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11-1-2021

2021 November - Tennessee Monthly Climate Report

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November 2021 Tennessee State Climate Summary

Tennessee Climate Office * East Tennessee State University

Prepared by William Tollefson and Dr. Andrew Joyner

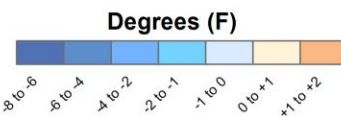
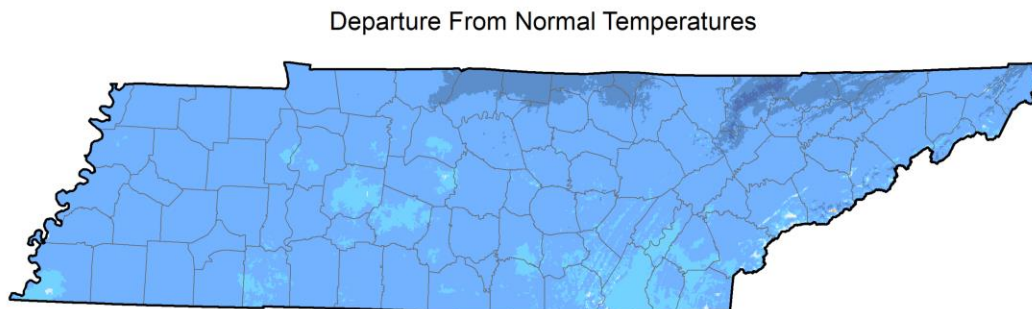
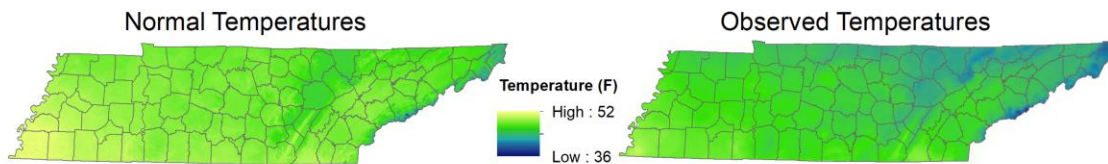
With contributions by [Climate Data Representatives](#) across the state

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 10th and 11th, 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 3rd driest November for the Tri-Cities (with a 74-year weather record), and 8th 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.

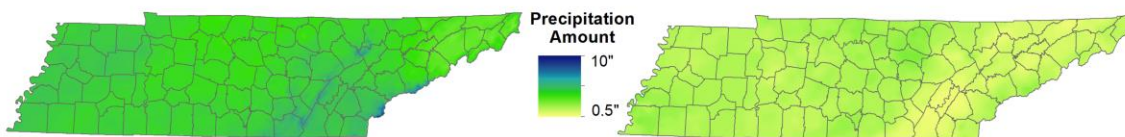


November 2021 Precipitation

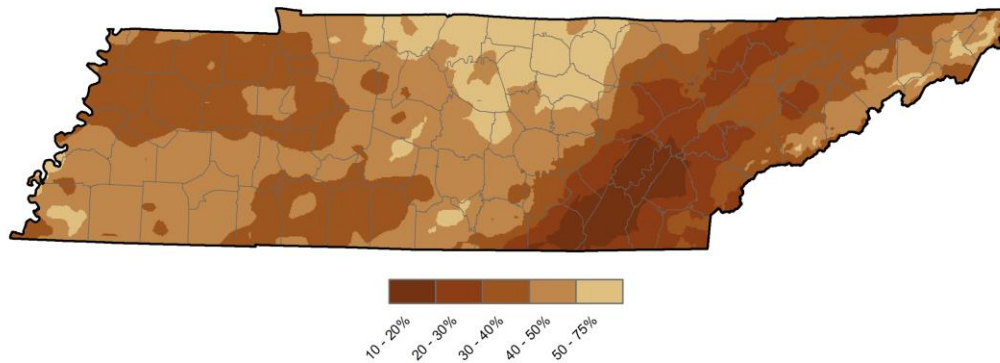


Normal Precipitation

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 6th 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 9th 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 10th 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

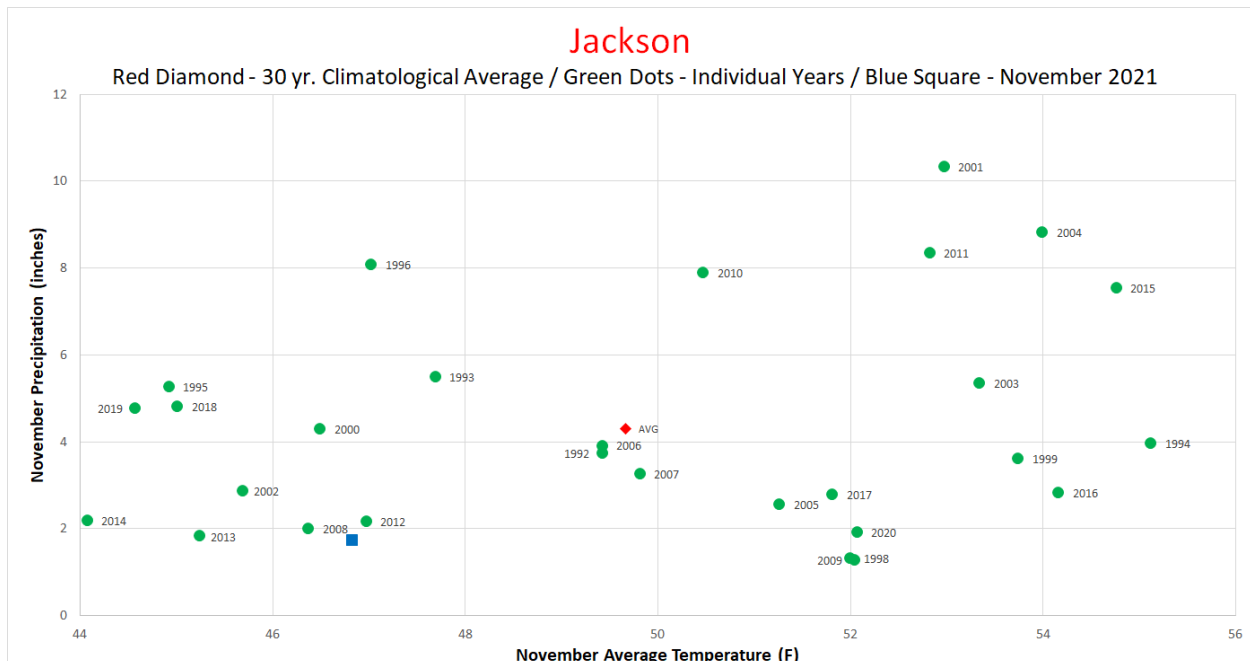
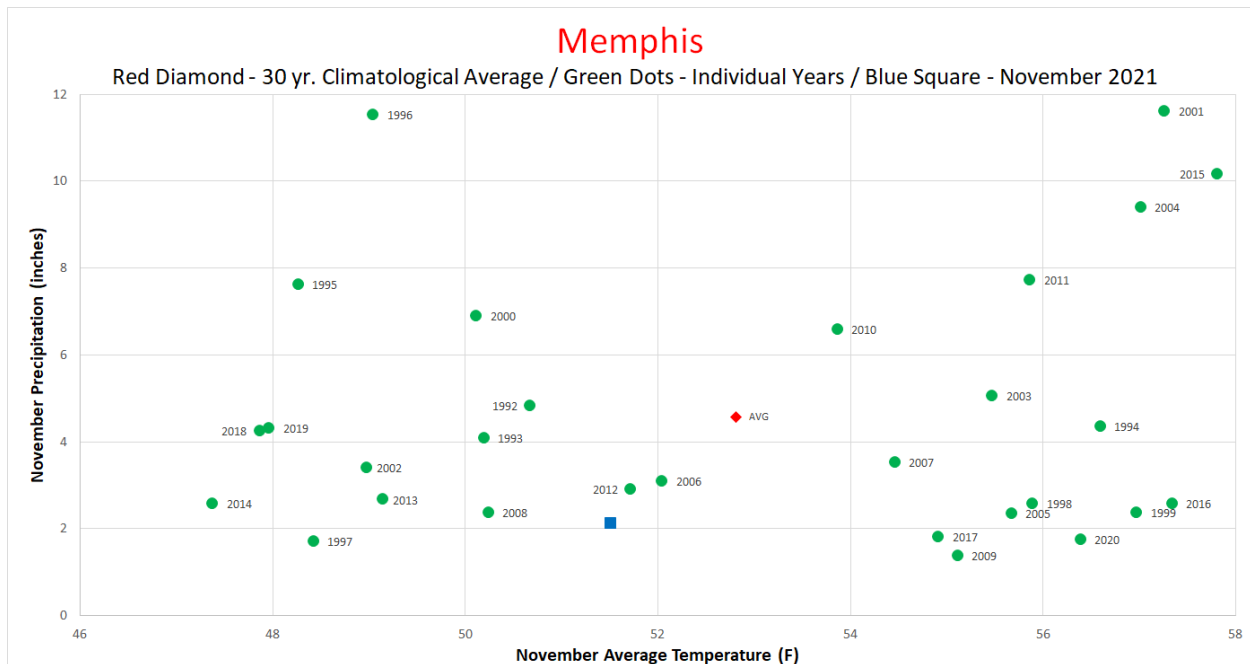
Two stations tied for the 10th lowest total precipitation (0.8")

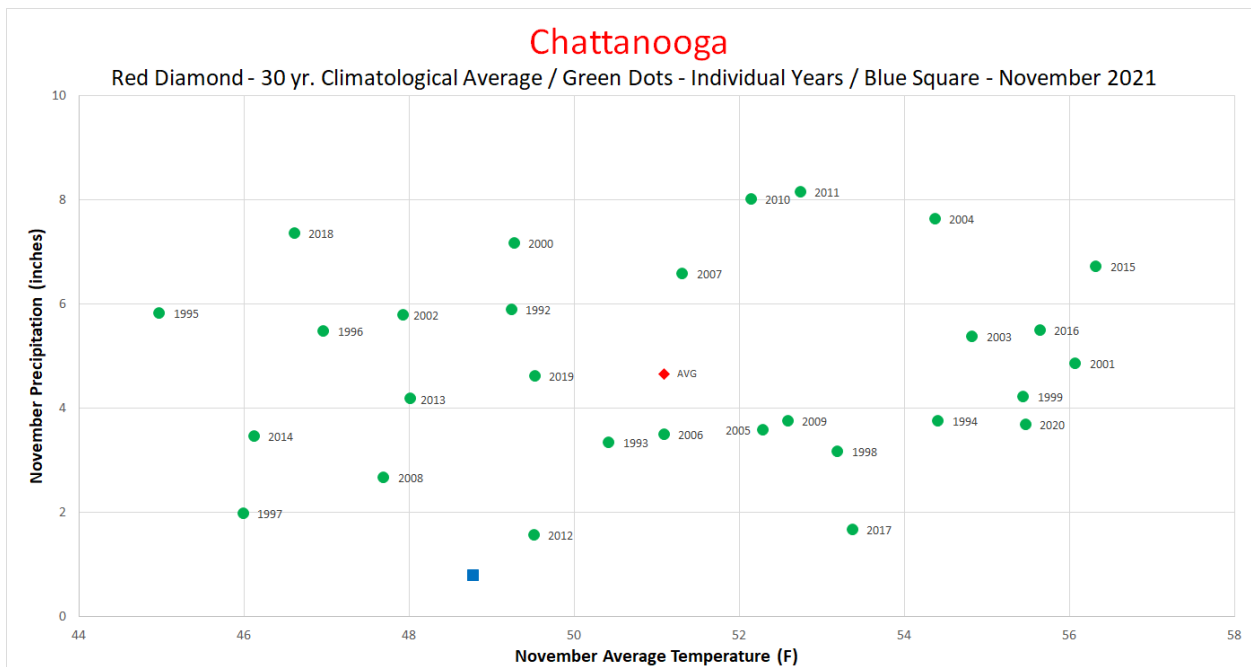
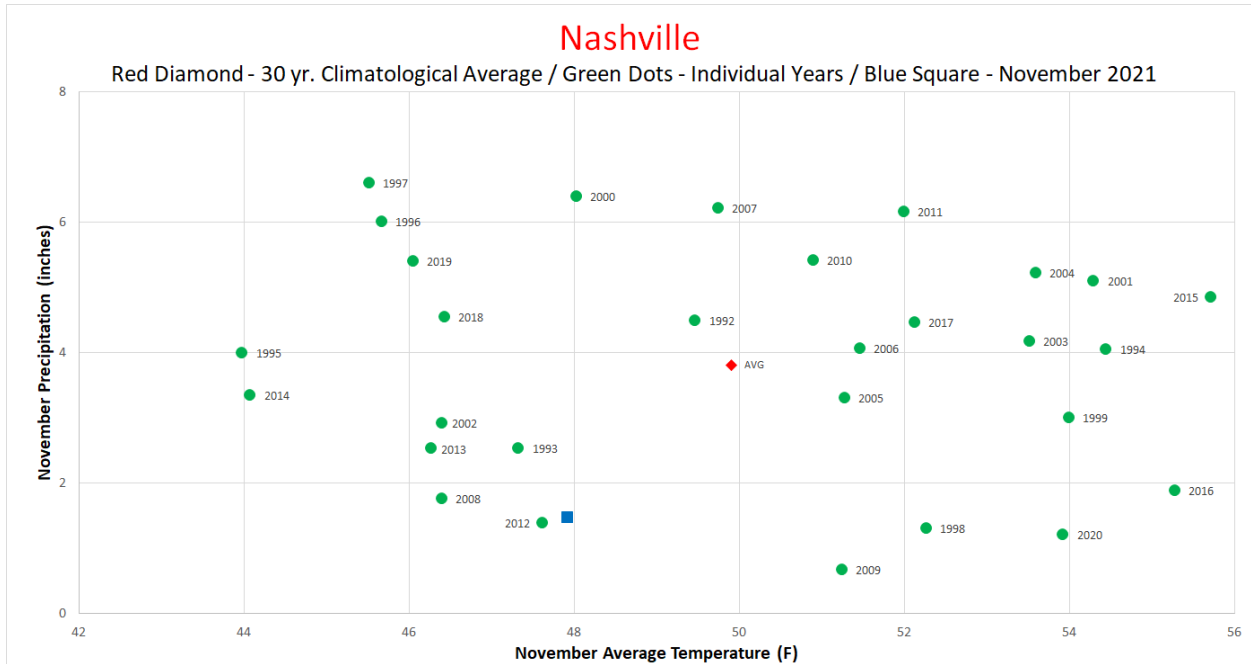
Snowiest Stations (highest snowfall accumulations)

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

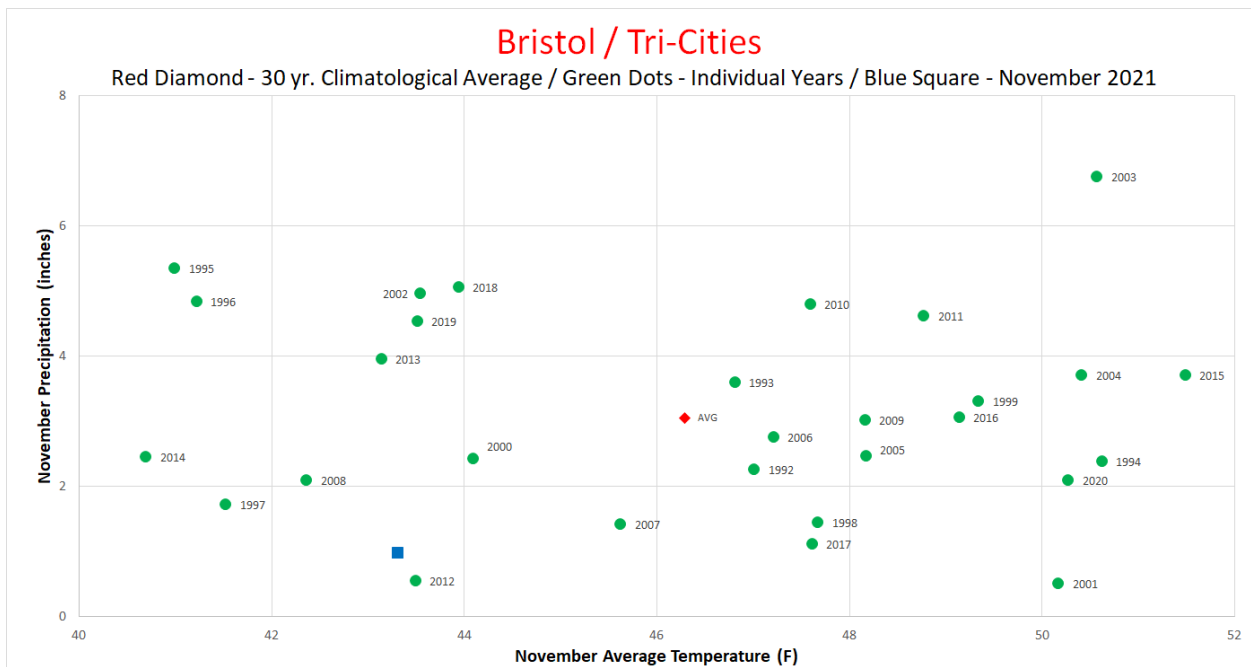
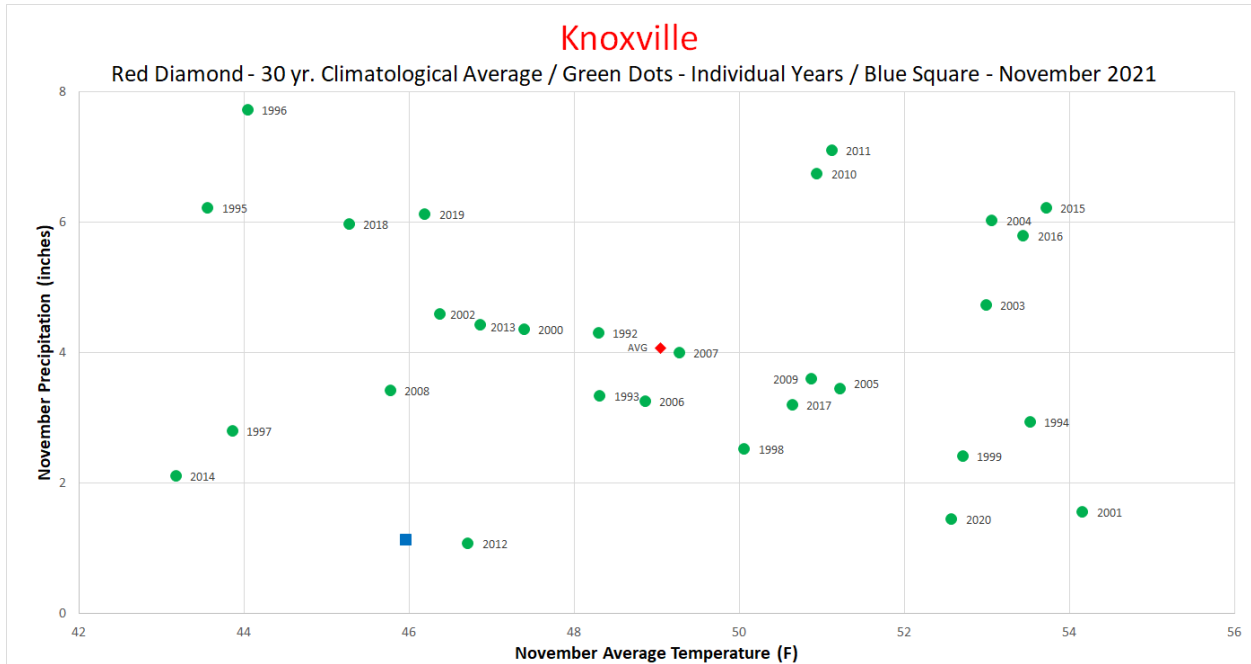
The Month in Comparison:

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 8th 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 13th driest November in the city's 147-year weather record.





November 2021 Tennessee State Climate Summary



Drought Monitor:

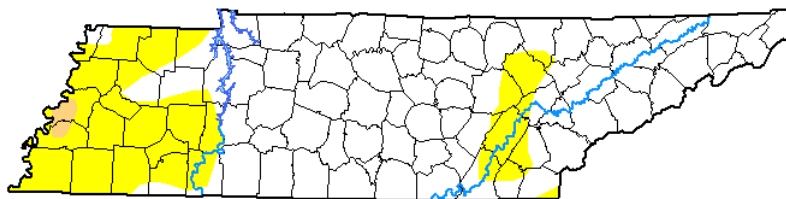
With well below normal precipitation across the state there were some large areas of D0 (Abnormally Dry) conditions introduced to Tennessee in the US Drought Monitor in the second half of the month. A small area of D1 (Moderate Drought) was added in West Tennessee (parts of Lauderdale and Tipton Counties). 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

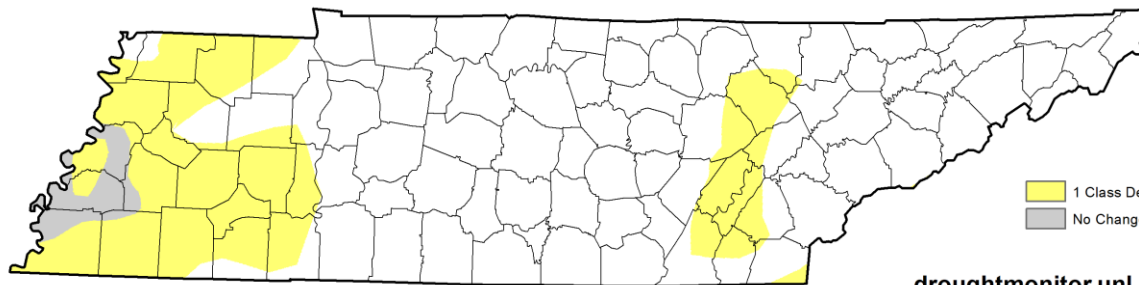
droughtmonitor.unl.edu



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



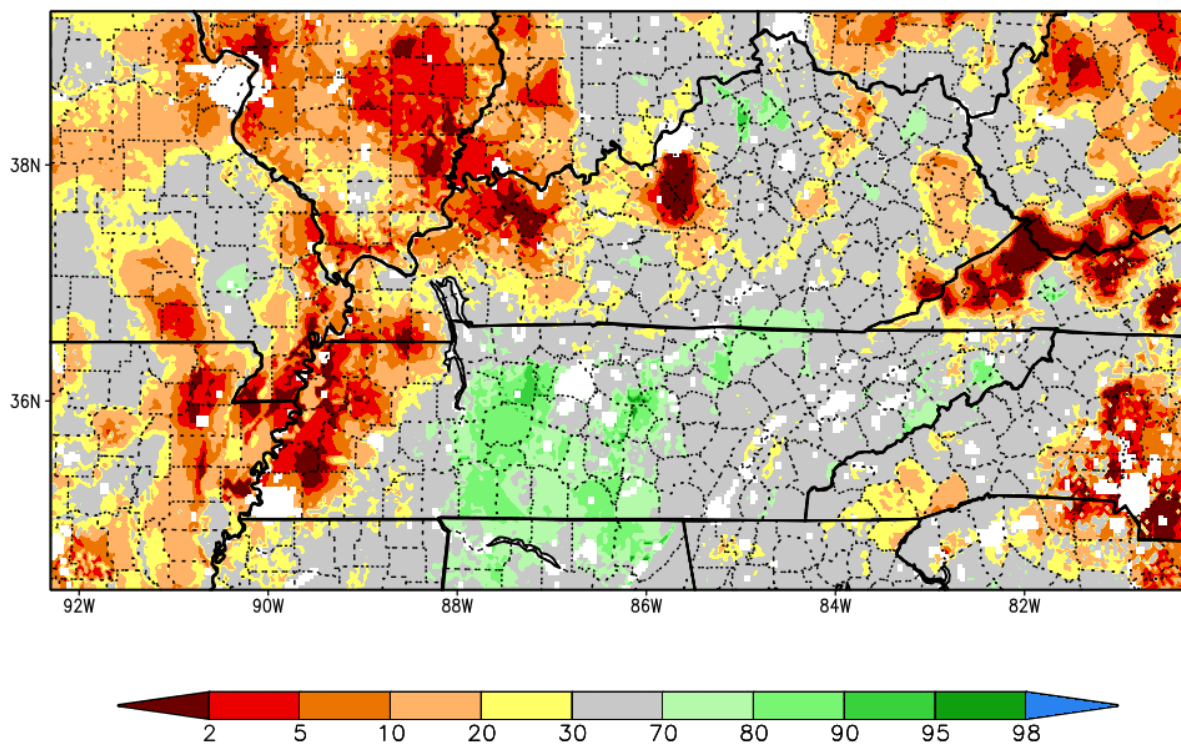
- 1 Class Degradation
- No Change

droughtmonitor.unl.edu

Soil Moisture:

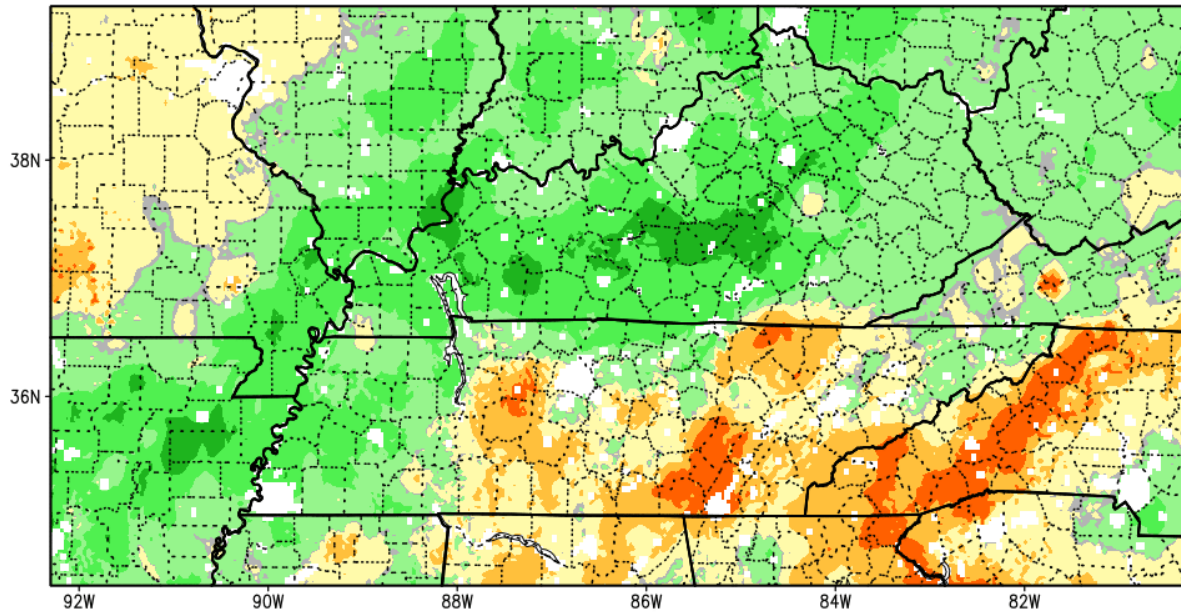
Soil moisture levels were largely in the adequate range over the state, with a decreasing trend in most areas of East and Middle Tennessee, and a slight increase in West Tennessee. November brought frequent but light rains to the state, resulting in much below normal total precipitation, but keeping 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****

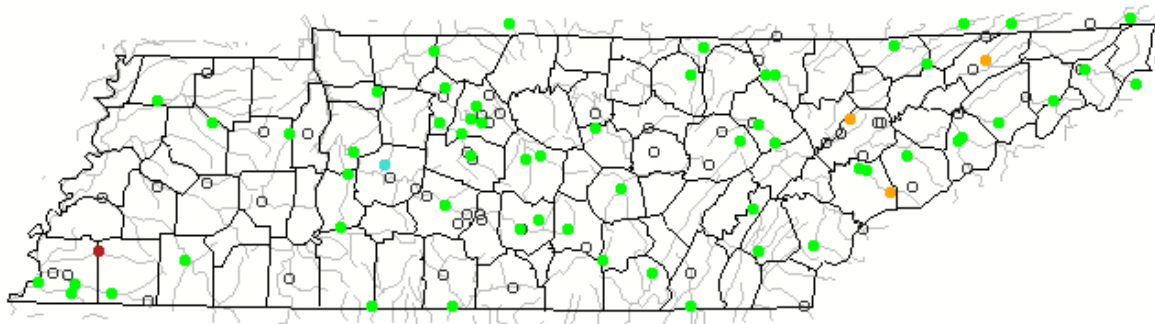
Streamflow:

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 streamgauge 🔍

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

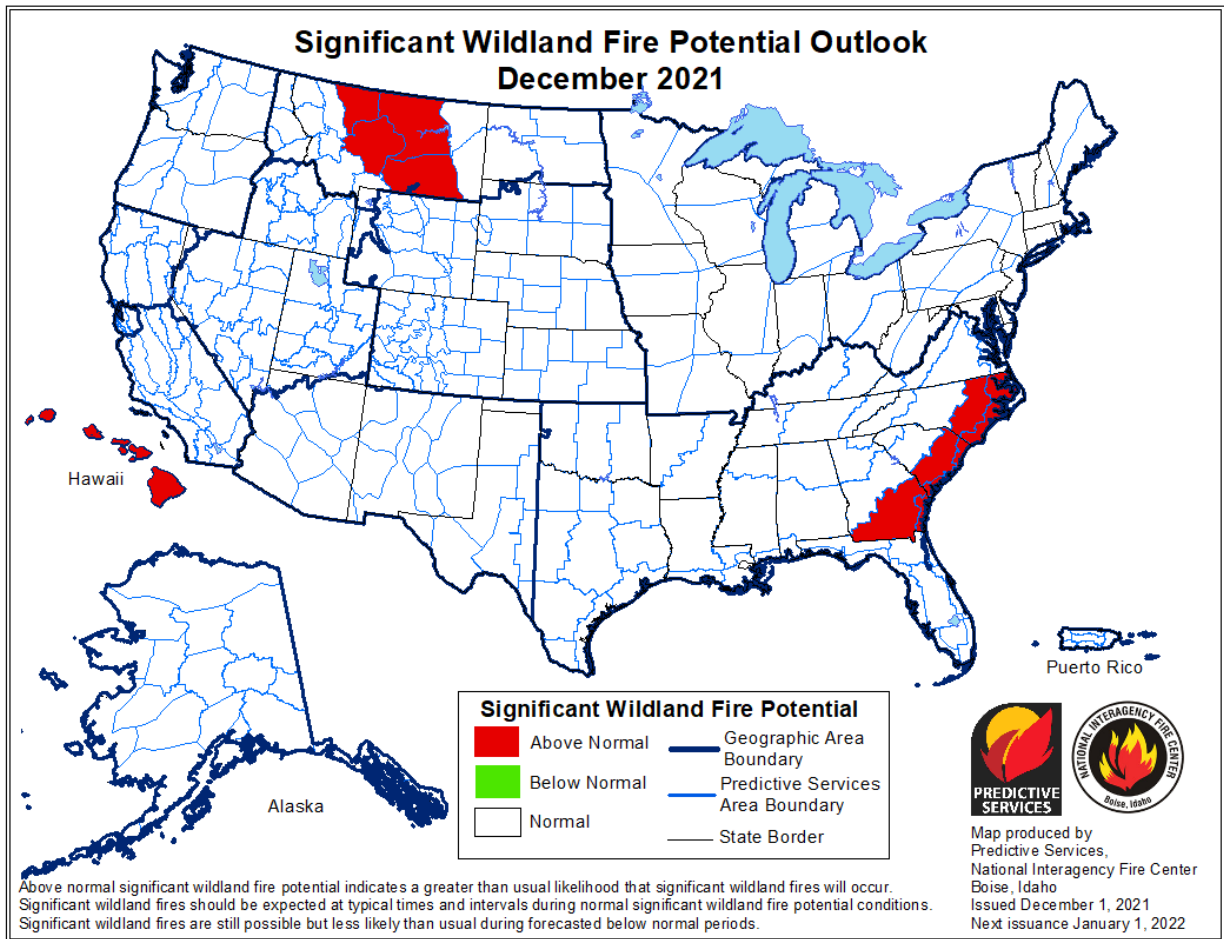
Miscellaneous:

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.

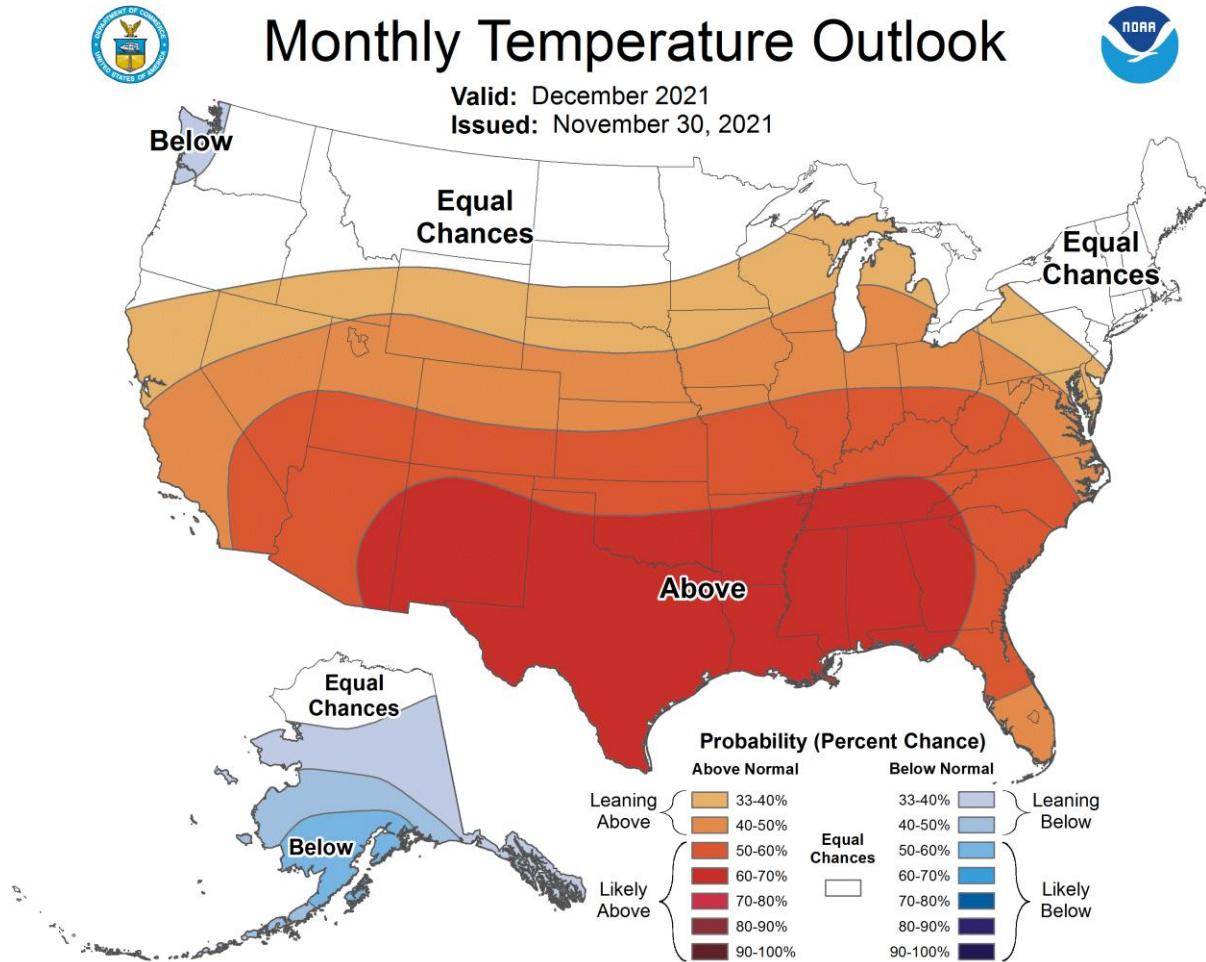
Storm Reports:

**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 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

