

In This Issue:

- Page 2-3: **Introducing USDA's Southern Plains Climate Hub**
- Page 4: **Drought Summary**
- Page 5: **Southern US Temperature Summary for September**
- Page 6: **Southern US Precipitation Summary for September**
- Page 7: **Regional Climate Perspective in Pictures**
- Page 8: **Climate Perspectives and Station Summaries**
- Page 9: **Drought Sneaking Up on Louisiana**

Introducing USDA's Southern Plains Climate Hub

David Brown, Director of the USDA Southern Plains Climate Hub

In 2014, Secretary of Agriculture Tom Vilsack announced the creation of a network of regional hubs that would address the risks to agriculture posed by climate change. These hubs would work within USDA and with other partners to translate climate science and research into useable information for farmers, ranchers, and forest landowners. The Southern Plains Climate Hub, headquartered at USDA's Grazinglands Research Laboratory in El Reno OK, is one of ten such hubs currently fulfilling this mission across the Nation.

The Southern Plains Climate Hub develops and delivers regional, science-based information for partners and producers in Kansas, Oklahoma, and Texas that enables climate-smart decision-making. The Hub's staff assess the impacts of climate extremes and climate change on regional agricultural systems; work to understand the climate-related information needs of producers and agricultural professionals; and synthesize and translate climate science and emerging research into the kinds of tools and products that support regional decision-making. The diverse and extensive agricultural productivity of the Southern Plains in cropland, grazingland, and forests necessitates a multi-faceted approach to delivering its mission, one that builds partnerships among federal, state, tribal, nongovernmental, and private sector organizations. The Hub works with these partners to demonstrate climate-smart adaptation strategies, techniques, and management practices, and educates and communicates to regional audiences about climate-related risks and resources.

Over the past year, the Southern Plains Climate

Hub has advanced its regional efforts in several thematic areas:

- Linking climate research, tools, and information together for scientists and producers: The Hub released a Southern Plains Vulnerability Assessment in both English and Spanish language versions; engaged over 160 participants at soil health and cover crop field days; and co-convened the 2016 North American Drought, Wildfire, and Climate Services Forum.
- Strengthening USDA's capacity to deliver climate-smart information to producers: Hub staff conducted four regional workshops and published a technical report in support of the USDA Building Blocks for Climate-Smart Agriculture initiative, and worked with the Southeast Hub to train NRCS and Extension staff on climate topics.
- Targeting diverse and underrepresented agricultural audiences: The Hub has reached agreement with the Cheyenne and Arapaho Nation to develop a new soil health demonstration farm; in addition, Hub staff made presentations to groups such as the Inter Tribal Environmental Council, NRCS National Hispanic Employees Association, and Mexico's Secretariat of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA).
- Building partnerships with other regional climate science and service providers: The Hub established new cooperative agreements with the National Drought Mitigation Center and Texas A&M University AgriLife; convened a climate change and

soil health messaging focus group with the National Association of Conservation Districts South-Central region; and worked with GreenLeaders DC to develop a webinar connecting soil health management practices, climate mitigation and adaptation, and water quality.

- **Working with educators and communicators:** The Hub funded several graduate theses and climate curriculum module development for Extension agents at Kansas State University; reached agreement via Redlands Community College to develop an Oklahoma climate change and soil health curriculum supplement for statewide use; and presented to groups such as the National Society of Environmental Journalists.

Looking ahead to 2017, the Southern Plains Climate Hub is emphasizing three priorities, with a number of specific activities already planned:

- **Technology transfer:** The Hub will be conducting regional outlook and impact workshops for agricultural interests in the Lower Rio Grande Valley; expanding the coverage of regionally-relevant climate tools, products, and information, and continuing to engage producers through research efforts and at field days, particularly in Kansas and Texas. In addition, the Hub will strengthen its links to other USDA initiatives such as long-term agro-ecosystem research experiments (LTARs) and coordinated agricultural projects (CAPs).
- **Assessments and partnerships:** The Hub will co-convene a Southern Plains climate and agriculture research priorities conference as well as a Southern Plains climate services providers working meeting; undertake agroforestry data assessment activities for the USDA Building Blocks initiative; and continue strengthening its programmatic

connections to key partners such as the Southern Climate Impacts Planning Program and South Central Climate Science Center.

- **Communications and education:** Hub staff will be conducting NRCS climate change and soil health education workshops as well as updating NRCS communication strategies for conservation partnerships; continuing to develop and disseminate climate curricula and Extension modules; and implementing a redesign of its web presence.

USDA's Southern Plains Climate Hub is an emerging partner for regional climate services in the region, and welcomes input from a wide range of agricultural scientists, professionals, and producers on how to most effectively implement its mission. More information about the Hub is available via its website (www.climatehubs.oce.usda.gov/southernplains) and by contacting any of its staff.



Figure 1: Producers participate in a soil health workshop sponsored by the Southern Plains Climate Hub and Redlands Community College, July 2016.

Drought Update

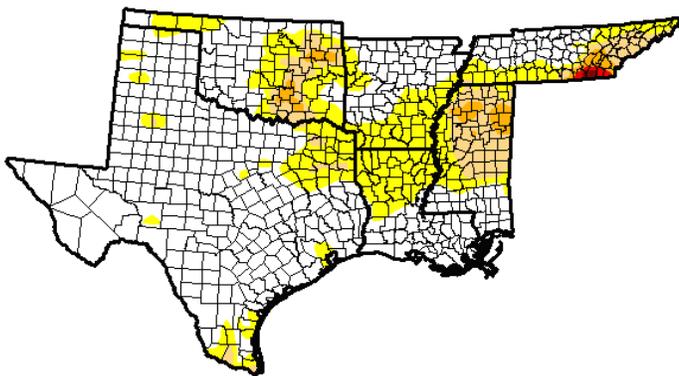
Luigi Romolo,
Southern Regional Climate Center

Dry conditions across the Southern Region have led to an expansion of drought coverage. Anomalously warm weather, combined with drier than normal conditions in Mississippi have resulted in much of the state being categorized under moderate drought. In south eastern Tennessee, drought has also worsened. Counties there that were experiencing severe drought are now experiencing extreme drought.

Because conditions were so dry, there wasn't a lot in the way of severe weather in the Southern Region for the month of September. There were a few reports of hail and high winds in southern Oklahoma and northern Texas on September

17, but no injuries or fatalities were reported. The USDA-NRCS office in Pulaski, Tennessee did report that drought conditions in middle Tennessee are beginning to have an impact as they have observed some cool season grass fields (Orchard grass and Tall Fescue) that are dead.

Two separate rainfall events caused some housing and infrastructure damage in west Texas, knocking out power to 1,600 homes in Odessa, 4,500 in Snyder, and 2,600 in Cedar Park. The State Climatologist does not expect La Niña to emerge following an El Niño this past year and Texas should continue to see above normal temperatures and rainfall through the winter (Information provided by the Texas Office of State Climatology).



Released Thursday, October 6, 2016
Brian Fuchs, National Drought Mitigation Center



Above: Drought conditions in the Southern Region. Map is valid for October 4, 2015. Image is courtesy of National Drought Mitigation Center.

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	67.39	32.61	10.06	2.42	0.32	0.11
Last Week <i>9/27/2016</i>	76.89	23.11	6.74	1.89	0.28	0.11
3 Months Ago <i>7/5/2016</i>	80.65	19.35	7.86	1.82	0.05	0.00
Start of Calendar Year <i>12/29/2015</i>	97.72	2.28	0.00	0.00	0.00	0.00
Start of Water Year <i>9/27/2016</i>	76.89	23.11	6.74	1.89	0.28	0.11
One Year Ago <i>10/6/2015</i>	34.37	65.63	45.42	27.03	9.14	0.32

Intensity:

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

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

Southern Climate Monitor

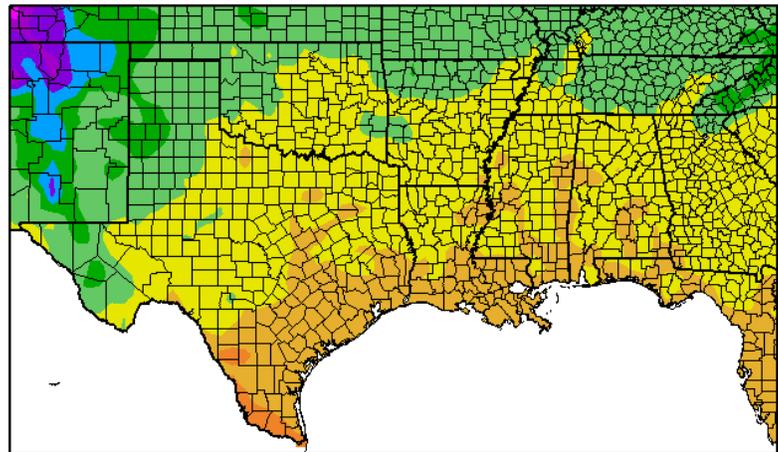
September 2016 | Volume 6, Issue 9

Temperature Summary

Luigi Romolo,
Southern Regional Climate Center

August temperatures in the Southern Region were consistently above normal across the entire Southern Region. In western Texas, stations averaged between 0-2 degrees F (0-1.11 degrees C) above normal. Elsewhere, stations generally averaged between 2-4 degrees F (1.11 - 2.22 degrees C) above normal, except in northern Mississippi and parts of Tennessee where temperatures averaged 4-6 degrees F (2.22 - 3.33 degrees C) above expected values. The statewide monthly average temperatures were as follows: Arkansas reporting 75.90 degrees F (24.39 degrees C), Louisiana reporting 80.40 degrees F (26.89 degrees C), Mississippi reporting 79.20 degrees F (26.22 degrees C), Oklahoma reporting 75.60 degrees F (24.22 degrees C), Tennessee reporting 74.20 degrees F (23.44 degrees C), and Texas reporting 77.80 degrees F (25.44 degrees C). The state-wide temperature rankings for May are as follows: sixteenth warmest for Arkansas, ninth warmest for Louisiana, fifth warmest for Mississippi, twenty-second warmest for Oklahoma, eleventh warmest for Tennessee, and twentieth warmest for Texas. All state rankings are based on the period spanning 1895-2016.

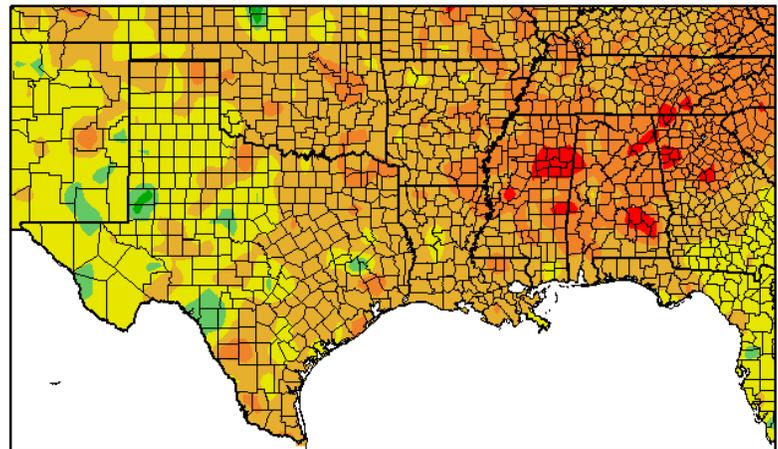
Temperature (F)
9/1/2016 - 9/30/2016



Generated 10/11/2016 at HPRCC using provisional data. Regional Climate Centers

Average September 2016 Temperature across the South

Departure from Normal Temperature (F)
9/1/2016 - 9/30/2016



Generated 10/11/2016 at HPRCC using provisional data. Regional Climate Centers

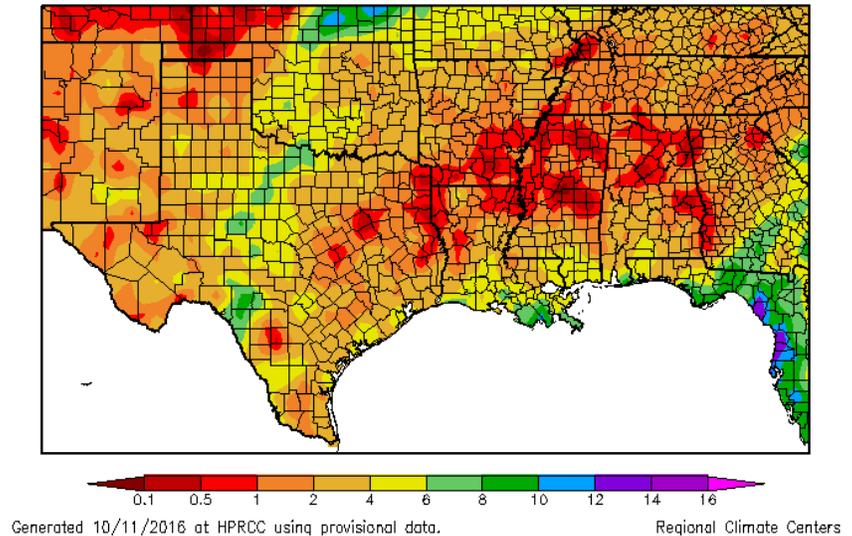
Average Temperature Departures from 1971-2000 for September 2016 across the South

Precipitation Summary

Luigi Romolo,
Southern Regional Climate Center

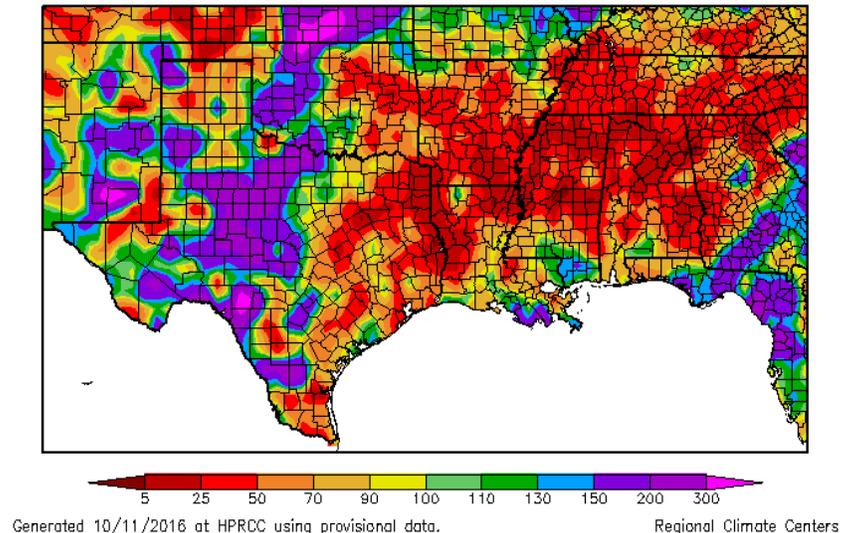
With the exception of western Texas and central Oklahoma, September was generally a drier than normal month. The remaining four states averaged below normal precipitation. Conditions were considerably dry in northern Mississippi, southern Arkansas and western Tennessee. A majority of the stations in that area averaged less than 50 percent of normal precipitation. In west central Texas and central Oklahoma, the opposite was observed, with many stations averaging over one and a half times the monthly average. The state-wide precipitation totals for the month are as follows: Arkansas reporting 1.75 inches (44.45 mm), Louisiana reporting 3.47 inches (88.14 mm), Mississippi reporting 1.81 inches (45.97 mm), Oklahoma reporting 3.39 inches (86.11 mm), Tennessee reporting 1.84 inches (46.74mm), and Texas reporting 2.99 inches (75.95 mm). The state precipitation rankings for the month are as follows: for Arkansas it was the eighteenth driest, for Louisiana it was the fifty-ninth driest, for Mississippi it was the twenty-first driest, for Oklahoma it was the fiftieth wettest, for Tennessee it was the twentieth driest, and for Texas it was the fifty-fifth wettest. All state rankings are based on the period spanning 1895-2016.

Precipitation (in)
9/1/2016 - 9/30/2016



September 2016 Total Precipitation across the South

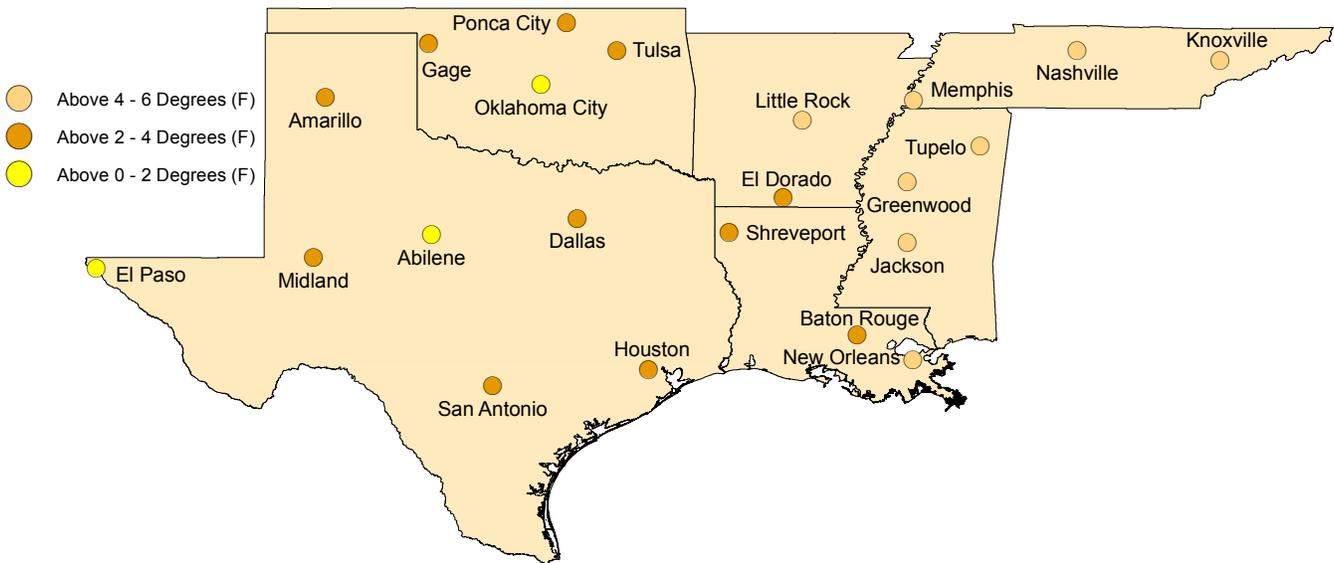
Percent of Normal Precipitation (%)
9/1/2016 - 9/30/2016



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

Regional Climate Perspective in Pictures

September Temperature Departure from Normal



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

September Percent of Normal Precipitation



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

Climate Perspective

State	Temperature	Rank (1895-2011)	Precipitation	Rank (1895-2011)
Arkansas	75.90	16 th Warmest	1.75	18 th Driest
Louisiana	80.40	9 th Warmest	3.47	59 th Driest
Mississippi	79.20	5 th Warmest	1.81	21 st Driest
Oklahoma	75.60	22 nd Warmest	3.39	50 th Wettest
Tennessee	74.20	11 th Warmest	1.84	20 th Driest
Texas	77.80	20 th Warmest	2.99	55 th Wettest

State temperature and precipitation values and rankings for September 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	88.7	66.5	77.6	3.0	93	09/15+	51	09/30	1.68	-1.43	54
Little Rock, AR	90.6	68.9	79.7	4.7	96	09/16+	55	09/29	1.31	-1.87	41
Baton Rouge, LA	91.2	72.1	81.7	3.1	96	09/01	56	09/30	2.48	-2.06	55
New Orleans, LA	92.2	78.1	85.2	5.5	98	09/01	70	09/30	4.63	-0.34	93
Shreveport, LA	91.0	70.5	80.8	3.9	97	09/19	56	09/30+	0.16	-3.00	5
Greenwood, MS	91.5	66.3	78.9	4.2	99	09/25	49	09/28	1.88	-1.78	51
Jackson, MS	91.9	69.1	80.5	4.9	97	09/25	51	09/30	0.33	-2.70	11
Tupelo, MS	91.5	66.3	78.9	4.8	98	09/25+	51	09/28	0.43	-3.01	12
Gage, OK	87.6	61.4	74.5	3.9	100	09/19	43	09/30+	0.91	-1.03	47
Oklahoma City, OK	86.9	64.6	75.8	1.9	97	09/08	48	09/27	4.25	0.19	105
Ponca City, OK	87.7	64.5	76.1	4.0	99	09/19	46	09/30+	1.00	-2.29	30
Tulsa, OK	88.8	65.2	77.0	4.0	99	09/08	50	09/30+	2.31	-1.95	54
Knoxville, TN	88.8	64.5	76.6	5.5	95	09/08+	49	09/30	1.42	-1.82	44
Memphis, TN	90.9	70.0	80.5	5.2	98	09/25+	54	09/29	0.67	-2.42	22
Nashville, TN	87.9	64.0	76.0	4.5	94	09/25+	49	09/30+	1.87	-1.54	55
Abilene, TX	86.3	66.4	76.4	0.9	94	09/19+	51	09/30	5.59	3.35	250
Amarillo, TX	83.9	59.3	71.6	2.1	93	09/19+	46	09/27+	0.82	-1.10	43
El Paso, TX	87.5	65.7	76.6	1.2	97	09/19	55	09/26	2.12	0.61	140
Dallas, TX	91.0	71.9	81.5	3.5	100	09/20+	57	09/28	0.98	-1.57	38
Houston, TX	91.8	73.5	82.7	2.9	97	09/18+	58	09/30	1.70	-2.42	41
Midland, TX	88.2	66.0	77.1	2.6	97	09/09	52	09/28	2.11	0.25	113
San Antonio, TX	91.2	72.4	81.8	2.1	97	09/18	59	09/30	6.30	3.27	208

Summary of temperature and precipitation information from around the region for September 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. Blushaded 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.

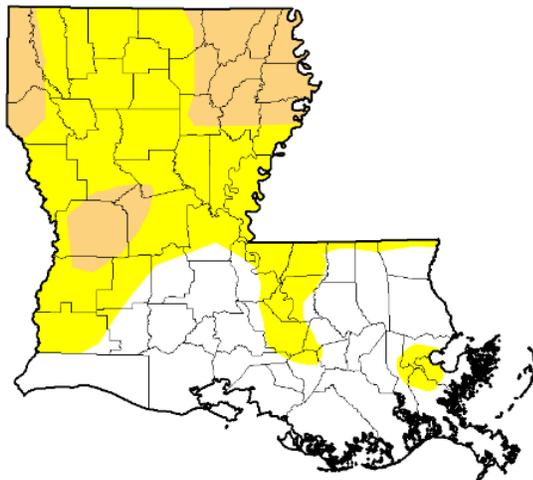
Drought Sneaking Up on Louisiana

Barry Keim, Louisiana State Climatologist, Louisiana State University

Rainfall in Louisiana has been feast or famine over the past 2-3 months. The Great Flood of August 2016 was one for the record books, with Louisiana receiving the largest 2-day rainfall event ever measured in Louisiana! In the weeks following the event, the wet pattern continued across the State, bringing additional unwanted rains. These rains further exacerbated the flooding across the State. However, the rains have apparently ceased. At the New Orleans Airport, the last recorded rainfall was measured on September 24th (as of Oct 14th, as I write this column) and there is only a modest chance of rain in the forecast for the upcoming weekend and week ahead. Otherwise, it appears we could stretch out this extended dry spell even longer. So far for Oct (as of the 14th), the State has averaged 0.15 inches of rainfall, which is

1.65 inches below normal. And, even if we get a little rain, we are still dealing with a moisture shortage. Figure 1 shows the latest characterization of drought across Louisiana. As shown, 60% of Louisiana is cast as “unusually dry” at a minimum, and 16% is actually in moderate drought. I also find it interesting that the U.S Drought Monitor has that little splash of yellow (abnormally dry) right over the most residential portion of Da Parish. Drought can be very sneaky and it clearly has snuck up on many of us in the State. I guess this sneaking is made easy as the region continues to recover from one of the worst rainfall floods in the history of the State. On the upside, I know the sugarcane farmers are enjoying these dry conditions, as it is great harvesting weather. E-mail me with questions or feedback at keim@lsu.edu.

U.S. Drought Monitor Louisiana



Download: [PNG](#) [PDF](#) [ZIP](#)

[View drought planning resources](#)

October 11, 2016
(Released Thursday October 13, 2016)
Valid 8 a.m. EDT

Statistics type: Traditional Percent Area Export table: [PNG](#) [CSV](#) [XLS](#)

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2016-10-11	39.88	60.12	16.47	0.00	0.00	0.00
Last Week 2016-10-04	57.95	42.05	0.00	0.00	0.00	0.00
3 Months Ago 2016-07-12	69.43	30.57	2.02	0.00	0.00	0.00
Start of Calendar Year 2015-12-29	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 2016-09-27	77.30	22.70	0.00	0.00	0.00	0.00
One Year Ago 2015-10-13	3.48	96.52	86.43	67.09	50.56	6.76

Estimated Population in Drought Areas: 551,806

[View More Statistics](#)

Intensity:

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

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

Author(s):

Brian Fuchs, National Drought Mitigation Center

Figure 1. U.S. Drought Monitor's depiction of drought in Louisiana from Thursday, October 11, 2016. Image can be found at <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?LA>.

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Contact Us

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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