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2024 February - Tennessee Monthly Climate Report

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February 2024 Tennessee State Climate Summary

Tennessee Climate Office * East Tennessee State University

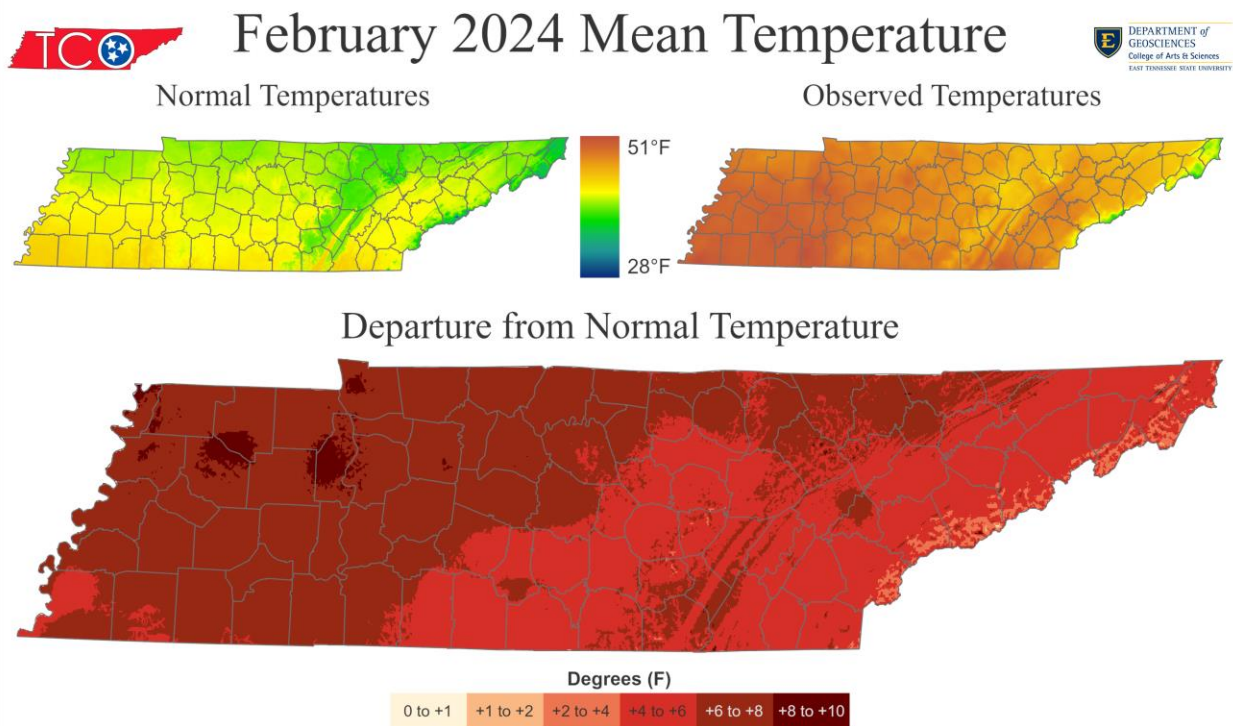
Prepared by William Tollefson and Dr. Andrew Joyner

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

Monthly Temperature Summary:

February 2022 was warmer than normal across the state, with most of the eastern half of the state averaging 4-6°F above normal while most of the western half of the state averaged 6-8°F warmer than normal. The warm conditions were common in most weeks of the month, with the third week of the month being the closest to normal, even slightly cooler than normal in West Tennessee. Leap day was another anomaly as cold air impacted the state in the wake of a strong cold front.

Over the course of February there were 7 broken and 10 tied daily records for high temperatures and 32 broken and 3 tied daily records for the warmest low temperature set at weather stations across the state. Additionally, the weather station at the Jackson airport tied their monthly record for warmest low temperature recorded during the month of February, with a low of 66°F on February 27, tying the record last set in February 2018. There were no cold-related records set in Tennessee this month.



Stations with the highest mean temperature

| Station Name | Station Type | Mean Temperature (F) |
|----------------------------|--------------|----------------------|
| MEMPHIS INTERNATIONAL AP | WBAN | 52.4 |
| CHATTANOOGA AP | WBAN | 50.8 |
| MEMPHIS WFO | WBAN | 50.8 |
| JACKSON MCKELLAR- SIPES AP | WBAN | 50.6 |
| NASHVILLE INTL AP | WBAN | 50.3 |

Map Data from PRISM Climate Group, Oregon State University, 1991-2020 Climate Normals Used. Station Data Retrieved From xmACIS2.

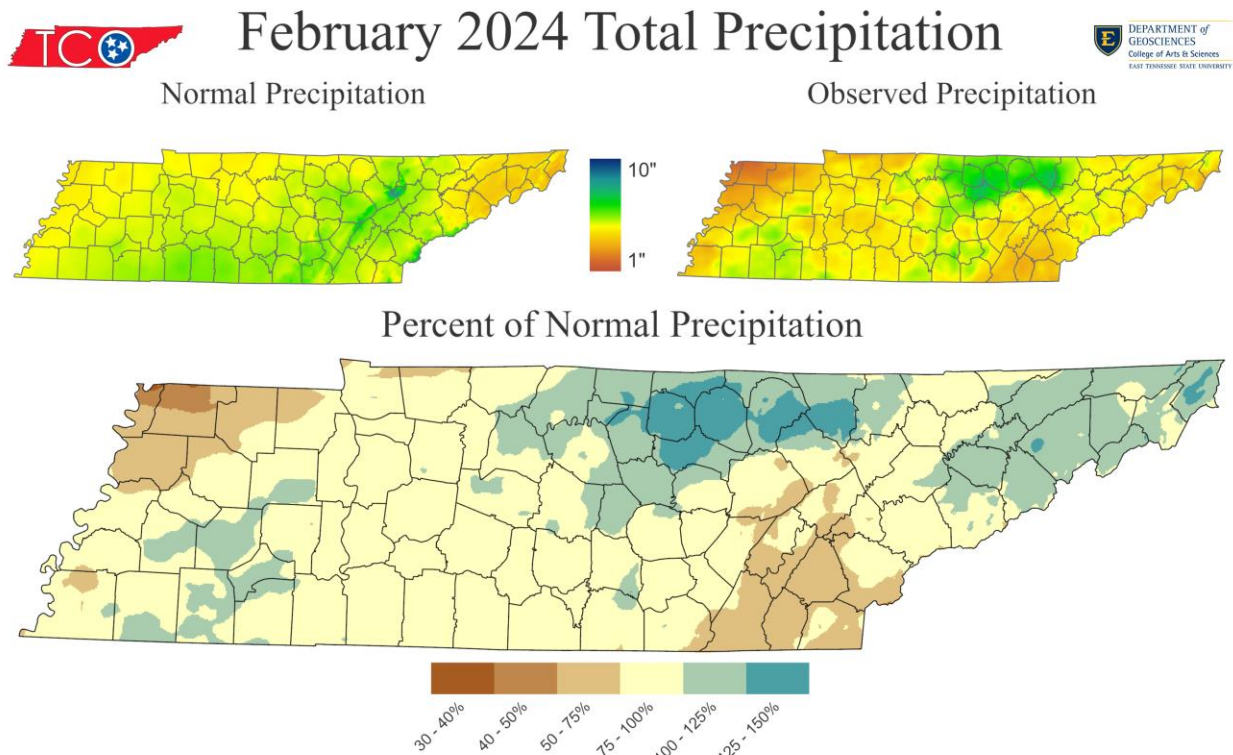
Stations with the lowest mean temperature

| Station Name | Station Type | Mean Temperature (F) |
|-------------------|--------------|----------------------|
| MT LECONTE | COOP | 32.5 |
| NEWFOUND GAP | COOP | 38.1 |
| ROAN MOUNTAIN 3SW | COOP | 40.6 |
| MOUNTAIN CITY 2 | COOP | 41.2 |
| ERWIN 1 W | COOP | 42.1 |

Monthly Precipitation Summary:

Most areas of Tennessee had close to normal precipitation for the month ($\pm 25\%$ of normal), with some drier than normal conditions in the northwest and southeast corners of the state. The northern Cumberland Plateau also recorded some heavier rainfall in the second and fourth weeks of the month, pushing them into the 125-150% of normal category for precipitation. February started out dry, but then the second week of the month brought wide-spread heavy rains totaling 2-4 inches in most parts of the state. Drier conditions returned in the second half of the month with widespread, but light rainfall and some light snowfall.

With the heavy rains there were 7 broken and one tied daily rainfall records set this month, with two of the broken records at stations with at least a 100-year weather record.



Stations with the most precipitation

| Station Name | Station Type | Total Precipitation (in) |
|--------------------|--------------|--------------------------|
| CLARKRANGE 6.0 NE | CoCoRaHS | 8.33 |
| COOKEVILLE 6.4 N | CoCoRaHS | 7.75 |
| JAMESTOWN 12.9 S | CoCoRaHS | 7.31 |
| SEWANEE | COOP | 7.11 |
| COOKEVILLE 3.3 SSW | CoCoRaHS | 6.91 |

Map Data from PRISM Climate Group, Oregon State University. 1991-2020 Climate Normals Used. Station Data Retrieved From xmACIS2

Stations with the least precipitation

| Station Name | Station Type | Total Precipitation (in) |
|------------------------|--------------|--------------------------|
| CLARKSVILLE 3.4 NNW | CoCoRaHS | 1.86 |
| CLEVELAND 1.2 W | CoCoRaHS | 1.94 |
| CLARKSVILLE WWTP | COOP | 2.41 |
| LOOKOUT MTN-POINT PARK | COOP | 2.43 |
| CLARKSVILLE 9.3 ESE | CoCoRaHS | 2.66 |

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 30-year climate normals for departure from mean temperature and total precipitation:

| Station Name | Temperatures (°F) | | | | | | | | Precipitation (inches) | | |
|--------------------|-------------------|------|------|-------------|----------|------|-----|------|------------------------|--------------|-------------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | %Norm |
| Memphis | 62.8 | 42.0 | 52.4 | +6.3 | 78 | 2/27 | 25 | 2/18 | 3.82 | -0.73 | 84% |
| Jackson | 63.4 | 37.8 | 50.6 | +7.9 | 77 | 2/27 | 18 | 2/18 | 4.70 | +0.30 | 107% |
| Clarksville | 61.2 | 36.3 | 48.7 | +8.0 | 77 | 2/26 | 16 | 2/18 | 2.87 | -1.00 | 74% |
| Nashville | 62.3 | 38.3 | 50.3 | +6.9 | 76 | 2/26 | 19 | 2/18 | 3.81 | -0.66 | 85% |
| Chattanooga | 63.2 | 38.3 | 50.8 | +5.2 | 74 | 2/28 | 27 | 2/19 | 3.15 | -1.88 | 63% |
| Crossville | 56.0 | 33.4 | 44.7 | +5.9 | 69 | 2/26 | 15 | 2/18 | 3.82 | -1.31 | 74% |
| Knoxville | 60.2 | 36.2 | 48.2 | +5.3 | 73 | 2/26 | 24 | 2/19 | 4.64 | -0.17 | 96% |
| Bristol | 58.2 | 31.1 | 44.7 | +4.7 | 70 | 2/27 | 19 | 2/19 | 4.22 | +0.41 | 111% |

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 |
|------------------------------|--------------|-------------------------|------|
| CLARKSVILLE WWTP | COOP | 80 | 26 |
| JACKSON EXP STA | COOP | 78 | 28 |
| FAIRVIEW BOWIE NATURE CENTER | COOP | 78 | 28 |
| MEMPHIS INTERNATIONAL AP | WBAN | 78 | 27 |
| CLARKSVILLE NO.2 | COOP | 77 | 25 |
| COLLIERVILLE | COOP | 77 | 28 |
| LOBELVILLE | COOP | 77 | 27 |
| JACKSON MCKELLAR- SIPES AP | WBAN | 77 | 27 |
| DYERSBURG MUNICIPAL AIRPORT | WBAN | 77 | 27 |
| CLARKSVILLE OUTLAW AP | WBAN | 77 | 26 |

Coldest Stations (lowest minimum temperature)

| Station Name | Station Type | Lowest Temperature (F) | Date |
|------------------------------|--------------|------------------------|------|
| UT MARTIN BRANCH EXP STATION | COOP | 0 | 18 |
| MT LECONTE | COOP | 7 | 18 |
| GAINESBORO | COOP | 10 | 19 |
| KINGSTON SPRINGS | COOP | 11 | 19 |
| BETHPAGE 1 S | COOP | 13 | 19 |
| CROSSVILLE 7 NW | WBAN | 13 | 18 |
| TELLICO PLAINS | COOP | 14 | 7 |
| WHITE HOUSE | COOP | 14 | 18 |
| NEWFOUND GAP | COOP | 14 | 18 |
| DICKSON | COOP | 15 | 18 |
| COALMONT | COOP | 15 | 18 |
| CROSSVILLE MEMORIAL AP | WBAN | 15 | 18 |

Three stations tied for the 10th coldest temperature (15°F)

Warmest Stations (highest mean temperatures)

| Station Name | Station Type | Mean Temperature (F) |
|-----------------------------|--------------|----------------------|
| MEMPHIS INTERNATIONAL AP | WBAN | 52.4 |
| CHATTANOOGA AP | WBAN | 50.8 |
| MEMPHIS WFO | WBAN | 50.8 |
| JACKSON MCKELLAR- SIPES AP | WBAN | 50.6 |
| NASHVILLE INTL AP | WBAN | 50.3 |
| JACKSON EXP STA | COOP | 50.2 |
| DYERSBURG MUNICIPAL AIRPORT | WBAN | 50.1 |
| COLLIERVILLE | COOP | 50 |
| NASHVILLE BERRY FIELD | COOP | 50 |
| FAYETTEVILLE WATER PLANT | COOP | 49.3 |
| CLARKSVILLE NO.2 | COOP | 49.3 |
| CLARKSVILLE WWTP | COOP | 49.3 |

Three stations tied for the 10th warmest temperature (49.3°F)

Cooltest Stations (lowest mean temperatures)

| Station Name | Station Type | Mean Temperature (F) |
|-------------------------|--------------|----------------------|
| MT LECONTE | COOP | 32.5 |
| NEWFOUND GAP | COOP | 38.1 |
| ROAN MOUNTAIN 3SW | COOP | 40.6 |
| MOUNTAIN CITY 2 | COOP | 41.2 |
| ERWIN 1 W | COOP | 42.1 |
| SPARTA WASTEWATER PLANT | COOP | 42.3 |
| MAYNARDVILLE | COOP | 42.6 |
| TAZEWELL | COOP | 43.4 |
| ONEIDA | COOP | 43.5 |
| CROSSVILLE 7 NW | WBAN | 43.5 |

Wettest Stations (highest precipitation totals):

| Station Name | Station Type | Total Precipitation (in) |
|--------------------|--------------|--------------------------|
| CLARKRANGE 6.0 NE | CoCoRaHS | 8.33 |
| COOKEVILLE 6.4 N | CoCoRaHS | 7.75 |
| JAMESTOWN 12.9 S | CoCoRaHS | 7.31 |
| SEWANEE | COOP | 7.11 |
| COOKEVILLE 3.3 SSW | CoCoRaHS | 6.91 |
| RICKMAN 3.8 ESE | CoCoRaHS | 6.78 |
| COOKEVILLE | COOP | 6.72 |
| COOKEVILLE 2.1 NE | CoCoRaHS | 6.59 |
| COOKEVILLE 4.6 WNW | CoCoRaHS | 6.5 |
| COOKEVILLE 1.0 SW | CoCoRaHS | 6.34 |

Driest Stations (lowest precipitation totals):

| Station Name | Station Type | Total Precipitation (in) |
|-----------------------------|--------------|--------------------------|
| CLARKSVILLE 3.4 NNW | CoCoRaHS | 1.86 |
| CLEVELAND 1.2 W | CoCoRaHS | 1.94 |
| CLARKSVILLE WWTP | COOP | 2.41 |
| LOOKOUT MTN-POINT PARK | COOP | 2.43 |
| CLARKSVILLE 9.3 ESE | CoCoRaHS | 2.66 |
| DYERSBURG MUNICIPAL AIRPORT | WBAN | 2.66 |
| OAK GROVE 3.0 E | CoCoRaHS | 2.71 |
| EAST RIDGE 0.9 NW | CoCoRaHS | 2.71 |
| BELLE MEADE 5.3 WSW | CoCoRaHS | 2.73 |
| LOOKOUT MOUNTAIN 0.3 E | CoCoRaHS | 2.82 |

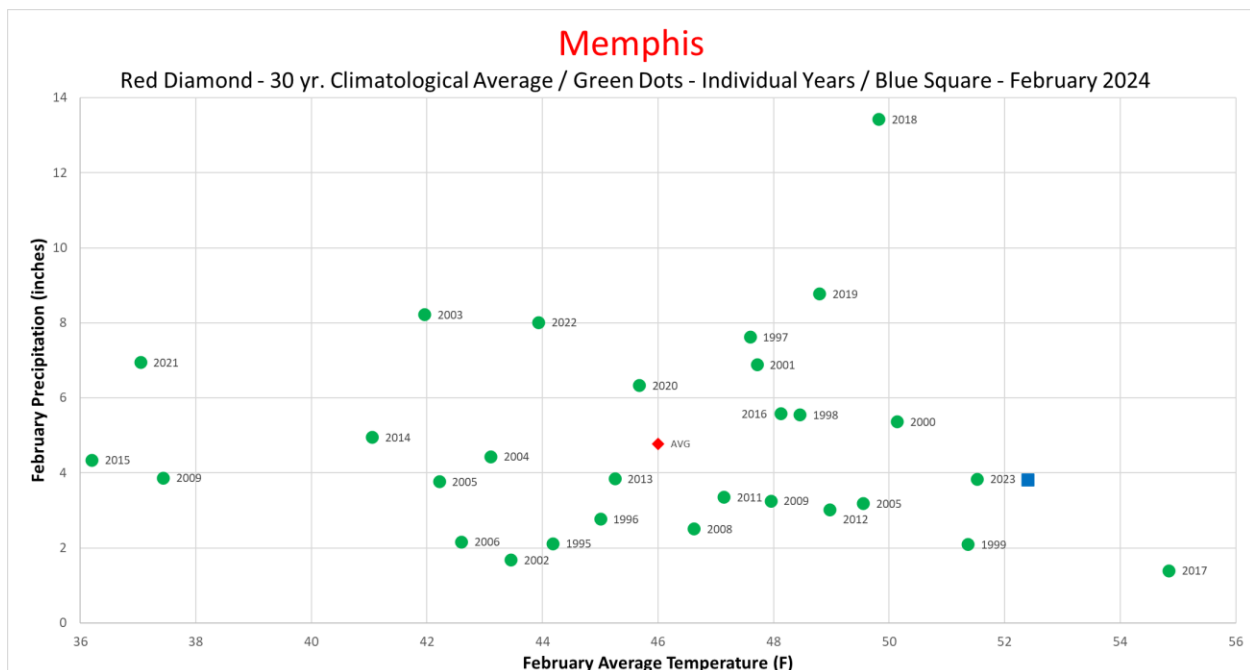
Snowiest Stations (highest snowfall totals):

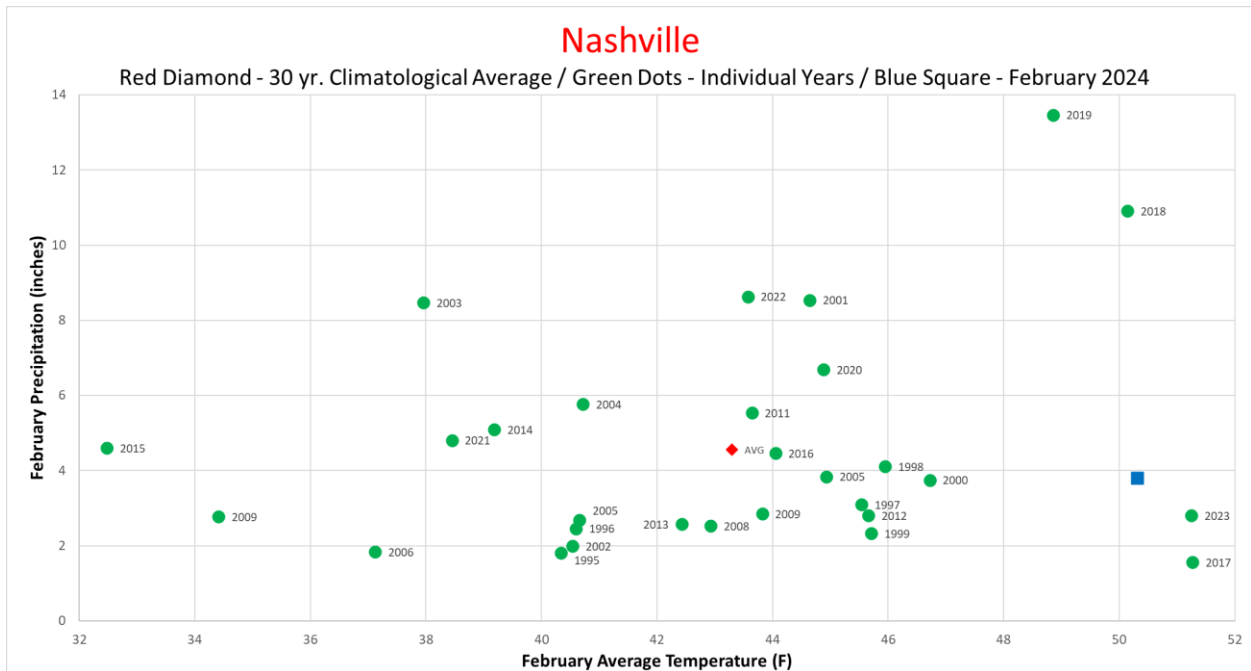
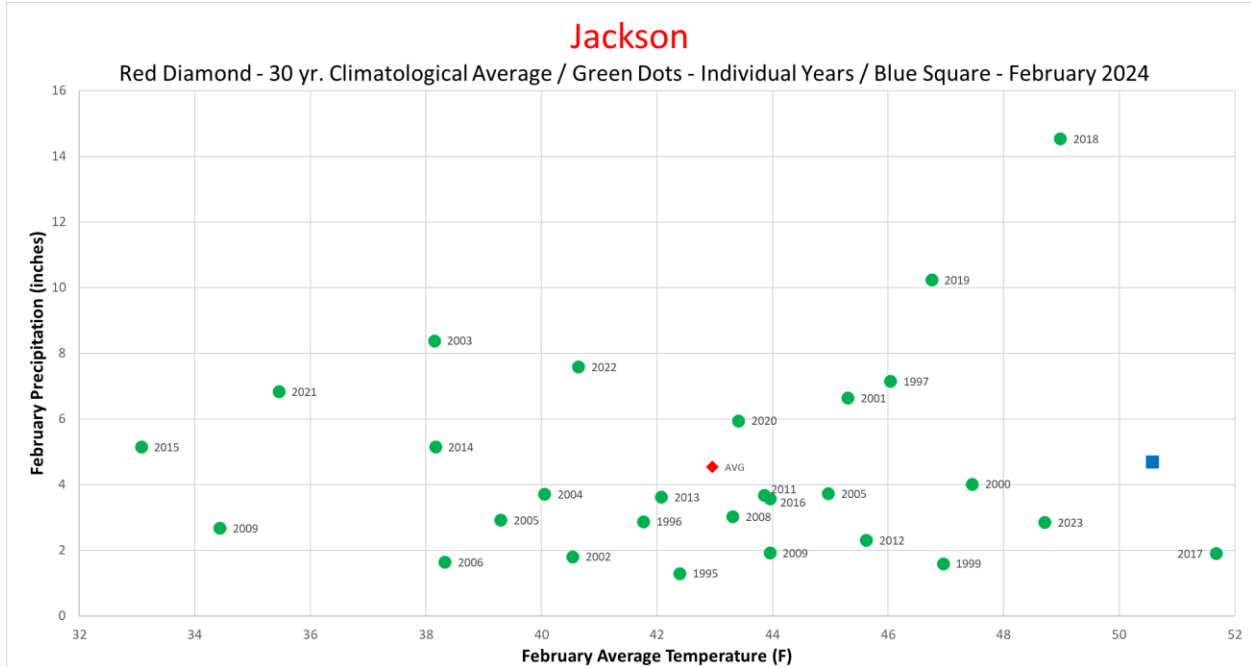
| Station Name | Station Type | Total Snowfall (in) |
|-----------------------------|--------------|---------------------|
| MT LECONTE | COOP | 9 |
| CLARKSBURG 5.6 E | CoCoRaHS | 3 |
| DICKSON 5.8 NW | CoCoRaHS | 2 |
| NEWFOUND GAP | COOP | 1.9 |
| HOLLADAY 4.4 NNE | CoCoRaHS | 1.5 |
| MONTEREY 3.2 SE | CoCoRaHS | 1.5 |
| JACKSON 4 NE | COOP | 1.5 |
| DECATURVILLE | COOP | 1.5 |
| MCMINNVILLE 8.5 ESE | CoCoRaHS | 1.4 |
| RED BOILING SPRINGS 6.7 NNE | CoCoRaHS | 1.1 |
| ATWOOD 0.8 WSW | CoCoRaHS | 1.1 |

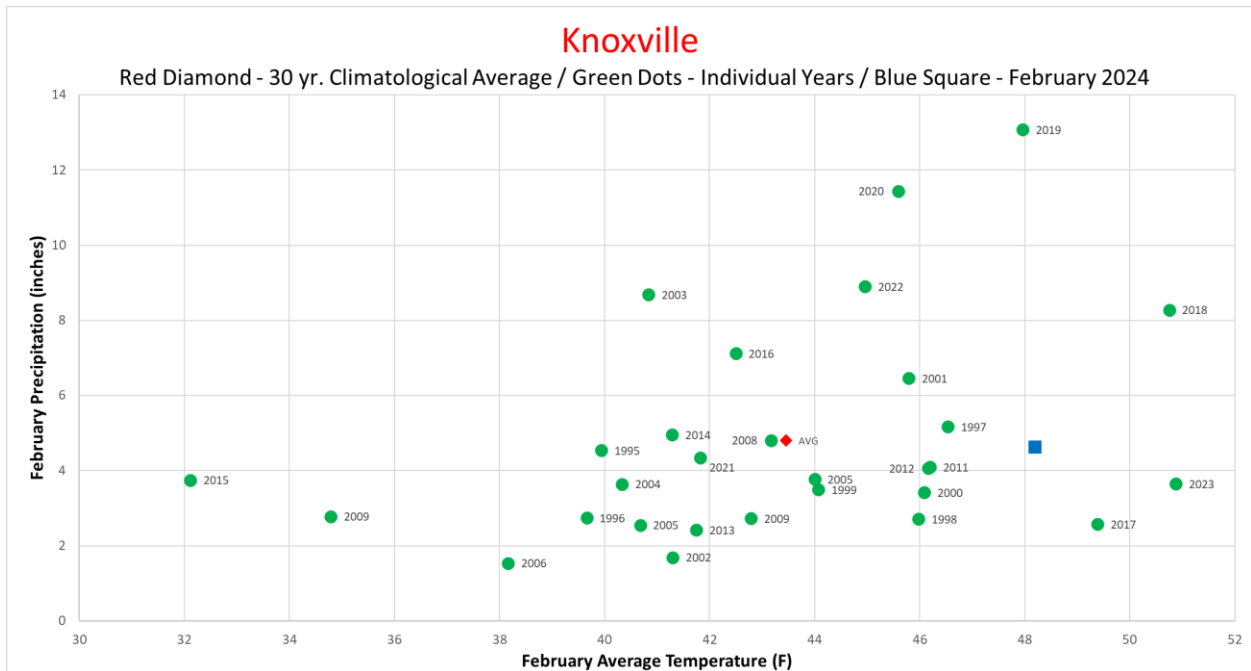
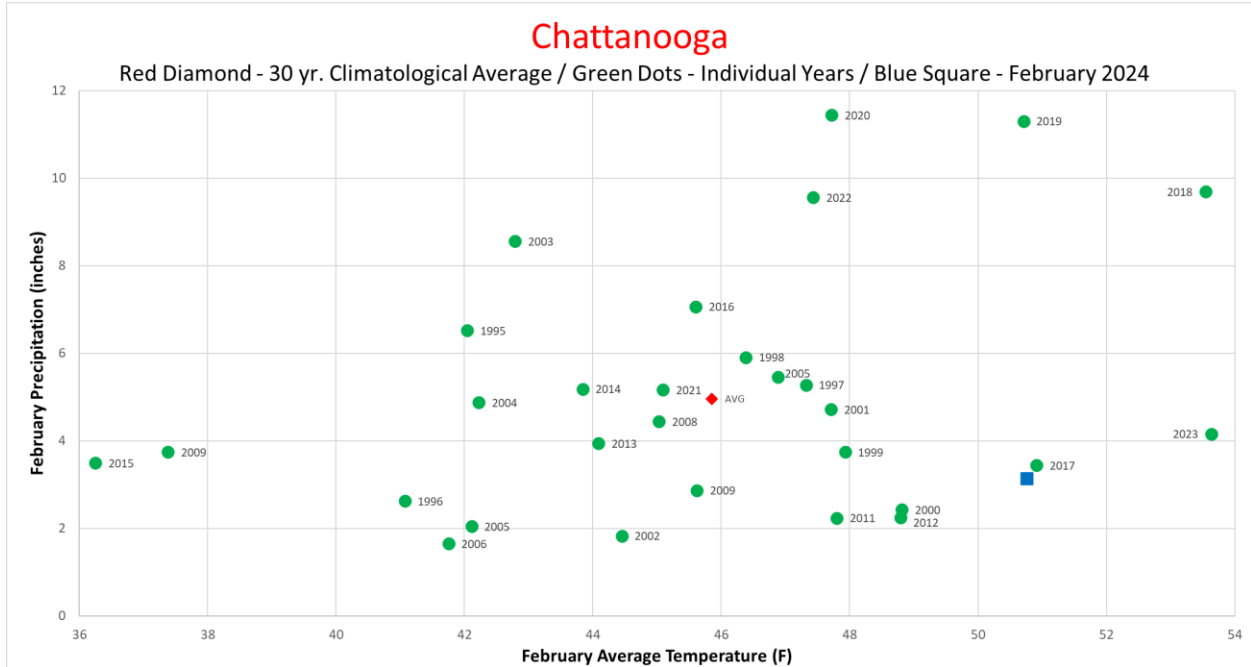
*Two stations tied for the 10th highest snowfall total (1.1")
A total of 54 weather stations reported measurable snowfall this month*

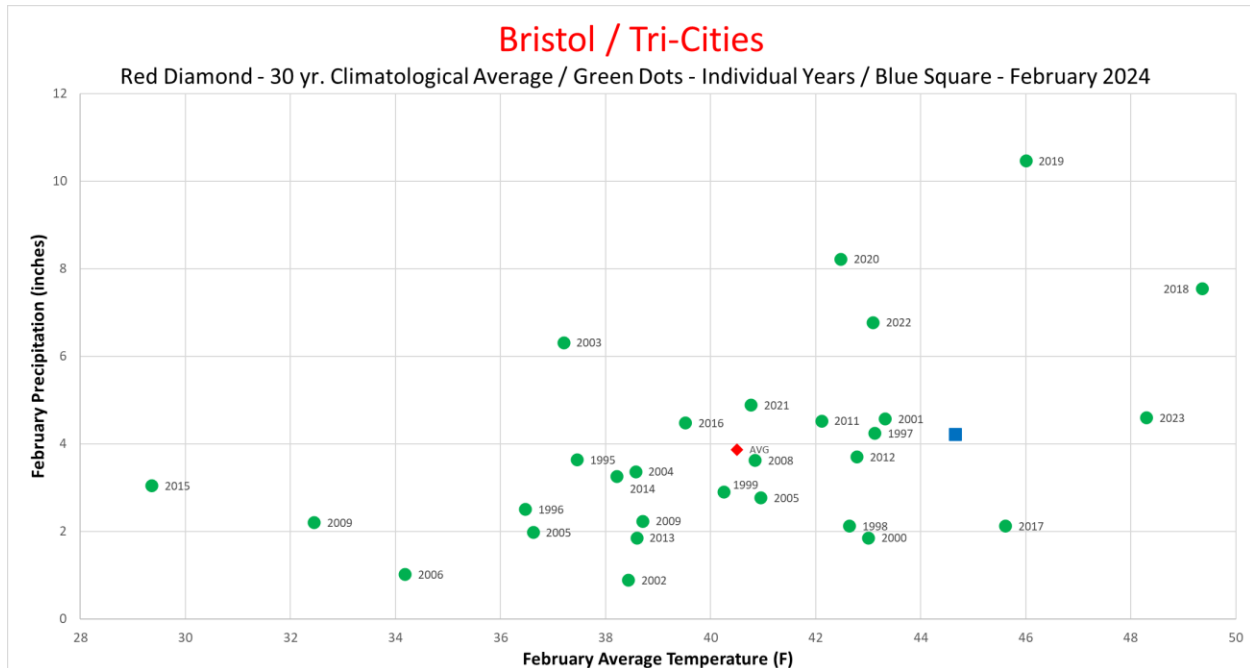
The Month in Comparison:

Comparing the monthly average temperature and total precipitation of February 2024 to the conditions of February in the past thirty years, the average temperature this month was well above average at major airports across the state. It was the second warmest February of the past thirty years for Memphis and Jackson, both trailing behind 2017. This month was the third warmest February for Nashville behind 2017 and 2023, it was the 4th warmest February in Chattanooga and Knoxville, and 5th warmest February in the Tri-Cities. However, looking at the full weather history for each of these cities, Jackson tied for the 4th warmest February (119-year history) Nashville (150-year history) and Memphis (147 year history) were tied for their 5th warmest February, Bristol/Tri-Cities (77-year history) recorded its 8th warmest February, Chattanooga (140-year history) its 9th warmest, and Knoxville (148-year history) tied for its 12th warmest February. Precipitation totals this month were not a major outlier for any station.



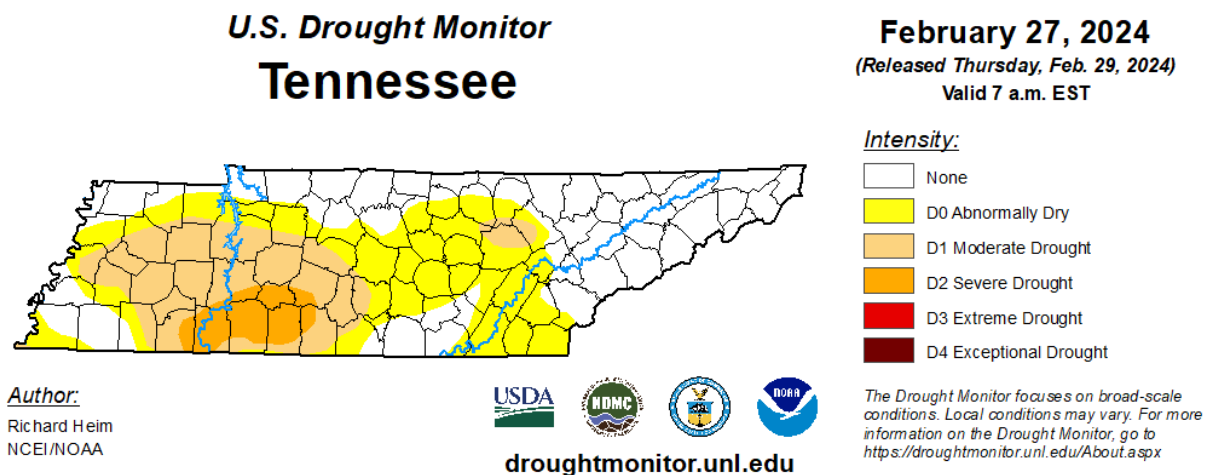






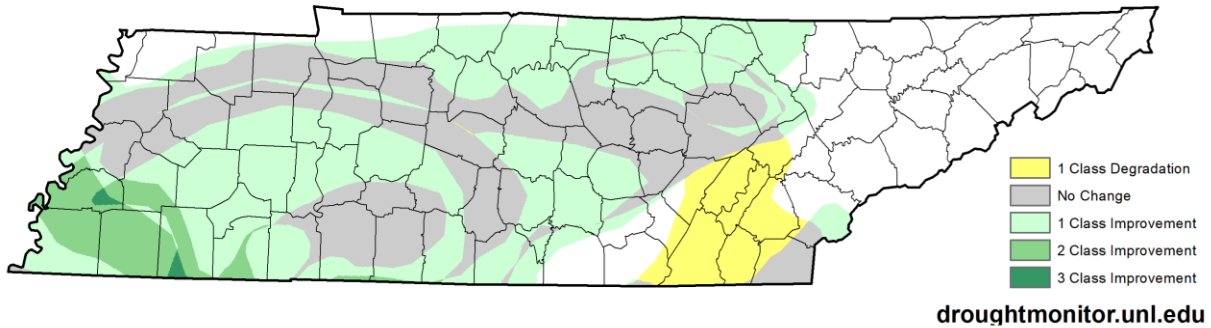
Drought Monitor:

In the last U.S. Drought Monitor released in February, there were still a few areas of Moderate Drought and one area of Severe Drought in the state (stretching from McNairy County to the east/northeast through parts of Lewis, Maury, and Giles counties). In total, 27.11% of the state’s area was shown in some level of drought, with an additional 30.22% of the state shown in Abnormally Dry (D0) conditions. Over the month of February, there were large areas of improvement in the western two thirds of the state early in the month, with some areas in southwest Tennessee seeing 2-3 categories of improvement since January 30th. Some areas in the southern Tennessee Valley (e.g., Chattanooga) experienced some drying and degraded into abnormally dry conditions (D0) over the month.



February 27, 2024
 compared to
 January 30, 2024

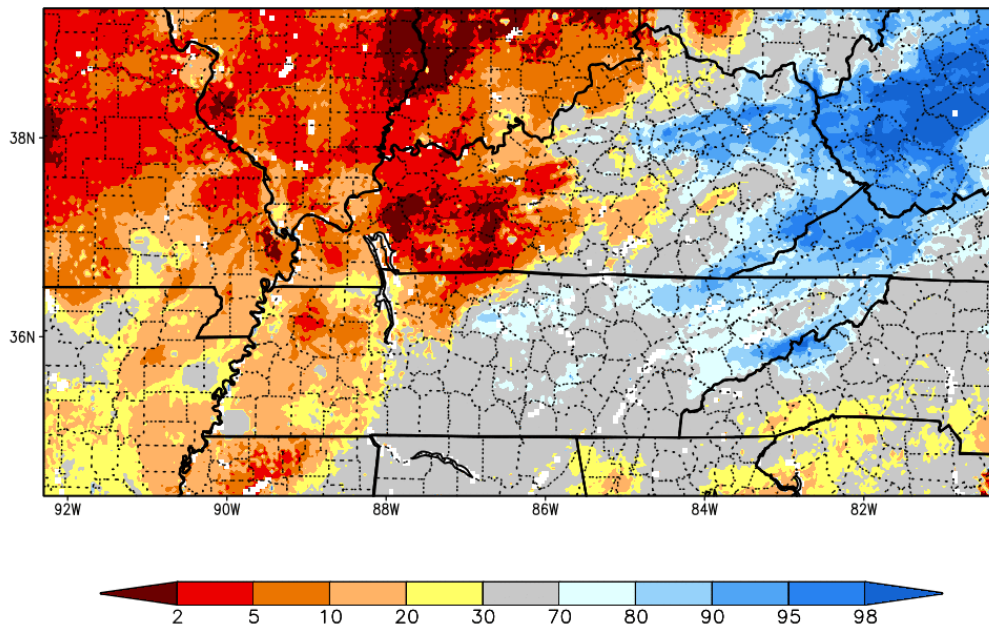
U.S. Drought Monitor Class Change - Tennessee
 4 Week



Soil Moisture:

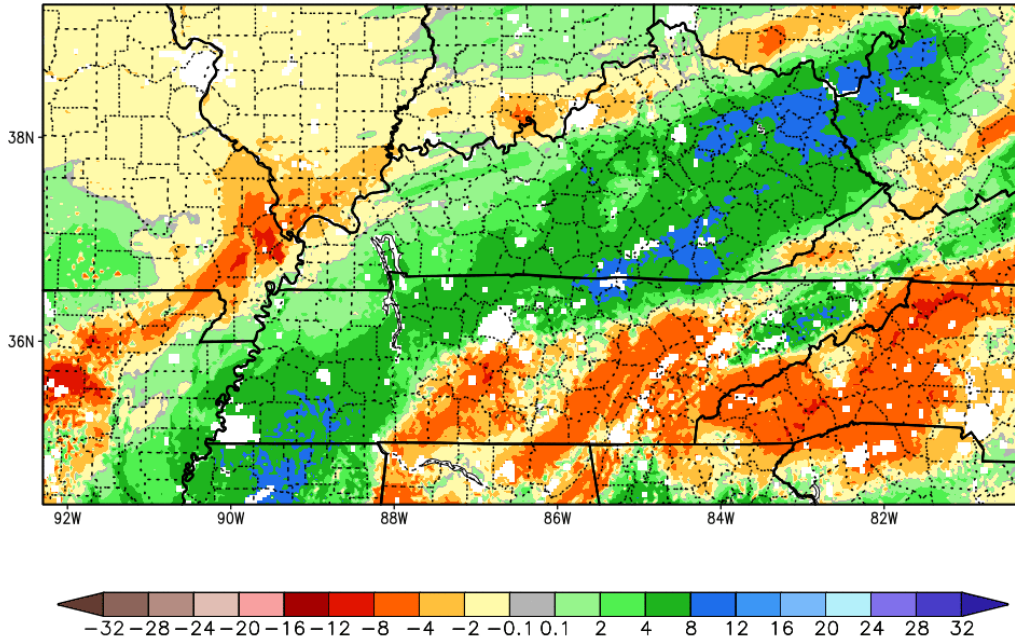
Data from the NASA SPoRT Land Information System shows that almost all areas in the eastern half of the state have normal to above normal soil moisture levels, while most areas in West Tennessee are still lagging behind normal soil moisture levels. In the last week of February, the USDA rated topsoil moisture across Tennessee as 4% short, 76% adequate, and 20% surplus, while subsoil moisture was rated 1% very short, 7% short, 78% adequate, and 14% surplus.

SPoRT-LIS 0-200 cm Soil Moisture percentile valid 29 Feb 2024



NOTE
 Experimental

1-Month Difference in Column Relative Soil Moisture (%) valid 12z 29 Feb 2024



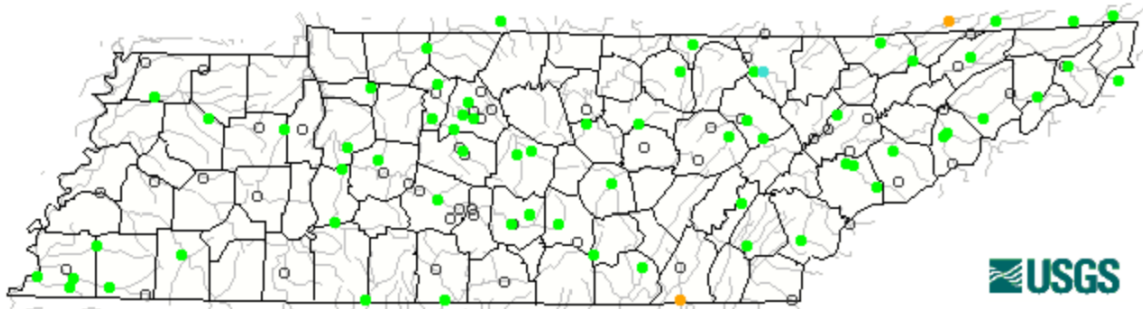
NOTE
Experimental

Streamflow:

Almost all stream gauges in the state averaged in the normal range of streamflow for the month of February, suggesting that stream levels have recovered from the fall to early winter drought that impacted the state in the later parts of 2023.

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

February 2024



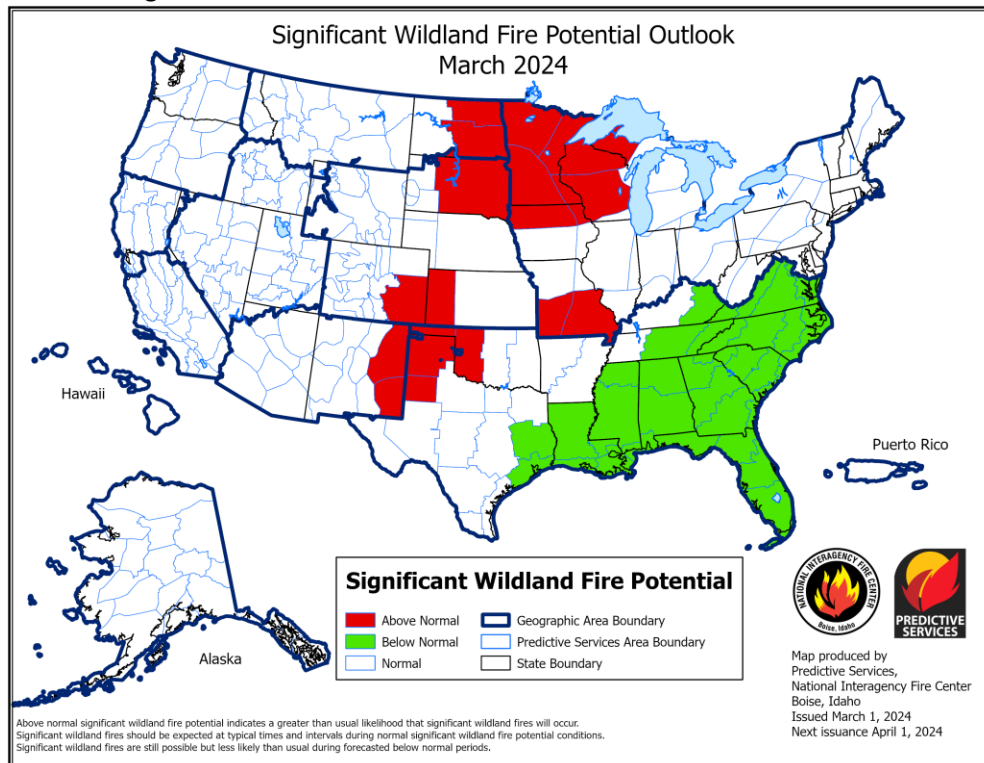
| Explanation - Percentile classes | | | | | | | |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|------------|
| | | | | | | | |
| Low | <10 | 10-24 | 25-75 | 76-90 | >90 | High | Not-ranked |
| | Much below normal | Below normal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

Miscellaneous:

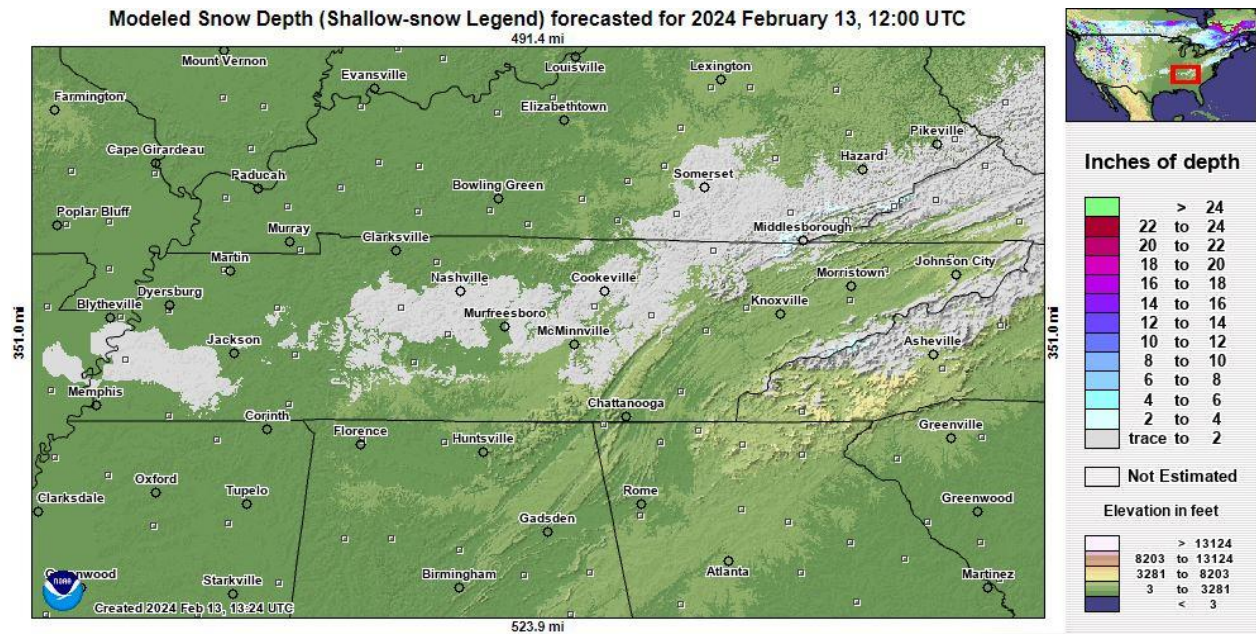
Crop Conditions from USDA: Close to normal rains, and warmer than normal conditions in February have helped crop and cattle conditions to improve from the end of last month. Most producers report that seeded winter wheat remains in good shape thus far. Pastures are slowly recovering from the fall drought and January deep freeze with cool season grasses starting to come in. Pasture regrowth cannot come soon enough, as many cattle producers face low hay supplies. With hay and roughage supplies across the state rated as 7% very short, 34% short, 54% adequate, and 5% surplus.

| Crop | Very Poor | Poor | Fair | Good | Excellent |
|-------------------|-----------|------|------|------|-----------|
| Winter Wheat | 0% | 11% | 37% | 40% | 12% |
| Pasture and Range | 6% | 20% | 40% | 32% | 2% |
| Cattle | 1% | 4% | 32% | 56% | 7% |

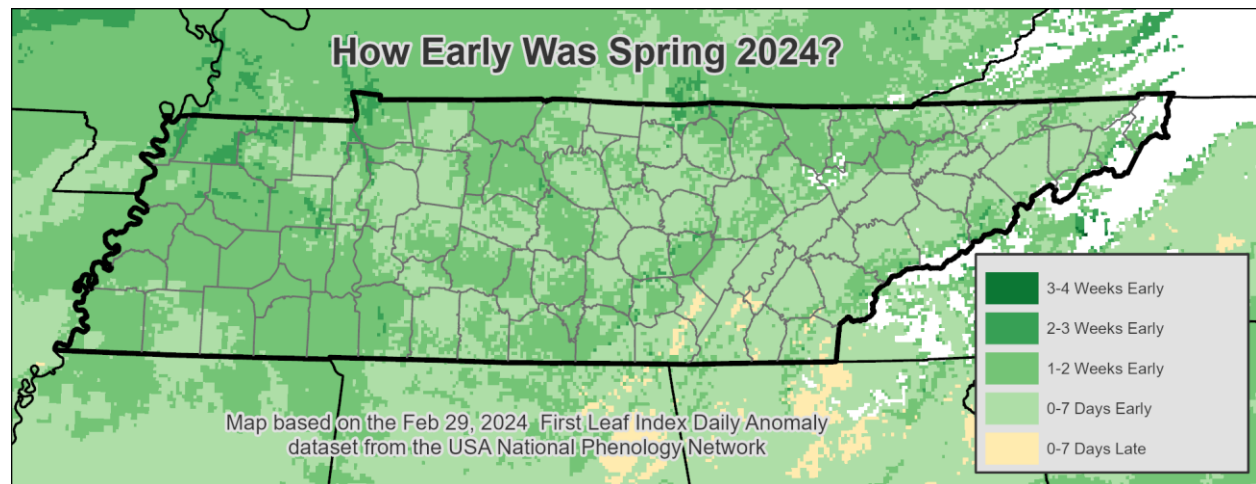
Fire Danger: The Interagency Fire Center significant wildland fire potential outlook for March 2024 shows that the eastern two thirds of Tennessee will have below normal potential and West Tennessee will have normal potential for significant wildland fires.



Snowfall: There were a couple rounds of light snowfall this month, A total of 54 stations reported measurable snow and an additional 43 observations of a Trace (less than 0.1”) of snow this month. The majority of stations that reported trace or measurable snowfall amounts reported their highest totals on February 13, 17, or 25. February 13 was the day with the highest amount of snow coverage in the state, as a band of accumulating snow moved across central portions of the state from West Tennessee over to the Cumberland Plateau and in the high elevations of East Tennessee.



Spring Greenup: Almost all areas of Tennessee had seen the emergence of the first leaf, a metric for the arrival date of spring. Using data from the USA National Phenology Network for February 29th, the map below shows where areas of the state had seen the first leaf emergence by the end of February. Comparing this year’s date of first leaf emergence, with the average of the past 30 years, this year’s spring arrived 1-2 weeks earlier than average for most areas of the state, with a few locations 2-3 weeks early, and a few locations up to 1 week later than average.



Story of the Month:

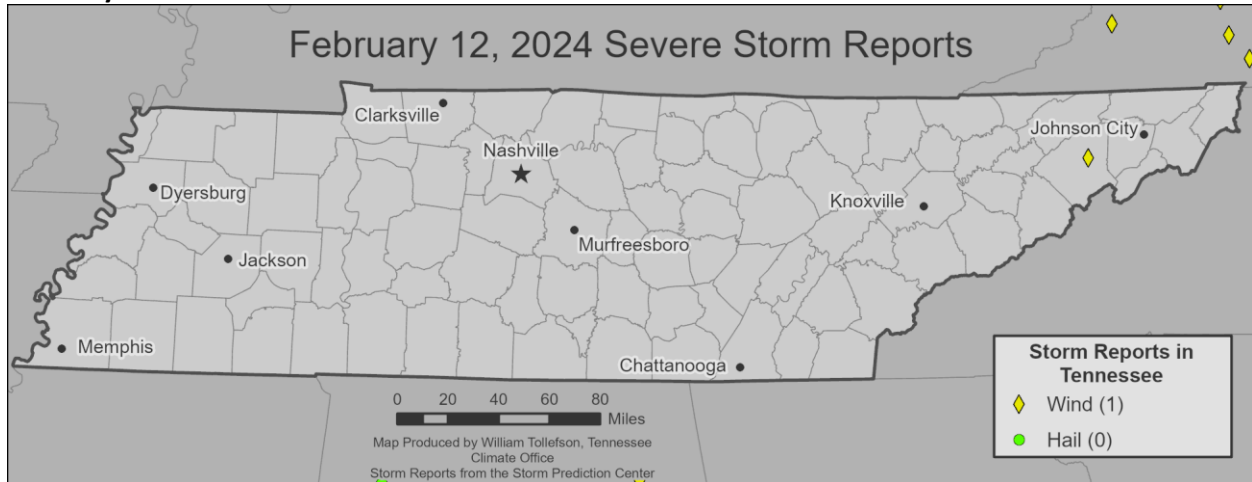
The major story of the month was the much higher than normal temperatures driven by above normal temperatures through most of the month and several rounds of warm weather that sent temperatures into the 70’s across the state. Of the 105 weather stations that reported temperature data in Tennessee this month, 87 stations recorded temperatures in the 70’s. Most of these weather stations recorded their highest temperatures from February 26-28, with a few others recording their highest temperatures on the 3rd or 4th. This is the second year in a row with record-setting heat in February for Tennessee, with most areas in West Tennessee being warmer this February than last year, but for Middle and East Tennessee last year’s February was warmer.

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://www.spc.noaa.gov) for any updates.*

During the month of February there were 4 days with severe storm reports, producing a total of 0 tornadoes, 7 severe thunderstorm wind reports, and 1 report of severe hail (at least 1" in diameter).

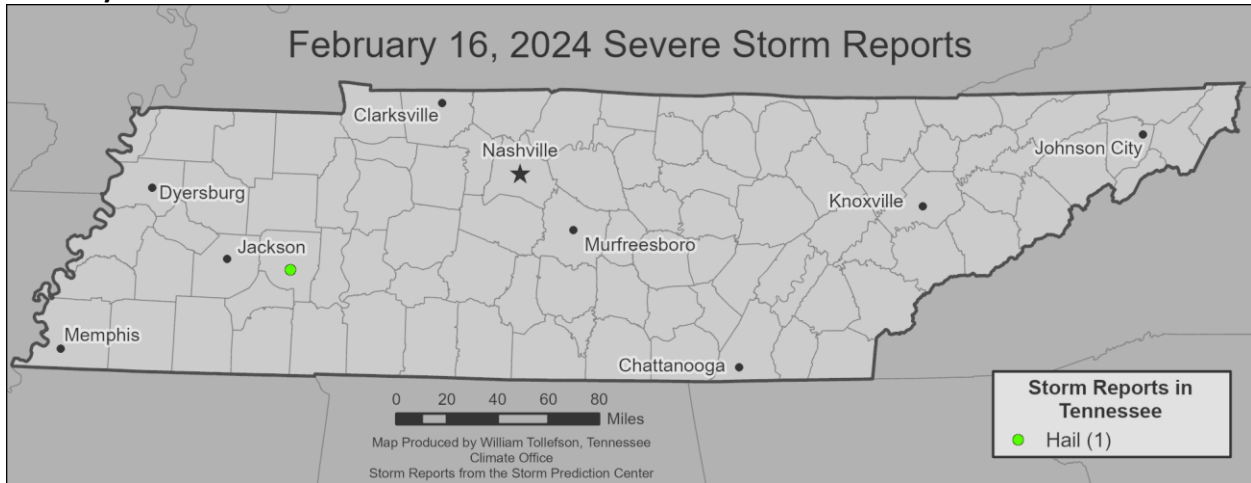
February 12



Wind:

| Time (UTC) | Speed (mph) | Location | County | Lat | Lon | Comments |
|------------|-------------|------------|--------|-------|--------|---|
| 2:38 | -- | 3 NW Afton | Greene | 36.22 | -82.78 | A few trees down reported so far between Tusculum and Mosheim. Time estimated by radar. (MRX) |

February 16



Hail

| Time (UTC) | Size (in) | Location | County | Lat | Lon | Comments |
|------------|-----------|---------------|-----------|------|--------|---|
| 21:58 | 1.00 | 4 S Lexington | Henderson | 35.6 | -88.39 | Quarter size hail fell near I-22 south of Lexington. Time is radar estimated. (MEG) |

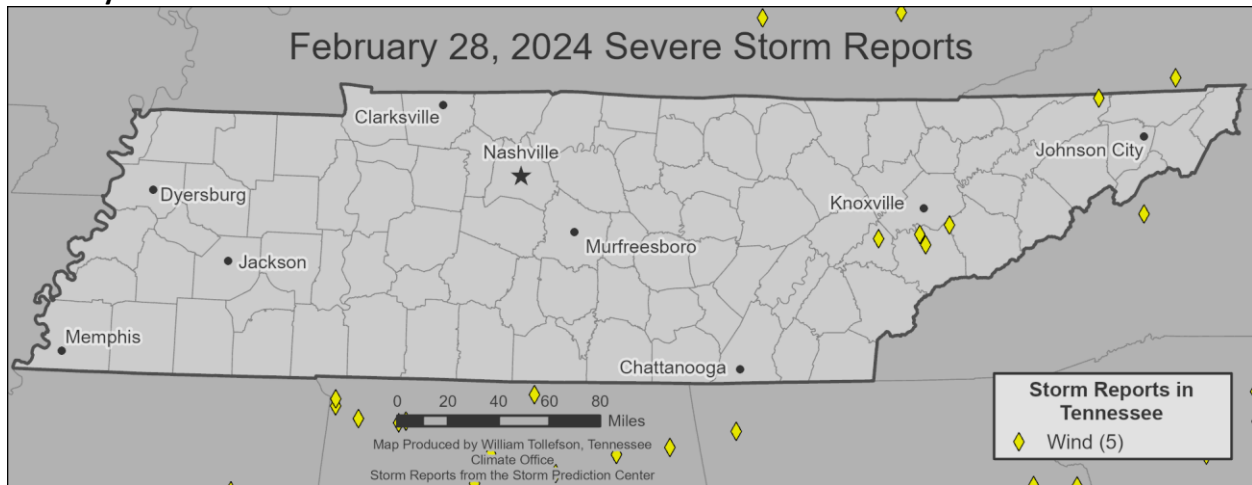
February 27



Wind:

| Time (UTC) | Speed (mph) | Location | County | Lat | Lon | Comments |
|------------|-------------|------------|----------|-------|--------|--|
| 11:00 | -- | Maury City | Crockett | 35.81 | -89.23 | Tree and roof damage reported by EM. (MEG) |

February 28



Wind:

| Time (UTC) | Speed (mph) | Location | County | Lat | Lon | Comments |
|------------|-------------|----------------------|---------|-------|--------|--|
| 17:05 | -- | Lenoir City | Loudon | 35.8 | -84.27 | Numerous trees and power lines down across the county. (MRX) |
| 17:23 | 75 | 2 N Alcoa | Blount | 35.82 | -83.98 | ASOS station KTYS Knoxville McGhee Tyson. (MRX) |
| 17:37 | -- | 2 WNW Mount Carmel | Hawkins | 36.57 | -82.69 | Reported by Trained Spotter. 3 NE Church Hill - Personal Weather Station (tempest) recorded Thunderstorm wind gust of 62mph. (MRX) |
| 17:42 | 67 | 2 S Eagleton Village | Blount | 35.76 | -83.94 | Reported by Trained Spotter. Structural posts used to extend the height of a fence post have been broken/bent. (MRX) |
| 17:45 | -- | Seymour | Sevier | 35.87 | -83.77 | Multiple reports of trees down across the community. (MRX) |

CPC Outlooks for the Next Month:

The NOAA Climate Prediction Center’s outlooks for March 2024 show that all of Tennessee is leaning towards a warmer than normal March, with higher confidence in the northeastern portion of the state. March 2024 is leaning towards a wetter than normal month for most of the state, with higher confidence in East Tennessee and southern parts of Middle Tennessee. The northwest portion of the state is shown with equal chances for a wetter than normal, drier than normal, or normal March.

