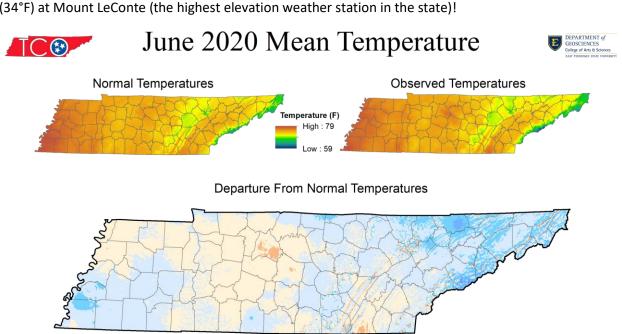
June 2020 Tennessee State Climate Summary

Tennessee Climate Office * East Tennessee State University
Prepared by William Tollefson and Dr. Andrew Joyner
With contributions by Climate Data Representatives at University of Memphis, University of TennesseeMartin, Vanderbilt University, University of Tennessee-Knoxville,
and University of Tennessee-Institute of Agriculture

Monthly Temperature Summary:

Most areas of the state averaged within 1°F of their normal temperatures for the month, with Northeast Tennessee and areas just to the north of Memphis being a little cooler, while the Nashville and Chattanooga areas were slightly warmer. The first week of the month brought warmer than normal conditions, while the rest of the month stayed near to below normal, with the third week of the month (15th-21st) averaging 4-8°F cooler than normal for the eastern half of the state. A record low high temperature was recorded in the Tri-Cities region on June 16th, with an afternoon high of 66°F (records date back to 1937). Oak Ridge also set back-to-back record low max temperatures on the 16th (77°F) and 17th (75°F), but records for that station only go back to 1998. On the 17th, Crossville set a record low max temperature at 69°F, with records back to 1954. The low temperature on the 16th approached freezing (34°F) at Mount LeConte (the highest elevation weather station in the state)!



Stations with the highest mean temperature

Station Name	Station Type	(F)
GERMANTOWN 4SE	COOP	79
MEMPHIS INTERNATIONAL AP	WBAN	78.9
SHILOH NMP TENNESSEE	RAWS	77.8
CHATTANOOGA AP	WBAN	77.7

WBAN

NASHVILLE INTL AP

Map Data From: PRISM Climate Group, Oregon State University. 1981-2010 Normals Used Station Data retrieved from SC ACIS2

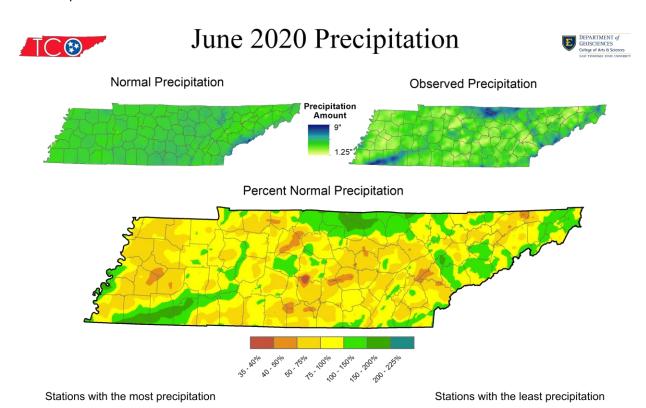
Degrees (F)

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	54
NEWFOUND GAP	COOP	61.7
ROAN MOUNTAIN 3SW	COOP	64.6
CHEROKEE TENNESSEE	RAWS	66.8
GATLINBURG 2 SW	COOP	67.9

Stations with the lowest mean temperature

Monthly Precipitation Summary:

Thunderstorms produced most of the precipitation during June, with spotty spatial coverage, leaving many areas of the state relatively dry. With the exception of areas that had training thunderstorms, or slowly meandering storms that produced high rainfall totals, the state averaged below normal precipitation during June. Parts of Northeast Tennessee were one of the few areas that had week-to-week normal or above normal precipitation totals. The area of above normal precipitation in southwest Tennessee was related to a heavy band of rain produced by the remnants of Tropical Storm Cristobal June 7-8th. Slow moving and training storms in the last week of the month produced above normal rainfall totals in a few spots in Middle Tennessee and on the northern section of the Cumberland Plateau.



Station Name	Station Type	Total Precipitation (in)
MT LECONTE	COOP	8.28
AMES PLANTATION	COOP	7.87
BETHPAGE 1 S	COOP	6.43
SELMER	COOP	6.37
NEWCOMB	COOP	6.16

Map Data From: PRISM Climate Group.
Oregon State University.
1981-2010 Normals Used
Station Data retrieved from SC ACIS2

Station Name	Station Type	Total Precipitation (in)
ROCK VALE 4.5S	CoCoRaHS	0.93
KINGSPORT	COOP	1.05
SHELBYVILLE 7.5 NW	CoCoRaHS	1.28
CLINTON 4.9 S	CoCoRaHS	1.32
CHRISTIANA 5W	COOP	1.35

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

Station data for airports across the state using WBAN weather stations:

	Temperatures (°F)						Precipitation (inches)				
Station Name		Ave	erages			Extre	emes		Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	%Norm
Memphis	88.1	69.6	78.9	-0.7	95	6/7	61	6/11	3.33	-0.3	92%
Jackson	86.8	64.5	75.7	-0.5	94	6/7	54	6/1	4.32	-0.52	89%
Clarksville	85.5	64.0	74.8	0.3	93	6/7	51	6/1	3.44	-1.04	77%
Nashville	88.6	66.5	77.5	1.8	95	6/20	53	6/1	3.33	-0.81	80%
Chattanooga	87.5	68.0	77.7	1.2	95	6/7	61	6/17	3.59	-0.46	89%
Crossville	79.7	59.5	69.6	-1.4	87	6/7	47	6/1	4.95	0.35	108%
Knoxville	85.1	64.6	74.9	-0.1	92	6/21	54	6/1	3.75	-0.06	98%
Bristol	82.6	60.5	71.5	0.0	91	6/9	45	6/1	2.75	-1.15	71%

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
FAIRVIEW BOWIE NATURE CENTER	COOP	97	29
CLARKSVILLE WWTP	COOP	95	6
NASHVILLE BERRY FIELD	COOP	95	21
GERMANTOWN 4SE	COOP	95	9
CHEATHAM LOCK & DAM	COOP	95	7
KINGSTON SPRINGS	COOP	95	8
CAMDEN TOWER TENNESSEE	RAWS	95	20
SHILOH NMP TENNESSEE	RAWS	95	20
CHATTANOOGA AP	WBAN	95	7
MEMPHIS INTERNATIONAL AP	WBAN	95	7
MEMPHIS WFO	WBAN	95	21
NASHVILLE INTL AP	WBAN	95	20

Eleven stations tied for the second warmest temperature (95°F)

Coldest Stations (lowest minimum temperature)

Station Name	Station Type	Lowest Temperature (F)	Date
MT LECONTE	COOP	34	16
ROAN MOUNTAIN 3SW	COOP	39	1
TAZEWELL	COOP	43	1
ONEIDA	СООР	43	1
ELIZABETHTON	COOP	44	1
LIVINGSTON RADIO WLIV	COOP	44	1
GREENEVILLE EXP STA	COOP	44	1
NEWCOMB	СООР	44	2
BIG SOUTH TENNESSEE	RAWS	44	1
CROSSVILLE AREA OFFICE TENNESS	RAWS	44	1

Warmest Stations (highest mean temperatures)

warmest stations (ingliest mean temperatures)					
Station Type	Mean Temperature (F)				
СООР	79				
WBAN	78.9				
RAWS	77.8				
WBAN	77.7				
WBAN	77.5				
СООР	77.4				
WBAN	77.4				
СООР	77.2				
RAWS	76.7				
СООР	76.1				
СООР	76.1				
	COOP WBAN RAWS WBAN WBAN COOP WBAN COOP RAWS COOP				

Two stations tied for the 10th warmest mean temperature (76.1°F)

Coolest Stations (lowest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	СООР	54
NEWFOUND GAP	СООР	61.7
ROAN MOUNTAIN 3SW	СООР	64.6
CHEROKEE TENNESSEE	RAWS	66.8
GATLINBURG 2 SW	СООР	67.9
TOWNSEND 5S	СООР	68
CROSSVILLE 7 NW	WBAN	68
TAZEWELL	СООР	68.4
COALMONT	СООР	69.1
ONEIDA	СООР	69.4

Wettest Stations (highest precipitation totals):

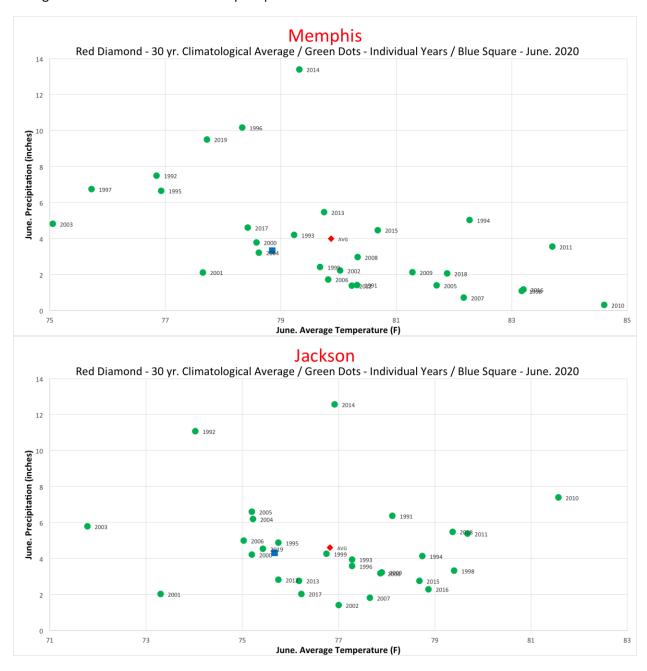
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Station Name	Station Type	Total Precipitation (in)			
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AMES PLANTATION	COOP	7.87			
BETHPAGE 1 S	COOP	6.43			
SELMER	COOP	6.37			
NEWCOMB	СООР	6.16			
BOLIVAR WATER WORKS	COOP	6.09			
SEWANEE	COOP	6.04			
BYRDSTOWN	COOP	5.84			
JAMESTOWN	COOP	5.81			
LOBELVILLE	COOP	5.81			

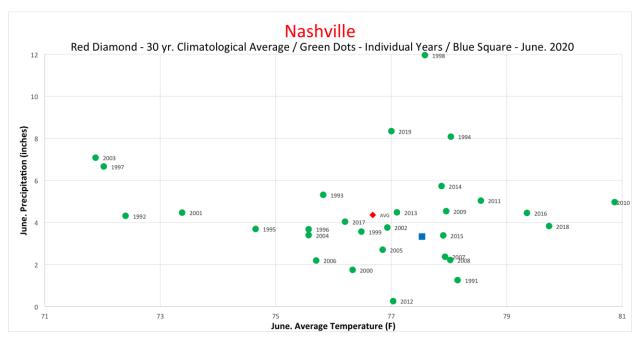
Driest Stations (lowest precipitation totals):

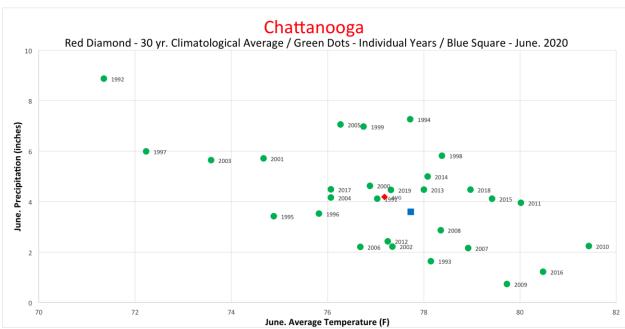
briest stations (lowest precipitation totals).					
Station Name	Station Type	Total Precipitation (in)			
ROCK VALE 4.5S	CoCoRaHS	0.93			
KINGSPORT	СООР	1.05			
SHELBYVILLE 7.5 NW	CoCoRaHS	1.28			
CLINTON 4.9 S	CoCoRaHS	1.32			
CHRISTIANA 5W	COOP	1.35			
WHITE PINE 2.0 NE	CoCoRaHS	1.39			
HERMITAGE 4.2 SE	CoCoRaHS	1.56			
CLARKRANGE 6.0 NE	CoCoRaHS	1.6			
OLD HICKORY DAM	COOP	1.62			
SHELBY BOTTOMS NATURE CENTER	COOP	1.69			

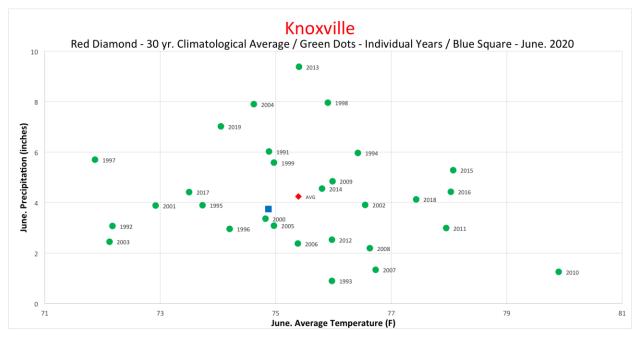
The Month in Comparison:

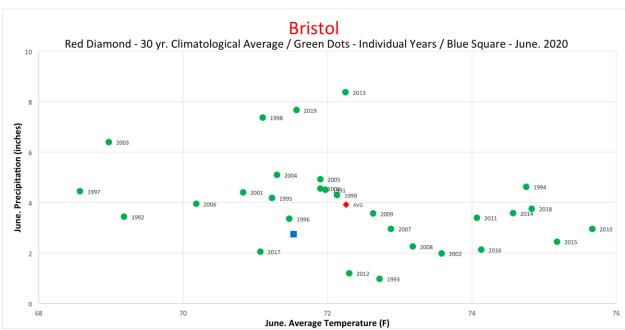
Looking at the average temperature and precipitation totals for June 2020 compared to those of the last 30 Junes, shows that this year was not an outlier for any city. In fact, for most cities across the state this June averaged out to be quite average, varying from the 30-year normal by less than a few degrees, and falling within an inch or so of normal precipitation totals.





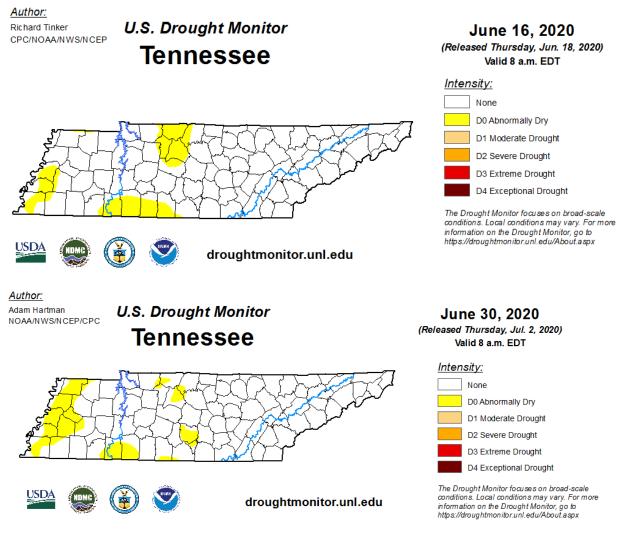






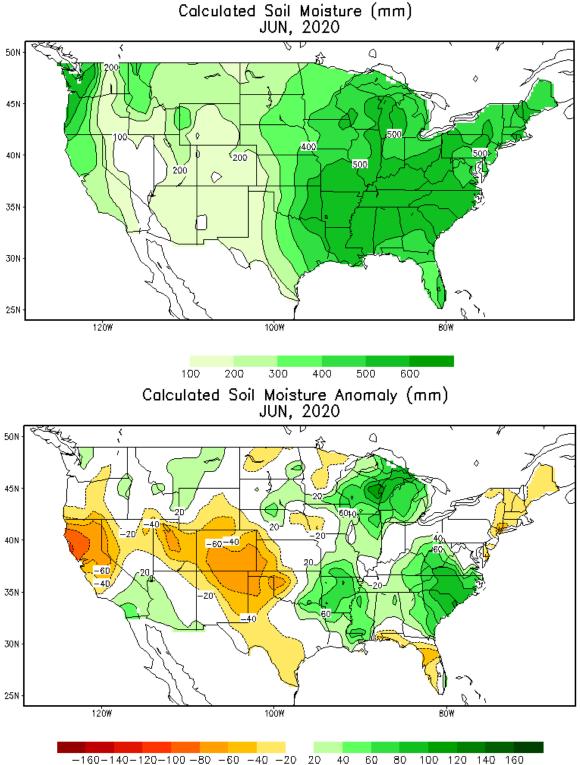
Drought Monitor:

Based on precipitation deficits at 60 and 90-day periods, some areas of D0 drought (Abnormally Dry) conditions were introduced to Tennessee in the June 16th U.S. National Drought Monitor release. This included areas around Nashville, in southern Middle Tennessee, and in portions of southwest Tennessee. This is the first time that any level of drought was shown in Tennessee since the last Drought Monitor release of November 2019. Following two weeks of patchy precipitation where some areas recorded over two inches of rain per week, while others recorded no rain, modifications were made in the last Drought Monitor release of the month. The main change was the reduction of D0 in Middle Tennessee, with expansion in West Tennessee. Some areas in the state only recorded half of their normal rainfall during May and June, but a stronger drought was prevented by cooler than normal temperatures for extended periods during that time, and excess soil moisture from the wet winter and spring of 2020.

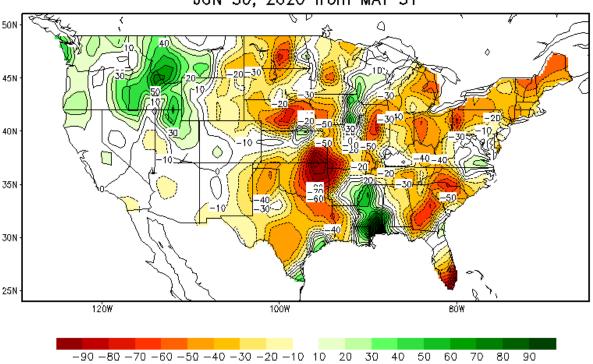


Soil Moisture:

Mean soil moisture levels for the month of June averaged above 500mm for the whole state, which was above normal for all areas except northwestern portions of the state. However, below average precipitation over the month led to decreasing soil moisture in virtually all areas of the state. By the end of June, most of West and Middle Tennessee had expended their soil moisture excess from the spring.



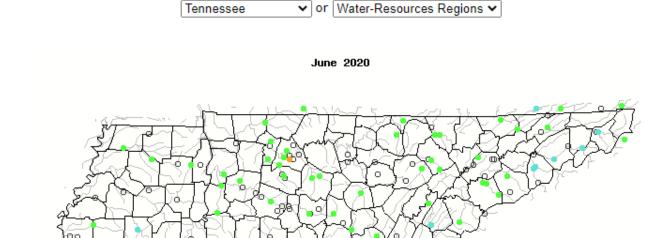
Calculated Soil Moisture Anomaly Change JUN 30, 2020 from MAY 31



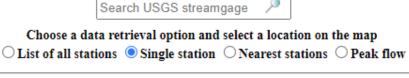
Streamflow:

Surplus soil moisture from earlier in the year, along with scattered above normal rainfall, allowed most streams across the state to remain in normal to above normal streamflow classifications. Streams flowing out of the East Tennessee Mountains maintained above normal streamflow for the month as the mountains proved to be the focus of almost daily storm development during the month. A few streams in the southwest corner of the state also had above normal stream flow for the month, tied to a heavy band of precipitation that set up with the remnants of Tropical Storm Cristobal.

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







	Explanation - Percentile classes								
•						•	0		
Low	<10	10-24	25-75	76-90	>90	Lliab	Not-ranked		
	Much below normal	Below normal	Normal	Above normal	Much above normal	High	Not-Taliked		

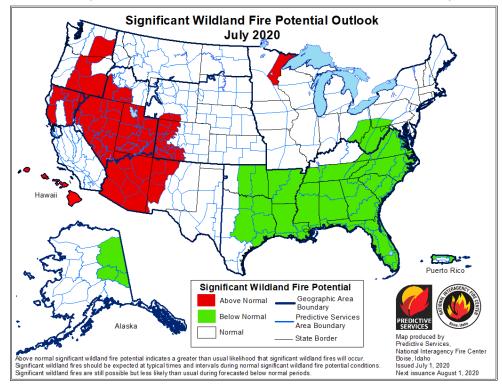
Miscellaneous:

Crop Conditions from USDA: The dry weather during June resulted in improved fieldwork progress across Tennessee, allowing most crops to reach or surpass the 5-year average progress by the end of the month. Corn was a notable exception, being delayed due to wet fields and cooler conditions. However, some producers were noting the need for a good soaking rain soon. Some producers reported lower than normal wheat yields due to the late frosts earlier this spring. At the end of the month, subsoil moisture was rated 3% very short, 17% short, 73% adequate and 7% surplus. Topsoil moisture was rated 4% very short, 22% short, 68% adequate, and 6% surplus.

CROP P	ROGRE	SS			CONDITION					
Сгор	This Week	Last Week	2019	5 Year Avg.	Item	Very Poor	Poor	Fair	Good	Excellent
	Percent		•			•	Pen	cent		
Corn - Silking	17	5	45	40	Corn	1	5	22	55	17
Cotton – Planted	100	96	100	100	Cotton	5	11	22	53	9
Cotton - Squaring	29	17	42	5	Pasture	1	6	29	54	10
Cotton - Setting Bolls	3	N/A	1	3	Soybeans	1	3	20	60	16
Hay – First Cutting	94	89	N/A	N/A	Winter Wheat	2	10	32	46	10
Soybeans - Planted	92	86	93	91						
Soybeans – Emerged	82	70	83	82						
Soybeans - Blooming	8	2	14	12						
Tobacco - Set	95	89	90	89						
Wheat - Mature	97	95	98	N/A						
Wheat – Harvested for Grain	88	62	88	88						

Fire Danger:

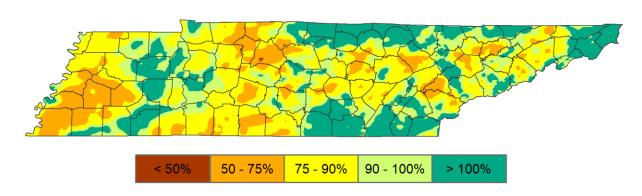
Despite drying conditions through June, the Interagency Fire Center outlook for significant wildland fire shows below normal fire potential for Tennessee and the rest of the Southeast for July.

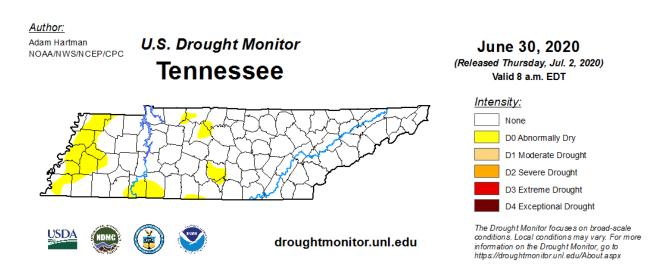


Story of the Month:

June 2020 proved to be a quiet month for most areas of Tennessee, with the main story being the development of Abnormally Dry conditions (D0). This was the first time any drought level was present in part of the state since last November. This followed a 2-3 month pattern of below normal precipitation in those sections of the state. Heavy rains in the last week of June impacted some of the driest sections of Middle Tennessee and led to a reduction in D0 in areas where normal to above normal precipitation was observed. Despite the much below normal precipitation totals in the last two months, an excess of soil moisture from the very wet winter and spring of 2019-2020 mitigated the impacts of the dry conditions. Normal to below normal temperatures also reduced the evaporative demand for ground water, reducing impacts of the dry conditions as well.

May and June 2020 Percent Normal Precipitation



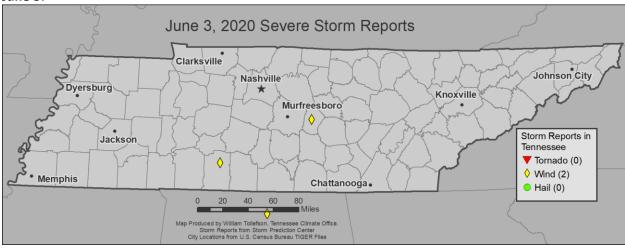


Storm Reports:

*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 ten days with reports of severe storms across the state in June, producing a total of 4 tornadoes, 35 reports of severe wind damage, and 13 reports of hail 1" or larger.

June 3:



Wind Reports:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
20:00		WOODBURY	CANNON	35.82	-86.07	TREE REPORTED DOWN IN WOODBURY. ALSO HAIL FROM PEA UP TO JUST UNDER DIME SIZE. (OHX)
20:25		3 W ETHRIDGE	LAWRENCE	35.32	-87.35	TIN BLOWN OFF ROOF AND 4 INCH LIMBS DOWN AT BUFFALO ROAD AND ETHRIDGE REDHILL ROAD (OHX)

June 4



Tornado Reports:

Time (UTC)	Strength	Location	County	Lat	Lon	Comments
(010)						

22:34	EF0	4 SSW DYER	GIBSON	36.02	-89.01	TREE DAMAGE ACROSS GIBSON COUNTY. (MEG)
23:55	EFO	CLARKSBURG	CARROLL	35.87	-88.39	REPORT OF 2 HOMES WITH ROOF DAMAGE ONE HOME IS OFF OF 114. ALSO REPORT OF SEVERAL TREES UPROOTED AND SNAPPED ACROSS CARROLL COUNTY. (MEG)
23:55	EFO	1 NW CLARKSBURG	CARROLL	35.88	-88.4	TORNADO TOUCHED DOWN ON LEACH ROAD AND TRAVELED SOUTHEAST CROSSING PURDY AND POPLAR SPRINGS ROAD NEAR THE THOUSAND LAKES COMMUNITY. THE TORNADO CONTINUED SOUTHEAST TOWA (MEG)
0:40	EF0	4 ENE WILDERSVILLE	HENDERSON	35.81	-88.3	TORNADO ON THE GROUND AT I-40 NEAR NATCHEZ STATE PARK. (MEG)

***********	The Reports.								
Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments			
						ONE TREE DOWN IN GREENEVILLE.			
20:45		GREENEVILLE	GREENE	36.17	-82.82	ANOTHER TREE DOWN IN THE CEDAR CREEK			
						AREA. TIME ESTIMATED BY RADAR. (MRX)			
	5 SE				CORRECTS TIME OF PREVIOUS TSTM WND				
3:00			HAMBLEN	36.16	-83.23	DMG REPORT FROM 5 SE MORRISTOWN.			
		MORRISTOWN				TREE DOWN ON ST. PAUL RD. (MRX)			
2.00		3 W	HAMBLEN	36.16	-83.27	TREE DOWN ALONG JACOBS ROAD OFF HWY			
3:00		LOWLAND	HAIVIBLEIN	30.10	-83.27	25. TIME ESTIMATED BY RADAR. (MRX)			
3:05		5 SE MORRISTOWN	HAMBLEN	36.16	-83.23	TREE DOWN ON ST. PAUL RD. (MRX)			

Hail Report:

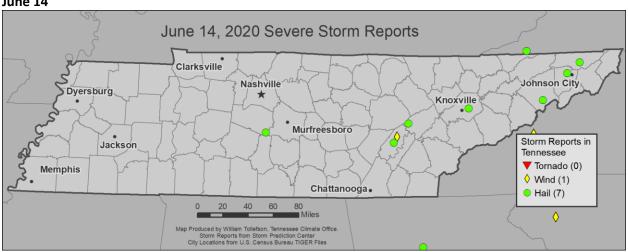
Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
20:47	1.00	1 S GREENEVILLE	GREENE	36.14	-82.82	(MRX)

June 5



Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
18:36		COLLIERVILLE	SHELBY	35.06	-89.68	DAMAGE TO A GAS STATION ROOF AT INTERSECTION OFPOPLAR AND COLLIERVILLE-ARLINGTON ROAD. TIME IS RADAR ESTIMATED. (MEG)
18:37	58	3 ENE WHITEHAVEN	SHELBY	35.04	-89.98	(MEG)
19:00		1 ESE MIDTOWN MEMPHIS	SHELBY	35.13	-89.97	TREES AND POWERLINES DOWN ACROSS THE MEMPHIS METRO. (MEG)

June 14



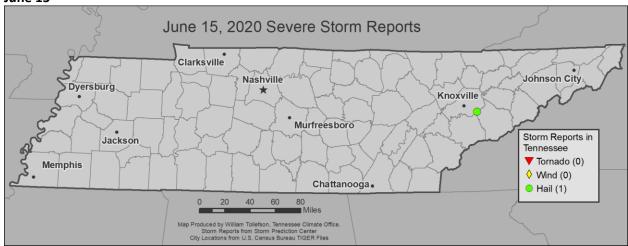
Wind Report:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments				
17:45		1 SW SPRING CITY	RHEA	35.68	-84.87	FEW TREES DOWN AND POWER LINES. (MRX)				

Hail Reports:

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
17:06	1.25	4 SSW ROCKWOOD	ROANE	35.83	-84.71	. (MRX)
17:15	1.00	4 N LAKE FOREST	KNOX	35.99	-83.86	. (MRX)
17:25	1.00	4 W EAGLEVILLE	WILLIAMSON	35.73	-86.72	TWITTER VIDEO SHOWED HAIL OVER QUARTER SIZE NEAR EAGLEVILLE (OHX)
18:00	1.00	4 NNE EVENSVILLE	RHEA	35.61	-84.92	. (MRX)
18:07	1.00	1 NNE BLUFF CITY	SULLIVAN	36.48	-82.27	DIME TO QUARTER SIZE HAIL IN BLUFF CITY. (MRX)
18:13	1.00	3 NNE AVONDALE	WASHINGTON	36.36	-82.45	. (MRX)
18:37	1.00	3 SW CAMP CREEK	GREENE	36.06	-82.81	DIME TO QUARTER SIZE HAIL. (MRX)

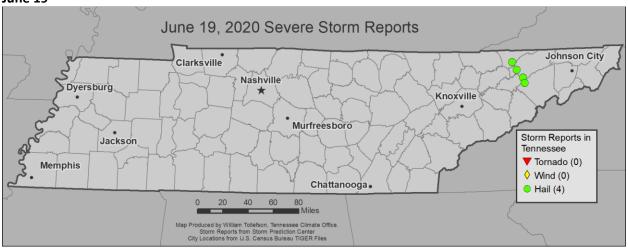
June 15



Hail Report:

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
18:00	1.00	2 N SEYMOUR	SEVIER	35.90	-83.77	(MRX)

June 19



Hail Reports:

Time (UTC)	Size (in)	Location	County	Lat	Lon	Comments
20:15	1.00	3 N TREADWAY	HANCOCK	36.46	-83.23	DIME TO QUARTER SIZE HAIL. (MRX)
20:38	1.00	4 ENE MOORESBURG	HAWKINS	36.37	-83.17	(MRX)
21:06	1.50	1 NNW BULLS GAP	HAWKINS	36.28	-83.08	(MRX)
21:26	1.25	1 N MOHAWK	GREENE	36.22	-83.06	(MRX)

June 21



Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
20:14		1 W NEW MARKET	JEFFERSON	36.1	-83.57	TREES DOWN. (MRX)
20:18		5 W CHARLESTON	BRADLEY	35.29	-84.85	SEVERAL TREES DOWN. (MRX)
20:32		1 S RICEVILLE	MCMINN	35.37	-84.69	SEVERAL TREES DOWN. (MRX)
20:41		3 NE ALPHA	HAMBLEN	36.2	-83.34	TREES DOWN COUNTY-WIDE. (MRX)
20:42		1 ENE RUSSELLVILLE	HAMBLEN	36.26	-83.18	TREES DOWN COUNTY-WIDE. (MRX)
20:58		1 E ATHENS	MCMINN	35.45	-84.59	NUMEROUS TREES AND POWER LINES IN THE ATHENS AREA. (MRX)
21:00		5 NW HOWARD QUARTER	CLAIBORNE	36.53	-83.48	NUMEROUS LARGE DOWNED TREES NEAR THE CROSS STREETS OF CEDAR GROVE RD AND LONG LANE IN TAZEWELL. (MRX)
21:01		3 NW BEAN STATION	GRAINGER	36.37	-83.31	SEVERAL TREES DOWN BLOCKING ROADS. (MRX)
21:20		4 NNW SNEEDVILLE	HANCOCK	36.59	-83.25	NUMEROUS TREES DOWN. (MRX)
21:21		SNEEDVILLE	HANCOCK	36.54	-83.21	NUMEROUS TREES DOWN. (MRX)
22:04		1 NE TURTLETOWN	POLK	35.13	-84.35	SEVERAL TREES DOWN. (MRX)
22:41		3 ENE DEL RIO	COCKE	35.93	-82.98	SEVERAL TREES DOWN. (MRX)

June 22



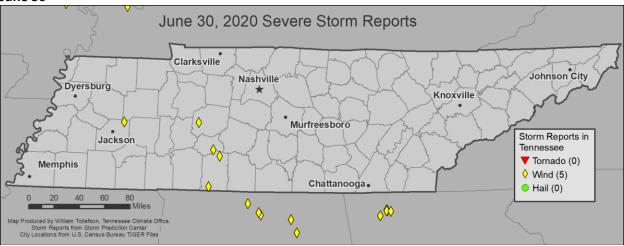
Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
18:20		1 E CLOVER HILL	BLOUNT	35.71	-84.05	2 TREES DOWN ON CLOVER HILL RD. (MRX)
0:11		2 NNE WHITWELL	MARION	35.23	-85.5	SEVERAL TREES DOWN. (MRX)
0:46		4 S PIKEVILLE	BLEDSOE	35.55	-85.2	TREES DOWN. (MRX)
1:20		4 WSW FAIRVIEW	ROANE	35.77	-84.65	SEVERAL TREES DOWN. (MRX)
1:58		4 ESE MURRAY STORE	MCMINN	35.59	-84.57	A FEW TREES DOWN. (MRX)
2:17		3 WSW OAK RIDGE	ROANE	35.95	-84.34	A FEW TREES DOWN. (MRX)
10:12		5 WSW HUNTLAND	LINCOLN	35.03	-86.36	TWO LARGE TREES KNOCKED DOWN OFF OF LIMESTONE RD IN THE ELORA COMMUNITY. MINOR ROOF DAMAGE WAS ALSO REPORTED TO A RESIDENTIAL HOME. TIME ESTIMATED FROM RADAR. (HUN)

June 27



Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
2:22		3 NW GAINESBORO	JACKSON	36.39	-85.69	A FEW TREES DOWNED ON TN HIGHWAY 262. (OHX)

June 30



Wind Reports:

Time (UTC)	Speed (mph)	Location	County	Lat	Lon	Comments
20:39		8 SSE BUCKSNORT	HICKMAN	35.78	-87.63	TREES DOWN ON ROADS AND POWER OUTAGES ACROSS WESTERN HICKMAN COUNTY (OHX)
21:07		7 WNW SUMMERTOWN	LEWIS	35.47	-87.42	MULTIPLE TREES DOWN IN EASTERN LEWIS CO (OHX)
21:16		2 SSW SUMMERTOWN	LAWRENCE	35.4	-87.33	MULTIPLE TREES DOWN ROADS IMPASSIBLE. TIME ESTIMATED FROM RADAR. (OHX)
22:40		2 NE ST. JOSEPH	LAWRENCE	35.05	-87.48	TREE ACROSS FAIRVIEW ROAD EAST OF ST. JOSEPH AND SEVERAL TREES DOWN SOUTH OF LORETTO (OHX)

June 2020 Tennessee State Climate Summary

0.26	CDDING CDEEK	MADICON	25 77	00.00	LARGE TREE BRANCH DOWN 4 MILES WEST	1
0:36	 SPRING CREEK	MADISON	35.77	-88.68	OF SPRING CREEK ON HWY 220 (MEG)	

CPC Outlooks for the Next Month:

Climate Prediction Center outlooks for July show that most of the country, including all of Tennessee, will likely experience above normal temperatures. Most of the state is also forecast to have higher than normal precipitation, although with a slightly lower confidence. The northwest corner of the state is just outside of the region forecasted to have above normal precipitation, and has equal chances of above normal, below normal, or normal conditions.

