

What you need to know about ... **Radar**



article revised October 2009
photo taken from <http://www.bergoiata.org/fe/force-nature/10.htm>

Agweather allows users to view current weather radar various radars around our region, as well as national radar maps.

How does radar work?

The radar transmits a beam of microwave energy into the atmosphere. When the microwave hits a target, energy is reflected back to the radar.

The targets can be precipitation, like raindrops, hailstones, snowflakes or sleet particles. They also can be non-meteorological targets, such as birds, insects or bats.

Depending on the weather, radar automatically switches back and forth between clear air mode and precipitation mode.

What is reflectivity?

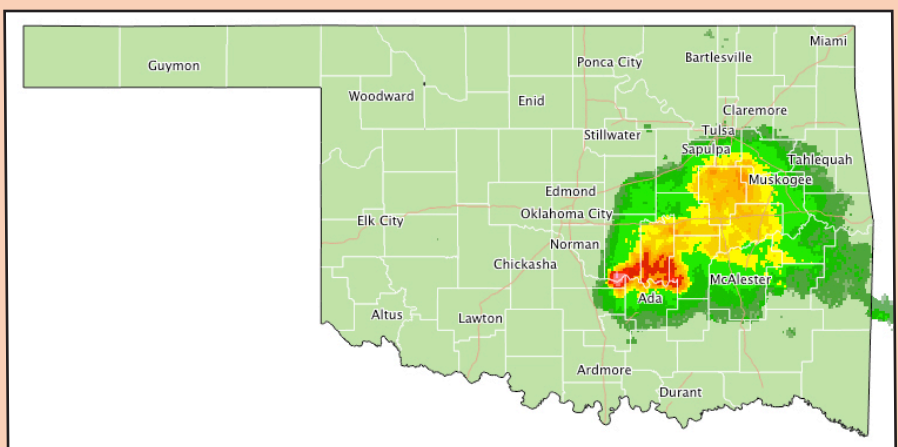
Reflectivity (dBZ) is the measurement used in radar imaging. The larger the reflectivity measurement, the larger the target.

Clear Air mode

- Very sensitive mode
- Used when there is no rainfall or during freezing events
- Measure of reflectivity ranges from -28 to +28 dBZ
- See back for more info

Precipitation mode

- Not as sensitive, but gives a good view of storms
- Used when there is rainfall
- Measure of reflectivity ranges from 0 to +75
- See back for more info



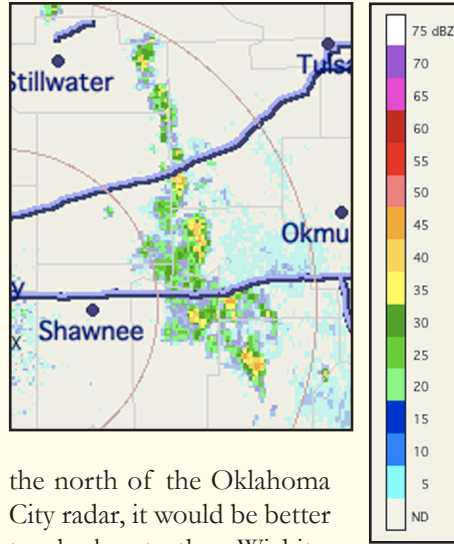
To view radar images, go to <http://agweather.mesonet.org/>. Click on "Radar/Satellite" in the menu bar and select a location. For help, call 405-325-3126.

More on precipitation mode...

In the precipitation mode, shown right, the radar shows higher values of reflectivity. The scale ranges from 0 to +75 dBZ.

Because of the curvature of the earth, the farther away the beam gets from the radar, the higher the beam is above the earth. The beam also broadens as it gets farther from the radar, so storms at far ranges appear less defined.

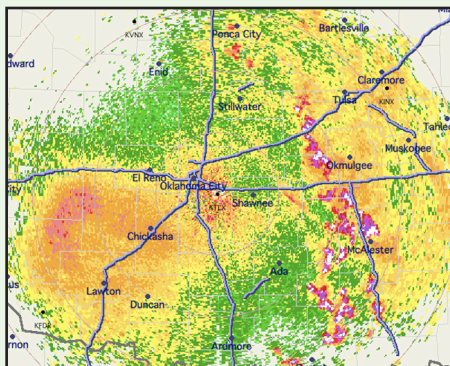
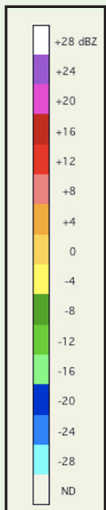
In other words, the exact same thunderstorm can appear differently if it is located closer to the radar rather than far away. It is usually best to choose a close radar, if possible. For example, when storms are a few hundred miles to



the north of the Oklahoma City radar, it would be better to look at the Wichita, Kan., radar.

More on clear air mode...

In the clear air mode, shown below, the radar shows smaller values of reflectivity. The scale ranges from -28 to +28 dBZ.



In the more-sensitive clear air mode, the radar antenna rotates more slowly. This allows more processing of the reflectivity information, so features not seen in precipitation mode appear.

When the radar detects precipitation while it is in clear air mode, it will automatically switch to precipitation mode.

Clear air mode is useful in tracking atmospheric boundaries like cold fronts and dry lines.

Our story



In 1982, Oklahoma scientists recognized the need for a statewide weather network.

At OSU, agricultural scientists wanted to upgrade weather instruments at their research sites. Their goal was to expand the use of weather data in agricultural applications.

Meanwhile, scientists from OU and the Oklahoma Climatological Survey were helping to plan and implement a flood-warning system for Tulsa.

OSU and OU joined forces in 1987 when they realized that one statewide weather network would help both universities achieve their missions. No other state or nation is known to have a network that boasts the capabilities of the Oklahoma Mesonet.

Agweather is one Web site that features data from the Oklahoma Mesonet. Agweather can be found at <http://agweather.mesonet.org/>.

Agweather
Local. Reliable. Free.





Remember to download the

WeatherScope Plugin

It's safe, free and allows you to see all of the Agweather data.

for more information, visit <http://agweather.mesonet.org>