



Indicators of Icy Conditions

–by Stephanie Bowen

WHEN ICY CONDITIONS come sweeping across the plains, you might notice it affect the Mesonet maps. In fact, taking a look at the Mesonet Current Conditions map can give you a good indication of where icy conditions may be in the state. If you see sites without a wind barb on the map in the winter, then it is likely the site is affected by frozen precipitation.

Our Current Conditions map, as well as all our wind maps, display wind speed and direction at ten meters using a propeller vane anemometer. The sensors are not heated, so freezing rain can cause ice to accumulate.

“Ice prevents the propellers from spinning as fast as they usually do because it weighs them down,” said Cindy Luttrell, Lead Operator at the Mesonet. “So as the ice accumulates on the sensor, the reported wind speed decreases. If enough ice accumulates, the sensor will stop spinning and report zero wind speed.”

Since it is quite difficult to distinguish a *real* calm wind observation from an erroneous one, the data have to

be manually inspected. This is when meteorologists at the Mesonet step in. By checking wind speed, air temperature, humidity and radar, they can determine if a station is affected by ice accumulation.

“Once they determine a site is affected by ice, they remove the data for that site from the website during the time the data are affected,” Luttrell said. “That data will remain missing from the site until we can determine the sensor is working properly again. Usually a day after it thaws, the wind data will show back up on the website.”

Mesonet operators try to flag this data as soon as possible. If we suspect there is going to be winter precipitation in an area, we will put an alert on the website indicating that the data might not be trustworthy for that site.

“It is also important to remember Mesonet rain gauges are not heated either and will report frozen precipitation when the ice melts, usually days later,” Luttrell said. “Mesonet wind chill calculations require wind speed, so no wind data means no wind chill data.” ■



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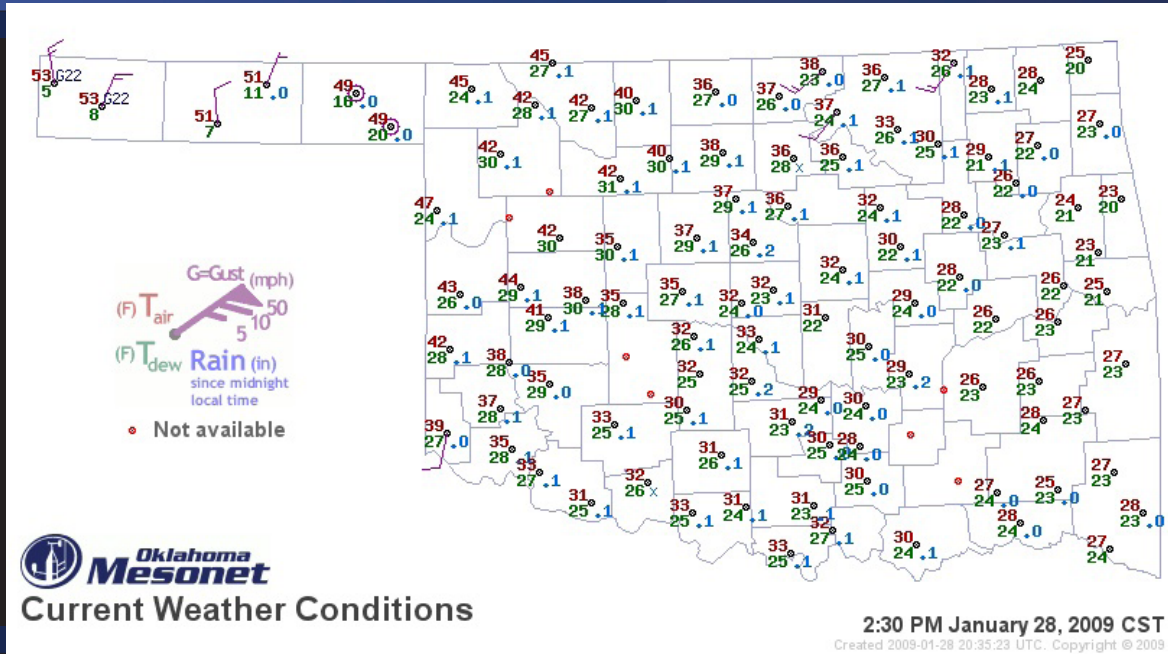


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MESONET IN PICTURES

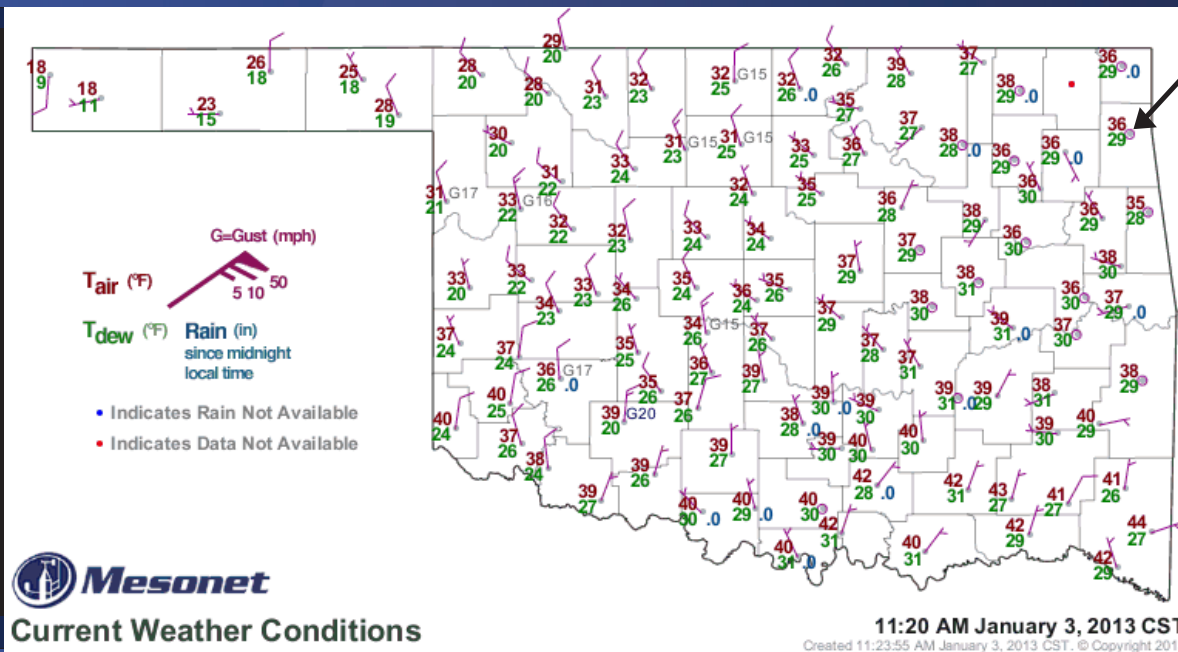
Current Conditions Map with Icy Areas

- The current conditions map can be a good indicator of icy areas in the state. If you see sites without a wind barb plotted, it is possible the site is affected by frozen precipitation. This map depicts the conditions after a major ice storm in late January 2009. All but a handful of sites were missing wind observations because of ice accumulation on the sensors. To view this map, go to www.mesonet.org, click on "Weather" in the top menu, and click on "Current Conditions" in the side menu.



Current Conditions Map Normally

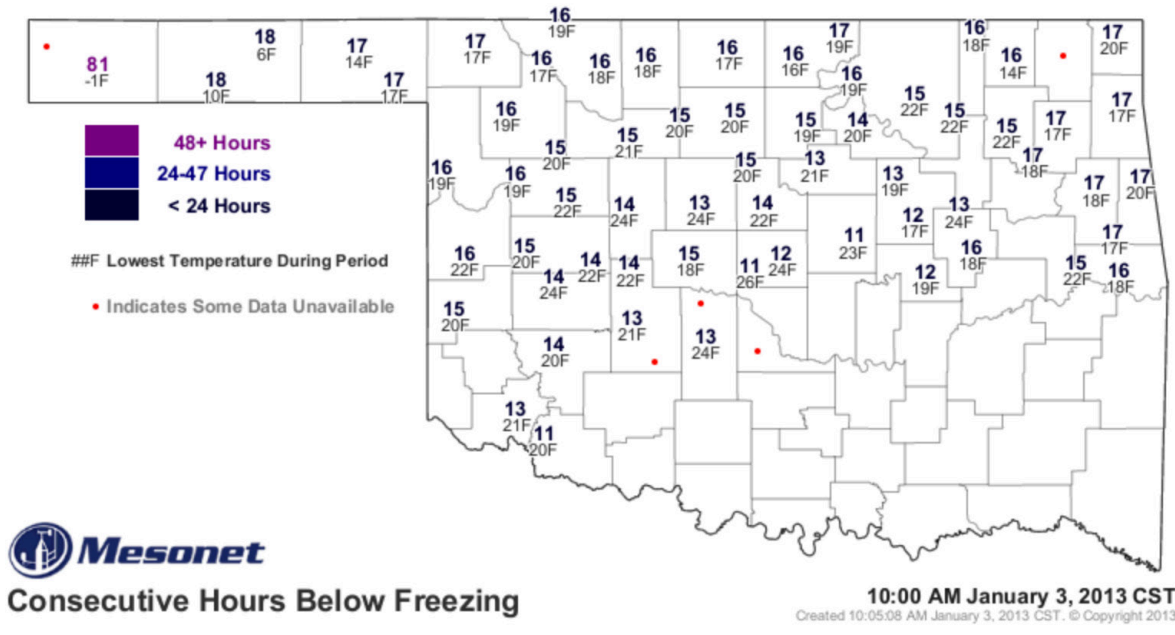
- In comparison, the Current Conditions map to the right shows wind barbs at all the sites when icy conditions are not present. If the wind speed is below three miles per hour, it is indicated with a red circle around the site, as pointed to with the arrow in far northeast Oklahoma on this map.



MESONET IN PICTURES

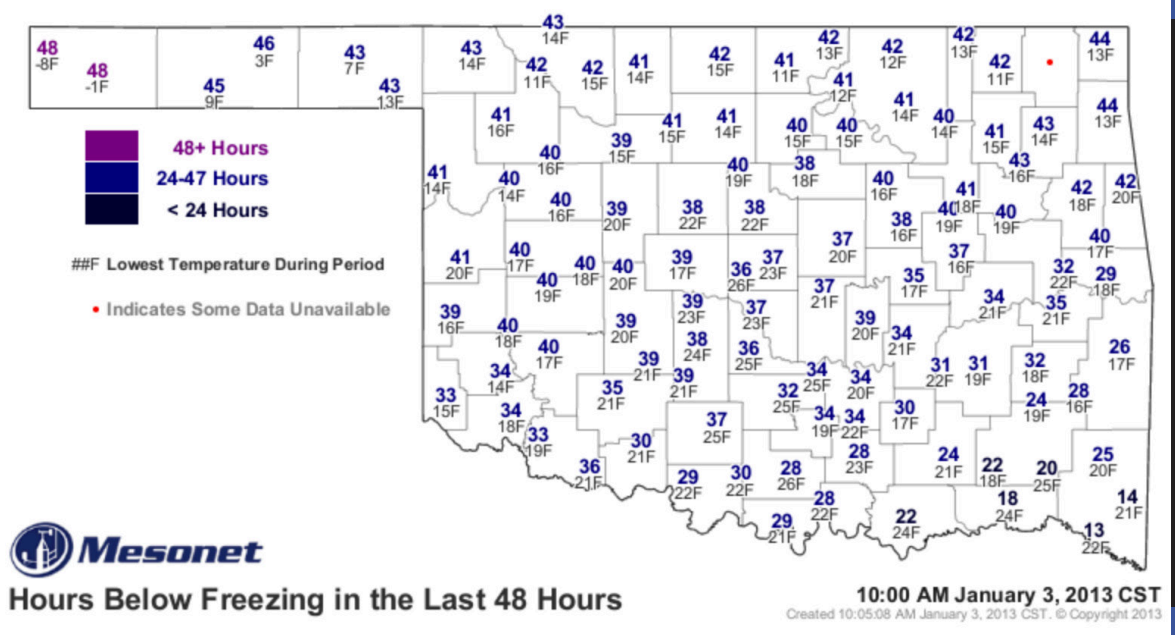
Consecutive Hours Below Freezing

- The Consecutive Hours Below Freezing map displays the number of consecutive hours a Mesonet station has recorded below freezing temperatures and displays the lowest temperature during that period. To view this map, go to www.mesonet.org, click on "Weather" in the top menu, and click "Air Temperature" in the side menu. Then scroll down the page to Seasonal Statistics.



Hours Below Freezing in the Last 48 Hours

- If you are interested in knowing the hours below freezing in the last 48 hours in your area, you can view this map at www.mesonet.org. Click on "Weather" in the top menu, then click "Air Temperature" in the side menu, and scroll down the page to Seasonal Statistics.



Will Old Man Winter Help us Ring in the New Year?

—by Carly Kovacic

AS OKLAHOMA HEADS INTO THE DEPTH OF WINTER, the best thing we can do is to be prepared for the possibility of snow and ice. To help us stick with this resolution, it's helpful to gain some insight as to how our local utility companies are using the Oklahoma Mesonet in preparation for these types of events.

Sid Sperry, director of Public Relations for the Oklahoma Association of Electric Cooperatives (OAEC), is a daily Mesonet user and has described it as “an invaluable winter weather resource for thirty electric cooperative member systems which, like the Mesonet, provide service to customers in all 77 counties of the state.”

According to Sperry, OAEC's dispatch and operations center monitor the Mesonet's maps for current conditions, which include real-time data for air temperature, rainfall, relative humidity, wind speed, and wind direction. In addition, the Mesonet is also monitored for updates on freezing rain and/or fog. Special attention is paid to ice storm warnings and winter storm warnings from the National Weather Service.

Sperry specifically recalls two major winter weather events, including the Christmas Day ice event in 2000 that affected the southeastern United States, along with the ice storm from January of 2010 that impacted Oklahoma. Electric cooperatives in Oklahoma incurred more than half a billion dollars in infrastructure damage from these two events.

“The Oklahoma Mesonet allows every one of our OAEC member cooperatives access to critical climate and weather information in real-time, thus making instantaneous decision-making possible,” Sperry said. “We consider the Mesonet an irreplaceable tool in all of our winter weather preparedness activities.”

The Oklahoma Mesonet continues to provide valuable information for our utility companies each winter, as crews are sent out and the necessary precautions are put in place at the appropriate time. So as we head into this winter season, remember that the Mesonet can be a valuable resource in providing critical real time weather data during winter weather events. ■

Photos courtesy of Sid Sperry





Heat and Drought Dominate 2012 Oklahoma Weather Headlines

By Gary McManus, Associate State Climatologist

DECEMBER WRAP-UP

A slide back to true wintry weather, the likes of which had not been seen across Oklahoma since early February 2011, was not enough to prevent the inevitable. Although the official numbers will not be released by the National Climatic Data Center (NCDC) for a few more days, it appears likely that 2012 will go down in the record books as Oklahoma's warmest year on record. Those records date back to 1895. Preliminary data from the Oklahoma Mesonet indicate a statewide average temperature of 41.9 degrees for December. That is 2.9 degrees above normal and ranks the month as the 27th warmest December on record. More importantly, it would give 2012 a sizeable lead over 1954 and the likely title of warmest calendar year on record for the state at 63.1 degrees, 3.5 degrees above normal. According to data from the National Weather Service (NWS), Oklahoma City and Tulsa also eclipsed their previous warmest years on record with 64.1 degrees and 64.7 degrees, respectively. Oklahoma City's previous best was 63.9 degrees from 2006 and Tulsa's was 63.7 degrees from 1921 and 1954. Oklahoma was not alone in dealing with unusual warmth during 2012. Officials from NCDC say it is a virtual certainty that 2012 will become the warmest year on record across the contiguous United States.

Oklahoma's previous calendar year record of 62.8 degrees from 1954 was in jeopardy from the year's opening bell. January finished 6.5 degrees above normal to rank as the 11th warmest on record, and the heat continued to build from there. March far outpaced its previous record at more than 9 degrees above normal and propelled Oklahoma to its warmest spring on record. The summer may not have matched 2011's record level, the hottest for any state since records began in 1895, but it was extreme by any other measure. The statewide average of 82.2 degrees ranked as the 11th warmest June-August period on record. October was the only month during 2012 to end with below normal temperatures. December became the 27th month out of the last 33 to finish warmer than normal, a streak that began with April 2010. Buoyed by the record summer of 2011 and the extended warmth of 2012, the statewide average temperature estimate of 62.4 degrees for the two years combined exceeds the previous record of 62.1 degrees from 1953-1954. The lowest temperature recorded by the 120 Mesonet sites during 2012 was the 1 degree below zero reading at Beaver on Dec. 26. The highest temperature of 115 degrees was recorded at Kingfisher on Aug. 1.

Drought continued to dominate Oklahoma's weather story for the second consecutive year. A period of storminess during the year's final week provided beneficial moisture to parts of Oklahoma, but December finished dry nonetheless. According to estimates from the Oklahoma Mesonet, the statewide average precipitation total during December was 1.06 inches, about an inch below normal and the 38th driest on record. That brings the estimate for 2012 to 25.92 inches, 10.77 inches below normal and just slightly ahead of 2011's 25.23 inches. That two-year combined total of 51.15 inches is the fourth lowest on record. The 1909-1910 total of 46.21 inches is the lowest since records began in 1895. The highest total recorded by the Mesonet during 2012 was Clayton's 40.6 inches. Kenton brought up the rear at 11.7 inches.

Most of the state experienced a short reprieve from the devastating 2011 drought episode thanks to abundant rains from October 2011-March 2012, the 12th wettest October-March period on record. Only 15 percent of Oklahoma was experiencing drought on May 15 according to the U.S. Drought Monitor. As summer approached, however, the heat mounted as did the rainfall deficits. The May-December statewide average of 13.96 inches was the driest such period on record and led the entire state to being depicted in at least severe drought conditions on the year's final U.S. Drought Monitor map. Over 37 percent of the state was considered to be under exceptional drought, the Monitor's worst designation. More than \$400 million in damage to agricultural interests occurred during 2012 according to experts from Oklahoma State University. That brings the two-year agricultural damage estimate to more than \$2 billion.

CALENDAR

JANUARY

- ▶ 11th-12th: KNID Agrifest, Enid
- ▶ 17th: Meteorology Class, Norman 6th Grade GATE
- ▶ 18th: Field Trip, Cooper Middle School
- ▶ 21st-23rd: Oklahoma Agricultural Aviation Association Convention, OKC
- ▶ 22nd: Meteorology Class, Norman 6th Grade GATE
- ▶ 24th: Turfgrass and Landscape Maintenance Program, Ardmore

FEBRUARY

- ▶ 2nd: EarthStorm Job Shadow Day
- ▶ 4th: 2013 Early Spring Roundup, Ardmore
- ▶ 6th: OK-FIRE presentation, Society for Range Management, OKC
- ▶ 13th: Steering Committee Meeting, Stillwater

Thank you for 20 years of partnership!

- ▶ Oilton - Installed January 6, 1993
- ▶ Madill - Installed January 13, 1993
- ▶ Tishomingo - Installed January 13, 1993
- ▶ Durant - Installed January 14, 1993
- ▶ Arnett - Installed January 27, 1993
- ▶ May Ranch - Installed January 27, 1993
- ▶ Bessie - Installed January 28, 1993
- ▶ Putnam - Installed January 28, 1993

CONTACTS

Accessing recent (within the past 7 days)
Mesonet data

Contact: [Mesonet Operator](#)

Instrumentation, telecommunications, or
other technical specifications

Contact: [Chris Fiebrich](#)

Mesonet agricultural data and products

Contact: [Al Sutherland](#)

Mesonet meteorological data

Contact: [OCS Data Requests](#)

Earthstorm - K-12 educational outreach

Contact: [Andrea Melvin](#)

OK-First - Public safety outreach

Contact: [James Hocker](#)

OK-FIRE - Fire management outreach

Contact: [J.D. Carlson](#)

Not sure?

Contact: 405-325-2541 or [Chris Fiebrich](#).

FORECAST FOR JANUARY

[Click here to view the original maps from the Climate Prediction Center.](#)

DISCUSSION: Increased chance for above average temperatures across Oklahoma. Increased chance for above average precipitation in far southeastern Oklahoma.

