



THE MID-SOUTH  
**CLIMATE REPORT**  
2017

**NWSMemphis**  
**#CLIMATESOCIAL**





## Mid-South Climate Summary : 2017

***The year 2017 was warmer and drier than normal for the Mid-South, with all four official climate sites recording one of their top 10 warmest years on record.***

### JANUARY

January began the year with abnormally warm temperatures some 6.0° to 9.5° warmer than normal. This was enough to create for the 8th, 4th, and 3rd warmest months of January at Memphis, Jackson, and Tupelo, respectively. While the month was warmer than normal overall, it was not without its periods of extreme cold. The coolest temperatures of the entire year were recorded during January at the four sites: 13.0° at Memphis, 3.0° at Jackson, 10.0° at Jonesboro, and 12.0° at Tupelo. These frigid temperatures were observed during the first full weekend of the month, but were soon forgotten as warmer air invaded the region, with high temperatures as high as the upper 70s observed only four days later. Precipitation totals for the month were varied around the region, with Memphis and Jonesboro receiving near normal amounts, Jackson receiving over 1.00" below normal, and Tupelo just over 1.00" above normal. Snowfall was observed during the aforementioned period of cold temperatures, with Memphis recording its only measurable snow of the entire year with 2.0", while Jonesboro recorded 2.0" and Jackson recorded 3.0" that weekend. Tupelo only recorded a trace of snowfall during the event, which was the most snowfall measured at the site all year.

### FEBRUARY

Continuing the warm trend 2017 began on, and would continue in through April, February was well warmer than normal for the region. It was so abnormally warm, in fact, all sites except Jonesboro recorded their warmest month of February on record. Jonesboro was the exception to the #1 spot, but was warm enough for the 5th warmest month of February. Monthly average temperature departures were 8.0° to 9.0° above normal at all four sites. February was also drier than normal for the entire region, with all four sites between 1.50" and 3.00" below the monthly precipitation normal. This was dry enough to land the 10th and 7th driest month of February on record at Memphis and Jackson, respectively. February also concluded meteorological winter, which spanned from December 2016 through the end of February. December 2016 was near to just slightly warmer than normal for the region, while both January and February experienced well above normal temperatures. This allowed Winter 2016-2017 to be the 4th warmest on record at Memphis, the 2nd warmest at Jackson, the 5th warmest at Jonesboro, and the 2nd warmest at Tupelo. The region was drier than normal for meteorological winter, with precipitation departures between 1.00" and 2.50" below normal. The only snowfall recorded during the season was the aforementioned snow in January, all of which were below normal amounts for the season.



# 2017 Mid-South Climate Review

## Coollest Temperatures

<b>Memphis</b>	<b>13° on January 7 &amp; 8</b>
<b>Jackson</b>	<b>3° on January 8</b>
<b>Jonesboro</b>	<b>10° on January 8</b>
<b>Tupelo</b>	<b>12° on January 8</b>



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**Figure 1:** Lowest temperatures recorded during 2017 around the Mid-South, all of which occurred in early January.

## MARCH

March can be a wild month for climate around the Mid-South. The first month of meteorological spring, the coldest temperatures of the year have typically already occurred, resulting in a welcomed thaw and excitement for the warmer temperatures of spring. However, March has historically been the month for some of the biggest snowfall events for the region, and thus March always carries a threat of one final blast from winter before the release into spring. Temperatures for March 2017 were warmer than normal for the region, with all four sites between 2.5° and 3.0° above normal. By this point in the year, with three months complete, temperature year-to-date departures were between 6.0° and 7.0° warmer than normal. The last freeze events of the year occurred during March, with all four sites recording their last freeze on either March 15th or 16th. The month brought varied precipitation totals around the region, with Memphis and Tupelo near to slightly drier than normal, and Jackson and Jonesboro wetter than normal, by as much as 2.92” for the former. Much of the precipitation recorded at these two sites was in the form of snow, with Jonesboro recording 3.0” during the month and Jackson recording 2.0”. This final snowfall event, occurring during the middle of the month, was enough to push Jackson and Jonesboro above normal for annual snowfall. Throughout the course of the year, the Mid-South recorded 27 tornadoes, well above the annual average. 8 of these 27 occurred during the month of March, included the strongest- an EF 2 which struck Obion County, TN on the evening of March 9th.

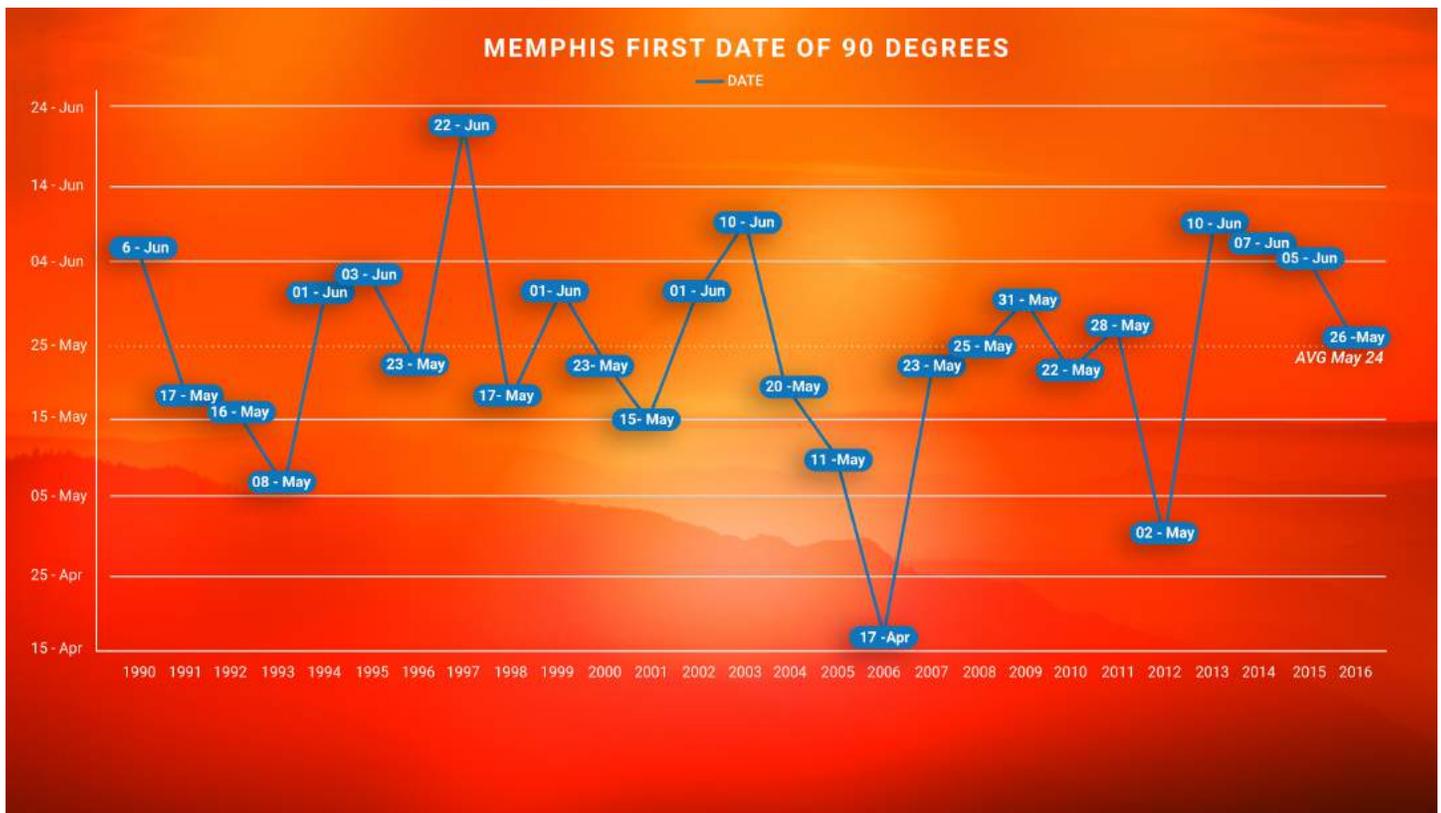


## APRIL

April carried on the warmer than normal trend 2017 began on, with all four sites recording monthly average temperature departures some 3.9° to 5.1° warmer than normal. This was enough to make for the 5th warmest month of April on record for Tupelo, while Memphis had its 10th warmest April on record, and Jackson recorded its 4th. The first four months of 2017 were so warm, it was the warmest such period on record for Jackson and Tupelo, while being the 2nd and 4th warmest such period for Memphis and Jonesboro, respectively. April is climatologically one of the wettest months of the entire year for the region, and April 2017 precipitation was near to wetter than normal for the region. Jonesboro was far and away the wettest site during April, as late month storms led to flash flooding for portions of northeast Arkansas, and the site finished April 3.66" wetter than normal. At this point in the year most of the sites were either just on par or above the rainfall normal through the end of April. Memphis, however, was already 4.40" drier than normal, having received only 77% of its normal rainfall from January to April. Like March, 8 of the 27 tornadoes occurring in 2017 were reported in April, with these all occurring later in the month.

## MAY

May was finally the break in the warmer than normal streak the first four months of 2017 endured. Memphis and Tupelo were both slightly cooler than normal, while Jackson and Jonesboro experienced near normal monthly average temperatures. On average, it is during May when temperatures hit 90.0° for the first time in Memphis. However, only Jonesboro recorded a high of 90.0° during May 2017. Despite temperatures being more near, and slightly cooler than, normal for May, year-to-date January through May was still the 2nd (Memphis, Jackson, and Tupelo) and 4th (Jonesboro) warmest such period on record. Precipitation totals again varied around the region for May. Jonesboro was the only of the four to experience a wetter than normal month, with the remaining three sites all below normal. Perhaps the biggest weather story from May was the derecho which swept through eastern Arkansas, the Memphis metro area, and parts of north Mississippi on the evening of May 27th and into the early morning hours of May 28th. While 60-70 MPH winds were recorded in parts of eastern Arkansas as the storm moved through, the storm intensified just before reaching Memphis, where estimated 95 to 105 MPH winds impacted portions of the city. The damage was so widespread in Memphis it resulted in the third worst power outage in the city's history, with many residents without power for over a week. May also brought the end of meteorological spring, which encompasses the months of March, April, and May. This season was warmer than normal for the region, ranging from 1.8° to 2.5° above normal at all four sites. It was warm enough at Jackson to make for the 10th warmest spring season on record. Precipitation greatly varied around the region during spring; Memphis was nearly 3.00" drier than normal, while Jonesboro was nearly 8.00" wetter than normal. These abnormally wet conditions at Jonesboro and the rest of northeast Arkansas led to flash flooding for the region, including the historic Pochahontas flooding in early May. When all was said and done, from a powerful derecho event which crippled Memphis, to intense river and flash flooding in Arkansas, May was quite possibly the most weather intensive month of 2017 across the Mid-South.



**Figure 2:** First observation of 90° for Memphis for each year from 1990 to 2016. The average first date of 90° for Memphis is May 24th.

## JUNE

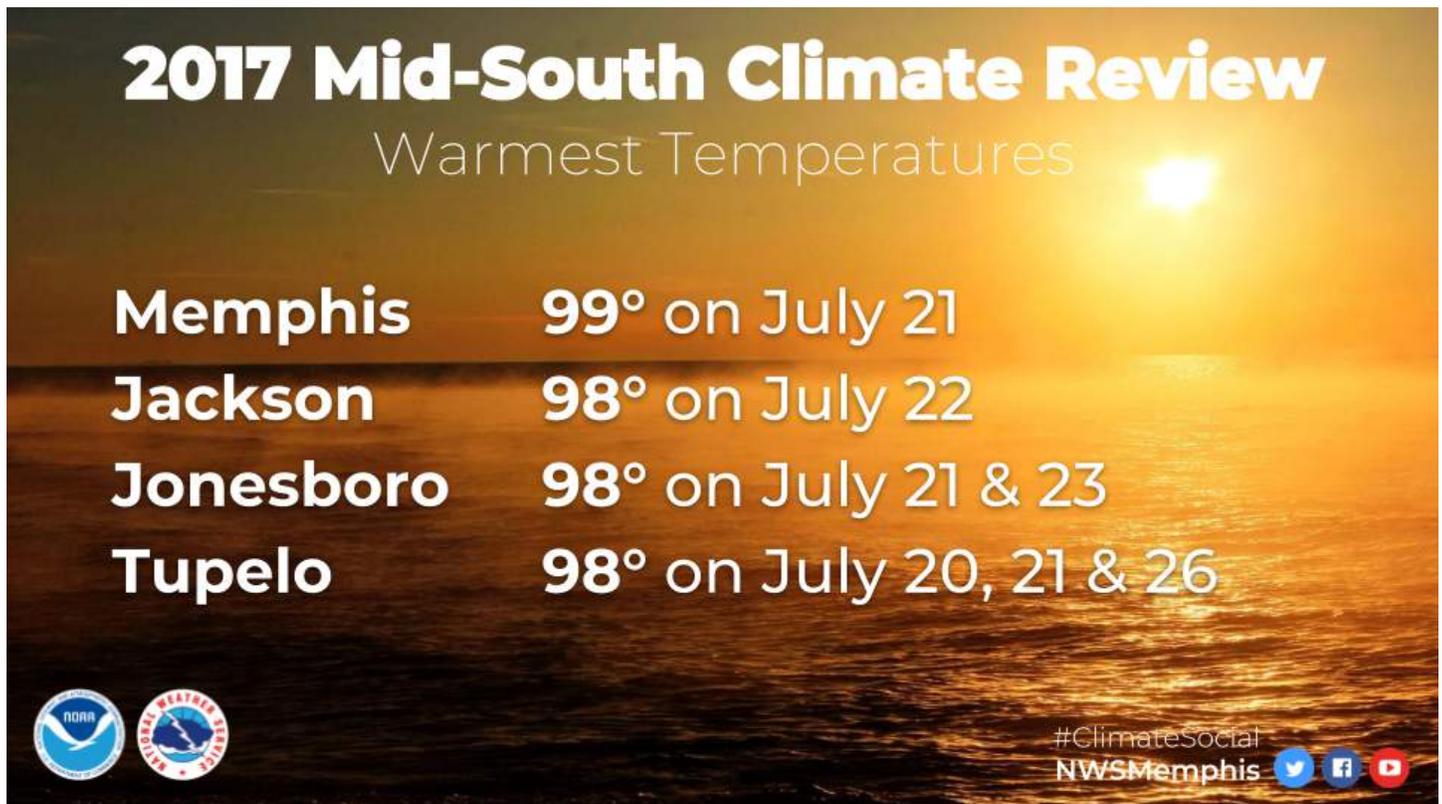
June began the hot months of summer, a time dreaded for many as the excessively warm temperatures and high humidity combine to create unbearable conditions. Luckily, June eased the region into the warm period with near to slightly cooler than normal temperatures. Only Jonesboro reached 90.0° during May, but the remaining three sites all achieved 90.0° during June; on the 14th for Memphis and Jackson, and the 11th for Tupelo. Once again, precipitation totals varied around the region for June. Memphis recorded a near normal total, as did Jonesboro. Tupelo was over 4.00” wetter than normal, while Jackson was nearly 3.00” drier than normal. Tupelo’s large departure above the monthly normal was enough to make for the 6th wettest June on record for the site. One tornado was observed during the month, a weak EF 0 on June 22nd in Marshall County, MS.

## JULY

The beginning of July marks the halfway point of the year, and at this juncture the year was still trending as the 2nd warmest on record for all sites but Jonesboro (which was 7th). This is telling as to how abnormally warm the beginning of the year was, particularly the first four months. For July, temperatures were near to slightly warmer than normal. No site reached 100° this year, but the warmest temperatures of the year were recorded



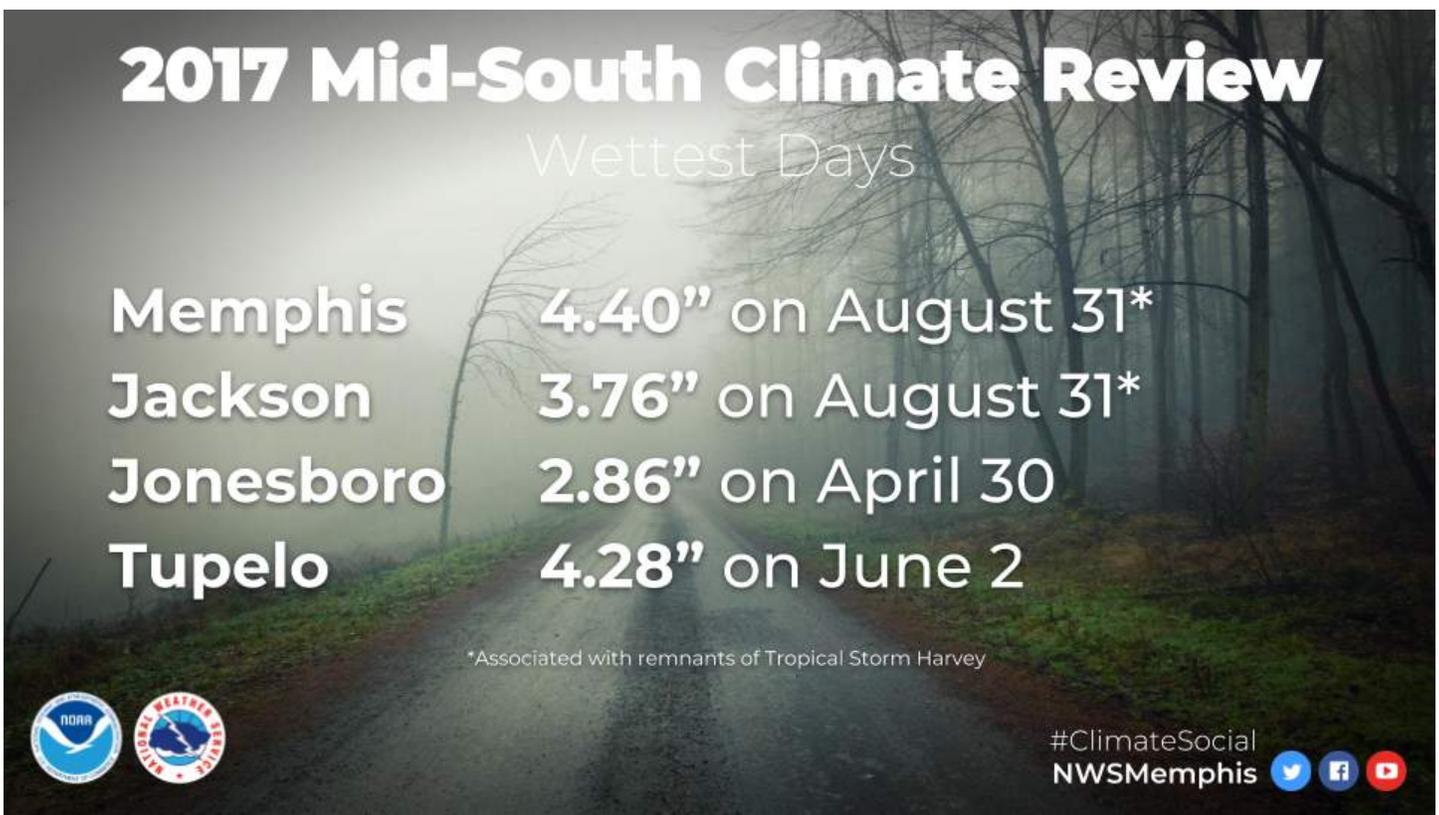
during July, with Memphis the highest at 99.0°. The area was near to drier than normal for July, with precipitation departures from normal ranging from 0.15” below the normal at Jonesboro to 2.54” below the normal at Tupelo. This was dry enough at Tupelo to make for the 7th driest month of July on record. Severe weather immediately preceding and following the 4th of July holiday produced a few tornadoes for the month, the strongest of which was an EF 1 impacting Carroll County, TN on July 5th.



**Figure 3:** Warmest temperatures recorded during 2017 around the Mid-South, all of which occurred in late July.

## AUGUST

August is one of the warmest months of the year for the region, and makes up the final month of meteorological summer, which encompasses the months of June, July, and August. This August was cooler than normal for the entire region, by as much as 3.2° at Jonesboro. The month was cool enough for Jackson to record its 10th coolest month of August on record. Daily high temperatures warmed to as high as 97° at Tupelo, the warmest observed at any of the four sites. In addition to being quite a bit cooler than normal, August was also excessively wet. This was mostly a result to the remnants of Tropical Storm Harvey, which drenched the region on the last day of the month after wreaking havoc on the Texas Gulf Coast. Memphis was the wettest site, recording over 6.00” of precipitation above the monthly normal value. This made for the 4th wettest month of August on record for Memphis, while Jackson recorded its 5th wettest month of August on record. The final 7 of the 27 tornadoes of 2017 were recorded on August 31st, a result of Tropical Depression Harvey. The strongest of these was rated an EF 1, and impacted Itawamba County during the early afternoon hours of August 31st.



**Figure 4:** Highest one day precipitation totals recorded during 2017 around the Mid-South. The wettest days for Memphis and Jackson were the result of the remnants of Tropical Storm Harvey transiting the region on the final day of August.

## SEPTEMBER

September begins meteorological fall, and is quite welcome as temperatures begin to drop from the, at times, oppressively warm temperatures of summer. September 2017 experienced near normal temperatures for much of the region with some portions warmer than normal. Memphis, Jackson, and Tupelo were all within one half of a degree from their monthly normal values, while Jonesboro was 2.2° warmer than normal. September brought a deficit of rainfall to the region, with the entire Mid-South drier than normal. Jonesboro led this charge at 2.67" drier than normal, which resulted in the 6th driest month of September on record for the site.

## OCTOBER

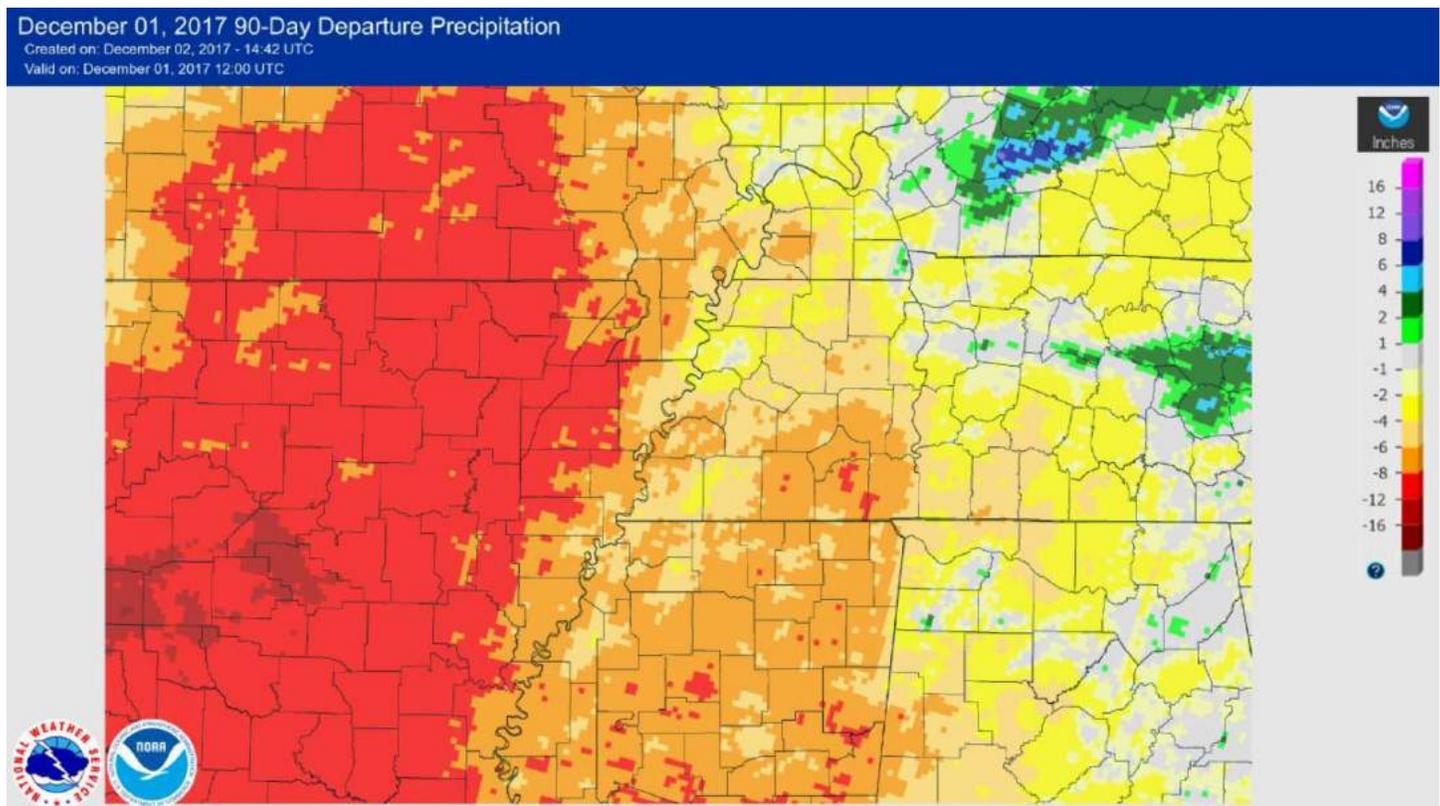
May through September generally brought a mixture of near to cooler than normal temperatures for the four official climate sites, with only a couple of exceptions. This streak would end in October as temperatures were again warmer than normal. Jonesboro led this charge with a monthly average temperature departure some 2.8° above normal. Memphis, Jackson, and Tupelo were 1.1°, 1.3°, and 1.6° above normal, respectively. All four sites recorded 90.0° into the first half of October, with the final occurrence of a high temperature of 90.0°



or higher among the four occurring at Tupelo on October 14th. The first freeze events of the year occurred during October, on either October 28th or 29th for all four climate sites. While October was warmer than normal, it was also largely drier than normal for the region. Save for Memphis and Jackson, which received just near normal amounts of precipitation, the sites were excessively drier than normal. Jonesboro was 3.22" drier than normal for October, while Tupelo was 2.70" drier. In fact, besides much of west Tennessee, the entire Mid-South became dry during October. This led to the formation of Abnormally Dry to Severe Drought conditions, as highlighted by the US Drought Monitor product, for portions of eastern Arkansas and north Mississippi.

## NOVEMBER

Like October, November was warmer than normal around the Mid-South. Temperature departures from normal ranged from 1.1° above normal at Tupelo to 2.7° warmer than normal at Jonesboro. Dry conditions from October only worsened in November, with all official sites 2.13" to 3.90" drier than normal. This allowed drought conditions to continue to grow into the region, with Moderate and Severe classification given to parts of north Mississippi and eastern Arkansas by the US Drought Monitor product. Jonesboro only recorded 1.00" of rainfall the entire month, which tied November 1904 for the 6th driest month of November on record. Likewise, Tupelo recorded only 1.61" of rain for the month, resulting in the 6th driest month of November on record for the site.



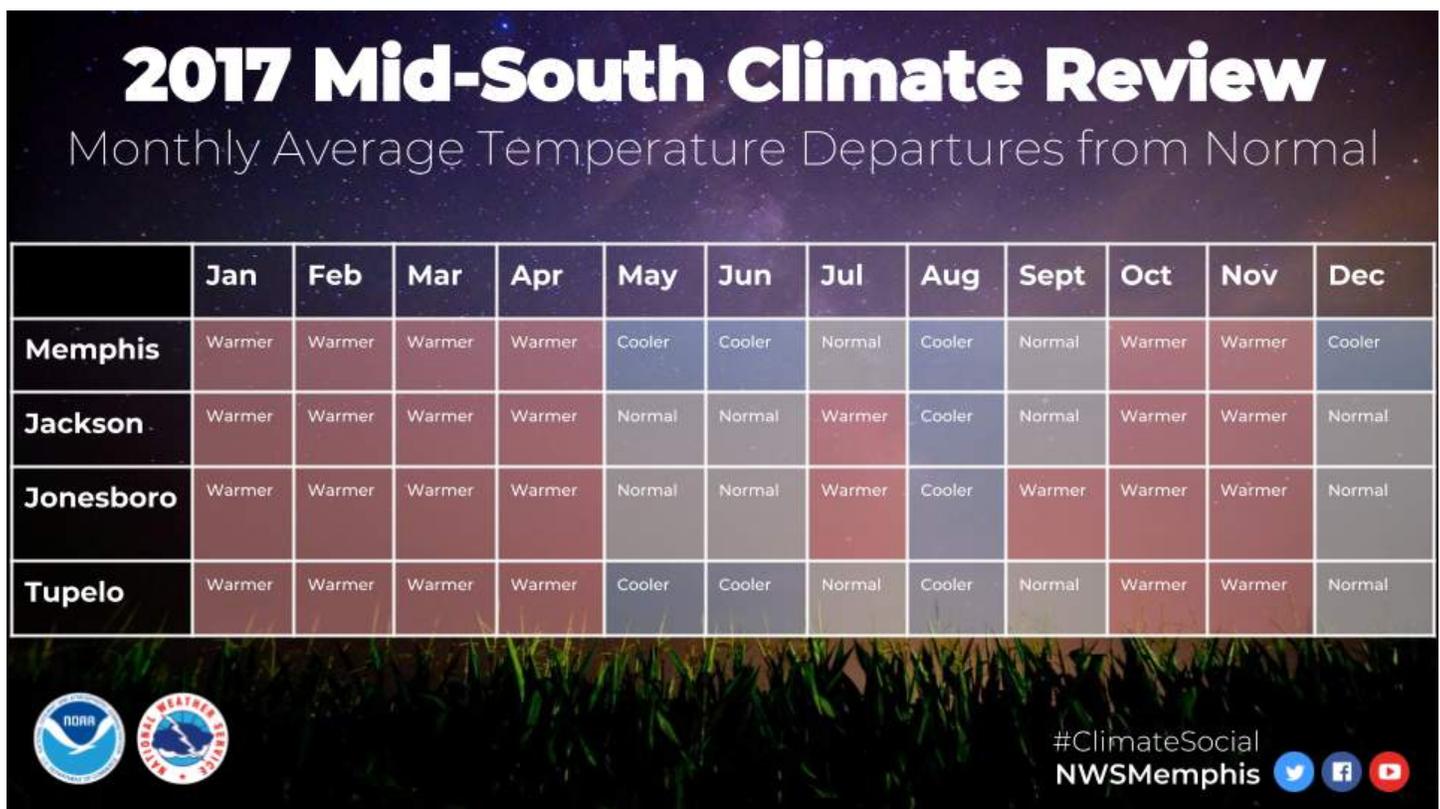
**Figure 5:** 90-Day Precipitation Departures from Normal, encompassing meteorological fall. Notice the abnormally dry conditions areawide, with the driest region lying across northeast Arkansas.



November was the final month of meteorological fall, which runs from September to November. This fall was near to warmer than normal for the region, with all sites except Jonesboro 0.1° on either side of 1.0° above normal. Jonesboro was 2.5° warmer than normal. Drought conditions plagued much of the fall season for much of eastern Arkansas and north Mississippi, with seasonal precipitation totals reflecting this. All sites were excessively drier than normal for fall, with Jonesboro nearly 10.00” drier than normal for the season. In fact, Jonesboro only received 2.43” of rainfall the entire period from September to November, which resulted in the 4th driest fall season on record for the site. Similarly, Tupelo recorded its 8th driest fall on record.

## DECEMBER

December, both the final month of the year and the first month of meteorological winter 2017-18, was near to cooler than normal for the region. Much of this was due to a period of significantly cooler than normal temperatures late in the month. Minimum low temperature values for the month rivaled those set in January as the coolest of the year, but were not quite low enough to break the January lows. Ultimately, during the final days of the month, and thus year, Memphis reached 14.0°, Jackson 12.0°, Jonesboro 13.0°, and Tupelo 18.0°. Precipitation totals for the month ended near to wetter than normal at each of the four climate sites. Memphis led the charge, recording just over 7.00” of precipitation for the month, or 1.52” above normal. Tupelo was closest to normal at just 0.18” above normal.



**Figure 6:** Monthly average temperature departures from normal for each of the four climate sites.



## 2017 ANNUAL SUMMARY

2017 is best characterized by its warmer than normal temperatures around the Mid-South. Temperatures were warm enough during the year to make for a top 10 warmest year on record at each of the four sites. 2017 was the 6th warmest on record at Memphis and Jackson, the 10th on record at Jonesboro, and the 8th at Tupelo. Annual average temperature departures ranged from 1.6° warmer at Memphis to 2.3° warmer at both Jackson and Jonesboro, while Tupelo was 1.9° warmer than its normal annual average temperature. The year was widely drier than normal for most of the region, with Tupelo some 7.19” drier than normal, Jackson was 3.73” drier than normal, Memphis was 2.30” drier, and Jonesboro was near normal at just 0.93” below its annual normal precipitation value. Snowfall values varied around the region this year, with Jackson and Jonesboro both slightly above their annual normal snowfall values at 0.4” and 0.2” above, respectively. Memphis received 2.0” of snowfall for the year, but was still 1.8” below normal, while Tupelo only picked up a Trace all year, and remained 2.1” below normal. For significant weather events, the year will be known for the derecho event which caused mass power outages for Memphis during Memorial Day weekend in May, and the remnants of Tropical Storm Harvey, which brought flooding and a few tornadoes to the region on the final day of August.

	Memphis	Jackson	Jonesboro	Tupelo
Highest Temperature (F)	99 (7/21)	98 (7/22)	98 (7/21&23)	98 (7/20-21 & 26)
Lowest Temperature (F)	13 (1/8)	3 (1/8)	10 (1/8)	12 (1/8)
Average Temperature (F)	64.7	62.1	62.3	64.4
Normal Temperature (F)	63.1	59.8	60.0	62.5
<b>Departure from Normal (F)</b>	<b>1.6</b>	<b>2.3</b>	<b>2.3</b>	<b>1.9</b>
Wettest Day (inches)	4.04 (8/31)	3.76 (8/31)	2.86 (4/30)	4.28 (6/2)
Total Precipitation (inches)	51.38	49.54	47.17	47.82
Normal Precipitation (inches)	53.68	53.27	48.10	55.01
<b>Departure from Normal (inches)</b>	<b>-2.30</b>	<b>-3.73</b>	<b>-0.93</b>	<b>-7.19</b>
Total Snowfall (inches)	2.0	5.0	5.0	Trace
Normal Snowfall (inches)	3.8	4.6	4.8	2.1
<b>Departure from Normal (inches)</b>	<b>-1.8</b>	<b>0.4</b>	<b>0.2</b>	<b>-2.1</b>
Greatest Snow Depth (inches)	1 (1/7)	N/A	N/A	0
Earliest Freeze	Oct 29	Oct 28	Oct 28	Oct 29
Latest Freeze	Mar 15	Mar 16	Mar 15	Mar 16



## TORNADOES OF 2017

The following is a list of all tornadoes recorded around the region for the year 2017. The 27 tornadoes were all generally weak, but the region still experienced an above average number of tornadoes for the year.

Date	Time (LST)	EF Rating	Location	Path Length (miles)	Max Path Width (yards)
3/1/17	4:51 AM	0	Dyer County, TN (ENE Dyersburg)	3.71	50
3/7/17	2:37 AM	0	Lawrence County, AR (N Black Rock)	0.35	100
3/9/17	8:51 PM	2	Obion County, TN (E Woodland Mills)	10.17	250
3/9/17	9:54 PM	0	Carroll County, TN (2 S Concord)	0.96	150
3/25/17	12:34 AM	0	Greene County, AR (NW Marmaduke)	0.78	120
3/27/17	3:59 PM	0	Henderson County, TN (E Center Hill)	6.42	50
3/27/17	12:50 PM	0	Alcorn County, MS (WNW Theo)	0.19	50
3/27/17	4:18 PM	1	Decatur County, TN (WSW Decaturville)	5.5	100
4/22/17	1:45 PM	1	Prentiss County, MS (E Wheeler)	6.46	200
4/22/17	2:20 PM	0	Tishomingo County, MS (1.7 N Tishomingo Airport)	8.99	100
4/30/17	12:25 AM	1	Clay County, AR (0.8 E Datto)	2.84	100
4/30/17	12:56 AM	1	Mississippi County, AR   Dunklin County, MO (1.5 WNW Happy Corners)	1.96	50
4/30/17	1:07 AM	1	Mississippi County, AR (0.3 ENE Wilson Junction)	5.6	150
4/30/17	1:08 AM	1	Dunklin County, MO (2.6 NNE Hornersville)	1.2	100
4/30/17	7:46 AM	0	Tipton County, TN (2.5 SE Covington)	2.1	100
4/30/17	9:26 AM	1	Calhoun County, MS (1.0 SSE Dentontown)	2.7	50
6/22/17	5:30 PM	0	Marshall County, MS (0.4 W Red Banks)	2.75	150
7/3/17	5:28 AM	1	Craighead County, AR (0.2 NNW Jonesboro)	0.09	75
7/3/17	4:20 PM	0	Dyer County, TN (WSW Newbern)	0.31	75
7/5/17	5:58 PM	1	Carroll County, TN (W Howley)	1.54	200



Date	Time (LST)	EF Rating	Location	Path Length (miles)	Max Path Width (yards)
8/31/17	7:19 AM	0	Phillips County, AR (ENE Preston Place)	1.71	50
8/31/17	10:57 AM	0	Benton County, MS (NNE Lamar)	0.27	30
8/31/17	12:13 PM	0	Lee County, MS (SE Mt Vernon)	1.07	40
8/31/17	12:23 PM	1	Itawamba County, MS (W Kirkville)	2.47	150
8/31/17	12:43 PM	0	Prentiss County, MS (E Wheeler)	0.25	30
8/31/17	2:07 PM	0	Hardin County, TN (WNW Crump)	1.25	30
8/31/17	4:03 PM	0	Hardin County, TN (SSW Olivehill)	0.75	70

## A FINAL THOUGHT: A WARMER RECENT CLIMATE

All four official climate sites recorded one of their top 10 warmest years on record during 2017. Other recent years which also did this were 2012 and 2016 which were the #1 and #2 warmest for Memphis, respectively. When it comes to the top 10 warmest years on record for Memphis, all but 2 of those years occurred since 1990. This is significant and highlights a warmer period of time over the last 18 years. A similar trend can be noted at the other three climate sites as well, with 7 of the 10 at Jackson occurring since 1990, 6 of the 10 at Tupelo, but only 3 of the 10 warmest years on record occurring at Jonesboro since the year 1990. Globally it was the third warmest year on record for the Earth, only behind the years 2012 and 2016, as witnessed at Memphis. According to NOAA’s National Centers for Environmental Information (NCEI), all of the lower 48 states had warmer than normal temperatures for 2017, the third consecutive year this has occurred. Recent climate models suggest warmer than normal temperatures are likely to continue for 2018 across the continental United States.