

July 2024 Climate Summary

Significant Weather Events:

July is a typical scorcher of a month for the State of Texas. July 2024 seemed to be different than most Julys, with periods of rainy and cool conditions allowing monthly temperatures to be cooler than average for most. Early in the month, Hurricane Beryl formed in the open Atlantic ocean. As the storm meandered to the west, significant changes in its path would mean that millions of Texans would suffer the wrath of the storm. On July 8, 2024, the then category 1 hurricane made landfall near Matagorda, TX, with one minute maximum sustained winds of 80 mph. Impacts in Texas were numerous, with the loss of power being a major story in the weeks following the storm. After Beryl's departure, Typical Texas heat returned for a few days before an unusual weather pattern took hold bringing ample precipitation for a significant portion of the State along with a significant cooldown (for summer standards) for pretty much the entire state. The last few days of July 2024 concluded the month with the rain chances shutting off, and the return of near normal temperatures. In short, the personality of July 2024 was one where cooler than normal temperatures and precipitation were relatively abundant.

Significant Dates:

- July 1-7: July opened with typical summertime heat. On July 6, much of Central Texas came alive with thunderstorm activity, marking what would be a recurring theme for the remainder of the month for much of Texas. During this time, Hurricane Beryl meandered westward in the Gulf. Changes in the upper level steering flow grew concerning for Texans as the forecast track began shifting more north and east with each passing iteration.
- July 8: Hurricane Beryl makes landfall in Texas. Its proximity to the Houston metro area meant that most within this populated region would receive wind gusts over 70 mph, knocking out power for millions. Areas along and east of the path of the storm would receive up to a foot of rain on July 8-9, with select places seeing over 14.00" of rain in the 48 hour period. As the center of the storm progressed northeastward, many places far inland still received wind gusts over 60 mph from the then tropical storm. In the early afternoon a tornado outbreak commenced in East Texas, dropping a total of 13 tornados, with the strongest being an EF2 in Jasper County. A combination of hazards from Hurricane Beryl left 36 dead in Texas due to a number of factors, including lack of air conditioning.
- July 20-27: The westward retreat of the summertime ridge of high pressure allowed atmospheric flow high above the ground to swivel to the northwest. This gave an opportunity for a weak cold front and upper-level disturbances to move in. This began a pattern of cooler and wetter than normal conditions for many across Texas. Heavy rainfall with some of the thunderstorms resulted in some areas seeing over half a foot of rain for

the week. This then contributed to some stations seeing July 2024 enter their leaderboard for their rainiest Julys on record.

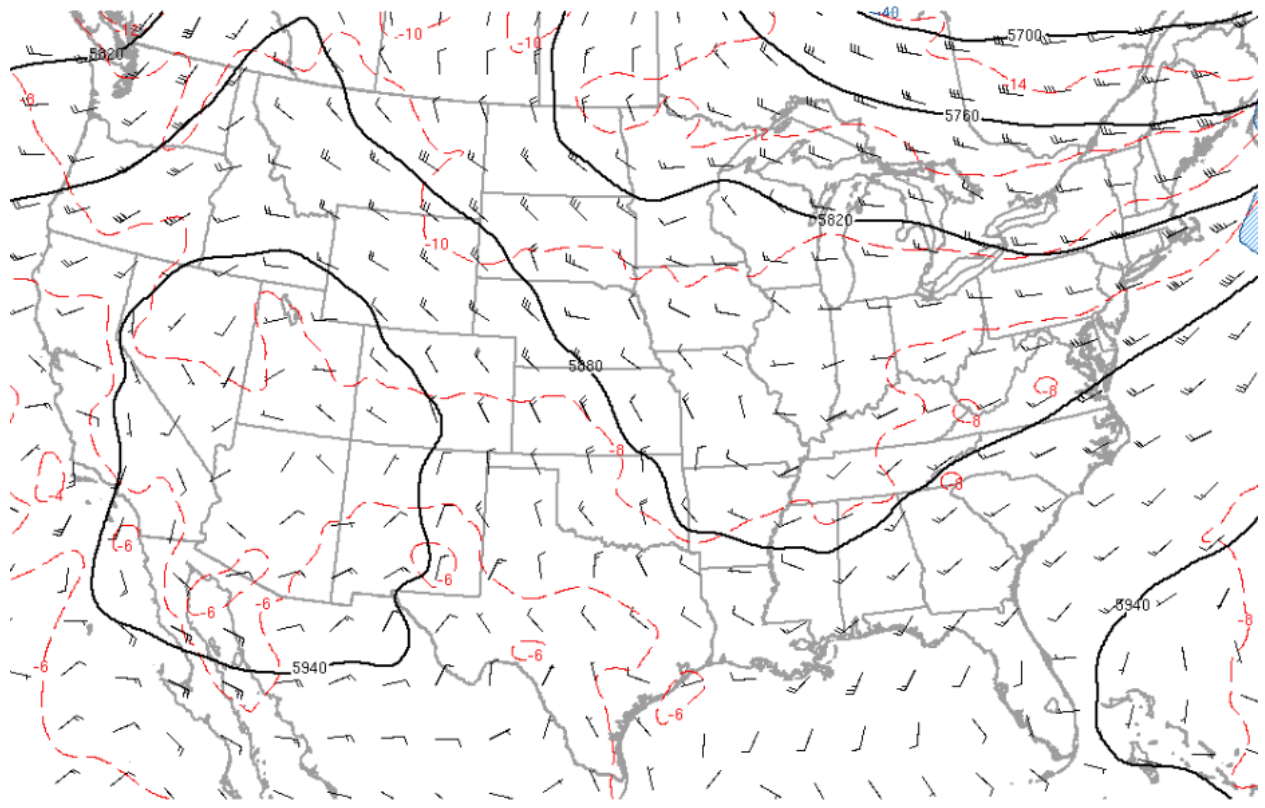
- July 28-31: The last few days of July saw the ridge of high pressure build back in and re-establish the typical hot, dry conditions that Texas typically sees as July transitions into August.





NOAA/NWS/Storm Prediction Center

Mesoscale Analysis Data



240719/1700V001 500mb height (m MSL, black), temp (C, red), and wind (kt, hatched >= 40 kt)

A view of some of the major meteorological events that occurred in July 2024. Most of the headlines were made by Hurricane Beryl early in the month.

Top left: tension builds as the track of Beryl, initially expected to make landfall in México, begins shifting northward. The upper level pattern shifts in a manner inconsistent with model predictions, making the forecast track very difficult to predict. Image courtesy of the National Hurricane Center and the Houston Chronicle.

Top right. A maximum wind gust of 66.5 mph was measured in lot 100 at Texas A&M university by student meteorologist Alonso Lopez. Other wind measurements taken around the BCS area maxed out between 60 and 75 mph. Closer to the coast, the highest wind gust associated with the hurricane was 97 mph in Brazoria County.

Second row: Some tree damage near where the 66.5 mph gust was measured. Winds this strong almost always leave behind some kind of damage indicator.

Third row: Collapsed power lines were commonplace along Beryl's path, leaving up to 2,600,000 homes and businesses without power in the Houston area at the height of the outage. Image courtesy of the New York Daily News.

Fourth row: The weather pattern responsible for the cooler than normal and wetter than normal conditions that essentially made up the latter third of the month. The wavy black circle in the four corners states represents the ridge of high pressure that frequents Texas every summer. Its departure opened the door for rain and thunderstorms to fire across the state, resulting in much cooler than normal conditions for most across Texas during this time period. Map courtesy of the Storm Prediction Center's mesoanalysis archive.

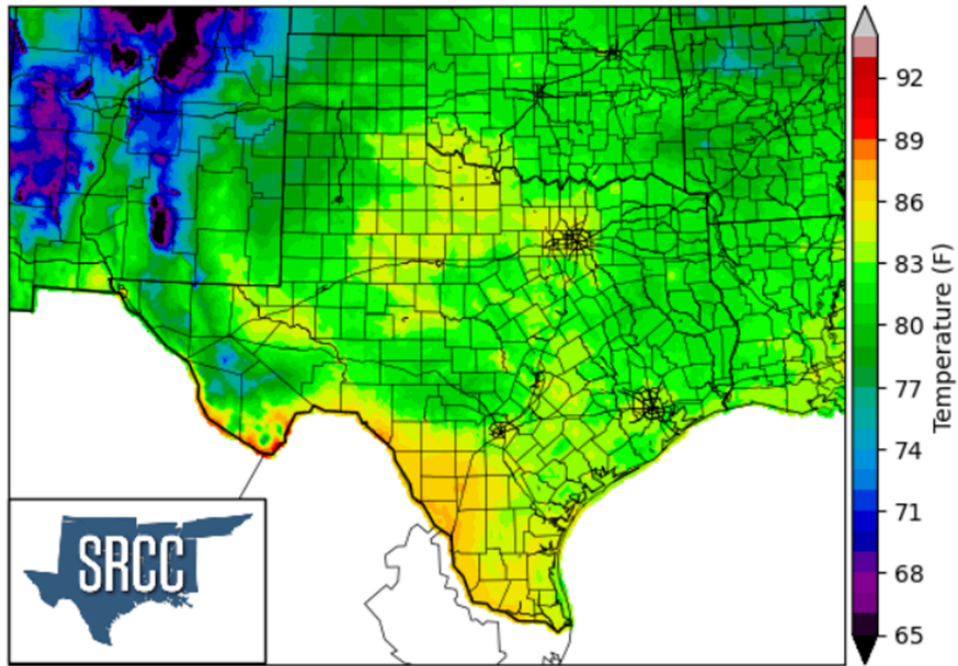
Temperature:

In contrast to June, July really let off the gas when it came to heat. The consistent rounds of thunderstorms that characterized much of the month's weather resulted in a July that was way cooler than the scorching Julys of 2023 and 2022. For many, July 2024 was the coolest July since 2021 and broke the streak of unusually warm months seen across Texas since February 2024.

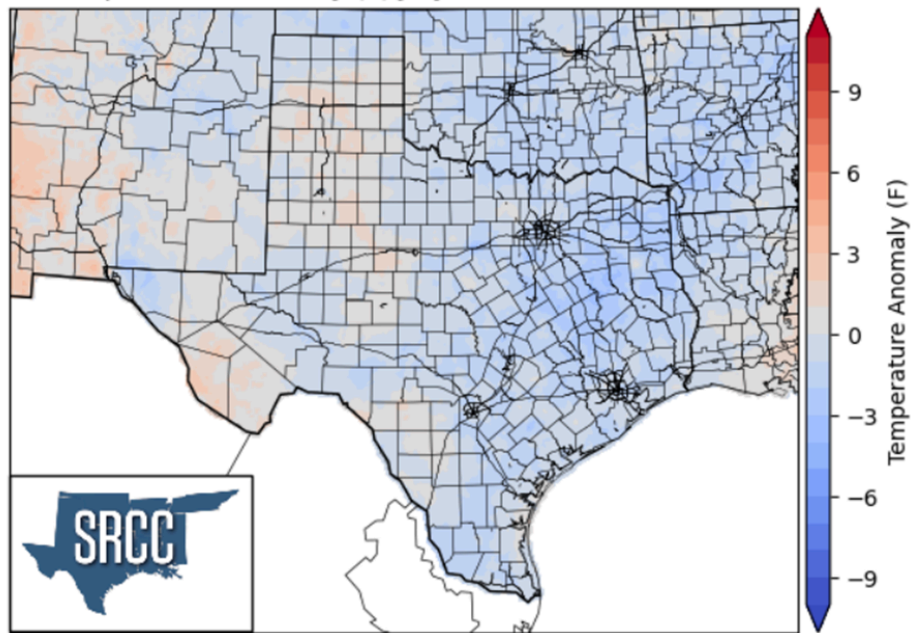
Temperature statistics across the state for July 2024 are as follows:

- The coolest monthly average temperature was **66.0°F** at the Guadalupe Peak Texas RAWS site in Culberson County
- The average temperature for Texas stations was **83.1°F**
 - 3.5°F cooler than that of July 2023
 - 0.3°F cooler than that of last month
- The hottest monthly average temperature was **90.1°F** at the Rio Grande Village Co-op site in Brewster County
- The hottest recorded temperature across the State was **114°F** at the Rio Grande Village Co-op site in Brewster County on July 31, 2024
- The coldest recorded temperature was **50°F** at the Guadalupe Peak Texas RAWS site in Culberson County on July 5, 2024

Average Temperature (F) July 2024



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



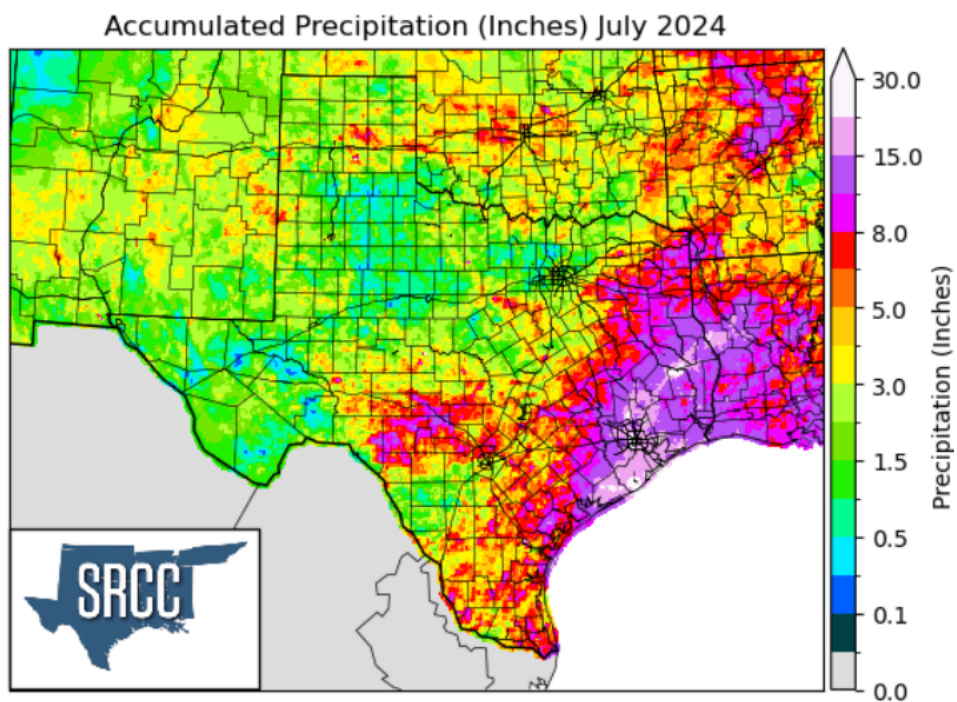
Precipitation:

In an atypical fashion, July 2024 stepped up the game in terms of precipitation quantities over June 2024 for many. Areas that were subject to multiple days of thunderstorms accumulated some fairly astounding precipitation totals, and others yet, had this occurrence on top of the precipitation brought on by Hurricane Beryl. This combination of events led to July 2024 being among the rainiest Julys on record for some stations. A few notable places that hold this

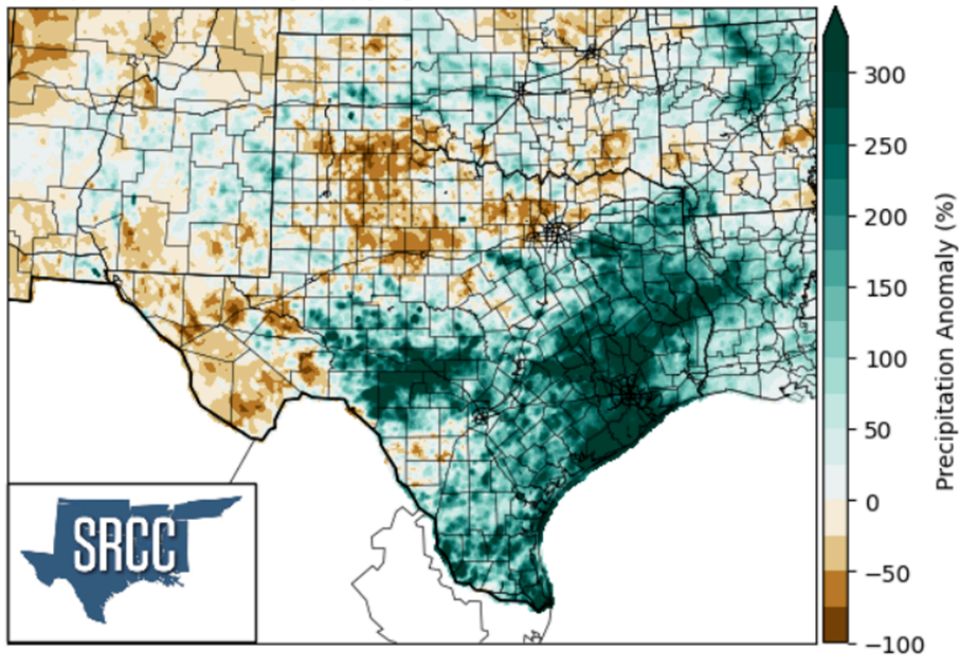
distinction are: Austin (5.26"; 8th rainiest July), Houston (10.89"; 5th rainiest), and Galveston (18.68"; 2nd rainiest). The rainfall scale had to be readjusted to max out at 30" from the 15" that the June rainfall scale maxed out at. This is so areas with the highest precipitation totals could be accurately represented

Some precipitation statistics across the State are:

- Average of Texas Stations: 4.82"
- Highest monthly total: **28.93"** at the Galveston 6.4 NE CoCoRahs site in Galveston County
- The rainiest day at any site across the State of Texas was July 8, 2024 where **11.78"** of rain was reported at the Hilshire Village 2.7NE CoCoRahs Site in Harris County



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



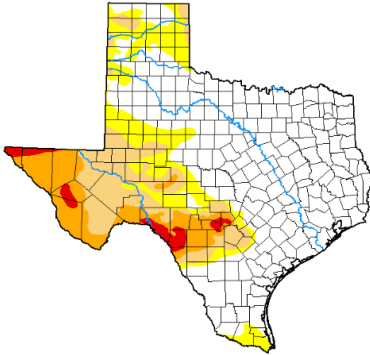
Drought:

Variation in precipitation intensity across Texas resulted in some areas seeing drought improvements, while others observed degradation. For the first time since the beginning of the year, exceptional drought has emerged in Texas. This is mainly due to some areas in the Trans Pecos region specifically missing out on rain on a consistent basis.

Drought category	End of June (June 25, 2024)	End of July (July 30, 2024)	Change
Abnormally dry or greater	38.7%	41.9%	+ 3.2%
Moderate drought or greater	25.1%	20.4%	- 4.7%
Severe drought or greater	12.0%	11.9%	- 0.1%
Extreme drought or greater	2.3%	3.4%	+ 1.1%
Exceptional drought	0.0%	0.3%	+ 0.3%

**U.S. Drought Monitor
Texas**

June 25, 2024
(Released Thursday, Jun. 27, 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 <https://droughtmonitor.unl.edu/About.aspx>

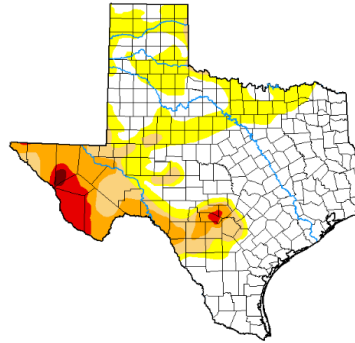
Author:
Adam Hartman
NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu

**U.S. Drought Monitor
Texas**

July 30, 2024
(Released Thursday, Aug. 1, 2024)
Valid 8 a.m. EDT



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

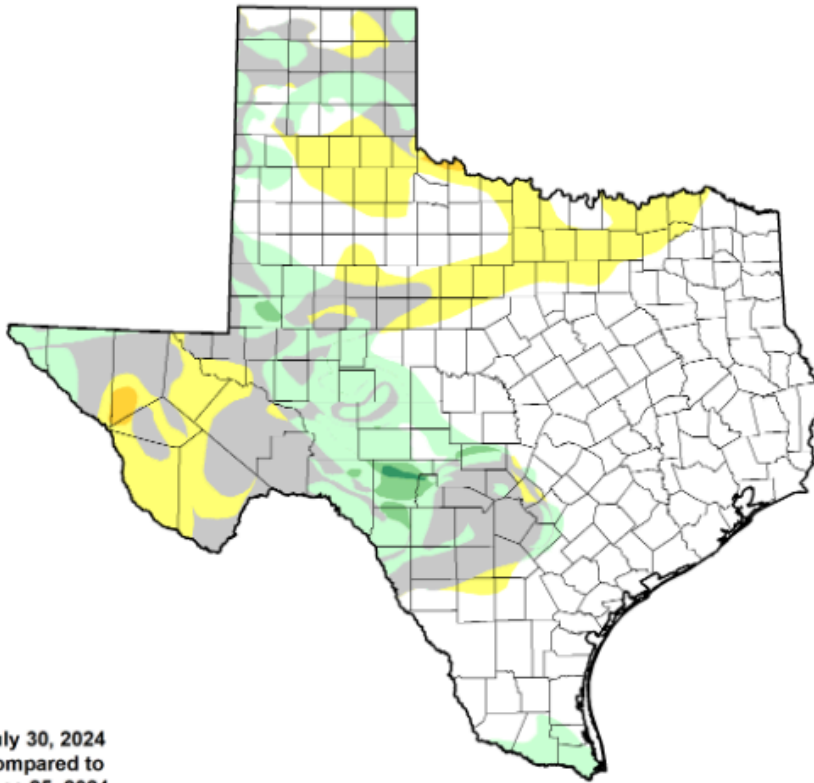
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**U.S. Drought Monitor Class Change - Texas
5 Week**



**July 30, 2024
compared to
June 25, 2024**

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- 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