3-1-2024

2024 March - Tennessee Monthly Climate Report

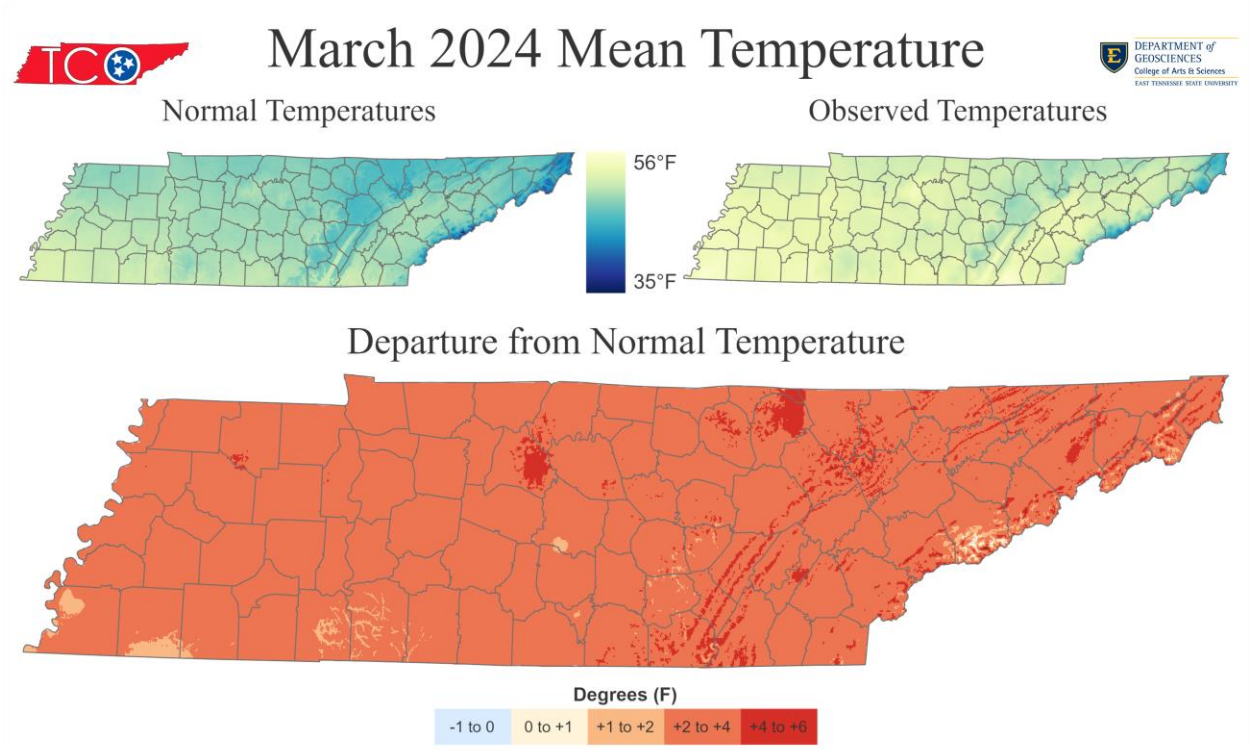
Tennessee Climate Office, East Tennessee State University

March 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:

The average temperature for March 2024 was warmer than normal across the state, with most locations recording temperatures that were 2-4°F above normal for the month. Most areas of the state were consistently warmer than normal each week of the month, but the first half of the month had more above normal temperatures, with temperatures 5-10°F warmer than normal while the second half of the month temperatures were 1-3° above normal, with a few areas even seeing temperatures slightly cooler than normal for that period. Throughout March, there were 8 broken and 11 tied daily high temperature and 11 broken and 11 tied daily records for warmest low temperature set at weather stations across the state. On the cold side of the record books, there were no records for daily low temperatures set or tied this month, but there were 2 broken and 2 tied daily records for coolest high temperatures set this month. Despite these warmer than normal temperatures, this March was not among the top-10 warmest Marches for the long-term climate monitoring weather stations across the state, except for being the 7th warmest March for the Tri-Cities and Oak Ridge stations, both with 77-year weather histories.



Stations with the highest mean temperature

Station Name	Station Type	Mean Temperature (F)
MEMPHIS INTERNATIONAL AP	WBAN	57
CHATTANOOGA AP	WBAN	56.8
NASHVILLE INTL AP	WBAN	56.1
JACKSON MCKELLAR- SIPES AP	WBAN	55.6
MC MINNVILLE	COOP	55.5

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

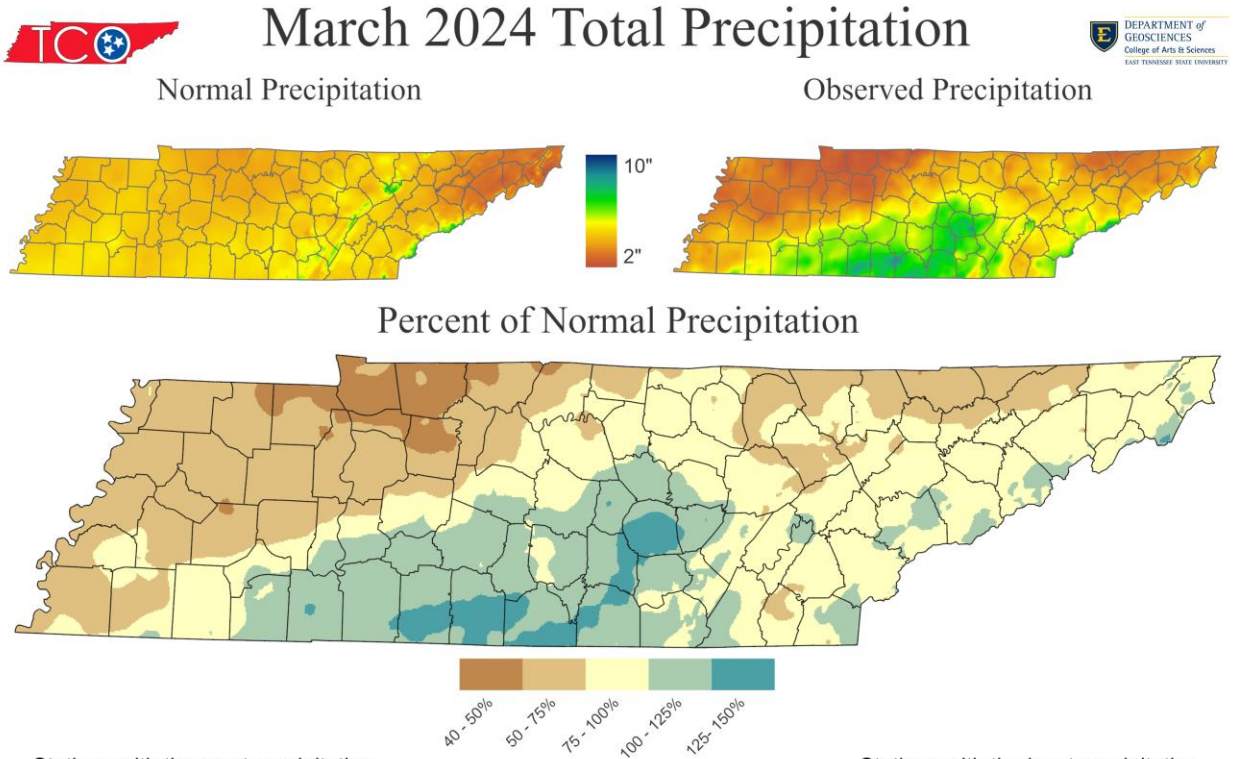
Stations with the lowest mean temperature

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	36.5
NEWFOUND GAP	COOP	42.9
ROAN MOUNTAIN 3SW	COOP	45.7
MOUNTAIN CITY 2	COOP	45.8
ONEIDA	COOP	49

Monthly Precipitation Summary:

Many areas of Tennessee recorded below normal precipitation this month, with the exception of south-central portions of the state and a few isolated areas along the mountains in East Tennessee that were wetter than normal. Northwest Middle Tennessee, and northeastern West Tennessee recorded the most below normal precipitation, with only 40-50% of normal March precipitation. Almost all precipitation in March came in the form of rain, with only two COOP weather stations reporting snowfall (Mt. LeConte and Newfound Gap, both in the Smoky Mountains National Park).

Despite the overall drier than normal pattern, some part of Tennessee recorded above normal precipitation in all but the third week of March (15th-21st). March started out wet in East Tennessee and the Cumberland Plateau, in the second week of March the heavy precipitation moved into southern Middle and West Tennessee. In the third week of March there was light precipitation in the eastern half of the state, but virtually no areas recorded above normal precipitation. Heavy rains then returned to southern parts of the state for the last week of March. Within those times of heavy rain, there were 14 records set for highest daily rainfall at weather stations across the state in March.



Stations with the most precipitation

Station Name	Station Type	Total Precipitation (in)
FRANKEWING 4.0 ENE	CoCoRaHS	9.54
MCMINNVILLE 8.5 ESE	CoCoRaHS	9.34
MT LECONTE	COOP	8.79
FAYETTEVILLE 7.9 WNW	CoCoRaHS	8.65
MCALLISTER FARM	SCAN	8.58

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)
HUNTINGDON WATER PLANT	COOP	0.67
JACKSON 4.7 NW	CoCoRaHS	1.89
BOLIVAR 3.9 SE	CoCoRaHS	2
CLARKSVILLE OUTLAW AP	WBAN	2.12
CLARKSVILLE 3.4 NNW	CoCoRaHS	2.15

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	66.7	43.7	57.0	**+2.8**	81	3/4	29	3/19	4.90	**-0.84**	**85%**
Jackson	67.6	43.5	55.6	**+4.7**	82	3/14	22	3/19	3.40	**-2.15**	**61%**
Clarksville	65.4	42.4	53.9	**+5.0**	81	3/14	22	3/19	2.12	**-2.20**	**49%**
Nashville	55.9	45.2	56.1	**+4.6**	81	3/14	26	3/19	3.88	**-0.64**	**86%**
Chattanooga	67.9	45.7	56.8	**+3.6**	82	3/14	29	3/19	5.24	**-0.10**	**98%**
Crossville	61.2	40.4	50.8	**+4.8**	74	3/14	21	3/19	5.01	**-0.43**	**92%**
Knoxville	65.7	43.3	54.5	**+3.9**	79	3/14	26	3/19	5.01	**+0.12**	**102%**
Bristol	64.5	38.4	51.5	**+4.1**	77	3/31	26	3/12	3.55	**-0.41**	**90%**

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
SAVANNAH 6 SW	COOP	84	15
DECATURVILLE	COOP	84	15
CLARKSVILLE WWTP	COOP	83	14
MEMPHIS WFO	WBAN	83	5
MOUNT PLEASANT 1N	COOP	82	15
JACKSON EXP STA	COOP	82	14
LEBANON 7 N	COOP	82	15
LOBELVILLE	COOP	82	16
CHATTANOOGA AP	WBAN	82	14
JACKSON MCKELLAR- SIPES AP	WBAN	82	14

Coldest Stations (lowest minimum temperature)

Station Name	Station Type	Lowest Temperature (F)	Date
MT LECONTE	COOP	7	19
NEWFOUND GAP	COOP	12	19
GAINESBORO	COOP	17	19
KINGSTON SPRINGS	COOP	18	20
CROSSVILLE 7 NW	WBAN	19	19
BETHPAGE 1 S	COOP	20	20
COALMONT	COOP	20	20
FALL CREEK FALLS SP	COOP	20	20
WAYNESBORO	COOP	21	19
MURFREESBORO 5 N	COOP	21	19
MONTEREY	COOP	21	19
DECATURVILLE	COOP	21	19
CHRISTIANA 5W	COOP	21	20
CHARLOTTE	COOP	21	20
MONTEAGLE	WBAN	21	19
CROSSVILLE MEMORIAL AP	WBAN	21	19

Eight stations tied for the 9th coldest temperature (21°F)

Warmest Stations (highest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MEMPHIS INTERNATIONAL AP	WBAN	57
CHATTANOOGA AP	WBAN	56.8
NASHVILLE INTL AP	WBAN	56.1
JACKSON MCKELLAR- SIPES AP	WBAN	55.6
MC MINNVILLE	COOP	55.5
SAVANNAH 6 SW	COOP	55.4
MEMPHIS WFO	WBAN	55.3
DYERSBURG MUNICIPAL AIRPORT	WBAN	55.1
FAYETTEVILLE WATER PLANT	COOP	55
EASTVIEW FARM	SCAN	55

Coolest Stations (lowest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	36.5
NEWFOUND GAP	COOP	42.9
ROAN MOUNTAIN 3SW	COOP	45.7
MOUNTAIN CITY 2	COOP	45.8
ONEIDA	COOP	49
BETHPAGE 1 S	COOP	49.2
GATLINBURG 2 SW	COOP	49.3
NORRIS	COOP	49.3
COALMONT	COOP	49.3
NEWCOMB	COOP	49.5

Wettest Stations (highest precipitation totals):

Station Name	Station Type	Total Precipitation (in)
FRANKEWING 4.0 ENE	CoCoRaHS	9.54
MCMINNVILLE 8.5 ESE	CoCoRaHS	9.34
MT LECONTE	COOP	8.79
FAYETTEVILLE 7.9 WNW	CoCoRaHS	8.65
MCALLISTER FARM	SCAN	8.58
LORETTO 5.2 NE	CoCoRaHS	8.53
LORETTO 1.1 E	CoCoRaHS	8.49
PULASKI WASTEWATER PLANT	COOP	8.18
FAYETTEVILLE 8.6 S	CoCoRaHS	7.89
MANCHESTER 6.5 ENE	CoCoRaHS	7.81

Driest Stations (lowest precipitation totals):

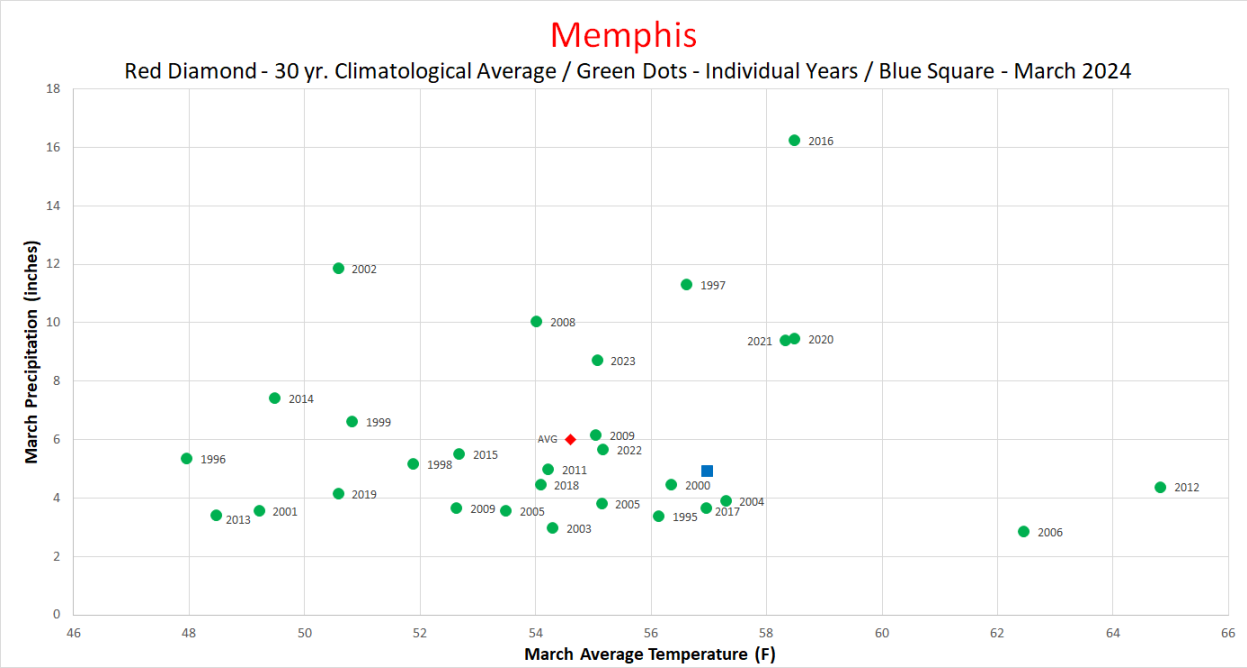
Station Name	Station Type	Total Precipitation (in)
HUNTINGDON WATER PLANT	COOP	0.67
JACKSON 4.7 NW	CoCoRaHS	1.89
BOLIVAR 3.9 SE	CoCoRaHS	2
CLARKSVILLE OUTLAW AP	WBAN	2.12
CLARKSVILLE 3.4 NNW	CoCoRaHS	2.15
CEDAR HILL 2.6 N	CoCoRaHS	2.16
ADAMS 8.0 SW	CoCoRaHS	2.22
CLARKSVILLE 7.1 SE	CoCoRaHS	2.23
CLARKSVILLE 3.3 SSE	CoCoRaHS	2.24
ADAMS 7.9 SW	CoCoRaHS	2.24

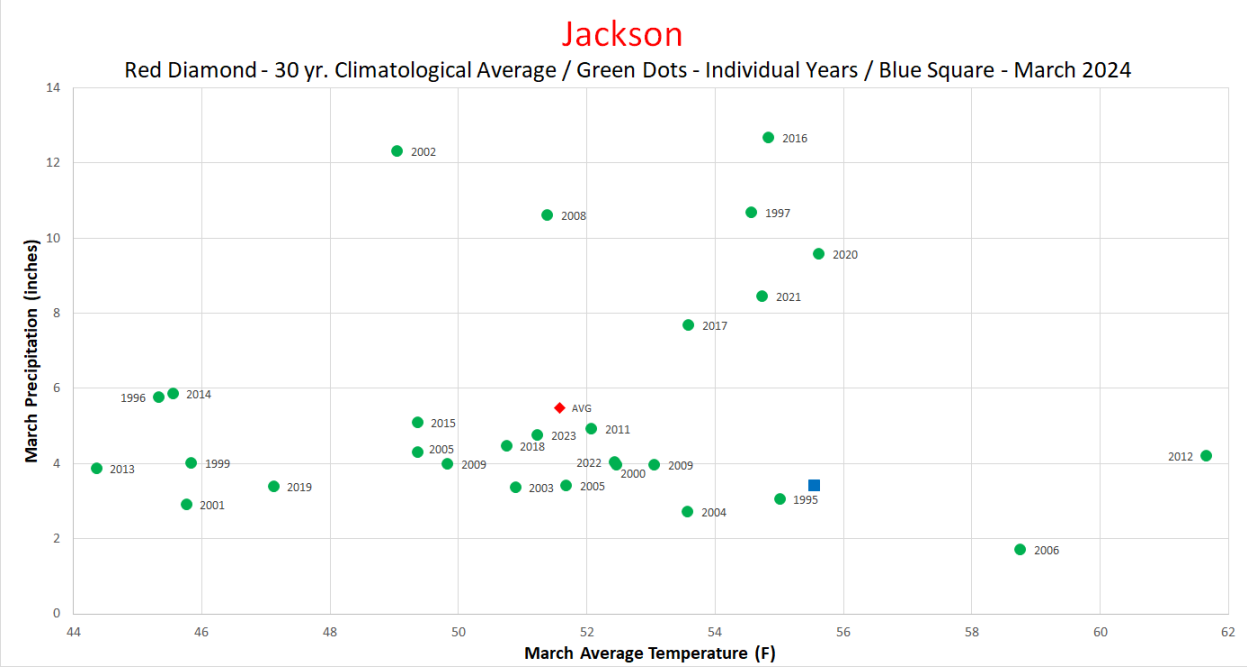
Snowiest Stations (highest snowfall totals):

Station Name	Station Type	Total Snowfall (in)
MT LECONTE	COOP	2
NEWFOUND GAP	COOP	Trace

The Month in Comparison:

March 2024 was warmer than average and near-average in total precipitation when compared to the mean temperature and total precipitation from March over the past 30 years at select automated weather stations across the state. This March was the 4th warmest of the past 30 years for Jackson and Nashville, and 5th warmest of the past 30 years at Knoxville and Bristol/Tri-Cities. This March was not in the top-5 wettest or driest Marches of the past 30 years for any of the airport weather stations. Looking at the longer-term record for these cities, only Bristol/Tri-Cities had a top 10 warmest March, with its 7th warmest March in the area's 77-year weather history.




Jackson
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - March 2024
March Precipitation (inches)
March Average Temperature (F)
AVG
2002
2016
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1997
2020
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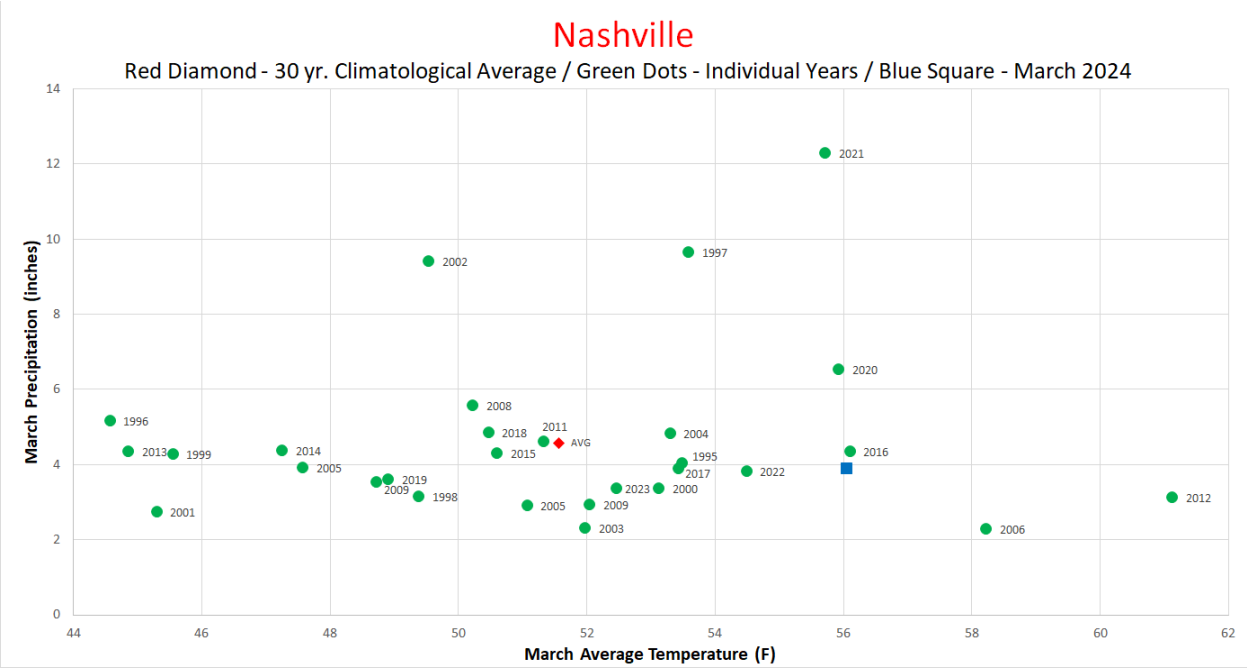
Nashville
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - March 2024
March Precipitation (inches)
March Average Temperature (F)
2021
2002
1997
2020
2008
1996
2018
2011
AVG
2004
2013
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2016
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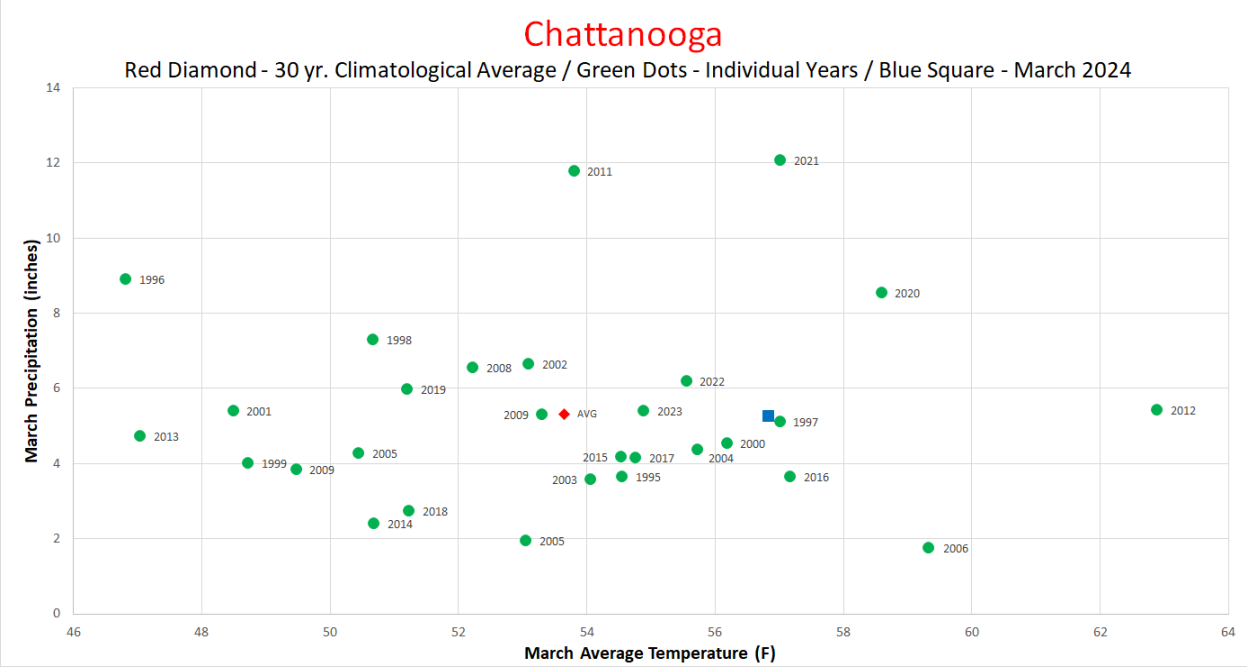
Chattanooga
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - March 2024
March Precipitation (inches)
March Average Temperature (F)
AVG
1996
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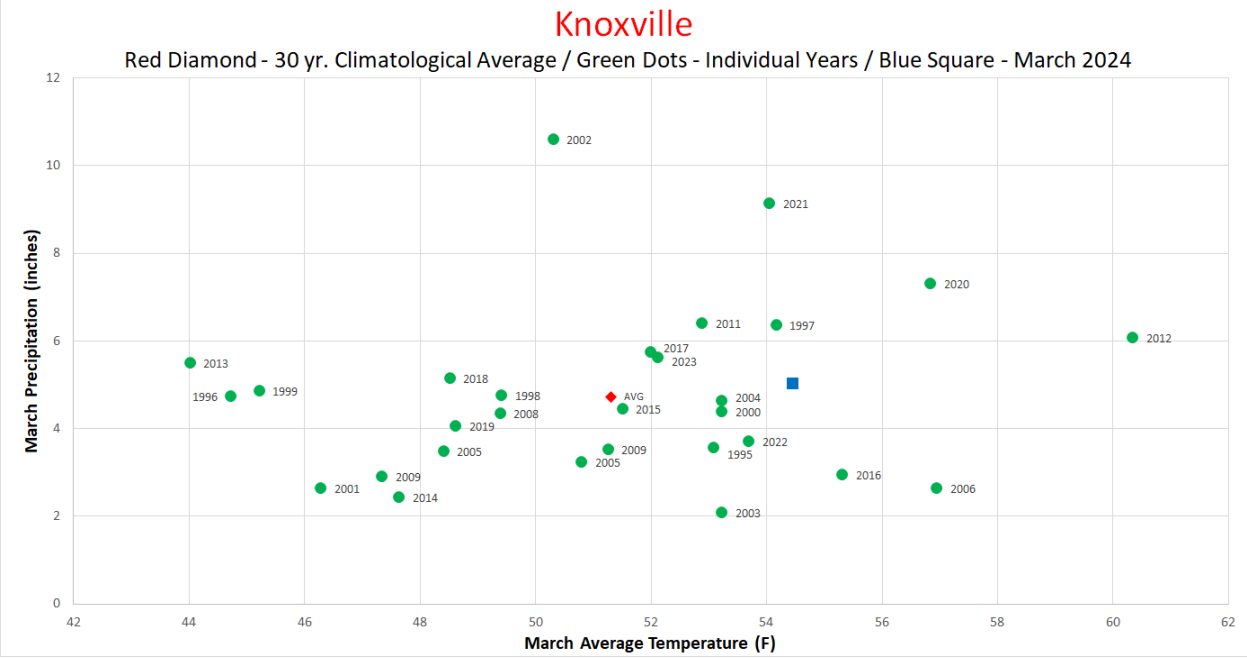
Knoxville
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - March 2024
March Precipitation (inches)
March Average Temperature (F)
AVG
2002
2021
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2011
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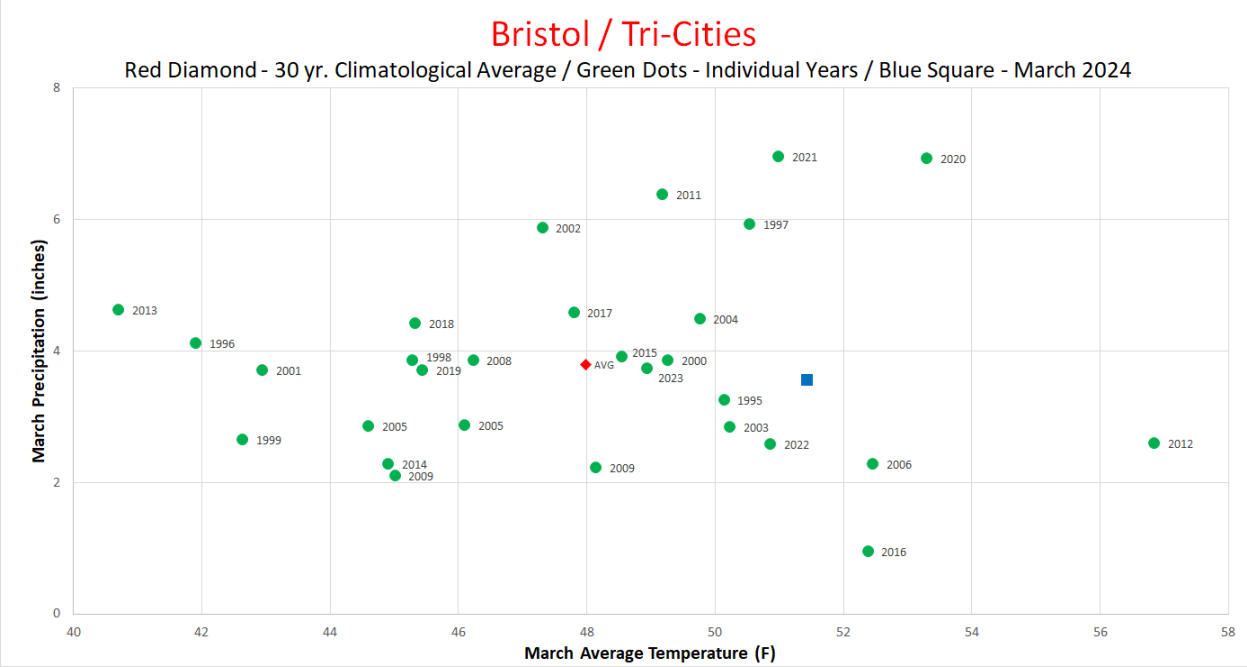
Bristol / Tri-Cities
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - March 2024
March Precipitation (inches)
March Average Temperature (F)
0
2
4
6
8
40
42
44
46
48
50
52
54
56
58
2021
2020
2011
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AVG
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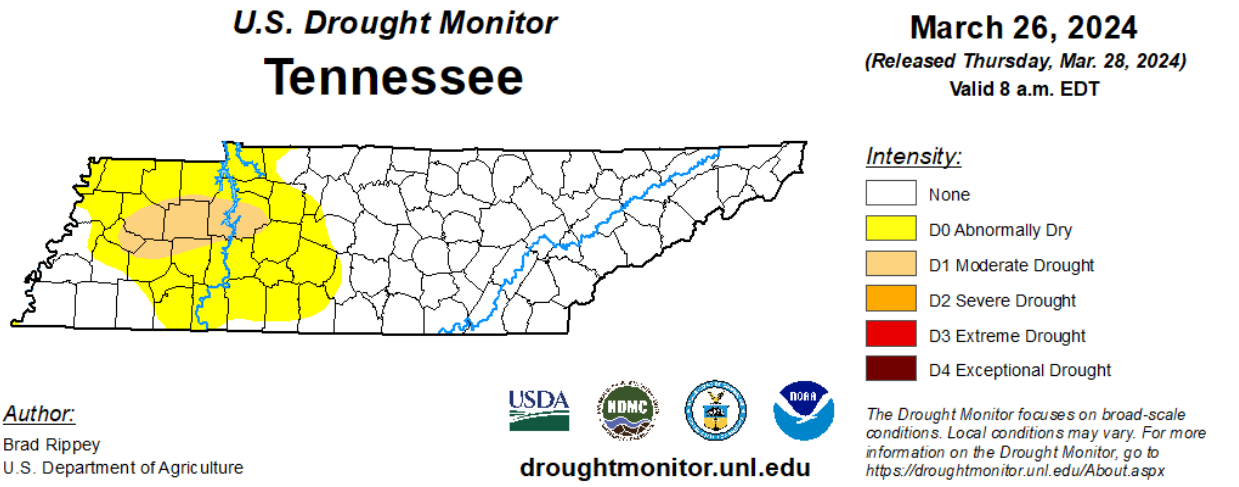
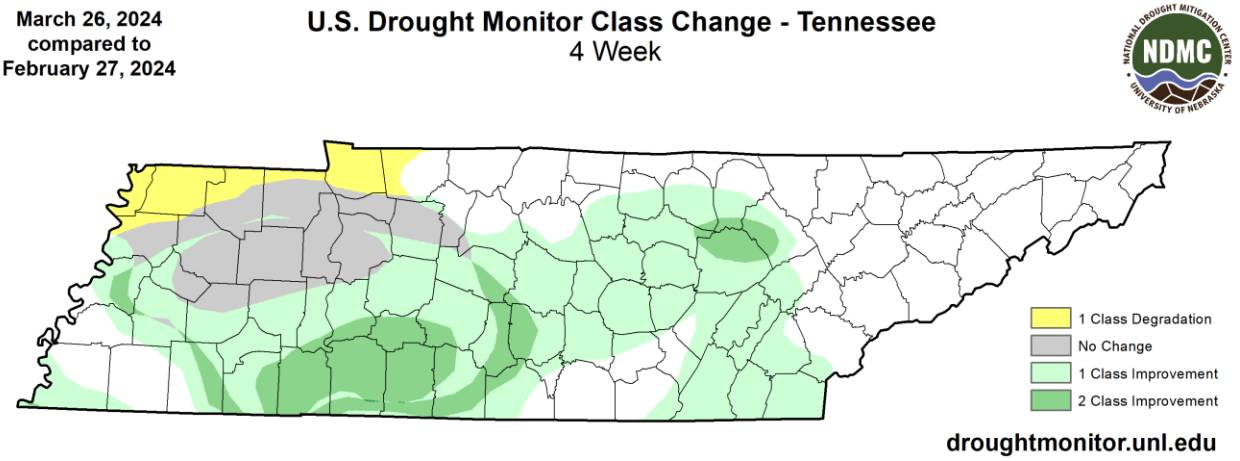
2016

Drought Monitor:

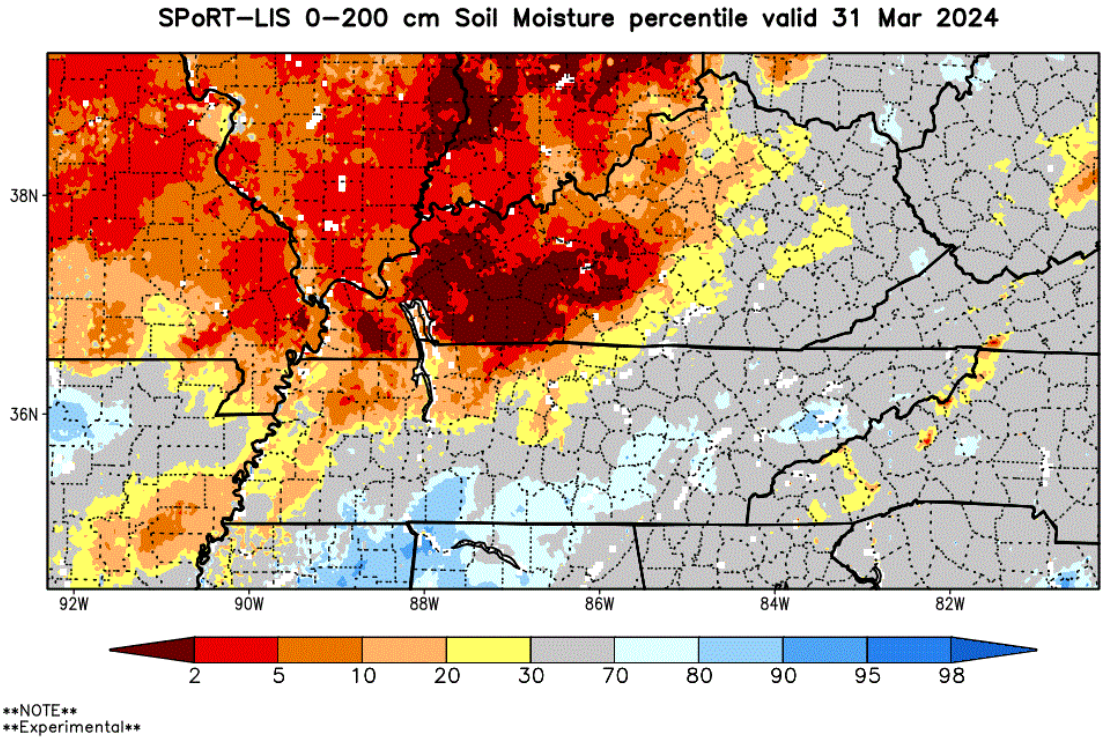
Above normal precipitation in the Cumberland Plateau and southern portions of the state helped to improve drought conditions in Tennessee over the month of March. Comparing the March 26 edition of the US Drought Monitor to the February 27 edition the area of the state shown in Moderate Drought (D1) or worse dropped from 27.11% at the end of February to just 5.86% of the state at the end of March, and all areas of Severe Drought (D2) were removed. There was a slight expansion of Abnormally Dry (D0) conditions in northwest portions of the state, where the most below normal precipitation was observed.

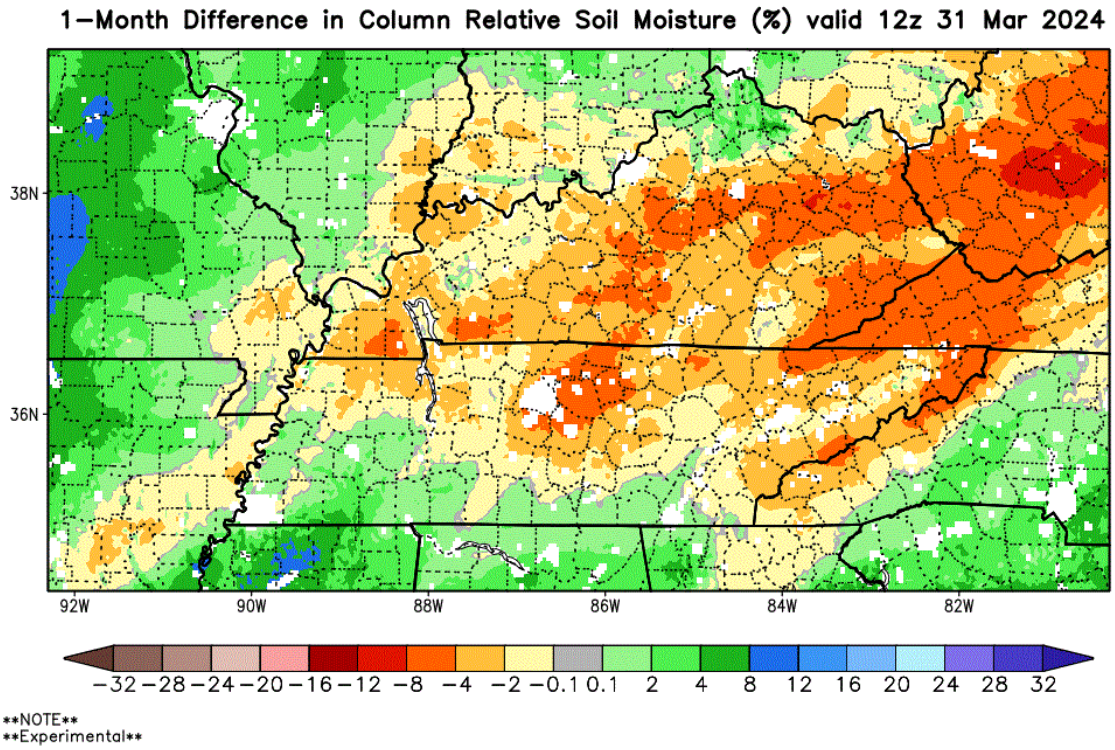




Soil Moisture:

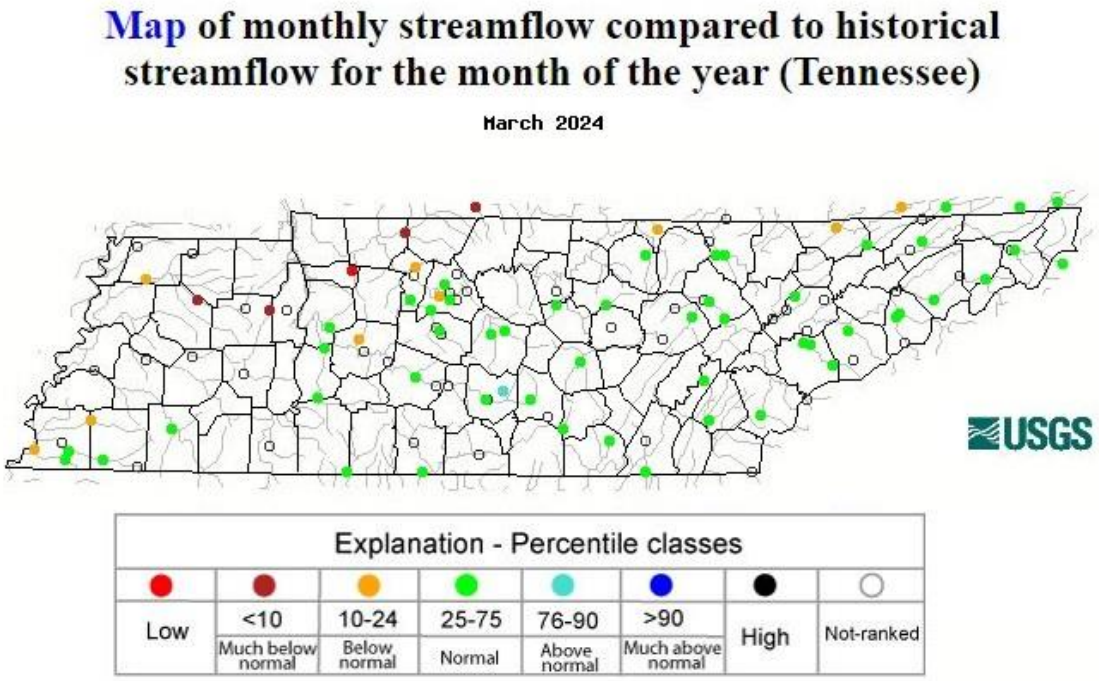
Data from the NASA SPoRT Land Information System shows that for many areas of the state soil moisture levels were within the normal to above normal range, but the northwest part of the state is shown with below normal soil moisture levels. Most areas of the state, except for the southwest portion of the state showed drying of soils with drops of 2-8 percentile points over the month.





Streamflow:

Averaged over the month, most stream gauges in the state had normal streamflow levels, but in northwest Middle Tennessee and most of West Tennessee streamflow levels were below normal or even much below normal levels due to below normal precipitation.

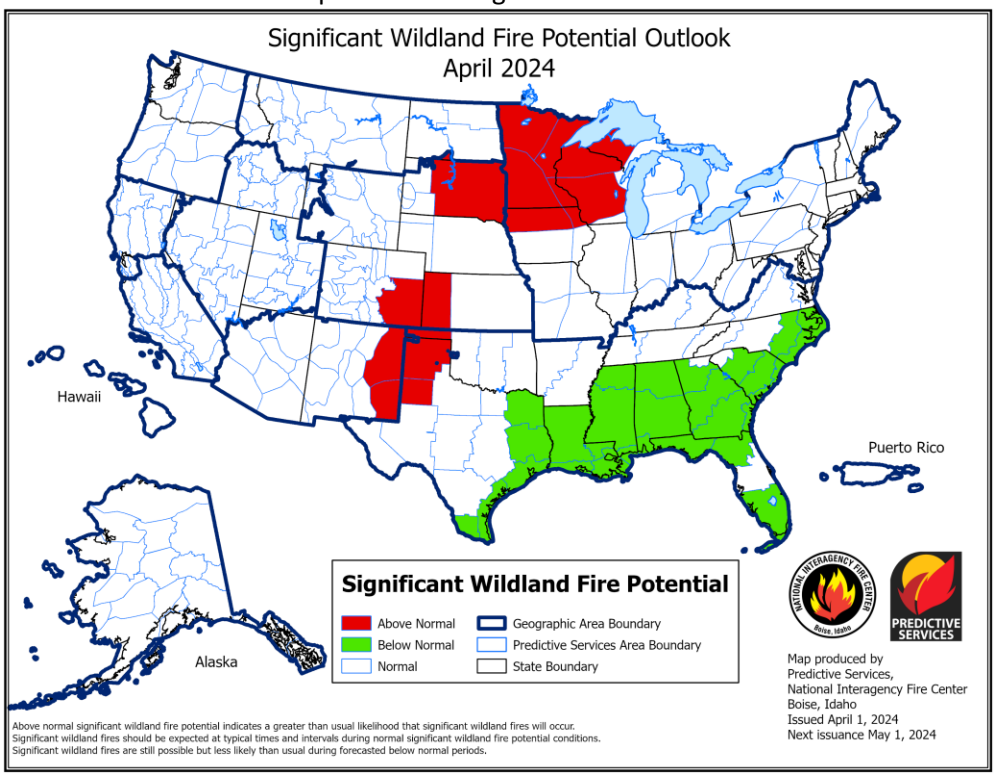


Miscellaneous:

Crop Conditions from USDA: The first crop weather report of the year from the USDA came out for the week ending March 31, and showed that cattle and winter wheat were mostly in good or excellent condition. Pastures still have a bit lower condition, with 42% in fair condition, however warm temperatures and rains during parts of the month have helped to improve pasture conditions overall, with only 18% in the poor or very poor conditions compared to 26% in those conditions at the end of February.

CROP PROGRESS					CONDITION					
Item	This Week	Last Week	2023	5 Year Avg.	Item	Very Poor	Poor	Fair	Good	Excellent
	Percent					Percent				
Apples – Blooming	12	-	-	-	Cattle	1	4	30	56	9
Corn – Planted	2	-	1	0	Pasture	2	16	42	35	5
Cotton – Planted	0	-	0	0	Winter Wheat	0	5	23	53	19
Soybeans – Planted	0	-	0	0						
Winter Wheat – Jointing	38	-	-	-						
Winter Wheat – Headed	1	-	-	-						

Fire Danger: The April Significant Wildland Fire Potential Outlook from the Interagency Fire Center shows all regions of Tennessee with normal potential for significant wildland fires.



Snowfall: Accumulating snow was confined to the higher elevations of East Tennessee, with the Mt. LeConte COOP station being the only weather station that reported measurable snowfall this month, the COOP station at Newfound Gap, also in the Great Smoky Mountains National Park reporting a Trace of snow this month.

Spring Greenup: The First Leaf Index Anomaly from National Phenology Network showed that the spring greenup had started across all of Tennessee by the end of March, with most locations running 0-14 days earlier than normal this year.

Story of the Month:

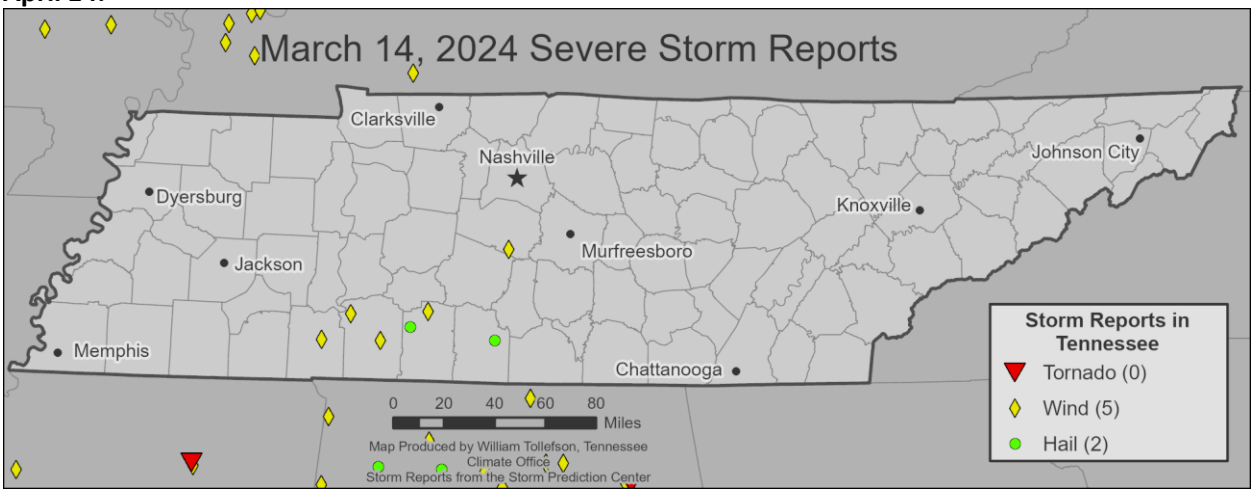
March was a relatively quiet month for weather and climate stories in Tennessee, with one of the biggest stories being the early start to the growing season after a much warmer than normal February and first half of March. This was followed by several cool spells that sent temperatures back to normal or even below normal temporarily. These cool spells prompted frost and freeze advisories/warnings for areas of the state in mid- and late-March.

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.*

During the month of March 2024 there was 1 day with severe storm reports, producing a total of 0 Tornadoes, 5 severe thunderstorm wind reports, and 2 report of severe hail (at least 1" in diameter).

April 14:



Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
1:00	--	6 E Savannah	Hardin	35.23	-88.14	Multiple trees down on Dew Drop Rd.... Woodrow Rd.... and Rich Rd. (MEG)
1:45	--	6 WSW Summertown	Lawrence	35.4	-87.4	Tree down blocking Cemetery Road north of Henryville. (OHX)
2:44	66	5 ENE Spring Hill	Williamson	35.76	-86.84	Tspotter report on Kestrel home weather station in Bethesda. (OHX)
7:00	--	3 E Clifton	Wayne	35.38	-87.94	A few trees down... one of which fell on a carport at a residence. (OHX)
7:30	--	4 NNE Collinwood	Wayne	35.23	-87.73	Several trees uprooted or downed. Large limbs snapped off. Two premade sheds destroyed. A shed at a business under construction was destroyed. (OHX)

Hail:

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
1:40	1.50	11 WNW Lawrenceburg	Lawrence	35.31	-87.52	Photos from Tennessee Valley Weather show ping pong ball size hail fell in Deerfield. (OHX)
4:21	1.00	7 ENE Pulaski	Giles	35.24	-86.93	Quarter size hail reported south of Highway 31 east of Pulaski. (OHX)

CPC Outlooks for the Next Month:

The NOAA Climate Prediction Center outlooks for April show most areas of Tennessee leaning towards above normal temperatures and precipitation, with slightly higher confidence in the western half of the state for both. Far East Tennessee is shown with equal chances for normal, warmer than normal, or cooler than normal conditions in April.