

# November 2021 Tennessee State Climate Summary

Tennessee Climate Office \* East Tennessee State University

Prepared by William Tollefson and Dr. Andrew Joyner

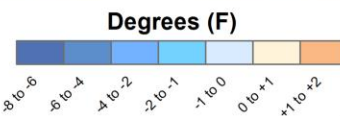
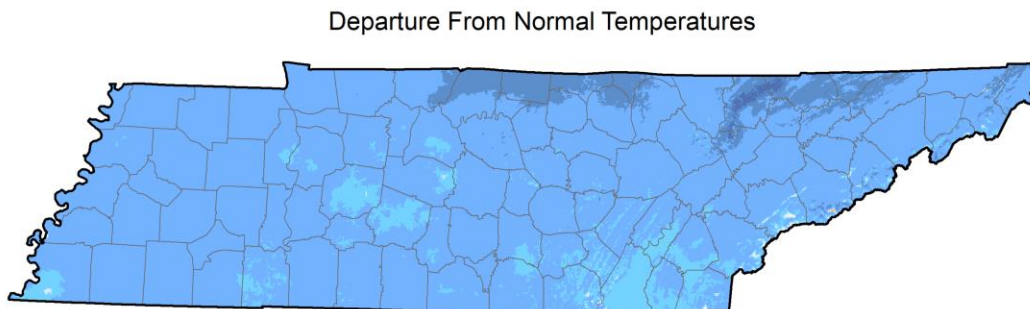
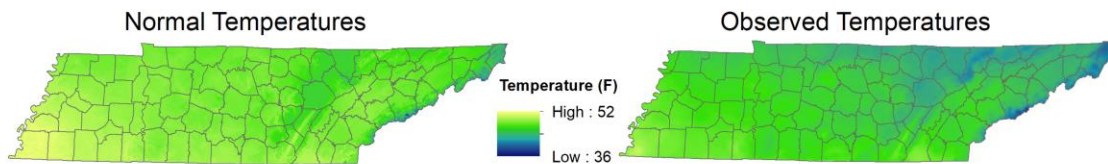
With contributions by [Climate Data Representatives](#) across the state

## Monthly Temperature Summary:

Mean monthly temperatures for November 2021 were below the 1991-2020 30-year climate normals across the state, with most areas recording a mean temperature that was 2-4°F below normal, with northern parts of the Cumberland Plateau recording temperatures as much as 8°F below normal for November. The first and last weeks of the month were the coolest of the month, with many areas of the state recording temperatures 6-9°F below normal at the start of November. Among weather stations with at least 30-years of reporting history, three stations (Mt LeConte, Newfound Gap, and Erwin, all in East Tennessee) set daily records for low maximum-temperatures, and three stations (Mt LeConte, Waynesboro, and Pulaski Water Plant) set daily low temperature records during November. Despite the cooler than normal conditions for the month, the second week brought a warm spell with above normal temperatures for most areas of the state. In that brief warm spell in mid-November two weather stations in the Great Smoky Mountains National Park (Mt. LeConte and Newfound Gap) both set daily records for highest maximum temperatures on the 10<sup>th</sup> and 11<sup>th</sup>, with Mt LeConte recording a mean daily temperature of 52°F on November 10, which was 15 degrees warmer than normal for the day!



## November 2021 Mean Temperature



Stations with the highest mean temperature

| Station Name              | Station Type | Mean Temperature (F) |
|---------------------------|--------------|----------------------|
| MEMPHIS INTERNATIONAL AP  | WBAN         | 51.5                 |
| SHILOH NMP TENNESSEE      | RAWS         | 49.7                 |
| CHATTANOOGA AP            | WBAN         | 48.8                 |
| GERMANTOWN 4SE            | COOP         | 48.5                 |
| LEWISBURG TOWER TENNESSEE | RAWS         | 48.5                 |

Map Data From: PRISM Climate Group, Oregon State University, 1991-2020 Normals Used, Station Data retrieved from SC ACIS2

Stations with the lowest mean temperature

| Station Name      | Station Type | Mean Temperature (F) |
|-------------------|--------------|----------------------|
| MT LECONTE        | COOP         | 33.1                 |
| NEWFOUND GAP      | COOP         | 39                   |
| ROAN MOUNTAIN 3SW | COOP         | 40.4                 |
| TAZEWELL          | COOP         | 40.7                 |
| ONEIDA            | COOP         | 41.7                 |

### Monthly Precipitation Summary:

November 2021 was much drier than normal across Tennessee, with most of the state recording less than half the November rainfall totals. The southern end of the Tennessee Valley in East Tennessee was generally the driest area of the state, recording less than 20% its normal rainfall for the month, compared to the 1991-2020 30-year climate normals. For the longer-term climate reporting weather stations in the state, it was the driest November on record for Oak Ridge (with a 75-year weather record), the 3<sup>rd</sup> driest November for the Tri-Cities (with a 74-year weather record), and 8<sup>th</sup> driest November for Chattanooga (with a 142-year weather record). Despite the much lower than normal precipitation totals, light rain was frequent with most areas of the state recording some rainfall each week, with decent rains, totaling 0.5-1.5-inches, across most of the state in the third week of November. These frequent light rain events paired with cooler than normal temperatures and surplus soil moisture from heavy rains in late summer and into early fall kept drought conditions at bay for most of the state, although there was expansion of D0 (Abnormally Dry) conditions in the last U.S. Drought Monitor release in November. Mt. LeConte in the GSMNP was the only weather station in the state that reported measurable snowfall this month.

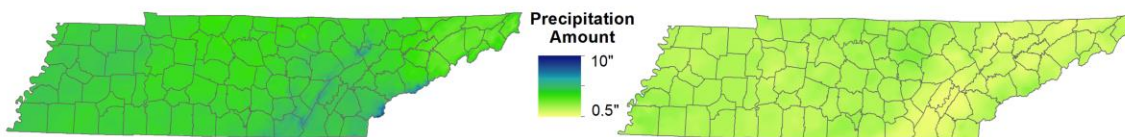


## November 2021 Precipitation

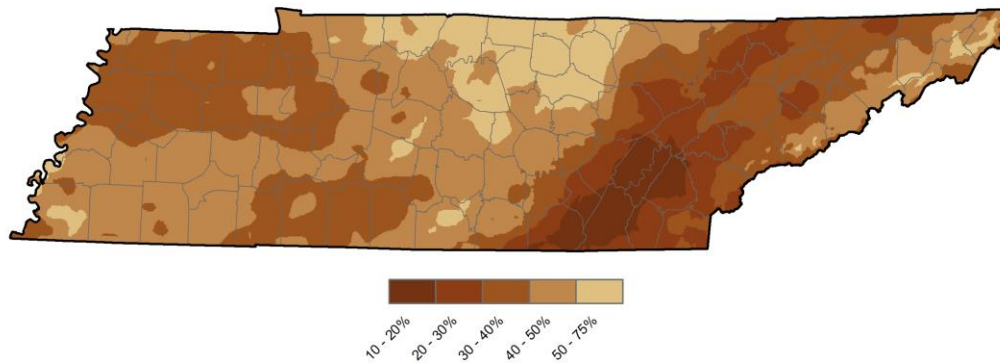


Normal Precipitation

Observed Precipitation



Percent Normal Precipitation



Stations with the most precipitation

| Station Name       | Station Type | Total Precipitation (in) |
|--------------------|--------------|--------------------------|
| MT LECONTE         | COOP         | 2.88                     |
| COOKEVILLE 1.0 SW  | CoCoRaHS     | 2.86                     |
| MONTEREY           | COOP         | 2.79                     |
| BYRDSTOWN 2.8 SSW  | CoCoRaHS     | 2.78                     |
| COOKEVILLE 3.3 SSW | CoCoRaHS     | 2.61                     |

Map Data From: PRISM Climate Group,  
Oregon State University.  
1991-2020 Normals Used  
Station Data retrieved from SC ACIS2

Stations with the least precipitation

| Station Name         | Station Type | Total Precipitation (in) |
|----------------------|--------------|--------------------------|
| MADISONVILLE 1.2 NNE | CoCoRaHS     | 0.45                     |
| GOODLETTSVILLE 7WNW  | COOP         | 0.53                     |
| DECATUR 7NE          | COOP         | 0.68                     |
| WARNER PARK          | COOP         | 0.72                     |
| WHITWELL 0.3 SE      | CoCoRaHS     | 0.74                     |

**Station Data and Top Tenn. (warmest/wettest, coldest/driest stations of the month):**

Station data for airports across the state using WBAN weather stations, compared to 1991-2020 climate normals:

| Station Name | Temperatures (°F) |      |      |        |          |       |     |       | Precipitation (inches) |        |       |
|--------------|-------------------|------|------|--------|----------|-------|-----|-------|------------------------|--------|-------|
|              | Averages          |      |      |        | Extremes |       |     |       | Totals                 |        |       |
|              | Max               | Min  | Mean | Depart | High     | Date  | Low | Date  | Obs                    | Depart | %Norm |
| Memphis      | 62.4              | 40.6 | 51.5 | -1.2   | 77       | 11/17 | 29  | 11/26 | 2.11                   | -2.58  | 45%   |
| Jackson      | 60.5              | 33.1 | 46.8 | -2.5   | 77       | 11/17 | 24  | 11/29 | 1.72                   | -2.61  | 40%   |
| Clarksville  | 58.3              | 32.9 | 45.6 | -2.5   | 73       | 11/17 | 22  | 11/23 | 1.92                   | -2.12  | 48%   |
| Nashville    | 60.3              | 35.6 | 47.9 | -2.4   | 75       | 11/9  | 25  | 11/23 | 1.47                   | -2.39  | 38%   |
| Chattanooga  | 61.3              | 36.2 | 48.8 | -2.4   | 75       | 11/10 | 27  | 11/24 | 0.78                   | -4.02  | 16%   |
| Crossville   | 55.2              | 32.2 | 43.7 | -2.3   | 73       | 11/8  | 21  | 11/23 | 1.65                   | -3.09  | 35%   |
| Knoxville    | 58.1              | 33.8 | 46.0 | -3.0   | 73       | 11/17 | 24  | 11/27 | 1.12                   | -3.09  | 27%   |
| Bristol      | 56.5              | 30.1 | 43.3 | -3.1   | 74       | 11/10 | 20  | 11/24 | 0.97                   | -2.17  | 31%   |

Departures and %Norm Key: **Warmer than Normal**, **Cooler than Normal**; **Wetter than Normal**, **Drier than Normal**

**Hottest Stations (highest maximum temperature)**

| Station Name                | Station Type | Highest Temperature (F) | Date |
|-----------------------------|--------------|-------------------------|------|
| LYNCHBURG                   | COOP         | 79                      | 9    |
| SHELBYVILLE WATER DEPT      | COOP         | 78                      | 7    |
| JACKSON EXP STA             | COOP         | 78                      | 18   |
| KINGSTON SPRINGS            | COOP         | 78                      | 9    |
| COOKEVILLE                  | COOP         | 78                      | 9    |
| MOUNT PLEASANT 1N           | COOP         | 77                      | 9    |
| WOODBURY 1 WNW              | COOP         | 77                      | 9    |
| MURFREESBORO 5 N            | COOP         | 77                      | 9    |
| SPARTA WASTEWATER PLANT     | COOP         | 77                      | 9    |
| BIG SOUTH TENNESSEE         | RAWS         | 77                      | 9    |
| BLEDSON SF TENNESSEE        | RAWS         | 77                      | 9    |
| INDIAN GRAVE TENNESSEE      | RAWS         | 77                      | 9    |
| MERIWETHER LEWIS TENNESSEE  | RAWS         | 77                      | 8    |
| JACKSON MCKELLAR- SIPES AP  | WBAN         | 77                      | 17   |
| DYERSBURG MUNICIPAL AIRPORT | WBAN         | 77                      | 17   |
| MEMPHIS INTERNATIONAL AP    | WBAN         | 77                      | 17   |
| MEMPHIS WFO                 | WBAN         | 77                      | 18   |

*Twelve stations tied for the 6<sup>th</sup> hottest temperature (77°F)*

**Coldest Stations (lowest minimum temperature)**

| Station Name                   | Station Type | Lowest Temperature (F) | Date |
|--------------------------------|--------------|------------------------|------|
| MT LCONTE                      | COOP         | 7                      | 23   |
| WAYNESBORO                     | COOP         | 10                     | 4    |
| NEWFOUND GAP                   | COOP         | 15                     | 24   |
| MILAN EXP STN                  | COOP         | 16                     | 27   |
| TAZEWELL                       | COOP         | 17                     | 24   |
| GAINESBORO                     | COOP         | 18                     | 29   |
| ONEIDA                         | COOP         | 18                     | 24   |
| ROAN MOUNTAIN 3SW              | COOP         | 18                     | 26   |
| PULASKI WASTEWATER PLANT       | COOP         | 19                     | 13   |
| GREENEVILLE EXP STA            | COOP         | 19                     | 24   |
| JAMESTOWN                      | COOP         | 19                     | 24   |
| COALMONT                       | COOP         | 19                     | 23   |
| MAYNARDVILLE                   | COOP         | 19                     | 23   |
| BIG SOUTH TENNESSEE            | RAWS         | 19                     | 23   |
| BLEDSON SF TENNESSEE           | RAWS         | 19                     | 23   |
| CROSSVILLE AREA OFFICE TENNESS | RAWS         | 19                     | 23   |

*Eight stations tied for the 9<sup>th</sup> coldest temperature (19°F)*

**Warmest Stations (highest mean temperatures)**

| Station Name              | Station Type | Mean Temperature (F) |
|---------------------------|--------------|----------------------|
| MEMPHIS INTERNATIONAL AP  | WBAN         | 51.5                 |
| SHILOH NMP TENNESSEE      | RAWS         | 49.7                 |
| CHATTANOOGA AP            | WBAN         | 48.8                 |
| GERMANTOWN 4SE            | COOP         | 48.5                 |
| LEWISBURG TOWER TENNESSEE | RAWS         | 48.5                 |
| MEMPHIS WFO               | WBAN         | 48.5                 |
| CAMDEN TOWER TENNESSEE    | RAWS         | 48.3                 |
| AMES PLANTATION           | COOP         | 47.9                 |
| INDIAN GRAVE TENNESSEE    | RAWS         | 47.9                 |
| NASHVILLE INTL AP         | WBAN         | 47.9                 |

**Coollest Stations (lowest mean temperatures)**

| Station Name             | Station Type | Mean Temperature (F) |
|--------------------------|--------------|----------------------|
| MT LECONTE               | COOP         | 33.1                 |
| NEWFOUND GAP             | COOP         | 39                   |
| ROAN MOUNTAIN 3SW        | COOP         | 40.4                 |
| TAZEWELL                 | COOP         | 40.7                 |
| ONEIDA                   | COOP         | 41.7                 |
| ROGERSVILLE 1 NE         | COOP         | 42.5                 |
| JAMESTOWN                | COOP         | 42.5                 |
| ERWIN 1 W                | COOP         | 42.6                 |
| GOODLETTSVILLE 7WNW      | COOP         | 42.6                 |
| MILAN EXP STN            | COOP         | 42.8                 |
| NEWCOMB                  | COOP         | 42.8                 |
| PULASKI WASTEWATER PLANT | COOP         | 42.8                 |
| CROSSVILLE 7 NW          | WBAN         | 42.8                 |

*Four stations tied for the 10<sup>th</sup> coolest mean temperature (42.8°F)*

**Wettest Stations (highest precipitation totals):**

| Station Name         | Station Type | Total Precipitation (in) |
|----------------------|--------------|--------------------------|
| MT LECONTE           | COOP         | 2.88                     |
| COOKEVILLE 1.0 SW    | CoCoRaHS     | 2.86                     |
| MONTEREY             | COOP         | 2.79                     |
| BYRDSTOWN 2.8 SSW    | CoCoRaHS     | 2.78                     |
| COOKEVILLE 3.3 SSW   | CoCoRaHS     | 2.61                     |
| LIVINGSTON 4.1 WSW   | CoCoRaHS     | 2.53                     |
| LIVINGSTON 1.9 NNW   | CoCoRaHS     | 2.52                     |
| BYRDSTOWN            | COOP         | 2.46                     |
| RICKMAN 3.8 ESE      | CoCoRaHS     | 2.45                     |
| WESTMORELAND 5.4 NNE | CoCoRaHS     | 2.43                     |

**Driest Stations (lowest precipitation totals):**

| Station Name         | Station Type | Total Precipitation (in) |
|----------------------|--------------|--------------------------|
| MADISONVILLE 1.2 NNE | CoCoRaHS     | 0.45                     |
| GOODLETTSVILLE 7WNW  | COOP         | 0.53                     |
| DECATUR 7NE          | COOP         | 0.68                     |
| WARNER PARK          | COOP         | 0.72                     |
| WHITWELL 0.3 SE      | CoCoRaHS     | 0.74                     |
| DUNLAP 2.3 SSE       | CoCoRaHS     | 0.77                     |
| DAYTON 2SE           | COOP         | 0.78                     |
| CHATTANOOGA AP       | WBAN         | 0.78                     |
| ATHENS               | COOP         | 0.79                     |
| DICKSON              | COOP         | 0.8                      |
| SPRING CITY          | COOP         | 0.8                      |

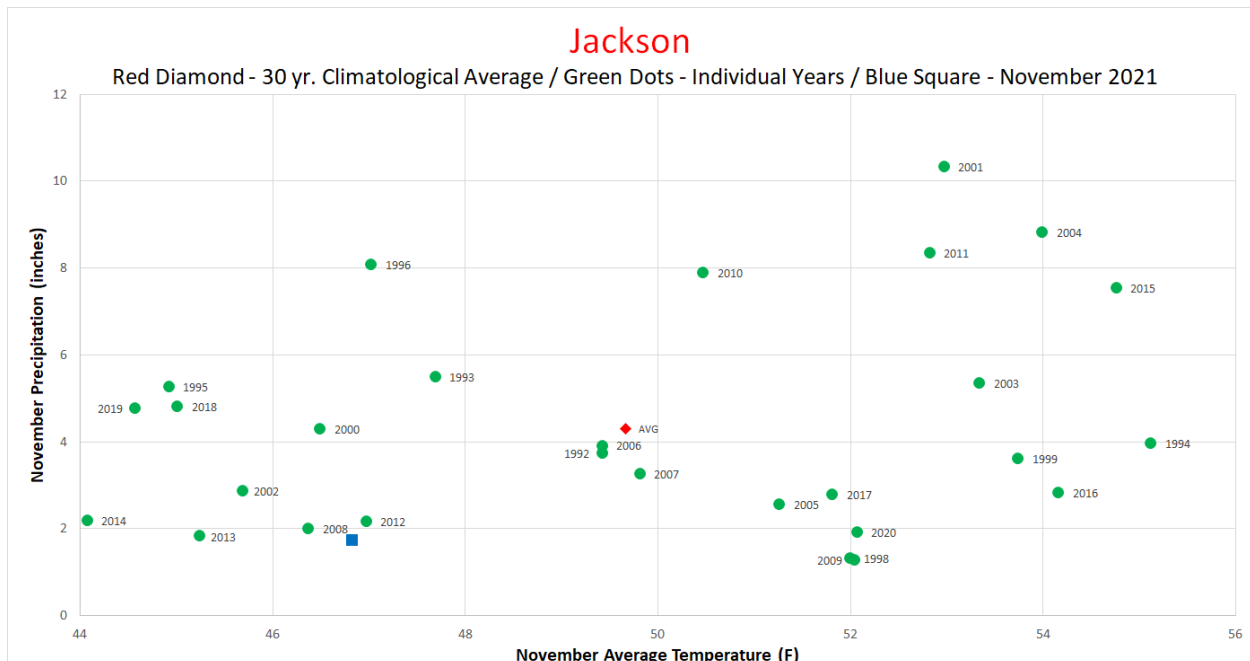
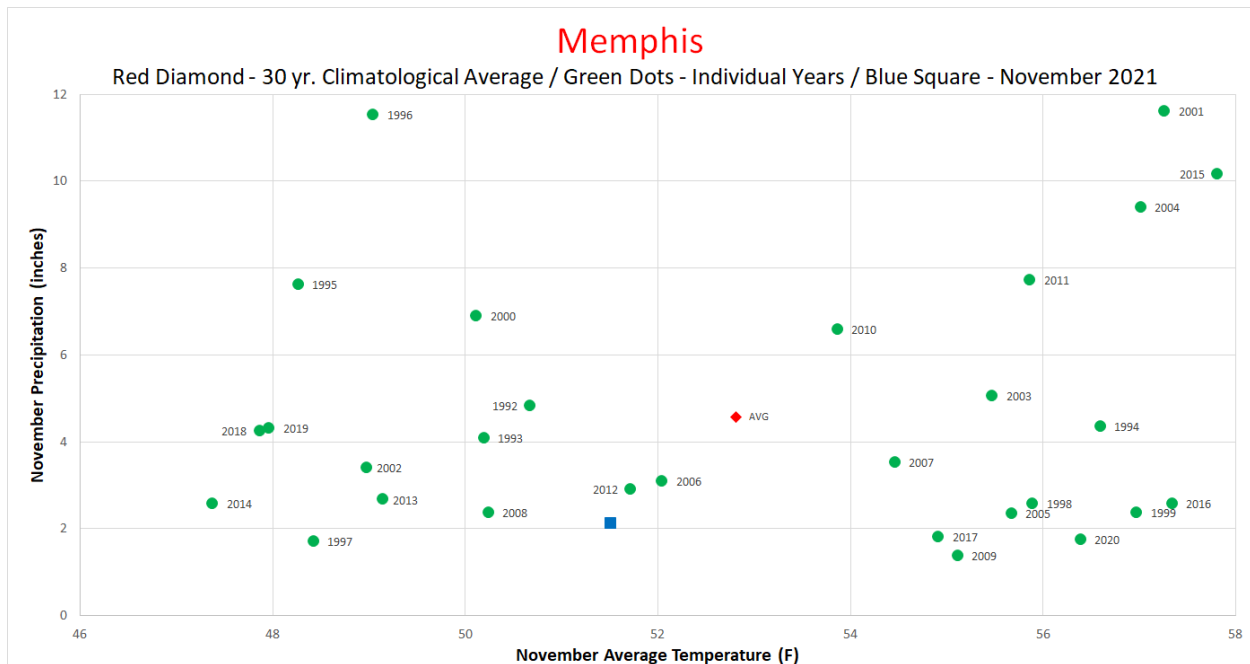
*Two stations tied for the 10<sup>th</sup> lowest total precipitation (0.8")*

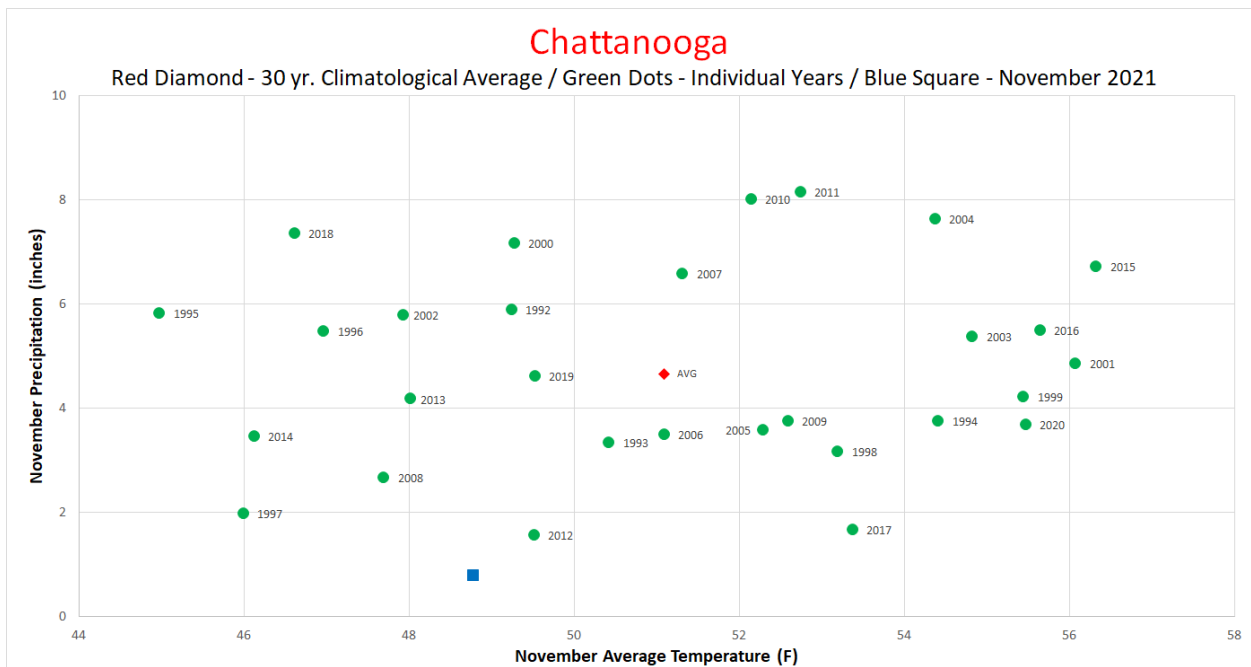
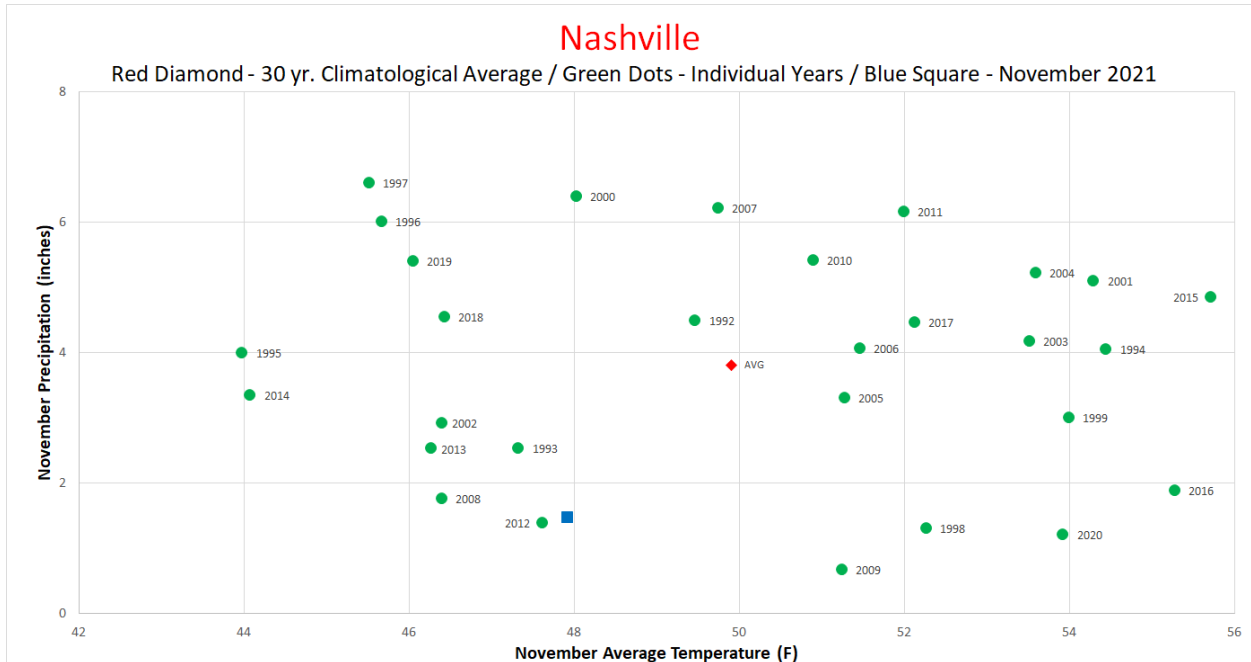
**Snowiest Stations (highest snowfall accumulations)**

| Name             | Station Type | Total Snowfall (in) |
|------------------|--------------|---------------------|
| MT LECONTE       | COOP         | 1.1                 |
| JAMESTOWN 3.1 SE | CoCoRaHS     | Trace               |

### The Month in Comparison:

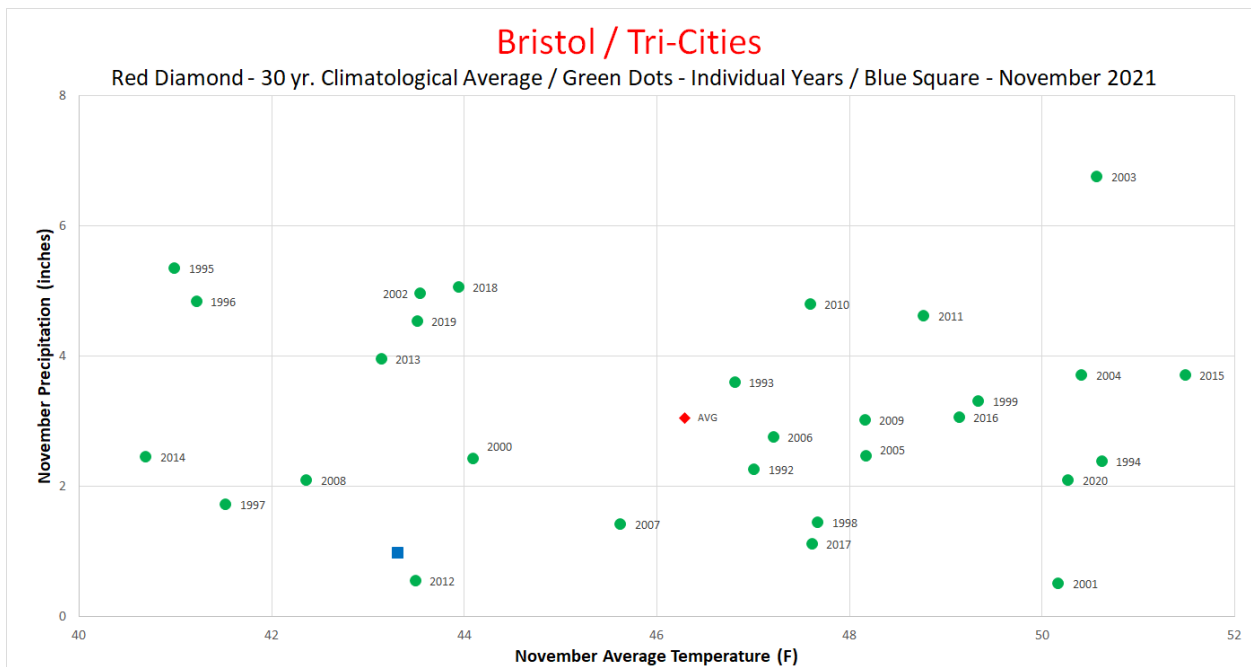
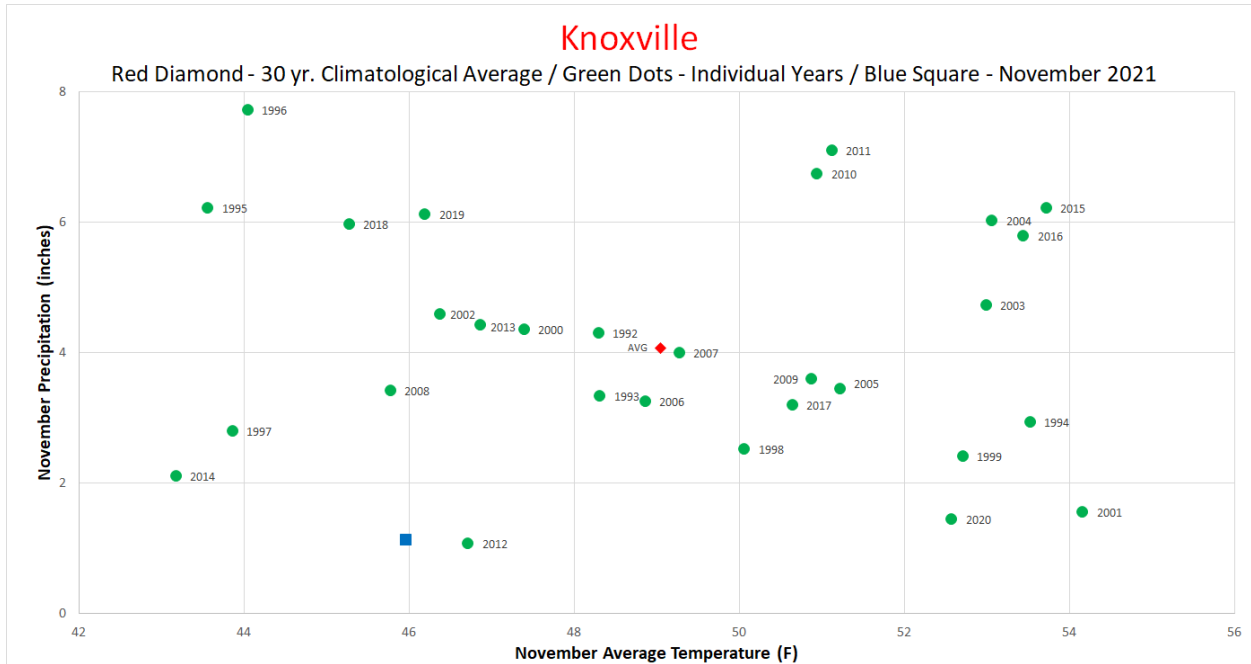
Comparing the total precipitation and the monthly average temperature for November 2021 to the conditions for November over the previous thirty years at select automated weather stations across the state, the cooler and drier than normal pattern stands out. However, it was not among the top-five coolest Novembers of the past thirty years for any of these weather stations. Recording only 0.78-inches of rain, it was the driest November of the past thirty years for Chattanooga, and looking at the longer station record, it was the 8<sup>th</sup> driest November for Chattanooga in the city's 142-year weather record. Knoxville recorded 1.12-inches of rain this month, making it the second driest November of the past thirty years, with just slightly more rain than 2012's 1.06-inches of rain. Looking at the longer term for Knoxville, this month was the 13<sup>th</sup> driest November in the city's 147-year weather record.







November 2021 Tennessee State Climate Summary



### Drought Monitor:

With well below normal precipitation across the state there were some large areas of D0 (Abnormally Dry) conditions introduced to Tennessee in the US Drought Monitor in the second half of the month. A small area of D1 (Moderate Drought) was added in West Tennessee (parts of Lauderdale and Tipton Counties). However, further degradation was slowed by the below normal temperatures and end of the growing season during the month, reducing the demand for water and soil moisture. In the Drought Monitor for November 30, Moderate Drought (D1) covered 0.63% of the state, and Abnormally Dry (D0) conditions covered 25.12% of the state. Combined D0 and D1 conditions covered 25.75% of the state, which is an increase of 22.7% from the end of October.

Author:

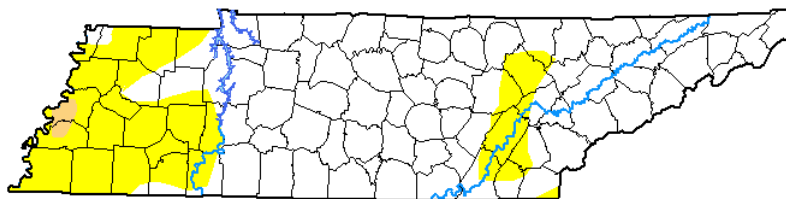
Richard Heim  
NCEI/NOAA

## U.S. Drought Monitor Tennessee

**November 30, 2021**

(Released Thursday, Dec. 2, 2021)

Valid 7 a.m. EST



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

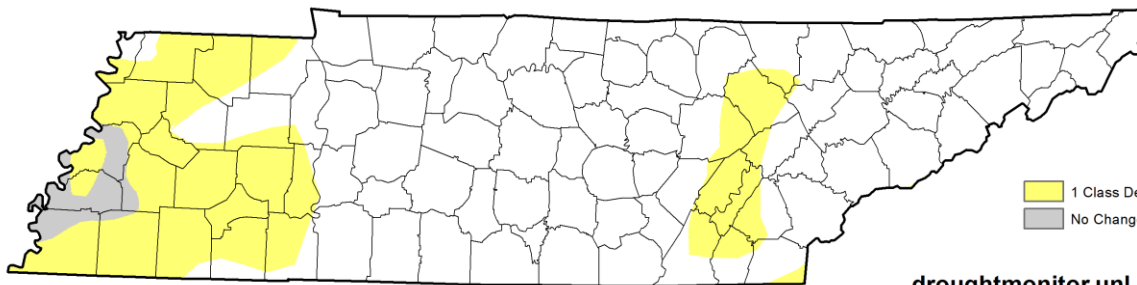
[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.unl.edu/About.aspx>

November 30, 2021  
compared to  
November 2, 2021

### U.S. Drought Monitor Class Change - Tennessee 4 Week



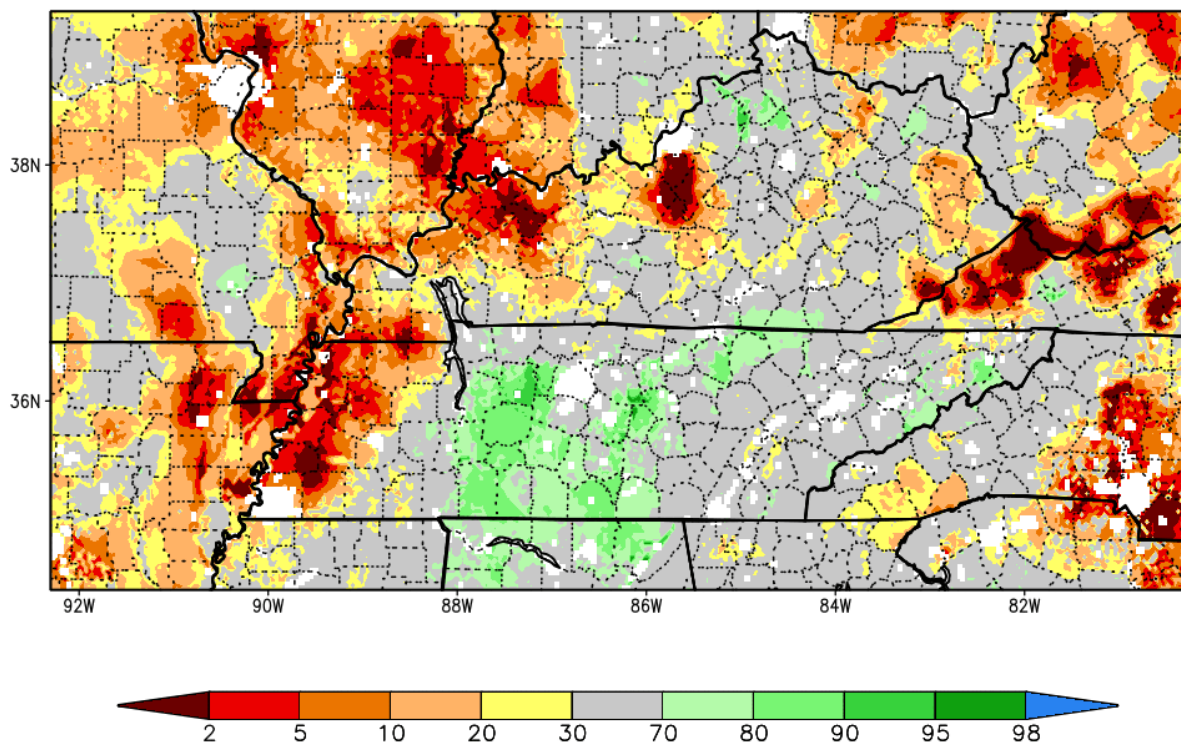
- 1 Class Degradation
- No Change

[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

### Soil Moisture:

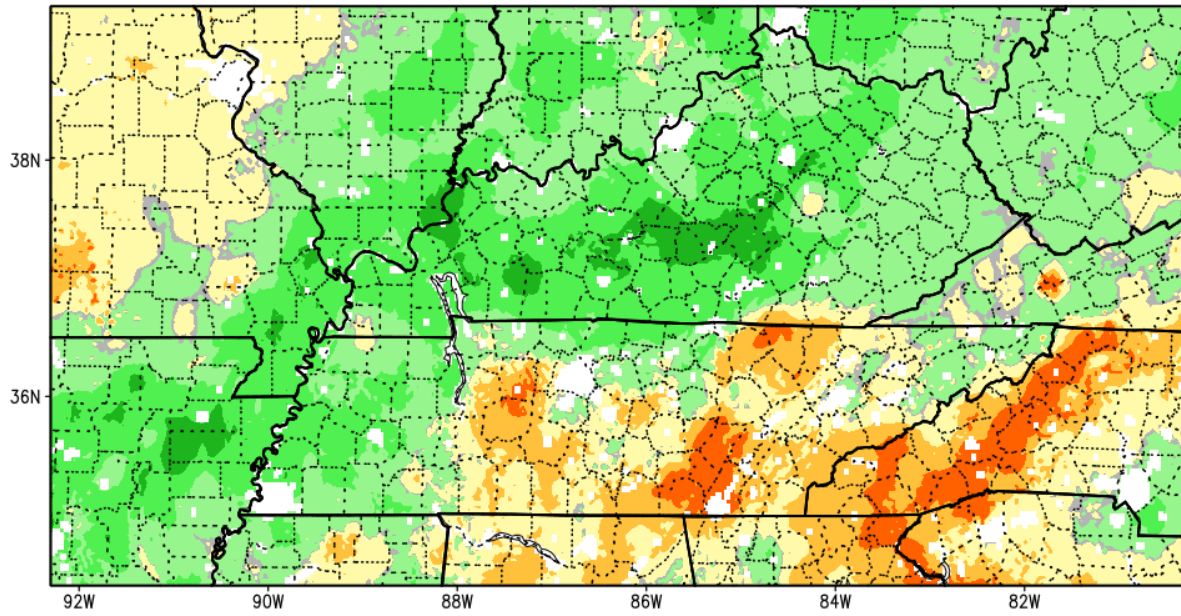
Soil moisture levels were largely in the adequate range over the state, with a decreasing trend in most areas of East and Middle Tennessee, and a slight increase in West Tennessee. November brought frequent but light rains to the state, resulting in much below normal total precipitation, but keeping topsoil decently saturated. At the end of the month, the USDA rated topsoil moisture as 5% short, 85% adequate, and 10% surplus, and subsoil moisture was rated 8% short, 84% adequate, and 8% surplus. The NASA SPoRT Land Information System shows above normal soil moisture integrated over the top 2-meters of the ground for most of Middle Tennessee and the Cumberland Plateau, while West Tennessee is shown with below normal soil moisture levels.

SPoRT-LIS 0-2 m RSM percentile valid 30 Nov 2021



**\*\*NOTE\*\***  
**\*\*Experimental\*\***

**1-Month Difference in Column Relative Soil Moisture (%) valid 12z 30 Nov 2021**



**\*\*NOTE\*\***  
**\*\*Experimental\*\***

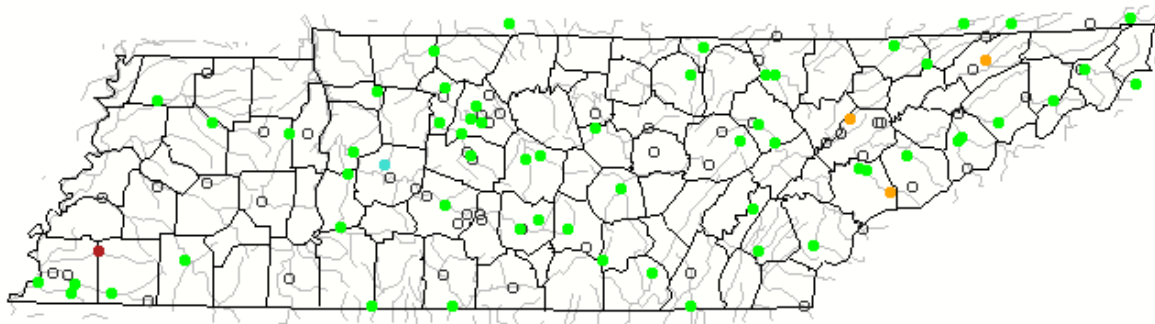
**Streamflow:**

Average monthly streamflow for the state was mostly in the normal range, with a few stream gauges in East Tennessee recording below normal streamflow, and one stream gauge in the Memphis area recording much below normal flow for November.

**Map of monthly streamflow compared to historical streamflow for the month of the year (Tennessee)**

Tennessee ▼ or Water-Resources Regions ▼

November 2021



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<br>Much below normal | 10-24<br>Below normal | 25-75<br>Normal | 76-90<br>Above normal | >90<br>Much above normal | High | Not-ranked |

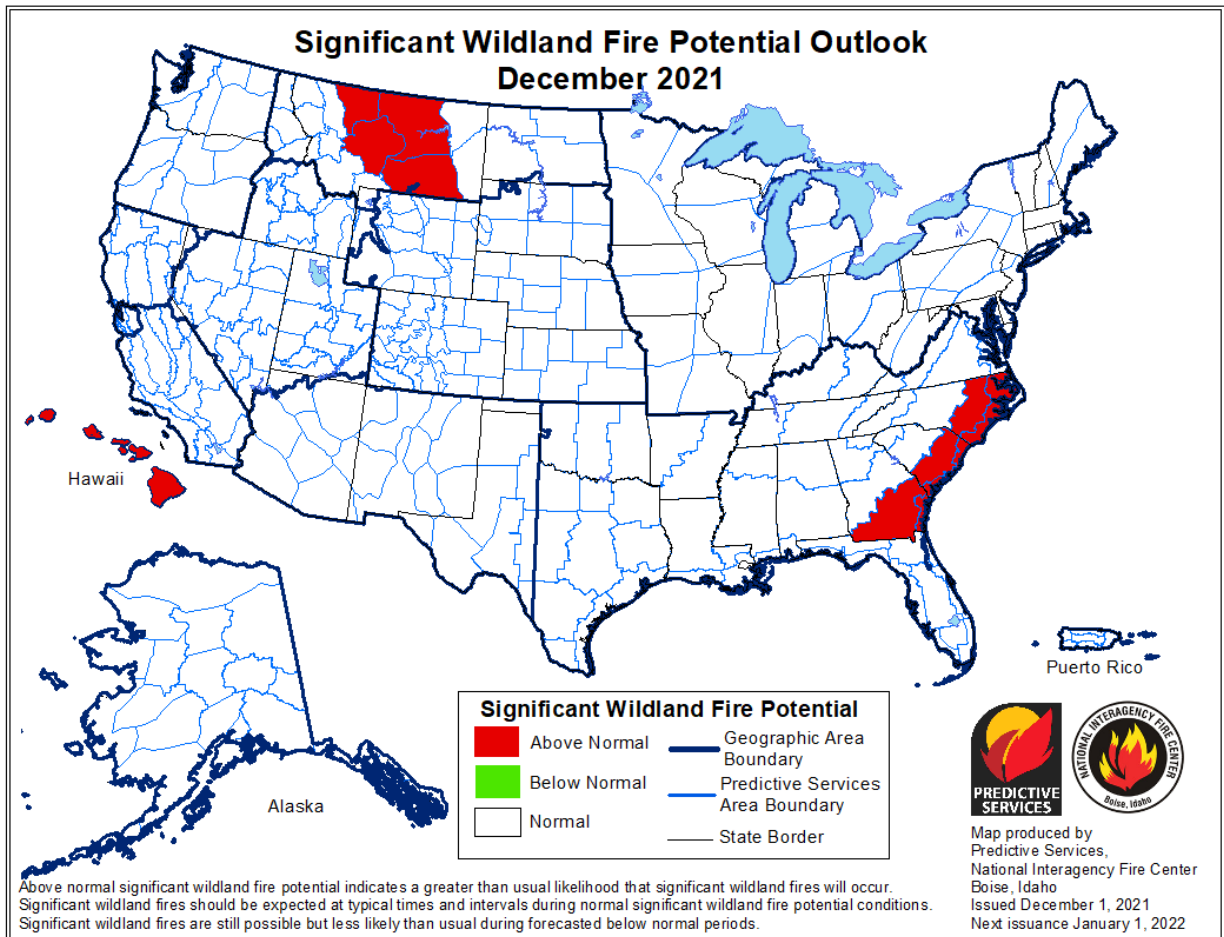
**Miscellaneous:**

**Crop Conditions from USDA:** During November, Winter Wheat planting continued and was largely completed, and harvests for corn, cotton, and soybeans were mostly completed, with good yields reported across the board. Widespread frosts in the first half of the month signaled the end of the growing season for the state, and cattle producers started feeding hay as pastures entered dormancy for the winter by the end of the month.

November 2021 Tennessee State Climate Summary

| CROP PROGRESS          | This Week | Last Week | 2020 | 5 Year Avg. | CONDITION    |           |      |      |      |           |
|------------------------|-----------|-----------|------|-------------|--------------|-----------|------|------|------|-----------|
|                        |           |           |      |             | Item         | Very Poor | Poor | Fair | Good | Excellent |
|                        | Percent   |           |      |             |              | Percent   |      |      |      |           |
| Cotton – Harvested     | 93        | 83        | 95   | 95          | Pasture      | 1         | 9    | 33   | 49   | 8         |
| Soybeans – Harvested   | 92        | 85        | 94   | 93          | Winter Wheat | 0         | 2    | 9    | 65   | 24        |
| Winter Wheat – Planted | 95        | 90        | 95   | N/A         |              |           |      |      |      |           |
| Winter Wheat – Emerged | 84        | 72        | 85   | N/A         |              |           |      |      |      |           |

**Fire Danger:** The Interagency Fire Center significant wildland fire potential outlook for December shows all of Tennessee with normal potential for wildfires.



**Fall Foliage:** The much above normal warmth for the first half of October put fall foliage on hold for most of the state, with areas outside of the higher elevation mountains reaching peak color in the first two weeks of November.



NWS Memphis  @NWSMemphis · Nov 3

The colder temperatures for the next few days will help turn the trees to become more colorful.



**Snow:** Very little snow was observed during November with the Mount LeConte COOP weather station being the only location in the state to report measurable snowfall, with a monthly total of 1.1-inches of snow which fell over the course of three days and a daily maximum snowfall of 0.7-inches on November 4.

### Story of the Month:

November was a relatively quiet month, climatologically speaking, across Tennessee. The main story of the month was the drier than normal conditions across that state, but due to cooler than normal temperatures, frequent light rains, and a surplus of moisture in the preceding months, expansion of drought conditions into the state were minimal, with only a small area of Moderate Drought (D1) introduced into parts of Tipton and Lauderdale counties in West Tennessee. In the last release of the Drought Monitor, based on conditions on November 30 approximately  $\frac{1}{4}$  of the state was depicted with Abnormally Dry (D0) conditions.

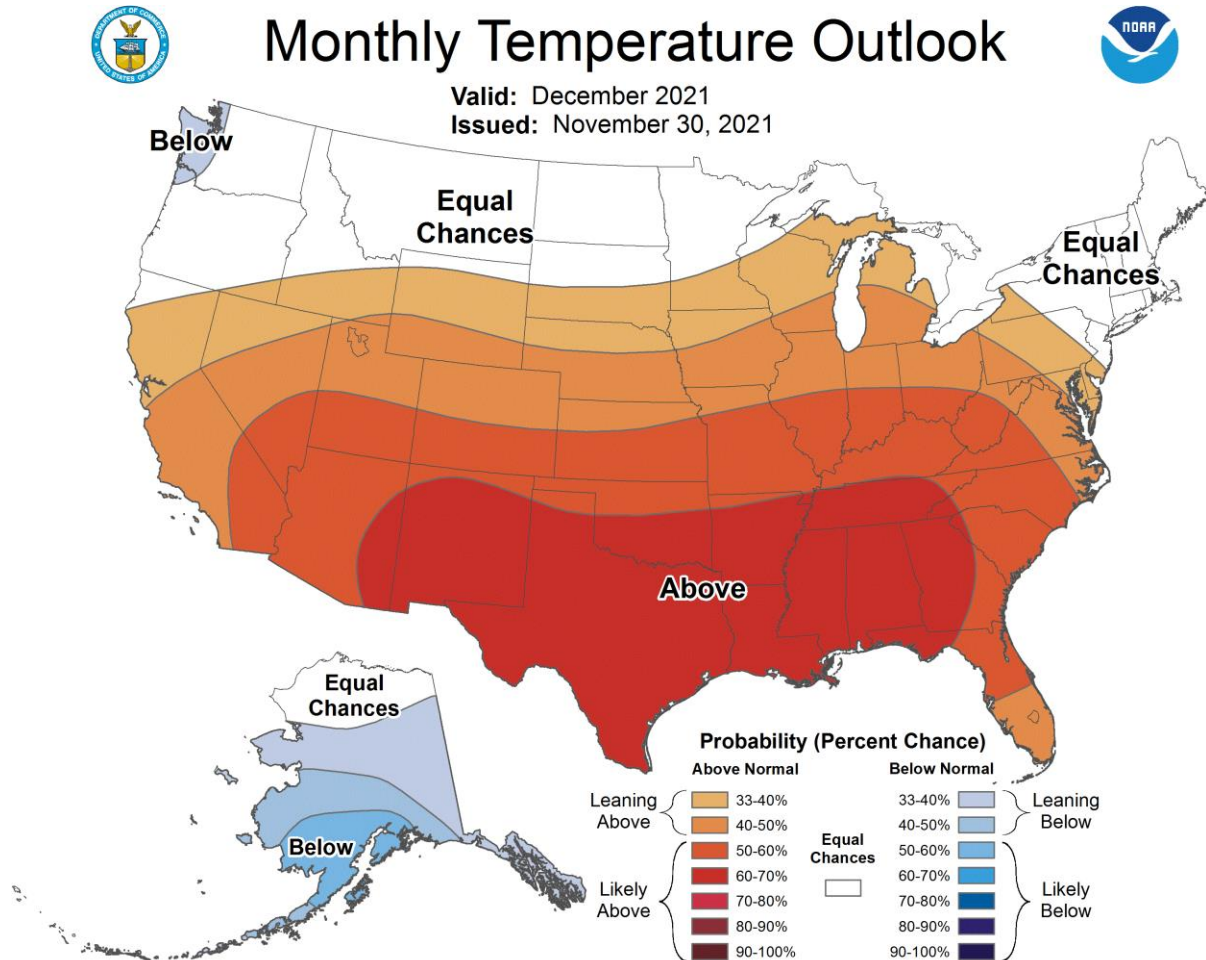
### Storm Reports:

*\*Storm Reports are based on filtered NOAA Storm Prediction Center data or local NWS storm reports. Future quality control checks may change the official record of severe events, please see [spc.noaa.gov](https://spc.noaa.gov) for any updates.*

There were no days with severe storm reports in Tennessee during November 2021.

### CPC Outlooks for the Next Month:

The NOAA Climate Prediction Center outlooks for December show all of Tennessee will likely experience above normal temperatures, with the majority of the state having 60-70% chance of above normal conditions for the month, while northeast Tennessee is shown with a 50-60% chance of above normal temperatures. Southern and eastern portions of the state are shown as leaning towards a drier than normal December (33-40% chance), while the rest of the state will have equal chances for above or below normal precipitation for the month.







# Monthly Precipitation Outlook



Valid: December 2021  
 Issued: November 30, 2021

