

East Tennessee State University

## Digital Commons @ East Tennessee State University

---

Tennessee Climate Office Monthly Report

---

9-1-2018

### 2018 September - Tennessee Monthly Climate Report

Tennessee Climate Office, East Tennessee State University

Follow this and additional works at: <https://dc.etsu.edu/tn-climate-monthly-reports>



Part of the [Climate Commons](#), and the [Meteorology Commons](#)

---

#### Recommended Citation

Tennessee Climate Office, East Tennessee State University, "2018 September - Tennessee Monthly Climate Report" (2018). *Tennessee Climate Office Monthly Report*. 13.

<https://dc.etsu.edu/tn-climate-monthly-reports/13>

This Report is brought to you for free and open access by Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Tennessee Climate Office Monthly Report by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact [digilib@etsu.edu](mailto:digilib@etsu.edu).

# September 2018 Tennessee Climate Summary

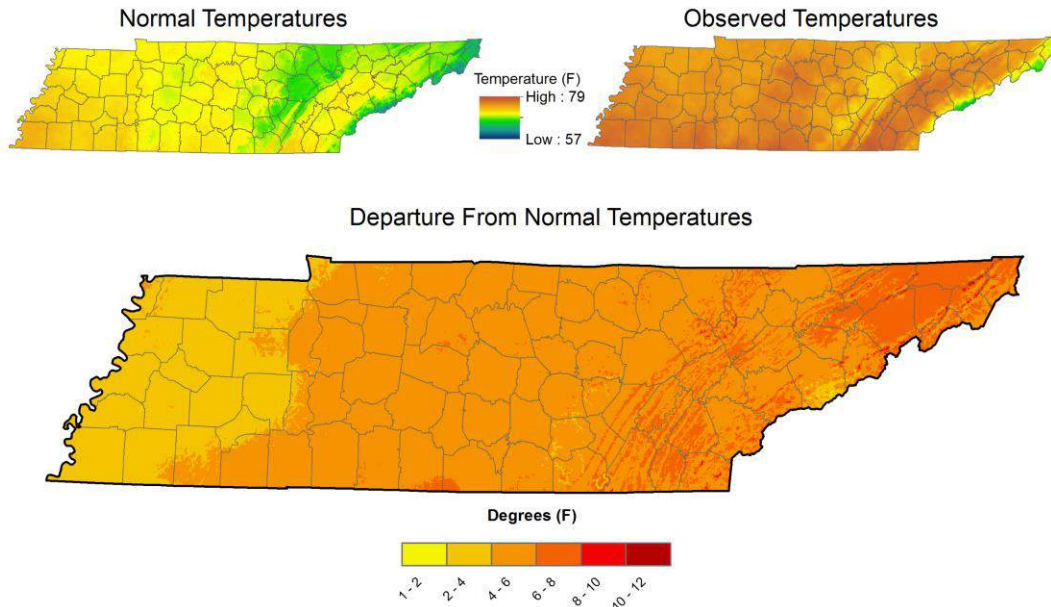
Prepared by William Tollefson and Dr. Andrew Joyner

Tennessee Climate Office \* East Tennessee State University

## Monthly Temperature Summary:



## September 2018 Mean Temperature



Stations with the highest mean temperature

Name	Station Type	Mean Temperature (F)
ARDMORE	COOP	79.3
CHATTANOOGA AP	WBAN	78.6
SHILOH NMP TENNESSEE	RAWS	78.2
GERMANTOWN 4SE	COOP	78
MEMPHIS INTERNATIONAL AP	WBAN	77.8

Map Data From: PRISM Climate Group,  
Oregon State University  
1980-2010 Normals Used  
Station Data retrieved from SCACIS2

Stations with the lowest mean temperature

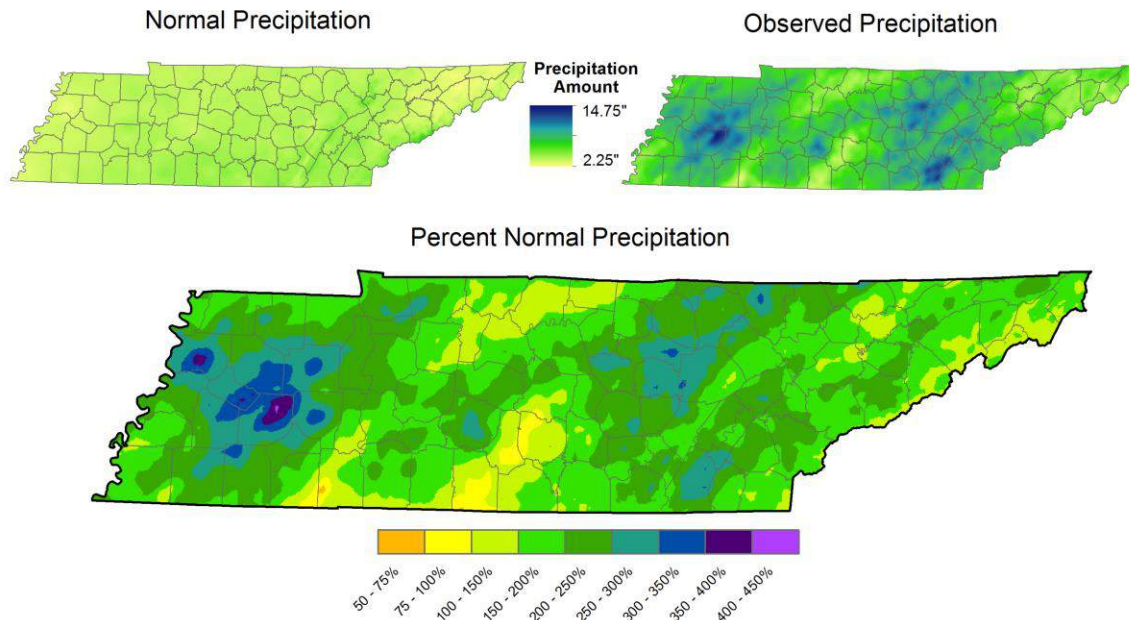
Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	57.9
NEWFOUND GAP	COOP	65
ROAN MOUNTAIN 3SW	COOP	68.1
CHEROKEE TENNESSEE	RAWS	69.5
CROSSVILLE EXP STN	COOP	70.3

Temperatures were well above normal this month, with mean temperatures averaged over the month ranging from 2° to 8°F above normal for large portions of the state. Each week all areas of the state observed above normal mean temperatures, except for the week of the 6<sup>th</sup> to the 12<sup>th</sup> when West Tennessee (climate division 4) and a few several counties in northwest Middle TN (climate division 3) observed temperatures 0-2°F below normal. The second half of the month brought temperatures that were 6° to 10° above normal across the state! Much of this was driven by well above normal low temperatures, with nine weather stations across the state never dipping below 60 degrees, and an additional thirteen stations which observed low temperatures above 70 degrees for at least 14 days during the month. For the first time in over 90 years the cities of Knoxville and Chattanooga did not dip below 60 degrees at any time during September! Many cities recorded this as one of their warmest Septembers: warmest on record for Tri-Cities, Nashville (intentional airport station) tied for its warmest, Crossville had its second warmest, and Chattanooga tied for the second warmest.

Monthly Precipitation Summary:



# September 2018 Precipitation



Stations with the most precipitation

Name	Station Type	Total Precipitation (in)
OOLTEWAH 6.7 NNE	CoCoRaHS	14.4
HARRISON 1.7 ESE	CoCoRaHS	14.07
JACKSON EXP STA	COOP	13.92
LEXINGTON	COOP	13.88
ATWOOD 0.8 WSW	CoCoRaHS	12.6

Map Data From: PRISM Climate Group,  
Oregon State University,  
1980-2010 Normals Used  
Station Data retrieved from SC ACIS2

Stations with the least precipitation

Name	Station Type	Total Precipitation (in)
MURFREESBORO 4.3 SE	CoCoRaHS	1.71
CHRISTIANA 5W	COOP	2.85
BETHPAGE 4.5 NW	CoCoRaHS	3.04
LEWISBURG EXP STA	COOP	3.19
PETERSBURG 7.3 N	CoCoRaHS	3.28

Precipitation this month varied spatially, and from week to week. The first week of the month had spotty precipitation with many localized areas recording above and below normal totals. The second week (6<sup>th</sup> - 12<sup>th</sup>) brought more widespread precipitation, with about 2/3 of the state recording above normal totals, some of which is attributed to the remnants of tropical storm Gordon that tracked just west of the state. The major exception to above normal rainfall were the already dry areas of southeast climate division 4 and southwest climate division 3. The third week (13<sup>th</sup> - 19<sup>th</sup>) was the driest week, with most of middle and western Tennessee recording rainfall totals less than 0.25 inches. However, during the same week the remnants of Hurricane Florence brought large rainfall totals to northeast and extreme eastern Tennessee. During the last week of the month, heavy rains spread across the state, as a stalled frontal boundary resulted in rainfall totals of 6+ inches in many parts of the state! For the five-day period from the 20<sup>th</sup> to the 24<sup>th</sup> Martin, TN received almost half of their total rainfall for the month. Similarly, some areas in Middle Tennessee recorded over 8 inches of rain from the 21<sup>st</sup> to the 27<sup>th</sup> (more than double monthly average precipitation totals). Eight stations in the center of the state, Jackson eastward to Cookeville, reported six days during the month with over one inch of recorded precipitation!

Top Tenn (warmest, coldest, wettest, driest stations of the month):

Hottest Stations (highest max temp):

Name	Station Type	Max Temperature (F)
SHILOH NMP TENNESSEE	RAWS	100
AMES PLANTATION	COOP	99
SELMER	COOP	99
MEMPHIS WFO	WBAN	98
LEWISBURG EXP STA	COOP	98
FRANKLIN SEWAGE PLANT	COOP	98
OLD HICKORY DAM	COOP	98
WAYNESBORO	COOP	98
CLARKSVILLE NO.2	COOP	98
GERMANTOWN 4SE	COOP	98
DECATURVILLE	COOP	98
MOUSETAIL LANDING STATE PARK	COOP	98

Coldest Stations (lowest min temp):

Name	Station Type	Lowest Temperature (F)
NORRIS	COOP	40
UT MARTIN BRANCH EXP STATION	COOP	45
UNION CITY	COOP	46
MT LECONTE	COOP	46
HOHENWALD	COOP	48
CLARKSVILLE OUTLAW AP	WBAN	49
MILAN EXP STN	COOP	50
SPRINGFIELD EXP STATION	COOP	50
CLARKSVILLE WWTP	COOP	51
MONTGOMERY BELL STATE PARK	COOP	51

Warmest Stations (highest mean temps):

Name	Station Type	Mean Temperature (F)
ARDMORE	COOP	79.3
CHATTANOOGA AP	WBAN	78.6
SHILOH NMP TENNESSEE	RAWS	78.2
GERMANTOWN 4SE	COOP	78
MEMPHIS INTERNATIONAL AP	WBAN	77.8
OAK RIDGE ASOS	WBAN	77.4
SEVIERVILLE	COOP	77.4
NASHVILLE INTL AP	WBAN	77.3
FRANKLIN SEWAGE PLANT	COOP	77.3
NASHVILLE BERRY FIELD	COOP	77.2

Coollest Stations (lowest mean temps):

Name	Station Type	Mean Temperature (F)
MT LCONTE	COOP	57.9
NEWFOUND GAP	COOP	65
ROAN MOUNTAIN 3SW	COOP	68.1
CHEROKEE TENNESSEE	RAWS	69.5
CROSSVILLE EXP STN	COOP	70.3
CROSSVILLE 7 NW	WBAN	70.6
TOWNSEND 5S	COOP	70.9
GATLINBURG 2 SW	COOP	71
COALMONT	COOP	71.3
CROSSVILLE MEMORIAL AP	WBAN	71.8
ALLARDT	COOP	71.8

Wettest Stations (highest rainfall totals):

Name	Station Type	Total Precipitation (in)
OOLTEWAH 6.7 NNE	CoCoRaHS	14.4
HARRISON 1.7 ESE	CoCoRaHS	14.07
JACKSON EXP STA	COOP	13.92
LEXINGTON	COOP	13.88
ATWOOD 0.8 WSW	CoCoRaHS	12.6
CHATTANOOGA 5.1 ENE	CoCoRaHS	12.53
ONEIDA	COOP	12.21
BELLS 2.5 NE	CoCoRaHS	12.17
MONTEREY	COOP	11.84
COOKEVILLE 3.3 SSW	CoCoRaHS	11.8

Driest Stations (lowest rainfall totals):

Name	Station Type	Total Precipitation (in)
MURFREESBORO 4.3 SE	CoCoRaHS	1.71
CHRISTIANA 5W	COOP	2.85
BETHPAGE 4.5 NW	CoCoRaHS	3.04
LEWISBURG EXP STA	COOP	3.19
PETERSBURG 7.3 N	CoCoRaHS	3.28
ROAN MOUNTAIN 7.1 W	CoCoRaHS	3.32
ROAN MOUNTAIN 3SW	COOP	3.38
LYNCHBURG 0.7WNW	CoCoRaHS	3.46
ROGERSVILLE 7.8 ENE	CoCoRaHS	3.48

## Drought Monitor:

In the drier middle parts of the month short-term drought (D0 and D1) conditions were observed in northwest and southern West Tennessee and in southern and western middle Tennessee. The heavy rains at the end of the month erased all drought conditions in northwest Tennessee, and most drought conditions in Middle Tennessee as well. As of the last Drought Monitor release of the month (on the 27<sup>th</sup>) all D1 had been removed from the state, and D0 conditions persisted only in the southern-most counties where the drought had been the longest lived, and precipitation totals were less than those recorded across the rest of the state.

*Author:*

Jessica Blunden  
NCEI/NOAA

## U.S. Drought Monitor Tennessee

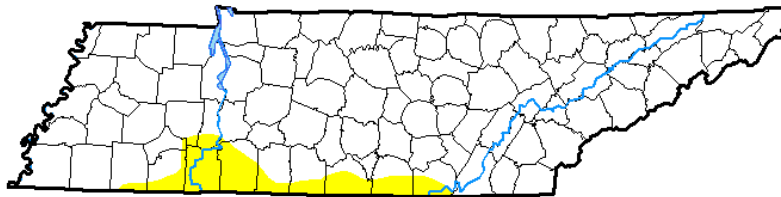
**September 25, 2018**

(Released Thursday, Sep. 27, 2018)

Valid 8 a.m. EDT

*Intensity:*

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

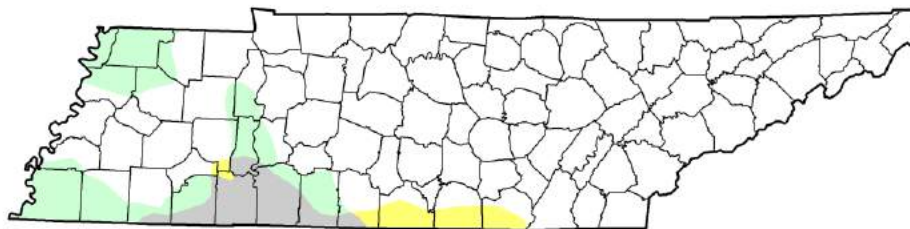


*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

<http://droughtmonitor.unl.edu/>



## U.S. Drought Monitor Class Change - Tennessee 1 Month



September 25, 2018  
compared to  
August 28, 2018

<http://droughtmonitor.unl.edu>



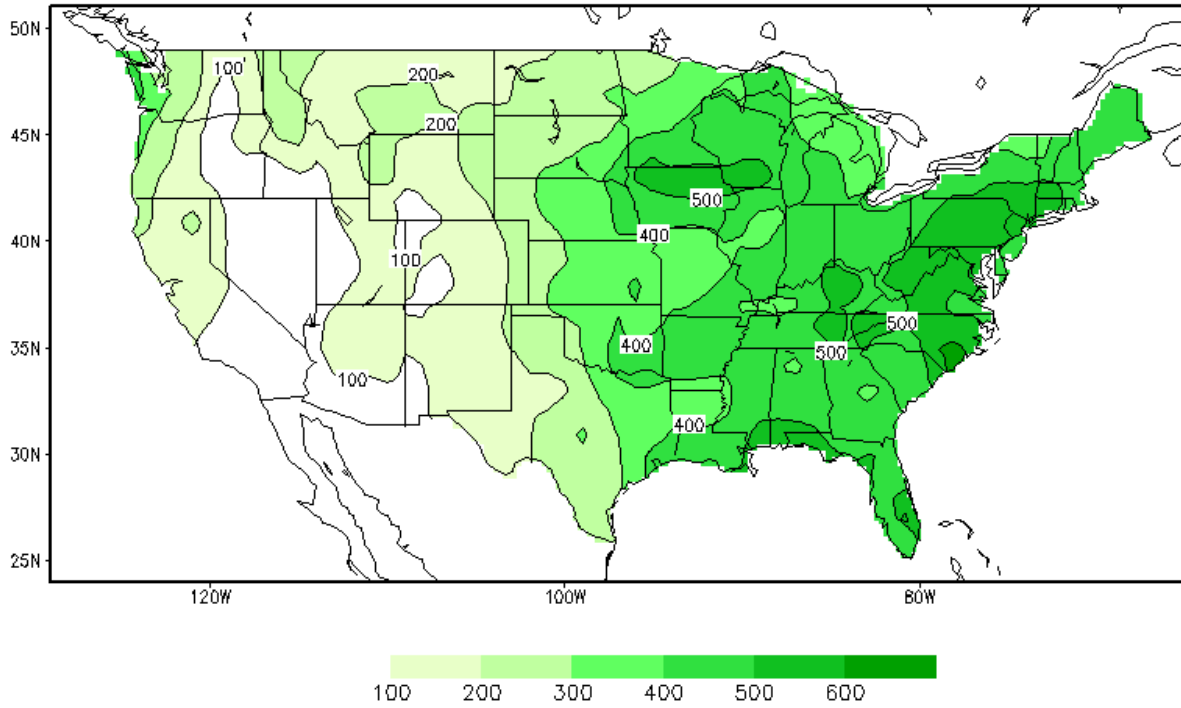
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

## Soil Moisture:

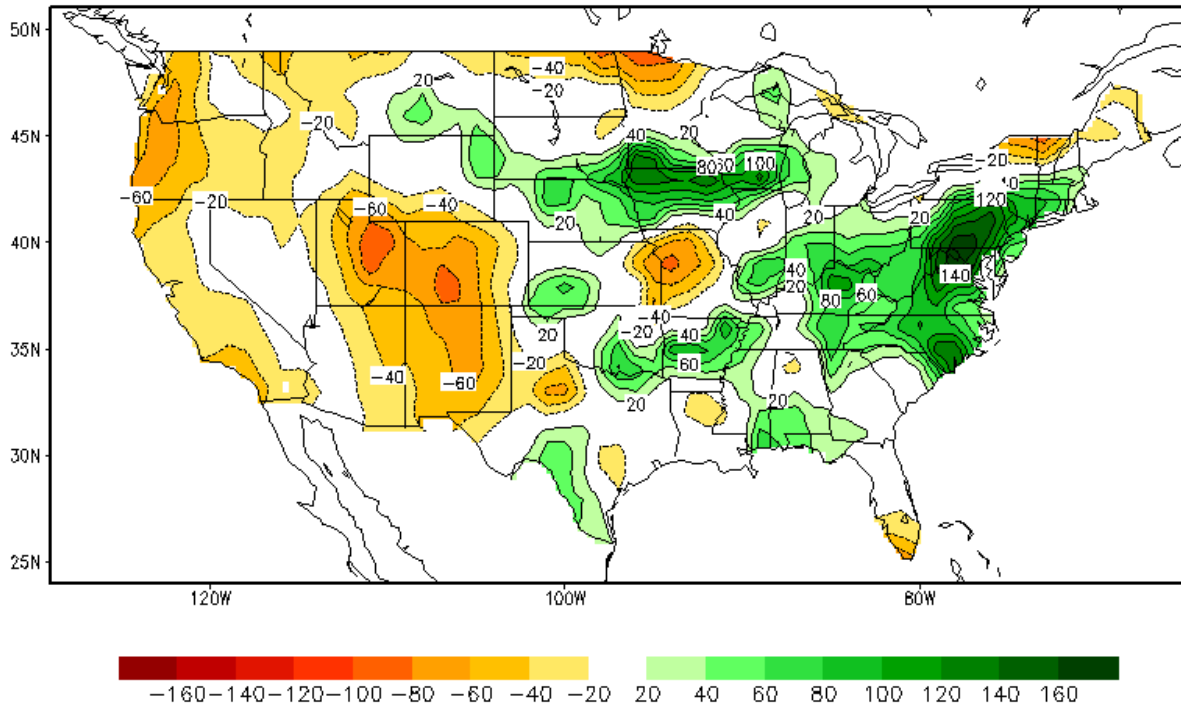
Soil moisture for the month ranged from near normal to above normal, and readings at the end of the month were well above normal. With soil moisture anomalies increasing by up to 60% from the end of August to the end of September in parts of West Tennessee.



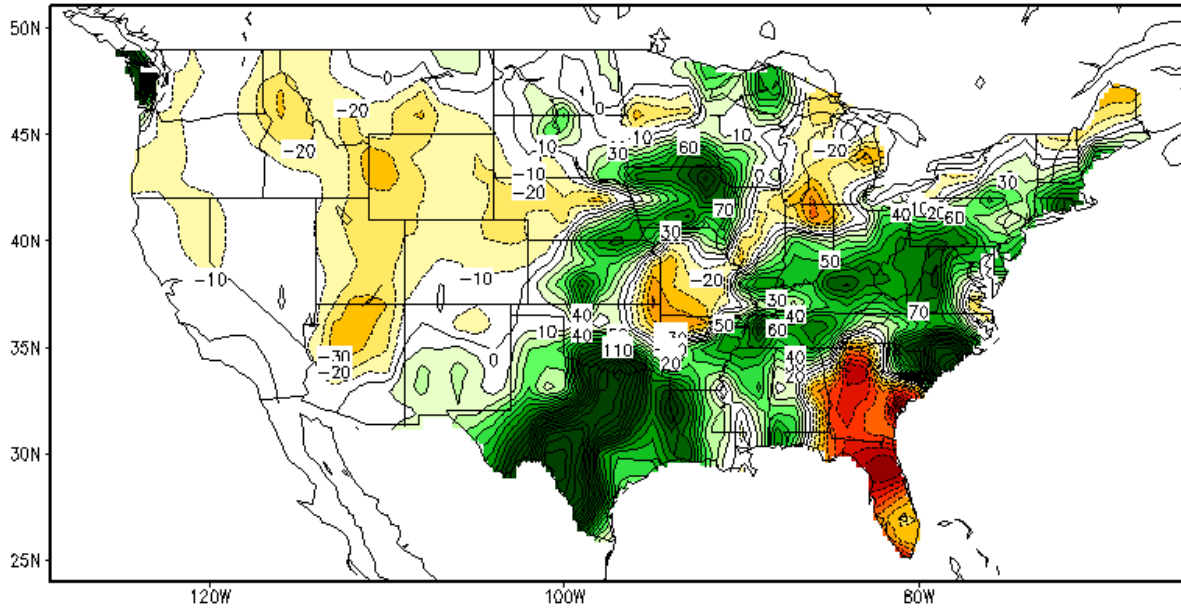
Calculated Soil Moisture (mm)  
SEP, 2018



Calculated Soil Moisture Anomaly (mm)  
SEP, 2018



Calculated Soil Moisture Anomaly Change  
SEP 29, 2018 from AUG.31

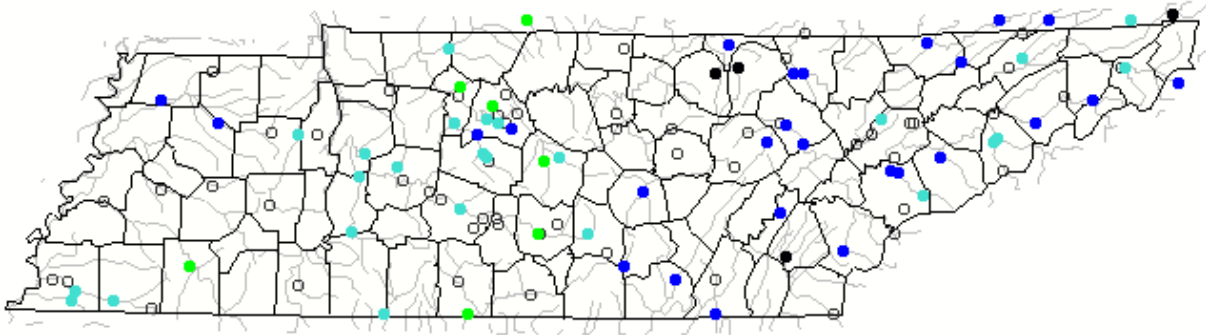




### Streamflow:

Streamflow ranged from normal to much above normal for the month, mainly due to the heavy rains at the end of the month.

September 2018



Search USGS streamgage

Choose a data retrieval option and select a location on the map

- List of all stations  Single station  Nearest stations  Peak flow

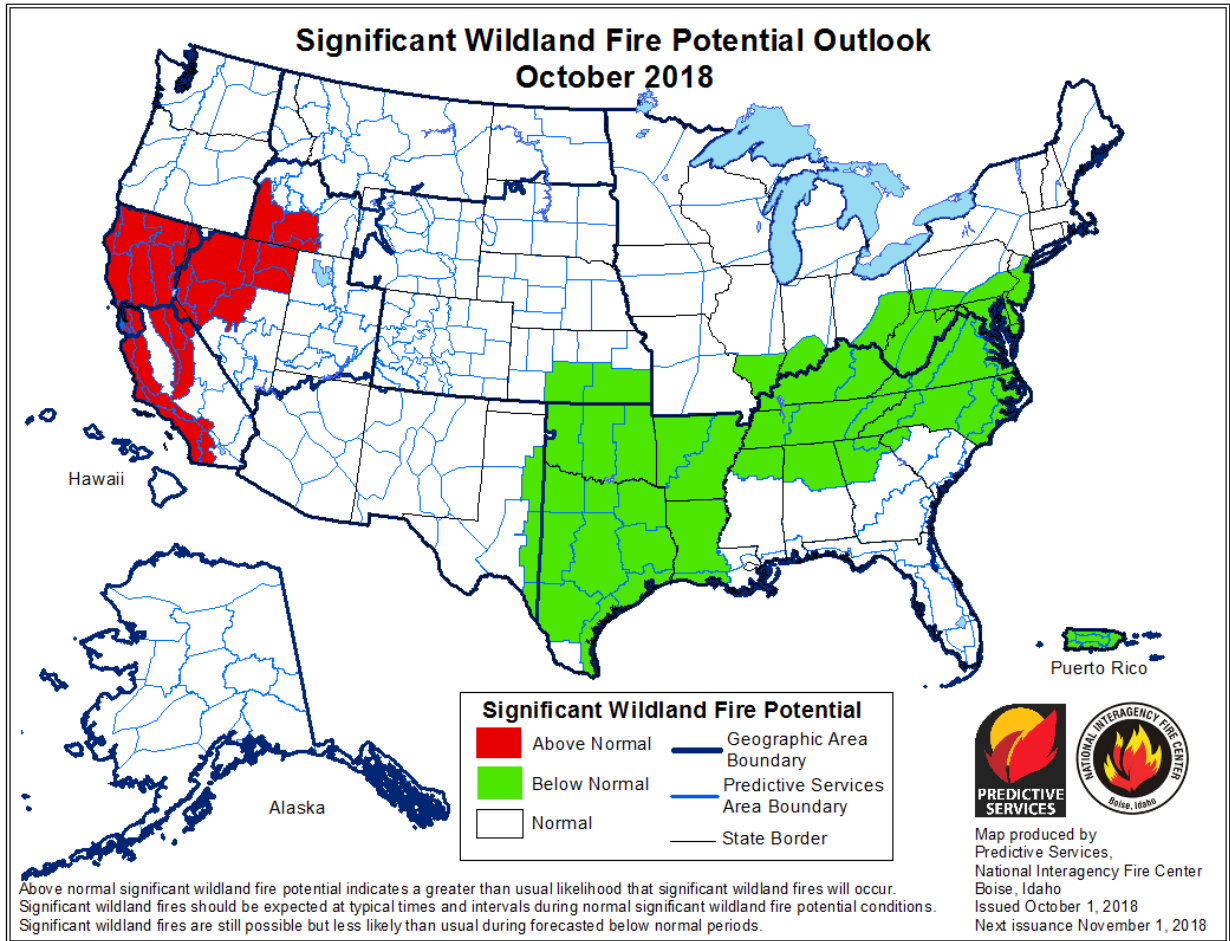
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

### Miscellaneous:

**Crop Conditions from USDA:** Going into the 3<sup>rd</sup> week of the month all crop progress (Corn, Cotton, Soybeans, and Tobacco) was ahead of 5-year averages, however there were concerns of dry/drought conditions in parts of the state, with 22% of the state reporting below adequate topsoil moisture, and 24% of the state reporting below adequate subsoil moisture. Much of this changed during the last week of the month, as prolonged heavy rains brought field work/harvests to a halt. This led to many crop harvests falling back towards 5-yr averages, and corn harvests falling slightly behind the normal rate. The rain did alleviate fears of drought, with below adequate topsoil moisture falling to just 1% and subsoil moisture below adequate down to 2% of the state. The rain was ill-timed for cotton farmers, as many of the bolls had opened, and seeds sprouting in the boll were reported in Carroll County. However, the rains were quite beneficial for pastures in dry areas, and for winter wheat that had been planted.

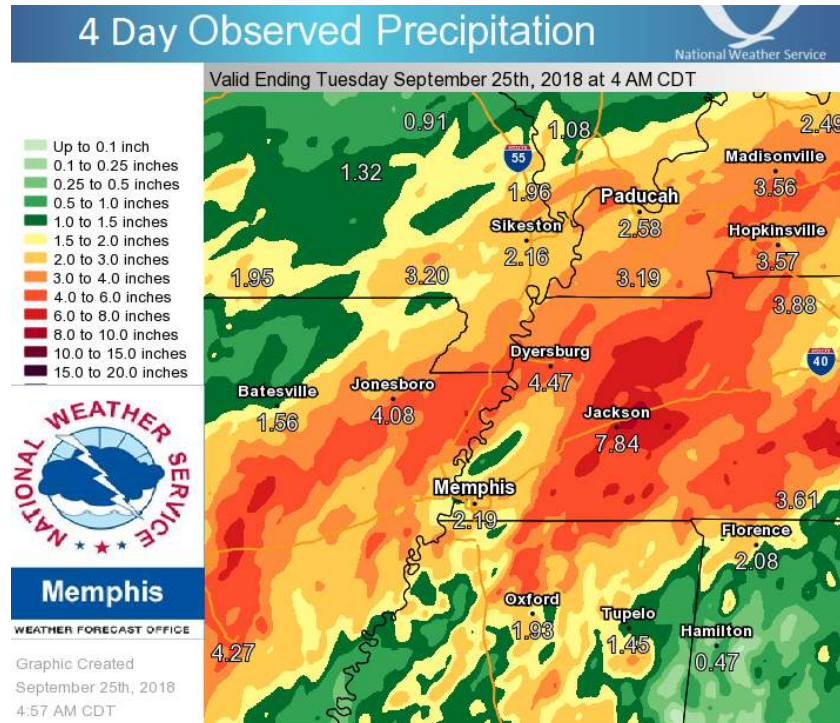
CROP PROGRESS					CONDITION					
Crop	This Week	Last Week	2017	5 Year Avg.	Item	Very Poor	Poor	Fair	Good	Excellent
	Percent					Percent				
Corn - Dented	100	100	100	100	Corn	0	2	16	58	24
Corn - Mature	97	93	96	95	Cotton	4	4	19	52	21
Corn - Harvested	64	60	72	67	Pasture	1	12	31	45	11
Cotton - Bolls Opening	95	93	75	70	Soybeans	1	4	21	56	18
Cotton - Harvested	14	10	4	5						
Soybeans - Dropping Leaves	67	60	68	64						
Soybeans - Harvested	18	16	13	16						
Tobacco - Cut	90	86	84	77						
Winter Wheat - Planted	11	9	4	5						
Winter Wheat - Emerged	6	N/A	1	N/A						

**Fire Danger:** Fire danger is forecast to be below normal for the month of October.

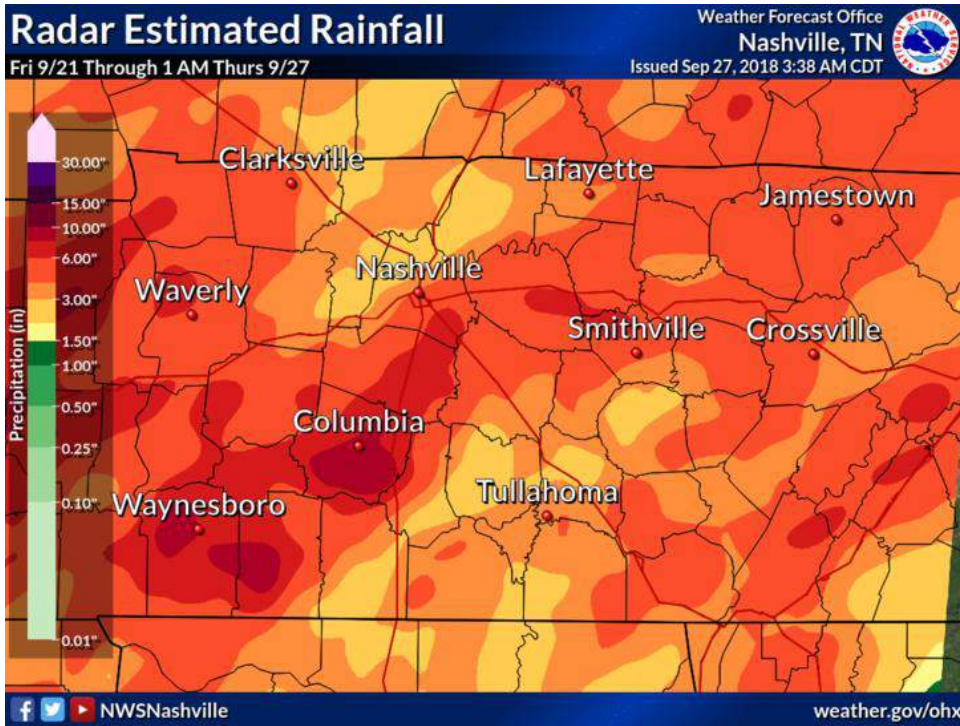


## Story of the month:

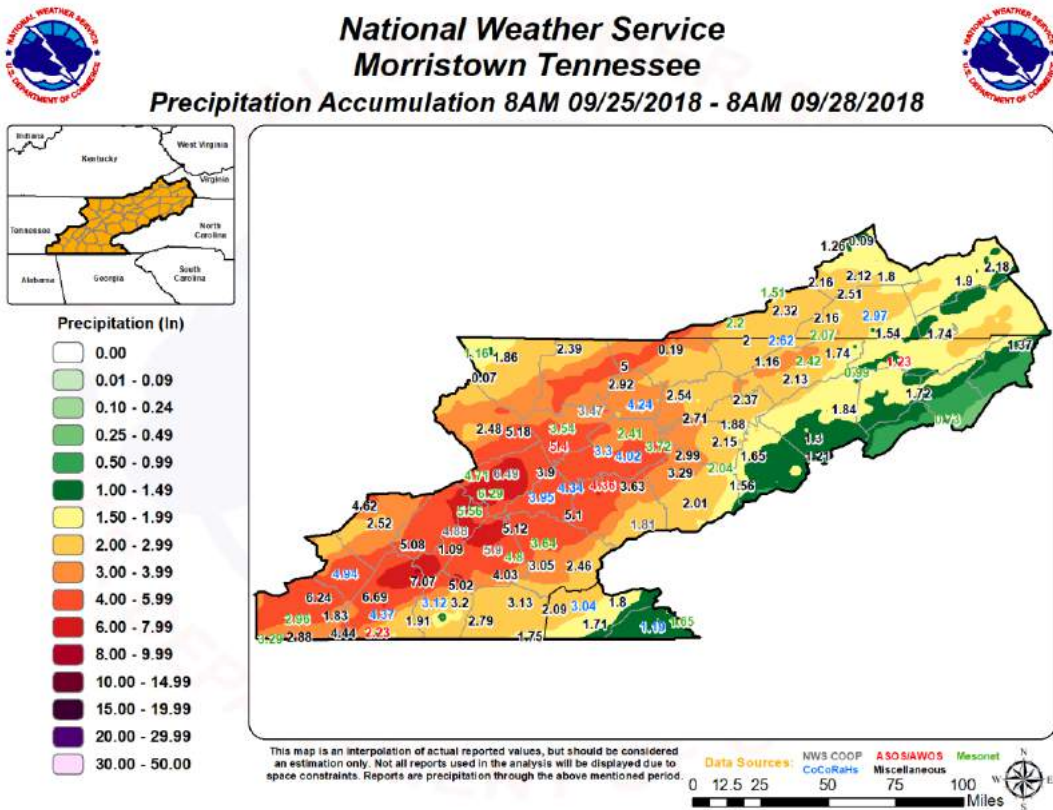
The main story of the month for the state would be the heavy rains at the end of the month, and the continued summer-like conditions that have persisted through the start of autumn. There was a frontal boundary or low pressure system located over some part of the state of Tennessee every day from the 21<sup>st</sup> to the 28<sup>th</sup> of September. These persistent high moisture systems brought round after round of heavy rains to the state, with the most pronounced rainfall totals in West Tennessee and areas along the Cumberland Plateau and southern Tennessee Valley.



Rainfall map from National Weather Service Memphis



Rainfall map from National Weather Service Nashville

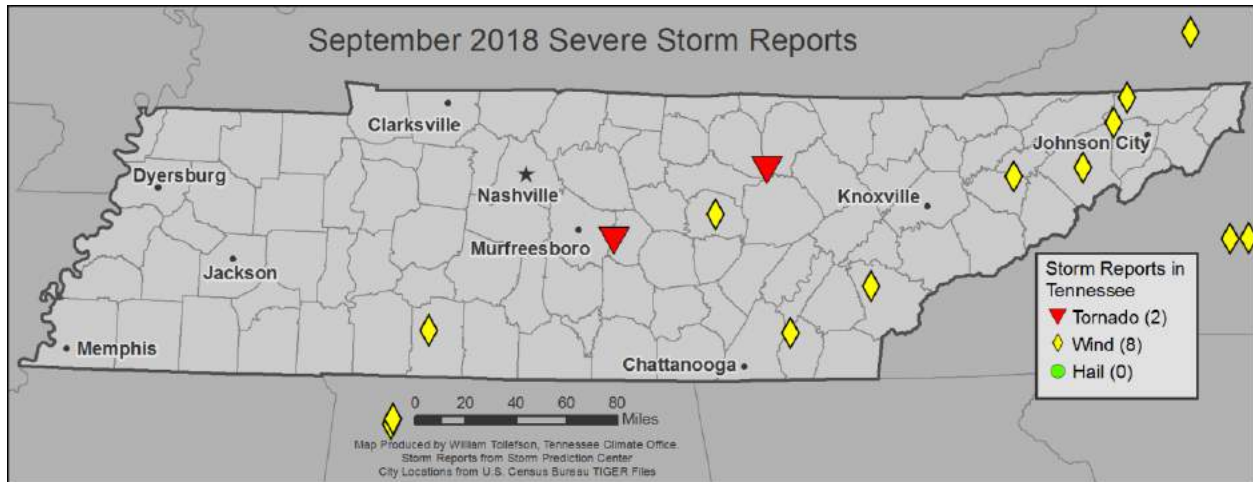


Rainfall Map from National Weather Service Morrystown

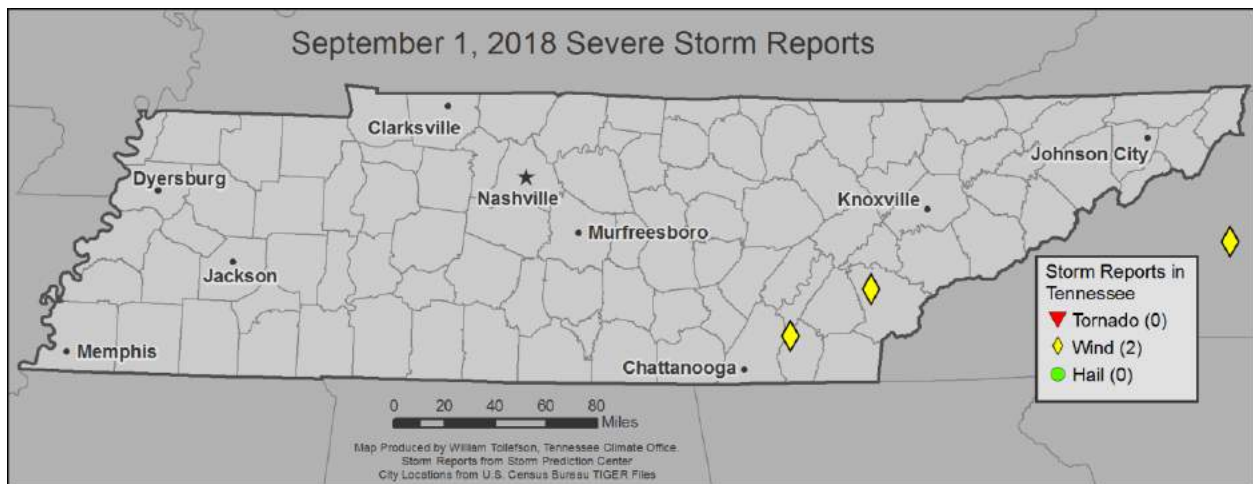


### Storm reports:

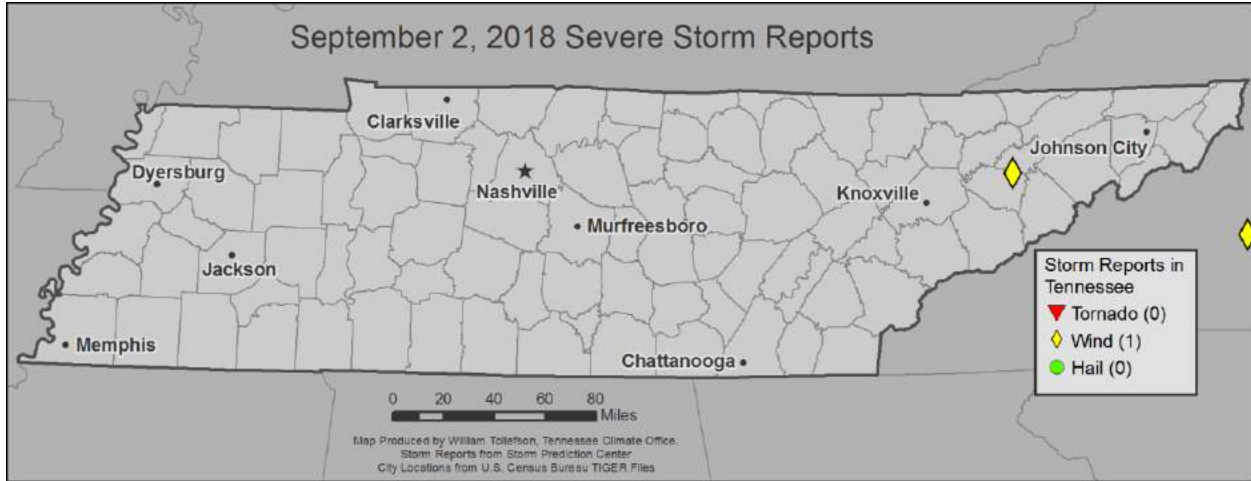
September was a relatively quiet month for severe storms across the state, with severe storm damage reported on 6 days during the month, resulting in a total of 2 tornado reports, and 8 wind damage reports.



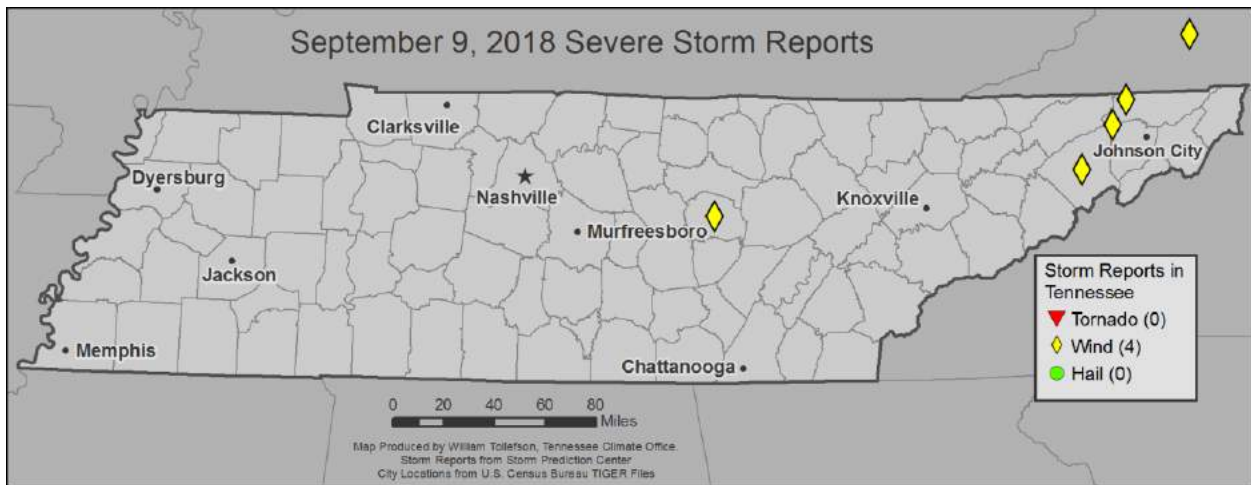
### Daily reports:



Time	Speed	Location	County	Lat	Lon	Comments
18:40	-	2 NW HOPEWELL	BRADLEY	35.26	-84.93	TWO TREES DOWN NEAR GEORGETOWN (MRX)
20:15	-	MADISONVILLE	MONROE	35.52	-84.36	A COUPLE OF TREES DOWN AROUND 4 PM AND ANOTHER AROUND 430 PM IN THE VICINITY OF MADISONVILLE AND SWEETWATER (MRX)



Time	Speed	Location	County	Lat	Lon	Comments
21:45	-	3 NW WHITE PINE	JEFFERSON	36.13	-83.34	2 TREES DOWN BETWEEN WHITE PINE AND TALBOTT AROUND 545 TO 6 PM (MRX)

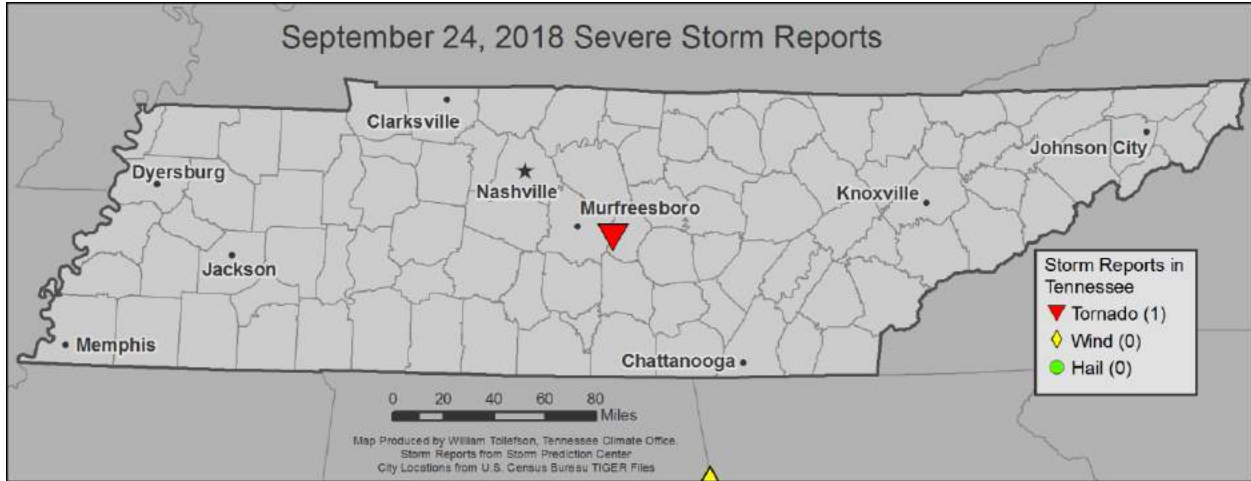


Time	Speed	Location	County	Lat	Lon	Comments
21:15	-	1 ENE SPARTA	WHITE	35.94	-85.45	RECEIVED A CALL FROM THE PUBLIC THAT HAD SIGNIFICANT ROOF DAMAGE ON ALL SIDES OF HOUSE FROM THE STORM YESTERDAY AFTERNOON/EVENING. THE CALLER SAID THE TIME WAS BETWEEN (OHX)
22:25	-	2 W GREENEVILLE	GREENE	36.17	-82.85	A FEW TREES DOWN JUST WEST OF THE GREENEVILLE... TN AREA. (MRX)
22:55	-	FALL BRANCH	WASHINGTON	36.42	-82.62	A FEW TREES DOWN NEAR FALL BRANCH... TENNESSEE. (MRX)
23:20	-	3 NE KINGSPORT	SULLIVAN	36.56	-82.52	SEVERAL TREES AND POWER LINES DOWN. (MRX)





Time	Speed	Location	County	Lat	Lon	Comments
18:48	-	7 WNW LAWRENCEBURG	LAWRENCE	35.27	-87.46	A FEW 7 INCH PINE TREES ARE DOWN ON KELSO ROAD NEAR GRANDDADDY. TIME ESTIMATED VIA RADAR. (OHX)



Time	Strength	Location	County	Lat	Lon	Comments
21:19	EF0	3 SSE READYVILLE	CANNON	35.79	-86.16	A SMALL BRIEF EF-0 TORNADO TOUCHED DOWN ON THE WEST SIDE OF BRADYVILLE ROAD JUST NORTH OF LASSITER ROAD. MOVING NNE THE TORNADO CAUSED SIGNIFICANT ROOF DAMAGE TO TWO HO (OHX)

 **US National Weather Service Nashville Tennessee** \*\*\*  
 25 September at 12:31 · 🌐

Our damage survey team has determined that an EF-0 tornado with max winds of 85 mph touched down in western Cannon County along Bradyville Road yesterday. The tornado was on the ground for 1-2 minutes, and had a path length of 0.4 miles, and a path width of 30 yards. This is the first tornado on record to occur in the month of September in Cannon County.





Time	Strength	Location	County	Lat	Lon	Comments
4:53	EF1	3 W CLARKRANGE	FENTRESS	36.19	-85.08	A SMALL BRIEF EF-1 TORNADO MOVED NORTH HITTING A RESIDENCE AND NEARBY AREAS ALONG CAMPGROUND ROAD WEST OF CLARKRANGE. AN OUTBUILDING WAS SHIFTED OFF ITS FOUNDATION...ON (OHX)



**US National Weather Service Nashville Tennessee**

...

27 September at 18:04 · 🌐

A damage survey team confirmed that a brief EF-1 tornado struck near Clarkrange, TN (Fentress County) Tuesday evening. Fortunately there were no injuries. More details at <https://nwschat.weather.gov/p.php...>



### CPC outlooks for the next month:

The climate prediction center outlooks for October indicate equal chances for normal, above, or below normal precipitation for the eastern 2/3 of the state, and slightly better chances for above normal precipitation in West Tennessee. The entire state is given a 60% chance of continuing our above normal temperatures through October.

