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# National Weather Service


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### 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 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 0°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 Forecast Office**  
(Abbrev. 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](#)
- 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 radiofacsimile 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 Zero**

(Abbrev. WBZ) - the height where the wet-bulb temperature goes below 0°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.

**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 uncontrollable wildland fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment.

**Wildlands**

Any nonurbanized land not under extensive agricultural cultivation, e.g., forests, grasslands, rangelands.

**Willy-Willy**

- A tropical cyclone of hurricane strength near Australia.
- Wind**  
The horizontal motion of the air past a given point. Winds begin with differences in air pressures. Pressure that's higher at one place than another sets up a force pushing from the high toward the low pressure. The greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated. Meteorologists refer to the force that starts the wind flowing as the "pressure gradient force." High and low pressure are relative. There's no set number that divides high and low pressure. Wind is used to describe the prevailing direction from which the wind is blowing with the speed given usually in miles per hour or knots.
- 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 -20°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 -20°F.
- 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.

**WINT**

winter

**Winter**

Typically the coldest season of the year during which the sun is farthest from overhead. In the Northern Hemisphere, winter customarily includes the months of December, January and February.

**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.

**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
<b>WRN</b>	Western
<b>WRNG</b>	Warning
<b>WSFO</b>	Weather Service Forecast Office
<b>WSHFT</b>	Wind Shift
<b>WSPD</b>	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.
<b>WSR-57</b>	A NWS Weather Surveillance Radar designed in 1957. It used to be part of weather radar network. It was replaced by WSR-88D units.
<b>WSR-74</b>	A NWS Weather Surveillance Radar designed in 1974. It used to be part of weather radar network. It was replaced by WSR-88D units.
<b>WSR-88D</b>	Weather Surveillance Radar - 1988 Doppler; NEXRAD unit.
<b>WSR-88D System</b>	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.
<b>WSW</b>	Winter Storm Message
<b>WTMP</b>	On a buoy report, the sea surface temperature (Celsius).
<b>WTR</b>	Water Equivalent
<b>WV</b>	<ol style="list-style-type: none"><li>1. Water Vapor (satellite imagery)</li><li>2. Wave</li><li>3. West Virginia</li></ol>
<b>WVHT</b>	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.
<b>WW</b>	Severe Thunderstorm or Tornado Watch
<b>WWH</b>	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).
<b>WWP</b>	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.
<b>WWV</b>	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.
<b>WWVH</b>	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.
<b>WX</b>	Weather

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