A

A

1. Abbreviation for hail in weather observations.
2. Symbol used on long-term climate outlooks issued by CPC to indicate areas that are likely to be above normal for the specified parameter (temperature, precipitation, etc.).

A AMS

Arctic Air Mass.

A Index

A daily index of geomagnetic activity derived as the average of the eight 3-hourly A indices.

AA Index

A daily and half-daily index of geomagnetic activity determined from the k indices scaled at two nearly antipodal stations at invariant magnetic latitude 50 degrees (Hartland, England, and Canberra, Australia). The aa values are in units of 1 nT. The index is available back to 1868, and is provided by the Institute du Globe de Paris, France.

AAAS

American Association for the Advancement of Science.

AAWU

Alaskan Aviation Weather Unit.

Ablation

Depletion of snow and ice by melting and evaporation.

ABNDT

Abundant.

Absorption

The process in which incident radiant energy is retained by a substance by conversion to some other form of energy.

Absolute Humidity

A type of humidity that considers the mass of water vapor present per unit volume of space. Also considered as the density of the water vapor. It is usually expressed in grams per cubic meter.

Absorption Line

In spectroscopy, and in particular the solar Fraunhofer spectrum, a characteristic wavelength of emitted radiation that is partially absorbed by the medium between the source and the observer.

Absolutely Stable Air

An atmospheric condition that exists when the environmental lapse rate is less than the moist adiabatic lapse rate.

Absolutely Unstable Air

An atmospheric condition that exists when the environmental lapse rate is greater than the dry adiabatic lapse rate.

ABT

About.

Abutment

The part of a valley or canyon wall against which a dam is constructed. Right and left abutments are those on respective sides of an observer looking downstream.

Abutment Seeping

Reservoir water that moves through seams or pores in the natural abutment material and exits as seepage.

ABV

Above.

AC

1. Abbreviation for **Altocumulus** - a cloud of a class characterized by globular masses or rolls in layers or patches, the individual elements being larger and darker than those of cirrocumulus and smaller than those of stratocumulus. These clouds are of medium altitude, about 8000-20,000 ft (2400-6100 m).

2. Convective outlook issued by the Storm Prediction Center. Abbreviation for Anticipated Convection; the term originates from the header coding [ACUS1] of the transmitted product.

ACCAS

(usually pronounced ACK-kis) - **A**lto**C**umulus **CAS**tellanus; mid-level clouds (bases generally 8 to 15 thousand feet), of which at least a fraction of their upper parts show cumulus-type development. These clouds often are taller than they are wide, giving them a turret-shaped appearance. ACCAS clouds are a sign of instability aloft, and may precede the rapid development of thunderstorms.

Accessory Cloud

A cloud which is dependent on a larger cloud system for development and continuance. Roll clouds, shelf clouds, and wall clouds are examples of accessory clouds.

Accretion

The growth of a precipitation particle by the collision of a frozen particle with a supercooled liquid water droplet which freezes upon impact.

ACCUMS

Accumulation.

Accuracy

Degree of conformity of a measure to a standard or true value; in other words, how close a predicted or measured value is to the true value.

Acid Precipitation

Precipitation, such as rain, snow or sleet, containing relatively high concentrations of acid-forming chemicals that have been released into the atmosphere and combined with water vapor; harmful to the environment.

Acid Rain

Rain containing relatively high concentrations of acid-forming chemicals that have been released into the atmosphere and combined with water vapor; harmful to the environment.

ACLD

Above Cloud Level.

ACPY

Accompany.

Acre-foot

The amount of water required to cover one acre to a depth of one foot. An acre-foot equals 326,851 gallons, or 43,560 cubic feet.

ACRS

Across.

Action Stage

The stage which, when reached by a rising stream, represents the level where the NWS or a partner/user needs to take some type of mitigation action in preparation for possible signifÂicant hydrologic activity. The appropriate action is usually defined in a weather forecast office (WFO) hydrologic services manual. Action stage can be the same as forecast issuance stage (see / forecast issuance stage/).

Active

(ACTV). In solar-terrestrial terms, solar activity levels with at least one geophysical event or several larger radio events (10cm) per day (Class M Flares)

Active Conservation Storage

In hydrologic terms, the portion of water stored in a reservoir that can be released for all useful purposes such as municipal water supply, power, irrigation, recreation, fish, wildlife, etc. Conservation storage is the volume of water stored between the inactive pool elevation and flood control stage.

Active Dark Filament (ADF)

A filament displaying motion or changes in shape, location, or absorption characteristics. In solar-terrestrial terms, an Active Prominence seen on the Disk.

Active Longitude

In solar-terrestrial terms, the approximate center of a range of heliographic longitudes in which Active Regions are more numerous and more flare-active than the average.

Active Prominence

In solar-terrestrial terms, a prominence displaying material motion and changes in appearance over a few minutes of time.

Active Prominence Region (APR)
In solar-terrestrial terms, a portion of the solar limb displaying active prominences.

Active Region (AR)
In solar-terrestrial terms, a localized, transient volume of the solar atmosphere in which plages, sunspots, faculae, flares, etc. may be observed.

Active Storage Capacity
In hydrologic terms, the total amount of reservoir capacity normally available for release from a reservoir below the maximum storage level. It is total or reservoir capacity minus inactive storage capacity. More specifically, it is the volume of water between the outlet works and the spillway crest.

Active Surge Region (ASR)
In solar-terrestrial terms, an Active Region that exhibits a group or series of spike-like surges that rise above the limb.

ACTV
Active. In solar-terrestrial terms, solar activity levels with at least one geophysical event or several larger radio events (10cm) per day (Class M Flares)

ACYC
Anticyclone - A large-scale circulation of winds around a central region of high atmospheric pressure, clockwise in the Northern Hemisphere, counterclockwise in the Southern Hemisphere.

ADAPTATION (ADAPTABLE) PARAMETER
Generally, data related to a specific WSR-88D unit. These data may consist of meteorological or hydrological parameters or of geographic boundaries, political boundaries, system configuration, telephone numbers (auto dial), or other like data. Such data may be generated at either a centralized location or locally at the WSR-88D unit.

ADAS
Automated Data Acquisition System.

Additive Data
A group of coded remarks that includes pressure tendency, amount of precipitation, and maximum/minimum temperature during specified periods of time

ADDS
Aviation Digital Data Service.

Adiabat
A line on a thermodynamic chart relating the pressure and temperature of a substance (such as air) that is undergoing a transformation in which no heat is exchanged with its environment.

Adiabatic
Changes in temperature caused by the expansion (cooling) or compression (warming) of a body of air as it rises or descends in the atmosphere, with no exchange of heat with the surrounding air.

Adiabatic Lapse Rate
The rate of decrease of temperature experienced by a parcel of air when it is lifted in the atmosphere under the restriction that it cannot exchange heat with its environment. For parcels that remain unsaturated during lifting, the (dry adiabatic) lapse rate is 9.8°C per kilometer.

Adiabatic Process
A process which occurs with no exchange of heat between a system and its environment.

Adirondack Type Snow Sampling Set
In hydrologic terms, a snow sampler consisting of a 5-foot fiberglass tube, 3 inches in diameter, with a serrated-edge steel cutter at one end and a twisting handle at the other. This sampler has a 60-inch snow depth capacity.

ADJ
Adjacent.

ADPC
Acoustic Doppler Current Profiler.

ADVCTN
Advection- Transport of an atmospheric property by the wind.

Advection
(ADVCTN)- Transport of an atmospheric property by the wind.

Advection Fog

A fog that forms when warm air flows over a cold surface and cools from below until saturation is reached.

ADVIS

In hydrologic terms, a program which combines the Antecedent Precipitation Index (API) method of estimating runoff with unit hydrograph theory to estimate streamflow for a headwater basin.

Advisory

(Abbrev. ADVY)- Highlights special weather conditions that are less serious than a warning. They are for events that may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.

ADVN

Advance.

ADVY

Advisory - Highlights special weather conditions that are less serious than a warning. They are for events that may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.

AE Index

The geomagnetic index of the auroral electrojet, which characterizes the maximum range of excursion (both positive and negative) from quiet levels; measured at a given universal time by using the combined data from a worldwide ring of high-latitude magnetic observatories. AU (A upper) refers to the greatest positive deviation from the quiet time reference and AL (A lower) to the most negative. By definition AE = AU - AL. AO refers to the mean of AU and AL: AO = 1/2 (AU + AL). The AE and companion indexes are provided by the Data Analysis Center for Geomagnetism and Spacemagnetism of Kyoto University, Kyoto, Japan

Aeration Zone

A portion of the lithosphere in which the functional interstices of permeable rock or earth are not filled with water under hydrostatic pressure. The interstices either are not filled with water or are filled with water that is no held by capillarity.

Aeroallergens

Any of a variety of allergens such as pollens, grasses, or dust carried by winds.

Aerosol

Small suspended particles in a gas or the atmosphere, such as fog. smoke or . They range in size from one nanometer (one billionth of a meter) to 100 micrometers (one millionth of a meter).

AFB

Air Force Base .

AFCT

Affect.

AFD

Area Forecast Discussion - This National Weather Service product is intended to provide a well-reasoned discussion of the meteorological thinking which went into the preparation of the Zone Forecast Product. The forecaster will try to focus on the most particular challenges of the forecast. The text will be written in plain language or in proper contractions. At the end of the discussion, there will be a list of all advisories, non-convective watches, and non-convective warnings. The term non-convective refers to weather that is not caused by thunderstorms. An intermediate Area Forecast Discussion will be issued when either significant forecast updates are being made or if interesting weather is expected to occur.

AFOS

Automation of Field Operations and Services. Computer system linking NWS offices for the transmission of weather data. This system was installed in the early to mid 1980s and it is being replaced by Advanced Weather Interactive Processing System (AWIPS).

AFRED

Abbreviation for the A Index for Fredericksburg.

AFSS

Automated Flight Service Station.

AFT

After.

Afterbay

In hydrologic terms, the tail race of a hydroelectric power plant at the outlet of the turbines. The term may be applied to a short stretch of stream or conduit, or to a pond or reservoir.

AFTN

Afternoon

AFTR

After.

AFWA

Air Force Weather Agency.

AGC

Automatic Gain Control.

AGDISP

A particular atmospheric disperison model used for treating the transport and diffusion of aerially sprayed pest control agents in agricultural applications.

AGFS

Aviation Gridded Forecast System.

Agglomerate

An ice cover of floe formed by the freezing together of various forms of ice.

AGL

Above Ground Level.

AGL

Above Ground Level.

AGN

Again.

AHD

Ahead.

AHOS

Automatic Hydrologic Observing System.

AHOS-S

Automatic Hydrologic Observing System – Satellite.

AHOS-T

Automatic Hydrologic Observing System – Telephone.

Air

This is considered the mixture of gases that make up the earth's atmosphere. The principal gases that compose dry air are Nitrogen (N2) at 78.09%, Oxygen (O2) at 20.946%, Argon (A) at 0.93%, and Carbon Dioxide (CO2) at 0.033%. One of the most important constituents of air and most important gases in meteorology is water vapor (H2O).

Air Mass

A body of air covering a relatively wide area and exhibiting horizontal temperature and moisture uniform properties.

Air Mass Thunderstorm

Generally, a thunderstorm not associated with a front or other type of synoptic-scale forcing mechanism. Air mass thunderstorms typically are associated with warm, humid air in the summer months; they develop during the afternoon in response to insolation, and dissipate rather quickly after sunset. They generally are less likely to be severe than other types of thunderstorms, but they still are capable of producing downbursts, brief heavy rain, and (in extreme cases) hail over 3/4 inch in diameter.

Since all thunderstorms are associated with some type of forcing mechanism, synoptic-scale or otherwise, the existence of true air-mass thunderstorms is debatable.

Air Pollutant

Harmful substance or product introduced into the atmosphere.

Air Pollution Potential

The meteorological potential for air pollution problems, considered without regard to the presence or absence of actual pollution sources.

Air Quality Alert
Air quality alerts include air pollution advisories, such as air stagnation, blowing dust, and dense smoke.

Air Quality Model
Mathematical or conceptual model used to estimate present or future air quality.

Air Stagnation
A meteorological situation in which there is a major buildup of air pollution in the atmosphere. This usually occurs when the same air mass is parked over the same area for several days. During this time, the light winds cannot "cleanse" the buildup of smoke, dust, gases, and other industrial air pollution.

Air Stagnation Advisory
This National Weather Service product is issued when major buildups of air pollution, smoke, dust, or industrial gases are expected near the ground for a period of time. This usually results from a stagnant high pressure system with weak winds being unable to bring in fresh air.

Air Toxin
Toxic Air Pollutant.

Air Transportable Mobile Unit
A modularized transportable unit containing communications and observational equipment necessary to support a meteorologist preparing on-site forecasts at a wildfire or other incident.

Airborne Snow Survey Program
In hydrologic terms, Center (NOHRSC) program that makes airborne snow water equivalent and soil moisture measurements over large areas of the country that are subject to severe and chronic snowmelt flooding.

AIRMET
Airman's Meteorological Advisory (WA)

AIV
Aviation Impact Variables.

Ak Index
A daily index of geomagnetic activity for a specific station or network of stations (represented generically here by k) derived as the average of the eight 3-hourly ak indices.

Alaska Current
A North Pacific Ocean current flowing counterclockwise in the Gulf of Alaska. It is the northward flowing (warm) division of the Aleutian Current

Albedo
Reflectivity; the fraction of radiation striking a surface that is reflected by that surface.

Alberta Clipper
A fast moving low pressure system that moves southeast out of Canadian Province of Alberta (southwest Canada) through the Plains, Midwest, and Great Lakes region usually during the winter. This low pressure area is usually accompanied by light snow, strong winds, and colder temperatures. Another variation of the same system is called a "Saskatchewan Screamer".

ALERT
Automated Local Event Reporting in Real Time. Network of automatic raingauges that transmit via VHF radio link when precipitation occurs. Some sites are also equipped with other sensors such as temperature, wind, pressure, river stage or tide level.

Alert Stage
The stage which, when reached by a rising stream, represents the level where appropriate officials (e.g., county sheriff, civil defense officials, or bypass gate operators) are notified of the threat of possible flooding. (Used if different from action stage, and at the discretion of the WFO or river forecast center [RFC].) The term "alert stage" is to be used instead of warning stage. Monitor stage or caution stage may be used instead of alert stage in some parts of the country.

Aleutian Current
An eastward flowing North Pacific Ocean current which lies north of the North Pacific Current.

Aleutian Low
A semi-permanent, subpolar area of low pressure located in the Gulf of Alaska near the Aleutian Islands. It is a generating area for storms and migratory lows often reach maximum instensity in this area. It is most active during the late fall to late spring. During the summer, it is weaker, retreating towards the North Pole and becoming almost nonexistent. During this time, the North Pacific High pressure system dominates.

ALF

Aloft.

ALG

Along.

Algorithm

A computer program (or set of programs) which is designed to systematically solve a certain kind of problem. WSR-88D radars (NEXRAD) employ algorithms to analyze radar data and automatically determine storm motion, probability of hail, VIL, accumulated rainfall, and several other parameters.

ALIASING

The process by which frequencies too high to be analyzed with the given sampling interval appear at a frequency less than the Nyquist frequency.

Alluvium

Sediments deposited by erosional processes, usually by streams.

Along-slope Wind System

A closed, thermally driven diurnal mountain wind circulation whose lower branch blows up or down the sloping sidewalls of a valley or mountain. The upper branch blows in the opposite direction, thereby closing the circulation.

ALQDS

All Quadrants.

ALTHO

Although.

Altitude

Height above Mean Sea Level ("MSL"). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to 1100 mB.

Altimeter

An instrument that indicates the altitude of an object above a fixed level. The type normally used by meteorologists measures the altitude with respect to sea level pressure. Pressure altimeters use an aneroid barometer with a scale graduated in altitude instead of pressure.

Altimeter Setting

A correction of the station pressure to sea level used by aviation. This correction takes into account the standard variation of pressure with height and the influence of temperature variation with height on the pressure. The temperatures used correspond to the standard atmosphere temperatures between the surface and sea level.

Altocumulus

A cloud of a class characterized by globular masses or rolls in layers or patches, the individual elements being larger and darker than those of cirrocumulus and smaller than those of stratocumulus. These clouds are of medium altitude, about 8000-20,000 ft (2400-6100 m).

Altostratus

A cloud of a class characterized by a generally uniform gray sheet or layer, lighter in color than nimbostratus and darker than cirrostratus. These clouds are of medium altitude, about 8000 to 20,000 ft (2400-6100 m).

Alfven wave

A transverse wave in magnetized plasma characterized by a change of direction of the magnetic field (rather than a change of intensity).

All-Time Record

Record extremes that are the most extreme for any period of time.

Altitude

First, find your azimuth. Next, the Altitude (or elevation) is the angle between the Earth's surface (horizon) and the sun, or object in the sky. Altitudes range from -90° (straight down below the horizon, or the nadir) to +90° (straight up above the horizon or the Zenith) and 0° straight at the horizon.

Altocumulus

Grey to white clouds that form in groups or globular masses and look like rolls in layers or patches. When holding your extended hand to the sky, they are about the size of your thumb. Alto means high while cumulus means heap and signifies convection. These clouds often resemble "sheepback", usually forming after a cold front. But on a warm, humid day, these clouds may develop prior to afternoon thunderstorms.

Altostratus

A uniform grey or blue-grey sheet or layer that covers the entire sky and may produce light precipitin. The sun or moon, although blurry or fuzzy, can be seen through this opaque cloud layer. This cloud often forms ahead of warm fronts leading a storm with light and continuous rain or snow.

Ambient

Of the surrounding area or environment.

AMD

Amend.

Am Index

The daily Ak index determined from the eight daily am indexes

AMOS

Automatic Meteorological Observing System.

Amplifier

A device used to increase the strength of an analog signal.

Amplitude

The maximum magnitude of a quantity. Often used to refer to the maximum height of a wave.

AMS

1. Air Mass - a body of air covering a relatively wide area and exhibiting horizontally uniform properties.
   2. American Meteorological Society.
2.

AMT

Amount.

AMVER

Automated Mutual Assistance Vessel Rescue System. A system operated by the U.S. Coast Guard which computes the nearest available rescue vessels for vessels in distress using vessel track and position reports supplied by participating vessels.

AMVER/SEAS

A software program created by the National Weather Service intended to efficiently generate AMVER and VOS reports as part of a cooperative effort.

Anabranch

A diverging branch of a river which re-enters the main stream.

Analog

1. Class of measuring devices in which the output varies continuously as a function of the input (non-digital).

2. A historical instance of a given meteorological scenario or feature that is used for comparison with another scenario or feature. For example, a long-range forecaster predicting conditions for the upcoming winter may make comparisons to **analog** seasons in which meteorological factors were similar to those of the upcoming season.

Analog Signal

A signal, such as voice, that varies in a continuous manner.

ANBURS

Alphanumeric Backup Replacement System.

Anchor Ice

In hydrologic terms, submerged frazil ice attached or anchored to the river bottom, irrespective of its formation.

Anchor Ice Dam

An accumulation of anchor ice which acts as a dam and raises the water level.

Anemometer

An instrument used for measuring the speed of the wind.

Aneroid Barometer

An instrument for measuring atmospheric pressure in which a needle, attached to the top of an evacuated box, is deflected as changes in atmospheric pressure cause the top of the box to bend in or out.

Angels

Radar echoes caused by birds, insects, and localized refractive index discontinuities.

Angle of Reflection

The angle at which a reflected ray of energy leaves a reflecting surface. It is measured between the outgoing ray and a perpendicular to the surface at the point of incidence (i.e., where the ray strikes).

Angstrom

A unit of length equal to 10^{-8} cm.

An index

The daily Ak index determined from only the Northern Hemisphere stations of the am index network.

Annual Flood

In hydrologic terms, the maximum discharge peak during a given water year (October 1 - September 30).

ANOMALOUS PROPAGATION (AP)

Non-standard atmospheric temperature or moisture gradients will cause all or part of the radar beam to propagate along a non-normal path. When non-standard index-of-refraction distributions prevail, "abnormal" or "anomalous" propagation occurs. When abnormal downward bending occurs, it is called "superrefraction." If the beam is refracted downward sufficiently, it will illuminate the ground and return signals to the radar from distances further than is normally associated with ground targets. The term "subrefraction" is applied when there is abnormal upward bending of the radar beam.

Anomaly

The deviation of a measurable unit (e.g., temperature or precipitation) over a period in a given region from the long-term average, often the thirty-year mean, for that region.

Antarctic

Of or relating to the area around the geographic South Pole, from 90 degrees South to the Antarctic Circle at approximately 66 1/2 degrees South latitude, including the continent of Antarctica. Along the Antarctic Circle, the sun does not set on the day of the summer solstice (approximately December 21st) and does not rise on the day of the winter solstice (approximately June 21st).

Antarctic Ocean

Although not officially recognized as a separate ocean body, it is commonly applied to those portions of the Atlantic, Pacific, and Indian Oceans that reach the Antarctic continent on their southern extremes

Antedecent Precipitation Index

(Abbrev. API) - an index of moisture stored within a drainage basin before a storm.

ANTENNA GAIN

The measure of effectiveness of a directional antenna as compared to an isotropic radiator, maximum value is called antenna gain by convention.

Anthelion

A luminous white spot that appears on the parhelic circle at the same altitude as the sun and 180 degrees from it in azimuth.

Anthropogenic Source

A pollutant source caused or produced by humans.

Anti-cyclone

High pressure systems are areas, or closed systems, of high pressure and are also known as ridges and anti-cyclones. High pressure systems are associated with clockwise rotating air, in which at the surface the air moves away from the center, and toward the center at high levels. Thus, air is forced to sink in the center of high pressure systems. High pressure systems are associated with dry and clear, fair weather conditions. However, in urban areas with high levels of pollution at the surface, sinking air associated with high pressure can act to trap pollutants, allowing for poor air quality conditions.

Anti-sunbeams

Parallel rays of sunlight that penetrate through holes in clouds as columns of sunlit air are divided by darker shaded regions. Perspective effects cause the apparent divergence, and the rays are visible due to reflection of sunlight off of the atmospheric particles. The name originates from their frequent crepuscular occurrence (at dawn and dusk), when the contrast between light and dark are greatest.

Anti-wind

The upper or return branch of an along-valley wind system, as confined within a valley, and blowing in a direction opposite to the winds in the lower altitudes of the valley.

Anticyclogenesis
The formation or intensification of an anticyclone or high pressure center.

Anticyclone
A large-scale circulation of winds around a central region of high atmospheric pressure, clockwise in the Northern Hemisphere, counterclockwise in the Southern Hemisphere

Anticyclonic Rotation
Rotation in the opposite sense as the Earth's rotation, i.e., clockwise in the Northern Hemisphere as would be seen from above. The opposite of cyclonic rotation.

Antilles Current
A current which originates in the vicinity of the Leeward Islands as part of the Atlantic North Equatorial Current.

Anvil
The flat, spreading top of a cumulonimbus cloud, often shaped like an anvil. Thunderstorm anvils may spread hundreds of miles downwind from the thunderstorm itself, and sometimes may spread upwind.

Anvil cloud
Convective cloud meaning accumulated cloud, where nimbus means rain and cumulus means convective. This cloud has a flat cloud bottom with great vertical growth and can extend up to 13 miles. The flat base of the cloud signifies the Lifting Condensation Level (LCL) or the level of the atmosphere of equal temperature and dewpoint temperature. When the cloud top creates an anvil-like structure, the cloud has reached the height of the stable tropopause, where the cloud is forced to no longer grow vertically, but spreads horizontally. This is associated with a thunderstorm cloud and is capable of producing rain, snow, hail, graupel, and lightning and precipitin can usually be seen falling from the cloud base.

Anvil Crawler
A form of cloud to cloud lightning, the most common type of lightning, occurring inside one cumulonimbus cloud due to opposing charges within the cloud. This most frequently occurs when the upper portion of an anvil cloud reaches positive charge, and the middle remains under negative charge. This is often referred to as sheet lightning because it lights up the cloud and surrounding sky with light. Heat lightning is no different from cloud to cloud lightning, it is sometimes referred to as heat lightning when it is too far away for thunder to be heard.

Anvil Dome
A large overshooting top or penetrating top.

Anvil Rollover
Slang for a circular or semicircular lip of clouds along the underside of the upwind part of a back-sheared anvil, indicating rapid expansion of the anvil.

Anvil Zits
Slang for frequent (often continuous or nearly continuous), localized lightning discharges occurring from within a thunderstorm anvil.

AO
Arctic Oscillation - the Arctic Oscillation is a pattern in which atmospheric pressure at polar and middle latitudes fluctuates between negative and positive phases. The negative phase brings higher-than-normal pressure over the polar region and lower-than-normal pressure at about 45 degrees north latitude. The negative phase allows cold air to plunge into the Midwestern United States and western Europe, and storms bring rain to the Mediterranean. The positive phase brings the opposite conditions, steering ocean storms farther north and bringing wetter weather to Alaska, Scotland and Scandinavia and drier conditions to areas such as California, Spain and the Middle East. In recent years research has shown, the Arctic Oscillation has been mostly in its positive phase. Some researchers argue that the North Atlantic Oscillation is in fact part of the AO.

AOA
At or above.

AOB
At or below.

AOPA
Aircraft Owners and Pilots Association.

AP

Anomalous Propagation. Radar term for false (non-precipitation) echoes resulting from nonstandard propagation of the radar beam under certain atmospheric conditions.

AP Index

In solar-terrestrial terms, an averaged planetary A Index based on data from a set of specific stations.

APD

On a buoy report, the average wave period (seconds) of all waves during the 20-minute period.

Aphelion

The point on the annual orbit of a body (about the sun) that is farthest from the sun; at present, the earth reaches this point (152 million kilometer from the sun) on about 5 July. Opposite of perihelion.

API Method

In hydrologic terms, a statistical method to estimate the amount of surface runoff which will occur from a basin from a given rainstorm based on the antecedent precipitation index, physical characteristics of the basin, time of year, storm duration, rainfall amount, and rainfall intensity.

Apogee

The farthest distance between the moon and earth or the earth and sun. That point on the path of an Earth-orbiting satellite most distant from the center of the Earth

Apparent Temperature

A measure of human discomfort due to combined heat and humidity (e.g., heat index).

Apparent Wind

The speed and true direction from which the wind appears to blow with reference to a moving point. Sometimes called RELATIVE WIND.

APRCH

Approach.

APRCHG

Approaching.

APRNT

Apparent.

APST

Aviation Products and Services Team.

Aquiclude

In hydrologic terms, a formation which contains water but cannot transmit it rapidly enough to furnish a significant supply to a well or spring.

Aquifer

In hydrologic terms, permeable layers of underground rock, or sand that hold or transmit groundwater below the water table that will yield water to a well in sufficient quantities to produce water for beneficial use.

Aquifuge

In hydrologic terms, a geologic formation which has no interconnected openings and cannot hold or transmit water.

ARAM

Aviation, Range, and Aerospace Meteorology.

Arcade

A series of magnetic loops, overlying a solar inversion line. Can become visible or enhanced following a nearby coronal mass ejection.

Arch Dam

A concrete arch dam is used in sites where the ratio of width between abutments to height is not great and where the foundation at the abutments is solid rock capable of resisting great forces. The arch provides resistance to movement. When combined with the weight of concrete (arch-gravity dam), both the weight and shape of the structure provide great resistance to the pressure of water.

Arch Filament System (AFS)

In solar-terrestrial terms, a bright, compact plage crossed by a system of small, arched filaments, which is often a sign of rapid or continued growth in an Active Region.

Arctic

The region within the Arctic Circle, or, loosely, northern regions in general, characterized by very low temperatures. Relating to the area around the geographic North Pole, from 90 degrees North to the Arctic Circle at approximately 66 1/2 degrees North latitude.

Arctic front

The boundary or front separating deep, cold arctic air from shallower, relatively less cold polar air.

Arctic Oscillation

(abbrev. AO)- The Arctic Oscillation is a pattern in which atmospheric pressure at polar and middle latitudes fluctuates between negative and positive phases. The negative phase brings higher-than-normal pressure over the polar region and lower-than-normal pressure at about 45 degrees north latitude. The negative phase allows cold air to plunge into the Midwestern United States and western Europe, and storms bring rain to the Mediterranean. The positive phase brings the opposite conditions, steering ocean storms farther north and bringing wetter weather to Alaska, Scotland and Scandinavia and drier conditions to areas such as California, Spain and the Middle East. In recent years research has shown, the Arctic Oscillation has been mostly in its positive phase. Some researchers argue that the North Atlantic Oscillation is in fact part of the AO.

Arctic Sea Smoke

Steam fog, but often specifically applied to steam fog rising from small open water within sea ice.

Arcus

A low, horizontal cloud formation associated with the leading edge of thunderstorm outflow (i.e., the gust front). Roll clouds and shelf clouds both are types of arcus clouds.

Area Forecast Discussion

This National Weather Service product is intended to provide a well-reasoned discussion of the meteorological thinking which went into the preparation of the Zone Forecast Product. The forecaster will try to focus on the most particular challenges of the forecast. The text will be written in plain language or in proper contractions. At the end of the discussion, there will be a list of all advisories, non-convective watches, and non-convective warnings. The term non-convective refers to weather that is not caused by thunderstorms. An intermediate Area Forecast Discussion will be issued when either significant forecast updates are being made or if interesting weather is expected to occur.

Area of Influence

In hydrologic terms, the area covered by the drawdown curves of a given pumping well or combination of wells at a particular time.

Area Source

An array of pollutant sources, so widely dispersed and uniform in strength that they can be treated in a dispersion model as an aggregate pollutant release from a defined area at a uniform rate. Compare line source and point source.

Area Wide Hydrologic Prediction System

(Abbrev. AWHPS) - A computer system which automatically ingests areal flash flood guidance values and WSR-88D products and displays this data and other hydrologic information on a map background.

Area-Capacity Curve

In hydrologic terms, a graph showing the relation between the surface area of the water in a reservoir, the corresponding volume, and elevation.

Arid

A term used for extreme dry climate. The degree to which a climate lacks effective, life-promoting moisture. It is considered the opposite of humid when speaking of climates.

ARINC

Aeronautical Radio, Incorporated.

ARND

Around.

ARR

Arrive/Arrival.

Arroyo

In hydrologic terms, a water-carved channel or gully in arid country, usually rather small with steep banks, dry most of the time, due to infrequent rainfall and the shallowness of the cut which does not penetrate below the level of permanent ground water.

ARSI
Atmospheric Research System, Inc.

ART
The Automatic Radiotheodolite. A ground-based radio direction finder that automatically tracks a ballon-borne radiosonde.

ARTCC
Air Route Traffic Control Center.

Artesian Well
In hydrologic terms, a well drilled into a confined aquifer with enough hydraulic pressure for the water to flow to the surface without pumping. Also called a flowing well.

Artificial Control
In hydrologic terms, a weir or other man-made structure which serves as the control for a stream-gaging station.

AS
Abbreviation for Altostratus, a cloud of a class characterized by a generally uniform gray sheet or layer, lighter in color than nimbostratus and darker than cirrostratus. These clouds are of medium altitude, about 8000 to 20,000 ft (2400-6100 m).

As Index
The daily Ak index determined from only the Southern Hemisphere stations of the am index network.

ASAP
1. AHOS SHEF Automatic Processing System
2. As soon as possible (may be used in Area Forecast Discussions)

ASAPTRAN
The software component of ASAP.

ASB
Aviation Support Branch.

Ashfall Advisory
An advisory issued for conditions associated with airborne ash plume resulting in ongoing deposition at the surface. Ashfall may originate directly from a volcanic eruption, or indirectly by wind suspending the ash.

ASL
Above Sea Level.

ASOS
Automated Surface Observing System. A list of stations currently active and available through the NWS website.

ASOS IDs
Each Automated Surface Observing System an a four character identifier assigned to it. A list of stations currently active and available through the NWS website.

Asperatus
The name of this cloud translates to rough or agitated waves. While these clouds give a dark and stormy appearance, but they have been known to dissipate before storm development. These have been spotted in the Plains of the US, forming after convective thunderstorm activity.

ASR-9
Airport Surveillance Radar (FAA).

ASSOCIATED PRINCIPAL USER
A Principal User with dedicated communications to a WSR-88D unit.

Astronomical Dawn
The time at which the sun is 18 degrees below the horizon in the morning. Astronomical dawn is that point in time at which the sun starts lightening the sky. Prior to this time during the morning, the sky is completely dark.

Astronomical Dusk
This is the time at which the sun is 18 degrees below the horizon in the evening. At this time the sun no longer illuminates the sky.

Astronomical Twilight
The time period when the sun is between 12 and 18 degrees below the horizon at either sunrise or sunset. The sun does not contribute to the illumination of the sky before this time in the morning, or

after this time in the evening. In the beginning of morning astronomical twilight and at the end of astronomical twilight in the evening, sky illumination is very faint, and might be undetectable.

Astronomical Unit

(AU) The mean earth-sun distance, equal to 1.496×10^{13} cm, or 214.94 solar radii.

ATC

Air Traffic Control.

ATDTDCS

Automated Tone Dial Telephone Data Collection System - Data collection system where cooperative observers collect precipitation, stage, and temperature data then transmit the data to the NWS ATDTDCS computer through the telephone lines. The ATDTDCS computer transmits the data to AFOS.

Atmosphere

The air surrounding and bound to the Earth.

Atmospheric Boundary Layer

Same as Boundary Layer - in general, a layer of air adjacent to a bounding surface. Specifically, the term most often refers to the planetary boundary layer, which is the layer within which the effects of friction are significant. For the earth, this layer is considered to be roughly the lowest one or two kilometers of the atmosphere. It is within this layer that temperatures are most strongly affected by daytime insolation and nighttime radiational cooling, and winds are affected by friction with the earth's surface. The effects of friction die out gradually with height, so the "top" of this layer cannot be defined exactly.

Atmospheric Circulation Model

A mathematical model for quantitatively describing, simulating, and analyzing the structure of the circulation in the atmosphere and the underlying causes. Sometimes referred to as Atmospheric General Circulation Models or AGCMs.

Atmospheric Pressure

The force exerted by the weight of the atmosphere and gravity. The pressure exerted by the earth's atmosphere at any given point, determined by taking the product of the gravitational acceleration at the point and the mass of the unit area column of air above the point.

Atmospheric Radiation

Infrared radiation (energy in the wavelength interval of 3- 80 micrometer) emitted by or being propagated through the atmosphere. It consists of both upwelling and downwelling components. Compare with terrestrial radiation.

Atmospherics

Also known as ”sferics,” transient radio waves produced by naturally occurring electric discharges (e.g., lightning) in the Earth’s atmosphere.

ATMP

On a buoy report, the air temperature (Celsius).

Attenuation

It refers to the reduction of the radar beam power due to the reflection or absorption of energy when it strikes a target. The greatest attenuation occurs when the radar beam goes through very heavy rain.

ATTENUATION

Any process in which the flux density (power) of a beam of energy is dissipated.

ATTM

At this time.

Augmented report

A meteorological report prepared by an automated surface weather observing system for transmission with certified observers signed on to the system to add information to the report.

Aurora

It is created by the radiant energy emission from the sun and its interaction with the earth's upper atmosphere over the middle and high latitudes. It is seen as a bright display of constantly changing light near the magnetic poles of each hemisphere. In the Northern Hemisphere, it is known as the aurora borealis or Northern Lights, and in the Southern Hemisphere, this phenomena is called the aurora australis. Typical auroras are 100 to 250 km above the ground.

Aurora Australis

A natural occurring display of lights observed in the high latitudes of the polar regions on the globe, but are also often seen as far as 65-72 degrees north and south. The chance for seeing the southern lights increases as you go closer to the South Magnetic Pole. If near the magnetic pole, they can be seen overhead, but from further distances they illuminate the northern horizon with a greenish or yellowish color. It is strongest during the equinoxes, or when the earth is at its greatest tilt. This phenomena occurs when photons are emitted into the ionosphere from ionized nitrogen atoms. They are ionized, or excited, by strong solar wind in the vicinity of Earth's magnetic field lines.

Aurora Borealis

A natural occurring display of lights observed in the high latitudes of the polar regions on the globe, but are also often seen as far as 65-72 degrees north and south. The chance for seeing the northern lights increases as you go closer to the North Magnetic Pole. If near the magnetic pole, they can be seen overhead, but from further distances they illuminate the northern horizon with a greenish or yellowish color. It is strongest during the equinoxes, or when the earth is at its greatest tilt. This phenomena occurs when photons are emitted into the ionosphere from ionized nitrogen atoms. They are ionized, or excited, by strong solar wind in the vicinity of Earth's magnetic field lines.

Auroral Oval

In solar-terrestrial terms, an oval band around each geomagnetic pole which is the locus of structured aurorae

Automated Event Reporting Gage

(also see Tipping Bucket Rain Gage); for river stage gages, IFLOWS pressure transducer type gages can be programmed to report if water surface rises or falls by a predetermined amount.

Automated Report

A meteorological report prepared by an automated surface weather observing system for transmission, and with no certified weather observers signed on to the system.

Automated Surface Observing System

The ASOS program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). Completed in the mid-1990s, the ASOS systems serve as the nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities.

AUTOMATIC GAIN CONTROL

Any method of automatically controlling the gain of a receiver, particularly one that holds the output level constant regardless of the input level.

Autumn

The season of the year that is the transition period from summer to winter, occurring as the sun approaches the winter solstice. Meteorological autumn (different from standard/astronomical autumn) begins September 1 and ends November 30.

Autumnal Equinox

The equinox at which the sun approaches the Southern Hemisphere, marking the start of astronomical autumn in the Northern Hemisphere. The time of this occurrence is approximately September 22. On that day, daylight is everywhere 12 hours. Compare with vernal equinox, offset by six months.

Avalanche

A mass of snow, rock, and/or ice falling down a mountain or incline. In practice, it usually refers to the snow avalanche. In the United States, the term snow slide is commonly used to mean a snow avalanche.

Avalanche Advisory

A preliminary notification that conditions may be favorable for the development of avalanches in mountain regions.

AVBL

Available.

AVG

Average.

AVHRR

Advanced Very High Resolution Radiometer. Main sensor on U.S. polar orbiting satellites.

AVN

The Aviation model (120-hour numerical model of the atmosphere). The output from this model is now part of what is known as the GFS model.

AVP

On a buoy report, Average Wave Period is the average period (seconds) of the highest one-third of the wave observed during a 20 minute sampling period.

AWC

Aviation Weather Center.

AWHPS

Area Wide Hydrologic Prediction System.

AWIPS

Advanced Weather Interactive Processing System. This system replaced the Automation of Field Operations and Services (AFOS). This system allows the operator to overlay meteorological data from a variety of sources.

AWOS

Automated Weather Observation System.

Azimuth

The azimuth (az) angle is the compass bearing, relative to true (geographic) north, of a point on the horizon directly beneath the sun. The horizon is defined as an imaginary circle centered on the observer. This is the 2-D, or Earth's surface, part of calculating the sun's position. As seen from above the observer, these compass bearings are measured clockwise in degrees from north. Azimuth angles can range from 0 - 359°. 0° is due geographic north, 90° due east, 180° due south, and 360 due north again. A direction in terms of a 360Â° compass. North is at 0Â°, east is at 90Â°, south is at 180Â°, and west is at 270Â°.

Azimuth Angle

The direction or bearing toward which a sloping surface faces (e.g., a north-facing slope has an azimuth angle of 360Â°; a northeast-facing slope, an azimuth angle of 45Â°).

Azores Current

One of the currents of the North Atlantic subtropical gyre.

Azores High

Alternate term for **Bermuda High** - a semi-permanent, subtropical area of high pressure in the North Atlantic Ocean off the East Coast of North America that migrates east and west with varying central pressure. Depending on the season, it has different names. When it is displaced westward, during the Northern Hemispheric summer and fall, the center is located in the western North Atlantic, near Bermuda. In the winter and early spring, it is primarily centered near the Azores in the eastern part of the North Atlantic. Also known as Azores High.

B

Abbreviation used on long-term climate outlooks issued by CPC to indicate areas that are likely to be below normal for a given parameter (temperature, precipitation, etc.).

B-angle

As viewed from the Earth, the heliographic latitude of the center of the solar disk. The center of the solar disk usually does not coincide with the heliographic equator due to a tilt of the solar axis with respect to the ecliptic.

Back Door Cold Front

A cold front moving south or southwest along the Atlantic seaboard and Great Lakes; these are especially common during the spring months.

Back-building Thunderstorm

A thunderstorm in which new development takes place on the upwind side (usually the west or southwest side), such that the storm seems to remain stationary or propagate in a backward direction.

Back-sheared Anvil

[Slang], a thunderstorm anvil which spreads upwind, against the flow aloft. A back-sheared anvil often implies a very strong updraft and a high severe weather potential.

Backfire

A fire started to stop an advancing fire by creating a burned area in its path.

Backflow

In hydrologic terms, the backing up of water through a conduit or channel in the direction opposite to normal flow.

Backing

(abbrev. BCKG)- A counterclockwise shift in wind direction (for example, south winds shifting to the east).

Backing Winds

Winds which shift in a counterclockwise direction with time at a given location (e.g. from southerly to southeasterly), or change direction in a counterclockwise sense with height (e.g. westerly at the surface but becoming more southerly aloft). The opposite of veering winds.

In storm spotting, a backing wind usually refers to the turning of a south or southwest surface wind with time to a more east or southeasterly direction. Backing of the surface wind can increase the potential for tornado development by increasing the directional shear at low levels.

Backscatter

The portion of power scattered back in the incident direction.

Backsight

In hydrologic terms, a rod reading taken on a point of known elevation, a benchmark or a turning point. Backsights are added to the known elevation to arrive at the height of the instrument. With a known height of the instrument, the telescope can be used to determine the elevation of other points in the vicinity.

Backwater Curve

In hydrologic terms, the longitudinal profile of the surface of a liquid in a non-uniform flow in an open channel, when the water surface is not parallel to the invert owing to the depth of water having been increased by the interposition of an obstruction such as a dam or weir. The term is sometimes used in a generic sense to denote all water surface profiles; or for profiles where the water is flowing at depths greater than the critical.

Backwater Effect

In hydrologic terms, the effect which a dam or other obstruction has in raising the surface of the water upstream from it.

Backwater Flooding

Hydrologic terms, upstream flooding caused by downstream conditions such as channel restriction and/or high flow in a downstream confluence stream.

Ball Lightning

A relatively rare form of lightning consisting of a luminous ball, often reddish in color, which moves rapidly along solid objects or remains floating in mid-air. Also known as globe lightning.

BAM

Binary Angular Measure

BANDPASS FILTER

A filter whose frequencies are between given upper and lower cutoff values, while substantially attenuating all frequencies outside these values (this band).

Bandwidth

The frequency range between the lowest and highest frequencies that are passed through a component, circuit, or system with acceptable attenuation.

Bank

In hydrologic terms, the margins of a channel. Banks are called right or left as viewed facing in the direction of the flow.

Bank Storage

In hydrologic terms, water absorbed and stored in the void in the soil cover in the bed and banks of a stream, lake, or reservoir, and returned in whole or in part as the level of water body surface falls.

Bankfull

The water level, or stage, at which a stream, river or lake is at the top of its banks and any further rise would result in water moving into the flood plain.

Bankfull Stage

An established gage height at a given location along a river or stream, above which a rise in water surface will cause the river or stream to overflow the lowest natural stream bank somewhere in the

corresponding reach. The term "lowest bank" is however, not intended to apply to an unusually low place or a break in the natural bank through which the water inundates a small area. Bankfull stage is not necessarily the same as flood stage.

Banner Cloud

A cloud plume often observed to extend downwind behind isolated mountain peaks, even on otherwise cloud-free days.

BAPSU

Bay Area Public Service Unit. Public Service section of the San Francisco Bay Area Weather Service Forecast Office.

Bar

An obstacle formed at the shallow entrance to the mouth of a river or bay.

Barber Pole

[Slang], a thunderstorm updraft with a visual appearance including cloud striations that are curved in a manner similar to the stripes of a barber pole. The structure typically is most pronounced on the leading edge of the updraft, while drier air from the rear flank downdraft often erodes the clouds on the trailing side of the updraft.

Baroclinic leaf shield

A cloud pattern on satellite images - frequently noted in advance of formation of a low pressure center.

Baroclinic Zone

A region in which a temperature gradient exists on a constant pressure surface. Baroclinic zones are favored areas for strengthening and weakening systems; barotropic systems, on the other hand, do not exhibit significant changes in intensity. Also, wind shear is characteristic of a baroclinic zone.

Baroclinity

A measure of the state of stratification in a fluid in which surfaces of constant pressure (isobaric) intersect surfaces of constant density (isosteric).

Barogram

An analog record of pressure produced by a barograph.

Barograph

A barometer that records its observations continuously.

Barometer

An instrument that measures atmospheric pressure. Two examples are the aneroid barometer and the mercurial barometer.

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). Also known as atmospheric pressure.

Barotropic System

A weather system in which temperature and pressure surfaces are coincident, i.e., temperature is uniform (no temperature gradient) on a constant pressure surface. Barotropic systems are characterized by a lack of wind shear, and thus are generally unfavorable areas for severe thunderstorm development. See baroclinic zone.

Usually, in operational meteorology, references to barotropic systems refer to equivalent barotropic systems - systems in which temperature gradients exist, but are parallel to height gradients on a constant pressure surface. In such systems, height contours and isotherms are parallel everywhere, and winds do not change direction with height.

As a rule, a true equivalent barotropic system can never be achieved in the real atmosphere. While some systems (such as closed lows or cutoff lows) may reach a state that is close to equivalent barotropic, the term barotropic system usually is used in a relative sense to describe systems that are really only close to being equivalent barotropic, i.e., isotherms and height contours are nearly parallel everywhere and directional wind shear is weak.

Barotropy

The state of a fluid in which surfaces of constant density (or temperature) are coincident with surfaces of constant pressure; it is the state of zero baroclinity.

Barrage

In hydrologic terms, any artificial obstruction placed in water to increase water level or divert it. Usually the idea is to control peak flow for later release.

Barrier Jet

A jet-like wind current that forms when a stably-stratified low-level airflow approaches a mountain barrier and turns to the left to blow parallel to the longitudinal axis of the barrier.

Bartel's Rotation Number

The serial number assigned to 27-day rotation periods of solar and geophysical parameters. Rotation 1 in this sequence was assigned arbitrarily by Bartel to begin in January 1833.

BASE DATA

Those digital fields of reflectivity, mean radial velocity, and spectrum width data in spherical coordinates provided at the finest resolution available from the radar.

Base Flood

In hydrologic terms, the national standard for floodplain management is the base, or one percent chance flood. This flood has at least one chance in 100 of occurring in any given year. It is also called a 100 year flood.

BASE PRODUCTS

Those products that present some representation of the base data. This representation may not necessarily be either in full resolution or depict the full area of coverage. Base products can be used to generate a graphic display or further processing.

Base Reflectivity

Base Reflectivity is the default image. Taken from the lowest (½° elevation) slice, it is the primary image used to "see what's out there". There are two versions of Base Reflectivity image; the short range version which extends out to 124 nautical miles (143 statute miles/230 kilometers) and the long range version which extends out to 248 nautical miles (285 statute miles/460 kilometers). This image is available upon completion of the ½° elevation scan during each volume scan.

Base Station

In hydrologic terms, a computer which accepts radio signals from ALERT gaging sites, decodes the data, places the data in a database, and makes the data available to other users.

Base Width

In hydrologic terms, the time duration of a unit hydrograph.

Baseflow

In hydrologic terms, streamflow which results from precipitation that infiltrates into the soil and eventually moves through the soil to the stream channel. This is also referred to as ground water flow, or dry-weather flow.

Basin

An area having a common outlet for its surface runoff. Also called a "Drainage Basin."

Basin Boundary

The topographic dividing line around the perimeter of a basin, beyond which overland flow (i.e.; runoff) drains away into another basin.

Basin Lag

In hydrologic terms, the time it takes from the centroid of rainfall for the hydrograph to peak.

Basin Recharge

In hydrologic terms, rainfall that adds to the residual moisture of the basin in order to help recharge the water deficit. i.e; water absorbed into the soil that does not take the form of direct runoff.

Bathymetry

The science of measuring depths of the oceans, lakes, seas, etc.

BCKG

Backing- A counterclockwise shift in wind direction (for example, south winds shifting to the east).

BCM

Become.

BCMNG

Becoming.

BD

Blowing Dust.

Beach Erosion

The movement of beach materials by some combination of high waves, currents and tides, or wind.

BEAM FILLING

The measure of variation of hydrometeor density throughout the radar sampling volume. If there is no variation in density, the beam is considered to be filled.

BEAM WIDTH

Angular width of antenna pattern. Usually that width where the power density is one-half that of the axis beam. (Half-Power or 3 dB point)

Bear's Cage

[Slang], a region of storm-scale rotation, in a thunderstorm, which is wrapped in heavy precipitation. This area often coincides with a radar hook echo and/or mesocyclone, especially one associated with an HP storm. The term reflects the danger involved in observing such an area visually, which must be done at close range in low visibility.

Beaufort Wind Scale

The Beaufort Wind Scale is a system used to estimate and report wind speeds when no measuring apparatus is available. It is based on the Beaufort Force or Number, which is composed of the wind speed, a descriptive term, and the visible effects upon land objects and/or sea surfaces. The scale was devised by Sir Francis Beaufort (1777-1857), hydrographer to the British Royal Navy.

Beaufort Force 0 - Wind less than 1 kt, Calm, Sea surface smooth and mirror-like. Smoke rises vertically.

Beaufort Force 1 - Wind 1-3 kt, Light Air, Scaly ripples, no foam crests. Smoke drift indicates wind direction, still wind vanes.

Beaufort Force 2 - Wind 4-6 kt, Light Breeze, Small wavelets, crests glassy, no breaking waves. Wind felt on face, leaves rustle, vanes begin to move.

Beaufort Force 3 - Wind 7-10 kt, Gentle Breeze, Large wavelets, crests begin to break, scattered whitecaps. Leaves and small twigs constantly moving, light flags extended.

Beaufort Force 4 - Winds 11-16 kt, Moderate Breeze, Small waves 1 -4 ft. becoming longer, numerous whitecaps. Dust, leaves, and loose paper lifted, small tree branches move.

Beaufort Force 5 - Winds 17-21 kt, Fresh Breeze, Moderate waves 4 -8 ft taking longer form, many whitecaps, some spray. Small trees in leaf begin to sway.

Beaufort Force 6 - Winds 22-27 kt, Strong Breeze, Larger waves 8 -13 ft, whitecaps common, more spray. Larger tree branches moving, whistling in wires.

Beaufort Force 7 - Winds 28-33 kt, Near Gale, Sea heaps up, waves 13 -20 ft, white foam streaks off breakers. Whole trees moving, resistance felt walking against wind.

Beaufort Force 8 - Winds 34-40 kt Gale, Moderately high (13 -20 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks. Whole trees in motion, resistance felt walking against wind.

Beaufort Force 9 - Winds 41-47 kt, Strong Gale, High waves (20 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility. Slight structural damage occurs, slate blows off roofs.

Beaufort Force 10 - Winds 48-55 kt, Storm, Very high waves (20 -30 ft) with overhanging crests, sea white densely blown foam, heavy rolling, lowered visibility. Seldom experienced on land, trees broken or uprooted, "considerable structural damage".

Beaufort Force 11 - Winds 56-63 kt, Violent Storm, Exceptionally high (30 -45 ft) waves, foam patches cover sea, visibility more reduced.

Beaufort Force 12 -Winds 64+ kt, Hurricane, Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced.

Beaver('s) Tail

[Slang], a particular type of inflow band with a relatively broad, flat appearance suggestive of a beaver's tail. It is attached to a supercell's general updraft and is oriented roughly parallel to the pseudo-warm front, i.e., usually east to west or southeast to northwest. As with any inflow band, cloud elements move toward the updraft, i.e., toward the west or northwest. Its size and shape change as the strength of the inflow changes. See also inflow stinger.

Bed Load

In hydrologic terms, sand, silt, gravel, or soil and rock detritus carried by a stream on or immediately above its bed. The particles of this material have a density or grain size such as to preclude movement far above or for a long distance out of contact with the stream bed under natural conditions of flow.

Beginning of Freezup

In hydrologic terms, date on which ice forming a stable winter ice cover is first observed on the water surface

Beginning of the Breakup

In hydrologic terms, date of definite breaking, movement, or melting of ice cover or significant rise of water level.

Benchmark

(Abbrev. BM) - In hydrologic terms, a permanent point whose known elevation is tied to a national network. These points are created to serve as a point of reference. Benchmarks have generally been established by the USGS, but may have been established by other Federal or local agencies. Benchmarks can be found on USGS maps.

Bergeron Process

The process by which ice crystals in a cloud grow at the expense of supercooled liquid water droplets.

Bergy Bit

A piece of ice which has broken away from an iceberg, extending 1-5 meters above the sea surface and 100-300 square meters in area. Can also be the remains of a melting iceberg.

Bermuda High

A semi-permanent, subtropical area of high pressure in the North Atlantic Ocean off the East Coast of North America that migrates east and west with varying central pressure. Depending on the season, it has different names. When it is displaced westward, during the Northern Hemispheric summer and fall, the center is located in the western North Atlantic, near Bermuda. In the winter and early spring, it is primarily centered near the Azores in the eastern part of the North Atlantic. Also known as Azores High.

Best Track

A subjectively-smoothed representation of a tropical cyclone's location and intensity over its lifetime. The best track contains the cyclone's latitude, longitude, maximum sustained surface winds, and minimum sea-level pressure at 6-hourly intervals. Best track positions and intensities, which are based on a post-storm assessment of all available data, may differ from values contained in storm advisories. They also generally will not reflect the erratic motion implied by connecting individual center fix positions.

BFR

Before.

BGN

Begin.

BHND

Behind.

BIAS

A systematic difference between an estimate of and the true value of a parameter.

Billow Cloud

A cloud consisting of broad parallel bands oriented perpendicular to the wind.

BIN

Radar sample volume.

BINOVC

Breaks in Overcast.

BKN

Broken.

BL

Abbreviation for **Boundary Layer**; a layer of air adjacent to a bounding surface. Specifically, the term most often refers to the planetary boundary layer, which is the layer within which the effects of friction are significant. For the earth, this layer is considered to be roughly the lowest one or two kilometers of the atmosphere. It is within this layer that temperatures are most strongly affected by daytime insolation and nighttime radiational cooling, and winds are affected by friction with the earth's surface. The effects of friction die out gradually with height, so the "top" of this layer cannot be defined exactly.

Black Ice

1. Slang reference to patchy ice on roadways or other transportation surfaces that cannot easily be seen.
2. In hydrologic terms, transparent ice formed in rivers and lakes.

Blackbody

A hypothetical "body" that absorbs all of the electromagnetic radiation striking it - it does not reflect or transmit any of the incident radiation. A blackbody not only absorbs all wavelengths, but emits at all wavelengths with the maximum possible intensity for any given temperature.

Blackbody Radiation

The electromagnetic radiation emitted by an ideal blackbody adhering to the radiation laws; it is the theoretical maximum amount of electromagnetic radiation of all wavelengths that can be emitted by a body at a given temperature.

BLD

Build.

BLDUP

Buildup.

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 to1/4 mile or less for a duration of at least 3 hours. A severe blizzard is characterized by temperatures near or below 10 degrees Fahrenheit, winds exceeding 45 mph, and visibility reduced by snow to near zero.

Blizzard Warning

Issued for winter storms with sustained or frequent winds of 35 mph or higher with considerable falling and/or blowing snow that frequently reduces visibility to 1/4 of a mile or less. These conditions are expected to prevail for a minimum of 3 hours.

BLO

Below.

Blocked Flow

Flow approaching a mountain barrier that is too weak or too stable to be carried over the barrier.

Blowing

A descriptor used to amplify observed weather phenomena whenever the phenomena are raised to a height of 6 feet or more above the ground

Blowing Dust or Sand

Strong winds over dry ground, that has little or no vegetation, can lift particles of dust or sand into the air. These airborne particles can reduce visibility, cause respiratory problems, and have an abrasive affect on machinery. A concentration reducing the visibility to Â¼ mile or less often poses hazards for travelers.

Blowing Snow

Blowing snow is wind-driven snow that reduces surface visibility. Blowing snow can be falling snow or snow that has already accumulated but is picked up and blown by strong winds. Blowing snow is usually accompanied by drifting snow.

Blowing Snow Advisory

Issued when wind driven snow reduces surface visibility, possibly, hampering traveling. Blowing snow may be falling snow, or snow that has already accumulated but is picked up and blown by strong winds.

Blue Sky

Why is the sky blue? This is a great question and has to do with the scattering of light. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. These colors can be seen because components of the atmosphere (gases, dust, soot, ashes, pollen, and salt from the oceans) act to reflect or deflect light in a process called Rayleigh scattering. The various colors of the light have various wavelengths. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest frequencies (reds). The colors that are absorbed are what we see, thus, the sky is most often blue.

Blue Watch or Blue Box

[Slang], a severe thunderstorm watch.

Blustery

Same as **Breezy**; 15 to 25 mph winds.

BLV

Before.

BLZD

Blizzard- A blizzard means that the following conditions are expected to prevail for a period of 3 hours or longer:

- Sustained wind or frequent gusts to 35 miles an hour or greater; and
- Considerable falling and/or blowing snow (i.e., reducing visibility frequently to less than Â¼ mile)

BN

Blowing Sand.

BNDRY

Boundary.

Bomb

Popular expression of a rapid intensification of a cyclone (low pressure) with surface pressure expected to fall by at least 24 millibars in 24 hour.

Bora

A regional downslope wind whose source is so cold that it is experienced as a cold wind, despite compression warming as it descends the lee slope of a mountain range.

Border Ice

In hydrologic terms, an ice sheet in the form of a long border attached to the bank or shore.; shore ice.

Boundary Layer

In general, a layer of air adjacent to a bounding surface. Specifically, the term most often refers to the **planetary boundary layer**, which is the layer within which the effects of friction are significant. For the earth, this layer is considered to be roughly the lowest one or two kilometers of the atmosphere. It is within this layer that temperatures are most strongly affected by daytime insolation and nighttime radiational cooling, and winds are affected by friction with the earth's surface. The effects of friction die out gradually with increasing height, so the "top" of this layer cannot be defined exactly.

There is a thin layer immediately above the earth's surface known as the **surface boundary layer** (or simply the surface layer). This layer is only a portion of the planetary boundary layer, and represents the layer within which friction effects are more or less constant throughout (as opposed to decreasing with height, as they do above it). The surface boundary layer is roughly 10 meters thick (from the surface up to 10 m above the ground), but again the exact depth is indeterminate. Like friction, the effects of insolation and radiational cooling are strongest within this layer.

Bounded Weak Echo Region (BWER)

(Also known as a vault.) Radar signature within a thunderstorm characterized by a local minimum in radar reflectivity at low levels which extends upward into, and is surrounded by, higher reflectivities aloft. This feature is associated with a strong updraft and is almost always found in the inflow region of a thunderstorm. It cannot be seen visually.

BOVC

Base of Overcast.

Bow Echo

A radar echo which is linear but bent outward in a bow shape. Damaging straight-line winds often occur near the "crest" or center of a bow echo. Areas of circulation also can develop at either end of a bow

echo, which sometimes can lead to tornado formation - especially in the left (usually northern) end, where the circulation exhibits cyclonic rotation.

Bow Shock

A standing shock wave in front of the magnetosphere, arising from the interaction of the supersonic solar wind with the Earth's magnetic field.

Bowen Ratio

For any moist surface, the ratio of heat energy used for sensible heating (conduction and convection) to the heat energy used for latent heating (evaporation of water or sublimation of snow). The Bowen ratio ranges from about 0.1 for the ocean surface to more than 2.0 for deserts; negative values are also possible. It is named for Ira S. Bowen (1898-1978), an American astrophysicist.

Box Model

A computer model used to calculate air pollution concentrations. A box model is based on the assumption that pollutants are emitted into a box through which they are immediately and uniformly dispersed. The sides and bottom of the box are defined by the sidewalls and floor of the valley being studied.

BR

Mist.

Brackish Ice

In hydrologic terms, ice formed from brackish water.

Braided Stream

In hydrologic terms, characterized by successive division and rejoining of streamflow with accompanying islands. A braided stream is composed of anabranches.

Brash Ice

In hydrologic terms, accumulation of floating ice made up of fragments not more than 2 meters across; the wreckage of other forms of ice.

BRD

Border.

Breach

In hydrologic terms, the failed opening in a dam.

Breakers

Waves that break, displaying white water. Depends on wave steepness and bottom bathymetry.

Breakup

In hydrologic terms, the time when a river whose surface has been frozen from bank to bank for a significant portion of its length begins to change to an open water flow condition. Breakup is signaled by the breaking of the ice and often associated with ice jams and flooding.

Breakup Date

In hydrologic terms, date on which a body of water is first observed to be entirely clear of ice and remains clear thereafter.

Breakup Jam

In hydrologic terms, an ice jam that occurs as a result of the accumulation of broken ice pieces.

Breakup Period

In hydrologic terms, the period of disintegration of an ice cover.

Breezy

15 to 25 mph winds.

BRF

Brief.

Bright Band

A distinct feature observed by a radar that denotes the freezing level of the atmosphere. The term originates from a horizontal band of enhanced reflectivity that can result when a radar antenna scans vertically through precipitation. The freezing level in a cloud contains ice particles that are coated with liquid water. These particles reflect significantly more radiation (appearing to the radar as large raindrops) than the portions of the cloud above and below the freezing layer. The bright band can affect the ability of the NEXRAD algorithms to produce accurate rainfall estimates at far ranges because the algorithm may interpret reflectivity from the bright band as an overestimate of precipitation reaching the surface.

Bright Band
The enhanced radar echo of snow as it melts to rain.

Bright Point
A short-lived brightening of flare or near flare intensity, less than ten millionths of the solar hemisphere in area.

Bright Surge on the Disk (BSD)
A bright stream of gas seen against the solar disk. BSDs are often flare related and commonly fan out from the flare site. In solar-terrestrial terms, a bright gaseous stream (surge) emanating from the chromosphere.

Bright Surge on the Limb (BSL)
A bright stream of gas emanating from the chromosphere that moves outward more than 0.15 solar radius above the limb. It may decelerate and return to the Sun. Most BSLs assume a linear radial shape but can be inclined and/or fan shaped. In solar-terrestrial terms, a large gaseous stream (surge) that moves outward more than 0.15 solar radius above the limb.

Brightness
A basic visual sensation describing the amount of light that appears to emanate from an object, or more precisely, the luminance of an object.

Brightness Temperature
The equivalent blackbody temperature at a specified wavelength of a uniform source filling the resolution element of the telescope.

Brisk
15 to 25 mph winds.

Brisk Wind Advisory
A Small Craft Advisory issued by the National Weather Service for ice-covered waters.

BRK
Break.

BRN
(Bulk Richardson Number) A non-dimensional number relating vertical stability and vertical shear (generally, stability divided by shear). High values indicate unstable and/or weakly-sheared environments; low values indicate weak instability and/or strong vertical shear. Generally, values in the range of around 50 to 100 suggest environmental conditions favorable for supercell development.

Broadband
A method of signaling in which multiple signals share the bandwidth of the transmission by the subdivision of the bandwidth into channels based on frequency.

Brocken Specter
An optical phenomenon sometimes occurring at high altitudes when the image of an observer placed between the sun and a cloud is projected on the cloud as a greatly magnified shadow. The shadow's head is surrounded by rings of color, called a glory.

Broken Level
A layer of the atmosphere with 5/8 to 7/8 sky cover (cloud cover).

BS
Blowing Snow.

BTR
Better.

BTWN
Between.

Bubble High
A mesoscale area of high pressure, typically associated with cooler air from the rainy downdraft area of a thunderstorm or a complex of thunderstorms. A gust front or outflow boundary separates a bubble high from the surrounding air.

Bubbler Gage
In hydrologic terms, a water stage recording device that is capable of attaching to a LARC for data automation purposes.

BUFKIT
A software tool used by forecasters to examine the vertical profile and other aspects of the atmosphere.

Bulk Richardson Number

A non-dimensional (i.e., no units) number relating vertical stability to vertical shear (generally, stability divided by shear). High values indicate unstable and/or weakly-sheared environments; low values indicate weak instability and/or strong vertical shear. Generally, values in the range of around 50 to 100 suggest environmental conditions favorable for supercell development.

Buoyancy

The tendency of a body to float or to rise when submerged in a fluid; the power of a fluid to exert an upward force on a body placed in it.

Burst

In solar-terrestrial terms, a transient enhancement of the solar radio emission, usually associated with an active region or flare.

Bust

Slang for an inaccurate forecast, especially one where significant weather (e.g., heavy snowfall) is predicted but does not occur.

Butterfly Diagram

A plot of observed solar active region latitudes vs. time. This diagram, which resembles a butterfly, shows that the average latitude of active region formation drifts from high to low latitudes during a sunspot cycle.

Buttress Dam

Buttress dams are comprised of reinforced masonry or stonework built against concrete. They are usually in the form of flat decks or multiple arches. They require about 60 percent less concrete than gravity dams, but the increased form work and reinforcement steel required usually offset the savings in concrete. Many were built in the 1930's when the ratio of labor cost to materials was comparatively low. However, this type of construction is not competitive with other types of dams when labor costs are high.

BWER

Abbreviation for **Bounded Weak Echo Region**; a radar signature within a thunderstorm characterized by a local minimum in radar reflectivity at low levels which extends upward into, and is surrounded by, higher reflectivities aloft. This feature is associated with a strong updraft and is almost always found in the inflow region of a thunderstorm. It cannot be seen visually.

BYD

Beyond.

Bz

A measure of the North/South orientation of the interplanetery magnetic field measured perpendicular to the ecliptic plane. When Bz is southward, or antiparallel to the Earth's magnetic field, geomagnetic disturbances become much more severe than when Bz is northward.

C

1. Degrees Celsius (Â°C)
2. Central

C AMS

Continental Air Mass.

CA

Cloud-to-Air lightning.

CAA

Cold Air Advection.

CAD

Cold Air Damming. The phenomenon in which a low-level cold air mass is trapped topographically. Often, this cold air is entrenched on the east side of mountainous terrain. Cold Air Damming often implies that the trapped cold air mass is influencing the dynamics of the overlying air mass, e.g. in an overrunning scenario. Effects on the weather may include cold temperatures, freezing precipitation, and extensive cloud cover

CADAS

Centralized Automated Data Acquisition System - a system of two minicomputers in NWSH.

Calibration

In hydrologic terms, the process of using historical data to estimate parameters in a hydrologic forecast technique such as SACSMA, routings, and unit hydrographs.

Calm

A weather condition when no air motion (wind) is detected.

Canyon Wind

A foehn wind that is channeled through a canyon as it descends the lee side of a mountain barrier.

Cap

(also called "Lid") A layer of relatively warm air aloft, usually several thousand feet above the ground, which suppresses or delays the development of thunderstorms. Air parcels rising into this layer become cooler than the surrounding air, which inhibits their ability to rise further and produce thunderstorms. As such, the cap often prevents or delays thunderstorm development even in the presence of extreme instability. However, if the cap is removed or weakened, then explosive thunderstorm development can occur.

The cap is an important ingredient in most severe thunderstorm episodes, as it serves to separate warm, moist air below and cooler, drier air above. With the cap in place, air below it can continue to warm and/or moisten, thus increasing the amount of potential instability. Or, air above it can cool, which also increases potential instability. But without a cap, either process (warming/moistening at low levels or cooling aloft) results in a faster release of available instability - often before instability levels become large enough to support severe weather development.

Cap Cloud

A stationary cloud directly above a cumulus or cumulonimbus cloud and looks like a hood or cap made up of ice crystals on an isolated mountain peak, with cloud base below the elevation of the peak.

CAPE

Convective Available Potential Energy. A measure of the amount of energy available for convection. CAPE is directly related to the maximum potential vertical speed within an updraft; thus, higher values indicate greater potential for severe weather. Observed values in thunderstorm environments often may exceed 1000 joules per kilogram (J/kg), and in extreme cases may exceed 5000 J/kg.

However, as with other indices or indicators, there are no threshold values above which severe weather becomes imminent. CAPE is represented on an upper air sounding by the area enclosed between the environmental temperature profile and the path of a rising air parcel, over the layer within which the latter is warmer than the former. (This area often is called positive area.) See also CIN.

Capillarity

In hydrologic terms,

1.The degree to which a material or object containing minute openings or passages, when immersed in a liquid, will draw the surface of the liquid above the hydrostatic level. Unless otherwise defined, the liquid is generally assumed to be water.
2. The phenomenon by which water is held in interstices above the normal hydrostatic level, due to attraction between water molecules.

Capillary Fringe

In hydrologic terms, the soil area just above the water table where water can rise up slightly through the cohesive force of capillary action. This layer ranges in depth from a couple of inches, to a few feet, and it depends on the pore sizes of the materials. The capillary fringe is also called the capillary zone.

Capillary Waves

Waves caused by the initial wind stress on the water surface causes what are known as capillary waves. These have a wavelength of less than 1.73 cm, and the force that tries to restore them to equilibrium is the cohesion of the individual molecules. Capillary waves are important in starting the process of energy transfer from the air to the water.

Capillary Zone

Used interchangeably with **Capillary Fringe**; the soil area just above the water table where water can rise up slightly through the cohesive force of capillary action. This layer ranges in depth from a couple of inches, to a few feet, and it depends on the pore sizes of the materials.

Capping

A region of negative buoyancy below an existing level of free convection (LFC) where energy must be supplied to the parcel to maintain its ascent. This tends to inhibit the development of convection until some physical mechanism can lift a parcel to its LFC. The intensity of the cap is measured by its convective inhibition. The term capping inversion is sometimes used, but an inversion is not necessary for the conditions producing convective inhibition to exist.

Capping Inversion

Alternate term for **Cap**; a layer of relatively warm air aloft, usually several thousand feet above the ground, which suppresses or delays the development of thunderstorms. Air parcels rising into this layer become cooler than the surrounding air, which inhibits their ability to rise further and produce thunderstorms. As such, the cap often prevents or delays thunderstorm development even in the presence of extreme instability. However, if the cap is removed or weakened, then explosive thunderstorm development can occur.

The cap is an important ingredient in most severe thunderstorm episodes, as it serves to separate warm, moist air below and cooler, drier air above. With the cap in place, air below it can continue to warm and/or moisten, thus increasing the amount of potential instability. Or, air above it can cool, which also increases potential instability. But without a cap, either process (warming/moistening at low levels or cooling aloft) results in a faster release of available instability - often before instability levels become large enough to support severe weather development.

CAPS

Center for Analysis and Prediction of Storms

Carbon Dioxide.

CO_2; a colorless and odorless gas which is the fourth most abundant constituent of dry air.

Carrington Longitude

A system of fixed longitudes rotating with the sun.

Catalina Eddy

A Catalina Eddy (coastal eddy) forms when upper level large-scale flow off Point Conception interacts with the complex topography of the Southern California coastline. As a result, a counter clockwise circulating low pressure area forms with its center in the vicinity of Catalina Island. This formation is accompanied by a southerly shift in coastal winds, a rapid increase in the depth of the marine layer, and a thickening of the coastal stratus. Predominately these eddies occur between April and September with a peak in June. A typical Catalina eddy will allow coastal low clouds and fog to persist into the afternoon. A strong Catalina eddy may extend to 6000 feet and these clouds will move through the inland valleys and reach as far as Palmdale.

Catchment Area

In hydrologic terms, an area having a common outlet for its surface runoff (also see Drainage Area or Basin, Watershed).

Categorical

A National Weather Service precipitation descriptor for a 80, 90, or 100 percent chance of measurable precipitation (0.01 inch). See Precipitation Probability (PoP)

Caution Stage

The stage which, when reached by a rising stream, represents the level where appropriate officials (e.g., county sheriff, civil defense officials, or bypass gate operators) are notified of the threat of possible flooding. Alert stage or caution stage are used instead of caution stage in some parts of the country.

CAVU

Clear or Scattered Clouds (visibility greater than 10 mi.)

Cb

Cumulonimbus cloud, characterized by strong vertical development in the form of mountains or huge towers topped at least partially by a smooth, flat, often fibrous anvil. Also known colloquially as a "thunderhead."

CBMAM

Cumulonimbus Mamma.

CC

Cloud-to-Cloud Lightning.

CCITT

Consultative Committee for International Telephone and Telegraph

CCL

Convective Condensation Level- The level in the atmosphere to which an air parcel, if heated from below, will rise dry adiabatically, without becoming colder than its environment just before the parcel becomes saturated. See Lifted Condensation Level (LCL).

CD

Cold.

CDB

Computing Development Branch (NCEP).

CDC

Climate Diagnostic Center, the mission of the Climate Diagnostics Center (CDC) is to advance national capabilities to interpret the causes of observed climate variations, and to apply this knowledge to improve climate models and forecasts and develop new climate products that better serve the needs of the public and decision-makers.

CDD

Cooling Degree Days- A form of degree day used to estimate energy requirements for air conditioning or refrigeration. Typically, cooling degree days are calculated as how much warmer the mean temperature at a location is than 65Â°F on a given day. For example, if a location experiences a mean temperature of 75Â°F on a certain day, there were 10 CDD (Cooling Degree Days) that day because 75 - 65 = 10.

CDFNT

Cold Front.

CDT

Central Daylight Time.

Ceiling

(Abbrev. CIG) - The height of the cloud base for the lowest broken or overcast cloud layer.

Ceilometer

A device using a laser or other light source to determine the height of a cloud base. An optical ceilometer uses triangulation to determine the height of a spot of light projected onto the base of the cloud; a laser ceilometer determines the height by measuring the time required for a pulse of light to be scattered back from the cloud base.

Celestial Equator

The projection of Earth’s geographic equator onto the celestial sphere.

Celestial Sphere

An imaginary rotating spherical shell around the Earth and concentric with it.

Cell

Convection in the form of a single updraft, downdraft, or updraft/downdraft couplet, typically seen as a vertical dome or tower as in a towering cumulus cloud. A typical thunderstorm consists of several cells.

The term "cell" also is used to describe the radar echo returned by an individual shower or thunderstorm. Such usage, although common, is technically incorrect.

Celsius

The standard scale used to measure temperature in most areas outside the United States. On this scale, the freezing point of water is 0Â°F and the boiling point is 100Â°F. To convert a Fahrenheit temperature to Celsius, subtract 32 from it and then multiply by 5/9:

Â°C = (Â°F - 32) * 5/9

CEM

Civil Emergency Message. A message issued by the National Weather Service in coordination with Federal, state or local government to warn the general public of a non-weather related time-critical emergency which threatens life or property, e.g. nuclear accident, toxic chemical spill, etc.

Center

Generally speaking, the vertical axis of a tropical cyclone, usually defined by the location of minimum wind or minimum pressure. The cyclone center position can vary with altitude. In advisory products, refers to the center position at the surface.

Centimeter Burst

A solar radio burst in the 1 to 10 cm centimeter wavelength range.

Central Meridian Passage (CMP)

In solar-terrestrial terms, the passage of an Active Region or other feature across the longitude meridian that passes through the apparent center of the solar disk.

CENTROID

The center of mass of a storm.

CFC

Chlorofluorocarbon.

CFP

Cold Front Passage.

CFS

In hydrologic terms, Cubic Feet per Second - the flow rate or discharge equal to one cubic foot (of water, usually) per second. This rate is equivalent to approximately 7.48 gallons per second. This is also referred to as a second-foot.

Cfs-Day

In hydrologic terms, the volume of water discharged in twenty four hours, with a flow of one cubic foot per second is widely used; 1 cfs-day is 24 x 60 x 60 = 86,000 cubic feet, 1.983471 acre-feet, or 646,317 gallons. The average flow in cubic feet per second for any time period is the volume of flow in cfs-days.

CG

Cloud-to-Ground Lightning.

Chance

A National Weather Service precipitation descriptor for 30, 40, or 50 percent chance of measurable precipitation (0.01 inch). When the precipitation is convective in nature, the term scattered is used. See Precipitation Probability (PoP).

Channel

In hydrologic terms, also known as **Watercourse**; an open conduit either naturally or artificially created which periodically, or continuously contains moving water, or forms a connecting link between two bodies of water. River, creek, run, branch, anabranch, and tributary are some of the terms used to describe natural channels. Natural channels may be single or braided. Canal and floodway are some of the terms used to describe artificial channels.

Channel Inflow

In hydrologic terms, water, which at any instant, is flowing into the channel system form surface flow, subsurface flow, base flow, and rainfall that has directly fallen onto the channel.

Channel Lead

In hydrologic terms, an elongated opening in the ice cover caused by a water current.

Channel Routing

In hydrologic terms, the process of determining progressively timing and shape of the flood wave at successive points along a river.

Channeled High Winds

In mountainous areas or in cities with tall buildings, air may be channeled through constricted passages producing high winds. Santa Ana winds and winds through passes from the cold Alaskan interior to the sea are examples of these winds. Channeled high winds are local in nature but can be extremely strong. These winds generally occur in well-defined areas.

Channelization

In hydrologic terms, the modification of a natural river channel; may include deepening, widening, or straightening.

CHC

Chance.

Chemistry Model

A computer model used in air pollution investigations that simulates chemical and photochemical reactions of the pollutants during their transport and diffusion.

CHG

Change.

CHGS

Changes.

Chinook

This is a region-specific term used for **Foehn Winds** in the lee of the Rocky Mountains in the United States; Foehn Winds are warm, dry winds that occur in the lee of high mountain ranges. It is a fairly common wintertime phenomena in the mountainous west and in parts of Alaska. These winds develop in well-defined areas and can be quite strong.

Chinook Arch

A foehn cloud formation appearing as a bank of altostratus clouds east of the Rocky Mountains, heralding the approach of a chinook. It forms in the rising portion of standing waves on the lee side of the mountains. An observer underneath or east of the cloud sees an arch of clear air between the cloud's leading edge and the mountains below. The cloud appears to converge with the mountains to the north and south due to a perspective effect.

Chlorofluorocarbons

(CFCs) - Manufactured substances used as coolants and computer-chip cleaners. When these products break down they destroy stratospheric ozone, creating the Antarctic Ozone Hole in the Southern Hemisphere spring (Northern Hemisphere autumn). While no longer in use, their long lifetime will lead to a very slow removal from the atmosphere.

Chromosphere

In solar-terrestrial terms, the layer of the solar atmosphere above the photosphere and beneath the transition region and the corona.

Chromospheric Events

In solar-terrestrial terms, flares that are just Chromospheric Events without Centimetric Bursts or Ionospheric Effects. (SID) (Class C flare)

CI

Cirrus clouds- High-level clouds (16,000 feet or higher), composed of ice crystals and appearing in the form of white, delicate filaments or white or mostly white patches or narrow bands. Cirrus clouds typically have a fibrous or hairlike appearance, and often are semi-transparent. Thunderstorm anvils are a form of cirrus cloud, but most cirrus clouds are not associated with thunderstorms.

CIG

Ceiling- The height of the lowest layer of clouds, when the sky is broken or overcast.

CIN

Convective **IN**hibition. A measure of the amount of energy needed in order to initiate convection. Values of CIN typically reflect the strength of the cap. They are obtained on a sounding by computing the area enclosed between the environmental temperature profile and the path of a rising air parcel, over the layer within which the latter is cooler than the former. (This area sometimes is called negative area.) See CAPE.

CIO

Chief Information Officer.

Circulation

The flow, or movement, of a fluid (e.g., water or air) in or through a given area or volume.

Cirriform

High altitude ice clouds with a very thin wispy appearance.

Cirrocumulus

These clouds look like thin white ice-crystal puffs. Unlike other cirrus clouds, these have supercooler liquid water droplets. If these droplets contact the ice crystals, they will rapidly freeze and transform the cloud into cirrus stratus. Cumulus signifies convection, but the cloud is usually short lived and can produce ice or snow in the form of virga. Each individual cloud puff is termed a "cloudlet" and are as small as a finger when extending a hand to the sky These clouds are of high altitude (20,000-40,000 ft or 6000 -12,000 m).

Cirrostratus

Thin and generally sheet-like clouds composed of ice crystals and often by the production of halo phenomena and appearing as a whitish and usually somewhat fibrous veil, often covering the whole sky and sometimes so thin as to be hardly discernible. These clouds are of high altitude (20,000-40,000 ft. or 6000 -12,000 m).

Cirrus

(CI) High-level clouds (16,000 feet or higher), composed of fibrous ice crystals and appearing in the form of white, delicate filaments or white or mostly white patches or narrow bands. Cirrus clouds typically have a fibrous or hair-like appearance, and often are semi-transparent. Thunderstorm anvils are a form of cirrus cloud, but most cirrus clouds are not associated with thunderstorms.

Civil Dawn

The time of morning at which the sun is 6 degrees below the horizon. At this time, there is enough light for objects to be distinguishable and that outdoor activities can commence.

Civil Dusk

The time at which the sun is 6 degrees below the horizon in the evening. At this time objects are distinguishable but there is no longer enough light to perform any outdoor activities.

Civil Emergency Message

(Abbrev. CEM) - A message issued by the National Weather Service in coordination with Federal, state or local government to warn the general public of a non-weather related time-critical emergency which threatens life or property, e.g. nuclear accident, toxic chemical spill, etc.

Civil Twilight

The time period when the sun is no more than 6 degrees below the horizon at either sunrise or sunset. The horizon should be clearly defined and the brightest stars should be visible under good atmospheric conditions (i.e. no moonlight, or other lights). One still should be able to carry on ordinary outdoor activities.

Central Meridian Passage (CMP)

The rotation of an active region or other feature across the longitude meridian that passes through the apparent center of the solar disk

CL

An abbreviation used on climate outlook maps issued by CPC to indicate areas where equal chances of experiencing below-normal, normal, and above-normal conditions are possible.

Class I Areas

Geographic areas designated by the Clean Air Act where only a small amount or increment of air quality deterioration is permissible.

CLD

Cloud- A visible aggregate of minute water droplets or ice particles in the atmosphere above the Earth's surface.

Clear

When there are no opaque (not transparent) clouds.

Clear Air Turbulence

(CAT) - In aviation, sudden severe turbulence occurring in cloudless regions that causes violent buffeting of aircraft.

Clear Ice

A thin coating of ice on terrestrial objects, caused by rain that freezes on impact. The ice is relatively transparent, as opposed to rime ice, because of large drop size, rapid accretion of liquid water, or slow dissipation of latent heat of fusion.

Clear Slot

With respect to severe thunderstorms, a local region of clearing skies or reduced cloud cover, indicating an intrusion of drier air; often seen as a bright area with higher cloud bases on the west or southwest side of a wall cloud. A clear slot is believed to be a visual indication of a rear flank downdraft.

Client Agency

As used in connection with reimbursable National Weather Service (NWS) fire weather services, a public fire service or wildlands management agency, Federal or non-Federal, which requires and uses NWS fire and forestry meteorological services.

Climate

The composite or generally prevailing weather conditions of a region, throughout the year, averaged over a series of years. The word is derived from the Greek klima, meaning inclination, and reflects the importance early scholars attributed to the sun's influence.

Climate Change

A long-term change in global or regional climate patterns, atmospheric conditions and environment which is currently attributed to increased levels of carbon dioxide and other greenhouse gases in the atmosphere produced from fossil fuels. The change may be due to natural or human-induced causes.

Climate Change Adaptation

The adjustments societies or ecosystems make to limit or mitigate the negative effects of climate change or to take advantage of opportunities provided by a changing climate.

Climate Diagnostics Bulletin

(CDB) - The monthly CPC Bulletin reports on the previous months' status of the ocean-atmosphere climate system and provides various seasonal ENSO-related outlooks. It is issued by the fifteenth of the month.

Climate Diagnostics Center

(CDC) - The mission of NOAA's Climate Diagnostics Center is to identify the nature and causes for climate variations on time scales ranging from a month to centuries.

Climate Model

Mathematical model for quantitatively describing, simulating, and analyzing the interactions between the atmosphere and underlying surface (e.g., ocean, land, and ice).

Climate Outlook

A climate outlook issued by the CPC gives probabilities that conditions, averaged over a specified period, will be below-normal, normal, or above-normal.

Climate Prediction Center

This Center is one of several centers under the National Centers for Environmental Prediction (NCEP) part of the National Weather Service (NWS) in the National Oceanic and Atmospheric Administration (NOAA). The Center serves the public by assessing and forecasting the impacts of short-term climate variability, emphasizing enhanced risks of weather-related extreme events, for use in mitigating losses and maximizing economic gains.

Climate System

The system consisting of the atmosphere (gases), hydrosphere (water), lithosphere (solid rocky part of the Earth), and biosphere (living) that determine the Earth's climate.

Climatological Outlook

An outlook based upon climatological statistics for a region, abbreviated as CL on seasonal outlook maps. CL indicates that the climate outlook has an equal chance of being above normal, normal, or below normal.

Climatology

The science that deals with the phenomena of climates or climatic conditions.

CLIMO

Climatology/Climatological.

Climometer

An instrument that measures angles of inclination; used to measure cloud ceiling heights.

Closed Basin

A basin draining to some depression or pond within its area, from which water is lost only by evaporation or percolation. A basin without a surface outlet for precipitation falling precipitation.

Closed Basin Lake Flooding

Flooding that occurs on lakes with either no outlet or a relatively small one. Seasonal increases in rainfall cause the lake level to rise faster than it can drain. The water may stay at flood stage for weeks, months, or years.

Closed Low

A low pressure area with a distinct center of cyclonic circulation which can be completely encircled by one or more isobars or height contour lines. The term usually is used to distinguish a low pressure area aloft from a low-pressure trough. Closed lows aloft typically are partially or completely detached from the main westerly current, and thus move relatively slowly (see Cutoff Low).

Cloud
: A visible collection of minute water droplets, ice particles and/or ice crystals, in the free air above the Earth's surface.

Cloud Ceiling
: Same as **Ceiling**; the height of the cloud base for the lowest broken or overcast cloud layer.

Cloud Condensation Nuclei
: Small particles in the air on which water vapor condenses and forms cloud droplets.

Cloud Layer
: An array of clouds whose bases are at approximately the same level.

Cloud Movement
: The direction toward which a cloud is moving

Cloud Streets
: Rows of cumulus or cumulus-type clouds aligned parallel to the low-level flow. Cloud streets sometimes can be seen from the ground, but are seen best on satellite photographs.

Cloud Tags
: Ragged, detached cloud fragments; fractus or scud.

Cloud to Cloud
: The most common type of lightning, occurring inside one cumulonimbus cloud due to opposing charges within the cloud. This most frequently occurs when the upper portion of an anvil cloud reaches positive charge, and the middle remains under negative charge. This is often referred to as sheet lightning because it lights up the cloud and surrounding sky with light. Heat lightning is no different from cloud to cloud lightning, it is sometimes referred to as heat lightning when it is too far away for thunder to be heard.

Cloud to Ground Lightning
: This is the second most common type of lightning and causes the most damage. A cumulonimbus, or thunderstorm cloud, has charges or energy associated with it. The charges can separate in such that the cloud base is negative and the cloud top is positive, while the ground below remains positive. Then, the negative charges start moving down toward the ground from the base of the cloud, and create a faint "step leader", which is nearly invisible. Once the step leader nears the ground, an electric field is created and pushes the positive charge of the ground up the step leader. This is called the "returning stroke", and is what we call the lightning bolt as it is far more visible than the step leader. So what we see is the discharge that goes up from the ground to the cloud.

Cloudy
: When 7/8ths or more of the sky is covered by clouds.

CLR
: Clear.

CLRG
: Clearing.

Clutter
: Radar echoes that interfere with observation of desired signals on the radar display.

cm
: Centimeter.

CM
: Combined Moment.

CMD
: Central Meridian Distance. (See solar coordinates).

CME
: See coronal mass ejection.

CMP
: See central meridian passage.

CMPLT
: Complete.

CMPLX
: Complex.

CNIF
: In hydrologic terms, Calibration Network Information Files.

CNTR
Center.

CNTRL
Central.

CNVG
Converge.

CNVTV
Convective.

Coalescence
The process by which water droplets in a cloud collide and come together to form raindrops.

Coastal Flooding
Flooding which occurs when water is driven onto land from an adjacent body of water. This generally occurs when there are significant storms, such as tropical and extratropical cyclones.

Coastal Waters
Includes the area from a line approximating the mean high water along the mainland or island as far out as 100 nautical miles including the bays, harbors and sounds.

Coastal Waters Forecast (CWF)
The marine forecast for areas, including bays, harbors, and sounds, from a line approximating the mean high water mark (average height of high water over a 19-year period) along the mainland or near shore islands extending out to as much as 100 NM.

Coastal/Lakeshore Flood Advisory
Minor flooding is possible (i.e., over and above normal high tide levels. Coastal/Lakeshore Flood Advisories are issued using the Coastal/Lakeshore Hazard Message (CFW) product.

Coastal/Lakeshore Flood Warning
Flooding that will pose a serious threat to life and property is occurring, imminent or highly likely. Coastal/Lakeshore Flood Warnings are issued using the Coastal/Lakeshore Hazard Message (CFW) product.

Coastal/Lakeshore Flood Watch
Flooding with significant impacts is possible. Coastal/Lakeshore Flood Watches are issued using the Coastal/Lakeshore Hazard Message (CFW) product.

Coastal/Lakeshore Flooding
(i) (Oceanic) Coastal Flooding is the inundation of land areas caused by sea waters over and above normal tidal action. This flooding may impact the immediate oceanfront, gulfs, bays, back bays, sounds, and tidal portions of river mouths and inland tidal waterways. (ii) Lakeshore Flooding is the inundation of land areas adjacent to one of the Great Lakes caused by lake water exceeding normal levels. Lakeshore flooding impacts the immediate lakefront, bays, and the interfaces of lakes and connecting waterways, such as rivers.

COE
In hydrologic terms, Corps of Engineers.

Coherent Radar
A radar that utilizes both signal phase and amplitude to determine target characteristics.

Cold Advection
Transport of cold air into a region by horizontal winds.

Cold Air Avalanche
Downslope flow pulsations that occur at more or less regular intervals as cold air builds up on a peak or plateau, reaches a critical mass, and then cascades down the slopes.

Cold Air Dam
A shallow cold air mass which is carried up the slope of a mountain barrier, but with insufficient strength to surmount the barrier. The cold air, trapped upwind of the barrier alters the effective terrain configuration of the barrier to larger-scale approaching flows.

Cold Air Damming (CAD)
The phenomenon in which a low-level cold air mass is trapped topographically. Often, this cold air is entrenched on the east side of mountainous terrain. Cold Air Damming often implies that the trapped cold air mass is influencing the dynamics of the overlying air mass, e.g. in an overrunning scenario. Effects on the weather may include cold temperatures, freezing precipitation, and extensive cloud cover.

Cold Air Funnel

A funnel cloud or (rarely) a small, relatively weak tornado that can develop from a small shower or thunderstorm when the air aloft is unusually cold (hence the name). They are much less violent than other types of tornadoes.

Cold Front

A zone separating two air masses, of which the cooler, denser mass is advancing and replacing the warmer.

Cold Occlusion

A frontal zone formed when a cold front overtakes a warm front and, being colder than the air ahead of the warm front, slides under the warm front, lifting it aloft. Compare with warm occlusion.

Cold Pool

A region of relatively cold air, represented on a weather map analysis as a relative minimum in temperature surrounded by closed isotherms. Cold pools aloft represent regions of relatively low stability, while surface-based cold pools are regions of relatively stable air.

Collar Cloud

A generally circular ring of cloud that may be observed on rare occasions surrounding the upper part of a wall cloud. This term sometimes is used (incorrectly) as a synonym for wall cloud.

Collection Efficiency

The fraction of droplets approaching a surface that actually deposit on that surface.

Colorado Low

A low pressure storm system that forms in winter in southeastern Colorado or northeastern New Mexico and tracks northeastward across the central plains of the U.S. over a period of several days, producing blizzards and hazardous winter weather.

Columnar Ice

In hydrologic terms, ice consisting of columnar shaped grain. The ordinary black ice is usually columnar-grained.

Combined Seas

Generally referred to as SEAS. Used to describe the combination or interaction of wind waves and swells in which the separate components are not distinguished. This includes the case when swell is negligible or is not considered in describing sea state. Specifically, $Seas^2 = S^2+W^2$ where S is the height of all swell components and W is the height of the wind wave components. When used, SEAS should be considered as being the same as the significant wave height.

Comma Cloud

A synoptic scale cloud pattern with a characteristic comma-like shape, often seen on satellite photographs associated with large and intense low-pressure systems.

Comma Echo

A thunderstorm radar echo which has a comma-like shape. It often appears during latter stages in the life cycle of a bow echo

Complex Gale/Storm

In the high seas and offshore forecasts, an area for which gale/storm force winds are forecast or are occurring but for which no single center is the principal generator of these winds.

Complex Terrain

Typically used to refer to mountainous terrain. In general usage, it may also refer to coastal regions and heterogeneous landscapes.

Composite

An average that is calculated according to specific criteria. For example, one might want a composite for the rainfall at a given location for all years where the temperature was much above average.

Composite Hydrograph

A stream discharge hydrograph which includes base flow, or one which corresponds to a net rain storm of duration longer than one unit period.

Comprehensive Flare Index (CFI)

In solar-terrestrial terms, the indicative of solar flare importance.

Concentric Rings

These are common in the most intense hurricanes. They usually mark the end the period of intensification. These hurricanes then maintain quasi-constant intensity or weaken. When the inner eye is completely dissipated, more intensification may occur.

COND
Condition.

Condensation
In general, the physical process by which a vapor becomes a liquid or solid; the opposite of evaporation, although on the molecular scale, both processes are always occurring.

Condensation Funnel
A funnel-shaped cloud associated with rotation and consisting of condensed water droplets (as opposed to smoke, dust, debris, etc.).

Conditionally Unstable Air
An atmospheric condition that exists when the environmental lapse rate is less than the dry adiabatic lapse rate but greater than the moist adiabatic lapse rate.

Conduction
Flow of heat in response to a temperature gradient within an object or between objects that are in physical contact.

Cone of Depression
In hydrologic terms, the depression, roughly conical in shape, produced in a water table, or other piezometric surface, by the extraction of water from a well at a given rate. The volume of the cone will vary with the rate of withdrawal of water. Also called the Cone of Influence.

Cone of Influence
Same as **Cone of Depression**; in hydrologic terms, the depression, roughly conical in shape, produced in a water table, or other piezometric surface, by the extraction of water from a well at a given rate. The volume of the cone will vary with the rate of withdrawal of water.

Confined Ground Water
In hydrologic terms, ground water held under an aquiclude or an aquifuge, called artesian if the pressure is positive.

Confluence
A pattern of wind flow in which air flows inward toward an axis oriented parallel to the general direction of flow. It is the opposite of difluence. Confluence is not the same as convergence. Winds often accelerate as they enter a confluent zone, resulting in speed divergence which offsets the (apparent) converging effect of the confluent flow.

Congestus
(or Cumulus Congestus) - same as towering cumulus.

Congressional Organic Act of 1890
The act that assigned the responsibility of river and floor forecasting for the benefit of the general welfare of the Nationâ€™s people and economy to the Weather Bureau, and subsequently the National Weather Service.

Coning
With regards to wildfires, pattern of plume dispersion in a neutral atmosphere, in which the plume attains the form of a cone with its vertex at the top of the stack.

Conjugate Points
Two points on the earth's surface, at opposite ends of a geomagnetic field line

Conservation Storage
In hydrologic terms, storage of water for later release for usual purposes such as municipal water supply, power, or irrigation in contrast with storage capacity used for flood control.

Consolidated Ice Cover
In hydrologic terms, ice cover formed by the packing and freezing together of floes, brash ice and other forms of floating ice.

Constant Pressure Chart
Alternate term for **Isobaric Chart**; a weather map representing conditions on a surface of equal atmospheric pressure. For example, a 500 mb chart will display conditions at the level of the atmosphere at which the atmospheric pressure is 500 mb. The height above sea level at which the pressure is that particular value may vary from one location to another at any given time, and also varies with time at any one location, so it does not represent a surface of constant altitude/height (i.e., the 500 mb level may be at a different height above sea level over Dallas than over New York at a given time, and may also be at a different height over Dallas from one day to the next).

CONT

Continue/Continuously.

Contents

In hydrologic terms, the volume of water in a reservoir. Unless otherwise indicated reservoir content is computed on the basis of a level pool and does not include bank storage.

Continental Air Mass

A dry air mass originating over a large land area. Contrast with tropical air mass.

Continental Shelf

The zone bordering a continent and extending to a depth, usually around 100 FM, from which there is a steep descent toward greater depth.

Continuum

Optical radiation arising from broadband emission from the photosphere.

Continuum Storm (CTM)

In solar-terrestrial terms, general term for solar noise lasting for hours and sometimes days in which the intensity varies smoothly with frequency over a wide range in the meter and decimeter wavelengths.

Control Points

In hydrologic terms, small monuments securely embedded in the surface of the dam. Any movement of the monument indicates a movement in the dam itself. Movements in the dam are detected by comparing control points location to location of fixed monuments located off the dam using accurate survey techniques.

Contrails

Short for "condensation trails", are artificial clouds made of condensed water vapor created from the exhaust of aircraft engines. The hot exhaust cools and condenses and can form into water droplets if the air is cold enough. The greater the humidity in the atmosphere, the longer these clouds will last.

CONTS

Continues.

CONUS

Continental United States.

Convection

The bulk transport of plasma (or gas) from one place to another, in response to mechanical forces (for example, viscous interaction with the solar wind) or electromagnetic forces. In meteorology, the term is used specifically to describe vertical transport of heat and moisture in the atmosphere, especially by updrafts and downdrafts in an unstable atmosphere. The terms "convection" and "thunderstorms" often are used interchangeably, although thunderstorms are only one form of convection. Cbs, towering cumulus clouds, and ACCAS clouds all are visible forms of convection. However, convection is not always made visible by clouds. Convection which occurs without cloud formation is called dry convection, while the visible convection processes referred to above are forms of moist convection.

Convective Boundary Layer

The unstable boundary layer that forms at the surface and grows upward through the day as the ground is heated by the sun and convective currents transfer heat upwards into the atmosphere.

Convective Clouds

The vertically developed family of clouds are cumulus and cumulonimbus. The height of their bases range from as low as 1,000 feet to a bit more than 10,000 feet. Clouds with extensive vertical development are positive indications of unstable air. Strong upward currents in vertically developed clouds can carry high concentrations of supercooled water to high levels where temperatures are quite cold. Upper portions of these clouds may be composed of water and ice.

Convective Condensation Level

(abbrev. CCL)- The level in the atmosphere to which an air parcel, if heated from below, will rise dry adiabatically, without becoming colder than its environment just before the parcel becomes saturated. See Lifted Condensation Level (LCL).

Convective Inhibition

(CIN or B-) - A numerical measure of the strength of "capping," typically used to assess thunderstorm potential. Specifically, it represents the cumulative effect of atmospheric layers the are warmer than the parcel moving vertically along the adiabat. Low level parcel ascent is often inhibited by such stable layers near the surface. If natural processes fail to destabilize the lower levels, an input of energy from forced lift (a front, an upper level shortwave, etc.) will be required to move the negatively buoyant air

parcels to the point where they will rise freely. Since CIN is proportional to the amount of kinetic energy that a parcel loses to buoyancy while it is colder than the surrounding environment, it contributes to the downward momentum.

Convective Outlook

(sometimes called AC) - A forecast containing the area(s) of expected thunderstorm occurrence and expected severity over the contiguous United States, issued several times daily by the SPC. The terms approaching, slight risk, moderate risk, and high risk are used to describe severe thunderstorm potential. Local versions sometimes are prepared by local NWS offices.

Convective Overdevelopment

Convection that covers the sky with clouds, thereby cutting off the sunshine that produces convection.

Convective Temperature

The approximate temperature that the air near the ground must warm to in order for surface-based convection to develop, based on analysis of a sounding.

Calculation of the convective temperature involves many assumptions, such that thunderstorms sometimes develop well before or well after the convective temperature is reached (or may not develop at all). However, in some cases the convective temperature is a useful parameter for forecasting the onset of convection.

Convergence

A contraction of a vector field; the opposite of divergence. Convergence in a horizontal wind field indicates that more air is entering a given area than is leaving at that level. To compensate for the resulting "excess," vertical motion may result: upward forcing if convergence is at low levels, or downward forcing (subsidence) if convergence is at high levels. Upward forcing from low-level convergence increases the potential for thunderstorm development (when other factors, such as instability, are favorable). Compare with confluence.

Conveyance Loss

In hydrologic terms, the loss of water from a conduit due to leakage, seepage, evaporation, or evapo-transpiration.

Cooling Degree Days

(Abbrev. CDD) - A form of **Degree Day** used to estimate energy requirements for air conditioning or refrigeration. Typically, cooling degree days are calculated as how much warmer the mean temperature at a location is than 65Â°F on a given day. For example, if a location experiences a mean temperature of 75Â°F on a certain day, there were 10 CDD (Cooling Degree Days) that day because 75 - 65 = 10.

Cooperative Observer

An individual (or institution) who takes precipitation and temperature observations-and in some cases other observations such as river stage, soil temperature, and evaporation-at or near their home, or place of business. Many observers transmit their reports by touch-tone telephone to an NWS computer, and nearly all observers mail monthly reports to the National Climatic Data Center to be archived and published.

Coordinated Universal Time (UTC)

By international agreement, the local time at the prime meridian, which passes through Greenwich, England. Prior to 1972, this time was called Greenwich Mean Time (GMT) but is now referred to as Coordinated Universal Time or Universal Time Coordinated (UTC). It is a coordinated time scale, maintained by the Bureau International des Poids et Mesures (BIPM). It is also known a "Z time" or "Zulu Time".

More about UTC, and a table to convert UTC to your local time is posted at:
http://www.srh.noaa.gov/jetstream/remote/radarfaq.htm#utc

COR

Correction

Core Punch

[Slang], a penetration by a vehicle into the heavy precipitation core of a thunderstorm. Core punching is not a recommended procedure for storm spotting.

Coriolis Force

A fictitious force used to account for the apparent deflection of a body in motion with respect to the earth, as seen by an observer on the earth. The deflection (to the right in the Northern Hemisphere) is caused by the rotation of the earth.

Corn Snow Ice

In hydrologic terms, rotten granular ice.

Corner Effects

A small-scale convergence effect that can be quite severe. It occurs around steep islands and headlands.

Corona

1. The outermost layer of the solar atmosphere, characterized by low densities (< 1.0×10^9/cc) and high temperatures (> 1.0×10^6 K).
2. In solar-terrestrial terms, a white or colored circle or set of concentric circles of light of small radius seen around a luminous body, especially around the sun or moon. The color varies from blue inside to red outside and the phenomenon is attributed to diffraction of light by thin clouds or mist (distinguished from halo).

Coronagraph

An optical device that makes it possible to observe the corona at times other than during an eclipse. A simple lens focuses the Sun onto an occulting disk that prevents the light from the solar disk from proceeding farther along the optical path, effectively providing an artificial eclipse.

Coronal Hole

In solar-terrestrial terms, an extended region of the corona, exceptionally low in density and associated with unipolar photospheric regions.

Coronal Loops

A typical structure of enhanced corona observed in EUV lines and soft x-rays. Coronal loops represent “closed” magnetic topology.

Coronal Mass Ejection (CME)

An outflow of plasma from or through the solar corona. CMEs are often, but not always, associated with erupting prominences, disappearing solar filaments, and/or flares. CMEs vary widely in structure, density, and velocity. Large and fast CMEs can approach densities of 10E16 g and velocities of 2000 km/s. Earth impacting CMEs can result in significant geomagnetic storms.

Coronal Rain

(CRN) In solar-terrestrial terms, material condensing in the corona and appearing to rain down into the chromosphere as observed at the solar limb above strong sunspots.

Coronal Streamer

A large-scale structure in the white-light corona often overlying a principal inversion line in solar photospheric magnetic fields.

Coronal Transients

In solar-terrestrial terms, a general term for short-time-scale changes in the corona, but principally used to describe outward-moving plasma clouds.

Corrected Geomagnetic Coordinates

A non-spherical coordinate system based on a magnetic dipole axis that is offset from the Earth’s center by about 502 km toward a location in the Pacific Ocean (20.4 degrees N 147.3 degrees E). This ”eccentric dipole” axis intersects the surface at 82 degrees N 90 degrees W, and 75 degrees S 119 degrees E.

Correlated Shear

An output of the mesocyclone detection algorithm indicating a 3-dimensional shear region (i.e. vertically correlated) that is not symmetrical.

Correlation

A measure of similarity between variables of functions.

Cosmic Noise

The broad spectrum of radio noise arriving at the Earth from sources outside the solar system.

Cosmic Ray

An extremely energetic (relativistic) charged particle.

County Warning and Forecast Area

The group of counties for which a National Weather Service Forecast Office is responsible for issuing warnings and weather forecasts.

County Warning Area

The group of counties for which a National Weather Service Forecast Office is responsible for issuing warnings.

Coupled Atmosphere-Ocean Model

Same as Coupled Model; in the context of climate modeling this usually refers to a numerical model which simulates both atmospheric and oceanic motions and temperatures and which takes into account the effects of each component on the other.

Coupled Model

In the context of climate modeling this usually refers to a numerical model which simulates both atmospheric and oceanic motions and temperatures and which takes into account the effects of each component on the other.

Couplet

Adjacent maxima of radial velocities of opposite signs.

CPC

Climate Prediction Center.

Creek

A small stream of water which serves as the natural drainage course for a drainage basin of nominal, or small size. The term is a relative one as to size, some creeks in the humid section would be called rivers if they occurred in the arid portion.

Crepuscular Rays

The alternating bands of light and dark (rays and shadows) seen at the earth's surface when the sun shines through clouds.

Crest

Highest point in a wave. In hydrologic terms, (1) The highest stage or level of a flood wave as it passes a point. (2) The top of a dam, dike, spillway, or weir, to which water must rise before passing over the structure.

Crest Gage

A gage used to obtain a record of flood crests at sites where recording gages are installed.

Crest Width

In hydrologic terms, the thickness or width of a dam at the level of the crest (top) of the dam. The term "thickness" is used for gravity and arch dams and "width" for other types of dams.

Critical Depth

In hydrologic terms, The depth of water flowing in an open channel or conduit, partially filled, corresponding to one of the recognized critical velocities.

Critical Flow

In hydrologic terms, a condition of flow where the mean velocity is at one of the critical values; ordinarily at Belanger's critical depth and velocity. Another important usage is in reference to the Reynolds' critical velocities which define the point at which the flow changes from streamline or nonturbulent to turbulent flow.

Critical Frequency

In ionospheric radio propagation, that frequency capable of penetration just to the layer of maximum ionization under vertical propagation. Radio waves of lower frequencies are refracted back to the ground; higher frequencies pass through.

Critical Rainfall Probability

(Abbrev. CRP) - In hydrologic terms, the Probability that the actual precipitation during a rainfall event has exceeded or will exceed the flash flood guidance value.

CRN

Coronal Rain - In solar-terrestrial terms, material condensing in the corona and appearing to rain down into the chromosphere as observed at the solar limb above strong sunspots.

Crochet

In solar-terrestrial terms, a sudden deviation in the sunlit geomagnetic field (H component; see geomagnetic elements) associated with large solar flare X-ray emission

Crop Moisture Index

In 1968, Palmer developed the index to assess short-term crop water conditions and needs across major crop-producing regions. This index is a useful tool in forecasting short-term drought conditions.

Cross-Valley Wind System
A thermally driven wind that blows during daytime across the axis of a valley toward the heated sidewall.

Crown Fire
A fire where flames travel from tree to tree at the level of the tree's crown or top.

Crowning
Movement of a fire from the understory into the crown of a forest canopy.

CRP
Critical Rainfall Probability - in hydrologic terms, the probability that a given rainfall will cause a river, or stream to rise above flood stage.

CRS
Console Replacement System for NOAA Weather Radio

Crystallography
The science of the physical aspects of snow, ice, hail, and sleet and other forms of water produced by temperatures below Zero degrees Celsius.

Crystallization
The process of a substance going directly from a vapor form (water vapor) to a solid (ice) at the same temperature, without going through the liquid phase (water). The opposite of sublimation.

CSDRBL
Considerable.

CSI
Conditional Symmetric Instability.

CST
Central Standard Time.

CSTL
Coastal.

CTM
Continuum storm.

CTY
City.

CU
Cumulus clouds - Detached clouds, generally dense and with sharp outlines, showing vertical development in the form of domes, mounds, or towers. Tops normally are rounded while bases are more horizontal. See Cb, towering cumulus.

Cubic Feet per Second
(Abbrev. CFP) - In hydrologic terms, a unit expressing rates of discharge. One cubic foot per second is equal to the discharge through a rectangular cross section, 1 foot wide by 1 foot deep, flowing at an average velocity of 1 foot per second. It is also approximately 7.48 gallons per second.

CUFRA
Cumulus Fractus.

Cumuliform
Descriptive of all clouds with vertical development in the form of rising mounds, domes, or towers

Cumuliform Anvil
A thunderstorm anvil with visual characteristics resembling cumulus-type clouds (rather than the more typical fibrous appearance associated with cirrus). A cumuliform anvil arises from rapid spreading of a thunderstorm updraft, and thus implies a very strong updraft.

Cumulonimbus
Convective cloud meaning accumulated cloud, where nimbus means rain and cumulus means convective. This cloud has a flat cloud bottom with great vertical growth and can extend up to 13 miles. The flat base of the cloud signifies the Lifting Condensation Level (LCL) or the level of the atmosphere of equal temperature and dew point temperature. When the cloud top creates an anvil-like structure, the cloud has reached the height of the stable tropopause, where the cloud is forced to no longer grow vertically, but spreads horizontally. This is associated with a thunderstorm cloud and is capable of producing rain, snow, hail, graupel, and lightning and precipitin can usually be seen falling from the cloud base.

Cumulus

(CU) Puffy white or light grey detached clouds, generally dense and with sharp outlines, showing vertical development in the form of domes, mounds, or towers. Tops normally are rounded while bases are more horizontal.

Cumulus Buildups

Clouds which develop vertically due to unstable air. Characterized by their cauliflower-like or tower-like appearance of moderately large size

Cumulus Congestus

A large, towering cumulus cloud with great vertical development, usually with a cauliflower-like appearance, but lacking the characteristic anvil of a cumulonimbus.

Cumulus Humilis

Very small convective cloud, which forms almost immediately when a rising thermal reaches the Lifting Condensation Level (LCL), or where the temperature drops to equal the dew point temperature. This cloud usually dissipates after a few minutes because the layer just above it is too stable to allow for vertical growth. Most often these clouds are indicative for pleasant weather.

Current

A horizontal movement of water. Currents may be classified as tidal and non-tidal. Tidal currents are caused by gravitational interactions between the sun, moon, and earth and are a part of the same general movement of the sea that is manifested in the vertical rise and fall, called TIDE. Tidal currents are periodic with a net velocity of zero over the tidal cycle. Non-tidal currents include the permanent currents in the general circulatory systems of the sea as well as temporary currents arising from more pronounced meteorological variability. The SET of a current is the direction toward which it flows; the DRIFT is its speed.

Current Meter

In hydrologic terms, device used to measure the water velocity or current in a river.

Curtain Drain

In hydrologic terms, a drain constructed at the upper end of the area to be drained, to intercept surface or ground water flowing toward the protected area from higher ground, and carry it away from the area. Also called an Intercepting Drain.

Cusp(s}

In the magnetosphere, two regions near magnetic local noon and approximately 15 degrees of latitude equatorward of the north and the south magnetic poles. The cusps mark the division between geomagnetic field lines on the sunward side (which are approximately dipolar but somewhat compressed by the solar wind) and the field lines in the polar cap that are swept back into the magnetotail by the solar wind.

Cutoff

In hydrologic terms, from passing through a damâ€™s foundation material. An impervious construction or material which reduces seepage or prevents it.

Cutoff Low

A closed upper-level low which has become completely displaced (cut off) from basic westerly current, and moves independently of that current. Cutoff lows may remain nearly stationary for days, or on occasion may move westward opposite to the prevailing flow aloft (i.e., retrogression).

"Cutoff low" and "closed low" often are used interchangeably to describe low pressure centers aloft. However, not all closed lows are completely removed from the influence of the basic westerlies. Therefore, the recommended usage of the terms is to reserve the use of "cutoff low" only to those closed lows which clearly are detached completely from the westerlies.

CVR

Cover.

CWA

County Warning Area.

CWFA

County Warning and Forecast Area.

CYC

Cyclone- A large-scale circulation of winds around a central region of low atmospheric pressure, counterclockwise in the Northern Hemisphere, clockwise in the Southern Hemisphere.

CYCLGN

Cyclogenesis - The formation or intensification of a cyclone or low-pressure storm system.

Cyclic Storm

A thunderstorm that undergoes cycles of intensification and weakening (pulses) while maintaining its individuality. Cyclic supercells are capable of producing multiple tornadoes (i.e., a tornado family) and/or several bursts of severe weather.

Cyclogenesis

(CYCLGN) - The formation or intensification of a cyclone or low-pressure storm system.

Cyclone

(CYC) - A large-scale circulation of rotating and converging winds around a central region of low atmospheric pressure, counterclockwise in the Northern Hemisphere, clockwise in the Southern Hemisphere. Also called a low pressure system, dust devils, tornadoes, and tropical and extratropical systems.

Cyclonic Circulation

Circulation (or rotation) which is in the same sense as the Earth's rotation, i.e., counterclockwise (in the Northern Hemisphere) as would be seen from above. Nearly all mesocyclones and strong or violent tornadoes exhibit cyclonic rotation, but some smaller vortices, such as gustnadoes, occasionally rotate anticyclonically (clockwise). Compare with anticyclonic rotation.

D

Dust.

D Region

In solar-terrestrial terms, a daytime layer of the earth's ionosphere approximately 50 to 90 km in altitude.

Daily Climatological Report

As the name indicates, this climatological product is issued daily by each National Weather Service office. Most of the climatological data in this report are presented in a tabular form; however, some narrative statements may also be used in the product. The report is organized so that similar items are grouped together (i.e., temperature, precipitation, wind, sunrise and sunset times, etc.).

Daily Flood Peak

In hydrologic terms, the maximum mean daily discharge occurring in a stream during a given flood event.

Daily Record

Record extremes measured on a specific calendar day.

DALR

Dry Adiabatic Lapse Rate.

Dam

In hydrologic terms, any artificial barrier which impounds or diverts water. The dam is generally hydrologically significant if it is:

1. 25 feet or more in height from the natural bed of the stream and has a storage of at least 15 acre-feet.
2. Or has an impounding capacity of 50 acre-feet or more and is at least six feet above the natural bed of the stream.

Dam Failure

In hydrologic terms, catastrophic event characterized by the sudden, rapid, and uncontrolled release of impounded water.

DAMBRK

In hydrologic terms, the Dam Break Forecasting Model.

DAPM

In hydrologic terms, the Data Acquisition Program Manager.

Dark Surge on Disk (DSD)

In solar-terrestrial terms, dark gaseous ejections visible in H-alpha.

Dart Leader

A faint, negatively charged channel that travels more or less directly and continuously from cloud to ground.

Data Point
In the context of hydrologic observations, a location on a river/stream for which observed data is input to RFC or WFO hydrologic forecast procedures, or included in public hydroÂlogic products. Flood forecasts and warnings are not issued for data points (see /forecast point/).

DATACOL
In hydrologic terms, the Software System that supports RFC gateway functions.

DATANET
In hydrologic terms, it is the hydrologic Data Network Analysis Software.

Dawn
The first appearance of light in the eastern sky before sunrise. It marks the beginning of morning twilight. The visual display is created by the scattering of light reaching the upper atmosphere prior to the sun's rise to the observer's horizon. Also known as daybreak.

DAY
Considered a basic unit of time as defined by the earth's motion. It represents the time needed for one complete revolution of the earth about its own axis. Also known as a sidereal day, it is approximately equal to 23 hours, 56 minutes, and 4.09 seconds.

Day Length
Duration of the period from sunrise to sunset.

DB
Disparition brusque. See disappearing solar filament.

dBZ
Nondimensional "unit" of radar reflectivity which represents a logarithmic power ratio (in decibels, or dB) with respect to radar reflectivity factor, Z.

DCP
(Data Collection Platform) In hydrologic terms, an electronic device that connects to a river or rainfall gage that records data from the gage and at pre-determined times transmits that data through a satellite to a remote computer.

DDS
Data Distribution System.

Dead Storage
In hydrologic terms, the volume in a reservoir below the lowest controllable level.

Debris Cloud
A rotating "cloud" of dust or debris, near or on the ground, often appearing beneath a condensation funnel and surrounding the base of a tornado. This term is similar to dust whirl, although the latter typically refers to a circulation which contains dust but not necessarily any debris. A dust plume, on the other hand, does not rotate. Note that a debris cloud appearing beneath a thunderstorm will confirm the presence of a tornado, even in the absence of a condensation funnel.

Decadal
Occurring over a 10-year period, such as an oscillation whose period is roughly 10 years ("Pacific Decadal Oscillation").

Declination
The latitude that the sun is directly over at a given time. The declination is ~23Â°N at the summer solstice, ~23Â°S at the winter solstice, and 0Â° (over the equator) at the spring and autumn equinoxes.

Deep Percolation Loss
In hydrologic terms, water that percolates downward through the soil beyond the reach of plant roots.

Deep Seepage
In hydrologic terms, infiltration which reaches the water table.

Deep Well
In hydrologic terms, a well whose pumping head is too great to permit use of a suction pump.

Deepening
A decrease in the central pressure of a surface low pressure system. The storm is intensifying.

Deformation Zone
The change in shape of a fluid mass by variations in wind, specifically by stretching and/or shearing. Deformation is a primary factor in frontogenesis (evolution of fronts) and frontolysis (decay of fronts).

Deformed Ice

In hydrologic terms, a general term for ice which has been squeezed together and forced upwards and downwards in places. Subdivisions are rated ice, ridge ice, hummocked ice, and other similar deformations.

Degradation

In hydrologic terms, the geologic process by means of which various parts of the surface of the earth are worn down and carried away and their general level lowered, by the action of wind and water.

Degree

A measure of temperature difference representing a single division on a temperature scale. See Celsius, Fahrenheit, and Kelvin scales.

Degree Day

A measure that gauges the amount of heating or cooling needed for a building using 65 degrees as a baseline. Electrical, natural gas, power, and heating, and air conditioning industries utilize heating and cooling degree information to calculate their needs. For more specific definitions and how to calculate degree days, see the definitions for **Heating Degree Days** and **Cooling Degree Days**.

Delta

In hydrologic terms, an alluvial deposit, often in the shape of the Greek letter "delta", which is formed where a stream drops its debris load on entering a body of quieter water.

Delta T

Change in temperature. 1) A simple representation of the mean lapse rate within a layer of the atmosphere, obtained by calculating the difference between observed temperatures at the bottom and top of the layer. Delta Ts often are computed operationally over the layer between pressure levels of 700 mb and 500 mb, in order to evaluate the amount of instability in mid-levels of the atmosphere. Generally, values greater than about 18 indicate sufficient instability for severe thunderstorm development. 2) The difference in temperature between the surface of a lake and 850mb, typically used to determine lake effect snow potential. Also, the difference between the Dry-bulb and the Wet-bulb temperature.

Dendrites

In hydrologic terms, thin branch-like growth of ice on the water surface.

Dendritic

In hydrologic terms, the form of the drainage pattern of a stream and it's tributaries when it follows a treelike shape, with the main trunk, branches, and twigs corresponding to the main stream, tributaries, and subtributaries, respectively, of the stream.

Dense Fog Advisory

Issued when fog reduces visibility to 1/8 mile or less over a widespread area. For marine products: An advisory for widespread or localized fog reducing visibilities to regionally or locally defined limitations not to exceed 1 nautical mile.

Dense Smoke Advisory

An advisory for widespread or localized smoke reducing visibilities to regionally or locally defined limitations not to exceed 1 nautical mile.

Density Current

In hydrologic terms, a flow of water maintained by gravity through a large body of water, such as a reservoir or lake, and retaining its unmixed identity because of a difference in density.

Density of Snow

In hydrologic terms, the ratio, expressed as a percentage, of the volume which a given quantity of snow would occupy if it were reduced to water, to the volume of the snow. When a snow sampler is used, it is the ratio expressed as percentage of the scale reading on the sampler to the length of the snow core or sample.

DEP

Departure.

Depletion Curve

In hydrologic terms, the part of the hydrograph extending from the point of termination of the Recession Curve to the subsequent rise or alternation of inflow due to additional water becoming available for stream flow.

Depression

A region of low atmospheric pressure that is usually accompanied by low clouds and precipitation. The term is also sometimes used as a reference to a Tropical Depression.

Depression Storage

In hydrologic terms, the volume of water contained in natural depressions in the land surface, such as puddles.

Depth of Runoff

In hydrologic terms, the total runoff from a drainage basin, divided by its area. For convenience in comparing runoff with precipitation, the term is usually expressed in inches of depth during a given period of time over the drainage area or acre-feet per square mile.

Derecho

(Pronounced day-RAY-cho), a widespread and usually fast-moving windstorm associated with convection. Derechos include any family of downburst clusters produced by an extratropical MCS, and can produce damaging straight-line winds over areas hundreds of miles long and more than 100 miles across.

Derived Products

Processed base data on the Doppler radar.

Desertification

A tendency toward more prominent desert conditions in a region.

Design Criteria

In hydrologic terms, the hypothetical flood used in the sizing of the dam and the associated structures to prevent dam failure by overtopping, especially for the spillway and outlet works.

Detention Basins

Structures built upstream from populated areas to prevent runoff and/or debris flows from causing property damage and loss of life. They are normally dry, but are designed to attenuate storm flows or detain mud/debris during and immediately after a runoff event. They have no spillway gates or valves and do not store water on a long-term basis. Typical detention times for storm flows are on the order of 24 to 72 hours, but may be as long as 5 to 10 days. Basins designed for detention of mud and rock debris are periodically excavated to maintain their storage capacity.

Detention Storage

In hydrologic terms, the volume of water, other than depression storage, existing on the land surface as flowing water which has not yet reached the channel.

Detritus

In hydrologic terms,
(1) the heavier mineral debris moved by natural watercourses, usually in bed-load form.
(2) the sand, grit, and other coarse material removed by differential sedimentation in a relatively short period of detention.

Developing Gale/Storm

In the high seas and offshore forecasts, a headline used in the warnings section to indicate that gale/storm force winds are not now occurring but are expected before the end of the forecast period.

Dew

Moisture that has condensed into the form of small water droplets on objects near the ground, whose temperatures have fallen below the dew point temperature typically during nighttime hours.

Dew Point

(DWPT) - A measure of atmospheric moisture. It is the temperature to which air must be cooled in order to reach saturation (assuming air pressure and moisture content are constant). A higher dew point indicates more moisture present in the air. It is sometimes referred to as Dew Point Temperature, and sometimes written as one word (Dewpoint).

Dew Point Depression

The difference in degrees between the air temperature and the dew point.

Dew Point Front

A narrow zone (mesoscale feature) of extremely sharp moisture gradient and little temperature gradient. It separates moist air from dry air. Severe weather can be associated with this front. It is also known as a "dryline" or "dry front".

Dew Point Temperature

The temperature at which the air temperature must be cooled for water vapor to condense, forming water droplets, fog, or clouds.

DEWP

On a buoy report, the dewpoint temperature taken at the same height as the air temperature measurement.

DFUS

Diffuse.

Diabatic

A process which occurs with the addition or loss of heat. The opposite of adiabatic. Meteorological examples include air parcels warming due to the absorption of infrared radiation or release of latent heat.

Diablo Wind

Similar to Santa Ana winds in southern California. These winds occur below canyons in the East Bay hills (Diablo range) and in extreme cases can exceed 60 mph. They develop due to high pressure over Nevada and lower pressure along the central California coast.

Diagnostic Model

A computer model used to calculate air pollution concentrations. A diagnostic model produces a wind field over an area by interpolating from actual wind observations.

Diamond Dust

A fall of non-branched (snow crystals are branched) ice crystals in the form of needles, columns, or plates.

Differential Charging

The charging of different areas of a spacecraft or satellite to different potentials in response to sunlight, the charged particle environment, and the design and composition of the materials involved. Discharge may occur through arcing and generally is detrimental.

Differential Motion

Cloud motion that appears to differ relative to other nearby cloud elements, e.g. clouds moving from left to right relative to other clouds in the foreground or background. Cloud rotation is one example of differential motion, but not all differential motion indicates rotation. For example, horizontal wind shear along a gust front may result in differential cloud motion without the presence of rotation.

Differential Particle Flux

The differential particle directional flux j(E,w) denotes the number of particles of energy E per unit energy interval, per unit area, per unit time, per unit solid angle of observation, passing through an area perpendicular to the viewing direction. The angle w is the angle between the viewing direction and the local magnetic field. It is approximately obtained from the count rate of a physical detector measuring the flux of particles between energy E and E + dE, geometric factor G, and solid angle of view dW through the relationship $j(E,w) = C/(G \times dE \times dW \times dt)$ where C is the number of detector counts in time dt.

Differential Rotation

In solar-terrestrial terms, the change in solar rotation rate with latitude. Low latitudes rotate at a faster angular rate (approx. 14 degrees per day) than do high latitudes (approx. 12 degrees per day).

Diffuse Ice

In hydrologic terms, poorly defined ice edge limiting an area of dispersed ice; usually on the leeward side of an area of floating ice.

Difluence

(or diffluence) - A pattern of wind flow in which air moves outward (in a "fan-out" pattern) away from a central axis that is oriented parallel to the general direction of the flow. It is the opposite of confluence.

Difluence in an upper level wind field is considered a favorable condition for severe thunderstorm development (if other parameters are also favorable). But difluence is not the same as divergence. In a difluent flow, winds normally decelerate as they move through the region of difluence, resulting in speed convergence which offsets the apparent diverging effect of the difluent flow.

Dip

The geomagnetic inclination angle. See geomagnetic elements.

Dip Equator.

An irregular, imaginary line around the Earth where the geomagnetic inclination angle is measured to be zero. It lies near the geographic equator.

DIR

1. Direction
2. On a buoy report, the ten-minute average wind direction measurements in degrees clockwise from true North.

Direct Flood Damage

In hydrologic terms, the damage done to property, structures, goods, etc., by a flood as measured by the cost of replacement and repairs.

Direct Hit

A close approach of a tropical cyclone to a particular location. For locations on the left-hand side of a tropical cyclone's track (looking in the direction of motion), a direct hit occurs when the cyclone passes to within a distance equal to the cyclone's radius of maximum wind. For locations on the right-hand side of the track, a direct hit occurs when the cyclone passes to within a distance equal to twice the radius of maximum wind. Compare indirect hit, strike.

Direct Runoff

In hydrologic terms, the runoff entering stream channels promptly after rainfall or snowmelt. Superposed on base runoff, it forms the bulk of the hydrograph of a flood.

Direct Solar Radiation

The component of solar radiation received by the earth's surface only from the direction of the sun's disk (i.e. it has not been reflected, refracted or scattered).

Directional Shear

The component of wind shear which is due to a change in wind direction with height, e.g., southeasterly winds at the surface and southwesterly winds aloft. A veering wind with height in the lower part of the atmosphere is a type of directional shear often considered important for tornado development.

Disappearing Solar Filament (DSF)

In solar-terrestrial terms, the sudden (timescale of minutes to hours) disappearance of a solar filament (prominence).

Discharge

In hydrologic terms, the rate at which water passes a given point. Discharge is expressed in a volume per time with units of L^3/T. Discharge is often used interchangeably with streamflow.

Discharge Curve

In hydrologic terms, a curve that expresses the relation between the discharge of a stream or open conduit at a given location and the stage or elevation of the liquid surface at or near that location. Also called Rating Curve and Discharge Rating Curve.

Discharge Table

In hydrologic terms,

1. A table showing the relation between two mutually dependent quantities or variable over a given range of magnitude.
2. A table showing the relation between the gage height and the discharge of a stream or conduit at a given gaging station. Also called a Rating Table.

Disdrometer

Equipment that measures and records the size distribution of raindrops.

Disk

The visible surface of the sun (or any heavenly body) projected against the sky.

Dispersion

The process of separating radiation into various wavelengths.

Distribution (Hydro)Graph

In hydrologic terms, a unit hydrograph of direct runoff modified to show the proportions of the volume of runoff that occur during successive equal units of time.

Diurnal

Daily; related to actions which are completed in the course of a calendar day, and which typically recur every calendar day (e.g., diurnal temperature rises during the day, and diurnal falls at night).

Diurnal Cycles

Variations in meteorological parameters such as temperature and relative humidity over the course of a day which result from the rotation of the Earth about its axis and the resultant change in incoming and outgoing radiation.

Diurnal Temperature Range

The temperature difference between the minimum at night (low) and the maximum during the day (high).

Divergence

The expansion or spreading out of a vector field; usually said of horizontal winds. It is the opposite of convergence. Divergence at upper levels of the atmosphere enhances upward motion, and hence the potential for thunderstorm development (if other factors also are favorable).

Diversion

In hydrologic terms, the taking of water from a stream or other body of water into a canal, pipe, or other conduit.

Divide

In hydrologic terms, the high ground that forms the boundary of a watershed. A divide is also called a ridge.

Dividing Streamline

In the blocked flow region upwind of a mountain barrier, the streamline that separates the blocked flow region near the ground from the streamlines above which go over the barrier.

Dividing Streamline Height

The height above ground of the dividing streamline, as measured far upwind of a mountain barrier. See dividing streamline.

DMNT

Dominant.

DMSH

Diminish.

DNR

Department of Natural Resources.

DNS

Dense.

DNSTRM

Downstream.

Dobson Unit

Unit used to measure the abundance of ozone in the atmosphere. One Dobson unit is the equivalent of 2.69/ x 10^{16} molecules of ozone/cm^2.

DOC

Department of Commerce.

Dog Days

The name given to the very hot summer weather that may persists for four to six weeks between mid-July through early September in the United States. In Western Europe, this period may exist from the first week in July to mid- August and is often the period of the greatest frequency of thunder. Named for Sirius, the Dog Star, which lies in conjunction with the sun during this period, it was once believed to intensify the sun's heat during the summer months

DOH

Development and Operations Hydrologist.

Doldrums

The regions on either side of the equator where air pressure is low and winds are light. A nautical term for the equatorial region of light winds between the trade winds of the two hemispheres.

Domain

In air pollution modeling, the geographical area over which a simulation is performed.

Domestic Consumption

In hydrologic terms, the quantity, or quantity per capita, of water consumed in a municipality or district for domestic uses or purposes during a given period, generally one day. It is usually taken to include all uses included within the term Municipal Use of Water and quantity wasted, lost, or otherwise unaccounted for.

Domestic Use of water

In hydrologic terms, the use of water primarily for household purposes, the watering of livestock, the irrigation of gardens, lawns, shrubbery, etc., surrounding a house or domicile.

Doppler Radar

Radar that can measure radial velocity, the instantaneous component of motion parallel to the radar beam (i.e., toward or away from the radar antenna).

Doppler Shift.

A change in the perceived frequency of a radiated signal caused by motion of the source relative to the observer.
definition courtesy of: NWS Space Weather Prediction Center

Dose Rate

The rate at which radiation energy is absorbed in living tissue, expressed in centisieverts per unit time.
definition courtesy of: NWS Space Weather Prediction Center

Double Rainbow

A double rainbow is similar to a single rainbow in that it is both an optical and meteorological phenomenon, but the double rainbow portrays the colors in reverse. Thus, the outer band of red is on the inner band on the second rainbow that forms on the outside. It is a mirror image of the original rainbow, as it reflects off of a body of water. Often under extremely moist atmospheric conditions, the body of water that is reflecting the rainbow is the abundant water droplets in the air. In the case of a triple rainbow, the colors are reversed once again to that of the original rainbow.

Down-Valley Wind

A thermally driven wind directed down a valley's axis, usually occurring during nighttime; part of the along-valley wind system.

Downburst

A strong downdraft current of air from a cumulonimbus cloud, often associated with intense thunderstorms. Downdrafts may produce damaging winds at the surface.

Downdraft

(Abbrev. DWNDFT) - A small-scale column of air that rapidly sinks toward the ground, usually accompanied by precipitation as in a shower or thunderstorm. A downburst is the result of a strong downdraft.

Downslope Flow

A thermally driven wind directed down a mountain slope and usually occurring at night; part of the along-slope wind system.

Downstream

In the same direction as a stream or other flow, or toward the direction in which the flow is moving.

Downstream Slope

In hydrologic terms, the slope or face of the dam away from the reservoir water. This slope requires some kind of protection (e.g.; grass) from the erosive effects of rain and surface flow

Downwash

A deflection of air downward relative to an object that causes the deflection.

Downwelling Radiation

The component of radiation directed toward the earth's surface from the sun or the atmosphere, opposite of upwelling radiation.

DP

1. Deep.
2. Dew Point.

DPD

On a buoy report, dominant wave period (seconds) is the period with the maximum wave energy.

DPNG

Deepening.

DPTH

Depth.

DPTR

Departure.

DPVA

Differential Positive Vorticity Advection.

DR

Direction.

Drainage Area

In hydrologic terms, an area having a common outlet for its surface runoff (also see Watershed and Catchment Area).

Drainage Basin

In hydrologic terms, a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Drainage Density

In hydrologic terms, the relative density of natural drainage channels in a given area. It is usually expressed in terms of miles of natural drainage or stream channel per square mile of area, and obtained by dividing the total length of stream channels in the area in miles by the area in square miles.

Drainage Divide

In hydrologic terms, the boundary line, along a topographic ridge or along a subsurface formation, separating two adjacent drainage basins.

Drainer

A valley or basin from which air drains continuously during nighttime rather than becoming trapped or pooled.

Drains (Relief Wells)

In hydrologic terms, a vertical well or borehole, usually downstream of impervious cores, grout curtains or cutoffs, designed to collect and direct seepage through or under a dam to reduce uplift pressure under or within a dam. A line of such wells forms a "drainage curtain".

Drawdown

In hydrologic terms, the lowering of the surface elevation of a body of water, the water surface of a well, the water table, or the piezometric surface adjacent to the well, resulting from the withdrawl of water therefrom.

DRCTN

Direction.

Dredging

In hydrologic terms, the scooping, or suction of underwater material from a harbor, or waterway. Dredging is one form of channel modification. It is often too expensive to be practical because the dredged material must be disposed of somewhere and the stream will usually fill back up with sediment in a few years. Dredging is usually undertaken only on large rivers to maintain a navigation channel.

DRFT

Drift

Drifting Ice

In hydrologic terms, pieces of floating ice moving under the action of wind and/ or currents.

Drifting Snow

Drifting snow is an uneven distribution of snowfall/snow depth caused by strong surface winds. Drifting snow may occur during or after a snowfall. Drifting snow is usually associated with blowing snow.

Drizzle

Precipitation consisting of numerous minute droplets of water less than 0.5 mm (500 micrometers) in diameter.

Drop-size Distribution

The distribution of rain drops or cloud droplets of specified sizes.

Drought

Abnormal dry weather for a specific area that is sufficiently prolonged for the lack of water to cause serious hydrological imbalance. Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. NOAA together with its partners provides short- and long-term Drought Assessments.

Drought Assessments

At the end of each month, CPC issues a long-term seasonal drought assessment. On Thursdays of each week, the CPC together with NOAA National Climatic Data Center, the United States Department of Agriculture, and the National Drought Mitigation Center in Lincoln, Nebraska, issues a weekly drought assessment called the United States Drought Monitor. These assessments review national drought conditions and indicate potential impacts for various economic sectors, such as agriculture and forestry.

Drought Index

In hydrologic terms, computed value which is related to some of the cumulative effects of a prolonged and abnormal moisture deficiency. (An index of hydrological drought corresponding to levels below the mean in streams, lakes, and reservoirs.)

Dry Adiabat

A line of constant potential temperature on a thermodynamic chart.

Dry Adiabatic Lapse Rate

The rate at which the temperature of a parcel of dry air decreases as the parcel is lifted in the atmosphere. The dry adiabatic lapse rate (abbreviated DALR) is 5.5Â°F per 1000 ft or 9.8Â°C per km.

Dry Bulb Thermometer

A thermometer used to measure the ambient temperature. The temperature recorded is considered identical to air temperature. One of the two thermometers that make up a psychrometer.

Dry Crack

In hydrologic terms, a crack visible at the surface but not going right through the ice cover, and therefore it is dry.

Dry Floodproofing

In hydrologic terms, a dry floodproofed building is sealed against floodwaters. All areas below the flood protection level are made watertight. Walls are coated with waterproofing compounds or plastic sheeting. Openings like doors windows, sewer lines and vents are closed, whether permanently, with removable shields, or with sandbags. The flood protection level should be no more than 2 or 3 feet above the top of the foundation because the buildings walls and floors cannot withstand the pressure of deeper water.

Dry Line

A boundary separating moist and dry air masses, and an important factor in severe weather frequency in the Great Plains. It typically lies north-south across the central and southern high Plains states during the spring and early summer, where it separates moist air from the Gulf of Mexico (to the east) and dry desert air from the southwestern states (to the west). The dry line typically advances eastward during the afternoon and retreats westward at night. However, a strong storm system can sweep the dry line eastward into the Mississippi Valley, or even further east, regardless of the time of day. A typical dry line passage results in a sharp drop in humidity (hence the name), clearing skies, and a wind shift from south or southeasterly to west or southwesterly. (Blowing dust and rising temperatures also may follow, especially if the dry line passes during the daytime. These changes occur in reverse order when the dry line retreats westward. Severe and sometimes tornadic thunderstorms often develop along a dry line or in the moist air just to the east of it, especially when it begins moving eastward.

Dry Line Bulge

A bulge in the dry line, representing the area where dry air is advancing most strongly at lower levels. Severe weather potential is increased near and ahead of a dry line bulge.

Dry Line Storm

Any thunderstorm that develops on or near a dry line.

Dry Microburst

A microburst with little or no precipitation reaching the ground; most common in semi-arid regions. They may or may not produce lightning. Dry microbursts may develop in an otherwise fair-weather pattern; visible signs may include a cumulus cloud or small Cb with a high base and high-level virga, or perhaps only an orphan anvil from a dying rain shower. At the ground, the only visible sign might be a dust plume or a ring of blowing dust beneath a local area of virga.

Dry Punch

[Slang], a surge of drier air; normally a synoptic-scale or mesoscale process. A dry punch at the surface results in a dry line bulge. A dry punch aloft above an area of moist air at low levels often increases the potential for severe weather.

Dry Slot

A zone of dry (and relatively cloud-free) air which wraps east- or northeastward into the southern and eastern parts of a synoptic scale or mesoscale low pressure system. A dry slot generally is seen best on satellite photographs.

Dry Thunderstorm

Generally a high-based Generally a high-based thunderstorm when lightning is observed, but little if any precipitation reaches the ground. Most of the rain produced by the thunderstorm evaporates into

relatively dry air beneath the storm cell. May also be referred to as "dry lightning".

Dry Weather Flow

In hydrologic terms, streamflow which results from precipitation that infiltrates into the soil and eventually moves through the soil to the stream channel. This is also referred to as base flow, or ground water flow.

Dry-adiabatic

1. An adiabatic process in a hypothetical atmosphere in which no moisture is present. 2. An adiabatic process in which no condensation of its water vapor occurs and no liquid water is present.

DSA

Special Tropical Disturbance Statement.

DSIPT

Dissipate.

Dst Index

A geomagnetic index describing variations in the equatorial ring current.

DTRT

Deteriorate

Duration Curve

In hydrologic terms, a cumulative frequency curve that shows the percent of time during which specified units of items (e.g. discharge, head, power,etc.) were equaled or exceeded in a given period. It is the integral of the frequency diagram.

Duration of Ice Cover

In hydrologic terms, The time from freeze-up to break-up of an ice cover.

Duration of Sunshine

The amount of time sunlight was detected at a given point.

DURG

During.

DURN

Duration.

Dusk

The period of waning light from the time of sunset to dark. The time at which the sun is 6 degrees below the horizon in the evening. At this time objects are distinguishable but there is no longer enough light to perform any outdoor activities.

Dust

Finely powdered earth, dirt or particulate matter.

Dust Devil

A small, rapidly rotating wind that is made visible by the dust, dirt or debris it picks up. Also called a whirlwind, it develops best on clear, dry, hot afternoons

Dust Plume

A non-rotating "cloud" of dust raised by straight-line winds. Often seen in a microburst or behind a gust front.

Dust Storm

A severe weather condition characterized by strong winds and dust-filled air over an extensive area.

Dust Whirl

A rotating column of air rendered visible by dust.

DVLP

Develop.

DVV

Downward Vertical Velocity (sinking air).

DWNDFT

Downdraft - A small-scale column of air that rapidly sinks toward the ground, usually accompanied by precipitation as in a shower or thunderstorm. A downburst is the result of a strong downdraft.

DWNSLP

Downslope.

DWPT

Dew Point - A measure of atmospheric moisture. It is the temperature to which air must be cooled in order to reach saturation (assuming air pressure and moisture content are constant).

Dynamic Ice

In hydrologic terms, pressure due to a moving ice cover or drifting ice. Pressure occurring at movement of first contact termed Ice Impact Pressure

Dynamic Lifting

The forced uplifting of air from various atmospheric processes, such as weather fronts, and cyclones.

Dynamic Pressure

The momentum flux (P) of the solar wind. P=density x V E2 where density is in particles/cm E-3 and V in in km/s.

Dynamic Wave Routing Model (DWOPER)

A computerized hydraulic routing program whose algorithms incorporate the complete one-dimensional equations of unsteady flow

Dynamics

Generally, any forces that produce motion or effect change. In operational meteorology, dynamics usually refer specifically to those forces that produce vertical motion in the atmosphere.

DZ

Drizzle.

E

East

E REGION

In solar-terrestrial terms, a daytime layer of the earth's ionosphere roughly between the altitudes of 85 and 140 km.

E-19, Report on River Gage Station

In hydrologic terms, a report to be completed every 5 years providing a complete history of a river station and all gages that have been used for public forecasts since the establishment of the station.

E-19a, Abridged Report on River Gage Sta

In hydrologic terms, an abridged version of an E-19, an E-19a updates the E-19 as additional information, or changes occur at the station during the intervening five year period. An E-19a is to be completed anytime a significant change occurs at a forecast point. An E-19a is also used to take the place of an E-19 in documenting any gage history, or information of any non-forecast point (i.e; data point).

E-3, Flood Stage Report

In hydrologic terms, a form that a Service Hydrologist/ Hydrology Focal Point completes to document the dates in which forecast points are above flood stage, as well as the crest dates and stages. Discussion of the flood event must also be included in the E-5, Monthly Report of River and Flood conditions. An E-3 report is sent to Regional Headquarters, the appropriate RFC, as well as the Office of Hydrology (OH).

E-5, Monthly Report of River and Flood c

In hydrologic terms, a monthly narrative report covering flooding which occurred over the past month. Flood stage, flood crest and dates in which flooding occurred is covered within this report for each data point which was in flood. If the flooding involved a forecast point, an E-3 must be filled out as well. If no flooding has occurred within the past month, a climatic summary of the past month can be included as well as other interesting non-flood events, such as water supply, ice jams and the occurrence of drought. An E-5 report is sent to Regional Headquarters, the appropriate RFC, as well as the Office of Hydrology (OH).

E-7, Flood Damage Report

In hydrologic terms, a report to be completed anytime there is reported flood damage or loss of life as a direct result of flooding. An E-7 report is sent to Regional Headquarters, as well as the Office of Hydrology (OH).

Earthquake

A sudden, transient motion or trembling of the earth's crust, resulting from the waves in the earth caused by faulting of the rocks or by volcanic activity.

Easterlies

Any winds with components from the east.

Easterly Wave
A low level disturbance of tropical origins. Easterly waves can develop into tropical cyclones. However, tropical cyclone development is not required in order for these systems to produce significant amounts of rainfall. The easterly waves are primarily a summer phenomenon.

Ebb Current
The movement of a tidal current away form the coast or down an estuary.

EBND
Eastbound.

EBS
Emergency Broadcast System.

Eccentric Dipole
See corrected geomagnetic coordinates.

Eccentricity
A dimensionless quantity describing the elliptical shape of a planet's orbit.

Echo
Energy back scattered from a target (precipitation, clouds, etc.) and received by and displayed on a radar screen.

Echo Tops
The height above ground of the center of the radar beam using the tilt, or scan, that contains the highest elevation where reflectivities greater than 18 dBZ can be detected.

Eclipse
The obscuring of one celestial body by another. See lunar eclipse or solar eclipse.

Ecliptic
The great circle made by the intersection of the plane of the Earth’s orbit with the celestial sphere. (Less properly, the apparent path of the Sun around the sky during the year.)

ECMF
European Center for Meteorology Forecast model.

ECMWF
European Center for Medium-Range Weather Forecasts. Operational references in forecast discussions typically refer to the ECMWF's medium-range numerical forecast model, which runs out to 10 days.

Eddy
Swirling currents of air at variance with the main current.

EDT
Eastern Daylight Time.

EFCT
Effect.

EFR
Emerging flux region.

Effective Porosity
In hydrologic terms, the ratio, usually expressed as a percentage, of the volume of water or other liquid which a given saturated volume of rock or soil will yield under any specified hydraulic condition, to the given volume of soil or rock.

Effective Precipitation
1) That part of the precipitation that produces runoff.
2) A weighted average of current and antecedent precipitation that is "effective" in correlating with runoff.
3) That part of the precipitation falling on an irrigated area that is effective in meeting the consumptive use requirements.

Effective Terrestrial Radiation
The difference between upwelling infrared or terrestrial radiation emitted from the earth and the downwelling infrared radiation from the atmosphere

Effective Topography
The topography as seen by an approaching flow, which may include not only the actual terrain but also cold air masses trapped within or adjacent to the actual topography.

Effluent Seepage
In hydrologic terms, diffuse discharge of ground water to the ground surface

Effluent Stream
In hydrologic terms, any watercourse in which all, or a portion of the water volume came from the Phreatic zone, or zone of saturation by way of groundwater flow, or baseflow.

EHF
Extremely high frequency.

EIT
Extreme ultraviolet Imaging Telescope. Instrument on the SOlar Heliospheric Observer. EIT continuously observes the full disk Sun at 17.1 nm, 19.5 nm, 28.4 nm, and 30.4 nm.

El Nino
A warming of the East Pacific Ocean current along the coasts of Peru and Ecuador that is generally associated with dramatic changes in the weather patterns of the region; a major El Nino event generally occurs every 3 to 7 years and is associated with changes in the weather patterns worldwide.

Electrojet
(1) Auroral: A current that flows in the ionosphere in the auroral zone. (2) Equatorial: A thin electric current layer in the ionosphere over the dip equator at about 100 to 115 km altitude. electrostatic discharge (ESD). An abrupt equalization of electric potentials. In space, ESD can occur between objects or portions of a single object (see differential charging); ESD may occur locally within a dielectric or cable. The consequences may include material damage, a spacecraft anomaly, phantom commands, disrupted telemetry, and contaminated data.

Element
One of the basic conditions of the atmosphere discussed in this FMH (wind, visibility, runway visual range, weather, obscurations, sky condition, temperature and dewpoint, and pressure). See parameter

ELEV
Elevation.

Elevated Convection
Convection occurring within an elevated layer, i.e., a layer in which the lowest portion is based above the earth's surface. Elevated convection often occurs when air near the ground is relatively cool and stable, e.g., during periods of isentropic lift, when an unstable layer of air is present aloft.

In cases of elevated convection, stability indices based on near-surface measurements (such as the lifted index) typically will underestimate the amount of instability present. Severe weather is possible from elevated convection, but is less likely than it is with surface-based convection.

ELF
Extremely low frequency.

ELSW
Elsewhere.

ELY
Easterly.

Embankment
In hydrologic terms, fill material, usually earth or rock, placed with sloping sides and usually with length greater than height. All dams are types of embankments

EMBDD
Embedded.

EMC
Environmental Modeling Center.

Emergency Action Plan
In hydrologic terms, a predetermined plan of action to be taken to reduce the potential for property damage and loss of life in an area affected by a dam break or excessive spillway.

Emergency Services
In hydrologic terms, services provided in order to minimize the impact of a flood that is already happening. These measures are the responsibility of city, or county emergency management staff and the owners or operators of major, or critical facilities. Some examples of emergency services are flood warning and evacuation, flood response, and post flood activities.

Emerging Flux Region (EFR)
In solar-terrestrial terms, an area on the sun where new magnetic flux is erupting.

Emissions
Substances that are released into the atmosphere and are measured by their concentration, or parts per million (ppm), parts per billion (ppb) or parts per trillion (ppt). Substances can be smoke, exhaust, small particles or a gas.

Emissivity
The ability of a surface to emit radiant energy compared to that of a black body at the same temperature and with the same area.

EML
Elevated Mixed Layer.

ENDG
Ending.

Energy Dissipator
In hydrologic terms, a structure which slows fast-moving spillway flows in order to prevent erosion of the stream channel.

Energy Helicity Index
An index that incorporates vertical shear and instability, designed for the purpose of forecasting supercell thunderstorms

Engineer's Level
A telescope which is attached to a spirit-tube level, all revolving around a vertical axis and is mounted on a tripod. An Engineer's Level is used for determining the difference in elevation between two points. The telescope on the level has a vertical cross hair and a horizontal cross hair. Once the instrument is leveled, the sighting through the horizontal cross hair represents a horizontal plane of equal elevation.

Enhanced V
A pattern seen on satellite infrared photographs of thunderstorms, in which a thunderstorm anvil exhibits a V-shaped region of colder cloud tops extending downwind from the thunderstorm core. The enhanced V indicates a very strong updraft, and therefore a higher potential for severe weather. Enhanced V should not be confused with V notch, which is a radar signature.

Enhanced Wording
1. An option used by the SPC in tornado and severe thunderstorm watches when the potential for strong/violent tornadoes, or unusually widespread damaging straight-line winds, is high. The text that accompanies a watch of this type will include the line "THIS IS A PARTICULARLY DANGEROUS SITUATION."
2. Strong wording or emphasis used in a zone forecast issued by a National Weather Service Forecast Office highlighting a potential condition (e.g., "some thunderstorms may be severe").

ENHNCD
Enhanced.

ENSEMBLE
A collection of numerical model results that show slightly different possible outcomes.

Ensemble Forecast
Multiple predictions from an ensemble of slightly different initial conditions and/or various versions of models. The objectives are to improve the accuracy of the forecast through averaging the various forecasts, which eliminates non-predictable components, and to provide reliable information on forecast uncertainties from the diversity amongst ensemble members. Forecasters use this tool to measure the likelihood of a forecast.

Ensemble Hydrologic Forecasting
In hydrologic terms, a process whereby a continuous hydrologic model is successively executed several times for the same forecast period by use of varied data input scenarios, or a perturbation of a key variable state for each model run. A common method employed to obtain a varied data input scenario is to use the historical meteorological record, with the assumption that several years of observed data covering the time period beginning on the current date and extending through the forecast period comprises a reasonable estimate of the possible range of future conditions.

Ensembles
Reference to a set of computer models run under the concept of **Ensemble Forecasting**: multiple predictions from an ensemble of models with slightly different initial conditions used as input and/or

slightly different versions of models. The objectives are to improve the accuracy of the forecast through averaging the various forecasts, which eliminates non-predictable components, and to provide reliable information on forecast uncertainties from the diversity amongst ensemble members. Forecasters use this tool to measure the likelihood of a forecast.

ENSO

Abbreviation for **El NiÃ±o-Southern Oscillation**, a reference to the state of the Southern Oscillation.

ENSO Diagnostic Discussion

The CPC issues the ENSO Diagnostic Discussion around the middle of the month. The discussion addresses the current oceanic and atmospheric conditions in the Pacific and the seasonal climate outlook for the following one to three seasons.

ENTR

Entire.

Entrainment Zone

A shallow region at the top of a convective boundary layer where fluid is entrained into the growing boundary layer from the overlying fluid by the collapse of rising convective plumes or bubbles.

Entrance Region

The region upstream from a wind speed maximum in a jet stream (jet max), in which air is approaching (entering) the region of maximum winds, and therefore is accelerating. This acceleration results in a vertical circulation that creates divergence in the upper-level winds in the right half of the entrance region (as would be viewed looking along the direction of flow).

This divergence results in upward motion of air in the right rear quadrant (or right entrance region) of the jet max. Severe weather potential sometimes increases in this area as a result. See also exit region, left exit region.

Entropy

The amount of energy that is not available for work during a certain process.

Environment

All physical, geological, biological, chemical, social and cultural interacting elements, conditions and ecosystems.

All biotic and abiotic factors that make up a natural ecosystem. Biotic factors are dependent on abiotic factors. Biotic factors include all living things such as humans, animals, plants, fungi, protits and bacteria, their food and interaction and negative biotic factors such as disease paritism, predation, over population and war. Abiotic factors are the non-living elements such as sunlight, temperature, climate, air, water, land, minerals and negative abiotic factors such as pollution, acid rain, deforestation, global warming and natural disasters which can negatively impact biotic factors and their sustainable ecosystems.

Environmental Impact

Environmental Impact is any change or anthropogenic impact to the environment including biophysical environments, ecosystems, biodiversity and natural resources, whether direct, indirect or cumulative, adverse or beneficial, wholly or partially resulting from a human project, human activity, inaction or natural cause.

Environmental Lapse Rate

The rate of decrease of air temperature with height, usually measured with a radiosonde.

Environmental Temperature Sounding

An instantaneous or near-instantaneous sounding of temperature as a function of height. This sounding or vertical profile is usually obtained by a balloon-borne instrument, but can also be measured using remote sensing equipment.

EPA

Federal Environmental Protection Agency.

EPCTG

Expecting.

EPL

Eruptive prominence on limb.

EPV

Equivalent Potential Vorticity.

Equatorial Electrojet

See electrojet.

Equi-Potential Line

In hydrologic terms, a line, in a field of flow, such that the total head is the same for all points on the line, and therefore the direction of flow is perpendicular to the line at all points.

Equilibrium Drawdown

In hydrologic terms, the ultimate, constant drawdown for a steady rate of pumped discharge.

Equilibrium Level

(EL) - On a sounding, the level above the level of free convection (LFC) at which the temperature of a rising air parcel again equals the temperature of the environment. The height of the EL is the height at which thunderstorm updrafts no longer accelerate upward. Thus, to a close approximation, it represents the height of expected (or ongoing) thunderstorm tops.

Equilibrium Surface Discharge

In hydrologic terms, the steady rate of surface discharge which results from a long-continued, steady rate of net rainfall, with discharge rate equal to net rainfall rate

Equilibrium Time

In hydrologic terms, the time when flow conditions become substantially equal to those corresponding to equilibrium discharge or equilibrium drawdown.

Equinox

The time when the sun crosses the earth's equator, making night and day of approximately equal length all over the earth and occurring about March 21 (the spring or vernal equinox) and September 22 (autumnal equinox).

Equivalent Potential Temperature

The equivalent potential temperature is the temperature a parcel at a specific pressure level and temperature would have if it were raised to 0 mb, condensing all moisture from the parcel, and then lowered to 1000 mb.

ERLY

Early.

ERN

Eastern.

Erosion

In hydrologic terms, wearing away of the lands by running water, glaciers,winds, and waves, can be subdivided into three process: Corrasion, Corrosion, and Transportation. Weathering, although sometimes included here, is a distant process which does not imply removal of any material

Eruptive

With regard to solar flare predictions, a probability of >50% that an active region will produce C class x-ray flares. In solar-terrestrial terms, solar activity levels with at least one radio event (10 cm) and several chromospheric events per day (Class C Flares).

Eruptive Prominence on Limb (EPL)

In solar-terrestrial terms, a solar prominence that becomes activa- ted and is seen to ascend from the sun.

ESP

Extended Streamflow Prediction.

EST

Eastern Standard Time.

Estuary

In hydrologic terms, the thin zone along a coastline where freshwater systems and rivers meet and mix with a salty ocean (such as a bay, mouth of a river, salt marsh, lagoon).

Esturine waters

In hydrologic terms, deepwater tidal habitats and tidal wetlands that are usually enclosed by land but have access to the ocean and are at least occasionally diluted by freshwater runoff from the land (such as bays, mouths of rivers, salt marshes, lagoons).

Esturine Zone

In hydrologic terms, the area near the coastline that consists of esturaries and coastal saltwater wetlands

ETA

1. The Eta Model, now referred to as North Amercian Meso (NAM) an 84-hour numerical model of the atmosphere run four times daily by NCEP. This is one of the main forecast models used for short-term weather prediction in the United States.
2. Estimated Time of Arrival

Eta Model

Now referred to as North Amercian Meso (NAM) is one of the operational numerical forecast models run at NCEP. The Eta is run four times daily, with forecast output out to 84 hours.

EUV

Extreme ultraviolet.

Evaporation

The physical process of a liquid changing into a gaseous state or water vapor.

Evaporation Fog

The most localized form of fog, usually forming over lakes and rivers, sometime oceans, when the water is warmer than the air above it. Moisture evaporates from the water and saturates the adjacent layer of air and condenses. This air rises, it evaporates into the dryer air aloft, thus, giving the appearance of a low layer of steam above the water.

Evaporation Pan

In hydrologic terms, a pan used to hold water during observations for the determination of the quantity of evaporation at a given location. Such pans are of varying sizes and shapes, the most commonly used being circular or square.

Evaporation Rate

In hydrologic terms, the quantity of water, expressed in terms of depth of liquid water, which is evaporated from a given surface per unit of time. It is usually expressed in inches depth, per day, month, or year.

Evaporation-mixing Fog

Fog that forms when the evaporation of water raises the dew point of the adjacent air.

Evaporimeter

In hydrologic terms, an instrument which measures the evaporation rate of water into the atmosphere.

Evapotranspiration

Combination of evaporation from free water surfaces and transpiration of water from plant surfaces to the atmosphere.

EVE

Evening.

Evershed Effect

Horizontal motion of the solar atmosphere near a sunspot, having velocities of a few kilometers per second. In the photosphere, matter streams away from the umbra. In the chromosphere, the direction of flow is toward the umbra.

EWD

Eastward.

EWW

Extreme Wind Warning (EWW) inform the public of the need to take immediate shelter in an interior portion of a well-built structure due to the onset of extreme tropical cyclone winds. An EWW for extreme tropical cyclone winds should be issued when both of the following criteria are met: a. Tropical cyclone is a category 3 or greater on the Saffir Simpson hurricane scale as designated by NHC, CPHC or JTWC. b. Sustained tropical cyclone surface winds of 100 knots (115 mph) or greater are occurring or are expected to occur in a WFOâ€™s county warning area within one hour.

Excellent Forecast Quality

The forecast temperature is usually less than 1.5 degrees C warmer or cooler than the observed temperature

Excess Rain

In hydrologic terms, effective rainfall in excess of infiltration capacity.

Excessive Heat

Excessive heat occurs from a combination of high temperatures (significantly above normal) and high humidities. At certain levels, the human body cannot maintain proper internal temperatures and may

experience heat stroke. The "Heat Index" is a measure of the effect of the combined elements on the body.

Excessive Heat Outlook

This CPC product, a combination of temperature and humidity over a certain number of days, is designed to provide an indication of areas of the country where people and animals may need to take precautions against the heat during May to November.

Excessive Heat Warning

Issued within 12 hours of the onset of the following criteria: heat index of at least 105Â°F for more than 3 hours per day for 2 consecutive days, or heat index more than 115Â°F for any period of time.

Excessive Heat Watch

Issued by the National Weather Service when heat indices in excess of 105ÂºF (41ÂºC) during the day combined with nighttime low temperatures of 80ÂºF (27ÂºC) or higher are forecast to occur for two consecutive days.

EXCLD

Exclude.

Exclusive Flood Control Storage Capacity

In hydrologic terms, the space in a reservoir reserved for the sole purpose of regulating flood inflows to abate flood damage

Exit Region

The region downstream from a wind speed maximum in a jet stream (jet max), in which air is moving away from the region of maximum winds, and therefore is decelerating. This deceleration results in divergence in the upper-level winds in the left half of the exit region (as would be viewed looking along the direction of flow).

This divergence results in upward motion of air in the left front quadrant (or left exit region) of the jet max. Severe weather potential sometimes increases in this area as a result. See also entrance region, right entrance region.

Exosphere

The upper most layer of the earth's atmosphere; the only layer where atmospheric gases can escape into outer space. The Earth’s atmosphere above 500-600 km.

Experimental Product

An experimental product is in the final stages of testing and evaluation. If the product proves accurate and valuable to users then the next step is to make it an operational product.

Explosive Deepening

A decrease in the minimum sea-level pressure of a tropical cyclone of 2.5 mb/hr for at least 12 hours or 5 mb/hr for at least six hours.

EXTD

Extend/Extended.

Extended Forecast Discussion

This discussion is issued once a day around 2 PM EST (3 PM EDT) and is primarily intended to provide insight into guidance forecasts for the 3- to 5-day forecast period. The geographic focus of this discussion is on the United States (including Alaska and Hawaii). Although portions of this narrative will parallel the Hemispheric Map Discussion, a much greater effort is made to routinely relate the model forecasts and necessary modifications to weather forecasts, mainly in terms of temperature and precipitation.

Extraterrestrial Radiation

The theoretically-calculated radiation flux from the sun at the top of the atmosphere, before losses by atmospheric absorption.

Extratropical

A term used in advisories and tropical summaries to indicate that a cyclone has lost its "tropical" characteristics. The term implies both poleward displacement of the cyclone and the conversion of the cyclone's primary energy source from the release of latent heat of condensation to baroclinic (the temperature contrast between warm and cold air masses) processes. It is important to note that cyclones can become extratropical and still retain winds of hurricane or tropical storm force.

Extratropical Cyclone

A cyclone in the middle and high latitudes often being 2000 kilometers in diameter and usually containing a cold front that extends toward the equator for hundreds of kilometers.

Extratropical Low

A low pressure center which refers to a migratory frontal cyclone of middle and higher latitudes. Tropical cyclones occasionally evolve into extratropical lows losing tropical characteristics and become associated with frontal discontinuity.

Extreme Ultraviolet (EUV)

A portion of the electromagnetic spectrum from approximately 100 to 1000 angstroms.

Extreme Wind Warning

Extreme Wind Warning (EWW) inform the public of the need to take immediate shelter in an interior portion of a well-built structure due to the onset of extreme tropical cyclone winds. An EWW for extreme tropical cyclone winds should be issued when both of the following criteria are met: a. Tropical cyclone is a category 3 or greater on the Saffir Simpson hurricane scale as designated by NHC, CPHC or JTWC. b. Sustained tropical cyclone surface winds of 100 knots (115 mph) or greater are occurring or are expected to occur in a WFOâ€™s county warning area within one hour.

Extremely High Frequency (EHF)

That portion of the radio frequency spectrum from 30-300 GHz.

Extremely Low Frequency (ELF)

That portion of the radio frequency spectrum from 30 to 3000 hertz

EXTRM

Extreme.

EXTSV

Extensive.

Eye

The relatively calm center of a tropical storm or in a hurricane that is more than one half surrounded by wall cloud. The winds are light, the skies are partly cloudy or even clear (the skies are usually free of rain) and radar depicts it as an echo-free area within the eye wall. An eye will usually develop when the maximum sustained wind speeds exceed 78 mph. It can range in size from as small as 5 miles to up to 60 miles, but the average size is 20 miles. In general, when the eye begins to shrink in size, the storm is intensifying.

Eye Wall

It is an organized band of cumuliform clouds that immediately surrounds the center (eye) of a hurricane. The fiercest winds and most intense rainfall typically occur near the eye wall. VIP levels 3 or greater are typical. Eye wall and wall cloud are used synonymously, but it should not be confused with a wall cloud of thunderstorm.

F

1) Fahrenheit- The standard scale used to measure temperature in the United States. On this scale, the freezing point of water is 32Â°F and the boiling point is 212Â°F. To convert a Celsius temperature to Fahrenheit, multiply it by 9/5 and then add 32: Â°F = (Â°C * 9/5) + 32

or

2) Fog- Water droplets suspended in the air at the Earth's surface. Fog is often hazardous when the visibility is reduced to Â¼ mile or less.

F Corona

In solar-terrestrial terms, of the white-light corona (that is, the corona seen by the eye at a total solar eclipse), that portion which is caused by sunlight scattered or reflected by solid particles (dust) in inter-planetary space.

F Region

In solar-terrestrial terms, the upper layer of the ionosphere, approximately 120 to 1500 km in altitude. The F region is subdivided into the F1 and F2 regions. The F2 region is the most dense and peaks at altitudes between 200 and 600 km. The F1 region is a smaller peak in electron density, which forms at lower altitudes in the daytime.

F Scale

Abbreviation for **Fujita Scale**, a system of rating the intensity of tornadoes; for detailed information, see the definition for that term.

FA

Forecast Area.

FAA

Federal Aviation Administration.

Face

In hydrologic terms, the external surface of a structure, such as the surface of a dam.

Facula

In solar-terrestrial terms, a bright region of the photosphere seen in white light, seldom visible except near the solar limb.

Fahrenheit

(F) The standard scale used to measure temperature in the United States. On this scale, the freezing point of water is 32°F and the boiling point is 212°F. To convert a Celsius temperature to Fahrenheit, multiply it by 9/5 and then add 32: Â°F = (Â°C * 9/5) + 32. Created in 1714 by Gabriel Daniel Fahrenheit (1696-1736), a German physicist, who also invented the alcohol and mercury thermometers.

Fair

It is usually used at night to describe less than 3/8 opaque clouds, no precipitation, no extremes of visibility, temperature or winds. It describes generally pleasant weather conditions.

Fair Forecast Quality

The forecast temperature is usually 2.5 to 3.5 degrees C warmer or cooler than the observed forecast.

Fair Weather Cloud

Very small convective cloud, which forms almost immediately when a rising thermal reaches the Lifting Condensation Level (LCL), or where the temperature drops to equal the dewpoint temperature. This cloud usually dissipates after a few minutes because the layer just above it is too stable to allow for vertical growth. Most often these clouds are indicative for pleasant weather.

Fall

the season of the year which is the transition period from summer to winter occurring as the sun approaches the winter solstice. In the Northern Hemisphere, fall customarily includes the months of September, October and November.

Fall Line

A skiing term, indicating the line of steepest descent of a slope.

Fall Wind

A strong, cold, downslope wind.

Fall Streak

Same as **Virga**; streaks or wisps of precipitation falling from a cloud but evaporating before reaching the ground. In certain cases, shafts of virga may precede a microburst.

FAN

AVN MOS Guidance (older version)

Fanning

A pattern of plume dispersion in a stable atmosphere, in which the plume fans out in the horizontal and meanders about at a fixed height.

FASTST

Fastest.

Fathom

Unit of water depth equal to 6 feet.

FAWS

Flight Advisory Weather Service.

FBO

(Great Lakes Freeze-Up/Break-Up Outlook) - A National Weather Service product to keep mariners informed of the projected freeze-up date or break-up date of ice on the Great Lakes.

FCST

Forecast.

Federal Snow Sampler

In hydrologic terms, a snow sampler consisting of five or more sections of sampling tubes, one which has a steel cutter on the end. The combined snowpack measuring depth is 150 inches. This instrument was formerly the Mount Rose Type Snow Sampling Set.

Feeder Bands

Lines or bands of low-level clouds that move (feed) into the updraft region of a thunderstorm, usually from the east through south (i.e., parallel to the inflow). Same as inflow bands. This term also is used in tropical meteorology to describe spiral-shaped bands of convection surrounding, and moving toward, the center of a tropical cyclone.

FEMA

Federal Emergency Management Agency. An agency of the federal government having responsibilities in hazard mitigation; FEMA also administers the National Flood Insurance Program.

Ferrel Cell

In the general circulation of the atmosphere, the name given to the middle latitude cell marked by sinking motion near 30 degrees and rising motion near 60 degrees latitude.

Fetch

1. The area in which ocean waves are generated by the wind. Also refers to the length of the fetch area, measured in the direction of the wind.
2. In hydrologic terms,
    - The effective distance which waves have traversed in open water, from their point of origin to the point where they break.
    - 2. The distance of the water or the homogenous type surface over which the wind blows without appreciable change in direction.

Few

A National Weather Service convective precipitation descriptor for a 10 percent chance of measurable precipitation (0.01 inch). Few is used interchangeably with isolated.

Few Clouds

An official sky cover classification for aviation weather observations, descriptive of a sky cover of 1/8 to 2/8. This is applied only when obscuring phenomenon aloft are present--that is, not when obscuring phenomenon are surface-based, such as fog.

FFG

Flash Flood Guidance.

FG

(Also abbrev. F) - Fog - water droplets suspended in the air at the Earth's surface. Fog is often hazardous when the visibility is reduced to Â¼ mile or less.

Fibril

In solar-terrestrial terms, a linear pattern in the H-alpha chromosphere of the sun, as seen through an H-alpha filter, occurring near strong sunspots and plage or in filament channels.

Field (Moisture) Capacity

The amount of water held in soil against the pull of gravity

Field Moisture Deficiency

The quantity of water, which would be required to restore the soil moisture to field moisture capacity.

Filament

A mass of gas suspended over the photosphere by magnetic fields and seen as dark lines threaded over the solar disk. A filament on the limb of the sun seen in emission against the dark sky is called a prominence.

Filament Channel

A broad pattern of fibrils in the chromosphere, marking where a filament may soon form or where a filament recently disappeared.

Fill Dam

In hydrologic terms, any dam constructed of excavated natural materials or of industrial wastes

Filling

The opposite of deepening. A general increase in the central pressure of a low pressure system.

Fire Alert

Fire alerts include all watches, warnings, and advisories that pertain to fire weather, including red flag warnings, fire weather watches, and dense smoke advisories.

Fire Cloud

A dense convective cloud that develops above wild land and grass land fires, as well as out of control prescribed fires. Strong heating at the surface allows for warm air to rise from the surface (convection) that would not otherwise occur without the presence of the fire. The majority of the smoke gets trapped

below a stable layer in the atmosphere, however, this rising air can be so buoyant that it rises beyond the stable layer, producing a cauliflower-like high-level cloud. When these clouds form over fires, it signifies a raging fire with strong wind gusts at the fire front which help to strengthen the fire.

Fire Tornado

During a natural or prescribed fire, the flames drastically heat the surface which allows for hot air near the surface to rise. The air is so hot that it rises quickly and creates strong winds by pulling air in to replace the rising air. These violent winds near the fire sometimes take a rotating form, and can quickly strengthen into a vertical column or vortex of rotating air and flames. This signifies a fire is in a dangerous and uncontrollable stage.

Fire Vortex

During a natural or prescribed fire, the flames drastically heat the surface which allows for hot air near the surface to rise. The air is so hot that it rises quickly and creates strong winds by pulling air in to replace the rising air. These violent winds near the fire sometimes take a rotating form, and can quickly strengthen into a vertical column or vortex of rotating air and flames. This signifies a fire is in a dangerous and uncontrollable stage.

Fire Weather Advisory

A fire weather advisory is issued when dry conditions in the advisory area result in a situation where forest or brush fires are possible.

Fire whirl

During a natural or prescribed fire, the flames drastically heat the surface which allows for hot air near the surface to rise. The air is so hot that it rises quickly and creates strong winds by pulling air in to replace the rising air. These violent winds near the fire sometimes take a rotating form, and can quickly strengthen into a vertical column or vortex of rotating air and flames. This signifies a fire is in a dangerous and uncontrollable stage.

Fire Wind

A thermally driven wind blowing radially inward toward a fire, produced by horizontal temperature differences between the heated air above the fire and the surrounding cooler free atmosphere.

Firebrand

Any source of heat, natural or manmade, capable of igniting wildland fuels; flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or gravity into unburned fuels.

Firn (Snow)

In hydrologic terms, old snow on top of glaciers, granular and compact and not yet converted into ice. It is a transitional stage between snow and ice. Also called Neve.

Firn Line

In hydrologic terms, the highest level to which the fresh snow on a glacier's surface retreats during the melting season. The line separating the accumulation area from the ablation area

First Law of Thermodynamics

The law of physics that states that the heat absorbed by a system either raises the internal energy of the system or does work on the environment.

Flanking Line

A line of cumulus or towering cumulus clouds connected to and extending outward from the most active part of a supercell, normally on the southwest side. The line normally has a stair-step appearance, with the tallest clouds closest to the main storm

Flare

A sudden eruption of energy in the solar atmosphere lasting minutes to hours, from which radiation and particles are emitted. Flares are classified on the basis of area at the time of maximum brightness in H-alpha. Importance 0 (Subflare): <2.0 hemispheric square degrees Importance 1: 2.1-5.1 square degrees Importance 2: 5.2-12.4 square degrees Importance 3: 12.5-24.7 square degrees Importance 4: ?;24.8 square degrees [One square degree is equal to (1.214 x 104 km)2 = 48.5 millionths of the visible solar hemisphere.] A brightness qualifier F, N, or B is generally appended to the importance character to indicate faint, normal, or brilliant (for example, 2B).

Flash

A sudden, brief illumination of a conductive channel associated with lightning, which may contain multiple strokes with their associated stepped leaders, dart leaders and return strokes.

Flash Flood

A rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream

or creek above their normal level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). However, the actual time threshold may vary in different parts of the country. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters.

Flash Flood Guidance

(FFG) Forecast guidance produced by the River Forecast Centers, often model output, specific to the potential for flash flooding (e.g., how much rainfall over a given area will be required to produce flash flooding).

Flash Flood Statement

(FFS) In hydrologic terms, a statement by the NWS which provides follow-up information on flash flood watches and warnings.

Flash Flood Table

In hydrologic terms, a table of pre-computed forecast crest stage values for small streams for a variety of antecedent moisture conditions and rain amounts. Soil moisture conditions are often represented by flash flood guidance values. In lieu of crest stages, categorical representations of flooding, e.g., minor, moderate, etc. may be used on the tables.

Flash Flood Warning

Issued to inform the public, emergency management, and other cooperating agencies that flash flooding is in progress, imminent, or highly likely.

Flash Flood Watch

Issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain or imminent.

Flash Multiplicity

The number of return strokes in a lightning flash.

Flashboards

In hydrologic terms, a length of timber, concrete, or steel placed on the crest of a spillway to raise the retention water level but which may be quickly removed in the event of a flood by a tripping device, or by deliberately designed failure of the flashboard or its supports

FLG

Falling

Float Recording Precipitation gage

In hydrologic terms, a rain gage where the rise of a float within the instrument with increasing rainfall is recorded. Some of these gages must be emptied manually, while others employ a self-starting siphon to empty old rainfall amounts.

Floc

A cluster of frazil particles.

Floe

In hydrologic terms, an accumulation of frazil flocs (also known as a "pan") or a single piece of broken ice

Flood

Any high flow, overflow, or inundation of rivers or steams from their natural banks or artificial banks which causes or threatens damage.

Flood Categories

Terms defined for each forecast point which describe or categorize the severity of flood impacts in the corresponding river/stream reach. Each flood category is bounded by an upper and lower stage (see Example 1). The severity of flooding at a given stage is not necessarily the same at all locations along a river reach due to varying channel/bank characteristics or presence of levees on portions of the reach. Therefore, the upper and lower stages for a given flood category are usually associated with water levels corresponding to the most significant flood impacts somewhere in the reach. The flood categories used in the NWS are: *Minor Flooding* - minimal or no property damage, but possibly some public threat. *Moderate Flooding* - some inundation of structures and roads near stream. Some evacuations of people and/or transfer of property to higher elevations. *Major Flooding* - extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations. *Record Flooding* - flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping. Note: all three of the lower flood categories (minor, moderate, major) do not necessarily exist for a given forecast point. For example, at the level where a

river reaches flood stage, it may be considered moderate flooding. However, at least one of these three flood categories must start at flood stage.

Flood Control Storage

In hydrologic terms, storage of water in reservoirs to abate flood damage.

Flood Crest

Maximum height of a flood wave as it passes a certain location.

Flood Frequency Curve

In hydrologic terms,
(1) A graph showing the number of times per year on the average, plotted as abscissa, that floods of magnitude, indicated by the ordinate, are equaled or exceeded.
(2) A similar graph but with recurrence intervals of floods plotted as abscissa.

Flood Loss Reduction Measures

In hydrologic terms, the strategy for reducing flood losses. There are four basic strategies. They are prevention, property protection, emergency services, and structural projects. Each strategy incorporates different measures that are appropriate for different conditions. In many communities, a different person may be responsible for each strategy.

Flood of Record

In hydrologic terms, the highest observed river stage or discharge at a given location during the period of record keeping. (Not necessarily the highest known stage.)

Flood Plain

Level land that may be submerged by flood waters. In hydrologic terms, the portion of a river valley that has been inundated by the river during historic floods.

Flood Potential Outlook

(ESF on AFOS) (FPO for Acronym): In hydrologic terms, An NWS outlook that is issued to alert the public of potentially heavy rainfall that could send area rivers and streams into flood or aggravate an existing flood.

Flood Prevention

In hydrologic terms, measures that are taken in order to keep flood problems from getting worse. Planning, land acquisition, river channel maintenance, wetlands protection, and other regulations all help modify development on floodplains and watersheds to reduce their susceptibility to flood damage. Preventive measures are usually administered by the building, zoning, planning and/ or code enforcement offices of the local government.

Flood Problems

In hydrologic terms, problems and damages that occur during a flood as a result of human development and actions. Flood problems are a result from:
1) Inappropriate development in the floodplain (e.g., building too low, too close to the channel, or blocking flood flows);
2) Development in the watershed that increases flood flows and creates a larger floodplain, or;
3) A combination of the previous two.

Flood Profile

In hydrologic terms, a graph of elevation of the water surface of a river in flood, plotted as ordinate, against distance, measured in the downstream direction, plotted as abscissa. A flood profile may be drawn to show elevation at a given time, crests during a particular flood, or to show stages of concordant flows

Flood Routing

In hydrologic terms, process of determining progressively the timing, shape, and amplitude of a flood wave as it moves downstream to successive points along the river

Flood Stage

An established gage height for a given location above which a rise in water surface level begins to create a hazard to lives, property, or commerce. The issuance of flood (or in some cases flash flood) warnings is linked to flood stage. Not necessarily the same as bankfull stage.

Flood Statement (FLS)

In hydrologic terms, a statement issued by the NWS to inform the public of flooding along major streams in which there is not a serious threat to life or property. It may also follow a flood warning to give later information.

Flood Warning

(FLW) In hydrologic terms, a release by the NWS to inform the public of flooding along larger streams in which there is a serious threat to life or property. A flood warning will usually contain river stage (level) forecasts.

Flood Watch

Issued to inform the public and cooperating agencies that current and developing hydrometeorological conditions are such that there is a threat of flooding, but the occurrence is neither certain nor imminent.

Flood Wave

In hydrologic terms, a rise in streamflow to a crest and its subsequent recession caused by precipitation, snowmelt, dam failure, or reservoir releases

Flooded Ice

In hydrologic terms, ice which has been flooded by melt water or river water and is heavily loaded by water and wet snow.

Floodproofing

In hydrologic terms, the process of protecting a building from flood damage on site. Floodproofing can be divided into wet and dry floodproofing. In areas subject to slow-moving, shallow flooding, buildings can be elevated, or barriers can be constructed to block the waters approach to the building. These techniques have the advantage of being less disruptive to the neighborhood. It must be noted that during a flood, a floodproofed building may be isolated and without utilities and therefore unusable, even though it has not been damaged.

Floodwall

In hydrologic terms, a long, narrow concrete, or masonry embankment usually built to protect land from flooding. If built of earth the structure is usually referred to as a levee. Floodwalls and levees confine streamflow within a specified area to prevent flooding. The term "dike" is used to describe an embankment that blocks an area on a reservoir or lake rim that is lower than the top of the dam.

Floodway

In hydrologic terms,
(1) A part of the flood plain, otherwise leveed, reserved for emergency diversion of water during floods. A part of the flood plain which, to facilitate the passage of floodwater, is kept clear of encumbrances.
(2) The channel of a river or stream and those parts of the flood plains adjoining the channel, which are reasonably required to carry and discharge the floodwater or flood flow of any river or stream.

Flow

(abbrev. FLW) Wind. In meteorology, a qualitative reference of an air parcel(s) with respect to its direction of movement, sometimes specified at a certain height or pressure elevation, e.g. westerly flow at 500 mb. In hydrology, the volumetric flow of water past a given point on a stream or river, usually in cubic feet per second (cfs).

Flow Duration Curve

In hydrologic terms, a cumulative frequency curve that shows the percentage of time that specified discharges are equaled or exceeded.

Flow Separation

The process by which a separation eddy forms on the windward or leeward sides of bluff objects or steeply rising hillsides.

Flow Splitting

The splitting of a stable airflow around a mountain barrier, with branches going around the left and right edges of the barrier, often at accelerated speeds.

Flowing Well

In hydrologic terms, a well drilled into a confined aquifer with enough hydraulic pressure for the water to flow to the surface without pumping. Also called an Artesian well.

FLRY

Flurry.

FLS

River Flood Statement.

Fluence

Time integrated flux.

Fluid

Matter which flows; gas or liquid.

Flurries
Snow flurries are an intermittent light snowfall of short duration (generally light snow showers) with no measurable accumulation (trace category).

Flux
The rate of transfer of fluids, particles or energy per unit area across a given surface (amount of flow per unit of time).

FLW
Follow (or) Flow- Wind.

FM
From or Fathom.

fMin
In solar-terrestrial terms, the lowest radiowave frequency that can be reflected from the ionosphere.

FNT
Front.

FNTGNS
Frontogenesis.

FNTLYS
Frontolysis.

Foehn
A warm, dry wind on the lee side of a mountain range, the warmth and dryness of the air being due to adiabatic compression as the air descends the mountain slopes. In the United States, the term chinook is used for Foehn winds in the Rocky and Sierra mountains.

Foehn Pause
A temporary cessation of the foehn at the ground due to the formation or intrusion of a cold air layer which lifts the foehn off the ground.

foEs
In solar-terrestrial terms, the maximum ordinary mode radiowave frequency capable of reflec- tion from the sporadic E region of the ionosphere.

foF2
In solar-terrestrial terms, the maximum ordinary mode radiowave frequency capable of reflection from the F2 region of the ionosphere.

Fog
(F) Fog is water droplets suspended in the air or near the Earth's surface. Fog is often hazardous when the visibility is reduced to Â¼ mile or less.

Fog Alert
Fog alerts include all watches, warnings, and advisories that pertain to fog, including dense fog advisories and freezing fog advisories

Fogbow
A rainbow that has a white band that appears in fog, and is fringed with red on the outside and blue on the inside.

Forced Channeling
Channeling of upper winds along a valley's axis when upper winds are diverted by the underlying topography. Compare pressure-driven channeling.

Forebay
In hydrologic terms, the water behind (upstream) of the dam.

Forecast
A statement of prediction and expected future occurrences.

Forecast Crest
In hydrologic terms, the highest elevation of river level, or stage, expected during a specified storm event.

Forecast Guidance
Computer-generated forecast materials used to assist the preparation of a forecast, such as numerical forecast models.

Forecast Issuance Stage
The stage which, when reached by a rising stream, represents the level where RFCs need to begin issuing forecasts for a non-routine (flood-only) forecast point. This stage is coordinated between WFO

and RFC personnel and is not necessarily the same as action or alert stage. The needs of WFO/RFC partners and other users are considered in determining this stage.

Forecast Periods

Official definitions for NWS products:

Today.....Sunrise to sunset
This afternoon.....noon till 6 p.m.
This evening.....6 p.m. till sunset
Tonight.....sunset till sunrise
Tomorrow.....sunrise to sunset of the following day

Forecast Point

A location along a river or stream for which hydrologic forecast and warning services are provided by a WFO. The observed/forecast stage or discharge for a given forecast point can be assumed to represent conditions in a given reach (see /reach/).

Forecast valid for

The period of time the forecast is in effect beginning at a given day, date and time, and ending at a given day, date and time.

Foresight

In hydrologic terms, a sighting on a point of unknown elevation from an instrument of known elevation. To determine the elevation of the point in question, the foresight is subtracted from the height of the instrument.

Forward Flank Downdraft

The main region of downdraft in the forward, or leading, part of a supercell, where most of the heavy precipitation is.

Fountainhead

In hydrologic terms, the upper end of a confined-aquifer conduit, where it intersects the land surface.

FOUS

Forecast Output United States.

FPO

Flood Potential Outlook.

FPS

Fujita-Pearson Scale.

FQT

Frequent.

Fractocumulus

A cumulus cloud presenting a ragged, shredded appearance, as if torn.

Fractostratus

A stratus cloud presenting a ragged, shredded appearance, as if torn. It differs from a fractocumulus cloud in having a smaller vertical extent and darker color.

Fracture

In hydrologic terms, any break or rupture formed in an ice cover or floe due to deformation.

Fracture Zone

In hydrologic terms, an area which has a great number of fractures.

Fracturing

In hydrologic terms, deformation process whereby ice is permanently deformed, and fracture occurs.

Fractus

Ragged, detached cloud fragments; same as scud.

Frazil Ice

In hydrologic terms, fine spicules, plates, or discoids of ice suspended in water. In rivers and lakes, frazil is formed in supercooled, turbulent water.

Frazil Slush

In hydrologic terms, an agglomerate of loosely packed frazil which floats or accumulates under the ice cover.

Freak Wave

A wave of much greater height and steepness than other waves in the prevailing sea or swell system. See Rogue Wave.

Free Atmosphere
The part of the atmosphere that lies above the frictional influence of the earth's surface.

Free Ground Water
In hydrologic terms, unconfined ground water whose upper boundary is a free water table

Freeboard
In hydrologic terms, the vertical distance between the normal maximum level of the water surface in a channel, resrvoir, tank, canal, etc., and the top of the sides of a levee, dam, etc., which is provided so that waves and other movements of the liquid will not overtop the confining structure

Freeze
A freeze is when the surface air temperature is expected to be 32Â°F or below over a widespread area for a climatologically significant period of time. Use of the term is usually restricted to advective situations or to occasions when wind or other conditions prevent frost. "Killing" may be used during the growing season when the temperature is expected to be low enough for a sufficient duration to kill all but the hardiest herbaceous crops.

Freeze Warning
Issued during the growing season when surface temperatures are expected to drop below freezing over a large area for an extended period of time, regardless whether or not frost develops.

Freezeup Date
In hydrologic terms, the date on which the water body was first observed to be completely frozen over

Freezing Drizzle
A drizzle that falls as a liquid but freezes into glaze or rime upon contact with the cold ground or surface structures.

Freezing Drizzle Advisory
Issued when freezing rain or freezing drizzle is forecast but a significant accumulation is not expected. However, even small amounts of freezing rain or freezing drizzle may cause significant travel problems.

Freezing Fog
A fog the droplets of which freeze upon contact with exposed objects and form a coating of rime and/or glaze.

Freezing Level
The altitude at which the air temperature first drops below freezing.

Freezing Mist
Mist occurring in an environment below freezing. This is similar to freezing or frozen fog but the visibility is higher because the density is lower.

Freezing Point
The temperature at which a liquid solidifies under any given set of conditions. Pure water under atmospheric pressure freezes at 0 degrees Celsius or 32 degrees Fahrenheit.

Freezing Rain
Rain that falls as a liquid but freezes into glaze upon contact with the ground.

Freezing Rain Advisory
Issued when freezing rain or freezing drizzle is forecast but a significant accumulation is not expected. However, even small amounts of freezing rain or freezing drizzle may cause significant travel problems.

Freezing Spray
An accumulation of freezing water droplets on a vessel caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Freezing Spray Advisory
An advisory for an accumulation of freezing water droplets on a vessel at a rate of less than 2 centimeters (cm) per hour caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Freezup jam
In hydrologic terms, ice jam formed as frazil ice accumulates and thickens

French Drain
In hydrologic terms, an underground passageway for water through the interstices among stones placed loosely in a trench

Freshet
the annual spring rise of streams in cold climates as a result of snow melt; freshet also refers to a flood caused by rain or melting snow.

Friction

The mechanical resistive force of one object on another object's relative movement when in contact with the first object. In meteorology, friction affects the motion of air (wind) at and near the Earth's surface.

Friction Head

In hydrologic terms, the decrease in total head caused by friction.

Friction Layer

Same as **Planetary Boundary Layer**; the layer within the atmosphere between the earth's surface and 1 km above the surface; this is the layer where friction affects wind speed and wind direction.

FRMG

Forming.

Front

A boundary or transition zone between two air masses of different density, and thus (usually) of different temperature. A moving front is named according to the advancing air mass, e.g., cold front if colder air is advancing.

Frontal Inversion

A temperature inversion that develops aloft when warm air overruns the cold air behind a front.

Frontogenesis

1. The initial formation of a front or frontal zone. 2. In general, an increase in the horizontal gradient of an air mass property, principally density, and the development of the accompanying features of the wind field that typify a front.

FROPA

Frontal Passage.

FROSFC

Frontal Surface.

Frost

(Abbrev. FRST) - Frost describes the formation of thin ice crystals on the ground or other surfaces in the form of scales, needles, feathers, or fans. Frost develops under conditions similar to dew, except the temperatures of the Earth's surface and earthbound objects falls below 32Â°F. As with the term "freeze," this condition is primarily significant during the growing season. If a frost period is sufficiently severe to end the growing season or delay its beginning, it is commonly referred to as a "killing frost." Because frost is primarily an event that occurs as the result of radiational cooling, it frequently occurs with a thermometer level temperature in the mid-30s.

Frost Advisory

Issued during the growing season when widespread frost formation is expected over an extensive area. Surface temperatures are usually in the mid 30s Fahrenheit.

Frost Point

Dew point below freezing.

Frostbite

Human tissue damage caused by exposure to intense cold.

Frozen Dew

When liquid dew changes into tiny beads of ice. This occurs when dew forms and temperatures later drop below freezing.

Frozen Fog

This occurs when water droplets in the air become "supercooled" meaning they remain in a liquid state before contacting a frozen surface. The surface will be covered in ice upon contact. This is a similar process to freezing rain and sleet. This often forms ice crystals on trees and fences

Frozen Mist

Mist occurring in an environment below freezing. This is similar to freezing or frozen fog but the visibility is higher because the density is lower.

Frozen Rain

For freezing or frozen rain to form, the temperature of the cloud base is freezing or below freezing, so it comes out as snow, but there may be a warm layer that the snow falls through and causes the snow to start to melt, but then it falls through another cool layer near the surface and it tries to refreeze.

FRST

Frost- Frost describes the formation of thin ice crystals on the ground or other surfaces in the form of scales, needles, feathers, or fans. Frost develops under conditions similar to dew, except the

temperatures of the Earth's surface and earthbound objects falls below 32Â°F. As with the term "freeze," this condition is primarily significant during the growing season. If a frost period is sufficiently severe to end the growing season or delay its beginning, it is commonly referred to as a "killing frost." Because frost is primarily an event that occurs as the result of radiational cooling, it frequently occurs with a thermometer level temperature in the mid-30s.

FRZ

Freeze.

FRZN

Frozen.

FSCBG

A specific aerial spray dispersion model. The acronym comes from the names of the sponsor and developers (Forest Service, Cramer, Barry, Grim).

FT

Feet (or foot).

FTHR

Further.

FTPMAIL

An Internet server application which provides access to Internet FTP server files via e-mail. The National Weather Service operates an FTPMAIL server which provides e -mail access to any product available on the tgftp.nws.noaa.gov FTP server including marine text and graphic forecasts. For further information see: http://weather.noaa.gov/pub/fax/ftpmail.txt, or send an e-mail to ftpmail@ftpmail.nws.noaa.gov with the word "help" in the body.

Fugitive Dust

Dust that is not emitted from definable point sources such as industrial smokestacks. Sources include open fields, roadways, storage piles, etc.

Fujita Scale

(or F Scale) - A scale of tornado intensity in which wind speeds are inferred from an analysis of wind damage:

Rating	Wind, Damage
F0 (weak)	40-72 mph, light damage
F1 (weak)	73-112 mph, moderate damage
F2 (strong)	113-157 mph, considerable damage
F3 (strong)	158-206 mph, severe damage
F4 (violent)	207-260 mph, devestating damage
F5 (violent)	260-318 mph (rare), incredible damage

All tornadoes, and most other severe local windstorms, are assigned a single number from this scale according to the most intense damage caused by the storm.

Fujiwhara Effect

A binary interaction where tropical cyclones within a certain distance (300-750 nm depending on the sizes of the cyclones) of each other begin to rotate about a common midpoint.

Full-Physics Numerical Model

A computer model used to calculate air pollution concentrations. A full-physics numerical model uses a full set of equations describing the thermodynamic and dynamic state of the atmosphere and can be used to simulate atmospheric phenomena.

Fumigation

A pattern of plume dispersion produced when a convective boundary layer grows upward into a plume trapped in a stable layer. The elevated plume is suddenly brought downward to the ground, producing high surface concentrations.

Funnel Cloud

A condensation funnel extending from the base of a towering cumulus or Cb, associated with a rotating column of air that is not in contact with the ground (and hence different from a tornado). A condensation

funnel is a tornado, not a funnel cloud, if either a) it is in contact with the ground or b) a debris cloud or dust whirl is visible beneath it.

Funnelling

The process whereby wind is forced to flow through a narrow opening between adjacent land areas, resulting in increased wind speed.

FVT

Forecast Verification Tool.

FWC

NGM MOS Guidance.

FWD

Forward.

FZRA

Freezing Rain.

G

Gusts- A rapid fluctuation of wind speed with variations of 10 knots or more between peaks and lulls.

G/KG

Grams per Kilogram.

Gage

In hydrologic terms,
1) A device for indicating the magnitude or position of a thing in specific units, when such magnitude or position undergoes change, for example: The elevation of a water surface, the velocity of flowing water, the pressure of water, the amount or intensity of precipitation, the depth of snowfall, etc.
(2) The act or operation of registering or measuring the magnitude or position of a thing when these characteristics are undergoing change.
(3) The operation, including both field and office work, of measuring the discharge of a stream of water in a waterway.

Gage Datum

A horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum is not an actual physical object, the datum is usually defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained indepenÂdently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

Gaging Station

In hydrologic terms, a particular site on a watercourse where systematic observations of stage/ and or flow are measured.

Gale

On the Beaufort Wind Scale, a wind with speeds from 28 to 55 knots (32 to 63 miles per hour). For marine interests, it can be categorized as a moderate gale (28 to 33 knots), a fresh gale (34 to 40 knots), a strong gale (41 to 47 knots), or a whole gale (48 to 55 knots). In 1964, the World Meteorological Organization defined the categories as near gale (28 to 33 knots), gale (34 to 40 knots), strong gale (41 to 47 knots), and storm (48 to 55 knots).

Gale Warning

A warning of sustained surface winds, or frequent gusts, in the range of 34 knots (39 mph) to 47 knots (54 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Gale Watch

A watch for an increased risk of a gale force wind event for sustained surface winds, or frequent gusts, of 34 knots (39 mph) to 47 knots (54 mph), but its occurrence, location and/or timing is still uncertain.

Gallery

In hydrologic terms, a passageway within the body of a dam or abutment.

Gamma
A unit of magnetic field intensity equal to 1 x 10.0^{-5} Gauss; also equal to 1 nanotelsa (nT).

Gamma Ray
A type of electromagnetic radiation with a very short wavelength and high energy level. Generally, emitted during radioactive decay of a substance.

Gap Winds
Strong winds channeled through gaps in the Pacific coastal ranges, blowing out into the Pacific Ocean or into the waterways of the Inside Passage. The winds blow through low passes where major river valleys issue onto the seaways when strong east-west pressure gradients exist between the coast and the inland areas, with low pressure over the ocean.

Gas Laws
The thermodynamic laws pertaining to perfect gases, including Boyle's law, Charles' law, Dalton's law and the equation of state.

Gate
In hydrologic terms, a device in which a leaf or member is moved across the waterway from an external position to control or stop flow. There are many different kinds of gates used on a dam

Gauss
The unit of magnetic induction in the cgs (centimeter-gram- second) system.

Gaussian Plume Model
A computer model used to calculate air pollution concentrations. The model assumes that a pollutant plume is carried downwind from its emission source by a mean wind and that concentrations in the plume can be approximated by assuming that the highest concentrations occur on the horizontal and vertical midlines of the plume, with the distribution about these mid-lines characterized by Gaussian- or bell-shaped concentration profiles.

Gaussian Puff Model
A model used to calculate air pollution concentrations. The model assumes that a continuously emitted plume or instantaneous cloud of pollutants can be simulated by the release of a series of puffs that will be carried in a time- and space-varying wind field. The puffs are assumed to have Gaussian or bell-shaped concentration profiles in their vertical and horizontal planes.

GDR
On a buoy report, direction, in degrees clockwise from true North, of the GSP, reported at the last hourly 10-minute segment.

GEMPAK
General Environmental Meteorological Package (programming language).

GEN
General.

General Circulation
The totality of large-scale organized motion for the entire global atmosphere.

General Circulation Models
(GCMs) - These computer simulations reproduce the Earth's weather patterns and can be used to predict change in the weather and climate.

General Wind
Land management agency term for winds produced by synoptic-scale pressure systems on which smaller-scale or local convective winds are superimposed.

GEOALERT
An ISES special message summarizing by code the current and predicted levels of solar activity and geomagnetic activity.
definition courtesy of: NWS Space Weather Prediction Center

Geocorona
The outer region of the Earth’s atmosphere lying above the thermosphere and composed mostly of hydrogen.

Geohydrology
In hydrologic terms, the branch of hydrology relating to subsurface, or subterranean waters.

Geomagnetic Activity

Natural variations in the geomagnetic field classified quantitatively into quiet, unsettled, active, and geomagnetic storm levels according to the observed a index: quiet 0 - 7, unsettled 8 - 15, active 16 - 29, minor storm 30 - 49, major storm 50 - 99, severe storm 100 - 400.

Geomagnetic Elements

In solar-terrestrial terms, the components of the geomagnetic field at the surface of the earth. In SESC use, the northward and eastward components are often called the H and D components, where the D component is expressed in gammas and is derived from D (the declination angle) using the small angle approximation.

Geomagnetic Field

The magnetic field observed in and around the earth. The intensity of the magnetic field at the earth's surface is approximately 0.32 gauss at the equator and 0.62 gauss at the north pole

Geomagnetic Storm

In solar-terrestraial terms, a worldwide disturbance of the earth's magnetic field, distinct from regular diurnal variations.
Minor Geomagnetic Storm: A storm for which the Ap index was greater than 29 and less than 50.
Major Geomagnetic Storm: A storm for which the Ap index was greater than 49 and less than 100.
Severe Geomagnetic Storm: A storm for which the Ap index was 100 or more.
Initial Phase: Of a geomagnetic storm, that period when there may be an increase of the middle-latitude horizontal intensity (H).
Main Phase: Of a geomagnetic storm, that period when the hori- zontal magnetic field at middle latitudes is generally decreasing.
Recovery Phase: Of a geomagnetic storm, that period when the depressed northward field component returns to normal levels.

Geomagnetic Time

Magnetic local time.
definition courtesy of: NWS Space Weather Prediction Center

Geomagnetically Induced Current (GIC)

A quasi-DC current induced into long conductors such as electrical transmission lines or pipe lines. This occurs during geomagnetic storms at the Earth due to the movement of the field lines in the vicinity of the conductors.

Geophysical Events

In solar-terrestrial terms, flares (Importance two or larger) with Centimetric Outbursts (maximum of the flux higher than the Quiet Sun flux, duration longer 10 minutes) and/or strong SID. Sometimes these flares are followed by Geomagnetic Storms or small PCA. (Class M Flares)

Geophysics

In hydrologic terms, the study of the physical characteristics and properties of the earth; including geodesy, seismology, meteorology, oceanography, atmospheric electricity, terrestrial magnetism, and tidal phenomena.

Geopotential Height

The height above sea level of a pressure level. For example, if a station reports that the 500 mb height at its location is 5600 m, it means that the level of the atmosphere over that station at which the atmospheric pressure is 500 mb is 5600 meters above sea level. This is an estimated height based on temperature and pressure data.

Geostationary Satellite

A satellite that rotates at the same rate as the earth, remaining over the same spot above the equator.

Geostrophic Wind

A wind that is affected by coriolis force, blows parallel to isobars and whose strength is related to the pressure gradient (i.e., spacing of the isobars).

Geosynchronous

Term applied to any equatorial satellite with an orbital velocity equal to the rotational velocity of the earth. The net effect is that the satellite is virtually motionless with respect to an observer on the ground

GF

Ground Fog- Fog produced over the land by the cooling of the lower atmosphere as it comes in contact with the ground. Also known as radiation fog, and in parts of California as tule fog.

GFS

(Global Forecast System) One of the operational forecast models run at NCEP. The GFS is run four times daily, with forecast output out to 384 hours.

GIS

Geographic Information System. A computer-based graphics program that allows the superposition of plan-maps of thematic elements, such as roads, rivers, land use patterns, and the like to aid in local or regional planning activities.

Glaciation

The transformation of cloud particles from water drops to ice crystals. Thus, a cumulonimbus cloud is said to have a "glaciated" upper portion.

Glacier

In hydrologic terms, bodies of land ice that consist of recrystallized snow accumulated on the surface of the ground, and that move slowly downslope.

Glacier Dammed Lake

In hydrologic terms, the lake formed when a glacier flows across the mouth of an adjoining valley and forms an ice dam.

Glacier Wind

A shallow downslope wind above the surface of a glacier, caused by the temperature difference between the air in contact with the glacier and the free air at the same altitude. The glacier wind does not reverse diurnally like slope and along-valley wind systems.

Glaze

Ice formed by freezing precipitation covering the ground or exposed objects.

GLE

Ground-level event.

GLF

(Open Lakes Forecast) - A National Weather Service marine forecast product for the U.S. waters within a Great Lake not including the waters covered by an existing Nearshore Waters Forecast (NSH). When the seasonal Nearshore forecast is not issued, the Open Lake forecast includes a forecast of nearshore waters.

Global Forecast System

(GFS)- One of the operational forecast models run at NCEP. The GFS is run four times daily, with forecast output out to 384 hours.

Global Temperature Change

The net result of four primary factors including the greenhouse effect, changes in incoming solar radiation, altered patterns of ocean circulations, and changes in continental position, topography and/or vegetation. Three feedback mechanisms which affect global temperature change include cloud height and amount, snow and ice distribution, and atmospheric water vapor levels.

Global Warming

An overall increase in world temperatures which may be caused by additional heat being trapped by greenhouse gases.

Glory

An optical effect characterized by concentric rings of color (red outermost and violet innermost) surrounding the shadow of an observer's head when the shadow is cast onto a cloud deck below the observer's elevation (see Brocken specter).

GLS

(Great Lakes Storm Summary) A National Weather Service forecast product providing updated information whenever a storm warning is in effect on any of the Great Lakes.

GMDSS

(Global Maritime Distress and Safety System)- The Global Maritime Distress and Safety System (GMDSS) is intended to provide more effective and efficient emergency and safety communications and disseminate Maritime Safety Information (MSI) to all ships on the world's oceans regardless of location or atmospheric conditions. MSI includes navigational warnings, meteorological warnings and forecasts, and other urgent safety related information GMDSS goals are defined in the International Convention for The Safety Of Life At Sea (SOLAS). The National Weather Service participates directly in the GMDSS by preparing meteorological forecasts and warnings for broadcast via NAVTEX and SafetyNET.

GMN

On a buoy report, the minute of the hour that the GSP occurred, reported at the last hourly 10-minute segment.

GMT

Greenwich Mean Time (now known as Universal Coordinated Time).

GND

Ground.

GNRL

General.

GOES

Geostationary Operational Environmental Satellite- Satellites orbiting at 22,370 miles above the Equator with the same rotational velocity as the Earth; therefore, the satellite remains over the same location on the Earth 24 hours a day. Besides sending back satellite pictures to earth, it also relays the DCPs river and rainfall data back to the ground

GoMoos

Gulf Of Maine Ocean Observing System.

Good Forecast Quality

The forecast temperature is usually 1.5 to 2.5 degrees C warmer or cooler than the observed forecast.

GPS

An acronym for Global Positioning System. A network of satellites which provide extremely accurate position and time information. Useful in remote locations or for moving platforms.

GRAD

Gradient- A rate of change with respect to distance of a variable quantity, as temperature or pressure, in the direction of maximum change.

Gradient

(GRAD) A rate of change with respect to distance of a variable quantity, as temperature or pressure, in the direction of maximum change.

Gradient High Winds

These high winds usually cover a large area and are due to synoptic-scale, extra-tropical low pressure systems.

Gradual Commencement

In solar-terrestrial terms, the commencement of a geomagnetic storm that has no well-defined onset

Granulation

In solar-terrestrial terms, the cellular structure of the photosphere visible at high spatial resolution.

Graupel

Same as snow pellets or small hail.

Gravity Dam

In hydrologic terms, a concrete structure proportioned so that its own weight provides the major resistance to the forces exerted on it.

Gravity Wave

A wave created by the action of gravity on density variations in the stratified atmosphere. A generic classification for lee waves, mountains waves, and many other waves that form in the atmosphere.

Graybody

A hypothetical "body" that absorbs some constant fraction of all electromagnetic radiation incident upon it.

GRDL

Gradual

Great Circle Track

A great-circle track is the shortest distance between two points on a sphere, and when viewed on a 2-dimensional map the track will appear curved. Swell waves travel along routes that mark out great circles.

Great Lakes Faxback

Dissemination systems housed at Weather Forecast Office (WFO) Cleveland by which Great Lakes customers request and receive hard copies of selected marine products.

Great Lakes Freeze-Up/Break-Up Outlook

(FBO) - A National Weather Service product to keep mariners informed of the projected freeze-up date or break-up date of ice on the Great Lakes.

Great Lakes Marine Forecast (MAFOR)

A National Weather Service coded summary appended to each of the Great Lakes Open Lakes forecasts.

Great Lakes Storm Summary

(GLS) - A National Weather Service forecast product providing updated information whenever a storm warning is in effect on any of the Great Lakes.

Great Lakes Weather Broadcast

(LAWEB) - A National Weather Service product containing an observation summary prepared to provide Great Lakes mariners with a listing of weather observations along or on the Lakes.

Green Line

The green line is one of the strongest (and first-recognized) visible coronal lines. It identifies moderate temperature regions of the CORONA.

Greenhouse Effect

The overall warming of the earth's lower atmosphere. Atmospheric heating caused by solar radiation being readily transmitted inward through the earth's atmosphere but longwave radiation less readily transmitted outward, due to absorption by certain gases in the atmosphere.

Greenhouse Gases

The gases that absorb terrestrial radiation and contribute to the greenhouse global warming effect; the main greenhouse gasses are water vapor (H2O), methane (CH4), carbon dioxide (CO2), nitrous oxide (NO2), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6)and ozone (O3).

GRIB

(Gridded Binary Format) - A format used for meteorological data. Typically used in the past for computer generated model data but will be used increasingly in the future for forecaster generated data.

Grids

1) Squared off areas across the terrain used to define forecast areas. Often 5x5 or 2.5x2.5 kilometer in size. 2) Digitial forecast databases for meteorological elements, including temperature, wind direction, wind speed and others. Computer programs read these databases to create worded and graphical forecast products used by the public and others.

Ground Blizzard Warning

When blizzard conditions are solely caused by blowing and drifting snow.

Ground Clutter

A pattern of radar echoes from fixed ground targets (buildings, hills, etc.) near the radar. Ground clutter may hide or confuse precipitation echoes near the radar antenna.

Ground Fog

(abbrev. GF) Fog produced over the land by the cooling of the lower atmosphere as it comes in contact with the ground. Also known as radiation fog, and in parts of California as tule fog.

Ground Heat Flux

The flux of heat from the ground to the earth's surface; a component of the surface energy budget.

Ground receive sites

In hydrologic terms, a satellite dish and associated computer which receives signals from the GOES satellite, decodes the information, and transmits it to a another site for further processing. The GOES satellite ground-receive site is located at Wallops Island, VA; and the information is relayed to a mainframe computer at NWSH for processing.

Ground Stroke

The current that propagates along the ground from the point where a direct stroke of lightning hits the ground.

Ground Water

In hydrologic terms, water within the earth that supplies wells and springs; water in the zone of saturation where all openings in rocks and soil are filled, the upper surface of which forms the water table. Also termed Phreatic water.

Ground Water Divide
In hydrologic terms, A line on a water table where on either side of which the water table slopes downward. It is analogous to a drainage divide between two drainage basins on a land surface

Ground Water Flow
In hydrologic terms, streamflow which results from precipitation that infiltrates into the soil and eventually moves through the soil to the stream channel. This is also referred to as baseflow, or dry-weather flow

Ground Water Hydrology
The branch of hydrology that specializes in ground water; its occurrence and movements; its replenishment and depletion; the properties of rocks that control ground water movement and storage; and the methods of investigation and utilization of ground water

Ground Water Outflow
In hydrologic terms, the part of the discharge from a drainage basin that occurs through the ground water. The term "underflow" is often used to describe the ground water outflow that takes place in valley alluvium (instead of the surface channel) and thus is not measure at a gaging station.

Ground Water Overdraft
Pumpage of ground water in excess of safe yield.

Ground Water Runoff
That part of the runoff which has passed into the ground, has become ground water, and has been discharged into a stream channel as spring, or seepage water.

Grounded ice
In hydrologic terms, ice that has run aground or is contact with the ground underneath it

Group Velocity
The speed at which a particular wave front or swell train advances.

Grout Curtain
A barrier produced by injecting grout into a vertical zone, usually narrow (horizontally), and in the foundation to reduce seepage under a dam

Growing Degree Day
The number of degrees that the average temperature is above a baseline value. For example, 40 degrees for canning purposes; 45 degree for potatoes; and 50 degrees for sweet corn, snap beans, lima beans, tomatoes, grapes, and field corn. Every degree that the average temperature is above the baseline value becomes a growing degree day. Agricultural related interests use growing degree days to determine planting times.

Growing Season
the period of time between the last killing frost of spring and the first killing frost of autumn.

Growler
Similar to a bergy bit, but smaller, extending less than 1 meter above the sea surface and occupying an area of 20 square meters or less.

GRT
Great.

GRTST
Greatest.

GSP
On a buoy report, maximum 5-second peak gust during the measurement hour, reported at the last hourly 10-minute segment.

GST
On a buoy report, peak 5 or 8 second gust speed (m/s) measured during the eight-minute or two-minute period. The 5 or 8 second period can be determined by payload.

GSTY
Gusty.

GTR
Greater.

Gulf Stream
Warm water current extending from the Gulf of Mexico and Florida up the U.S. east coast then east northeast to Iceland and Norway.

GUNA

Average of GHMI, EGRI, NGPI, and GFSI GHMI: Previous cycle GFDL, adjusted using a variable intensity offset correction that is a function of forecast time. GFDL: NWS/Geophysical Fluid Dynamics Laboratory GFDL) model EGRI: Previous cycle EGRR, adjusted EGRR: UKMET with subjective quality control applied to the tracker UKMET: United Kingdom Met Office NGPI: Previous cycle NGPS, adjusted NGPS: Navy Operational Global Prediction System NOGAPS: Navy Operational Global Prediction System GFSI: Previous cycle GFS, adjusted GFS: NWS/Global Forecast System

Gunge

Slang for anything in the atmosphere that restricts visibility for storm spotting, such as fog, haze, precipitation (steady rain or drizzle), widespread low clouds (stratus), etc.

Gust

(Abbrev. G) - A rapid fluctuation of wind speed with variations of 10 knots or more between peaks and lulls.

Gust Front

The leading edge of gusty surface winds from thunderstorm downdrafts; sometimes associated with a shelf cloud or roll cloud. See also gustnado or outflow boundary.

Gustnado

(or Gustinado) - A gustnado is a small, whirlwind which forms as an eddy in thunderstorm outflows. They do not connect with any cloud-base rotation and are not tornadoes. Since their origin is associated with cumuliform clouds, gustnadoes will be classified as Thunderstorm Wind events. Like dust devils, some stronger gustnadoes can cause damage.

Gyres

Oceanic current systems of planetary scale driven by the global wind system.

H-Alpha

In solar-terrestrial terms, this absorption line of neutral hydrogen falls in the red part of the visible spectrum and is convenient for solar observations. The H-alpha line is universally used for patrol observations of solar flares.

H-component of the Geomagnetic Field

(Geomagnetic Elements) In solar-terrestrial terms, the components of the geomagnetic field at the surface of the earth. In SESC use, the northward and eastward components are often called the H and D components, where the D component is expressed in gammas and is derived from D (the declination angle) using the small angle approximation.

H0

On a buoy report, Significant Wave Height is the average height (meters) of the highest one-third of the waves during a 20 minute sampling period.

H5

500 millibar level height (in a standard atmosphere this is near 5,500 meters (18,000 ft)

H7

height of the 700 millibar level. In a standard atmosphere this is near 3,000 meters (10,000 ft)

H8

height of the 850 millibar level.

Hague Line

The North Atlantic boundary between the U.S. and Canada fishing waters as determined by the World Court in The Hague, Netherlands.

Hail

Showery precipitation in the form of irregular pellets, balls or hail stones of ice more than 5 mm in diameter, falling from a cumulonimbus cloud.

Hail Contamination

A limitation in NEXRAD rainfall estimates whereby abnormally high reflectivities associated with hail are converted to rainfall rates and rainfall accumulations. These high reflectivity values are mistaken by the radar for extremely heavy rain, thus "contaminating" (inflating) its estimation of how much rain has fallen over the affected area.

Hail Index

An indication of whether the thunderstorm structure of each storm identified is conducive to the production of hail.

Hail Size

Typically refers to the diameter of the hailstones. Warnings and reports may report hail size through comparisons with real-world objects that correspond to certain diameters:

Description	Diameter (inches)
Pea	0.25
Marble or Mothball	0.50
Penny or Dime	0.75
Nickel	0.88
Quarter	1.00
Half Dollar	1.25
Walnut or Ping Pong Ball	1.50
Golfball	1.75
Hen's Egg	2.00
Tennis Ball	2.50
Baseball	2.75
Tea Cup	3.00
Grapefruit	4.00
Softball	4.50

Hail Spike

An area of reflectivity extending away from the radar immediately behind a thunderstorm with extremely large hail. In an area of large hail, radiation from the radar can bounce from hailstone to hailstone before being reflected back to the radar. The time delay between the backscattered radiation from the storm and the bounced and scattered radiation from the large hail causes the reflectivity from the hail to appear to come from a farther range than the actual storm.

Hail Stone

A frozen form of precipitation consisting of individual balls or lumps of ice called hail stones, produced from cumulonimbus or thunderstorm clouds.

Haines Index

This is also called the Lower Atmosphere Stability Index. It is computed from the morning (12Z) soundings from RAOB stations across North America. The index is composed of a stability term and a moisture term. The stability term is derived from the temperature difference at two atmosphere levels. The moisture term is derived from the dew point depression at a single atmosphere level. This index has been shown to be correlated with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior. The Haines Indices range from 2 to 6 for indicating potential for large fire growth

Halo

Any of a variety of bright circles or arcs centered on the sun or moon, caused by the refraction or reflection of light by ice crystals suspended in the earth's atmosphere and exhibiting prismatic coloration ranging from red inside to blue outside.

Halo CME

A faint ring of enhanced emission seen around most or all of the edge of the occulting disk of a coronagraph. Indicative of a spatially large CME on the front side (Earthward) or back side of the Sun. The source region is usually nearer to solar central meridian than the limbs. A partial halo is currently defined as spanning less than 120 degrees of solar latitude at the limb while full halo CMEs encompass 360 degrees. Full halo CMEs from the front side of the Sun almost always result in geomagnetic storms at Earth, especially when accompanied by a solar proton event.

Hanging (ice) dam

In hydrologic terms, a mass of ice composed mainly of frazil or broken ice deposited underneath an ice cover in a region of low flow velocity.

Hazardous Seas Warning

A warning for wave heights and/or wave steepness values meeting or exceeding locally defined warning criteria.

Hazardous Seas Watch

A watch for an increased risk of a hazardous seas warning event to meet Hazardous Seas Warning criteria but its occurrence, location, and/or timing is still uncertain.

Hazardous Weather Outlook

A narrative statement produced by the National Weather Service, frequently issued on a routine basis, to provide information regarding the potential of significant weather expected during the next 1 to 5 days.

Hazards Assessment

CPC's Hazards Assessment provides emergency managers, planners, forecasters and the public advance notice of potential hazards related to climate, weather and hydrological events.

Haze

(abbrev. HZ)- An aggregation in the atmosphere of very fine, widely dispersed, solid or liquid particles, or both, giving the air an opalescent appearance that subdues colors.

HDD

Heating Degree Days- A form of degree day used to estimate energy requirements for heating. Typically, heating degree days are calculated as how much colder the mean temperature at a location is than 65Â°F on a given day. For example, if a location experiences a mean temperature of 55Â°F on a certain day, there were 10 HDD (Heating Degree Days) that day because 65 - 55 = 10.

HDRAIN

An Hourly Digital Rainfall Product of the WSR-88D.

Head

In hydrologic terms, the difference between the pool height and tailwater height. Usually expressed in feet of head, or in lbs./sq. inch

Head Loss

In hydrologic terms, the decrease in total head caused by friction

Head Race

In hydrologic terms, a channel which directs water to a water wheel; a forebay.

Headward Erosion

In hydrologic terms, erosion which occurs in the upstream end of the valley of a stream, causing it to lengthen its course in such a direction.

Headwater Basin

In hydrologic terms, a basin at the headwaters of a river. All discharge of the river at this point is developed within the basin.

Headwaters

In hydrologic terms, streams at the source of a river.

Heat

The condition of being hot. Heat is the form of energy that is transferred between two substances at different temperatures. Heat energy is the result of the movement of tiny particles called atoms, molecules or ions in solids, liquids and gases.

Heat Advisory

Issued within 12 hours of the onset of the following conditions: heat index of at least 105Â°F but less than 115Â°F for less than 3 hours per day, or nighttime lows above 80Â°F for 2 consecutive days.

Heat Exhaustion

The effect of excessive heat, particularly when combined with high humidity, on a human being. Signs of heat exhaustion include a general weakness, heavy sweating and clammy skin, dizziness and/or fainting, and muscle cramps. A mild form of heat stroke.

Heat Index

The Heat Index (HI) or the "Apparent Temperature" is an accurate measure of how hot it really feels when the Relative Humidity (RH) is added to the actual air temperature.

Heat Lightning

Lightning that appears as a glowing flash on the horizon. It is actually lightning occurring in distant thunderstorms, just over the horizon and too far away for thunder to be heard.

Heat Stroke

A condition resulting from overexposure to high temperatures. The signs of heat stroke include a body temperature greater than 105 degrees Fahrenheit, the skin is hot and dry, possible high fever, there is a rapid and irregular pulse, perspiration has stopped, collapse and one may have lost consciousness.

Heat Wave

A period of abnormally and uncomfortably hot and unusually humid weather. Typically a heat wave lasts two or more days.

Heating Degree Days

(abbrev. HDD) A form of degree day used to estimate energy requirements for heating. Typically, heating degree days are calculated as how much colder the mean temperature at a location is than 65Â°F on a given day. For example, if a location experiences a mean temperature of 55Â°F on a certain day, there were 10 HDD (Heating Degree Days) that day because 65 - 55 = 10.

Heavy Freezing Spray

An accumulation of freezing water droplets on a vessel at a rate of 2 cm per hour or greater caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Heavy Freezing Spray Warning

A warning for an accumulation of freezing water droplets on a vessel at a rate of 2 cm per hour or greater caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Heavy Freezing Spray Watch

A watch for an increased risk of a heavy freezing spray event to meet Heavy Freezing Spray Warning criteria but its occurrence, location, and/or timing is still uncertain.

Heavy Snow

This generally means...

- snowfall accumulating to 4" or more in depth in 12 hours or less; or
- snowfall accumulating to 6" or more in depth in 24 hours or less

In forecasts, snowfall amounts are expressed as a range of values, e.g., "8 to 12 inches." However, in heavy snow situations where there is considerable uncertainty concerning the range of values, more appropriate phrases are used, such as "...up to 12 inches..." or alternatively "...8 inches or more...".

Heavy Snow Warning

Issued by the National Weather Service when snowfall of 6 inches (15 cm) or more in 12 hours or 8 inches (20 cm) or more in 24 hours is imminent or occurring. These criteria are specific for the Midwest and may vary regionally.

Heavy Surf Advisory

An advisory issued by the National Weather Service for fast moving deep water waves which can result in big breaking waves in shallow water (the surf zone).

Hectopascal

A unit of pressure equal to a millibar (1 hPa = 1 mb). Abbreviated hPa.

Height

In meteorology, usually a reference to **Geopotential Height**; roughly the height above sea level of a pressure level. For example, if a station reports that the 500 mb height at its location is 5600 m, it means that the level of the atmosphere over that station at which the atmospheric pressure is 500 mb is 5600 meters above sea level. This is an estimated height based on temperature and pressure data.

Helicity

A property of a moving fluid which represents the potential for helical flow (i.e. flow which follows the pattern of a corkscrew) to evolve. Helicity is proportional to the strength of the flow, the amount of vertical wind shear, and the amount of turning in the flow (i.e. vorticity). Atmospheric helicity is computed from the vertical wind profile in the lower part of the atmosphere (usually from the surface up to 3 km), and is measured relative to storm motion. Higher values of helicity (generally, around 150 m^2/s^2 or more) favor the development of mid-level rotation (i.e. mesocyclones). Extreme values can exceed 600 m^2/s^2.

Heliographic

Referring to coordinates on the solar surface referenced to the solar rotational axis.

Heliopause

The boundary surface between the solar wind and the external galactic medium.

definition courtesy of: NWS Space Weather Prediction Center

Helioseismology

The study of wave oscillations in the Sun using acoustic, gravity, and surface gravity waves.
definition courtesy of: NWS Space Weather Prediction Center

Heliosphere

The magnetic cavity surrounding the Sun, carved out of the galaxy by the solar wind.
definition courtesy of: NWS Space Weather Prediction Center

Helmet streamer

A feature of the white light corona (seen in eclipse or with a coronagraph) that looks like a ray extending away from the Sun out to about 1 solar radius, having an arch-like base containing a cavity usually occupied by a prominence.
definition courtesy of: NWS Space Weather Prediction Center

Hemispherical Power Input (HPI)

See estimated hemispherical power input.
definition courtesy of: NWS Space Weather Prediction Center

HF

High frequency.

Hertz

(abbrev. Hz)- An international unit of frequency equal to one cycle per second, and named after a German physicist.

HI

High- In meteorology, a region of high pressure; also known as anticyclone.

HIC

Hydrologist In Charge

High

(abbrev. HI)- In meteorology, a region of high pressure; also known as anticyclone.

High Clouds

These clouds have bases between 16,500 and 45,000 feet in the mid latitudes. At this level they are composed of primarily of ice crystals. Some clouds at this level are cirrus, cirrocumulus, and cirrostratus

High Energy Event

In solar-terrestrial terms, flares (class two or more) with outstanding Centimetric Bursts and SID. High Energy Protons are reported at the Earth in case of most of these events occurring on the western part of solar disk. (Class X flares)

High Frequency (HF)

The portion of the radio frequency spectrum between between 3 and 30 MHz

High Latitudes

With specific reference to zones of geomagnetic activity, "high latitudes" refers to 50Âº to 80Âº geomagnetic.

High Risk (of severe thunderstorms)

Severe weather is expected to affect more than 10 percent of the area. A high risk is rare, and implies an unusually dangerous situation and usually the possibility of a major severe weather outbreak.

High Seas Forecast

(HSF) - Marine forecasts for the major oceans of the world. In this context, major gulfs or seas (e.g., the Gulf of Mexico or the Bering Sea) are included within these forecast areas. Areas of responsibility for the U.S. are determined by international agreements under the auspices of the World Meteorological Organization (WMO).

High Surf

Large waves breaking on or near the shore resulting from swells spawned by a distant storm.

High Surf Advisory

A High Surf Advisory is issued when breaking wave action poses a threat to life and property within the surf zone. High surf criteria vary by region. High Surf Advisories are issued using the Coastal and Lakeshore Hazard Message (CFW) product.

High Surf Warning

A High Surf Warning is issued when breaking wave action results in an especially heightened threat to

life and property within the surf zone. High surf criteria vary by region. High Surf Warnings are issued using the Coastal and Lakeshore Hazard Message (CFW) product.

High Wind

Sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration.

High Wind Advisory

This product is issued by the National Weather Service when high wind speeds may pose a hazard. The criteria for this advisory varies from state to state. In Michigan, the criteria is sustained non-convective (not related to thunderstorms) winds greater than or equal to 30 mph lasting for one hour or longer, or winds greater than or equal to 45 mph for any duration.

High Wind Warning

This product is issued by the National Weather Service when high wind speeds may pose a hazard or is life threatening. The criteria for this warning varies from state to state. In Michigan, the criteria is sustained non-convective (not related to thunderstorms) winds greater than or equal to 40 mph lasting for one hour or longer, or winds greater than or equal to 58 mph for any duration.

High Wind Watch

This product is issued by the National Weather Service when there is the potential of high wind speeds developing that may pose a hazard or is life threatening. The criteria for this watch varies from state to state. In Michigan, the criteria is the potential for sustained non-convective (not related to thunderstorms) winds greater than or equal to 40 mph and/or gusts greater than or equal to 58 mph.

High-Speed Stream

In solar-terrestrial terms, a feature of the solar wind having velocities that are about double average solar wind values.

Hinge Crack

In hydrologic terms, a crack caused by significant changes in water level.

HLS

Hurricane Local Statement.

HMD

(Hemispheric Map Discussion)- This discussion is issued once a day around 1 PM EST (2 PM EDT) and is primarily intended to provide insight into the hemispheric circulation patterns over the next 5 days. This includes a discussion of the 5-day mean circulation pattern. Comparisons, differences, and continuity among the numerical models are highlighted, and preferred solutions are proposed with an explanation of why a solution is preferred. This includes any reasons why the preferred solution differs from any model. In cases where certain models are not universally available, an attempt will be made to describe that model's solution to an extent that a reader can understand it's important aspects.

HND

Hundred.

Hoar Frost

A deposit of interlocking crystals formed by direct sublimation on objects, usually those of small diameter freely exposed to the air, such as tree branches, plants, wires, poles, etc. The deposition of hoar frost is similar to the process by which dew is formed, except that the temperature of the frosted object must be below freezing. It forms when air with a dew point below freezing is brought to saturation by cooling.

Hodograph

A polar coordinate graph which shows the vertical wind profile of the lowest 7000 meters of the atmosphere. These plots are used to determine the advection patterns aloft, whether a thunderstorm will rotate, and the type of thunderstorms that you will likely see that day.

Homologous Flares

In solar-terrestrial terms, solar flares that occur repetitively in the same active region, with essentially the same position and with a common pattern of development

Hook Echo

A radar reflectivity pattern characterized by a hook-shaped extension of a thunderstorm echo, usually in the right-rear part of the storm (relative to its direction of motion). A hook often is associated with a mesocyclone, and indicates favorable conditions for tornado development.

Horizon

The distant line along which the earth and sky appear to meet. Obstructions are not considered as part

of the horizon.

Hourly Precipitation Data (HPD)

It contains data on nearly 3,000 hourly precipitation stations (National Weather Service, Federal Aviation Administration, and cooperative observer stations) in inches to tenths or inches to hundredths at local standard time. HPD includes maximum precipitation for nine (9) time periods from 15 minutes to 24 hours, for selected stations.

HP Storm

or HP Supercell - High-Precipitation storm (or High-Precipitation supercell). A supercell thunderstorm in which heavy precipitation (often including hail) falls on the trailing side of the mesocyclone.

Precipitation often totally envelops the region of rotation, making visual identification of any embedded tornadoes difficult and very dangerous. Unlike most classic supercells, the region of rotation in many HP storms develops in the front-flank region of the storm (i.e., usually in the eastern portion). HP storms often produce extreme and prolonged downburst events, serious flash flooding, and very large damaging hail events.

hPa

Hectopascal- A unit of pressure equal to a millibar (1 hPa = 1 mb).

HPC

Hydrometeorological Prediction Center.

HR

Hour.

HRS

Hours.

HSA (Hydrologic Service Area)

A geographical area assigned to Weather Service Forecast Office's/Weather Forecast Office's that embraces one or more rivers.

Humidity

The amount of water vapor in the air. Types of humidity include absolute humidity, relative humidity and specific humidity.

Humidity Recovery

The change in relative humidity over a given period of time; generally between late evening and sunrise. The moisture change in the fine fuels during this period is directly related to the amount of humidity recovery.

Hummock

In hydrologic terms, a hillock of broken ice which has been forced upward by pressure

Hummocked Ice

In hydrologic terms, ice piled haphazardly one piece over another to form an uneven surface.

Hurricane

(HURCN) 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.

Hurricane Force Wind Warning

A warning for sustained winds, or frequent gusts, of 64 knots (74 mph) or greater, either predicted or occurring, and not directly associated with a tropical cyclone.

Hurricane Force Wind Watch

A watch for an increased risk of a hurricane force wind event for sustained surface winds, or frequent gusts, of 34 knots 64 knots (74 mph) or greater, but its occurrence, location, and/or timing is still uncertain.

Hurricane Local Statement

A public release prepared by local National Weather Service offices in or near a threatened area giving specific details for its county/parish warning area on

(1) weather conditions

(2) evacuation decisions made by local officials

(3) other precautions necessary to protect life and property.

Hurricane Season

The part of the year having a relatively high incidence of tropical cyclones. In the Atlantic, Caribbean, and Gulf of Mexico, and central North Pacific, the hurricane season is the period from June through November; in the eastern Pacific, May 15 through November 30. Tropical cyclones can occur year-round in any basin.

Hurricane Warning

An announcement that hurricane conditions (sustained winds of 74 mph or higher) are expected somewhere within the specified coastal area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds. The warning can remain in effect when dangerously high water or a combination of dangerously high water and waves continue, even though winds may be less than hurricane force.

Hurricane Watch

An announcement that hurricane conditions (sustained winds of 74 mph or higher) are possible within the specified coastal area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours in advance of the anticipated onset of tropical-storm-force winds.

HV

Have.

HVY

Heavy.

HWRF

NWS/Hurricane Weather Research and Forecasting Model.

HWVR

However.

Hyder Flare

In solar-terrestrial terms, a filament-associated two-ribbon flare, often occurring in spotless regions. The flare presumably results from the impact on the chromosphere of infalling filament material.

Hydraulic Fill Dam

In hydrologic terms, a dam constructed of materials, often dredged, that are conveyed and placed by suspension in flowing water

Hydraulic Flow

Atmospheric flow that is similar in character to the flow of water over an obstacle.

Hydraulic Grade Line

In hydrologic terms, a line whose plotted ordinate position represents the sum of pressure head plus elevation head for the various positions along a given fluid flow path, such as along a pipeline or a ground water streamline.

Hydraulic Head

In hydrologic terms,

(1) The height of the free surface of a body of water above a given point beneath the surface.

(2) The height of the water level at the headworks, or an upstream point, of a waterway, and the water surface at a given point downstream.

(3) The height of a hydraulic grade line above the center line of a pressure pipe, at a given point.

Hydraulic Jump

A steady disturbance in the lee of a mountain, where the airflow passing over the mountain suddenly changes from a region of low depth and high velocity to a region of high depth and low velocity.

Hydraulic Permeability

In hydrologic terms, the flow of water through a unit cross-sectional area of soil normal to the direction of flow when the hydraulic gradient is unity.

HydroÂmeteorology

An interÂdisciÂplinary science involving the study and analysis of the interÂrelationÂships between the atmoÂspheric and land phases of water as it moves through the hydroÂlogic cycle.

Hydrograph

In hydrologic terms, a graph showing the water level (stage), discharge, or other property of a river volume with respect to time.

Hydrograph Separation

In hydrologic terms, the process where the storm hydrograph is separated into baseflow components and surface runoff components.

Hydrographic Survey

In hydrologic terms, an instrumental survey to measure and determine characteristics of streams and other bodies of water within an area, including such things as location, areal extent, and depth of water in lakes or the ocean; the width, depth, and course of streams; position and elevation of high water marks; location and depth of wells, etc.

Hydrologic Budget

In hydrologic terms, an accounting of the inflow to, outflow from, and storage in, a hydrologic unit, such as a drainage basin, aquifer, soil zone, lake, reservoir, or irrigation project.

Hydrologic Cycle

The description of the transport of water substance between the earth, the atmosphere, and the seas.
or
In hydrologic terms, the natural pathway water follows as it changes between liquid, solid, and gaseous states.

Hydrologic Equation

In hydrologic terms, the water inventory equation (Inflow = Outflow + Change in Storage) which expresses the basic principle that during a given time interval the total inflow to an area must equal the total outflow plus the net change in storage.

Hydrologic Model

In hydrologic terms, a conceptual or physically-based procedure for numerically simulating a process or processes which occur in a watershed.

Hydrologic Service Area

HSA. A geographical area assigned to Weather Service Forecast Office's/Weather Forecast Office's that embraces one or more rivers.

Hydrology

The scientific study of the waters of the earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water on or below the land surface.

Hydrometeor

Any form of water vapor, rain, clouds, fog, mist, liquid, snow, ice, ice crystals, graupel, hail in the atmosphere.

Hydrometeorologists

In hydrologic terms, individuals who have the combined knowledge in the fields of both meteorology and hydrology which enables them to study and solve hydrologic problems where meteorology is a factor.

Hydrometeorology

An interÂdisciÂplinary science involving the study and analysis of the interÂrelationÂships between the atmoÂspheric and land phases of water as it moves through the hydroÂlogic cycle.

Hydrostatic Head

In hydrologic terms, a measure of pressure at a given point in a liquid in terms of the vertical height of a column of the same liquid which would produce the same pressure

Hyetograph

A graphical representation of rainfall intensity with respect to time.

Hygrometer

An instrument which measures the water vapor content in the atmosphere or humidity of the air.

Hygroscopic

Absorbing or attracting moisture from the air.

Hypothermia

Occurs when the core temperature of one's body falls below normal. It is the failure of the body to maintain adequate production of heat under conditions of extreme cold.

HZ

1) Haze- An aggregation in the atmosphere of very fine, widely dispersed, solid or liquid particles, or both, giving the air an opalescent appearance that subdues colors.
(or)

2) Hertz- An international unit of frequency equal to one cycle per second, and named after a German physicist.

Ice

The solid form of water. It can be found in the atmosphere in the form of ice, ice crystals, snow, ice pellets, graupel and hail.

Iceberg

A large mass of glacial ice broken off from a land mass, ice shelf or another ice glacier floating adrift in the ocean or water body.

Ice Age

A time of widespread glaciation.

Ice Boom

In hydrologic terms, a floating structure designed to retain ice.

Ice Bridge

In hydrologic terms, a continuous ice cover of limited size extending from shore to shore like a bridge.

Ice Crystals

A barely visible crystalline form of ice that has the shape of needles, columns or plates. Ice crystals are so small that they seem to be suspended in air. Ice crystals occur at very low temperatures in a stable atmosphere.

Ice Fog

(Also called ice-crystal fog, frozen fog, frost fog, frost flakes, air hoar, rime fog, pogonip.) A type of fog, composed of suspended particles of ice; partly ice crystals 20 to 100 micron in diameter, but chiefly (especially when dense) ice particles about 12â€“20 micron in diameter, formed by direct freezing of supercooled water droplets with little growth directly from the vapor. It occurs at very low temperatures, and usually in clear, calm weather in high latitudes. The sun is usually visible and may cause halo phenomena. Ice fog is rare at temperatures warmer than -30Â°C, and increases in frequency with decreasing temperature until it is almost always present at air temperatures of -45Â°C in the vicinity of a source of water vapor. Such sources are the open water of fast-flowing streams or of the sea, herds of animals, volcanoes, and especially products of combustion for heating or propulsion. At temperatures warmer than -30Â°C, these sources can cause steam fog of liquid water droplets, which may turn into ice fog when cooled (see frost smoke). See ice-crystal haze, arctic mist.

Ice Gorge

In hydrologic terms, the gorge or opening left in a jam after it has broken.

Ice Jam

An accumulation of broken river ice caught in a narrow channel, frequently producing local flooding. Primarily occurs during a thaw in the late winter or early spring. In hydrologic terms, a stationary accumulation that restricts or blocks streamflow.

Ice Loss

The retreat of sea ice and land ice mass from its historic extents. This retreat of sea ice and land ice is one of two major causes of the current sea level rise.

Ice Nucleus

Any particle that serves as a nucleus in the formation of ice crystals in the atmosphere.

Ice Pellets

(abbrev. IP) Same as **Sleet**; defined as pellets of ice composed of frozen or mostly frozen raindrops or refrozen partially melted snowflakes. These pellets of ice usually bounce after hitting the ground or other hard surfaces. A Winter Storm Warning is issued for sleet or a combination of sleet and snow based on total accumulation which is locally defined by area.

Ice Push

In hydrologic terms, compression of an ice cover particularly at the front of a moving section of ice cover.

Ice Run

In hydrologic terms, flow of ice in a river. An ice run may be light or heavy, and may consist of frazil, anchor, slush, or sheet ice.

Ice Shelf

An ice shelf forms from the outflow of land ice and floats on the sea at the land's edge. It creates a barrier that slows the flow of land ice into the ocean.

Ice Shove
In hydrologic terms, on-shore ice push caused by wind, and currents, changes in temperature, etcetera.

Ice Storm
A severe weather condition when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of Â¼" or greater.

Ice Storm Warning
This product is issued by the National Weather Service when freezing rain produces a significant and possibly damaging accumulation of ice. The criteria for this warning varies from state to state, but typically will be issued any time more than 1/4" of ice is expected to accumulate in an area.

Ice Twitch
In hydrologic terms, downstream movement of a small section of an ice cover. Ice twitches occur suddenly and often appear successively.

Iceberg
A piece of a glacier which has broken off and is floating in the sea.

Icelandic Low
A semi-permanent, subpolar area of low pressure in the North Atlantic Ocean. Because of its broad area and range of central pressure, it is an area where migratory lows tend to slow down and deepen. It is strongest during a Northern Hemisphere winter and early spring, centered over Iceland and southern Greenland, and is the dominate weather feature in the area. During the summer, it is weaker, less intense, and might divide into two parts, one west of Iceland, the other over the Davis Strait between Greenland and Baffin Island. Then the Azores or Bermuda High becomes the dominate weather feature in the North Atlantic.

Icicle
Ice that forms in the shape of a narrow cone hanging point down. It usually forms when liquid water from a sheltered or heated source comes in contact with below-freezing air and freezes more or less rapidly as it flows.

Icing
A forming or coating of ice on a solid object.

Ideal Gas Laws
The thermodynamic laws applying to perfect gases.

IFR
Instrument Flight Rules.

IMF
Interplanetary magnetic field.

Impermeable
Material that does not permit fluids to pass through it.

Impervious
In hydrologic terms, the ability to repel water, or not let water infiltrate.

IMPL
Impulse- Alternate term for Upper Level System and Shortwave; a general term for any large-scale or mesoscale disturbance capable of producing upward motion (lift) in the middle or upper parts of the atmosphere.

Import
In hydrologic terms, water piped or channeled into an area.

IMPT
Important.

Impulse
(abbrev. IMPL) Alternate term for **Upper Level System** and **Shortwave**; a general term for any large-scale or mesoscale disturbance capable of producing upward motion (lift) in the middle or upper parts of the atmosphere.

in Hg
Inches of Mercury.

In-Cloud Lightning
(abbrev. IC) Lightning that takes place within the cloud.

Inactive Storage Capacity

In hydrologic terms, the portion of capacity below which the reservoir is not normally drawn, and which is provided for sedimentation, recreation, fish and wildlife, aesthetic reasons, or for the creation of a minimum controlled operational or power head in compliance with operating agreements or restrictions.

Inch-Degrees

The product of rainfall (in inches) multiplied by the temperature (in degrees Fahrenheit) above freezing. Used as a measure of the snow melting capacity of rainfall.

Inches of Mercury

(in. Hg) Unit of atmospheric pressure used in the United States. The name comes from the use of mercurial barometers which equate the height of a column of mercury with air pressure. One inch of mercury is equivalent to 33.86 millibars or 25.40 millimeters. See barometric pressure. First divised in 1644 by Evangelista Torricelli (1608-1647), an Italian physicist and mathematician, to explain the fundamental principles of hydromechanics.

To convert millibars (mb) to inches of mercury (in Hg), divide the millibar reading by 33.86:
in Hg = mb / 33.86

Inches of Runoff

In hydrologic terms, the volume of water from runoff of a given depth over the entire drainage.

Inclination of the Geomagnetic Field

The angle between the local geomagnetic field direction and the horizon.

INCR

Increase.

INDC

Indicate.

Index of Wetness

The ratio of precipitation for a given year over the mean annual precipitation.

Indian Summer

An unseasonably warm period in mid to late of autumn, usually following a substantial period of cool weather.

Indirect Hit

Generally refers to locations that do not experience a direct hit from a tropical cyclone, but do experience hurricane force winds (either sustained or gusts) or tides of at least 4 feet above normal.

Industrial Consumption

The quantity of water consumed in a municipality or district for mechanical, trade, and manufacturing purposes, in a given period, generally one day. The per capita use is generally based on the total population of the locality, municipality, or district.

Infiltration

In hydrologic terms, movement of water through the soil surface into the soil.

Infiltration Capacity

In hydrologic terms, the maximum rate at which water can enter the soil at a particular point under a given set of conditions.

Infiltration Index

In hydrologic terms, an average rate of infiltration, in inches per hour, equal to the average rate of rainfall such as that the volume of rainfall at greater rates equals the total direct runoff.

Infiltration Rate

In hydrologic terms,
(1) The rate at which infiltration takes place expressed in depth of water per unit time, usually in inches per hour.
(2) The rate, usually expressed in cubic feet per second, or million gallons per day per mile of waterway, at which ground water enters an infiltration ditch or gallery, drain, sewer, or other underground conduit.

Inflow Bands

Bands of low clouds, arranged parallel to the low-level winds and moving into or toward a thunderstorm. They may indicate the strength of the inflow of moist air into the storm, and, hence, its potential severity. Spotters should be especially wary of inflow bands that are curved in a manner suggesting cyclonic rotation; this pattern may indicate the presence of a mesocyclone

Inflow Jets

Local jets of air near the ground flowing inward toward the base of a tornado.

Inflow Notch

A radar signature characterized by an indentation in the reflectivity pattern on the inflow side of the storm. The indentation often is V-shaped, but this term should not be confused with V-notch. Supercell thunderstorms often exhibit inflow notches, usually in the right quadrant of a classic supercell, but sometimes in the eastern part of an HP storm or in the rear part of a storm (rear inflow notch).

Inflow Stinger

A beaver tail cloud with a stinger-like shape.

Influent Seepage

In hydrologic terms, movement of gravity water in the zone of aeration from the ground surface toward the water table.

Influent Stream

In hydrologic terms, any watercourse in which all, or a portion of the surface water flows back into the ground namely the, vadose zone, or zone of aeration

Infrared Satellite Imagery

This satellite imagery senses surface and cloud top temperatures by measuring the wavelength of electromagnetic radiation emitted from these objects. This energy is called "infrared". High clouds are very cold, so they appear white. Mid-level clouds are somewhat warmer, so they will be a light gray shade. Low cloud are warmer still, so they appear as a dark shade of gray or black. Often, low clouds are the same temperature as the surrounding terrain and cannot be distinguished at all. The satellite picks up this infrared energy between 10.5 and 12.6 micrometer (um) channels.

Initial Detention

In hydrologic terms, the volume of water on the ground, either in depressions or in transit, at the time active runoff begins.

Inland freshwater wetlands

In hydrologic terms, swamps, marshes, and bogs found inland beyond the coastal saltwater wetlands.

INLD

Inland.

Insolation

Incoming solar radiation. Solar heating; sunshine.

Instability

(abbrev. INSTBY)- The tendency for air parcels to accelerate when they are displaced from their original position; especially, the tendency to accelerate upward after being lifted. Instability is a prerequisite for severe weather - the greater the instability, the greater the potential for severe thunderstorms.

INSTBY

Instability- The tendency for air parcels to accelerate when they are displaced from their original position; especially, the tendency to accelerate upward after being lifted. Instability is a prerequisite for severe weather - the greater the instability, the greater the potential for severe thunderstorms.

Instrument Flight Rules

Refers to the general weather conditions pilots can expect at the surface and applies to the weather situations at an airport during which a pilot must use instruments to assist take off and landing. IFR conditions for fixed wing aircraft means the minimum cloud ceiling is greater than 500 feet and less than 1,000 feet and/or visibility is greater than 1 mile and less than 3 miles.

Instrument Shelter

A boxlike structure designed to protect temperature measuring instruments from exposure to direct sunshine, precipitation, and condensation, while at the same time time providing adequate ventilation.

Intangible Flood Damage

In hydrologic terms, estimates of the damage done by disruption of business, danger to health, shock, and loss of life and in general all costs not directly measurable which require a large element of judgment for estimating.

Integral Particle Flux

The integral directional particle flux J(E,w) is literally the mathematical integral, with respect to the energy E, of the differential particle flux j(E,w). It denotes the number of particles of energy equal to or

greater than E, per unit area, per unit solid angle, per unit time, passing through an area perpendicular to the viewing direction.

Interbasin Transfer

In hydrologic terms, the physical transfer of water from one watershed to another.

Interception

In hydrologic terms, the process by which precipitation is caught and held by foliage, twigs, and branches of trees, shrubs, and other vegetation, and lost by evaporation, never reaching the surface of the ground. Interception equals the precipitation on the vegetation minus streamflow and through fall.

Interception Storage Requirements

In hydrologic terms, water caught by plants at the onset of a rainstorm. This must be met before rainfall reaches the ground.

Interflow

In hydrologic terms, the lateral motion of water through the upper layers until it enters a stream channel. This usually takes longer to reach stream channels than runoff. This also called subsurface storm flow.

Intermagnet

An international consortium of magnetic observatories that exchange data in near-real time by satellite relay.

Intermediate Synoptic Times

The times of 0300, 0900, 1500, and 2100 UTC.

Intermittent Stream

In hydrological terms, a stream that flows periodically.

International Date Line

The line of longitude located at 180 degrees East or West (with a few local deviations) where the date changes by a day. West of the line it is one day later than east of the line.

Interplanetary Magnetic Field

(IMF) In solar-terrestrial terms, the magnetic field carried with the solar wind.

Interplanetary Medium

The space between planets and other solid bodies in the heliosphere. Populated by solar and cosmic particles, magnetic fields, and photons.

Interpolate

To estimate a value within an interval between two known values. This technique is sometimes used with computer models for locations in between the model's "gridpoints."

Intertropical Convergence Zone

(ITCZ) The region where the northeasterly and southeasterly trade winds converge, forming an often continuous band of clouds or thunderstorms near the equator.

Intracloud Lightning

The most common type of lightning, occurring inside one cumulonimbus cloud due to opposing charges within the cloud. This most frequently occurs when the upper portion of an anvil cloud reaches positive charge, and the middle remains under negative charge. This is often referred to as sheet lightning because it lights up the cloud and surrounding sky with light. Heat lightning is no different from cloud to cloud lightning, it is sometimes referred to as heat lightning when it is too far away for thunder to be heard.

Intraseasonal Oscillation

Oscillation with variability on a timescale less than a season. One example is the Madden-Julian Oscillation.

INTS

Intense.

INTSFY

Intensify.

INTST

Intensity.

Invariant Magnetic Latitude

The geomagnetic latitude at which a particular line of force of the geomagnetic field, characterized by L (the altitude of the field line at the equator), intersects the Earth.

Inundation

The process of covering normally dry areas with flood waters.

Inversion

(abbrev. INVRN) Generally, a departure from the usual increase or decrease in an atmospheric property with altitude. Specifically it almost always refers to a temperature inversion, i.e., an increase in temperature with height, or to the layer within which such an increase occurs. An inversion is present in the lower part of a cap.

Inversion Line

The locus of points on the solar surface where the radial magnetic field vanishes. Inversion lines separate regions of opposing polarity and are often superposed by thin, dark filaments. Inside active regions, the areas close to and along inversion lines are preferred places of flare occurrence. Filament channels, plage corridors, arch-filament systems, and fibril patterns surrounding active regions can be used to infer the positions of inversion lines.

INVOF

In the vicinity of.

INVRN

Inversion- Generally, a departure from the usual increase or decrease in an atmospheric property with altitude. Specifically it almost always refers to a temperature inversion, i.e., an increase in temperature with height, or to the layer within which such an increase occurs. An inversion is present in the lower part of a cap.

Ionogram

A plot or record of the group path height of reflection of ionospherically returned (echoed) radio waves as a function of frequency.

Ionosphere

A complex atmospheric zone of ionized gases that extends between 50 and 400 miles (80 to 640 kilometers) above the earth's surface. It is located between the mesosphere and the exosphere and is included as part of the thermosphere.

Ionospheric Storm

A disturbance in the F region of the ionosphere, which occurs in connection with geomagnetic activity

IP

Ice pellets (sleet). See "PL".

IPV

Improve.

IR

Infrared Satellite Imagery.

Iridescence

Brilliant spots or borders of colors in clouds, usually red and green, caused by diffraction of light by small cloud particles. The phenomenon is usually observed in thin cirrus clouds within about 30Â° of the sun and is characterized by bands of color in the cloud that contour the cloud edges.

Iridescent Clouds

Clouds that exhibit brilliant bright spots, bands, or borders of colors, usually red and green, observed up to about 30 degrees from the sun. The coloration is due to the diffraction with small cloud particles producing the effect. It is usually seen in thin cirrostratus, cirrocumulus, and altocumulus clouds.

Irrigation

In hydrologic terms, the controlled application of water to arable lands to supply water requirements not satisfied by rainfall

Irrigation Requirement

In hydrologic terms, the quantity of water, exclusive of precipitation, that is required for crop production. It includes surface evaporation and other economically unavoidable wastes.

Isallobar

A line of equal change in atmospheric pressure during a specified time period.

Isentropic Analysis

A way in the forecaster can look at the atmosphere in 3-dimensions instead of looking at constant pressure surfaces (such as the 850 mb, 700 mb, 500 mb, etc.) which are in 2-dimensions. In this analysis method, the forecaster looks at constant potential temperature (the temperature that it would take if we compressed or expanded it adiabatically to the pressure of 1000 mb) surfaces. Air parcels move up and down these surfaces; therefore, the forecaster can see where the moisture is located and how much moisture is available.

Isentropic Lift
Lifting of air that is traveling along an upward-sloping isentropic surface.

Isentropic lift often is referred to erroneously as overrunning, but more accurately describes the physical process by which the lifting occurs. Situations involving isentropic lift often are characterized by widespread stratiform clouds and precipitation, but may include elevated convection in the form of embedded thunderstorms.

Isentropic Surface
A two-dimensional surface containing points of equal potential temperature.

Isobar
A line connecting points of equal pressure.

Isobaric Chart
A weather map representing conditions on a surface of equal atmospheric pressure. For example, a 500 mb chart will display conditions at the level of the atmosphere at which the atmospheric pressure is 500 mb. The height above sea level at which the pressure is that particular value may vary from one location to another at any given time, and also varies with time at any one location, so it does not represent a surface of constant altitude/height (i.e., the 500 mb level may be at a different height above sea level over Dallas than over New York).

Isobaric Process
Any thermodynamic change of state of a system that takes a place at constant pressure.

Isobath
In hydrologic terms, an imaginary line on the earth's surface or a line on a map connecting all points which are the same vertical distance above the upper or lower surface of a water-bearing formation or aquifer

Isochrone
A line on a chart connecting equal times of occurrence of an event. In a weather analysis, a sequence plotted on a map of the frontal positions at several different observation times would constitute a set of isochrones.

Isodop
A contour of constant Doppler velocity values.

Isodrosotherm
A line connecting points of equal dew point temperature.

Isoheight
Same as a contour depicting vertical height of some surface above a datum plane.

Isohel
A line on a weather map connecting points receiving equal sunlight.

Isohyet
A line connected points of equal precipitation amounts.

ISOL
Isolate(d)

Isolated
A National Weather Service convective precipitation descriptor for a 10 percent chance of measurable precipitation (0.01 inch). Isolated is used interchangeably with few.

ISOLD
Isolated

Isopleth
A broad term for any line on a weather map connecting points with equal values of a particular atmospheric variable (temperature, dew point, etc.). Isotherms, isotachs, etc. are all examples of isopleths.

Isotach
A line connecting points of equal wind speed.

Isotherm
A line connecting points of equal temperature.

Isotropic
Having the same characteristics in all directions, as with isotropic antennas. Directional or focused antennas are not isotropic.

Issuance Time
The time the product is transmitted.

ITCZ
Inter-tropical Convergence Zone. The region where the northeasterly and southeasterly trade winds converge, forming an often continuous band of clouds or thunderstorms near the equator

ITWAS
Integrated Terminal Weather System

J/kg
Joules per kilogram, unit commonly used to represent CAPE and CIN.

January Thaw
A period of mild weather popularly supposed to recur each year in late January.

Jet
A fast-moving wind current surrounded by slower moving air.

Jet Max
(or Jet Streak) A point or area of relative maximum wind speeds within a jet stream.

Jet Streak
A region of accelerated wind speed along the axis of a jet stream. Same as Jet Max.

Jet Stream
(JSTR) A narrow band of strong winds usually found at elevations from 20000 to 50000 feet. Relatively strong winds concentrated in a narrow stream in the atmosphere, normally referring to horizontal, high-altitude winds. The position and orientation of jet streams vary from day to day. General weather patterns (hot/cold, wet/dry) are related closely to the position, strength and orientation of the jet stream (or jet streams). A jet stream at low levels is known as a low-level jet.

Jet Stream Cirrus
A loose term for filamentous cirrus that appears to radiate from a point in the sky, and exhibits characteristics associated with strong vertical wind shear, such as twisted or curved filaments.

Jet Wind Speed Profile
A vertical wind speed profile characterized by a relatively narrow current of high winds with slower moving air above and below. A large wind (speed) shear occurs above and below the jet axis.

Jetty
In hydrologic terms, a structure (e.g.; a pier, or mole of wood or stone) extending into a sea, lake, or river to influence the current or tide or to protect a harbor.

JMA
Japanese Meteorological Agency.

Jokulhlaup
In hydrologic terms, an Icelandic term meaning glacier dammed lake outburst flood

JSTR
Jet Stream - Relatively strong winds concentrated in a narrow stream in the atmosphere, normally referring to horizontal, high-altitude winds. The position and orientation of jet streams vary from day to day. General weather patterns (hot/cold, wet/dry) are related closely to the position, strength and orientation of the jet stream (or jet streams). A jet stream at low levels is known as a low-level jet.

JTWC
Joint Typhoon Warning Center.

Juvenile Water
In hydrologic terms, water formed chemically within the earth and brought to the surface in intrusive rock.

K
Smoke- Smoke in various concentrations can cause significant problems for people with respiratory ailments. It becomes a more universal hazard when visibilities are reduced to Â¼ mile or less.

K AMS
Cold Air Mass.

K Corona
In solar-terrestrial terms, of the white-light corona (that is, the corona seen by the eye at a total solar eclipse), that portion which is caused by sunlight scattered by electrons in the hot outer atmosphere of the sun.

K-Index

A measure of the thunderstorm potential based on vertical temperature lapse rate, moisture content of the lower atmosphere, and the vertical extent of the moist layer. The temperature difference between 850 mb and 500 mb is used to parameterize the vertical temperature lapse rate. The 850 dew point provides information on the moisture content of the lower atmosphere. The vertical extent of the moist layer is represented by the difference of the 700 mb temperature and 700 mb dew point. This is called the 700 mb temperature-dew point depression. The index is derived arithmetically and does not require a plotted sounding.

K-index = (850 mb temperature - 500 mb temperature) + 850 mb dew point - 700 mb dew point depression

Katabatic Wind

A wind that is created by air flowing downhill.

Katafront

A front where the warm air descends the frontal surface (except in the low layers of the atmosphere).

Keetch-Byrum Drought Index

An index used to gage the severity of drought in deep duff and organic soils.

Kelvin Temperature Scale

An absolute temperature scale in which a change of 1 Kelvin equals a change of 1 degree Celsius; 0ÂºK is the lowest temperature on the Kelvin scale. The freezing point of water is +273ÂºK (Kelvin) and the boiling point of +373ÂºK. It is used primarily for scientific purposes. It is also known as the Absolute Temperature Scale.

Kelvin Waves

Fluctuations in wind speed at the ocean surface at the Equator result in eastward propagating waves, known as Kelvin Waves. Kelvin Waves cause variations in the depth of the oceanic thermocline, the boundary between warm waters in the upper ocean and cold waters in the deep ocean. They play an important role in monitoring and predicting El NiÃ±o episodes.

Kelvin-Helmholtz Waves

Vertical waves in the air associated with wind shear across statically-stable regions. Can appear as breaking waves and as braided patterns in radar images and cloud photos.

Kilopascal

The internationally recognized unit used by the Atmospheric Environment Service for measuring atmospheric pressure. Abbreviated kPa.

Kinetic Energy

Energy that a body has as a result of its motion. Mathematically, it is defined as one-half the product of a body's mass and the square of its speed (KE = 1/2 * mass * velocity squared).

Klystron

An electron tube used as a low-power oscillator or a high-power amplifier at ultrahigh frequencies.

Knot

(Kt) Unit of speed used in navigation, equal to 1 nautical mile (the length of 1 minute latitude) per hour or about 1.15 statute miles per hour, 1.852 kilometers per hour or 0.5 meters/sec.

Knuckles

Slang for lumpy protrusions on the edges, and sometimes the underside, of a thunderstorm anvil. They usually appear on the upwind side of a back-sheared anvil, and indicate rapid expansion of the anvil due to the presence of a very strong updraft. They are not mammatus clouds. See also cumuliform anvil and anvil rollover.

Kp Index

A 3-hourly planetary geomagnetic index of activity generated in Gottingen, Germany, based on the K Index from 12 or 13 stations distributed around the world

KT

(Knot)- Unit of speed used in navigation, equal to 1 nautical mile (the length of 1 minute latitude) per hour or about 1.15 statue miles per hour, or 0.5 meters/sec).

KTS

Knots.

L

Heliographic longitude of a solar feature. (See solar coordinates.)
definition courtesy of: NWS Space Weather Prediction Center

L1

Lagragian orbit number 1. A location on the Earth/ Sun line where gravational forces can be balanced to maintain a stable orbit. Approximately 1.5 million km upstream of the Earth. Solar wind monitors located there allow a 20-60 minute (depending on solar wind velocity) warning of geomagnetic disturbances at Earth.

La NiÃ±a

La NiÃ±a, a phase of ENSO, is a periodic cooling of surface ocean waters in the eastern tropical Pacific along with a shift in convection in the western Pacific further west than the climatological average. These conditions affect weather patterns around the world. The preliminary CPC definition of La NiÃ±a is a phenomenon in the equatorial Pacific Ocean characterized by a negative sea surface temperature departure from normal.

Lag

1) The measure of the time between the center of mass of precipitation to the center of mass of runoff (on the hydrograph); basin lag is a function of not only basin characteristics, but also of storm intensity and movement. Some hydrologic texts define lag from the center of mass of rainfall to the hydrograph peak.
2) The time it takes a flood wave to move downstream.

Lake and Marine Alert

Lake and marine alerts include all watches, warnings, and advisories that pertain to weather over lakes or oceans, such as rip current statements, gale watches and warnings, and small craft advisories.

Lake Breeze

A thermally produced wind blowing during the day from the surface of a large lake to the shore, caused by the difference in the rates of heating of the surfaces of the lake and of the land.

Lake Effect Snow

Snow showers that are created when cold, dry air passes over a large warmer lake, such as one of the Great Lakes, and picks up moisture and heat.

Lake Effect Snow Advisory

This product is issued by the National Weather Service when pure lake effect snow (this is where the snow is a direct result of lake effect snow and not because of a low pressure system) may pose a hazard or it is life threatening. The criteria for this advisory varies from area to area.

Lake Effect Snow Squall

A local, intense, narrow band of moderate to heavy snow squall that can extend long distances inland. It may persist for many hours. It may also be accompanied by strong, gusty, surface winds and possibly lightning. Accumulations can be 6 inches or more in 12 hours.

Lake Effect Snow Warning

This product is issued by the National Weather Service when pure lake effect snow (this is where the snow is a direct result of lake effect snow and not because of a synoptic storm or low pressure system) may pose a hazard or it is life threatening.

Lake Effect Storm

A fall or winter storm that produces heavy but localized precipitation as a result of temperature differences between the air over snow-covered ground and the air over the open waters of a lake.

Lakeshore Flood Advisory

See Coastal/Lakeshore Flood Advisory.

Lakeshore Flood Watch

See: COASTAL/LAKESHORE FLOOD WATCH

Lakeshore Flooding

See COASTAL/LAKESHORE FLOODING

LALs

(L)ightning (A)ctivity (L)evels.
LAL 1 - No thunderstorms.
LAL 2 - Few building cumulus with isolated thunderstorms.
LAL 3 - Much building cumulus with scattered thunderstorms. Light to moderate rain.
LAL 4 - Thunderstorms common. Moderate to heavy rain reaching the ground.

LAL 5 - Numerous thunderstorms. Moderate to heavy rain reaching the ground.
LAL 6 - Dry lightning (same as LAL 3 but without the rain).

Laminar

Smooth, non-turbulent. Often used to describe cloud formations which appear to be shaped by a smooth flow of air traveling in parallel layers or sheets.

Laminar Flow

Streamline flow in which successive flow particles follow similar path lines and head loss varies with velocity to the first power.

Land Breeze

A coastal breeze at night blowing from land to sea, caused by the difference in the rates of cooling of their respective surfaces.

Landfall

The intersection of the surface center of a tropical cyclone with a coastline. Because the strongest winds in a tropical cyclone are not located precisely at the center, it is possible for a cyclone's strongest winds to be experienced over land even if landfall does not occur. Similarly, it is possible for a tropical cyclone to make landfall and have its strongest winds remain over the water. Compare direct hit, indirect hit, and strike.

Landspout

[Slang], a tornado that does not arise from organized storm-scale rotation and therefore is not associated with a wall cloud (visually) or a mesocyclone (on radar). Landspouts typically are observed beneath Cbs or towering cumulus clouds (often as no more than a dust whirl), and essentially are the land-based equivalents of waterspouts.

Lapse Rate

The rate of change of an atmospheric variable, usually temperature, with height. A steep lapse rate implies a rapid decrease in temperature with height (a sign of instability) and a steepening lapse rate implies that destabilization is occurring.

Large Scale

(Synoptic Scale) Size scale referring generally to weather systems with horizontal dimensions of several hundred miles or more. Most high and low pressure areas seen on weather maps are synoptic-scale systems.

Last Update

The time and date in which the forecast was issued or updated. The forecast may be updated at any time as weather conditions warrant.

LAT

Latitude- The location north or south in reference to the equator, which is designated at zero (0) degrees. Lines of latitude are parallel to the equator and circle the globe. The North and South poles are at 90 degrees North and South latitude.

Latchup

With reference to the effect of energetic particles on spacecraft microcircuits, a serious type of single event upset in which the microcircuit is either permanently stuck or cannot be reset without being turned off and on.

Latent Heat

Heat absorbed or released during a change of phase at constant temperature and pressure.

Latent Heat Flux

The flux of heat from the earth's surface to the atmosphere that is associated with evaporation or condensation of water vapor at the surface; a component of the surface energy budget.

Latitude

(abbrev. LAT) The location north or south in reference to the equator, which is designated at zero (0) degrees. Lines of latitude are parallel to the equator and circle the globe. The North and South poles are at 90 degrees North and South latitude.

LAWEB

(Great Lakes Weather Broadcast) - A National Weather Service product containing an observation summary prepared to provide Great Lakes mariners with a listing of weather observations along or on the Lakes.

Layer Composite Reflectivity Average

This WSR-88D radar product displays the average reflectivities for a layer. Data is taken from all elevation angles contained in a given layer for each grid box. It is available for 3 layers (low, mid, high). It is used to aid in determining storm intensity trends by comparing mid level layer composite products with a low level elevation angle base reflectivity product and aid in routing air traffic.

Layer Composite Reflectivity Maximum

This WSR-88D radar product displays the maximum reflectivities for a layer. Data is taken from all elevation angles contained in a given layer for each grid box. It is available for 3 layers (low, mid, high). Currently, the low layer extends from the surface to 24,000 feet, the mid layer extends from 24,000 feet to 33,000 feet, and high layer extends above 33,000 feet. It is used to aid in determining storm intensity trends by comparing mid level layer composite products with a low level elevation angle base reflectivity product and aid in routing air traffic.

Layered Haze

Haze produced when air pollution from multiple line, area or point sources is transported long distances to form distinguishable layers of discoloration in a stable atmosphere.

LCD (Local Climatological Data)

This National Climatic Data Center (NCDC) publication is produced monthly and annually for some 270 United States cities and it's territories. The LCD summarizes temperature, relative humidity, precipitation, cloudiness, wind speed and direction observation.

LCL

1. Abbreviation for "local" or "locally".
2. Lifting Condensation Level - the level at which a parcel of moist air becomes saturated when it is lifted dry adiabatically.

LDE

Long duration event.

LDS

Lightning Detection System.

LDT

Local Daylight Time.

LEO

Among satellite operators, a common abbreviation for Low Earth Orbit.

Leader

The streamer which initiates the first phase of each stroke of a lightning discharge. The first stroke is led by a steeped leader, which may be preceded by a pilot streamer. All subsequent strokes begin with a dart leader.

Leader Spot

In solar-terrestrial terms, in a magnetically bipolar or multipolar sunspot group, the western part precedes and the main spot in that part is called the leader.

Lee

The side or part that is sheltered or turned away from the wind, such as with a mountain.

Lee Wave

The wavelike effect, characterized by severe updrafts and downdrafts, that occurs in the lee of a mountain range when rapidly flowing air is lifted up the steep front of a mountain range. Compare mountain wave.

Leeside Low

Extratropical cyclones that form on the downwind (lee) side of a mountain chain. In the United States, they frequently form on the eastern side of the Rockies and Sierra Nevada’s.

Leeward

The side away from the wind. Compare windward.

Left Exit Region

Used interchangeably with **Left Front Quadrant**; the area downstream from and to the left of an upper-level jet max (as would be viewed looking along the direction of flow). Upward motion and severe thunderstorm potential sometimes are increased in this area relative to the wind speed maximum. See also entrance region, right rear quadrant.

Left Front Quadrant

Used interchangeably with **Left Exit Region**; the area downstream from and to the left of an upper-level jet max (as would be viewed looking along the direction of flow). Upward motion and severe

thunderstorm potential sometimes are increased in this area relative to the wind speed maximum. See also entrance region, right rear quadrant.

Left Mover

A thunderstorm which moves to the left relative to the steering winds, and to other nearby thunderstorms; often the northern part of a splitting storm.

Length

In hydrologic terms, the distance in the direction of flow between two specific points along a river, stream, or channel.

Length Of Day

The time of Actual Sunset minus the time of Actual Sunrise. The change in length of daylight between today and tomorrow is also listed when available.

Length Of Visible Light

The time of Civil Sunset minus the time of Civil Sunrise.

Lentic System

In hydrologic terms, a non-flowing or standing body of fresh water, such as a lake or pond.

Lenticular

A lens-shaped cloud that normally develops on the downwind side of a mountain or mountain range. This occurs when stable, moist air flows over a mountain, creating a series of oscillating waves. If the temperature at the crest of the wave equals the dewpoint temperature, condensation occurs in a lens formation. As the air falls town the trough of the wave, where the temperature and dewpoint temperature are not equal, then evaporation occurs. Thus, a "wave cloud", or a series of lenticular clouds, is capable of forming. These are often mistaken for UFO's because of the saucer-like shape. They can separate into altocumulus standing lenticular (ACSL), Stratocumulus standing lenticular (SCSL), and cirrocumulus standing lenticular (CCSL).

Lenticular Cloud

A very smooth, round or oval, lens-shaped cloud that is often seen, singly or stacked in groups, near or in the lee of a mountain ridge.

Levee

(Dike) In hydrologic terms, a long, narrow embankment usually built to protect land from flooding. If built of concrete or masonary the structure is usually referred to as a flood wall. Levees and floodwalls confine streamflow within a specified area to prevent flooding. The term "dike" is used to describe an embankment that blocks an area on a reservoir or lake rim that is lower than the top of the dam.

Level of Free Convection

(LFC) - The level at which a parcel of saturated air becomes warmer than the surrounding air and begins to rise freely. This occurs most readily in a conditionally unstable atmosphere.

LEWP

Line Echo Wave Pattern. A bulge in a thunderstorm line producing a wave-shaped "kink" in the line. The potential for strong outflow and damaging straight-line winds increases near the bulge, which often resembles a bow echo. Severe weather potential also is increased with storms near the crest of a LEWP.

LF

Low frequency.

LFC

An acronym for Level of Free Convection- the level at which a parcel of saturated air becomes warmer than the surrounding air and begins to rise freely. This occurs most readily in a conditionally unstable atmosphere.

LFT

Lift.

LGT

Light.

LGWV

Long Wave.

LI

Lifted Index. A common measure of atmospheric instability. Its value is obtained by computing the temperature that air near the ground would have if it were lifted to some higher level (around 18,000 feet, usually) and comparing that temperature to the actual temperature at that level. Negative values indicate instability - the more negative, the more unstable the air is, and the stronger the updrafts are

likely to be with any developing thunderstorms. However there are no "magic numbers" or threshold LI values below which severe weather becomes imminent.

Lid

A layer of warm air several thousand feet above the earth's surface which suppresses or delays the development of thunderstorms.

Lid

(Also called cap.) A region of negative buoyancy below an existing level of free convection (LFC) where energy must be supplied to the parcel to maintain its ascent. This tends to inhibit the development of convection until some physical mechanism can lift a parcel to its LFC. The intensity of the cap is measured by its convective inhibition. The term capping inversion is sometimes used, but an inversion is not necessary for the conditions producing convective inhibition to exist.

LIFR

Low Instrument Flight Rules.

Lifted Index

(abbrev. LI)- A common measure of atmospheric instability. Its value is obtained by computing the temperature that air near the ground would have if it were lifted to some higher level (around 18,000 feet, usually) and comparing that temperature to the actual temperature at that level. Negative values indicate instability - the more negative, the more unstable the air is, and the stronger the updrafts are likely to be with any developing thunderstorms. However there are no "magic numbers" or threshold LI values below which severe weather becomes imminent.

Lifting Condensation Level

(LCL) - The level at which a parcel of moist air becomes saturated when it is lifted dry adiabatically.

Light Bridge

In solar-terrestrial terms, it is observed in white light, a bright tongue or streaks penetra- ting or crossing sunspot umbrae. The appearance of a light bridge is frequently a sign of impending region division or dissolution.

Light Curve

A plot of intensity in a particular wavelength or band of wavelengths against time, especially with reference to a solar flare. For example, the time history of the x-ray output of a flare.

Lightning

(LTNG) A sudden and visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud.

Lightning Channel

The irregular path through the air along which a lightning discharge occurs. A typical discharge of flash between the ground and the cloud is actually a composite flash which is composed of several sequential lightning strokes, each of which is initiated by a leader and terminated by a return streamer.

Lightning Discharge

The series of electrical processes by which charge is transferred along a channel of high ion density between electrical charge centers of opposite sign. This can be between a cloud and the Earth's surface of a cloud-to-ground discharge.

Lightning Stroke

Any of a series of repeated electrical discharges comprising a single lightning discharge (strike). Specifically, in the case of a cloud-to-ground discharge, a leader plus its subsequent return streamer.

Likely

(abbrev. LKLY) In probability of precipitation statements, the equivalent of a 60 or 70 percent chance.

Limb

In solar-terrestrial terms, the edge of the solar disk.

Limb Darkening

For certain solar spectral lines, a lessening of the intensity of the line from the center of the solar disk to the limb, caused by the existence of a temperature gradient in the Sun and the line-of-sight through the solar atmosphere. Limb darkening also occurs in some radio wavelengths.

Limb Flare

In solar-terrestrial terms, a solar flare seen at the edge (Limb) of the sun.

Limnology

In hydrologic terms, the branch of hydrology that pertains to the study of lakes.

Line Echo Wave Pattern

(abbrev. LEWP) A radar echo pattern formed when a segment of a line of thunderstorms surges forward at an accelerated rate.

Line Source

An array of pollutant sources along a defined path that can be treated in dispersion models as an aggregate uniform release of pollutants along a line. Example: the sum of emissions from individual cars traveling down a highway can be treated as a line source. Compare area source and point source.

Liquid Water Equivalent

Same as **Water Equivalent**; the liquid content of solid precipitation that has accumulated on the ground (snow depth). The accumulation may consist of snow, ice formed by freezing precipitation, freezing liquid precipitation, or ice formed by the refreezing of melted snow.

Lithometeor

Atmospheric phenomena which affect the state of the atmosphere. They constitute dry particles that hang suspended in the atmosphere, such as dust, smoke, sand, and haze.

Lithosphere

In hydrologic terms, that part of the earth which is composed predominantly of rocks (either coherent or incoherent, and including the disintegrated rock materials known as soils and subsoils), together with everything in this rocky crust.

Littoral Zone

In hydrologic terms, the area on, or near the shore of a body water

Live Capacity

In hydrologic terms, the total amount of storage capacity available in a reservoir for all purposes, from the dead storage level to the normal water or normal pool level surface level. Does not include surcharge, or dead storage, but does include inactive storage, active conservation storage and exclusive flood control storage.

LIVV

Lifted Index Vertical Velocity.

LKLY

Likely- In probability of precipitation statements, the equivalent of a 60 or 70 percent chance.

LLJ

Low Level Jet - A region of relatively strong winds in the lower part of the atmosphere. Specifically, it often refers to a southerly wind maximum in the boundary layer, common over the Plains states at night during the warm season (spring and summer). The term also may be used to describe a narrow zone of strong winds above the boundary layer, but in this sense the more proper term would be low-level jet stream.

LLWS

Low Level Wind Shear.

LMTD

Limited.

LN

Line.

Loaded Gun (Sounding)

[Slang], a sounding characterized by extreme instability but containing a cap, such that explosive thunderstorm development can be expected if the cap can be weakened or the air below it heated sufficiently to overcome it.

Lobes

In the magnetotail, the two regions (north and south) separated by the neutral sheet.

Local Convective Wind

In fire weather terminology, local thermally driven winds arising over a comparatively small area and influenced by local terrain. Examples include sea and land breezes, lake breezes, diurnal mountain wind systems and columnar convective currents.

Lofting

A pattern of plume dispersion in a stable boundary layer topped by a neutral layer, in which the upper part of the plume disperses upward while the lower part of the plume undergoes little dispersion.

Long Duration Event (LDE).

With reference to x-ray events, those events that are not impulsive in appearance. The exact time threshold separating impulsive from long-duration events is not well defined, but operationally, any event requiring 30 minutes or more to decay to one-half peak flux is regarded as an LDE. It has been shown that the likelihood of a coronal mass ejection increases with the duration of an x-ray event, and becomes virtually certain for durations of 6 hours or more.

Long Term Retention

Retention of data for 5 years to satisfy requirements for local studies and to support litigation.

Longitude

The location east or west in reference to the Prime Meridian, which is designated as zero (0) degrees longitude. The distance between lines of longitude are greater at the equator and smaller at the higher latitudes, intersecting at the earth's North and South Poles. Time zones are correlated to longitude.

Longitudinal Component

That component of the solar magnetic field vector parallel to the direction of view, radial from the solar surface at disk center.

Longwave Radiation

A term used to describe the infrared energy emitted by the earth and atmosphere at wavelengths between about 5 and 25 micrometers. Compare shortwave radiation.

Longwave Trough

A trough in the prevailing westerly flow aloft which is characterized by large length and (usually) long duration.

Loop Prominence System

(LPS) In solar-terrestrial terms, a system of loop prominences associated with major flares.

Looping

A pattern of plume dispersion in an unstable atmosphere, in which the plume undergoes marked vertical oscillations as it is alternately affected by rising convective plumes and the subsiding motions between the plumes.

LOPRES

Low Pressure.

LORAN

Long Range Navigation, a system of long range navigation whereby latitude and longitude are determined from the time displacement of radio signals from two or more fixed transmitters.

Lotic System

In hydrologic terms, a flowing body of fresh water, such as a river or stream.

Low

A region of low pressure, marked as "L" on a weather map. A low center is usually accompanied by precipitation, extensive cloudiness, and moderate winds. See Cyclone.

Low Frequency

(LF) The portion of the radio frequency spectrum from 30 to 300 kHz.

Low Level Jet

(LLJ) A region of relatively strong winds in the lower part of the atmosphere. Specifically, it often refers to a southerly wind maximum in the boundary layer, common over the Plains states at night during the warm season (spring and summer).

The term also may be used to describe a narrow zone of strong winds above the boundary layer, but in this sense the more proper term would be low-level jet stream.

Low Pressure System

An area of a relative pressure minimum that has converging winds and rotates in the same direction as the earth. This is counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. Also known as an cyclone, it is the opposite of an area of high pressure, or a anticyclone.

Low Water Advisory

An advisory to describe water levels which are significantly below average levels over the Great Lakes, coastal marine zones, and any tidal marine area, waterway, or river inlet within or adjacent to a marine zone that would potentially be impacted by low water conditions creating a hazard to navigation.

Lowland Flooding

In hydrologic terms, inundation of low areas near the river, often rural, but may also occur in urban areas.

LP Storm

Low-Precipitation storm (or Low-Precipitation supercell). A supercell thunderstorm characterized by a relative lack of visible precipitation. Visually similar to a classic supercell, except without the heavy precipitation core. LP storms often exhibit a striking visual appearance; the main tower often is bell-shaped, with a corkscrew appearance suggesting rotation. They are capable of producing tornadoes and very large hail. Radar identification often is difficult relative to other types of supercells, so visual reports are very important. LP storms almost always occur on or near the dry line, and thus are sometimes referred to as dry line storms.

LPS

Loop Prominence System- In solar-terrestrial terms, a system of loop prominences associated with major flares.

LRG

Large.

LSR

Local Storm Report. A product issued by local NWS offices to inform users of reports of severe and/or significant weather-related events

LST

Local Standard Time.

LTD

Limited.

LTL

Little.

LTLCG

Little Change.

LTNG

Lightning- A visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud.

LTR

Later.

LTST

Latest.

Lunar Eclipse

An eclipse of the moon occurs when the earth is in a direct line between the sun and the moon. The moon does not have any light of its own, instead, it reflects the sun's light. During a lunar eclipse, the moon is in the earth's shadow. It will often look dim and sometimes copper or orange in color.

LVL

Level.

LVLS

Levels.

LWR

Lower.

Lysimeter

In hydrologic terms, a device to measure the quantity or rate of downward water movement through a block of soil usually undisturbed, or to collect such percolated water for analysis as to quality

M 3000

In solar-terrestrial terms, the optimum high frequency radio wave with a 3000 km range, which reflects only once from the ionosphere (single hop transmission)

M2/S2

m^2/s^2 (meters squared per second squared), unit of measure equivalent to J/kg (joules per kilogram).

Mackeral Sky

The name given to cirrocumulus clouds with small vertical extent and composed of ice crystals. The rippled effect gives the appearance of fish scales.

Macroburst

A convective downdraft with an affected outflow area of at least 2Â½ miles wide and peak winds lasting between 5 and 20 minutes. Intense macrobursts may cause tornado-force damage of up to F3 intensity.

Macroscale

Large scale, characteristic of weather systems several hundred to several thousand kilometers in diameter.

Madden-Julian Oscillation

(abbrev. MJO)- Tropical rainfall exhibits strong variability on time scales shorter than the seasonal El NiÃ±o-Southern Oscillation (ENSO). These fluctuations in tropical rainfall often go through an entire cycle in 30-60 days, and are referred to as the Madden-Julian Oscillation or intra-seasonal oscillations. The intra-seasonal oscillations are a naturally occurring component of our coupled ocean-atmosphere system. They significantly affect the atmospheric circulation throughout the global Tropics and subtropics, and also strongly affect the wintertime jet stream and atmospheric circulation features over the North Pacific and western North America. As a result, they have an important impact on storminess and temperatures over the United States. During the summer these oscillations have a modulating effect on hurricane activity in both the Pacific and Atlantic basins.

MAFOR

(Great Lakes Marine Forecast) - A National Weather Service coded summary appended to each of the Great Lakes Open Lakes forecasts.

Magflare

In solar-terrestrial terms, a geomagnetic and/or cosmic storm has been associated with this flare

Magnetic Bay

In solar-terrestrial terms, a relatively smooth excursion of the H (horizontal) component of the geomagnetic field away from and returning to quiet levels.

Magnetic Cloud

In general, any identifiable parcel of solar wind. More specifically, a region of about 0.25 AU in radial dimension in which the magnetic field strength is high and the direction of one component of the magnetic field changes appreciably by means of a rotation nearly parallel to a plane. Magnetic clouds are one manifestation of coronal mass ejections in the interplanetary medium.
definition courtesy of: NWS Space Weather Prediction Center

Magnetic Local Time (MLT)

On Earth, analogous to geographic local time. MLT at a given location is determined by the angle subtended at the geomagnetic axis between the geomagnetic midnight meridian and the meridian that passes through the location. 15 degrees = 1 h. The geomagnetic meridian containing the sub-solar point defines geomagnetic local noon, and the opposite meridian defines geomagnetic midnight. (See geomagnetic field.)
definition courtesy of: NWS Space Weather Prediction Center

Magnetic Sunspot Classifications

See Mount Wilson magnetic classification.

Magnetogram

In solar-terrestrial terms, solar magnetograms are a graphic representation of solar magnetic field strengths and polarity.

Magnetosheath

The region between the bow shock and the magnetopause, characterized by very turbulent plasma. For the Earth, along the Sun-Earth axis, the magnetosheath is about 2 Earth radii thick.

Magnetohydrodynamics (MHD)

The study of the dynamics of an electrically conducting fluid in the presence of a magnetic field.

Magnetopause

In solar-terrestrial terms, the boundary layer between the solar wind and the magnetosphere.

Magnetopause Current Sheet

An electric current sheet that more or less coincides with the magnetopause.

Magnetosphere

In solar-terrestrial terms, the magnetic cavity surrounding the earth, carved out of the passing solar wind by virtue of the geomagnetic field, which prevents, or at least impedes, the direct entry of the solar wind plasma into the cavity.

Magnetotail

The extension of the magnetosphere in the anti-sunward direction as a result of interaction with the solar wind. In the inner magnetotail, the field lines maintain a roughly dipolar configuration. At greater distances, the field lines are stretched into northern and southern lobes, separated by a plasma sheet. There is observational evidence for traces of the Earth's magnetotail as far as 1000 Earth radii downstream.

Main Stem

In hydrologic terms, the reach of a river/stream formed by the tributaries that flow into it.

Main Synoptic Times

The times of 0000, 0600, 1200, and 1800 UTC. Also known as the standard synoptic times.

Major Flare

In solar-terrestrial terms, this flare is the basis for the forecast of geomagstorm, cosmic storm and/or protons in the earth's vicinity.

Major Flooding

A general term including extensive inundation and property damage. (Usually characterized by the evacuation of people and livestock and the closure of both primary and secondary roads.)

Major Hurricane

A hurricane which reaches Category 3 (sustained winds greater than 110 mph) on the Saffir/Simpson Hurricane Scale.

MALR

Moist Adiabatic Lapse Rate- The rate at which the temperature of a parcel of saturated air decreases as the parcel is lifted in the atmosphere. The moist adiabatic lapse rate (abbreviated MALR) is not a constant like the dry adiabatic lapse rate but is dependent on parcel temperature and pressure.

Mammatus Clouds

Rounded, smooth, sack-like protrusions hanging from the underside of a cloud (usually a thunderstorm anvil). Mammatus clouds often accompany severe thunderstorms, but do not produce severe weather; they may accompany non-severe storms as well.

MAP

Mean Areal Precipitation- The average rainfall over a given area, generally expressed as an average depth over the area.

Map Type

The MSL charts show mean sea-level pressure (blue contours, 4 mb interval), 1000 to 500 mb thickness (yellow contours, 60 m interval), and accumulated precipitation (color fill, see colorbar for intervals). The NAM shows the next 6 hours; the GFS shows the previous 6 hours if the forecast time is even (e.g., 6, 12, 18, 24 hour forecasts), and the previous 3 hours if the forecast time is odd (e.g., 3, 9, 15, 21 hour forecasts; and the RUC shows the previous 1 hour for the forecast times 1, 2, 4, 5, 7, and 8, and the previous 3 hours for forecast times 3, 6, and 9.

MARC Velocity Signature

A Doppler radar-velocity based precursor towards forecasting the initial onset of damaging straight-line winds in a linear Quasi_Linear Convective System (QLCS) or bowing convective system.

Mare's Trail

The name given to thin, wispy cirrus clouds composed of ice crystals that appear as veil patches or strands, often resembling a horse's tail.

MAREP

(MArine REPort) A voluntary marine observation program of the National Weather Service whose goal is to solicit meteorological and oceanographic observations in plain language from recreational and small commercial mariners who are not part of Voluntary Observing Ship program.

Marginal Visual Flight Rules

(Abbrev. MVFR) - In an aviation product, refers to the general weather conditions pilots can expect at the surface. VFR stands for Visual Flight Rules and MVFR means Minimum or Marginal Visual Flight Rules. MVFR criteria means a ceiling between 1,000 and 3,000 feet and/or 3 to 5 miles visibility.

Marine Inversion

Temperature inversion produced when cold marine air underlies warmer air.

Marine Push

A replacement of the current air mass with air from off the ocean. Temperatures are much cooler and relative humidities much higher. The air mass is generally much more stable in this situation.

Marine Small Craft Thunderstorm Advisory
A marine warning issued by Environment Canada Atmospheric Environment Branch when the possibility of thunderstorms is greater than 40 percent.

Marine Small Craft Wind Warning
A marine warning issued by Environment Canada Atmospheric Environment Branch for winds which are forecasted to be in the 20-33 knot range inclusive.

Marine Weather Statement
A National Weather Service product to provide mariners with details on significant or potentially hazardous conditions not otherwise covered in existing marine warnings and forecasts. Marine weather statements are also used to supplement special marine warnings.

Marine Zone
Specific, defined over-water areas contained in the various NWS marine forecasts. These are the equivalent of "zones" in the public forecast program.

Maritime Air Mass
An air mass influenced by the sea. It is a secondary characteristic of an air mass classification, signified by the small "m" before the primary characteristic, which is based on source region. For example, mP is an air mass that is maritime polar in nature. Also known as a marine air mass.

Maritime Polar Air Mass
An air mass characterized by cold, moist air. Abbreviated mP.

Maritime Tropical Air Mass
An air mass characterized by warm, moist air. Abbreviated mT.

MAROB
A voluntary marine observation program of the National Weather Service in the early stages of development whose goal is to solicit meteorological and oceanographic observations in coded format from recreational and small commercial mariners who are not part of the more in-depth Voluntary Observing Ship program.

MARS
A voluntary marine observation program of the National Weather Service whereby U.S. Coast Guard Sector Stations report marine weather conditions from several shore locations within their operating area. The reports are in an abbreviated plain language format with fixed fields.

Massif
A compact portion of a mountain range, containing one or more summits.

MAV
AVN MOS Guidance.

MAX
Maximum.

Max Parcel Level (MPL)
This signifies the highest attainable level that a convective updraft can reach; therefore, it is a good indication of how tall a thunderstorm may reach.

Maximum High Temperature Record
The "high temperature" is the highest temperature measured during a specified period of time, most commonly per day (e.g. "today's high temperature"). Therefore, the "maximum high temperature record" is the highest high temperature on record, measured in a specified period of time (e.g. daily, monthly, all-time).

Maximum Low Temperature Record
The "low temperature" is the lowest temperature measured during a specified period of time, most commonly per day (e.g. "today's low temperature"). Therefore, the "maximum low temperature record" is the highest low temperature on record, measured in a specified period of time (e.g. daily, monthly, all-time).

Maximum Precipitation Record
The most rain measured in a specified period of time (e.g. daily, monthly, yearly).

Maximum Snow Record
The most snow measured in a specified period of time (e.g. daily, monthly, per storm).

Maximum Spillway Discharge
In hydrologic terms, spillway discharge (cfs) when reservoir is at maximum designed water surface elevation.

Maximum Sustained Surface Wind

When applied to a particular weather system, refers to the highest one-minute average wind (at an elevation of 10 meters with an unobstructed exposure) associated with that weather system at a particular point in time.

Maximum Temperature

The highest temperature recorded during a specified period of time. Common time periods include 6, 12 and 24 hours. The most common reference is to the daily maximum temperature, or "high."

Maximum Unambiguous Range

The range from the radar at which an echo can be known unquestionably as being at that range. As the radar sends out a pulse of energy, the pulse hits a target and part of the energy bounces back to the radar, but part of the energy may continue to travel away from the radar. The distance to the target is computed by knowing the time that has elapsed since the pulse was emitted. Then a second pulse of energy is transmitted. If some of the energy from the first pulse strikes a target at a far range and returns to the radar when radiation from the second pulse arrives, the RDA misinterprets the returned first pulse as arriving from a target near the returned second pulse. The maximum unambiguous range is related to the amount of time that elapses between successive pulses of emitted energy.

Maximum Unambiguous Velocity

The highest radial velocity that can be measured unambiguously by a pulsed Doppler radar. The maximum unambiguous velocity is related to the radar's successive pulses of emitted energy. When a target's velocity exceeds the maximum unambiguous velocity, the velocity will be "folded" to appear as a different velocity.

Maximum Usable Frequency (MUF)

The highest frequency that allows reliable HF radio communication over a given ground range by ionospheric refraction. Frequencies higher than the MUF penetrate the ionosphere and become useful for extraterrestrial communications.

MAXT

High temperature for the day. Usually forecast out 7 days in advance.

MB

Millibar

MCC

Mesoscale Convective Complex. A large MCS, generally round or oval-shaped, which normally reaches peak intensity at night. The formal definition includes specific minimum criteria for size, duration, and eccentricity (i.e., "roundness"), based on the cloud shield as seen on infrared satellite photographs:

- Size: Area of cloud top -32 degrees C or less: 100,000 square kilometers or more (slightly smaller than the state of Ohio), and area of cloud top -52 degrees C or less: 50,000 square kilometers or more
- Duration: Size criteria must be met for at least 6 hours
- Eccentricity: Minor/major axis at least 0.7

MCCs typically form during the afternoon and evening in the form of several isolated thunderstorms, during which time the potential for severe weather is greatest. During peak intensity, the primary threat shifts toward heavy rain and flooding.

MCS

Mesoscale Convective System. Mesoscale Convective System. A complex of thunderstorms which becomes organized on a scale larger than the individual thunderstorms, and normally persists for several hours or more. MCSs may be round or linear in shape, and include systems such as tropical cyclones, squall lines, and Mesoscale Convective Complexes (MCCs) (among others). MCS often is used to describe a cluster of thunderstorms that does not satisfy the size, shape, or duration criteria of an Mesoscale Convective Complex.

MCV

Mesoscale Cyclonic Vortices

MD

Mesoscale Discussion- When conditions actually begin to shape up for severe weather, SPC (Storm Prediction Center) often issues a Mesoscale Discussion statement anywhere from roughly half an hour to several hours before issuing a weather watch. SPC also puts out MCDs for hazardous winter weather events on the mesoscale, such as locally heavy snow, blizzards and freezing rain (see below). MCDs are also issued on occasion for heavy rainfall, convective trends, and other phenomena, when the forecaster feels he/she can provide useful information that is not readily available or apparent to

field forecasters. MCDs are based on mesoscale analysis and interpretation of observations and of short term, high resolution numerical model output. The MCD basically describes what is currently happening, what is expected in the next few hours, the meteorological reasoning for the forecast, and when/where SPC plans to issue the watch (if dealing with severe thunderstorm potential). Severe thunderstorm MCDs can help you get a little extra lead time on the weather and allow you to begin gearing up operations before a watch is issued. The MCD begins with a numerical string that gives the LAT/LON coordinates of a polygon that loosely describes the area being discussed.

MDFY

Modify.

MDLS

Models.

MDNGT

Midnight.

MDP

Mound prominence.

MDT

Moderate (or) Mountain Daylight Time.

Mean

The arithmetic average of a set of data (numbers), or the middle point between its two extremes.

Mean Anomaly of the Sun

The movement of the Earth around the Sun is an ellipse. However, if the movement of the Earth around the Sun were a circle, it would be easy to calculate its position. Since, the Earth moves around the sun about one degree per day, (in fact, it's 1/365.25 of the circle), we say the Mean Anomaly of the Sun is the position of the Earth along this circular path. The True Anomaly of the Sun is the position along its real elliptical path.

Mean Annual Temperature

The average temperature for the entire year at any given location.

Mean Areal Precipitation

(abbrev. MAP)- The average rainfall over a given area, generally expressed as an average depth over the area.

Mean Daily Temperature

The average of the highest and lowest temperatures during a 24-hour period.

Mean Depth

In hydrologic terms, the average depth of water in a stream channel or conduit. It is equal to the cross-sectional area divided by the surface width.

Mean Doppler Velocity

Reflectivity-weighted average velocity of targets in a given pulse resolution volume. Usually determined from a large number of successive radar pulses. Also called mean radial (towards or away from the antenna) velocity. Doppler velocity refers to spectral density first moment, radial velocity to base data.

Mean Low Water

(MLW) - A tidal datum. The average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Mean Lower Low Water

(MLLW) - A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Mean Sea Level

(MSL) The arithmetic mean of hourly water elevations observed over a specific 19-year tidal epoch.

Mean Sea-level Pressure

Mean sea-level pressure is a pressure value obtained by the theoretical reduction or increase of barometric pressure to sea-level. The calculation corrects for the altitude difference from the pressure reading at the station elevation, to what it would otherwise be at sea-level. Land elevation affects the pressure reading at the surface. For example, a station on a hill may read a lower pressure than it would read if the station was at the same point and there was no hill. High pressure and low pressure systems are based on mean sea-level pressure to keep them comparable at any geographic location.

Thus, surface pressure is different that mean sea-level pressure as it has not yet been corrected for the difference in altitude from sea-level.

Mean Temperature

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

Meander

In hydrologic terms, the winding of a stream channel.

Meander Belt

In hydrologic terms, the area between lines drawn tangential to the extreme limits of fully developed meanders.

Measured Ceiling

A ceiling classification applied when the ceiling value has been determined by an instrument, such as a ceilometer or ceiling light, or by the known heights of unobscured portions of objects, other than natural landmarks, near the runway. See variable ceiling.

Medium Frequency

(MF)- That portion of the radio frequency spectrum from 0.3 to 3 MHz.

Medium Range

In forecasting, (generally) three to seven days in advance.

MEGG

Merging

Melting Level

The altitude which ice crystals and snowflakes melt as they descend through the atmosphere.

Melting Point

The temperature at which a solid substance undergoes fusion, changing from a solid to a liquid state. Contrast with freezing point.

Meniscus

In hydrologic terms, the curved surface of the liquid at the open end of a capillary column

Mercury Barometer

An instrument for measuring the change in atmospheric pressure. The instrument contains an evacuated and graduated glass tube in which mercury rises or falls as the pressure of the atmosphere increases or decreases. First used by Evangelista Torricelli (1608-1647), an Italian physicist and mathematician, to explain the fundamental principles of hydromechanics.

Meridian

An imaginary line on the earth's surface passing through both geographic poles and through any given point on the planet, also called a line of longitude.

Meridional Flow

Large-scale atmospheric flow in which the north-south component (i.e., longitudinal, or along a meridian) is pronounced. The accompanying zonal (east-west) component often is weaker than normal. Compare with zonal flow.

MESO

Mesocyclone- A storm-scale region of rotation, typically around 2-6 miles in diameter and often found in the right rear flank of a supercell (or often on the eastern, or front, flank of an HP storm). The circulation of a mesocyclone covers an area much larger than the tornado that may develop within it. Properly used, mesocyclone is a radar term; it is defined as a rotation signature appearing on Doppler radar that meets specific criteria for magnitude, vertical depth, and duration. It will appear as a yellow solid circle on the Doppler velocity products. Therefore, a mesocyclone should not be considered a visually-observable phenomenon (although visual evidence of rotation, such as curved inflow bands, may imply the presence of a mesocyclone)

Mesoclimate

The climate of a small area of the earth's surface which may differ from the general climate of the district.

Mesocyclone

(abbrev. MESO)- A storm-scale region of rotation, typically around 2-6 miles in diameter and often found in the right rear flank of a supercell (or often on the eastern, or front, flank of an HP storm). The circulation of a mesocyclone covers an area much larger than the tornado that may develop within it. Properly used, mesocyclone is a radar term; it is defined as a rotation signature appearing on Doppler

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Mesohigh

A relatively small area of high atmospheric pressure that forms beneath a thunderstorm. It is usually associated with an MCS or its remnants.

Mesolow

(or Sub-synoptic Low) - A mesoscale low-pressure center. Severe weather potential often increases in the area near and just ahead of a mesolow. Mesolow should not be confused with mesocyclone, which is a storm-scale phenomenon.

Mesonet

A regional network of observing stations (usually surface stations) designed to diagnose mesoscale weather features and their associated processes.

Mesopause

The top of the mesosphere, corresponding to the level of minimum temperature in the atmosphere found at 70 to 80 km.

Mesosphere

The region of the Earth’s atmosphere between the upper limit of the stratosphere (approximately 30 km altitude) and the lower limit of the thermosphere (approximately 80 km altitude).

Mesoscale

Size scale referring to weather systems smaller than synoptic-scale systems but larger than storm-scale systems. Horizontal dimensions generally range from around 50 miles to several hundred miles. Squall lines, MCCs, and MCSs are examples of mesoscale weather systems

Mesoscale Convective Complex

(abbrev. MCC)- MCC - Mesoscale Convective Complex. A large Mesoscale Convective System (MCS), generally round or oval-shaped, which normally reaches peak intensity at night. The formal definition includes specific minimum criteria for size, duration, and eccentricity (i.e., "roundness"), based on the cloud shield as seen on infrared satellite photographs: * Size: Area of cloud top -32 degrees C or less: 100,000 square kilometers or more (slightly smaller than the state of Ohio), and area of cloud top -52 degrees C or less: 50,000 square kilometers or more. * Duration: Size criteria must be met for at least 6 hours. * Eccentricity: Minor/major axis at least 0.7. MCCs typically form during the afternoon and evening in the form of several isolated thunderstorms, during which time the potential for severe weather is greatest. During peak intensity, the primary threat shifts toward heavy rain and flooding.

Mesoscale Convective System

(MCS): A complex of thunderstorms which becomes organized on a scale larger than the individual thunderstorms, and normally persists for several hours or more. MCSs may be round or linear in shape, and include systems such as tropical cyclones, squall lines, and MCCs (among others). MCS often is used to describe a cluster of thunderstorms that does not satisfy the size, shape, or duration criteria of an MCC.

Mesoscale Discussion

When conditions actually begin to shape up for severe weather, SPC (Storm Prediction Center) often issues a Mesoscale Discussion (MCD) statement anywhere from roughly half an hour to several hours before issuing a weather watch. SPC also puts out MCDs for hazardous winter weather events on the mesoscale, such as locally heavy snow, blizzards and freezing rain (see below). MCDs are also issued on occasion for heavy rainfall, convective trends, and other phenomena, when the forecaster feels he/she can provide useful information that is not readily available or apparent to field forecasters. MCDs are based on mesoscale analysis and interpretation of observations and of short term, high resolution numerical model output.

The MCD basically describes what is currently happening, what is expected in the next few hours, the meteorological reasoning for the forecast, and when/where SPC plans to issue the watch (if dealing with severe thunderstorm potential). Severe thunderstorm MCDs can help you get a little extra lead time on the weather and allow you to begin gearing up operations before a watch is issued. The MCD begins with a numerical string that gives the LAT/LON coordinates of a polygon that loosely describes the area being discussed.

Mesoscale High Winds

These high winds usually follow the passage of organized convective systems and are associated with wake depressions or strong mesohighs.

Mesosphere

The atmospheric shell between about 20 km and about 70 to 80 km, extending from the top of the stratosphere (the stratopause) to the upper temperature minimum that defines the mesopause (the base of the thermosphere).

MET

1) Meteorological
2) MOS (Model Output Statistics) guidance based on Environmental Modeling Centers ETA model

METAR

An international code (Aviation Routine Weather Report) used for reporting, recording and transmitting weather observations.

Meteogram

A graphical depiction of trends in meteorological variables such as temperature, dew point, wind speed and direction, pressure, etc. The time series meteogram can be constructed using observed data or forecast data.

Meteoric Water

Water derived from precipitation.

Meteorologist

A person who studies meteorology. There are many different paths within the field of meteorology. For example, one could be a research meteorologist, radar meteorologist, climatologist, or operational meteorologist.

Meteorology

The science dealing with the atmosphere and atmospheric phenomena. A distinction can be drawn between meteorology and climatology, the latter being primarily concerned with average, not actual, weather conditions.

METRO

Metropolitan

MeV

Mega (million) electron-volt. A unit of energy used to describe the total energy carried by a particle or photon

MEX

1) GFS Model Guidance
2) Mexico

MHD

Magnetohydrodynamics.

MI

1) Mile
2) Michigan

MIC

Meteorologist In Charge

Microbarograph

A instrument designed to continuously record a barometer's reading of very small changes in atmospheric pressure.

Microburst

A convective downdraft with an affected outflow area of less than 2Â½ miles wide and peak winds lasting less than 5 minutes. Microbursts may induce dangerous horizontal/vertical wind shears, which can adversely affect aircraft performance and cause property damage.

Microclimate

The climate of a small area such as a cave, house, city or valley that may be different from that in the general region.

Micron

Unit of length equal to one thousandth (1/1000) of a millimeter; one millionth (1/1000000) of a meter ($1x10^{-6}$ m). It is also called a micrometer and is a common measure for particulate matter in the atmosphere.

Microscale

Pertaining to meteorological phenomena, such as wind circulations or cloud patterns, that are less than 2 km in horizontal extent.

Microwave

A type of electromagnetic radiation with wavelengths between those of infrared radiation and radio waves.

Microwave Burst

In solar-terrestrial terms, a radiowave signal associated with optical and/or X-ray flares

MID

Middle

Mid-Flame Wind

Wind measured at the midpoint of the flames, considered to be most representative of the speed of the wind that is affecting fire behavior.

Mid-Latitude Areas

Areas between 30o and 60o north and south of the Equator.

Mid-level Cooling

Local cooling of the air in middle levels of the atmosphere (roughly 8 to 25 thousand feet), which can lead to destabilization of the entire atmosphere if all other factors are equal.

Middle Clouds

(or Mid-Level Clouds) - A term used to signify clouds with bases between 6,500 and 23,000 feet. At the higher altitudes, they may also have some ice crystals, but they are composed mainly of water droplets. Altocumulus, altostratus, and nimbostratus are the main types of middle clouds. This altitude applies to the temperate zone. In the polar regions, these clouds may be found at lower altitudes. In the tropics, the defining altitudes for cloud types are generally higher.

Middle Latitudes

1) The latitude belt roughly between 35 and 65 degrees North and South. Also referred to as the temperate region.

or

2) With specific reference to zones of geomagnetic activity, "middle latitudes" refers to 20Âº to 50Âº geomagnetic

Mie Scattering

Any scattering produced by spherical particles whose diameters are greater than 1/10 the wavelength of the scattered radiation. This type of scattering causes the clouds to appear white in the sky. Often, hail exhibits in this type of scattering.

Millibar

A unit of atmospheric pressure equal to 1/1000 bar, or 1000 dynes per square centimeter.

MIN

Minimum (or) Minute

Minimum Discernible Signal

In a receiver, it is the smallest input signal that will a produce a detectable signal at the output. In radar terms, it is the minimal amount of back scattered energy that is required to produce a target on the radar screen. In other words, MDS is a measure of the radar's sensitivity.

Minimum High Temperature Record

The "high temperature" is the highest temperature measured during a specified period of time, most commonly per day (e.g. "today's high temperature"). Therefore, the "minimum high temperature record" is the lowest high temperature on record, measured in a specified period of time (e.g. daily, monthly, all-time).

Minimum Low Temperature Record

The "low temperature" is the lowest temperature measured during a specified period of time, most commonly per day (e.g. "today's low temperature"). Therefore, the "minimum low temperature record" is the lowest low temperature on record, measured in a specified period of time (e.g. daily, monthly, all-time).

Minimum Precipitation Record

The least rain measured in a specified period of time (e.g. daily, monthly, yearly).

Minimum Temperature

This is the lowest temperature recorded during a specified period of time. The time period can be 6, 12

or 24 hours. The most common reference is to the daily minimum temperature, or "low."

Minor Flooding

A general term indicating minimal or no property damage but possibly some public inconvenience.

Minor Tidal Overflow

Minor flooding caused by high tides that results in little if any damage.

MINT

Minimum Temperature

MISC

Miscellaneous

MISG

Missing

Misoscale

The scale of meteorological phenomena that ranges in size from 40 meters to about 4 kilometers. It includes rotation within a thunderstorm.

Mist

Microscopic water particles suspended in the atmosphere that reduces visibility to less than 7 statute miles, but greater than or equal to 5/8 statute miles. It does not reduce visibility as much as fog and is often confused with drizzle.

Mixed Layer

An atmospheric layer, usually the layer immediately above the ground, in which pollutants are well mixed by convective or shear-produced turbulence.

Mixed Precipitation

Any of the following combinations of freezing and frozen precipitation: snow and sleet, snow and freezing rain, or sleet alone. Rain may also be present.

Mixing Depth

Vertical distance between the ground and the altitude to which pollutants are mixed by turbulence caused by convective currents or vertical shear in the horizontal wind.

Mixing Heights

The height to which a parcel of air, or a column of smoke, will rise, mix or disperse. A column of smoke will remain trapped below this height.

Mixing Ratio

The ratio of the weight of water vapor in a specified volume (such as an air parcel) to the weight of dry air in that same volume.

MJO

Madden-Julian Oscillation- Tropical rainfall exhibits strong variability on time scales shorter than the seasonal El NiÃ±o-Southern Oscillation (ENSO). These fluctuations in tropical rainfall often go through an entire cycle in 30-60 days, and are referred to as the Madden-Julian Oscillation or intraseasonal oscillations. The intraseasonal oscillations are a naturally occurring component of our coupled ocean-atmosphere system. They significantly affect the atmospheric circulation throughout the global Tropics and subtropics, and also strongly affect the wintertime jet stream and atmospheric circulation features over the North Pacific and western North America. As a result, they have an important impact on storminess and temperatures over the United States. During the summer these oscillations have a modulating effect on hurricane activity in both the Pacific and Atlantic basins.

MLCAPE

Mean Layer CAPE - CAPE calculated using a parcel consisting of Mean Layer values of temperature and moisture from the lowest 100 mb above ground level. See Convective Available Potential Energy (CAPE).

MLLI

Mean Layer Lifted Index - Lifted Index (LI) calculated using a parcel consisting of Mean Layer values of temperature and moisture from the lowest 100 mb above ground level. See Lifted Index (LI).

MLLW

(Mean Lower Low Water) - A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

MLW

(Mean Low Water) - A tidal datum. The average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

MOBY

Marine Optical Buoy. It measures solar radiation to calibrate satellite ocean color instruments.

Model Output Statistics

(abbrev. MOS) - the Hydrometeorological Center (HPC) produces a short range (6 to 60 hours) MOS (Model Output Statistics) guidance package generated from the NGM, GFS, and ETA models for over 300 individual stations in the continental United States. These alphanumeric messages are made available at approximately 0400 and 1600 UTC for the 0000 and 1200 UTC forecast cycles, respectively. Model Output Statistics are a set of statistical equations that use model output to forecast the probability of precipitation, high and low temperature, cloud cover, and precipitation amount for many cities across the USA. The statistical equations were specifically tailored for each location, taking into account factors such as each location's climate.

Moderate Flooding

The inundation of secondary roads; transfer to higher elevation necessary to save property -- some evacuation may be required.

Moderate Risk (of severe thunderstorms)

Severe thunderstorms are expected to affect between 5 and 10 percent of the area. A moderate risk indicates the possibility of a significant severe weather episode. See high risk, slight risk, convective outlook.

Moist Adiabat

The line on a Skew T-Log P chart that depicts the change in temperature of saturated air as it rises and undergoes cooling due to adiabatic expansion. As saturated air rises, the temperature changes at a rate of 0.55 degrees Celsius per 100 meters (2-3 degrees Fahrenheit per 1,000 feet). Contrast with a dry adiabat.

Moist Adiabatic Lapse Rate

(abbrev. MALR)- The rate at which the temperature of a parcel of saturated air decreases as the parcel is lifted in the atmosphere. The moist adiabatic lapse rate (abbreviated MALR) is not a constant like the dry adiabatic lapse rate but is dependent on parcel temperature and pressure.

Moist-adiabatic

(Also known as saturation-adiabatic process.) An adiabatic process for which the air is saturated and may contain liquid water. A distinction is made between the reversible process, in which total water is conserved, and the pseudoadiabatic or irreversible moist adiabatic process, in which liquid water is assumed to be removed as soon as it is condensed.

Moisture

Refers to the water vapor content in the atmosphere, or the total water, liquid, solid or vapor, in a given volume of air.

Moisture Advection

Transport of moisture by horizontal winds.

Moisture Convergence

A measure of the degree to which moist air is converging into a given area, taking into account the effect of converging winds and moisture advection. Areas of persistent moisture convergence are favored regions for thunderstorm development, if other factors (e.g., instability) are favorable.

Moisture Equivalent

In hydrologic terms, the ratio of the weight of water which the soil, after saturation, will retain against a centrifugal force 1,000 times the force of gravity, to the weight of the soil when dry. The ratio is stated as a percentage.

Moisture Ridge

An axis of relatively high dew point values. This axis is sometimes referred to as a 'moist tongue'.

Molecule

The smallest particle of a substance that retains the properties of the substance and is composed of one or more atoms.

Monitor Stage

The stage which, when reached by a rising stream, represents the level where appropriate officials

(e.g., county sheriff, civil defense officials, or bypass gate operators) are notified of the threat of possible flooding. (Used if different from action stage, and at the discretion of the WFO or river forecast center [RFC].) The term "alert stage" is to be used instead of warning stage. Monitor stage or caution stage may be used instead of alert stage in some parts of the country. see/ alert stage/.

Monostatic Radar

A radar that uses a common antenna for both transmitting and receiving.

Monsoon

The seasonal shift of winds created by the great annual temperature variation that occurs over large land areas in contrast with associated ocean surfaces. The monsoon is associated primarily with the moisture and copious rains that arrive with the southwest flow across southern India. The name is derived from the word mausim, Arabic for season. This pattern is most evident on the southern and eastern sides of Asia, although it does occur elsewhere, such as in the southwestern United States. A thermally driven wind arising from differential heating between a land mass and the adjacent ocean that reverses its direction seasonally.

Monthly Climatological Report

This climatological product is issued once a month by each National Weather Service office. It is a mix of tabular and narrative information. It is organized so that similar items are grouped together (i.e., temperature, precipitation, wind, heating/cooling degree information, etc.).

Morning Glory

An elongated cloud band, visually similar to a roll cloud, usually appearing in the morning hours, when the atmosphere is relatively stable. Morning glories result from perturbations related to gravitational waves in a stable boundary layer. They are similar to ripples on a water surface; several parallel morning glories often can be seen propagating in the same direction.

Moreton Wave

A wave disturbance (also known as a flare blast wave) generated by large flares, which is seen to propagate horizontally across the disk of the Sun at a typical velocity of about 1000 km/s. Its presence is more visible in wings of the H-alpha line.

MOS

Model Output Statistics - the Hydrometeorological Center (HPC) produces a short range (6 to 60 hours) MOS guidance package generated from the NGM, GFS, and ETA models for over 300 individual stations in the continental United States. These alphanumeric messages are made available at approximately 0400 and 1600 UTC for the 0000 and 1200 UTC forecast cycles, respectively. Model Output Statistics are a set of statistical equations that use model output to forecast the probability of precipitation, high and low temperature, cloud cover, and precipitation amount for many cities across the USA. The statistical equations were specifically tailored for each location, taking into account factors such as each location's climate.

Mostly Clear

When the 1/8th to 2/8ths of the sky is covered by with opaque (not transparent) clouds. Sometimes referred to as **Mostly Sunny** if this condition is present during daylight hours.

Mostly Cloudy

When the 6/8th to 7/8ths of the sky is covered by with opaque (not transparent) clouds. Same as **Considerable Cloudiness**.

Mostly Sunny

When the 1/8th to 2/8ths of the sky is covered by with opaque (not transparent) clouds Same as Mostly Clear, except only applicable during daylight hours.

Mound Prominence (MDP)

H-alpha structure at the solar limb that is the elevated top of numerous small surges and/or a dense, low-lying prominence.

Mount Wilson Magnetic Classifications

In solar-terrestrial terms, a classification system for sunspots:

- Alpha: Denotes a unipolar sunspot group.
- Beta: A sunspot group having both positive and negative magnetic polarities, with a simple and distinct division between the polarities.
- Beta-Gamma: A sunspot group that is bipolar but in which no continuous line can be drawn separating spots of opposite polarities.

- Delta: A complex magnetic configuration of a solar sunspot group consisting of opposite polarity umbrae within the same penumbra.
- Gamma: A complex active region in which the positive and negative polarities are so irregularly distributed as to prevent classification as a bipolar group.

Mountain Wave

The wavelike effect, characterized by updrafts and downdrafts, that occurs above and behind a mountain range when rapidly flowing air encounters the mountain range's steep front.

Mountain Wind System

The system of diurnal winds that forms in a complex terrain area, consisting of mountain-plain, along-valley, cross-valley and slope wind systems.

Mountain-Plain Wind System

A closed, large-scale, thermally driven circulation between the mountains and the surrounding plain. The mountain-to-plain flow making up the lower branch of the closed circulation usually occurs during nighttime, while the plain-to-mountain flow occurs during daytime.

Mountainado

A vertical-axis eddy produced in a downslope windstorm by the vertical stretching of horizontal roll vortices produced near the ground by vertical wind shear. Mountainadoes, when carried by the mean wind, can produce strong horizontal shears and wind gusts that are much more damaging than the general prevailing wind speeds.

MOV

Move

Movable Bed

In hydrologic terms, a stream bed made up of materials readily transportable by the stream flow

MOVG

Moving.

MR

More.

MRF

Medium Range Forecast model, the medium-range computer model run by the United States (NOAA). The output from this model is part of what is now known as the **GFS** model, so the term MRF is no longer widely used.

MRGL

Marginal.

MRNG

Morning.

MSG

Message.

MSL

Mean Sea Level.

MSL

(Mean Sea Level) - The arithmetic mean of hourly water elevations observed over a specific 19-year tidal epoch.

MSLP

Mean sea level pressure.

MST

Mountain Standard Time.

MSTLY

Mostly.

MSTR

Moisture.

MT

1) Mountain.
2) Montana.

MTN

Mountain.

MTNS

Mountains.

MTS

Mountains.

Mud Slide

Fast moving soil, rocks and water that flow down mountain slopes and canyons during a heavy downpour of rain.

Muggy

A subjective term for warm and excessively humid weather conditions.

MULI

Most Unstable Lifted Index - Lifted Index (LI) calculated using a parcel from the pressure level that results in the Most Unstable value (lowest value) of LI possible.

Multicell Thunderstorm

These thunderstorms are organized in clusters of at least 2-4 short-lived cells. Each cell generates a cold air outflow and these individual outflows combine to form a large gust front. Convergence along the gust front causes new cells to develop every 5 to 15 minutes. The cells move roughly with the mean wind. However, the area (storm) motion usually deviates significantly from the mean wind due to discrete propagation (new cell development) along the gust front. The multicellular nature of the storm is usually apparent on radar with multiple reflectivity cores and maximum tops.

Multiple Doppler Analysis

The use of more than one radar (and hence more than one look angle) to reconstruct spatial distributions of the 2D or 3D wind field, which cannot be measured from a single radar alone. Includes dual Doppler, triple Doppler, and overdetermined multiple Doppler analysis.

Multiple Vortex Tornado

A tornado in which two or more condensation funnels or debris clouds are present at the same time, often rotating about a common center or about each other. Multiple-vortex tornadoes can be especially damaging.

Multipurpose Reservoir

In hydrologic terms, a reservoir constructed and equipped to provide storage and release of water for two or more purposes such as flood control, power development, navigation, irrigation, recreation, pollution abatement, domestic water supply, etc.

Municipal Use of Water

In hydrologic terms, the various uses to which water is put to use developed urban areas, including domestic use, industrial use, street sprinkling, fire protection, etc.

Mushroom

Slang for a thunderstorm with a well-defined anvil rollover, and thus having a visual appearance resembling a mushroom.

MVFR

Marginal Visual Flight Rules - in an aviation product, refers to the general weather conditions pilots can expect at the surface. VFR stands for Visual Flight Rules and MVFR means Minimum or Marginal Visual Flight Rules. MVFR criteria means a ceiling between 1,000 and 3,000 feet and/or 3 to 5 miles visibility.

MVS

Moves

MWD

On a buoy report, mean wave direction corresponding to energy of the dominant period (DOMPD). The units are degrees from true North just like wind direction.

MWS

Marine Weather Statement

N

N

North.

Nacreous Clouds

Clouds of unknown composition that have a soft, pearly luster and that form at altitudes about 25 to 30 km above the Earth's surface. They are also called "mother-of-the-pearl clouds."

Nadir

The point on any given observer's celestial sphere diametrically opposite of one's zenith.

NAM

The operational North American Meso (NAM, formerly Eta) is run four times per day (00,06,12,18Z), all cycles run to 84-h.

Nano

Refers to nanometer, one billionth of a meter or a hundred-thousandth of a millimeter.

Nanotesla (nT)

A unit of magnetism equal to 10^{-9} tesla, equivalent to a gamma (10^{-5} gauss).

NAO

North Atlantic Oscillation - the NAO is a large-scale fluctuation in atmospheric pressure between the subtropical high pressure system located near the Azores in the Atlantic Ocean and the sub-polar low pressure system near Iceland and is quantified in the NAO Index. The surface pressure drives surface winds and wintertime storms from west to east across the North Atlantic affecting climate from New England to western Europe as far eastward as central Siberia and eastern Mediterranean and southward to West Africa.

NAO Index

This index measures the anomalies in sea level pressure between the Icelandic low pressure system and the Azores high pressure system in the North Atlantic Ocean.

When the NAO is in its is positive phase (+NAO), the northeastern United States sees an increase in temperature and a decrease in snow days; the central US has increased precipitation, the North Sea has an increase in storms; and Norway along with Northern Europe has warmer temperatures and increased precipitation.

When the NAO is in its negative phase (-NAO), the Tropical Atlantic and Gulf coast have increased number of strong hurricanes; northern Europe is drier, and Turkey along with other Mediterranean countries has increased precipitation.

National Ambient Air Quality Standards

In the United States, national standards for the ambient concentrations in air of different air pollutants designed to protect human health and welfare.

National Climatic Data Center

The agency that archives climatic data from the National Oceanic and Atmospheric Administration, as well as other climatological organizations.

National Digital Forecast Database

(NDFD)- The National Weather Service's NDFD provides access to gridded forecasts of sensible weather elements (e.g., wind, wave height) through the National Digital Forecast Database (NDFD). NDFD contains a seamless mosaic of digital forecasts from NWS field offices working in collaboration with the National Centers for Environmental Prediction (NCEP). The database is made available to all customers and partners from the public, private and academic sectors. Those customers and partners may use this data to create a wide range of text, graphic, gridded and image products of their own.

National Fire Danger Rating System

A uniform fire danger rating system used in the United States that focuses on the environmental factors that impact the moisture content of fuels. Fire danger is rated daily over large administrative areas, such as national forests.

National Flood Summary

This NWS daily product (abbreviated FLN) contains nationwide information on current flood conditions. It is issued by the Hydrometeorological Information Center of the Office of Hydrology.

National Hurricane Center

One of three branches of the Tropical Prediction Center (TPC). This center maintains a continuous watch on tropical cyclones over the Atlantic, Caribbean, Gulf of Mexico, and the Eastern Pacific from 15 May through November 30. The Center prepares and distributes hurricane watches and warnings for the general public, and also prepares and distributes marine and military advisories for other users.

During the "off-season" NHC provides training for U.S. emergency managers and representatives from many other countries that are affected by tropical cyclones. NHC also conducts applied research to evaluate and improve hurricane forecasting techniques, and is involved in public awareness programs.

National Hurricane Operations Plan

(NHOP) - The NHOP is issued annually by the Federal Coordinator for Meteorological Services and Supporting Research. It documents interdepartmental agreements relating to tropical cyclone observing, warning, and forecasting services. National Hurricane Center (NHC), Central Pacific Hurricane Center (CPHC), and the JTWC serve as the principal offices in coordinating the day-to-day activities of the NWS in support of the Plan in their region of responsibility.

National Severe Storms Laboratory

This is one of NOAA's internationally known Environmental Research Laboratories, leading the way in investigations of all aspects of severe weather. Headquartered in Norman OK with staff in Colorado, Nevada, Washington, Utah, and Wisconsin, the people of NSSL, in partnership with the National Weather Service, are dedicated to improving severe weather warnings and forecasts in order to save lives and reduce property damage.

National Weather and Crop Summary

A product of the National Agricultural Statistics Service, Agricultural Statistics Board, and U.S. Department of Agriculture. It contains weekly national agricultural weather summaries, including the weather's effect on crops; summaries and farm progress for 44 states and New England area.

Natural Control

In hydrologic terms, a stream gaging control which is natural to the stream channel, in contrast to an artificial control structure by man.

Nautical Dawn

The time at which the sun is 12 degrees below the horizon in the morning. Nautical dawn is defined as that time at which there is just enough sunlight for objects to be distiguishable.

Nautical Dusk

The time at which the sun is 12 degrees below the horizon in the evening. At this time, objects are no longer distinguishable.

Nautical Mile

A unit of distance used in marine navigation and marine forecasts. It is equal to 1.15 statue miles or 1852 meters. It is also the length of 1 minute of latitude.

Nautical Twilight

The time after civil twilight, when the brighter stars used for celestial navigation have appeared and the horizon may still be seen. It ends when the center of the sun is 12 degrees below the horizon, and it is too difficult to perceive the horizon, preventing accurate sighting of stars.

Navigation Methods

In hydrologic terms, there are three basic methods of providing and managing inland waterways -
1) Run-of-the-River: no provision of upstream storage;
2) Slack-Water: locks and dams provide slack water or pools with adequate depth for the draft of heavy barges and area to prevent excessive velocities;
3) Canalization: in lieu of a series of dams on the river a canal with locks adjoins the river.

NAVTEX

An international automated medium frequency (518 kHz) direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent marine safety information to ships. It was developed to provide a low-cost, simple, and automated means of receiving this information aboard ships at sea within approximately 200 nautical miles of shore and is an element of the Global Maritime Distress and Safety System (GMDSS). NAVTEX stations in the U.S. are operated by the U.S. Coast Guard. There are no user fees associated with receiving NAVTEX broadcasts. The International System uses the frequency of 518 kHz worldwide and optional National Systems use frequencies of 490 and 4205.5 kHz. Safety messages on 518 kHz have to be in the English language worldwide but broadcasts on the 490 and 4209.5 kHz frequency can be in the local language.

NAVTEX Forecast

(NAV) - A National Weather Service marine forecast combining various Coastal Waters and Offshore forecasts, optimized to accommodate transmission via NAVTEX.

Nautical Twilight
The time period when the sun is between 6 and 12 degrees below the horizon at either sunrise or sunset. The horizon is well defined and the outline of objects might be visible without artificial light. Ordinary outdoor activities are not possible at this time without extra illumination.

NBND
Northbound

NC
1. No change
2. North Carolina

NCAR
National Center for Atmospheric Research

NCCF
NOAA Central Computer Facility

NCDC
National Climatic Data Center

NCEP
National Centers for Environmental Prediction. A part of the National Weather Service which provides nationwide computerized and manual guidance to Warning and Forecast Offices concerning the forecast of basic weather elements.

NDBC
National Data Buoy Center

NDFD
(National Digital Forecast Database) - The National Weather Service's NDFD provides access to gridded forecasts of sensible weather elements (e.g., wind, wave height) through the National Digital Forecast Database (NDFD). NDFD contains a seamless mosaic of digital forecasts from NWS field offices working in collaboration with the National Centers for Environmental Prediction (NCEP). The database is made available to all customers and partners from the public, private and academic sectors. Those customers and partners may use this data to create a wide range of text, graphic, gridded and image products of their own.

NE
Northeast

Neap Tide
A minimum tide occurring at the first and third quarters of the moon.

Nearshore Forecast
(NSH) - National Weather Service seasonal marine forecasts for an areas of the Great Lakes extending from a line approximating mean low water datum along the coast or an island, including bays, harbors, and sounds, out to 5 nm. These forecasts are normally issued from Daylight Savings Time ~April 7 through December 31, though the dates may be shortened or extended based on local/regional requirements.

NEC
Necessary

NEG
Negative

Negative Vorticity Advection
(Abbrev. NVA) - the advection of lower values of vorticity into an area.

Negative-tilt Trough
An upper level system which is tilted to the west with increasing latitude (i.e., with an axis from southeast to northwest). A negative-tilt trough often is a sign of a developing or intensifying system.

NELY
Northeasterly

NERN
Northeastern

NESDIS
National Environmental Satellite, Data, and Information Service. NESDIS collects, processes, stores, analyzes, and disseminates various types of hydrologic, meteorologic, and oceanic data. NESDIS is

also responsible for the development of analytical and descriptive products so as to meet the needs of itâ€™s users.

Net All-Wave Radiation

The net or resultant value of the upward and downward longwave and shortwave radiative fluxes through a plane at the earth-atmosphere interface; a component of the surface energy budget.

Net Rainfall

In hydrologic terms, the portion of rainfall which reaches a stream channel or the concentration point as direct surface flow.

Neutral Line

The line that separates longitudinal magnetic fields of opposite polarity.

Neutral Stability

An atmospheric condition that exists in unsaturated air when the environmental lapse rate equals the dry adiabatic rate, or in saturated air when the environmental lapse rate equals the moist adiabatic rate.

Neutron Monitor

A ground-based detector that counts secondary neutrons generated by processes originating with the impact of atmospheric molecules and atoms by very energetic particles (galactic or solar cosmic rays).

NEWD

Northeastward

NEXRAD

NEXt Generation RADar. A NWS network of about 140 Doppler radars operating nationwide.

NGM

The Nested Grid Model, a 48-hour numerical model of the atmosphere run twice daily by NCEP.

NGT

Night

NHC

National Hurricane Center - one of three branches of the Tropical Prediction Center (TPC). This center maintains a continuous watch on tropical cyclones over the Atlantic, Caribbean, Gulf of Mexico, and the Eastern Pacific from 15 May through November 30. The Center prepares and distributes hurricane watches and warnings for the general public, and also prepares and distributes marine and military advisories for other users. During the "off-season" NHC provides training for U.S. emergency managers and representatives from many other countries that are affected by tropical cyclones. NHC also conducts applied research to evaluate and improve hurricane forecasting techniques, and is involved in public awareness programs.

NHOP

(National Hurricane Operations Plan) - The NHOP is issued annually by the Federal Coordinator for Meteorological Services and Supporting Research. It documents interdepartmental agreements relating to tropical cyclone observing, warning, and forecasting services. National Hurricane Center (NHC), Central Pacific Hurricane Center (CPHC), and the JTWC serve as the principal offices in coordinating the day-to-day activities of the NWS in support of the Plan in their region of responsibility.

Nieve Penitente

A spike or pillar of compacted snow, firn or glacier ice, caused by differential melting and evaporation. The pillars form most frequently on low-latitude mountains where air temperatures are near freezing, dew points are much below freezing and insolation is strong. Penitents are oriented individually toward the noon-day sun, and usually occur in east-west lines.

Night

The period of the day between dusk and dawn.

NIL

None.

Nimbostratus

(abbrev. NS)- A cloud of the class characterized by a formless layer that is almost uniformly dark gray; a rain cloud of the layer type, of low altitude, usually below 8000 ft (2400 m).

NLY

Northerly.

NM

Nautical Miles.

NMBR
Number.
NMC
National Meteorological Center.
NML
Normal.
NMRS
Numerous.
NOAA
National Oceanic and Atmospheric Administration.
NOAA Space Weather Scales
A shorthand classification scheme developed to convey to the general public the complex and often confusing levels of disturbances in the solar-terrestrial environment. Three typical events are represented as: Geomagnetic Storms (G), Solar Radiation Storms (S), and Radio Blackouts (R). A numerical qualifier is added to the event type to indicate the severity of the disturbance. These qualifiers are defined as follows: 1 Minor 2 Moderate 3 Strong 4 Severe 5 Extreme.
NOAA Weather Radio
"The voice of the National Weather Service" - NOAA Weather Radio broadcasts National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day. It is provided as a public service by NOAA. The NOAA Weather Radio network has more than 480 stations in the 50 states and near adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands and U.S. Pacific Territories.
NOAA Weather Wire
Mass dissemination via satellite of National Weather Service products to the media and public.
Noctilucent Clouds
Rarely seen bluish clouds of tiny ice particles that form approximately 75 to 90 kilometers above the earth's surface. They have been seen only during twilight (dusk and dawn) during the summer months in the higher latitudes. They may appear bright against a dark night sky, with a blue-silver color or orange-red.
Nocturnal
Related to nighttime; occurring at night.
Nocturnal Inversion
Used interchangeably with Radiational Inversion; a temperature inversion that develops during the night as a result of radiational cooling of the surface. Because the immediate surface (lower Boundary Layer) cools much more rapidly during radiational cooling conditions than the air just above (upper Boundary Layer), a temperature inversion can be created overnight, but typically erodes quickly after sunrise.
Nocturnal Jet
This wind speed maximum occurs just above the nocturnal inversion at night. It is typically found in the south central United States during the late spring and summer months. It is important in the development of Mesoscale Convective Complexes (MCC) or Mesoscale Convective Systems (MCS).
Nocturnal Thunderstorms
Thunderstorms which develop after sunset. They are often associated with the strengthening of the low level jet and are most common over the Plains states. They also occur over warm water and may be associated with the seaward extent of the overnight land breeze.
NOGAPS
Navy Operational Global Atmospheric Prediction System; a 144-hour numerical model of the atmosphere run by the U.S. Navy twice daily.
NOHRSC
In hydrologic terms, the National Operational Hydrologic Remote Sensing Center. An organization under the National Weather Service Office of Hydrology (OH) that mainly deals with snow mapping.
Noise Storm
A transient enhancement of solar radio emission, particularly near 250 MHz, consisting of an elevated background emission. These storms may last hours to days.
definition courtesy of: NWS Space Weather Prediction Center
Non-Great-Circle Propagation
Describing a degraded condition of radio propagation caused by horizontal gradients in ionospheric

electron density. The radio wave is refracted away from its normal great-circle path, which is the shortest distance between two points on Earth. Strong horizontal gradients are associated with the equatorward boundary of the auroral oval (especially in the night sector) and the sunrise terminator.

Non-Uniform Sky Condition

A localized sky condition which varies from that reported in the body of the report.

Non-Uniform Visibility

A localized visibility which varies from that reported in the body of the report.

Nonattainment Area

An area that does not meet ambient air quality standards.

Nor'Easter

A cyclonic storm occurring off the east coast of North America. These winter weather events are notorious for producing heavy snow, rain, and tremendous waves that crash onto Atlantic beaches, often causing beach erosion and structural damage. Wind gusts associated with these storms can exceed hurricane force in intensity. A nor'easter gets its name from the continuously strong northeasterly winds blowing in from the ocean ahead of the storm and over the coastal areas.

Normal

The long-term average value of a meteorological paramater (i.e., temperature, humidity, etc.) for a certain area. For example, "temperatures are normal for this time of year" means that temperatures are at or near the average climatological value for the given date. Normals are usually taken from data averaged over a 30-year period (e.g., 1971-2000 average), and are concerned with the distribution of data within limits of common occurrence.

Normal Water Surface Elevation

In hydrologic terms, the lowest crest level of overflow on a reservoir with a fixed overflow level (spillway crest elevation). For a reservoir whose outflow is controlled wholly or partly by movable gates, siphons, or other means, it is the maximum level to which water may rise under normal operating conditions, exclusive of any provision for flood surcharge.

Normal Year

A year during which the precipitation or stream flow approximates the average for a long period of record.

North Atlantic Oscillation

(Abbrev. NAO) - the NAO is a large-scale fluctuation in atmospheric pressure between the subtropical high pressure system located near the Azores in the Atlantic Ocean and the sub-polar low pressure system near Iceland and is quantified in the NAO Index. The surface pressure drives surface winds and wintertime storms from west to east across the North Atlantic affecting climate from New England to western Europe as far eastward as central Siberia and eastern Mediterranean and southward to West Africa.

North Pacific High

A semi-permanent, subtropical area of high pressure in the North Pacific Ocean. It is strongest in the Northern Hemispheric summer and is displaced towards the equator during the winter when the Aleutian Low becomes more dominate. Comparable systems are the Azores High and the Bermuda High.

North Wall

The north side boundary of the Gulf Stream generally extending northeast from Cape Hatteras where the Gulf Stream turns northeast.

Northern Lights

Common name for Aurora Borealis; the luminous, radiant emission from the upper atmosphere over middle and high latitudes, and centered around the earth's magnetic poles. These silent fireworks are often seen on clear winter nights in a variety of shapes and colors.

Northern Polar Lights

A natural occurring display of lights observed in the high latitudes of the polar regions on the globe, but are also often seen as far as 65-72 degrees north and south. The chance for seeing the northern lights increases as you go closer to the North Magnetic Pole. If near the magnetic pole, they can be seen overhead, but from further distances they illuminate the northern horizon with a greenish or yellowish color. It is strongest during the equinoxes, or when the earth is at its greatest tilt. This phenomena occurs when photons are emitted into the ionosphere from ionized nitrogen atoms. They are ionized, or excited, by strong solar wind in the vicinity of Earth's magnetic field lines.

Nor'easter

A strong low pressure system that affects the Mid Atlantic and New England States. It can form over land or over the coastal waters. These winter weather events are notorious for producing heavy snow, rain, and tremendous waves that crash onto Atlantic beaches, often causing beach erosion and structural damage. Wind gusts associated with these storms can exceed hurricane force in intensity. A nor'easter gets its name from the continuously strong northeasterly winds blowing in from the ocean ahead of the storm and over the coastal areas.

Nowcast

A short-term weather forecast, generally out to six hours or less. This is also called a Short Term Forecast.

NR

Near

NRN

Northern

NRW

Narrow

NS

Nimbostratus- A cloud of the class characterized by a formless layer that is almost uniformly dark gray; a rain cloud of the layer type, of low altitude, usually below 8000 ft (2400 m).

NSSFC

National Severe Storm Forecast Center

NSSL

National Severe Storms Laboratory - this is one of NOAA's internationally known Environmental Research Laboratories, leading the way in investigations of all aspects of severe weather. Headquartered in Norman OK with staff in Colorado, Nevada, Washington, Utah, and Wisconsin, the people of NSSL, in partnership with the National Weather Service, are dedicated to improving severe weather warnings and forecasts in order to save lives and reduce property damage.

Numerical Forecasting

A computer forecast or prediction based on equations governing the motions and the forces affecting motion of fluids. The equations are based, or initialized, on specified weather or climate conditions at a certain place and time.

Numerical Weather Prediction

Same as **Numerical Forecasting**; a computer forecast or prediction based on equations governing the motions and the forces affecting motion of fluids. The equations are based, or initialized, on specified weather or climate conditions at a certain place and time.

Numerous

A National Weather Service convective precipitation descriptor for a 60 or 70 percent chance of measurable precipitation (0.01 inch).

NVA

Negative Vorticity Advection - the advection of lower values of vorticity into an area.

NW

Northwest

NWD

Northward

NWLY

Northwesterly

NWP

Numerical Weather Prediction

NWR

NOAA Weather Radio - "the voice of the National Weather Service" - NOAA Weather Radio broadcasts National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day. It is provided as a public service by NOAA. The NOAA Weather Radio network has more than 480 stations in the 50 states and near adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands and U.S. Pacific Territories.

NWRD
Northwestward
NWRN
Northwestern
NWS
National Weather Service. An agency of the Federal Government within the Department of Commerce, National Oceanic and Atmospheric Administration, which is responsible for providing observations, forecasts and warnings of meteorological and hydrological events in the interest of national safety and economy.
NWSH
National Weather Service Headquarters
NWSO
National Weather Service Office
NXT
Next

O

Obliquity
Obliquity is the angle between a planet's equatorial plane and its orbital plane.
OBS
Observation(s).

OBSC
Obscure.
Obscuration
Any atmospheric phenomenon, except clouds, that restricts vertical visibility (e.g., dust, rain, snow, etc.).
Obscuring Phenomena
Any atmospheric phenomenon, except clouds, that restricts vertical visibility (e.g., dust, rain, snow, etc.).
Observation
In meteorology, the evaluation of one or more meteorological elements, such as temperature, pressure, or wind, that describe the state of the atmosphere, either at the earth's surface or aloft. An observer is one who records the evaluations of the meteorological elements.
Observation Well
In hydrologic terms, a non-pumping well used for observing the elevation of the water table or piezometric surface
Occluded Front
A composite of two fronts, formed as a cold front overtakes a warm or quasi-stationary front. Two types of occlusions can form depending on the relative coldness of the air behind the cold front to the air ahead of the warm or stationary front. A cold occlusion results when the coldest air is behind the cold front and a warm occlusion results when the coldest air is ahead of the warm front.
Occluded Mesocyclone
A mesocyclone in which air from the rear-flank downdraft has completely enveloped the circulation at low levels, cutting off the inflow of warm unstable low-level air.
Oceanography
The study of the ocean, embracing and integrating all knowledge pertaining to the ocean's physical boundaries, the chemistry and physics of sea water, and marine biology.
OCFNT
Occluded Front - a composite of two fronts, formed as a cold front overtakes a warm or quasi-stationary front. Two types of occlusions can form depending on the relative coldness of the air behind the cold front to the air ahead of the warm or stationary front. A cold occlusion results when the coldest air is behind the cold front and a warm occlusion results when the coldest air is ahead of the warm front.
OCNL
Occasional

OEODM

The Office of Equal Opportunity and Diversity Management. Provides a duel role. Advises and assists the Assistant Administrator in carrying out the National Weather Service's (NWS) responsibilities relative to Civil Rights laws, Executive Orders, regulatory guidelines, and other nondiscrimination laws within the Federal Government. Advises and assists the Assistant Administrator in carrying out the NWS policy of diversity management by fostering an inclusive workforce, building an environment that respects the individual and offering opportunities for all employees to develop to their full potential. Cultural Diversity is the mixture of differences and similarities each employee brings to the workplace to accomplish the goals of the NWS.

Office of Global Programs

The Office of Global Programs (OGP) sponsors focused scientific research, within approximately eleven research elements, aimed at understanding climate variability and its predictability. Through studies in these areas, researchers coordinate activities that jointly contribute to improved predictions and assessments of climate variability over a continuum of timescales from season to season, year to year, and over the course of a decade and beyond.

Offshore Breeze

A wind that blows from the land towards a body of water. Also known as a land breeze.

Offshore Flow

Occurs when air moves from land to sea, and is usually associated with dry weather.

Offshore Waters

That portion of the oceans, gulfs, and seas beyond the coastal waters extending to a specified distance from the coastline, to a specified depth contour, or covering an area defined by specific latitude and longitude points.

Offshore Waters Forecast

(OFF) - A National Weather Service marine forecast product for that portion of the oceans, gulfs, and seas beyond the coastal waters extending to a specified distance from the coastline, to a specified depth contour, or covering an area defined by specific latitude and longitude points.

OFSHR

Offshore

OH

State of Ohio National Weather Service Office of Hydrology, a branch of the NWS Headquarters

OHD

Overhead

Okta

Used for the measurement of total cloud cover. One okta of cloud cover is the equivalent of 1/8 of the sky covered with cloud.

OLR

Outgoing Longwave Radiation

Omega

A term used to describe vertical motion in the atmosphere. The "omega equation" used in numerical weather models is composed of two terms, the "differential vorticity advection" term and the "thickness advection" term. Put more simply, omega is determined by the amount of spin (or large scale rotation) and warm (or cold) advection present in the atmosphere. On a weather forecast chart, high values of omega (or a strong omega field) relate to upward vertical motion (UVV) in the atmosphere. If this upward vertical motion is strong enough and in a sufficiently moist airmass, precipitation results.

Omega High

A warm high aloft which has become displaced and is on the polarward side of the jet stream. It frequently occurs in the late winter and early spring in the Northern Hemisphere. The name comes from its resemblance to the Greek letter, Omega, when analyzed on upper air charts. It is an example of a blocking high.

Onshore Breeze

A wind that blows from a body of water towards the land. Also known as a seabreeze

Onshore Flow

Occurs when air moves from sea to land, and is usually associated wtih increased moisture.

Opaque

A condition where a material, such as a cloud, blocks the passage of radiant energy, especially light.

Opaque sky cover refers to the amount of sky cover that completely hides all that might be above it.

OPC

Ocean Prediction Center (Formally the Marine Prediction Center. An NCEP center which produces marine forecasts north of 30oN.

Open Lakes Forecast

(GLF) - A National Weather Service marine forecast product for the U.S. waters within a Great Lake not including the waters covered by an existing Nearshore Waters Forecast (NSH). When the seasonal Nearshore forecast is not issued, the Open Lake forecast includes a forecast of nearshore waters.

Operational Products

A product that has been fully tested and evaluated and is produced on a regular and ongoing basis.

Orange sky

Why is the sunset sometimes beautiful colors of red, orange, and pink? The answer is Rayleigh scattering, which is the scattering of light on various atmospheric components such as gases, dust, soot, ashes, pollen, and salt from the oceans. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest frequencies (reds). The colors that are absorbed are what we see, thus, the sky is most often blue. However, when the sun begins to set, the light has to travel farther before we see it and is able to reflect and scatter more colors. The sun color appears more orange-red because the shorter wavelengths (blues and greens) are scattered, and the longer wavelengths are absorbed (reds, oranges, and pinks).

Orange sunset

Why is the sunset sometimes beautiful colors of red, orange, and pink? The answer is Rayleigh scattering, which is the scattering of light on various atmospheric components such as gases, dust, soot, ashes, pollen, and salt from the oceans. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest frequencies (reds). The colors that are absorbed are what we see, thus, the sky is most often blue. However, when the sun begins to set, the light has to travel farther before we see it and is able to reflect and scatter more colors. The sun color appears more orange-red because the shorter wavelengths (blues and greens) are scattered, and the longer wavelengths are absorbed (reds, oranges, and pinks).

Orifice

In hydrologic terms,
(1) An opening with closed perimeter, usually sharp edged, and of regular form in a plate, wall, or partition through which water may flow, generally used for the purpose of measurement or control of water.
(2) The end of a small tube, such as a Pitot tube, piezometer, etc.

ORIG

Original

Orographic

Related to, or caused by, physical geography (such as mountains or sloping terrain).

Orographic Lifting

Same as **Upslope Flow**; occurs when air is forced to rise and cool due to terrain features such as hills or mountains. If the cooling is sufficient, water vapor condenses into clouds. Additional cooling results in rain or snow. It can cause extensive cloudiness and increased amounts of precipitation in higher terrain.

Orographic Precipitation

Precipitation which is caused by hills or mountain ranges deflecting the moisture-laden air masses upward, causing them to cool and precipitate their moisture.

Orographic Uplift

Same as **Orographic Lifting**; occurs when air is forced to rise and cool due to terrain features such as hills or mountains. If the cooling is sufficient, water vapor condenses into clouds. Additional cooling results in rain or snow. It can cause extensive cloudiness and increased amounts of precipitation in higher terrain.

Orographic Waves
A wavelike airflow produced over and in the lee of a mountain barrier.

Orphan Anvil
Slang for an anvil from a dissipated thunderstorm, below which no other clouds remain.

Oscillation
A shift in position of various high and low pressure systems that in climate terms is usually defined as an index (i.e., a single numerically-derived number, that represents the distribution of temperature and pressure over a wide ocean area, such as the El NiÃ±o-Southern Oscillation, North Atlantic Oscillation, and Pacific Decadal Oscillation).

OTLK
Outlook

OTR
Other

OTRW
Otherwise

Outer Convective Band
Bands in a hurricane that occur in advance of main rain shield and up to 300 miles from the eye of the hurricane. The typical hurricane has two or three bands (and sometimes more) which are comprised of cells resembling ordinary thunderstorms. Wind gusts are usually higher in these bands than in the Pre-Hurricane Squall Line.

Outflow
Air that flows outward from a thunderstorm.

Outflow Boundary
A storm-scale or mesoscale boundary separating thunderstorm-cooled air (outflow) from the surrounding air; similar in effect to a cold front, with passage marked by a wind shift and usually a drop in temperature. Outflow boundaries may persist for 24 hours or more after the thunderstorms that generated them dissipate, and may travel hundreds of miles from their area of origin.

New thunderstorms often develop along outflow boundaries, especially near the point of intersection with another boundary (cold front, dry line, another outflow boundary, etc.; see triple point).

Outflow Channel
In hydrologic terms, a natural stream channel which transports reservoir releases.

Outgoing Longwave Radiation
Outgoing Longwave Radiation is a polar satellite derived measurement of the radiative character of energy radiated from the warmer earth surface to cooler space. This measurement provides information on cloud-top temperature which can be used to estimate tropical precipitation amounts which is important in forecasting weather and climate.

Outlet
In hydrologic terms, an opening through which water can be freely discharged from a reservoir.

Outlet Discharge Structure
In hydrologic terms, protects the downstream end of the outlet pipe from erosion and is often designed to slow down the velocity of released water to prevent erosion of the stream channel

Outlook
An outlook is used to indicate that a hazardous weather or hydrologic event may develop. It is intended to provide information to those who need considerable lead time to prepare for the event.

Outlook
A broad discussion of the weather pattern expected across any given area, generally confined to forecast periods beyond 48 hours.

OVC
Overcast- An official sky cover classification for aviation weather observations, when the sky is completely covered by an obscuring phenomenon. This is applied only when obscuring phenomenon aloft are present--that is, not when obscuring phenomenon are surface-based, such as fog

Overcast
(OVC) An official sky cover classification for aviation weather observations, when the sky is completely covered by an obscuring phenomenon. This is applied only when obscuring phenomenon aloft are present--that is, not when obscuring phenomenon are surface-based, such as fog.

Overhang

Radar term indicating a region of high reflectivity at middle and upper levels above an area of weak reflectivity at low levels. (The latter area is known as a weak-echo region, or WER.) The overhang is found on the inflow side of a thunderstorm (normally the south or southeast side).

Overland Flow

In hydrologic terms, the flow of rainwater or snowmelt over the land surface toward stream channels. After it enters a watercourse it becomes runoff.

Overrunning

A weather pattern in which a relatively warm air mass is in motion above another air mass of greater density at the surface. Embedded thunderstorms sometimes develop in such a pattern; severe thunderstorms (mainly with large hail) can occur, but tornadoes are unlikely.

Overrunning often is applied to the case of warm air riding up over a retreating layer of colder air, as along the sloping surface of a warm front. Such use of the term technically is incorrect, but in general it refers to a pattern characterized by widespread clouds and steady precipitation on the cool side of a front or other boundary.

Overshooting Top

(or Penetrating Top) - A dome-like protrusion above a thunderstorm anvil, representing a very strong updraft and hence a higher potential for severe weather with that storm. A persistent and/or large overshooting top (anvil dome) often is present on a supercell.

A short-lived overshooting top, or one that forms and dissipates in cycles, may indicate the presence of a pulse storm.

OVNGT

Overnight

OVR

Over

OVRN

Overrun

OVRNGT

Overnight

Ozone

A nearly colorless gas and a form of oxygen, O_3. A powerful oxidizing agent that is considered a pollutant in the lower troposphere but an essential chemical in the stratosphere where it protects the earth from high-energy ultraviolet radiation from the sun.

Ozone Action Day

A "heads-up" message issued by the Department of Natural Resources (DNR) through the National Weather Service when ozone levels may reach dangerous levels the next day. This message encourages residents to prevent air pollution by postponing the use of lawn mowing, motor vehicles, boats, as well as filling their vehicle gas tanks.

Ozone Advisory

It is issued by the Department of Natural Resources (DNR) through the National Weather Service when ozone levels reach 100. Ozone levels above 100 are unhealthy for people with heat and/or respiratory ailments.

Ozone Hole

A severe depletion of stratospheric ozone over Antarctica that occurs each spring. The possibility exists that a hole could form over the Arctic as well. The depletion is caused by a chemical reaction involving ozone and chlorine, primarily from human produced sources, cloud particles, and low temperatures.

Ozone Layer

An atmospheric layer that contains a high proportion of oxygen that exists as ozone. It acts as a filtering mechanism against incoming ultraviolet radiation. It is located between the troposphere and the stratosphere, around 9.5 to 12.5 miles (15 to 20 kilometers) above the earth's surface.

P

PAC
Pacific.

P-Angle
See solar coordinates.

Pacific Decadal Oscillation
(Abbrev. PDO) - a recently described pattern of climate variation similar to ENSO though on a timescale of decades and not seasons. It is characterized by SST anomalies of one sign in the north-central Pacific and SST anomalies of another sign to the north and east near the Aleutians and the Gulf of Alaska. It primarily affects weather patterns and sea surface temperatures in the Pacific Northwest, Alaska, and northern Pacific Islands.

Palmer Drought Severity Index
(Abbrev. PDSI) - an index used to gage the severity of drought conditions by using a water balance equation to track water supply and demand. This index is calculated weekly by the National Weather Service.

Pan Pan
A headline within National Weather Service high seas forecasts transmitted via the GMDSS to indicate that a hurricane or hurricane force winds are forecast.

Pancake Ice
In hydrologic terms, circular flat pieces of ice with a raised rim; the shape and rim are due to repeated collisions

Panhandle Hook
Low pressure systems that originate in the panhandle region of Texas and Oklahoma which initially move east and then "hook" or recurve more northeast toward the upper Midwest or Great Lakes region. In winter, these systems usually deposit heavy snows north of their surface track. Thunderstorms may be found south of the track.

Parameter
A subset of the group of evaluations that constitute each element of an observation.

Parapet Wall
In hydrologic terms, a solid wall built along the top of the dam for ornament, safety, or to prevent overtopping

Parcel
A volume of air small enough to contain uniform distribution of its meteorological properties and large enough to remain relatively self-contained and respond to all meteorological processes.

Parhelion
The scientific name for sun dogs. Either of two colored luminous spots that appear at roughly 22 degrees on both sides of the sun at the same elevation. They are caused by the refraction of sunlight passing through ice crystals. They are most commonly seen during winter in the middle latitudes and are exclusively associated with cirriform clouds. They are also known as mock suns.

Partial Beam Filling
A limitation of the rainfall estimation techniques used by NEXRAD. At far ranges from the radar, a storm may occupy only a portion of the radar beam (which may be several miles across). However, the radiation received by the radar antenna consists of the average reflectivity across the entire beam, so the reflectivity and associated rainfall rates are underestimated.

Partial-Duration Flood Series
In hydrologic terms, a list of all flood peaks that exceed a chosen base stage or discharge, regardless of the number of peaks occurring in a year.

Particle Trajectory Model
A computer sub-model that tracks the trajectories of multiple particles that are released into an atmospheric flow model.

Particulate Matter
(PM) Small aerosol particles which include dust, soot, solid materials and water vapor that are released and circulate in the atmosphere. Commonly known as air pollution.

Partly Cloudy
Between 3/8 and 5/8 of the sky is covered by clouds.

Partly Sunny

Between 3/8 and 5/8 of the sky is covered by clouds. The term "Partly Sunny" is used only during daylight hours.

Pascal

The unit of pressure produced when one newton acts on one square meter (1 N/m^2). It is abbreviated Pa.

PAT

Pattern.

PBL

Probable.

PCA

Polar cap absorption.

PC-GRIDDS

PC-Gridded Interactive Display and Diagnostic System - Allows the forecaster to view fields of gridded model output in contour or vector format. By doing this, the forecaster can extract relevant information from the numerical model grid-point data.

PCPN

Precipitation.

PCT

Percent.

PD

Period.

PDI

Palmer Drought Index.

PDMT

Predominant.

PDO

Pacific Decadal Oscillation - a recently described pattern of climate variation similar to ENSO though on a timescale of decades and not seasons. It is characterized by SST anomalies of one sign in the north-central Pacific and SST anomalies of another sign to the north and east near the Aleutians and the Gulf of Alaska. It primarily affects weather patterns and sea surface temperatures in the Pacific Northwest, Alaska, and northern Pacific Islands. Two main characteristics distinguish PDO from El NiÃ±o/Southern Oscillation (ENSO): first, 20th century PDO "events" persisted for 20-to-30 years, while typical ENSO events persisted for 6 to 18 months; second, the climatic fingerprints of the PDO are most visible in the North Pacific/North American sector, while secondary signatures exist in the tropics- the opposite is true for ENSO. Several independent studies found evidence of just two full PDO cycles in the past century: cool" PDO regimes prevailed from 1890-1924 and again from 1947-1976, while "warm" PDO regimes dominated from 1925-1946 and from 1977 through (at least) the mid-1990's. Causes for the PDO are not currently known. Likewise, the potential predictability for this climate oscillation are not known.

PDS

Particularly Dangerous Situation (PDS) wording is used in rare situations when long-lived, strong and violent tornadoes are possible. This enhanced wording may also accompany severe thunderstorm watches for intense convective wind storms.

PDS Watch

The Particularly Dangerous Situation (PDS) wording is used in rare situations when long-lived, strong and violent tornadoes are possible. This enhanced wording may also accompany severe thunderstorm watches for intense convective wind storms.

PDSI

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PDT

Pacific Daylight Time

Peak Discharge

In hydrologic terms, the rate of discharge of a volume of water passing a given location.

Peak Gust
The highest instantaneous wind speed observed or recorded.

Peak Pulse
The amount of power transmitted by a radar during a given pulse. Note that because these pulses are widely spaced, the average power will be much smaller.

Peak Wind Speed
The maximum instantaneous wind speed since the last observation that exceeded 25 knots.

Pendant Echo
Radar signature generally similar to a hook echo, except that the hook shape is not as well defined.

Penetrating Top
Same as **Overshooting Top**; a dome-like protrusion above a thunderstorm anvil, representing a very strong updraft and hence a higher potential for severe weather with that storm. A persistent and/or large overshooting top (anvil dome) often is present on a supercell. A short-lived overshooting top, or one that forms and dissipates in cycles, may indicate the presence of a pulse storm.

Penumbra
In solar-terrestrial terms, the sunspot area that may surround the darker umbra or umbrae. It consists of linear bright and dark elements radial from the sunspot umbra.

Perched Groundwater
In hydrologic terms, local saturated zones above the water table which exist above an impervious layer of limited extent.

Percolation
In hydrologic terms, the movement of water, under hydrostatic pressure, through the interstices of a rock or soil, except the movement through large openings such as caves

Percolation Path
In hydrologic terms, the course followed by water moving or percolating through any other permeable material, or under a dam which rests upon a permeable foundation.

Perennial Stream
In hydrologic terms, a stream that flows all year round.

Perigee
The closest distance between moon and earth or the earth and sun.

Perihelion
The point on the annual orbit of a body (about the sun) that is closest to the sun; at present, the earth reaches this point on about 5 January. Opposite of aphelion.

Permafrost
A layer of soil at varying depths below the surface in which the temperature has remained below freezing continuously from a few to several thousands of years.

Permeability
In hydrologic terms, the ability of a material to transmit fluid through its pores when subjected to a difference in head.

Permeability Coefficient
In hydrologic terms, the rate of flow of a fluid through a cross section of a porous mass under a unit hydraulic gradient, at a temperature of 60 degrees Fahrenheit.

Permeameter
In hydrologic terms, a laboratory instrument for determining permeability by measuring the discharge through a sample of the material when a known hydraulic head is applied.

Persistence
Continuation of existing conditions. When a physical parameter varies slowly, the best prediction is often persistence

Persistence Forecast
A forecast that the current weather condition will persist and that future weather will be the same as the present (e.g., if it is raining today, a forecast predicting rain tonight).

Perturbation Model
A computer model used to calculate air pollution concentrations. A perturbation model produces a wind field from solutions to a simplified set of equations that describe atmospheric motions.

Pervious Zone
In hydrologic terms, a part of the cross section of an embankment dam comprising material of high

permeability

PFD

QPF Discussion (issued by the HPC).

PFU

Particle flux unit.

Phantom Command

An unintended spacecraft command caused by the natural environment. (See single event upset or electrostatic discharge.)

Phenomenological Model

A computer model used to calculate air pollution concentrations. A phenomenological model focuses on an individual phenomenon, such as plume impingement or fumigation.

PHFO

Honolulu National Weather Service Forecast Office

Phiezometer

In hydrologic terms, an instrument used to measure pressure head in a conduit, tank, soil, etc. They are used in dams to measure the level of saturation.

Photochemical Smog

Air pollution containing ozone and other reactive chemical compounds formed by the reaction of nitrogen oxides and hydrocarbons in the presence of sunlight.

Photosphere

The intensely bright portion of the sun visible to the unaided eye; the "surface" of the sun. Reaching temperatures estimated at about 11,000 degrees Fahrenheit, it is the portion of the sun's atmosphere which emits continuous electromagnetic radiation.

Phreatic water

In hydrologic terms, water within the earth that supplies wells and springs; water in the zone of saturation where all openings in rocks and soil are filled, the upper surface of which forms the water table. Also termed Groundwater.

PIBAL

Pilot balloon. A small helium-filled meteorological balloon that is tracked as it rises through the atmosphere to determine how wind speed and direction change with altitude.

Pilot Balloon

(Abbrev. PIBAL)- A small helium-filled meteorological balloon that is tracked as it rises through the atmosphere to determine how wind speed and direction change with altitude.

Pilot Report

(Abbrev. PIREP)- A report of inflight weather by an aircraft pilot or crew member. A complete coded report includes the following information in this order: location and/or extent of reported weather phenomenon: type of aircraft (only with reports turbulence or icing).

Pingo

A large frost mound of more than one-year duration.

Pink Sky

Why is the sunset sometimes beautiful colors of red, orange, and pink? The answer is Rayleigh scattering, which is the scattering of light on various atmospheric components such as gases, dust, soot, ashes, pollen, and salt from the oceans. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest frequencies (reds). The colors that are absorbed are what we see, thus, the sky is most often blue. However, when the sun begins to set, the light has to travel farther before we see it and is able to reflect and scatter more colors. The sun color appears more orange-red because the shorter wavelengths (blues and greens) are scattered, and the longer wavelengths are absorbed (reds, oranges, and pinks).

Pink Sunset

Why is the sunset sometimes beautiful colors of red, orange, and pink? The answer is Rayleigh scattering, which is the scattering of light on various atmospheric components such as gases, dust, soot, ashes, pollen, and salt from the oceans. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest

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Pilot Report. A report of inflight weather by an aircraft pilot or crew member. A complete coded report includes the following information in this order: location and/or extent of reported weather phenomenon: type of aircraft (only with reports turbulence or icing).

Pitot Tube

In hydrologic terms, a device for measuring the velocity of flowing water using the velocity head of the stream as an index of velocity. It consists essentially of an orifice held to a point upstream in the water, connected with a tube in which the rise of water due to velocity head may be observed and measured. It also may be constructed with an upstream and downstream orifice, with two water columns, in which case the difference in height of water column in the tubes is the index of velocity.

Pitch Angle

In a plasma, the angle between the velocity vector of a charged particle and the direction of the ambient magnetic field.

PIX

Picture.

PK

Peak.

PL

Sleet (Ice Pellets)- defined as pellets of ice composed of frozen or mostly frozen raindrops or refrozen partially melted snowflakes. These pellets of ice usually bounce after hitting the ground or other hard surfaces. Heavy sleet is a relatively rare event defined as an accumulation of ice pellets covering the ground to a depth of Â½" or more.

PL

Ice pellets (sleet).

Plage

In solar-terrestrial terms, an extended emission feature of an active region that exists from the emergence of the first magnetic flux until the widely scattered remnant magnetic fields merge with the background.

Plage Corridor

In solar-terrestrial terms, a space in chromospheric plage lacking plage intensity, coinciding with polarity inversion line.

Plagenil

In solar-terrestrial terms, spotless disc free of calcium plage.

Plan Position Indicator

An acronym for Plan Position Indicator. A PPI displays radar data horizontally using a map projection. In PPI mode, the radar makes a 360-degree sweep with the antenna at a specific elevation angle. A PPI display is the familiar radar display shown on the television weather programs.

Planetary Boundary Layer

The layer within the atmosphere between 1 km and the earth's surface where friction affects wind speed and wind direction.

Plasma

Any ionized gas; that is, any gas containing ions and electrons.

Platform

A generic radar term, often used to encompass the pedestal and antenna assembly; sometimes including the radar control, display and analysis hardware and software as well.

Plow Wind

A term used in the midwestern United States to describe strong, straight-line winds associated with the downdrafts spreading out in advance of squall lines and thunderstorms. Resulting damage is usually confined to narrow zones like that caused by tornadoes; however, the winds are all in one direction (straight-line winds).

Plasmasphere
In the magnetosphere, a region of relatively cool (low energy) and dense plasma that may be considered an outer extension of the ionosphere with which it is coupled. Like the ionosphere, the plasmasphere tends to corotate with the Earth.

Plasmasheet
In the magnetosphere, the core of the magnetotail in which the plasma is hotter and denser than in the tail lobes north and south of it. The plasmasheet is thought to be separated from the tail lobes by the sheet of the ”last closed field lines” and it typically lies beyond geosynchronous orbit.

Plume Blight
Visibility impairment caused by air pollution plumes aggregated from individual sources.

Plume Impingement
The collision of a plume with topography that rises above the plume altitude; often a temporary condition that occurs as the plume sweeps by the face of a hill as the wind shifts.

Plume-dominated Fire
A fire whose behavior is governed primarily by the local wind circulation produced in response to the strong convection above the fire rather than by the general wind.

Pluvial
In hydrology, anything that is brought about directly by precipitation.

PMD
Prognostic Discussion

PMO
Port Meteorological Officer.

PNA
Pacific North American teleconnection

PNHDL
Panhandle

PNS
Public Information Statement - a narrative statement issued by a National Weather Service Forecast Office that can be used for:

1) A current or expected nonhazardous event of general interest to the public that can usually be covered with a single message (e.g., unusual atmospheric phenomena such as sun dogs, halos, rainbows, aurora borealis, lenticular clouds, and stories about a long-term dry/cold/wet/warm spell).
2) Public educational information and activities, such as storm safety rules, awareness activities, storm drills, etc.
3) Information regarding service changes, service limitations, interruptions due to reduced or lost power or equipment outages, or special information clarifying interpretation of NWS data. For example, this product may be used to inform users of radar equipment outages or special information clarifying interpretation of radar data originating from an unusual source which may be mistaken for precipitation (such as chaff drops, smoke plumes, etc., that produces echoes on the radar display.

POH
Probability of Hail - a product from the NEXRAD hail detection algorithm that estimates the likelihood that hail is present in a storm.

Point Precipitation
Precipitation at a particular site, in contrast to the mean precipitation over an area.

Point Source
A pollutant source that can be treated in a dispersion model as though pollutants were emitted from a single point that is fixed in space. Example: the mouth of a smokestack. Compare area source and line source.

Polar Cap Absorption (PCA)
In solar-terrestrial terms, an anomalous condition of the polar ionosphere whereby HF and VHF (3 - 300 MHz) radio waves are absorbed, and LF and VLF (3 - 300 kHz) radio waves are reflected at lower altitudes than normal. In practice, the absorption is inferred from the proton flux at energies greater than 10 MeV, so that PCAs and proton events are simultaneous. Transpolar radio paths may still be disturbed for days, up to weeks, following the end of a proton event.

Polar Crown

A nearly continuous ring of filaments occasionally encircling either polar region of the Sun (latitudes higher than 50').

Polar Front

A semipermanent, semicontinuous front that separates tropical air masses from polar air masses.

Polar Jet

Marked by a concentration of isotherms and strong vertical shear, this jet is the boundary between the polar air and the subtropical air. It often divides into two branches, the north and the south, and marks the high speed core of the prevailing westerlies. It is associated with the location and motion of the high and low pressure areas of the middle latitudes, and therefore, is variable in position, elevation, and wind speed. Its position tends to migrate south in the Northern Hemispheric winter and north in the summer, and its core winds increase during the winter and become less strong in the summer.

Polar Jet Stream

Used interchangably with **Polar Jet**; a jet stream marked by a concentration of isotherms and strong vertical shear, this jet is the boundary between the polar air and the subtropical air. It often divides into two branches, the north and the south, and marks the high speed core of the prevailing westerlies. It is associated with the location and motion of the high and low pressure areas of the middle latitudes, and therefore, is variable in position, elevation, and wind speed. Its position tends to migrate south in the Northern Hemispheric winter and north in the summer, and its core winds increase during the winter and become less strong in the summer.

Polar Orbiting Satellite

A weather satellite which travels over both poles each time it orbits the Earth. It orbits about 530 miles (850 km) above the Earth's surface. A satellite with an orbit nearly parallel to the earth's meridian lines which crosses the polar regions on each orbit.

Polar Plumes

Fine, ray-like structures of the solar corona and transition region, best observed in the solar polar regions during solar minimum.

Polar Rain

In the Earth's upper atmosphere, a weak, structure-less, near-isotropic flux of electrons precipitating into the polar caps.

Polarization Radar

A radar which takes advantage of ways in which the transmitted waves' polarization affect the backscattering. Such radars may alternately transmit horizontal and vertically polarized beams, and measure differential reflectivity.

Pollutant

Particles, gases, or liquid aerosols in the atmosphere which have an undesirable effect on humans or their surroundings. Something unfavorable to health and life that has been added to the environment.

Pondage

In hydrologic terms,
(1) The holding back of water for later release for power development above the dam of a hydroelectric plant to
(a) equalize daily or weekly fluctuations of streamflow or
(b) to permit irregular hourly use of water by the wheels to care for fluctuations in the load demand.
(2) In general the holding back of water for later releases.
(3) The storage capacity available for the use of such water.

Ponding

In hydrologic terms, in flat areas, runoff collects, or ponds in depression and cannot drain out. Flood waters must infiltrate slowly into the soil, evaporate, or be pumped out.

Pool

The elevation of the surface of a body of water such as a lake. Specifically, the pool at a lock and dam or a reservoir is the elevation of the water surface immediately upstream from the dam.

Pool Height

In hydrologic terms, the height of the water behind a dam. (Various datums may be used and various pool height may be used, e.g., conservation pool, flood control pool, etc.).

Poor Forecast Quality
The forecast temperature is usually more than 3.5 degrees C warmer or cooler than the observed forecast.

POP
Probability of Precipitation

Popcorn Convection
Slang for showers and thunderstorms that form on a scattered basis with little or no apparent organization, usually during the afternoon in response to diurnal heating. Individual thunderstorms typically are of the type sometimes referred to as air-mass thunderstorms: they are small, short-lived, very rarely severe, and they almost always dissipate near or just after sunset.

POPS
Probability of Precipitation.

Pore
A feature in the photosphere, 1 to 3 arc seconds in extent, usually not much darker than the dark spaces between photospheric granules. It is distinguished from a sunspot by its short lifetime, 10 to 100 minutes.

Porosity
In hydrologic terms,
(1) The ratio of pore volume to total volume of the formation. Sandy soils have large pores and a higher porosity than clays and other fine-grained soils.
(2) An index of the void characteristics of a soil or stream as pertaining to percolation; degree of previousness.

POS
Positive

Positive Area
The area on a sounding representing the layer in which a lifted parcel would be warmer than the environment; thus, the area between the environmental temperature profile and the path of the lifted parcel. Positive area is a measure of the energy available for convection; see CAPE.

Positive Cloud to Ground Lightning
A CG flash that delivers positive charge to the ground, as opposed to the more common negative charge. Positive CGs have been found to occur more frequently in some severe thunderstorms. Their occurrence is detectable by most lightning detection networks, but visually it is not considered possible to distinguish between a positive CG and a negative CG. (Some claim to have observed a relationship between staccato lightning and positive CGs, but this relationship is as yet unproven.)

Positive Vorticity Advection
(Abbrev. PVA) - Advection of higher values of vorticity into an area, which often is associated with upward motion (lifting) of the air. PVA typically is found in advance of disturbances aloft (i.e., shortwaves), and is a property which often enhances the potential for thunderstorm development.

Positive-tilt Trough
An upper level system which is tilted to the east with increasing latitude (i.e., from southwest to northeast). A positive-tilt trough often is a sign of a weakening weather system, and generally is less likely to result in severe weather than a negative-tilt trough if all other factors are equal.

Post-Flare Loops
In solar-terrestrial terms, a loop prominence system often seen after a major two-ribbon flare, which bridges the ribbons.

Post-storm Report
A report issued by a local National Weather Service office summarizing the impact of a tropical cyclone on it's forecast area. These reports include information on observed winds, pressures, storm surges, rainfall, tornadoes, damage and casualties.

Potential Temperature
The temperature a parcel of dry air would have if brought adiabatically (i.e., without transfer of heat or mass) to a standard pressure level of 1000 mb.

Potential Vorticity
This plays an important role in the generation of vorticity in cyclogenesis, especially along the polar front. It is also very useful in tracing intrusions of stratospheric air deep into the troposphere in the vicinity of jet streaks.

Powder Snow
Dry, loose, unconsolidated snow.

Power
A radar equation to describe the amount of power that a radar emits.

$P = I * V$ (or)
$P = V^2 / R$ (or)
$P = I^2 / R$

where I is current (amps), V is voltage (volts), R is resistance (ohms), P is power (watts).

PPI
Plan Position Indicator

PPINE
Plan **P**osition **I**ndicates **N**o **E**choes, referring to the fact that a radar detects no precipitation within its range. An intensity-modulated display on which echo signals are shown in plain view with range and azimuth angle displayed in polar coordinates, forming a map-like display. Each PPI is taken at a single, fixed elevation angle, and thus forms a cone of coverage in space. PPIs may be run in sequence, creating a "volume scan".

PQPF
Probabilistic QPF; a form of QPF (see below) that includes an assigned probability of occurrence for each numerical value in the forecast product.

PRBLTY
Probability

PRBLY
Probably.

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.

PRCP
Precipitation

Pre-Frontal Squall Line
A line of thunderstorms that precedes an advancing cold front.

Pre-Frontal Trough
An elongated area of relatively low pressure preceding a cold front that is usually associated with a shift in wind direction.

Pre-Hurricane Squall Line
It is often the first serious indication that a hurricane is approaching. It is a generally a straight line and resembles a squall-line that occurs with a mid-latitude cold front. It is as much as 50 miles or even more before the first ragged rain echoes of the hurricane's bands and is usually about 100 to 200 miles ahead of the eye, but it has been observed to be as much as 500 miles ahead of the eye in the largest hurricanes.

PRECD
Precede

Precipitable Water
Measure of the depth of liquid water at the surface that would result after precipitating all of the water vapor in a vertical column over a given location, usually extending from the surface to 300 mb.

Precipitation
The process where water vapor condenses in the atmosphere to form water droplets that fall to the Earth as rain, sleet, snow, hail, etc.

Precipitation Attenuation
The loss of energy that radar beam experiences as it passes through an area of precipitation.

Precipitation Mode
The standard, or default, operational mode of the WSR-88D. The radar automatically switches into precipitation mode from clear-air mode if the measured reflectivity exceeds a specific threshold value.

The precipitation mode of NEXRAD is more sensitive than previous weather radars. The minimum detectable reflectivity in NEXRAD's precipitation mode is 5 dBZ, compared to 28 dBZ with the old WSR-57.

Precipitation Processing System

The WSR-88D system that generates 1-hour running, 3-hourly, and running storm total precipitation accumulations. Five functional steps are performed to calculate the best estimate of precipitation: 1) development of a sectorized hybrid scan, 2) conversion to precipitation rate, 3) precipitation accumulation, 4) adjustment using rain gages, 5) product update.

Precision

The accuracy with which a number can be represented, i.e., the number of digits used to represent a number.

Predominant Wind

The wind that prevails and generates the local component of the significant sea conditions across the forecast area. This is the wind included in all marine forecast products and is defined as a 10-meter wind, except over the nearshore marine zones where it is defined to be the wind at a 3-meter height.

Preliminary Report

Now known as the "Tropical Cyclone Report". A report summarizing the life history and effects of an Atlantic or eastern Pacific tropical cyclone. It contains a summary of the cyclone life cycle and pertinent meteorological data, including the post-analysis best track (six-hourly positions and intensities) and other meteorological statistics. It also contains a description of damage and casualties the system produced, as well as information on forecasts and warnings associated with the cyclone. NHC writes a report on every tropical cyclone in its area of responsibility.

PRES

Pressure.

Prescribed Fire

A management ignited or natural wildland fire that burns under specified conditions where the fire is confined to a predetermined area and produces the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.

Present Movement

The best estimate of the movement of the center of a tropical cyclone at a given time and given position. This estimate does not reflect the short-period, small scale oscillations of the cyclone center.

Present Weather

The type of weather observed at the reporting time. These conditions may include types and intensity of precipitation such as light rain or heavy snow, as well as the condition of the air environment such as foggy, hazy or blowing dust.

Pressure

The force exerted by the weight of the atmosphere and gravity. Different units: atmospheres (atm), millibars (mb), pascals (Pa), inches of mercury (in), pounds per square inch (PSI), etc. Meteorologists most often use mb. The exertion of force upon a surface by a fluid (e.g., the atmosphere) in contact with it.

Pressure Altimeter

An aneroid barometer calibrated to indicate altitude in feet instead of units of pressure. It is read accurately only in a standard atmosphere and when the correct altimeter setting is used.

Pressure Altitude

The altitude in standard atmosphere at which a given pressure will be observed. It is the indicated altitude of a pressure altimeter at an altitude setting of 29.92 inches of mercury, and is therefore the indicated altitude above the 29.92 constant pressure surface.

Pressure Change

The amount of pressure change at any one location, either increasing or decreasing, during a specific period of time. This is usually observed in three-hour intervals and can be recorded as pressure rising, pressure falling, pressure steady, or pressure unsteady. Also known as pressure characteristic or pressure tendency. The net difference between the barometric pressure at the beginning and ending of a specified interval of time, usually the three hour period preceding an observation.

Pressure Characteristic

The pattern of the pressure change during the specified period of time, usually the three hour period preceding an observation. This is recorded in three categories: falling, rising, or steady.

Pressure Couplet
It is an area where you have a high pressure area located adjacent to a low pressure area.

Pressure Falling Rapidly
A decrease in station pressure at a rate of 0.06 inch of mercury or more per hour which totals 0.02 inch or more.

Pressure Gage
A device for registering the pressure of solids, liquids, or gases. It may be graduated to register pressure in any units desired.

Pressure Gradient
The amount of pressure change occurring over a given distance.

Pressure Gradient Force
A three-dimensional force vector operating in the atmosphere that accelerates air parcels away from regions of high pressure and toward regions of low pressure in response to an air pressure gradient. Usually resolved into vertical and horizontal components.

Pressure Head
Energy contained by fluid because of its pressure, usually expressed in feet of fluid (foot pounds per pound).

Pressure Ice
Floating sea, river, or lake ice that has been deformed, altered, or forced upward in pressure ridges by the lateral stresses of any combination of wind, water currents, tides, waves, and surf.

Pressure Induced Wave
A rare type of wave that does not develop from wind or seismic activity. Instead, these waves develop as a pressure perturbation moves over the water surface. The water surface adjusts to account for the atmospheric pressure change. As atmospheric pressure decreases, the force exerted upward by the water increases, creating a pressure induced wave.

Pressure Jump
A sudden, sharp increase in atmospheric pressure, typically occurring along an active front and preceding a storm.

Pressure Rising Rapidly
An increase in station pressure at a rate of 0.06 inch of mercury or more per hour which totals 0.02 inch or more.

Pressure Tendency
The character and amount of atmospheric pressure change during a specified period of time, usually 3-hour period preceding an observation.

Pressure Unsteady
A pressure that fluctuates by 0.03 inch of mercury or more from the mean pressure during the period of measurement.

Pressure-driven Channeling
Channeling of wind in a valley by synoptic-scale pressure gradients superimposed along the valley's axis. Compare forced channeling.

PRESTO
An alert issued by a Regional Warning Center to give rapid notification of significant solar or geophysical activity in progress or just concluded.

Prevailing Visibility
The visibility that is considered representative of conditions at the station; the greatest distance that can be seen throughout at least half the horizon circle, not necessarily continuous.

Prevailing Westerlies
The westerly winds that dominant in middle latitudes.

Prevailing Winds
A wind that consistently blows from one direction more than from any other.

Prevention of Significant Deterioration
A program, specified in the Clean Air Act, whose goal is to prevent air quality from deteriorating significantly in areas of the country that are presently meeting the ambient air quality standards.

PRIM
Primary.

Primary Ambient Air Quality Standards

Air quality standards designed to protect human health.

Primary Control Tide Station

A tide station where continuous observations have been made for a minimum of 19 years. Its purpose is to provide data for computing accepted values essential to tide predictions and for determining tidal datums for coastal and marine boundaries. The data series from primary control tide stations serves as a primary control for the reduction of tidal datum for subordinate tide stations with a shorter period of record. The 19 year period is the official tidal epoch for calculating tidal datums.

Primary Pollutant

Substances that are pollutants immediately on entering the atmosphere. Compare secondary pollutant.

Primary Swell Direction

Prevailing direction of swell propagation.

PRIN

Principal

Probability

A chance, or likelihood, that a certain event might happen.

Probability Forecast

A forecast of the probability that one or more of a mutually exclusive set of weather conditions will occur.

Probability of Hail

(Abbrev. POH) - a product from the NEXRAD hail detection algorithm that estimates the likelihood that hail is present in a storm.

Probability of Precipitation

(Abbrev. PoP)- The probability that precipitation will be reported at a certain location during a specified period of time.

Probability of Thunderstorms

The probability based on climatology that a thunderstorm will be reported at that location during a specified period of time.

Probability of Tropical Cyclone Conditio

The probability, in percent, that the cyclone center will pass within 50 miles to the right or 75 miles to the left of the listed location within the indicated time period when looking at the coast in the direction of the cyclone's movement.

Product Resolution

The smallest spatial increment or data element that is distinguishable in a given Doppler radar product.

Profiler

An instrument designed to measure horizontal winds directly above its location, and thus measure the vertical wind profile. Profilers operate on the same principles as Doppler radar.

PROG

Forecast (prognostication)

PROGGED

Forecasted

Prognostic Discussion

This Hydrometeorological Prediction Center (HPC) discussion may include analysis of numerical and statistical models, meteorological circulation patterns and trends, and confidence factors. Reference is usually made to the manually produced 6- to 10-day Northern Hemisphere prognoses for mean 500 millibar heights and mean 500 millibar height anomalies. Discussions may also refer to the method of operational ensemble predictions.

Progressive Derecho

Derecho characterized by a short curved squall line oriented nearly perpendicular to the mean wind direction with a bulge in the general direction of the mean flow. Downburst activity occurs along the bulging portion of the line. This type of derecho typically occurs in the warm season (May through August) and is most frequent in a zone extending from eastern South Dakota to the upper Ohio Valley. The severe wind storms typically begin during the afternoon and continue into the evening hours. Several hours typically pass between initial convection and the first wind damage report.

Prominence

A term identifying cloud-like features in the solar atmosphere. The features appear as bright structures

in the CORONA above the solar LIMB and as dark FILAMENTs when seen projected against the solar DISK

PROPA

Propagation (movement)

Propagation

1. The movement of an atmospheric phenomenon. This term is frequently applied to the motion of thunderstorms into regions favorable for their continued development (into a maritime tropical airmass).
2. The transmission of electromagnetic energy as waves through or along a medium.

Property Protection

Measures that are undertaken usually by property owners in order to prevent, or reduce flood damage. Property protection measures are often inexpensive for the community because they are implemented by or cost-shared with property owners. In many cases the buildings' appearance or use is unaffected, so these measurements are particularity appropriate for historical sites and landmarks. These measures include relocation and acquisition, flood proofing, and buying flood insurance.

Proton

Solar activity levels with at least one high energy event (Class X Flares).

Proton Event

In solar-terrestrial terms, the measurement of at least 10 protons/cm^2/sec/steradian at energies greater than 10 MeV.

Proton Flare

In solar-terrestrial terms, any flare producing significant fluxes of greater-than-10 MeV protons in the vicinity of the earth.

PRST

Persist.

PRVD

Provide.

PSBL

Possible.

PSBLY

Possibly.

Pseudo-Cold Front

A boundary between a supercell's inflow region and the rear-flank downdraft (or RFD). It extends outward from the mesocyclone center, usually toward the south or southwest (but occasionally bows outward to the east or southeast in the case of an occluded mesocyclone), and is characterized by advancing of the downdraft air toward the inflow region. It is a particular form of gust front.

Pseudo-Warm Front

A boundary between a supercell's inflow region and the forward-flank downdraft (or FFD). It extends outward from at or near the mesocyclone center, usually toward the east or southeast, and normally is either nearly stationary or moves northward or northeastward ahead of the mesocyclone.

PSG

Passage.

P-Spot

Leader spot.

PST

Pacific Standard Time.

Psychrometer

An instrument used to measure the water vapor content of the air; a hygrometer consisting essentially of two similar thermometers with the bulb of one being kept wet so that the cooling that results from evaporation makes it register a lower temperature than the dry one and with the difference between the readings constituting a measure of the dryness of the atmosphere

PTCHY

Patchy.

PTCLDY

Partly Cloudy.

PTDY

On a buoy report, Pressure Tendency is the sign (plus or minus) and the amount of pressure change (hPa) for a three hour period ending at the time of observation.

PTLY

Partly.

PTN

Portion.

PTTN

Pattern.

PTWC

(Pacific Tsunami Warning Center) - The Pacific Tsunami Warning Center in Ewa Beach (pronounced Eva Beach), HI has an international warning responsibility for the entire Pacific and a regional warning responsibility for the State of Hawaii. See also WC/ATWC.

PTYPE

Precipitation type.

Public Information Statement

A narrative statement issued by a National Weather Service Forecast Office that can be used for:

1) A current or expected nonhazardous event of general interest to the public that can usually be covered with a single message (e.g., unusual atmospheric phenomena such as sun dogs, halos, rainbows, aurora borealis, lenticular clouds, and stories about a long-term dry/cold/wet/warm spell).
2) Public educational information and activities, such as storm safety rules, awareness activities, storm drills, etc.
3) Information regarding service changes, service limitations, interruptions due to reduced or lost power or equipment outages, or special information clarifying interpretation of NWS data. For example, this product may be used to inform users of radar equipment outages or special information clarifying interpretation of radar data originating from an unusual source which may be mistaken for precipitation (such as chaff drops, smoke plumes, etc., that produces echoes on the radar display.

Public Severe Weather Outlook

These are issued when the Storm Prediction Center (SPC) in Norman, Oklahoma anticipates an especially significant and/or widespread outbreak of severe weather. This outlook will stress the seriousness of the situation, defines the threat area, and provides information on the timing of the outbreak. The lead time on this outlook is normally less than 36 hours prior to the severe weather event.

Puddle

In hydrologic terms,
(1) The act of compacting earth, soil clay, etc., by mixing them with water and rolling or tamping the mixture.
(2) A compact mass of earth, soil, clay, or a mixture of material, which has been compacted through the addition of water, rolling and tamping. This makes the material less permeable.
(3) A small pool of water, usually a few inches in depth and from several inches to several feet in it greatest dimension.

Puget Sound Convergence Zone

A situation where wind forced around the Olympic Mountains converges over the Puget Sound. Causes extreme variability in weather conditions around Seattle, Washington with some areas of sunshine and others in clouds and rain.

Pulsation

A rapid fluctuation of the geomagnetic field having periods from a fraction of a second to tens of minutes and lasting from minutes to hours. There are two main patterns: Pc (a continuous, almost sinusoidal pattern), and Pi (an irregular pattern). Pulsations occur at magnetically quiet as well as disturbed times.

Pulse

A short burst of electromagnetic energy that a radar sends out in a straight line to detect a precipitation target. The straight line that this pulse travels along is called a radar beam.

Pulse Duration

The time over which a radar pulse lasts. The pulse duration can be multiplied by the speed of light to determine the pulse length or pulse width.

Pulse Length

The linear distance in range occupied by an individual pulse from a radar. $h = c * t$, where t is the

duration of the transmitted pulse, c is the speed of light, h is the length of the pulse in space. Note, in the radar equation, the length h/2 is actually used for calculating pulse volume because we are only interested in signals that arrive back at the radar simultaneously. This is also called a pulse width.

Pulse Radar

A type of radar, designed to facilitate range (distance) measurements, in which are transmitted energy emitted in periodic, brief transmission.

Pulse Repetition Frequency (PRF)

The amount of time between successive pulses, or bursts, of electromagnetic energy that is transmitted by a radar. The PRF determines the maximum range at which echoes can be detected and also the maximum radial velocity that can be detected by a Doppler radar.

Pulse Repetition Time (PRT)

The time elapsed between pulses by the radar. This is also called the pulse interval.

Pulse Resolution Volume

A discrete radar sampling volume, of dimensions (horizontal beamwidth * vertical beamwidth * 1 range gate).

Pulse Severe Thunderstorms

Single cell thunderstorms which produce brief periods of severe weather (3/4 inch hail, wind gusts in the excess of 58 miles an hour, or a tornado).

Pulse Storm

A thunderstorm within which a brief period (pulse) of strong updraft occurs, during and immediately after which the storm produces a short episode of severe weather. These storms generally are not tornado producers, but often produce large hail and/or damaging winds. See also overshooting top.

Pulse Width

Same as **Pulse Length**; the linear distance in range occupied by an individual pulse from a radar. h = c * t , where t is the duration of the transmitted pulse, c is the speed of light, h is the length of the pulse in space. Note, in the radar equation, the length h/2 is actually used for calculating pulse volume because we are only interested in signals that arrive back at the radar simultaneously.

Pulse-Pair Processing

Nickname for the technique of mean velocity estimation by calculation of the signal complex covariance argument. The calculation requires two consecutive pulses, hence "pulse-pair".

PVA

Positive Vorticity Advection - the advection of higher values of vorticity into an area.

PVL

Prevail

PW

Precipitable Water - measure of the depth of liquid water at the surface that would result after precipitating all of the water vapor in a vertical column over a given location, usually extending from the surface to 300 mb.

PWAT

Precipitable Water - measure of the depth of liquid water at the surface that would result after precipitating all of the water vapor in a vertical column over a given location, usually extending from the surface to 300 mb.

PWO

Public Severe Weather Outlook.

Pyro-cumulus

A dense convective cloud that develops above wild land and grass land fires, as well as out of control prescribed fires. Strong heating at the surface allows for warm air to rise from the surface (convection) that would not otherwise occur without the presence of the fire. The majority of the smoke gets trapped below a stable layer in the atmosphere, however, this rising air can be so buoyant that it rises beyond the stable layer, producing a cauliflower-like high-level cloud. When these clouds form over fires, it signifies a raging fire with strong wind gusts at the fire front which help to strengthen the fire.

Q

QDC

Quiet day curve.

QG

Quasigeostrophic.

Q index

A I5-minute index of geomagnetic activity for high-latitude (auroral) stations. After quiet diurnal variations are removed, Q is the largest deviation scaled from the undisturbed level for the two horizontal components. (This differs from the K index, which is scaled from the largest relative deviation.) The I5-minute periods are centered on the hour and at 15, 30, and 45 minutes past each hour. The range of Q is from 0 to 11; the upper limit, in nanotesla, for each index value is given after the dash. Q = 0-10, 1-20, 2-40, 3-80, 4-140, 5-240, 6-400, 7-660, 8-1000, 9-1500, 10-2200, 11-Unlimited

QN

Question.

QPF

Quantitative Precipitation Forecast. A spatial and temporal precipitation forecast that will predict the potential amount of future precipitation for a specified region, or area.

QPF Discussion

This HPC forecast discussion is directed completely to explaining manual forecasts of areas in the contiguous 48 states expected to receive 1/4 inch or more precipitation during a 24-hour period. The manual forecasts are explained in terms of initial conditions and differences and/or similarities in the numerical model forecasts. General confidence in the manual forecast is expressed where it is appropriate and possible alternatives may be offered. This product is issued 3 times a day.

QPFERD

NCEP Excessive Rainfall Discussion.

QPFHSD

NCEP Heavy Snow Discussion.

QPFPFD

NCEP Precipitation Forecast Discussion.

QSTNRY

Quasi-stationary - describes a low or high pressure area or a front that is nearly stationary.

QTR

Quarter.

QUAD

Quadrant.

Quadrature

The component of the complex signal that is 90 degrees out of phase with the inphase component. This component lies along the imaginary axis the complex plane.

Quality of Snow

The amount of ice in a snow sample expressed as a percent of the weight of the sample.

Quantitative Precipitation Forecast

A spatial and temporal precipitation forecast that will predict the potential amount of future precipitation for a specified region, or area.

Quasi-stationary

(abbrev. QSTNRY)- Describes a low or high pressure area or a front that is nearly stationary.

Quasi-stationary Front

A front which is nearly stationary or moves very little since the last synoptic position. Also known as a stationary front.

Quiescent Prominence (Filament)

Long, sheet-like prominences nearly vertical to the solar surface

Quiet

Solar activity levels with less than one chromospheric event per day.

Quiet Day Curve (QDC)

Especially in connection with the components of the geomagnetic field (see geomagnetic elements), the trace expected in the absence of activity. The K index and Q index are measured from deviations relative to a QDC. Riometer and neutron monitor deviations are also measured relative to a QDC.

R

Rain.

RA

Rain.

RADAP II

RAdar DAta Processor II, attached to some WSR-57 and WSR-74 radar units. It automatically controls the tilt sequence and computes several radar-derived quantities at regular intervals, including VIL, storm tops, accumulated rainfall, etc.

RADAR

Acronym for **RA**dio **D**etection **A**nd **R**anging; a radio device or system for locating an object by means of ultrahigh-frequency radio waves reflected from the object and received, observed, and analyzed by the receiving part of the device in such a way that characteristics (as distance and direction) of the object may be determined.

Radar Aurora

Radar returns from electron density irregularities in auroral regions. The strength of radar auroral returns is aspect dependent.

Radar Beam

The straight line that a radar pulse travels along. As the radar beam gets further away from the radar, it gets wider and wider. In order for a precipitation target to be detected by the radar, it must fill the entire radar beam; therefore, the radar will have a difficult time detecting small showers and thunderstorms at a great distance from the radar.

Radar Coded Message

This is an alphanumeric coded message which will be used in preparation of a national radar summary chart. It is automatically produced by the WSR-88D's Radar Product Generator (RPG) in 3 parts (reflectivities, storm motion, and echo tops).

Radar Cross Section

The area of a fictitious, perfect reflector of electromagnetic waves (e.g., metal sphere) that would reflect the same amount of energy back to the radar as the actual target (e.g., lumpy snowflake).

Radar Data Acquisition

An acronym for Radar Data Acquisition. The RDA is the hardware component of the NEXRAD system that consists of the radar antenna, transmitter, receiver, tower, and controlling computer. The RDA collects the unprocessed, analog voltages from the radar antenna and converts the signal to base reflectivity , base velocity, and spectrum width (in polar coordinate form). These "wide-band" products are transmitted to the RPG, which creates and disseminates end-user products. Also: The RDA is the origination point of the WSR-88D radar data that will be eventually used by the radar operator. This WSR-88D component group is made up of several subcomponents which generate and radiate radio frequency (RF) pulses, receive reflected energy from those pulses, and process this received energy into digital base data. The RDA is also the site of the first two of four data recording levels used by the WSR-88D to record and store radar data.

Radar Meteorology

Branch of meteorology that uses radars for weather observations and forecasts.

Radar Mosaic

A radar product that combines information from multiple radars to give a regional or national view of reflectivity or precipitation. An individual NEXRAD radar is limited to a range of about 200 miles. Typically, a mosaic product is produced for regions spanning several hundreds to several thousands of miles. Mosaic products are produced by vendors external to the NEXRAD system.

Radar Product Generator (RPG)

The RPG is the computer in the NEXRAD system that receives polar-coordinate base radar data from the RDA and processes these data into end-user products. Algorithms are utilized for pattern-recognition, rainfall estimation, computation of VIL and other products. The RPG communicates these products to end-users. A specific subset of available products is always generated for the NIDS vendors for distribution outside of the NWS, DoD, and FAA. Other products are generated by the RPG upon request from a PUP.

Radar Range

Distance from the radar antenna. The WSR-88D radar has a range for velocity products out to 124 nautical miles and reflectivity products out to 248 nautical miles.

Radar Reflectivity

The sum of all backscattering cross-sections (e.g., precipitation particles) in a pulse resolution volume

divided by that volume. The radar reflectivity can be related to the radar reflectivity factor through the dielectric constant term |K|^2, and the radar wavelength.

Radar Reflectivity Factor (z)

z = the sum (over i) of (N_i * D_i^6), where N_i is the number of drops of diameter D_i in a pulse resolution volume. Note that z may be expressed in linear or logarithmic units. The radar reflectivity factor is simply a more meteorologically meaningful way of expressing the radar reflectivity.

Radial Velocity

Component of motion toward or away from a given location. As "seen" by Doppler radar, it is the component of motion parallel to the radar beam. (The component of motion perpendicular to the beam cannot be seen by the radar. Therefore, strong winds blowing strictly from left to right or from right to left, relative to the radar, can not be detected.)

Radiance

A measure of the intensity of the radiant energy flux emitted by a body in a given direction.

Radiation

Energy transport through electromagnetic waves. See shortwave radiation and longwave radiation.

Radiation Belts

Regions of the magnetosphere roughly 1.2 to 6 Earth radii above the equator in which charged particles are stably trapped by closed geomagnetic field lines. There are two belts. The inner belt is part of the plasmasphere and corotates with the Earth; its maximum proton density lies near 5000 km. Inner belt protons are mostly high energy (10-50 MeV range) and originate from the decay of secondary neutrons created during collisions between cosmic rays and upper atmospheric particles. The outer belt extends on to the magnetopause on the sunward side. The altitude of maximum proton density is near 16,000-20,000 km. Outer belt protons are lower energy (about 200 eV to 1 MeV) and come from the solar wind. The outer belt is also characterized by highly variable fluxes of energetic electrons. The radiation belts are often called the ”Van Allen radiation belts” because they were discovered in 1968 by a research group at the University of Iowa led by Professor J. A. Van Allen.

Radiation Fog

A fog that forms when outgoing longwave radiation cools the near-surface air below its dew point temperature.

Radiation Laws

The four physical laws which fundamentally describe the behavior of blackbody radiation: Kirchhoff's law, Planck's law, Stefan-Boltzmann law and Wien's displacement law.

Radiational Cooling

The cooling of the Earth's surface. At night, the Earth suffers a net heat loss to space due to terrestrial cooling. This is more pronounced when you have a clear sky.

Radiational Inversion

Used interchangeably with **Nocturnal Inversion**; a temperature inversion that develops during the night as a result of radiational cooling of the surface. Because the immediate surface (lower Boundary Layer) cools much more rapidly during these conditions than the air just above (upper Boundary Layer), a temperature inversion can be created overnight, but typically erodes quickly after sunrise.

Radio Blackout NOAA Space Weather Scale

A measure of the severity of solar x-ray bursts that cause radio blackouts at Earth.

Radio Burst

Radio emission.

Radio Emission

Emissions of the sun in radio wavelengths from centimeters to dekameters, under both quiet and disturbed conditions. Type I. A noise storm composed of many short, narrow-band bursts in the metric range (300 - 50 MHz). Type II. Narrow-band emission that begins in the meter range (300 MHz) and sweeps slowly (tens of minutes) toward deka- meter wavelengths (10 MHz). Type II emissions occur in loose association with major FLAREs and are indicative of a shock wave moving through the solar atmosphere. Type III. Narrow-band bursts that sweep rapidly (seconds) from decimeter to dekameter wavelengths (500 - 0.5 MHz). They often occur in groups and are an occasional feature of complex solar ACTIVE REGIONs. Type IV. A smooth continuum of broad-band bursts primarily in the meter range (300 - 30 MHz). These bursts are associated with some major flare events beginning 10 to 20 minutes after the flare maximum, and can last for hours

Radio Event

Flares with Centimetric Bursts and/or definite Ionospheric Event (SID)

Radiofacsimile
: Also known as HF FAX, radiofax or weatherfax, is a means of broadcasting graphic weather maps and other graphic images via HF radio. HF radiofax is also known as WEFAX, although this term is generally used to refer to the reception of weather charts and imagery via satellite. Maps are received using a dedicated radiofax receiver or a single sideband shortwave receiver connected to an external facsimile recorder or PC equipped with a radiofax interface and application software.

Radiofax
: Abbreviation for radiofacsimile

Radioisotope Snow Gage
: A snow water equivalent gage based on the absorption of gamma radiation by snow; this gage can measure up to 55 inches water equivalent with a 2 to 5 percent error.

Radiosonde
: An instrument that is carried aloft by a balloon to send back information on atmospheric temperature, pressure and humidity by means of a small, expendable radio transmitter. Radiosondes can be tracked by radar, radio direction finding, or navigation systems (such as the satellite Global Positioning System) to obtain wind data. See also rawinsonde.

Radius of Maximum Winds
: The distance from the center of a tropical cyclone to the location of the cyclone's maximum winds. In well-developed hurricanes, the radius of maximum winds is generally found at the inner edge of the eyewall.

RAFC
: Regional Area Forecast Center

RAFS
: Regional Analysis and Forecasting System

Rain
: Precipitation in the form of liquid water droplets that falls to earth in drops more than 0.5 mm in diameter.

Rainbow
: A luminous arc featuring all colors of the visible light spectrum (red, orange, yellow, green, blue, indigo, and violet). It is created by refraction, total reflection, and the dispersion of light. It is visible when the sun is shining through air containing water spray or raindrops, which occurs during or after a rain shower. The bow is always observed in the opposite side of the sky from the sun.

Rain Foot
: Slang for a horizontal bulging near the surface in a precipitation shaft, forming a foot-shaped prominence. It is a visual indication of a wet microburst.

Rain Forest
: A forest which grows in a region of heavy annual precipitation. There are two major types, tropical and temperate.

Rain Gauge
: An instrument for measuring the quantity of rain that has fallen.

Rain Induced Fog
: When warm rain falls through cooler air, water evaporates from the warm rain. It subsequently condenses in the cool air forming fog. Such fog can be quite dense. It generally will persist as long as the rain continues. Since temperature rises little during the day, there is little diurnal variation in rain induced fog. Improvement in visibility cannot be expected until the rain stops or moves out of the affected area.

Rain Shadow
: An area of reduced precipitation on the lee side of a mountain barrier caused by warming of air and dissipation of cloudiness as air descends the barrier.

Rain Shield
: In a hurricane, a solid or nearly solid area of rain that typically becomes heavier as one approaches the eye. The outer edge is well defined and its distance from the eye varies greatly from storm to storm. The wind, both sustained and peak gusts, keeps increasing as much as one moves through the rain shield toward the storm's eye.

Rain-free Base
: A dark, horizontal cloud base with no visible precipitation beneath it. It typically marks the location of

the thunderstorm updraft. Tornadoes may develop from wall clouds attached to the rain-free base, or from the rain-free base itself - especially when the rain-free base is on the south or southwest side of the main precipitation area. Note that the rain-free base may not actually be rain free; hail or large rain drops may be falling. For this reason, updraft base is more accurate.

Rainbow

A luminous arc featuring all colors of the visible light spectrum (red, orange, yellow, green, blue, indigo, and violet). It is created by refraction, total reflection, and the dispersion of light. It is visible when the sun is shining through air containing water spray or raindrops, which occurs during or immediately after a rain shower. The bow is always observed in the opposite side of the sky from the sun.

Rainfall

The amount of precipitation of any type, primarily liquid. It is usually the amount that is measured by a rain gauge. Refer to rain for rates of intensity and the quantitative precipitation for forecasting.

Rainfall Estimates

A series of NEXRAD products that employ a Z-R relationship to produce accumulations of surface rainfall from observed reflectivity.

Range

Distance from the radar antenna. The WSR-88D radar has a range for velocity products out to 124 nm and reflectivity products out to 248 nm.

Range Folding

This occurs when the radar receives a signal return from a pulse other than the most recent pulse. In this case, the radar sends out a pulse (a short burst of energy). This pulse will continue to go in a straight line until it strikes a target. When it strikes the target, a portion of the pulse will be back scattered towards the radar. If the target it strikes is well beyond the normal range of the radar, it will take longer for the back scattered energy to arrive back at the radar. As a result, the radar will most likely have sent out another pulse in the same direction before the back scattered energy arrives back at the radar. Therefore, when the radar receives the back scattered energy, it will assume that it came from an object much closer to the radar and it will improperly locate the echo. A multiple-trip return appears at the difference of the true range and a multiple of the unambiguous range, i.e., R_displayed = R_true - n * R_max, where n = 0,1,2,...

Range Gate

The discrete point in range along a single radial of radar data at which the received signal is sampled. Range gates are typically spaced at 100-1000 meter intervals. A "radial" of radar data is composed of successive range gates, out to the maximum unambiguous range.

Range Height Indicator

The RHI is a radar display in which the radar scans vertically, with the antenna pointing at a specific azimuth or radial. NEXRAD does not support RHI, but the PUP software allows the NEXRAD operator to construct a vertical cross-section using data from multiple scans of the radar.

Range Normalization

A receiver gain function in the radar which compensates for the effect of range (distance) on the received power for an equivalent reflectivity.

Range Resolution

The ability of the radar to distinguish two targets along the same radial but at different ranges. it is approximately Â½ the pulse length.

Range Unfolding

Process of removing range ambiguity in apparent range of a multitrip target on the radar.

Rankine Vortex

Velocity profile for a symmetric circulation in which the inner core is in solid rotation and tangential winds outside the core vary inversely with radial distance from the center.

RAOB

Radiosonde Observation (Upper-Air Observation)

Rapid Deepening

A decrease in the minimum sea-level pressure of a tropical cyclone of 1.75 mb/hr or 42 mb for 24 hours.

Rapid Fire

Any station uploading in Rapid Fire™ mode sends observations to Wunderground as often as every 2.5

seconds. When any web site visitor opens a Rapid Fire™ weather page, they can watch weather conditions change as they happen in real-time.

Rapidly Intensifying

Any maritime cyclone whose central pressure is dropping, or is expected to drop, at a rate of 1 MB per hour for 24 hours.

Rawinsonde

A radiosonde that is tracked to measure winds.

Rawinsonde Observation

A radiosonde observation which includes wind data.

RAWS

Remote Automated Weather Stations

Rayleigh Scattering

Changes in directions of electromagnetic energy by particles whose diameters are 1/16 wavelength or less. This type of scattering is responsible for the sky being blue.

Rayleigh-Taylor Instability

A fluted or ripple-like instability that can develop on a fluid or plasma boundary surface and propagate along it. This instability is often invoked to explain phenomena in the ionosphere and magnetosphere.

RCKY

Rocky Mountains

RCMD

Recommend

RCV

Receive

RDG

Ridge

RDS

Radius

Reach

In hydrologic terms, the distance between two specific points outlining that portion of the stream, or river for which the forecast applies. This generally applies to the distance above and below the forecast point for which the forecast is valid.

Reach

A section of river or stream between an upstream and downstream location, for which the stage or flow measured at a point somewhere along the section (e.g., gaging station or forecast point) is representative of conditions in that section of river or stream.

Real-Time

Refers to the rapid retrieval, processing and transmission of data.

Rear Flank Downdraft

A region of dry air subsiding on the back side of, and wrapping around, a mesocyclone. It often is visible as a clear slot wrapping around the wall cloud. Scattered large precipitation particles (rain and hail) at the interface between the clear slot and wall cloud may show up on radar as a hook or pendant; thus the presence of a hook or pendant may indicate the presence of an RFD.

Receiver

The electronic device which detects the backscattered radiation, amplifies it and converts it to a low-frequency signal which is related to the properties of the target.

Recharge

The replenishment of groundwater through infiltration of precipitation or snowmelt into the soil and gravity flow of streams into valley alluvium, sinkholes, or other large openings.

Reconnaissance Code

An aircraft weather reconnaissance code that has come to refer primarily to in-flight tropical weather observations, but actually signifies any detailed weather observation or investigation from an aircraft in flight.

Reconnection

A process by which differently directed field lines link up, allowing topological changes of the magnetic field to occur, determining patterns of plasma flow, and resulting in conversion of magnetic energy to kinetic and thermal energy of the plasma. Reconnection is invoked to explain the energization and

acceleration of the plasmas that are observed in solar flares, magnetic substorms, and elsewhere in the solar system.

Record Event Report

This non-routine narrative product is issued by the National Weather Service to report meteorological and hydrological events that equal or exceed existing records.

Record Set

A non-routine statement to report record-setting meteorological and hydrological events that equal or exceed existing records.

Recreation Report

This National Weather Service product is used to relay reports on conditions for resorts and recreational areas and/or events. This report may also contain forecast information. Reports for recreational areas and resorts are often routine products, typically for a season, but possibly year-round.

Recurrence

Used especially in reference to the recurrence of physical parameters every 27 days (the rotation period of the sun)

Red Flag

This a fire weather program which highlights the onset of critical weather conditions conducive to extensive wildfire occurrences.

Red Flag Warning

A term used by fire-weather forecasters to call attention to limited weather conditions of particular importance that may result in extreme burning conditions. It is issued when it is an on-going event or the fire weather forecaster has a high degree of confidence that Red Flag criteria will occur within 24 hours of issuance. Red Flag criteria occurs whenever a geographical area has been in a dry spell for a week or two, or for a shorter period , if before spring green-up or after fall color, and the National Fire Danger Rating System (NFDRS) is high to extreme and the following forecast weather parameters are forecasted to be met:

1) a sustained wind average 15 mph or greater
2) relative humidity less than or equal to 25 percent and
3) a temperature of greater than 75 degrees F.

In some states, dry lightning and unstable air are criteria. A Fire Weather Watch may be issued prior to the Red Flag Warning.

Red Line

An intense coronal emission line at 637.4 nm from Fe X. It identifies relatively cooler regions of the corona.

Red sky

Why is the sunset sometimes beautiful colors of red, orange, and pink? The answer is Rayleigh scattering, which is the scattering of light on various atmospheric components such as gases, dust, soot, ashes, pollen, and salt from the oceans. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest frequencies (reds). The colors that are absorbed are what we see, thus, the sky is most often blue. However, when the sun begins to set, the light has to travel farther before we see it and is able to reflect and scatter more colors. The sun color appears more orange-red because the shorter wavelengths (blues and greens) are scattered, and the longer wavelengths are absorbed (reds, oranges, and pinks).

Red sunset

Why is the sunset sometimes beautiful colors of red, orange, and pink? The answer is Rayleigh scattering, which is the scattering of light on various atmospheric components such as gases, dust, soot, ashes, pollen, and salt from the oceans. By looking at rainbows, we can see all the colors that make up visible light: red, orange, yellow, green, blue, indigo, and violet. The shortest wavelengths, or highest frequencies (blues), are absorbed more often than the longest wavelengths, or lowest frequencies (reds). The colors that are absorbed are what we see, thus, the sky is most often blue. However, when the sun begins to set, the light has to travel farther before we see it and is able to reflect and scatter more colors. The sun color appears more orange-red because the shorter wavelengths (blues and greens) are scattered, and the longer wavelengths are absorbed (reds, oranges, and pinks).

Red Watch or Red Box
Slang for Tornado Watch.

REF
Reference.

Reference Mark
A relatively permanent point of known elevation which is tied to a benchmark.

Reflection
The process whereby radiation (or other waves) incident upon a surface is directed back into the medium through which it traveled.

Reflected Rainbow
A double rainbow is similar to a single rainbow in that it is both an optical and meteorological phenomenon, but the double rainbow portrays the colors in reverse. Thus, the outer band of red is on the inner band on the second rainbow that forms on the outside. It is a mirror image of the original rainbow, as it reflects off of a body of water. Often under extremely moist atmospheric conditions, the body of water that is reflecting the rainbow is the abundant water droplets in the air. In the case of a triple rainbow, the colors are reversed once again to that of the original rainbow.

Reflection Rainbow
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Reflectivity
Usually a reference to **Radar Reflectivity**; the sum of all backscattering cross-sections (e.g., precipitation particles) in a pulse resolution volume divided by that volume. The radar reflectivity can be related to the radar reflectivity factor through the dielectric constant term |K|^2, and the radar wavelength.

Reflectivity Cross Section
This WSR-88D radar product displays a vertical cross section of reflectivity on a grid with heights up to 70,000 feet on the vertical axis and distance up to 124 nm on the horizontal axis. Cross Section is similar to the Range Height Indicator (RHI) slices observed on conventional radar, but it is not limited to alignments along the radar radials. Instead the 2 end points are operator selected anywhere within 124 nm of the radar that are less than 124 nm apart. It is used to:
1) Examine storm structure features such as overhang, tilt, Weak Echo Regions (WER), and Bounded Weak Echo Regions (BWER);
2) Estimate height of higher dBZ's and echo tops; and
3) Locate the bright band (where snow is melting and becoming rain).

Reflectivity Factor
The result of a mathematical equation (called the Weather Radar Equation) that converts the analog power (in Watts) received by the radar antenna into a more usable quantity. The reflectivity factor (denoted by Z) takes into account several factors, including the distance of a target from the radar, the wavelength of the transmitted radiation, and certain assumptions about the kind and size of targets detected by the radar. The reflectivity factor ranges over several orders of magnitudes, so it is usually expressed on a logarithmic scale called dBZ (decibels of reflectivity).

Refraction
Changes in the direction of energy propagation as a result of density changes within the propagating medium. In weather terms, this is important on determining how a radar beam reacts in the atmosphere.

Refractive Index
A measure of the amount of refraction. Numerically equal to the ratio of wave velocity in a vacuum to a wave speed in the medium, i.e., n = c / v where: v is actual speed, and c is speed of light in a vacuum.

Refractivity
Expressed as N; $N = (n-1)*10^6$, where n is refractive index and N is a function of temperature, pressure and vapor pressure (in the atmosphere).

Region Number

A number assigned by SEC to a plage region or sunspot group if one of the following conditions exists: (1) the region is a group of at least sunspot classification C; (2) two or more separate optical reports confirm the presence of smaller spots; (3) the region produces a solar flare; (4) the region is clearly evident in H-alpha and exceeds 5 heliographic degrees in either latitude or longitude.

Regional Haze

Haze that is mixed uniformly between the surface and the top of a convective boundary layer.

Regression

A functional relationship between two or more correlated variables that is often empirically determined from data and is used especially to predict values of one variable when values of the others are given.

Relative Humidity

A dimensionless ratio, expressed in percent, of the amount of atmospheric moisture present relative to the amount that would be present if the air were saturated. Since the latter amount is dependent on temperature, relative humidity is a function of both moisture content and temperature. As such, relative humidity by itself does not directly indicate the actual amount of atmospheric moisture present. See dew point.

Relative Vorticity

The sum of the rotation of an air parcel about the axis of the pressure system and the rotation of the parcel about its own axis.

Relative Wind

The wind with reference to a moving point. Sometimes called APPARENT WIND. See also APPARENT WIND, TRUE WIND.

RELBL

Reliable.

Relocated

A term used in an advisory to indicate that a vector drawn from the preceding advisory position to the latest known position is not necessarily a reasonable representation of the cyclone's movement.

Remote Observing System Automation

A type of automated data transmitter used by NWS Cooperative Program observers.

REP

Represent/Representative.

Report

A weather report is a statement of the actual weather conditions observed at a specific time at a specific site.

Reservoir

In hydrologic terms, a manmade facility for the storage, regulation and controlled release of water.

Residual Layer

the elevated portion of a convective boundary layer that remains after a stable boundary layer develops at the ground (usually in late afternoon or early evening) and cuts off convection.

Residual Moisture

Atmospheric moisture which lingers over an area after the main weather system has departed.

Resonance

The state of a system in which an abnormally large vibration is produced in response to an external stimulus, occurring when the frequency of the stimulus is the same, or nearly the same, as the natural vibration frequency of the system.

Response Time

In hydrologic terms, the amount of time in which it will take a watershed to react to a given rainfall event

Retrogression

(or Retrograde Motion) - Movement of a weather system in a direction opposite to that of the basic flow in which it is embedded, usually referring to a closed low or a longwave trough which moves westward.

Return Flow

South winds on the back (west) side of an eastward-moving surface high pressure system. Return flow over the central and eastern United States typically results in a return of moist air from the Gulf of Mexico (or the Atlantic Ocean).

Return Stroke

An electrical discharge that propagates upward along a lightning channel from the ground to the cloud.

Rex Block

A blocking pattern where there is an upper level high located directly north of a closed low.

RFC

River Forecast Center. Centers that serve groups of Weather Service Forecast offices and Weather Forecast offices, in providing hydrologic guidance and is the first echelon office for the preparation of river and flood forecasts and warnings.

RGD

Ragged.

RGN

Region.

RH

Relative Humidity - a dimensionless ratio, expressed in percent, of the amount of atmospheric moisture present relative to the amount that would be present if the air were saturated. Since the latter amount is dependent on temperature, relative humidity is a function of both moisture content and temperature. As such, relative humidity by itself does not directly indicate the actual amount of atmospheric moisture present. See dew point.

RHI

Range-Height Indicator.

RI

The international standard relative sunspot number.

Ribbon Lightning

Appears to be a broad stream of fire. A succession of strokes, each blown a bit to the side of the previous strokes by wind, but striking so fast that all the strokes are seen at once as a ribbon-like flash.

Ridge

1) An elongated area of relatively high atmospheric pressure; the opposite of trough.
or
2) In hydrologic terms, a line or wall of broken ice forced up by pressure. May be fresh or weathered

Ridge Ice

In hydrologic terms, ice piled haphazardly one piece over another in the form of ridges or walls.

Right Ascension

The celestial longitude of the sun. This value is 0 at the vernal equinox, 90 at the summer solstice, 180 at the autumnal equinox and 270 at the winter solstice.

Right Ascension of the Sun

The Celestial Sphere is a sphere where we project objects in the sky. We project stars, the moon, and sun, on to this imaginary sphere. The Right Ascension of the Sun is the position of the sun on our Celestial Sphere.

Right Entrance Region

Used interchangeably with **Right Rear Quadrant**; the area upstream from and to the right of an upper-level jet max (as would be viewed looking along the direction of flow). Upward motion and severe thunderstorm potential sometimes are increased in this area relative to the wind speed maximum. See also exit region, left front quadrant.

Right Mover

A thunderstorm that moves appreciably to the right relative to the main steering winds and to other nearby thunderstorms. Right movers typically are associated with a high potential for severe weather. (Supercells often are right movers).

Right Rear Quadrant

(Abbrev. RRQ) - Used interchangeably with **Right Entrance Region**; the area upstream from and to the right of an upper-level jet max (as would be viewed looking along the direction of flow). Upward motion and severe thunderstorm potential sometimes are increased in this area relative to the wind speed maximum. See also exit region, left front quadrant.

Rime

This is not a form of precipitation. Ice deposits in the form of icy feathers, pointing into the wind. This occurs when super cooled cloud or fog droplets come in contact with an object and freeze immediately. Glaze is difference from rime in that it is more ice-cube like in appearance and clings to the object on which it was formed. Rime is more milky and crystalline, resembling sugar, and extends from the object on which it formed.

Rime Ice

An opaque coating of tiny, white, granular ice particles caused by the rapid freezing of supercooled water droplets on impact with an object. See also clear ice.

Ring Current

In the magnetosphere, a region of current that flows from east to west in a disk-shaped region near the geomagnetic equator in the outer of the Van Allen radiation belts. The current is produced by the gradient and curvature drift of the trapped charged particles. The ring current is greatly augmented during magnetic storms because of the hot plasma injected from the magnetotail. This increase in the ring current causes a worldwide depression of the horizontal geomagnetic field during a magnetic storm.

RIOGD

Rio Grande

Riometer

(Relative Ionospheric Opacity meter). A specially designed radio receiver for continuous monitoring of cosmic noise. The absorption of cosmic noise in the polar regions is very sensitive to the solar low-energy cosmic ray flux

Rip Current

A relatively small-scale surf-zone current moving away from the beach. Rip currents form as waves disperse along the beach causing water to become trapped between the beach and a sandbar or other underwater feature. The water converges into a narrow, river-like channel moving away from the shore at high speed.

Rip Tide

See RIP CURRENTS

Riparian Zone

In hydrologic terms, a stream and all the vegetation on its banks.

River Basin

In hydrologic terms, drainage area of a river and its tributaries.

River Flood Statement

This product is used by the local National Weather Service Forecast Office (NWFO) to update and expand the information in the River Flood Warning. This statement may be used in lieu of a warning if flooding is forecasted, imminent, or existing and it presents no threat to life or property. The statement will also be used to terminate a River Flood Warning.

River Flood Warning

This is product is issued by the local National Weather Service Forecast Office (NWFO) when forecast points (those that have formal gaging sites and established flood stages) at specific communities or areas along rivers where flooding has been forecasted, is imminent, or is in progress. Flooding is defined as the inundation of normally dry areas as a result of increased water levels in an established water course. The flood warning is based on the RVF product from the River Forecast Center (RFC) in Minneapolis, Minnesota. The flood warning normally specifies crest information. It usually occurs 6 hours or later after the causative event and it is usually associated with widespread heavy rain and/or snow melt or ice jams.

It will contain the forecast point covered by the warning, the current stage (if it is available), and the established flood stage. It will also contain the forecasted crest from the River Forecast Center (RFC) in Minneapolis, Minnesota. From this forecasted crest, the NWFO will be able to determine which areas will be affected by the river flooding. This information will be included in the warning. Finally, the statement will include a site/event specific call to action.

River Flooding

The rise of a river to an elevation such that the river overflows its natural banks causing or threatening damage.

River Forecast

An internal product issued by RFCs to other NWS offices. An RVF contains stage and/ or flow forecasts for specific locations based on existing, and forecasted hydrometeorologic conditions. The contents of these products are used by the HSA office to prepare Flood Warnings (FLW), Flood Statements (FLS), River Statements (RVS), as well as other products available to the public.

River Forecast Center

Centers that serve groups of Weather Service Forecast offices and Weather Forecast offices, in providing hydrologic guidance and is the first echelon office for the preparation of river and flood forecasts and warnings.

River Gage

A device for measuring the river stage.

River Gage Datum

The arbitrary zero datum elevation which all stage measurements are made from.

River Ice Statement

A public product issued by the RFC containing narrative and numeric information on river ice conditions.

River Observing Station

An established location along a river designated for observing and measuring properties of the river.

River Recreation Statement

A statement released by the NWS to inform river users of current and forecast river and lake conditions. These statements are especially useful for planning purposes.

River Statement

A NWS product issued to communicate notable hydrologic conditions which do not involve flooding, i.e., within river bank rises, minor ice jams, etc.

River System

In hydrologic terms, all of the streams and channels draining a river basin.

RLS

Release.

RLTV

Relative.

RMN

Remain.

RMTN

Regional Meteorological Telecommunications Network.

RMV

Remove.

R-number

Sunspot number.

RNFL

Rainfall.

Rocketsonde

A type of radiosonde that is shot into the atmosphere by a rocket, allowing it to collect data during its parachute descent from a higher position in the atmosphere than a balloon could reach.

Rockfill Dam

In hydrologic terms, an embankment dam of earth or rock in which the material is placed in layers and compacted by using rollers or rolling equipment.

Rogue Wave

Commonly used term by mariners of a wave of an unexpected wave of much greater height or steepness than other waves in the prevailing sea or swell system. Rogue waves have been part of marine folklore for centuries. They are generally considered to be unexpectedly high waves which in some instances come from a direction different from the predominant waves in the local area. A single rogue wave has certainly been known to spell disaster for the mariner. They have, over the past twenty or thirty years, come to be recognized as unique phenomena albeit with several possible causes.
(1) Constructive interference. Several different wave trains of differing speeds and directions meet at the same time. The heights of the crests are additive so that an extreme wave may result when very high waves are included in the wave trains. The effect is normally short lived since the wave trains continue to separate and move on.
(2) Focusing of wave energy. When storm forced waves are developed in a water current counter to the wave direction an interaction can take place which results in a shortening of the wave frequency. The result is the superimposing of the wave trains and the generation of extreme waves. Examples of currents where these are sometimes seen are the Gulf Stream and Agulhas current. Extreme wave

developed in this regime tend to be longer lived.
(3) Normal part of the wave spectrum. The generation of waves on water results not in a single wave height but in a spectrum of waves distributed from the smallest capillary waves to large waves indeed. Within this spectrum there is a finite possibility of each of the wave heights to occur with the largest waves being the least likely. The wave height most commonly observed and forecast is the significant wave height. This is defined as the average of the one third highest waves. The probability of encountering such a wave is about 1 in 10 while 1 in 1000 waves will be nearly double the significant wave height or higher. This is thought to be the source of at least some reports of rogue waves.

Roll Cloud

A low, horizontal tube-shaped arcus cloud associated with a thunderstorm gust front (or sometimes with a cold front). Roll clouds are relatively rare; they are completely detached from the thunderstorm base or other cloud features, thus differentiating them from the more familiar shelf clouds. Roll clouds usually appear to be "rolling" about a horizontal axis, but should not be confused with funnel clouds.

Rolled Filled Dam

In hydrologic terms, an embankment dam of earth or rock in which the material is placed in layers and compacted by using rollers or rolling equipment

Rope

(Also "Rope Funnel") - a narrow, often contorted condensation funnel usually associated with the decaying stage of a tornado. See rope stage.

Rope Cloud

In satellite meteorology, a narrow, rope-like band of clouds sometimes seen on satellite images along a front or other boundary. The term sometimes is used synonymously with rope or rope funnel.

Rope Stage

The dissipating stage of a tornado, characterized by thinning and shrinking of the condensation funnel into a rope (or rope funnel). Damage still is possible during this stage.

ROSA

Remote Observing System Automation. A type of automated data transmitter used by NWS Cooperative Program observers.

Rossby Waves

A series of troughs and ridges on quasi-horizontal surfaces in the major belt of upper tropospheric westerlies. The waves are thousands of kilometers long and have significant latitudinal amplitude.

Rotation

The spinning of a body, such as the earth, about its axis.

ROTG

Rotating

Rotor Cloud

A turbulent altocumulus cloud formation found in the lee of some mountain barriers when winds cross the barrier at high speed. The air in the cloud rotates around an axis parallel to the range. Also called a roll cloud.

Rotten Ice

In hydrologic terms, ice in an advanced stage of disintegration.

Rough Seas

Sea conditions associated with regionally defined wind thresholds over bays, inlets, harbors, inland waters, and estuaries where larger waves are forming with whitecaps and spray everywhere.

Routing

In hydrologic terms, the methods of predicting the attenuation of a flood wave as it moves down the course of a river.

RPD

Rapid.

RPLC

Replace.

RPRT

Report.

RQR

Require.

RRQ

Right Rear Quadrant - the area upstream from and to the right of an upper-level jet max (as would be viewed looking along the direction of flow). Upward motion and severe thunderstorm potential sometimes are increased in this area relative to the wind speed maximum. See also exit region, left front quadrant.

RSG

Rising.

RSN

Reason.

RTE

Route.

RTRD

Retard.

RTRN

Return.

RTVS

Real Time Verification System.

RUC

Rapid Update Cycle model, a numerical model run by NCEP that focuses on short-term forecasts out to 12 hours.

Rudimentary

A type of sunspot penumbra characteized by granular (rather than filamentary) structure, brighter intensity than the umbra, and narrow extent, and possibly only partially surrounding the umbra. Penumbrae are typically rudimentary during the sunspot formative and decay phases.

Runoff

In hydrologic terms, the part of precipitation that flows toward the streams on the surface of the ground or within the ground. Runoff is composed of baseflow and surface runoff.

Runway Visual Range

The maximum distance at which the runway, or the specified lights or markers delineating it, can be seen from a position above a specified point on its center line. This value is normally determined by visibility sensors located alongside and higher than the center line of the runway. RVR is calculated from visibility, ambient light level, and runway light intensity.

RVA

River Summary, a NWS summary of river and/or crest stages for selected forecast points along the river.

RVF

River Forecast. An internal product issued by RFCs to other NWS offices. An RVF contains stage and/ or flow forecasts for specific locations based on existing, and forecasted hydrometeorologic conditions. The contents of these products are used by the HSA office to prepare Flood Warnings (FLW), Flood Statements (FLS), River Statements (RVS), as well as other products available to the public.

RVI

River Ice Statement

RVR

1. Runway Visual Range - the maximum distance at which the runway, or the specified lights or markers delineating it, can be seen from a position above a specified point on its center line. This value is normally determined by visibility sensors located alongside and higher than the center line of the runway. RVR is calculated from visibility, ambient light level, and runway light intensity.
2. River

RVS

1. Abbreviation for "revise"
2. River Statement, a product issued to communicate notable hydrologic conditions which do not involve flooding, i.e., within river bank rises, minor ice jams, etc.

RW

Rainshower

S

S

1) South or 2) Snow

S-Band Radar

These were in use as network radars in the National Weather Service prior to the installation of the WSR 88-D radars. They were 10-centimeter wavelength radars.

S component

The slowly varying (weeks or longer) fluctuation observed in solar radio emission at microwave frequencies (wavelengths from 3-100 cm).

S/W

Shortwave - a disturbance in the mid or upper part of the atmosphere which induces upward motion ahead of it. If other conditions are favorable, the upward motion can contribute to thunderstorm development ahead of a shortwave.

S/WV

Shortwave - a disturbance in the mid or upper part of the atmosphere which induces upward motion ahead of it. If other conditions are favorable, the upward motion can contribute to thunderstorm development ahead of a shortwave.

SAB

Satellite Analysis Branch, part of NESDIS NESDIS: National Environmental Satellite, Data and Information Service

SafetyNET

Inmarsat-C SafetyNET is an internationally adopted, automated satellite system for promulgating weather forecasts and warnings, marine navigational warnings and other safety related information to all types vessels and is part of the Global Maritime Distress and Safety System (GMDSS).

Saffir-Simpson Hurricane Wind Scale

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale provides examples of the type of damage and impacts in the United States associated with winds of the indicated intensity. In general, damage rises by about a factor of four for every category increase. The maximum sustained surface wind speed (peak 1-minute wind at the standard meteorological observation height of 10 m [33 ft] over unobstructed exposure) associated with the cyclone is the determining factor in the scale. The scale does not address the potential for other hurricane-related impacts, such as storm surge, rainfall-induced floods, and tornadoes.

Salinity (SAL)

In oceanography, conductivity is measured and converted to salinity by a known functional relationship between the measured electrical conductivity of seawater temperature and pressure.

SAME

(Specific Area Message Encoding) - A tone alert system which allows NOAA Weather Radio receivers equipped with the SAME feature to sound an alert for only certain weather conditions or within a limited geographic area such as a county.

SAMEX

Storm and Mesoscale Ensemble Experiment

Sampling Frequency

The rate at which sensor data is read or sampled.

Sandstorm

Particles of sand carried aloft by strong wind. The sand particles are mostly confined to the lowest ten feet, and rarely rise more than fifty feet above the ground.

Santa Ana Wind

In southern California, a weather condition in which strong, hot, dust-bearing winds descend to the Pacific Coast around Los Angeles from inland desert regions.

Sastrugi

Ridges of snow formed on a snow field by the action of the wind.

SAT

1. Satellite (imagery).
2. Saturday.

Satellite Anomaly

The usually undesirable response of spacecraft systems to variations in the space environment. High energy particles cause detector noise and/or physical damage to solar cells, electronics, and memory devices (single event upsets or ”bitflips”). Large and varying low-to-medium energy particle fluxes can result in a charge buildup between spacecraft components especially during the eclipse season and during spacecraft maneuvers. Atmospheric drag on spacecraft below approximately 1,000 km can increase during geomagnetic storms, resulting in cross-track and in-track orbit errors and orientation problems. Various communication interference problems result during solar radio bursts from flares when the Sun is within the field of view of the ground tracking dish. Ionospheric irregularities during geomagnetic storms can cause radio telemetry scintillation and fading.

Satellite Hydrology Program

A NOHRSC program that uses satellite data to generate areal extent of snow cover data over large areas of the western United States.

SATL

Satellite

Saturate

To treat or charge something to the point where no more can be absorbed, dissolved, or retained. In meteorology, it is used when discussing the amount of water vapor in a volume of air.

Saturation Point

The point when the water vapor in the atmosphere is at its maximum level for the existing temperature.

Saturation Vapor Pressure

The vapor pressure of a system, at a given temperature, wherein the vapor of a substance is in equilibrium with a plane surface of that substance's pure liquid or solid phase.

SAWRS

Supplementary Aviation Reporting Station - the SAWRS program addresses the concerns of users who depend on weather observations for air operations. If the cooperator is collocated with a commissioned automated system, they ensure continuity during outage periods of the automated system. The requirement for a SAWRS arises from the FAA validated need for observations to satisfy FAR 121 or 135 operations or for the safe conduct of other aircraft.

SBCAPE

Surface Based CAPE; CAPE calculated using a Surface based parcel.

SBND

Southbound

SBSD

Subside

SC

1. Stratocumulus
2. Sudden commencement.

SCA

Small Craft Advisory

Scarf Cloud

A small horizontal cloud that appears above a cumulus or cumulonimbus cloud and looks like a hood or cap made up of ice crystals. They are formed when strong updrafts occur in a convective tower push a dome-shaped air up above the cloud. The moisture in the dome condenses quickly into an ice fog, and if the ambient air is too dry, the pileus cloud will not form. Pilei can also form over ash clouds and pyro-cumulus clouds. Pileus translates to "with piles".

Scattered

When used to describe precipitation (for example: "scattered showers") - Area coverage of convective weather affecting 30 percent to 50 percent of a forecast zone (s). When used to describe sky cover: 3/8th to 4/8th (sky cover is measured in eighths or oktas) of the sky covered by clouds. In U.S. weather observing procedures, this is reported with the contraction â€œSCT.â€•

Scattered Clouds

Sky condition when between 1/10 and 5/10 are covered.

Scattering

The process in which a beam of light is diffused or deflected by collisions with particles suspended in the atmosphere.

Scintillation

Describing a degraded condition of radio propagation characterized by a rapid variation in amplitude and/or phase of a radio signal (usually on a satellite communication link) caused by abrupt variations in electron density anywhere along the signal path. It is positively correlated with spread F and to a lesser degree, sproadic E. Scintillation effects are the most severe at low latitudes, but can also be a problem at high latitudes, especially in the auroral oval and over the polar caps.

SCT

Scattered

Scud

Small, ragged, low cloud fragments that are unattached to a larger cloud base and often seen with and behind cold fronts and thunderstorm gust fronts. Such clouds generally are associated with cool moist air, such as thunderstorm outflow.

SE

Southeast

Sea Breeze

A diurnal coastal breeze thermally produced wind blowing during the day from a cool ocean surface onto the adjoining warm land, caused by the difference in the rates of heating of the surfaces of the ocean and of the land.

Sea Breeze Convergence Zone

The zone at the leading edge of a sea breeze where winds converge. The incoming air rises in this zone, often producing convective clouds.

Sea Breeze Front

The leading edge of a sea breeze, whose passage is often accompanied by showers, a wind shift, or a sudden drop in temperature.

Sea Fog

Common advection fog caused by transport of moist air over a cold body of water.

Sea Ice

Any form of ice found at sea which has originated from the freezing of sea water (sea ice does NOT include superstructure icing). Ice formed from the freezing of the waters of the Great Lakes will be considered the same as sea ice.

Sea Level Pressure

The sea level pressure is the atmospheric pressure at sea level at a given location. When observed at a reporting station that is not at sea level (nearly all stations), it is a correction of the **station pressure** to sea level. This correction takes into account the standard variation of pressure with height and the influence of temperature variations with height on the pressure. The temperature used in the sea level correction is a twelve hour mean, eliminating diurnal effects. Once calculated, horizontal variations of sea level pressure may be compared for location of high and low pressure areas and fronts.

Sea Smoke

The most localized form of fog, usually forming over lakes and rivers, sometime oceans, when the water is warmer than the air above it. Moisture evaporates from the water and saturates the adjacent layer of air and condenses. This air rises, it evaporates into the dryer air aloft, thus, giving the appearance of a low layer of steam above the water.

Sea Surface Temperatures

The term refers to the mean temperature of the ocean in the upper few meters.

Seas

The combination of both wind waves and swell. Used to describe the combination or interaction of wind waves and swell in which the separate components are not distinguished. This includes the case when swell is negligible or is not considered in describing sea state. Specifically, $Seas^2 = S^2+W^2$ where S is the height of the swell and W is the height of the wind wave. When used, Seas should be considered as being the same as the Significant Wave Height.

Seasonal Record

Record extremes measured for a specific season (e.g. coldest Winter or warmest Summer).

Second-Day Feet

In hydrologic terms, the volume of water represented by a flow of one cubic foot per second for 24 hours; equal to 86,400 cubic feet. This is used extensively as a unit of runoff volume. Often abbreviated as SDF.

Secondary Ambient Air Quality Standards

Air quality standards designed to protect human welfare, including the effects on vegetation and fauna, visibility and structures.

Secondary Pollutant

Pollutants generated by chemical reactions occurring within the atmosphere. Compare primary pollutant.

Sector Boundary

In solar-terrestrial terms, in the solar wind, the area of demarcation between sectors, which are large-scale features distinguished by the predominant direction of the interplanetary magnetic field, toward or away from the sun.

Sector Visibility

The visibility in a specific direction that represents at least a 45Âº arc of a horizontal circle.

Sectorized Hybrid Scan

A single reflectivity scan composed of data from the lowest four elevation scans. Close to the radar, higher tilts are used to reduce clutter. At further ranges, either the maximum values from the lowest two scans are used or the second scan values are used alone.

Securite

A headline within National Weather Service high seas forecasts transmitted via the GMDSS to indicate that no hurricane or hurricane force winds are forecast.

Sediment Storage Capacity

In hydrologic terms, the volume of a reservoir planned for the deposition of sediment.

Seepage

In hydrologic terms, the interstitial movement of water that may take place through a dam, its foundation, or abutments.

Seiche

A standing wave oscillation of water in large lakes usually created by strong winds and/or a large barometric pressure gradient.

SEL

A watch cancellation statement issued to terminate a watch before its original expiration time.

SELS

Severe Local Storm.

SELY

Southeasterly

Sensible Heat Flux

The flux of heat from the earth's surface to the atmosphere that is not associated with phase changes of water; a component of the surface energy budget.

Separation Eddy

An eddy that forms near the ground on the windward or leeward side of a bluff object or steeply rising hillside; streamlines above this eddy go over the object.

Serial Derecho

Type of derecho that consists of an extensive squall line which is oriented such that the angle between the mean wind direction and the squall line axis is small. A series of LEWPs and bow echoes move along the line. The downburst activity is associated with the LEWPs and bows. A Serial Derecho tends to be more frequent toward the north end of the line during the late winter and spring months. It occurs less frequently than its cousin the "progressive derecho."

It is associated with a linear type mesoscale convective system that moves along and in advance of a cold front or dry line. These boundaries are often associated with a strong, migratory surface low pressure system and strong short wave trough at 500 mb (strong dynamic forcing). Lifted Indices are typically -6 or lower and the advection of dry air in the mid-troposphere (3-7 km above ground) by relatively strong winds leads to high convective instability and increased downdraft potential. The bow echoes move along the line in the direction of the mean flow, often southwest to northeast. These storms move at speeds exceeding 35 knots. Squall line movement is often less than 30 knots.

SERN

Southeastern.

Service Hydrologist
The designated expert of the hydrology program at a WFO.

Servo Loop
In radar meteorology, a generic description of hardware needed to remotely control the motion of the antenna dish.

Set
The direction towards which a current is headed. For example, a current moving from west to east is said to be set to east.

Set-up
The process whereby strong winds blowing down the length of a lake cause water to "pile up" at the downwind end, raising water levels there and lowering them at the upwind end of the lake.

SEU
Single event upset.

Severe Icing
The rate of ice accumulation on an aircraft is such that de-icing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

Severe Local Storm
A convective storm that usually covers a relatively small geographic area, or moves in a narrow path, and is sufficiently intense to threaten life and/or property. Examples include severe thunderstorms with large hail, damaging wind, or tornadoes. Although cloud-to-ground lightning is not a criteria for severe local storms, it is acknowledged to be highly dangerous and a leading cause of deaths, injuries, and damage from thunderstorms. A thunderstorm need not be severe to generate frequent cloud-to-ground lightning. Additionally, excessive localized convective rains are not classified as severe storms but often are the product of severe local storms. Such rainfall may result in related phenomena (flash floods) that threaten life and property.

Severe Local Storm Watch
An alert issued by the National Weather Service for the contiguous U.S. and its adjacent waters of the potential for severe thunderstorms or tornadoes.

Severe Thunderstorm
A thunderstorm that produces a tornado, winds of at least 58 mph (50knots), and/or hail at least 1" in diameter. Structural wind damage mayimply the occurrence of a severe thunderstorm. A thunderstorm wind equalto or greater than 40 mph (35 knots) and/or hail of at least 1" isdefined as approaching severe.

Severe Thunderstorm Warning
This is issued when either a severe thunderstorm is indicated by the WSR-88D radar or a spotter reports a thunderstorm producing hail one inch or larger in diameter and/or winds equal or exceed 58 miles an hour; therefore, people in the affected area should seek safe shelter immediately. Severe thunderstorms can produce tornadoes with little or no advance warning. Lightning frequency is not a criteria for issuing a severe thunderstorm warning. They are usually issued for a duration of one hour. They can be issued without a Severe Thunderstorm Watch being already in effect.

Like a Tornado Warning, the Severe Thunderstorm Warning is issued by your National Weather Service Forecast Office (NWFO). Severe Thunderstorm Warnings will include where the storm was located, what towns will be affected by the severe thunderstorm, and the primary threat associated with the severe thunderstorm warning. If the severe thunderstorm will affect the nearshore or coastal waters, it will be issued as the combined product--Severe Thunderstorm Warning and Special Marine Warning. If the severe thunderstorm is also causing torrential rains, this warning may also be combined with a Flash Flood Warning. If there is an ampersand (&) symbol at the bottom of the warning, it indicates that the warning was issued as a result of a severe weather report.

After it has been issued, the affected NWFO will follow it up periodically with Severe Weather Statements. These statements will contain updated information on the severe thunderstorm and they will also let the public know when the warning is no longer in effect.

Severe Thunderstorm Watch
This is issued by the National Weather Service when conditions are favorable for the development of severe thunderstorms in and close to the watch area. A severe thunderstorm by definition is a

thunderstorm that produces one inch hail or larger in diameter and/or winds equal or exceed 58 miles an hour. The size of the watch can vary depending on the weather situation. They are usually issued for a duration of 4 to 8 hours. They are normally issued well in advance of the actual occurrence of severe weather. During the watch, people should review severe thunderstorm safety rules and be prepared to move a place of safety if threatening weather approaches.

A Severe Thunderstorm Watch is issued by the Storm Prediction Center in Norman, Oklahoma. Prior to the issuance of a Severe Thunderstorm Watch, SPC will usually contact the affected local National Weather Service Forecast Office (NWFO) and they will discuss what their current thinking is on the weather situation. Afterwards, SPC will issue a preliminary Severe Thunderstorm Watch and then the affected NWFO will then adjust the watch (adding or eliminating counties/parishes) and then issue it to the public by way of a Watch Redefining Statement. During the watch, the NWFO will keep the public informed on what is happening in the watch area and also let the public know when the watch has expired or been cancelled.

Severe Weather Analysis

This WSR-88D radar product provides 3 base products (reflectivity (SWR), radial velocity (SWV), and spectrum width (SWW)) at the highest resolution available along with radial shear (SWS). These products are mapped into a 27 nm by 27 nm region centered on a point which the operator can specify anywhere within a 124 nm radius of the radar. It is most effective when employed as an alert paired product with the product centered on alert at height that caused the alert. It is used to examine 3 base products simultaneously in a 4 quadrant display; and analyze reflectivity and velocity products at various heights to gain a comprehensive vertical analysis of the thunderstorm.

Severe Weather Potential Statement

This statement is designed to alert the public and state/local agencies to the potential for severe weather up to 24 hours in advance. It is issued by the local National Weather Service office.

Severe Weather Probability

This WSR-88D radar product algorithm displays numerical values proportional to the probability that a storm will produce severe weather within 30 minutes. Values determined using a statistical regression equation which analyzes output from the VIL algorithm. It is used to quickly identify the most significant thunderstorms.

Severe Weather Statement

A National Weather Service product which provides follow up information on severe weather conditions (severe thunderstorm or tornadoes) which have occurred or are currently occurring.

SEWD

Southeastward.

SFC

Surface.

Sferic

In solar-terrestrial terms, a transient electric or magnetic field generated by any feature of lightning discharge (entire flash).

SFU

Solar flux unit. 10 E -22 W 10E-2 m 10E-1 Hz = 10,000 Jansky.

SG

Snow grains.

SGFNT

Significant.

Shallow Fog

Fog in which the visibility at 6 feet above ground level is 5/8ths statute mile or more and the apparent visibility in the fog layer is less than 5/8ths statute mile.

SHARS

Subtle Heavy Rainfall Signature.

Shear

Variation in wind speed (speed shear) and/or direction (directional shear) over a short distance within the atmosphere. Shear usually refers to vertical wind shear, i.e., the change in wind with height, but the term also is used in Doppler radar to describe changes in radial velocity over short horizontal distances.

Sheet Flow

In hydrologic terms, flow that occurs overland in places where there are no defined channels, the flood water spreads out over a large area at a uniform depth. This also referred to as overland flow.

Sheet Ice

Ice formed by the freezing of liquid precipitation or the freezing of melted solid precipitation (see snow depth)

Sheet Lightning

A form of cloud to cloud lightning, the most common type of lightning, occurring inside one cumulonimbus cloud due to opposing charges within the cloud. This most frequently occurs when the upper portion of an anvil cloud reaches positive charge, and the middle remains under negative charge. This is often referred to as sheet lightning because it lights up the cloud and surrounding sky with light. Heat lightning is no different from cloud to cloud lightning, it is sometimes referred to as heat lightning when it is too far away for thunder to be heard.

Shelf Cloud

A low, horizontal wedge-shaped arcus cloud, associated with a thunderstorm gust front (or occasionally with a cold front, even in the absence of thunderstorms). Unlike the roll cloud, the shelf cloud is attached to the base of the parent cloud above it (usually a thunderstorm). Rising cloud motion often can be seen in the leading (outer) part of the shelf cloud, while the underside often appears turbulent, boiling, and wind-torn.

SHF

Super high frequency.

SHFT

Shift.

SHLW

Shallow.

Shock

A discontinuity in pressure, density, and particle velocity, propagating through a compressible fluid or plasma.

Shore ice

In hydrologic terms, an ice sheet in the form of a long border attached to the bank or shore. border ice.

Short Term Forecast

A product used to convey information regarding weather or hydrologic events in the next few hours.

Short Wave Fade (SWF)

In solar-terrestrial terms, a particular ionospheric solar flare effect under the broad category of sudden ionospheric disturbances (SIDs) whereby short-wavelength radio transmissions, VLF, through HF, are absorbed for a period of minutes to hours.

Short-Fuse Warning

A warning issued by the NWS for a local weather hazard of relatively short duration. Short-fuse warnings include tornado warnings, severe thunderstorm warnings, and flash flood warnings. Tornado and severe thunderstorm warnings typically are issued for periods of an hour or less, flash flood warnings typically for three hours or less.

Shortwave

Also known as **Shortwave Trough**; a disturbance in the mid or upper part of the atmosphere which induces upward motion ahead of it. If other conditions are favorable, the upward motion can contribute to thunderstorm development ahead of a shortwave.

Short Wave Fade (SWF)

An abrupt decrease of HF radio signal strength, lasting from minutes to hours, caused by increased dayside ionization from some solar flares. A SWF is one effect under the broad category of sudden ionospheric disturbances (SIDs)

Shortwave Radiation

In solar-terrestrial terms, shortwave radiation is a term used to describe the radiant energy emitted by the sun in the visible and near-ultraviolet wavelengths (between about 0.1 and 2 micrometers).

Shortwave Trough

Also called **Shortwave**; A disturbance in the mid or upper part of the atmosphere which induces upward motion ahead of it. If other conditions are favorable, the upward motion can contribute to thunderstorm development ahead of a shortwave trough.

Showalter Index

(Abbrev. SWI) - a stability index used to determine thunderstorm potential. The SWI is calculated by lifting an air parcel adiabatically from 850 mb to 500 mb. The algebraic difference between the air parcel and the environmental temperature at 500 mb represents the SWI. It is especially useful when you have a shallow cool air mass below 850 mb concealing greater convective potential aloft. However, the SWI will underestimate the convective potential for cool layers extending above 850 mb. It also does not take in account diurnal heating or moisture below 850 mb. As a result, one must be very careful when using this index.

Shower

(SH) Precipitation from a convective cloud that is characterized by its sudden beginning and ending, changes in intensity, and rapid changes in the appearance of the sky. It occurs in the form of rain (SHRA), snow (SHSN), or ice (SHPE). It is reported as "SH" in an observation and on the METAR.

SHRA

Rain showers.

SHRAS

Showers.

SHRT

Short.

SHRTWV

Shortwave - a disturbance in the mid or upper part of the atmosphere which induces upward motion ahead of it. If other conditions are favorable, the upward motion can contribute to thunderstorm development ahead of a shortwave.

SHSN

Snow showers.

SHWR

Shower.

SI

Sudden impulse.

SID

Sudden ionospheric disturbance.

Sidereal

Referring to a coordinate system fixed with respect to the distant stars.

Sidelobe

A secondary energy maximum located outside the main radar beam. Typically, it contains a small percentage of energy compared to the main lobe, but it may produce erroneous echoes.

SIGMET

Significant Meteorological Advisory.

Signal-to-Noise Ratio

A ratio that measures the comprehensibility of data, usually expressed as the signal power divided by the noise power, usually expressed in decibels (dB).

Significant Wave Height

The mean or average height of the highest one third of all waves in a swell train or in a wave generating region. It approximates the value an experienced observer would report if visually estimating sea height. When expressed as a range (e.g. Seas 2-4 ft) , indicates a degree of uncertainty in the forecast and/or expected changing conditions (not that all waves are between 2-4 ft). Generally, it is assumed that individual wave heights can be described using a Rayleigh distribution.

Example: Significant Wave Height = 10 ft 1 in 10 waves will be larger than 11 ft 1 in 100 waves will be larger than 16 ft 1 in 1000 waves will larger than 19 ft

Therefore, assuming a wave period of 8 seconds, for a significant wave height of 10 feet, a wave 19 feet or higher will occur every 8,000 seconds (2.2 hours).

Significant Weather Outlook

A narrative statement produced by the National Weather Service, frequently issued on a routine basis, to provide information regarding the potential of significant weather expected during the next 1 to 5 days.

SIGWX

Significant Weather.

Single Cell Thunderstorm

This type of thunderstorm develops in weak vertical wind shear environments. On a hodograph, this would appear as a closely grouped set of random dots around the center of the graph. They are characterized by a single updraft core and a single downdraft that descends into the same area as the updraft. The downdraft and its outflow boundary then cut off the thunderstorm inflow. This causes the updraft and the thunderstorm to dissipate. Single cell thunderstorms are short-lived. They only last about 1/2 hour to an hour. These thunderstorms will occasionally become severe (3/4 inch hail, wind gusts in the excess of 58 miles an hour, or a tornado), but only briefly. In this case, they are called Pulse Severe Thunderstorms.

Single Event Upset (SEU)

With reference to the effects of energetic particles on spacecraft microcircuits - an unexpected change in the logic state of a single digital bit. SEUs can be either ”soft” (the microcircuit is not damaged and can be rewritten to either state), or a latch up, which cannot easily be reset.

SITOR

(SImplex Teletype Over Radio) - a means of transmitting text broadcasts over radio. The U.S. Coast Guard SITOR broadcast of NWS forecasts is performed in mode B, FEC. SITOR is also known as Narrow Band Direct Printing (NBDP). SITOR/NBDP is an automated direct service similar to NAVTEX, but does not offer all of the same functionality such as avoiding repeated messages.

Sky

The region of the upper atmosphere and outer space seen from the earth.

Sky Condition

Used in a forecast to describes the predominant/average sky condition based upon octants (eighths) of the sky covered by opaque (not transparent) clouds.

Sky Condition	Cloud Coverage
Clear / Sunny	0/8
Mostly Clear / Mostly Sunny	1/8 to 2/8
Partly Cloudy / Partly Sunny	3/8 to 4/8
Mostly Cloudy / Considerable Cloudiness	5/8 to 7/8
Cloudy	8/8
Fair (mainly for night)	Less than 4/10 opaque clouds, no precipitation, no extremes of visibility/temperature/wind

SKYWARN

A nationwide network of volunteer weather spotters who report to and are trained by the National Weather Service. These spotters report many forms of significant or severe weather such as Severe Thunderstorms, Tornadoes, Hail, Heavy Snow, or Flooding. Contact your local National Weather Service Forecast Office to learn about SKYWARN activities in your area.

SL

Sea Level

SLD

Solid

Sleet

(PL) - Sleet is defined as pellets of ice composed of frozen or mostly frozen raindrops or refrozen partially melted snowflakes. These pellets of ice usually bounce after hitting the ground or other hard surfaces. Heavy sleet is a relatively rare event defined as an accumulation of ice pellets covering the ground to a depth of Â½" or more.

Sleet Warning

Issued when accumulation of sleet in excess of 1/2" is expected; this is a relatively rare scenario. Usually issued as a winter storm warning for heavy sleet.

SLGT

Slight.

Slight Chance

In probability of precipitation statements, usually equivalent to a 20 percent chance.

Slight Risk

(of severe thunderstorms)- Severe thunderstorms are expected to affect between 2 and 5 percent of the area. A slight risk generally implies that severe weather events are expected to be isolated.

Sling Psychrometer

An instrument used to measure the water vapor content of the atmosphere in which wet and dry bulb thermometers are mounted on a frame connected to a handle at one end by means of a bearing or a length of chain. The psychrometer is whirled by hand to provide the necessary ventilation to evaporate water from the wet bulb.

SLO

Slow.

SLOSH

(Sea, Lake and Overland Surges from Hurricanes) - A computer model run by the National Hurricane Center (NHC) to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by taking into account pressure, size, forward speed, track, and winds.

SLP

Sea Level Pressure.

Slush

Snow or ice on the ground that has been reduced to a softy watery mixture by rain and/or warm temperatures.

SLT

1. Slight (as in "slight chance").
2. Sleet

SLY

Southerly.

SM

1) Statute Miles.
2) Sum total for month.

SMA

The Soil Moisture Accounting Model.

Small Craft

There is no precise definition for small craft. Any vessel that may be adversely affected by Small Craft Advisory criteria should be considered a small craft. Other considerations include the experience of the vessel operator, and the type, overall size, and sea worthiness of the vessel. See Small Craft Advisory.

Small Craft Advisory

(SCA) - An advisory issued by coastal and Great Lakes Weather Forecast Offices (WFO) for areas included in the Coastal Waters Forecast or Nearshore Marine Forecast (NSH) products. Thresholds governing the issuance of small craft advisories are specific to geographic areas. A Small Craft Advisory may also be issued when sea or lake ice exists that could be hazardous to small boats. There is no precise definition of a small craft. Any vessel that may be adversely affected by Small Craft Advisory criteria should be considered a small craft. Other considerations include the experience of the vessel operator, and the type, overall size, and sea worthiness of the vessel. * Eastern (ME..SC, Lake Erie, Lake Ontario) - Sustained winds or frequent gusts ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for harbors, bays, etc.) and/or seas or waves 5 to 7 feet and greater, area dependent. * Central (MN..OH) - Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots inclusive, and/or seas or waves greater than 4 feet. * Southern (GA..TX and Caribbean) - Sustained winds of 20 to 33 knots, and/or forecast seas 7 feet or greater that are expected for more than 2 hours. * Western (WA..CA) - Sustained winds of 21 to 33 knots, and/or wave heights exceeding 10 feet (or wave steepness values exceeding local thresholds * Alaska (AK) - Sustained winds or frequent gusts of 23 to 33 knots. A small craft advisory for rough seas may be issued for sea/wave conditions deemed locally significant, based on user needs, and should be no lower than 8 feet. * Pacific - (HI, Guam, etc.) - Sustained winds 25 knots or greater and seas 10 feet or greater; except in Guam and the northern Mariana Islands where it is sustained winds 22 to 33 knots and/or combined seas of 10 feet or greater. "Frequent gusts" are typically long duration conditions

(greater than 2 hours). For a list of NWS Weather Offices by Region, refer to the following website: http://www.nws.noaa.gov/organization.php

Small Craft Advisory for Hazardous Seas

(SCAHS) - An advisory for wind speeds lower than small craft advisory criteria, yet waves or seas are potentially hazardous due to wave height, wave period, steepness, or swell direction. Thresholds governing the issuance of Small Craft Advisories for Hazardous Seas are specific to geographic areas. * Eastern (ME..SC, Lake Erie, Lake Ontario) - Seas or waves 5 to 7 feet and greater, area dependent. * Central (MN..OH) - Seas or waves greater than 4 feet * Southern (GA..TX and Caribbean) - Seas 7 feet or greater that are expected for more than 2 hours. * Western (WA..CA) - Criteria for wave heights and/or wave steepness are locally defined; refer to Western Region Supplement 12-2003, Marine Weather Services. * Alaska (AK) - Seas or wave conditions deemed locally significant, based on user needs, and should be no lower than 8 feet. * Pacific - (HI, Guam, etc.) - Seas of 10 feet or greater.

Small Craft Advisory for Rough Bar

(SCARB) - An advisory for specialized areas near harbor or river entrances known as bars. Waves in or near such bars may be especially hazardous to mariners due to the interaction of swell, tidal and/or river currents in relatively shallow water. Thresholds governing the issuance of Small Craft Advisories for Rough Bar are specific to local geographic areas, and are based upon parameters such as wave steepness, wind speed and direction, and local bathymetry**.**

Small Craft Advisory for Winds

(SCAW) - An advisory for wave heights lower than small craft advisory criteria, yet wind speeds are potentially hazardous. Thresholds governing the issuance of small craft advisories are specific to geographic areas. * Eastern (ME..SC, Lake Erie, Lake Ontario) - Sustained winds ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for harbors, bays, etc.) * Central (MN..OH) - Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots inclusive. * Southern (GA..TX and Caribbean) - Sustained winds of 20 to 33 knots that are expected for more than 2 hours. * Western (WA..CA) - Sustained winds of 21 to 33 knots. * Alaska (AK) - Sustained winds or frequent gusts of 23 to 33 knots. * Pacific - (HI, Guam, etc.) Sustained winds 25 knots or greater; except in Guam where it is sustained winds of 22 to 33 knots.

Small Craft Should Exercise Caution

Precautionary statement issued to alert mariners with small, weather sensitive boats.

Small Hail

Technically used to refer to snow pellets or graupel.

Small Stream Flooding

In hydrologic terms, flooding of small creeks, streams, or runs**.**

Smog

Originally smog meant a mixture of smoke and fog. Now, it means air that has restricted visibility due to pollution or pollution formed in the presence of sunlight--photochemical smog.

Smoke

(abbrev. K) Smoke in various concentrations can cause significant problems for people with respiratory ailments. It becomes a more universal hazard when visibilities are reduced to Â¼ mile or less.

Smoke Dispersal

Describes the ability of the atmosphere to ventilate smoke. Depends on the stability and winds in the lower layers of the atmosphere, i.e., a combination of mixing heights and transport winds.

Smoke Management

The use of meteorology, fuel moisture, fuel loading, fire suppression and burn techniques to keep smoke impacts from prescribed fires within acceptable limits.

Smoothed Sunspot Number

An average of 13 monthly RI numbers, centered on the month of concern.

SMW

(Special Marine Warning) - A warning product issued for potentially hazardous weather conditions usually of short duration (up to 2 hours) producing sustained marine thunderstorm winds or associated gusts of 34 knots or greater; and/or hail 3/4 inch or more in diameter; and/or waterspouts affecting areas included in a Coastal Waters Forecast, a Nearshore Marine Forecast, or an Great Lakes Open Lakes Forecast that is not adequately covered by existing marine warnings. Also used for short duration mesoscale events such as a strong cold front, gravity wave, squall line, etc., lasting less than 2 hours and producing winds or gusts of 34 knots or greater.

SN

Snow

Snotel

SNOw TELemetry - An automated network of snowpack data collection sites. The Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service (SCS), has operated the Federal-State-Private Cooperative Snow Survey Program in the western United States since 1935. A standard SNOTEL site consists of a snow pillow, a storage type precipitation gage, air temperature sensor and a small shelter for housing electronics.

Snow

Precipitation in the form of ice crystals, mainly of intricately branched, hexagonal form and often agglomerated into snowflakes, formed directly from the freezing [deposition] of the water vapor in the air.

Snow Accumulation and Ablation Model

In hydrologic terms, a model which simulates snow pack accumulation, heat exchange at the air-snow interface, areal extent of snow cover, heat storage within the snow pack, liquid water retention, and transmission and heat exchange at the ground-snow interface.

Snow Advisory

This product is issued by the National Weather Service when a low pressure system produces snow that may cause significant inconveniences, but do not meet warning criteria and if caution is not exercised could lead to life threatening situations. The advisory criteria varies from area to area. If the forecaster feels that it is warranted, he or she can issued it for amounts less than the minimum criteria. For example, it may be issued for the first snow of the season or when snow has not fallen in long while.

Snow Core

A sample of either freshly fallen snow, or the combined old and new snow on the ground. This is obtained by pushing a cylinder down through the snow layer and extracting it.

Snow Cornice

A mass of snow or ice projecting over a mountain ridge.

Snow Density

The mass of snow per unit volume which is equal to the water content of the snow divided by its depth.

Snow Depth

The combined total depth of both the old and new snow on the ground.

Snow Flurries

Snow flurries are an intermittent light snowfall of short duration (generally light snow showers) with no measurable accumulation (trace category).

Snow Grains

Precipitation consisting of white, opaque ice particles usually less than 1 mm in diameter.

Snow Pack

Same as Snow cover; the combined layers of snow and ice on the ground at any one time.

Snow Pellets

Precipitation, usually of brief duration, consisting of crisp, white, opaque ice particles, round or conical in shape and about 2 to 5 mm in diameter. Same as graupel or small hail.

Snow Pillow

1) A window of snow deposited in the immediate lee of a snow fence or ridge.

or

2) In hydrologic terms, an instrument used to measure snow water equivalents. Snow pillows typically have flat stainless steel surface areas. The pillow below this flat surface is filled with antifreeze solution and the pressure in the pillow is related to the water-equivalent depth of the snow on the platform. One great advantage of snow pillows over a snow survey is the frequency of observations, which can be as high as twice per day.

Snow Shower

A snow shower is a short duration of moderate snowfall. Some accumulation is possible.

Snow Squall

A snow squall is an intense, but limited duration, period of moderate to heavy snowfall, accompanied by strong, gusty surface winds and possibly lightning (generally moderate to heavy snow showers). Snow accumulation may be significant.

Snow Stake
A 1-3/4 inch square, semi-permanent stake, marked in inch increments to measure snow depth.

Snow Stick
A portable rod used to measure snow depth.

Snow Water Equivalent
The water content obtained from melting accumulated snow.

Snowboard
A flat, solid, white material, such as painted plywood, approximately two feet square, which is laid on the ground, or snow surface by weather observers to obtain more accurate measurements of snowfall and water content.

Snowcover
Also known as Snow Pack; the combined layers of snow and ice on the ground at any one time.

Snowflake
An agglomeration of snow crystals falling as a unit.

Snowmelt Flooding
In hydrologic terms, flooding caused primarily by the melting of snow.

Snowpack
The total snow and ice on the ground, including both the new snow and the previous snow and ice which has not melted.

SNR
Signal-to-Noise Ratio.

SNW
Snow.

SNW
Snowfall.

SNWFL
Snowfall.

SOI
The Southern Oscillation Index (SOI) has been developed to monitor the Southern Oscillation using the difference between sea level pressures at Darwin, Australia, and Tahiti, although other stations have sometimes been used. Large negative values of the SOI indicate a warm event, and large positive values indicate a cold event (also referred to as La NiÃ±a). It is important to note that there is not a one-to-one correspondence between the occurrence of Southern Oscillation events and El NiÃ±o events, using the spatially restrictive original definition of El NiÃ±o**.**

Soil Moisture
Water contained in the upper part of the soil mantle. This moisture evaporates from the soil and is the used and transpired by vegetation.

Solar Activity
Transient perturbations of the solar atmosphere as measured by enhanced x-ray emission (see x-ray flare class), typically associated with flares. Five standard terms are used to describe the activity observed or expected: Very low x-ray events less than C-class. Low - C-class x-ray events. Moderate - isolated (one to 4) M-class x-ray events. High - several (5 or more) M5 or greater x-ray events.

Solar Constant
The total radiant energy received vertically from the Sun, per unit area per unit of time, at a position just outside the Earth's atmosphere when the Earth is at its average distance from the Sun. Radiation at all wavelengths from all parts of the solar disk is included. Its value is approximately 2.00 cal cm-2 min-1 = 1.37 kW m-2 and varies slightly (by approximately 0.1 %) from day to day primarily in response to the apparent size of sunspots blocking emission from the photosphere.

Solar Coordinates
In solar-terrestrial terms, Central Meridian Distance (CMD). The angular distance in solar longitude measured from the central meridian.

Solar Cycle
In solar-terrestrial terms, the approximately 11-year quasi-periodic variation in frequency or number of solar active events.

Solar Flares

Are large explosions and eruptions of electromagnetic radiation and charged particles emanating from the Sun causing intense variation of brightness lasting from minutes to hours.

Solar Maximum

In solar-terrestrial terms, the month(s) during the solar cycle when the 12-month mean of monthly average sunspot numbers reaches a maximum.

Solar Minimum

In solar-terrestrial terms, the month(s) during the solar cycle when the 12-month mean of monthly average sunspot numbers reaches a minimum.

Solar Noon

The time of day at which the sun is the highest in the sky. This time varies through the year due to the change in speed of the earth's orbit around the sun.

Solar Radiation Storms NOAA Space Weather Scales

A measure of the severity of solar proton events as depicted in the NOAA Space Weather Scales.

Solar Radio Emission

See radio emission.

Solar Rotation Rate

(1) synodic: 13.39 degrees -2.7 degrees sinE2 J per day (J = solar latitude). (2) sidereal: 14.38 degrees -2. 7 degrees sinE2 J per day. The difference between sidereal and synodic rates is the Earth orbital motion of 0.985 degrees/day.

Solar Sector Boundary (SSB)

The boundary between large-scale unipolar magnetic regions on the Sun's surface, as determined from inversion lines mapped using filaments and filament channels, or large-scale magnetograms. The supposed solar signature of an interplanetary sector boundary. The apparent solar origin, or base, of the interplanetary sector boundary marked by the larger-scale polarity inversion lines.

Solar Wind

The outward flux of solar particles and magnetic fields from the sun. Typically, solar wind velocities are near 350 km/s.

Solar X-ray Imager (SXI)

Full disk soft x-ray (0.6-6 nm) imager flown on many of the GOES geosynchronous weather satellites.

SOLN

Solution.

SOLNS

Solutions.

Solstice

Either of the two times per year when the sun is at its greatest angular distance from the celestial equator: about June 21 (the Northern Hemisphere summer solstice), when the sun reaches its northernmost point on the celestial sphere, or about December 22 (the Northern Hemisphere winter solstice), when it reaches its southernmost point.

SOO

Science and Operations Officer**.**

Sounding

A set of data measuring the vertical structure of an atmospheric parameter (temperature, humidity, pressure, winds, etc.) at a given time.

South Atlantic Anomaly (SAA)

A region of the Earth centered near 25S and 50W (near the Atlantic coast of Brazil) of low geomagnetic field intensity owing to the fact that the geomagnetic field axis is offset from the center of the Earth. One consequence of the SAA is that trapped particles in the plasmasphere drift closer to the Earth's surface and can more easily be lost into the atmosphere. The result is that the F region (see ionosphere) is highly variable in this region, and satellites in low Earth orbits suffer greater radiation doses when they pass through the SAA. There is a corresponding location of maximum geomagnetic field intensity in Southeast Asia.

Southern Lights

A natural occurring display of lights observed in the high latitudes of the polar regions on the globe, but are also often seen as far as 65-72 degrees north and south. The chance for seeing the southern lights increases as you go closer to the South Magnetic Pole. If near the magnetic pole, they can be seen overhead, but from further distances they illuminate the northern horizon with a greenish or yellowish

color. It is strongest during the equinoxes, or when the earth is at its greatest tilt. This phenomena occurs when photons are emitted into the ionosphere from ionized nitrogen atoms. They are ionized, or excited, by strong solar wind in the vicinity of Earth's magnetic field lines.

Southern Oscillation

(SO) - a "see-saw" in surface pressure in the tropical Pacific characterized by simultaneously opposite sea level pressure anomalies at Tahiti, in the eastern tropical Pacific and Darwin, on the northwest coast of Australia. The SO was discovered by Sir Gilbert Walker in the early 1920's. Walker was among the first meteorologists to use the statistical techniques to analyze and predict meteorological phenomena. Later, the three-dimensional east-west circulation related to the SO was discovered and named the "Walker Circulation". The SO oscillates with a period of 2-5 years. During one phase, when the sea level pressure is low at Tahiti and High at Darwin, the El Nino occurs. The cold phase of the SO, called "La Nina" by some, is characterized by high pressure in the eastern equatorial Pacific, low in the west, and by anomalously cold sea surface temperature (SST) in the central and eastern Pacific. This is called El Nino Southern Oscillation or ENSO.

Southern Oscillation Index

A numerical index measuring the state of the Southern Oscillation. The SOI is based on the (atmospheric) pressure difference between Tahiti and Darwin, Australia. It is highly correlated with tropical sea surface temperature anomaly indices recorded in NiÃ±o3.

Southern Polar Lights

A natural occurring display of lights observed in the high latitudes of the polar regions on the globe, but are also often seen as far as 65-72 degrees north and south. The chance for seeing the southern lights increases as you go closer to the South Magnetic Pole. If near the magnetic pole, they can be seen overhead, but from further distances they illuminate the northern horizon with a greenish or yellowish color. It is strongest during the equinoxes, or when the earth is at its greatest tilt. This phenomena occurs when photons are emitted into the ionosphere from ionized nitrogen atoms. They are ionized, or excited, by strong solar wind in the vicinity of Earth's magnetic field lines.

Spacecraft Charging

A term that encompasses all the charging effects on a spacecraft due to the environment in space. Occasionally this term is used in a more limited sense to mean surface charging.

Space Environment Center

(SEC) - This center provides real-time monitoring and forecasting of solar and geophysical events, conducts research in solar-terrestrial physics, and develops techniques for forecasting solar and geophysical disturbances. SEC's parent organization is the National Oceanic and Atmospheric Administration (NOAA). SEC is one of NOAA's 12 Environmental Research Laboratories (ERL) and one of NOAA's 9 National Centers for Environmental Prediction (NCEP). SEC's Space Weather Operations is jointly operated by NOAA and the U.S. Air Force and is the national and world warning center for disturbances that can affect people and equipment working in the space environment.

SPC

Storm Prediction Center

SPCLY

Especially

SPD

1) Speed

2) On a buoy report, ten-minute average wind speed values in m/s.

Spearhead Echo

A radar echo associated with a downburst with a pointed appendage extending toward the direction of the echo motion. The appendage moves much faster than the parent echo, which is drawn into the appendage. During it's mature stage, the appendage turns into a major echo and the parent echo loses its identity.

Special Avalanche Warning

Issued by the National Weather Service when avalanches are imminent or occurring in the mountains. It is usually issued for a 24 hour period.

Special Fire Weather

Meteorological services uniquely required by user agencies which cannot be provided at an NWS office

during normal working hours. Examples are on-site support, weather observer training, and participation in user agency training activities.

Special Marine Warning

(SMW) A warning product issued for potentially hazardous weather conditions usually of short duration (up to 2 hours) producing sustained marine thunderstorm winds or associated gusts of 34 knots or greater; and/or hail 3/4 inch or more in diameter; and/or waterspouts affecting areas included in a Coastal Waters Forecast, a Nearshore Marine Forecast, or an Great Lakes Open Lakes Forecast that is not adequately covered by existing marine warnings. Also used for short duration mesoscale events such as a strong cold front, gravity wave, squall line, etc., lasting less than 2 hours and producing winds or gusts of 34 knots or greater.

Special Tropical Disturbance Statement

This statement issued by the National Hurricane Center furnishes information on strong and formative non-depression systems. This statement focuses on the major threat(s) of the disturbance, such as the potential for torrential rainfall on an island or inland area. The statement is coordinated with the appropriate forecast office(s).

Special Weather Statement

A special weather statement is issued for hazards that have not yet reached warning or advisory criteria, or for hazards that do not have a specific advisory of their own.

Specific Gravity

The ratio of the density of any substance to the density of water.

Specific Humidity

In a system of moist air, the ratio of the mass of water vapor to the total mass of the system.

Specific Yield

In hydrologic terms, the ratio of the water which will drain freely from the material to the total volume of the aquifer formation. This value will always be less than the porosity.

Spectral Density

A radar term for the distribution of power by frequency.

Spectral Wave Density

On a buoy report, energy in (meter*meter)/Hz, for each frequency bin (typically from 0.03 Hz to 0.40 Hz).

Spectral Wave Direction

On a buoy report, mean wave direction, in degrees from true North, for each frequency bin.

Spectrum Width

This WSR-88D radar product depicts a full 360 degree sweep of spectrum width data indicating a measure of velocity dispersion within the radar sample volume. It is available for every elevation angle sampled, it provides a measure of the variability of the mean radial velocity estimates due to wind shear, turbulence, and/or the quality of the velocity samples. It is used to estimate turbulence associated with boundaries, thunderstorms, and mesocyclones; check the reliability of the velocity estimates; and locate boundaries (cold front, outflow, lake breeze, etc.).

Spectrum Width Cross Section

This WSR-88D radar product displays a vertical cross section of spectrum width on a grid with heights up to 70,000 feet on the vertical axis and distance up to 124 nm on the horizontal axis. Two end points to create cross section are radar operator selected along a radial or from one AZRAN to another AZRAN within 124 nm of the radar that are less than 124 nm apart.

It is used to:

1) Verify features on the Reflectivity Cross Section (RCS) and Velocity Cross Section (VCS) and to evaluate the quality of the velocity data

2) Estimate vertical extent of turbulence (aviation use).

Speed Shear

The component of wind shear which is due to a change in wind speed with height, e.g., southwesterly winds of 20 mph at 10,000 feet increasing to 50 mph at 20,000 feet. Speed shear is an important factor in severe weather development, especially in the middle and upper levels of the atmosphere.

SPENES

NESDIS Satellite Precipitation Estimates

Sphere Calibration

Reflectivity calibration of a radar by pointing the dish at a metal sphere of (theoretically) known

reflectivity. The sphere is often tethered to a balloon.

Spicules

Rapidly changing, predominantly vertical, spike-like structures in the solar chromosphere observed above the limb. Spicules appear to be ejected from the low chromosphere at velocities of 20 to 30 km/s, reaching a height of about 9000 km and then falling back or fading. The total lifetime is 5 to 10 minutes.

Spillway

In hydrologic terms, a structure over or through which excess or flood flows are discharged. If the flow is controlled by gates, it is a controlled spillway, if the elevation of the spillway crest is the only control, it is an uncontrolled spillway.

Spillway Crest

In hydrologic terms, the elevation of the highest point of a spillway.

Spin-Up

Slang for a small-scale vortex initiation, such as what may be seen when a gustnado, landspout, or suction vortex forms.

SPKL

Sprinkle.

Split Flow

A flow pattern high in the atmosphere characterized by diverging winds. Storms moving along in this type of flow pattern usually weaken.

Splitting Storm

A thunderstorm which splits into two storms which follow diverging paths (a left mover and a right mover). The left mover typically moves faster than the original storm, the right mover, slower. Of the two, the left mover is most likely to weaken and dissipate (but on rare occasions can become a very severe anticyclonic-rotating storm), while the right mover is the one most likely to reach supercell status.

SPLNS

Southern Plains

Sporadic E

In solar-terrestrial terms, a phenomenon occurring in the E region of the ionosphere, which significantly affects HF radiowave propagation. Sporadic E can occur during daytime or nighttime and it varies markedly with latitude.

SPOTNIL

In solar-terrestrial terms, a spotless disk.

Spotting

Outbreak of secondary fires as firebrands or other burning materials are carried ahead of the main fire line by winds.

Spray

(SPY) An ensemble of water droplets torn by the wind from an extensive body of water, generally from the crests of waves, and carried up into the air in such quantities that it reduces the horizontal visibility.

Spread F

A condition of the F region of the ionosphere caused by patches of ionization that scatter or duct radio signals, characterized on ionograms by a wide range of heights of reflected pulses. In equatorial latitudes spread F is most commonly observed at night and may be negatively correlated with geomagnetic activity. At high latitudes spread F occurs throughout the daytime and is positively correlated with magnetic activity. The latitude of minimum occurrence of spread F is near 30 degrees magnetic latitude.

SPRD

Spread

Spring

1. The season of the year comprising the transition period from winter to summer occurring when the sun is approaching the summer solstice. In the Northern Hemisphere, spring customarily includes the months of March, April and May.
2. In hydrologic terms, an issue of water from the earth; a natural fountain; a source of a reservoir of water.

Spring Tide

A tide higher than normal which occurs around the time of the new and full moon.

Sprinkle
Very light rain showers. Precipitation measurement is a trace.

SPS
Severe Weather Potential Statement.

Sq
The diurnal variation of the geomagnetic field. The Sq variation is explained in terms of solar tidal motions of the ionosphere and thermally driven ionospheric winds.

SQLN
Squall Line.

Squall
A strong wind characterized by a sudden onset in which the wind speed increases at least 16 knots and is sustained at 22 knots or more for at least one minute. 2. In nautical use, a severe local storm considered as a whole, that is, winds and cloud mass and (if any) precipitation, thunder and lightning.

Squall Line
A line of active thunderstorms, either continuous or with breaks, including contiguous precipitation areas resulting from the existence of the thunderstorms.

SRF
(Surf Zone Forecast) - A National Weather Service routine or event driven forecast product geared toward non-boating marine users issued for an area extending from the area of water between the high tide level on the beach and the seaward side of the breaking waves.

SRH
Storm-Relative Helicity.

SRN
Southern.

SS
Sandstorm.

SSB
Solar sector boundary.

SSC
Sudden commencement.

SSHS
Saffir/Simpson Hurricane Scale.

SST
Sea Surface Temperature.

ST
Stratus.

St Lawrence Freeze-Up Outlook
A National Weather Service forecast product to keep mariners informed of the projected freeze-up date of ice the St. Lawrence River.

St. Elmo's Fire
The glow on a masthead produced by an extreme buildup of electrical charge. Unprotected mariners should immediately move to shelter when this phenomena occurs. Lightning may strike the mast within five minutes after it begins to glow.

Stability
The degree of resistance of a layer of air to vertical motion.

Stability Index
The overall stability or instability of a sounding is sometimes conveniently expressed in the form of a single numerical value. Used alone, it can be quite misleading, and at times, is apt to be worthless. The greatest value of an index lies in alerting the forecaster to those soundings which should be examined more closely.

Stable
An atmospheric state with warm air above cold air which inhibits the vertical movement of air.

Stable Boundary Layer
The stably-stratified layer that forms at the surface and grows upward, usually at night or in winter, as heat is extracted from the atmosphere's base in response to longwave radiative heat loss from the

ground. Stable boundary layers can also form when warm air is advected over a cold surface or over melting ice.

Stable Core

Post-sunrise, elevated remnant of the temperature inversion that has built up overnight within a valley.

Staccato Lightning

A Cloud to Ground (CG) lightning discharge which appears as a single very bright, short-duration stroke, often with considerable branching.

Stage

The level of the water surface of a river or stream above an established datum at a given location.

Stair Stepping

In hydrologic terms, the process of continually updating river forecasts for the purpose of incorporating the effects rain that has fallen since the previous forecast was prepared.

Standard Atmosphere

A hypothetical vertical distribution of atmospheric temperature, pressure, and density that, by international agreement, is taken to be representative of the atmosphere for purposes of pressure altimeter calibrations, aircraft performance calculations, aircraft and missile design, ballistic tables, etc.

Standard Synoptic Times

The times of 0000, 0600, 1200, and 1800 UTC. Also known as the main synoptic times.

State Forecast Product

This National Weather Service product is intended to give a good general picture of what weather may be expected in the state during the next 5 days. The first 2 days of the forecast is much more specific than the last 3 days. In comparison with the Zone Forecast Product, this product will be much more general.

State Weather Roundup

This is a National Weather Service tabular product which provides routine hourly observations within the state through the National Weather Wire Service (NWWS). It gives the current weather condition in one word (cloudy, rain, snow, fog, etc.), the temperature and dew point in Fahrenheit, the relative humidity, wind speed and direction, and finally additional information (wind chill, heat index, a secondary weather condition). These reports are broken up regionally. When the complementary satellite product is not available, reports from unaugmented ASOS stations will report "fair" in the sky/weather column when there are few or no clouds (i.e., scattered or less) below 12,000 feet with no significant weather and/or obstructions to visibility.

Station ID

Five-digit WMO Station Identifier used by the Buoy Data Center since 1976. ID's can be reassigned to future deployments within the same 1 degree square.

Station Model

A specified pattern for plotting, on a weather map, the meteorological symbols that represent the state of the weather at a particular observing station.

Station Pressure

The absolute air pressure at a given reporting station. The air pressure is directly proportional to the combined weight of all air in the atmosphere located in a column directly above the reporting site. Consequently, the station pressure may vary tremendously from one location to another in mountainous regions due to the strong variation of atmospheric pressure with height. Vertical variations of pressure range up to 150 mb per mile whereas horizontal variations are usually less than .1 mb per mile.

Stationary Front

A front between warm and cold air masses that is moving very slowly or not at all.

STBL

Stable.

Steam Fog

Fog formed when water vapor is added to air which is much colder than the source of the vapor. It may be formed when very cold air drifts across relatively warm water. At temperatures below about-20Â°F, ice particles or droxtals may be formed in the air producing a type of ice fog known as frost smoke.

Steepness

In marine terms, on a buoy report, wave steepness is the ratio of wave height to wave length and is an indicator of wave stability. When wave steepness exceeds a 1/7 ratio, the wave becomes unstable and begins to break.

Steering Currents

Same as Steering Winds; a prevailing synoptic scale flow which governs the movement of smaller features embedded within it.

Steering Winds

Same as Steering Currents; A prevailing synoptic scale flow which governs the movement of smaller features embedded within it.

Stepped Leader

A faint, negatively charged channel that emerges from the base of a thunderstorm and propagates toward the ground in a series of steps of about 1 microsecond duration and 50-100 meters in length, initiating a lightning stroke.

STFR

Stratus Fractus.

STG

Strong.

Stilling basin

In hydrologic terms, a basin constructed to dissipate the energy of fast-flowing water (e.g., from a spillway or bottom outlet), and to protect the streambed from erosion.

STJ

Subtropical Jet - this jet stream is usually found between 20Â° and 30Â° latitude at altitudes between 12 and 14 km.

STLT

Satellite.

STM

Stratiform.

STNRY

Stationary.

Stoplogs

In hydrologic terms, large logs, timbers or steel beams placed on top of each other with their ends held in guides on each side of a channel or conduit providing a temporary closure versus a permanent bulkhead gate.

Storm

Any disturbed state of the atmosphere, especially affecting the Earth's surface, and strongly implying destructive and otherwise unpleasant weather. Storms range in scale from tornadoes and thunderstorms to tropical cyclones to synoptic-scale extratropical cyclones.

Storm Data

This National Climatic Data Center (NCDC) monthly publication documents a chronological listing, by states, of occurrences of storms and unusual weather phenomena. Reports contain information on storm paths, deaths, injuries, and property damage. An "Outstanding storms of the month" section highlights severe weather events with photographs, illustrations, and narratives. The December issue includes annual tornado, lightning, flash flood, and tropical cyclone summaries.

Storm Motion

The speed and direction at which a thunderstorm travels.

Storm Relative

Measured relative to a moving thunderstorm, usually referring to winds, wind shear, or helicity.

Storm Relative Mean Radial Velocity Map

(SRM): This WSR-88D radar product depicts a full 360Âº sweep of radial velocity data with the average motion of all identified storms subtracted out. It is available for every elevation angle sampled. It is used to aid in displaying shear and rotation in storms and storm top divergence that might otherwise be obscured by the storm's motion, investigate the 3-D velocity structure of a storm, and help with determining rotational features in fast and uniform moving storms.

Storm Relative Mean Radial Velocity Regi

(SRR): This WSR-88D radar product depicts a 27 nm by 27 nm region of storm relative mean radial velocity centered on a point which the operator can specify anywhere within a 124 nm radius of the

radar. The storm motion subtracted defaults to the motion of the storm closest to the product center, or can be input by the operator. It is used to examine the 3-dimensional storm relative flow of a specific thunderstorm (radar operator centers product on a specific thunderstorm; aid in displaying shear and rotation in thunderstorms and storm top divergence that might otherwise be obscured by storm motion; and gain higher resolution velocity product.

Storm Scale

Referring to weather systems with sizes on the order of individual thunderstorms. See synoptic scale and mesoscale.

Storm Surge

An abnormal rise in sea level accompanying a hurricane or other intense storm, whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic tide from the observed storm tide.

Storm Tide

The actual level of sea water resulting from the astronomic tide combined with the storm surge. Most NWS flood statements, watches, or warnings quantifying above-normal tides will report the Storm Tide.

Storm Total Precipitation

This radar image is an estimate of accumulated rainfall since the last time there was a one-hour, or more, break in precipitation. It is used to locate flood potential over urban or rural areas, estimate total basin runoff and provide rainfall accumulations for the duration of the event and is available only for the short range (out to 124 nm). To determine accumulated precipitation at greater distances you should link to an adjacent radar.

Storm-Total Record

Record extremes for the period of one storm. The storm period could vary from record to record.

Storm Tracking Information

This WSR-88D radar product displays the previous, current, and projected locations of storm centroids (forecast and past positions are limited to one hour or less). Forecast tracks are based upon linear extrapolation of past storm centroid positions, and they are intended for application to individual thunderstorms not lines or clusters. It is used to provide storm movement: low track variance and/or 2 or more plotted past positions signify reliable thunderstorm movement.

Storm Warning

A warning of sustained surface winds, or frequent gusts, in the range of 48 knots (55 mph) to 63 knots (73 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Storm Watch

A watch for an increased risk of a storm force wind event for sustained surface winds, or frequent gusts, of 48 knots (55 mph) to 63 knots (73 mph), but its occurrence, location, and/or timing is still uncertain.

Stormwater Discharge

In hydrologic terms, precipitation that does not infiltrate into the ground or evaporate due to impervious land surfaces but instead flows onto adjacent land or water areas and is routed into drain/sewer systems.

Straight-Line Hodograph

The name pretty well describes what it looks like on the hodograph. What causes this shape is a steady increase of winds with height (vertical wind shear). This shape of hodograph favors multi-cell thunderstorms.

Straight-line Winds

Generally, any wind that is not associated with rotation, used mainly to differentiate them from tornadic winds.

Stratiform

Having extensive horizontal development, as opposed to the more vertical development characteristic of convection. Stratiform clouds cover large areas but show relatively little vertical development. Stratiform precipitation, in general, is relatively continuous and uniform in intensity (i.e., steady rain versus rain showers).

Stratiform Rings and Bands

These occur between the active convective bands of a hurricane outside of the eye wall. Inner stratiform bands often exhibit the bright band aloft, a VIP Level 2, and in the lower layers typically

show a VIP Level 1.

Stratocumulus

Low-level clouds, existing in a relatively flat layer but having individual elements. Elements often are arranged in rows, bands, or waves. Stratocumulus often reveals the depth of the moist air at low levels, while the speed of the cloud elements can reveal the strength of the low-level jet.

Stratopause

The boundary between the stratosphere and mesosphere.

Stratosphere

The region of the atmosphere extending from the top of the troposphere to the base of the mesosphere, an important area for monitoring stratospheric ozone.

Stratospheric Ozone

In the stratosphere, ozone has beneficial properties where it forms an ozone shield that prevents dangerous radiation from reaching the Earth's surface. Recently, it was discovered that in certain parts of the world, especially over the poles, stratospheric ozone was disappearing creating an ozone hole.

Stratus

A low, generally gray cloud layer with a fairly uniform base. Stratus may appear in the form of ragged patches, but otherwise does not exhibit individual cloud elements as do cumulus and stratocumulus clouds. Fog usually is a surface-based form of stratus.

Stratus Fractus

Pieces or shreds of stratus clouds that are not capable of producing precipitation.

STRATWARM

A code word designating a major disturbance of the winter, polar, middle atmosphere from the tropopause to the ionosphere, lasting for several days at a time and characterized by a warming of the stratospheric temperature by some tens of degrees. There is no evidence that stratwarms are caused by solar events, or that they affect the lower atmosphere. The primary effect is upon HF propagation.

Stream Line

Arrows on a weather chart showing wind speed and direction. The head of the arrow points toward where the wind is blowing and the length of the arrow is proportional to the wind speed. Sometimes shows wind direction and trajectory only.

Streamflow

In hydrologic terms, water flowing in the stream channel. It is often used interchangeably with discharge.

STRFM

Stratiform

Striations

Grooves or channels in cloud formations, arranged parallel to the flow of air and therefore depicting the airflow relative to the parent cloud. Striations often reveal the presence of rotation, as in the barber pole or "corkscrew" effect often observed with the rotating updraft of a Low Precipitation (LP) storm.

Strike

For any particular location, a hurricane strike occurs if that location passes within the hurricane's strike circle, a circle of 125 n mi diameter, centered 12.5 n mi to the right of the hurricane center (looking in the direction of motion). This circle is meant to depict the typical extent of hurricane force winds, which are approximately 75 n mi to the right of the center and 50 n mi to the left.

Sub-synoptic Low

Essentially the same as mesolow.

Sublimation

The transition of a substance from the solid phase directly to the vapor phase, or vice versa, without passing through an intermediate liquid phase. Thus an ice crystal or icicle sublimes under low relative humidity at temperatures below 0Â°C. The process is analogous to evaporation of a liquid.

Sublimation of ice

The transition of water from solid to gas without passing through the liquid phase.

Subrefraction

The bending of the radar beam in the vertical which is less than under standard refractive conditions. This causes the beam to be higher than indicated, and lead to the underestimation of cloud heights.

Subsidence

1. A descending motion of air in the atmosphere occurring over a rather broad area.

2. In hydrologic terms, sinking down of part of the earth's crust due to underground excavation, such as the removal of groundwater.

Subsidence Inversion

A temperature inversion that develops aloft as a result of air gradually sinking over a wide area and being warmed by adiabatic compression, usually associated with subtropical high pressure areas.

Substation

A location where observations are taken or other services are furnished by people not located at NWS offices who do not need to be certified to take observations.

Substorm

A geomagnetic perturbation lasting 1 to 2 hours, which tends to occur during local post-midnight nighttime. The magnitude of the substorm is largest in the auroral zone, potentially reaching several thousand nanotesla. A substorm corresponds to an injection of charged particles from the magnetotail into the auroral oval.

Subsurface Storm Flow

In hydrologic terms, the lateral motion of water through the upper layers until it enters a stream channel. This usually takes longer to reach stream channels than runoff. This also called interflow.

Subtle Heavy Rainfall Signature

This heavy rain signature is often difficult to detect on satellite. These warm top thunderstorms are often embedded in a synoptic-scale cyclonic circulation. Normally, they occur when the 500 mb cyclonic circulation is quasi-stationary or moves slowly to the east or northeast (about 2 degrees per 12 hours). The average surface temperature is 68ÂºF with northeasterly winds. The average precipitable water (P) value is equal to or greater than 1.34 inches and the winds veer with height, but they are relatively light. The heavy rain often occurs north and east of the vorticity maximum across the lower portion of the comma head about 2 to 3 degrees north or northeast of the 850 mb low.

Subtropical Cyclone

A non-frontal low pressure system that has characteristics of both tropical and extratropical cyclones. This system is typically an upper-level cold low with circulation extending to the surface layer and maximum sustained winds generally occurring at a radius of about 100 miles or more from the center. In comparison to tropical cyclones, such systems have a relatively broad zone of maximum winds that is located farther from the center, and typically have a less symmetric wind field and distribution of convection.

Subtropical Depression

A subtropical cyclone in which the maximum 1-minute sustained surface wind is 33 knots (38 mph) or less.

Subtropical Jet

(STJ) - this jet stream is usually found between 20Â° and 30Â° latitude at altitudes between 12 and 14 km.

Subtropical Storm

A subtropical cyclone in which the maximum 1-minute sustained surface wind is 34 knots (39 mph) or more.

Suction Vortex

A small but very intense vortex within a tornado circulation. Several suction vortices typically are present in a multiple-vortex tornado. Much of the extreme damage associated with violent tornadoes (F4 and F5 on the Fujita scale) is attributed to suction vortices.

Sudden Commencement (SC)

In solar-terrestrial terms, an abrupt increase or decrease in the northward component of the geomagnetic field, which marks the beginning of a geomagnetic storm.

Sudden Impulse (SI+ or SI-)

In solar-terrestrial terms, a sudden perturbation of several gammas in the northward component of the low-latitude geomagnetic field, not associated with a following geomagnetic storm. (An SI becomes an SC if a storm follows.)

Sudden Ionospheric Disturbance (SID)

In solar-terrestrial terms, HF propagation anomalies due to ionospheric changes resulting from solar flares, proton events and geomagnetic storms.

SUF

Sufficient.

Summation Principle

This principle states that the sky cover at any level is equal to the summation of the sky cover of the lowest layer plus the additional sky cover provided at all successively higher layers up to and including the layer in question.

Summer

Astronomically, this is the period between the summer solstice and the autumnal equinox. Typically the warmest season of the year during which the sun is most nearly overhead. In the Northern Hemisphere, summer customarily includes the months of June, July, and August.

Summer Solstice

The time at which the sun is farthest north in the Northern Hemisphere, on or around June 21.

Sun Declination

The Declination of the sun is how many degrees North (positive) or South (negative) of the equator that the sun is when viewed from the center of the earth. The range of the declination of the sun ranges from approximately +23.5° (North) in June to -23.5° (South) in December.

Sun Dog

See Parhelion.

Sun Pillar

A bright column above or below the sun produced by the reflection of sunlight from ice crystals.

Sun Pointing

Alignment of the radar antenna by locating the position of the sun in the sky, which has an exactly known position given the radar's location and the present time. This may be necessary to verify that when we think we're pointing "north", we actually are! The sun's signal is usually several dB above the background noise, and this technique is also sometimes used to examine the receiver sensitivity.

Sun Rays

Parallel rays of sunlight that penetrate through holes in clouds as columns of sunlit air are divided by darker shaded regions. Perspective effects cause the apparent divergence, and the rays are visible due to reflection of sunlight off of the atmospheric particles. The name originates from their frequent crepuscular occurrence (at dawn and dusk), when the contrast between light and dark are greatest.

Sunny

When there are no opaque (not transparent) clouds. Same as Clear.

Sunrise

The phenomenon of the sun's daily appearance on the eastern horizon as a result of the earth's rotation. The word is often used to refer to the time at which the first part of the sun becomes visible in the morning at a given location.

Sunset

The phenomenon of the sun's daily disappearance below the western horizon as a result of the earth's rotation. The word is often used to refer to the time at which the last part of the sun disappears below the horizon in the evening at a given location.

Sunspot

In solar-terrestrial terms, an area seen as a dark spot on the photosphere of the sun. Sunspots are concentrations of magnetic flux, typically occurring in bipolar clusters or groups. They appear dark because they are cooler than the surrounding photosphere.

Sunspot Cycle

The approximately 11 year quasi-periodic variation in the sunspot number. The polarity pattern of the magnetic field reverses with each cycle. Other solar phenomena, such as the 10.7 cm solar radio emission, exhibit similar cyclical behavior.

Sunspot Group Classification

- A: A small single unipolar sunspot or very small group of spots without penumbra.
- B: Bipolar sunspot group with no penumbra.
- C: An elongated bipolar sunspot group. One sunspot must have penumbra.
- D: An elongated bipolar sunspot group with penumbra on both ends of the group.
- E: An elongated bipolar sunspot group with penumbra on both ends. Longitudinal extent of penumbra exceeds 10 deg. but not 15 deg.
- F: An elongated bipolar sunspot group with penumbra on both ends. Longitudinal extent of penumbra exceeds 15 deg.
- H: A unipolar sunspot group with penumbra.

Sunspot Number

In solar-terrestrial terms, a daily index of sunspot activity (R), defined as R = k (10 g + s) where S = number of individual spots, g = number of sunspot groups, and k is an observatory factor.

Super Typhoon

Typhoon having maximum sustained winds of 130 knots (150 mph) or greater.

Supercell

Short reference to Supercell Thunderstorm; potentially the most dangerous of the convective storm types. Storms possessing this structure have been observed to generate the vast majority of long-lived strong and violent (F2-F5) tornadoes, as well as downburst damage and large hail. It is defined as a thunderstorm consisting of one quasi-steady to rotating updraft which may exist for several hours.

Supercell Thunderstorm

Potentially the most dangerous of the convective storm types. Storms possessing this structure have been observed to generate the vast majority of long-lived strong and violent (F2-F5) tornadoes, as well as downburst damage and large hail. It is defined as a thunderstorm consisting of one quasi-steady to rotating updraft which may exist for several hours. Supercells usually move to the right of the mean wind. These are called "Right Movers" and they are favored with veering winds. Occasionally, these thunderstorms will move to the left of the mean wind. These thunderstorms are called "Left Movers". These supercells typically don't last as long as their "Right Mover" cousins and they usually only produce large hail (greater than 3/4 inch in diameter) and severe wind gusts in the excess of 58 miles an hour. Left Movers are favored when you have backing winds.

Radar will observe essentially one long-lived cell, but small perturbations to the cell structure may be evident. The stronger the updraft, the better the chance that the supercell will produce severe (hail greater than 3/4 inch in diameter, wind gusts greater than 58 miles an hour, and possibly a tornado) weather.

Severe supercell development is most likely in an environment possessing great buoyancy (CAPE) and large vertical wind shear. A Bulk Richardson Number of between 15 and 35 favor supercell development. Typically, the hodograph will look like a horse shoe. This is due to the wind speed increasing rapidly with height and the wind direction either veering or backing rapidly with height.

Supercool

To cool a liquid below its freezing point without solidification or crystallization.

Supercooled Liquid Water

In the atmosphere, liquid water can survive at temperatures colder than 0 degrees Celsius; many vigorous storms contain large amounts of supercooled liquid water at cold temperatures. Important in the formation of graupel and hail.

Superrefraction

Bending of the radar beam in the vertical which is greater than sub-standard refractive conditions. This causes the beam to be lower than indicated, and often results in extensive ground clutter as well as an overestimation of cloud top heights.

Super High Frequency (SHF)

That portion of the radio frequency spectrum from 3 to 30 GHz.

Surcharge Capacity

In hydrologic terms, the volume of a reservoir between the maximum water surface elevation for which the dam is designed and the crest of an uncontrolled spillway, or the normal full-pool elevation of the reservoir with the crest gates in the normal closed position.

Surf Zone

Area of water between the high tide level on the beach and the seaward side of the breaking waves.

Surf Zone Forecast

(SRF) - A National Weather Service routine or event driven forecast product geared toward non-boating marine users issued for an area extending from the area of water between the high tide level on the beach and the seaward side of the breaking waves.

Surface Energy Budget

The energy or heat budget at the earth's surface, considered in terms of the fluxes through a plane at the earth-atmosphere interface. The energy budget includes radiative, sensible, latent and ground heat fluxes.

Surface impoundment
In hydrologic terms, an indented area in the land's surface, such as a pit, pond, or lagoon.

Surface Runoff
In hydrologic terms, the runoff that travels overland to the stream channel. Rain that falls on the stream channel is often lumped with this quantity.

Surface Water
Water that flows in streams and rivers and in natural lakes, in wetlands, and in reservoirs constructed by humans.

Surface Weather Chart
An analyzed synoptic chart of surface weather observations. A surface chart shows the distribution of sea-level pressure (therefore, the position of highs, lows, ridges and troughs) and the location and nature of fronts and air masses. Often added to this are symbols for occurring weather phenomena. Although the pressure is referred to mean sea level, all other elements on this chart are presented as they occur at the surface point of observation.

Surface-based Convection
Convection occurring within a surface-based layer, i.e., a layer in which the lowest portion is based at or very near the earth's surface. Compare with elevated convection.

Surge
In solar-terrestrial terms, a jet of material from active regions that reaches coronal heights and then either fades or returns into the chromosphere along the trajectory of ascent.

Sustained Overdraft
In hydrologic terms, long-term withdrawal from the aquifer of more water than is being recharged.

Sustained Wind
Wind speed determined by averaging observed values over a two-minute period.

SVR
1. Severe.
2. Abbreviation for Severe Thunderstorm Warning.

SVRL
Several.

SW
1. Southwest.
2. Snow Showers.

SWF
Short wave fade.

SWD
On a buoy report, Swell Direction is the compass direction from which the swell wave are coming from.

SWE
Snow Water Equivalent (the amount of water content in a snowpack or snowfall).

SWEAT
Severe Weather ThrEAT index; a stability index developed by the Air Force which incorporates instability, wind shear, and wind speeds as follows:

SWEAT=(12 Td 850) + (20 [TT-49]) +(2 f 850) + f 500 + (125 [s+0.2]) where

- Td 850 is the dew point temperature at 850 mb,
- TT is the total-totals index,
- f 850 is the 850-mb wind speed (in knots),
- f 500 is the 500-mb wind speed (in knots), and
- s is the sine of the angle between the wind directions at 500 mb and 850 mb (thus representing the directional shear in this layer).

SWEAT values of about 250-300 or more indicate a greater potential for severe weather, but as with all stability indices, there are no magic numbers.

The SWEAT index has the advantage (and disadvantage) of using only mandatory-level data (i.e., 500

mb and 850 mb), but has fallen into relative disuse with the advent of more detailed upper air sounding analysis programs.

Swell

Wind-generated waves that have travelled out of their generating area. Swells characteristically exhibit smoother, more regular and uniform crests and a longer period than wind waves.

Swell Direction

The direction from which the swells are propagating.

SWH

On a buoy report, swell height is the vertical distance (meters) between any swell crest and the succeeding swell wave trough.

SWLY

Southwesterly.

SWODY1

The Day-1 Convective Outlook, sometimes called the "AC" is a guidance product issued by the Operational Guidance Branch (OGB) unit of the Storm Prediction Center (SPC) in Norman, Oklahoma. The Day 1 outlook outlines areas in the continental United States where severe thunderstorms may develop during the next 6 to 30 hours.

SWODY2

The Day 2 Convective Outlook is very similar to the Day 1 Outlook. It is issued only twice a day, at 08Z and 18Z, and covers the period from 12Z the following day to 12Z the day after that. For example, if today is Monday then the Day 2 Outlook will cover the period 12Z Tuesday to 12Z Wednesday. The outlook issued at 08Z now qualifies the degree of risk like the Day 1 has (i.e. SLGT, MDT, and HIGH risk areas). The Day 2 Outlook has also includes a general thunderstorm outline.

SWP

On a buoy report, Swell Period is the time (usually measured in seconds) that it takes successive swell wave crests or troughs pass a fixed point.

SWRN

Southwestern.

SWS

Severe Weather Statement.

SWWD

Southwestward.

SX

Stability Index.

SXN

Section.

Symmetric Double Eye

A concentrated ring of convection that develops outside the eye wall in symmetric, mature hurricanes. The ring then propagates inward and leads to a double-eye. Eventually, the inner eye wall dissipates while the outer intensifies and moves inward.

Synchronous Detection

Radar processing that retains the received signal amplitude and phase but that removes the intermediate frequency carrier.

Synodic

Referring to a coordinate system fixed on the Earth.

SYNOP

Synoptic - relating to the general weather pattern over a wide region, such as areas of high and low pressure or frontal boundaries, as opposed to mesoscale or smaller features such as a thunderstorm.

Synopsis

A broad discussion of the weather pattern expected across any given area, generally confined to the 0-48 hour time frame.

Synoptic Chart

A map of the whole Sun in absolute heliographic coordinates, displaying an integrated view of solar features observed during a Carrington rotation.

Synoptic Code
Rules and procedures established by the World Meteorological Organization (WMO) for encoding weather observations.

Synoptic Scale
The spatial scale of the migratory high and low pressure systems of the lower troposphere, with wavelengths of 1000 to 2500 km.

Synoptic Track
Weather reconnaissance mission flown to provide vital meteorological information in data sparse ocean areas as a supplement to existing surface, radar, and satellite data. Synoptic flights better define the upper atmosphere and aid in the prediction of tropical cyclone development and movement.

Synoptic Weather
Weather occurring over a wide region on time scales exceeding 12 hours.

SYNS
Synopsis.

SYS
System.

Syzygy
In solar-terrestrial terms, the instance (new moon or full moon) when the earth, sun, and moon are all in a straight line.

T
Thunderstorm.

T -Number
A system used to subjectively estimate tropical cyclone intensity based solely on visible and infrared satellite images. Also called the Dvorak technique.

T Rolls
Transverse Rolls - elongated low-level clouds, arranged in parallel bands and aligned parallel to the low-level winds but perpendicular to the mid-level flow. Transverse rolls are one type of transverse band, and often indicate an environment favorable for the subsequent development of supercells. Since they are aligned parallel to the low-level inflow, they may point toward the region most likely for later storm development.

TAF
Terminal Aerodrome Forecast.

TAFB
Tropical Analysis and Forecast Branch (of the TPC).

Tail Cloud
A horizontal, tail-shaped cloud (not a funnel cloud) at low levels extending from the precipitation cascade region of a supercell toward the wall cloud (i.e., it usually is observed extending from the wall cloud toward the north or northeast). The base of the tail cloud is about the same as that of the wall cloud. Cloud motion in the tail cloud is away from the precipitation and toward the wall cloud, with rapid upward motion often observed near the junction of the tail and wall clouds. Compare with beaver tail, which is a form of inflow band that normally attaches to the storm's main updraft (not to the wall cloud) and has a base at about the same level as the updraft base (not the wall cloud).

Tail-End Charlie
Slang for the thunderstorm at the southernmost end of a squall line or other line or band of thunderstorms. Since low-level southerly inflow of warm, moist air into this storm is relatively unimpeded, such a storm often has a higher probability of strengthening to severe levels than the other storms in the line.

Tailwater Height
In hydrologic terms, height of water immediately downstream of the dam.

Target
Precipitation or other phenomena which produces echoes on a radar display.

TCON
Average of GHMI, EGRI, NGPI, HWFI, and GFSI HWFI: Previous cycle HWRF, adjusted HWRF: NWS/Hurricane Weather Research and Forecasting Model.

TCU
Towering Cumulus Clouds.

TD
Tropical Depression.

TDA
Today.

TDWR
Terminal Doppler Weather Radar.

TEC
Total electron content.

TED Total (particle) Energy Deposition
The NOAA instrument used to estimate the hemispherical power input. (See estimated hemispherical power input.)

Teleconnection
Linkage between changes in atmospheric circulation occurring in widely separated parts of the globe.

TEMP
Temperature.

Temperature
(TEMP) The measure of molecular motion of the internal energy that a substance contains. This is the most measured quantity in the atmosphere.

Temperature Inversion
(surface-based or elevated) : a layer of the atmosphere in which air temperature increases with height. When the layer's base is at the surface, the layer is called a surface-based temperature inversion; when the base of the layer is above the surface, the layer is called an elevated temperature inversion.

Temperature Recovery
The change in temperature over a given period of time. Generally, the period between late evening and sunrise. Windy or cloudy conditions will tend to produce slow temperature recovery, while clear, calm weather can cause rapid recovery.

TEMPS
Temperatures.

Tenflare
A solar flare accompanied by a 10cm radio burst of intensity greater than 100% of the pre-burst value.

Terminal Aerodrome Forecast
This NWS aviation product is a concise statement of the expected meteorological conditions at an airport during a specified period (usually 24 hours). Each country is allowed to make modifications or exceptions to the code for use in each particular country. TAFs use the same weather code found in METAR weather reports.

Terrain Forced Flow
An airflow that is modified or channeled as it passes over or around mountains or through gaps in a mountain barrier.

Texas Hooker
Same as Panhandle Hook - low pressure systems that originate in the panhandle region of Texas and Oklahoma which initially move east and then "hook" or recurve more northeast toward the upper Midwest or Great Lakes region. In winter, these systems usually deposit heavy snows north of their surface track. Thunderstorms may be found south of the track.

Thalweg
In hydrologic terms, the line of maximum depth in a stream. The thalweg is the part that has the maximum velocity and causes cutbanks and channel migration.

Thaw
A warm spell of weather when ice and snow melt. To free something from the binding action of ice by warming it to a temperature above the melting point of ice.

Theodolite
An instrument used in surveying to measure horizontal and vertical angles with a small telescope that can move in the horizontal and vertical planes. It used to track the movements of either a ceiling balloon or a radiosonde.

Thermal

A relatively small-scale, rising air current produced when the Earth's surface is heated. Thermals are a common source of low level turbulence for aircraft.

Thermal Belt

A zone of high nighttime temperatures (and relatively low humidity's) that is often experienced within a narrow altitude range on valley sidewalls, especially evident during clear weather with light winds.

Thermal High

Area of high pressure that is shallow in vertical extent and produced primarily by cold surface temperatures.

Thermal Low

Area of low pressure that is shallow in vertical extent and produced primarily by warm surface temperatures.

Thermal Wind

It is a theoretical wind that blows parallel to the thickness lines, for the layer considered, analogous to how the geostrophic wind blows parallel to the height contours. The closer the thickness isopleths, the stronger the thermal wind. Cold air is always located to the left of the thermal wind (as you face downstream) and the warm air is located on the right. Since thickness contours are tighter on the cold side of thermal wind, your lower thickness values will be found on the left side of the thermal wind. The speed and direction of the thermal wind are determined by vector geometry where the geostrophic wind at the upper level is subtracted from the geostrophic wind at the lower level.

Thermally Driven Circulation

A diurnally reversing closed cellular wind current resulting from horizontal temperature contrasts caused by different rates of heating or cooling over adjacent surfaces; includes along-slope, cross-valley, along-valley, mountain-plain and sea breeze circulations.

Thermistor

A resistor whose resistance changes with temperature. Because of the known dependence of resistance on temperature, the resistor can be used as a temperature sensor.

Thermocline

As one descends from the surface of the ocean, the temperature remains nearly the same as it was at the surface, but at a certain depth temperature starts decreasing rapidly with depth. This boundary is called the thermocline. In studying the tropical Pacific Ocean, the depth of 20ÂºC water ("the 20ÂºC isotherm") is often used as a proxy for the depth of the thermocline. Along the equator, the 20ÂºC isotherm is typically located at about 50 m depth in the eastern Pacific, sloping downwards to about 150 m in the western Pacific.

Thermodynamic Chart

A chart containing contours of pressure, temperature, moisture, and potential temperature, all drawn relative to each other such that basic thermodynamic laws are satisfied. Such a chart typically is used to plot atmospheric soundings, and to estimate potential changes in temperature, moisture, etc. if air were displaced vertically from a given level. A thermodynamic chart thus is a useful tool in diagnosing atmospheric instability.

Thermodynamic Diagram

Used interchangeably with **Thermodynamic Chart**; a chart containing contours of pressure, temperature, moisture, and potential temperature, all drawn relative to each other such that basic thermodynamic laws are satisfied. Such a chart typically is used to plot atmospheric soundings, and to estimate potential changes in temperature, moisture, etc. if air were displaced vertically from a given level. A thermodynamic chart thus is a useful tool in diagnosing atmospheric instability.

Thermodynamics

In general, the relationships between heat and other properties (such as temperature, pressure, density, etc.) In forecast discussions, thermodynamics usually refers to the distribution of temperature and moisture (both vertical and horizontal) as related to the diagnosis of atmospheric instability.

Thermograph

An instrument that measures and records air temperature.

Thermometer

An instrument for measuring air temperature. The different scales used in meteorology are Celsius, Fahrenheit, and Kelvin or Absolute.

Thermosphere

The atmospheric shell extending from the top of the mesosphere to outer space. It is a region of more or less steadily increasing temperature with height, starting at 70 or 80 km.

Theta-e

(or Equivalent Potential Temperature) - The temperature a parcel of air would have if
a) it was lifted until it became saturated,
b) all water vapor was condensed out, and
c) it was returned adiabatically (i.e., without transfer of heat or mass) to a pressure of 1000 millibars.
Theta-e, which typically is expressed in degrees Kelvin, is directly related to the amount of heat present in an air parcel. Thus, it is useful in diagnosing atmospheric instability.

Theta-e Ridge

An axis of relatively high values of theta-e. Severe weather and excessive rainfall often occur near or just upstream from a theta-e ridge.

THETAE

Abbreviation for **Theta-e**; the temperature a parcel of air would have if
a) it was lifted until it became saturated,
b) all water vapor was condensed out, and
c) it was returned adiabatically (i.e., without transfer of heat or mass) to a pressure of 1000 millibars.
Theta-e, which typically is expressed in degrees Kelvin, is directly related to the amount of heat present in an air parcel. Thus, it is useful in diagnosing atmospheric instability.

Thin Line Echo

A narrow, elongated, non-precipitating echo. It is usually associated with thunderstorm outflows, fronts, or other density discontinuities. It is also known as a Fine Line.

THK

Thick/Thickness.

THN

Thin.

Three-Hour Rainfall Rate

This WSR-88D Radar product displays precipitation total (in inches) of the current and past two clock hours as a graphical image. It displays hourly precipitation total (in inches) as a graphical image (polar format with resolution 1.1 nm by 1 degree). It is updated once an hour. It is used to:
1) Assess rainfall intensities and amounts over a longer viewing interval; and
2) Possibly adjust flash flood guidance values since the product corresponds to the timing of Flash Flood Guidance values.

Threshold Runoff

In hydrologic terms, the runoff in inches from a rain of specified duration that causes a small stream to slightly exceed bankfull. When available, flood stage is used instead of slightly over bankfull.

THRFTR

Thereafter.

THRU

Through.

THRUT

Throughout.

THSD

Thousand.

Thunder

The sound caused by rapidly expanding gases in a lightning discharge.

Thunderstorm

A local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder.

Tidal Cycle

The periodic changes in the intensity of tides caused primarily by the varying relations between the earth, moon, and sun.

Tidal Piling

Occurs when unusually high water levels occur as the result of an accumulation of successive incoming tides that do not completely drain due to opposing strong winds and/or waves.

Tidal Wave

See TSUNAMI.

TIDE

The periodic rising and falling of the earth's oceans and atmosphere. It is the result of the tide-producing forces of the moon and the sun acting on the rotating earth. This propagates a wave through the atmosphere and along the surface of the earth's waters. On a buoy report, the water level in feet above or below Mean Lower Low Water (MLLW).

Tide Anomaly

Actual water level minus the prediction.

Tide Prediction

The computation of tidal highs and lows at a given location resulting from the gravitational interactions between the earth and primarily the moon and sun.

Tides

The periodic (occurring at regular intervals) variations in the surface water level of the oceans, bays, gulfs, and inlets. Tides are the result of the gravitational attraction of the sun and the moon on the earth. The attraction of the moon is far greater than the attraction of the sun due to the close proximity of the earth and the moon. The sun is 360 times further from the earth than the moon. Therefore, the moon plays a larger role than the sun in producing tides. Every 27.3 days, the earth and the moon revolve around a common point. This means that the oceans and other water bodies which are affected by the earth-moon system experience a new tidal cycle every 27.3 days. Because of the physical processes which occur to produce the tidal system, there are two high tides and two low tides each day. Because of the angle of the moon with respect to the earth, the two high tides each day do not have to be of equal height. The same holds true for the two low tides each day. Tides also differ in height on a daily basis. The daily differences between tidal heights is due to the changing distance between the earth and the moon. Scientists use measurements of the height of the water level to examine tides and the various phenomena which influence tides, such as hurricanes and winter storms.

TIL

Until.

Tilt

It describes a storm in which a line connecting the centroid of a mid level storm component to the centroid of the lowest storm component is to the right or the rear of the direction of motion

Tilt Sequence

Radar term indicating that the radar antenna is scanning through a series of antenna elevations in order to obtain a volume scan.

Tilted Storm

A thunderstorm or cloud tower which is not purely vertical but instead exhibits a slanted or tilted character. It is a sign of vertical wind shear, a favorable condition for severe storm development.

Tilted Updraft

A thunderstorm updraft which is not purely vertical but instead exhibits a slanted or tilted character. It is a sign of vertical wind shear, a favorable condition for severe storm development.

Tipping-Bucket Rain Gage

A precipitation gage where collected water is funneled into a two compartment bucket; 0.01, 0.1 mm, or some other designed quantity of rain will fill one compartment and overbalance the bucket so that it tips, emptying into a reservoir and moving the second compartment into place beneath the funnel. As the bucket is tipped, it actuates an electric circuit.

TKE

Turbulent Kinetic Energy.

TMW

Tomorrow.

TNDCY

Tendency.

TNGT

Tonight.

Toe of Dam

(Upstream and Downstream): The junction of the face of a dam with the ground surface.

TOP

Cloud Top.

Topography

The shape of the land.

TOR

Tornado (or) Tornado Warning.

Tornado

A violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena.

Tornado Emergency

An exceedingly rare tornado warning issued when there is a severe threat to human life and catastrophic damage from an imminent or ongoing tornado. This tornado warning is reserved for situations when a reliable source confirms a tornado, or there is clear radar evidence of the existence of a damaging tornado, such as the observation of debris.

Tornado Family

A series of tornadoes produced by a single supercell, resulting in damage path segments along the same general line.

Tornado Vortex Signature

An image of a tornado on the Doppler radar screen that shows up as a small region of rapidly changing wind speeds inside a mesocyclone. The following velocity criteria is normally required for recognition: velocity difference between maximum inbound and outbound (shear) is greater than or equal to 90 knots at less than 30 nmi and is greater than or equal to 70 knots between 30 and 55 nmi. It shows up as a red upside down triangle on the Storm Relative Velocity Display. Existence of a TVS strongly increases the probability of tornado occurrence, but does not guarantee it; therefore, the feature triggering it must be examined closely by the radar operator. A TVS is not a visually observable feature.

Tornado Warning

This is issued when a tornado is indicated by the WSR-88D radar or sighted by spotters; therefore, people in the affected area should seek safe shelter immediately. They can be issued without a Tornado Watch being already in effect. They are usually issued for a duration of around 30 minutes.

A Tornado Warning is issued by your local National Weather Service office (NWFO). It will include where the tornado was located and what towns will be in its path. If the tornado will affect the nearshore or coastal waters, it will be issued as the combined product--Tornado Warning and Special Marine Warning. If the thunderstorm which is causing the tornado is also producing torrential rains, this warning may also be combined with a Flash Flood Warning. If there is an ampersand (&) symbol at the bottom of the warning, it indicates that the warning was issued as a result of a severe weather report.

After it has been issued, the affected NWFO will followed it up periodically with Severe Weather Statements. These statements will contain updated information on the tornado and they will also let the public know when warning is no longer in effect.

Tornado Watch

This is issued by the National Weather Service when conditions are favorable for the development of tornadoes in and close to the watch area. Their size can vary depending on the weather situation. They are usually issued for a duration of 4 to 8 hours. They normally are issued well in advance of the actual occurrence of severe weather. During the watch, people should review tornado safety rules and be prepared to move a place of safety if threatening weather approaches.

A Tornado Watch is issued by the Storm Prediction Center (SPC) in Norman, Oklahoma. Prior to the issuance of a Tornado Watch, SPC will usually contact the affected local National Weather Forecast Office (NWFO) and they will discuss what their current thinking is on the weather situation. Afterwards, SPC will issue a preliminary Tornado Watch and then the affected NWFO will then adjust the watch (adding or eliminating counties/parishes) and then issue it to the public. After adjusting the watch, the NWFO will let the public know which counties are included by way of a Watch Redefining Statement. During the watch, the NWFO will keep the public informed on what is happening in the watch area and also let the public know when the watch has expired or been cancelled.

Total Electron Content (TEC)

The number of electrons along a ray path between a transmitter and a receiver. Units are electrons per square meter. This number is significant in determining ionospheric effects such as refraction, dispersion, and group delay on radio waves, and can be used to estimate critical frequencies. The TEC is strongly affected by solar and geomagnetic activity.

Total-Totals Index

A stability index and severe weather forecast tool, equal to the temperature at 850 mb plus the dew point at 850 mb, minus twice the temperature at 500 mb. The total-totals index is the arithmetic sum of two other indices: the Vertical Totals Index (temperature at 850 mb minus temperature at 500 mb) and the Cross Totals Index (dew point at 850 mb minus temperature at 500 mb). As with all stability indices there are no magic threshold values, but in general, values of less than 50 or greater than 55 are considered weak and strong indicators, respectively, of potential severe storm development.

Towering Cumulus

A large cumulus cloud with great vertical development, usually with a cauliflower-like appearance, but lacking the characteristic anvil of a Cb. (Often shortened to "towering cu," and abbreviated TCU.)

TPC

(Tropical Prediction Center) - An NCEP center which produces marine offshore and high seas forecasts south of 30N in the Eastern Pacific, Gulf of Mexico and Caribbean.

TPW

Total Precipitable Water.

Trace

In hydrologic terms, a hydrograph or similar plot for an extended-range time horizon showing one of many scenarios generated through an ensemble forecast process.

Track

The path that a storm or weather system follows.

Trade Winds

Persistent tropical winds that blow from the subtropical high pressure centers towards the equatorial low.

Training

Repeated areas of rain, typically associated with thunderstorms, that move over the same region in a relatively short period of time and are capable of producing excessive rainfall totals. Train(ing) echoes can frequently be a source of flash flooding.

Transition Region

That region of the solar atmosphere lying between the chromosphere and the corona where the temperature rises from 10 E04 K to 10 E06 K. The transition region is only a few thousand kilometers thick.

Transmitter

The radar equipment used for generating and amplifying a radio frequency (RF) carrier signal, modulating the carrier signal with intelligence, and feeding the modulated carrier to an antenna for radiation into space as electromagnetic waves. Weather radar transmitters are usually magnetrons or klystrons.

Transpiration

Water discharged into the atmosphere from plant surfaces.

Transport Wind

The average wind over a specified period of time within a mixed layer near the surface of the earth.

Transverse

Component of magnetic field vector perpendicular to the direction of view and parallel to the solar surface at disk center

Transverse Bands

Bands of clouds oriented perpendicular to the flow in which they are embedded. They often are seen best on satellite photographs. When observed at high levels (i.e., in cirrus formations), they may indicate severe or extreme turbulence. Transverse bands observed at low levels (called transverse rolls or T rolls) often indicate the presence of a temperature inversion (or cap) as well as directional shear in the low- to mid-level winds. These conditions often favor the development of strong to severe thunderstorms.

Transverse Rolls

Elongated low-level clouds, arranged in parallel bands and aligned parallel to the low-level winds but perpendicular to the mid-level flow. Transverse rolls are one type of transverse band, and often indicate an environment favorable for the subsequent development of supercells. Since they are aligned parallel to the low-level inflow, they may point toward the region most likely for later storm development.

Trapper

A valley or basin in which cold air becomes trapped or pooled.

Travel Time

In hydrologic terms, the time required for a flood wave to travel from one location to a subsequent location downstream.

Triple Doppler

Since any wind has three components (say, in the x, y and z directions), and a single radar measures in only one direction (radial), a single radar cannot give the 3D winds everywhere it samples. However, if three different radars view a storm from three different locations, the 3 measured radial velocities can be transformed into the actual 3D wind field.

Triple Point

The intersection point between two boundaries (dry line, outflow boundary, cold front, etc.), often a focus for thunderstorm development. Triple point also may refer to a point on the gust front of a supercell, where the warm moist inflow, the rain-cooled outflow from the forward flank downdraft, and the rear flank downdraft all intersect; this point is a favored location for tornado development (or redevelopment).

TROF

Trough.

TROP

Tropopause.

Tropical Advisory

Official information issued by tropical cyclone warning centers describing all tropical cyclone watches and warnings in effect along with details concerning tropical cyclone locations, intensity and movement, and precautions that should be taken. Advisories are also issued to describe: (a) tropical cyclones prior to issuance of watches and warnings and (b) subtropical cyclones.

Tropical Analysis and Forecast Branch

One of three branches of the Tropical Prediction Center (TPC). It provides year-round products involving marine forecasting, aviation forecasts and warnings (SIGMETs), and surface analyses. The unit also provides satellite interpretation and satellite rainfall estimates for the international community. In addition, TAFB provides support to NHC through manpower and tropical cyclone intensity estimates from the Dvorak technique.

Tropical Cyclone

A warm-core, non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters with organized deep convection and a closed surface wind circulation about a well-defined center.

Tropical Cyclone Plan of the Day

A coordinated mission plan that tasks operational weather reconnaissance requirements during the next 1100 to 1100 UTC day or as required, describes reconnaissance flights committed to satisfy both operational and research requirements, and identifies possible reconnaissance requirements for the succeeding 24-hour period.

Tropical Cyclone Position Estimate

The National Hurricane Center issues a position estimate between scheduled advisories whenever the storm center is within 200 nautical miles of U.S. land-based weather radar and if sufficient and regular radar reports are available to the hurricane center. As far as is possible, the position estimate is issued hourly near the beginning of the hour. The location of the eye or storm center is given in map coordinates and distance and direction from a well-known point.

Tropical Cyclone Update

This brief statement is issued by the National Hurricane Center in lieu of or preceding special advisories to inform of significant changes in a tropical cyclone or the posting or cancellation of watches and warnings.

Tropical Depression

A tropical cyclone in which the maximum 1-minute sustained surface wind is 33 knots (38 mph) or less.

Tropical Disturbance

A discrete tropical weather system of apparently organized convection--generally 100 to 300 mi in diameter--originating in the tropics or subtropics, having a nonfrontal migratory character and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

Tropical Storm

A tropical cyclone in which the maximum 1-minute sustained surface wind ranges from 34 to 63 knots (39 to 73 mph) inclusive.

Tropical Storm Statement

A tropical storm statement, or tropical storm local statement, provides more detailed information about how the storm will impact your area.

Tropical Storm Summary

Written by the Hydrometeorological Prediction Center* (HPC) after subtropical and names tropical cyclones have moved inland and advisories have been discontinued. These advisories will be terminated when the threat of flash flooding has ended or when the remnants of these storms can no longer be distinguished from other synoptic features capable of producing flash floods. Storm summaries will not be issued for storms that enter the coast of Mexico and do not pose an immediate flash flood threat to the coterminous United States. They will be initiated when and if flash flood watches are posted in the United States because of an approaching system. Storm summaries will continue to be numbered in sequence with tropical cyclone advisories and will reference the former storm's name in the text. Summaries will be issued at 0100, 0700, 1300, and 1900 Eastern Daylight Time (EDT). The only exception will be the first one in the series may be issued at a nonscheduled time.

Tropical Storm Warning

An announcement that tropical storm conditions (sustained winds of 39 to 73 mph) are expected somewhere within the specified coastal area within 36 hours.

Tropical Storm Watch

An announcement that tropical storm conditions (sustained winds of 39 to 73 mph) are possible within the specified coastal area within 48 hours.

Tropical Wave

(formerly known as inverted trough) - A trough or cyclonic curvature maximum in the trade wind easterlies. The wave may reach maximum amplitude in the lower middle troposphere or may be the reflection of an upper tropospheric cold low or an equatorward extension of a mid-latitude trough.

Tropical Weather Discussion

These messages are issued 4 times daily by the Tropical Analysis and Forecast Branch (TAFB) to describe significant synoptic weather features in the tropics. One message will cover the Gulf of Mexico, the Caribbean, and the Atlantic between the equator and 32 degrees North and east of 140 degrees West. Plain language is used in these discussions.

Tropical Weather Outlook

This outlook normally covers the tropical and subtropical waters, discussing the weather conditions, emphasizing any disturbed and suspicious areas which may become favorable for tropical cyclone development within the next day to two. In the Atlantic, the outlook is transmitted daily at 0530, 1130, 1730, and 2230 Eastern local time. In the eastern Pacific, it is transmitted daily at 0100, 0700, 1300, and 1900 Eastern local time. For the Central Pacific, transmission times are 1000 and 2200 UTC. Existing tropical and subtropical cyclones are mentioned, as are depressions not threatening land. Given for each system are its location, size, intensity, and movement. For the first 24 hours of a depression or tropical cyclone, the outlook includes a statement identifying the AFOS and World Meteorological Organization (WMO) headers for the advisory on it.

Tropical Weather Summary

The National Hurricane Center issues a monthly summary of tropical weather is included at the end of the month or as soon as feasible thereafter, to describe briefly the past activity or lack thereof and the reasons why.

Tropics

Areas of the Earth within 20Â° North and South of the equator.

Tropopause

The upper boundary of the troposphere, usually characterized by an abrupt change in lapse rate from

positive (decreasing temperature with height) to neutral or negative (temperature constant or increasing with height).

Tropopause Jet

Type of jet stream found near the tropopause. Examples of this type of jet are the subtropical and polar fronts.

Troposphere

The layer of the atmosphere from the earth's surface up to the tropopause, characterized by decreasing temperature with height (except, perhaps, in thin layers - see inversion, cap), vertical wind motion, appreciable water vapor content, and sensible weather (clouds, rain, etc.).

Trough

An elongated area of relatively low atmospheric pressure, usually not associated with a closed circulation, and thus used to distinguish from a closed low. The opposite of ridge.

TROWAL

TROugh of Warm Air ALoft. Typically used during winter weather, it is a "tongue" of relatively warm/moist air aloft that wraps around to the north and west of a mature cyclone. It is best analyzed between 750-550 milibars using equivalent potential temperature (theta-e). Areas of intense lift and frontogenesis are commonly associated with TROWALs, hence they are favored regions for heavy and/or prolonged precipitation. During a winter storm, the heaviest snowfall amounts frequently occur along and north of the TROWAL axis.

TRPCL

Tropical.

TRRN

Terrain.

True Wind

Wind relative to a fixed point on the earth. Wind relative to a moving point is called APPARENT or RELATIVE WIND.

TS

Tropical Storm.

TSRA

Thunderstorms with rain.

TSTM

Thunderstorm.

Tsunami

An ocean wave with a long period that is formed by an underwater earthquake or landslide, or volcanic eruption. It may travel unnoticed across the ocean for thousands of miles from its point of origin and builds up to great heights over shallower water. Also known as a seismic sea wave, and incorrectly, as a tidal wave

Tsunami Advisory

For products of the Pacific Tsunami Warning Center (PTWC - Pacific (except Alaska, British Columbia and Western States) Hawaii, Caribbean (except Puerto Rico, Virgin Is.), Indian Ocean): The third highest level of tsunami alert. Advisories are issued to coastal populations within areas not currently in either warning or watch status when a tsunami warning has been issued for another region of the same ocean. An Advisory indicates that an area is either outside the current warning and watch regions or that the tsunami poses no danger to that area. The Center will continue to monitor the event, issuing updates at least hourly. As conditions warrant, the Advisory will either be continued, upgraded to a watch or warning, or ended. For products of the West Coast/Alaska Tsunami Warning Center (WC/ATWC - Alaska, British Columbia and Western States, Canada, Eastern and Gulf States, Puerto Rico, U.S Virgin Islands): A tsunami advisory is issued due to the threat of a potential tsunami which may produce strong currents or waves dangerous to those in or near the water. Coastal regions historically prone to damage due to strong currents induced by tsunamis are at the greatest risk. The threat may continue for several hours after the arrival of the initial wave, but significant widespread inundation is not expected for areas under an advisory. Appropriate actions to be taken by local officials may include closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to safely do so. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory.

Tsunami Information Statement

A tsunami information statement is issued to inform emergency management officials and the public that an earthquake has occurred, or that a tsunami warning, watch or advisory has been issued for another section of the ocean. In most cases, information statements are issued to indicate there is no threat of a destructive tsunami and to prevent unnecessary evacuations as the earthquake may have been felt in coastal areas. An information statement may, in appropriate situations, caution about the possibility of destructive local tsunamis. Information statements may be re-issued with additional information, though normally these messages are not updated. However, a watch, advisory or warning may be issued for the area, if necessary, after analysis and/or updated information becomes available.

Tsunami Warning

For products of the Pacific Tsunami Warning Center (PTWC - Pacific (except Alaska, British Columbia and Western States) Hawaii, Caribbean (except Puerto Rico, Virgin Is.), Indian Ocean): The highest level of tsunami alert. Warnings are issued due to the imminent threat of a tsunami from a large undersea earthquake or following confirmation that a potentially destructive tsunami is underway. They may initially be based only on seismic information as a means of providing the earliest possible alert. Warnings advise that appropriate actions be taken in response to the tsunami threat. Such actions could include the evacuation of low-lying coastal areas and the movement of boats and ships out of harbors to deep water. Warnings are updated at least hourly or as conditions warrant to continue, expand, restrict, or end the warning. For products of the West Coast/Alaska Tsunami Warning Center (WC/ATWC - Alaska, British Columbia and Western States, Canada, Eastern and Gulf States, Puerto Rico, U.S Virgin Islands): A tsunami warning is issued when a potential tsunami with significant widespread inundation is imminent or expected. Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Warnings also alert emergency management officials to take action for the entire tsunami hazard zone. Appropriate actions to be taken by local officials may include the evacuation of low-lying coastal areas, and the repositioning of ships to deep waters when there is time to safely do so. Warnings may be updated, adjusted geographically, downgraded, or canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information.

Tsunami Watch

For products of the Pacific Tsunami Warning Center (PTWC - Pacific (except Alaska, British Columbia and Western States) Hawaii, Caribbean (except Puerto Rico, Virgin Is.), Indian Ocean): The second highest level of tsunami alert. Watches are issued based on seismic information without confirmation that a destructive tsunami is underway. It is issued as a means of providing an advance alert to areas that could be impacted by destructive tsunami waves. Watches are updated at least hourly to continue them, expand their coverage, upgrade them to a Warning, or end the alert. A Watch for a particular area may be included in the text of the message that disseminates a Warning for another area. For products of the West Coast/Alaska Tsunami Warning Center (WC/ATWC - Alaska, British Columbia and Western States, Canada, Eastern and Gulf States, Puerto Rico, U.S Virgin Islands): A tsunami watch is issued to alert emergency management officials and the public of an event which may later impact the watch area. The watch area may be upgraded to a warning or advisory - or canceled - based on updated information and analysis. Therefore, emergency management officials and the public should prepare to take action. Watches are normally issued based on seismic information without confirmation that a destructive tsunami is underway.

Tule Fog

Radiation fog in the Central Valley of California. It forms during night and morning hours in late fall and winter months following the first significant rainfall. A leading cause of weather related casualties in California.

Turbidity

The thickness or opaqueness of water caused by the suspension of matter. The turbidity of rivers and lakes increases after a rainfall.

Turbulence

Irregular motion of the atmosphere, as indicated by gusts and lulls in the wind.

Turkey Tower

Slang for a narrow, individual cloud tower that develops and falls apart rapidly. The sudden development of turkey towers from small cumulus clouds may signify the breaking of a cap.

Turning Point

In hydrologic terms, a temporary point whose elevation is determined by additions and subtractions of back-sights and foresights respectively.

TUTT Low

Tropical Upper-Tropospheric Trough or TUTT Low - A semi-permanent trough extending east-northeast to west-southwest from about 35N in the eastern Pacific to about 15 to 20N in the central west Pacific. A similar structure exists over the Atlantic Ocean, where the mean trough typically extends from Cuba toward Spain.

TVCN

Average of at least 2 of GHMI, EGRI, NGPI, HWFI, GFSI, GFNI, EMXI GFNI: Previous cycle GFDN, adjusted GFDN: Navy version of GFDL EMXI: Previous cycle EMX, adjusted EMX: European Center for Medium-range Weather Forecasting Model ECMWF: European Centre for Medium-Range Weather Forecasts

TVL

Travel

TVS

Tornado Vortex Signature- Doppler radar signature in the radial velocity field indicating intense, concentrated rotation - more so than a mesocyclone. Like the mesocyclone, specific criteria involving strength, vertical depth, and time continuity must be met in order for a signature to become a TVS. Existence of a TVS strongly increases the probability of tornado occurrence, but does not guarantee it. A TVS is not a visually observable feature.

TWD

Toward

TWEB

Transcribed Weather Broadcasts - This NWS aviation product is similar to the Area Forecast (AF) except information is contained in a route format. Forecast sky cover (height and amount of cloud bases), cloud tops, visibility (including vertical visibility), weather, and obstructions to vision are described for a corridor 25 miles either side of the route. Cloud bases and tops are always Mean Sea Level (MSL) unless noted. Ceilings are always above ground level.

Twilight

The average time of civil twilight, which is the time between civil dawn and sunrise in the morning, and between sunset and civil dusk in the evening.

Twister

In the United States, a colloquial term for a tornado.

Two-Ribbon Flare

In solar-terrestrial terms, a flare that has developed as a pair of bright strands (ribbons) on both sides of the main inversion ("neutral") line of the magnetic field of the active region.

Type I, II, III, IV

(In solar-terrestrial terms) -Emissions of the sun in radio wavelengths from centimeters to dekameters, under both quiet and disturbed conditions. Type I. A noise storm composed of many short, narrow-band bursts in the metric range (300 - 50 MHz). Type II. Narrow-band emission that begins in the meter range (300 MHz) and sweeps slowly (tens of minutes) toward dekameter wavelengths (10 MHz). Type II emissions occur in loose association with major FLAREs and are indicative of a shock wave moving through the solar atmosphere. Type III. Narrow-band bursts that sweep rapidly (seconds) from decimeter to dekameter wavelengths (500 - 0.5 MHz). They often occur in groups and are an occasional feature of complex solar ACTIVE REGIONs. Type IV. A smooth continuum of broad-band bursts primarily in the meter range (300 - 30 MHz). These bursts are associated with some major flare events beginning 10 to 20 minutes after the flare maximum, and can last for hours

Typhoon

The name for a tropical cyclone with sustained winds of 74 miles per hour (65 knots) or greater in the western North Pacific Ocean. This same tropical cyclone is known as a hurricane in the eastern North Pacific and North Atlantic Ocean, and as a cyclone in the Indian Ocean. A tropical cyclone in the Western Pacific Ocean in which the maximum 1-minute sustained surface wind is 64 knots (74 mph) or greater.

Typhoon Season

The part of the year having a relatively high incidence of tropical cyclones. In the western North Pacific,

the typhoon season is from July 1 to December 15. Tropical cyclones can occur year-round in any basin.

U

U Burst

In solar-terrestrial terms, a fast radio burst spectrum of a flare. It has a U-shaped appearance in an intensity-vs.-frequency plot.

U.S. Geological Survey

(Abbrev. USGS)- The Federal Agency chartered in 1879 by congress to classify public lands, and to examine the geologic structure, mineral resources, and products of the national domain. As part of its mission, the USGS provides information and data on the Nations rivers and streams that are useful for mitigation of hazards associated with floods and droughts.

UCP

(Unit Control Position): The WSR-88D radar operator uses this to control the entire radar system. One of the main things that the radar operator will do at the UCP is change volume scan strategies of the antenna. These volume scan strategies tell the radar how many elevation angles will be used during a single volume scan (a volume scan is the completion of a sequence of elevation angles), and the amount of time it will take to complete that sequence of elevation cuts, each one being a single rotation of the antenna's 1 degree beam at selected elevation angles. The WSR-88D uses 3 scan strategies. They are the following: 14 elevation angles in 5 minutes (this is used during severe weather situations), 9 elevation angles in 6 minutes (this is used when there is precipitation within 248 nautical miles of the radar), and 5 elevation angles in 10 minutes (this is used when there is no precipitation within 248 nautical miles). The radar operator at the UCP can also adjust the radar products and help the users out with their communication problems.

UGC

(Universal Geographic Code) - (e.g. ANZ300 for Western Long Island Sound) are used in many National Weather Service text products to provide geographical information. This allows users easy automated processing and redistribution of the information. More specifically, the purpose of the UGC are to specify the affected geographic area of the event, typically by state, county (or parish), or unique NWS zone (land and marine). The only exception to the above is to define the weather synopsis part of certain marine products.

UHF

Ultrahigh frequency.

UKMET

A medium-range (3 to 7 day) numerical weather prediction model operated by the United Kingdom METeorological Agency. It has a resolution of 75 kilometers and covers the entire northern hemisphere. Forecasters use this model along with the ECMWF and GFS in making their extended forecasts (3 to 7 days).

ULJ

Upper Level Jet.

Ultra High Frequency (UHF)

Those radio frequencies exceeding 300 MHz.

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.

Ultraviolet Index

This index provides important information to help you plan your outdoor activities in ways that prevent overexposure to the sun's rays. It was designed by the National Weather Service (NWS) and the Environmental Protection Agency (EPA). Unlike some countries' indices, the United States UV Index is not based upon surface observations. Rather, it is computed using forecasted ozone levels, a computer model that relates ozone levels to UV incidence on the ground, forecasted cloud amounts, and the elevation of the forecast cities. The calculation starts with measurements of current total ozone amounts for the entire globe, obtained via two satellites operated by the National Oceanic and

Atmospheric Administration (NOAA). These data are then used to produce a forecast of ozone levels for the next day at various points around the country.

Category	UV Index	Time to Burn	Actions to Take
Minimal	0 - 2	60 min. +	Apply SPF sunscreen.
Low	3 - 4	45 min.	Apply SPF sunscreen, wear a hat.
Moderate	5 - 6	30 min.	Apply SPF 15, wear a hat.
High	7 - 9	15 - 24 min.	Apply SPF 15 to 30, wear a hat and sunglasses. Limit midday exposure.
Very High	10+	10 min.	Apply SPF 30; wear a hat, sunglasses, and protective clothing; limit midday exposure.

Ultraviolet Radiation

Electromagnetic radiation of shorter wavelength than visible radiation but longer than x-rays.

Umbra

In solar-terrestrial terms, the dark core or cores (umbrae) in a sunspot with penumbra, or a sunspot lacking penumbra.

Undercurrent

In hydrologic terms, a current below the upper currents or surface of a fluid body.

Underflow

The lateral motion of water through the upper layers until it enters a stream channel. This usually takes longer to reach stream channels than runoff. This also called subsurface storm flow.

Undersun

An optical effect seen by an observer above a cloud deck when looking toward the sun, as sunlight is reflected upwards off the faces of ice crystals in the cloud deck. [Also known as subsun.]

Undertow

A relatively small-scale surf-zone current moving away from the beach. Rip currents form as waves disperse along the beach causing water to become trapped between the beach and a sandbar or other underwater feature. The water converges into a narrow, river-like channel moving away from the shore at high speed.

Unimodal

A distribution having only one localized maximum, i.e., only one peak.

Unit Control Position

The WSR-88D radar operator uses this to control the entire radar system. One of the main things that the radar operator will do at the UCP is change volume scan strategies of the antenna. These volume scan strategies tell the radar how many elevation angles will be used during a single volume scan (a volume scan is the completion of a sequence of elevation angles), and the amount of time it will take to complete that sequence of elevation cuts, each one being a single rotation of the antenna's 1 degree beam at selected elevation angles. The WSR-88D uses 3 scan strategies. They are the following: 14 elevation angles in 5 minutes (this is used during severe weather situations), 9 elevation angles in 6 minutes (this is used when there is precipitation within 248 nautical miles of the radar), and 5 elevation angles in 10 minutes (this is used when there is no precipitation within 248 nautical miles). The radar operator at the UCP can also adjust the radar products and help the users out with their communication problems.

Unit Hydrograph

The discharge hydrograph from one inch of surface runoff distributed uniformly over the entire basin for a given time period

Universal Geographic Code

(UGC) - UGC's, (e.g. ANZ300 for Western Long Island Sound) are used in many National Weather Service text products to provide geographical information. This allows users easy automated processing and redistribution of the information. More specifically, the purpose of the UGC are to specify the affected geographic area of the event, typically by state, county (or parish), or unique NWS zone (land and marine). The only exception to the above is to define the weather synopsis part of certain marine products.

Universal Time (UT)

By international agreement, the local time at the prime meridian, which passes through Greenwich, England. Prior to 1972, this time was called Greenwich Mean Time (GMT) but is now referred to as Coordinated Universal Time or Universal Time Coordinated (UTC). It is a coordinated time scale, maintained by the Bureau International des Poids et Mesures (BIPM). It is also known a "Z time" or "Zulu Time".

More about UTC, and a table to convert UTC to your local time is posted at: http://www.srh.noaa.gov/srh/jetstream/doppler/radarfaq.htm#utc

UNSBL

Unseasonable.

Unsettled

In meteorological use: A colloquial term used to describe a condition in the atmosphere conducive to precipitation. This term typically is associated with the passage of surface or upper level low pressure systems, fronts or other phenomenon when precipitation expected.

In solar-terrestrial use: With regard to geomagnetic levels, a descriptive word specifically meaning that 8 is less than or equal to the Ap Index which is less than or equal to 15.

Unstable Air

Air that is able to rise easily, and has the potential to produce clouds, rain, and thunderstorms.

UNSTBL

Unstable

Up-valley Wind

A diurnal thermally driven flow directed up a valley's axis, usually occurring during daytime; part of the along-valley wind system.

Updraft

A small-scale current of rising air. If the air is sufficiently moist, then the moisture condenses to become a cumulus cloud or an individual tower of a towering cumulus or Cb.

Upper Level

In weather observing, the term applies to the portion of the atmosphere that is above the lower troposphere, generally 850 hPa and above.

Upper Level Disturbance

A disturbance in the upper atmospheric flow pattern which is usually associated with clouds and precipitation. This disturbance is characterized by distinct cyclonic flow, a pocket of cold air, and sometimes a jet streak. These features make the air aloft more unstable and conducive to clouds and precipitation.

Upper Level System

A general term for any large-scale or mesoscale disturbance capable of producing upward motion (lift) in the middle or upper parts of the atmosphere. This term sometimes is used interchangeably with impulse or shortwave.

Upper-air Weather Chart

Weather maps that are produced for the portion of the atmosphere above the lower troposphere, generally at and above 850 mb. Isolines on these maps usually represent the heights of a constant pressure surface, such as the 500 mb surface.

UPR

Upper.

Upsets

Single event upsets.

Upslope Flow

Same as **Orographic Lifting**; air that flows toward higher terrain, and hence is forced to rise. The added lift often results in widespread low cloudiness and stratiform precipitation if the air is stable, or an increased chance of thunderstorm development if the air is unstable.

Upslope Fog

A fog that forms when moist, stable air is carried up a mountain slope.

UPSLP

Upslope.

Upstream

Towards the source of flow, or located in the area from which the flow is coming.

Upstream Slope

The part of the dam which is in contact with the reservoir water. On earthen dams, this slope must be protected from the erosive action of waves by rock riprap or concrete.

UPSTRM

Upstream.

Upwelling

In ocean dynamics, the upward motion of sub-surface water toward the surface of the ocean. This is often a source of cold, nutrient-rich water. Strong upwelling occurs along the equator where easterly winds are present. Upwelling also can occur along coastlines, and is important to fisheries and birds in California and Peru.

Urban and Small Stream Flood Advisory

This advisory alerts the public to flooding which is generally only an inconvenience (not life-threatening) to those living in the affected area. Issued when heavy rain will cause flooding of streets and low-lying places in urban areas. Also used if small rural or urban streams are expected to reach or exceed bankfull. Some damage to homes or roads could occur.

Urban and Small Stream Flooding

Flooding of small streams, streets, and low-lying areas, such as railroad underpasses and urban storm drains. This type of flooding is mainly an inconvenience and is generally not life threatening nor is it significantly damaging to property.

Urban Flash Flood Guidance

A specific type of flash flood guidance which estimates the average amount of rain needed over an urban area during a specified period of time to initiate flooding on small, ungaged streams in the urban area.

Urban Flooding

Flooding of streets, underpasses, low lying areas, or storm drains. This type of flooding is mainly an inconvenience and is generally not life threatening.

Urban Heat Island

The increased air temperatures in urban areas in contrast to cooler surrounding rural areas.

UTC

By international agreement, the local time at the prime meridian, which passes through Greenwich, England. Prior to 1972, this time was called Greenwich Mean Time (GMT) but is now referred to as Coordinated Universal Time or Universal Time Coordinated (UTC). It is a coordinated time scale, maintained by the Bureau International des Poids et Mesures (BIPM). It is also known a "Z time" or "Zulu Time".

More about UTC, and a table to convert UTC to your local time is posted at:
http://www.srh.noaa.gov/srh/jetstream/doppler/radarfaq.htm#utc

UV Index

Ultraviolet Index- This index provides important information to help you plan your outdoor activities in ways that prevent overexposure to the sun's rays. It was designed by the National Weather Service (NWS) and the Environmental Protection Agency (EPA). Unlike some countries' indices, the United States UV Index is not based upon surface observations. Rather, it is computed using forecasted ozone levels, a computer model that relates ozone levels to UV incidence on the ground, forecasted cloud amounts, and the elevation of the forecast cities. The calculation starts with measurements of current total ozone amounts for the entire globe, obtained via two satellites operated by the National Oceanic and Atmospheric Administration (NOAA). These data are then used to produce a forecast of ozone levels for the next day at various points around the country.

Category	UV Index	Time to Burn	Actions to Take
Minimal	0 - 2	60 min. +	Apply SPF sunscreen.
Low	3 - 4	45 min.	Apply SPF sunscreen, wear a hat.
Moderate	5 - 6	30 min.	Apply SPF 15, wear a hat.

High	7 - 9	15 - 24 min.	Apply SPF 15 to 30, wear a hat and sunglasses. Limit midday exposure.
Very High	10+	10 min.	Apply SPF 30; wear a hat, sunglasses, and protective clothing; limit midday exposure.

UVM

Upward Vertical Motion (also known as Upward Vertical Velocity).

UVV

Upward Vertical Velocity (rising air).

UWNDS

Upper Winds.

V

V Notch

A radar reflectivity signature seen as a V-shaped notch in the downwind part of a thunderstorm echo. The V-notch often is seen on supercells, and is thought to be a sign of diverging flow around the main storm updraft (and hence a very strong updraft). This term should not be confused with inflow notch or with enhanced V, although the latter is believed to form by a similar process.

VAAC

Volcanic Ash Advisory Centers.

VAD

Velocity Azimuth Display.

VAD Wind Profile

A radar plot of horizontal winds, derived from VAD data, as a function of height above a Doppler Radar. The display is plotted with height as the vertical axis and time as the horizontal axis (a so-called time-height display), which then depicts the change in wind with time at various heights. This display is useful for observing local changes in vertical wind shear, such as backing of low-level winds, increases in speed shear, and development or evolution of nearby jet streams (including low-level jets). This product often is referred to erroneously as a VAD.

Vadose Zone

The locus of points just above the water table where soil pores may either contain air or water. This is also called the zone of aeration.

VALDRIFT

An air pollution transport and diffusion model developed to determine pesticide drift from aerial spraying operations in valleys.

Valid Time

The period of time during which a forecast or warning, until it is updated or superseded by a new forecast issuance, is in effect.

Valid Time Event Code

(VTEC) - The Valid Time Event Code (VTEC) always is used in conjunction with, and provides supplementary information to, the Universal Geographic Code (UGC), to further aid in the automated delivery of National Weather Service text products to users. The VTEC is included in many event driven or non-routine products and in some routine Marine forecasts. The VTEC provides information on the event, while the UGC describes the affected geographic area.

Valley Exit Jet

A strong elevated down-valley air current issuing from a valley above its intersection with the adjacent plain.

Valley Volume Effect

The reduction in volume of a valley (or basin) as compared to an equal depth volume with a horizontal floor. Because the valley volume is smaller, equivalent heat fluxes will cause larger changes in temperature in the valley volume than in the flat-floor volume.

Valve

In hydrologic terms, a device fitted to a pipeline or orifice in which the closure member is either rotated or moved in some way as to control or stop flow.

Van Allen Radiation Belts.

Radiation belts.

Vapor Pressure

The pressure exerted by the molecules of a given vapor. In meteorology, it is considered as the part of total atmospheric pressure due to the water vapor content. It is independent of other gases or vapors.

Variable Wind

Same as **Variable Wind Direction**; a condition when
(1) the wind direction fluctuates by 60Â° or more during the 2-minute evaluation period and the wind speed is greater than 6 knots; or
(2) the direction is variable and the wind speed is less than 6 knots.

Variable Wind Direction

A condition when
(1) the wind direction fluctuates by 60Â° or more during the 2-minute evaluation period and the wind speed is greater than 6 knots; or
(2) the direction is variable and the wind speed is less than 6 knots.

Variance

A measure of variability.

VCNTY

Vicinity.

VCP

Volume Coverage Pattern - A volumetric sampling procedure designed for the surveillance of one or more particular meteorological phenomena. Clear Air Mode uses VCP 31 and 32. Each has a Volume Scan consisting of 5 elevation angles (0.5 to 4.5 degrees) in ten minutes. VCP 31 has a long pulse length and provides a better signal-to-noise ratio permitting lower reflectivity returns to be detected. VCP 32 has a short pulse length which provides for larger unambiguous velocity values. Precipitation Mode uses VCP 11 and 21. VCP 11 provides better vertical sampling of weather echoes near the antenna and is usually preferred in situations where convective precipitation is within 60 nmi of the antenna. VCP 11 Volume Scan consists of 14 elevation angles (0.5 to 19.5 degrees) in 5 minutes. VCP 21 has a slower antenna rotation rate and provides better velocity and spectrum width estimates beyond 60 nmi. VCP 21 Volume Scan consists of 9 elevation angles (0.5 to 19.5 degrees) in 6 minutes.

Veering

A clockwise shift in wind direction (for example, south winds shifting to the west).

Veering Winds

Winds which shift in a clockwise direction with time at a given location (e.g., from southerly to westerly), or which change direction in a clockwise sense with height (e.g., southeasterly at the surface turning to southwesterly aloft). The latter example is a form of directional shear which is important for tornado formation. Compare with backing winds.

Velocity Azimuth Display

A WSR 88-D product which shows the radar derived wind speeds at various heights. This radar product shows the wind speeds from 2,000 to 55,000 feet above the ground. VAD and EVAD (Extended VAD) are methods of guessing the large scale two-dimensional winds from one-dimensional radial velocity data. They are essentially multivariate regressions which fit a simple, large scale wind model to the observed winds. EVAD also estimates the large scale horizontal divergence and particle fall speed. See VWP.

Velocity Cross Section

This WSR-88D radar product displays a vertical cross section of velocity on a grid with heights up to 70,000 feet on the vertical axis and distance up to 124 nm on the horizontal axis. The two end points to create cross section are radar operator selected along a radial or from one AZRAN to another AZRAN within 124 nm of the radar that are less than 124 nm apart.
It is used to:
1) Examine storm structure features such as location of updrafts/downdrafts, strength of storm top divergence, and the depth of mesocyclones;
2) Locate areas of convergence/divergence (when generated along a radial; and
3) Analyze areas of rotation (when generated from one AZRAN to another).

Velocity Zones

In hydrologic terms, areas within the floodplain subject to potential high damage from waves. These

sometimes appear on flood insurance rate maps

Ventilation Index

Product of the mixing depth and transport wind speed, a measure of the potential of the atmosphere to disperse airborne pollutants from a stationary source. Sometimes referred to as a Clearing Index.

Venturi Effect

The speedup of air through a constriction due to the pressure rise on the upwind side of the constriction and the pressure drop on the downwind side as the air diverges to leave the constriction.

Ver High Frequency (VHF)

That portion of the radio frequency spectrum from 30 to 300 MHz.

Vernal Equinox

The equinox that occurs in March. Compare autumnal equinox.

Vertical Velocity

The component of velocity (motion) in the vertical. The evaluation of areas of upward vertical velocity is key to forecasting areas of active weather.

Vertical Wind Shear

the change in the wind's direction and speed with height. This is a critical factor in determining whether severe thunderstorms will develop.

Vertically Stacked System

A low-pressure system, usually a closed low or cutoff low, which is not tilted with height, i.e., located similarly at all levels of the atmosphere. Such systems typically are weakening and are slow-moving, and are less likely to produce severe weather than tilted systems. However, cold pools aloft associated with vertically-stacked systems may enhance instability enough to produce severe weather.

Very Low Frequency (VLF)

That portion of the radio frequency spectrum from 3 to 30 kHz

Very Windy

30 to 40 mph winds.

VFR

Visual Flight Rules

VIL

Vertically-Integrated Liquid water. A property computed by RADAP II and WSR-88D units that takes into account the three-dimensional reflectivity of an echo. The maximum VIL of a storm is useful in determining its potential severity, especially in terms of maximum hail size.

VIP

Video Integrator and Processor, which contours radar reflectivity (in dBZ) into six VIP levels:

- VIP 1 (Level 1, 18-30 dBZ) - Light precipitation.
- VIP 2 (Level 2, 30-38 dBZ) - Light to moderate rain.
- VIP 3 (Level 3, 38-44 dBZ) - Moderate to heavy rain.
- VIP 4 (Level 4, 44-50 dBZ) - Heavy rain.
- VIP 5 (Level 5, 50-57 dBZ) - Very heavy rain; hail possible.
- VIP 6 (Level 6, >57 dBZ) - Very heavy rain and hail; large hail possible.

Virga

Streaks or wisps of precipitation falling from a cloud but evaporating before reaching the ground. In certain cases, shafts of virga may precede a microburst.

Virtual Potential Temperature

The virtual potential temperature is the temperature a parcel at a specific pressure level and virtual temperature would have if it were lowered or raised to 1000 mb. This is defined by Poisson's equation.

Virtual Temperature

The virtual temperature is the temperature a parcel which contains no moisture would have to equal the density of a parcel at a specific temperature and humidity.

VIS

1. Visible Satellite Imagery.
2. Visible or Visibility.

Visibility

The distance at which a given standard object can be seen and identified with the unaided eye

Visibility Protection Program

The program specified by the Clean Air Act to achieve a national goal of remedying existing

impairments to visibility and preventing future visibility impairment throughout the United States.

Visible Satellite Imagery

This type of satellite imagery uses reflected sunlight (this is actually reflected solar radiation) to see things in the atmosphere and on the Earth's surface. Clouds and fresh snow are excellent reflectors, so they appear white on the imagery. Clouds can be distinguished from snow, because clouds move and snow does not move. Meanwhile, the ground reflects less sunlight, so it appears black on the imagery. The satellite uses its 0.55 to 0.75 micrometer (um) channel to detect this reflected sunlight. Since this imagery relies on reflected imagery, it cannot be used during night.

Visual Spectrum

The portion of the electromagnetic spectrum to which the eye is sensitive, i.e., light with wavelengths between 0.4 and 0.7 micrometers. Compare shortwave radiation and longwave radiation.

VLCTY

Velocity.

VLY

Valley.

VMD

Volume median diameter. A statistical measure of the average droplet size in a spray cloud, such that fifty percent of the volume of sprayed material is composed of droplets smaller in diameter than the VMD.

Volcanic Ash

Fine particles of mineral matter from a volcanic eruption which can be dispersed long distances by winds aloft. The chemical composition and abrasiveness of the particles can seriously affect aircraft and also machinery on the ground. If it is blown into the stratosphere and it is thick enough, it can decrease the global temperature.

Volume Scan

A radar scanning strategy in which sweeps are made at successive antenna elevations (i.e., a tilt sequence), and then combined to obtain the three-dimensional structure of the echoes.

Volume Velocity Processing

A way to guess the large-scale 2-dimensional winds, divergence and fall speeds from one-dimensional radial velocity data. Essentially a multivariate regression which fits a simple wind model to the observed radial velocities. Very similar to VAD and EVAD, except it uses different functions for the fit.

Voluntary Observing Ship Program

(VOS) - An international voluntary marine observation program under the auspices of the World Meteorological Organization (WMO). Observations are coded in a special format known as the ships synoptic code, or "BBXX" format. They are then distributed for use by meteorologists in weather forecasting, by oceanographers, ship routing services, fishermen, and many others.

Vort Max

Common slang reference to **Vorticity Maximum**; a center, or maximum, in the vorticity field of a fluid.

Vortex

A whirling mass of air in the form of a column or spiral. It need not be oriented vertically but, for example, could be rotating around a horizontal axis.

Vorticity

A measure of the rotation of air in a horizontal plane. Positive (counter-clockwise or cyclonic) vorticity can be correlated with surface low development and upward vertical motion (in areas of positive vorticity advection).

VOS

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VOT

Vorticity.

VR

Veer.

VRT MOTN
Vertical motion.

VSB
Visible Satellite Imagery.

VSBY
Visibility.

VTEC
(Valid Time Event Code) - The Valid Time Event Code (VTEC) always is used in conjunction with, and provides supplementary information to, the Universal Geographic Code (UGC), to further aid in the automated delivery of National Weather Service text products to users. The VTEC is included in many event driven or non-routine products and in some routine Marine forecasts. The VTEC provides information on the event, while the UGC describes the affected geographic area.

VVP
Volume Velocity Processing - a way to guess the large-scale 2-dimensional winds, divergence and fall speeds from one-dimensional radial velocity data. Essentially a multivariate regression which fits a simple wind model to the observed radial velocities. Very similar to VAD and EVAD, except it uses different functions for the fit.

VVSTORM
Model-based convection algorithm.

VWP
VAD Wind Profile - a radar plot of horizontal winds, derived from VAD data, as a function of height above a Doppler Radar. The display is plotted with height as the vertical axis and time as the horizontal axis (a so-called time-height display), which then depicts the change in wind with time at various heights. This display is useful for observing local changes in vertical wind shear, such as backing of low-level winds, increases in speed shear, and development or evolution of nearby jet streams (including low-level jets). This product often is referred to erroneously as a VAD.

W

W
West.

WAA
Warm Air Advection - the advection (movement) of warm air into a region.

Wake
The region of turbulence immediately to the rear of a solid body caused by the flow of air over or around the body.

Wall Cloud
A localized, persistent, often abrupt lowering from a rain-free base. Wall clouds can range from a fraction of a mile up to nearly five miles in diameter, and normally are found on the south or southwest (inflow) side of the thunderstorm. When seen from within several miles, many wall clouds exhibit rapid upward motion and cyclonic rotation.

However, not all wall clouds rotate. Rotating wall clouds usually develop before strong or violent tornadoes, by anywhere from a few minutes up to nearly an hour. Wall clouds should be monitored visually for signs of persistent, sustained rotation and/or rapid vertical motion.

"Wall cloud" also is used occasionally in tropical meteorology to describe the inner cloud wall surrounding the eye of a tropical cyclone, but the proper term for this feature is eyewall.

Warm Advection
Transport of warm air into an area by horizontal winds. Low-level warm advection sometimes is referred to (erroneously) as overrunning. Although the two terms are not properly interchangeable, both imply the presence of lifting in low levels.

Warm Core Low
A low pressure area which is warmer at its center than at its periphery. Tropical cyclones exhibit this temperature pattern. Unlike cold core lows, these lows produce much of their cloud cover and precipitation during the nighttime.

Warm Front

A transition zone between a mass of warm air and the colder air it is replacing.

Warm Occlusion

A frontal zone formed when a cold front overtakes a warm front and, finding colder air ahead of the warm front, leaves the ground and rises up and over this denser air. Compare with cold occlusion.

Warm Sector

A region of warm surface air between a cold front and a warm front.

Warning

A warning is issued when a hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurring. A warning is used for conditions posing a threat to life or property.

Wasatch Wind

A strong easterly wind blowing out of the mouths of the canyons of the Wasatch Mountains onto the plains of Utah. Also called canyon wind.

Watch

A watch is used when the risk of a hazardous weather or hydrologic event has increased significantly, but its occurrence, location, and/or timing is still uncertain. It is intended to provide enough lead time so that those who need to set their plans in motion can do so.

Watch Box

(or simply "Box") - slang for a Severe Thunderstorm Watch or Tornado Watch issued by the SPC.

Watch Cancellation

This product will be issued to let the public know when either a Tornado Watch or Severe Thunderstorm Watch has been canceled early. It is issued by the Storm Prediction Center (SPC) in Norman, Oklahoma. In the text of the statement it will specify the severe weather watch number and the area which the watch covered.

Watch Redefining Statement

This product tells the public which counties/parishes are included in the watch. This is done not only by writing them all out, but by using the county FIPS codes in the Header of the product. It is issued by the local National Weather Service Forecast Office (WFO).

Watch Status Reports

This product lets the NWFO know of the status of the current severe weather watch (Tornado or Severe Thunderstorm). During the severe weather watch, the Storm Prediction Center (SPC) will issue these reports periodically. These reports will describe, in plain language, the current evaluation of the severe weather situation and whether the watch will expire or be reissued. A status report is not issued if a cancellation or replacement has been issued at least 1 hour prior to the expiration time of the original watch.

Water Equivalent

The liquid content of solid precipitation that has accumulated on the ground (snow depth). The accumulation may consist of snow, ice formed by freezing precipitation, freezing liquid precipitation, or ice formed by the refreezing of melted snow.

Water Pollution

The alteration of the constituents of a body of water by man to such a degree that the water loses its value as a natural resource.

Water Supply Outlook

A seasonal volume forecast, generally for a period centered around the time of spring snowmelt (e.g., April-July). The outlooks are in units of acre-feet and represent the expected volume of water to pass by a given point during a snowmelt season. The outlook categories include Most Probable, Reasonable Maximum, and Reasonable Minimum.

Water

Refers to the chemical compound, H2O, as well as its liquid form. At atmospheric temperatures and pressures, it can exist in all three phases: solid (ice), liquid (water), and gaseous (water vapor). It is a vital, life- sustaining part of life on earth

Water Spout

An intense vortex that forms over water, usually lakes. Often originates as a tornado that moves over a body of water. The can be destructive as they are associated with strong winds and can propagate up to 20 mph.

Water Table

The level below the earth's surface at which the ground becomes saturated with water. The water table is set where hydrostatic pressure equals atmospheric pressure.

Water Vapor Plume

This appears in the water vapor satellite imagery. It is a plume-like object that extends from the Intertropical Convergence Zone (ITCZ) northward or southward into the higher latitudes. It is usually located over a 850 to 700 mb theta-e ridge axis. As a result, it is a favored location for the development of a Mesoscale Convective Complex (MCC). Researchers have found it to be a favored region for very heavy rain. It is thought that the ice crystals located in this plume help thunderstorms to become highly efficient rainfall producers. In North America, this is sometimes called the "Mexican Connection".

Water Year

The time period from October 1 through September 30.

Watercourse

Any surface flow such as a river, stream, tributary.

Watershed

Land area from which water drains toward a common watercourse in a natural basin.

Waterspout

In general, a tornado occurring over water. Specifically, it normally refers to a small, relatively weak rotating column of air over water beneath a Cb or towering cumulus cloud. Waterspouts are most common over tropical or subtropical waters.

The exact definition of waterspout is debatable. In most cases the term is reserved for small vortices over water that are not associated with storm-scale rotation (i.e., they are the water-based equivalent of landspouts). But there is sufficient justification for calling virtually any rotating column of air a waterspout if it is in contact with a water surface.

Watt

Unit of power in the MKS system of units; energy per unit of time, one Joule per second (1 J/s). Abbreviated W.

Wave Crest

The highest part of a wave.

Wave Height

Distance from wave trough to wave crest.

Wave Period

Time, in seconds, between the passage of consecutive wave crests past a fixed point.

Wave Spectrum

The distribution of wave energy with respect to wave frequency or period. Wave spectra assist in differentiating between wind waves and swell.

Wave Steepness

The ratio of wave height to wavelength and is an indicator of wave stability. When wave steepness exceeds a 1/7 ratio; the wave typically becomes unstable and begins to break.

Wave Trough

The lowest part of the wave.

Wavelength

Distance between crests or troughs of a wave.

WAVEWATCH III

One of the operational forecast models run at NCEP. The WWIII is run four times daily, with forecast output out to 126 hours.

WBND

Westbound.

WBZ

Wet Bulb Zero - the height where the wet-bulb temperature goes below 0Â°C. It is important because WBZ heights between 7000 ft and 10,500 ft (above ground level) correlate well with large hail at the surface when storms develop in an airmass primed for strong convection. Higher values infer mid and upper level stability and also indicate a large melting area for falling hail. Lower WBZ heights indicate that the low level atmosphere is often too cool and stable to support large hail.

WC/ATWC

West Coast and Alaska Tsunami Warning Center. The National Weather Service's West Coast and Alaska Tsunami Warning Center in Palmer, AK has a regional tsunami responsibility for the Canadian coastal regions and the ocean coasts of all U.S. States except Hawaii. See also PTWC.

WCM

Warning Coordination Meteorologist.

WDIR

On a buoy report, wind direction (the direction the wind is coming from in degrees clockwise from true N) during the same period used for WSPD.

WDLY

Widely.

WDSPRD

Widespread.

Weak Echo Region

(Abbrev. WER) - A WSR-88D radar product which displays reflectivity for up to 8 elevation angles for a radar operator selected location as a set presentation of a storm. The plains in this product are presented in an ascending order, lowest plain is lowest elevation angle selected. It is used to depict storm tilt and to identify Weak Echo Regions (WER) and Bounded Weak Echo Regions (BWER) in thunderstorms.

Weather

The state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc. Weather refers to these conditions at a given point in time (e.g., today's high temperature), whereas Climate refers to the "average" weather conditions for an area over a long period of time (e.g., the average high temperature for today's date).

Weather Element

Atmospheric or weather conditions such as temperature, wind, pressure, humidity, precipitation and cloudiness.

Weather Forecast

A forecast of the future state of the atmosphere and environment in reference to one or more weather elements.

Weather Forecast Office

(WFO) - this type of National Weather Service office is responsible for issuing advisories, warnings, statements, and short term forecasts for its county warning area.

Weatherfax

See RADIOFACSIMILE

Weather Station

A place or facility with instruments and equipment for measuring atmospheric and environmental conditions, for the observation, recording, analysis, transmission of data and reporting of information. Also known as a Meteorological Station.

Weather Vane

Originally used as a wind vane, it is an instrument that indicates the wind direction. The name developed based on observations on what kind of weather occurred with certain wind directions. Creative designs often adorn the tops of barns and houses.

Wedge Tornado

Slang for a large tornado with a condensation funnel that is at least as wide (horizontally) at the ground as it is tall (vertically) from the ground to cloud base. The term "wedge" often is used somewhat loosely to describe any large tornado. However, not every large tornado is a wedge. A true wedge tornado, with a funnel at least as wide at the ground as it is tall, is very rare.

Wedges often appear with violent tornadoes (F4 or F5 on the Fujita Scale), but many documented wedges have been rated lower. And some violent tornadoes may not appear as wedges (e.g., Xenia, OH on 3 April 1974, which was rated F5 but appeared only as a series of suction vortices without a central condensation funnel). Whether or not a tornado achieves "wedge" status depends on several factors other than intensity - in particular, the height of the environmental cloud base and the availability of moisture below cloud base. Therefore, spotters should not estimate wind speeds or F-scale ratings

based on visual appearance alone. However, it generally is safe to assume that most (if not all) wedges have the potential to produce strong (F2/F3) or violent (F4/F5) damage.

WEFAX

System for transmitting weather charts and imagery via satellite. Occasionally used as an abbreviation for radio-facsimile via HF radio.

Weighing-Type Precipitation Gage

A rain gage that weighs the rain or snow which falls into a bucket set on a platform of a spring or lever balance. The increasing weight of its contents plus the bucket are recorded on a chart. The record thus shows the accumulation of precipitation.

Weir

In hydrologic terms,
(a) A low dam built across a stream to raise the upstream water level (fixed-crest weir when uncontrolled);
(b) A structure built across a stream or channel for the purpose of measuring flow (measuring or gaging weir).

WER

Weak Echo Region - Radar term for a region of relatively weak reflectivity at low levels on the inflow side of a thunderstorm echo, topped by stronger reflectivity in the form of an echo overhang directly above it. The WER is a sign of a strong updraft on the inflow side of a storm, within which precipitation is held aloft. When the area of low reflectivity extends upward into, and is surrounded by, the higher reflectivity aloft, it becomes a BWER.

West African Disturbance Line

A line of convection about 300 miles long, similar to a squall line. It forms over West Africa north of the equator and south of 15 degrees North latitude. It moves faster than an Easterly Wave between 20 and 40 mph. They move off the African coast every 4 to 5 days mainly in the summer. Some reach the American tropics and a few develop into tropical cyclones.

West Wall

The coast side boundary of the Gulf Stream, typically south of Cape Hatteras. See also North Wall

Westerlies

The prevailing winds that blow from the west in the mid-latitudes.

Wet Bulb Depression

Dependent on the temperature and the humidity of the air, it is the difference between the dry bulb and the wet bulb readings.

Wet Bulb Temperature

The temperature a parcel of air would have if it were cooled to saturation (100% relative humidity) by the evaporation of water into it. Like everything else a Kestrel does, this basically boils down to temperature, moisture content (humidity/dewpoint/etc) and pressure. The Kestrel knows these things, so it applies a classic iterative equation to calculate wet-bulb temperature. Divulging anymore would create proprietary information concerns.

Wet Bulb Thermometer

A thermometer used to measure the lowest temperature in the ambient atmosphere in its natural state by evaporating water from a wet muslin- covered bulb of a thermometer. The wet bulb temperature is used to compute dew point and relative humidity. One of the two therometers that make up a psychrometer.

Wet Bulb Zero

(WBZ) - the height where the wet-bulb temperature goes below 0Â°C. It is important because WBZ heights between 7000 ft and 10,500 ft (above ground level) correlate well with large hail at the surface when storms develop in an air mass primed for strong convection. Higher values infer mid and upper level stability and also indicate a large melting area for falling hail. Lower WBZ heights indicate that the low level atmosphere is often too cool and stable to support large hail.

Wet Floodproofing

In hydrologic terms, an approach to floodproofing which usually is a last resort. Flood waters are intentionally allowed into the building to minimize water pressure on the structure. Wet Floodproofing can include moving a few valuable items to a higher place or completely rebuilding the floodable area. Wet floodproofing has an advantage over other approaches: no matter how little is done, flood damage

will be reduced. Thousands of dollars in damage can be avoided just by moving furniture and appliances out of the flood-prone area.

Wet Microburst

A microburst accompanied by heavy precipitation at the surface. A rain foot may be a visible sign of a wet microburst.

Wet-Bulb Temperature

The lowest temperature that can be obtained by evaporating water into the air.

Wetland

In hydrologic terms, an area that is regularly wet or flooded and has a water table that stands at or above the land surface for at least part of the year.

WFO

Weather Forecast Office - this type of National Weather Service office is responsible for issuing advisories, warnings, statements, and short term forecasts for its county warning area

WFP

Warm Front Passage.

Whirlwind

A small, rotating column of air; may be visible as a dust devil.

White Light (WL)

Sunlight integrated over the visible portion of the spectrum (4000 - 7000 angstroms) so that all colors are blended to appear white to the eye.

White Light Flare

In solar-terrestrial terms, a major flare in which small parts become visible in white light. Such flares are usually strong X-ray, radio, and particle emitters.

Whitecap

The breaking crest of a wave, usually white and frothy.

Widespread

Areal coverage of non-measurable, non-convective weather and/or restrictions to visibility affecting more than 50 percent of a forecast zone(s).

Wildfire

Any free burning uncontainable wildland fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment.

Wildlands

Any non-urbanized land not under extensive agricultural cultivation, e.g., forests, grasslands, rangelands.

Willy-Willy

In Australia, a dust devil. Also formerly used to denote a tropical cyclone.

Wind

Air that flows in a horizontal motion over the earth's surface. There are four areas of wind that are measured: direction, speed, character (gusts and squalls), and shifts. Surface winds are measured by wind vanes and anemometers, while upper level winds are detected through pilot balloons, rawin, or aircraft reports.

Wind Advisory

Sustained winds 25 to 39 mph and/or gusts to 57 mph. Issuance is normally site specific. However, winds of this magnitude occurring over an area that frequently experiences such winds

Wind Chill

Reference to the **Wind Chill Factor**; increased wind speeds accelerate heat loss from exposed skin, and the wind chill is a measure of this effect. No specific rules exist for determining when wind chill becomes dangerous. As a general rule, the threshold for potentially dangerous wind chill conditions is about -20Â°F.

Wind Chill Advisory

The National Weather Service issues this product when the wind chill could be life threatening if action is not taken. The criteria for this warning varies from state to state.

Wind Chill Factor

Increased wind speeds accelerate heat loss from exposed skin. No specific rules exist for determining when wind chill becomes dangerous. As a general rule, the threshold for potentially dangerous wind chill conditions is about -20Â°F.

Wind Chill Index

The calculation of temperature that takes into consideration the effects of wind and temperature on the human body. Describes the average loss of body heat and how the temperature feels. This is not the actual air temperature.

Wind Chill Warning

The National Weather Service issues this product when the wind chill is life threatening. The criteria for this warning varies from state to state.

Wind Couplet

An area on the radar display where two maximum wind speeds are blowing in opposite directions.

Wind Direction

The true direction from which the wind is blowing at a given location (i.e., wind blowing from the north to the south is a north wind). It is normally measured in tens of degrees from 10 degrees clockwise through 360 degrees. North is 360 degrees. A wind direction of 0 degrees is only used when wind is calm.

Wind Field

The three-dimensional spatial pattern of winds.

Wind Gust

Rapid fluctuations in the wind speed with a variation of 10 knots or more between peaks and lulls. The speed of the gust will be the maximum instantaneous wind speed.

Wind Radii

Term used in National Weather Tropical Cyclone Forecast Advisory products (TCM). Wind radii are the largest radii of that wind speed found in that quadrant. Quadrants are defined as NE (0-90), SE (90-180), SW (180-270), and NW (270-0). As an example, given maximum 34 knot radii to 150 nm at 0 degrees, 90 at 120 degrees, and 40 nm at 260 degrees, the following line would be carried in the forecast/advisory: 150NE 90SE 40SW 150NW.

Wind Rose

A diagram, for a given locality or area, showing the frequency and strength of the wind from various directions.

Wind Shear

The rate at which wind velocity changes from point to point in a given direction (as, vertically). The shear can be speed shear (where speed changes between the two points, but not direction), direction shear (where direction changes between the two points, but not speed) or a combination of the two.

Wind Shear Profile

The change in wind speed and/or direction usually in the vertical. The characteristics of the wind shear profile are of critical importance in determining the potential for and type of severe weather.

Wind Shift

A change in wind direction of 45 degrees or more in less than 15 minutes with sustained wind speeds of 10 knots or more throughout the wind shift.

Wind Shift Line

A long, but narrow axis across which the winds change direction (usually veer).

Wind Sock

A tapered fabric shaped like a cone that indicates wind direction by pointing away from the wind. It is also called a "wind cone."

Wind Speed

The rate at which air is moving horizontally past a given point. It may be a 2-minute average speed (reported as wind speed) or an instantaneous speed (reported as a peak wind speed, wind gust, or squall).

Wind Waves

Local, short period waves generated from the action of wind on the water surface (as opposed to swell). Commonly referred to as waves. In a National Weather Service Coastal Marine Forecast or Offshore Forecast, wind waves are used when swells are described in the forecast.

or

Waves generated by the local wind blowing at the time of observation.

Windward

The side toward the wind. Compare with leeward.

Windy
20 to 30 mph winds.

Wing
Portion of a spectroscopic absorption (or emission) line between the core of the line and the continuum adjacent to the line.

WINT
Winter.

Winter
Astronomically, this is the period between the winter solstice and the vernal equinox. It is characterized as having the coldest temperatures of the year, when the sun is primarily over the opposite hemisphere. Customarily, this refers to the months of December, January, and February in the North Hemisphere, and the months of June, July, and August in the Southern Hemisphere.

Winter Pool
The pool, or height of the water surface, of a reservoir during the winter. This pool is usually a specific height and is maintained for the control of late winter and spring flooding.

Winter Solstice
The time at which the sun is farthest south in the Southern Hemisphere, on or around December 21.

Winter Storm Warning
This product is issued by the National Weather Service when a winter storm is producing or is forecast to produce heavy snow or significant ice accumulations. The criteria for this warning can vary from place to place.

Winter Storm Watch
This product is issued by the National Weather Service when there is a potential for heavy snow or significant ice accumulations, usually at least 24 to 36 hours in advance. The criteria for this watch can vary from place to place.

Winter Weather Advisory
This product is issued by the National Weather Service when a low pressure system produces a combination of winter weather (snow, freezing rain, sleet, etc.) that present a hazard, but does not meet warning criteria.

Winter Weather Statement
A winter weather advisory is issued when significant accumulations of snow, sleet, or freezing rain may affect the advisory area.

Wire Weight Gage
In hydrologic terms, a river gage comprised of a weight which is lowered to the water level. The weight is attached to a cable; and as the weight is lowered, a counter indicates the length of cable released. The stage is determined from the length of cable required to reach the water level.

WK
Weak.

WKN
Weaken.

WL
Will.

WLY
Westerly.

WMC
World Meteorological Center(s).

WMO
World Meteorological Organization (UN).

WND
Wind.

Wolf Number
A historic term for Sunspot Number. In 1849, R. Wolf of Zurich originated the general procedure for computing the sunspot number.

Wrapping Gust Front
A gust front which wraps around a mesocyclone, cutting off the inflow of warm moist air to the mesocyclone circulation and resulting in an occluded mesocyclone.

WRCC
Western Regional Climate Center.

WRM
Warm.

WRMFNT
Warm Front.

WRN
Western.

WRNG
Warning.

WSFO
Weather Service Forecast Office.

WSHFT
Wind Shift.

WSPD
On a buoy report, the wind speed (m/s) averaged over an eight-minute period for buoys and a two-minute period for land stations. Reported Hourly.

WSR-57
A NWS Weather Surveillance Radar designed in 1957. It used to be part of weather radar network. It was replaced by WSR-88D units.

WSR-74
A NWS Weather Surveillance Radar designed in 1974. It used to be part of weather radar network. It was replaced by WSR-88D units.

WSR-88D
Weather Surveillance Radar - 1988 Doppler; NEXRAD unit.

WSR-88D System
The summation of all hardware, software, facilities, communications, logistics, staffing, training, operations, and procedures specifically associated with the collection, processing, analysis, dissemination and application of data from the WSR-88D unit.

WSW
Winter Storm Message.

WTMP
On a buoy report, the sea surface temperature (Celsius).

WTR
Water Equivalent.

WV
1. Water Vapor (satellite imagery).
2. Wave.
3. West Virginia.

WVHT
On a buoy report, significant wave height (meters) is calculated as the average of the highest one-third of all of the wave heights during the 20-minute sampling period.

WW
Severe Thunderstorm or Tornado Watch.

WWH
On a buoy report, Wind Wave Height is the vertical distance (meters) between any wind wave crest and the succeeding wind wave trough (independent of swell waves).

WWP
On a buoy report, Wind Wave Period is the time (in seconds) that it takes successive wind wave crests or troughs to pass a fixed point.

WWV
National Institute of Standards and Technology (NIST) radio stations which broadcast a time and frequency service commonly known to mariners as the "Time Tick", used as an aid in celestial navigation. Included in these are hourly voice broadcasts of current warnings for the Atlantic, Pacific and Gulf of Mexico provided by the National Weather Service.

WWVH
National Institute of Standards and Technology (NIST) radio stations which broadcast a time and frequency service commonly known to mariners as the "Time Tick", used as an aid in celestial navigation. Included in these are hourly voice broadcasts of current warnings for the Atlantic, Pacific and Gulf of Mexico provided by the National Weather Service.

WX
Weather.

X

X-Band
A frequency band of microwave radiation in which radars operate.

X-Ray
Radiation of extremely short wavelength (generally less than 1 nm).

X-Ray Background
In solar-terrestrial terms, a daily average background X-ray flux in the 1 to 8 angstrom range. It is a midday minimum designed to reduce the effects of flares.

X-Ray Burst
In solar-terrestrial terms, a temporary enhancement of the X-ray emission of the sun. The time-intensity profile of soft X-ray bursts is similar to that of the H-alpha profile of an associated flare.

X-Ray Flare Class
In solar-terrestrial terms, rank of a flare based on its X-ray energy output. Flares are classified by the order of magnitude of the peak burst intensity (I) measured at the earth in the 1 to 8 angstrom band as follows:

Class	Intensity (in Watts/m^2)
B	$I < 10^{-6}$
C	$10^{-6} <= I < 10^{-5}$
M	$10^{-5} <= I < 10^{-4}$
X	$I >= 10^{-4}$

X-Rays
Very energetic electromagnetic radiation with wavelengths intermediate between 0.01 and 10 nanometers (0.1-100 Angstroms) or between gamma rays and ultraviolet radiation. Essentially all X-Rays from space are absorbed in the Earth's upper atmosphere.

X-ray Flare Termination
The end time is defined as the time the flux has decayed to 1/2 the peak flux of the event.

XBT
Expendable Bathythermograph.

XCITED
Excited.

XCPT
Expecting.

XPC
Expect.

XSEC
Cross Section.

YDA
Yesterday.

Year
The period during which the Earth completes one revolution around the sun.

Yearly Record
Record extremes measured within a specific calendar year.

Yellow Line
A coronal emission line at 569.4 nm from Ca XV. It identifies the hottest regions of the corona.

Yellow Snow
Snow given a golden or yellow appearance by the presence in it of pine, cypress pollen, or anthropogenic material or animal-produced material.

Z

Z
Zulu time; the same as Universal Coordinated Time (UTC), i.e. 18z is the same as 18:00 UTC.

Z Component of the Geomagnetic Field
Geomagnetic elements.

Zeeman Effect
The splitting of some solar spectral emission lines due to the presence of a strong magnetic field. Briefly, the lines split into three or more components of characteristic polarization. The components are circular if the local magnetic field is parallel to the line of sight, and linear if the field is perpendicular to the line of sight. The amount of splitting is proportional to the strength of the field.

Zero Datum
In hydrologic terms, a reference "zero" elevation for a stream or river gage. This "zero" can be referenced (usually within ten feet of the bottom of the channel) to mean sea level, or to any other recognized datum.

ZFP
Zone Forecast Product.

ZL
Freezing Drizzle.

ZNS
Zones.

Zonal Flow
Large-scale atmospheric flow in which the east-west component (i.e., latitudinal) is dominant. The accompanying meridional (north-south) component often is weaker than normal. Compare with meridional flow.

Zone of Aeration
In hydrologic terms, the locus of points just above the water table where soil pores may either contain air or water. This is also called the vadose zone

Zone of Saturation
In hydrologic terms, the locus of points below the water table where soil pores are filled with water. This is also called the phreatic zone

Zoned Embankment Dam
In hydrologic terms, an embankment dam which is comprised of zones of selected materials having different degrees of porosity, permeability and density.

ZR
Freezing Rain.

Zulu (Z) Time
For practical purposes, the same as Coordinated Universal Time (UTC). The notation formerly used to identify time Greenwich Mean Time. The word "Zulu" is notation in the phonetic alphabet corresponding to the letter "Z" assigned to the time zone on the Greenwich Prime Meridian.

Zurich Sunspot Classification
In solar-terrestrial terms, a sunspot classification system that has been modified for SESC use.

Zurich Sunspot Number
Sunspot number.

Z\/R Relationship
An empirical relationship between radar reflectivity factor z (in mm^6 / m^3) and rain rate (in mm / hr), usually expressed as Z = A R^b; A and b are empirical constants.

24-Hour Record
Record extremes measured over the course of a 24-hour period. These records most commonly apply to snow and rainfall accumulation.

Note: The weather, environmental terms and definitions were primarily obtained from the National Oceanic and Atmospheric Administration-National Weather Service Glossary, NWS Space Weather Prediction Center, Wunderground and other sources. We added numerous new words, added additional definition information, selected the best definitions for our glossary and wrote some of our own definitions based on our research and experience.