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Tennessee Climate Office Monthly Report

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1-1-2018

### 2018 January - Tennessee Monthly Climate Report

Tennessee Climate Office, East Tennessee State University

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# Tennessee State Climate January 2018

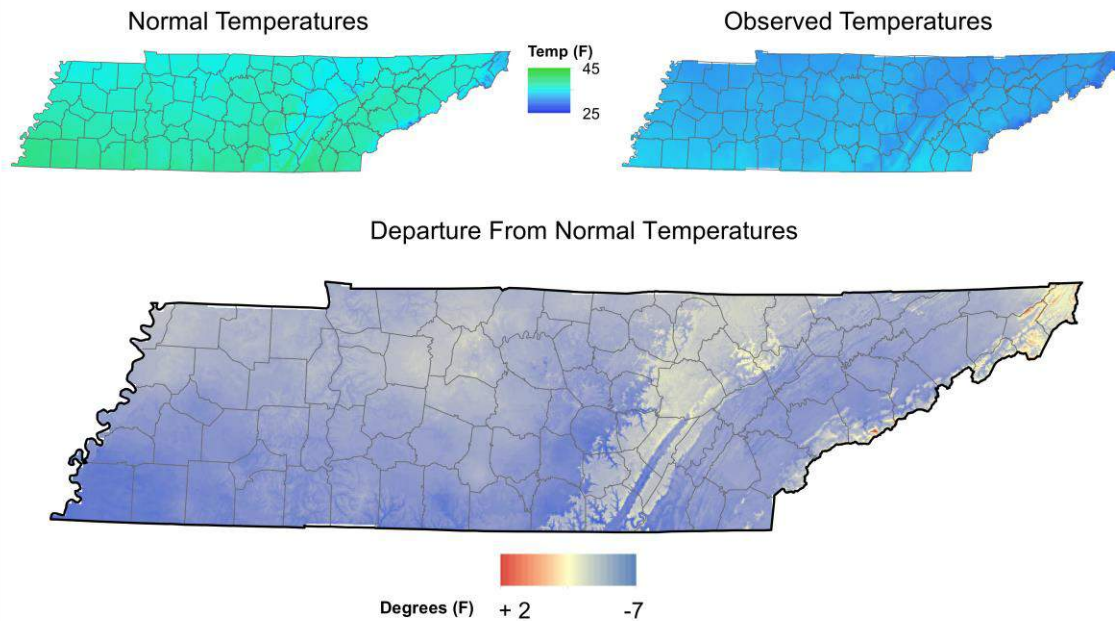
Prepared by:  
William Tollefson & Dr. Andrew Joyner

## Monthly Temperature Summary:

Monthly average temperatures were below normal for Tennessee, with almost all areas having a monthly mean temperature of less than 40°F, which was 2 to 6 degrees below normal. The month started out with wind-chill advisories in affect for all TN counties. The first half of the month was bitterly cold with average temperatures for the first week of January below freezing across the state. Middle and West Tennessee were 15-20 degrees below average for that time period as well! Cold temperatures continued in the second week, but with the axis of coldest shifting to the eastern half of the state. A brief warm up occurred near the middle of the month, before another arctic air mass swept into the state, although for a shorter time period. Starting around the 18<sup>th</sup> through to the end of the month temperatures were seasonable to above normal, with the last week of the month having temperatures 2 to 6 degrees above normal.



## January 2018 Mean Temperature



Warmest Stations of the Month

Station Name	Station Type	Average Temperature (F)
SHILOH NMP TENNESSEE	RAWS	37.5
MEMPHIS INTERNATIONAL AP	WBAN	37.4
CHATTANOOGA AP	WBAN	36.7
MC MINNVILLE	COOP	36.6
NASHVILLE INTL AP	WBAN	36.1

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

Coldest Stations of the Month

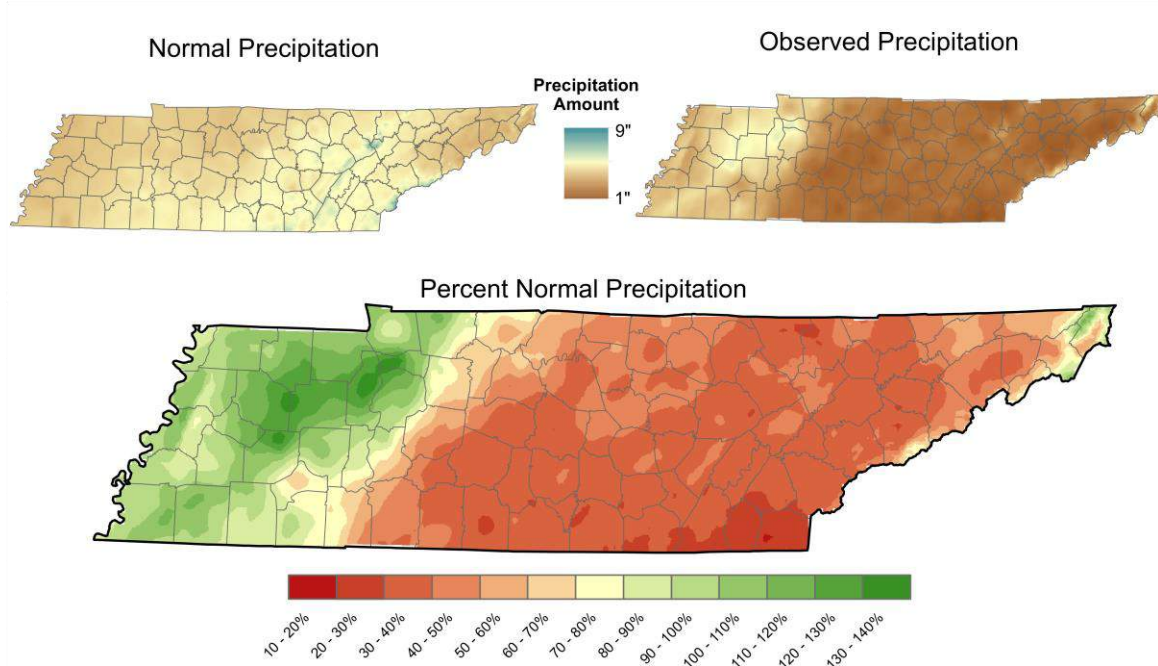
Station Name	Station Type	Average Temperature (F)
MT LECONTE	COOP	20.9
NEWFOUND GAP	COOP	25.8
TAZEWELL	COOP	26.8
ROAN MOUNTAIN 3SW	COOP	27.7
MONTGOMERY BELL STATE PARK	COOP	28.7

## Monthly Precipitation Summary:

January was a dry month for most of the state, with average precipitation totals ranging from about 1 to 5 inches. The eastern 2/3 of the state were drier, with a large portion of that area recording less than 50% normal rainfall for the month. An Area in Northwest TN (centered around Gibson, Carroll, and Benton Counties) did record above normal precipitation, mostly in the form of snowfall between the 11<sup>th</sup> and 17<sup>th</sup> as two major snowfall events occurred about a week apart. In addition, all areas of the state recorded snowfall during the month, with highest amounts reported in northwest TN (4-9 inches).



# January 2018 Precipitation



Wettest Stations of the Month

Station Name	Station Type	Total Precipitation (in)
AMES PLANTATION	COOP	9.95
HUNTINGDON WATER PLANT	COOP	8.11
HENDERSON 4 W	COOP	7.32
JACKSON 5.6 NE	CoCoRaHS	6.64
CAMDEN 4.5 NE	CoCoRaHS	5.68

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

Driest Stations of the Month

Station Name	Station Type	Total Precipitation (in)
CLEVELAND 4.7 S	CoCoRaHS	0.91
JONESBOROUGH 2.5 SSW	CoCoRaHS	1.1
PULASKI WASTEWATER PLANT	COOP	1.15
CHATTANOOGA AP	WBAN	1.17
LEWISBURG 6.2 SSE	CoCoRaHS	1.18

## Top Tenn. (Warmest/Coldest, Wettest/Driest stations):

Highest temperatures observed:

Station Name	Station Type	Highest Temperature (F)
SAVANNAH 6 SW	COOP	72
AMES PLANTATION	COOP	71
CHEATHAM LOCK & DAM	COOP	71
BOLIVAR WATER WORKS	COOP	70
JACKSON EXP STA	COOP	70
LEBANON	COOP	70
CARTHAGE	COOP	70
SHILOH NMP TENNESSEE	RAWS	70

\*8 stations shown, an additional 20 stations all recorded highs of 69°F, including stations in the Nashville, Knoxville, Chattanooga, and Tri-Cities areas.

Coldest temperatures observed:

Station Name	Station Type	Lowest Temperature (F)
PULASKI WASTEWATER PLANT	COOP	-8
MT LECONTE	COOP	-8
WOODBURY 1 WNW	COOP	-5
ALLARDT	COOP	-4
MONTEREY	COOP	-4
CROSSVILLE 7 NW	WBAN	-4
BYRDSTOWN	COOP	-4
DRESDEN	COOP	-3
JAMESTOWN	COOP	-3
SMITHVILLE 2 SE	COOP	-3
CROSSVILLE EXP STN	COOP	-3
ROAN MOUNTAIN 3SW	COOP	-3
CHRISTIANA 5W	COOP	-3
NEWFOUND GAP	COOP	-3

\*14 stations shown, all locations with lows of -3 or lower were listed, in addition, another 27 stations recorded temperature of 0°F or below.

Stations with the warmest mean temperature:

Station Name	Station Type	Average Temperature (F)
SHILOH NMP TENNESSEE	RAWS	37.5
MEMPHIS INTERNATIONAL AP	WBAN	37.4
CHATTANOOGA AP	WBAN	36.7
MC MINNVILLE	COOP	36.6
NASHVILLE INTL AP	WBAN	36.1
AMES PLANTATION	COOP	35.5

SHELBYVILLE WATER DEPT	COOP	35.4
FAYETTEVILLE WATER PLANT	COOP	35.3
MERIWETHER LEWIS TENNESSEE	RAWS	35.2
PIKEVILLE	COOP	35.1

Stations with the coolest mean temperatures:

Station Name	Station Type	Average Temperature (F)
MT LECONTE	COOP	20.9
NEWFOUND GAP	COOP	25.8
TAZEWELL	COOP	26.8
ROAN MOUNTAIN 3SW	COOP	27.7
MONTGOMERY BELL STATE PARK	COOP	28.7
UNION CITY	COOP	29
CROSSVILLE EXP STN	COOP	29.1
NORRIS	COOP	29.4
GLADEVILLE	COOP	29.8
MONTEREY	COOP	30

Wettest stations:

Station Name	Station Type	Total Precipitation (in)
AMES PLANTATION	COOP	9.95
HUNTINGDON WATER PLANT	COOP	8.11
HENDERSON 4 W	COOP	7.32
JACKSON 5.6 NE	CoCoRaHS	6.64
CAMDEN 4.5 NE	CoCoRaHS	5.68
JACKSON 4 NE	COOP	5.5
MT LECONTE	COOP	5.35
JACKSON 4.9 NW	CoCoRaHS	5.29
JACKSON 4.3 N	CoCoRaHS	5.26
OLD HICKORY DAM	COOP	5.17

Driest stations:

Station Name	Station Type	Total Precipitation (in)
CLEVELAND 4.7 S	CoCoRaHS	0.91
JONESBOROUGH 2.5 SSW	CoCoRaHS	1.1
PULASKI WASTEWATER PLANT	COOP	1.15
CHATTANOOGA AP	WBAN	1.17
LEWISBURG 6.2 SSE	CoCoRaHS	1.18
FRANKLIN SEWAGE PLANT	COOP	1.24

GLADEVILLE	COOP	1.29
GREENEVILLE 3.0 S	CoCoRaHS	1.29
WHITE PINE 2.0 NE	CoCoRaHS	1.29
CLEVELAND 5.2 SE	CoCoRaHS	1.3

Snowiest stations:

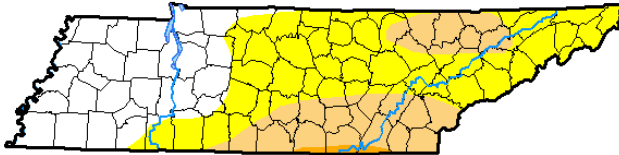
Name	Station Type	Total Snowfall (in)
PARIS 2 SE	COOP	13.7
CLARKSVILLE 3.4 NNW	CoCoRaHS	13
MT LECONTE	COOP	10.8
PARIS 1.0 W	CoCoRaHS	10.1
UNION CITY	COOP	9.7
DOVER 7.8 NNE	CoCoRaHS	9.7
ROAN MOUNTAIN 3SW	COOP	9.2
BIG SANDY 0.6 NE	CoCoRaHS	8.9
CAMDEN 4.5 NE	CoCoRaHS	7.7
JACKSON 4 NE	COOP	7.4

## Drought:

Due to prolonged periods of below average precipitation, over half of the state is in some level of drought. Drought conditions increased from 9.5% of the state at the beginning of the month to 66% of the state by the last drought monitor report on the 30<sup>th</sup>. This drought has been affecting southern and eastern portions of the state since the end of December

## U.S. Drought Monitor Tennessee

**January 30, 2018**  
(Released Thursday, Feb. 1, 2018)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	33.66	66.34	22.85	1.04	0.00	0.00
<b>Last Week</b> 01-23-2018	38.31	61.69	6.60	0.00	0.00	0.00
<b>3 Months Ago</b> 10-31-2017	99.78	0.22	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> 01-02-2018	90.46	9.54	0.00	0.00	0.00	0.00
<b>Start of Water Year</b> 09-26-2017	92.57	7.43	0.00	0.00	0.00	0.00
<b>One Year Ago</b> 01-31-2017	48.99	51.01	16.70	5.32	0.02	0.00

### Intensity:

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

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

### Author:

Richard Heim  
NCEI/NOAA



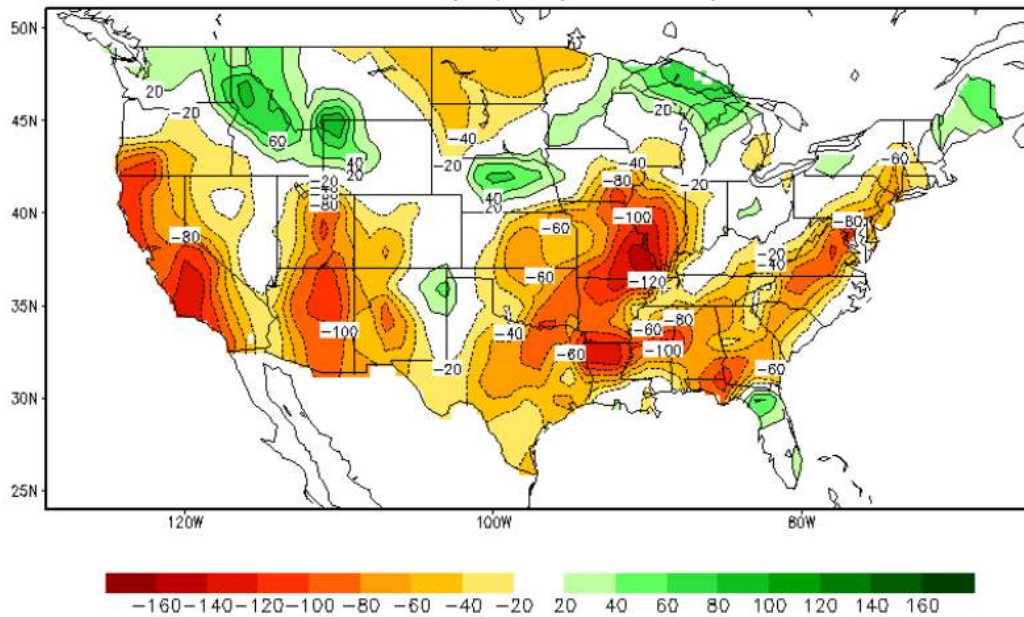
<http://droughtmonitor.unl.edu/>

## Soil Moisture:

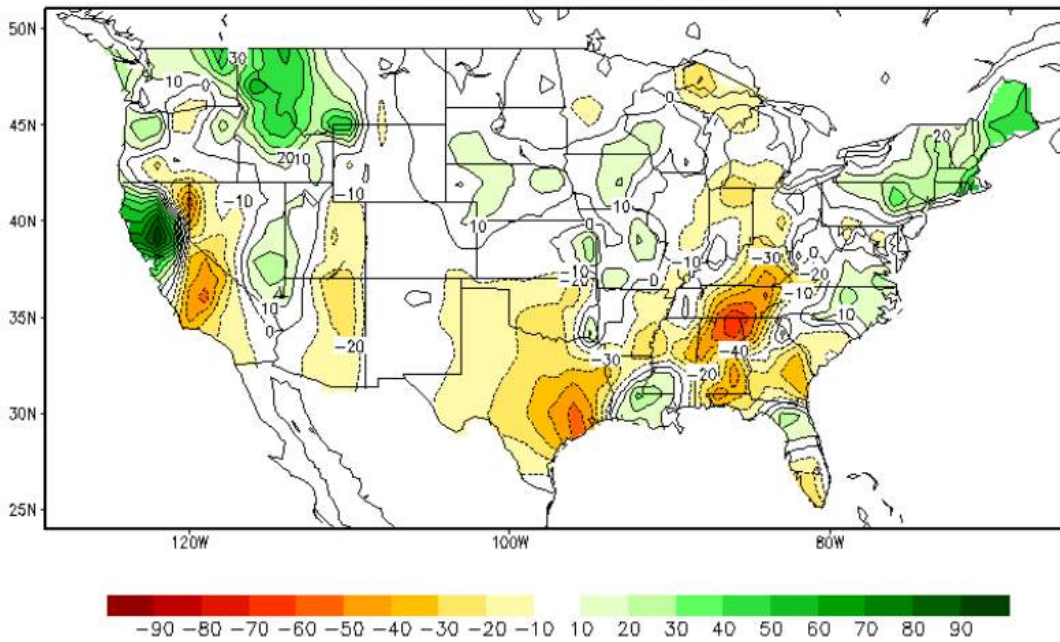
Matching the spread of drought conditions, negative soil moisture anomalies (drier than normal soils) were found in eastern and southern Tennessee. The western portion of the state still has drier than normal soils, however there has been little change since last month, whereas the east experienced significant drying during the month of January.



Soil Moisture Anomaly (mm) Last day of JAN, 2018



Calculated Soil Moisture Anomaly Change  
JAN 31, 2018 from DEC.31

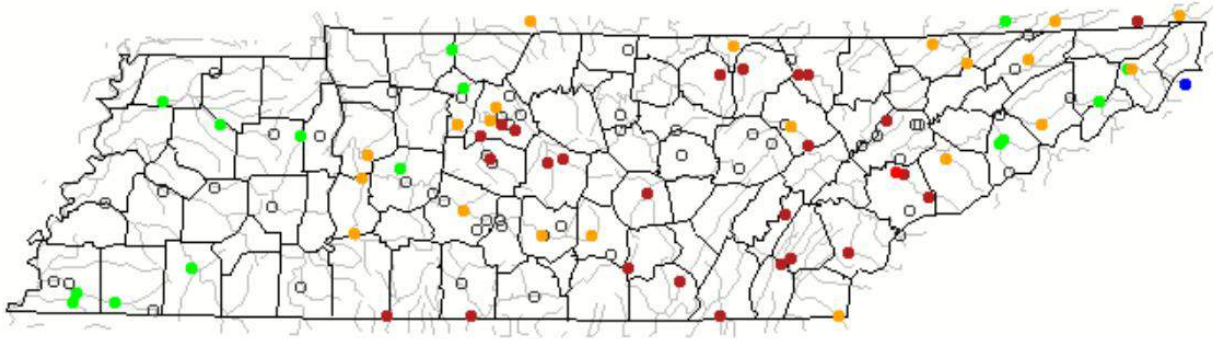


**Streamflow:**

With below normal precipitation, as well as several rounds of arctic air which produced a lot of river ice, most streams in the state recorded lower than normal streamflow for the month. Western and northern-Middle Tennessee were the exception, as streams there were within normal flow conditions.



January 2018



Search USGS streamgage

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

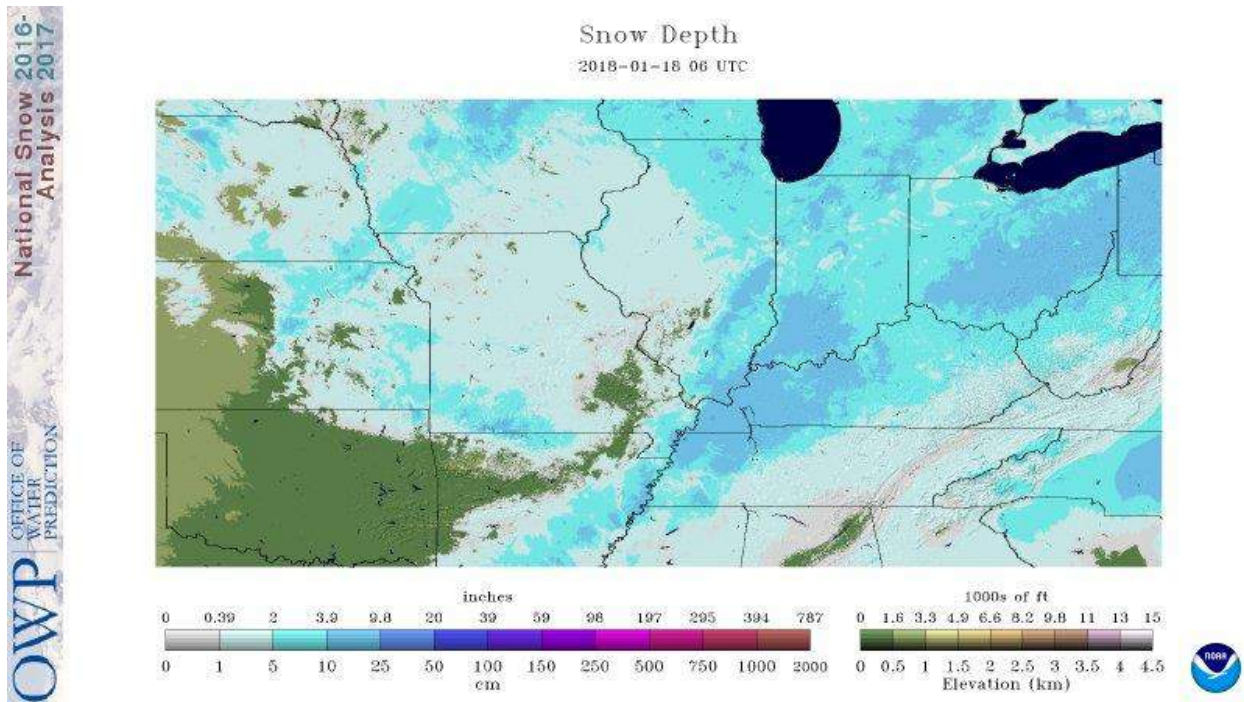
- List of all stations  Single station  Nearest stations  Peak flow

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

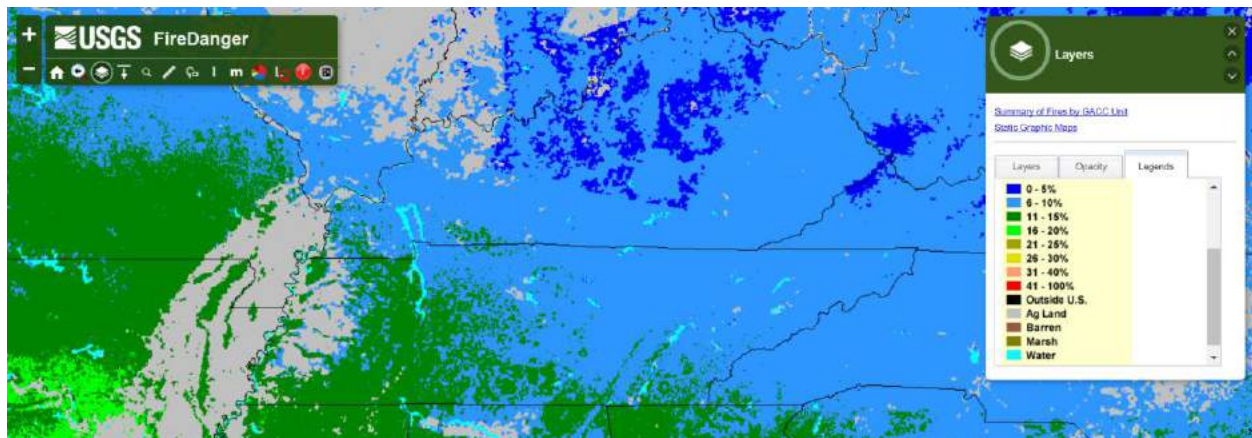
USGS Waterwatch: <https://waterwatch.usgs.gov/index.php?r=tn&id=mv01d>

### Miscellaneous (snowpack, crop conditions, fire danger...)

There were two large snow events, on the 12<sup>th</sup> and 17<sup>th</sup> leading to maximum snow cover for the state on January 18<sup>th</sup>.



Despite drought conditions during the month of January, the current fire risk for Tennessee is low, with the probability of a large fire, 100+ acres given an ignition source, ranging from 6 to 15% across the state.



### Storm of the month:

The main storms/notable events for the month of January were the rounds of extreme cold that occurred during the first half of the month (41 weather stations recorded temperatures of 0°F or below), and major snowfalls in the middle of the month, that affected northwest TN the most and led to snow depths of 10+ inches in some locations.



In addition to the extremely cold temperatures, arctic air persisted for a relatively long period, with the Tri-Cities region in northeast Tennessee staying below freezing for a 7-day period. After the cold front that passed across the state Dec 31<sup>st</sup> into Jan 1<sup>st</sup>, several locations across the state reported lake/river effect snowfall and cloud cover. Lakes, ponds, and rivers also froze over around the state, with reports of people walking on the surface of Reelfoot Lake in western TN!



Image of Reelfoot Lake on January 6<sup>th</sup> at Tiptonville TN; photo from Jaclyn Stafford via Twitter



thenatcheztrace  
Fall Hollow on Natchez Trace Pkwy



Frozen waterfall at Fall Hollow on the Natchez Trace Parkway in Lewis County; image via Instagram



Image of the Doe River at Roan Mountain State Park, Roan Mountain TN on January 7<sup>th</sup>; photo from William Tollefson.

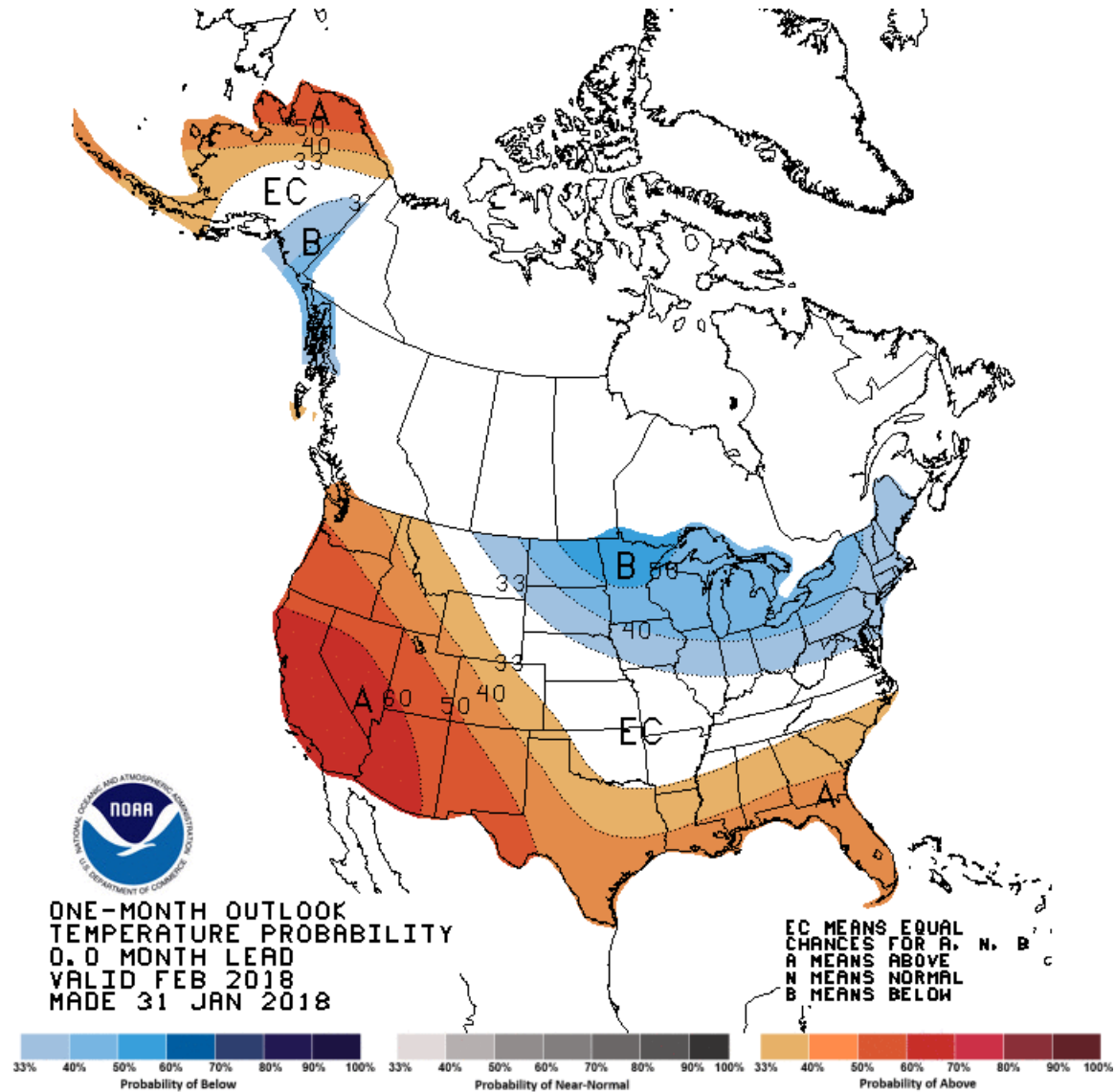
#### Storm reports:

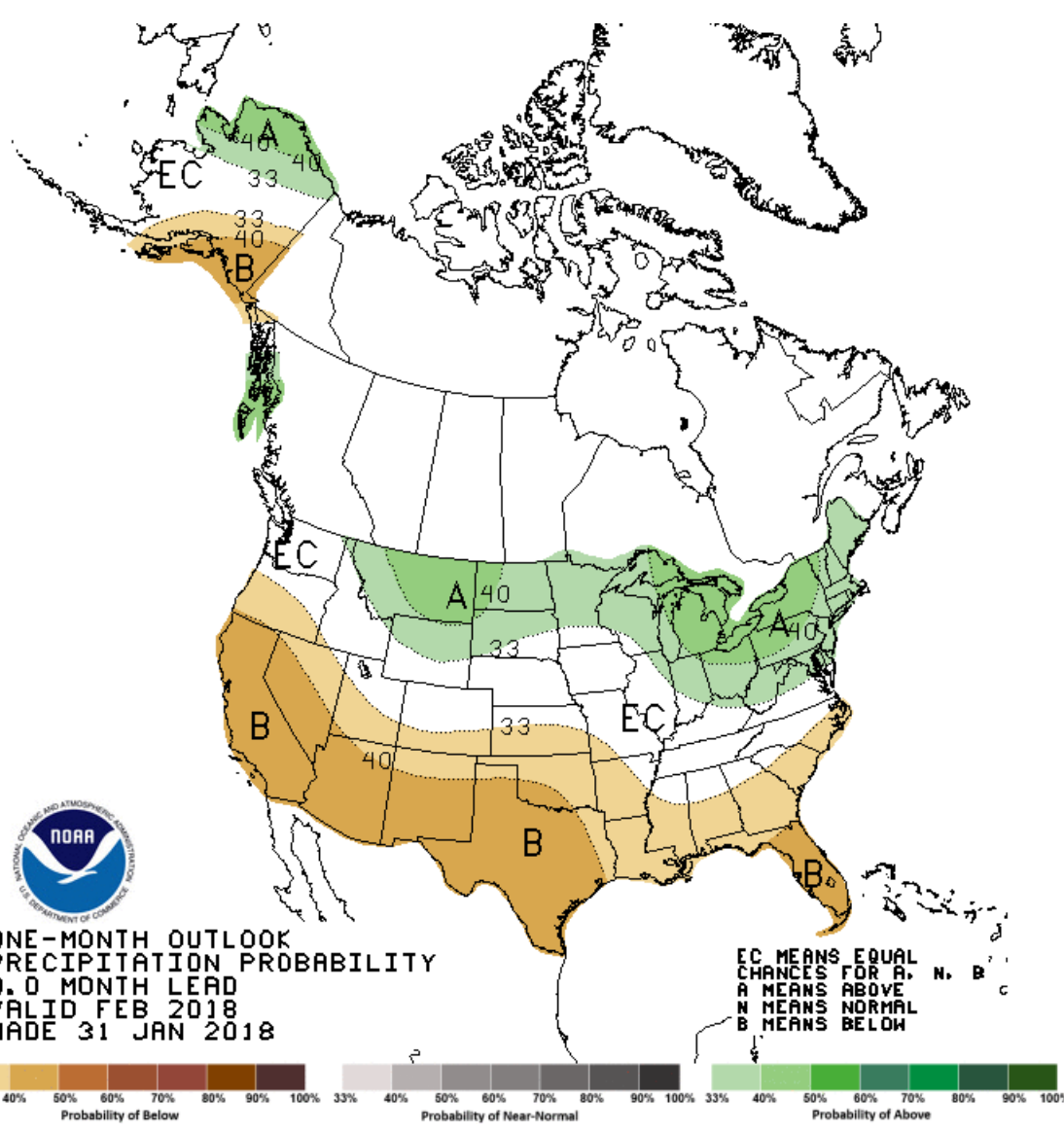
No severe storms were reported in Tennessee in the month of January.



### CPC outlooks for the next month:

Climate Prediction Center 1-month outlook for February 2010 looks like a typical La Niña pattern with cold/wet conditions to the north and warm/dry conditions to the south, with Tennessee in the middle, with equal chances of either condition.





ONE-MONTH OUTLOOK  
 PRECIPITATION PROBABILITY  
 0.0 MONTH LEAD  
 VALID FEB 2018  
 MADE 31 JAN 2018