

December 2024 Climate Summary

Significant Weather Events: December continued the above-normal temperature trend that virtually every month in 2024 displayed. The month began with a relatively cool pattern as a passing glance of the powerful arctic air intrusion that took hold across the East U.S. crept into mainly East Texas. After the first few days of the month, temperatures ascended to above-normal values for the rest of the month with cold fronts serving only as gentle reminders of what temperature normalcy is in Texas in December. This allowed for December 2024 to be among the warmest Decembers on record, behind only the unusual warmth of December 2021. Consequently, 2024 ended as the warmest year on record for Texas with an average temperature of 68.6°F, beating out the previous warmest year, 2023, which had an average temperature of 68.1°F. Precipitation was also ample for the eastern portions of the state, with light rain to begin the month, evolving into rounds of thunderstorms by mid-month, and concluding with a prolific severe weather outbreak.

Significant Dates:

- December 4-5: A cold front oozed into Texas bringing temperatures slightly below normal for the following days. The largest temperature anomalies were in the eastern portions of the state.
- December 10: After a brief warm-up, another decent cold front brought below-normal temperatures for some. The cooldown was short-lived, with another mid-month warm-up on the way for much of Texas.
- December 16: A cold front that moved across North Texas allowed photogenic thunderstorms to develop and move through the North and Northeast Texas area. No severe weather was reported with these storms, yet brief heavy rain, gusty winds, and small hail did affect a few places in and around the DFW Metroplex.
- December 24, 26, and 28: Prolific severe weather days across Texas began on Christmas Eve, as a series of upper-level low-pressure systems facilitated storm development. Across Texas, the days can be summarized as follows:
 - December 24: Severe storms rumbled mainly across Central and southeast Texas producing mostly hail reports. One EF0 tornado was confirmed in Freestone County. No injuries or fatalities were seen with this event.
 - December 26: This day had fewer severe weather reports than December 24, but it saw five reported tornados across Southeast Texas. The strongest tornado was an

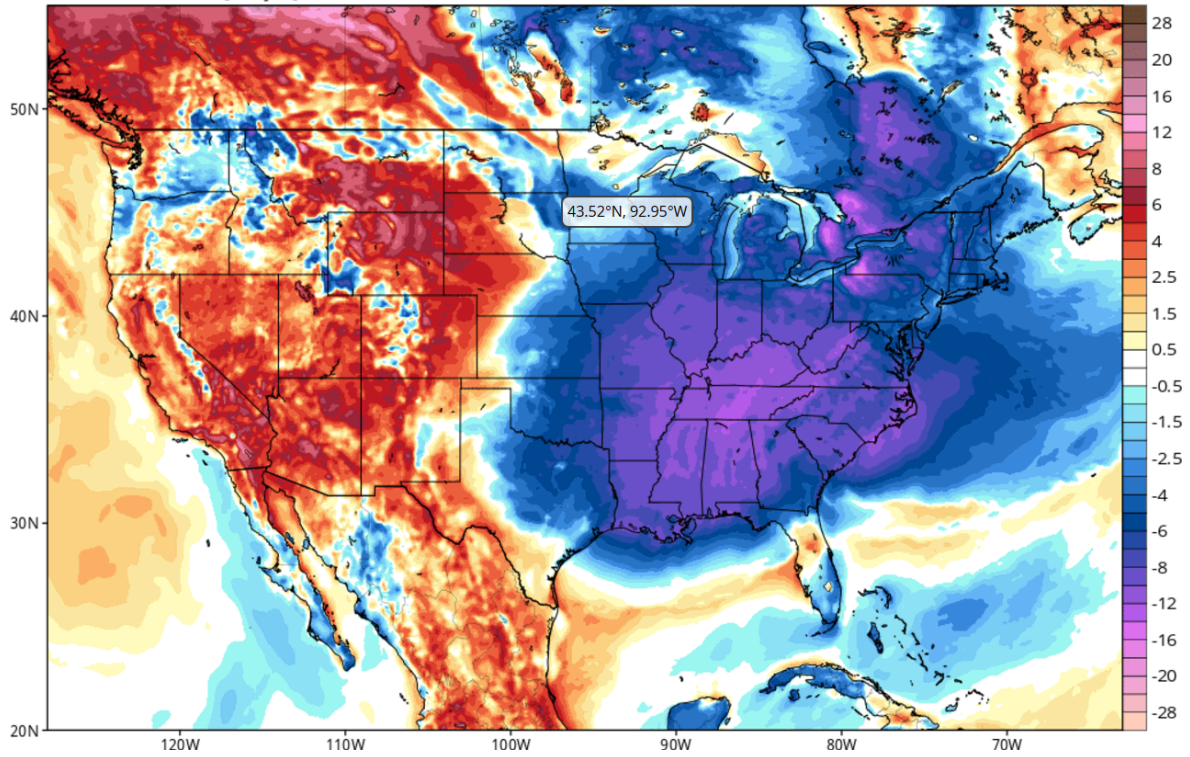
EF1 with peak estimated winds of 95 mph in Wharton County. No fatalities or injuries were reported on this day either.

- December 28: The most significant severe weather day across Texas saw 31 reports of severe weather across Central, East, and Southeast Texas. Five tornados were confirmed from this event, with three of them being significant tornados (EF2+). The strongest tornado was an EF3 tornado that occurred in Montgomery County with estimated peak wind speeds of 145 mph. Powerful thunderstorm winds also damaged several homes, causing 10 injuries in this county. Additionally, another EF3 tornado tore through Chambers and Jefferson Counties on this day, blasting steel transmission towers to the ground, a feat which requires winds up to 138 mph to achieve (also its peak estimated wind speed). Overall, 14 people were injured from severe weather on this day and no fatalities were reported.

GFS 2-meter Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)

Init: 12z Dec 06 2024 [Analysis] valid at 12z Fri, Dec 06 2024

TROPICALTIDBITS.COM







An image compilation of some of the major weather events in December.

At the top is an analysis of the temperature anomalies across the country at 6 am CST on December 6, 2024. A significant cold air intrusion took hold of much of the Eastern United States, with the fringes of the cold air mass making it into East Texas. Areas in Tennessee saw temperatures as much as 20°F below normal, yet in Texas, the largest departures were about 10°F or so below climate averages. Image courtesy of Tropical Tidbits and the Global Forecast System.

Second row: an impressive thunderstorm is about to cross the George Bush Tollway in Irving, TX on December 16. Image courtesy of Clint Hendricks IV on X (Twitter).

Third row left: a fairly large tree was snapped after an EF0 tornado moved through in Freestone, TX on Christmas Eve. From the image, it seems as if the tree's trunk had already been sawed some, likely leading to a lower tornado rating than if the tree had been healthy.

Third row right: an outbuilding is almost completely destroyed by the EF1 tornado in Wharton County.

Fourth image: Steel transmission poles collapsed amidst the strong winds of the tornado in Wharton County, earning this tornado an EF3 rating.

Bottom image: a home has its roof and most exterior walls knocked down at the intersection of Porter and Youpon Ln in Montgomery County. This damage led this tornado to be given an EF3 rating. All damage pictures courtesy of NOAA's Damage Assessment Toolkit.

Temperature:

A very warm conclusion to a very warm year, December was a month devoid of any significant winter cooldowns, and the cold fronts only served to bring normalcy after periods of unusual warmth. December 2024 was the second warmest December on record with an average temperature of 54.2°F. How does such a December look on a station-by-station basis? Below are 10 cities from across Texas and how December ranked.

- Lubbock; 49.2°F (2nd warmest December on record)
- El Paso; 52.4°F (3rd warmest December)
- DFW; 53.7°F (3rd warmest December)
- San Antonio; 60.9°F (4th warmest December)
- Austin; 58.5°F (4th warmest December)
- College Station; 59.5°F (5th warmest December)
- Tyler; 54.9°F (5th warmest December)
- Midland; 50.7°F (2nd warmest December)
- Waco; 54.9°F (7th warmest December)
- Houston; 61.1°F (5th warmest December)

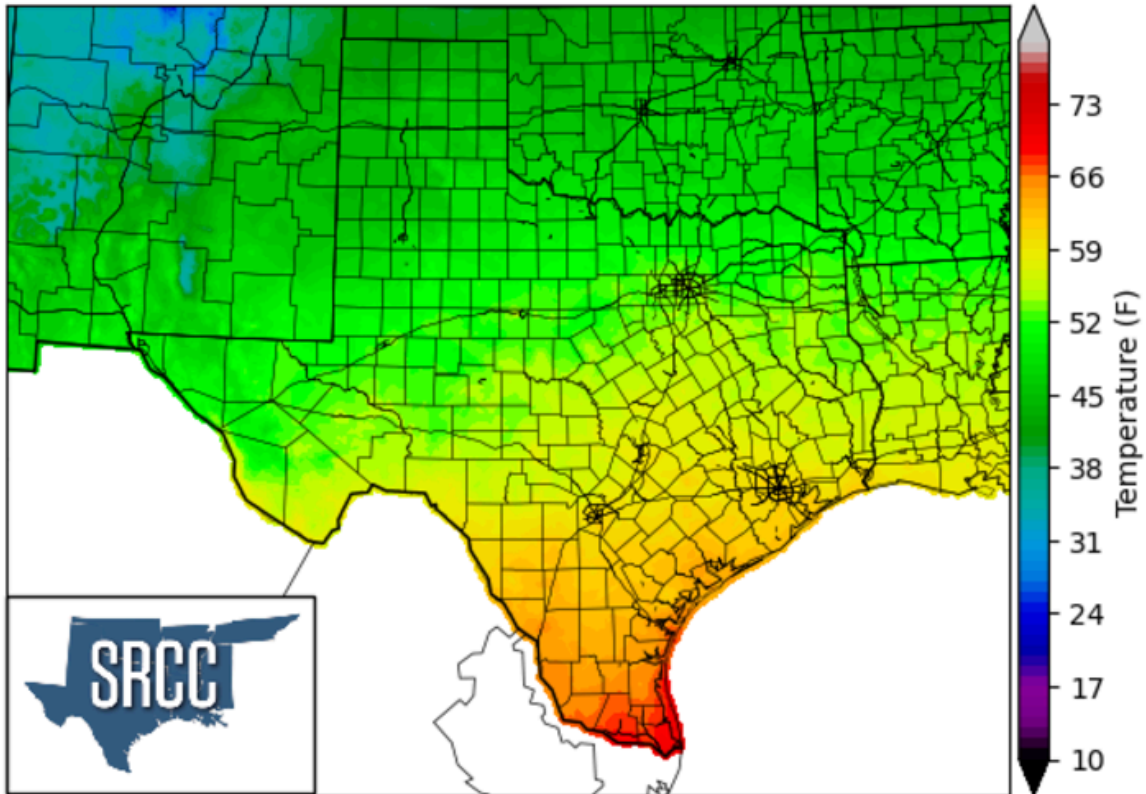
These same locations also saw 2024 end among their warmest years on record:

- Lubbock; 64.2°F (Warmest year on record, beats the old record [1934] by 1.0°F)
- El Paso; 69.8°F (Warmest year, beats the old record [2023] by 0.7°F)
- DFW; 69.8°F (Warmest year, ties 2017)
- San Antonio; 73.3°F (Warmest year, beats the old record [2023] by 0.7°F)
- Austin; 70.9°F (2nd warmest year, behind 1954's 71.3°F average)
- College Station; 72.4°F (2nd warmest year, behind 2023's 72.9°F average)
- Tyler; 69.5°F (Warmest year, ties 2023)
- Midland; 67.0°F (3rd warmest year, ties 2012)
- Waco; 69.5°F (6th warmest year, ties 2011)
- Houston; 73.1°F (Warmest year, beats the old record [2023] by 0.6°F)

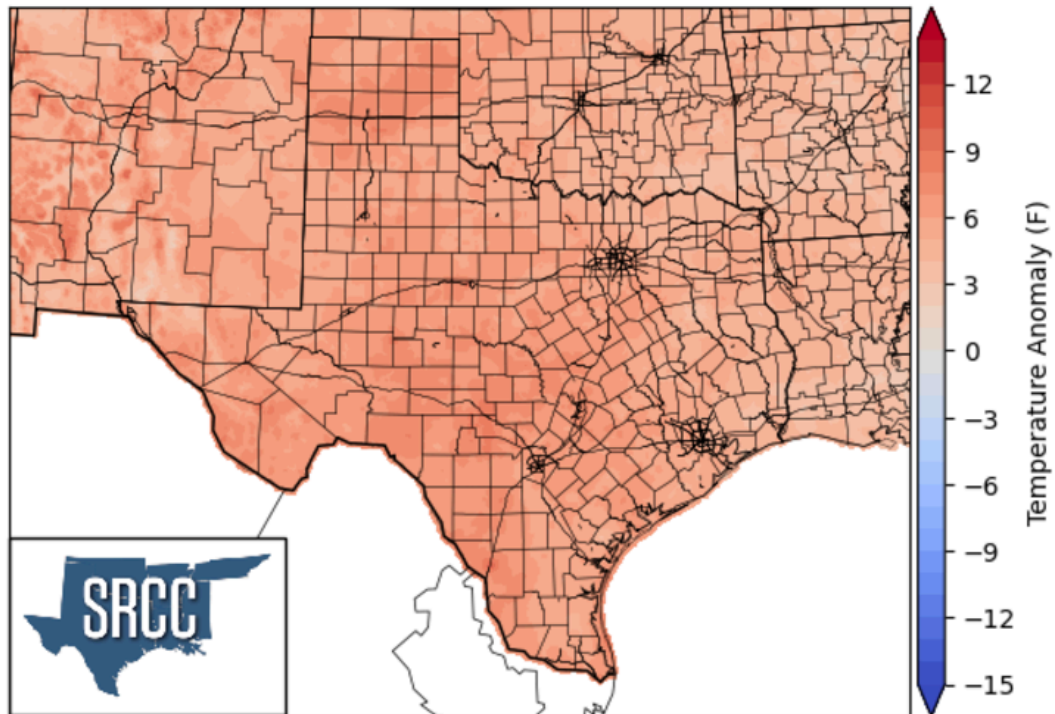
Some at a glance statewide temperature statistics for December 2024 are:

- **41.9°F** - monthly average at the Dalhart FAA Airport; the coolest in Texas
- **55.3°F** - the average monthly temperature of the 400 Texas reporting stations
 - 2.7°F above that of December 2023
 - 6.9°F below that of last month
- **70.9°F** - monthly average at the Brownsville South Padre International Airport in Cameron County; the warmest in Texas
- The hottest recorded December temperature in Texas was **99°F** seen at the Faith Ranch Airport in Dimmit County on December 30, 2024
- The coldest recorded December temperature was **13°F** seen at the Fort Hancock 8SSE Co-op site in Hudspeth County on December 11, 2024. This is the coldest temperature seen anywhere in the state since January 18, 2024 (7°F)

Average Temperature (F) December 2024



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

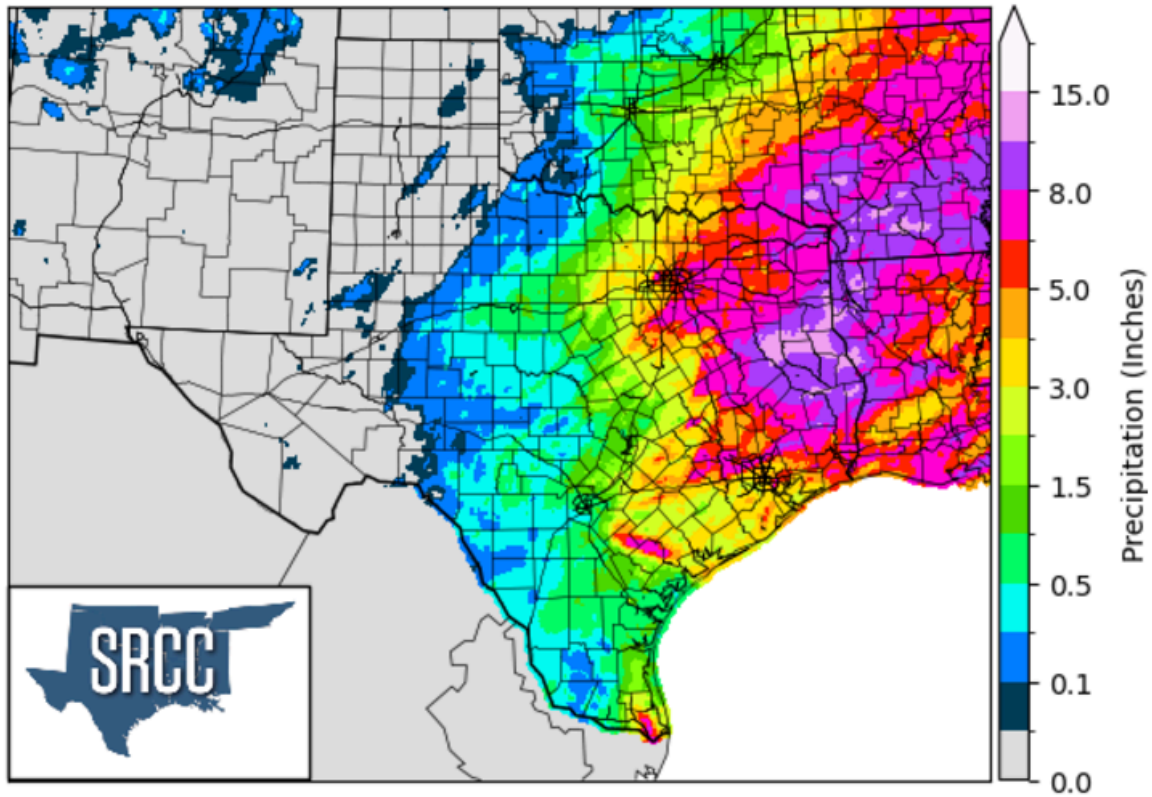


Precipitation:

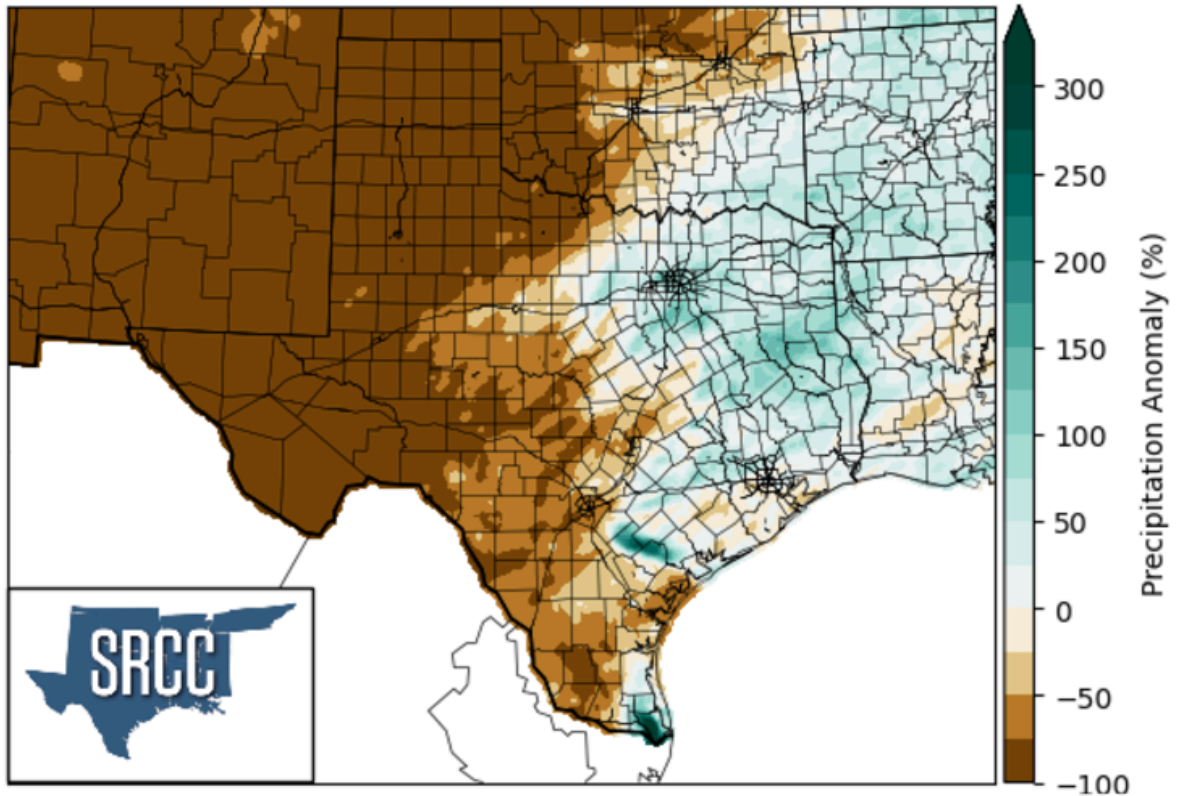
The heaviest precipitation for Texas was contained mainly in East Texas, with amounts generally tapering the further west one went. The bulk of the heavy rain amounts were located in areas where thunderstorms erupted in the middle and end of the month. Areas in the Trans Pecos and Panhandle regions missed out almost entirely on December rainfall. This is an unfortunate circumstance as specifically, the Trans Pecos region is experiencing extreme to exceptional drought.

- Average of the 2,292 Texas stations (not accounting for geographical distribution): **2.25"**
 - 0.39" below last month
 - 0.20" above December 2023
- Highest monthly total: **11.49"** at the Jacksonville 11.9 ESE CoCoRaHS site in Cherokee County
- The rainiest day at any site across the state of Texas was **Christmas day** 🌲 when **6.20"** of rain fell at the Goliad 11.5 N CoCoRaHS site in Goliad County

Accumulated Precipitation (Inches) December 2024



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



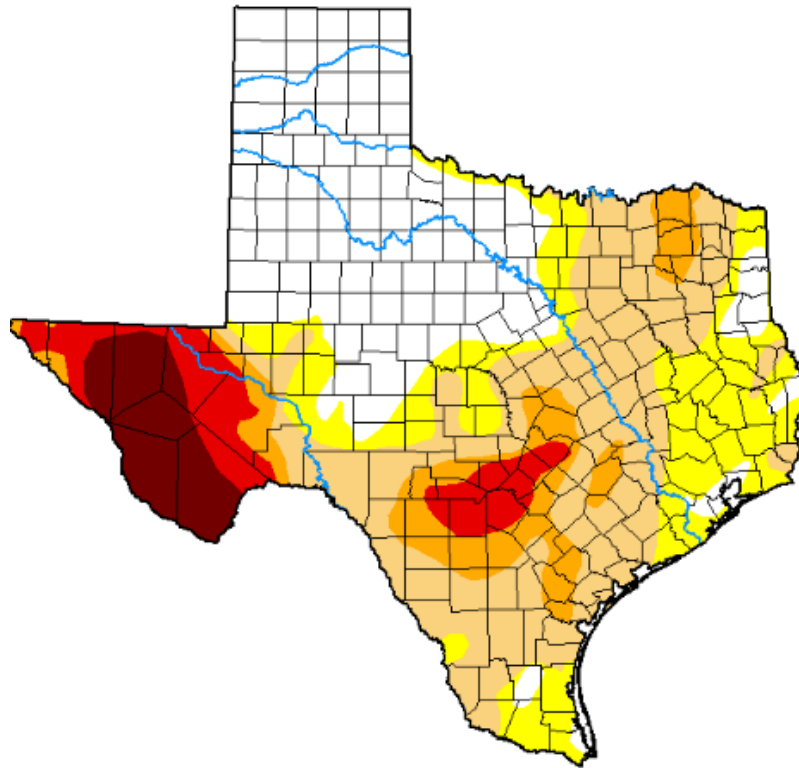
Drought:

December saw either drought improvement or no change at all. Areas that saw heavy precipitation during the month dealt with either abnormally dry conditions or moderate drought at the beginning of the month, prompting the coverage of these drought categories across Texas to shrink. Areas in extreme or exceptional drought saw very little in terms of precipitation, leading to generally no change to the categorization.







Drought category	End of November (November 26, 2024)	End of December (December 31, 2024)	Change
Abnormally dry or greater	67.0%	63.4%	- 3.6%
Moderate drought or greater	49.9%	43.5%	- 6.4%
Severe drought or greater	21.7%	20.2%	- 1.5%
Extreme drought or greater	13.0%	13.0%	0.0%
Exceptional drought	6.3%	6.3%	0.0%

U.S. Drought Monitor
Texas

November 26, 2024
(Released Wednesday, Nov. 27, 2024)
Valid 7 a.m. EST



Intensity:

-  None
-  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. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

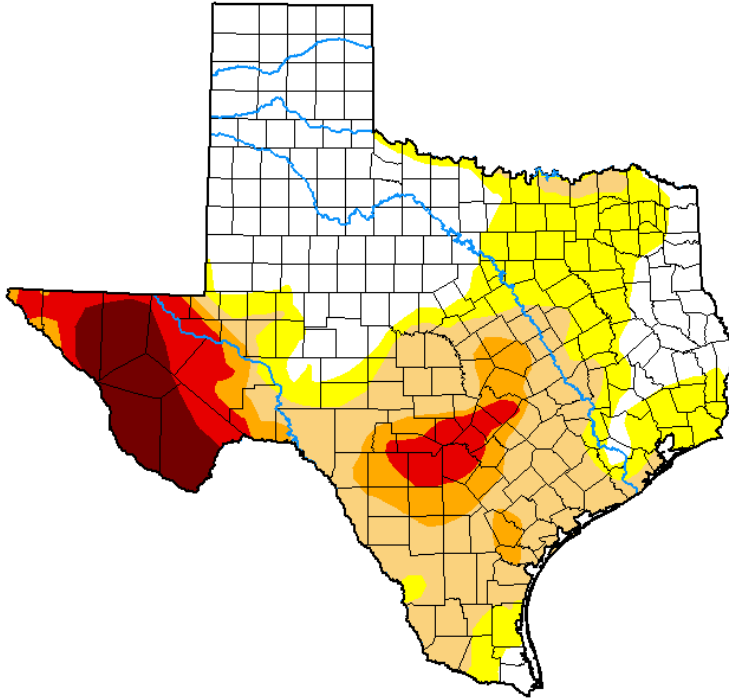
David Simeral
Western Regional Climate Center









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U.S. Drought Monitor
Texas

December 31, 2024
(Released Wednesday, Jan. 1, 2025)
Valid 7 a.m. EST



Intensity:

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

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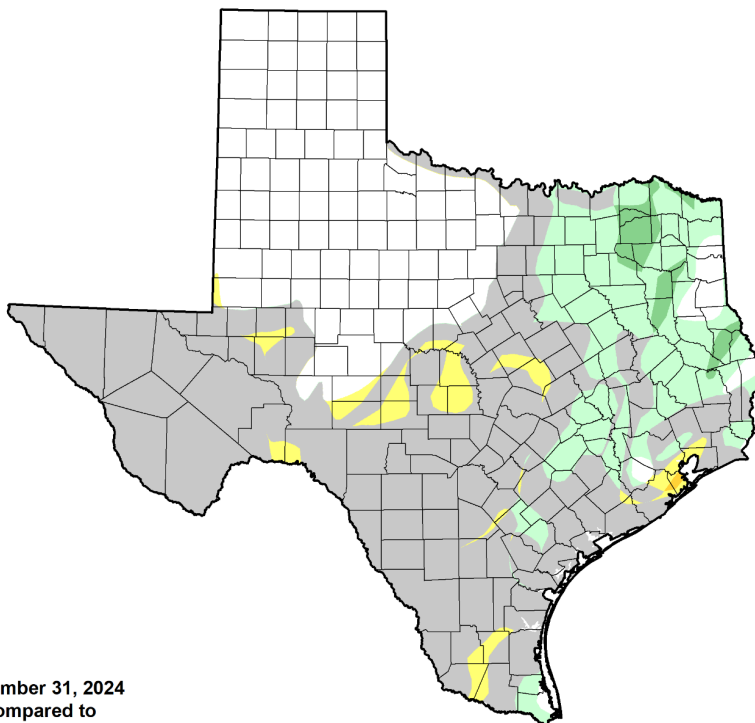
Author:

Rocky Bilotta
NCEI/NOAA



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U.S. Drought Monitor Class Change - Texas 4 Week



- 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

December 31, 2024
compared to
December 3, 2024

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