

Anvil - The flat, spreading top of a cumulonimbus, often shaped like a blacksmith's anvil. The anvil points in the direction the storm is moving.

Downburst - A strong downdraft resulting in an outward burst of damaging winds on or near the ground. Sometimes called "straight-line winds", downbursts may be large (macroburst) or small (microburst) in scale.

Downdraft - A column of air that rapidly sinks toward the ground, usually accompanied by precipitation as in a shower or thunderstorm.

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.

Funnel Cloud - A condensation funnel extending from the base of a towering cumulus or cumulonimbus, associated with a rotating column of air that is *not* in contact with the ground.

Gust Front - The leading edge of gusty surface winds from thunderstorm downdrafts; sometimes associated with a shelf cloud or roll cloud.

Gustnado - A surface-based circulation associated with thunderstorm outflow. Gustnadoes are not associated with updraft and are not attached to cloud bases, so they are not considered true tornadoes.

Landspout - A tornado that does not arise from organized storm-scale rotation and therefore is not associated with a wall cloud or a mesocyclone.

Mammatus Clouds - Rounded, smooth, sack-like protrusions hanging from the underside of a thunderstorm anvil. Mammatus clouds often accompany severe thunderstorms, but do not produce severe weather.

Mesocyclone - A storm-scale region of rotation, typically around 2 to 6 miles in diameter and often found in the right rear flank of a supercell.

Overshooting Top - A dome-like protrusion above a thunderstorm anvil, representing a strong updraft.

Rain-free Base - A dark, horizontal cloud base with no visible precipitation beneath it. It typically marks the location of the thunderstorm updraft.

Roll Cloud - A low, horizontal tube-shaped cloud associated with a thunderstorm gust front.

Scud - Small, ragged, low cloud fragments that are unattached to the main thunderstorm cloud base.

Severe Thunderstorm - A thunderstorm which produces tornadoes, hail 1 inch or more in diameter, or winds of 50 knots (58 mph) or more. Structural wind damage may imply the occurrence of a severe thunderstorm.

Shelf Cloud - A low, horizontal wedge-shaped cloud, associated with a thunderstorm gust front. The shelf cloud is usually attached to the base of the parent cloud above it.

Squall Line - A solid or nearly solid line or band of active thunderstorms. Squall lines typically have updraft areas on the leading edge, above or just ahead of a large gust front.

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 a rotating updraft.

Supercell - A thunderstorm with persistent storm scale rotation. Supercells are responsible for a high percentage of severe weather events - especially tornadoes, extremely large hail and damaging straight-line winds.

Tail Cloud - A horizontal, tail-shaped cloud (not a funnel cloud) at low levels extending from the wall cloud toward the cool, moist downdraft (precipitation) region.

Tornado - A violently rotating column of air in contact with the ground and extending from the base of a

thunderstorm.

Updraft - A column of rising air, often associated with the active portion of a thunderstorm.

Virga - Precipitation which falls from a cloud base but evaporates before reaching the ground. Virga often has a streaky or stringy appearance as it hangs down from the cloud base. Gusty wind may occur beneath the virga shaft.

Wall Cloud - A localized, persistent, often blocky or abrupt lowering from a rain-free base. Wall clouds suggest a strong updraft, and normally are found on the south side of the thunderstorm.

Watch - Indicate conditions are favorable for a severe weather event to occur in the future. Watches (severe or tornado) typically cover numerous counties and are valid for approximately four to six hours.

Warning - Indicate a severe weather event is imminent or occurring. Warnings are typically issued for specific areas of county(ies) for one hour or less.

NOAA Weather Radio provides broadcasts of the latest weather information from the National Weather Service. These radios are either battery-operated portable units or AC-powered desktop models with battery back-up. While NOAA Weather Radio broadcasts will not be found on the standard AM/FM radio bands, some CB radios and scanners are capable of receiving the weather band frequencies. Also, many weather radios are small enough to take along on the road or on outdoor activities and can keep you informed of the latest weather changes. NOAA Weather Radio also serves as an "all hazards" alert system. This allows emergency management officials to inform the public of emergencies and other incidents that require the public to take action to protect themselves. Weather radios equipped with a special alarm tone feature sound an alert day or night to give you immediate information about a life-threatening situation. NOAA Weather Radio operates as an "all hazards" radio network, making it the single source for the most comprehensive weather and emergency information available to the public.

Nebraska All Hazards NOAA Weather Radio Frequencies			
NWR Transmitter	Frequency (MHz)	NWR Transmitter	Frequency (MHz)
Angora	162.475	Trenton	162.500
Bassett	162.475	Valentine	162.450
Cambridge	162.525		
Chadron	162.525		
Merna	162.500		
Merriman	162.400		
Mullen	162.425		
Ord	162.525		
Oshkosh	162.525		
Pickstow, SD	162.425		
Sutherland	162.550		

THE STORM SPOTTER'S CHECKLIST

Western and North Central Nebraska
 National Weather Service
www.weather.gov/northplatte
 1-800-603-3562



REPORTING TIPS...

- Call 1-800-603-3562
- Identify yourself (trained spotter) and your location
- Report what you are seeing or have seen
- Where did it occur (location of the event)? Use references to known landmarks, towns, or roads
- What time did the event occur?
- Report any damage that has occurred as a result of the severe weather
- IMPACTS from heavy rainfall are more important than instantaneous rates
- Report significant features/events immediately
- If you are unsure of what you're seeing, make your report but express the uncertainty also

SAFETY TIPS...

- Beware of lightning and flooding
- Keep a "buffer zone" between you and the storm to allow changes in storm movement and to keep your options open for an escape route
- Stay on paved roads
- ALWAYS have an escape route - Mobile spotters should spot from four-way intersections to facilitate escape in each direction
- Point spotters should have quick access to shelter
- Be alert for emergency vehicles, pedestrians, and other traffic hazards
- Pull well off the road if you are going to stop

NIGHT SPOTTING TIPS...

- Lightning can backlight storm features
- Increasing hail size suggests you are close to the updraft area
- Power flashes indicate possible tornado

KEY SEVERE WEATHER DEFINITIONS...

- Funnel Cloud — A rotating funnel-shaped cloud extending downward from a thunderstorm base, but not in contact with the ground
- Tornado — A violently rotating column of air attached to a thunderstorm and in contact with the ground
- Watch — Conditions are favorable for a severe weather event in or near the Watch Area
- Warning — A severe weather event is imminent or occurring in the Warned Area

ARE STRONG UPDRAFTS PRESENT?

- Thick, cumuliform anvil
- Large, persistent overshooting top
- Hard, cauliflower texture to updraft tower
- Rain-free base
- Rising scud clouds (possibly)
- Wall cloud

ARE STRONG DOWDRAFTS PRESENT?

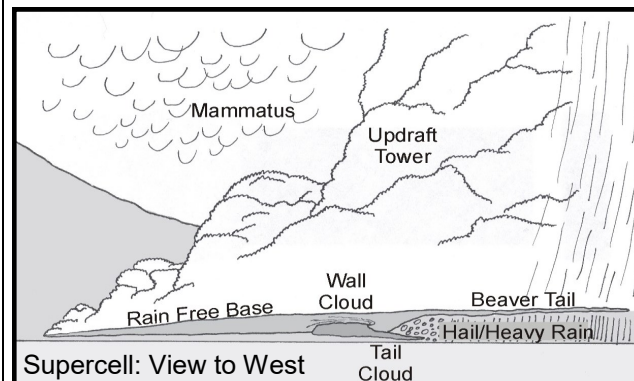
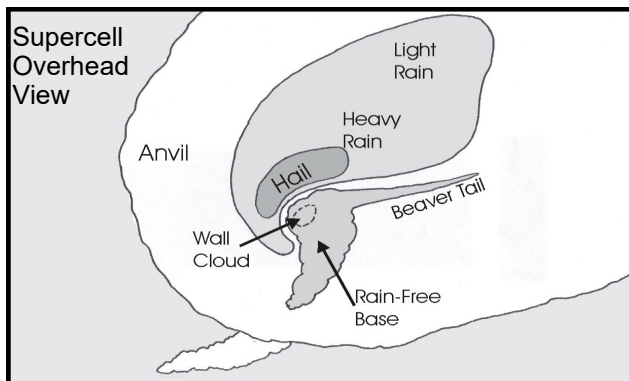
- Shelf cloud
- Rain foot or Dust foot
- Intense rain area that quickly reaches ground
- Winds blowing away from storm

IS THE STORM ROTATING?

- Striations
- Mid-level cloud bands
- Rotating wall cloud

IS THE TORNADO THREAT INCREASING?

- Large, circular updraft base
- Increasing spin in wall cloud and cloud base
- Strong, increasing inflow
- Rapid vertical motions near wall cloud
- Warm Rear Flank Downdraft
- We need you to watch the ground for debris!



ARE YOU SEEING A "LOOK-ALIKE"?

- Scud (not attached to cloud base, likely not rotating)
- Precipitation shaft (likely not rotating, often has a fuzzy or stringy appearance)
- Smoke/Steam column (originates from a stationary point, likely not rotating)
- "Gustnado" (not associated with updraft, not attached to cloud base)

WALL CLOUDS

- suggest updraft
- Point TOWARD the rain shaft
- maintain their position with respect to the precipitation
- form under a smooth, flat updraft base

SHELF CLOUDS

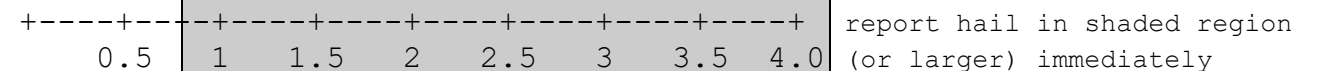
- suggest downdraft
- Point AWAY from the rain shaft
- visibly move away from the precipitation area
- have a ragged, choppy appearance to their bases

HAIL SIZE ESTIMATION

1/4"	Pea	1.75"	Golf Ball
2/3"	Dime	2"	Hen Egg
3/4"	Penny	2.5"	Tennis Ball
7/8"	Nickel	2.75"	Baseball
1"	Quarter	3"	Tea Cup
1.25"	Half Dollar	4"	Grapefruit
1.5"	Ping Pong Ball	4.5"	Softball

WIND SPEED ESTIMATION

- 25-31 mph -- Large branches in motion, whistling heard in telephone wires
- 32-38 mph -- Whole trees in motion; inconvenience felt walking against the wind
- 39-54 mph -- Twigs break off of trees; difficulty walking against the wind
- 55-72 mph -- Damage to chimneys, TV antennas, and light storage buildings; breaks large tree limbs; pushes over shallow rooted trees
- 73-112 mph -- Peels shingles/sheeting off roofs; windows broken; mobile homes pushed or overturned; moving cars pushed off of road



SUGGESTED REPORTING CRITERIA

URGENT (tornado, flash flood)

- Tornado
- Funnel cloud
- Low-level rotation signatures
- Flash flooding

HIGH (at or above severe thunderstorm criteria)

- Hail one inch or larger
- Winds 60 mph or stronger

MEDIUM (near severe thunderstorm criteria)

- Hail 1/2 inch to 3/4 inch
- Winds 45 to 55 mph
- Localized flooding (> 1/2 inch in one hour)

LOW

- Hail smaller than 1/2 inch
- Winds less than 45 mph
- Heavy rain, no flooding impacts



Do not assume that the NWS knows for certain that severe weather has occurred. (We want to hear from you!) We would be happy to have several reports of the same weather phenomena, than none at all. Call 800-603-3562 to give us your essential report.