1-1-2023

2022 - Tennessee Annual Climate Summary

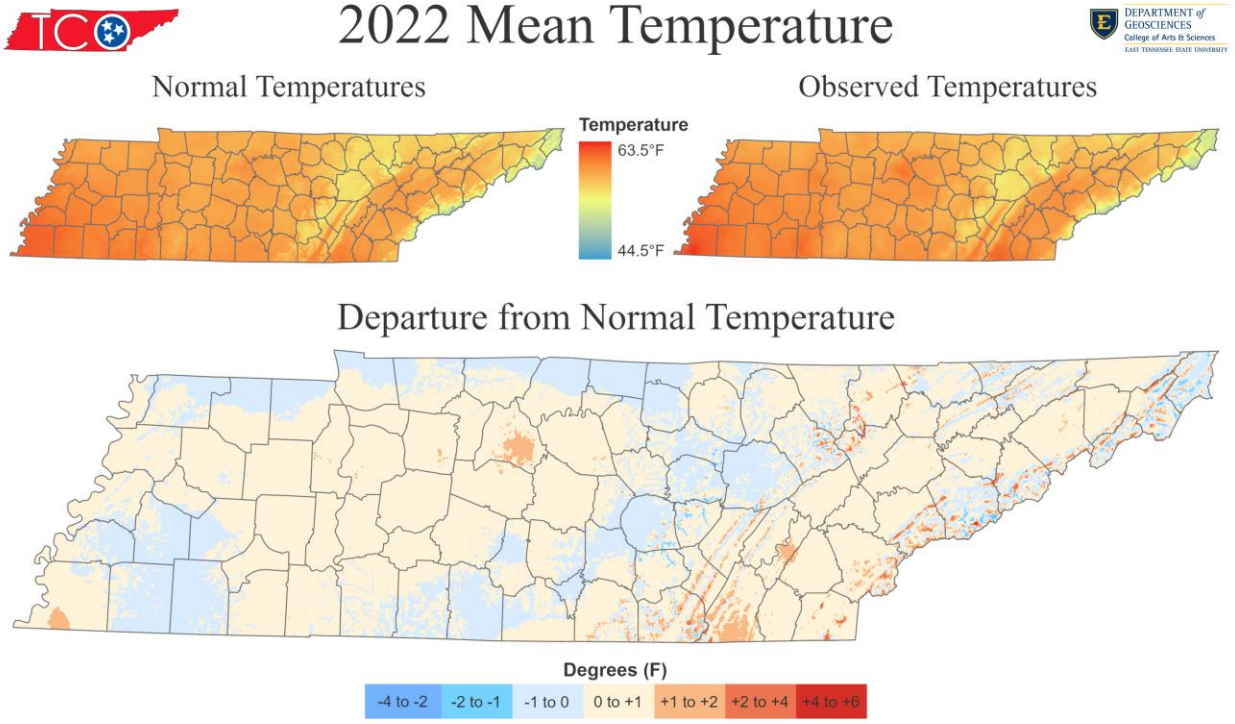
Tennessee Climate Office, East Tennessee State University

2022 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

Annual Temperature Summary:

In 2022, most areas of Tennessee recorded a mean temperature that was within 1°F of the 1991-2020 30-year climate normals, with the majority of the state being slightly warmer than the normal. Compared to the 20th century mean, each climate division in the state (West, Middle, Cumberland Plateau, and East) was about 1°F warmer than the average annual temperature from 1901-2000. While the mean and average low temperatures at stations across the state were close to average, average high temperatures at some long-term weather stations were warmer than average. The Tri-Cities airport had the 7th warmest average high temperature in the weather station's 75-year history, and the Nashville and Memphis International Airports both recorded the 8th warmest average high temperature with the Memphis station having a 145-year history and the Nashville station having a 148-year history.



Stations with the highest mean temperature

Station Name	Station Type	Mean Temperature (F)
MEMPHIS INTERNATIONAL AP	WBAN	64.1
SHILOH NMP TENNESSEE	RAWS	62.8
CHATTANOOGA AP	WBAN	62.6
LEWISBURG TOWER TENNESSEE	RAWS	62.5
SAVANNAH 6 SW	COOP	61.8

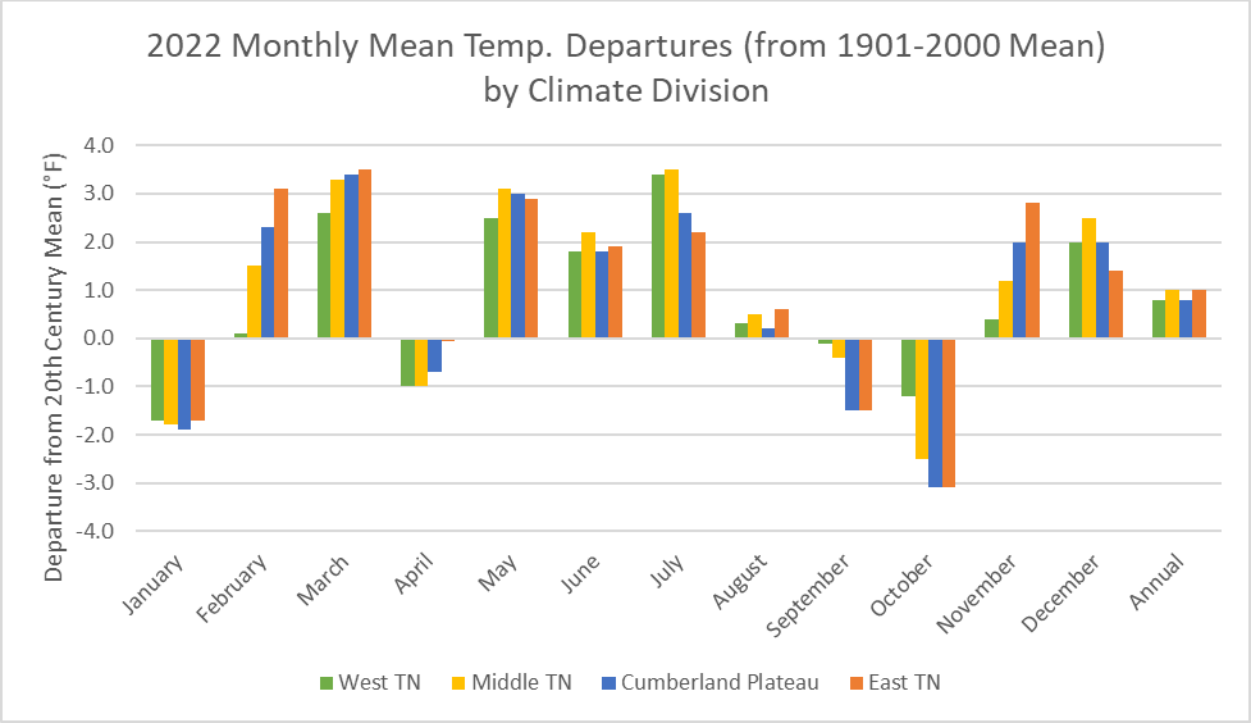
Map Data from PRISM Climate Group, Oregon State University. 1991-2020 Climate Normals Used. Station Data Retrieved From xmACIS2.

Stations with the lowest mean temperature

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	42.9
NEWFOUND GAP	COOP	49.5
ROAN MOUNTAIN 3SW	COOP	51.4
MOUNTAIN CITY 2	COOP	52.5
COALMONT	COOP	54.6

Temperatures also varied widely throughout the year, with heat waves in June and July producing widespread readings of 100°F or higher and a major cold spell in December producing widespread readings of 0°F or lower. The extremes for the state ranged from -22°F at the Mt. LeConte COOP station in the Great Smoky Mountains of Sevier County on December 24, to 105°F at the Tennessee Ridge COOP station in Houston County on July 23. The Tennessee Ridge COOP station also reported the largest single-station temperature range, with a coldest temperature of -4°F and a highest temperature of 105°F, a range of 109-degrees for the year! 49 of 148 weather stations located in Tennessee recorded an annual temperature range of 100-degrees or more in 2022.

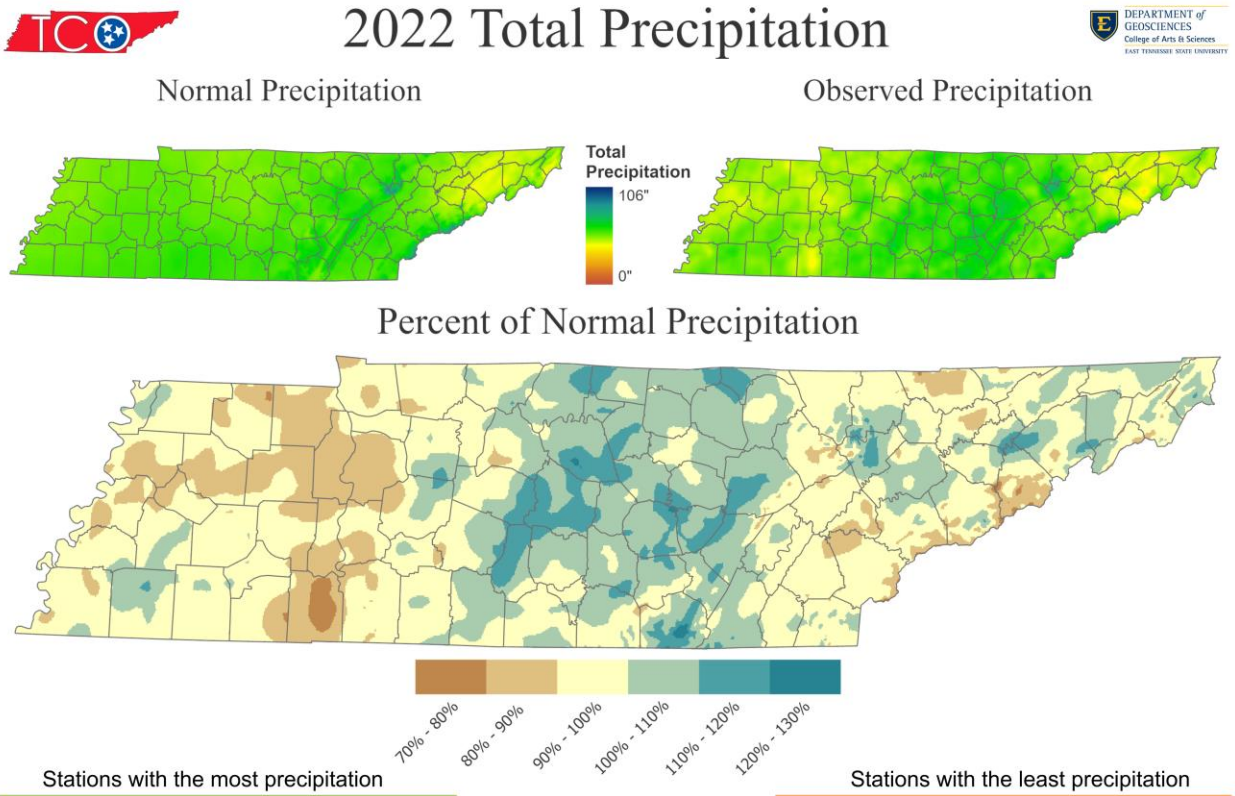
Month by month, January, April, September, and October had temperatures that were cooler than the 20th century average across the state. October had the most-below average temperatures with the Cumberland Plateau and East Tennessee climate divisions both recording a mean temperature 3°F cooler than the 20th century average. The rest of the months were warmer than the 20th century average, with August being very close to this average across the state. March and July brought the highest temperature anomalies, with March having a mean temperature that was just over 3°F warmer than the 20th century average in the Middle Tennessee, Cumberland Plateau, and East Tennessee climate divisions. The West Tennessee and Middle Tennessee climate divisions also had temperatures that were just over 3°F warmer than the 20th century average in July.



Data for this chart was accessed from the NOAA NCEI Climate at a Glance webpage (https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/)

Annual Precipitation Summary:

Total precipitation for 2022 was a mix of above and below normal for Tennessee, with most areas in the eastern parts of Middle Tennessee and on the Cumberland Plateau recording more precipitation than the 1991-2020 30-year climate normals; while most areas of West Tennessee and western portions of Middle Tennessee recorded below normal precipitation for the year. Hardin County was one of the drier spots in the state this year, with a large part of the county recording only 70-80% of their normal annual precipitation. Marshall County was one of the wettest counties in the state this year, with most of the county recording 110-120% of its normal annual rainfall, which was approximately 10-inches more than the 20th century average precipitation for the county. Looking at rain gauges across the state that had less than 10% missing days during the year, total precipitation values across the state ranged from 31.58" at the Cleveland 1.2W CoCoRaHS gauge in Bradley County to 94.49" at the Mt. LeConte COOP station in the Great Smoky Mountains of Sevier County.



Stations with the most precipitation

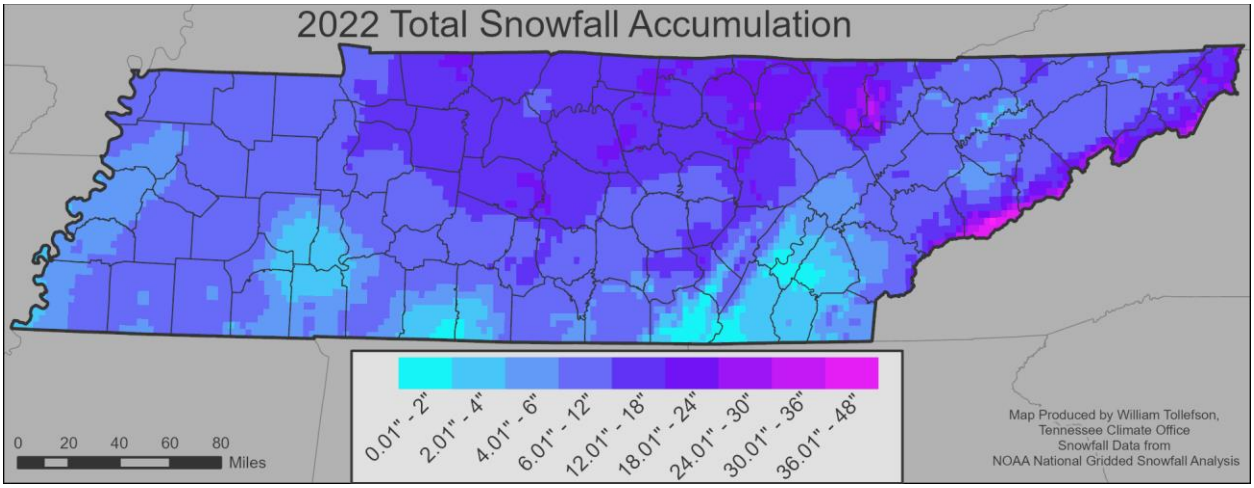
Station Name	Station Type	Total Precipitation (in)
MT LECONTE	COOP	94.49
NEWFOUND GAP	COOP	79.3
FAIRFIELD GLADE 0.1 NNW	CoCoRaHS	75.76
LEWISBURG 5.1 SW	CoCoRaHS	71.16
PETROS 0.2E	CoCoRaHS	71.03

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

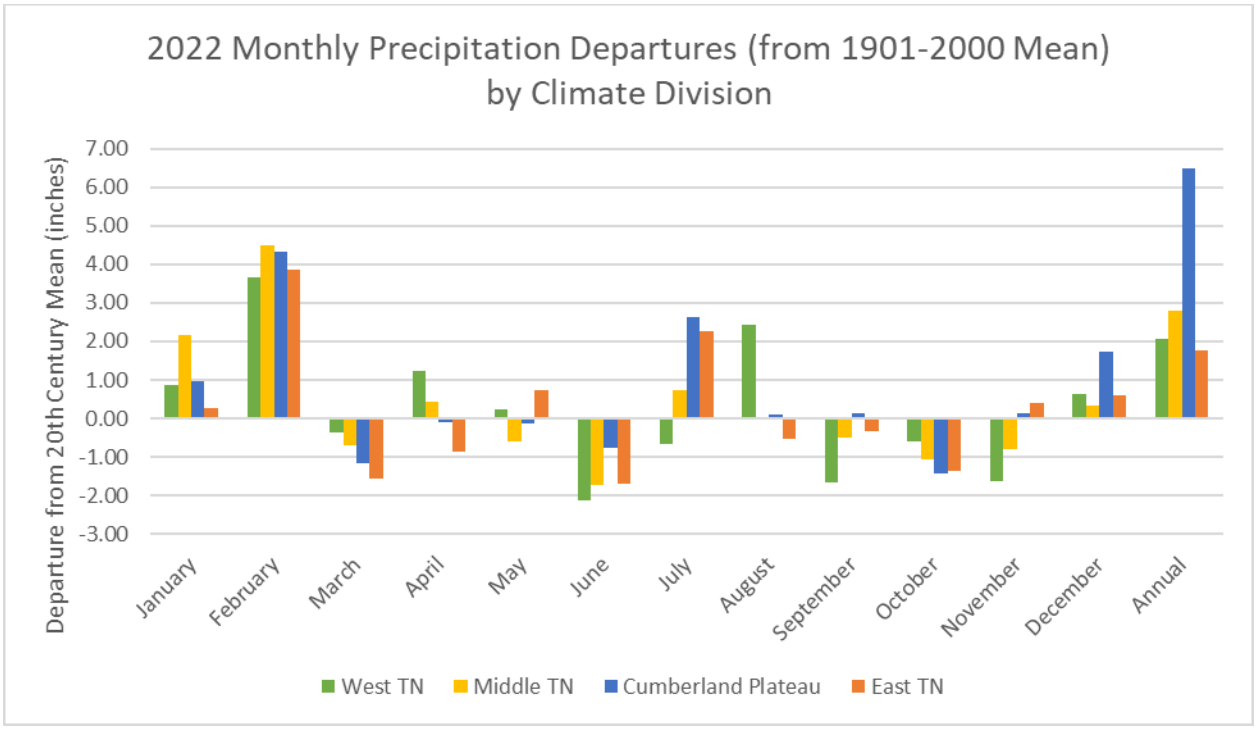
Stations with the least precipitation

Station Name	Station Type	Total Precipitation (in)
CLEVELAND 1.2 W	CoCoRaHS	31.58
NASHVILLE 4.1 SSW	CoCoRaHS	37.76
COLONIAL HEIGHTS 0.6 SSE	CoCoRaHS	38.68
SEYMOUR 5.8 N	CoCoRaHS	40.18
KINGSPORT	COOP	40.85

It was a relatively snowy year for Tennessee with 120 weather stations, out of 372 WBAN, COOP, and CoCoRaHS weather stations that reported any snow in 2022, reporting a foot or more of snow, and 5 weather stations reporting over 2-feet of snow in 2022. Of the 83 weather stations in Tennessee (WBAN or COOP) that have 1991-2020 normals for snowfall from NOAA NCEI, 63 reported above normal snowfall for the year. Gridded data from the NOAA National Gridded Snowfall Analysis dataset show that the northern half of Middle Tennessee and the Cumberland Plateau, along with the mountains in East Tennessee received over a foot of snow during 2022. Most of that snow fell during January for Middle Tennessee with three different snowstorms impacting the area. For the Cumberland Plateau most of the snowfall occurred in January and March.

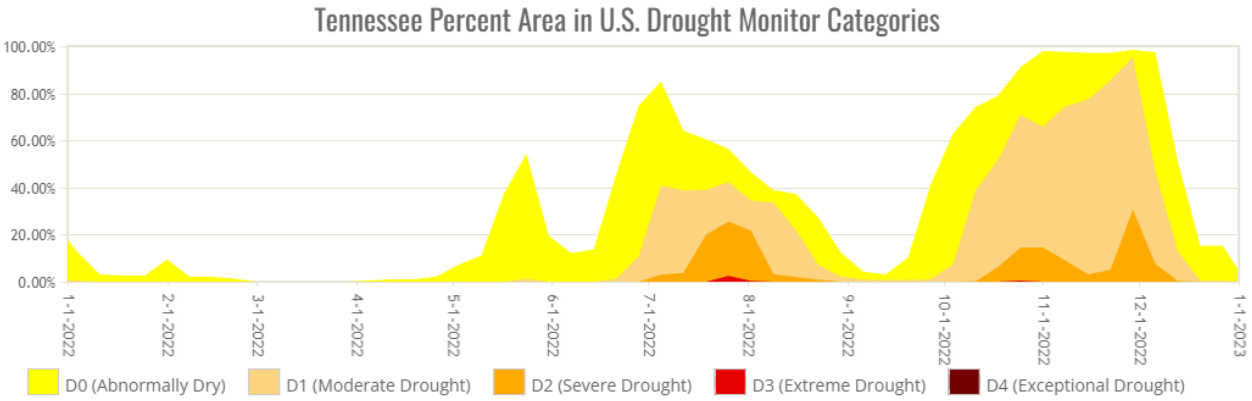


March, June, and the Fall months of September, October, and November were drier than the 20th century average for most of the state, but February was well above average, with each of the four climate divisions in Tennessee recording about 3.5-4.5 inches above the 20th century average. In total, all climate divisions recorded a wetter than average year, with the Cumberland Plateau division having the most above average precipitation for 2022.



Data for this chart was accessed from the NOAA NCEI Climate at a Glance webpage (https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/)

Despite each climate division in the state averaging above the 20th century mean precipitation, and most locations being within 10% of the 1991-2020 climate normals for precipitation, there were two periods of drought that impacted the state in 2022. The first drought started in June and lasted through August and the second drought occurred in the Fall months, starting in October but rapidly clearing in December.



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

Station data for select airports across the state using automated weather stations:

Station Name	Temperatures (˚F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	%Norm
Memphis	74.3	53.8	64.1	+0.7	103	7/8	1	12/23	55.84	+0.90	102%
Jackson	71.5	47.8	59.7	-0.3	100	7/8	-2	12/23	49.23	-4.70	91%
Clarksville	71.3	48.3	59.9	+1.5	102	7/22	-3	12/23	44.41	-2.80	94%
Nashville	72.7	50.8	61.8	+1	101	6/22	-1	12/23	53.43	+2.92	106%
Chattanooga	73.4	51.8	62.6	+0.7	99	7/8	7	12/23	58.28	+3.28	106%
Crossville	65.8	45.4	55.6	+0.3	91	6/15	-4	12/23	65.00	+7.65	113%
Knoxville	70.9	49.3	60.1	+0.6	96	6/22	4	12/24	53.64	+1.71	103%
Bristol	69.8	45.4	57.6	+1	95	6/15	1	12/24	42.38	-1.59	96%

Departures and %Norm Key: **Warmer than Normal**, **Cooler than Normal**; **Wetter than Normal**, **Drier than Normal**
Departures and percent of normal calculated using the 1991-2020 30-year climate normals.

Hottest Stations (highest maximum temperature)

Station Name	Station Type	Highest Temperature (F)	Date
TENNESSEE RIDGE	COOP	105	07-23
CAMDEN TOWER TENNESSEE	RAWS	103	07-08
MEMPHIS INTERNATIONAL AP	WBAN	103	07-08
CLARKSVILLE WWTP	COOP	102	07-22
BURNS TENNESSEE	RAWS	102	07-22
CLARKSVILLE OUTLAW AP	WBAN	102	07-22
SHILOH NMP TENNESSEE	RAWS	102	07-05
MOUSETAIL LANDING STATE PARK	COOP	102	06-27
FAIRVIEW BOWIE NATURE CENTER	COOP	101	07-24
KINGSTON SPRINGS	COOP	101	07-23
CLARKSVILLE NO.2	COOP	101	07-23
DOVER 1 W	COOP	101	07-23
DICKSON	COOP	101	07-22
CAMDEN	COOP	101	07-10
SPRINGFIELD EXP STATION	COOP	101	07-07
WHITE HOUSE	COOP	101	07-07
NASHVILLE BERRY FIELD	COOP	101	06-23
NASHVILLE INTL AP	WBAN	101	06-22

Ten stations tied for the ninth highest maximum temperature (101°F).

Coldest Stations (lowest minimum temperature)

Station Name	Station Type	Lowest Temperature (F)	Date
MT LECONTE	COOP	-22	12-24
NEWFOUND GAP	COOP	-14	12-24
HOHENWALD	COOP	-12	12-24
GAINESBORO	COOP	-8	12-26
ROAN MOUNTAIN 3SW	COOP	-7	12-24
MONTEREY	COOP	-6	12-24
LOOKOUT MTN-POINT PARK	COOP	-6	12-24
LEWISBURG EXP STA	COOP	-6	12-24
DOVER 1 W	COOP	-5	12-27
MOUNTAIN CITY 2	COOP	-5	12-25
ERWIN 1 W	COOP	-5	12-24
COALMONT	COOP	-5	12-24
WAVERLY AIRPORT	COOP	-5	12-24
LEBANON 7 N	COOP	-5	12-24
CHEROKEE TENNESSEE	RAWS	-5	12-24
MONTEAGLE	WBAN	-5	12-23
CROSSVILLE 7 NW	WBAN	-5	12-23

Nine stations tied for the ninth coldest temperature (-5°F).

Warmest Stations (highest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MEMPHIS INTERNATIONAL AP	WBAN	64.1
SHILOH NMP TENNESSEE	RAWS	62.8
CHATTANOOGA AP	WBAN	62.6
LEWISBURG TOWER TENNESSEE	RAWS	62.5
SAVANNAH 6 SW	COOP	61.8
NASHVILLE INTL AP	WBAN	61.8
LENOIR CITY TENNESSEE	RAWS	61.7
CAMDEN TOWER TENNESSEE	RAWS	61.5
MEMPHIS WFO	WBAN	61.5
AMES PLANTATION	COOP	61.4

Coolest Stations (lowest mean temperatures)

Station Name	Station Type	Mean Temperature (F)
MT LECONTE	COOP	42.9
NEWFOUND GAP	COOP	49.5
ROAN MOUNTAIN 3SW	COOP	51.4
MOUNTAIN CITY 2	COOP	52.5
COALMONT	COOP	54.6
ONEIDA	COOP	54.8
TAZEWELL	COOP	54.9
CROSSVILLE 7 NW	WBAN	54.9
CROSSVILLE EXP STN	COOP	55
CHEROKEE TENNESSEE	RAWS	55.1

Wettest Stations (highest precipitation totals):

Station Name	Station Type	Total Precipitation (in)
MT LECONTE	COOP	94.49
NEWFOUND GAP	COOP	79.3
FAIRFIELD GLADE 0.1 NNW	CoCoRaHS	75.76
LEWISBURG 5.1 SW	CoCoRaHS	71.16
PETROS 0.2E	CoCoRaHS	71.03
MCMINNVILLE 8.5 ESE	CoCoRaHS	70.12
BEERSHEBA SPRINGS 2.1 ENE	CoCoRaHS	70.05
GRAYSVILLE 5.5 WNW	CoCoRaHS	69.82
WINCHESTER 5SE	COOP	69.55
BENTON 2.3 ESE	CoCoRaHS	69.31

Driest Stations (lowest precipitation totals):

Station Name	Station Type	Total Precipitation (in)
CLEVELAND 1.2 W	CoCoRaHS	31.58
NASHVILLE 4.1 SSW	CoCoRaHS	37.76
COLONIAL HEIGHTS 0.6 SSE	CoCoRaHS	38.68
SEYMOUR 5.8 N	CoCoRaHS	40.18
KINGSPORT	COOP	40.85
CLARKSVILLE NO.2	COOP	41.28
GREENEVILLE EXP STA	COOP	41.39
GREENEVILLE 3.0 S	CoCoRaHS	41.65
BAILEYTON 1.0 NW	CoCoRaHS	41.78
BRISTOL AP	WBAN	42.38

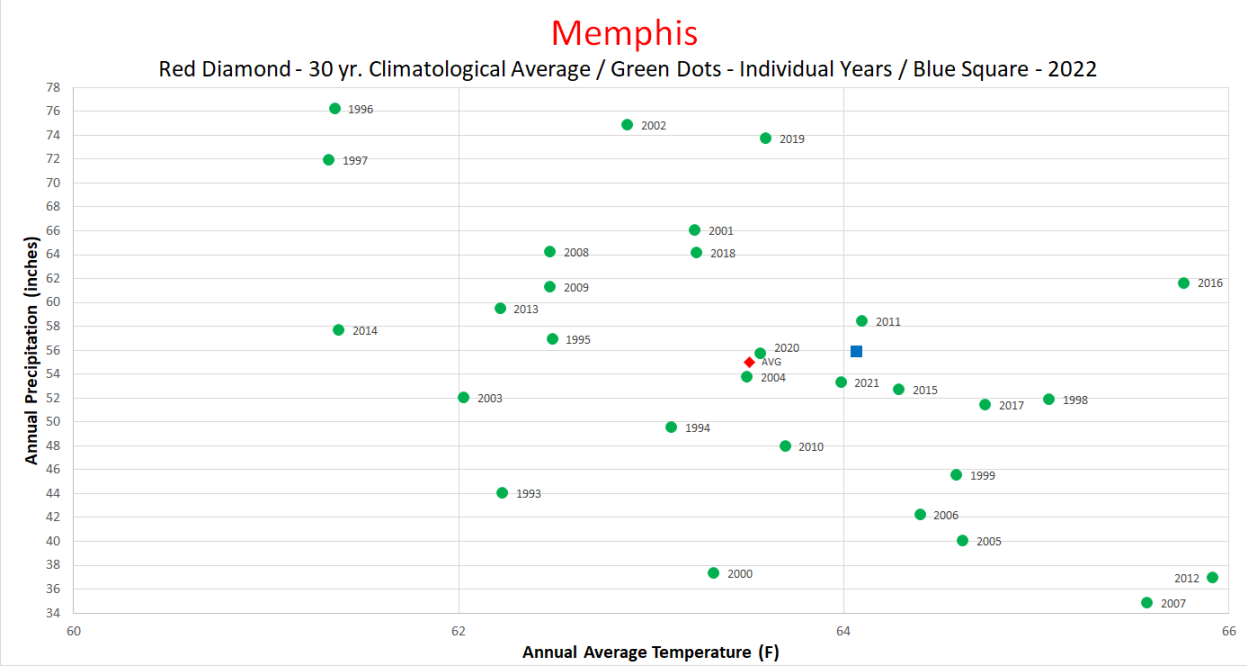
Each of these stations, except Bristol AP, had at least 1 day without reporting, so actual precipitation totals might be higher.

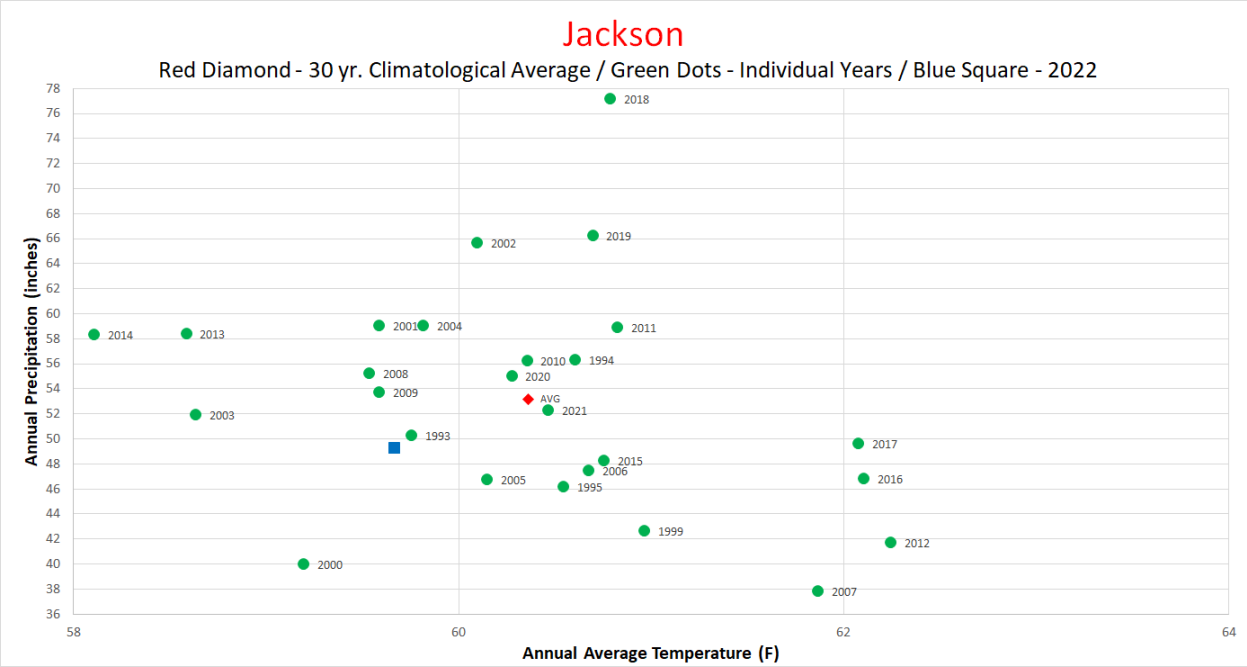
Snowiest Stations (highest snowfall accumulations):

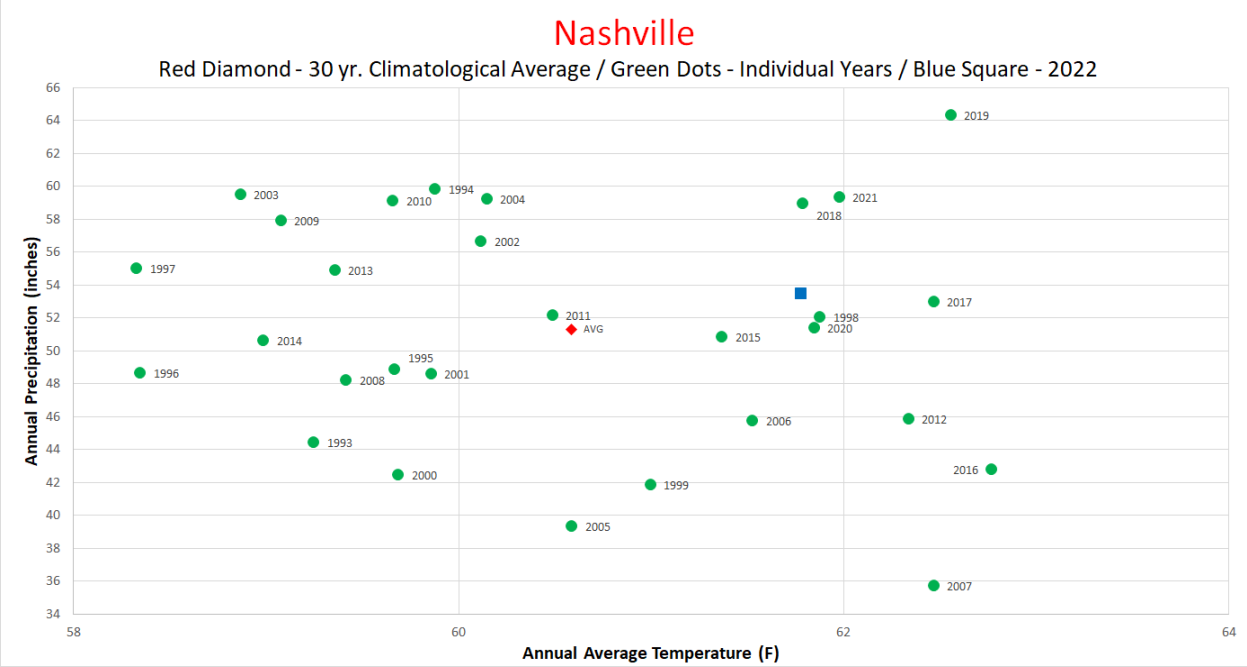
Station Name	Station Type	Total Snowfall (in)
MT LECONTE	COOP	68.1
NEWFOUND GAP	COOP	40.1
ALLARDT	COOP	27.1
ONEIDA	COOP	26.4
NEWCOMB	COOP	24.3
CLARKSVILLE WWTP	COOP	23.5
BYRDSTOWN	COOP	22.5
MONTEREY	COOP	22
JAMESTOWN 12.9 S	CoCoRaHS	21.3
ROAN MOUNTAIN 3SW	COOP	21.1

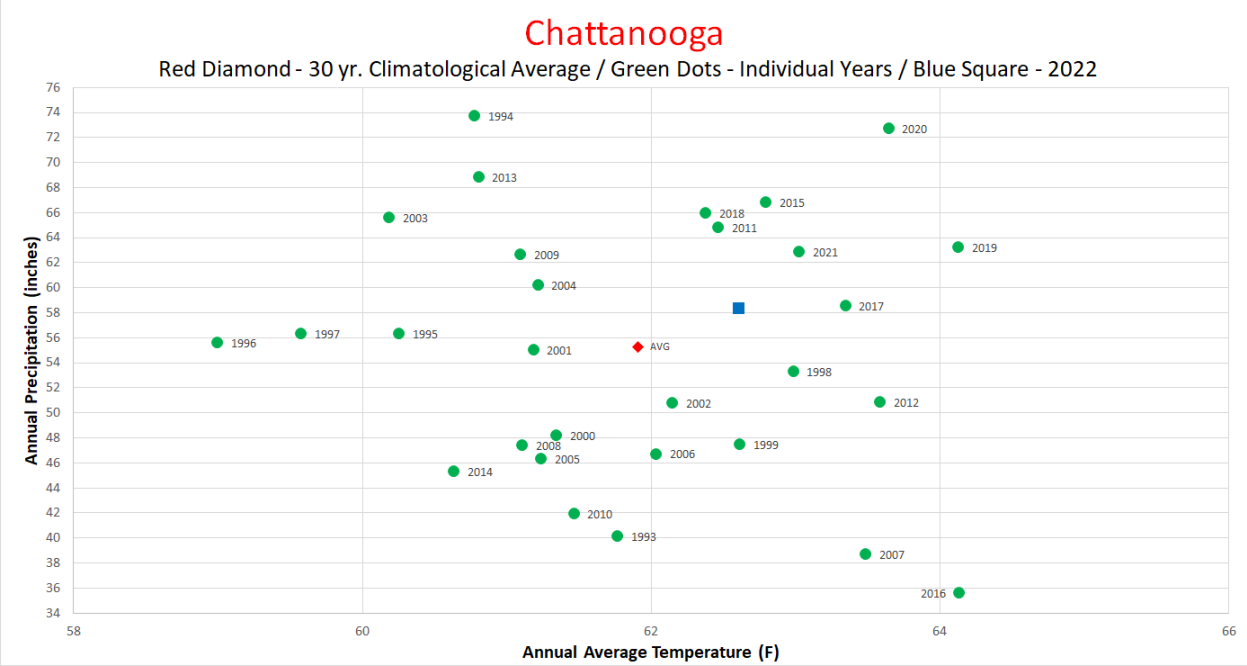
Year in Comparison

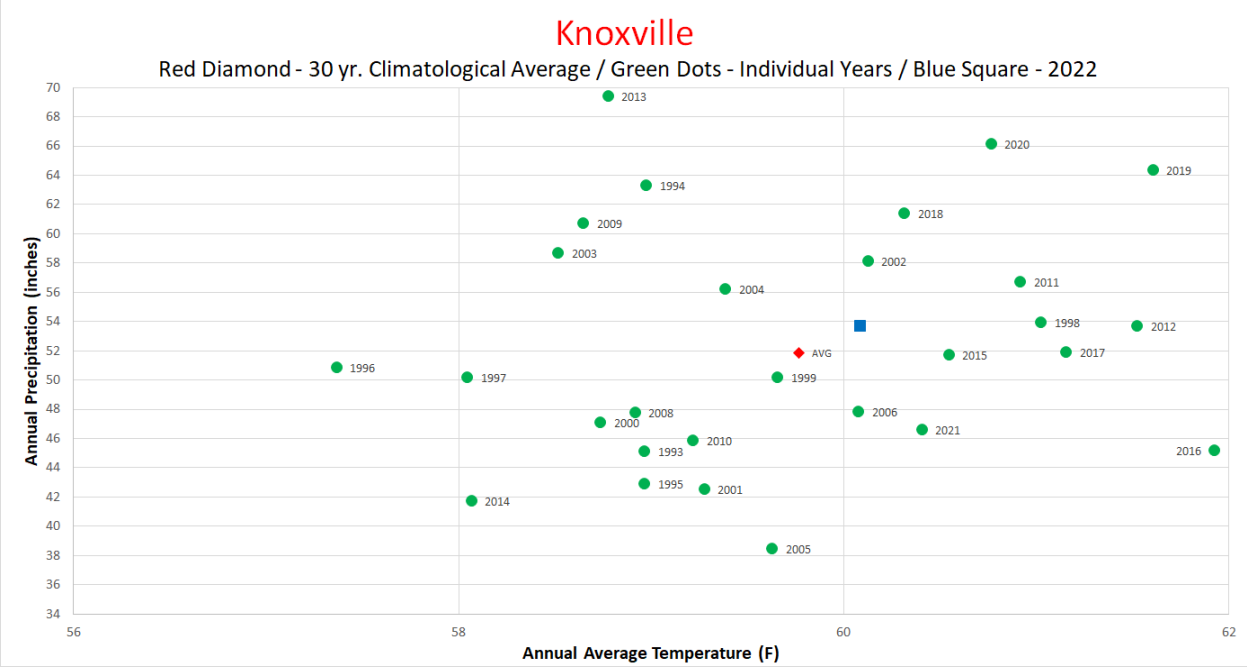
Comparing the total precipitation and mean temperature for 2022 to the conditions over the past thirty years at selected airports across the state, we can see that it was not an outlier year for any of these stations. Memphis, Nashville, Chattanooga, and Knoxville were a bit wetter and warmer than the average of the past thirty years, while Jackson was cooler and drier than average, and the Bristol/Tri-Cities airport was warmer and drier than average.

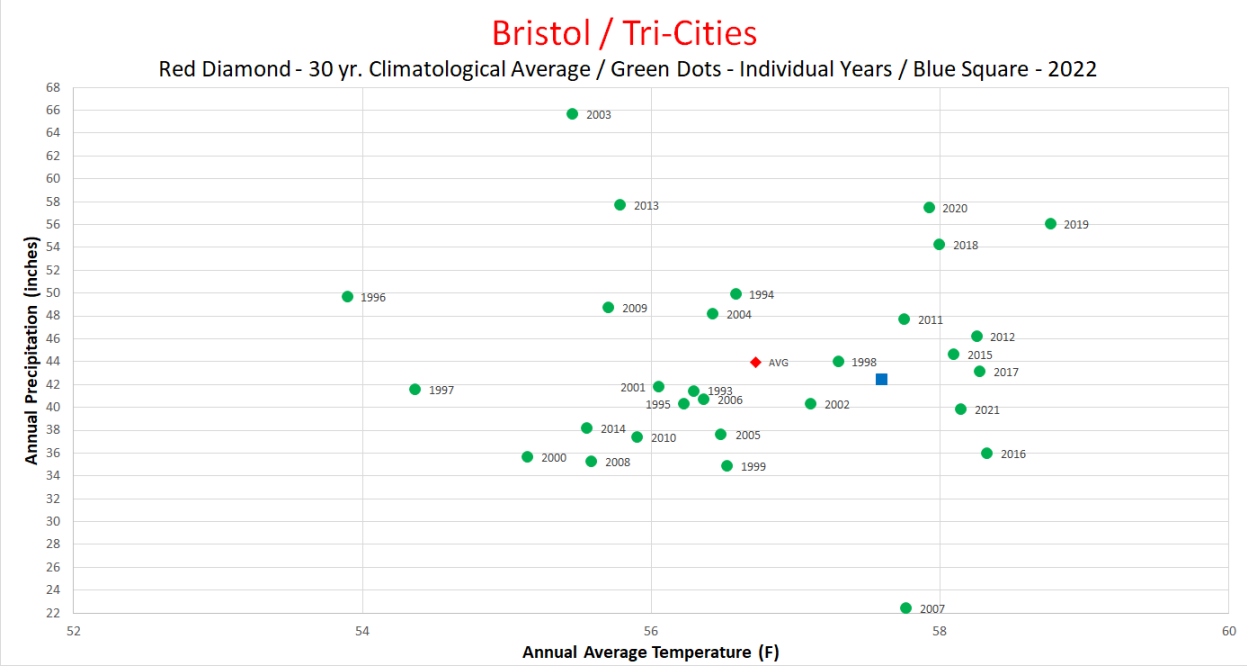





Nashville
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - 2022
Annual Precipitation (inches)
Annual Average Temperature (F)
AVG
2019
2003
1994
2010
2004
2021
2009
2018
2002
1997
2013
2017
2011
1998
2020
2014
2015
1995
1996
2008
2001
2006
2012
1993
2016
2000
1999
2005
2007


Chattanooga
Red Diamond - 30 yr. Climatological Average / Green Dots - Individual Years / Blue Square - 2022
Annual Precipitation (inches)
Annual Average Temperature (F)
AVG
1994
2020
2013
2015
2003
2018
2011
2009
2021
2019
2004
2017
1996
1997
1995
2001
1998
2002
2012
2000
2008
1999
2005
2006
2014
2010
1993
2007
2016



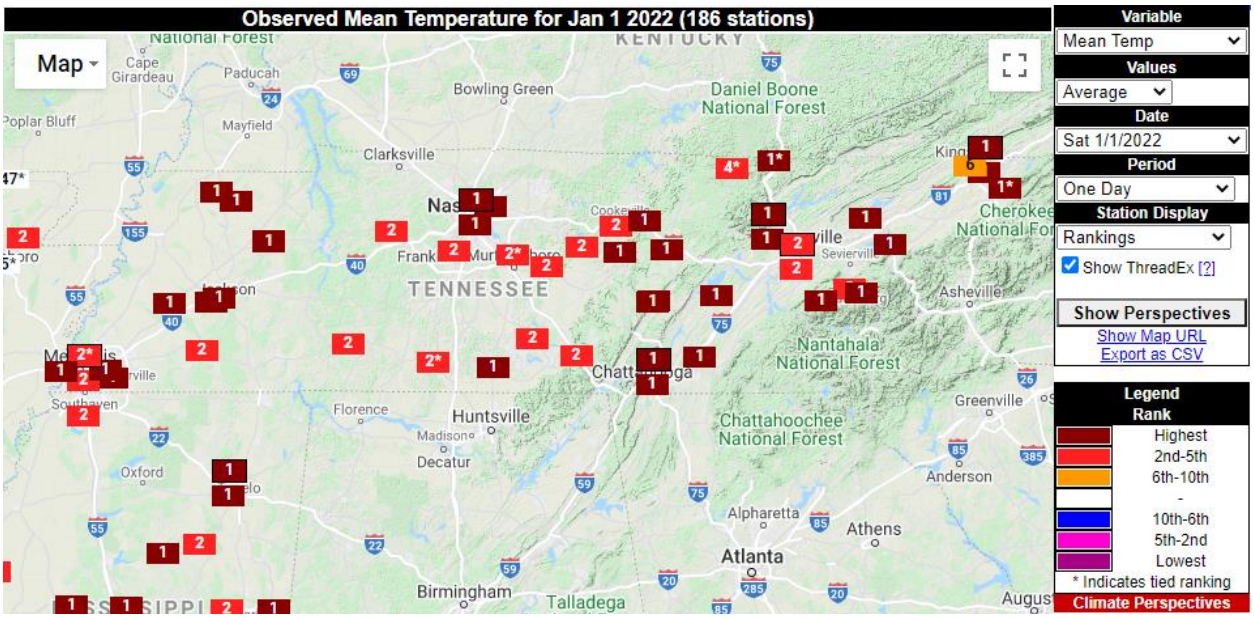


Major Weather and Climate Stories of 2022:

There were many ups and downs in Tennessee weather this year, with extreme cold and extreme heat, flooding and droughts, but on the bright side 2022 had fewer tornadoes in Tennessee of any year since 1987! After several devastating tornadoes in 2020 and 2021, Tennessee had only 5 reported tornadoes in 2022, according to the NOAA Storm Prediction Center. The Storm Prediction Center also keeps track of the number of severe wind damage and severe hail reports (hail with diameter of 1-inch or larger), and 2022 had 82 reports of severe hail and 382 reports of severe wind damage. This number of severe hail and wind reports are below the average number of reports for Tennessee from 2000 to 2022, but there were several years with fewer reports of both.

January:

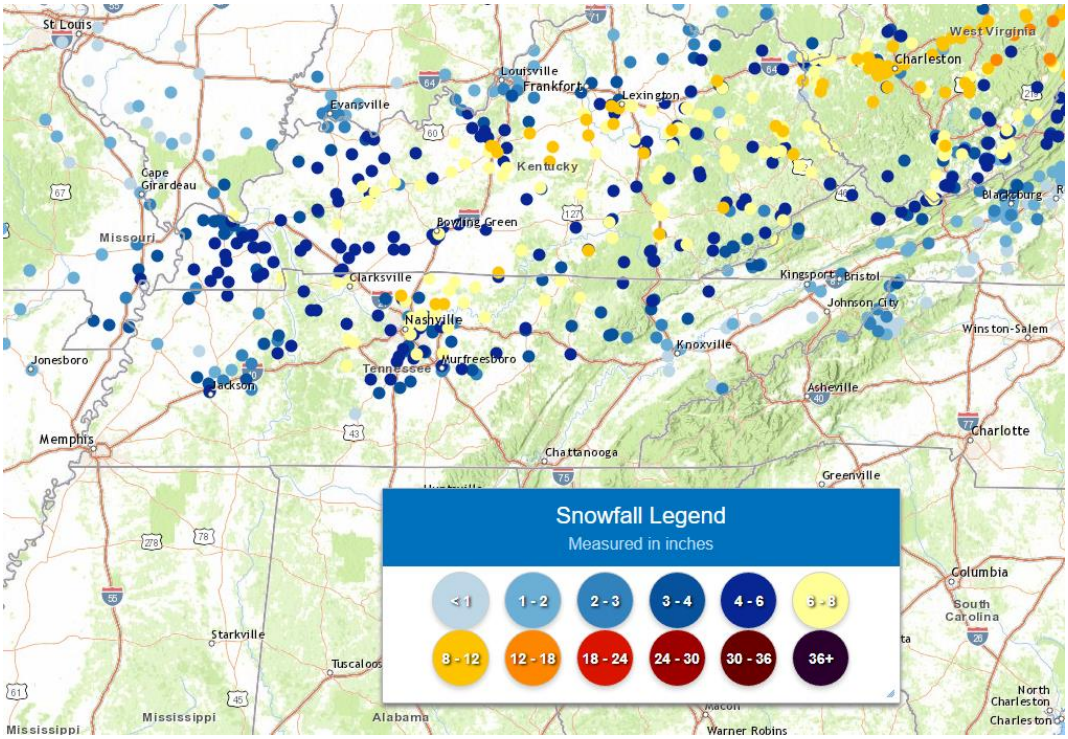
Fitting for the year to follow, January started 2022 with some weather whiplash, starting with record-setting warmth on New Year's followed by several major snow storms later in the first week of the year! January 1, 2022 brought record-setting warmth across the state, with all long-term climate reporting stations across Tennessee setting or tying the record warmest high temperature for the day, and all having one of the top-two warmest mean temperatures for the date. The high temperatures recorded at airport weather stations on January 1, 2022 tied records for the warmest high temperature during the month of January at those stations, with Memphis International reaching 79°F (last recorded Jan 31, 2002), Nashville International reaching 78° (last recorded Jan 24, 1972), Crossville Memorial Airport reaching 72°F (last recorded Jan 30, 2002), Chattanooga Airport reaching 78°F (last recorded Jan 11, 1949), and the Knoxville Airport reaching 77°F (last recorded Jan 11, 2020).



This map from the Southeast Regional Climate Center's Climate Perspectives Tool shows the rank of mean temperatures recorded on January 1, 2022 across Tennessee. For almost all stations in the state it was the warmest or second warmest mean temperature ever recorded for that date. Stations with a black outline are ThreadEx long-term climate reporting stations.

The warmth did not last long into the month, as a strong cold front brought much colder air on January 2, followed by state-wide snowfall January 2-3. Some of the highest snowfall totals from the January 2-3 snowfall event occurred in southern sections of Middle Tennessee, with reports of up to 7-inches of snow in Franklin County. A second storm system moved across the state later that week, January 6-7 and brought heavy snowfall, with the highest totals found in northern sections of Middle Tennessee. A third snow-producing storm system moved across the state January 16-17 on the Martin Luther King Jr. Weekend, with the heaviest snow totals found in northern portions of the Cumberland Plateau and the mountains of East Tennessee. A final snow system impacted the mountains in East Tennessee January 29-30 with major-to-moderate accumulations limited to higher elevations. Across the state, at weather stations with at least a 30-year reporting history there were 41-daily record snowfall totals set, including 5 records at stations with over a 100-year reporting history. Overall for the month, 42 weather stations recorded a foot or more of snowfall during January.

Snow in Waverly, January 6, 2022 (Photo via Humphreys County Sherriff's Office)



January 6-7 snowfall accumulations across Tennessee and Kentucky (map via National Weather Service Storm Report)

February:

An ice storm impacted West Tennessee and was part of a larger winter storm that hit the central US from February 2-5. Starting February 2, Ice Storm Warnings and Winter Weather Advisories were in place for many West Tennessee counties, and parts of Middle Tennessee as well. The storm brought heavy sleet and freezing rain to the state that downed trees and powerlines and made roads dangerous. By the morning of February 3, there were already 20,000 customers without power in Shelby County. According to Memphis Light, Gas, and Water more than 241,000 costomers were impacted by a power outage during the storm! By 9:00am February 4, TEMA reported 130,600 power outages across the state, and many areas of Shelby County were without power for several days as crews worked to repair lines in the sub-

freezing temperatures. The Memphis Fire Department also responded to a 16-vehicle crash that sent six people to the hospital. Widesperad heavy rains of 5-6-inches during the last week of February also produced flashflooding and river flooding across many areas of Tennessee, which closed roads and prompted a water rescue of a driver from the Harpeth River in Williamson County.

March:

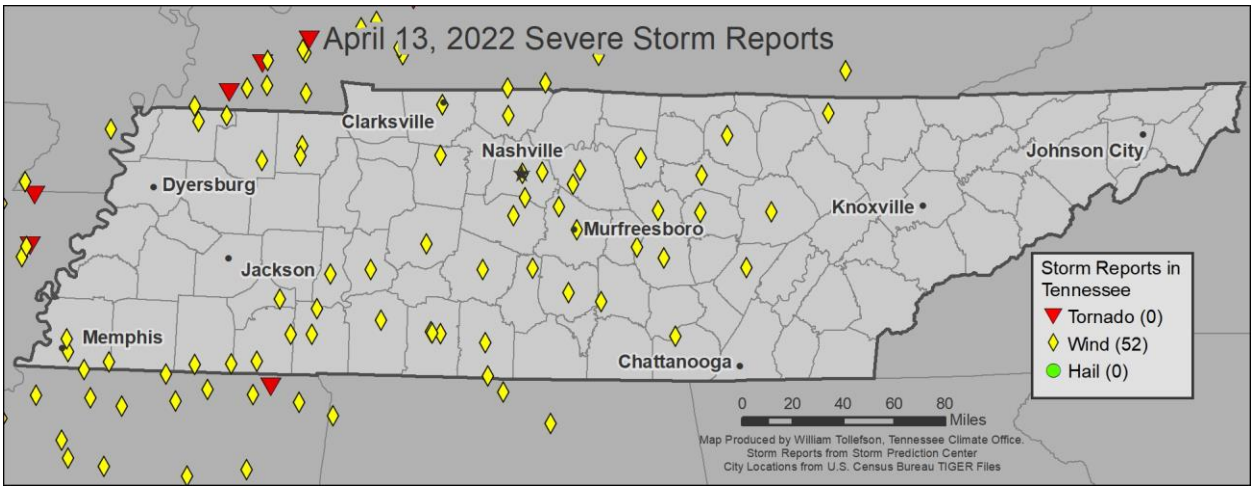
A strong cold front swept the state from March 11 to 12, bringing widespread snow accumulation across the state, with northern portions of the Cumberland Plateau reporting the highest snow totals. For many areas in East Tennessee this was the largest March snowfall event since the Blizzard of 1993, including Knoxville where there were numerous reports of over 6" of snow.

There were numerous small wildland fires reported across the state at the end of the month as a few weeks of dry weather, low humidity, and gusty winds brought dangerous fire weather conditions to portions of the state. In Sevier County, two large wildfires broke out and were responsible for burning more than 3,000 acres over several days beginning March 30th. The Sevier County fires were located in the Wears Valley and Chilhowee Mountain areas of the county, west of Gatlinburg/Pigeon Forge. The larger of the two fires, named the Hatcher Mountain/Indigo Lane Fire, caused the evacuation of over 11,000 homes. Additionally, schools in the area were closed and students were bussed to an evacuation center so their parents could pick them up. There were over 200 people from 70 agencies dispatched to help fight the fires. 219 structures were impacted by the fires, some sustaining just minor damage while others were completely destroyed. Luckily, no fatalities were reported due to the fires, but two firefighters and a civilian were injured while fighting the fires.

Image of the Hatcher Mountain wildfire from TEMA

April:

Rains in the second week of April helped to end the fire danger that had started in March. A strong cold front swept the state on April 13 and led to a severe storm outbreak, with 52 reports of severe wind damage, mostly in West and Middle Tennessee.



May:

There were two heat waves in May that led to most areas of the state recording an above normal mean temperature for the month. The first came on May 11-12 when high temperatures soared into the 90s for many areas of the state. Memphis International Airport recorded a high of 97° on May 12; this was the highest temperature recorded in Tennessee during May 2022 and set a daily record for the weather station. This new record beat the previous daily high for May 12 of 93°F set in 2005. The second round of record-setting heat occurred from May 20 to May 23, when six weather stations set a record daily high temperature, but overnight temperatures were the main story with this heat wave. From the 20th to the 23rd, there were 60 broken or tied records for warmest low temperatures set at weather stations with at least 30-year reporting histories.

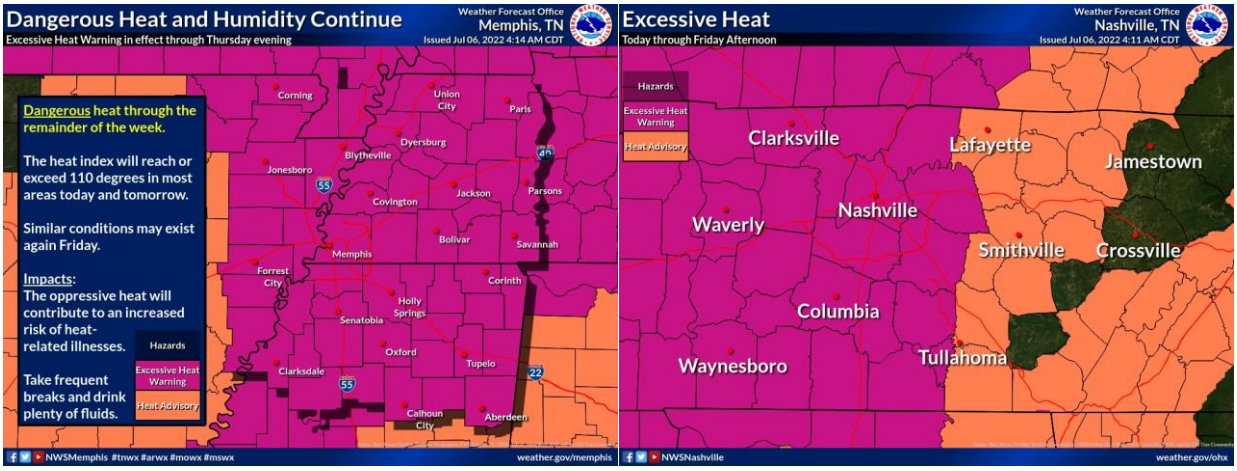
June:

Heat waves continued in June with several rounds of high heat impacting the state during the second half of the month. A heat advisory or excessive heat warning was in affect for one or more counties in Tennessee from June 12-16, June 21-22, and June 26. Memphis International Airport recorded a total of 6 days with a high temperature of 100°F or higher, their first 100-degree day was June 16, the first 100-degree day for the airport since September 16, 2019, a streak of 1,003 days and the 10th longest such streak for the station. The next day, their low temperature for June 17 only got down to 82°F, which set a record for the warmest low temperature recorded in the month of June, beating their old record of 81°F from June 2016. Memphis International Airport also set a daily high temperature record of 102°F on June 22. In Middle Tennessee, Nashville International and Clarksville Outlaw airports both recorded high temperatures of 101°F on June 22, which was the first day temperatures topped 100°F since July of 2012 for both airports. This broke the 3,635-day streak of high temperatures below 100°F for Nashville, which was the 3rd longest such streak for the airport.

July:

The heat waves continued into July and West Tennessee continued to have below normal rainfall, leading to rapidly expanding drought conditions including an area of Extreme Drought (D3) on the US Drought Monitor in parts of the region. The timing of this drought took a major toll on corn crops in Tennessee and led to below normal yields for the year.

Excessive Heat Warnings were issued for counties in Tennessee by the Memphis, Nashville, and Huntsville National Weather Service forecast offices on July 6, by the Nashville and Memphis forecast offices on July 20, and the Memphis forecast office on July 26. Additionally, there were Heat Advisories issued for at least one county in Tennessee on 16 days during July (July 4-9, July 16-17, July 19-24, and July 26-27).



Excessive Heat Warnings issued for West and Middle Tennessee on July 6.

Based on the mean temperature for the month, July 2022 was the 2nd warmest July for Memphis and Nashville, and the 7th warmest for Jackson, Chattanooga, Oak Ridge, and the Tri-Cities. Compared to the monthly mean temperatures and daily high temperatures, warm overnight low temperatures were driving much of the extreme heat. The monthly average of daily low temperatures for July 2022, was the warmest on record for Nashville (149-year history), Chattanooga (144-year history), and the Tri-Cities (75-year history). The monthly average low temperature for July 2022 was tied for 2nd warmest at Memphis (148-year history) and Oak Ridge (76-year history), tied for 8th warmest at Knoxville (152-year history), and tied for 10th warmest at Jackson (72-year history).

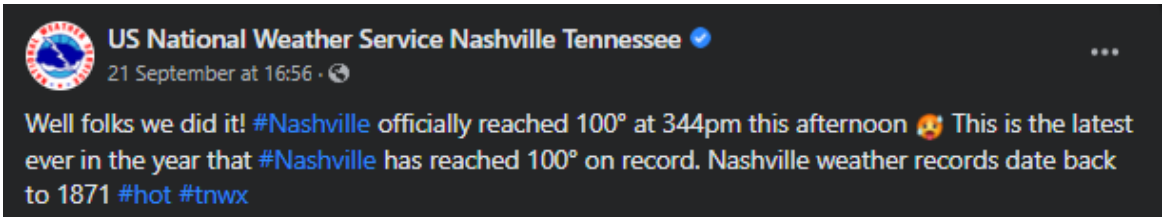
Memphis International recorded a high temperature of 100°F or higher ten times during July 2022, the 3rd highest number of 100-degree days in July for Memphis. There was also a 5-day streak of highs of 100°F or higher from July 5 through 9, which ties for the city's 7th longest streak of days with a high of 100°F or higher.

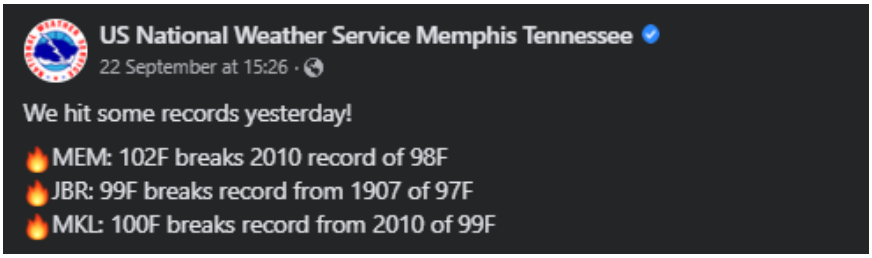
August:

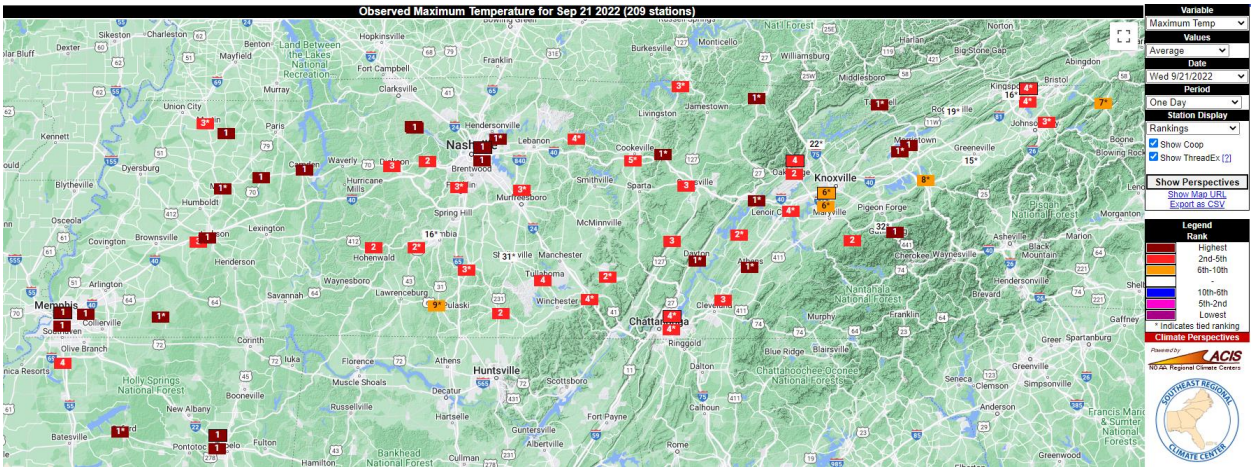
August brought relief from the record-setting heat and drought conditions from earlier in the summer. A cool spell in the middle of the month brought temperatures down into the 50's for most locations in the state and produced 16 broken and 8 tied daily records for coolest high temperatures at weather stations with at least 30-year reporting histories, this included 4 broken records at stations with over a 100-year reporting history. Regular rains that improved drought conditions also helped improve conditions for most agricultural concerns across the state, most notably for hay/pastures and cotton. However, the rainfall was too late to help improve the corn crop across Middle and West Tennessee.

September:

September brought drier than normal conditions leading to a return to Abnormally Dry conditions for parts of Tennessee in the U.S. Drought Monitor. Another heatwave hit the state right before the fall equinox with record-setting heat on September 20 and 21. Nashville International Airport set record highs on back-to-back days, September 20 and 21, reaching 100°F on the 21st. That was the latest calendar day the city has recorded a 100°F temperature, with weather records going back to 1871! The Jackson Airport also reached 100°F on the 21st and Memphis International Airport reached 102°F! This was also the latest calendar date that Memphis has recorded a 100°F day, with weather records going back to 1872. With this final day of temperatures of 100°F or higher, Memphis crossed that threshold 18 times in 2022, making 2022 the year with the 3rd the greatest number of 100-degree days in the city's weather history. Across Tennessee, all long-term weather stations reported a top-10 warmest day on record for September 21 in 2022.

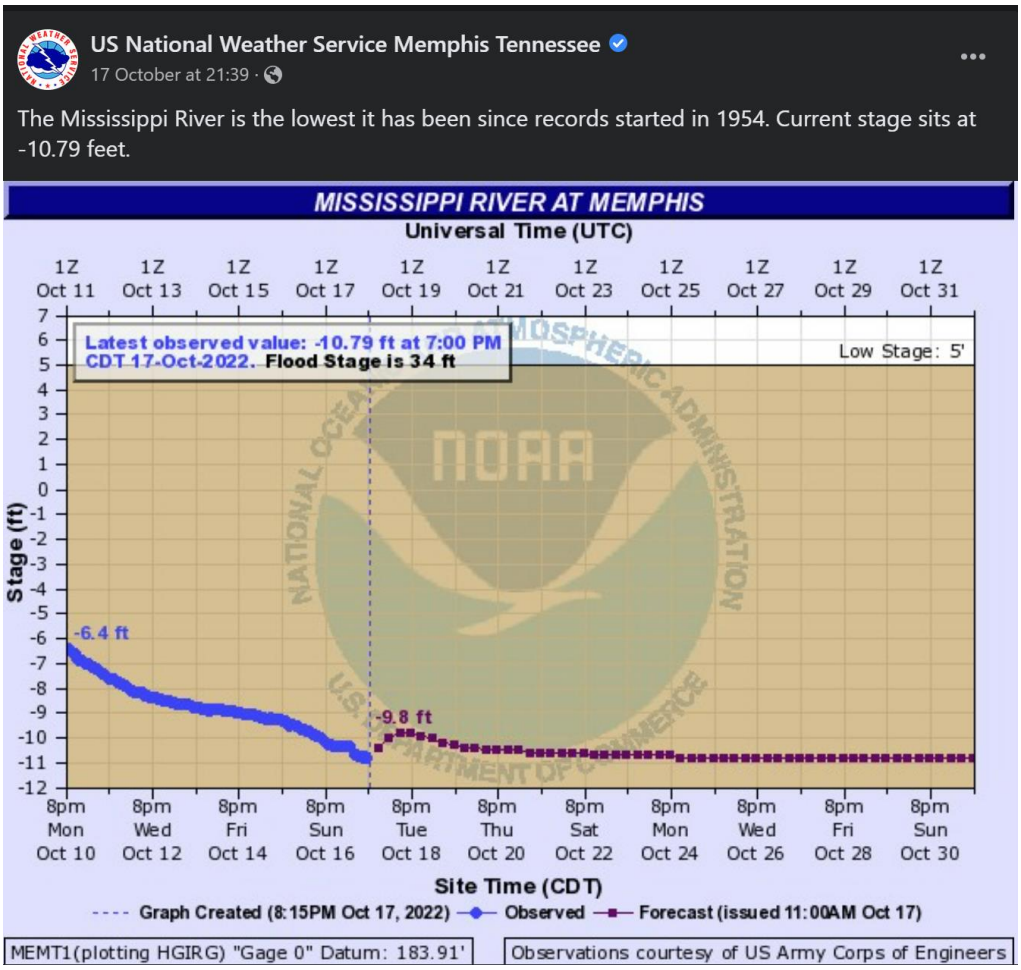




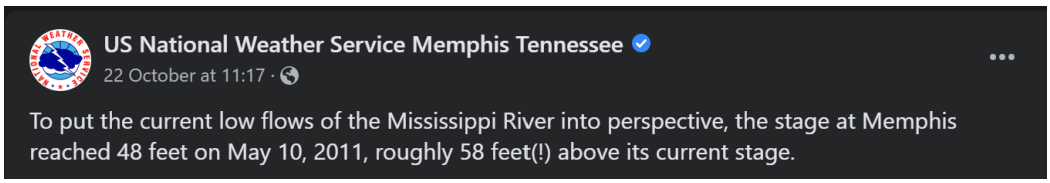


October:

Dry conditions continued in October, but with cooler than normal temperatures. The weather station at Memphis International Airport went 31 days without measurable rainfall (from Sep. 11 to Oct. 11), making it the 3rd longest streak of no rainfall for the station, with records at the airport going back to 1940. Nashville had a similar dry spell from Sep. 12 to Oct. 12, although the airport weather station did record 0.01" on September 24th so it was not completely rain free. In addition to drought conditions in Tennessee, widespread drought conditions including Extreme and Exceptional Drought (D3 & D4 on the U.S. Drought Monitor) throughout the upper Mississippi and Missouri River basins led to record low water levels in the lower Mississippi River. The USGS stream gauge on the Mississippi River at Memphis reached a record low stage (-10.79 ft) on October 17. The river continued to have near record low stages through October, and sections of the river had to be dredged to deepen the shipping lanes for barge traffic. An early blast of wintery conditions swept the state in the third week of October, with October 18th being particularly cold, running more than 20°F cooler than normal for the date, resulting in temperatures being more in line with an average January day for Tennessee. This surge of cold air brought freezing conditions across the state much earlier than normal, and even resulted in some reports of snow and sleet.



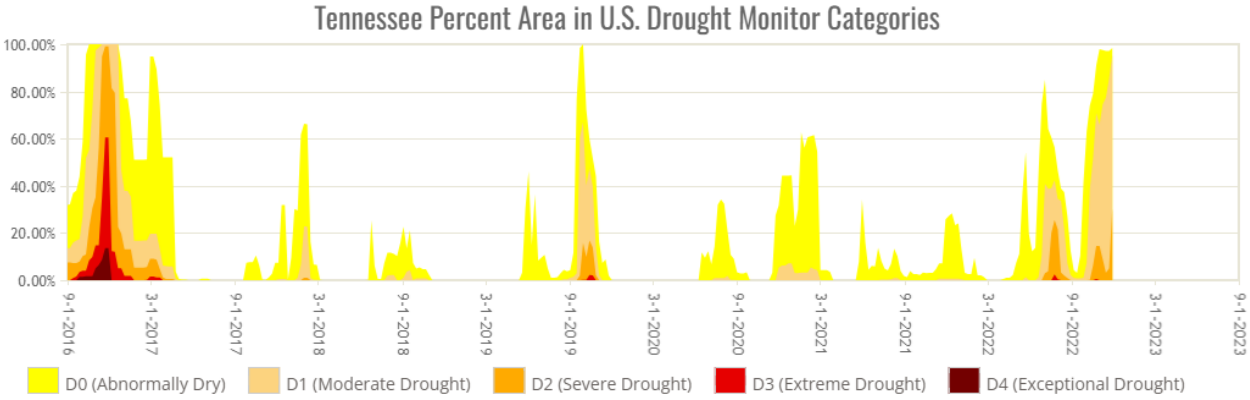
Post from the National Weather Service Memphis Office about the low water levels in the Mississippi River on October 17 including the USGS Hydrograph and forecast for the rest of October.



Post from the National Weather Service Memphis Office comparing the stage heights from high flow period of May 2011 to low flow heights this month.

November:

The Fall drought reached a peak at the end of November, with 95.33% of Tennessee shown in Moderate or Severe Drought (D1 or D2) in the U.S. Drought Monitor release on November 29. This was the highest coverage of at least D1 (Moderate Drought Conditions) since December 20, 2016. However, with rains in the last days of November and first week of December, combined with a wetter than normal December, this was the peak of the drought.



December:

The major story of December was the extreme cold and snow that impacted the state from December 22-27. A strong cold front swept the state on December 22-23 with temperatures falling over 40-degrees in a few hours into the single digits or sub-zero for many areas of the state. Along with these bitterly cold temperatures, winds gusted in the 30-40mph range after the frontal passage sending wind chills into the -20°F range for most areas of the state, prompting a wind chill warning being issued for all counties in Tennessee on December 22. Light snowfall and strong winds also occurred as the temperatures plummeted after the fontal passage, with snow totals ranging from a dusting to ~2" across the state. Temperatures on the morning of December 23 were below zero at the airport weather stations in Jackson (-2°F), Clarksville (-3°F), Nashville (-1°F), and Crossville (-4°F). This was the first time these stations have recorded sub-zero temperatures since January 2018 for Clarksville and Crossville, February 1996 for Nashville, and December 1989 in Jackson.

The cold conditions also set daily and monthly cold temperature records in Tennessee, as well as daily, monthly, and all-time records for coldest daily high temperatures. There were 29 broken and 5 tied daily record low temperatures, including 10 records set at stations with at least a 100-year station history and 9 records breaking the previous record by 10 degrees or more!

There were 8 broken and 1 tied monthly low temperature records set for December, including 3 records set at stations with at least a 100-year station history. Beyond the cold low temperatures, this event also set several records for coldest high temperatures recorded at weather stations around the state. There were 31 broken and 10 tied daily records for coldest high temperature, including 11 records set at stations with at least a 100-year station history. Ten stations broke their old daily record by over 10 degrees, including Mt LeConte with a high of -11°F on Christmas Eve, beating the previous record cold high temperature for that date by 27 degrees!

From these daily records, 10 stations also set a monthly record for coldest high temperature recorded during the month of December, and for 6 stations it was an all-time record for coldest high temperature observed. The table below shows the six stations that set all-time records for the coldest high temperatures ever recorded at that station.

Station	Record (°F)	Date of Record	Previous Record (°F)	Previous Record Date	Station Age (Years)
Mount LeConte	-11	2022-12-24	-3	2018-01-05	35
Pulaski Water Plant	8	2022-12-24	14	1996-02-05	66
Monterey	1	2022-12-24	4	2014-01-07	119
Sparta Wastewater Plant	4	2022-12-24	6	1962-01-11	62
Newfound Gap	-2	2022-12-24	-1	1994-01-19	32
Old Hickory Weather Forecast Office	6	2022-12-24	7	1994-01-18	32