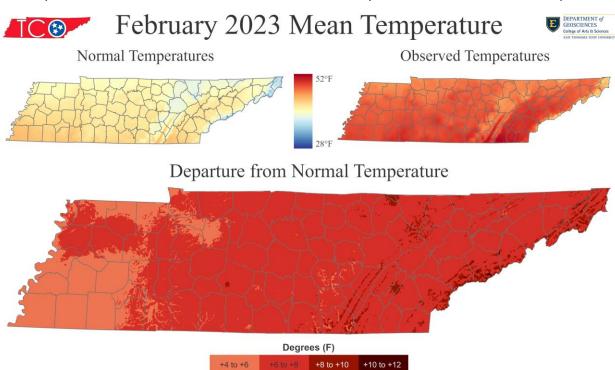
February 2023 Tennessee State Climate Summary

Tennessee Climate Office * East Tennessee State University
Prepared by William Tollefson and Dr. Andrew Joyner
With contributions by <u>Climate Data Representatives</u> across the state

Monthly Temperature Summary:

February brought another much warmer than average month to Tennessee, with most areas of Middle and East Tennessee recording a mean monthly temperature that was 6-8°F warmer than the 1991-2020 Climate Normals for February. West Tennessee was also warmer than normal, with most areas recording a mean temperature that was 4-6°F warmer than normal for February, this is slightly closer to normal than other parts of the state due to a much colder than normal week to start the month associated with the January/February Ice Storm. The Memphis NWS forecast office set back-to-back daily record cold high temperatures on February 1 and 2, but the rest of the month was characterized by above normal temperatures across the state. A couple rounds of record-setting heat impacted the state, with the last week of the month bringing highs in the 70's and 80's. There were 66 broken daily records for high temperatures, and 10 broken and 11 tied monthly records for the highest temperature ever recorded during the month of February. There were also 68 broken daily records for warm low temperatures and 7 broken and 7 tied monthly records for the warmest low temperature ever recorded during the month of February. For more details on the record warmth, see the Story of the Month section of this report.



Stations with the highest mean temperature

Station Name	Station Type	Mean Temperature (F)	
CHATTANOOGA AP	WBAN	53.6	
FAYETTEVILLE WATER PLANT	COOP	51.9	
MEMPHIS INTERNATIONAL AP	WBAN	51.5	
SHELBYVILLE WATER DEPT	COOP	51.4	
NASHVILLE INTL AP	WBAN	51.3	

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

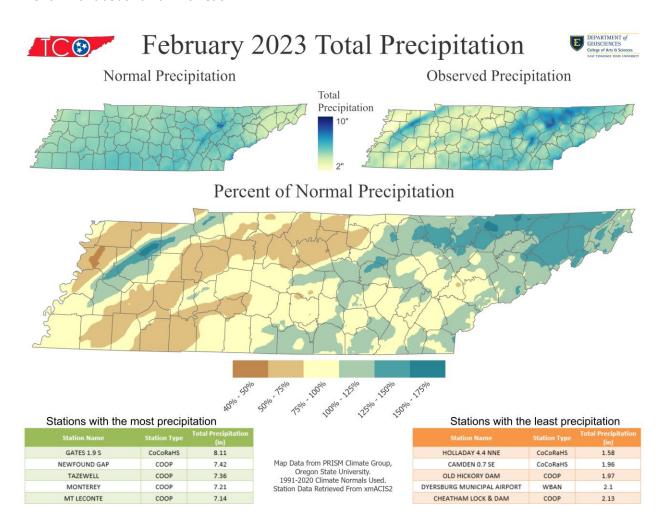
Stations with the lowest mean temperature

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	36.2
NEWFOUND GAP	COOP	41.2
ROAN MOUNTAIN 3SW	COOP	43.4
SHELBY BOTTOMS NATURE CENT.	COOP	43.7
MOUNTAIN CITY 2	COOP	44.1

Monthly Precipitation Summary:

Most areas of the state recorded close-to-normal precipitation for the month, with the majority of areas being a bit drier than the 1991-2020 Climate Normals for February. The northeast quarter of the state was the major exception to this, with many counties recording 125-150% of their normal February precipitation. There was also a band of above normal precipitation through parts of West Tennessee, with southern parts of Weakley County recording over 150% of their normal February rainfall, although most of that fell in just one day on February 16, when parts of the county recorded 8-inches of rain!

The first half of the month was relatively dry with only light precipitation, with some snow, sleet, and freezing rain in addition to rainfall in western parts of Tennessee at the very beginning of the month. The middle of the month brought severe storms and heavy rainfall to most areas of the state, with a few areas in the northern Cumberland Plateau and in southern Weakley County in West Tennessee recording up to 600% of their normal weekly precipitation! The last week of the month brought widespread light to moderate rainfall across the state. Besides the winter weather the first few days of the month, snowfall was restricted to high elevations in the East Tennessee mountains and the Cumberland Plateau. Mt. LeConte in the Smoky Mountains had the most snow with 12.5" recorded during the month, but three weather stations in Shelby County also made the top-ten snowiest weather stations in the state this month with about half an inch each.



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:

a		Temperatures (°F)						Precipitation (inches)			
Station Name		Ave	erages			Extremes			Totals		
Name	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	%Norm
Memphis	60.9	42.2	51.5	+5.4	78	2/23	25	2/1	3.84	-0.71	84%
Jackson	60.2	37.3	48.7	+6.0	78	2/23	19	2/18	2.86	-1.54	65%
Clarksville	60.4	38.5	49.4	+8.7	80	2/23	18	2/4	4.33	0.46	112%
Nashville	61.6	40.9	51.3	+7.9	85	2/23	19	2/4	2.80	-1.67	63%
Chattanooga	64.0	43.3	53.6	+8.0	82	2/22	26	2/4	4.16	-0.87	83%
Crossville	56.5	38.7	47.6	+8.8	78	2/23	17	2/4	3.91	-1.22	76%
Knoxville	60.5	41.2	50.9	+8.0	80	2/23	22	2/4	3.65	-1.16	76%
Bristol	59.1	37.5	48.3	+8.3	79	2/22	18	2/4	4.60	0.79	121%

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
NASHVILLE BERRY FIELD	СООР	85	24
SHILOH NMP TENNESSEE	RAWS	85	23
NASHVILLE INTL AP	WBAN	85	23
FAYETTEVILLE WATER PLANT	СООР	84	23
GAINESBORO	СООР	84	24
GLADEVILLE	СООР	84	24
LYNCHBURG	СООР	83	24
MURFREESBORO 5 N	СООР	83	24
FRANKLIN SEWAGE PLANT	СООР	83	24
CARTHAGE	СООР	83	24
LEWISBURG TOWER TENNESSEE	RAWS	83	23

Five stations tied for the 6th hottest temperature (83°F)

Coldest Stations (lowest minimum temperature)

Station Name	Station Type	Lowest Temperature (F)	Date
SHELBY BOTTOMS NATURE CENTER	COOP	7	15
MT LECONTE	COOP	9	18
GAINESBORO	СООР	12	6
NEWFOUND GAP	СООР	12	4
FAIRVIEW BOWIE NATURE CENTER	СООР	13	3
MOUNTAIN CITY 2	СООР	14	5
TAZEWELL	СООР	15	4
BETHPAGE 1 S	СООР	15	5
WHITE HOUSE	COOP	15	4
ROAN MOUNTAIN 3SW	СООР	15	5
CROSSVILLE AREA OFFICE TENNESS	RAWS	15	4

Five stations tied for the 7th coldest temperature (15°F)

Warmest Stations (highest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
CHATTANOOGA AP	WBAN	53.6
FAYETTEVILLE WATER PLANT	СООР	51.9
MEMPHIS INTERNATIONAL AP	WBAN	51.5
SHELBYVILLE WATER DEPT	СООР	51.4
NASHVILLE INTL AP	WBAN	51.3
PIKEVILLE	СООР	50.9
KNOXVILLE AP	WBAN	50.9
CLEVELAND FILTER PLANT	СООР	50.8
CLARKSVILLE WWTP	СООР	50.6
INDIAN GRAVE TENNESSEE	RAWS	50.4
SHILOH NMP TENNESSEE	RAWS	50.4
OAK RIDGE ASOS	WBAN	50.4

Three stations tied for the 10th warmest mean temperature (50.4°F)

Coolest Stations (lowest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	СООР	36.2
NEWFOUND GAP	СООР	41.2
ROAN MOUNTAIN 3SW	COOP	43.4
SHELBY BOTTOMS NATURE CENT.	СООР	43.7
MOUNTAIN CITY 2	COOP	44.1
ONEIDA	СООР	44.1
TAZEWELL	COOP	44.5
BOLIVAR WATER WORKS	СООР	45
CROSSVILLE EXP STN	COOP	45
COALMONT	COOP	45
SPRING CITY	СООР	45

Four stations tied for the 8th coolest mean temperature (45°F)

Wettest Stations (highest precipitation totals):

trettest stations (ingliest presipitation totals).						
Station Type	Total Precipitation (in)					
CoCoRaHS	8.11					
СООР	7.42					
СООР	7.36					
СООР	7.21					
СООР	7.14					
CoCoRaHS	6.83					
CoCoRaHS	6.55					
СООР	6.55					
СООР	6.41					
СООР	6.39					
	CoCoRaHS COOP COOP COOP COCORAHS CoCoRAHS COOP COCORAHS					

Driest Stations (lowest precipitation totals):

briest stations (lowest precipitation totals).							
Station Name	Station Type	Total Precipitation (in)					
HOLLADAY 4.4 NNE	CoCoRaHS	1.58					
CAMDEN 0.7 SE	CoCoRaHS	1.96					
OLD HICKORY DAM	СООР	1.97					
DYERSBURG MUNICIPAL AIRPORT	WBAN	2.1					
CHEATHAM LOCK & DAM	СООР	2.13					
CARTHAGE 2.8 WSW	CoCoRaHS	2.14					
MOUNT JULIET 6.1 SSW	CoCoRaHS	2.2					
GOODLETTSVILLE 1.5 W	CoCoRaHS	2.2					
RAMER 1.5 S	CoCoRaHS	2.3					
LEBANON 3.7 ENE	CoCoRaHS	2.37					

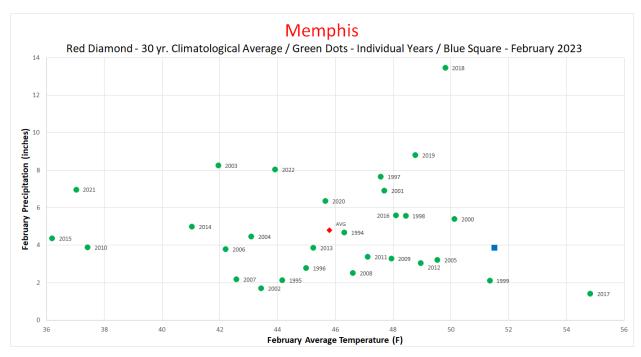
Snowiest Stations (highest snowfall accumulations)

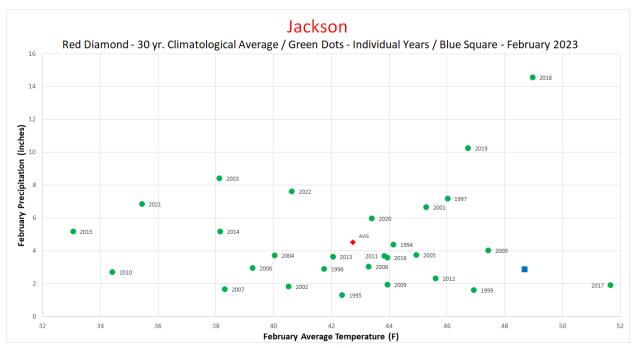
Name	Station Type	Total Snowfall (in)
MT LECONTE	СООР	12.5
NEWFOUND GAP	COOP	2.7
MONTEAGLE	WBAN	1.2
SEWANEE	СООР	1
ROAN MOUNTAIN 3SW	СООР	1
BARTLETT 3.1 NNE	CoCoRaHS	0.6
GERMANTOWN 4SE	СООР	0.5
MEMPHIS WFO	WBAN	0.5
CARTHAGE 8.7 NNE	CoCoRaHS	0.4
CELINA 0.3 NNE	CoCoRaHS	0.4
RED BOILING SPRINGS 6.7 NNE	CoCoRaHS	0.4

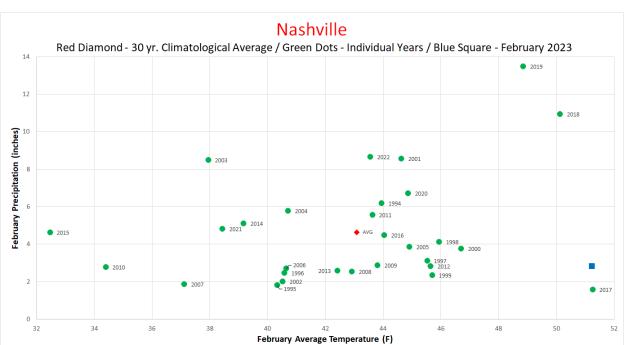
20 of 341 stations in the state reported measurable snowfall and an additional 38 reported a trace of snow this month.

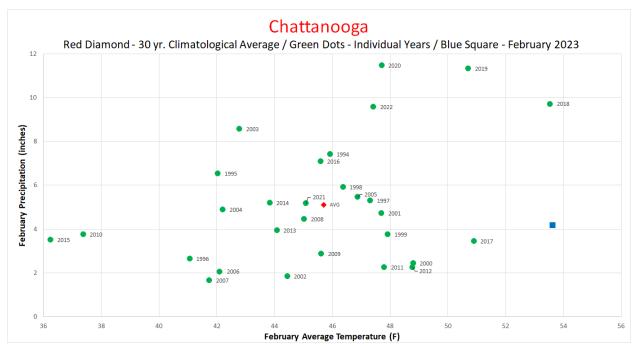
The Month in Comparison:

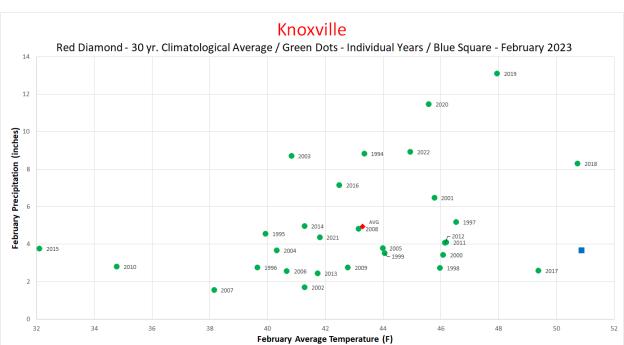
It was the warmest February of the last thirty years for the Chattanooga and Knoxville airports, with Nashville only 0.02°F behind their warmest February in 2017. The Memphis, Jackson, and Bristol/Tri-Cities airports also had their second warmest February of the past thirty years, with 2017 or 2018 being slightly warmer for those cities. Looking at the full weather histories for each of these cities, it was the 2nd warmest February for Bristol/Tri-Cities and Knoxville, and tied for the 2nd warmest February for Chattanooga. It was the 3rd warmest February for Nashville, 6th warmest for Jackson, and 9th warmest for Memphis. Total precipitation for February 2023 was slightly below average for each airport, except Bristol/Tri-Cities, although it was not an outlier for any of the airports across the state.

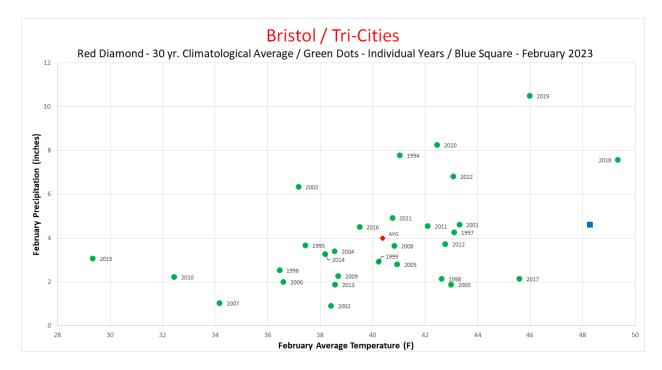






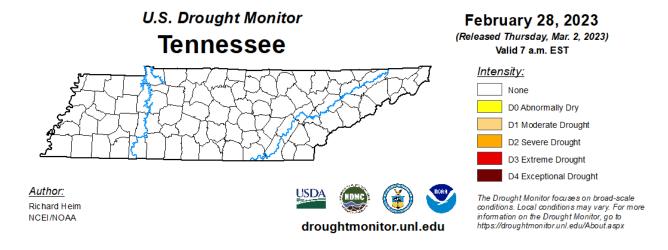






Drought Monitor:

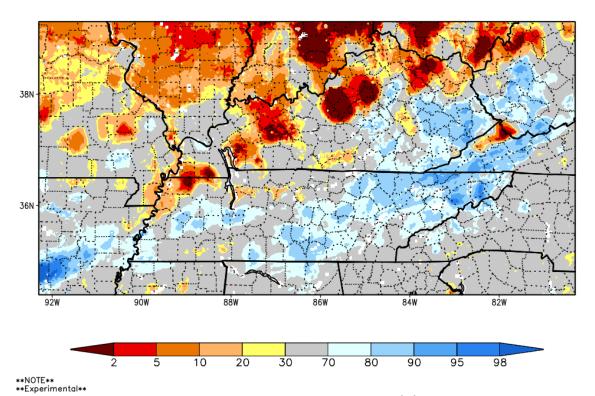
Tennessee remained clear of drought or abnormally dry conditions on the US Drought Monitor for the month of February.



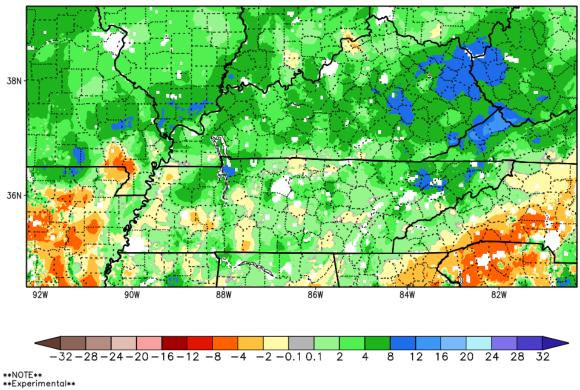
Soil Moisture:

The NASA SPORT Land Information System, shows that most of the state has near normal or above normal levels of soil moisture for the top two meters of the ground, with only a few pockets of below normal soil moisture levels in Middle and West Tennessee, these areas are likely still recharging from drought conditions last summer/fall. The USDA monthly Crop Progress Report rated topsoil moisture as 1% short, 64% adequate, and 35% surplus, and subsoil moisture as 1% short, 69% adequate, and 30% surplus across Tennessee at the end of February.

SPoRT-LIS 0-200 cm Soil Moisture percentile valid 28 Feb 2023



1-Month Difference in Column Relative Soil Moisture (%) valid 12z 28 Feb 2023

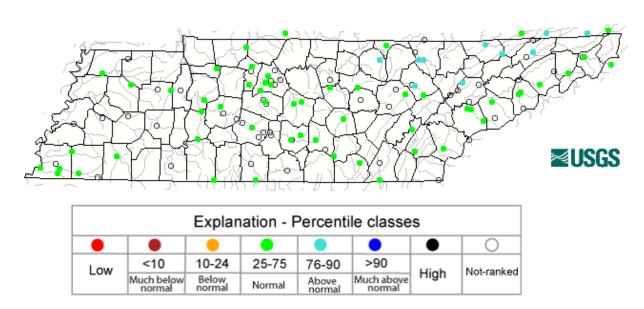


Streamflow:

Average streamflow for February 2023 was in the normal range for most areas of the state, with several streams in the upper Cumberland Plateau and northern East Tennessee in the above normal flow range for the month.

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

February 2023



Miscellaneous:

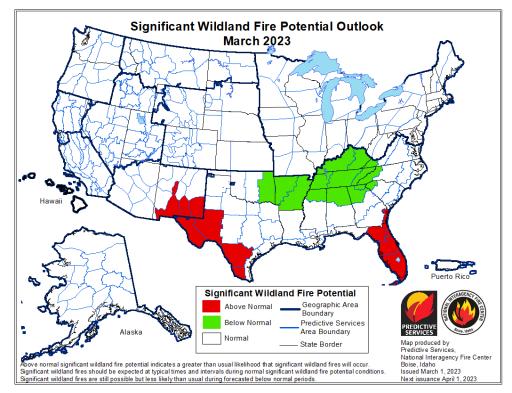
Crop Conditions from USDA:

Unseasonably warm conditions have led to the green up of lawns and pastures, as well as the start of tree green-up and blossoms during February. Precipitation in January and February has helped to replenish ground water, but also proved problematic for wheat and hay producers by preventing fertilizer applications. Some wheat is also still suffering from the strong freeze in December and periodic flooding from precipitation so far this year; however, 57% of the state's wheat crop is still in good or excellent condition. 57% of hay and roughage supplies were classified as adequate for Tennessee, but 35% were short of very short.

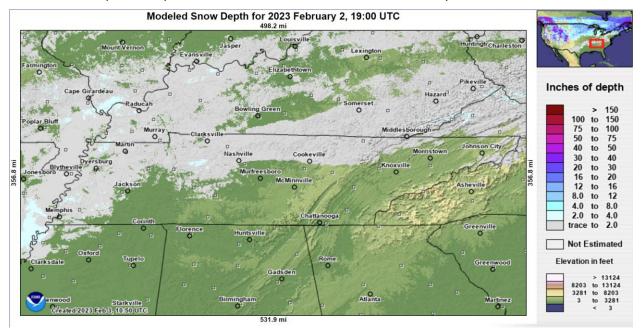
Agricultural Conditions at the end of February

Crop/Product	Excellent	Good	Fair	Poor	Very Poor
Winter Wheat	8%	49%	30%	10%	3%
Pasture/Range	2%	30%	40%	23%	5%
Cattle	7%	54%	31%	7%	1%

Fire Danger: The Interagency Fire Center significant wildland fire potential outlook for March shows that all of Tennessee as well as all neighboring regions, except southeast Missouri will have a below normal potential for significant wildland fires.

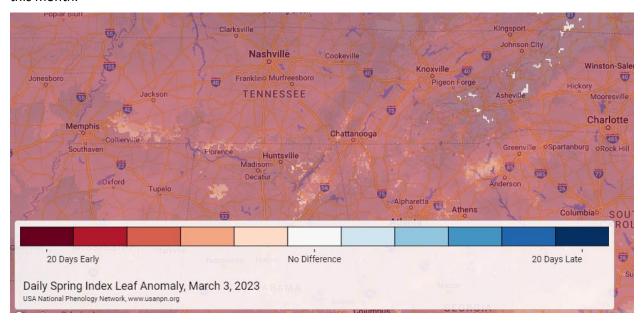


Snow: The most widespread measurable snowfall occurred February 1-2 with a trace to 2" reported across West Tennessee and the northern half of the state. Otherwise, snow was rare this month, with higher elevations in the mountains of East Tennessee recording some significant snow on February 13, and a trace of snow reported in parts of Middle and East Tennessee on February 17-18.



Spring Greenup: With the well above normal temperatures recorded across the state in January and February, the spring green up, as measured by the first leaf index, started during February for almost all areas of Tennssee. The USA National Phenology Network shows that by the beginning of March 2023, all

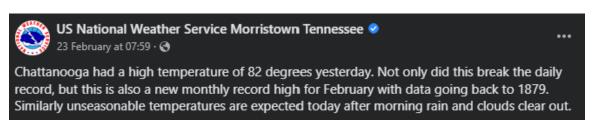
areas except the highest elevations in the East Tennessee mountians have had their first leaf, with most areas of the state running at least 2-weeks earlier than normal for this metric of the spring green up. Early spring blossoms also were seen during February with crocuses and daphodils blooming across the state this month.

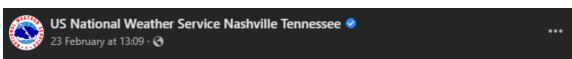


Story of the Month:

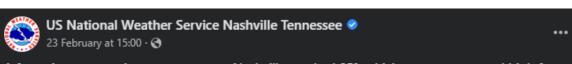
The main story of February 2023 was the record-setting warmth across the state, particularly in the last week of the month when the mean temperature ranged from 9 to 15 degrees above normal for the week. All but two weather stations in the state with fewer than 5 missing days of reporting this month reached highs in the 70's, with Mt LeConte and Newfound Gap being the only exceptions, and 60 weather stations reached 80°F or higher this month.

Looking at stations with at least a 30-year weather history there were 66 broken and 30 tied daily records for warmest high temperatures set this month across Tennessee, with 21 of the broken records at stations with at least a 100-year weather history. Of those record high temperatures, 10 were warm enough to set the monthly record for February, meaning it was the highest temperature ever recorded in the month of February at that station. All of these stations were found along or east of the I-65 corridor in the middle of the state. Those stations included Nashville and Chattanooga. Nashville also had back-to-back days with a high of 80°F or higher on February 22 and 23, which is the first time this has happened in the month of February. Nashville's high of 85°F on February 23 was also the earliest in the calendar year they had reached that temperature, 17-days earlier than the previous first 85-degree day! 11 more stations were warm enough to tie their monthly record high for February.





Well, we did it, weather peeps. We've reached 80° two days in a row for the first time ever in February. It's back-to-back 80s! What is your preference? Rio & The Reflex? We Got The Beat & Our Lips Are Sealed? Broken Wings & Kyrie? Shout & Head Over Heels? Or maybe you prefer a return to the 80s, where songs of the past were given new life once again. Stand by Me? Twist and Shout? Do You Love Me? What a Wonderful World? Or, perhaps you're nostalgic for the 80s and savor the moment when the songs of that era make a comeback after the fact. Running Up That Hill (yeah, yeah, yo)? 1999? It's unusually early in the year to see the 80s, and even more unusual to experience back-to-back 80s. But that's Mother Nature. She's so unusual! #musiccitywx



A few minutes ago, the temperature at Nashville reached 85°, which sets a new record high for the month of February. It goes without saying that this is the earliest in the year Nashville has reached 85°. (Previously, the earliest date for an 85° reading was March 12, 1967.) Love it or hate it, you have to admit that if we're going to break record highs, let's do it in February and not in July. Since we're breathing such rarified air today, let's celebrate good times, come on! (Let's celebrate.) So bring your good times, and your laughter, too. 'Cause everything's gonna be all right.

The warmth also impacted nightly low temperatures, with 68 broken and 11 tied daily records for warmest low temperature recorded across the state in February, with 21 of the broken records at stations with at least a 100-year weather history. Of the 68 broken daily records, 7 broke and 7 more tied their monthly record for the warmest low temperature ever recorded at that station during the month of February.

The well above average temperatures in January and February helped to make the climatological winter of 2022-23 (December, January, February) one of the top-ten warmest winters for all long-term climate monitoring weather stations across the state despite the near normal or cooler than normal December that started the season. The mean temperature for this winter was tied for the 3rd warmest in the Tri-Cities, the 4th warmest in Chattanooga, tied for the 4th warmest in Nashville, the 5th warmest in Jackson, the 7th warmest in Memphis, and the 10th warmest in Knoxville.

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 three days with severe storm reports during February 2023, with a total of 4 tornadoes, 13 reports of severe wind damage, and 7 reports of severe hail (with a diameter of 1" or larger).





Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
10:38		3 SSW DYER	GIBSON	36.03	-89.01	MULTIPLE TREES DOWN ACROSS OLD DYERSBURG RD AND ON A HOUSE (450 OLD DYERSBURG RD). POSSIBLE TORNADO DAMAGE - IS IN A TORNADO WARNING. (MEG)

Hail:

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
3:25	1.50	7 W MILLINGTON	SHELBY	35.33	-90.02	CORRECTS PREVIOUS HAIL REPORT FROM 7 W MILLINGTON. SOCIAL MEDIA REPORT. (MEG)
3:43	1.00	1 SE GERMANTOWN	SHELBY	35.08	-89.78	REPORT FROM MPING. (MEG)
4:29	1.50	7 W MILLINGTON	SHELBY	35.33	-90.02	TWITTER REPORT IMAGE. (MEG)

February 16:



Tornadoes:

Time (UTC)	Strength	Location	County	Lat	Lon	Comments
19:43	EF1	2 NNW RAMER	MCNAIRY	35.09	-88.63	NWS DAMAGE SURVEY TEAM CONFIRMED AN EF-1 TORNADO THAT TOUCHED DOWN ON FRIENDSHIP RD AND LIFTED UP 5 MINUTES LATER NEAR WILLIAM TEAGUE LN IN SOUTHERN MCNAIRY COUNTY T (MEG)
21:38	EFO	8 W LAWRENCEBURG	LAWRENCE	35.25	-87.49	AN EFO TORNADO TOUCHED DOWN ON SOUTH HOOD ROAD AND MOVED NORTHEAST BLOWING DOWN NUMEROUS TREES. MORE TREES WERE BLOWN DOWN WITH MINOR DAMAGE TO OUTBUILDINGS ON N BRADLE (OHX)
21:57	EFO	1 NE ETHRIDGE	LAWRENCE	35.34	-87.29	AN EFO TORNADO TOUCHED DOWN IN ETHRIDGE NORTH OF BREWER ROAD AND MOVED NORTHEAST BLOWING THE STOREFRONT OFF A BUILDING ON HIGHWAY 43. CONTINUING NORTHEAST THE TOR (OHX)
22:39	EF1	5 NNE LEWISBURG	MARSHALL	35.52	-86.76	A LOW END EF-1 TORNADO TOUCHED DOWN NEAR BIG ROCK CREEK NORTHWEST OF FARMINGTON AND MOVED NORTHEAST DAMAGING A BARN AND BLOWING DOWN DOZENS OF TREES WEST OF BETHBIRE (OHX)

Wind:

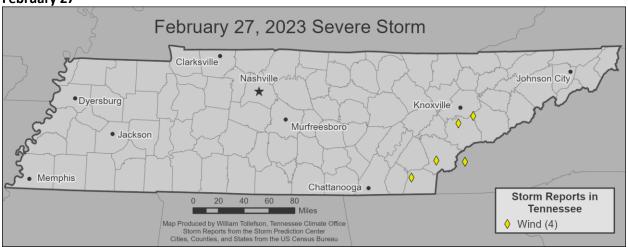
Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
		2 NW CLARKSBURG	CARROLL	35.9	-88.42	NUMEROUS TREE LIMBS DOWN ALONG
12:20						DOLLAR HILL ROAD NEAR THE
						INTERSECTION WITH CARNAL ROAD. (MEG)

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
19:45		2 NNW RAMER	MCNAIRY	35.09	-88.63	TREES AND POWERLINES WERE DOWN FROM NEAR BIG HILL POND STATE PARK TO FRIENDSHIP ROAD TO FEDDIE DAVIS ROAD. MINOR STRUCTURE DAMAGE TO A FEW HOMES WAS OBSERVED. POS (MEG)
21:05		2 WSW WAYNESBORO	WAYNE	35.31	-87.78	A NARROW SWATH OF WIND DAMAGE AFFECTED WESTERN AND CENTRAL WAYNESBORO. A HOME ON HWY 64 WEST TO THE WEST OF LONGVUE DRIVE WAS HEAVILY DAMAGED FROM THE ROOF OF A NEARBY (OHX)
21:45		7 W LAWRENCEBURG	LAWRENCE	35.25	-87.46	DAMAGE TO HOMES AND TREES DOWN NEAR NORTH BRADLEY RD AND MT LEBANON RD. POSSIBLE TORNADO. (OHX)
22:40		6 NNE LEWISBURG	MARSHALL	35.52	-86.74	CORRECTS PREVIOUS TSTM WND DMG REPORT FROM 6 NNE LEWISBURG. REPORTS OF TREES DOWN AND STRUCTURAL DAMAGE ON STEAGALL ROAD AT WADE BROWN ROAD. POSSIBLE TORNADO. (OHX)
23:00		7 WSW SHELBYVILLE	BEDFORD	35.47	-86.58	THREE POWER POLES WERE BROKEN WITH POWER LINES DOWN ON HIGHWAY 64 IN THE BEDFORD COMMUNITY. (OHX)
23:40		6 NNE LEWISBURG	MARSHALL	35.52	-86.74	REPORTS OF TREES DOWN AND STRUCTURAL DAMAGE ON STEAGALL ROAD AT WADE BROWN ROAD. POSSIBLE TORNADO. (OHX)
0:10		5 NE SPARTA	WHITE	35.99	-85.41	A TREE WAS BLOWN DOWN ON MONTEREY HIGHWAY NEAR YANKEETOWN CHURCH. (OHX)

Hail:

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Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
19:40	1.50	6 S WAVERLY	HUMPHREYS	36	-87.77	TWITTER PHOTO SHOWED PING PONG BALL SIZE HAIL NEAR HURRICANE MILLS. (OHX)
22:30	1.50	2 N COLLEGE GROVE	WILLIAMSON	35.84	-86.66	SPIKY PING PONG BALL SIZE HAIL REPORT NEAR TRIUNE VIA TWITTER. (OHX)
23:15	1.00	SHELBYVILLE	BEDFORD	35.49	-86.45	NUMEROUS REPORTS OF HAIL UP TO QUARTER SIZE IN SHELBYVILLE. (OHX)
0:17	1.00	6 ENE SPARTA	WHITE	35.97	-85.37	QUARTER SIZE HAIL FELL IN BON AIR. (OHX)

February 27

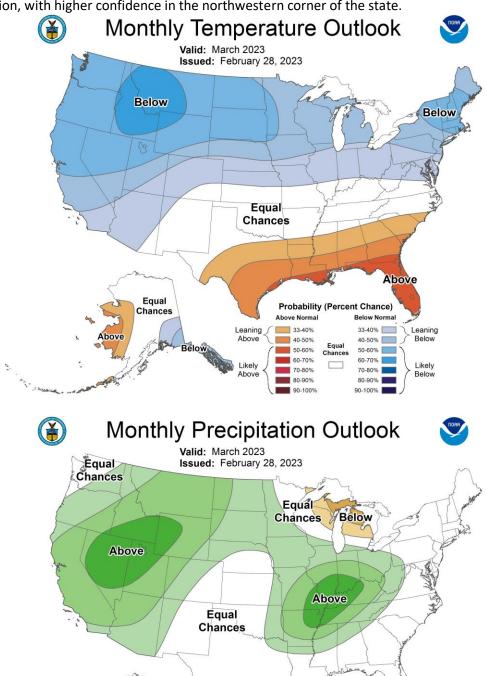


Wind:

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Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
22:00		ALCOA	BLOUNT	35.79	-83.98	TREES DOWN IN ALCOA AND MARYVILLE AND OTHER AREAS OF COUNTY. (MRX)
22:00		SEYMOUR	SEVIER	35.87	-83.77	TREES DOWN IN SEYMOUR AND SEVIERVILLE AREAS. (MRX)
22:15		TELLICO PLAINS	MONROE	35.37	-84.3	TREES DOWN IN TELLICO PLAINS AND OTHER EASTERN AREAS OF THE COUNTY. (MRX)
22:22		BENTON	POLK	35.18	-84.65	TREES DOWN IN BENTON. (MRX)

CPC Outlooks for the Next Month:

The NOAA Climate Prediction Center shows all of Tennessee with equal chances of warmer or cooler than normal conditions through March. All of Tennessee is also shown with a likelihood of above average precipitation, with higher confidence in the northwestern corner of the state.



Equal

Below

Probability (Percent Chance)

33-40%

40-50%

50-60%

60-70%

70-80%

80-90%

90-100%

Leaning

Likely

Below

Above Normal

40-50%

50-60%

60-70%

70-80%

80-90%

90-100%

Leaning

Likely

Above