

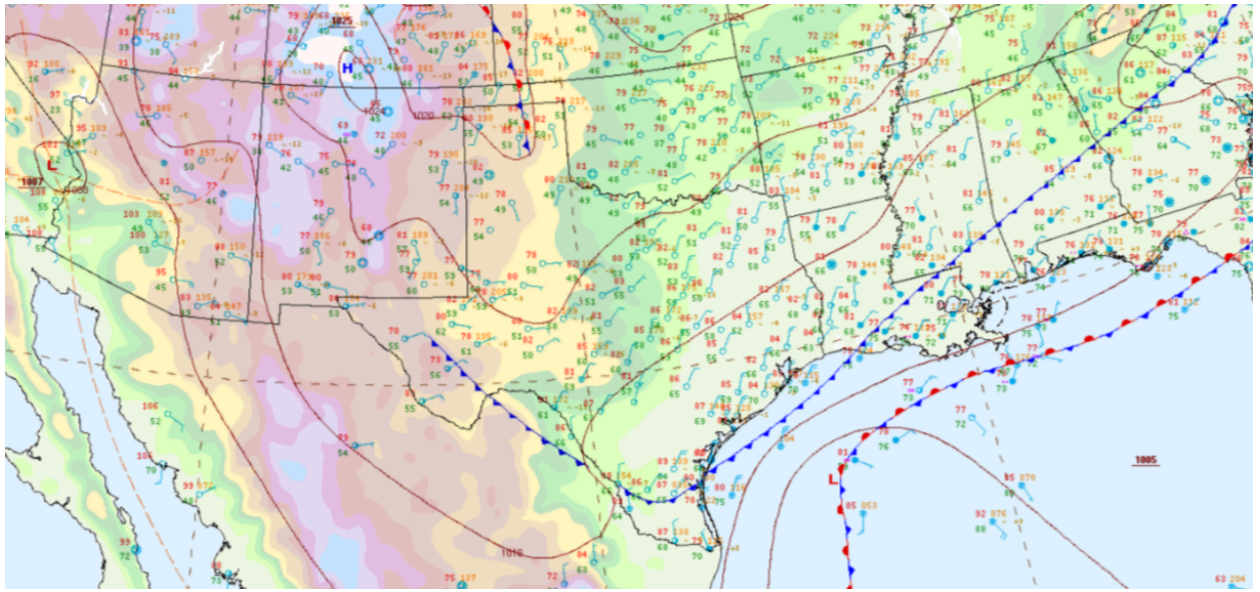
September 2024 Climate Summary

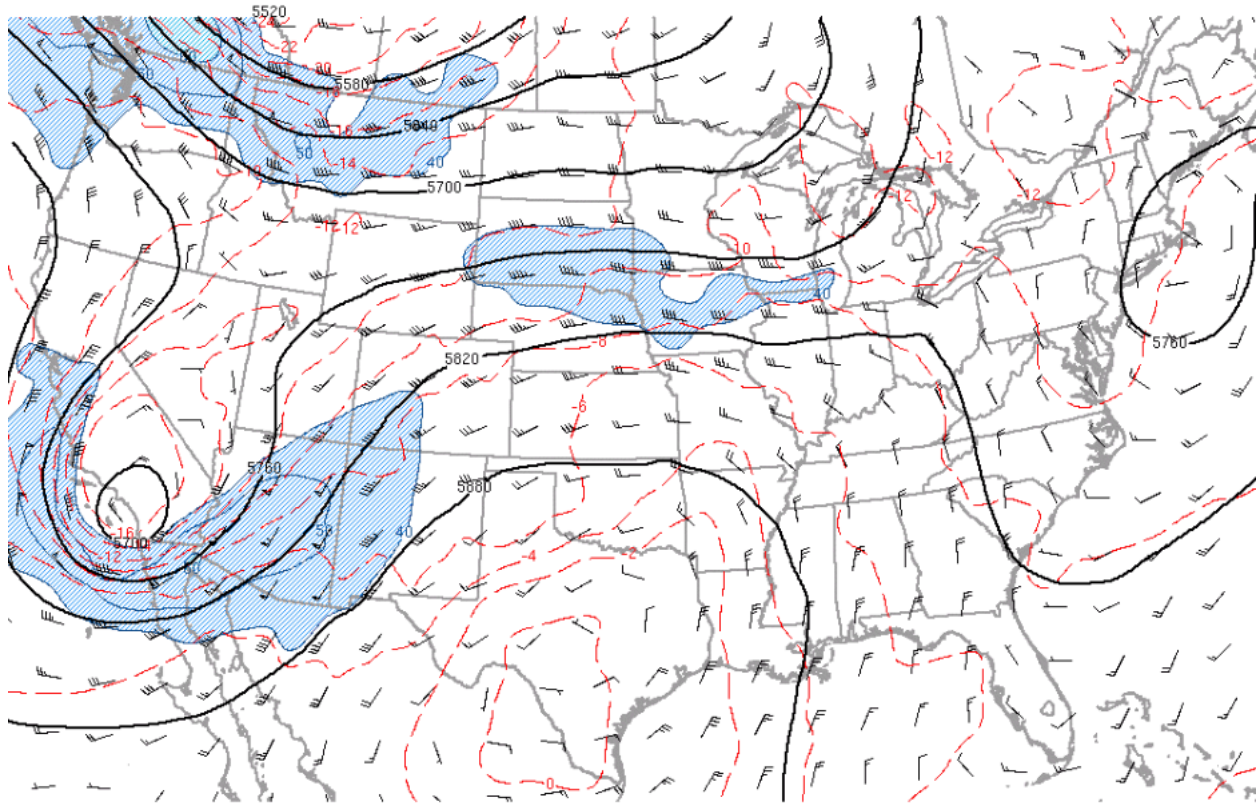
Significant Weather Events:

September is a month that typically falls short on expectations to bring cooler fall temperatures into Texas. Despite this, Texas usually sees its first significant cool-down at some point in the month. September 2024 delivered on this promise early in the month with the passage of a cold front. This, combined with ample precipitation and cloud cover for many, led this month to begin rather cool relative to normal. The second defining feature of a typical September is that it marks the peak of hurricane season in the Atlantic basin and the Gulf of Mexico. This rang true early in the month as Hurricane Francine made a close pass to the Texas Coast, guided away from the state by a broad area of low pressure in the upper atmosphere. The departure and dissipation of Francine was then followed by quiet weather for the remainder of the month as hot weather and dry conditions took hold.

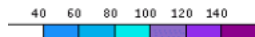
Significant Dates:

- September 1-5: Immediately kicking off the month, parts of the Low Rolling Plains, west North Central, and the northeastern edge of the Edwards Plateau saw substantial rainfall totals with five day precipitation totals being as high as 10 inches in areas southeast of Abilene.
- September 5-9: The first cold front of September 2024 ushered in cooler and much drier air, bringing comfortable morning temperatures and milder afternoon highs for much of the state. Some locations saw their coolest temperatures since May behind this front.
- September 9-14: Hurricane Francine developed in the Gulf of Mexico. Its presence off the Yucatan Peninsula is reminiscent of other tropical cyclones that have brought significant impacts to Texas. In the case of Francine, the upper level atmospheric flow helped steer the storm far enough east into Louisiana and Mississippi that impacts to Texas were minimal. Areas along the Texas coast saw wind gusts as between 30 and 40 mph, and spotty showers were produced in far East Texas. Additionally, the circulation of Francine brought moisture into much of the state, raising humidity levels and bringing heat indices into the triple digits for some.
- September 15-23: Texas fell back into a summer-like weather pattern as an upper level high pressure system developed overhead. This allowed high temperatures to ascend to August-like levels and brought triple-digit temperatures for some.
- September 24-30: The passage of another cold front served as an initiation mechanism for thunderstorms and reinforced drier air across the state. Temperatures did not drop an appreciable amount, though with lower humidity levels, they felt more tolerable.

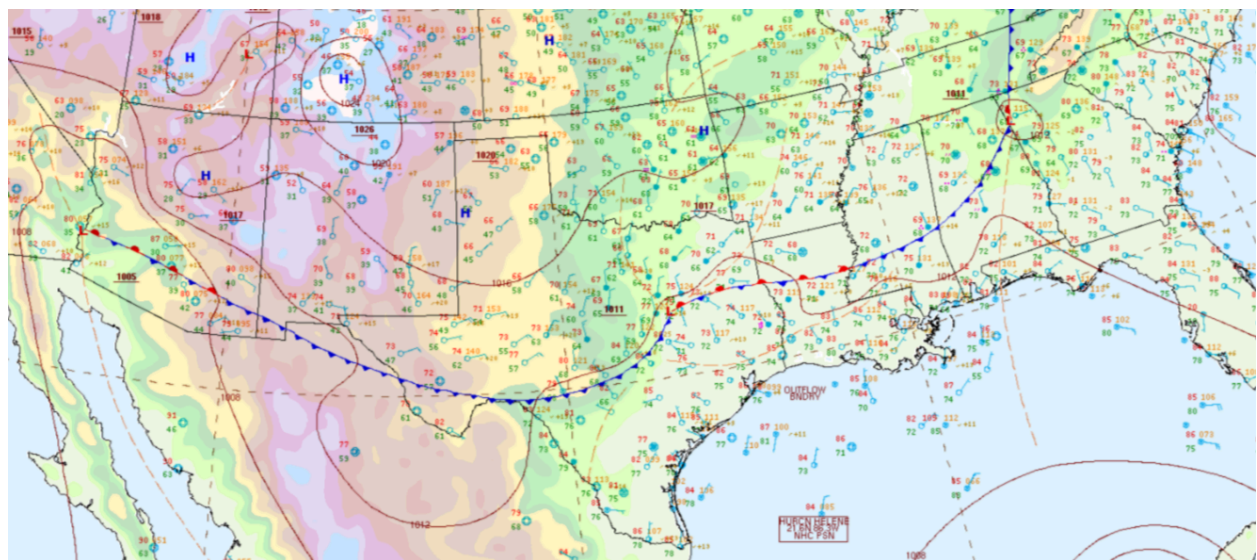




240920/1600V001 500mb height (m MSL, black), temp (C, red), and wind (kt, hatched >= 40 kt)



- + Zoom



Maps showing the significant meteorological events for Texas in September. At top, the first noticeable cold front has moved through most of the state, bringing the coolest temperatures many have seen since spring (image courtesy of the Weather Prediction Center). The second

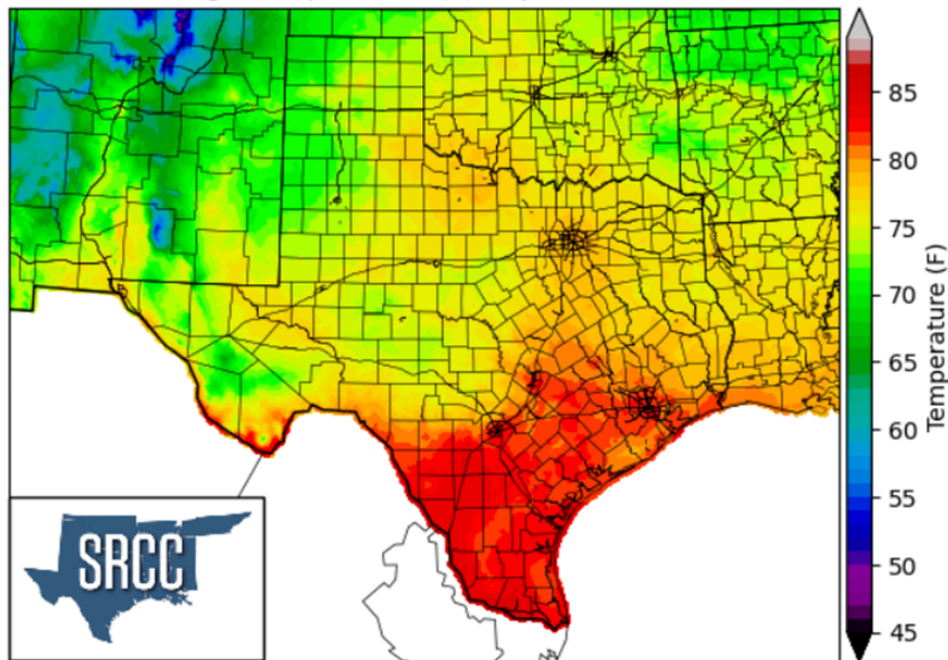
image depicts the path taken by Hurricane Francine during its lifetime. Francine's impacts in Texas were very limited due to the eastward trajectory (image courtesy of Wikipedia.org). The third image shows the upper-level high pressure (bulge in the contours) responsible for the hot and dry weather for much of the middle of the month (image courtesy of SPC Mesoanalysis archive). At bottom, the last cold front of the month moves into Texas. This cold front was in part responsible for some of the catastrophic rainfall observed with Hurricane Helene in the Eastern U.S (image courtesy of the Weather Prediction Center).

Temperature:

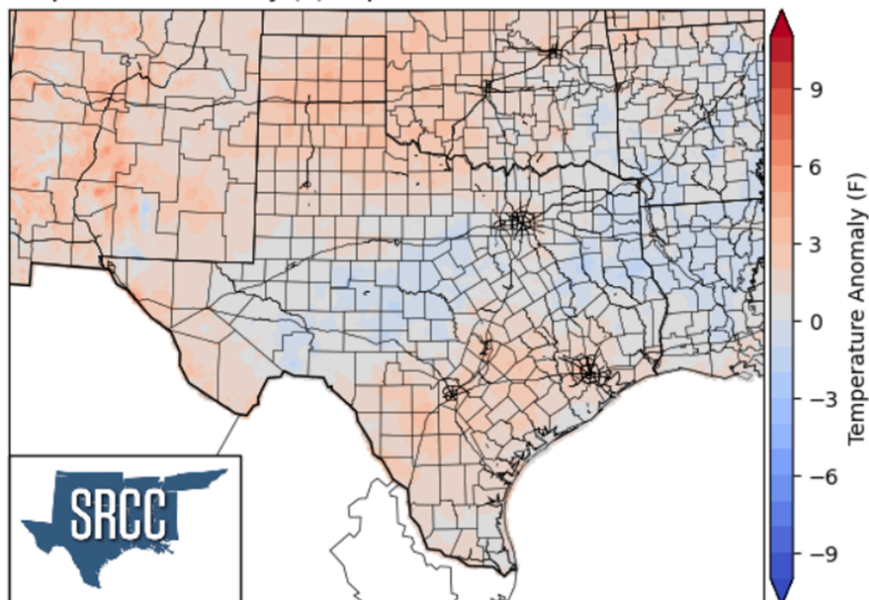
Early on, September got off to a cool start (relative to normal) due to the combination of ample precipitation, cloud cover, and an early fall season cold front. This was short-lived as the month's mood switched to a more summer-like feel when a ridge of high pressure built in mid-month. After this, the month continued its above normal tendencies until its conclusion. Overall, most of Texas saw temperatures above normal, with a belt of below-average monthly temperatures for September noted in the central portions of the State. Some of the notable monthly statistics for Texas are:

- **61.3°F** - monthly average at the Guadalupe Peak Texas RAWS site in Culberson County; the coolest in Texas
- **78.3°F** - average temperature of Texas stations
 - 4.3°F below that of September 2023
 - 7.8°F below that of last month
- **85.9°F** - monthly average at the McAllen Miller International Airport in Hidalgo County; the hottest in Texas
- The hottest recorded September temperature in Texas was **109°F** at the Rio Grande Village Co-op site in Brewster County on September 20, 2024
- The coldest recorded September temperature was **43°F** seen at two Muleshoe sites in Bailey County on September 23, 2024

Average Temperature (F) September 2024



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



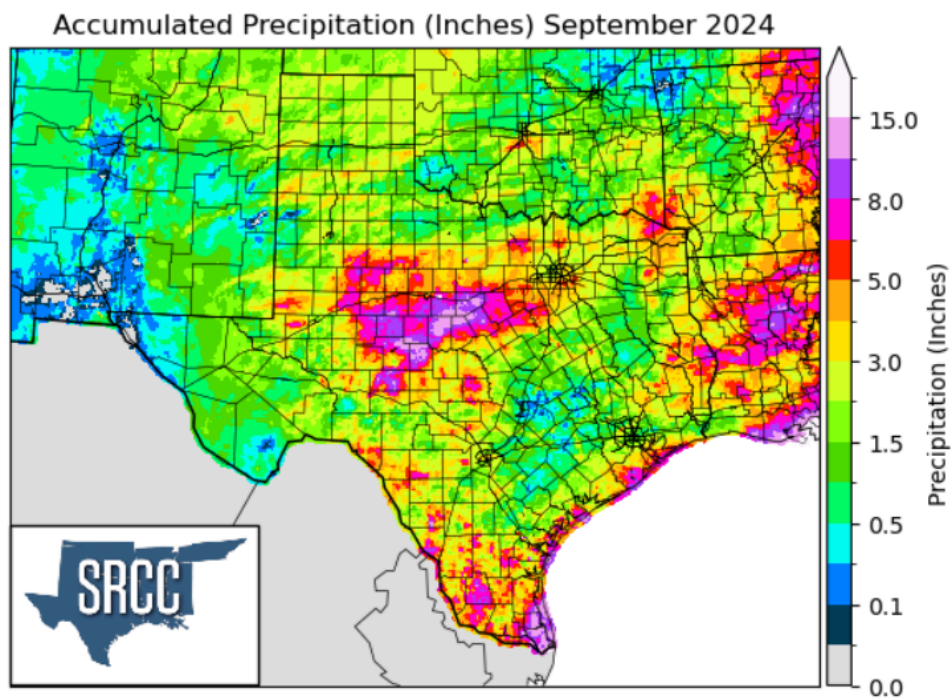
Precipitation:

Much of the precipitation seen across Texas occurred in two major bouts with cold fronts at the beginning and end of the month. This is particularly true for the regions of Texas that accumulated the highest monthly precipitation totals south and west of the Dallas-Fort Worth Metroplex. Other precipitation events mid-month across the state tended to be more localized and did not cover large areas of real estate. Overall, most of the state saw below-normal

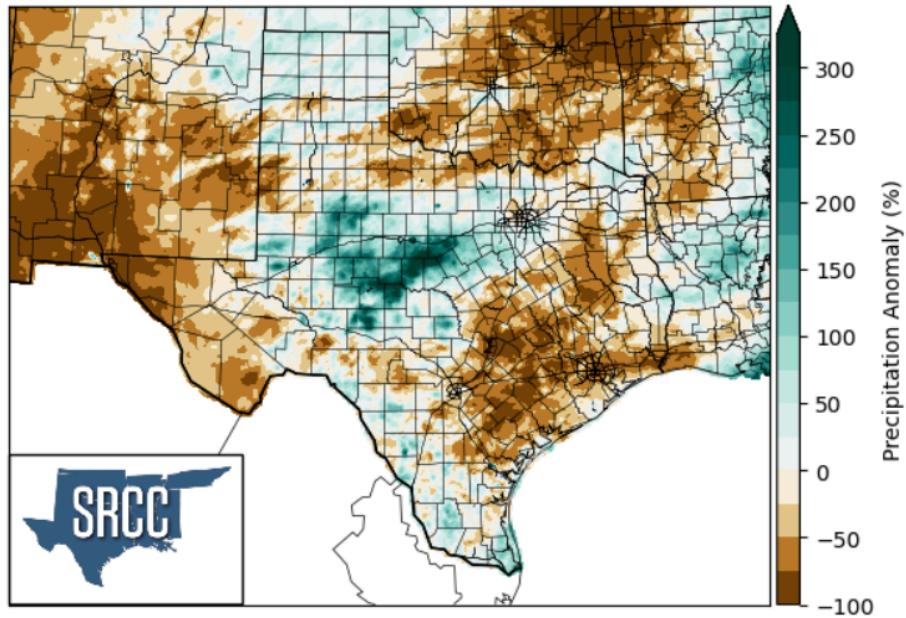
precipitation, however, those that got drenched in rain got totals well above what they typically see in September.

Some precipitation statistics across the state are:

- Average of Texas stations: **2.34"**
 - 1.24" above last month
 - 0.41" above September 2023
- Highest monthly total: **17.65"** at the Brownsville 12.6 E CoCoRaHS site in Cameron County.
- The rainiest day at any site across the State of Texas was September 3, 2024 where **8.14"** of rain was reported at the Cross Plains 6.5 WNW CoCoRaHS Site in Callahan County



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



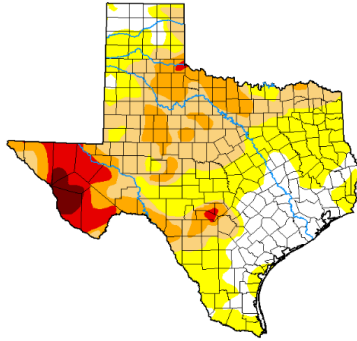
Drought:

September kicked off on a rainy note for the State of Texas. For a few, impressive rainfall totals at the beginning of the month combined with a bout of rainfall, product of a late month cold front, to produce rainfall totals well above normal. This was not necessarily the case for the entire state. With this being said, drought markers across the state improved from those seen in August.

Drought category	End of August (August 27, 2024)	End of September (September 24, 2024)	Change
Abnormally dry or greater	81.0%	62.7%	- 18.3%
Moderate drought or greater	48.1%	33.2%	- 14.9%
Severe drought or greater	22.3%	16.2%	- 6.1%
Extreme drought or greater	7.6%	7.1%	- 0.5%
Exceptional drought	1.8%	1.7%	- 0.1%

**U.S. Drought Monitor
Texas**

August 27, 2024
(Released Thursday, Aug. 29, 2024)
Valid 8 a.m. EDT



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

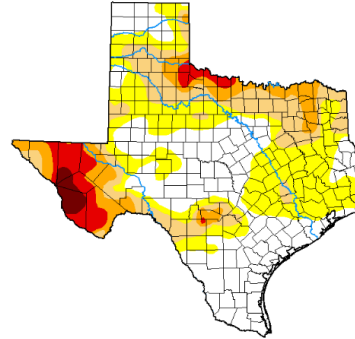
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.unl.edu/about.aspx>

Author:
Richard Heim
NCEI/NOAA



**U.S. Drought Monitor
Texas**

September 24, 2024
(Released Thursday, Sep. 26, 2024)
Valid 8 a.m. EDT



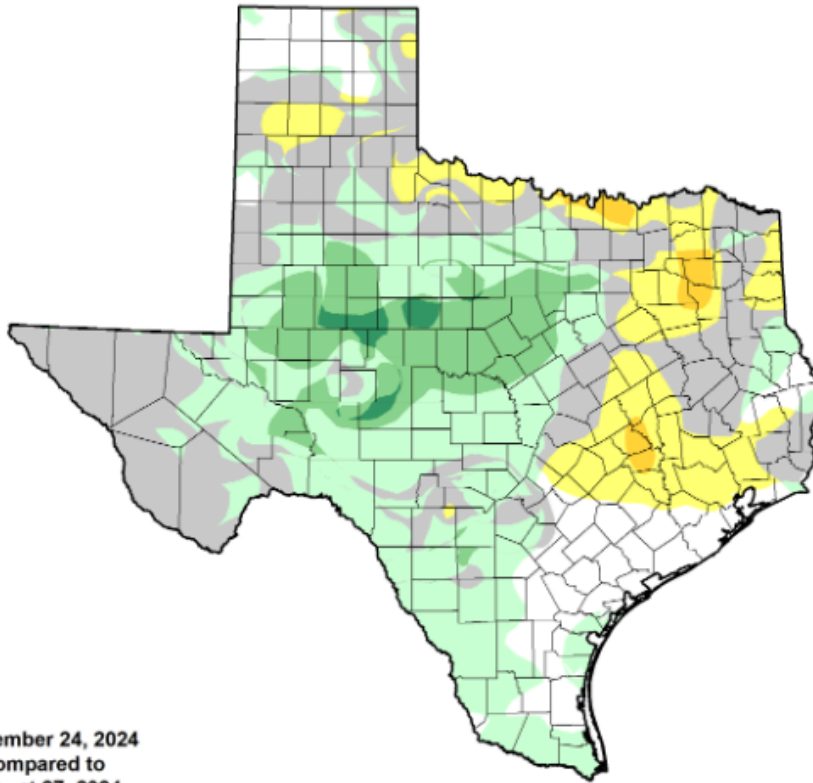
Intensity:
 None
 D0 Abnormally Dry
 D1 Moderate Drought
 D2 Severe Drought
 D3 Extreme Drought
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.unl.edu/about.aspx>

Author:
Brad Rippey
U.S. Department of Agriculture



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



**September 24, 2024
compared to
August 27, 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