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El Niño's Impacts in Oklahoma Fizzle During January

Gary McManus, Oklahoma State Climatologist

Considering the extreme precipitation that ended 2015, and with the “super” El Niño that boosted the November-December period to the wettest on record for the state still in place, January was a veritable dud. According to preliminary data from the Oklahoma Mesonet, the statewide average precipitation total was 0.71 inches, nearly an inch below normal and the 28th driest January since records began in 1895. Only 29 of the Mesonet's 120 stations recorded at least an inch of rain, and only three exceeded 2 inches. Cloudy led all Mesonet sites with 2.45 inches. Boise City recorded a state low of 0.08 inches. Oklahoma City's official observing site at Will Rogers Airport received 0.11 inches, the 12th driest January on record dating back to 1891. Tulsa fared a bit better with 0.61 inches, the 24th driest dating back to 1894. Some of the precipitation across the state fell as snow and

ice, but those totals were fairly limited. The National Weather Service cooperative observer at Sayre recorded a respectable 3.8 inches for the state's largest official total. Boise City still led the seasonal total with 19.5 inches of snowfall. Arnett was a distant second with 11.2 inches. Those are the only official observing sites with double-digit seasonal snowfall totals thus far.

Similar to precipitation, the relative warmth of the last two months of 2015 faded soon after Christmas, not to return until the end of January. The November-December period was more than 4 degrees above normal and the fourth warmest on record. Despite the return to more seasonable weather, however, the month still finished above normal according to Mesonet data. The statewide average of 38.2 degrees was half a degree above normal to rank as the 49th warmest on record.

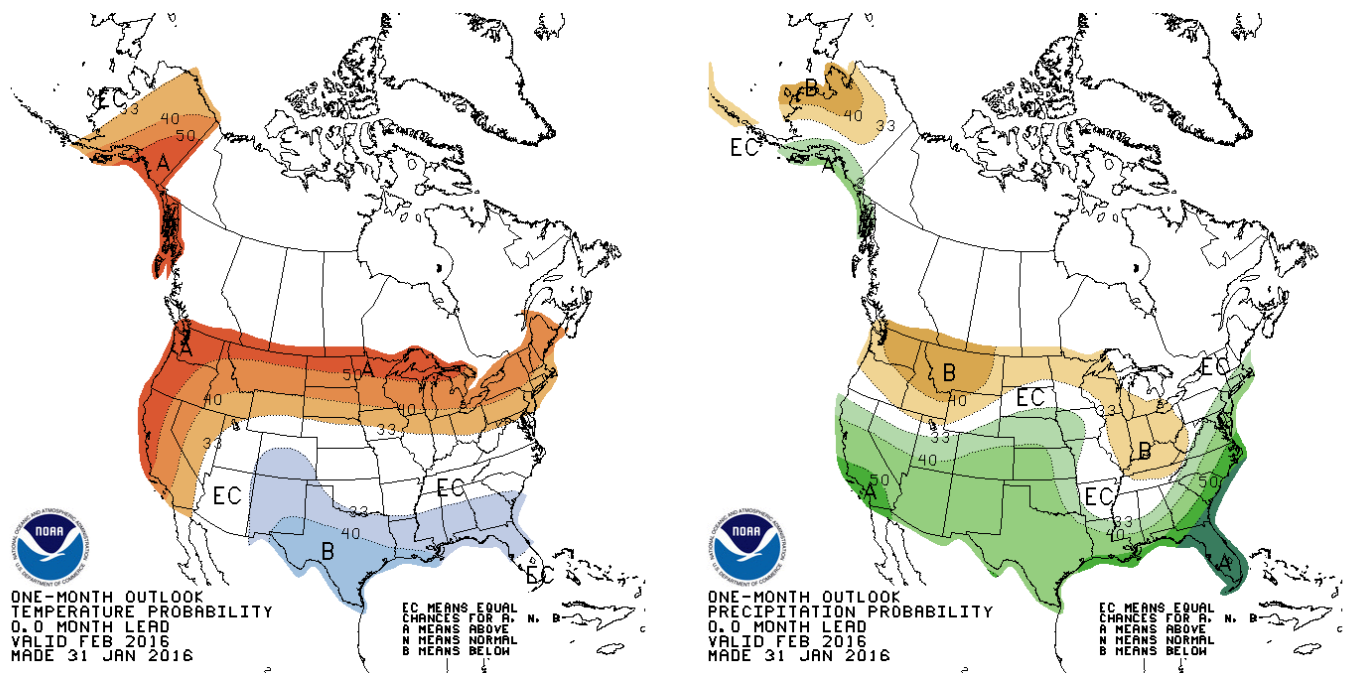


Figure 1. One month outlook for temperature and precipitation probability. Maps are valid for February 2016. Images can be found at <http://www.cpc.ncep.noaa.gov/products/predictions/30day/>.

While it never got exceptionally cold in the state - the lowest temperature recorded by the Mesonet was a mere 4 degrees at Kenton on the 11th, fairly benign by January's standards - we did not see those high temperatures rebound back into the 70s and 80s until the month's final week. Southwestern Oklahoma received a sneak preview of summer with widespread 80s on the 29th and 30th. Hollis reached the month's highest temperature of 85 degrees on the 30th. Oklahoma City and McAlester either tied or broke high temperature records on the 29th and 30th. The warmth and lack of moisture combined with high winds to create elevated wildfire danger at the end of the month. Wildfires were reported across many areas in central and western Oklahoma.

The strong El Niño that many experts feel contributed to Oklahoma's record breaking 2015 rainfall has peaked according to Climate Prediction Center (CPC) forecasters. The phenomenon is expected to gradually weaken through spring 2016 before transitioning to neutral conditions during the late spring or early summer. Given that El Niño conditions are still present and relatively strong, impacts for the Southern Plains and Oklahoma will remain possible. CPC forecasters see increased odds of above normal precipitation for February and then for each three-month period from March-May through April-June. Those enhanced odds diminish from east to west across Oklahoma as spring unfolds, disappearing from the state as summer begins. Based upon that scenario, CPC's U.S. Seasonal Drought Outlook for February through April does not indicate any drought development across Oklahoma. It must be noted, however, that the consensus computer model forecast for the equatorial Pacific waters later into fall and winter 2016 is for La Niña to develop. La Niña events can create the opposite of conditions that Oklahoma saw during 2016, with increased odds of a drier and warmer late fall through spring. The La Niña events of 2010-11 and 2011-12 were thought to have aided the beginning of the damaging five-year drought

that struck the Southern Plains and Oklahoma from 2010-15. Sea surface temperature forecasts for next fall should be considered very preliminary at this time, but there is historical precedence for a strong El Niño to be followed by La Niña according to climate experts.

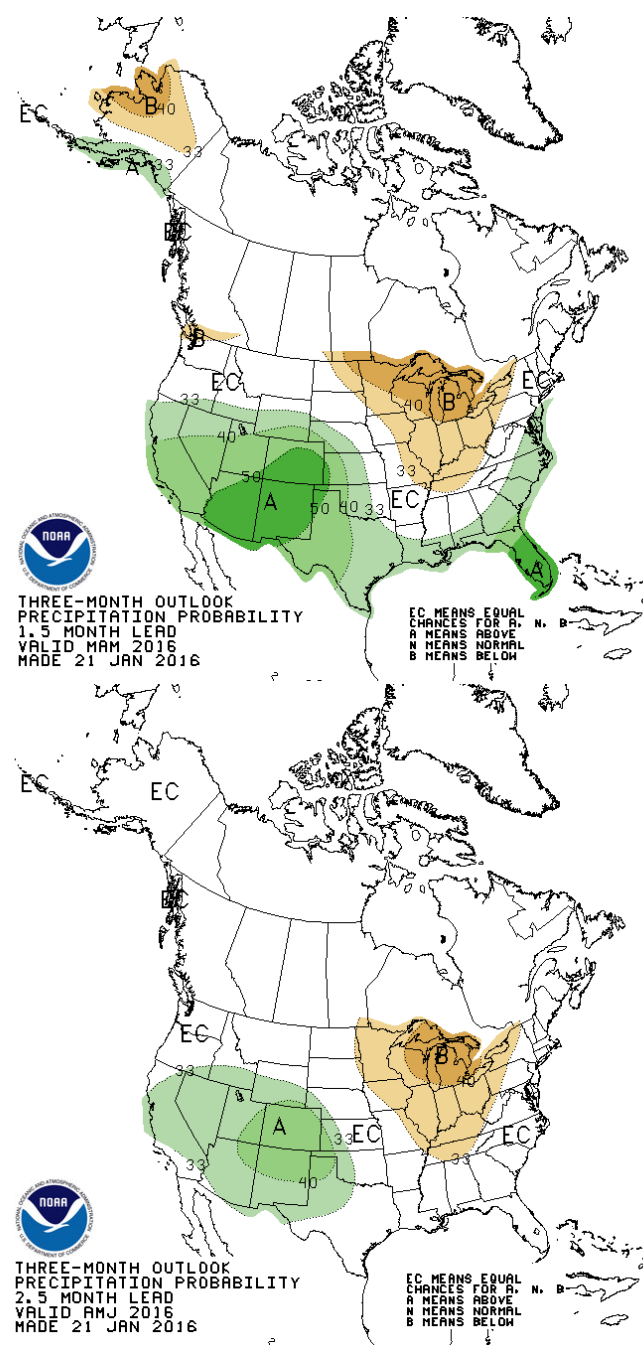


Figure 2. Three month outlooks for precipitation probability from March-May and April-June. Images can be found at http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.php.

Drought Update

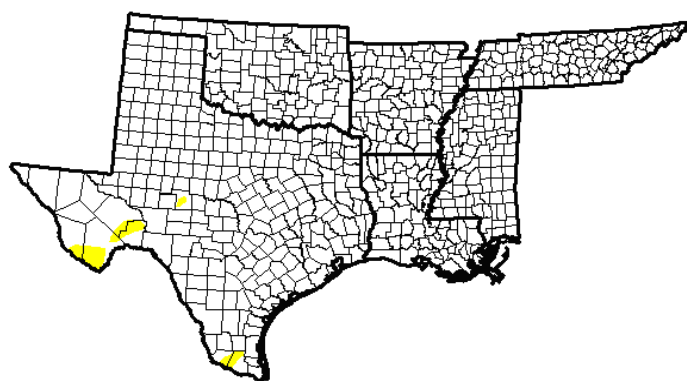
Luigi Romolo,
Southern Regional Climate Center

Although all six states in the Southern Region experienced a drier than normal month, the region remains drought-free. Below average temperatures could account for this as they tend to reduce the water demand on soils.

The new year also saw near record stage levels for the Mississippi River in the Southern Region. Many communities reported flooding from Tennessee through Mississippi. In Vicksburg, the river crested near the middle of the month as just over 50 feet (15.24 m). In Louisiana, the Bonnet Carre Spillway in St. Charles Parish was opened to allow the rushing Mississippi floodwaters to bypass New Orleans. On January

18, the river crested at Baton rouge, with a stage slightly higher than 43 feet (13.11 m). Although the US Army Corps of Engineers did consider opening the Morganza Spillway, they were confident that this would not be necessary. The total dollar amount of this flooding event is yet to be determined.

Texas rains associated with El Niño caused \$1.2 billion in damages according to the Texas Insurance Council. This was a preliminary report and could continue to rise as insurance reports are filed. Other estimates from late December/early January weather include \$13 million in roadway damage in Kaufman County.



Released Thursday, February 4, 2016
Anthony Artusa, NOAA/NWS/NCEP/CPC

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	98.82	1.18	0.00	0.00	0.00	0.00
Last Week 1/26/2016	99.01	0.99	0.00	0.00	0.00	0.00
3 Months Ago 11/3/2015	67.33	32.67	7.15	0.00	0.00	0.00
Start of Calendar Year 12/29/2015	97.72	2.28	0.00	0.00	0.00	0.00
Start of Water Year 9/29/2015	36.88	63.12	37.43	18.31	5.72	0.00
One Year Ago 2/3/2015	48.42	51.58	32.70	18.18	8.68	2.18



Intensity:

	D0 Abnormally Dry		D3 Extreme Drought
	D1 Moderate Drought		D4 Exceptional Drought
	D2 Severe Drought		

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Above: Drought conditions in the Southern Region. Map is valid for February 2, 2016. Image is courtesy of National Drought Mitigation Center.

Southern Climate Monitor

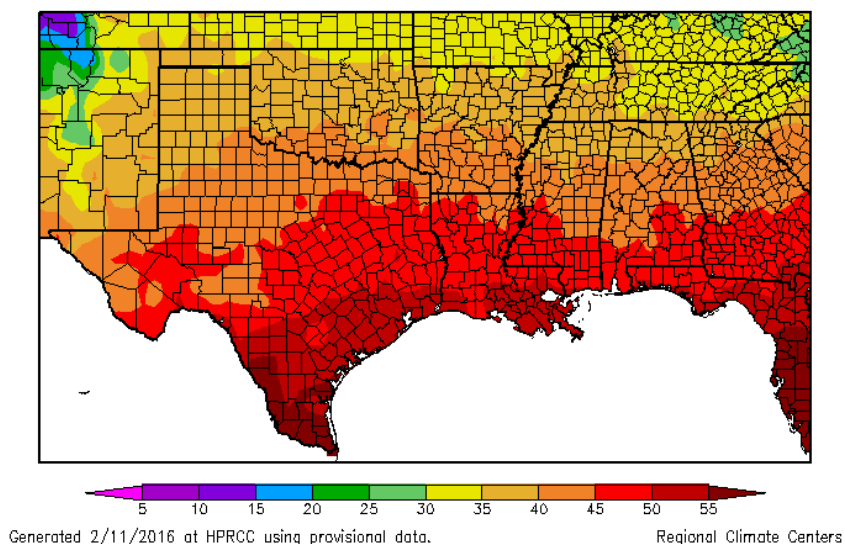
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Temperature Summary

Luigi Romolo,
Southern Regional Climate Center

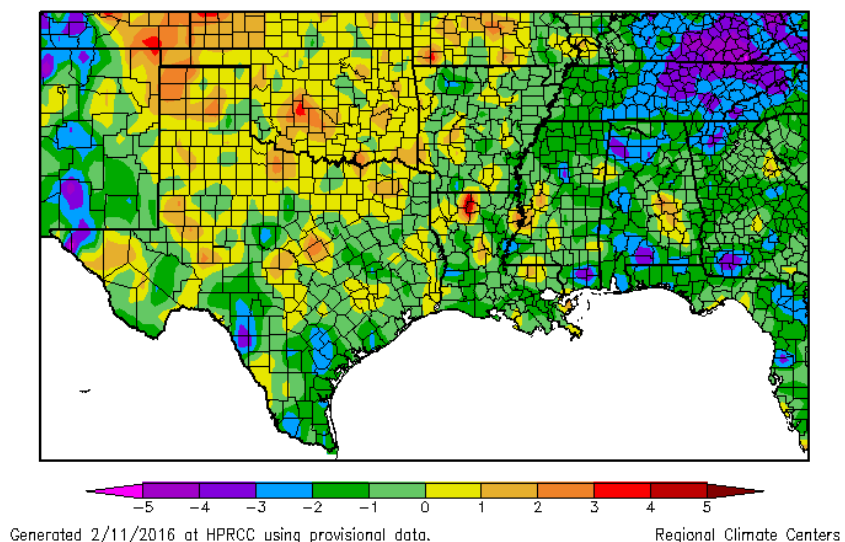
January average temperatures were generally near normal across the Southern Region, with most stations reporting averages within 2 degrees F (1.11 degrees C) of expected values. One exception to this occurred in eastern Tennessee, where many station averaged between 3-5 degrees F (1.67-2.78 degrees C) below normal. The state-wide average temperatures for the month are as follows: Arkansas averaged 39.30 degrees F (4.06 degrees C), Louisiana averaged 48.70 degrees F (9.28 degrees C), Mississippi averaged 43.90 degrees F (6.61 degrees C), Oklahoma averaged 38.20 degrees F (3.44 degrees C), Tennessee averaged 34.80 degrees F (1.56 degrees C), and Texas averaged 46.40 degrees F (8.00 degrees C). Oklahoma and Texas experienced a slightly warmer than normal month, while the four remaining states experienced a slightly cooler than normal month. For Tennessee it was their thirty-fifth coldest January on record. All other state rankings fell within the two middle quartiles. All ranking records are based on the period spanning 1895-2016.

Temperature (F)
1/1/2016 – 1/31/2016



Average January 2016 Temperature across the South

Departure from Normal Temperature (F)
1/1/2016 – 1/31/2016



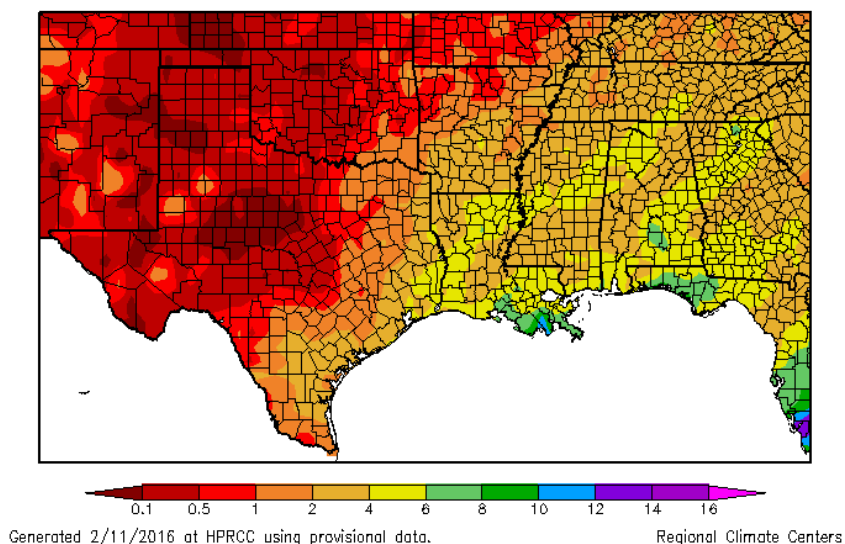
Average Temperature Departures from 1971-2000 for January 2016 across the South

Precipitation Summary

Luigi Romolo,
Southern Regional Climate Center

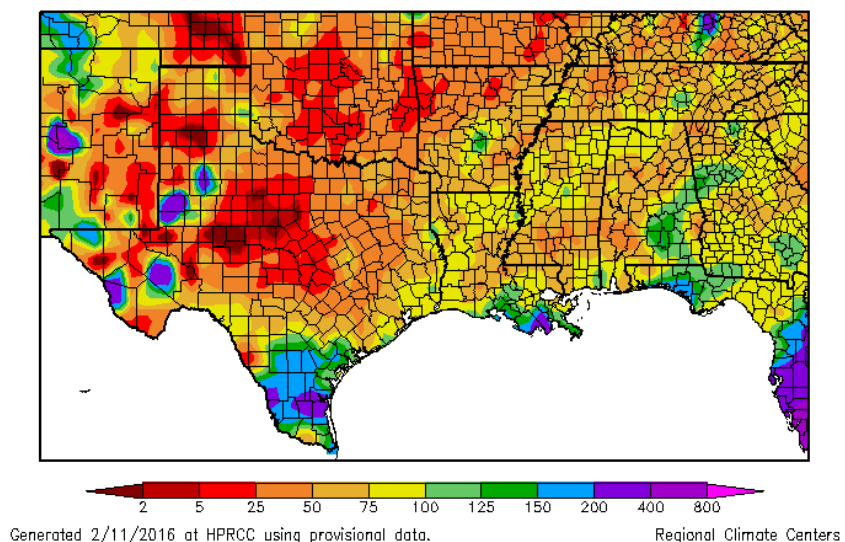
January precipitation in Southern Region did not vary much from state to state in terms of anomalies, except for in central Texas and central Oklahoma, where precipitation totals were generally below twenty-five percent of normal. Elsewhere in the region, precipitation totals varied between 25 to 75 percent of normal in Arkansas, and mostly between 50 to 100 percent of normal in Louisiana, Mississippi and Tennessee. The state-wide precipitation totals for the month are as follows: Arkansas reporting 2.09 inches (53.09 mm), Louisiana reporting 4.48 inches (113.79 mm), Mississippi reporting 3.79 inches (96.27 mm), Oklahoma reporting 0.51 inches (12.95 mm), Tennessee reporting 2.69 inches (68.33 mm), and Texas reporting 0.92 inches (23.37 mm). Both Oklahoma and Tennessee experienced their eighteenth driest January on record, while it was the thirty-third driest January on record for both Mississippi and Texas. Arkansas recorded its twenty-fourth driest January on Record, while Louisiana's ranking fell within the middle two quartiles (fifty-fourth driest). All state ranking records are based on the period spanning 1895-2015.

Precipitation (in)
1/1/2016 – 1/31/2016



January 2016 Total Precipitation across the South

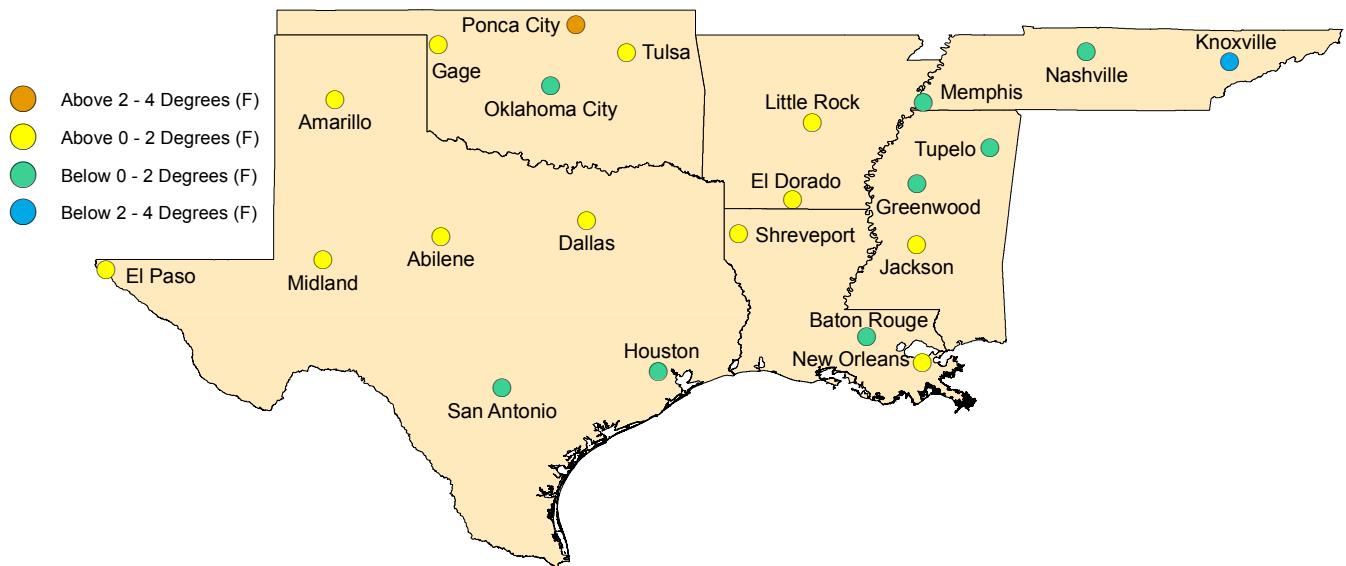
Percent of Normal Precipitation (%)
1/1/2016 – 1/31/2016



Percent of 1971-2000 normal precipitation totals for January 2016 across the South

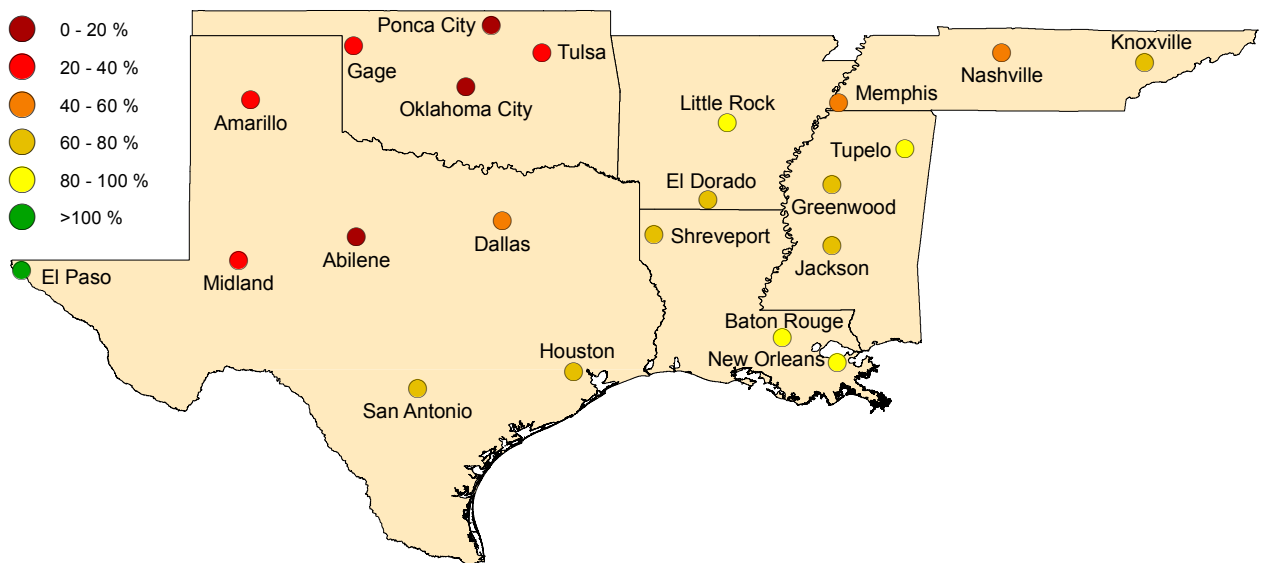
Regional Climate Perspective in Pictures

January Temperature Departure from Normal



January 2016 Temperature Departure from Normal from 1971-2000 for SCIPP Regional Cities

January Percent of Normal Precipitation



January 2016 Percent of 1971-2000 Normal Precipitation Totals for SCIPP Regional Cities

Climate Perspective

State	Temperature	Rank (1895-2011)	Precipitation	Rank (1895-2011)
Arkansas	39.30	56 th Coldest	2.09	24 th Driest
Louisiana	48.70	53 rd Coldest	4.48	54 th Driest
Mississippi	43.90	47 th Coldest	3.79	33 rd Driest
Oklahoma	38.20	47 th Warmest	0.51	18 th Driest
Tennessee	34.80	35 th Coldest	2.69	18 th Driest
Texas	46.40	49 th Warmest	0.92	33 rd Driest

State temperature and precipitation values and rankings for January 2016. Ranks are based on the National Climatic Data Center's Statewide, Regional, and National Dataset over the period 1895-2011.

Station Summaries Across the South

Station Summaries Across the South											
Station Name	Temperatures								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	%Norm
El Dorado, AR	54.9	33.1	44.0	0.1	76	01/31	23	01/11	2.75	-1.55	64
Little Rock, AR	51.8	32.3	42.1	1.3	75	01/31	22	01/18	3.55	0.00	100
Baton Rouge, LA	61.9	39.7	50.8	-0.9	78	01/31	27	01/24	5.73	0.01	100
New Orleans, LA	62.4	45.5	53.9	0.5	77	01/31	33	01/24	4.41	-0.74	86
Shreveport, LA	58.6	37.2	47.9	1.1	79	01/31	27	01/28+	2.87	-1.33	68
Greenwood, MS	53.5	31.7	42.6	-0.8	75	01/31	17	01/11	3.18	-1.34	70
Jackson, MS	57.5	35.4	46.5	0.8	74	01/30	22	01/24	3.37	-1.60	68
Tupelo, MS	51.0	30.5	40.7	-1.0	73	01/31	17	01/19+	3.84	-0.64	86
Gage, OK	49.5	22.4	35.9	1.2	80	01/30	10	01/10	0.18	-0.38	32
Oklahoma City, OK	49.9	28.1	39.0	-0.2	76	01/30+	16	01/10	0.11	-1.28	8
Ponca City, OK	49.0	27.0	38.0	3.1	70	01/30	18	01/05+	0.16	-0.84	16
Tulsa, OK	48.4	27.8	38.1	0.4	75	01/29	10	01/10	0.61	-1.05	37
Knoxville, TN	45.0	26.7	35.9	-2.4	65	01/31+	13	01/19	2.76	-1.56	64
Memphis, TN	50.4	31.8	41.1	-0.1	73	01/31	18	01/11	2.27	-1.71	57
Nashville, TN	47.2	27.4	37.3	-0.4	72	01/31	12	01/24+	2.17	-1.58	58
Abilene, TX	57.7	33.8	45.8	0.9	80	01/30	22	01/10	0.04	-0.98	4
Amarillo, TX	52.8	24.6	38.7	1.7	79	01/30	16	01/09	0.19	-0.53	26
El Paso, TX	57.2	33.4	45.3	0.2	73	01/30	23	01/27	0.46	0.06	115
Dallas, TX	57.5	36.5	47.0	1.1	77	01/29	27	01/23+	1.04	-1.09	49
Houston, TX	63.1	41.6	52.4	-0.8	79	01/31	32	01/28+	2.16	-1.22	64
Midland, TX	59.3	32.3	45.8	1.9	80	01/30	24	01/12	0.18	-0.38	32
San Antonio, TX	63.8	39.9	51.8	0.0	83	01/31	30	01/23	1.38	-0.38	78

Summary of temperature and precipitation information from around the region for January 2016. Data provided by the Applied Climate Information System. On this chart, "depart" is the average's departure from the normal average, and "% norm" is the percentage of rainfall received compared with normal amounts of rainfall. Plus signs in the dates column denote that the extremes were reached on multiple days. Blueshaded boxes represent cooler than normal temperatures; redshaded boxes denote warmer than normal temperatures; tan shades represent drier than normal conditions; and green shades denote wetter than normal conditions.

Punxsutawney Phil Has Spoken

Barry Keim, Louisiana State Climatologist, Louisiana State University

Our favorite furry groundhog - Punxsutawney Phil - made his climate forecast on February 2, 2016. By not seeing his shadow, he is calling for an early spring this year for the Eastern United States. Have you ever wondered how good this furry rodent is at making climate forecasts? Well, folks at the National Center for Environmental Information (NCEI) have, and

they produced a report to show for it. They note in the report that Groundhog Day takes place at the mid-point between the winter solstice and spring equinox - February 2nd! The folktale is based on the premise that if it is clear on this day (February 2), the sun will cause the groundhog to cast a shadow, which will indicate to the groundhog that more storms and cold are on

their way. Hence he should go back into hibernation for 6 more weeks. Conversely, if it's cloudy out, there will be no shadow indicating that warm weather is on its way. In the NCEI report they show that since 1887, the groundhog saw his shadow 102 times, and only on 17 occasions did he not see his shadow. In more recent years, he saw his shadow 20 times since 1988, while not seeing his shadow only 9 times, including 2016. However, after analyzing average February and March temperatures following the Furry Rodent Forecast, NCEI notes that Punxsutawny Phil has no weather prediction skill whatsoever. In other words, he's just as good as "T-boy the Nutria" at Audubon Zoo, who also makes climate forecasts. I add that T-boy's prediction does sync-up with Punxsutawney Phil this year, where both are calling for an early Spring. And maybe, just maybe, they'll be right this time.....but don't count on it! If you have any questions, feel free to contact me at keim@lsu.edu.



Figure 1. Punxsutawney Phil making his climate forecast at Gobbler's Knob in Punxsutawney, Pennsylvania. Image taken by Aaron Silvers and is available at <https://commons.wikimedia.org/wiki/File:Groundhogday2005.jpg>.

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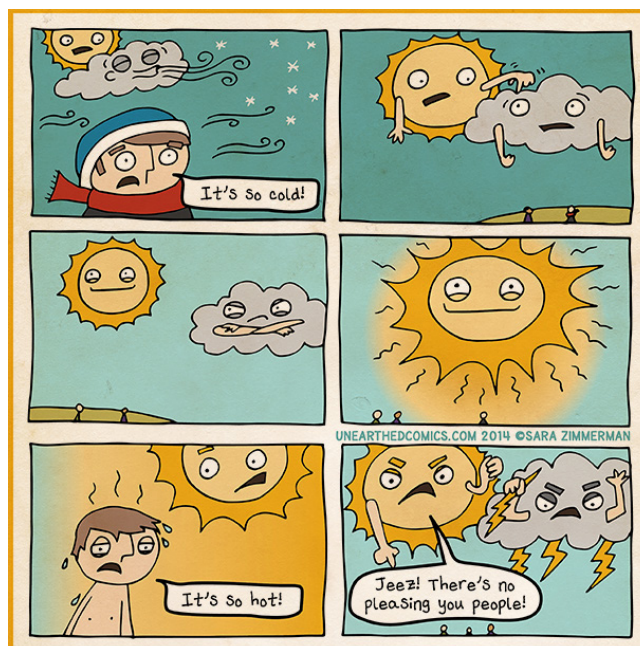
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To provide feedback or suggestions to improve the content provided in the Monitor, please contact us at monitor@southernclimate.org. We look forward to hearing from you and tailoring the Monitor to better serve you. You can also find us online at www.srcc.lsu.edu & www.southernclimate.org.

For any questions pertaining to historical climate data across the states of Oklahoma, Texas, Arkansas, Louisiana, Mississippi, or Tennessee, please contact the Southern Regional Climate Center at [225-578-5021](tel:225-578-5021).

For questions or inquiries regarding research, experimental tool development, and engagement activities at the Southern Climate Impacts Planning Program, please contact us at [405-325-7809](tel:405-325-7809) or [225-578-8374](tel:225-578-8374).

Monthly Comic Relief



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