



SKYWARN Weather Spotter Quick Reference Guide

National Weather Service (NWS) – Columbia, SC <http://weather.gov/cae> caewx@noaa.gov

Your reports are critical to helping the NWS achieve its mission of saving lives and property through the issuance of timely warnings. The **NWS needs these reports**: tornadoes, funnel clouds, hail of any size, wind gusts (estimated or measured) of 50 mph or higher, flooding (water closing roads or entering buildings), and impact of damage (property, trees, power-lines, etc). Being an effective weather spotter may take years to master, and takes practice. **Remember, you are *mobile!* Report severe weather or damage wherever you are!**

Damaging Winds – Report speed and damage (trees down, large limbs down, buildings/structures damaged, etc.)

Straight-line Wind Gust Estimates	
45-57 mph (39-49 kts)	Non Severe - Large trees bend; twigs, small limbs break, and a few larger dead or weak branches may break. Old/weak structures (e.g., sheds, barns) may sustain minor damage (roof, doors). Some loose shingles may be removed from houses.
58-74 mph (50-64 kts)	Severe - Large limbs break; shallow rooted trees pushed over. Semi-trucks overturned. More significant damage to old / weak structures. Shingles, awnings removed from houses; damage to chimneys and antennas; mobile homes, carports incur minor structural damage; large billboard signs may be toppled.
75-89 mph (65-77 kts)	Hurricane Force - Widespread tree damage (trees either broken or uprooted). Mobile homes may incur more significant structural damage; be pushed off foundations or overturned. Roofs may be partially peeled off industrial/commercial/warehouse buildings. Some minor roof damage to homes. Weak or open structures (e.g. farm buildings, airplane hangars) may be severely damaged.
90+ mph (78+ kts)	Significant Severe - Groves of trees flattened. Mobile homes severely damaged; moderate roof damage to homes. Roofs partially peeled off homes and buildings. Barns and sheds completely demolished.

Tornado

Enhanced Fujita Scale (EF Scale)	
EF0: 65 – 85 mph	Light Damage – Loss of roofing material, large tree branches broken, some large trees uprooted
EF1: 86 – 110 mph	Moderate Damage – Considerable loss of roofing, mobile homes flipped, bent light poles
EF2: 111 – 135 mph	Considerable Damage – Large root sections removed, most walls standing, light poles collapsed
EF3: 136 – 165 mph	Severe Damage – Exterior walls & some interior walls removed, mobile homes destroyed
EF4: 166 – 200 mph	Devastating Damage – All home walls collapsed, partial destruction of masonry hotels and strip malls
EF5: >200 mph	Incredible Damage – Destruction of home/building, building slab swept clean, steel deformed

Note: You need not give an EF-scale estimate with a tornado report. Tornado intensity is largely determined after NWS damage assessments.

Hail Size – PLEASE REPORT ALL HAIL!

Hail Size Diameter	
0.25 – 0.375" - Pea	0.75" – Penny
0.88" – Nickel	1" – Quarter
1.25" – Half Dollar	1.5" – Ping Pong Ball
1.75" – Golfball	2" – Lime
2.5" – Tennis Ball	2.75" – Baseball
3" – Large Apple	4" – Softball
4.5" – Large Grapefruit	4.75 - 5" – CD/DVD

Note: Avoid using "Marble sizes" to describe hail, since there are many different sizes of marbles.



Watch/Warning Definitions

Severe Thunderstorm Watch - Conditions are favorable for thunderstorms to produce large hail in excess of 1 inch, and/or damaging winds 58+ mph; Isolated tornado possible.
Severe Thunderstorm Warning - Radar has detected, or a report has indicated, a severe thunderstorm producing large hail or damaging winds in progress or imminent.
Tornado Watch - Conditions are favorable for tornadoes.
Tornado Warning - Radar has indicated a possible tornado or a report has indicated a tornado in progress.

Tips for Providing Useful Reports

- Safety first (report is #2 priority). Never put yourself or others in harm's way.
- Know what you're reporting. False reports do more harm than no report at all. Not sure? – Don't report.
- Tools to help you provide accurate reports include:
 - NOAA Weather Radio
 - Accurate Clock
 - Map/GPS
 - Paper and Pencil
 - Ruler
 - This Guide Sheet
- **Report the Time, Event and Location (TEL) of event:**
 - Exact **Time** event *occurred* and time of call.
 - **Event** details, including any damage, injuries and fatalities.
 - **Location** of Event – Lat/Lon, or distance and direction from a landmark (city, intersection, etc).
 - (Optional) Your name, e-mail , or phone number, so we can contact you if we have questions.
- **An example of an accurate report to the NWS:**
"My name is Joe Smith and I am a trained weather spotter. At 558 pm, I observed straight-line wind gusts estimated at 65 mph about 1.2 miles south of Any Town, SC in Any County. A tree fell onto a house injuring 2 people near the intersection of A and B Streets."
- **Ways to report to the National Weather Service:**
 - SKYWARN Ham Radio Nets
 - Unlisted Trained Spotter number : 803-██████████
 - e-mail: caewx@noaa.gov
 - Facebook: NWSColumbia
 - Twitter: @NWSColumbia
 - More about Twitter and NWS Storm Reports: weather.gov/stormreports

TORNADO / FUNNEL CLOUD REPORTS

- 1) What is the exact location of the tornado or funnel cloud?
- 2) Is cloud rotation evident?
- 3) Is there damage on the ground?
- 4) What direction does the tornado or funnel cloud moving?
- 5) If known, how long has it been on the ground?

STRONG/SEVERE STORM VISUAL CLUES

- Solid-looking overshooting top for 10 min. or more.
- Solid-looking anvil with sharply defined edges.
- Solid, hard-looking mid-level tower with a cauliflower appearance.
- Mammatus clouds.
- Visible rotation of the storm's middle and lower levels.
- Flanking line of cells stair-stepping up to main storm.
- Wall cloud attached to the rain-free base of the storm.

LOOK FOR ROTATION!

- Shelf Cloud attached to the base of the storm.
- Roll cloud (horizontal, tube-shaped) detached from the storm.

TORNADO SAFETY RULES

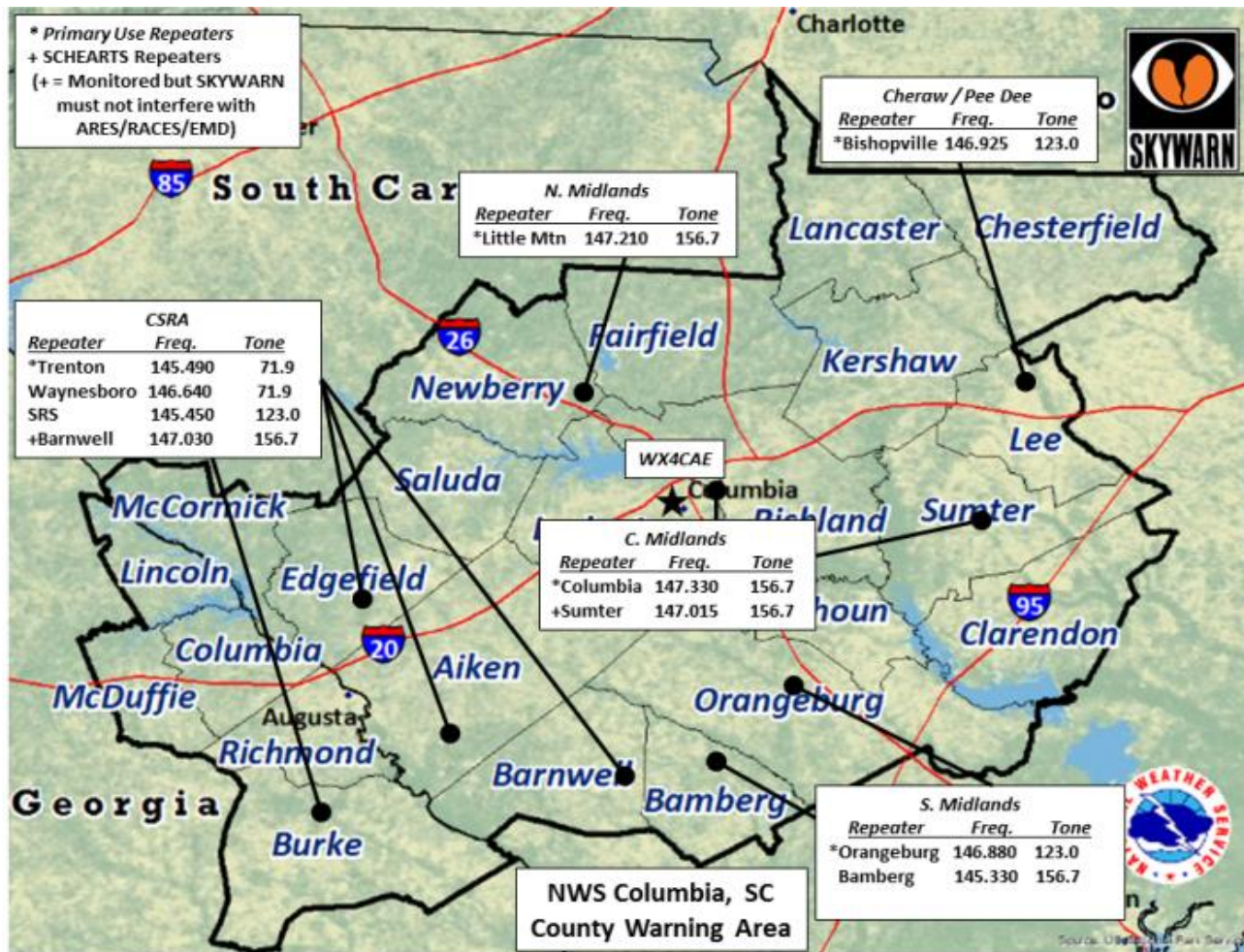
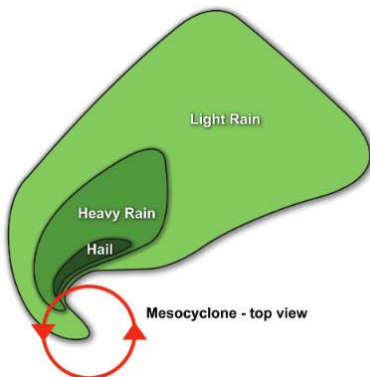
- Go to a basement or small interior room on the lowest floor.
- Get out of mobile homes and vehicles.
- NEVER try to outrun tornadoes in your car.
- Don't take shelter under bridges or overpasses

DOWNBURST / WIND SAFETY

- Keep a firm grip on vehicle's steering wheel for control.
- If you can, point your vehicle into the wind to minimize risk of vehicle overturning.
- Watch for sudden low visibility (heavy rain, dust).
- If inside, move away from windows as downburst approaches.
- Look up! Stay away from trees, power lines, etc. that can fall.

HAIL SAFETY

- Sturdy structures & buildings offer best protection
- If in a vehicle, avoid parts of storm where large hail is occurring.
- Hard-top vehicles best protection from hail up to golf-ball size. Larger hail will damage or break out windshields.
- Remember large hail can break and bring down items from above such as signs, tree limbs, power lines, etc.



SEVERE THUNDERSTORM CRITERIA

- Wind Gusts of 58 mph (50 knots) or higher
- Hail that is 1 inch (quarter-size) or larger
- Tornado or Funnel Cloud

FLASH FLOOD SAFETY

- **TURN AROUND...DON'T DROWN!** Never try to cross a flooded road or low water crossing. You can't be sure of the water's depth and the road may be washed out.
- 2 feet of moving water will carry away most vehicles.
- 6 inches of moving water can knock you off your feet.
- If your vehicle is suddenly caught in rising water, leave it immediately if you can, get to higher ground.
- Be especially vigilant at night when flash floods are harder to see and recognize.

LIGHTNING SAFETY TIPS

- Avoid being the tallest object!
- Stay away from water and metal.
- Best protection is in sturdy buildings.
- Stay off radios, corded phones, stay away from windows & appliances.
- If inside a hard-topped vehicle, avoid contact with metal frame.
- Stay under cover until 30 min. after last clap of thunder.

Remember... A C E S

- A** – **Aware** of your surroundings
- C** – Keep in **communication**
- E** – **Escape routes** in mind at all times
- S** – **Safe Zone/Shelter**, know where they are