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2023 April - Tennessee Monthly Climate Report

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April 2023 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:

April continued the pattern of roller-coaster temperatures for Tennessee, with major ups and downs week-to-week through the month. The mean temperature for the month averaged out to be within 1°F for most parts of the state, with a good portion of West and Middle Tennessee coming in just under their normal temperatures for the month, while most of East Tennessee was slightly warmer than normal. The month started warm with temperatures that were 4-8°F above average for the first week of the month. Then temperatures cooled to below normal for the second week of April, before returning to warmer than normal for the third week of the month. A major cold snap produced temperatures that were 6-10°F colder than normal for the last week of April. This cold snap also prompted frost and freeze warnings for most parts of the state. During the month there were 26 broken and 12 tied daily high temperature records, mostly during the first week of the month. There were also 31 broken and 8 tied daily records for warmest low temperatures set this month. Pikeville reported a low temperature of 68°F on April 5, setting a monthly record for the warmest low temperature recorded during April, this weather station has a 61-year history. On the cold side of the record books, there was 1 daily low temperature set this month, in Pulaski, and two broken daily records for coolest high temperature, both in the Memphis area.

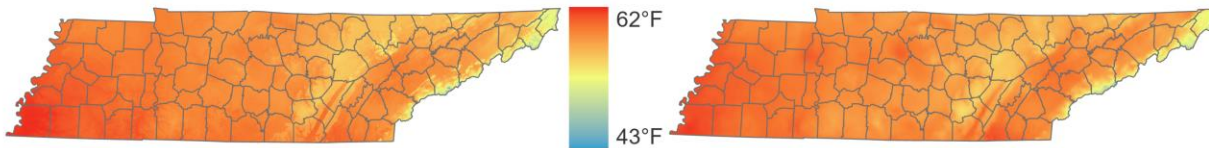


April 2023 Mean Temperature

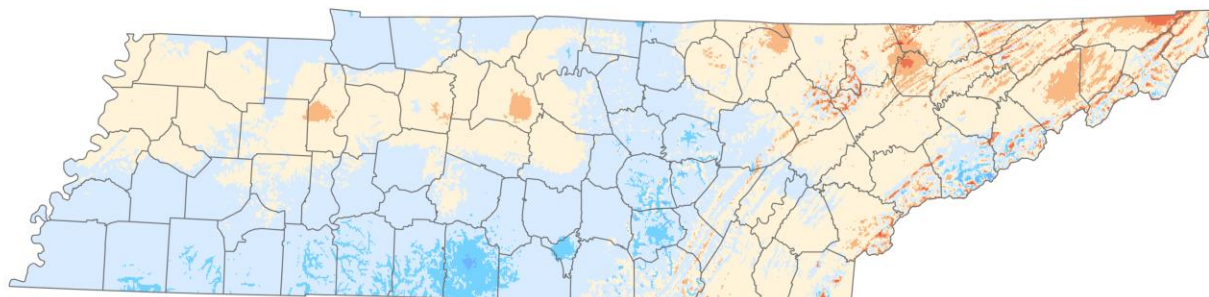


Normal Temperatures

Observed Temperatures



Departure from Normal Temperature



Degrees (F)



Stations with the highest mean temperature

Station Name	Station Type	Mean Temperature (F)
CHATTANOOGA AP	WBAN	61.3
MEMPHIS INTERNATIONAL AP	WBAN	61.3
LENOIR CITY TENNESSEE	RAWS	60.8
NASHVILLE BERRY FIELD	COOP	60.7
SHILOH NMP TENNESSEE	RAWS	60.7

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 LCONTE	COOP	42.1
NEWFOUND GAP	COOP	49.3
ROAN MOUNTAIN 3SW	COOP	52.5
MOUNTAIN CITY 2	COOP	53.3
CROSSVILLE 7 NW	WBAN	53.4

Monthly Precipitation Summary:

Most areas of Tennessee recorded below normal precipitation for the month of April, with parts of Cumberland and Morgan counties recording less than half of their normal April precipitation. A few areas did have a wetter than normal April, mostly in the southwest and southeast corners of the state. No snowfall was reported across the state in April.

The first week of April brought heavy rainfall of more than 2-inches to a large portion of West and Middle Tennessee, while the rest of the state recorded below average rainfall. The second week of the month was drier than normal across the state, except for a few counties in East Tennessee. The third week of the month brought heavy rains to the western-most counties of the state and northern parts of the Cumberland Plateau, while the rest of the state had only light rains. The dry conditions continued through the last week of the month, when few areas of the state recorded more than 1-inch of rainfall.

Despite the generally lower than normal monthly rainfall totals, there were 11 daily precipitation records set in Tennessee this month. There were 4 records set on April 1 and 5 records set on April 6, both of these days were connected with strong frontal systems that also produced severe weather for the state.

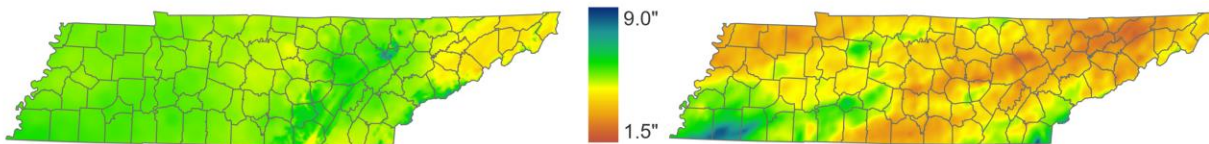


April 2023 Total Precipitation

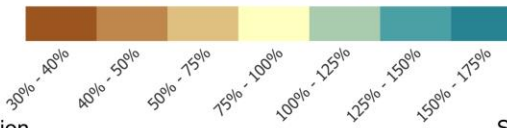
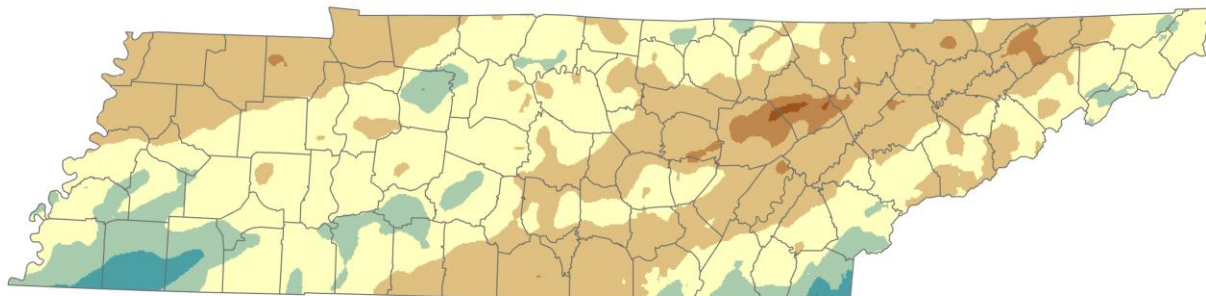


Normal Precipitation

Observed Precipitation



Percent of Normal Precipitation



Stations with the most precipitation

Station Name	Station Type	Total Precipitation (in)
AMES PLANTATION	COOP	8.29
HOHENWALD 0.3 E	CoCoRaHS	6.81
SOMERVILLE 1.3 E	CoCoRaHS	6.76
HOHENWALD 2.2 SE	CoCoRaHS	6.61
VANLEER 2.8 SE	CoCoRaHS	6.5

Stations with the least precipitation

Station Name	Station Type	Total Precipitation (in)
ROGERSVILLE 1 NE	COOP	1.84
KINGSPORT 4.3 ENE	CoCoRaHS	1.91
BAILEYTON 1.0 NW	CoCoRaHS	2.11
NASHVILLE 7.6 WSW	CoCoRaHS	2.12
CROSSVILLE EXP STN	COOP	2.21

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

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	70.8	51.8	61.3	-1.9	87	4/4	40	4/24	6.38	+0.51	109%
Jackson	70.2	46.5	58.3	-2.0	87	4/4	33	4/24	4.85	-0.27	95%
Clarksville	71.5	46.1	58.8	+0.4	87	4/4	34	4/24	2.48	-2.07	55%
Nashville	72.6	48.6	60.6	-0.2	87	4/5	36	4/24	3.25	-1.47	69%
Chattanooga	72.6	50.0	61.3	-0.4	89	4/5	42	4/18	4.51	-0.36	93%
Crossville	66.1	43.0	54.5	-0.9	81	4/5	30	4/24	2.60	-2.87	48%
Knoxville	71.0	47.4	59.2	-0.4	89	4/5	37	4/24	3.42	-1.29	73%
Bristol	71.5	42.9	57.2	+0.8	86	4/5	32	4/10	2.64	-1.15	70%

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
SHILOH NMP TENNESSEE	RAWS	91	4
JACKSON EXP STA	COOP	90	5
MOUSETAIL LANDING STATE PARK	COOP	90	21
NEWPORT 1 NW	COOP	89	5
HAMBLEN CO HQ TENNESSEE	RAWS	89	5
CHATTANOOGA AP	WBAN	89	5
KNOXVILLE AP	WBAN	89	5
AMES PLANTATION	COOP	88	5
LYNCHBURG	COOP	88	16
MC MINNVILLE	COOP	88	4
MORRISTOWN RADIO WCRK	COOP	88	6
DOVER 1 W	COOP	88	5
LENOIR CITY TENNESSEE	RAWS	88	5
DYERSBURG MUNICIPAL AIRPORT	WBAN	88	4
MEMPHIS WFO	WBAN	88	5
OAK RIDGE ASOS	WBAN	88	5

Nine stations tied for the 8th hottest temperature (88°F)

Coldest Stations (lowest minimum temperature)

Station Name	Station Type	Lowest Temperature (F)	Date
MT LECONTE	COOP	20	25
LEBANON 7 N	COOP	24	23
NEWFOUND GAP	COOP	27	24
GAINESBORO	COOP	28	25
MOUNTAIN CITY 2	COOP	28	10
ROAN MOUNTAIN 3SW	COOP	28	25
CROSSVILLE AREA OFFICE TENNESS	RAWS	28	24
ONEIDA	COOP	29	26
COALMONT	COOP	29	25
BIG SOUTH TENNESSEE	RAWS	29	24
BLEDSOE SF TENNESSEE	RAWS	29	24
CROSSVILLE 7 NW	WBAN	29	24

Five stations tied for the 8th coldest temperature (29°F)

Warmest Stations (highest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
CHATTANOOGA AP	WBAN	61.3
MEMPHIS INTERNATIONAL AP	WBAN	61.3
LENOIR CITY TENNESSEE	RAWS	60.8
NASHVILLE BERRY FIELD	COOP	60.7
SHILOH NMP TENNESSEE	RAWS	60.7
NASHVILLE INTL AP	WBAN	60.6
CAMDEN TOWER TENNESSEE	RAWS	60.5
MEMPHIS WFO	WBAN	60.5
JACKSON EXP STA	COOP	60.1
CAMDEN	COOP	59.9
BURNS TENNESSEE	RAWS	59.9
DYERSBURG MUNICIPAL AIRPORT	WBAN	59.9

Three stations tied for the 10th warmest mean temperature (59.9°F)

Cooltest Stations (lowest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	42.1
NEWFOUND GAP	COOP	49.3
ROAN MOUNTAIN 3SW	COOP	52.5
MOUNTAIN CITY 2	COOP	53.3
CROSSVILLE 7 NW	WBAN	53.4
CROSSVILLE EXP STN	COOP	53.6
COALMONT	COOP	53.9
PULASKI WASTEWATER PLANT	COOP	54.4
CROSSVILLE MEMORIAL AP	WBAN	54.5
CHEROKEE TENNESSEE	RAWS	54.6

Wettest Stations (highest precipitation totals):

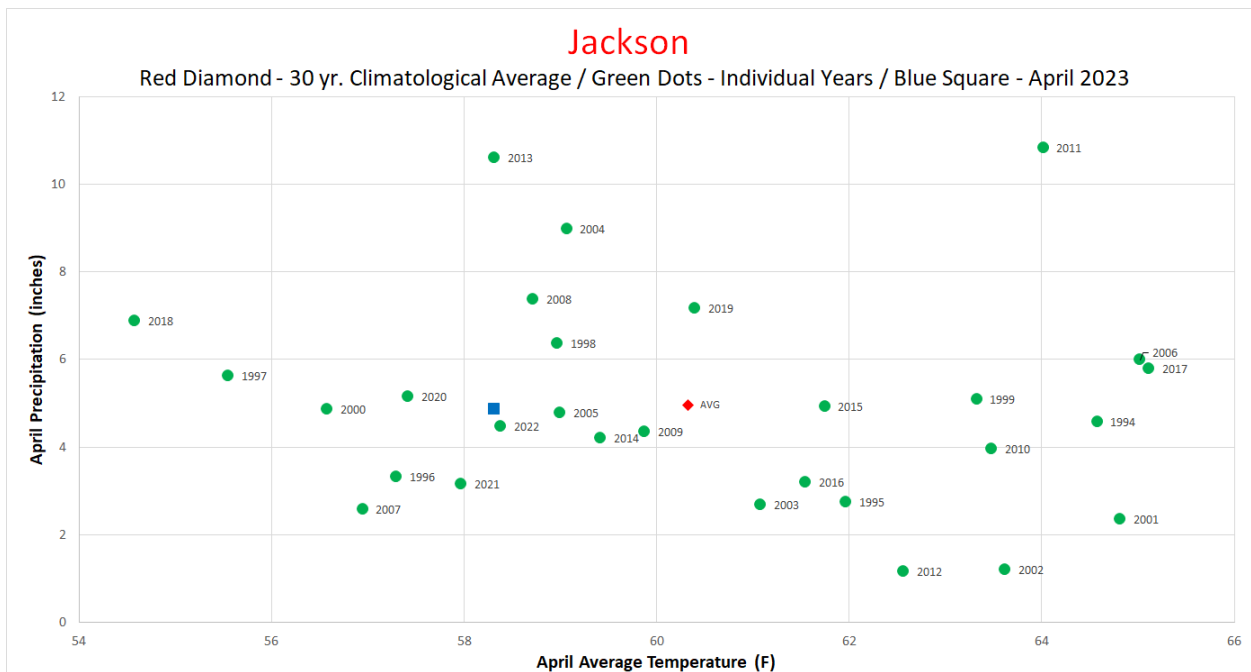
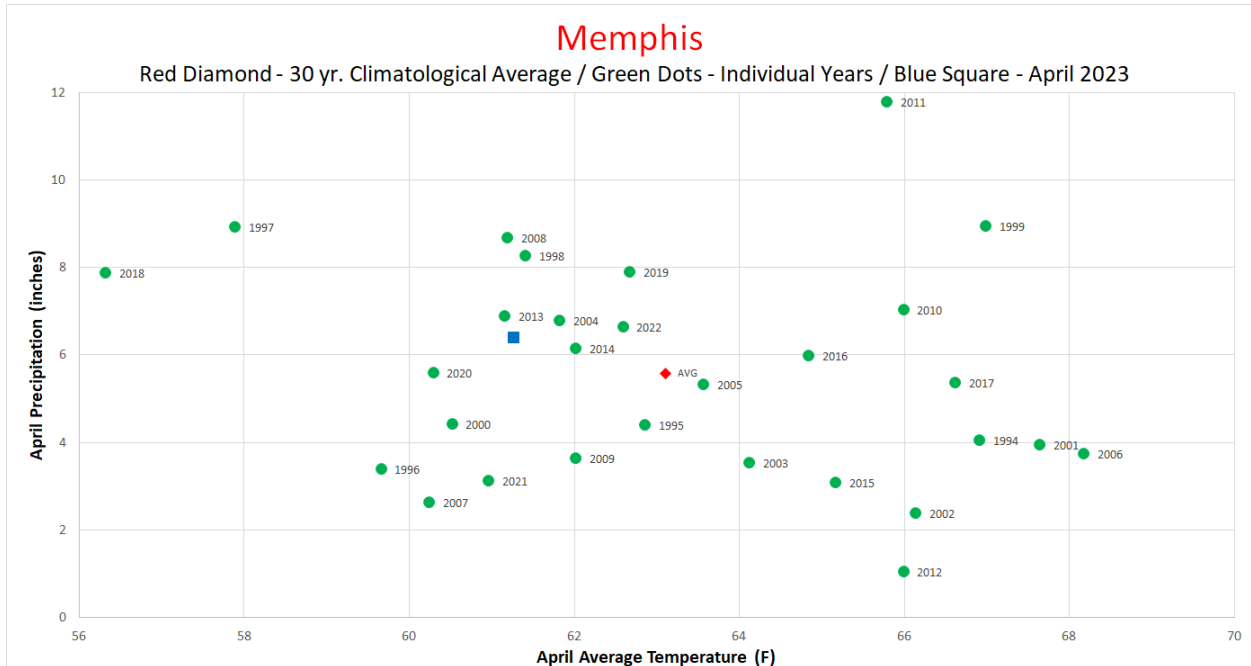
Station Name	Station Type	Total Precipitation (in)
AMES PLANTATION	COOP	8.29
HOHENWALD 0.3 E	CoCoRaHS	6.81
SOMERVILLE 1.3 E	CoCoRaHS	6.76
HOHENWALD 2.2 SE	CoCoRaHS	6.61
VANLEER 2.8 SE	CoCoRaHS	6.5
LAKELAND 4.6 SE	CoCoRaHS	6.48
MEMPHIS INTERNATIONAL AP	WBAN	6.38
BARTLETT 2.5 SW	CoCoRaHS	6.32
MOUNT PLEASANT 1N	COOP	6.27
FINGER 4.1 ENE	CoCoRaHS	6.06

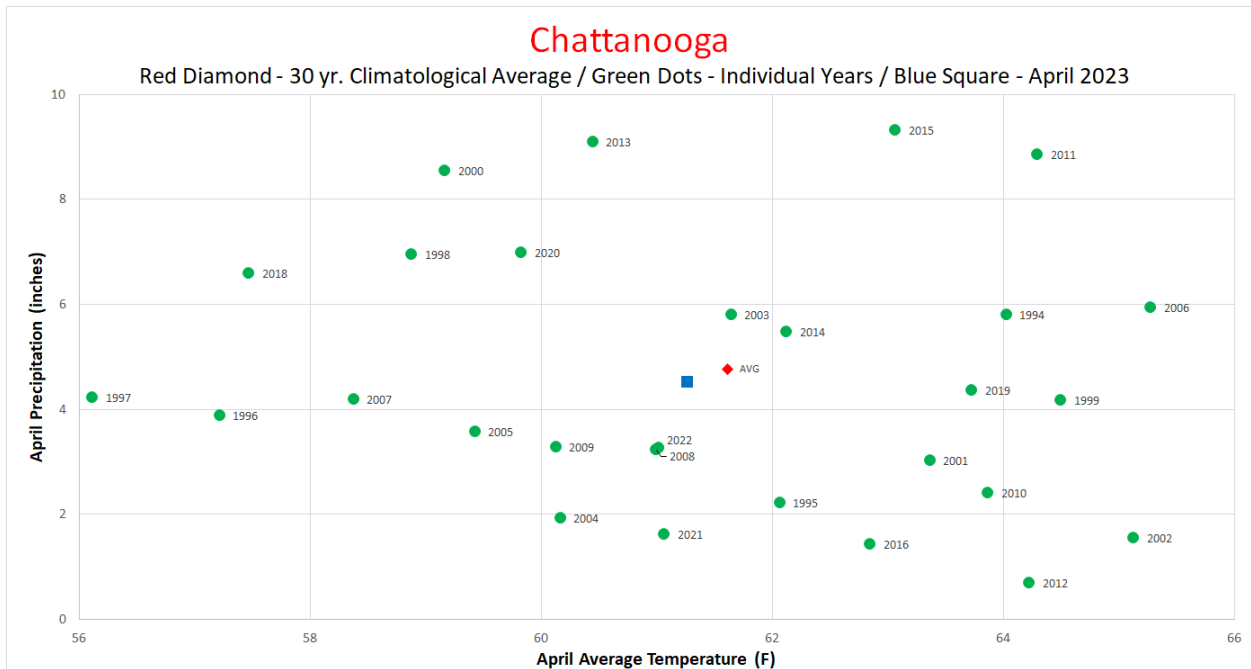
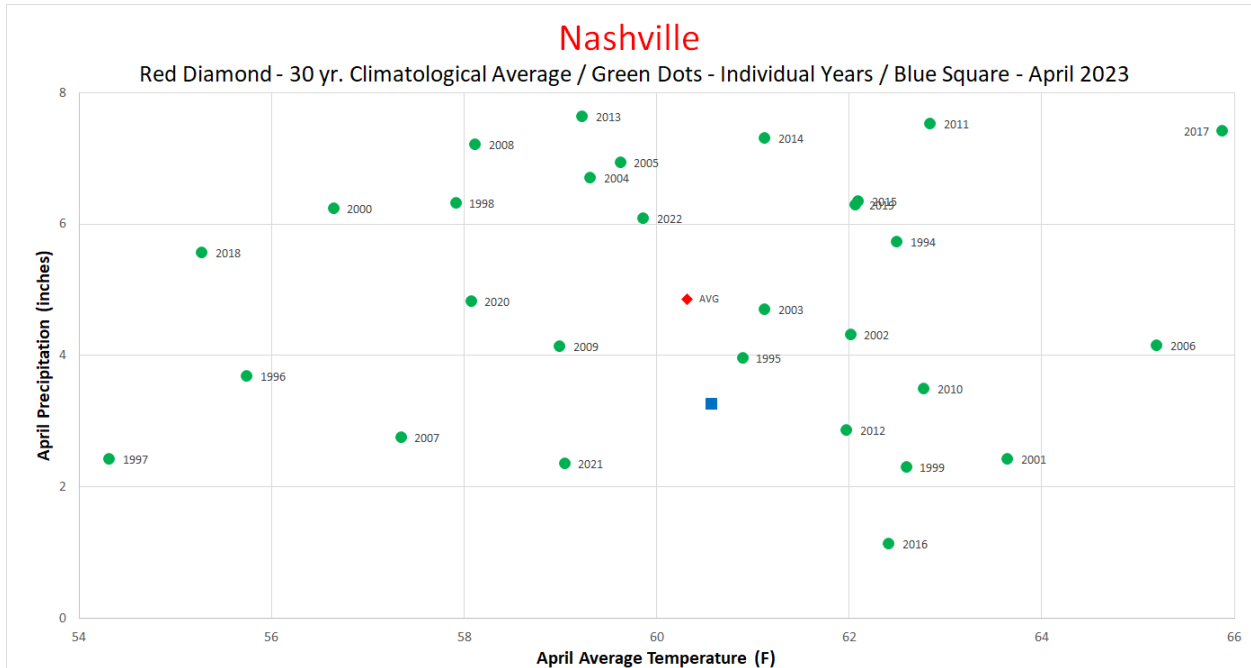
Driest Stations (lowest precipitation totals):

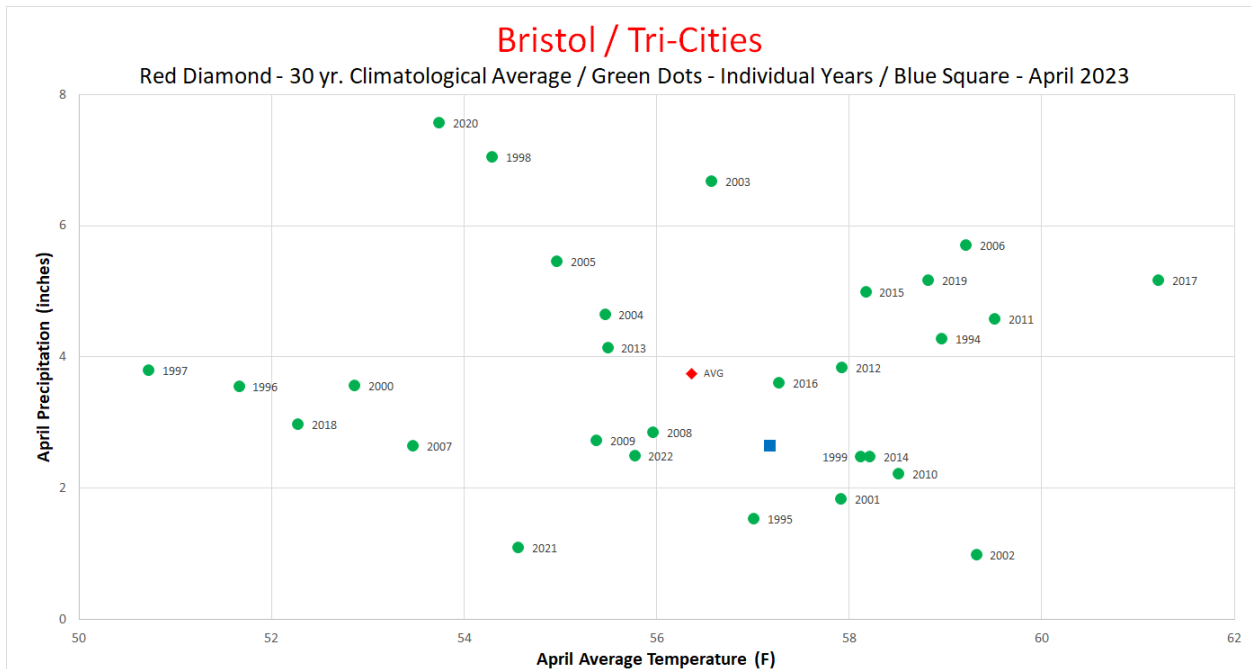
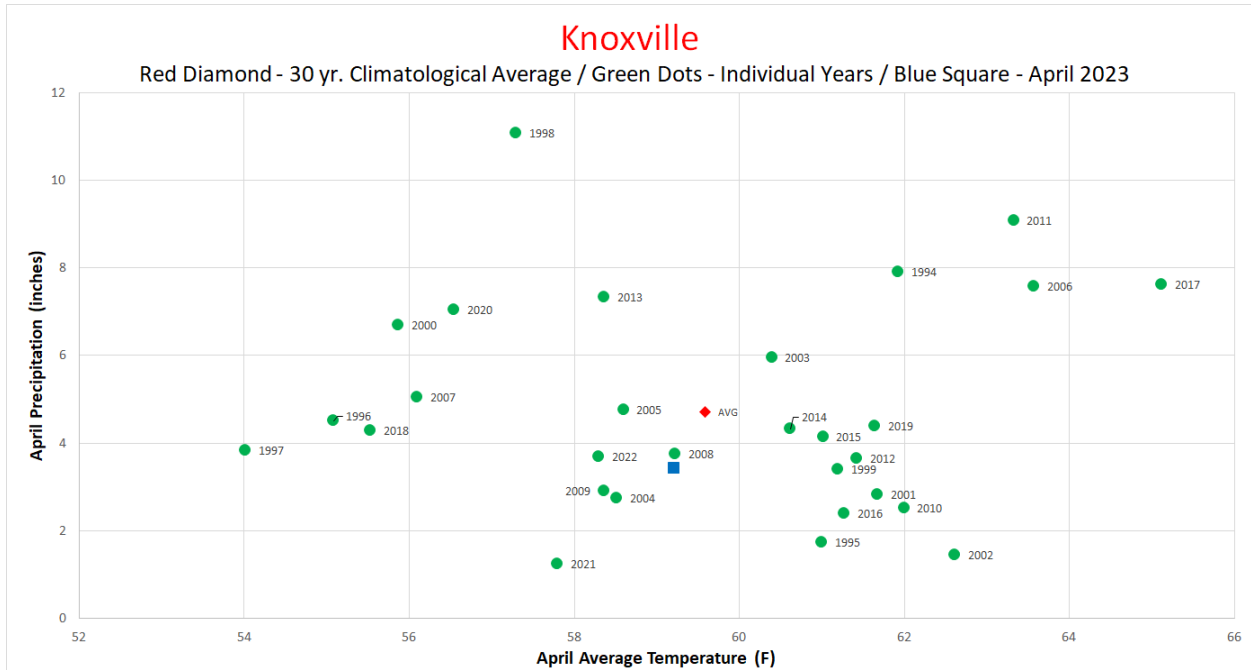
Station Name	Station Type	Total Precipitation (in)
ROGERSVILLE 1 NE	COOP	1.84
KINGSPORT 4.3 ENE	CoCoRaHS	1.91
BAILEYTON 1.0 NW	CoCoRaHS	2.11
NASHVILLE 7.6 WSW	CoCoRaHS	2.12
CROSSVILLE EXP STN	COOP	2.21
CROSSVILLE 11.3 ENE	CoCoRaHS	2.32
BULLS GAP 0.9 SSW	CoCoRaHS	2.36
MAYNARDVILLE 0.6 E	CoCoRaHS	2.37
FAIRFIELD GLADE 0.5 SE	CoCoRaHS	2.37
OAK GROVE 3.0 E	CoCoRaHS	2.38

The Month in Comparison:

Most weather stations across the state recorded near normal temperatures and precipitation. Compared to the mean temperatures and total precipitation for April over the past 30-years, 2023 was not a major outlier in either measurement for airport weather stations across the state.





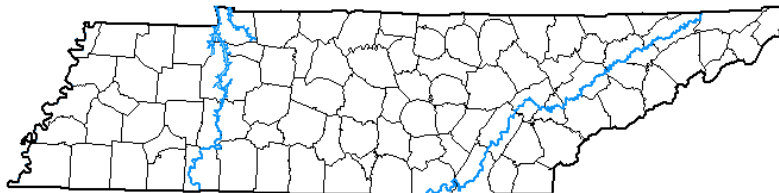


Drought Monitor:

Despite a drying trend for most areas of the state, Tennessee remained clear of drought or abnormally dry conditions on the US Drought Monitor throughout the month of April due to surplus rains from the winter and early spring.

U.S. Drought Monitor Tennessee

April 25, 2023
(Released Thursday, Apr. 27, 2023)
Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



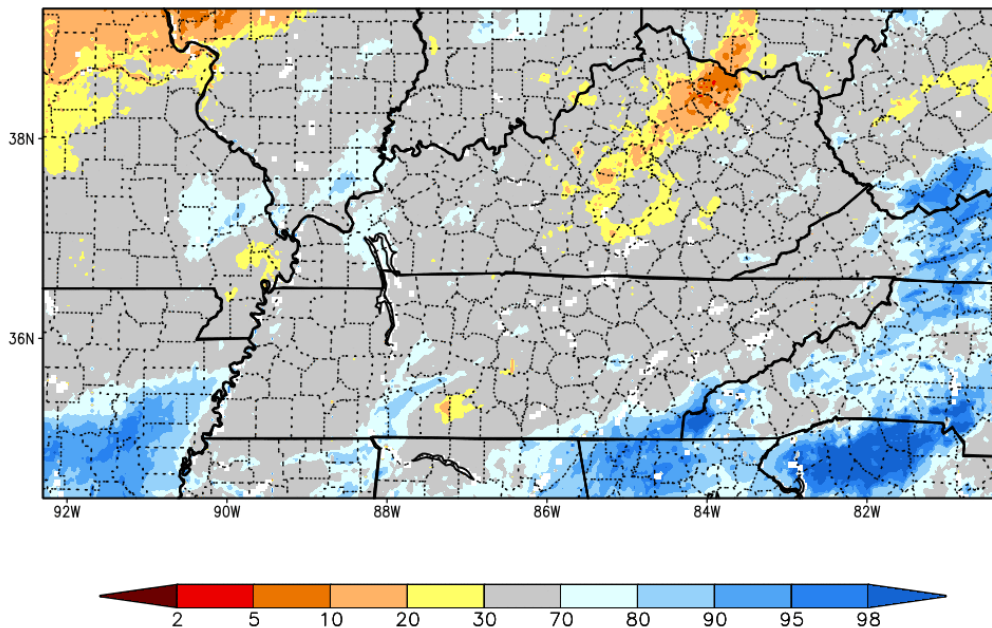
droughtmonitor.unl.edu

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.unl.edu/About.aspx>

Soil Moisture:

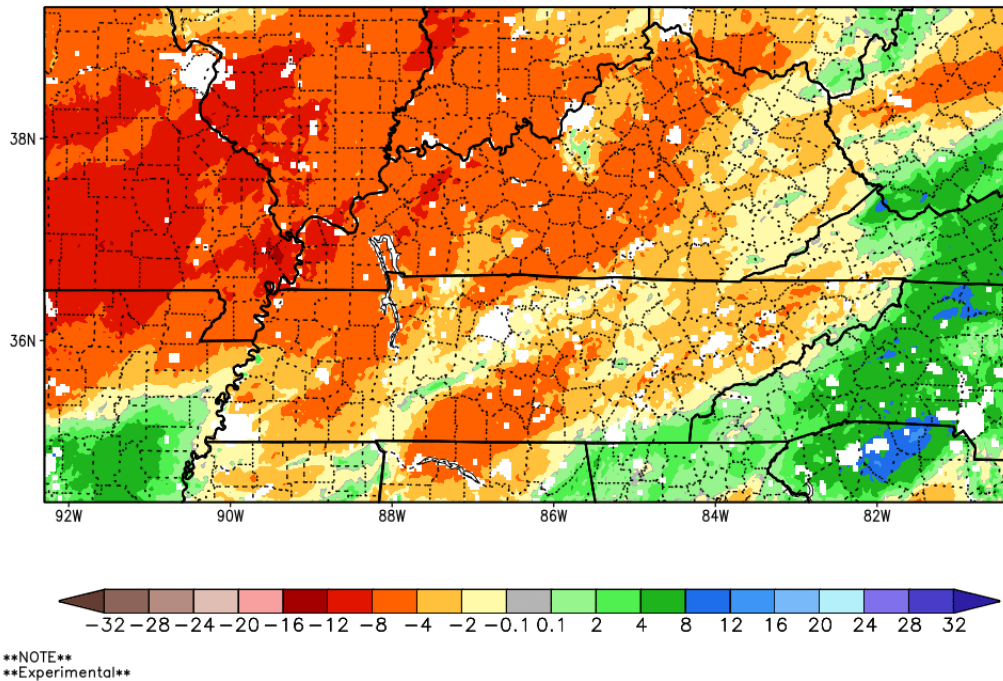
The NASA SPoRT Land Information System showed that most of Tennessee was within the normal range of percentiles (30th-70th percentile) for soil moisture measured in the top 2-meters of the ground. The USDA Crop Weather report for the last week of April rated topsoil moisture as 1% very short, 5% short, 82% adequate, and 12% surplus, and subsoil moisture was rated 1% very short, 4% short, 84% adequate, and 11% surplus.

SPoRT-LIS 0-200 cm Soil Moisture percentile valid 30 Apr 2023



NOTE
Experimental

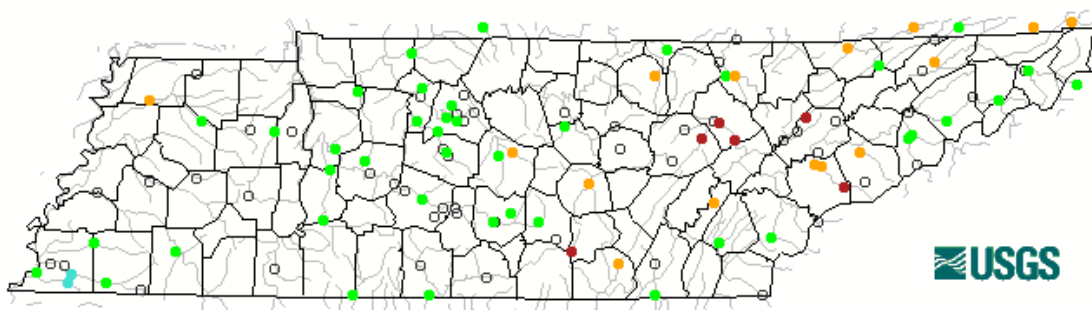
1-Month Difference in Column Relative Soil Moisture (%) valid 12z 30 Apr 2023



Streamflow:

Several streams in the eastern half of the state were showing below or much below normal streamflow averaged over April 2023. These areas coincided with some of the most-below-normal rainfall for the month, but several streams with headwaters on the North Carolina side of the Appalachians had normal flow this month. In southwest Tennessee a couple of stream gauges in Shelby County showed above normal flow, while most other streams in West and Middle Tennessee were in the normal range.

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



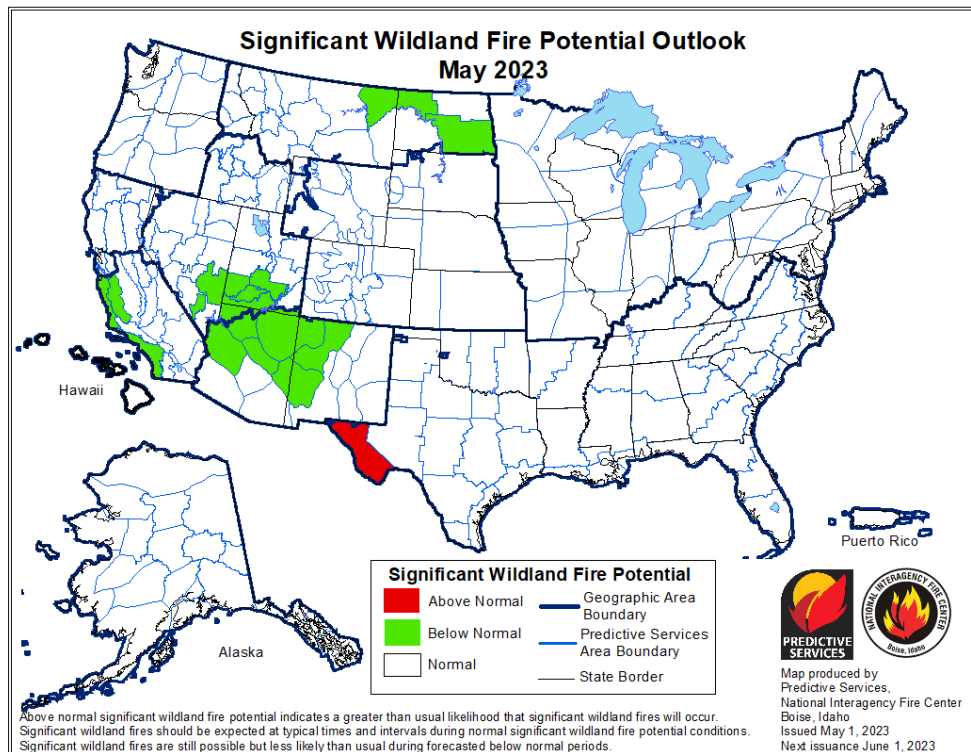
Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Miscellaneous:

Crop Conditions from USDA: High winds on April 1 behind a frontal system damaged barns and greenhouses and downed trees in Middle and East Tennessee. One major impact of the windstorm was to tomato greenhouses in Grainger County in East Tennessee. Wheat, apples, peaches, and strawberries suffered frost damage in Middle Tennessee at the beginning of the month as well. Drier conditions in the middle of the month allowed farmers to make strong progress in planting corn, soybeans, and cotton, with corn and soybean planting well ahead of the 5-year average for this time of year. Warm periods this month and frequent light rains were also good for pastures across the state with the percent of pastures in Good or Excellent condition increasing from 44% on April 2 to 64% on April 30, this has helped livestock producers pull back on hay feeding.

CROP PROGRESS	This Week	Last Week	2022	5 Year Avg.	CONDITION					
					Item	Very Poor	Poor	Fair	Good	Excellent
	Percent					Percent				
Apples – Full Bloom	88	78	82	85	Pasture	1	6	29	52	12
Corn – Planted	60	49	38	46	Winter Wheat	2	5	26	50	17
Corn - Emerged	23	11	9	19	Strawberries	1	3	21	63	12
Cotton - Planted	5	3	3	3	Cattle	1	4	24	60	11
Soybeans - Planted	23	16	8	8	Hay	1	5	38	50	6
Winter Wheat – Jointing	94	91	92	94						
Winter Wheat – Headed	61	38	51	52						

Fire Danger: The National Interagency Fire Center significant wildland fire outlook shows that Tennessee and surrounding regions will have a normal potential for significant fires in May 2023.



Story of the Month:

The main weather and climate stories for April 2023 include strong damaging winds across Tennessee during the day on April 1, and record warmth from April 4-6.

While many of the tornadoes and severe storms from the March 31-April 1 severe weather outbreak occurred after midnight local time in the early morning hours of April 1 for Middle and East Tennessee, these storms were profiled in the March monthly climate summary since the severe weather event started on March 31. After these storms cleared the state a strong pressure gradient produced strong sustained winds and gusts of 40-60 miles per hour across the state. Wind Advisories and High Wind Warnings were issued by National Weather Service offices in Tennessee due to these strong sustained winds and gusts. These non-thunderstorm winds produced damage including damaged roofs and sidings on houses, barns, and greenhouses, downed trees, and power outages. More than 16,000 people were impacted by power outages caused by these winds, and Knoxville had several traffic lights blown down or without power leading to traffic jams in parts of the city. Sadly, in Roane County these winds proved fatal as one person was killed and another injured when they were struck by wind-blown debris.



During the month of April there were 26 daily high temperature records set, and all but one of those were recorded during the April 4-6 heat wave that sent temperatures into the upper 80's and even low 90's in parts of the state. Additionally, there were 31 daily record warm low temperatures set this month, with 28 occurring during the first week of April. A weather station in Pikeville recorded a low of 68°F on April 5, setting a monthly record for the warmest low recorded during April at this station.

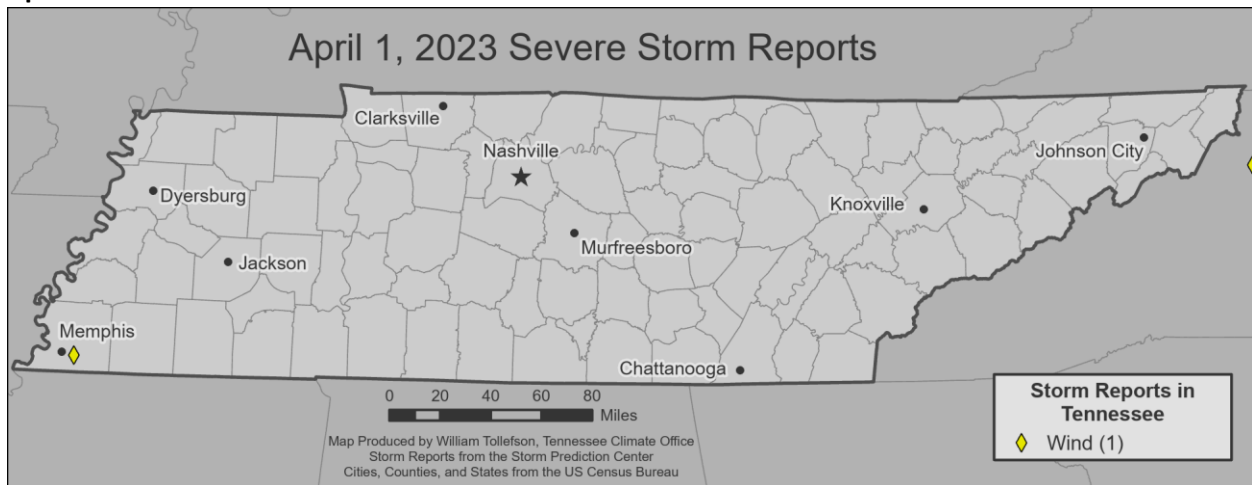
Storm Reports:

**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 5 days with severe storm reports during April 2023, with no reported tornadoes, 12 reports of severe wind damage, and 6 reports of severe hail (with a diameter of 1" or larger).

Note: The NOAA Storm Prediction Center storm reports used for this section are collected from 12:00UTC – 11:59UTC (7:00am – 6:59am CDT the following morning). Because of this, severe storm reports from before 7:00am CDT on April 1, 2023 were listed and counted with the March 31, 2023 storm reports, that included 4 tornadoes, 27 severe wind reports, and 7 severe hail reports which occurred before 7am CDT/8am EDT on April 1.

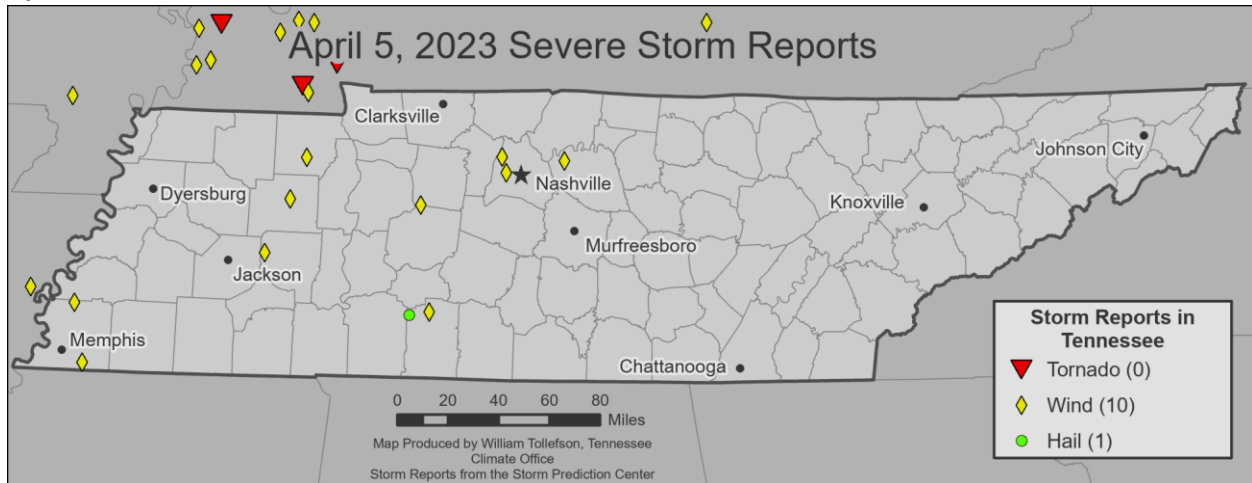
April 1



Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
18:51	--	1 N SOUTHEAST MEMPHIS	SHELBY	35.09	-89.89	TREES UPROOTED OR SNAPPED; ROOF BLOWN OFF. (MEG)

April 5



Wind:

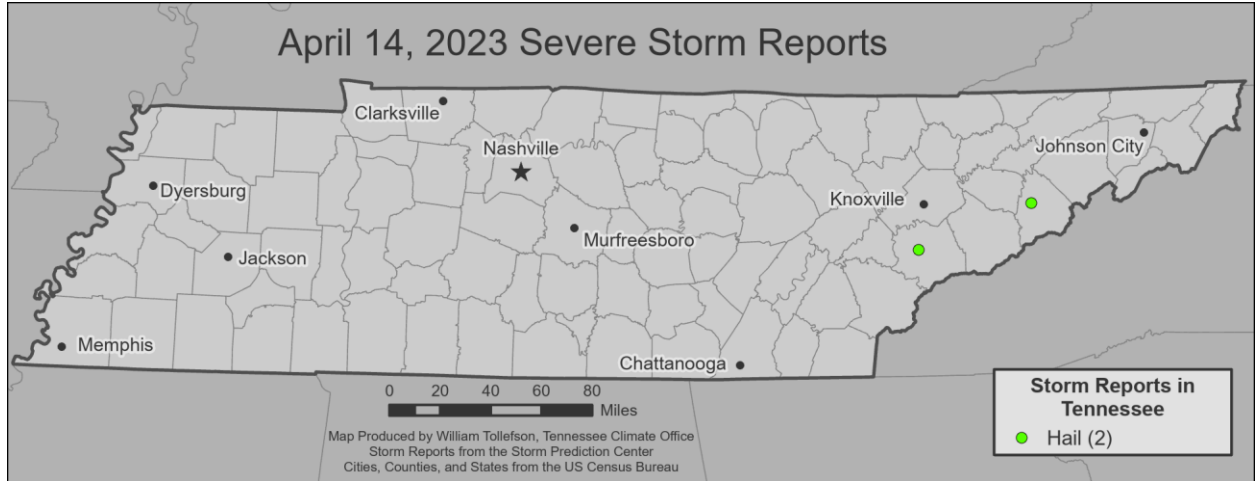
Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
18:29	--	3 ESE SOUTHEAST MEMPHIS	SHELBY	35.04	-89.83	POWER POLES AND POWERLINES DOWN ON RIVERDALE ROAD. (MEG)
18:30	--	3 N MILLINGTON	SHELBY	35.38	-89.9	LARGE TREE DOWN ACROSS WILKINSVILLE ROAD BETWEEN WEST UNION AND WALKER. (MEG)
19:15	--	HUNTINGDON	CARROLL	36.01	-88.41	PENNY SIZED HAIL REPORTED. (MEG)
19:25	--	BLUE GOOSE	HENDERSON	35.7	-88.58	DAMAGE TO METAL OUTBUILDING IN THE BLUE GOOSE COMMUNITY. (MEG)
19:37	--	3 S PARIS	HENRY	36.25	-88.3	TREE DOWN APPROXIMATELY 3 TO 5 MILES FROM 77... AND POWERLINES DOWN ACROSS REYNOLDSBURG RD. AND HIGHWAY 77. (MEG)
20:18	--	9 SW DICKSON	HICKMAN	35.99	-87.49	TREE DOWNED AND BLOCKING THE HIGHWAY ALONG I-40 AT MILE MARKER 163. TIME ESTIMATED BASED ON RADAR. (OHX)
21:02	--	8 E ASHLAND CITY	DAVIDSON	36.27	-86.92	TREE SNAPPED ALONG LITTLE MARROWBONE ROAD NEAR BEAMAN PARK. REPORT AND PHOTO COURTESY OF TSPOTTER. (OHX)
21:05	64	6 W NASHVILLE	DAVIDSON	36.18	-86.89	AWOS STATION KJWN NASHVILLE JOHN TUNE AIRPORT. (OHX)
21:11	--	8 WSW SUMMERTOWN	LAWRENCE	35.38	-87.42	FOUR INCH DIAMETER CHERRY TREE DOWNED ALONG TENNESSEE ROUTE 240. (OHX)
21:31	60	4 NE MOUNT JULIET	WILSON	36.25	-86.48	PUBLIC WEATHER STATION NORTHEAST OF MOUNT JULIET. (OHX)

April 2023 Tennessee State Climate Summary

Hail

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
21:03	1.00	11 ENE WAYNESBORO	LAWRENCE	35.36	-87.56	SCHOOL BUS DRIVER REPORTED ESTIMATED QUARTER SIZE HAIL ALONG BRUSH CREEK ROAD. (OHX)

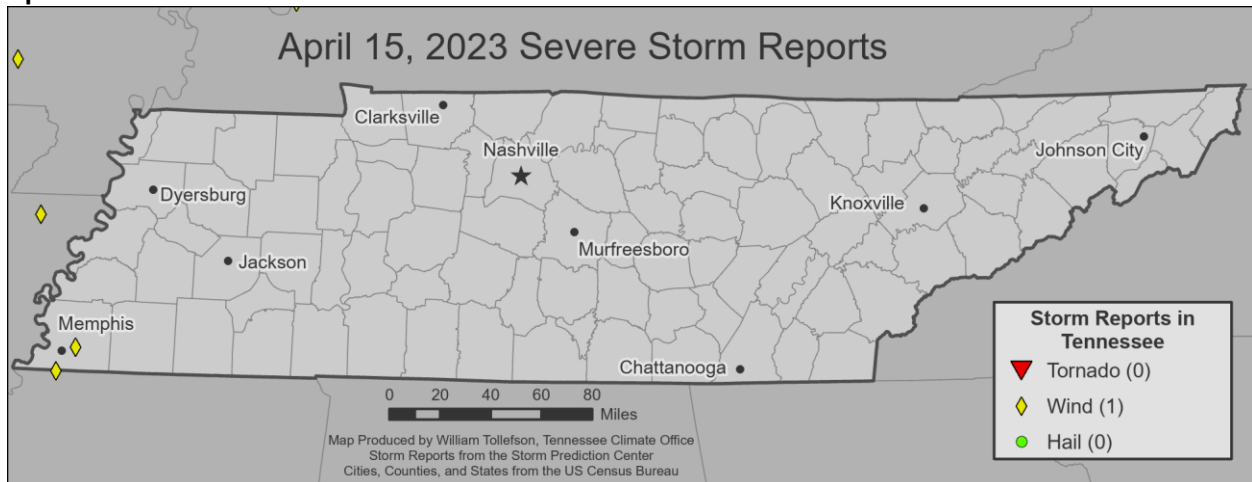
April 14



Hail:

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
17:16	1.00	3 SSW MARYVILLE	BLOUNT	35.71	-83.99	SOCIAL MEDIA REPORT OF 0.75-TO-1.00-INCH HAIL SOUTH OF MARYVILLE. TIME AND LOCATION BASED ON RADAR. (MRX)
19:35	1.00	NEWPORT	COCKE	35.96	-83.19	(MRX)

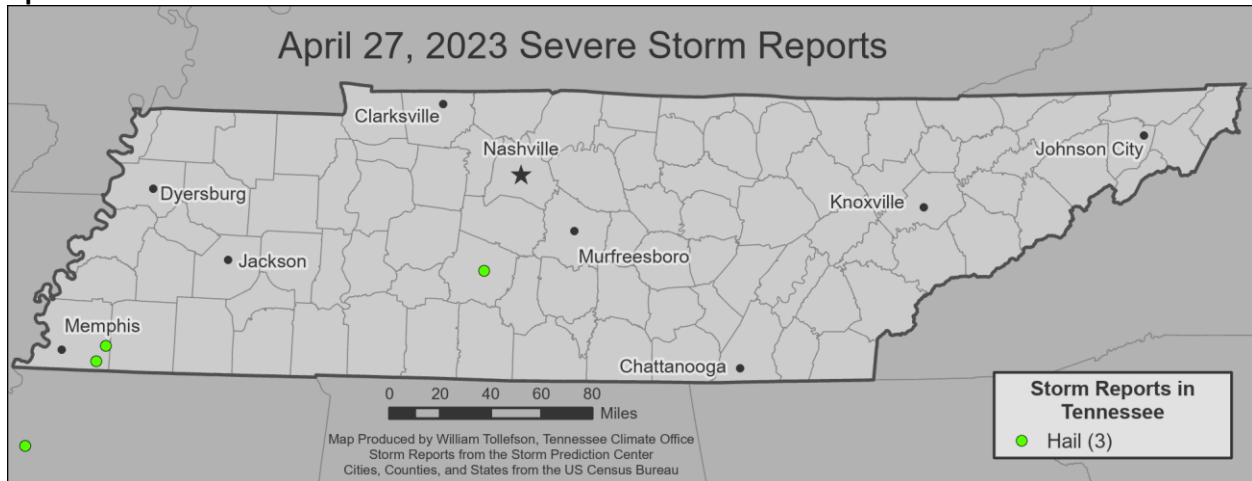
April 15



Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
1:55	--	4 N SOUTHEAST MEMPHIS	SHELBY	35.13	-89.88	TREES AND POWER LINES DOWN NEAR WALNUT GROVE ROAD AND YATES ROAD. (MEG)

April 27



Hail

Time (UTC)	Size	Location	County	Lat	Lon	Comments
23:10	1.50	3 W COLLIERVILLE	SHELBY	35.05	-89.73	HAIL UP TO THE SIZE OF PING PONG BALLS AT HOUSTON LEVEE ROAD AND POPLAR AVENUE. (MEG)
23:32	1.00	4 S EADS	SHELBY	35.14	-89.67	(MEG)
8:13	1.00	1 ESE COLUMBIA	MAURY	35.62	-87.04	TSPOTTER REPORT OF QUARTER SIZE HAIL. SEVERE THUNDERSTORM WARNING IN EFFECT AT TIME OF REPORT. (OHX)

CPC Outlooks for the Next Month:

The NOAA Climate Prediction Center 1-month outlook for May 2023 shows that all of Tennessee is leaning towards below average temperatures, with 33-40% confidence across the state and surrounding regions. Most of Tennessee is leaning towards a below normal precipitation pattern as well, with 33-40% confidence, while southern portions of the state are shown with equal chances for above or below normal precipitation.

