

October 2024 Climate Summary

Significant Weather Events:

In a typical October summer heat and winter chill are at odds with one another. This tug-o-war between the seasons typically leads to Texans sweating out the first half of the month and breaking out the winter wardrobe to close the month. October of 2024 was anything but that, where summer heat overstayed its welcome for the State, leading to what was likely the hottest October on record. Official climate statistics for the state are released mid-month by the NCEI, so we won't know for sure until then. Precipitation was also extremely off-character for this October relative to what the month typically sees. What is typically the second rainiest month for much of the eastern section of the state went almost the entire, if not *the entire* month without seeing any precipitation. This contributed to many locations seeing their driest October on record and making a run for their longest stretches of dry weather on record. Lastly, the tumultuous roller coaster ride in temperatures, a product of frequent cold fronts in a typical October sometimes serve to spark severe weather outbreaks across Texas, however, this month has seen virtually no occurrences of severe weather, with only three reports seen for the whole month decomposed into two severe wind reports (greater than or equal to 58 mph) and one severe hail report (greater than or equal to 1" in diameter).

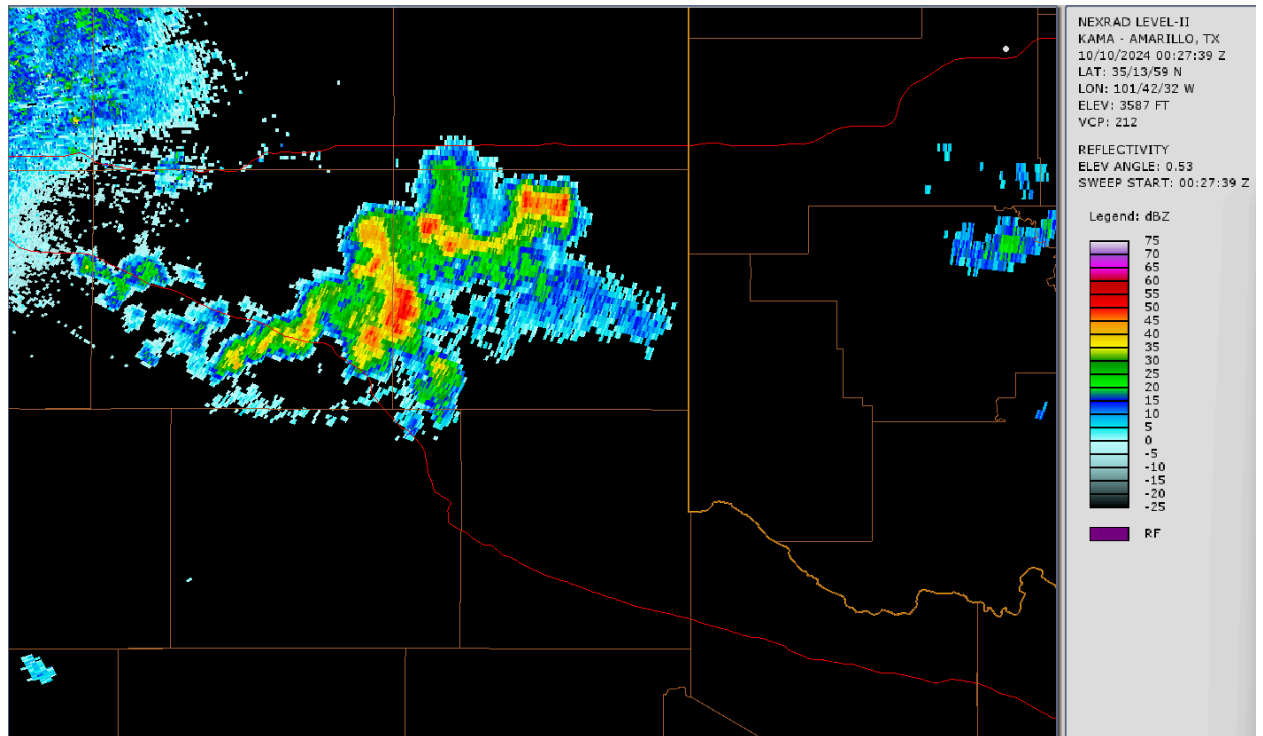
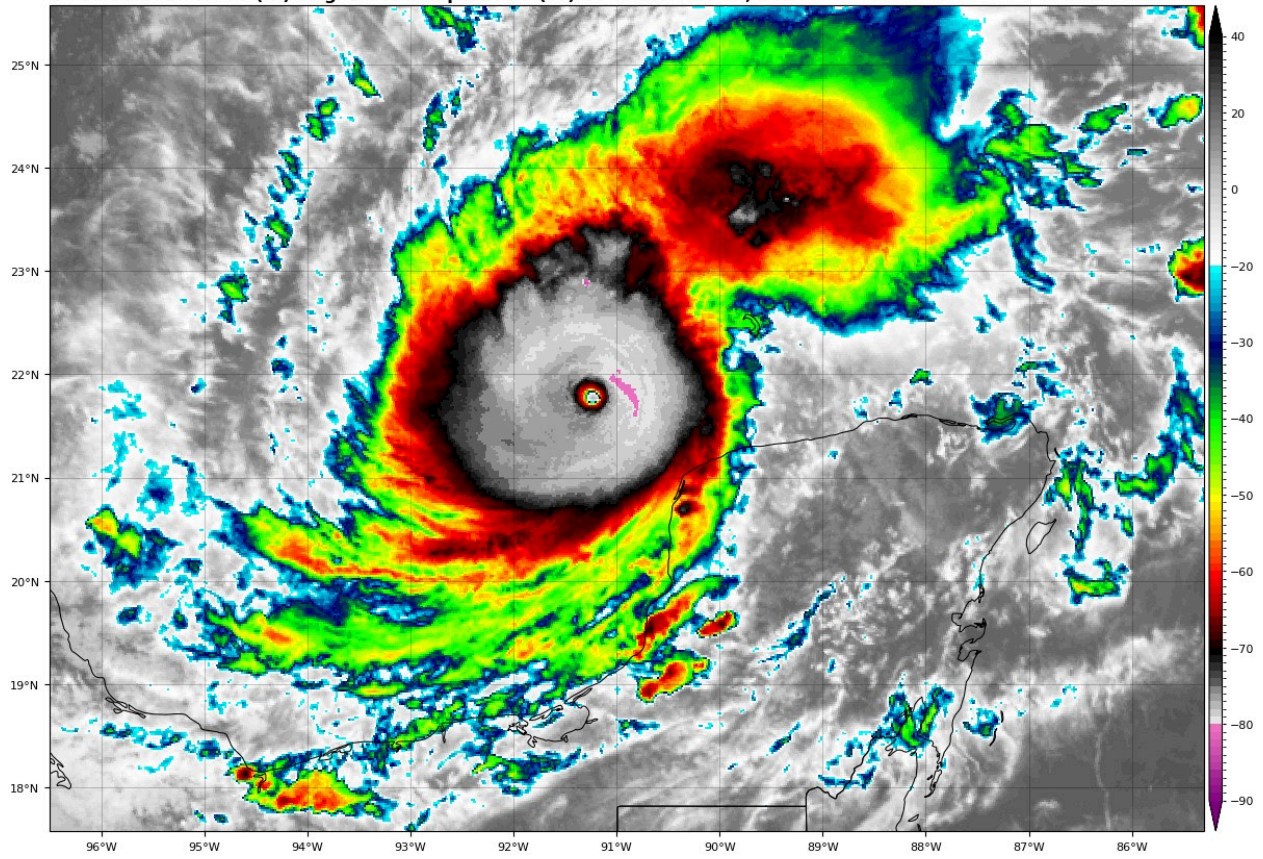
Significant Dates:

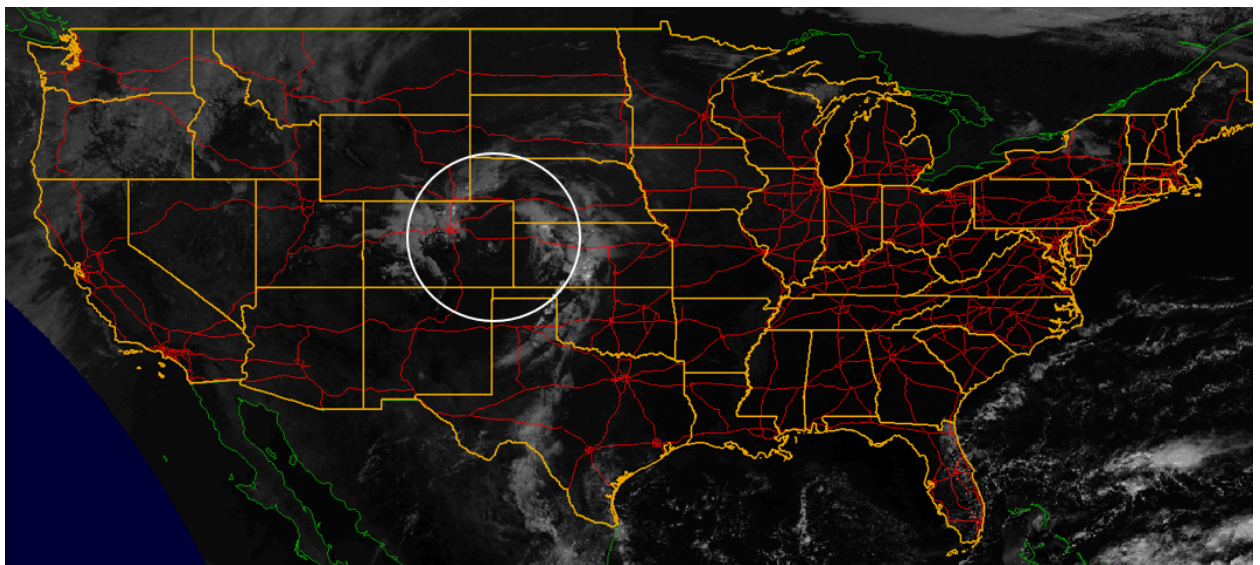
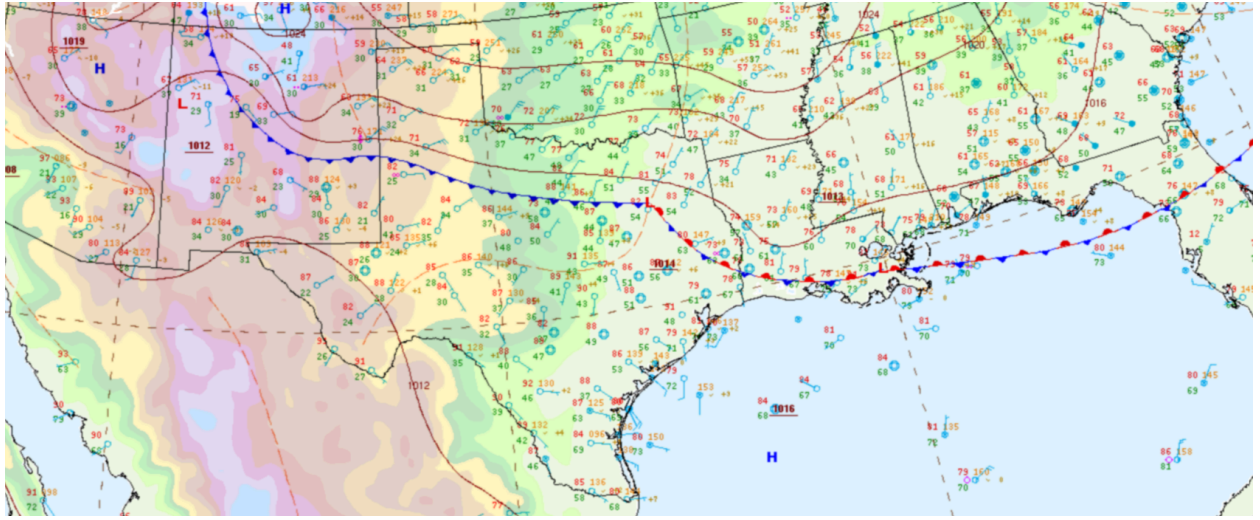
- October 5-9: Hurricane Milton forms in the Gulf of Mexico. The storm became the strongest storm of the 2024 Atlantic hurricane season with maximum sustained winds of 180 mph (beating Beryl's 165 mph in July). The storm moved east and stayed too far south to bring any effects to Texas, but unfortunately, the storm took aim at Florida, producing a prolific tornado outbreak, flooding rains, and extreme winds for them.
- October 9: A decaying thunderstorm produced a quarter of the severe weather reports for October 2024 as a 62 mph wind gust was reported in Collingsworth County.
- October 15: Waco reached 100°F for the 21st time in 2024, this is the latest in the year that Waco has seen triple digit temperatures.
- October 16: Arguably the most significant cold front moved across the state bringing the coolest weather many have experienced since April. This front also produced a wind gust of 48 mph in Lubbock as it moved through the area.
- October 17: Texas saw its first freeze since April as temperatures plummeted to 30°F in the unlikely location of Caddo Lake in East Texas.

- October 20-22: The influence of a low-pressure system off the Rockies brought parts of the Texas Panhandle rain, and produced half of the severe weather reports for the month as a 66 mph wind gust and one inch hail were seen in Bailey County.
- October 30-31: Trick or treaters were treated to some rain to round out the month in North and Northeast Texas. This round of rain for the tail end of the month allowed locations in these regions to not record their driest October on record.

GOES-16 Channel 13 (IR) Brightness Temperature (°C) at 18:32Z Oct 07, 2024

TROPICALTIDBITS.COM





October 2024 was Hot and Dry

Among the warmest and driest Octobers on record

Weather Forecast Office
Fort Worth, TX

Issued November 1, 2024 11:56 PM CT



DFW

Waco

Highest Average October Temperature			Lowest October Rainfall Total		
Rank	Average Temperature	Year	Rank	Rainfall	Year
1	75.7	2024	1	T	1924
2	74.1	2016	(tie)	T	1975
3	73.5	1963	3	0.01	1952
4	73.2	1947	4	0.11	1938
(tie)	73.2	1934	5	0.12	1934
6	73.0	1938	(tie)	0.12	1987
7	72.7	1931	7	0.17	1917
8	72.1	2007	8	0.20	1955
(tie)	72.1	2004	9	0.21	2024
10	72.0	2021	10	0.23	1963

Highest Average October Temperature			Lowest October Rainfall Total		
Rank	Average Temperature	Year	Rank	Rainfall	Year
1	75.3	1947	1	0.00	1952
2	75.0	2024	2	0.01	1966
3	74.9	1963	3 (tie)	0.06	1917
(tie)	74.9	1931		0.06	1934
5	73.8	2004	6	0.06	2012
6	73.7	1934		0.12	1995
7	73.4	2016	7	0.14	1924
8	73.3	1926	8	0.18	1938
9	72.6	1956	9	0.22	2016
10	72.5	1928	10	0.34	1932

14	0.72	2024
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weather.gov/fortworth

Images showing some of the meteorological and climatological highlights for October.

The first picture is the infrared image of Hurricane Milton. It depicts a very symmetrical and impressive-looking hurricane as it approaches peak intensity on October 7, just northwest of the Yucatan Peninsula (image courtesy of Tropical Tidbits).

The second image is the Amarillo radar reflectivity of the storm that produced the first severe weather report of the month five minutes before the 62 mph wind gust was measured in Collingsworth County (image courtesy of NOAA's Weather and Climate Toolkit).

The third image is the Weather Prediction Center's surface analysis depicting the strongest cold front of October entering the northern parts of the state at 7pm on October 15.

The fourth image depicts the visible satellite image of a low-pressure system in Colorado that produced flash flooding in New Mexico and spotty severe weather in Texas (image courtesy of NOAA's Weather and Climate Toolkit).

The final image depicts October 2024 landing among the hottest and driest Octobers on record for DFW and Waco. This is a reality that is all too familiar for many across Texas.

Temperature:

October began with temperatures well above climate normals, a tale that would characterize the whole month other than the few days following the mid-month cold front. Such a temperature story led to October 2024 being generally between 4 and 8°F above normal. This is enough to characterize October as the hottest on record for many. Some areas even saw monthly average

temperatures approaching 10°F above normal! A *very rough* approximation for how temperatures fall during the fall (pun intended) is that normally, October is about 10°F cooler than September and November is 10°F cooler than October. Applying this metric, it is almost as if fall has been held back an entire month for some. Lastly, for select locations, the average high temperatures were at or even *slightly above September* averages. Ten locations that saw October 2024 rank among their hottest Octobers on record are:

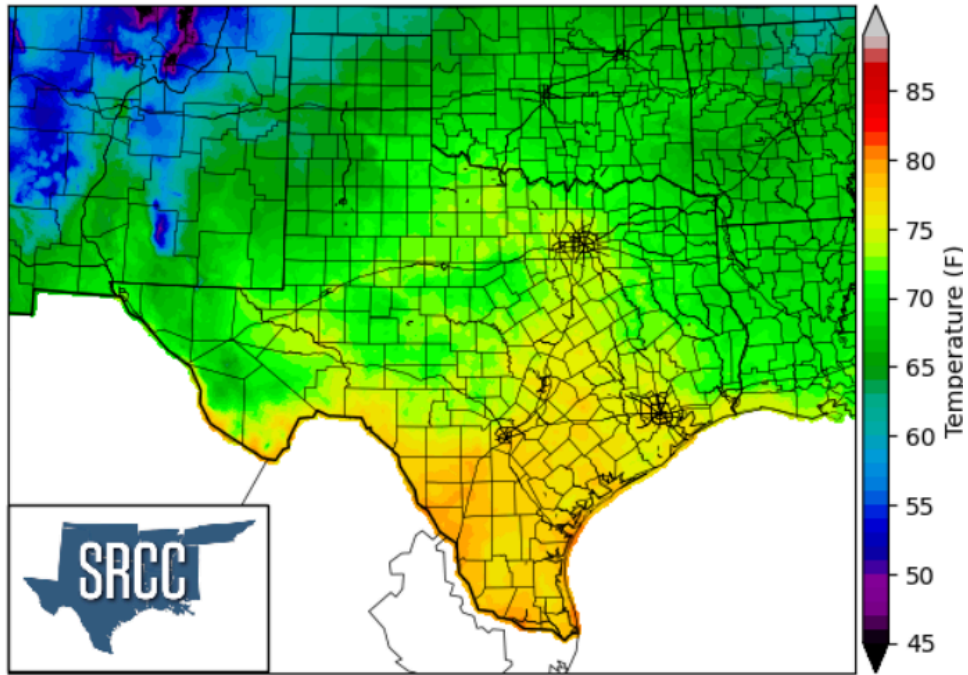
- Lubbock; 70.6°F (Hottest October on record, beats the old record by **4.2°F***)
- El Paso; 73.9°F (Hottest October, beats the old record by 2.6°F)
- DFW; 75.7°F (Hottest October, beats the old record by 1.6°F)
- San Antonio; 78.5°F (Hottest October, beats the old record by 0.5°F)
- Austin; 78.1°F (Hottest October, beats the old record by 1.1°F)
- College Station; 78.1°F (Hottest October, beats the old record by 1.1°F)
- Tyler; 73.9°F (Hottest October, beats the old record by 0.4°F)
- Midland; 71.0°F (2nd hottest October)
- Waco; 75.0°F (2nd hottest October)
- Houston; 76.6°F (3rd hottest October)

For context, even a 1.0°F change in average monthly temperature is rather significant, it is a change that would need a full week of temperatures 4.5°F hotter/colder on **both highs and lows to achieve, or if we were simply changing the highs, it would mean a week where highs are 9°F hotter/colder for those 7 days than they would otherwise be.*

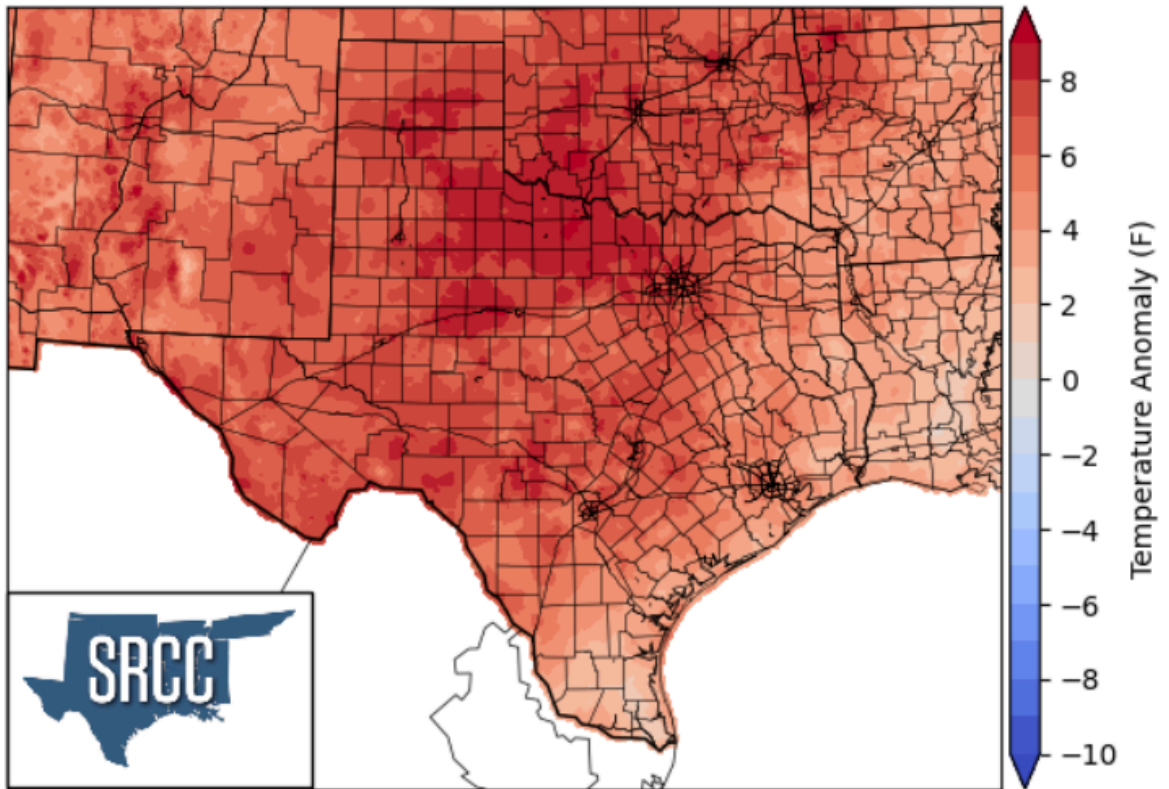
Some at a glance statewide temperature statistics for October 2024 are:

- **59.8°F** - monthly average at the Guadalupe Peak Texas RAWS site in Culberson County; the coolest in Texas
- **73.7°F** - the average monthly temperature of Texas stations
 - 4.5°F above that of October 2023
 - 4.6°F below that of last month
- **81.1°F** - monthly average at the Faith Ranch Airport in Dimmit County; the hottest in Texas
- The hottest recorded October temperature in Texas was **104°F** at the Waco Regional Airport in McLennan County on October 13, 2024, and at the Truscott 3W Co-op site in Knox County on October 15, 2024.
- The coldest recorded October temperature was **22°F** seen at two Muleshoe sites in Bailey County on **Halloween 🎃**. This is the coldest temperature seen anywhere in the state since March 26, 2024

Average Temperature (F) October 2024



Mean Temperature Anomaly (F) October 2024 vs 1991-2020 Normals



Precipitation:

Precipitation was very difficult to come by for Texas this month. A large swath of real estate went completely dry for *the entire month*. Those that saw precipitation saw very meager monthly totals, especially considering that October tends to be one of the rainier months of the year. Persistent dry air, and lack of significant storm systems and fronts contributed to the lackluster precipitation totals. Gridded analyses (which account for spatial distribution of stations) show that the statewide average precipitation for Texas sat at a disappointing 0.25". This value would represent the driest October statewide since 1952 (0.02"), and **would be the 2nd driest October on record**. A caveat to this analysis is that it differs slightly from the methods used to obtain the official precipitation numbers from NCEI, and so once the official climate statistics are released by mid-November, the overall ranking of October 2024 for the state may be slightly different than what is suggested by this preliminary analysis.

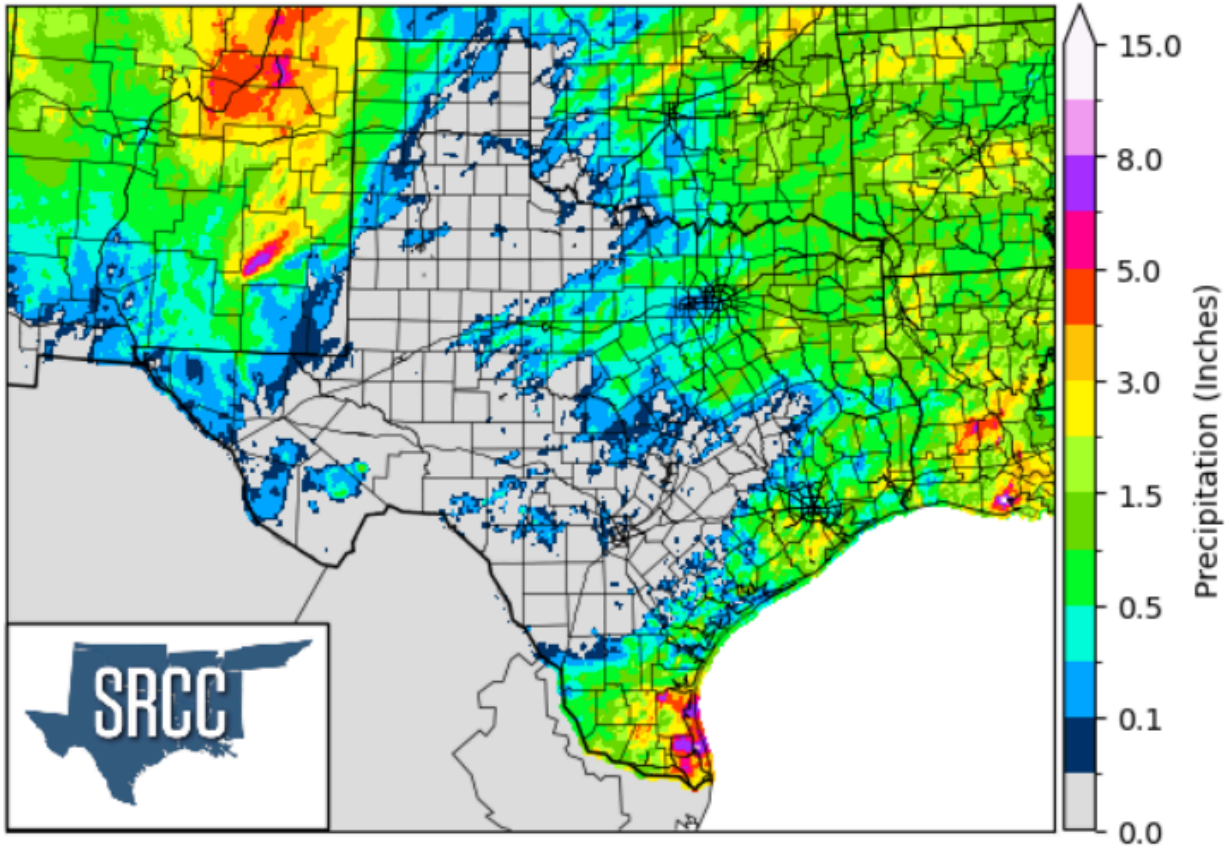
To illustrate the potential disparity between the methodology, The top 5 driest Octobers for Texas are stated in the table as follows:

Year	NCEI precipitation amount (official)	Gridded analysis total (unofficial)
1952	0.02"	0.02"
1917	0.27"	N/A
1934	0.36"	N/A
1921	0.44"	N/A
1950	0.50"	0.48"

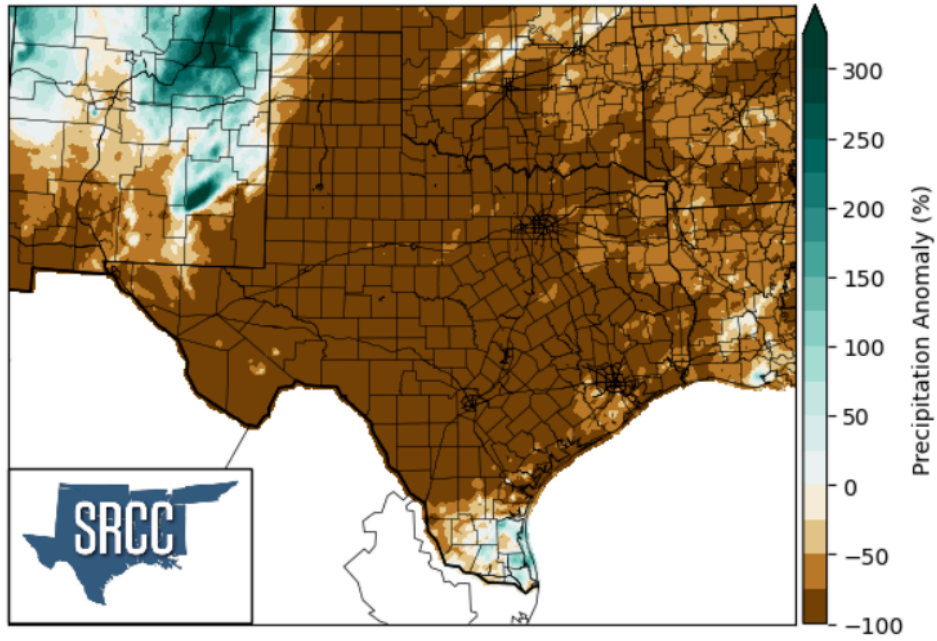
Some at-a-glance precipitation statistics across the state are:

- Average of Texas stations (not accounting for geographical distribution): **0.23"**
 - 2.11" below last month
 - 4.51" below October 2023
- Highest monthly total: **7.04"** at the Lozano 1.4 S CoCoRaHS site in Cameron County
- The rainiest day at any site across the State of Texas was October 5, 2024, where **3.60"** of rain was reported at the Lozano 1.4 S CoCoRaHS site in Cameron County

Accumulated Precipitation (Inches) October 2024



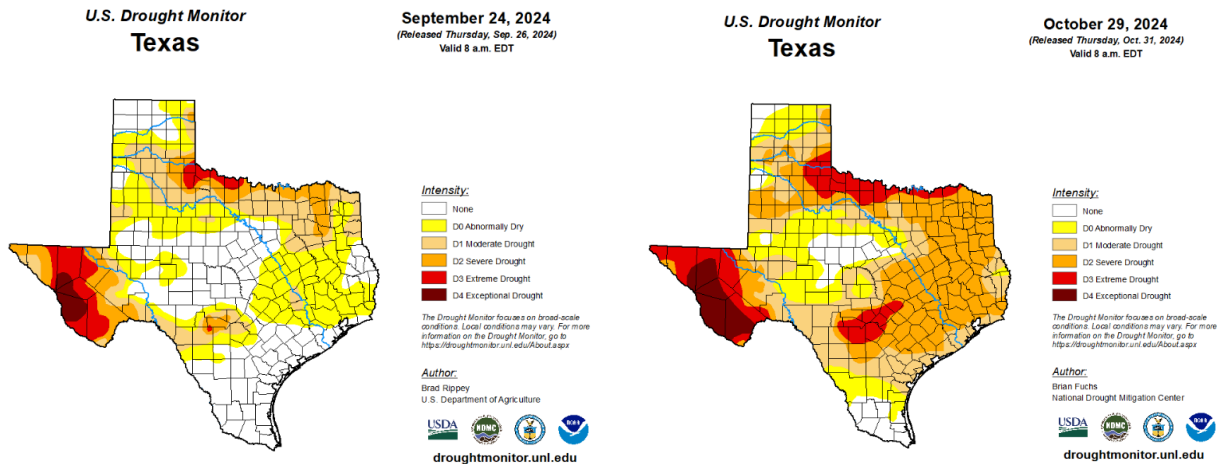
Precipitation Anomaly (%) October 2024 vs 1991-2020 Normals



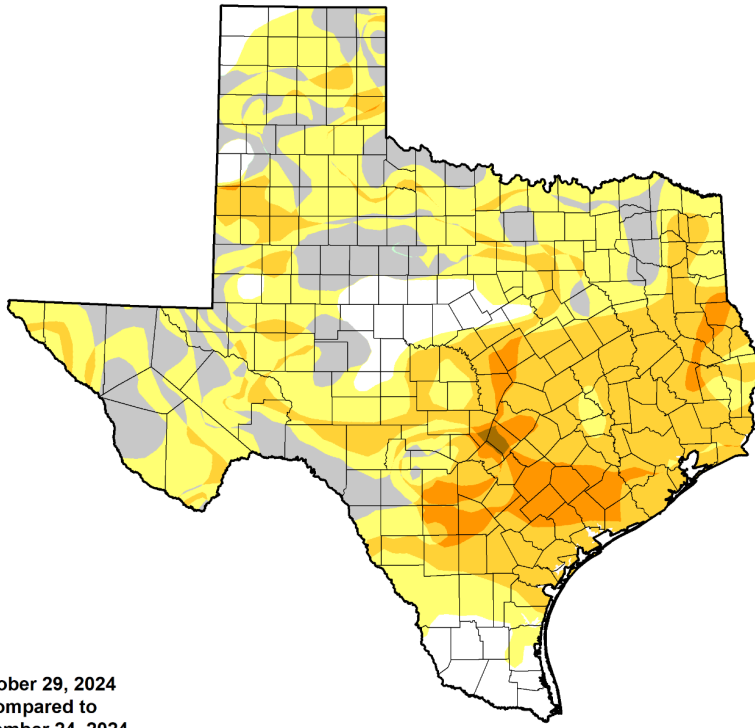
Drought:

October 2024 was among the driest months in Texas history. With this the prevalence of drought has expanded on the order of 2 to over 3 times the coverage (other than the abnormally dry category).

Drought category	End of September (September 24, 2024)	End of October (October 29, 2024)	Change
Abnormally dry or greater	62.7%	91.1%	+28.4%
Moderate drought or greater	33.2%	73.7%	+40.5%
Severe drought or greater	16.2%	49.5%	+33.3%
Extreme drought or greater	7.1%	16.3%	+ 9.2%
Exceptional drought	1.7%	4.6%	+ 2.9%



U.S. Drought Monitor Class Change - Texas 5 Week



October 29, 2024
compared to
September 24, 2024

droughtmonitor.unl.edu



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement