



Severe Weather Reporting Criteria



The National Weather Service has established guidelines and criteria for determining whether a particular storm is severe. The guidelines are located here, in the Severe Weather Reporting Criteria. It is important to learn these guidelines so that you the Spotter can know what to report and how.

Reporting Severe Thunderstorms and Tornadoes

Hail: A thunderstorm is producing hail (stones of ice) larger than a pea. Use coins to compare your hail size. A severe thunderstorm begins at dime size or 1/2 inches. Once hail becomes larger than coins, compare it to balls such as a golf ball (1 3/4 inches), tennis ball, softball, etc. On rare occasions, thunderstorms can drop enough hail to begin accumulating like snow. You might report that you have pea size hail but it is now 3 inches deep on the ground!

Hail Size:

Pea Size 1/4"

Dime Size 1/2" (Minimum reportable size)

Penny Size 3/4"

Nickel Size 1"

Golf Ball Size 1-3/4"

Baseball Size 2-3/4"

Wind: A thunderstorm is causing winds to gust to 60 mph (50 kts) or greater. Estimating winds is difficult. We prefer a measured wind report using an anemometer. If you do not have one, report any wind damage such as to trees (large branches down, trees snapped or uprooted) or damage to property (shingles torn off, etc.) If considerable damage has occurred, if possible, report how large an area seemed to be affected or if you witnessed it, the events that you saw and heard.

Wind Speed (Miles Per Hour):

0 Smoke rises vertically

1-3 Smoke drifts but windvanes do not move

4-7 Wind felt on face, leaves rustle

8-12 Small twigs in motion

13-18 Dust raised, loose paper raised, small branches move

19-24 Small leafy trees move, crested wavelets form on water

25-31 Large branches in motion, whistling in wires

32-38 Whole trees in motion, inconvenience felt walking against wind

39-54 Twigs break off trees

55-72 Damage to chimneys, pushes over shallow rooted trees

72-112 Peels surface off roofs, windows broken, trailer homes overturned

113-157 Roofs torn off houses, trailers destroyed, large trees snapped and uprooted

158 & Up Severe damage, cars lifted off ground

Tornadoes and funnel clouds: On rare occasions, thunderstorms will produce funnel clouds which sometimes touch down as a tornado over land or a waterspout over rivers, lakes, and the bay. A wall cloud is sometimes a precursor to severe weather. A funnel cloud appears as a pendant (or funnel) lowering from a thunderstorm cloud and it is spinning or rotating. Report this! If the rotating winds are touching the ground, it is a "tornado". The funnel cloud need not be visibly touching the ground for a tornado to be on the ground. Look for rotating debris rising up from the ground. Report this immediately!

Damage: Any storm related damage should be reported. While it is best to have the report close to the event so we can use the information to assist us with issuing warning, the damage report is also important for publishing storm data and research purposes. Therefore, we want this information regardless of how old it might be.

Reporting Flooding, Flash Flooding and Heavy Rain

Types of Flooding

Flash Flooding: Flash flooding occurs when torrential rains cause a sudden and dramatic rise in small streams and creeks causing them to flood out of their banks and over roads and bridges. It is the #1 weather killer in the country because people often try to drive through these flood waters and are trapped or swept away. Flash flooding can be a very localized event occurring from one thunderstorm. Flash flooding can also occur when a dam suddenly breaks. The dam may be manmade, or it could be an ice jam or a debris dam that backs up water and then suddenly lets loose.

River Flooding: After a widespread heavy rain event or rain and snow melt event, the rivers rise out of their banks. Because it takes time for the rain to run into the small streams and then into the rivers. River flooding often occurs after the rain has stopped. People along the lower stems of the large rivers such as the Red River, may not see the flood waters until 1 to 2 days after the rain has stopped.

Rainfall Intensity:

Light Less than 0.2"/Hr.

Moderate 0.2" to 1.0"/Hr.

Heavy 1.1" to 2.2"/Hr. (Minimum reportable rain)

Very heavy 2.3" to 4.5"/Hr.

Intense 4.6" to 7.1"/Hr.

Extreme More than 7.1"/Hr.

Reporting Snowfall

KSWO SkyWARN 7 Weather

To report by PHONE, dial 580-357-1922.

To report via email, click tv7weather@kswo.com.

National Weather Service

To report by PHONE, dial 405-325-3816.

To report by internet, follow the link <http://www.srh.noaa.gov/oun/stormreport>.

Call or email if snow is falling and accumulating, but not in the forecast...Or...the snowfall depth has exceeded what is currently forecasted.

Call or email when 4 inches of snow has fallen. (However, reports are never turned down).

Most Important! Call or e-mail your final snowfall total. This data is critical for proper documentation of the event. Please do not **embelish** your total snowfall...accuracy is very important to us.

If you are receiving heavy snow, greater than 4 inches, Call or email when you feel it is an appropriate time to give an update.

Measuring Snowfall

Where and How to measure the snow

Ideally, you want to measure snow on a snow board. You can make your own. It is just a clean, white board (about 2 X 3 feet). Place the board on the ground away from trees, buildings, fences, etc., as much in the open as possible. Allow the snow to accumulate on top of it and measure the depth with a ruler.

Less accurate alternatives include measuring on a deck or patio. These surfaces are more likely to be warmer and melt some snow or be sheltered by the house, etc., but it is a second choice.

Measuring on the ground with no snow board works if there is no grass or the grass is extremely short and compact to the ground. If not, be sure not to jam the ruler down too far so that you are measuring the dirt and grass with your snow.

Measuring on a driveway might work if the temperatures before the snow are well below freezing so that all the snow that falls accumulates and does not melt. If your driveway is paved, just use the ruler. If gravel, do not jam the ruler into the gravel, just penetrate the snow until you hit stone.

Other Important Tips on Measuring Snow

Sampling - if you are not using a snow board, you might want to sample several locations and take an average. If windy conditions are causing drifting of snow, do not average in the drifts. Measure drifts separately.

Drifts - Report drifts in feet (not inches). Only report if a drift is much greater than your snowfall. For instance, the wind blows all but a trace of snow off your snow board yet you have a 3 foot drift against your house.

Reading the Ruler - measure the snow to the half inch, if possible. Always round upward. In other words, if you measure 5 3/4 inches, call in 6 inches.

Reporting Ice

Know the difference

Sleet is frozen rain or ice pellets. When it strikes the ground, it usually bounces. Sleet can accumulate like snow and cause slick roads. In February 1994, some areas reported 4 to 7 inches of sleet!

Freezing rain is rain that freezes after it strikes a cold surface such as a tree, a sidewalk, or a car. It forms a sheet of ice and is extremely dangerous.

When measuring **ice**, measure the thickness of the glaze on trees or wires. Report what is on the ground separately since it might be a mixture of snow, sleet, and ice or a different thickness due to surface temperature differences. (ex. Ice might be accumulating on trees and wires but the pavement is just wet because it was warmer and above 32°F.) On the other hand, there are times that the pavement is colder and slick spots are forming on the road, but above the ground at tree level, the temperature is above 32°F and no ice is forming. Please tell us as much as you can.

When to Report Ice

Call or email when a glaze of ice begins to accumulate on trees and wires, or on roadways and walkways. Ice is extremely hazardous and sensitive to your local temperature. Reporting ice might save a life.

Call or email when ice accumulates a half an inch or more on trees and wire. At this point, the weight of the ice may be enough to bring down tree limbs and utility lines.

Contact us (if still possible) when ice reaches one inch thick.

Call or email or e-mail your ice total, final thickness of the ice, on the trees.

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Severe Weather Identification Guidelines

The National Weather Service defines a severe thunderstorm as one that produces 1) hail 1/2 of an inch in diameter or larger; 2) winds at or above 50 MPH; and/or 3) a tornado. When attempting to verify warnings, the National Weather Service looks for these occurrences, in addition to other events that imply a severe thunderstorm, such as damage.

Use the following criteria when determining whether you are dealing with an actual severe weather event. REMEMBER, your severe weather reports are vital to the NWS, even hours or days after an event has occurred. Include the time and the exact location of the event when reporting.

The following are considered to be severe weather events and should be reported as soon as possible:

TORNADO

A credible report of a tornado on the ground. If the funnel extends more than halfway from cloud base to the ground, or if dirt/debris are seen on the ground underneath the funnel, it should be reported as a tornado.

DAMAGING WINDS

1. Measured thunderstorm wind gusts of 50 MPH or more

2. Estimated thunderstorm wind gusts of 50 MPH or more from trained spotter
3. Trees blown down or uprooted (more than 1)
4. Large limbs or branches blown down (more than 1)
5. Power lines blown down
6. Permanent signs blown down
7. Roof damage from the wind (large area of roofing material removed)
8. Windows broken by the wind
9. Structural damage to business, house, barn, shed, circus tent, etc
10. Radio tower or large antenna blown down
11. Home TV antennas blown down (more than 1)
12. Campers heavily damaged or destroyed
13. Mobile home damaged by wind

LARGE HAIL

1. Hail 1/2 of an inch in diameter or larger (approximately dime size)
2. Windows or windshields broken by hail
3. Roofs or house siding damaged by hail

Severe Weather Reporting Procedures

The National Weather Service relies heavily on YOUR reports of severe or hazardous weather. The following occurrences should be reported IMMEDIATELY...

1. TORNADOES

- you may not see the funnel itself on the ground
- look for dust or debris on the ground underneath a funnel or wall cloud
- power flashes at night may indicate a tornado

2. FUNNEL CLOUDS

- look for organized, sustained rotation

3. ROTATING WALL CLOUDS

- should be persistent (tens of minutes) and organized
- rotating wall clouds are extremely dangerous

4. HAIL

- report hail size and intensity

- report hail size in terms of well-known objects (coins, fruit) or in inches

- avoid using the term "MARBLE SIZE"

5. DAMAGING WINDS (preferably measured)

- give best estimate of wind speed

- report winds of 50 mph or higher

6. STORM DAMAGE

- damage reports are extremely important!

- report any damage caused by hail, wind, lightning, etc

7. FLOODING

- report flooding that blocks streets, roads or highways

- report flooding that is a threat to life or property

8. EXCESSIVE RAINFALL

- report excessive rainfall (more than one inch per hour)

9. DOWNED TREES or POWER LINES

- report downed trees or large branches and give diameter

- report downed power lines (stay away!) and loss of commercial power

10. WINTER WEATHER

- report any significant accumulation of snow or ice

- report significant problems caused by snow or ice

- report sleet or freezing rain

- report wind gusts in excess of 35 mph or more
- report downed trees, power lines, or any storm related damage
- report impassable or closed roads

How To Report

When possible, all reports should be passed to a central point for relay to the NWS. This may be the Sheriff's Office, Police Department, Emergency Management Office, etc. Ask them to relay your report to the NWS in Norman, Oklahoma if you are not able to call or email them direct.

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The following information should be included in every report:

1. What is occurring / what happened?
 - a. tornado, wall cloud, funnel cloud
 - b. rain in excess of 1" per hour (make sure to note whether or not it is measured or estimated)
 - c. hail (MUST INCLUDE SIZE)
 - d. damaging winds (estimated or measured)

- e. flooding (other than minor street flooding-this is a common occurrence during severe storms)
 - f. wind or hail damage
 - g. other significant weather and/or damage
2. The exact location of the event in reference to well-known towns, landmarks, intersections, etc
 3. The exact time the event occurred
 4. If it's a second/third hand report, the source of the original report, along with all pertinent information. (1-3 above)
 5. Reporter's information (name, call sign, spotter ID#)

Amateur radio reports should be relayed through the appropriate net to the NWS station.

The Primary Net for The Lawton Independent Repeater Alliance Severe Weather Net is on the 442.525MHz+ PL 123.0 Repeater.

Before making any reports listen to the NCS as he/she will provide the proper instructions on when and how to make your report. Although in an emergency situation (i.e. a tornado on the ground) you can butt in and interrupt the NCS by saying BREAK and the last three letters of your callsign. At this point and time all eyes and ears are on you.

REMEMBER:

IDENTIFY YOURSELF AS A TRAINED STORM SPOTTER GIVE YOUR EXACT LOCATION (county and nearest town, major intersection, etc)

TELL WHAT YOU SAW (tornado, hail, wind, etc)

GIVE THE TIME THE EVENT OCCURRED

GIVE ANY OTHER IMPORTANT INFORMATION

If you are in doubt as to whether an event/damage is severe or not, make the report anyway!