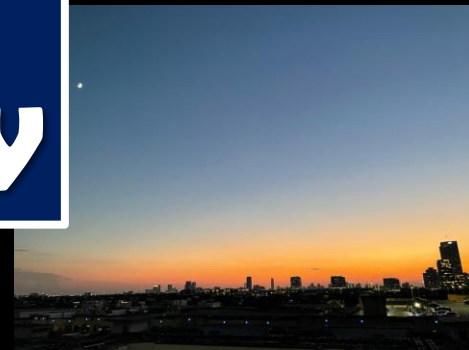


NWS Houston, Texas Annual 2022 Regional Climate Summary

Produced by Jimmy Fowler



Cover Page Photo Credit

The photographs used on the cover of this Annual SE TX Regional Climate Summary, were all taken within the HGX County Warning area during each month of the year. The top left picture on row one starts January and then from left to right we move through the calendar year with the last photograph on the bottom right representing December. NWS Houston Galveston was given permission by the following photographers to use these pictures.

| <u>Month</u> | <u>Photographer</u> |
|--------------|---------------------|
| January | Jimmy Fowler |
| February | Jimmy Fowler |
| March | Jimmy Fowler |
| April | Jimmy Fowler |
| May | Dan Reilly |
| June | Jimmy Fowler |
| July | Janice Maldonado |
| August | Jimmy Fowler |
| September | Jimmy Fowler |
| October | Cameron Batiste |
| November | Andy McNeel |
| December | Cameron Batiste |

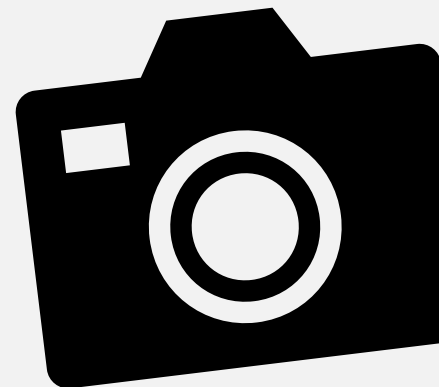


Table of Contents

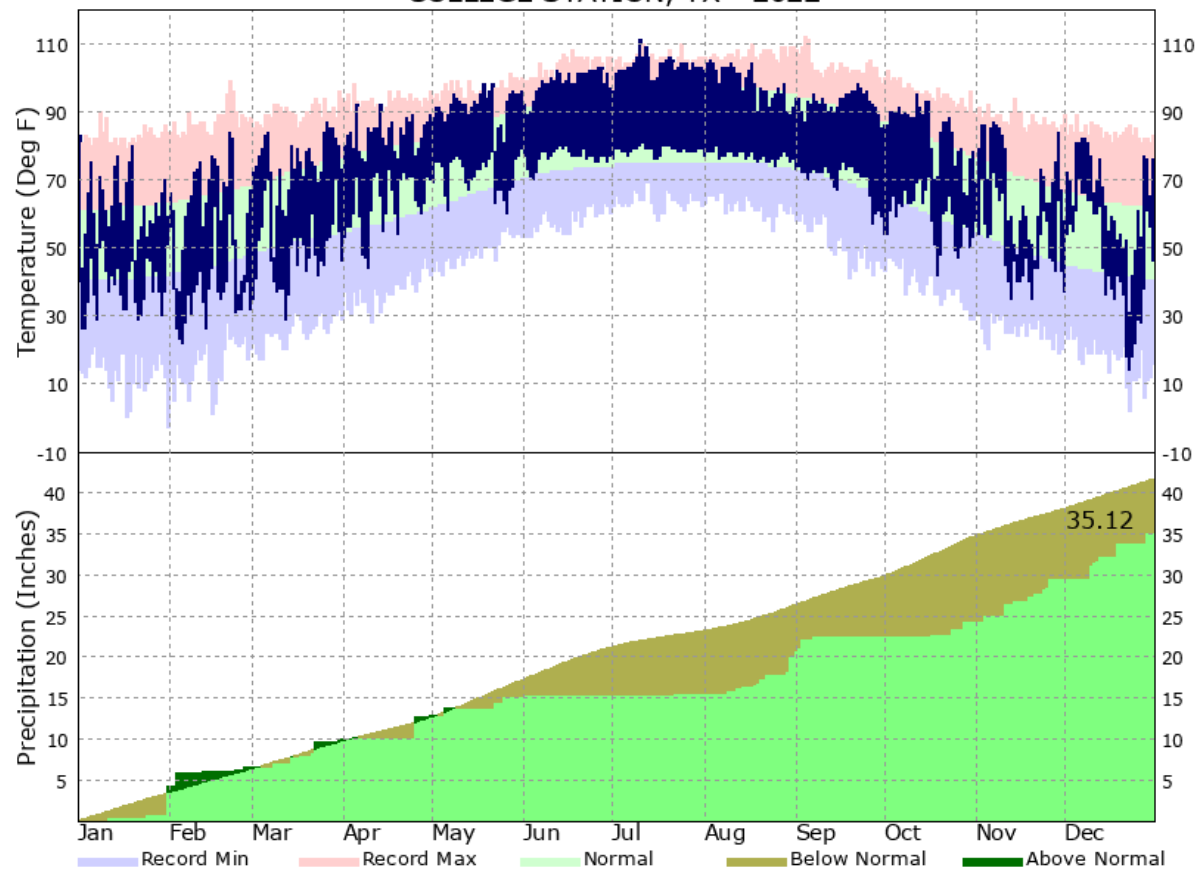
| Page Number | Page Title |
|-------------|---|
| 4 – 6 | Yearly Temperature and Precipitation Graphs |
| 7 – 8 | Significant Annual Statistics |
| 9 | 2021 Daily Records |
| 10 – 11 | January |
| 12 – 13 | February |
| 14 – 16 | March (Weather Event: Tornado Outbreak) |
| 17 – 18 | April |
| 19 – 20 | May |
| 21 – 22 | June |
| 23 – 24 | July |
| 25 – 26 | August |
| 27 – 28 | September |
| 29 – 30 | October |
| 31 – 32 | November |
| 33 – 34 | December |
| 35 | Drought Evolution |
| 36 | Tropical Season Review |
| 37 | Climate Primary Site History |



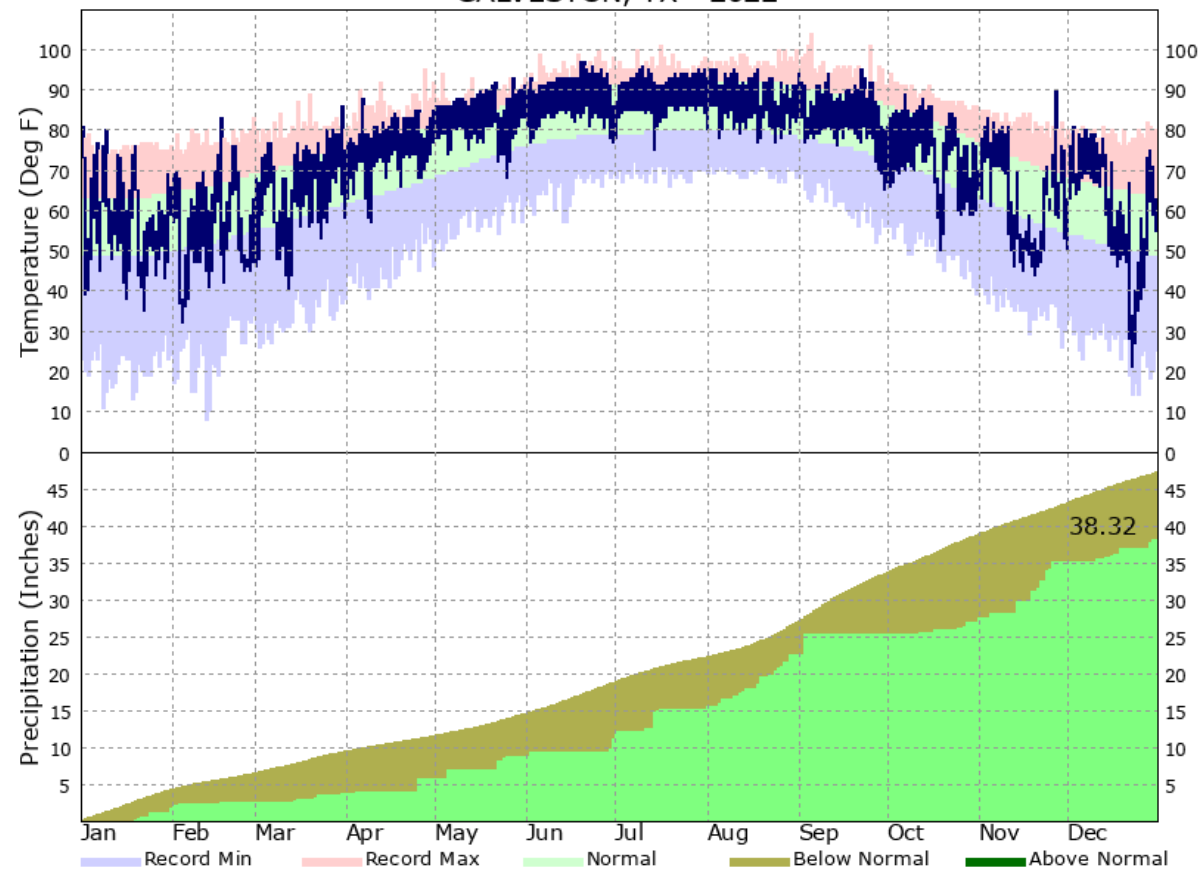
Yearly Temperature and Precipitation Graphs

4

COLLEGE STATION, TX - 2022

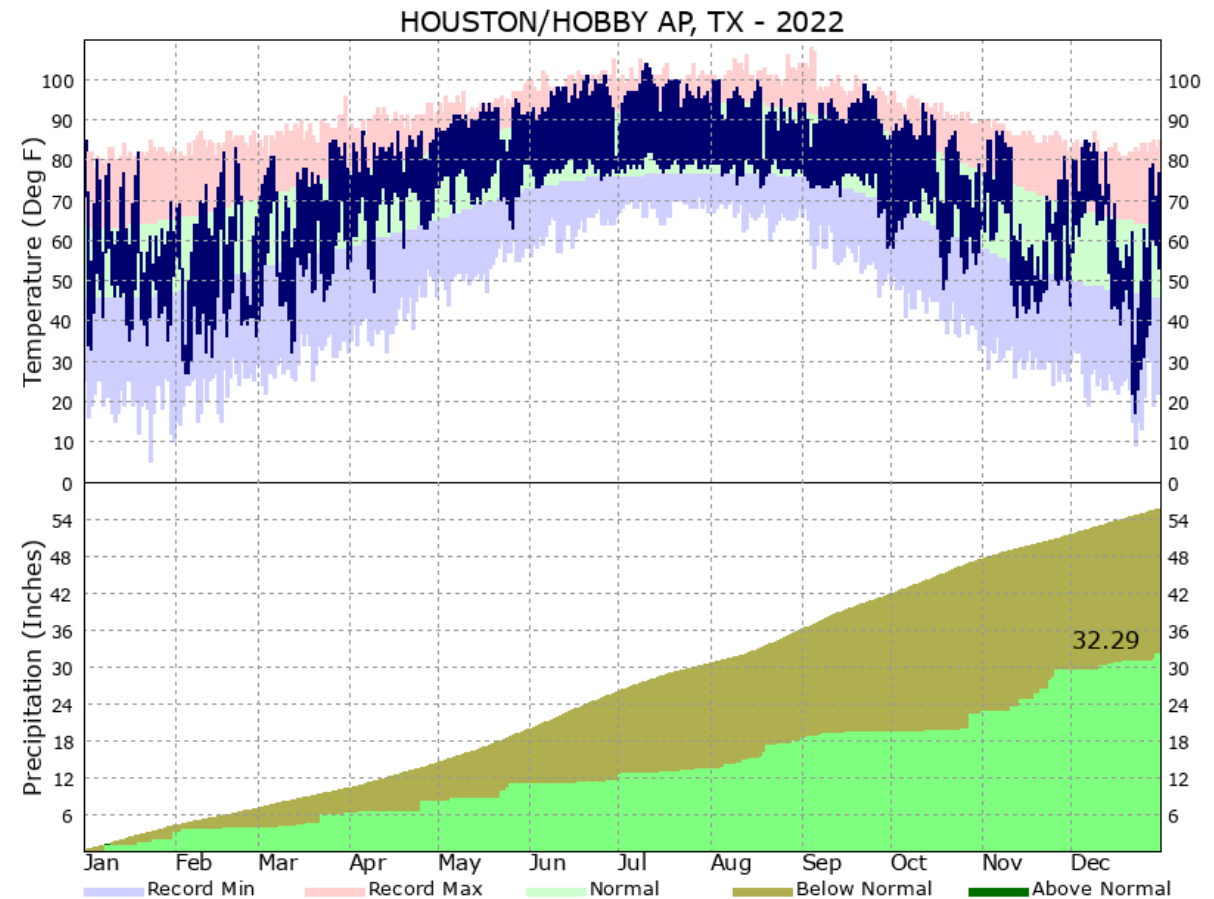
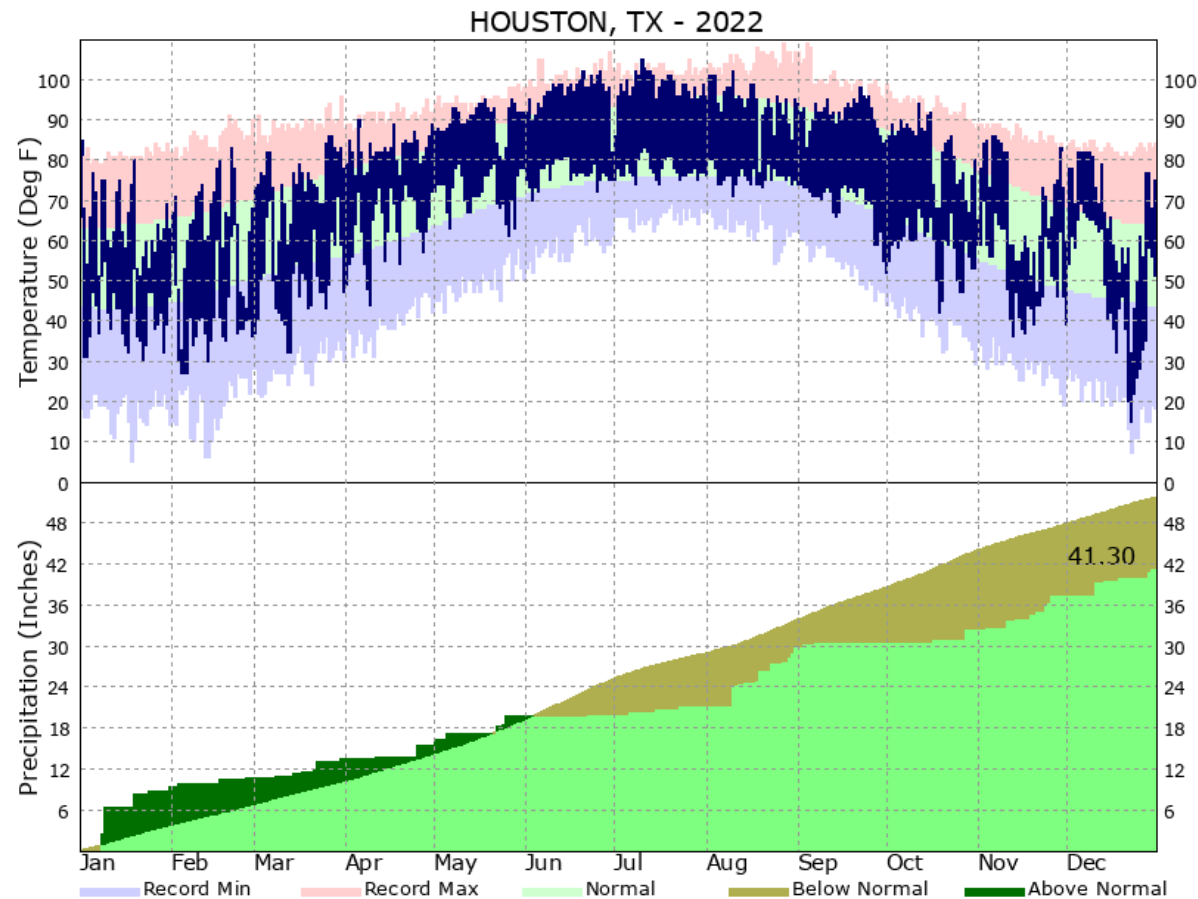


GALVESTON, TX - 2022



Observed temperatures are shown by the dark blue areas, normals with the light green areas, record highs in the light red areas, and record lows in the light blue areas. The bottom portion of the graph indicates the precipitation for the year to date. Periods that have year to date totals above the climatological normals are depicted by dark green areas. Periods that are below normal are represented by the brown areas.

Yearly Temperature and Precipitation Graphs 5

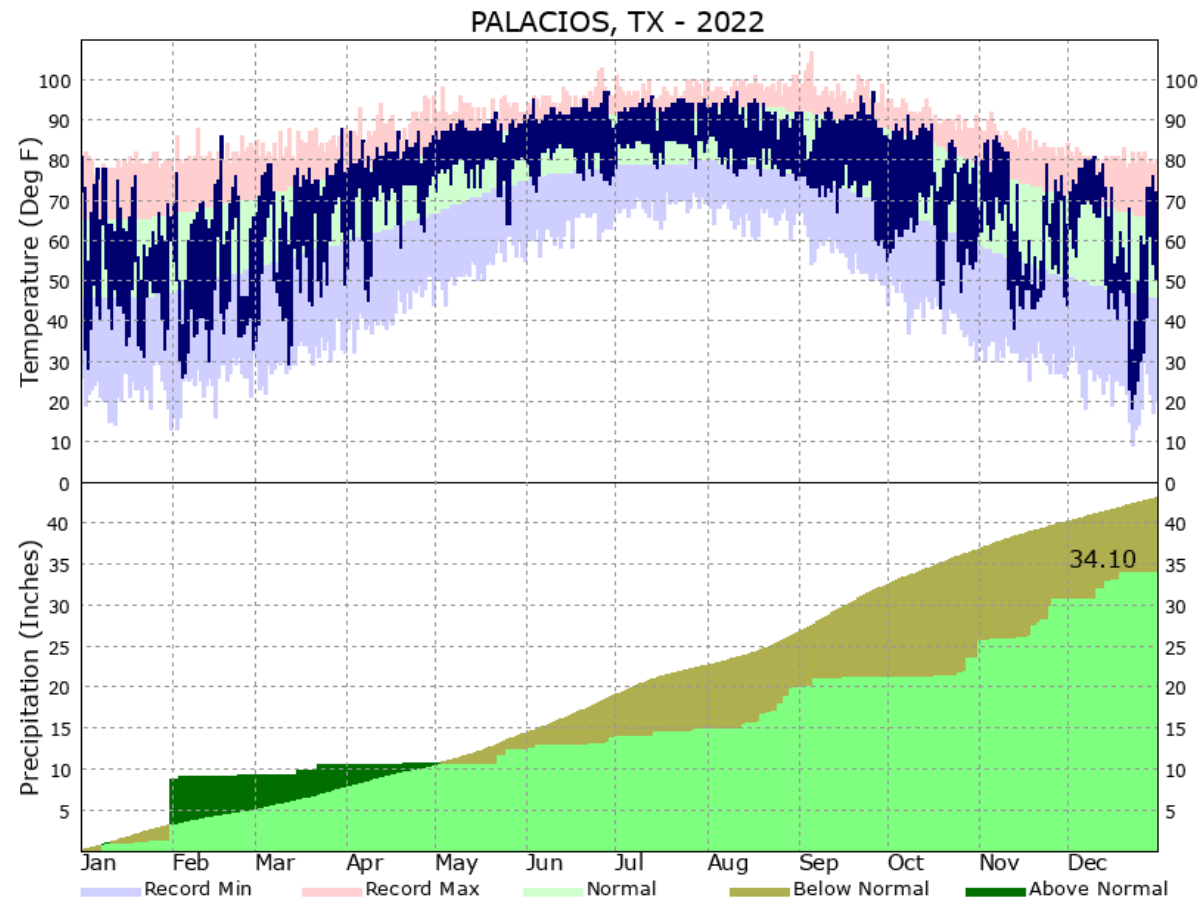


Observed temperatures are shown by the dark blue areas, normals with the light green areas, record highs in the light red areas, and record lows in the light blue areas. The bottom portion of the graph indicates the precipitation for the year to date. Periods that have year to date totals above the climatological normals are depicted by dark green areas. Periods that are below normal are represented by the brown areas.

Yearly Temperature and Precipitation Graphs

6

- Starting in July of this year, we started issuing daily climate reports and records for Palacios Municipal Airport (PSX).
- Records for the Palacios are from observations taken at the following locations:
 - Palacios Army Airfield was constructed in February 1943
 - The army air base became the Palacios Municipal Airport in 1965



Observed temperatures are shown by the dark blue areas, normals with the light green areas, record highs in the light red areas, and record lows in the light blue areas. The bottom portion of the graph indicates the precipitation for the year to date. Periods that have year to date totals above the climatological normals are depicted by dark green areas. Periods that are below normal are represented by the brown areas.

Significant Annual Statistics – Temperature

Highest Max Temperatures

| | | |
|-------------------------|-------|--|
| City of College Station | 111°F | July 10 th |
| City of Houston | 105°F | July 10 th |
| Houston-Hobby | 104°F | July 10 th |
| City of Galveston | 97°F | June 19 th & 20 th |
| Palacios | 97°F | 6/27, 6/28, 8/11, 9/26 |

Lowest Max Temperatures

| | | |
|-------------------------|------|--|
| City of College Station | 31°F | December 23 rd |
| City of Houston | 32°F | December 23 rd |
| Houston-Hobby | 34°F | Feb 4 th & Dec 23 rd |
| City of Galveston | 34°F | December 23 rd |
| Palacios | 33°F | December 23 rd |

Annual Average Temperatures

| | | |
|-------------------------|--------|---|
| City of College Station | 70.9°F | 5 th Warmest on Record (Tie with 2020) |
| City of Houston | 70.8°F | 19 th Warmest on Record (Tied with 2018) |
| Houston-Hobby | 71.2°F | 8 th Warmest Year on Record |
| City of Galveston | 73.5°F | 4 th Warmest Year on Record |
| Palacios | 71.8°F | 10 th Warmest on Record (Tie with 2021) |

Highest Min Temperatures

| | | |
|-------------------------|------|--|
| City of College Station | 81°F | July 11 th |
| City of Houston | 83°F | July 11 th |
| Houston-Hobby | 82°F | July 11 th & 12 th |
| City of Galveston | 86°F | 12 Days – latest Aug 4 th |
| Palacios | 86°F | Aug 2 nd & 3 rd |

Lowest Min Temperatures

| | | |
|-------------------------|------|---------------------------|
| City of College Station | 14°F | December 23 rd |
| City of Houston | 15°F | December 23 rd |
| Houston-Hobby | 17°F | December 23 rd |
| City of Galveston | 21°F | December 23 rd |
| Palacios | 18°F | December 23 rd |

Significant Annual Statistics – Precipitation

| Annual Total Precipitation | | |
|----------------------------|--------|---|
| City of College Station | 35.12" | 41 st Driest |
| City of Houston | 41.30" | 47 th Driest |
| Houston-Hobby | 32.29" | 5 th Driest (Tied with 1963) |
| City of Galveston | 38.32" | 50 th Driest |
| Palacios | 34.08" | 20 th Driest |

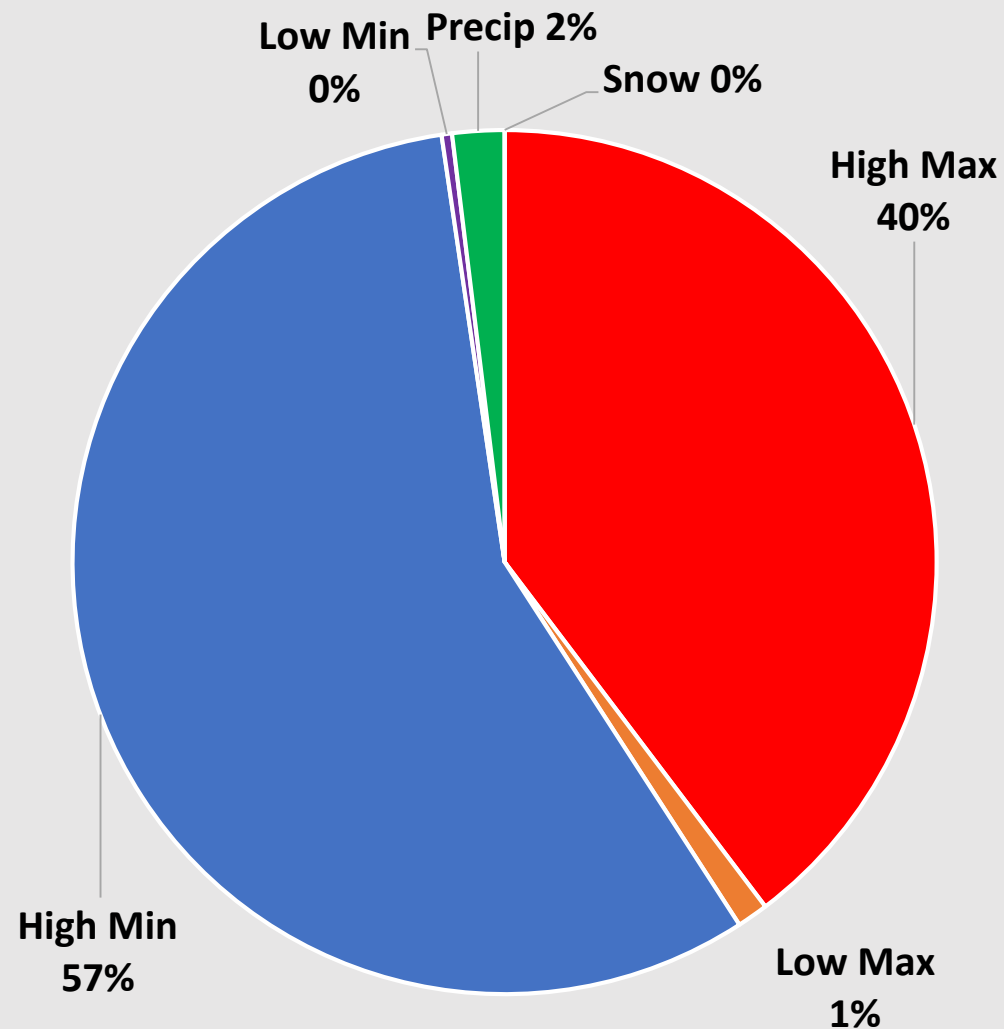
| Greatest One Day Total | | |
|-------------------------|-------|---------------------------|
| City of College Station | 3.40" | January 31 st |
| City of Houston | 3.87" | January 9 th |
| Houston-Hobby | 2.26" | October 28 th |
| City of Galveston | 2.68" | September 3 rd |
| Palacios | 7.31" | January 31 st |

| Wettest Month | | |
|-------------------------|-------|----------|
| City of College Station | 5.54" | December |
| City of Houston | 9.42" | January |
| Houston-Hobby | 7.21" | November |
| City of Galveston | 8.20" | November |
| Palacios | 8.69" | January |

2022 Daily Records


| Record | High Max Temperature | Low Max Temperature | High Min Temperature | Low Min Temperature | Precipitation | Snowfall | Total |
|-------------------------|----------------------|---------------------|----------------------|---------------------|---------------|----------|------------|
| City of College Station | 28 | 1 | 19 | 0 | 1 | 0 | 32 |
| City of Houston | 13 | 1 | 19 | 0 | 1 | 0 | 34 |
| Houston-Hobby | 28 | 1 | 19 | 0 | 1 | 0 | 49 |
| City of Galveston | 43 | 0 | 70 | 0 | 0 | 0 | 113 |
| Palacios* | 6 | 1 | 21 | 1 | 0 | 0 | 29 |
| Total | 102 | 3 | 146 | 1 | 5 | 0 | 257 |

Percentage of Types of Records



*Palacios Daily Records did not start until July.

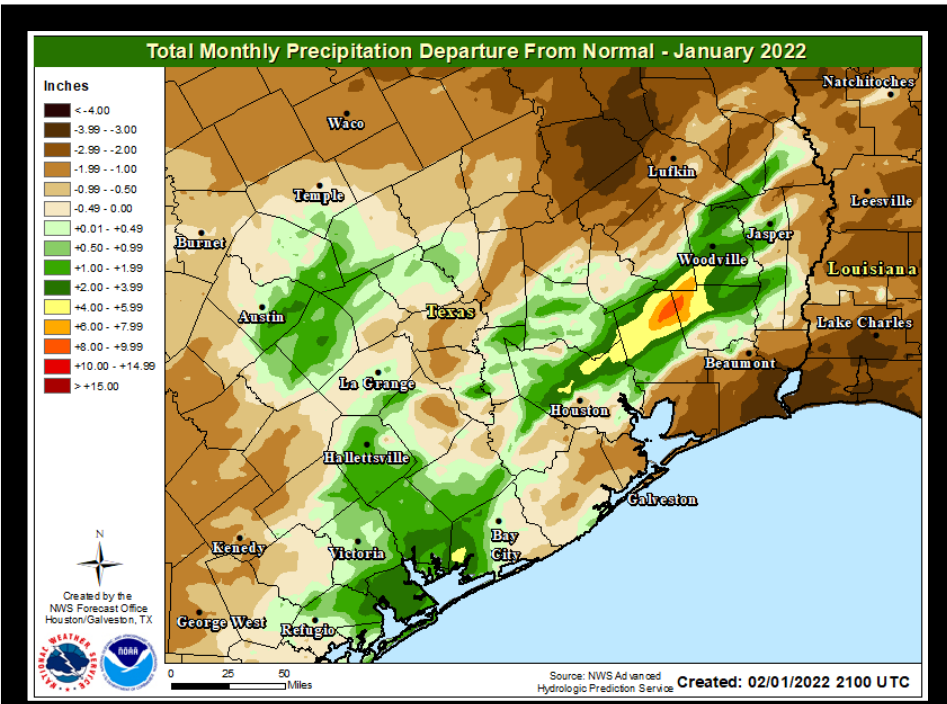
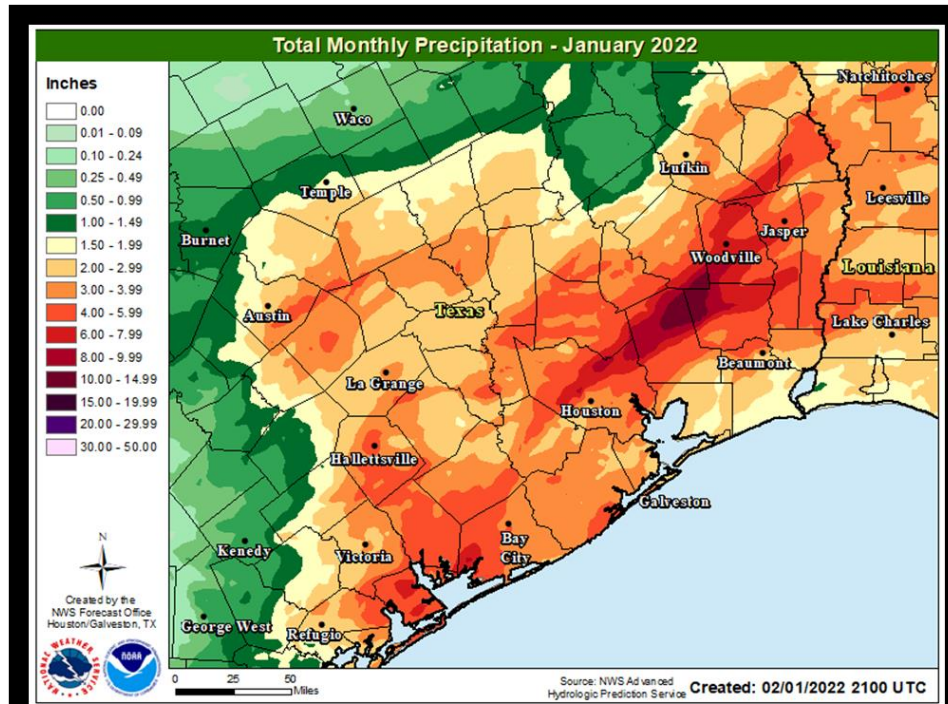
Some of the extreme warmth from the end of 2021 lingered into this year with the first day of January seeing all-time record highs for the month for most of the area. A cold front on January 2nd brought cooler conditions for the region, and then a series of cold front through the rest of the month kept the monthly average close to normal. Some locally heavy rain accompanied the cold fronts with daily record rainfall seen in College Station (1/31), Houston (1/9), and Houston-Hobby (1/8). The rainfall was fairly scattered, so while Harris County and areas eastward saw drought improvement, the rest of the region experienced drought expansion.



| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Normal Average Temp (F) | Departure From Normal (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-------------------------|---------------------------|---------------------------|---|
| Galveston (GLS) | 65.5 | 49.6 | 57.6 | 56.0 | +1.6 | 81 on the 1 st | 35 on the 22 nd |
| Houston Hobby (HOU) | 65.9 | 45.0 | 55.5 | 55.0 | +0.5 | 85 on the 1 st | 33 on the 3 rd |
| City of Houston (IAH) | 64.5 | 41.1 | 52.8 | 53.8 | -1.0 | 85 on the 1 st | 30 on the 22 nd |
| College Station (CLL) | 62.8 | 38.4 | 50.6 | 51.5 | -0.9 | 83 on the 1 st | 26 on the 2 nd & 3 rd |




| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 2.00 | -2.30 | 3 | 0.73 | 31 st |
| Houston Hobby (HOU) | 3.22 | -0.87 | 3 | 1.21 | 31 st |
| City of Houston (IAH) | 9.42 | +5.66 | 3 | 3.87 | 9 th |
| College Station (CLL) | 4.23 | +0.80 | 1 | 3.40 | 31 st |



February 2022

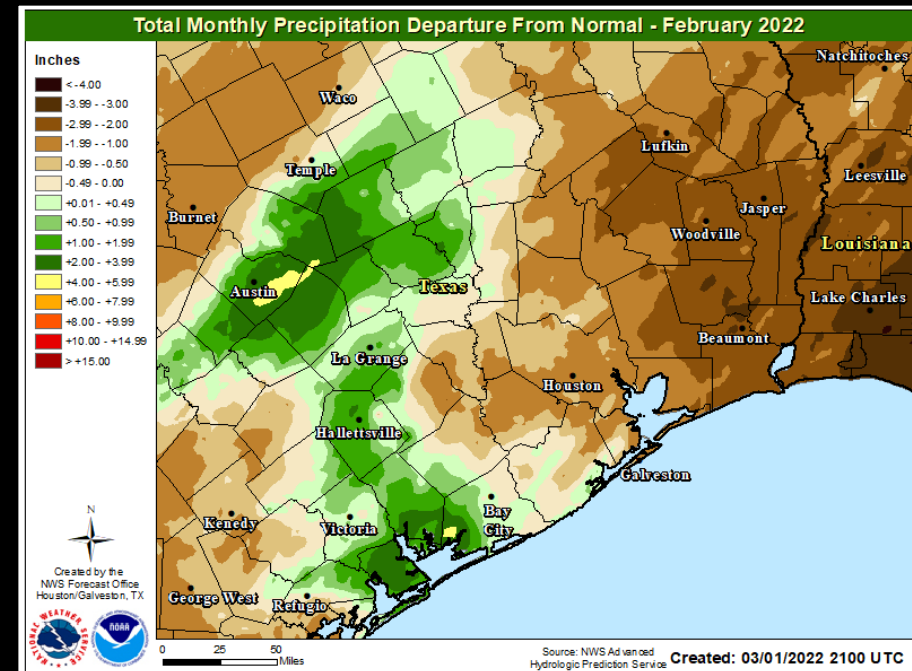
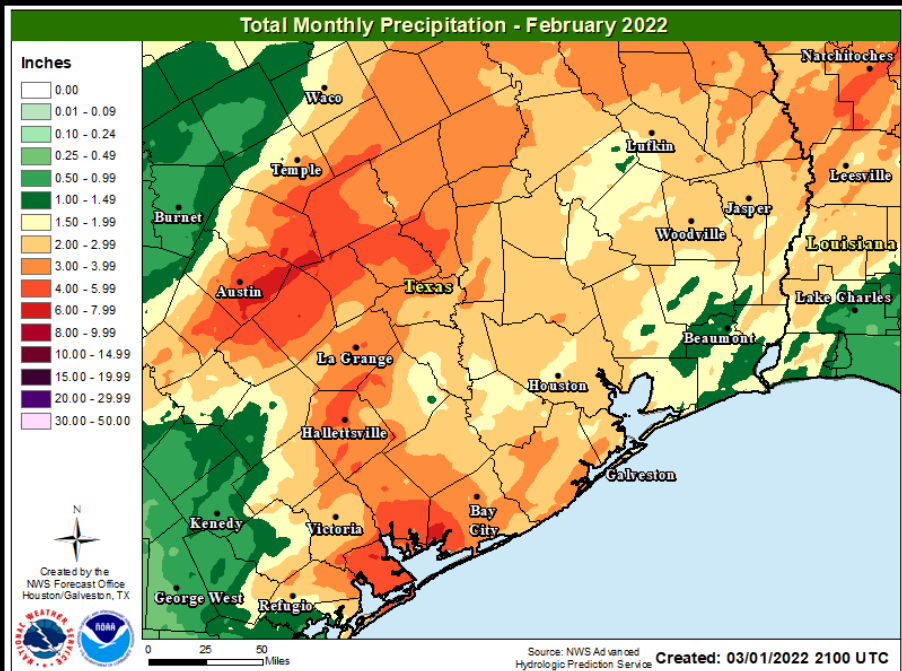
This past February ended up cooler and drier than normal with average temperatures running around four to six degrees below normal and one to two inches of precipitation below normal. Even though we experienced a much cooler than normal month on average, we only set three daily temperature records and two of those were related to record warm temperatures. The continued dry weather did result in drought degradation for the region.



| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Normal Average Temp (F) | Departure From Normal (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-------------------------|---------------------------|----------------------------|---|
| Galveston (GLS) | 63.6 | 48.4 | 56.0 | 59.3 | -3.3 | 83 on the 17 th | 32 on the 4 th |
| Houston Hobby (HOU) | 63.9 | 41.6 | 52.8 | 58.8 | -6.0 | 83 on the 21 st | 27 on the 4 th & 5 th |
| City of Houston (IAH) | 63.6 | 40.1 | 51.9 | 57.7 | -5.8 | 83 on the 21 st | 27 on the 4 th 5 th , & 6 th |
| College Station (CLL) | 61.9 | 37.4 | 49.6 | 55.3 | -5.7 | 84 on the 21 st | 22 on the 5 th |



| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 0.68 | -1.46 | 1 | 0.27 | 1 st |
| Houston Hobby (HOU) | 0.78 | -2.07 | 1 | 0.52 | 3 rd |
| City of Houston (IAH) | 1.23 | -1.74 | 1 | 0.45 | 17 th |
| College Station (CLL) | 2.28 | -0.62 | 1 | 1.09 | 17 th |

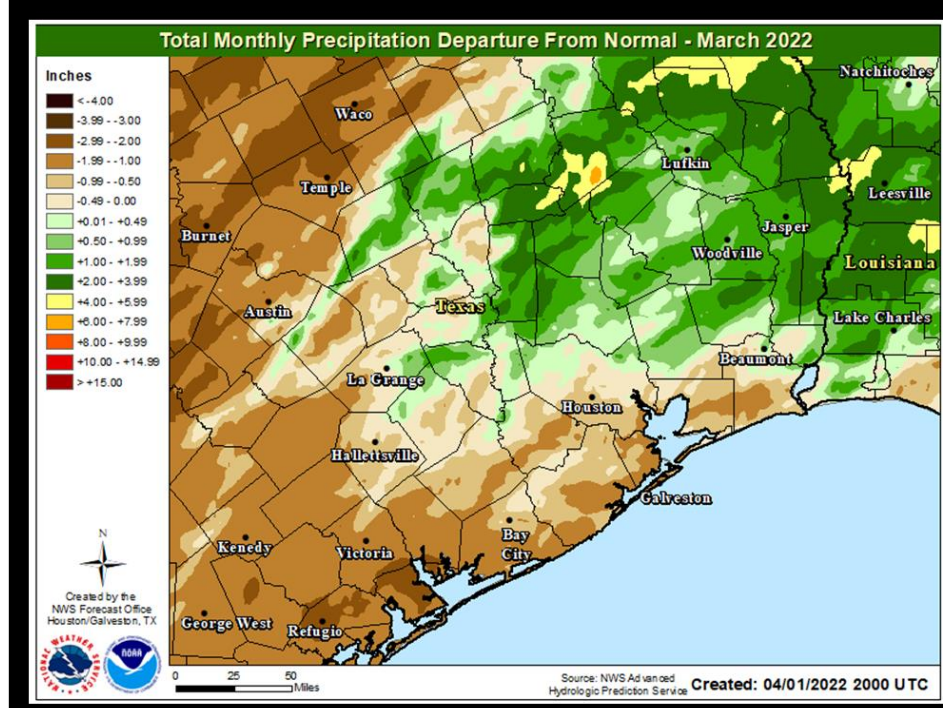
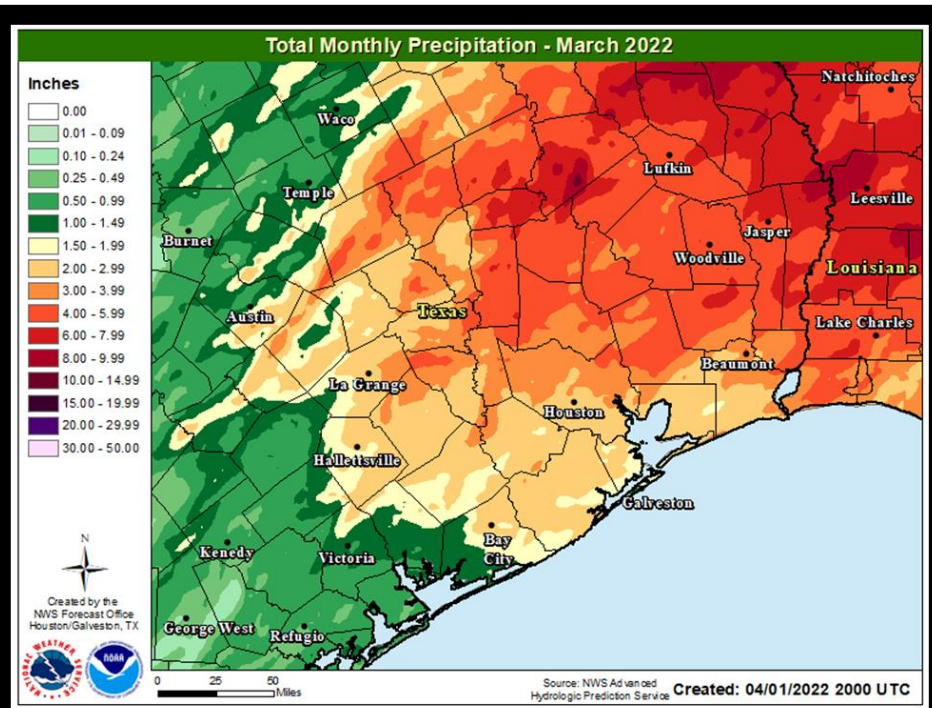


The first few weeks of March experienced below average precipitation and temperatures. A few cold fronts moved through the region during the month bringing isolated moisture and continued cool weather. Strong thunderstorms moved through the area during the overnight hours between the 21st and 22nd producing locally heavy rainfall for areas north of I-10 (City of Houston saw about 50% of the monthly total precipitation during this event) and also produced seven tornadoes.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Normal Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-------------------------|-----------------------------------|---|---|
| Galveston (GLS) | 72.9 | 57.5 | 65.2 | 65.2 | 0.0 | 86 on the 30 th | 40 on the 12 th |
| Houston Hobby (HOU) | 74.2 | 51.7 | 63.1 | 64.7 | -1.6 | 85 on the 26 th & 27 th | 32 on the 12 th |
| City of Houston (IAH) | 74.6 | 49.5 | 62.0 | 63.8 | -1.8 | 86 on the 26 th & 27 th | 32 on the 12 th & 13 th |
| College Station (CLL) | 74.5 | 48.5 | 61.5 | 62.1 | -0.6 | 87 on the 26 th | 29 on the 12 th |



| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 1.29 | -1.73 | 3 | 0.42 | 22 nd |
| Houston Hobby (HOU) | 2.46 | -0.82 | 3 | 1.24 | 22 nd |
| City of Houston (IAH) | 2.87 | -0.60 | 4 | 1.40 | 22 nd |
| College Station (CLL) | 3.56 | +0.15 | 4 | 1.18 | 22 nd |



March 21 – 22 Tornado Outbreak

16



NATIONAL WEATHER SERVICE
OCEANIC AND ATMOSPHERIC ADMINISTRATION

Houston/Galveston, TX

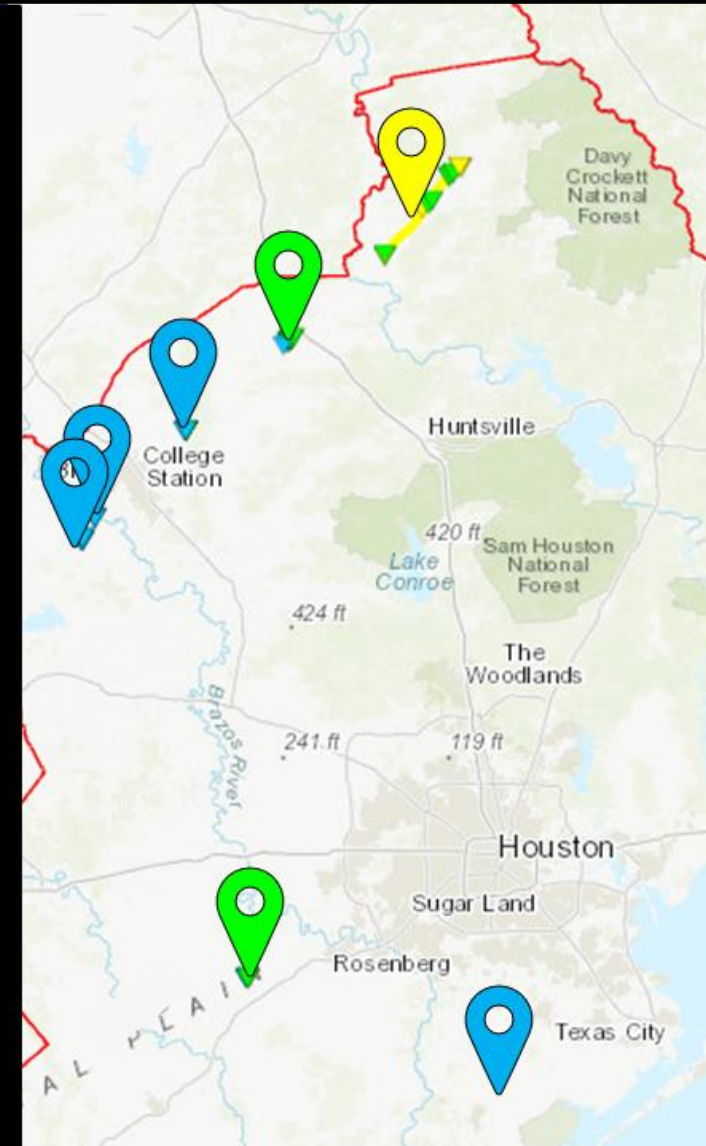


Preliminary Storm Information

3/21/2022 – 3/22/2022

Seven Tornadoes Identified during this Event:

- EF0 in Snook:
 - 08:35 PM - 08:36 PM CDT
- EF0 NE of Snook:
 - 8:40 PM CDT
- EF1 E of Wixon Valley:
 - 9:05 PM - 9:05 PM CDT
- EF1 in Madisonville:
 - 9:35 PM - 9:42 PM CDT
- EF2 in Crockett:
 - 10:10 PM - 10:30 PM CDT
- EF1 in Beasley:
 - 5:35 AM - 5:37 AM CDT
- EF0 in Danbury:
 - 7:21 AM CDT

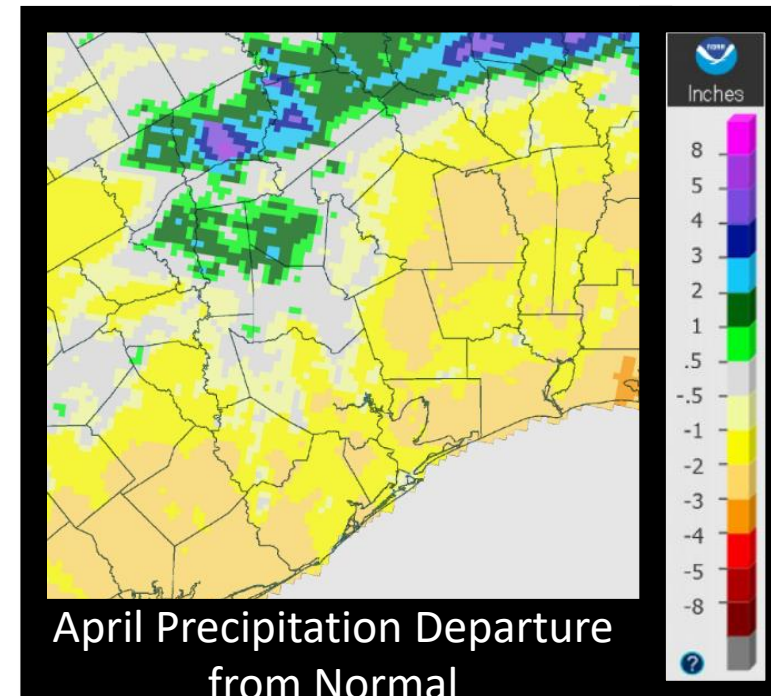
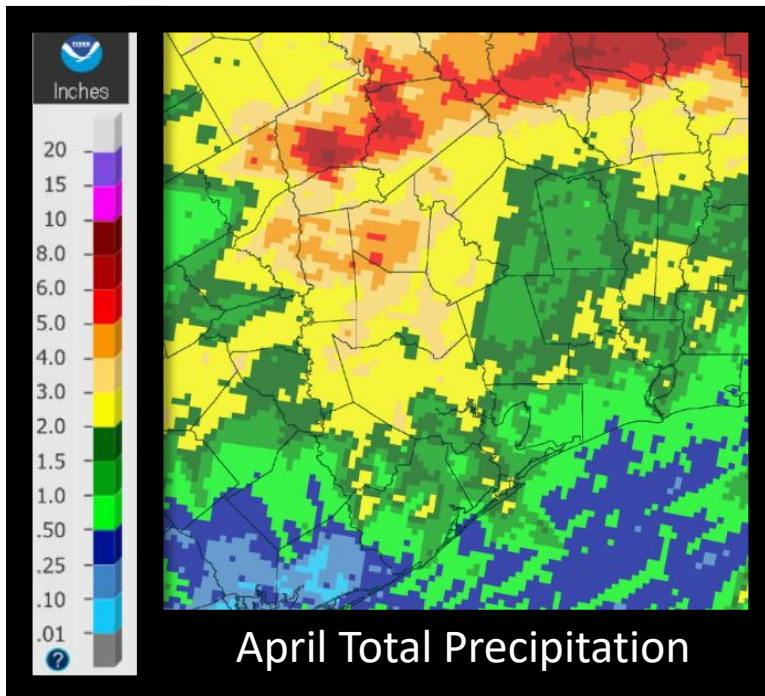
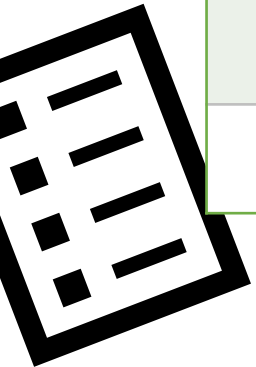


More info available at www.weather.gov/hgx/20220321-tornadooutbreak

April 2022 was an exceptionally warm month for most of the area with average temperatures between three and five degrees above normal. City of College Station had its seventh warmest April on record, Houston-Hobby had its fourth, and Galveston (with records going back to 1871) experienced its warmest April on record. There was not much precipitation experienced during the month on April except on 25th when some slow moving thunderstorms were able to produce two to four inches of rain across the northern portions of the region. This single day was responsible for 87% of the month total for the City of Houston, 90% at both Houston-Hobby and Galveston, and 95% at the City of College Station. During this heavy rain event, the southeastern portions of the region were not as lucky to experience rainfall (Palacios experienced its third driest April on record, with records going back to 1943). Because of this continued lack of rainfall, Extreme Drought conditions have begun to develop across portions of Jackson, Matagorda, and Chambers counties.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Normal Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-------------------------|-----------------------------------|--|---------------------------|
| Galveston (GLS) | 81.1 | 69.9 | 75.5 | 71.5 | +4.0 | 88 on the 6 th | 57 on the 9 th |
| Houston Hobby (HOU) | 82.6 | 65.2 | 73.9 | 70.5 | +3.4 | 88 on the 30 th | 47 on the 9 th |
| City of Houston (IAH) | 82.6 | 63.0 | 72.8 | 70.0 | +2.8 | 90 on the 5 th | 44 on the 9 th |
| College Station (CLL) | 83.3 | 62.5 | 72.9 | 68.7 | +4.2 | 92 on the 5 th & 13 th | 44 on the 9 th |

| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 2.01 | -0.05 | 2 | 1.80 | 25 th |
| Houston Hobby (HOU) | 1.72 | -0.08 | 3 | 1.54 | 25 th |
| City of Houston (IAH) | 1.99 | -0.06 | 2 | 1.72 | 25 th |
| College Station (CLL) | 2.75 | -0.12 | 2 | 2.60 | 25 th |



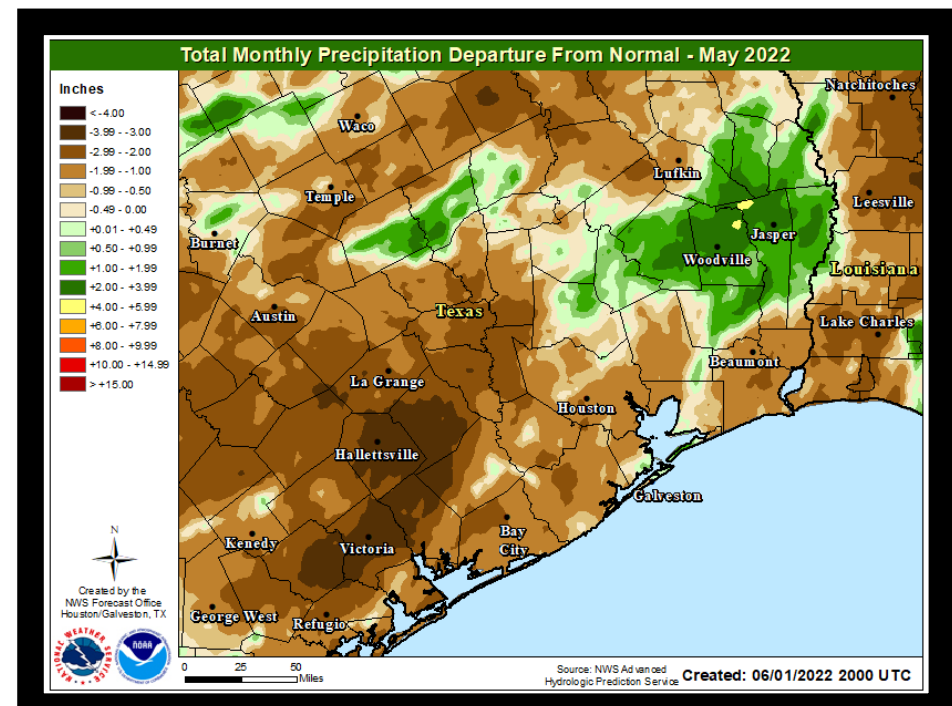
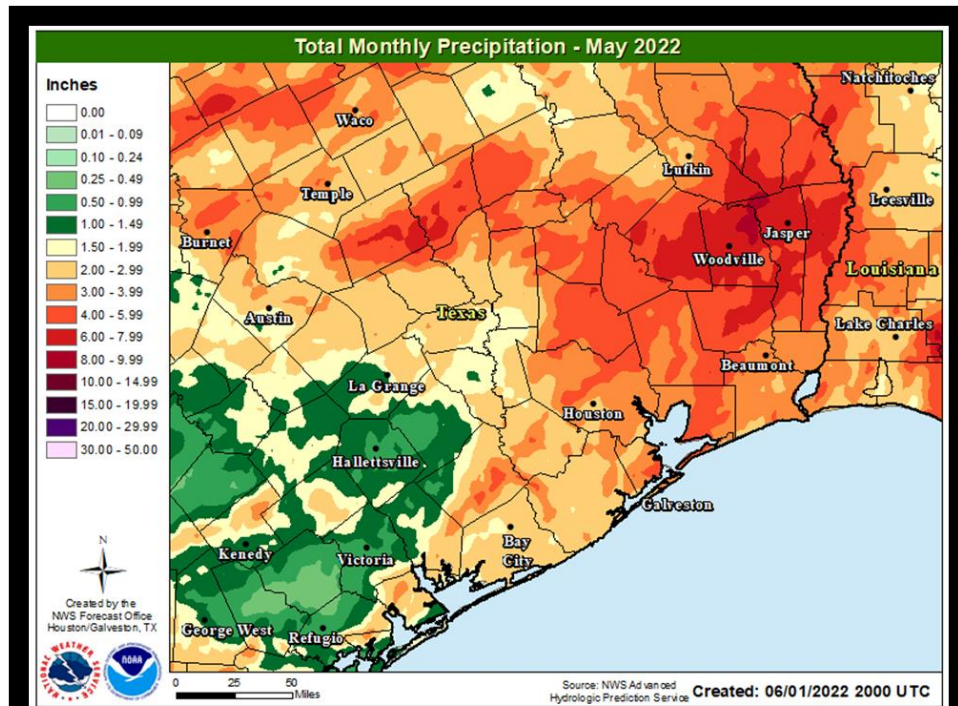
The very warm conditions that the region experienced during the month of April extended into May and then some. Most of the region say its warmest May on record with Galveston and Palacios about three degrees warmer than the previous warmest years. Only two sites were not the warmest Mays on record, Cities of Houston and College Station, but they both were within a half a degree of the warmest. There were 66 daily temperature records set this month, and 33 of them were set at Galveston.

The Climate Prediction Center put out its Atlantic Hurricane Season Outlook for 2022 and are predicting above-average hurricane activity this year.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Normal Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-------------------------|-----------------------------------|---|----------------------------|
| Galveston (GLS) | 88.0 | 77.9 | 83.0 | 78.2 | +4.8 | 93 on the 27 th | 68 on the 25 th |
| Houston Hobby (HOU) | 90.1 | 72.8 | 81.5 | 77.6 | +3.9 | 95 on the 27 th | 63 on the 26 th |
| City of Houston (IAH) | 90.1 | 71.7 | 80.9 | 77.4 | +3.5 | 95 on the 18 th & 27 th | 61 on the 26 th |
| College Station (CLL) | 91.6 | 71.3 | 81.5 | 76.4 | +5.1 | 98 on the 18 th & 21 st | 60 on the 26 th |



| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 2.99 | -0.05 | 5 | 1.28 | 22 nd |
| Houston Hobby (HOU) | 3.08 | -2.34 | 5 | 1.02 | 22 nd |
| City of Houston (IAH) | 4.30 | -0.71 | 5 | 1.32 | 25 th |
| College Station (CLL) | 2.46 | -2.14 | 6 | 0.93 | 5 th |



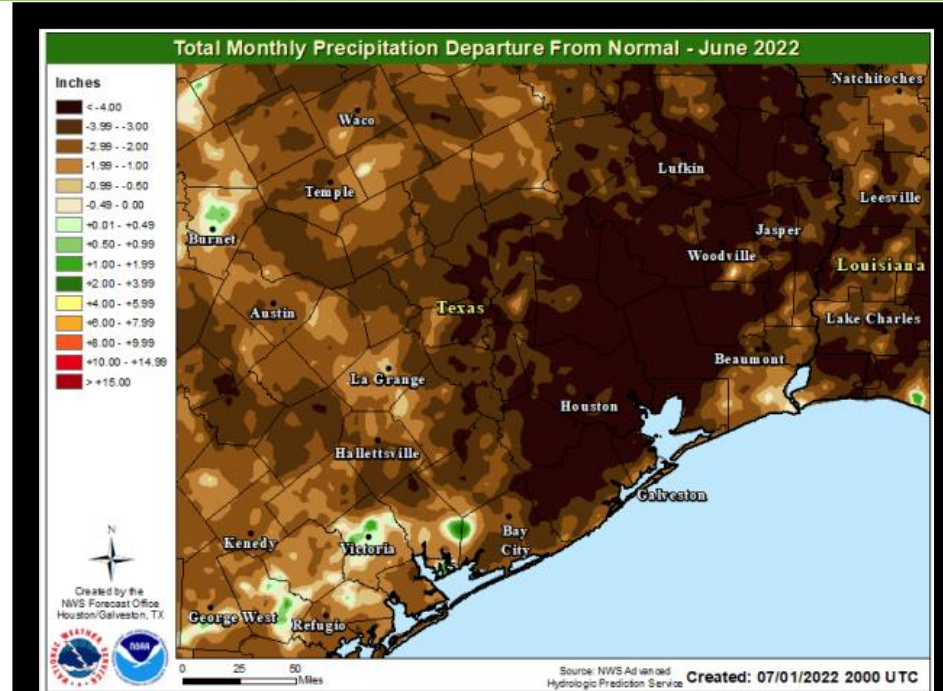
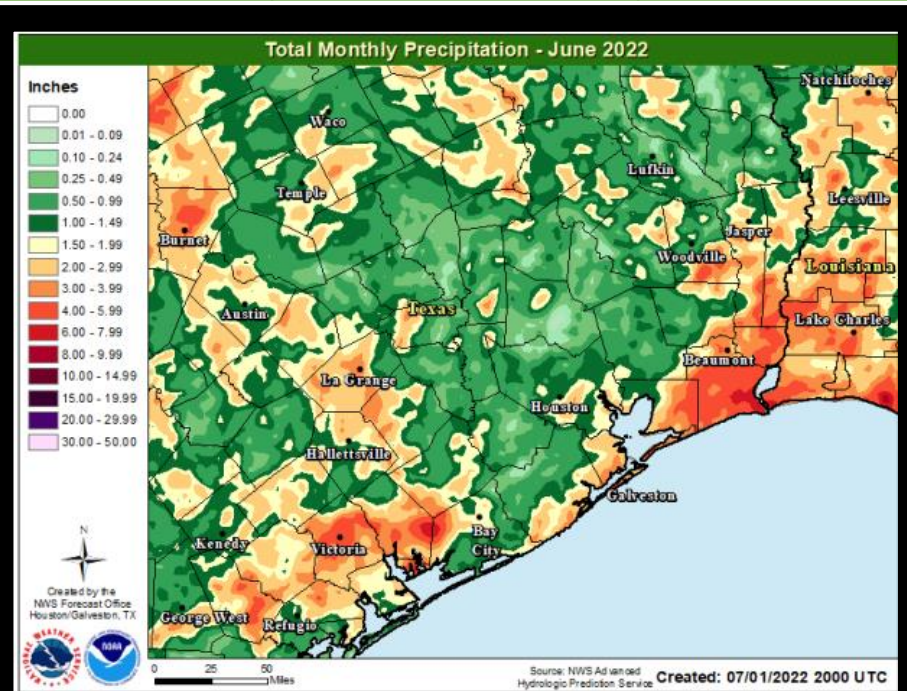
Another exceptionally dry and warm month for across Southeast Texas with average temperatures around three to five degrees above normal and around three to six inches below normal for precipitation. The first triple digit heat of the summer arrived for College Station and Houston, which is about a month before the average first triple digit heat day. Houston-Hobby recorded its driest June on record with just 0.35" of rain total. The continued dry and hot weather brought drought degradations across the region with Extreme Drought experienced for much of the region.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Normal Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-------------------------|-----------------------------------|--|--|
| Galveston (GLS) | 92.7 | 82.3 | 87.5 | 83.8 | +3.7 | 97 on the 19 th & 20 th | 77 on the 2 nd & 30 th |
| Houston Hobby (HOU) | 95.7 | 77.2 | 86.4 | 82.9 | +3.5 | 101 on the 20 th & 26 th | 73 on the 3 rd & 4 th |
| City of Houston (IAH) | 96.9 | 76.5 | 86.7 | 83.0 | +3.7 | 102 on the 20 th & 26 th | 70 on the 3 rd |
| College Station (CLL) | 98.7 | 76.5 | 97.6 | 82.6 | +5.0 | 103 on the 26 th & 27 th | 70 on the 4 th |



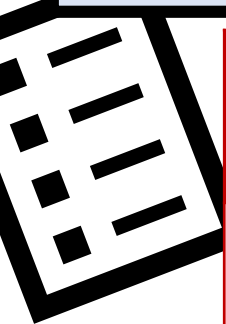


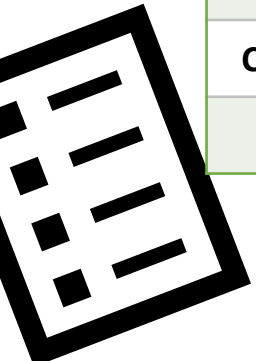
| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 2.26 | -1.97 | 5 | 1.41 | 30 th |
| Houston Hobby (HOU) | 0.35 Driest on Record | -5.74 | 3 | 0.12 | 27 th |
| City of Houston (IAH) | 0.13 | -5.87 | 4 | 0.07 | 22 nd |
| College Station (CLL) | 2.46 | -2.14 | 6 | 0.93 | 5 th |



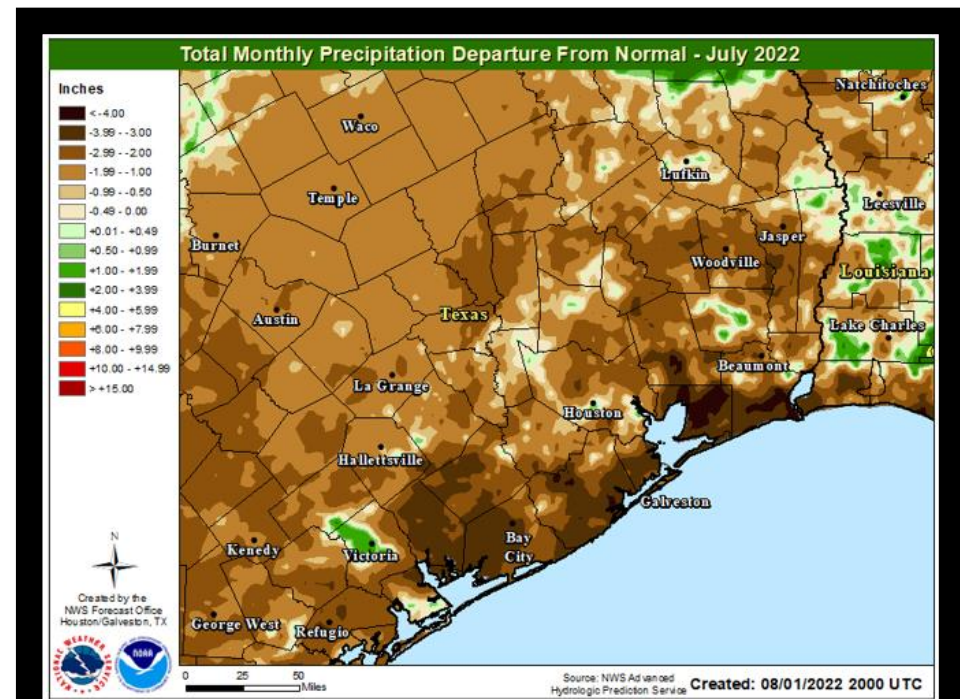
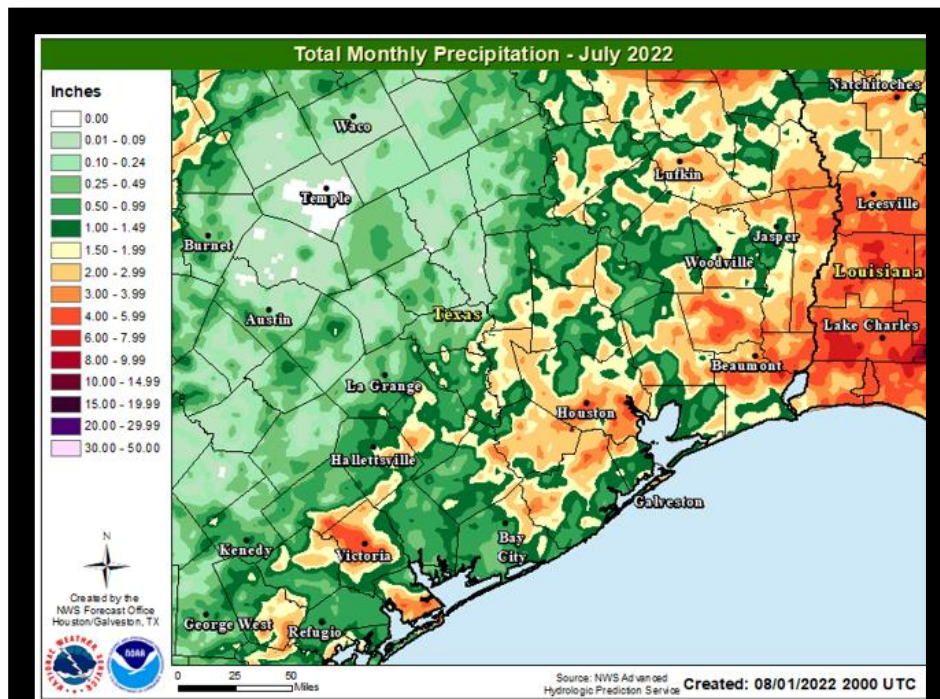
The extreme heat we saw in June continued into July with most of the region experiencing the warmest July on record with average temperatures three to six degrees above normal. There were 70 Daily Temperature records during the month with the highest maximum June temperature seen at the City of Houston (105°F on the 10th) and the City of College Station (111°F on the 10th). Highest minimum June Temperatures were seen at the City of Galveston (86°F on multiple dates starting on the 19th) and the City of Houston (83°F on the 12th). One of the reasons for this extreme heat was because of a lack of rainfall with most of the area seeing around two to four inches below normal rainfall. An isolated strong thunderstorm did bring locally heavy rainfall to Galveston on the 14th that led to the city being around one inch above normal rainfall for the month. Drought conditions degraded across the region with most of the area in either Severe (D2), Extreme (D3), or Exceptional (D4) Drought.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-----------------------------------|-----------------------------|---|
| Galveston (GLS) | 93.0 | 84.2 | 88.6 | +3.1 | 96 on the 10 th | 75 on the 14 th |
| Houston Hobby (HOU) | 97.5 | 78.7 | 88.1 | +3.3 | 104 on the 10 th | 77 on the 3 rd , 16 th & 22 nd |
| City of Houston (IAH) | 98.5 | 77.6 | 88.0 | +2.9 | 105 on the 10 th | 74 on the 8 th & 16 th |
| College Station (CLL) | 103.4 | 78.5 | 90.9 | +5.8 | 111 on the 10 th | 76 on the 1 st , 15 th & 16 th |
| Palacios (PSX) | 93.0 | 82.9 | 88.0 | +2.6 | 96 on the 13 th | 78 on the 1 st , 15 th & 28 th |





| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------------------------|
| Galveston (GLS) | 4.14 | +0.73 | 3 | 2.28 | 14 th |
| Houston Hobby (HOU) | 1.90 | -2.69 | 14 | 1.11 | 1 st |
| City of Houston (IAH) | 1.35 | -2.42 | 12 | 0.43 | 6 th & 23 rd |
| College Station (CLL) | 0.01 | -1.97 | 3 | 0.01 | 22 nd |
| Palacios (PSX) | 0.93 | -2.74 | 3 | 0.51 | 14 th |

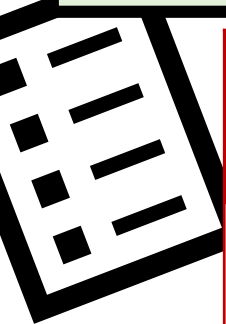


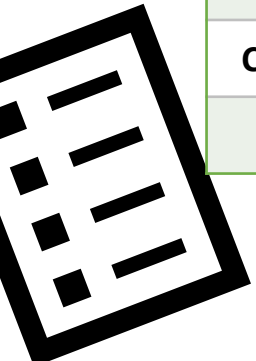
August 2022

25

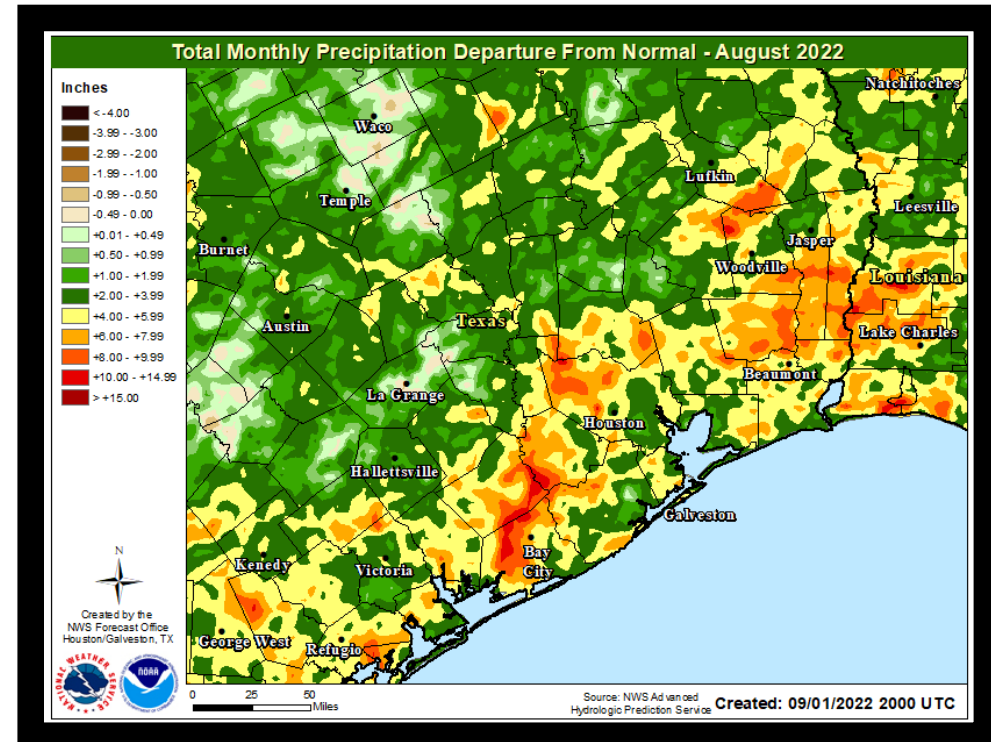
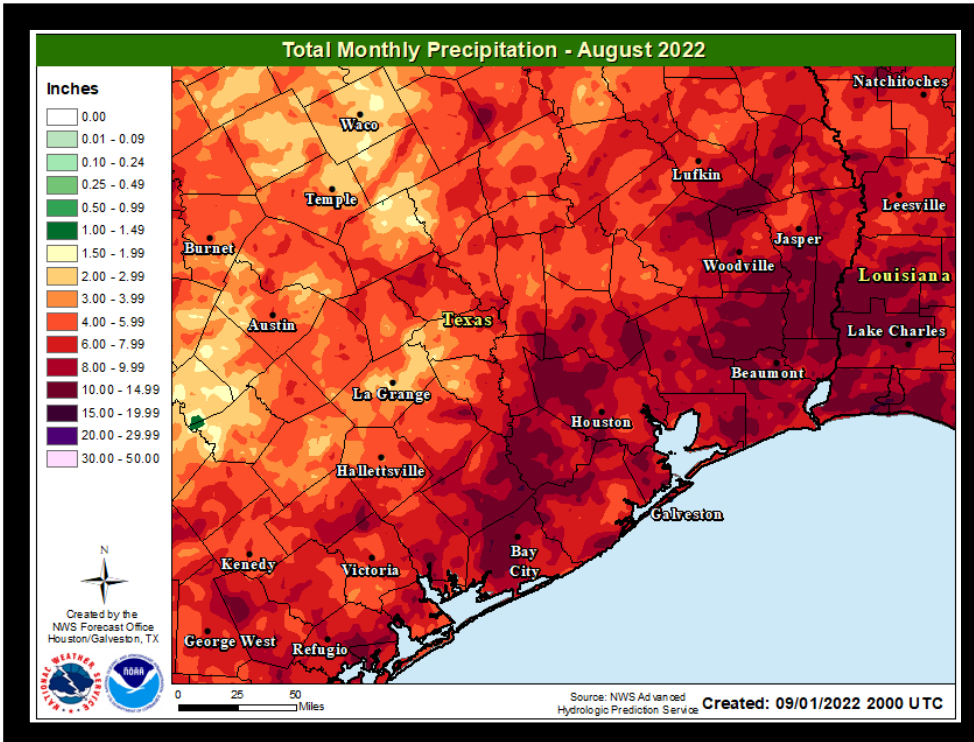
August 2022 was the opposite of July 2022 when it came to precipitation. While July was one of the driest Julys on record, this August was on the wetter side of the record books with most of the region receiving two to eight plus inches of above normal rainfall. The mostly cloudy skies and continued rainfall led to near normal temperatures. This combination of near normal temperatures and above normal rainfall allowed for the drought conditions to rapidly improve across the region. Exceptional Drought (D4) conditions are no longer being seen in SE Texas with some Extreme Drought (D3) persisting across the western portion of the area. Drought conditions are expected to continue to improve during September as the region remains under a wetter and cooler pattern.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-----------------------------------|---|---|
| Galveston (GLS) | 91.9 | 81.6 | 86.8 | +0.9 | 95 on the 3 rd , 10 th & 18 th | 77 on the 18 th & 24 th |
| Houston Hobby (HOU) | 93.7 | 77.5 | 85.6 | +0.5 | 100 on the 3 rd , 4 th & 17 th | 73 on the 18 th |
| City of Houston (IAH) | 94.4 | 75.7 | 85.1 | -0.1 | 102 on the 10 th | 71 on the 10 th |
| College Station (CLL) | 98.5 | 76.8 | 87.6 | +1.9 | 105 on the 3 rd | 74 on the 25 th |
| Palacios (PSX) | 92.2 | 79.6 | 85.9 | +0.3 | 97 on the 11 th | 75 on the 31 st |





| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 7.40 | +2.69 | 10 | 1.03 | 29 th |
| Houston Hobby (HOU) | 4.52 | -0.92 | 15 | 1.29 | 20 th |
| City of Houston (IAH) | 8.58 | +3.74 | 15 | 2.78 | 10 th |
| College Station (CLL) | 4.54 | +1.44 | 13 | 1.72 | 30 th |
| Palacios (PSX) | 5.10 | +1.19 | 12 | 0.98 | 29 th |

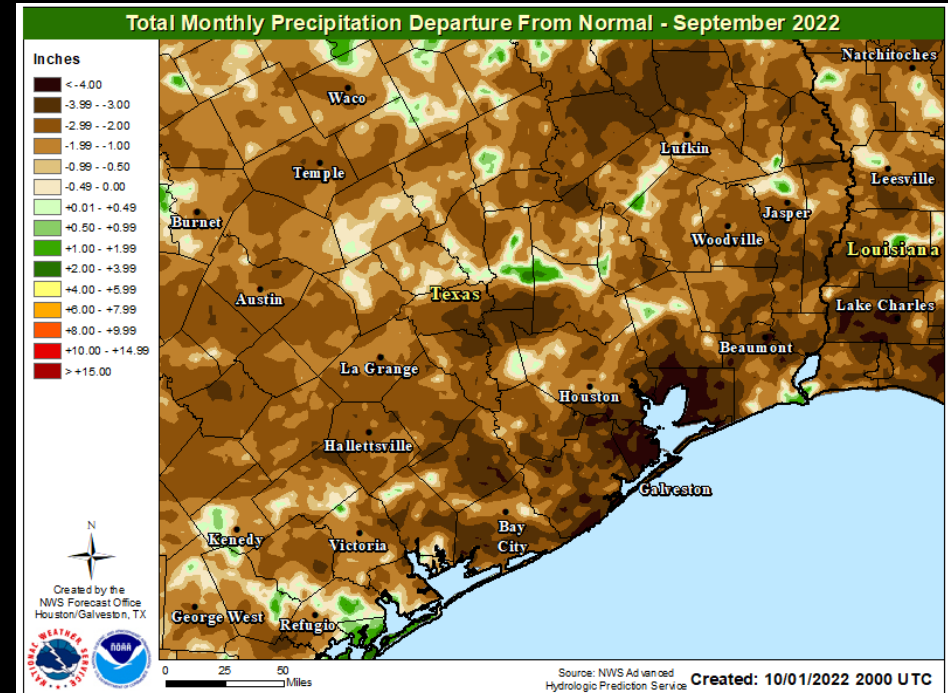
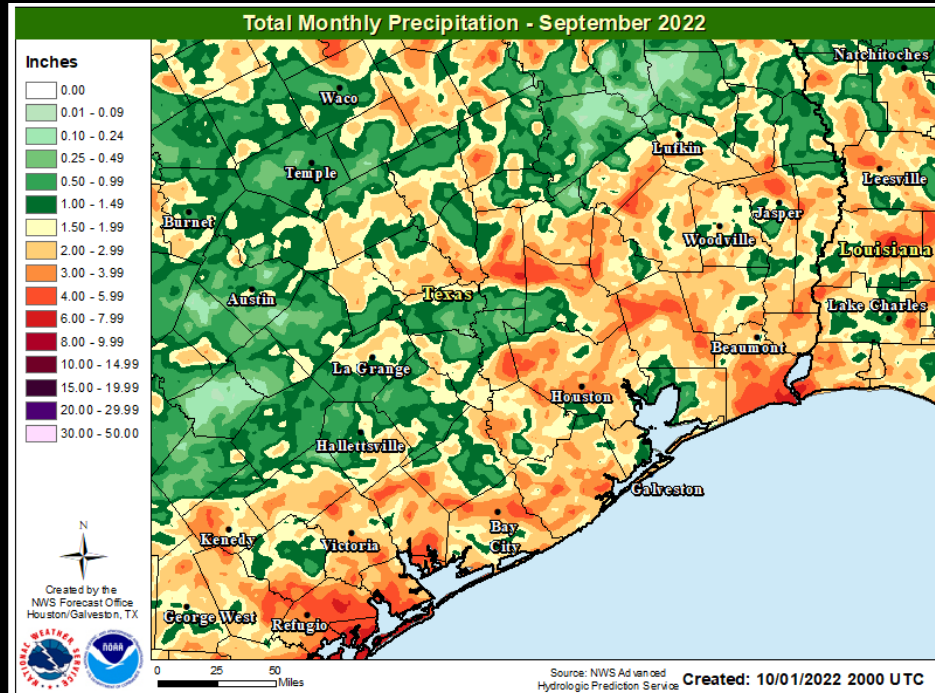


After a very wet August, September was the opposite with much below normal precipitation. Generally, the region experienced about two to four inches below normal precipitation with the observed rainfall mostly occurring within the first week of September while the rest of the month had almost zero rainfall. The lack of rainfall led to above normal temperatures and the redevelopment of the drought in portions of the region.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-----------------------------------|----------------------------|----------------------------|
| Galveston (GLS) | 89.1 | 77.9 | 83.5 | +1.1 | 95 on the 22 nd | 65 on the 30 th |
| Houston Hobby (HOU) | 92.1 | 73.4 | 82.8 | +1.7 | 99 on the 22 nd | 58 on the 30 th |
| City of Houston (IAH) | 91.8 | 69.7 | 80.7 | +0.2 | 98 on the 22 nd | 55 on the 30 th |
| College Station (CLL) | 92.8 | 70.0 | 81.4 | +0.8 | 98 on the 22 nd | 57 on the 27 th |
| Palacios (PSX) | 89.9 | 71.5 | 80.7 | +0.8 | 97 on the 26 th | 58 on the 30 th |



| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|-----------------|
| Galveston (GLS) | 2.80 | -3.85 | 4 | 2.68 | 3 rd |
| Houston Hobby (HOU) | 1.52 | -4.24 | 5 | 0.34 | 8 th |
| City of Houston (IAH) | 0.75 | -3.96 | 6 | 0.55 | 3 rd |
| College Station (CLL) | 2.54 | -0.96 | 4 | 1.14 | 3 rd |
| Palacios (PSX) | 1.27 | -4.61 | 5 | 0.90 | 6 th |

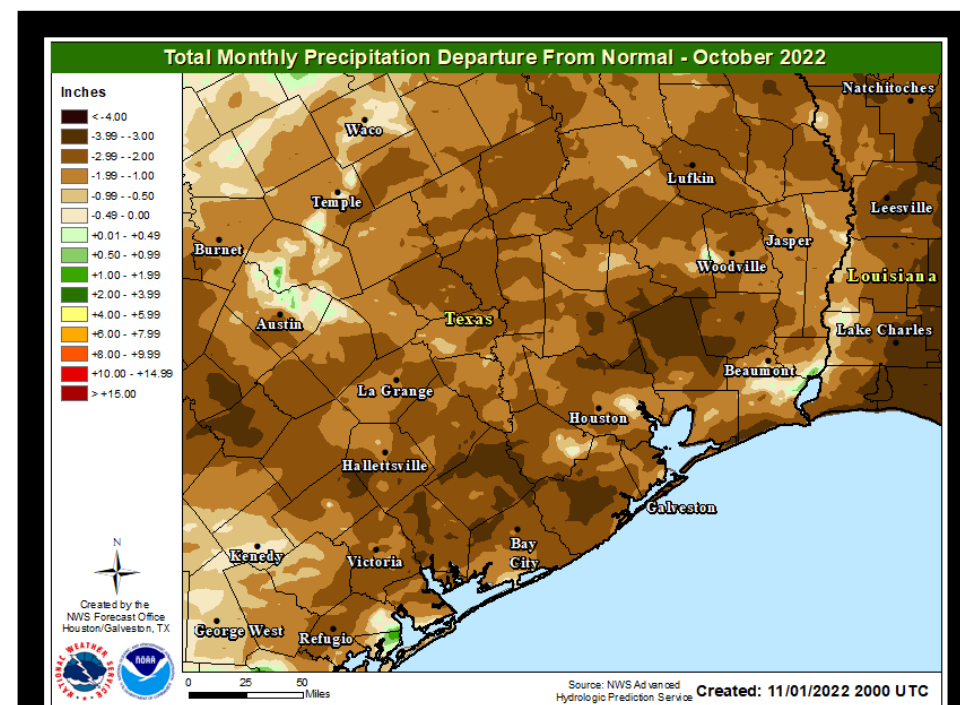
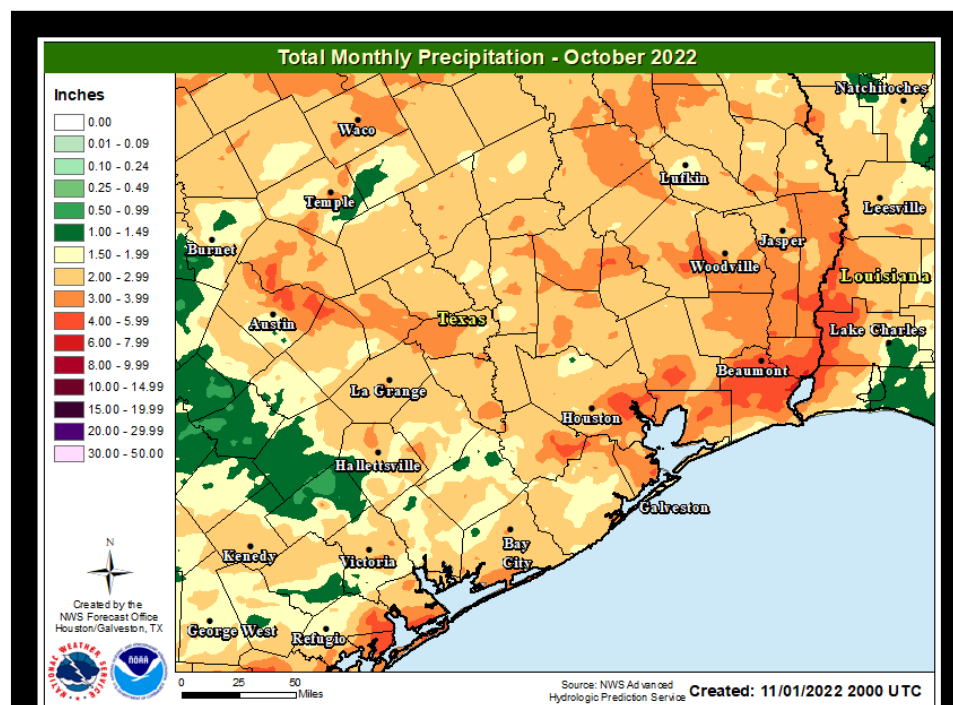


The dry conditions experienced in September continued through October with most of the region seeing rainfall deficits of two to four inches. The rainfall that did fall occurred mainly on just one day, October 28th, when a cold front went through the region. If it wasn't for this system, the region would most likely would have been around four to six inches below normal. The dry conditions led to the drought degradation across the region with Extreme Drought (D3) expanding west of the Brazos River. Despite the dry weather, October was mostly cooler than normal by one to two degrees. Still had some lingering 90 degree weather through the first half of the month, but the first few significant cold fronts of the season brought cooler than normal conditions to end the month.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-----------------------------------|----------------------------|----------------------------|
| Galveston (GLS) | 80.7 | 62.7 | 74.0 | -1.3 | 89 on the 7 th | 50 on the 19 th |
| Houston Hobby (HOU) | 83.3 | 62.1 | 72.7 | -0.3 | 94 on the 12 th | 48 on the 19 th |
| City of Houston (IAH) | 82.6 | 57.5 | 70.0 | -1.8 | 94 on the 12 th | 42 on the 14 th |
| College Station (CLL) | 84.0 | 58.8 | 71.4 | +0.3 | 95 on the 12 th | 42 on the 19 th |
| Palacios (PSX) | 83.1 | 60.8 | 72.0 | +1.9 | 91 on the 8 th | 43 on the 19 th |

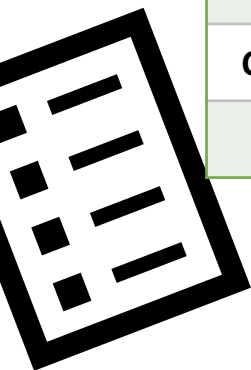


| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 1.54 | -3.61 | 3 | 0.64 | 28 th |
| Houston Hobby (HOU) | 2.82 | -2.96 | 4 | 2.26 | 28 th |
| City of Houston (IAH) | 1.83 | -3.63 | 1 | 1.44 | 28 th |
| College Station (CLL) | 1.85 | -3.08 | 4 | 0.90 | 28 th |
| Palacios (PSX) | 2.42 | -1.91 | 2 | 1.76 | 28 th |

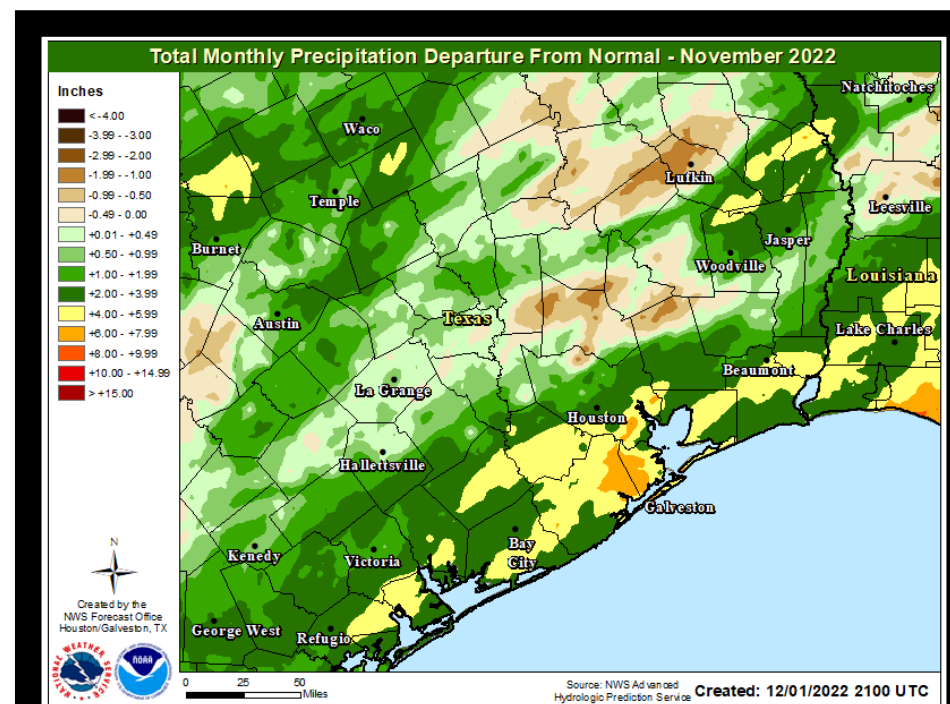
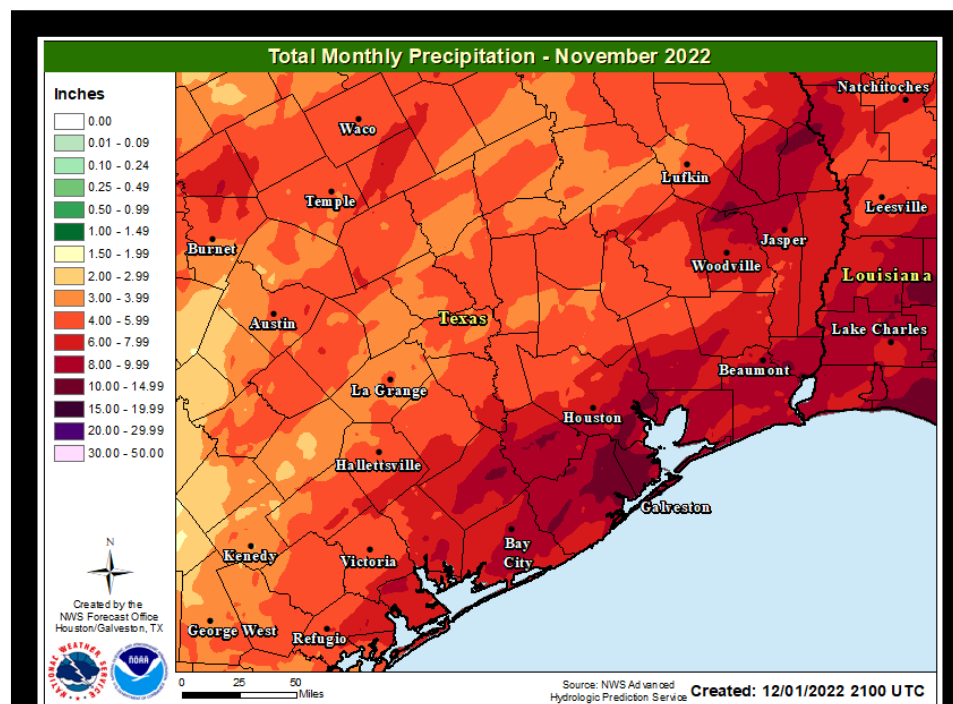


Multiple high rainfall events led to the region experiencing a monthly total of five to eight inches of rainfall, which is about one to four inches above normal for the month of November. This rainfall led to not only below normal temperatures for the month, but also widespread drought improvements. Severe Drought (D2) persisted in parts of Colorado and Austin counties, but now no drought is being reported in over half the region.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-----------------------------------|---|---|
| Galveston (GLS) | 69.2 | 58.0 | 63.6 | -1.9 | 83 on the 4 th | 44 on the 20 th |
| Houston Hobby (HOU) | 70.4 | 54.0 | 62.2 | -1.1 | 87 on the 6 th & 8 th | 41 on the 13 th |
| City of Houston (IAH) | 70.0 | 51.2 | 60.6 | -1.4 | 86 on the 6 th & 7 th | 36 on the 13 th |
| College Station (CLL) | 68.8 | 51.0 | 59.9 | -0.5 | 87 on the 7 th | 35 on the 13 th & 20 th |
| Palacios (PSX) | 70.1 | 54.6 | 62.3 | -2.3 | 86 on the 7 th | 38 on the 13 th |

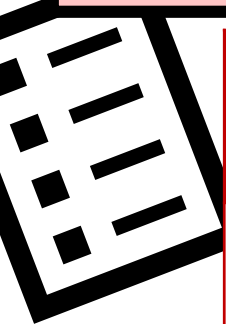


| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|-------------------------------------|
| Galveston (GLS) | 8.20 | +3.92 | 8 | 1.66 | 14 th |
| Houston Hobby (HOU) | 7.21 | +3.31 | 7 | 1.53 | 24 th |
| City of Houston (IAH) | 4.97 | +1.10 | 7 | 1.10 | 11 th & 26 th |
| College Station (CLL) | 5.16 | +1.85 | 4 | 1.48 | 11 th |
| Palacios (PSX) | 7.05 | +3.66 | 6 | 1.54 | 25 th |



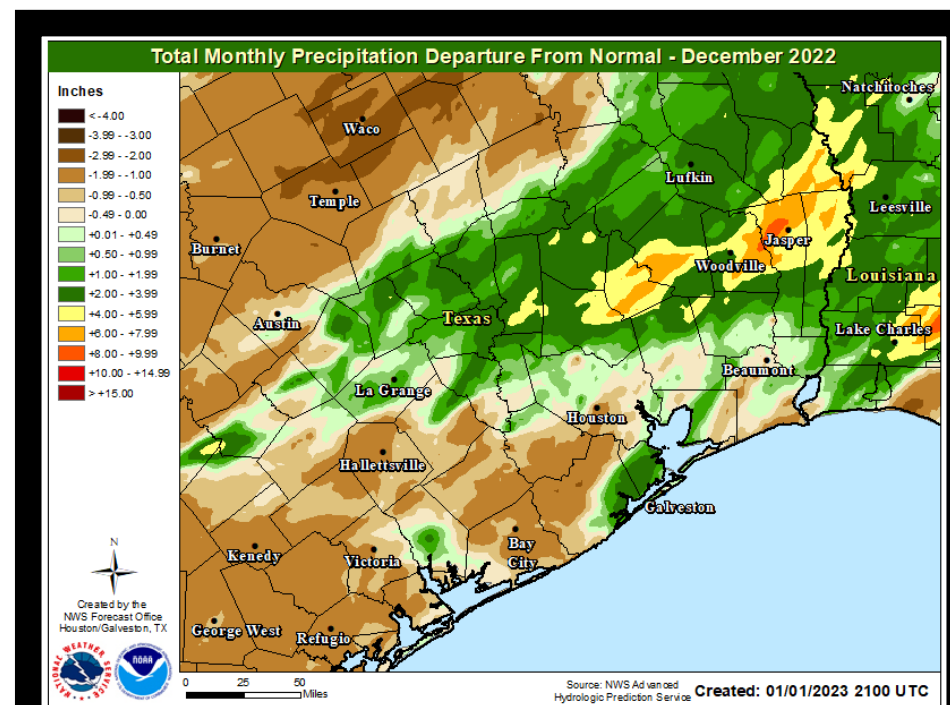
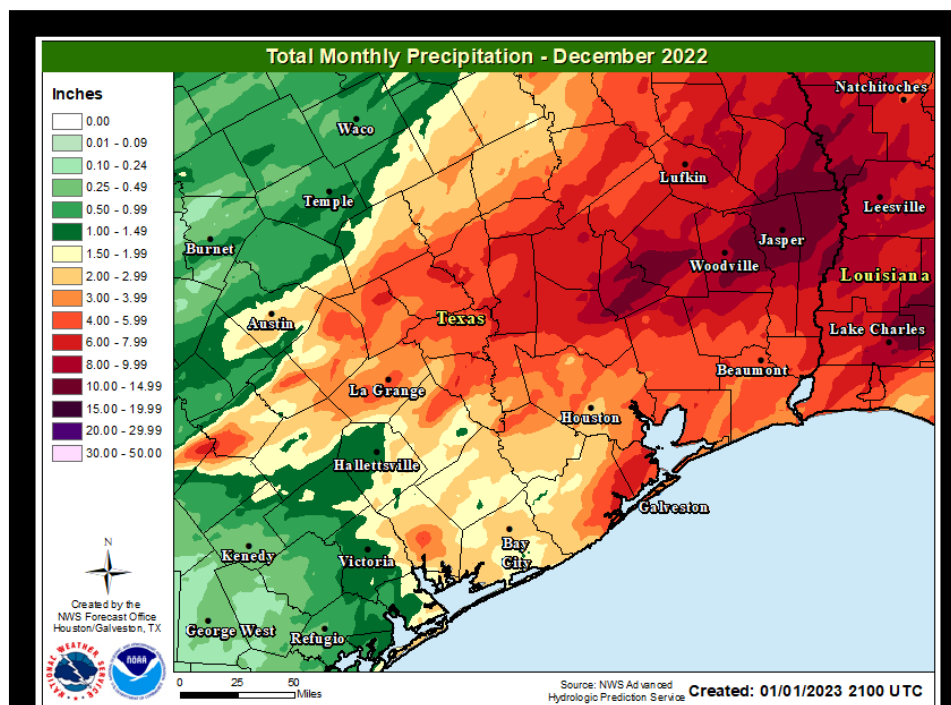
A strong Artic cold front moved through the 23rd of the month bringing much below normal temperatures for a few days, but this was not enough to outweigh an extremely warm start and end to the month. On average, the region finished about two degrees warmer than normal with 16 daily temperature records set. Drought improvements continued with just some Abnormally Dry to Moderate Drought conditions experience west of the Brazos River and in the far northern reaches of the region.

| Location | Average High Temp (F) | Average Low Temp (F) | Average Temp (F) | Departure From Normal Average (F) | Maximum Temperature (F) | Minimum Temperature (F) |
|-----------------------|-----------------------|----------------------|------------------|-----------------------------------|--|----------------------------|
| Galveston (GLS) | 66.8 | 53.8 | 60.3 | +1.8 | 81 on the 3 rd | 21 on the 23 rd |
| Houston Hobby (HOU) | 68.5 | 50.2 | 59.3 | +2.4 | 85 on the 6 th | 17 on the 23 rd |
| City of Houston (IAH) | 66.7 | 47.4 | 57.1 | +1.7 | 82 on the 7 th 8 th & 9 th | 15 on the 23 rd |
| College Station (CLL) | 64.5 | 45.8 | 55.1 | +2.0 | 82 on the 7 th & 8 th | 14 on the 23 rd |
| Palacios (PSX) | 67.5 | 50.0 | 58.8 | +0.8 | 81 on the 10 th | 18 on the 23 rd |



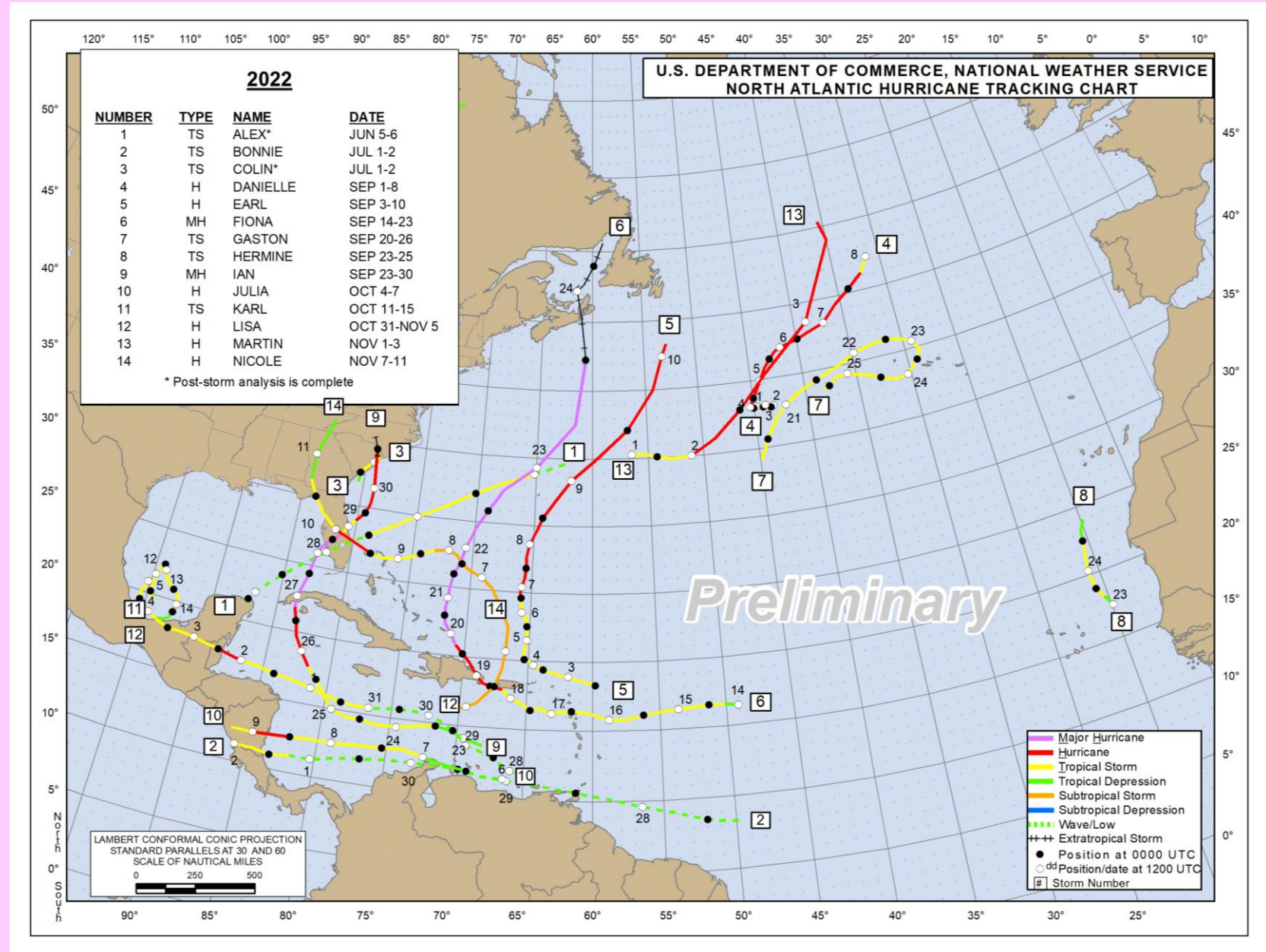


| Location | Total Precipitation (in.) | Departure from Normal (in.) | Number of Thunder Days | Maximum Daily Precipitation (in./date) | |
|-----------------------|---------------------------|-----------------------------|------------------------|--|------------------|
| Galveston (GLS) | 3.01 | -1.22 | 5 | 0.93 | 29 th |
| Houston Hobby (HOU) | 2.71 | -1.63 | 5 | 0.85 | 30 th |
| City of Houston (IAH) | 3.88 | -0.15 | 6 | 1.87 | 11 th |
| College Station (CLL) | 5.54 | +1.83 | 5 | 1.62 | 10 th |
| Palacios (PSX) | 3.30 | +0.32 | 6 | 1.30 | 11 th |



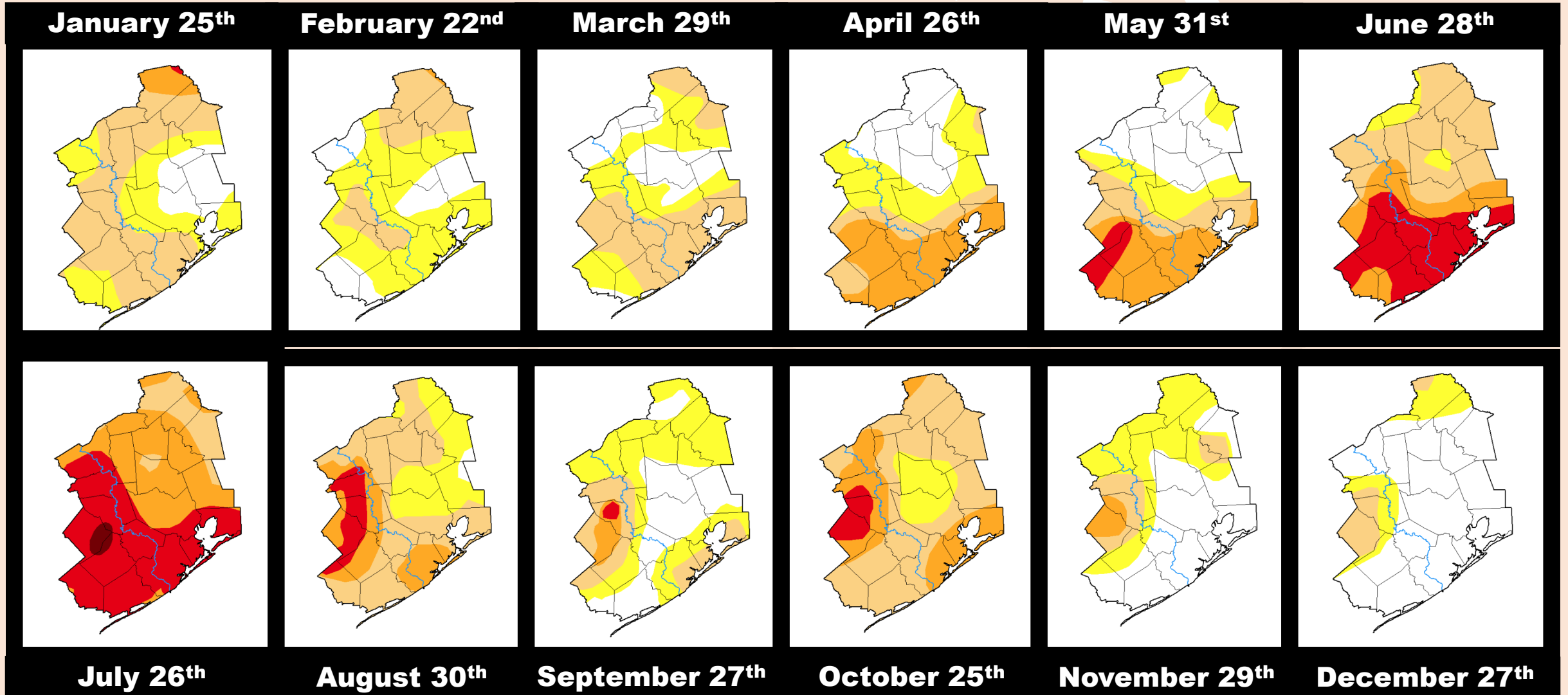
2022 Atlantic Tropical Summary

35



2022 Drought Evolution

36



Climate Primary Site History

Galveston (GLS)

Records for Galveston are from observations at the following locations: 67-69 Strand (April 1, 1871 - Aug 31, 1874); 23rd and the Strand (Sep 1, 1874 - July 29, 1878), 1.75 miles WSW of the previous location; the Custom House at Bath Street and the Strand (July 30, 1878 - May 8, 1882); Colorado and Santa Fe Railroad Building at 25th and the Strand (May 9, 1882 - March 14, 1883); back to the Custom House which later became the Cotton Exchange Building (March 15, 1883 - June 24, 1898), about a 1/3 of a mile E of the previous Custom House location; The Levy Building at 2223 Market Street (June 25, 1898 - Nov 26, 1900); the Trust Building at Tremont and Post Office Streets (Nov 27, 1900 - June 24, 1946), one-quarter mile south of the Levy Building; the U.S. Post Office Building at 601 Rosenberg (June 25, 1946 - 1994); Scholes Field (January 1995 to present).

College Station (CLL)

Records from 1893 through July 1951 are based on observations taken at the Texas Agriculture Experiment COOP Station main farm located 6 miles southwest of College Station. Records from August 1951 through the present are based on observations taken at Easterwood Field. Normal temperatures are calculated from 1981 to 2000 period.

City of Houston (IAH)

Records for the City of Houston are from observations at the following locations: Cotton Station from July 1881 through September 1909, Stewart Building at Preston and Fannin from September 1909 through February 1926, Shell Building at Texas and Fannin from March 1926 through August 1938, Federal Building at Franklin and Fannin from August 1938 through May 1969, Intercontinental Airport from June 1969 to the present .

Houston Hobby (HOU)

Records are based upon observations beginning in August 1931.

