

March 2018 Tennessee State Climate Summary

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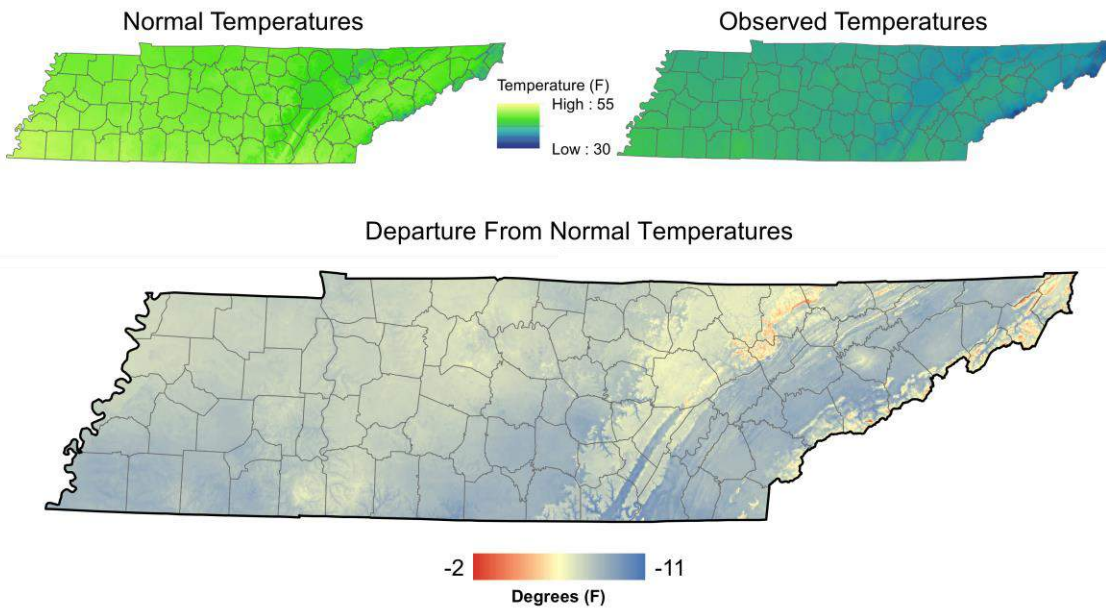
Monthly Temp Summary:

In typical Tennessee Spring fashion, temperatures across the state swung from above to below average week-to-week during March. During the first week of March almost all areas of the state recorded temperatures above normal (highest in the west and middle sections), with a few exceptions in the mountains of east Tennessee that were below normal. A major frontal passage on the 7th brought colder than normal temperatures in for the second week of the month, except for a few places in southwest Tennessee. Climate divisions 1 and 2 were in the 6-10 degrees below normal range for the week. Then during the third week (15th – 21st) temperatures were once again above normal for almost all areas of the state. During the fourth week (22nd -28th) temperatures dropped below normal for most areas again (eastern Tennessee showed the greatest departure).

Despite the back-and-forth above and below normal weeks, the monthly average temperature was below normal for all areas of the state. With the larger departures mainly in the southern half of the state, and the eastern TN valley.



March 2018 Mean Temperature



Stations with the highest mean temperature

| Station Name | Station Type | Mean Temperature (°F) |
|--------------------------|--------------|-----------------------|
| MEMPHIS INTERNATIONAL AP | WBAN | 54.1 |
| GERMANTOWN 4SE | COOP | 52.8 |
| AMES PLANTATION | COOP | 52.4 |
| SHILOH NMP TENNESSEE | RAWS | 52.3 |
| MEMPHIS WFO | WBAN | 52.2 |

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

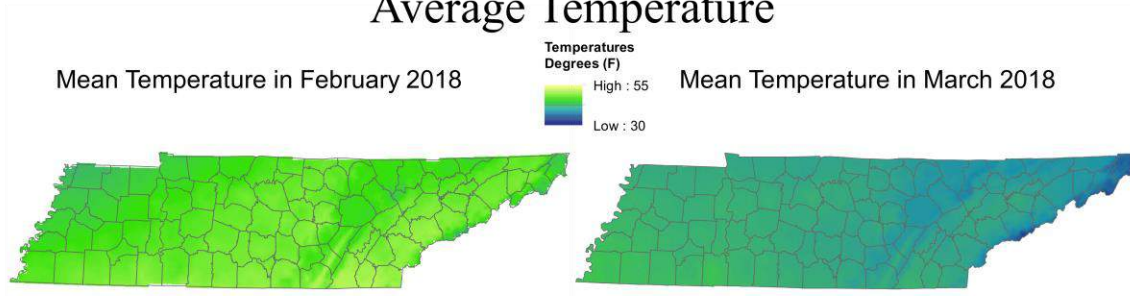
Stations with the lowest mean temperature

| Station Name | Station Type | Mean Temperature (°F) |
|--------------------|--------------|-----------------------|
| MT LECONTE | COOP | 28.1 |
| NEWFOUND GAP | COOP | 34.8 |
| ROAN MOUNTAIN 3SW | COOP | 39.8 |
| CROSSVILLE EXP STN | COOP | 41.7 |
| CHEROKEE TENNESSEE | RAWS | 42.2 |

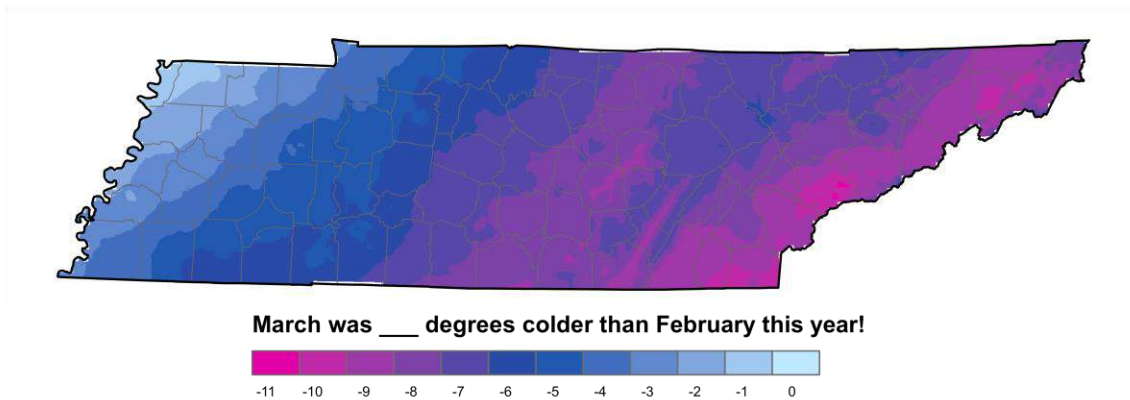
Given the much above normal temperatures in February, and the cooler than normal temperatures in March, most places in the state recorded a colder mean temperature in March than they did in February!



2018 February vs. March Average Temperature



How much colder was March than February?



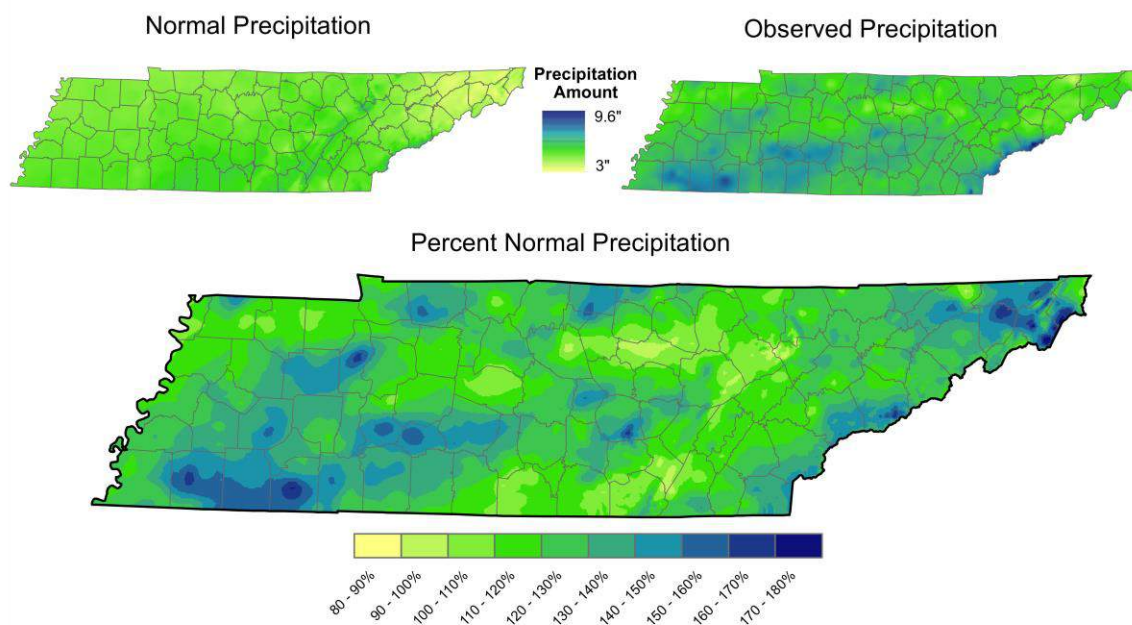
Note: Map data were sourced from PRISM Climate Group, at Oregon State University. These data are provisional and modeled using climatologically-aided interpolation (CAI), which uses the long-term average pattern (i.e., the 30-year normals) as first-guess of the spatial pattern of climatic conditions for a given month or day and incorporates as much station data as possible. While many stations across the state did record mean temperatures colder in March than February, some stations in West and Middle TN reported mean temperatures in March that were equal to or warmer than February.

Monthly Precipitation Summary:

Precipitation for the month was generally close to normal, with frontal passages producing rain across the state each week, and several rounds of snow for the mountains, plateau, and northern Tennessee Valley. The first week of the month brought heavy rain generally along and south of the I-40 corridor, with rainfall totals above 2 inches (southern sections of climate divisions 1, 2, and 3 recorded rainfall in the 300-400% normal range). After that, precipitation for the rest of the month, until the last few days, was at or below normal for most places, with only a few spots picking up more than 1 inch per week. A large slow-moving frontal system brought heavy rainfall to western and middle parts of the state at the end of the month (28th-29th).



March 2018 Precipitation



Stations with the most precipitation

| Station Name | Station Type | Total Precipitation (in) |
|-----------------|--------------|--------------------------|
| MT LECONTE | COOP | 11.82 |
| SELMER | COOP | 8.68 |
| WINCHESTER SSE | COOP | 8.41 |
| AMES PLANTATION | COOP | 7.86 |
| HOHENWALD | COOP | 7.84 |

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

Stations with the least precipitation

| Station Name | Station Type | Total Precipitation (in) |
|----------------------|--------------|--------------------------|
| ROCKWOOD 11.3 S | CoCoRaHS | 2.03 |
| CHEATHAM LOCK & DAM | COOP | 2.09 |
| NASHVILLE 5.2 S | CoCoRaHS | 2.49 |
| MURFREESBORO 7.9 NNW | CoCoRaHS | 2.67 |
| NASHVILLE 4.1 SSW | CoCoRaHS | 2.71 |

Snowfall was recorded on the 7th, 12-14th, and 21st mainly in the Mountains and along the Cumberland Plateau. The highest totals occurred on mountain tops on the 21st, but the largest coverage, including valley locations, occurred on the 14th.



(Left): 13" of snow was recorded at the Mt LeConte Lodge in the Great Smokey Mountains National Park with drifts up to waist deep on the 21st of March, the first full day of Spring! Image of the rocking chairs on the lodge porch via:

<http://www.highonleconte.com/daily-posts>

(Right): Snowy fields and hills between Johnson City and Elizabethton, TN on the morning of March 14th. Photo courtesy of William Tollefson

Top Tenn. (warmest/coldest, wettest/driest stations):

Stations with the highest temperatures:

| Station Name | Station Type | Highest Temperature (°F) |
|------------------------------|--------------|--------------------------|
| DECATURVILLE | COOP | 82 |
| SHILOH NMP TENNESSEE | RAWS | 82 |
| KINGSPORT | COOP | 81 |
| BRISTOL TRI CITY AP | WBAN | 81 |
| ELIZABETHTON | COOP | 80 |
| NASHVILLE BERRY FIELD | COOP | 80 |
| GERMANTOWN 4SE | COOP | 80 |
| MOUSETAIL LANDING STATE PARK | COOP | 80 |
| NASHVILLE INTL AP | WBAN | 80 |

**9 stations listed; an additional 10 stations tied for 10th highest temperature of 79°F*

Stations with the lowest temperatures:

| Station Name | Station Type | Lowest Temperature (°F) |
|------------------------|--------------|-------------------------|
| MT LECONTE | COOP | 5 |
| NEWFOUND GAP | COOP | 12 |
| COALMONT | COOP | 17 |
| ROAN MOUNTAIN 3SW | COOP | 17 |
| CROSSVILLE 7 NW | WBAN | 18 |
| CROSSVILLE EXP STN | COOP | 18 |
| JAMESTOWN | COOP | 18 |
| CROSSVILLE MEMORIAL AP | WBAN | 19 |
| BLEDSOE SF TENNESSEE | RAWS | 19 |
| MEIGS EOC TENNESSEE | RAWS | 19 |
| LEWISBURG EXP STA | COOP | 19 |
| MONTEREY | COOP | 19 |
| ONEIDA | COOP | 19 |
| ALLARDT | COOP | 19 |

**All stations reported a low temperature below freezing during the month.*

Stations with the warmest mean temperatures:

| Station Name | Station Type | Mean Temperature (°F) |
|--------------------------|--------------|-----------------------|
| MEMPHIS INTERNATIONAL AP | WBAN | 54.1 |
| GERMANTOWN 4SE | COOP | 52.8 |
| AMES PLANTATION | COOP | 52.4 |
| SHILOH NMP TENNESSEE | RAWS | 52.3 |
| MEMPHIS WFO | WBAN | 52.2 |
| CHATTANOOGA AP | WBAN | 51.2 |
| FAYETTEVILLE WATER PLANT | COOP | 51 |

| | | |
|----------------------------|------|------|
| BROWNSVILLE | COOP | 50.9 |
| COVINGTON 3 SW | COOP | 50.9 |
| JACKSON MCKELLAR- SIPES AP | WBAN | 50.8 |

Stations with the coolest mean temperatures:

| Station Name | Station Type | Mean Temperature (°F) |
|---------------------|--------------|-----------------------|
| MT LECONTE | COOP | 28.1 |
| NEWFOUND GAP | COOP | 34.8 |
| ROAN MOUNTAIN 3SW | COOP | 39.8 |
| CROSSVILLE EXP STN | COOP | 41.7 |
| CHEROKEE TENNESSEE | RAWS | 42.2 |
| TAZEWELL | COOP | 42.5 |
| JAMESTOWN | COOP | 43.5 |
| ONEIDA | COOP | 43.6 |
| CROSSVILLE 7 NW | WBAN | 43.6 |
| GREENEVILLE EXP STA | COOP | 44.1 |
| COALMONT | COOP | 44.1 |

Wettest Stations:

| Station Name | Station Type | Total Precipitation (in) |
|------------------------------|--------------|--------------------------|
| MT LECONTE | COOP | 11.82 |
| SELMER | COOP | 8.68 |
| WINCHESTER 5SE | COOP | 8.41 |
| AMES PLANTATION | COOP | 7.86 |
| HOHENWALD | COOP | 7.84 |
| LINDEN WATER PLANT | COOP | 7.63 |
| HENDERSON 4 W | COOP | 7.56 |
| MOUNT PLEASANT 1N | COOP | 7.41 |
| LANCASTER EDGAR EVINS MARINA | COOP | 7.4 |
| COLUMBIA 3 WNW | COOP | 7.2 |
| GATLINBURG 2 SW | COOP | 7.2 |

Driest Stations:

| Station Name | Station Type | Total Precipitation (in) |
|----------------------|--------------|--------------------------|
| ROCKWOOD 11.3 S | CoCoRaHS | 2.03 |
| CHEATHAM LOCK & DAM | COOP | 2.09 |
| NASHVILLE 5.2 S | CoCoRaHS | 2.49 |
| MURFREESBORO 7.9 NNW | CoCoRaHS | 2.67 |
| NASHVILLE 4.1 SSW | CoCoRaHS | 2.71 |
| CHATTANOOGA AP | WBAN | 2.73 |

| | | |
|---------------------|----------|------|
| FAIRVIEW 1.9 ENE | CoCoRaHS | 2.76 |
| SCOTTS HILL 2.8 NNW | CoCoRaHS | 2.81 |
| BON AQUA 3.0 ESE | CoCoRaHS | 2.91 |
| CHARLOTTE 1.3 NW | CoCoRaHS | 2.94 |
| FRANKLIN 3.6 NW | CoCoRaHS | 2.94 |

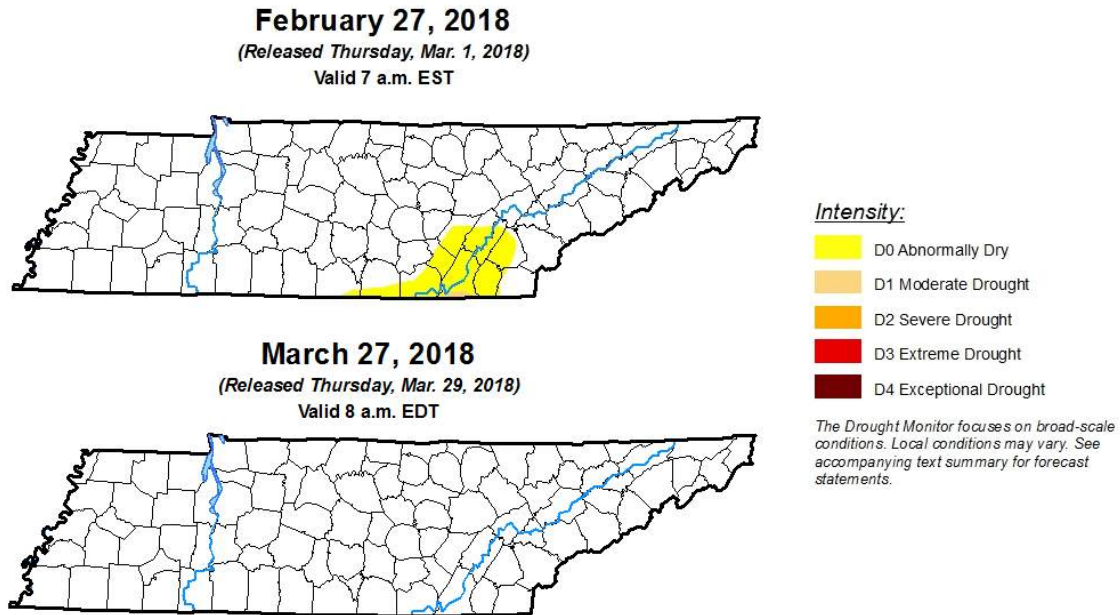
Snowiest Stations:

| Station Name | Station Type | Total Snowfall (in) |
|----------------------|--------------|---------------------|
| MT LECONTE | COOP | 28 |
| ROAN MOUNTAIN 3SW | COOP | 11.8 |
| ROAN MOUNTAIN 7.1 W | CoCoRaHS | 11.1 |
| NEWFOUND GAP | COOP | 8.1 |
| JAMESTOWN 3.1 SE | CoCoRaHS | 6.2 |
| CLARKRANGE 6.0 NE | CoCoRaHS | 6.1 |
| ALLARDT | COOP | 5.7 |
| JAMESTOWN | COOP | 5.5 |
| MONTEREY 3.9 W | CoCoRaHS | 4.1 |
| JONESBOROUGH 2.5 SSW | CoCoRaHS | 4.1 |

**68 stations reported 1" of snow or more during the month, 61 stations reported between 1/10" and 1", and 50 stations reported a Trace (less than 1/10").*

Drought Monitor:

The US Drought Monitor weekly report and maps showed a decrease in drought across the state from the beginning to the end of March. Due to heavy rainfall in the first week of the month, the drought in the southeast part of the state was reduced, and then eliminated by March 13th.



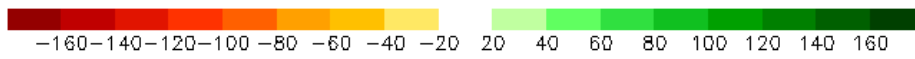
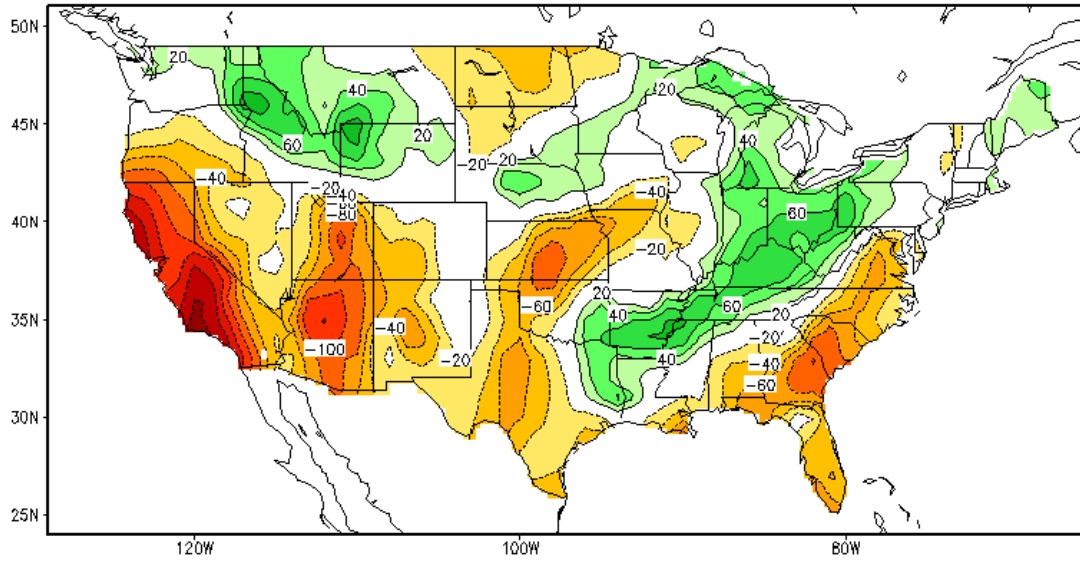
| Week | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|------------|--------|-------|-------|-------|-------|------|
| 2018-02-27 | 93.54 | 6.46 | 0.18 | 0.00 | 0.00 | 0.00 |
| 2018-03-27 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Change | 6.46 | -6.46 | -0.18 | 0.00 | 0.00 | 0.00 |

Soil Moisture:

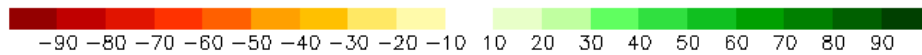
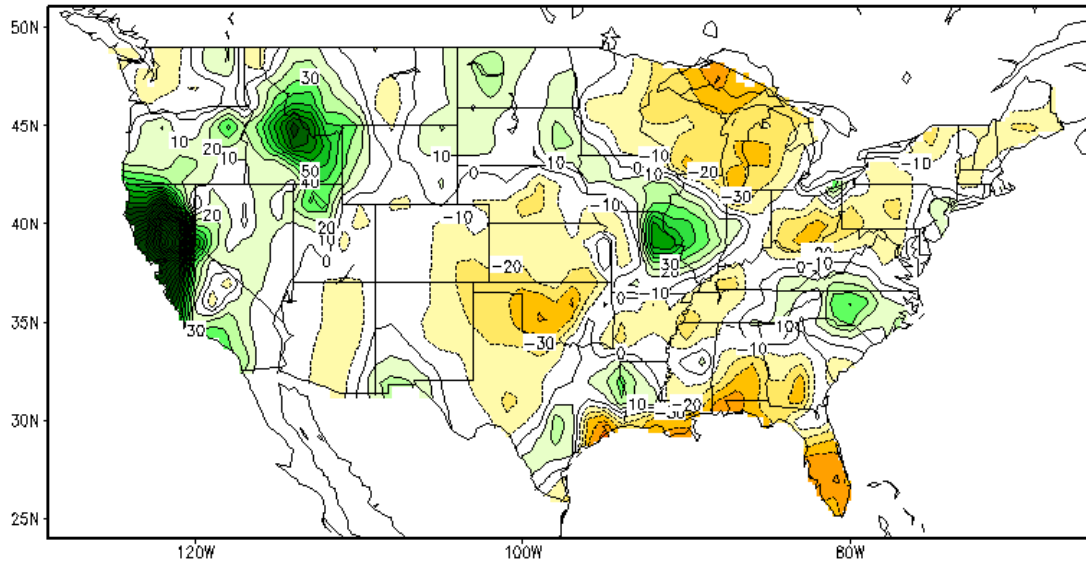
Almost all areas of the state observed above normal soil moisture for the month of March, with only the extreme eastern area of the state within 20mm of normal. Southwest TN, near Memphis recorded the highest anomaly, nearly 80mm (3in) above normal.

There was gradual change in soil moisture anomalies from the end of February to the end of March, with slight drying over the western half of the state, and a slight increase in soil moisture anomalies in the eastern third of the state.

Calculated Soil Moisture Anomaly (mm)
MAR, 2018



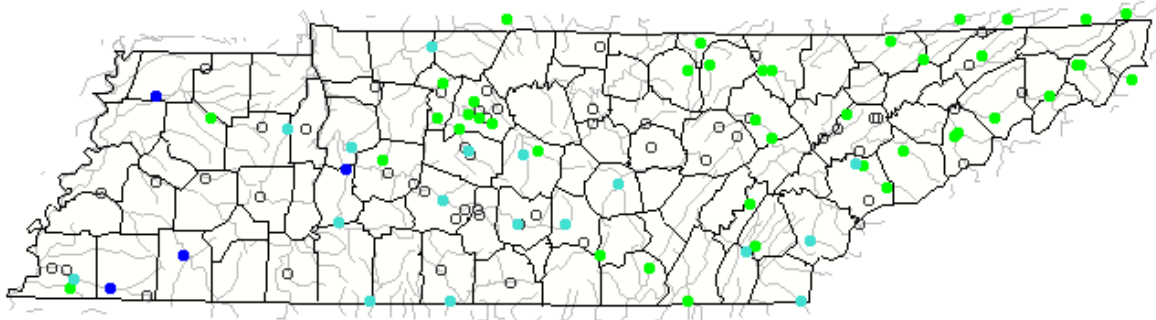
Calculated Soil Moisture Anomaly Change
MAR 29, 2018 from FEB.28



Streamflow:

Streamflow across the state was at or above normal for the month of March, with the “much above normal” (greater than 90th percentile) stream gauges located in west Tennessee.

March 2018



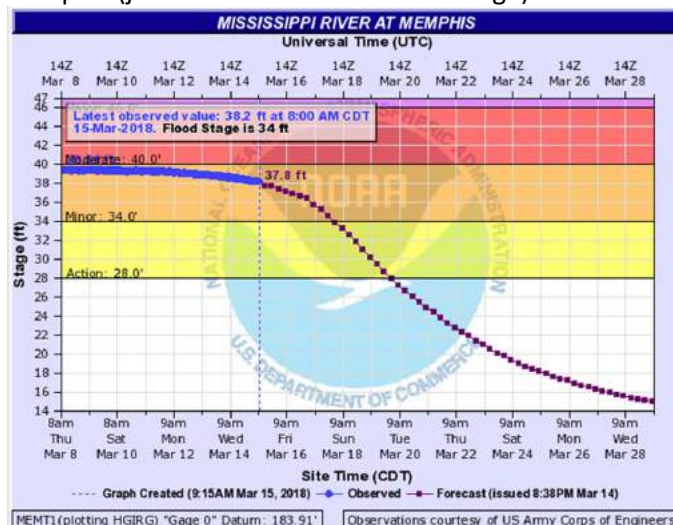
Search USGS streamgage

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

- List of all stations
 Single station
 Nearest stations
 Peak flow

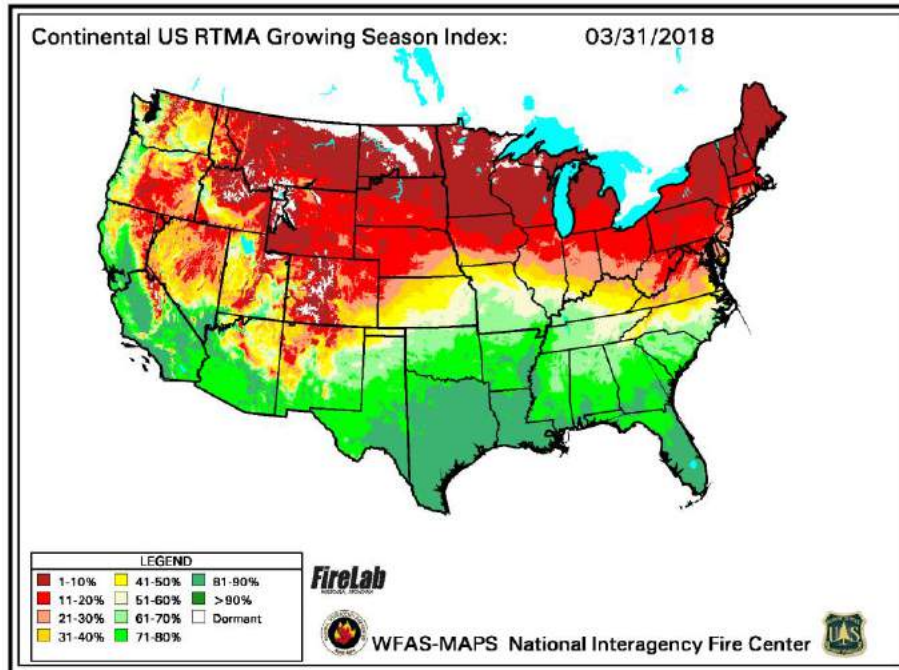
| Explanation - Percentile classes | | | | | | | |
|------------------------------------|---------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|------------|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

February’s above normal precipitation for much of the state, combined with heavy rains that continued for the start of March and the annual spring snowmelt from the northern Mississippi drainage basin, resulted in flooding on the Mississippi River in West Tennessee. River flooding reached a peak close to 40 feet at the gauge in Memphis (just below Moderate Flood Stage) around the 7th-8th of March.



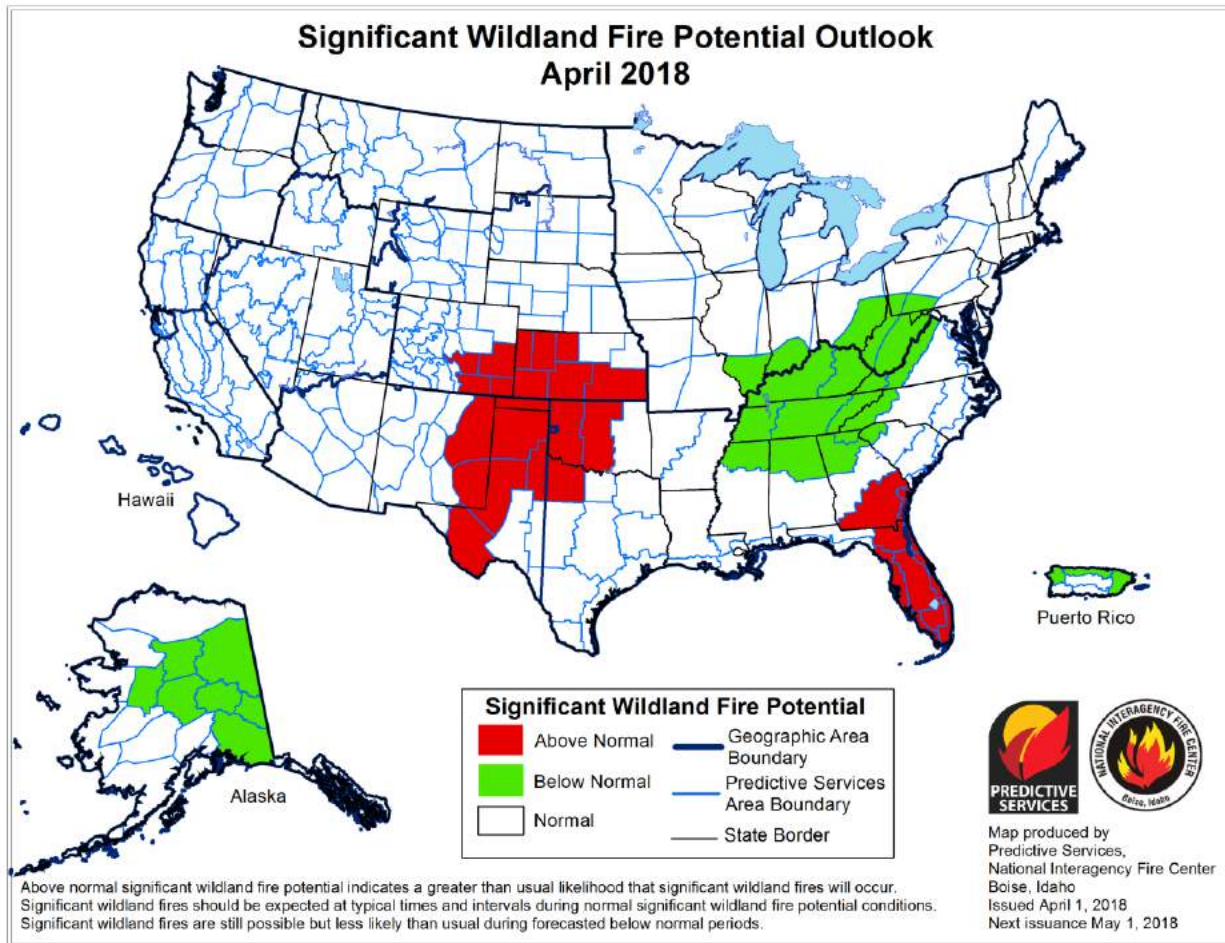
Miscellaneous:

Spring Green-Up: As of the end of March almost all areas of the state (except for high elevation locations, >2,500ft) have entered into the Spring green-up period. The map below shows the Growing Season Index on March 31st, values at or greater than 50% indicate that green-up has begun.



Crop Conditions from USDA: Frequent rainfall this month, and past week has prevented many farmers from planting corn, putting them behind normal schedule. However, the rain has been very good for the state's wheat crop, with over half of the crop in good or excellent conditions. Pastures were also greening up, with mostly fair to good conditions. 15% of the apple crop is in full bloom as of the end of March, which is well head of last year's timing. Fruit crop blooms were reported to be thinned out due to cold snaps in Loudon County, and cold was also responsible for holding back pasture growth in Sullivan County. Potentially impactful freeze events were reported in Western TN March 8-9th and 13-14th.

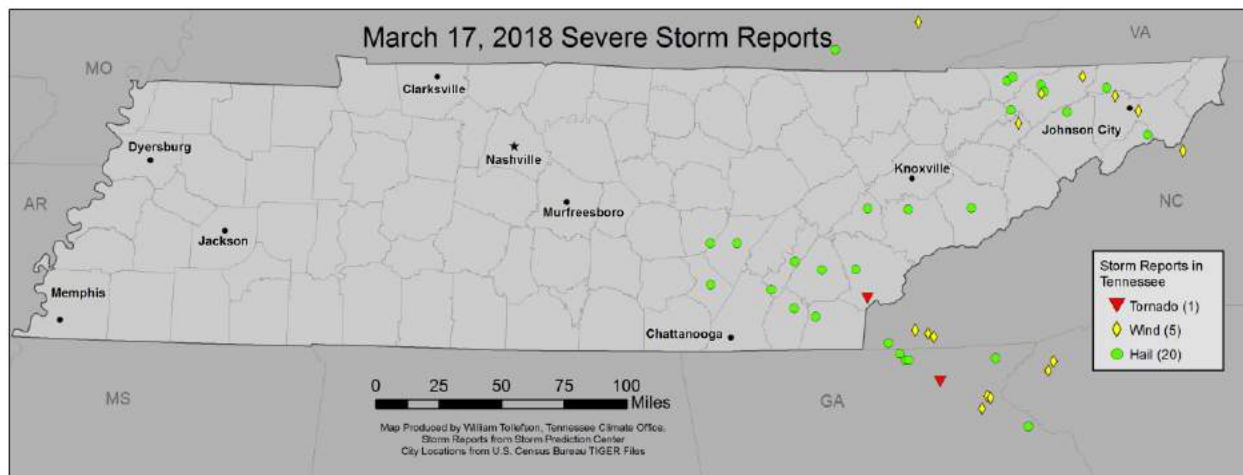
Fire Danger: The threat of significant wildfires continues to be below normal for Tennessee, and is forecast to stay so throughout April.



Severe Storm Reports:

Severe storms associated with frontal passages were reported in the state on three dates: March 17th, March 19th, and March 24th. From the three dates there were reports of 1 tornado, 7 damaging wind events, and 24 severe hail events across the state.

March 17th:

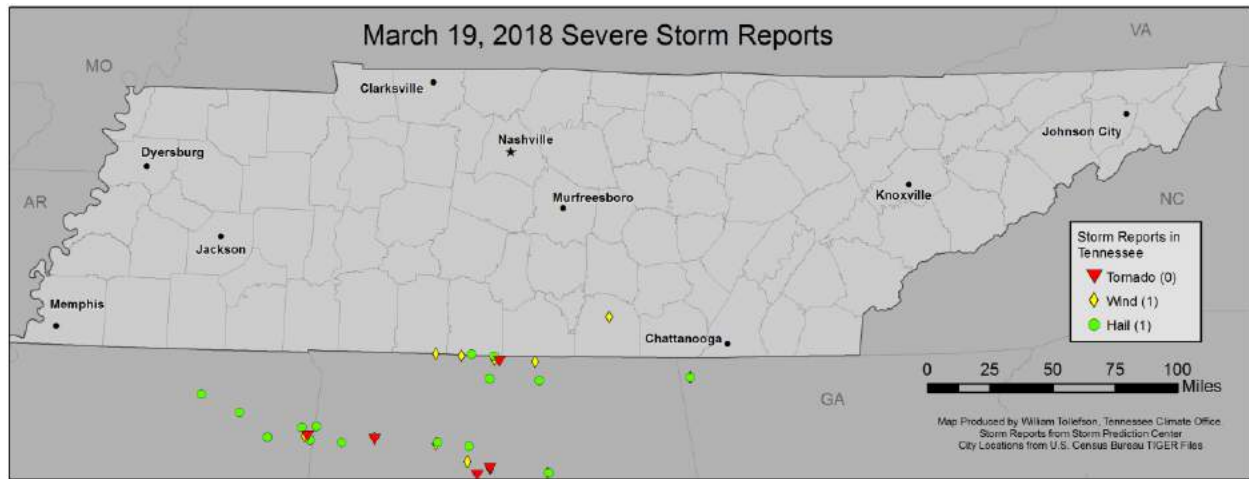


| Type | Time (UTC) | Intensity | Location | County | Lat | Lon | Comments (NWS Office) |
|----------------|------------|--------------|-----------------------|------------|-------|--------|---|
| Tornado | 23:49 | EF0 / 85 mph | 1 N COKER CREEK | MONROE | 35.28 | -84.28 | SMALL BARN DESTROYED AND ROOF DAMAGE TO A FEW STRUCTURES. SHIFTED DOUBLE - WIDE MOBLE HOME AND DOWNED SEVERAL TREES |
| Wind | 23:57 | 60 mph | 2 N ROGERSVILLE | HAWKINS | 36.44 | -83.01 | ALSO REPORTED 0.50 INCH SIZED HAIL. (MRX) |
| Wind | 1:15 | 60 mph | 3 ESE JOHNSON CITY | WASHINGTON | 36.32 | -82.32 | REPORTED AT KING SPRINGS ROAD TN AND DAVE BUCK ROAD. ALSO REPORTED 0.50 INCH HAIL. (MRX) |
| Wind | 1:35 | UNK | CHURCH HILL | HAWKINS | 36.53 | -82.71 | SEVERAL TREES AND POWER LINES DOWN BETWEEN CHURCH HILL AND SURGOINSVILLE... TN. (MRX) |
| Wind | 2:00 | UNK | 1 NE RUSSELLVILLE | HAMBLEN | 36.27 | -83.18 | A FEW TREES DOWN BETWEEN RUSSELLVILLE AND WHITESBURG... TN. (MRX) |
| Wind | 2:10 | UNK | GRAY | WASHINGTON | 36.41 | -82.48 | TREES DOWN NEAR GRAY... TN. (MRX) |
| Hail | 22:07 | 1" | 10 SSE SPENCER | VAN BUREN | 35.61 | -85.39 | FALL CREEK FALLS GOLF COURSE COVERED WITH QUARTERS AND NICKELS. (OHX) |
| Hail | 22:25 | 1.25" | PIKEVILLE | BLEDSON | 35.61 | -85.2 | QUARTER TO HALF DOLLAR SIZE HAIL JUST SOUTH OF PIKEVILLE... TN. (MRX) |
| Hail | 22:55 | 1.25" | DUNLAP | SEQUATCHIE | 35.37 | -85.39 | QUARTER TO HALF DOLLAR SIZE HAIL NORTHWEST OF DUNLAP... TN. (MRX) |
| Hail | 23:05 | 1.75" | 2 S DECATUR | MEIGS | 35.5 | -84.79 | REPORTED BY PUBLIC. HAIL OCCURRED FOR 10 MINUTES. (MRX) |
| Hail | 23:15 | 1" | LENOIR CITY | LOUDON | 35.8 | -84.27 | QUARTER SIZE HAIL NEAR LENIOR CITY. (MRX) |
| Hail | 23:30 | 1" | ATHENS | MCMINN | 35.45 | -84.6 | (MRX) |
| Hail | 23:30 | 1.25" | 2 ENE EVANSTON | HANCOCK | 36.52 | -83.25 | REPORTED AT 170 MILL DAM ROAD. ALSO REPORTED 50 MPH WINDS. (MRX) |
| Hail | 23:35 | 1" | 2 SE BIRCHWOOD | MEIGS | 35.34 | -84.96 | REPORTED AT 787 RILEY LANE BIRCHWOOD TN. (MRX) |
| Hail | 23:35 | 1.5" | 3 N MOUNT VERNON | MONROE | 35.45 | -84.36 | (MRX) |
| Hail | 23:45 | 1" | SNEEDVILLE | HANCOCK | 36.54 | -83.21 | (MRX) |
| Hail | 23:48 | 1.75" | 2 N TASSO | BRADLEY | 35.23 | -84.8 | (MRX) |
| Hail | 0:00 | 1" | ALCOA | BLOUNT | 35.79 | -83.98 | QUARTER INCH SIZE HAIL NEAR ALCOA... TN. (MRX) |
| Hail | 0:00 | 1" | 6 SSE KYLES FORD | HAWKINS | 36.49 | -83.01 | (MRX) |
| Hail | 0:20 | 1.75" | BENTON | POLK | 35.18 | -84.65 | SEVERAL REPORTS OF GOLFBALL SIZE HAIL ACROSS POLK COUNTY... TN. (MRX) |
| Hail | 0:24 | 1" | 2 SW COLONIAL HEIGHTS | SULLIVAN | 36.46 | -82.54 | REPORTED AT I-26 WELCOME CENTER. (MRX) |
| Hail | 0:25 | 1.25" | MOORESBURG | HAWKINS | 36.35 | -83.23 | HALF DOLLAR SIZE HAIL NEAR MOORESBURG... TN. (MRX) |
| Hail | 1:00 | 1" | 3 NNE ROGERSVILLE | HAWKINS | 36.45 | -82.99 | ALSO REPORTED ESTIMATED 50 MPH WINDS. REPORTED AT 119 DEVILS NOSE ROAD TN. (MRX) |
| Hail | 1:03 | 1" | LIMESTONE COVE | UNICOI | 36.18 | -82.26 | (MRX) |
| Hail | 1:05 | 1.25" | BAILEYTON | GREENE | 36.33 | -82.83 | HALF DOLLAR SIZE HAIL AND FEW TREES DOWN NEAR BAILEYTON... TN. (MRX) |
| Hail | 1:30 | 1" | 2 E PIGEON FORGE | SEVIER | 35.79 | -83.53 | (MRX) |



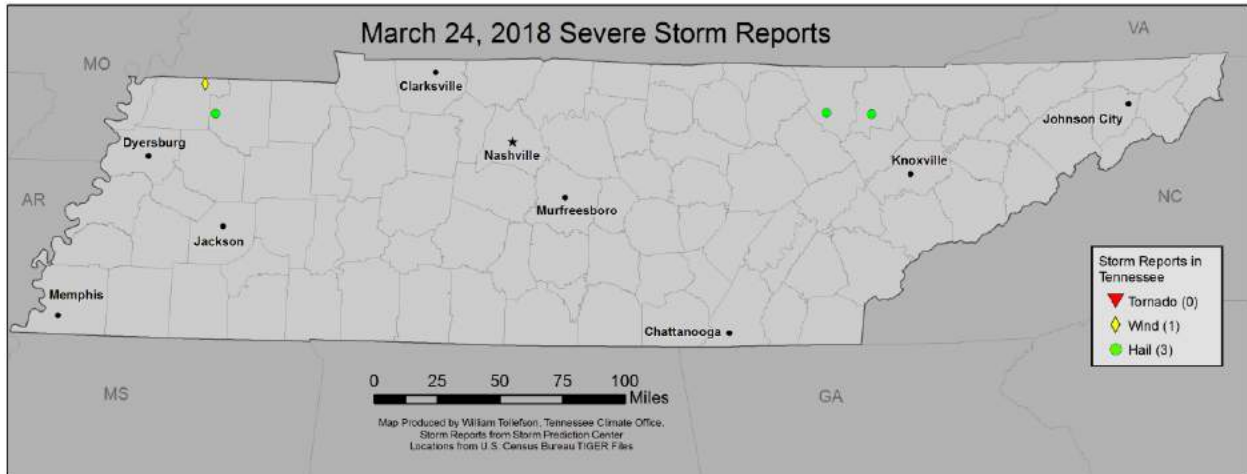
NWS Storm Survey off of Highway 68 between Tellico Plains and Coker Creek in Monroe County confirms a tornado occurred Saturday evening {March 17} around 7:49 PM EDT. Damage indicators show winds of around 85 mph which would make it a high-end EF-0 tornado.

March 19th:



| Type | Time (UTC) | Intensity | Location | County | Lat | Lon | Comments (NWS Office) |
|------|------------|-----------|------------------|----------|-------|--------|---|
| Wind | 0:41 | UNK | 1 NE DECHERD | FRANKLIN | 35.22 | -86.08 | SERIOUS ROOF DAMAGE TO A BUILDING AT THE CORNER OF PERKINS STREET AND SHELBY ROAD IN DECHERD... TN REPORTED. LIGHT POLE ALSO REPORTED BLOWN DOWN NEAR THAT LOCATION AND (HUN) |
| Hail | 23:21 | 1" | 7 ESE MINOR HILL | GILES | 35 | -87.05 | TSPOTTER REPORT AND PHOTO OF QUARTER SIZE HAIL ON BETHEL PROSPECT ROAD IN PROSPECT (OHX) |

March 24th:



| Type | Time (UTC) | Intensity | Location | County | Lat | Lon | Comments (NWS Office) |
|------|------------|-----------|-----------------|----------|-------|--------|---|
| Wind | 23:52 | UNK | 5 NE UNION CITY | OBION | 36.47 | -88.99 | A FEW TREES DOWN NEAR CLAUDE TUCKER ROAD. ALSO... AN ABOVE-GROUND POOL FLIPPED OVER ONTO A PRIVACY FENCE IN THE SAME AREA. TIME IS RADAR ESTIMATED. (MEG) |
| Hail | 22:14 | 1" | 4 E ELGIN | SCOTT | 36.33 | -84.54 | MEDIA PHOTO FROM NEAR ROBBINS OF ESTIMATED QUARTER SIZE HAIL. TIME ESTIMATED BY RADAR. (MRX) |
| Hail | 22:30 | 1" | CARYVILLE | CAMPBELL | 36.32 | -84.22 | TIME ESTIMATED BY RADAR. (MRX) |
| Hail | 0:29 | 1" | 4 SW MARTIN | WEAKLEY | 36.3 | -88.91 | QUARTER SIZED HAIL AND WINDS ESTIMATED AROUND 50 MPH. (MEG) |

CPC outlooks for the next month

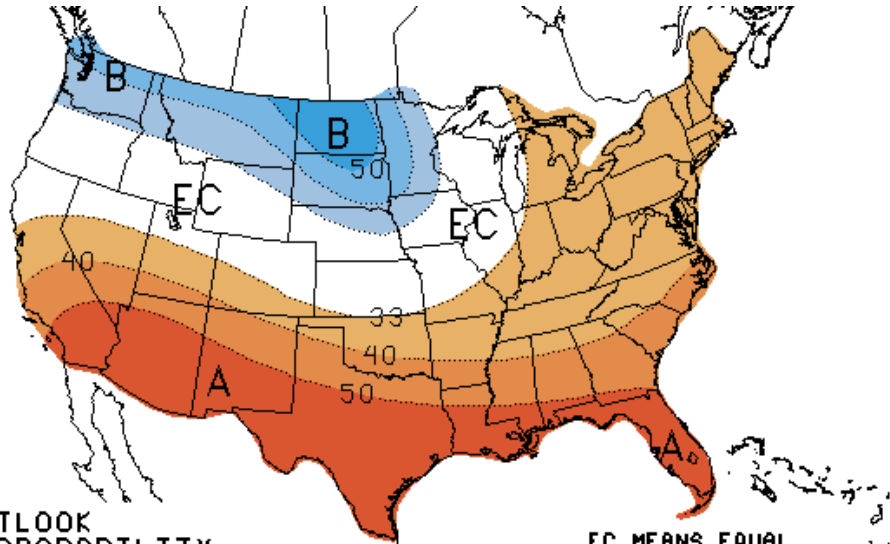
Climate Prediction Center outlooks for the month of April 2018 indicate that all of Tennessee has slightly better chances to see above normal temperatures. In fact, the southern and eastern portions of the Lower-48 are forecast to experience above normal temperatures for April with the southern-tier states having the strongest chance.

The western 2/3 of the state (climate divisions 3 and 4) are forecasted to have slightly better chances of above normal precipitation for the month, while the eastern third of the state does not have a clear signal to indicate whether precipitation will be normal, above-, or below-normal.

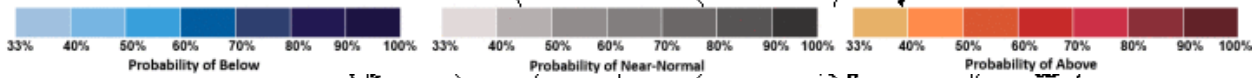
If temperatures are above normal and the eastern portion of the state sees below normal precipitation, careful attention will need to be focused on southeast Tennessee to watch for re-emergence of drought conditions in the southern Tennessee Valley.



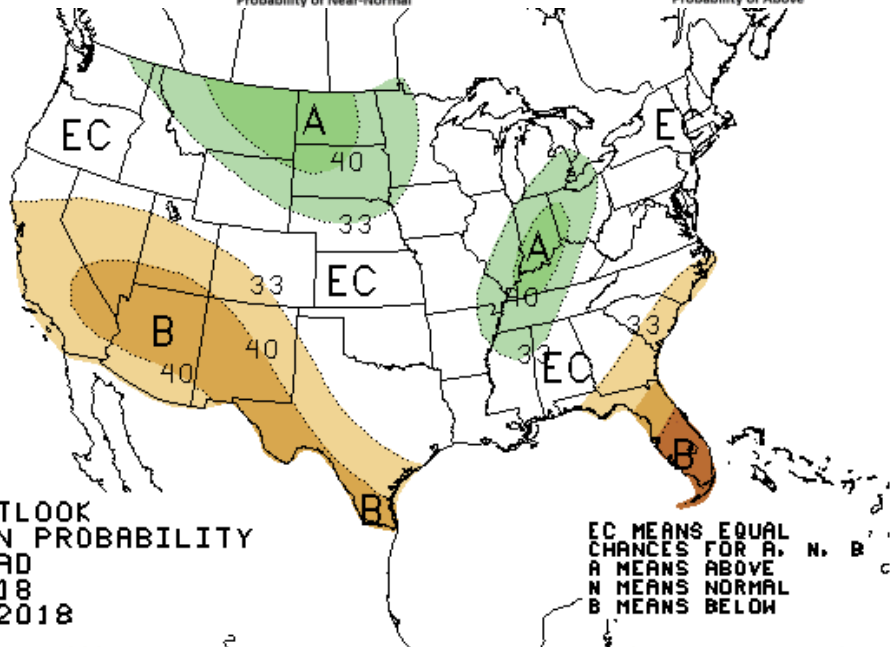
ONE-MONTH OUTLOOK
 TEMPERATURE PROBABILITY
 0.5 MONTH LEAD
 VALID APR 2018
 MADE 15 MAR 2018



EC MEANS EQUAL
 CHANCES FOR A, N, B
 A MEANS ABOVE
 N MEANS NORMAL
 B MEANS BELOW



ONE-MONTH OUTLOOK
 PRECIPITATION PROBABILITY
 0.5 MONTH LEAD
 VALID APR 2018
 MADE 15 MAR 2018



EC MEANS EQUAL
 CHANCES FOR A, N, B
 A MEANS ABOVE
 N MEANS NORMAL
 B MEANS BELOW

