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Tennessee Climate Office Monthly Report

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5-1-2019

### 2019 May - Tennessee Monthly Climate Report

Tennessee Climate Office, East Tennessee State University

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# May 2019 Tennessee State Climate Summary

Tennessee Climate Office \* East Tennessee State University

Prepared by William Tollefson and Dr. Andrew Joyner

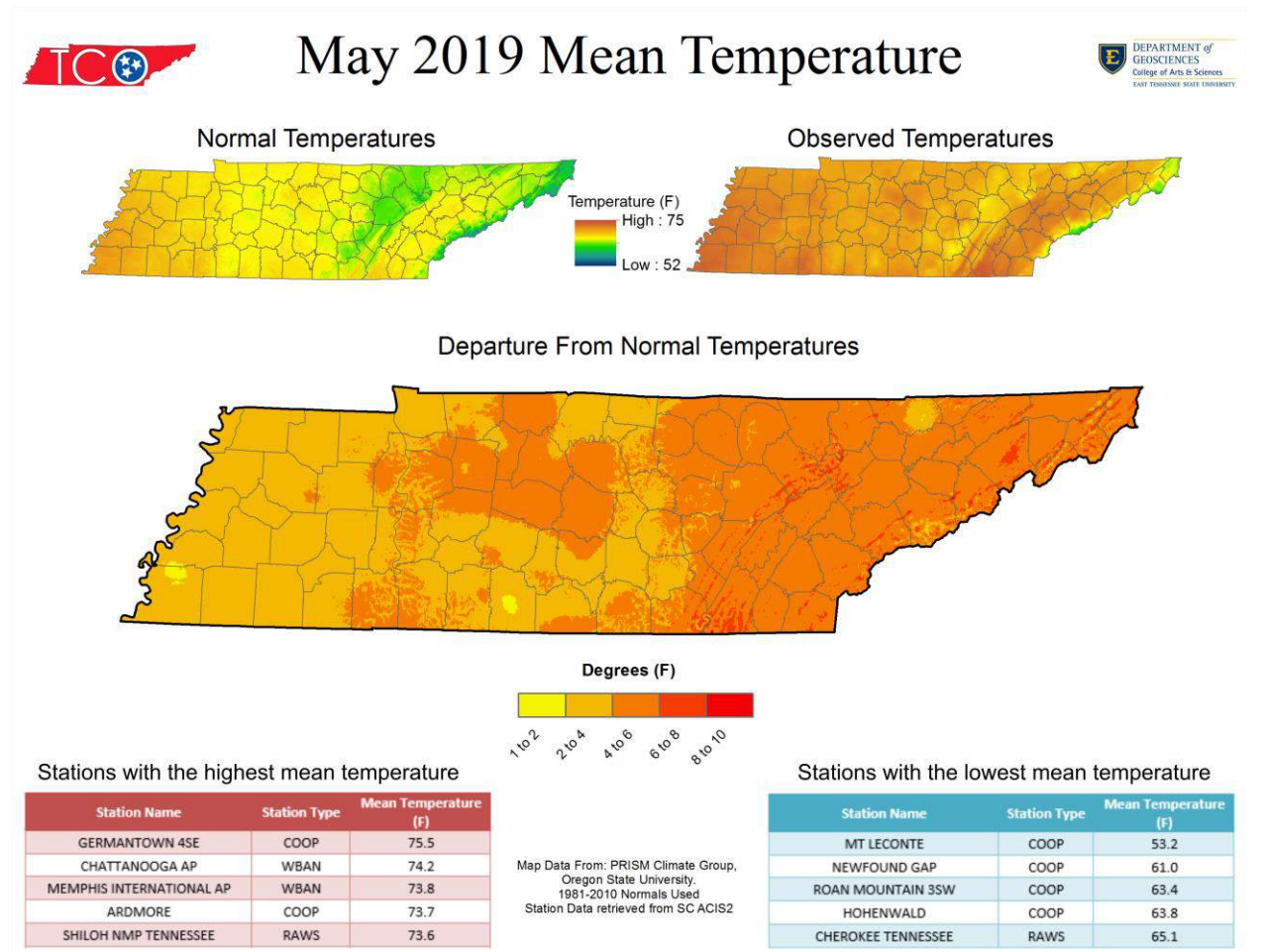
With contributions by Climate Data Representatives at University of Tennessee-Martin, Vanderbilt University, and University of Tennessee-Institute of Agriculture

## Monthly Temperature Summary:

May was warmer than normal for all parts of Tennessee, with average temperatures for the month 2-4°F above normal for most of West Tennessee, and 4-6°F above normal for most of East and Middle Tennessee. The closer to normal average temperatures in the western part of the state were mainly due to a strong cool front that moved across the state in the second week of the month resulting in temperatures 4-8°F below normal for the week. An additional cool spell occurred at the very end of May into the beginning of June, but otherwise temperatures were consistently above normal throughout the month.

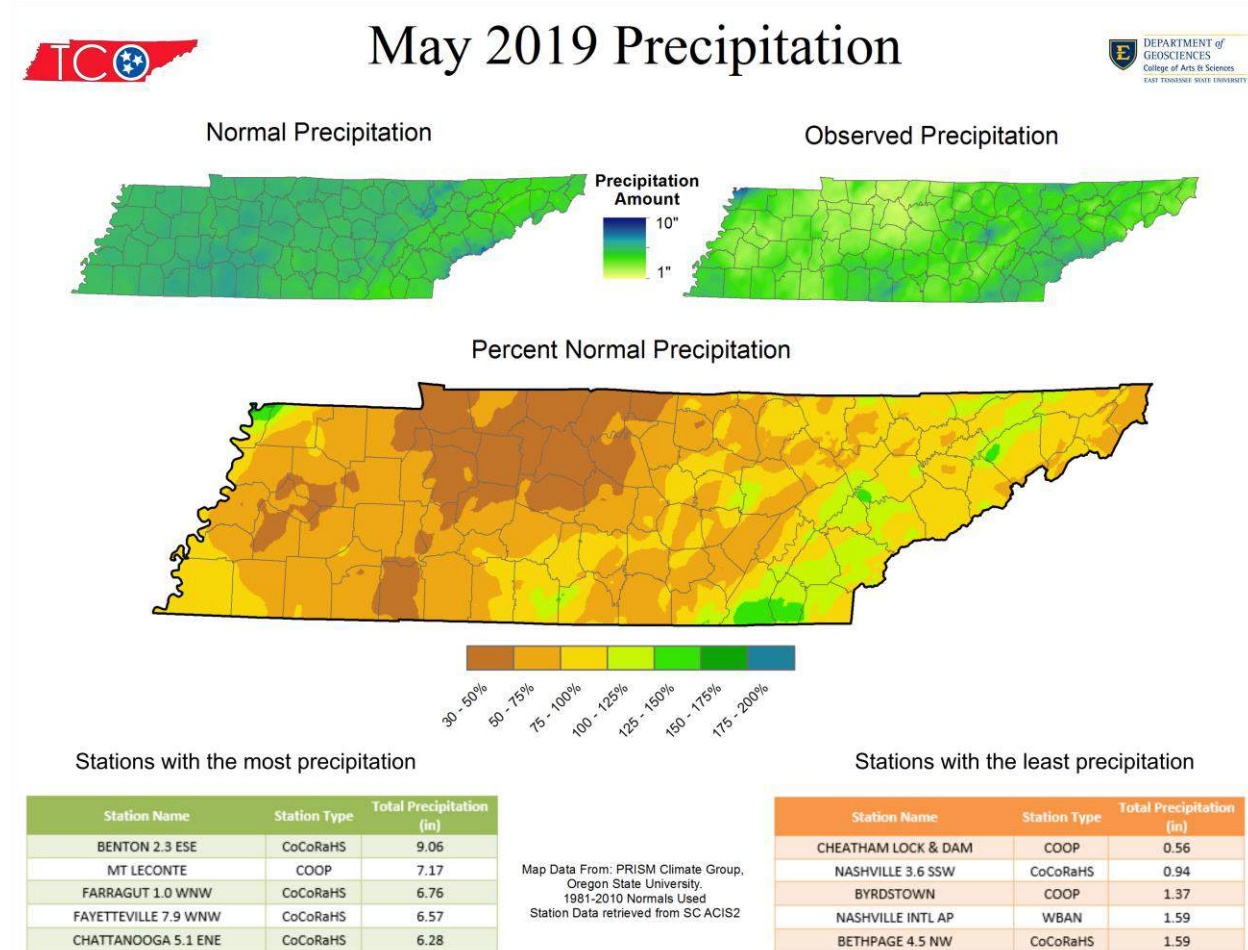
High temperatures reached 90°F or above for 88 of the 120 temperature reporting stations across the state at some time during the month. The Woodbury 1WNW COOP station reported the highest maximum temperature at 98 degrees on May 27th.

The coldest low temperatures occurred in the middle of the month, with many stations across the state reporting low temperatures in the low-40's to upper-30's from the 14<sup>th</sup> to the 16<sup>th</sup>, and some frost occurred.



### Monthly Precipitation Summary:

Most of the state recorded below normal rainfall for the month, with a few exceptions in East Tennessee, as well as northern Lake and northwest Obion Counties in West Tennessee. Heavy rainfall occurred in the first week of the month, with totals of 2-4 inches common in East Tennessee as well as southern sections of Middle and West Tennessee. Above normal rainfall continued for East Tennessee into the second week of the month, while most of West Tennessee and northern sections of Middle Tennessee were falling below average. Precipitation all but ceased for the second half of the month across the state, leading to below normal monthly totals.



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

**Hottest Stations (highest maximum temperature)**

Station Name	Station Type	Highest Temperature (F)
WOODBURY 1 WNW	COOP	98
MEMPHIS WFO	WBAN	96
GERMANTOWN 4SE	COOP	96
ARDMORE	COOP	96
CHATTANOOGA AP	WBAN	95
OAK RIDGE ASOS	WBAN	95
SHILOH NMP TENNESSEE	RAWS	95
LEWISBURG EXP STA	COOP	95
BROWNSVILLE	COOP	95
LEBANON 7 N	COOP	95
WINCHESTER 5SE	COOP	95

**Coldest Stations (lowest minimum temperature)**

Station Name	Station Type	Lowest Temperature (F)
MT LECONTE	COOP	27
CLARKSVILLE WWTP	COOP	30
HOHENWALD	COOP	32
NEWFOUND GAP	COOP	33
ROAN MOUNTAIN 3SW	COOP	34
COALMONT	COOP	36
BLEDSON SF TENNESSEE	RAWS	37
BRENTWOOD	COOP	38
CROSSVILLE 7 NW	WBAN	39
BRISTOL AP	WBAN	39
CROSSVILLE MEMORIAL AP	WBAN	39
CHEROKEE TENNESSEE	RAWS	39
MONTGOMERY BELL SP	COOP	39
TAZEWELL	COOP	39
CROSSVILLE EXP STN	COOP	39

**Warmest Stations (highest mean temperatures)**

Station Name	Station Type	Mean Temperature (F)
GERMANTOWN 4SE	COOP	75.5
CHATTANOOGA AP	WBAN	74.2
MEMPHIS INTERNATIONAL AP	WBAN	73.8
ARDMORE	COOP	73.7
SHILOH NMP TENNESSEE	RAWS	73.6
WINCHESTER 5SE	COOP	73.6
MEMPHIS WFO	WBAN	73.2
SAVANNAH 6 SW	COOP	73.0
OAK RIDGE ASOS	WBAN	72.8
LENOIR CITY TENNESSEE	RAWS	72.8

**Coollest Stations (lowest mean temperatures)**

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	53.2
NEWFOUND GAP	COOP	61.0
ROAN MOUNTAIN 3SW	COOP	63.4
HOHENWALD	COOP	63.8
CHEROKEE TENNESSEE	RAWS	65.1
CROSSVILLE EXP STN	COOP	65.5
TAZEWELL	COOP	65.5
CROSSVILLE 7 NW	WBAN	65.6
COALMONT	COOP	66.0
TOWNSEND 5S	COOP	67.0

**Wettest Stations (highest precipitation totals):**

Station Name	Station Type	Total Precipitation (in)
BENTON 2.3 ESE	CoCoRaHS	9.06
MT LECONTE	COOP	7.17
FARRAGUT 1.0 WNW	CoCoRaHS	6.76
FAYETTEVILLE 7.9 WNW	CoCoRaHS	6.57
CHATTANOOGA 5.1 ENE	CoCoRaHS	6.28
CROSSVILLE MEMORIAL AP	WBAN	6.20
NEWCOMB	COOP	6.17
NEWFOUND GAP	COOP	6.08
FAIRFIELD GLADE 0.1 NNW	CoCoRaHS	6.00
PETROS 0.2E	CoCoRaHS	5.98
CLEVELAND 5.2 SE	CoCoRaHS	5.98

**Driest Stations (lowest precipitation totals):**

Station Name	Station Type	Total Precipitation (in)
CHEATHAM LOCK & DAM	COOP	0.56
NASHVILLE 3.6 SSW	CoCoRaHS	0.94
BYRDSTOWN	COOP	1.37
NASHVILLE INTL AP	WBAN	1.59
BETHPAGE 4.5 NW	CoCoRaHS	1.59
OLD HICKORY 1.6 SSE	CoCoRaHS	1.65
CLARKSVILLE 13.5 SSE	CoCoRaHS	1.68
BELLS BEND NATURE CENTER	COOP	1.70
NASHVILLE BERRY FIELD	COOP	1.70
CARTHAGE	COOP	1.70

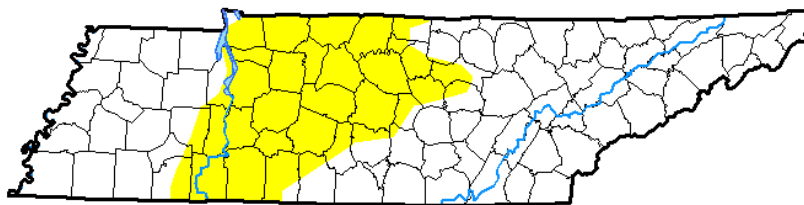
**Drought Monitor:**

The below normal rainfall observed for the majority of the month in Middle and West Tennessee combined with the warmer than normal temperatures led to the introduction of “Abnormally Dry” (D0 drought) conditions in the state for the first time in 2019 in the May 21<sup>st</sup> Drought Monitor. D0 conditions were expanded to most of Middle Tennessee in the May 28<sup>th</sup> Drought Monitor the next week, which was the last release of the month.

*Author:*  
Richard Heim  
NCEI/NOAA

**U.S. Drought Monitor  
Tennessee**

**May 28, 2019**  
(Released Thursday, May. 30, 2019)  
Valid 8 a.m. EDT



**Intensity:**

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

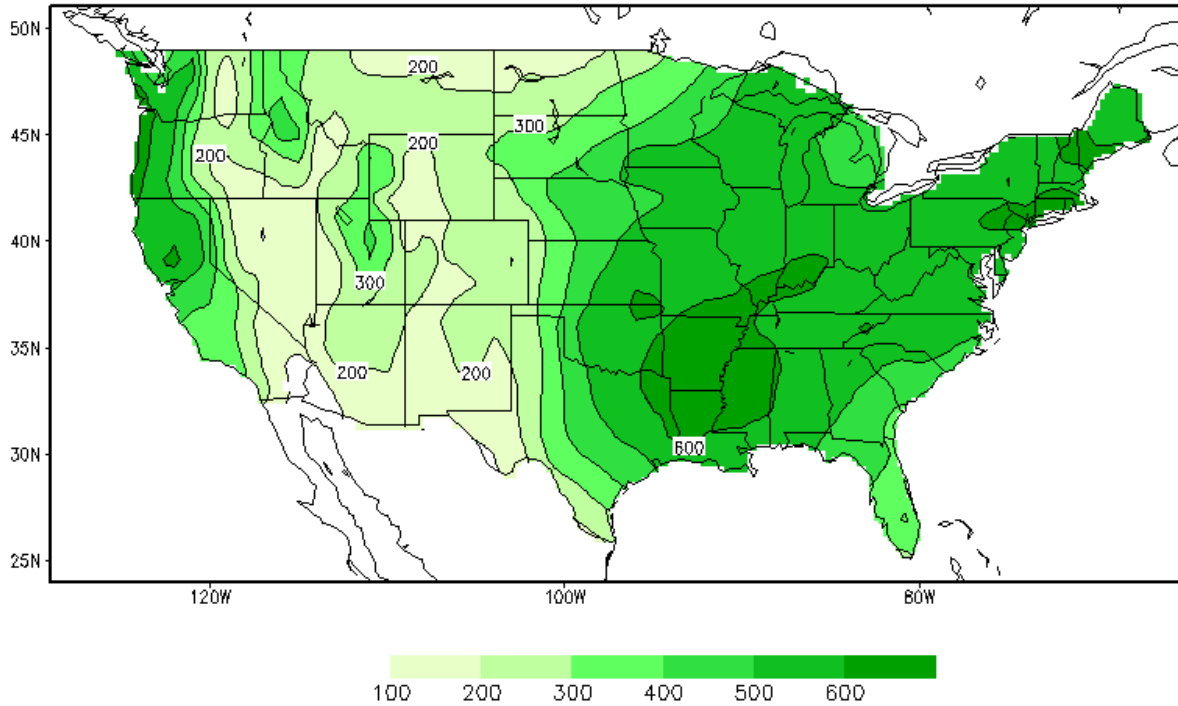
<http://droughtmonitor.unl.edu/>



**Soil Moisture:**

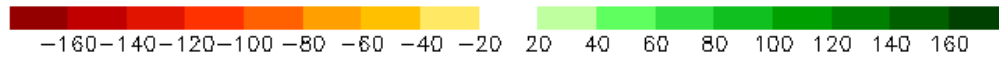
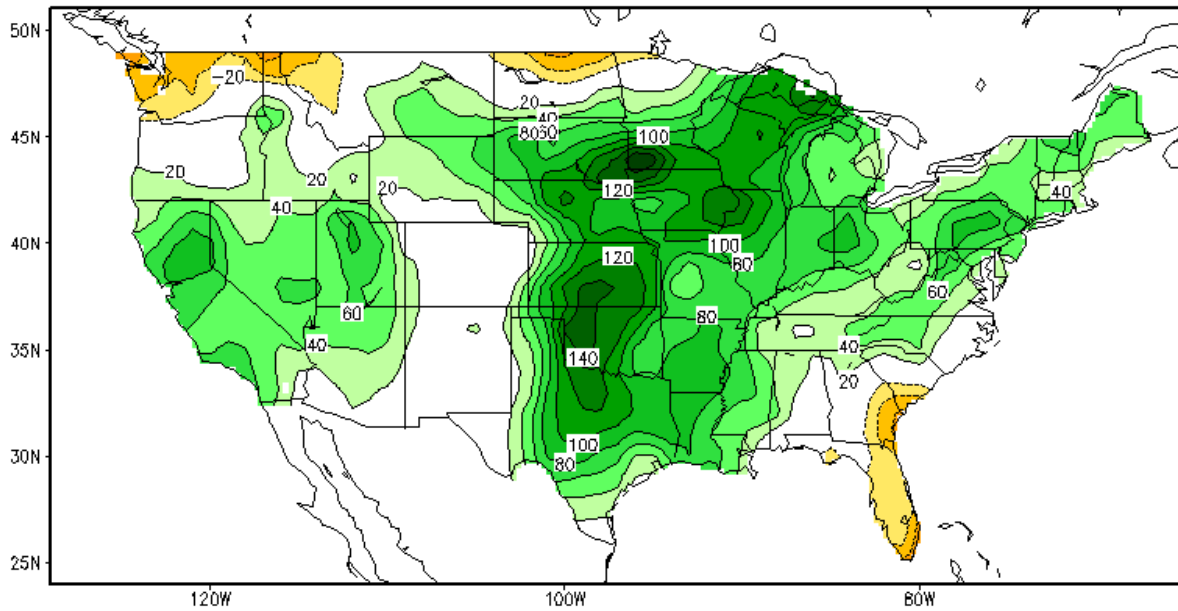
The warm and dry conditions across the state were also reflected in soil moisture readings, as monthly average soil moisture readings fell below 600mm for most of the state. This was still slightly above normal for the month, but by the end of the month, the surplus from the previously wet conditions observed this year had been depleted across the state in all but the northeast and extreme western areas of the state.

**Calculated Soil Moisture (mm)  
MAY, 2019**

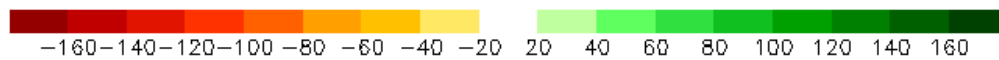
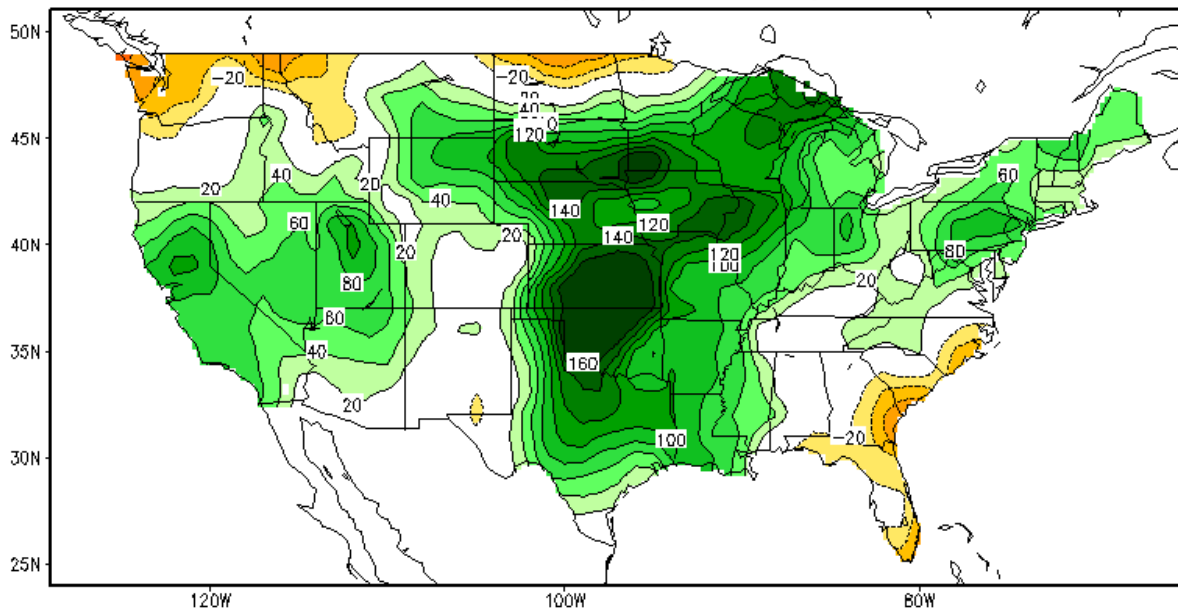




### Calculated Soil Moisture Anomaly (mm) MAY, 2019



### Soil Moisture Anomaly (mm) Last day of MAY, 2019

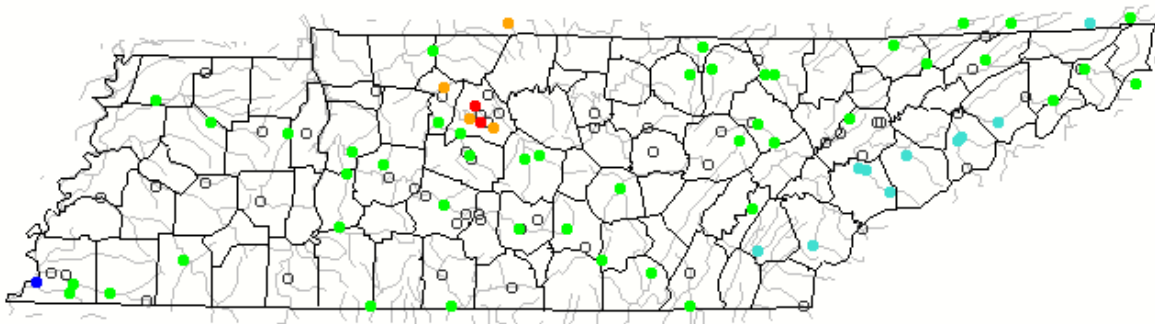




**Streamflow:**

Many streams started the month with above normal flow conditions, but due to the lack of rain, warmer than normal conditions, and depletion of soil moisture surpluses, most streams fell to normal flow rates. Streams along the mountains in East Tennessee stayed above normal, mainly due to heavy rains in the first half of the month, but streams near Nashville dropped to below normal flow. The Mississippi River fell below flood stage at all Tennessee gauges, but was still high. The river is forecast to return to minor flood stage at Tiptonville, TN and Caruthersville, MO and moderate flood stage at Osceola, AR in the beginning of June. River levels will remain high for the foreseeable future as flood waters from the Upper Mississippi and Missouri River basins continues to work their way down the system.

May 2019



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

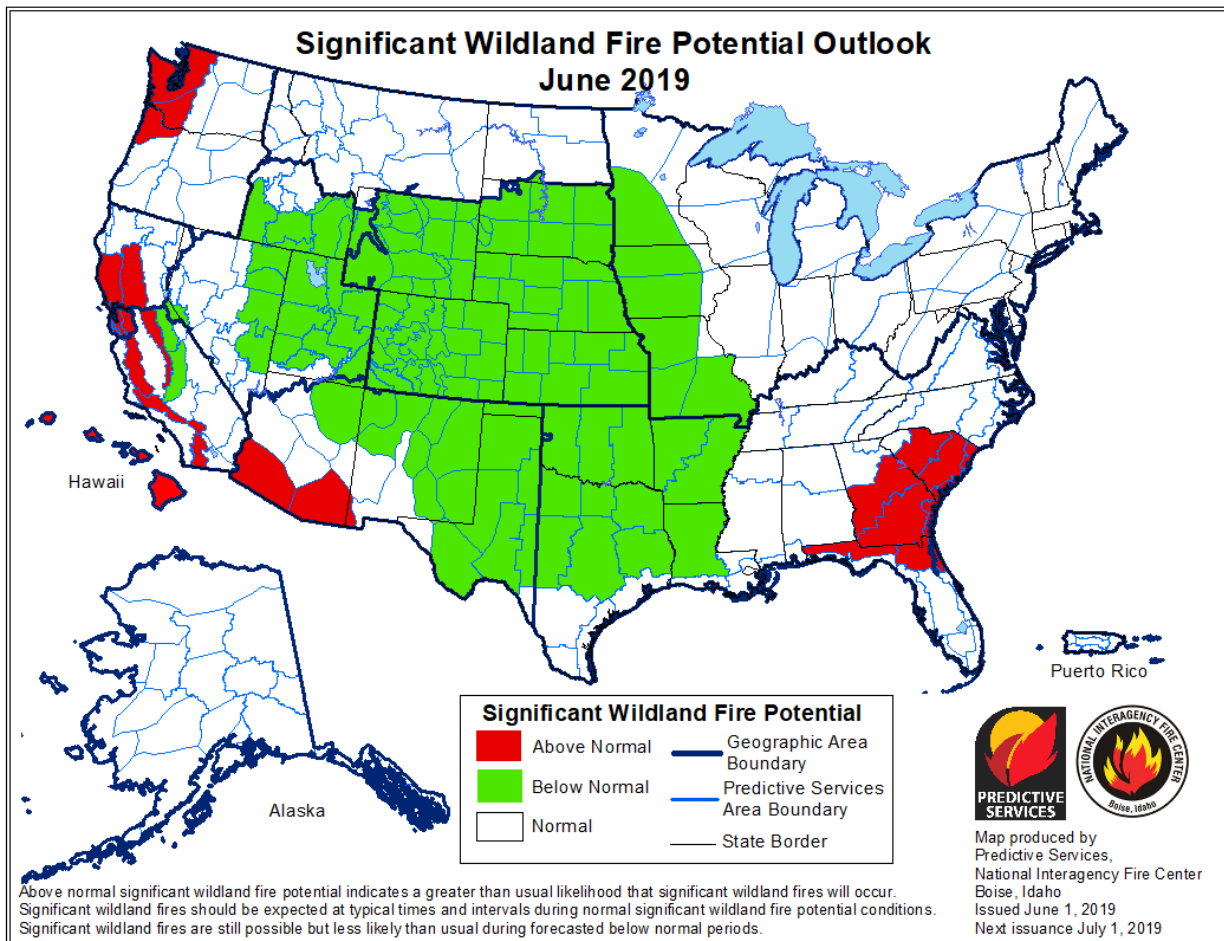
Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

**Miscellaneous:**

**Crop Conditions from USDA:** Wet weather at the beginning of the month kept many farmers out of their fields, and resulted in delayed planting progress. Dry weather for the second half of the month allowed many crops to start catching up with 5-year averages, however the dryness combined with warmer than normal temperatures put stress on livestock. Topsoil moisture rated 2 percent very short, 19 percent short, 72 percent adequate, and 7 percent surplus. Subsoil moisture rated 1 percent very short, 8 percent short, 75 percent adequate, and 16 percent surplus. The strawberry crop ended at the beginning of the month with 75% in good to excellent condition, and only 3% in poor condition.

CROP PROGRESS					CONDITION					
Crop	This Week	Last Week	2018	5 Year Avg.	Item	Very Poor	Poor	Fair	Good	Excellent
	Percent					Percent				
Corn – Planted	93	85	97	97	Corn	0	3	24	53	20
Corn – Emerged	81	72	88	88	Winter Wheat	2	6	28	51	13
Cotton – Planted	75	50	86	81	Pasture	0	4	29	58	9
Cotton – Squaring	2	1	1	1	Hay	1	4	25	55	15
Soybeans – Planted	49	31	61	50						
Soybeans – Emerged	28	14	37	28						
Winter Wheat – Headed	99	97	98	98						
Winter Wheat – Coloring	63	32	67	53						

**Fire Danger:** Despite the drying conditions this month, the Interagency Fire Center significant wildland fire potential outlook for June remains normal for all sections of Tennessee.



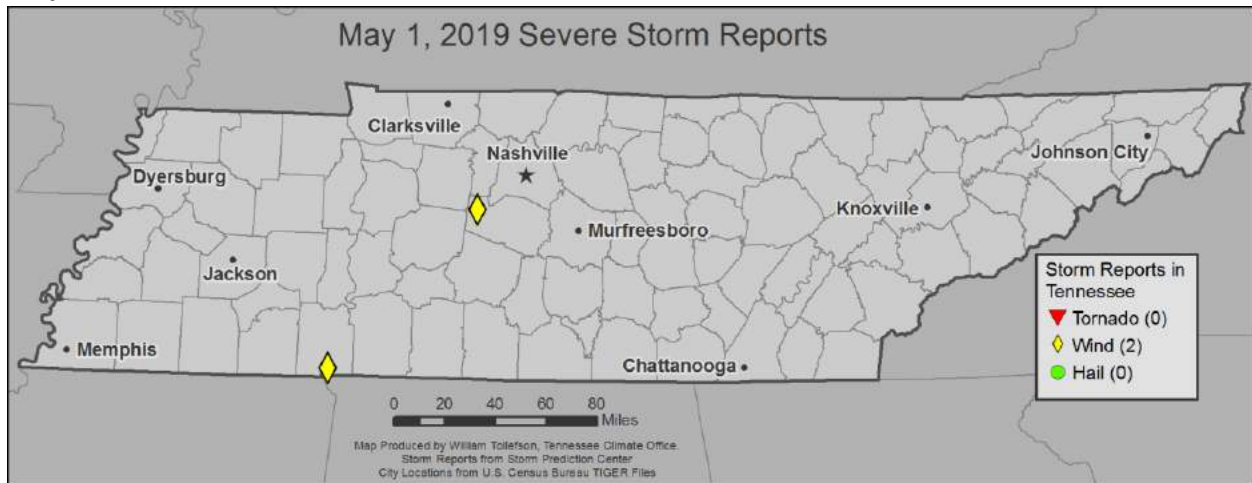
### Story of the Month:

The main weather/climate story for May 2019 in Tennessee was the switch from a very wet winter and early spring into a dry late spring with more summer like temperatures. As discussed in the monthly precipitation summary, drought monitor, soil moisture and streamflow sections, the sudden switch to a dry pattern resulted in D0 “Abnormally Dry” conditions being indicated on the Drought Monitor for the first time in 2019 in Tennessee. The dryness was a benefit for some, allowing farmers in the middle and western portions of the state to start catching up to 5-year averages on percent of crop planted. However, the dryness combined with the heat during the second half of the month began to stress some crops and livestock across parts of the state. At least one weather station set a daily record high in Middle or East Tennessee each day from May 21<sup>st</sup> to May 29<sup>th</sup>, kicking off a summer-like pattern surrounding the Memorial Day holiday weekend.

### Storm Reports:

Severe weather occurred on 7 days during the month with a total of 4 reports of tornadoes, 26 reports of severe wind damage, and 13 reports of hail 1” or larger.

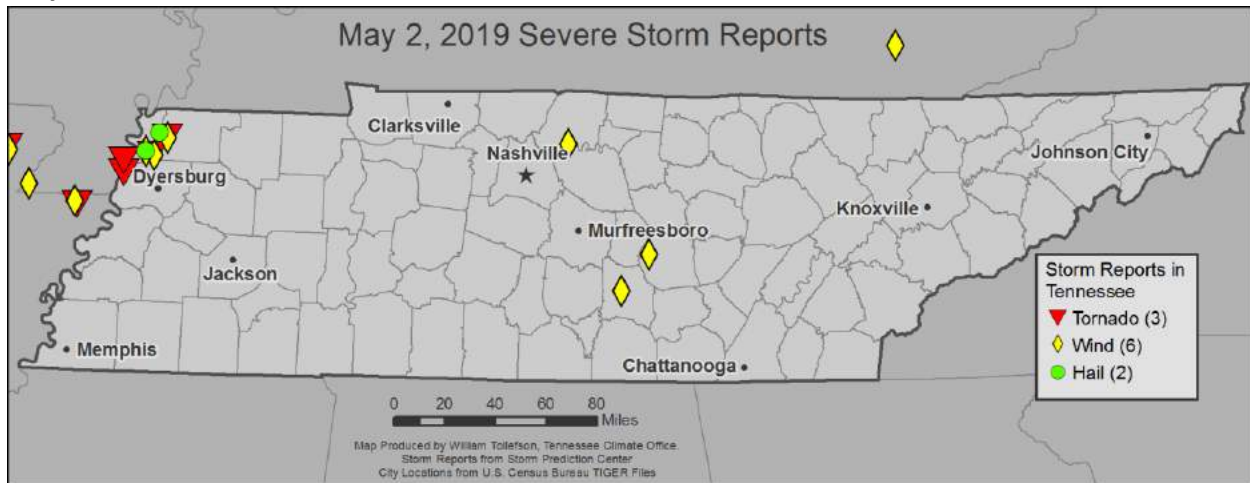
#### May 1:



#### Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
21:21	--	5 E PICKWICK DAM	HARDIN	35.05	-88.16	POWER OUTAGES REPORTED ACROSS PORTIONS OF HARDIN COUNTY. PHOTOS RECEIVED OF DAMAGED POWER LINES. (MEG)
22:30	--	1 SSW FAIRVIEW	WILLIAMSON	35.97	-87.13	LARGE TREE HIT BACK SECTION OF DOS MARGARITAS RESTAURANT. TIME ESTIMATED BY RADAR. (OHX)

**May 2:**



**Tornado:**

Time (UTC)	Strength	Location	County	Lat	Lon	Comments
23:19	UNK	2 ENE CARUTHERSVILLE	LAKE	36.2	-89.63	TORNADO REPORTED EAST OF CARUTHERSVILLE. (MEG)
23:21	EFO	3 ESE RIDGELY	OBION	36.24	-89.43	EF-0 TORNADO CAUSED TREE DAMAGE ALONG BLUFF ROAD. (MEG)
23:43	UNK	2 WNW HORNBEAK	OBION	36.34	-89.33	BRIEF TORNADO CAUSED TREE DAMAGE ALONG HIGHWAY 21. (MEG)

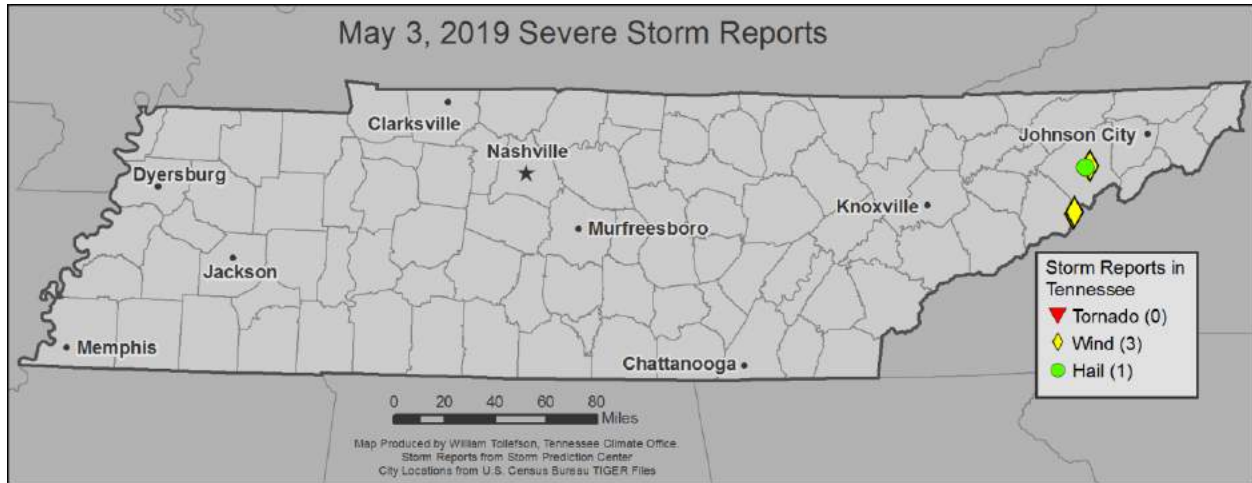
**Wind:**

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
20:40	--	3 NNW MANCHESTER	COFFEE	35.51	-86.11	LARGE TREE UPROOTED AND POWER POLE SNAPPED. TIME ESTIMATED FROM RADAR. (OHX)
21:07	--	CENTERTOWN	WARREN	35.72	-85.92	TREE DOWN NEAR CENTERTOWN. (OHX)
21:18	--	3 SW GALLATIN	SUMNER	36.35	-86.49	SHINGLES BLOWN OFF OF ROOF AND HEAVY OUTDOOR FURNITURE DISPLACED. TIME ESTIMATED BY RADAR. (OHX)
23:20	--	4 ESE RIDGELY	OBION	36.24	-89.42	LARGE BRANCHES DOWN NEAR THE INTERSECTION OF SOUTH BLUFF ROAD AND BUD BARKER ROAD. (MEG)
23:40	--	RIDGELY	LAKE	36.26	-89.48	POLE DOWN ON HIGHWAY 78. (MEG)
23:43	--	2 WNW HORNBEAK	OBION	36.34	-89.33	LARGE TREE BRANCHES DOWN ALONG HIGHWAY 21. (MEG)

**Hail:**

Time (UTC)	Size	Location	County	Lat	Lon	Comments
23:10	1.75"	RIDGELY	LAKE	36.26	-89.48	GOLF BALL SIZE HAIL REPORTED IN RIDGELY. (MEG)
23:50	1.00"	2 WSW SAMBURG	LAKE	36.37	-89.39	QUARTER SIZE HAIL REPORTED EAST OF TIPTONVILLE NEAR THE FRIERSON RD AND HWY 22 INTERSECTION. (MEG)

May 3<sup>rd</sup>:



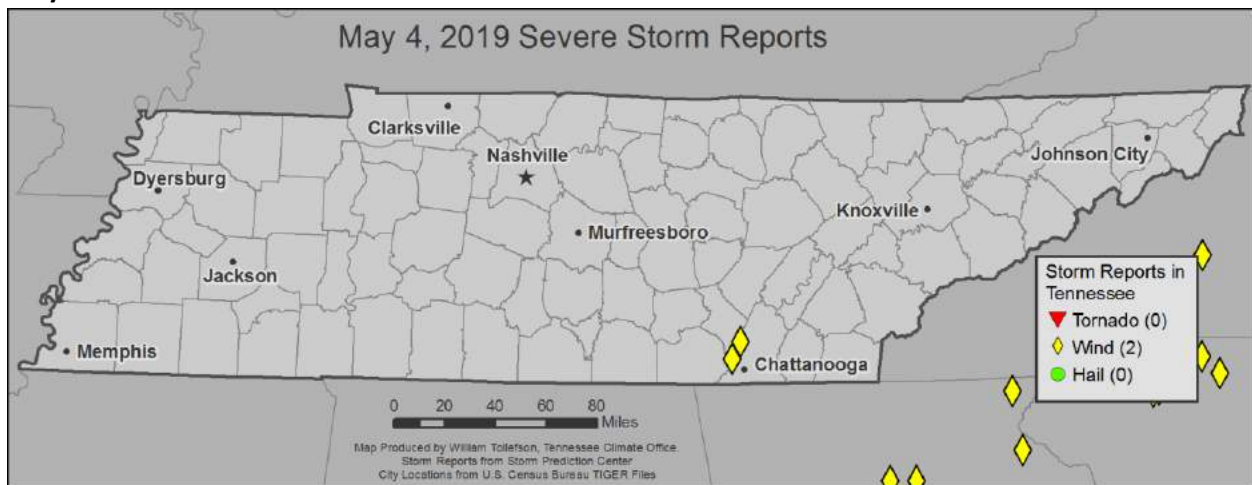
Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
17:45	--	1 ENE GREENEVILLE	GREENE	36.17	-82.8	TREES AND POWERLINES DOWN ALONG EASTVIEW LANE. (MRX)
23:13	--	5 NNE ROUND MOUNTAIN	COCKE	35.9	-82.93	HAIL... SIZE UNKNOWN AND A FEW TREES DOWN. (MRX)
23:15	--	5 NNE ROUND MOUNTAIN	COCKE	35.91	-82.92	HAIL... SIZE UNKNOWN... AND A FEW TREES DOWN. (MRX)

Hail:

Time (UTC)	Size	Location	County	Lat	Lon	Comments
17:43	1.00"	1 WSW GREENEVILLE	GREENE	36.16	-82.83	(MRX)

May 4<sup>th</sup>:



Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
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14:45	--	SIGNAL MOUNTAIN	HAMILTON	35.13	-85.34	ONE TREE DOWN. (MRX)
14:55	60	5 ENE LONE OAK	HAMILTON	35.23	-85.28	(MRX)

May 9<sup>th</sup>:



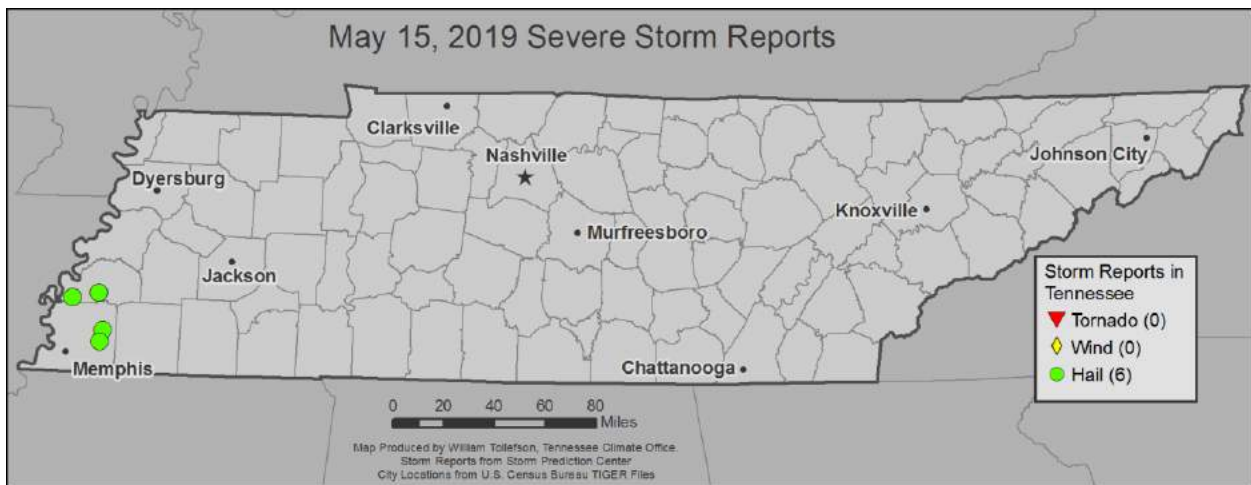
Tornado:

Time (UTC)	Strength	Location	County	State	Lat	Lon	Comments
17:52	UNK	5 N HAZEL GREEN	MADISON	AL	34.99	-86.56	TREES DOWN ON HOUSE ON THE TN SIDE OF HUNTER ROAD... FAYETTEVILLE... TN. (HUN)

Wind:

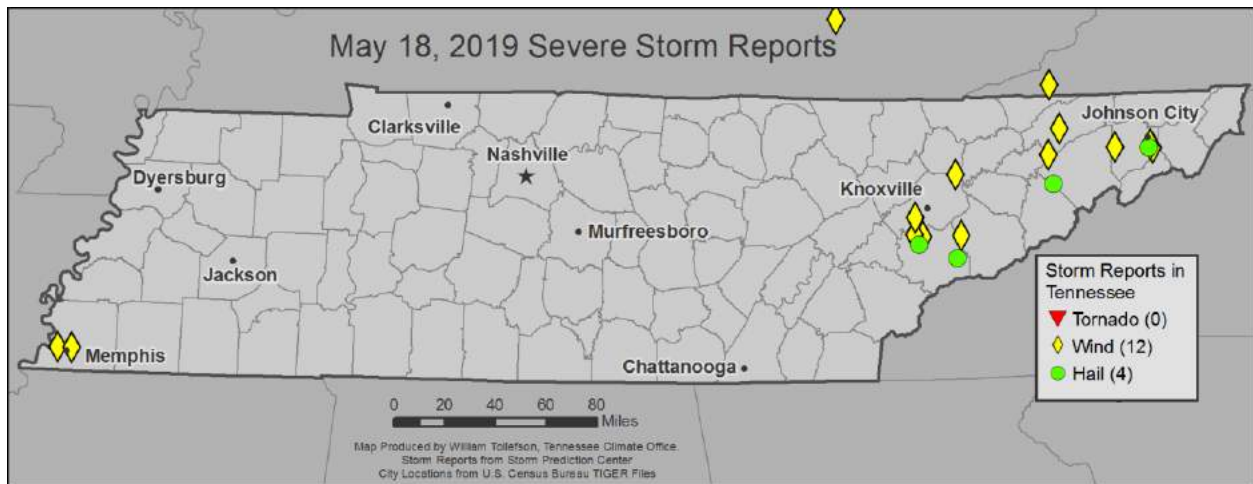
Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
17:55	--	10 S FAYETTEVILLE	LINCOLN	35.00	-86.53	TREE DOWN REPORTED ON QUICK SCHOOL ROAD. (HUN)

May 15<sup>th</sup>



Hail:

Time (UTC)	Size	Location	County	Lat	Lon	Comments
23:00	1.00"	ATOKA	TIPTON	35.45	-89.77	REPORT OF QUARTER SIZED HAIL IN ATOKA. (MEG)
23:36	1.00"	LAKELAND	SHELBY	35.24	-89.73	QUARTER SIZED HAIL REPORTED IN LAKELAND TN (MEG)
23:44	1.25"	ATOKA	TIPTON	35.45	-89.77	REPORT OF HALF DOLLAR SIZED HAIL IN ATOKA TN. (MEG)
23:56	1.00"	2 NE CORDOVA	SHELBY	35.17	-89.75	QUARTER SIZED HAIL REPORTED IN CORDOVA TN. (MEG)
0:28	1.25"	DIXONVILLE	TIPTON	35.42	-89.95	HALF DOLLAR SIZED HAIL REPORTED IN TIPTON TN. (MEG)
0:51	1.25"	DIXONVILLE	TIPTON	35.42	-89.95	HALF DOLLAR SIZED HAIL REPORTED IN TIPTON TN. (MEG)



Wind:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
21:44	--	3 WNW MILLIGAN COLLEGE	WASHINGTON	36.28	-82.35	TREE AND POWER LINE DOWN NEAR BUFFALO MOUNTAIN STATE PARK. (MRX)
22:01	--	2 S JOHNSON CITY	WASHINGTON	36.3	-82.37	TREE AND POWER LINE DOWN ON COLLEGE HEIGHTS ROAD. (MRX)
22:13	61	1 NNW ALCOA	BLOUNT	35.81	-83.99	MEASURED 61 MPH WIND GUST AT MCGHEE TYSON AIRPORT. (MRX)
22:13	--	4 WNW ALCOA	BLOUNT	35.82	-84.05	TREES DOWN NEAR LOUISVILLE POINT PARK. (MRX)
22:25	--	5 SSE SEYMOUR	SEVIER	35.81	-83.72	TREES DOWN ON DRIPPING SPRING ROAD. (MRX)
22:31	--	2 WSW BEARDEN	KNOX	35.92	-84.04	TREES DOWN AT THE CORNER OF FOREST HILL DRIVE AND GLEASON DRIVE. (MRX)
23:10	--	3 WNW BLAINE	KNOX	36.16	-83.75	A FEW TREES DOWN. (MRX)
23:25	--	4 N LIMESTONE	WASHINGTON	36.29	-82.62	TREE DOWN ON MOBILE HOME ALONG OAKLAND RD. (MRX)



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23:26	--	1 WSW BULLS GAP	HAWKINS	36.26	-83.09	TREE ACROSS A HOUSE AND 2 VEHICLES. (MRX)
23:50	--	ROGERSVILLE	HAWKINS	36.41	-83.01	10-15 TREES DOWN BETWEEN BULLS GAP AND ROGERSVILLE. (MRX)
1:18	59	DOWNTOWN MEMPHIS	SHELBY	35.13	-90.05	PEAK WIND GUST 59 MPH AT TOM LEE PARK IN MEMPHIS. MEASURED BY EQUIPMENT 35 FEET ABOVE GROUND. (MEG)
1:30	--	2 E MIDTOWN MEMPHIS	SHELBY	35.13	-89.95	SEVERAL SMALL TREES UPROOTED. (MEG)

Hail:

Time (UTC)	Size	Location	County	Lat	Lon	Comments
21:45	1.00"	3 S JOHNSON CITY	WASHINGTON	36.28	-82.38	(MRX)
22:00	1.00"	1 N TOWNSEND	BLOUNT	35.68	-83.75	(MRX)
22:06	1.00"	3 WNW MARYVILLE	BLOUNT	35.76	-84.02	(MRX)
23:20	1.00"	5 WNW CANEEY BRANCH	COCKE	36.09	-83.06	QUARTER SIZE HAIL AND A FEW TREES DOWN. (MRX)

### CPC Outlooks for the Next Month:

The climate prediction center outlooks for June show Tennessee having equal chances of below normal, normal, or above normal temperatures and precipitation.

