ONE HUNDRED YEARS
of
TEXAS WEATHER
1880-1979

MONOGRAPH SERIES NO.1

by
John F. Griffiths
Greg Ainsworth

OFFICE OF THE STATE CLIMATOLOGIST
DEPARTMENT OF METEOROLOGY
COLLEGE OF GEOSCIENCES
TEXAS A&M UNIVERSITY

December, 1981

DEDICATION

Throughout the century covered by this publication, and even before, most of the data have been collected by a vast force of unpaid observers who run the cooperative stations. To all of them this book is dedicated, and especially the following individuals and families who served faithfully in all weathers, like the mailman, for phenomenally long periods. Without their devotion to the task our knowledge of Texas weather and climate would be extremely limited.

Individual Observers	Station	Years
R.M. Jones	Clifton 9E (Bosque)	59
Edwin Ramey	Dimmitt 6E (Castro)	58*
Josephine Newman	Mexia (Limestone)	57
(The station was in the Newman family for 70 years)		
J.J. McMickin	Memphis (Hall)	56
R.R. Traylor	Matagorda No. 2 (Matagorda)	55*
Michael Kangerga	Henderson (Rusk)	54
Pearl Smith	Brownwood (Brown)	54
Judge H.E. Haass	Hondo (Medina)	52
R.M. McCleary	Honey Grove (Fannin)	50*
(The station has been in the McCleary family for 65 years)		
Addie Koenig	Runge (Karnes)	48*
(The station has been in the Koenig family for 63 years)		
Mrs. John G. Kenedy, Jr.	Sarita 7E (Kenedy)	47*
(The station has been in the Kenedy family for 82 years)		
R.J. Klump	Muleshoe No. 1 (Bailey)	47
W.S. Ownsby	Cleburne (Johnson)	47
Roy Lee Black	Crowell (Foard)	45
Veda C.S. Daugherty	Seymour (Baylor)	45
Family Operations		
The Earle Family	Hewitt (McLennan)	84
The Stevans Family	Coleman (Coleman)	69
The Hembree Family	Bridgeport (Wise)	66*
The Hubbard Family	Kaufman (Kaufman)	65

* Still Active

Jerry,
Welcome to TAMU. & hope your years here will be as rewarding as they have been for me.
With sincerest best wishes,
John

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$7.95 ($8.50 including mailing)

INTRODUCTION

Weather and climate affect all of us to some degree, causing us to notice their vagaries as well as their occasional monotony. This publication, the first in a series to be prepared by the Office of the State Climatologist, is intended simply to give an overview of the Texas weather for the period 1880 to 1979.

Although records from as early as 1836 are in existence it is not until around 1880 that sufficient observations were being taken to give a reasonable state-wide picture of weather phenomena. In 1891 the Weather Bureau was officially established as part of the U.S. Department of Agriculture and at this time there were about 80 active weather stations in the state.

It is not the aim of this book to bring to light previously undisclosed aspects of the past Texas weather for almost all the data have appeared in printed form elsewhere, generally the monthly publications of the Weather Bureau, or Weather Service as it is now named. The emphasis here is to distil the information contained in 1300 monthly and annual reports and other sources into a résumé of the salient features. Some new maps and tabulations are presented but our aim has been purely to supply a small volume for ready reference, one in which our weather can be seen in its correct context. It is likely that inadvertent errors and omissions have been made, and we would be grateful for information to upgrade this publication. Any new data must have a printed reference so that it can be checked and verified.

We would like to thank Texas A&M University for its continuing support of the Office of the State Climatologist. Publication of this monograph was made possible by a grant from the Dean of the College of Geosciences. The majority of the weather data used in the preparation of the annual summaries was supplied by the National Climatic Center in Asheville, North Carolina, and by the National Weather Service. Also, a considerable amount of valuable information and calculations was gleaned from the files of Robert B. Orton, former State Climatologist. Special thanks must be given to Dorothy Lorenz for her typing prowess and good humor throughout the course of this project.

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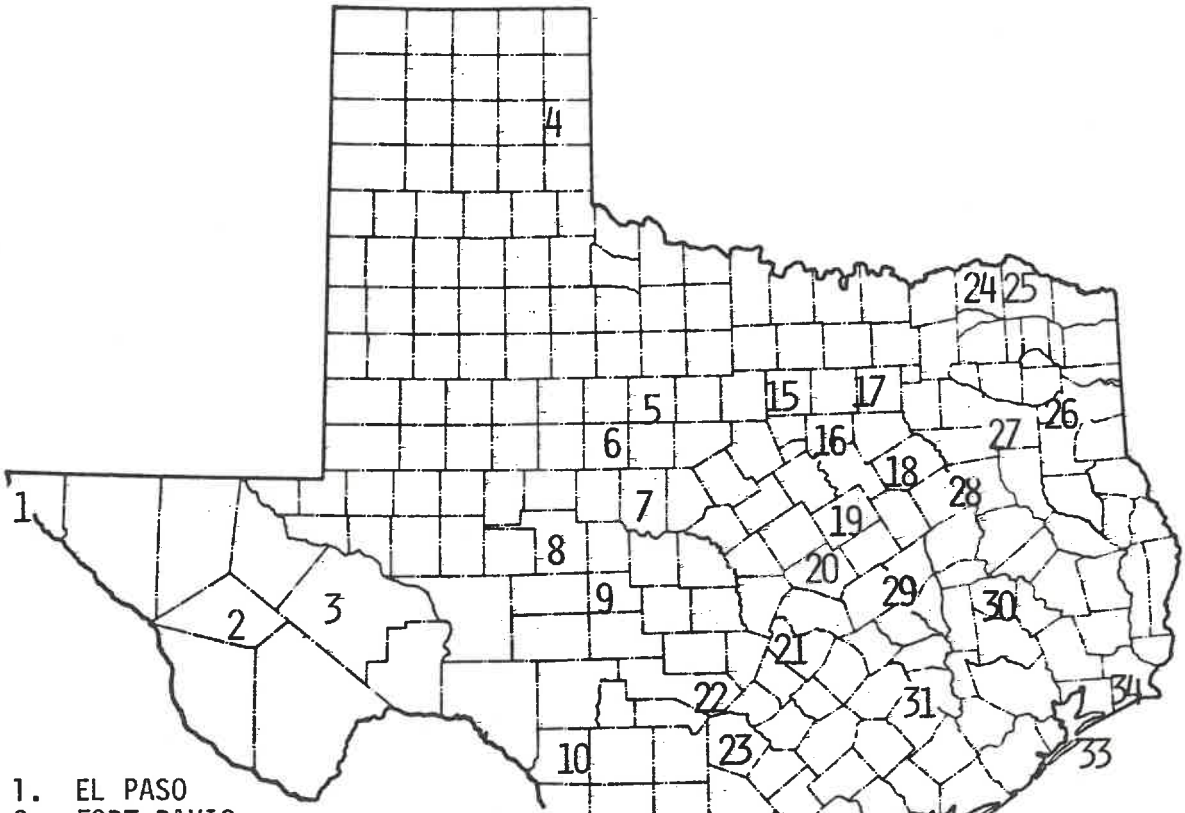
It must be appreciated that in the earliest years considered in this publication there were large areas of the state that had no climatic stations. The map (Fig. 1) showing the stations for which a reasonable amount of reliable data for the 1880s exists confirms this fact. In addition, detailed data for some months during the early period at various stations have been lost or mislaid. Because of this lack of detailed knowledge it has been possible to give only general ideas concerning the weather of the early years. However, these yearly summaries are based on all the data available in the Office of the State Climatologist, although some suspect information has not been used. Some of the deviations from the mean shown in earlier monthly summaries are much in error and corrections have been made in these cases whenever possible. It also must be noted that some years have been, according to our records, rather average while others have experienced many important weather events. Consequently, the annual summaries show an appreciable variation in length.

Since 1931 data have been calculated for the 10 climatic divisions used by the National Weather Service, as shown in Fig. 2. Temperature and precipitation means for these divisions and the state are more accurate since 1931 as the network of stations has increased. The boundaries used in sub-dividing the state into regions have changed frequently so comparisons throughout the 100 years are not possible.

The county names associated with cities (given in parentheses) are based on the present day boundaries since county borders have changed during the past 100 years. Most alterations occurred before 1917. The only basic changes since then have been in the lower Rio Grande valley in 1921 and those due to the relocation of the 100th meridian in March, 1930. Occasionally the climatic station associated with a city will actually be in another county. A map showing county boundaries and important terrain contours is given as Fig. 3. Some station names have changed since the 1880s, particularly Army posts, and these are noted in Table 1.



1. EL PASO
2. FORT DAVIS
3. FORT STOCKTON
4. MOBEETIE
5. ALBANY
6. ABILENE
7. COLEMAN
8. SAN ANGELO
9. FORT McKAVETT
10. FORT CLARK
11. EAGLE PASS
12. FORT McINTOSH
13. RIO GRANDE CITY
14. BROWNSVILLE
15. WEATHERFORD
16. CORSICANA
17. DALLAS
18. CLEBURNE
19. WACO
20. TEMPLE
21. AUSTIN
22. COMFORT
23. SAN ANTONIO
24. PARIS
25. CLARKSVILLE
26. LONGVIEW
27. TYLER
28. PALESTINE
29. VALLEY JUNCTION
30. HUNTSVILLE
31. NEW ULM
32. INDIANOLA
33. GALVESTON
34. BEAUMONT

Figure 1

Weather Stations Active During the 1880s

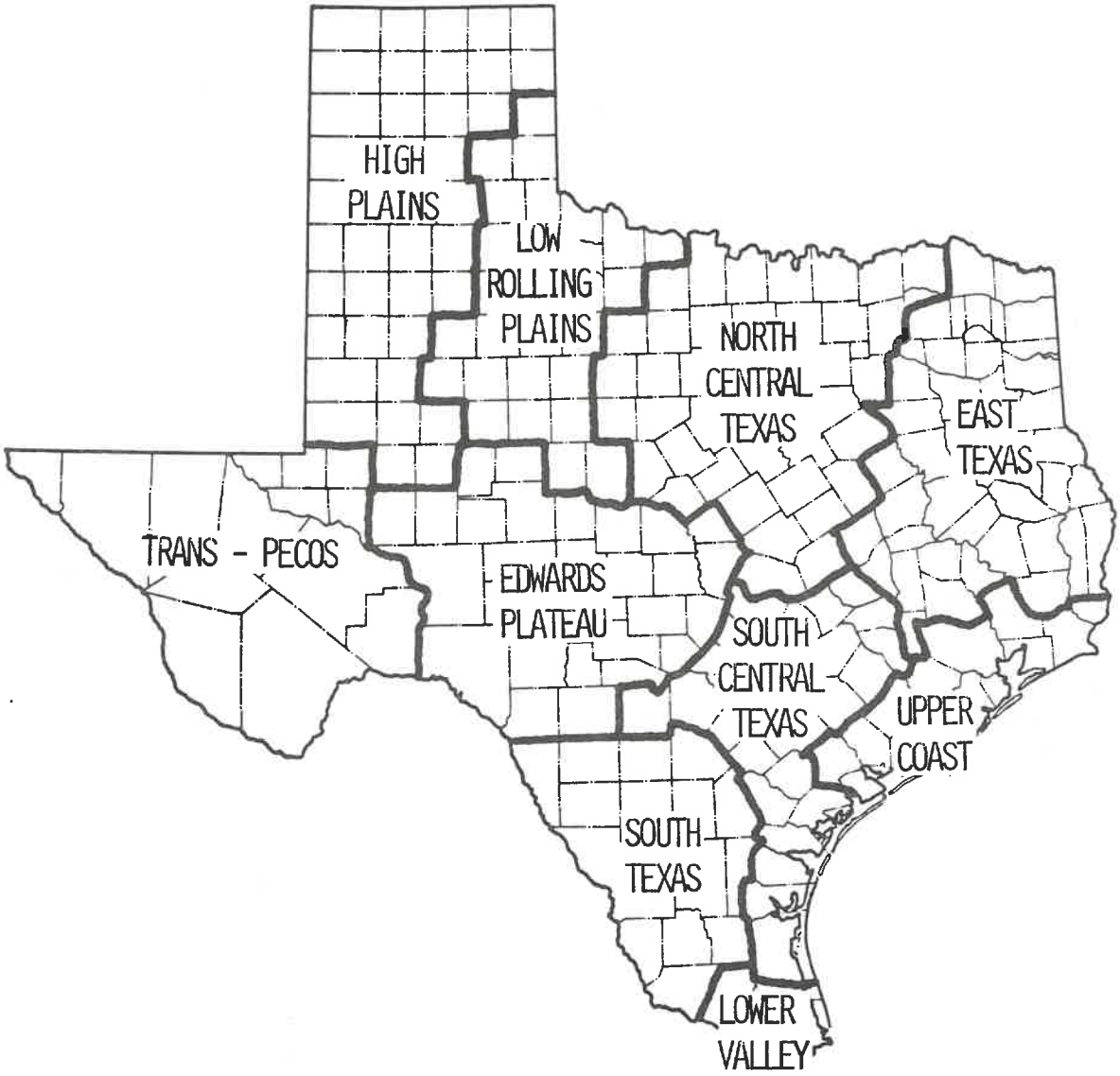


Figure 2
Climatic Divisions of Texas

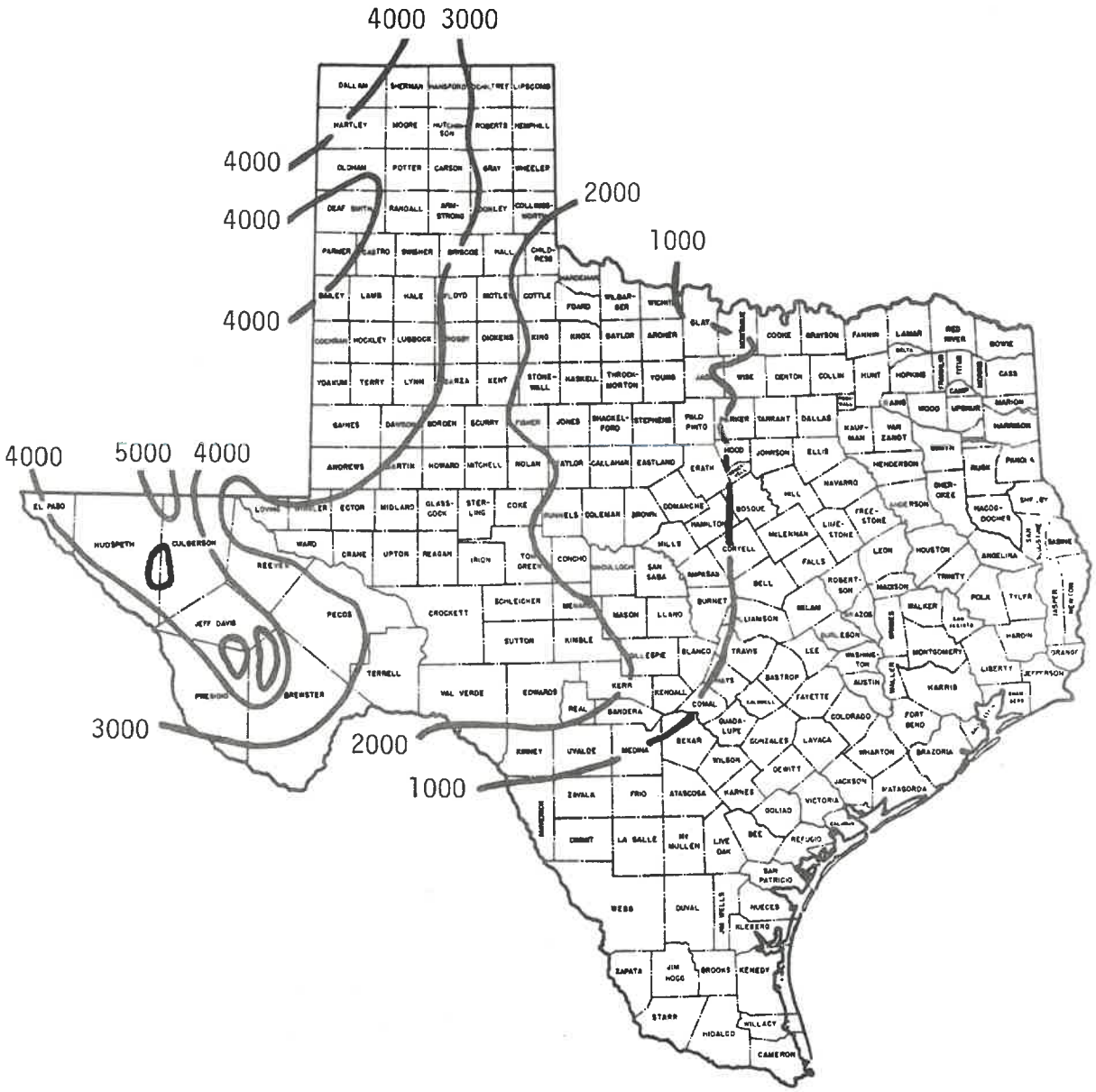


Figure 3
Texas Counties and Elevation Contours (Feet)

Table 1

The Present Names of Early Texas Weather Stations

Old Name	Present Name	County
Berlin	Dublin	Erath
Camp Peña Colorado	Marathon	Brewster
Coldwater	Stratford	Sherman
Fort Bliss	El Paso	El Paso
Fort Brown	Brownsville	Cameron
Fort Clark	Brackettville	Kinney
Fort Concho	San Angelo	Tom Green
Fort Duncan	Eagle Pass	Maverick
Fort Elliot	Mobeetie	Wheeler
Fort Griffin	Albany	Shackelford
Fort McIntosh	Laredo	Webb
Fort Ringgold	Rio Grande City	Starr
Ochiltree	Perryton	Ochiltree
Silver Falls	Crosbyton	Crosby

The reader is encouraged to check forthcoming editions of the Dallas Morning News' Texas Almanac in order to update this publication. Each edition includes a section on Texas weather and climate, and in particular, a brief narrative description of state-wide weather events during the year, which is prepared by the Office of the State Climatologist. For completeness the summary for 1980 is given in the Appendix.

THE 1880s

The major weather oriented phenomena in this decade were related to hurricane disasters. In October, 1880, many lives were lost when Brownsville was nearly destroyed. During 1886 the state received a double blow: in August Indianola (Calhoun) was completely devastated and 176 deaths resulted, in October 150 were killed in the Sabine (Jefferson) area, mainly due to the inundation. Another flooding, of the Concho River in 1882, caused over 50 drownings. There were no reports of serious tornadoes in this period. December of 1880 saw very cold conditions with snow even in Brownsville.

1880

Although the annual mean temperatures were close to average much of the state experienced two abnormal months. January was extremely warm, stations exceeding their mean temperature by around 10F; November was very cold. March brought some cold waves and a number of stations had lower mean temperatures than in January. The summer months were cooler than average in most areas and this temperature deficit continued into October along the coast and the southeastern area. November gave many mean monthly temperatures about 10F below average and the cold carried over into early December. Numerous stations set record lows for these months that were not beaten for many decades. For example, Brownsville went to 30F in November and 18F in December, while El Paso's temperatures dropped to 11F and -5F, respectively. On December 29 Galveston recorded 18F, its lowest ever for the month.

Over most of the state, except the High Plains, the precipitation was above average for the year, being especially high in the Lower Valley, the Edwards Plateau and the Trans-Pecos districts. Generally, these excesses were due to rainfall associated with hurricanes, of which three affected Texas. On June 24 one moved inland near Victoria, and on August 13 one hit Matamoras, Mexico. At Fort McKavett (Menard) the San Saba River rose 10 feet in 10 minutes and the Pecos River became impassable. However, it was late in the season, October 12/13, that the

worst hurricane hit, coming right over Brownsville, destroying most of the city (damage estimate $1 million) and causing numerous deaths.

January was very wet, the southwest sector having as much as five to seven times its average value. In late April hail the size of hen's eggs fell at Castroville (Medina) and Mason (Mason). July to September were wet months with values three times the mean being general. In mid-September many rivers in west Texas flooded and one man was drowned at Sabinal (Uvalde). Fort Davis (Jeff Davis) reported 2.4" in 45 minutes on the 9th. In late December, snow was reported right to the coast, Rockport (Aransas) measuring 3" and Brownsville 2", the most since 1866, and many stations reported their lowest temperatures to this time.

The extreme temperatures for the year were -12F at Fort Elliott (Wheeler) on December 29, and 108F at Fort Ringgold (Starr) in May and Eagle Pass (Maverick) in June and July. The range of annual precipitation was from 67.3" at New Ulm (Austin) to 12.7" at Fort Stockton (Pecos). It should be mentioned that the precipitation values at New Ulm for 1872 to 1884 are considered suspect. The next highest value is the 51.0" at Galveston. The most in one month was the 16.6" in August at Brownsville while the 24-hour record went to Brackettville (Kinney) with 12.4" on May 28.

1881

For many months the mean temperatures were quite close to average but January was one of the exceptions being among the coldest experienced to this time in the Panhandle. In the southwestern third of the state the month was some 6 to 10F below average, temperatures fell to 5F at El Paso and 18F at Brownsville. In February temperatures rose rapidly, El Paso's mean averaging 18F over that of January. The Trans-Pecos region was quite cold in March, some 4F below mean, while along the coast May and June were 4 to 5F above average. August and September were hot in most regions but the last three months showed little significant deviation from average. Annual precipitation amounts were either close to average or high, with the exception of some dry areas in the eastern and north central regions and heavy falls reported from a few

stations in the Trans-Pecos area. February was quite wet, especially in the northeast but in May the same region reported very heavy rains, the Clarksville observer remarking about "incessant rain". At Fort Brown (Cameron) 3.8" of rain fell in only 2 3/4 hours on May 6. On the 28th two were killed during a storm in McLennan County and Taylor (Williamson) was almost destroyed. On June 9 two ladies were killed by lightning at Henrietta (Clay). The one hurricane this year went ashore near Corpus Christi on August 13 but did little damage, the worst weather fatalities of the month were the three deaths by sunstroke in San Antonio. In October the western and southwestern sectors were very wet, Brackettville (Kinney) receiving over 16", seven times its monthly average. Floods on the Rio Grande in November were reported as the worst in over 30 years. During the year Fort Davis (Jeff Davis) exceeded its mean by nearly 250 percent.

Temperatures ranged from -6F at Fort Elliott (Wheeler) in January to 114F at Presidio (Presidio) in June. The greatest annual precipitation total was 60.0" at New Ulm (Austin), the next being 53.3" at Galveston, the least being the 18.2" at El Paso; Melissa (Collin) received 34.9" in May, the monthly record. Melissa's total for the first five months was 62.8" but the station was then closed. On October 1/2 Brackettville (Kinney) reported 13.1", 11" falling in eight hours, and one person was drowned in the flash flooding this caused.

1882

Except for a very mild February over the southeastern half of the state, means being some 5 to 8F higher than usual, and a cool May, most months had temperatures close to their average. Galveston temperatures were some 6F above their means in February and March. The north central area had a relatively cool period in August and September but October was 4F above its mean. Precipitation generally exceeded the average in all areas, with the eastern and south central regions having about 50% excess. Some stations in the Edwards Plateau and south central areas had heavy falls in January, February and May – New Ulm (Austin) having in excess of 10" in each of these months. During mid-February there

were bad floods on the Brazos and Navasota rivers, the report stating, "The entire county is flooded. People find it impossible to visit towns for trade." Very much railroad track was washed away and vast quantities of lumber lost. Long time residents rated the floods as exceeding those in 1852 and 1866. On February 27 hailstones as large as pigeon's eggs were reported from Mason (Mason). In late April Palestine (Anderson) was very badly hit by a severe windstorm and on June 8 Laredo received much damage during a hailstorm in which stones weighing up to one pound were reported. The north central area had some heavy rain in July as did some of the central and southwestern counties in August. The very heavy rains of late August caused severe flooding, some towns were washed away as the Concho River rose 45 feet above normal level and over 50 people drowned. On August 18 Indianola (Calhoun) reported 1.3" in only 25 minutes.

The extremes of temperature were 1F at Fort Elliott (Wheeler) in December, and 111F at Eagle Pass (Maverick) in July. The highest annual precipitation total was the 69.1" at New Ulm, the next highest was 59.1" at Palestine (Anderson), the least being 8.3" at El Paso. Decatur (Wise) had the most in one month, 15.2" during July. The maximum daily fall may be the 6.9" at Fort Concho (Tom Green) on August 23.

1883

This is a year of rather sparse data for Texas but some specific features can be identified. January was cooler by some 4F than average in all areas save the coast. A very severe cold spell from the 16th to 20th caused heavy losses to cattle. February had an early outbreak of cold air, Dallas reporting -3F and San Antonio noting "the coldest period in years." The Trans-Pecos regions also had a cold March. The winter of 1882-83 is generally considered to have been a very severe one and snow certainly came early at many reporting stations. May and June had above average temperatures only in the central counties but October was some 4 to 6F warmer than the mean over all the state. There were no large deviations of annual precipitation totals from their means although the Edwards Plateau and Trans-Pecos regions were, apparently,

wetter than average. Heavy falls were scattered, for instance, Fort Stockton (Pecos) in September had 14.7", 510% of its monthly average. Heavy flooding was reported from Laredo and Corpus Christi in September and appreciable numbers of livestock were lost. Corsicana (Navarro) had only one quarter of its usual summer rainfall. For the second successive year no hurricanes affected the Texas area. On March 23 a series of severe storms destroyed many buildings and caused widespread flooding in west Texas. In late April the Davis Mountains had a very heavy and unusual hailstorm. Other severe storms at that time killed four persons and brought 2.0" of rain in 35 minutes and 80 mph winds to Indianola (Calhoun). On the night of October 18/19 a train was blown from the tracks and completely destroyed by a tornado at Tyler (Smith).

The extreme range of annual precipitation totals was from 56.7" at New Ulm (Austin), the next highest being 43.5" at Palestine (Anderson), to 12.9" at El Paso. The 14.7" during September at Fort Stockton was the most in one month while the 7.0" on September 19 may be the greatest daily amount. The maximum temperature was the 113F at El Paso in June and the minimum was -12F at Fort Elliott (Wheeler) on January 19.

1884

This is another year for which relatively little information exists, but it is clear that January was much colder than usual, being 6F below average over most of the state except the northeast. However, even in that region Clarksville (Red River) managed to collect 3" of snow. Most of the remaining months had temperatures close to average, although the Trans-Pecos suffered a very hot July and August after having a relatively cool spring. Annual precipitation was generally above average, being very high along the Mexican border regions. In April the Sabine River flooded and two million board feet of logs were washed away. In the north central and eastern regions May was very wet, stations reporting about three times their average amount for the month. There were heavy rains in the northeast during June but July was generally wet over the whole state. Weatherford (Parker) reported an impressive 27.9" in May and followed it with 12" in June – and the station's annual mean is

only 32"! These values have been questioned but nearby stations also had very high totals in May, over 17", so there is a degree of verification. The rains on the 20th and 21st were reported as the heaviest ever in the state and all railway services in the east were brought to a halt. Damage was estimated at over $5 million. Flooding of the Rio Grande caused over $1 million in damage and Presidio (Presidio) was nearly destroyed. Heavy rains around September 25 broke a four-month drought in the southwestern part of the state, while Indianola (Calhoun) suffered heavy flooding with 5.1" in 13 hours and over 7" in 24 hours. Brownsville received almost 16" in October from a small tropical disturbance that hit Mexico but, basically, this was the third successive year for Texas to be hurricane free. November was a very dry month, but Fort Elliott (Wheeler) had over 6" of snow in December.

The temperature extremes were -2F at Fort Elliott in December and 112F at El Paso in June. The annual precipitation totals ranged from 62.7" at Galveston to 12.8" at Rio Grande City (Starr). Weatherford's 27.9" in May and 12.9" on the 21st were the monthly and daily records.

1885

This was a year of monthly temperatures close to their means but with annual precipitation totals greater than average. January was quite cold, especially in the lower Rio Grande valley, where the monthly value was only 52F compared to a mean of nearly 60F. Much of the state had below average temperatures during the first three months. In March Fort Stockton (Pecos) received 7.8" of precipitation, just thirteen times its average for the month. In May the western half of the state was cool and very wet, most stations reporting from two to three times their monthly average. On May 7/8 there was severe flooding of the Rio Grande. Near Rio Grande City (Starr), which reported 3" of rain in 65 minutes, the river was five miles wide. In the latter part of May the northeastern rivers were also in flood, many homes and bridges being destroyed. The summer was, if anything, slightly cooler than average at nearly all reporting stations. On September 16 a hurricane passed near the lower coast and brought heavy rains to a wide region.

Galveston's September total was four and a half times its average, Hearne's (Robertson) was three and a half and even at Longview (Gregg) the excess was 150%. October was quite cool in the eastern half (deficit of around 5F) but in November and December mean temperatures were close to average. A tornado at Avinger (Cass) on November 5 caused five deaths.

The range of precipitation totals was from 62.6" at Galveston to 7.3" at El Paso. Galveston's 26.0" in September, reflecting the influence of the hurricane, was the monthly record total. The temperature range was from -6F on January 6 at Fort Elliott (Wheeler) to 110F at El Paso on August 6. Fort Elliott reported over 6" of snow in February.

1886

Precipitation amounts were generally low across the state, except at Brownsville and other coastal areas where the effects of one or more of the hurricanes were felt. The dry spell was particularly severe in the Panhandle and the north central regions. January was very cold across the state, except for the Trans-Pecos, much of the central area averaging 7 to 8F below the monthly mean. Many stations, such as Palestine (Anderson) with 0F, and San Antonio with 6F reported record lows for the month that stood for many years. On January 12, Galveston received 6" of snow, the largest fall since the early 1850s, and the monthly minimum dropped to 11F, the lowest ever for January. March was also a cold month. May was hot in the western and northwestern areas and signalled the start of a bad drought. An unprecedented drought was reported from the northern and western sectors, crops were entire failures and great loss of livestock was noted. On June 14 a tropical storm passed close to the central and lower coast, after which the weather situation was relatively quiet for a couple of months as the hot summer developed in the interior counties. Several deaths occurred from an outbreak of tornadoes on June 19. Then, on August 20/21 a hurricane hit Indianola (Calhoun) destroying or damaging every house. The city had been visited by another hurricane on September 16, 1875, which destroyed three-quarters of the town and killed 176 persons, but after the 1886 episode

the town was never rebuilt. The hurricane travelled inland and did great damage in Houston, San Antonio, Corpus Christi and Abilene. On September 22 a hurricane moved inland near Brownsville dumping heavy rains on the city but causing little loss of life. The monthly rainfall total at Brownsville was over 30" (see Table 11). This, however, was not the case of the hurricane of October 12 which crossed Sabine (Jefferson) (see Fig. 13) inundating an area 20 miles inland, damaging many homes and causing 150 fatalities. The summer was very dry in most inland areas, although San Antonio received much rain until early October when its drought began. In early December an intense cold wave brought freezes as far south as Brownsville.

The temperature extremes were 112F in June and July at Fort Concho (Tom Green) and -3F in January at Abilene, Fort Davis (Jeff Davis) and El Paso. Brownsville held the annual, monthly and daily precipitation records, 60.1", 30.6" (September), 22.2" (September 22), respectively. Midland had the lowest annual total, 7.3".

1887

This year very few stations showed any really significant departures in their mean monthly temperatures, except in February when monthly averages were from 4 to 7F in excess and December when all areas, save the northwest, reported values some 4 to 6F below average and El Paso had a record minimum of -2F. Most of the state, except the extreme south, received about average annual precipitation although this simple statement masks the severe drought that persisted from 1886 to mid-1887 in many regions. In May the monthly report noted "Numbers of families have deserted their homes and farms in search of a more favored locality. All hope of making the usual grain crop this season has been abandoned." New Ulm (Austin) had reported 8" of precipitation since the previous October, compared with the average 31". In June Brownsville collected 13.8" of rain, about five times its mean for the month. On the 26th a tornado killed eight people in Longview (Gregg), while on the 5th one of the worst sandstorms brought winds of over 50 mph to Abilene

and reduced visibility to less than 50 feet. On July 26 the town of Haskell (Haskell) was almost destroyed by a tornado.

August was quite wet in the central area, at least twelve people being drowned, but in September it was the lower Rio Grande valley that received the greatest amounts as a hurricane made landfall near Brownsville. Although there was much flooding and many parts of Matamoras, Mexico, were destroyed no loss of life was reported. In October the city had another month with five times average rainfall, 16.3" on this occasion, helping to raise the annual total to 60" for the second successive year – over twice its average. At this time some areas still had extreme drought conditions. A report on Frio County noted, "..... as a result of protracted drought the people in rural districts here have been reduced to a state of destitution." In December there were two heavy snowfalls and around Christmas Palestine (Anderson) suffered much damage due to 9" of snow that came on top of freezing rain. An intense cold wave dropped the Brownsville temperature to 25F on December 22.

Temperatures ranged from 112F in May at Fort Ringgold (Starr) to -5F at Fort Elliott (Wheeler) in November and Silver Falls (Crosby) in January. The extremes of annual precipitation were 59.9" at Brownsville and 6.8" at El Paso. The most in a month was 16.3" at Cleburne (Johnson) in August and at Brownsville in September. The greatest daily total was 10.8" on September 20/21 at Brownsville.

1888

For the state as a whole the year gave about average temperature but excessive precipitation. January was relatively cold with a severe cold spell around the 14th and 15th that brought record lows around the state. Abilene reported a minimum of -5F, while at Corpus Christi the temperature dropped to 16F, a fall of 44F in eight hours. At Brownsville (minimum 21F) trees, houses and fences were reported as covered with ice an inch thick. February was quite warm and wet, while March's temperatures were below the mean, especially in the central area. April was warm and wet, the central region having over twice its average fall.

Temperatures in May through August were close to average but with heavy precipitation. Matagorda (Matagorda) was visited by two tropical storms, on June 16 and July 5, but fortunately there were few casualties. The June storm brought 13.9" of rain to Sourlake (Hardin). In August the central and northeastern portions had very heavy rains. Tyler (Smith) received 17.9", the most in a month this year and 670% of its average. Eastern counties had a very wet summer. September was 3F below average and dry, especially in the west. November was cool and very wet, the west now having over twice its monthly mean. The widely separated cities of Abilene and Corpus Christi both received over four times their average for the month. During the year annual totals around the state exceeded the average, being very much above in the eastern, south central and upper coastal regions. The highest annual precipitation total was 65.9" at Brownsville, the lowest was 9.8" at El Paso. The state's highest temperature was 111F at Fort Concho (Tom Green) in August and the lowest was -14F at Fort Elliott (Wheeler) in January.

1889

This was a year with about average temperature but relatively wet, although less so than the previous year. Monthly mean temperatures showed little variation from average except for September and November which were 5F cooler than usual. The killing frost on September 25 in a few northern counties was one of the earliest on record. No freeze was reported anywhere in the state during April which was one of the cloudiest on record for the whole state. January was extremely wet, particularly in the east and central areas where "nothing like it within memory of the oldest inhabitants" had occurred. February through May had average precipitation but June had over twice its mean, amounts very high in the center of the state. September was very wet in all save the west but October was extremely dry. Hartley (Hartley) reported a 3" snowfall on September 23, a very large amount for so early in the year. The most unusual month was December during which the state average was only 0.1" and no area had as much as half its mean total, the maximum fall being 0.7" at Brenham (Washington).

All areas of the state received above average annual precipitation, especially in the lower Rio Grande valley. The range of annual precipitation amounts was from 62.3" at Tyler (Smith) to 7.1" at El Paso. The highest monthly total was the 14.9" at College Station (Brazos) in September with 7.8" on the 4th. The extreme temperatures were 3F at Fort Elliott (Wheeler) in January and 111F at Fort Hancock (Hudspeth) in July.

THE 1890s

Weather disasters fortunately were few in the 1890s although tornadoes in May, 1896, killed 75 in Sherman (Grayson) and in April, 1893, resutled in 23 deaths at Cisco (Eastland). Hurricane damage was relatively light. One of the state's coldest years was 1895, both January and February were very cold and mid-February brought phenomenal snowfalls (10" to 30") to the Upper Coast. In February, 1899, the record coldest wave took temperatures below the teens across the whole state and down below -20F in some areas.

1890

The state average values for annual temperature and precipitation both were quite close to their means and, in many ways, this was a remarkably "average" year. January was quite mild with temperatures averaging some 6F higher than usual and only one cold wave, which occurred in the middle of the month. Late February brought below zero readings to a few stations in the Panhandle with a cold wave that reached the southern part of the state in early March and brought record low temperatures to many stations, even Brownsville experienced a freeze while Corpus Christi went to 28F. July was hot and the heat continued well into September.

Stations in the eastern area reported some heavy rains in the first couple of months, Huntsville (Walker) recording 10.5" in January with 6.4" on the 2nd, while Longview (Gregg) received 6" on February 26. Both central and eastern regions were very wet in April, having over twice their monthly means. Orange (Orange) had 10" of rain in July followed by 6.3" in August. September was a wet month in the south central area, New Braunfels (Comal) reporting 5.3" in only 140 minutes. However, over the year no areas showed great deviation from average in their precipitation totals, the maxima being about +30% in the Trans-Pecos and -25% in the southern area.

From this year on extreme values of certain climatic elements are given in the form of a table for easy reference.

1890

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Camp Del Rio	Val Verde	Jul ?
Lowest Temp.	-3F	Ochiltree	Ochiltree	Feb 28
Highest Prec. Ann.	66.1"	Columbia	Brazoria	
Lowest Prec. Ann.	4.9"	Fort Hancock	Hudspeth	
Max Excess Ann.	14.3"	Columbia	Brazoria	
Max. Deficit Ann.	8.4"	Corpus Christi	Nueces	
Max. % Ann.	137	Columbia	Brazoria	
Min. % Ann.	60	Fort Hancock	Hudspeth	
Max. Prec. Mo.	12.9"	Longview	Gregg	Feb
Max. 24-hr. Prec.	6.5"	Columbia	Brazoria	Sep 10
Max. Snowfall Ann.	?			
Max. Snowfall Mo.	12.0"	Menardville	Menard	Feb

1891

This year could be classified as cool with average precipitation. Most of the mean monthly temperatures showed little deviations from their averages, except for March which was some 6F cooler. Abilene reported a record low (to date) of 17F in February. January was the wettest on record (state average 5.0"), Houston reporting 13.1" in the month, 5.9" on the 8th. Childress (Childress) recorded just over 12" of snow. In February a dust storm hit Abilene, the winds, of over 50 mph, carried away the instrument shelter of the Army Signal Corps. April, May and June all brought over 10" of rain in certain areas, the 12.2" at Quanah (Hardeman) which fell in only eight hours during June being quite exceptional. October was very dry, especially in central and eastern areas while the precipitation event of November occurred on the 8th when Hallettsville (Lavaca) received 1.6" in only 30 minutes. The year ended on a wet note,

the central area having over twice its average fall. Annual precipitation totals showed quite a variation when compared with the mean values; for example, around 50% in the Trans-Pecos to nearly 120% in the lower Rio Grande valley. A tornado on January 7 in Lavaca County killed one person. On May 17 severe hailstorms did much damage in the north central area.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Camp Eagle Pass	Maverick	Jul ?
Lowest Temp.	1F	Camp Peña Colorado	Brewster	Jan 11
Highest Prec. Ann.	58.2"	Huntsville	Walker	
Lowest Prec. Ann.	2.2"	El Paso	El Paso	
Max Excess Ann.	13.2"	Huntsville	Walker	
Max. Deficit Ann.	6.2"	Abilene	Jones	
Max. % Ann.	135	Huntsville	Walker	
Min. % Ann.	30	El Paso	El Paso	
Max. Prec. Mo.	13.8"	Gallinas	Atascosa	Apr
Max. 24-hr. Prec.	12.2"	Quanah	Hardeman	Jun 5
Max. Snowfall Ann.	?			
Max. Snowfall Mo.	12.0"	Childress	Childress	Jan

1892

The year was, considered state-wide, just a little cooler and drier than average. The temperatures of the first three months presented an up-and-down pattern, January and March being 5F cooler than average while February had a 6F excess. Around the middle of both January and March there were cold waves, the freezing to the coast on the latter occasion being unusually late for such an occurrence. August was about 3F below its mean, a large amount for a summer month. During December, Amarillo received below freezing temperatures for a period of 206 consecutive

hours. Around Christmas a severe cold spell led to ice 3/4" thick being reported from Corpus Christi.

Monthly precipitation was close to the mean in nine months but April and September had less than half their usual totals. January brought more than average snowfalls to the Panhandle but December's fall far exceeded these. In May Gainesville (Cooke) received over 5.4" of rain on the 31st. September rain totals were very low over the whole state, although Tyler (Smith) received over 6" during the 11th and 12th. October was quite wet, the central areas reporting some heavy falls. Most regions received within about 10% of their average annual precipitation but in the Trans-Pecos and Upper Coast districts the deficit was around 25%.

Tornadoes with fatal results unfortunately were quite frequent, the worst being on May 31 in Falls County where six were killed. On April 20 a tornado with a 20-mile path killed two persons in Upshur County and on May 13 five were killed by a tornado that exhibited a circular path. Single fatalities were reported at various times for Cass, Cherokee, Comanche, Galveston, Marshall and Nacogdoches counties.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Fort Hancock	Hudspeth	Jun 29
Lowest Temp.	-10F	Silver Falls	Crosby	Jan 19
Highest Prec. Ann.	61.2"	Palestine	Anderson	
Lowest Prec. Ann.	3.8"	Sierra Blanca	Hudspeth	
Max Excess Ann.	21.7"	Palestine	Anderson	
Max. Deficit Ann.	17.4"	Galveston	Galveston	
Max. % Ann.	150	Palestine	Anderson	
Min. % Ann.	50	Sierra Blanca	Hudspeth	
Max. Prec. Mo.	18.0"	Orange	Orange	Jun
Max. 24-hr. Prec.	5.4"	Gainesville	Cooke	May 31
Max. Snowfall Ann.	22.5"	Amarillo	Potter	
Max. Snowfall Mo.	11.2"	Amarillo	Potter	Dec

1893

While the state annual temperature was close to the mean the precipitation was very low, only some two-thirds of the average and one of the driest years on record. The monthly temperatures mainly were close to their long-period means, except for April and December which were some 4F warmer than expected. There were no exceptionally cold waves during the year although Fort Ringgold (Starr) reported a record low of only 6F in February. The state high occurred in September but the value is not confirmed and the yearly maximum may have been the 112F at Fort Ringgold in June.

Precipitation across the state was deficient in every month save November. January, July and December had less than half their average while October, with a state mean of only 0.3", had just over one-tenth of its average and is one of the lowest ever recorded for the month. No divisions of the state had average annual precipitation, most showing deficits of 40% to 50%, the southern half being particularly badly affected. February was a month with very high snow amounts in the Panhandle, plus an intense rainfall occurrence of 1.3" in 15 minutes at Mountain Spring (Cooke) on the 20th. No furthur unusual falls happened until November when Brenham (Washington) had nearly 6.5" during 17 hours, the general comments in the intervening months relating to drought not large rainfall amounts.

The worst weather disaster for seven years occurred on April 28 when a tornado hit Cisco (Eastland). It was 3/4 mile wide and its 13-mile path of destruction killed 23 people and caused half a million dollars of damage. Reports noted that actually two funnels met and stayed joined. One person was killed in tornado incidents in Montague County on April 25 and Wharton County on June 3.

1893

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Twohig	La Salle	Sep 8
Lowest Temp.	1F	Camp Peña Colorado-Brewster		Jan 13
		Coldwater	Sherman	Feb 1
Highest Prec. Ann.	44.2"	Beaumont	Jefferson	
Lowest Prec. Ann.	7.1"	Eagle Pass	Maverick	
Max Excess Ann.	3.1"	El Paso	El Paso	
Max. Deficit Ann.	17.7"	Sulphur Springs	Hopkins	
Max. % Ann.	140	El Paso	El Paso	
Min. % Ann.	30	Eagle Pass	Maverick	
Max. Prec. Mo.	10.5"	Brenham	Washington	Nov
Max. 24-hr. Prec.	6.5"	Brenham	Washington	Nov 26
Max. Snowfall Ann.	21.2"	Amarillo	Potter	
Max. Snowfall Mo.	17.3"	Amarillo	Potter	Feb

1894

The mean temperature for the state was about average but precipitation was 10% deficient. Temperatures in January plummeted to some record lows for the month in various cities, but the -15F at Corsicana (Navarro) is open to doubt, the -10F reported from Coldwater (Sherman) and Wichita Falls are more reliable as is the -10F at Hartley (Hartley) on December 28. State-wide the big deviation in temperature occurred in February when the overall deficit was around 5F, the north averaging 4F cooler than in January. July was an extremely hot month in some parts but August was over 3F cooler than usual. October and December were 3 to 4F in excess of average but a cold wave in the latter month gave rise to some very low temperatures, such as the 4F at Dallas and 8F at Palestine (Anderson).

Monthly state-wide precipitation showed little variation from the mean until August, although the west was very dry in January and March, and the east had only half its mean value in May. The coastal bend area had rains in April but it was August that was the rainy month, being one of the wettest ever with over twice its expected amount. However, the important event in precipitation was saved until the last three months which averaged less than one-third of the long-term mean.

Two persons were killed by a tornado on April 30 at Park (Bowie) but the worst disasters occurred on March 16/17 when tornadoes killed four persons in each of Emory (Rains) and Trickham (Coleman), the former town being completely destroyed. A 210-mile track attributed to one tornado led to eight deaths in Williamson, Gregg and Harrison counties.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Panter	Hood	Jul 3
Lowest Temp.	-15F	Corsicana	Navarro	Jan 24
Highest Prec. Ann.	51.5"	Orange	Orange	
Lowest Prec. Ann.	4.2"	El Paso	El Paso	
Max Excess Ann.	5.7"	Roby	Fisher	
Max. Deficit Ann.	11.0"	Luling San Marcos	Caldwell Hays	
Max. % Ann.	120	Roby	Fisher	
Min. % Ann.	55	El Paso	El Paso	
Max. Prec. Mo.	11.7"	Graham	Young	May
Max. 24-hr. Prec.	7.5"	Columbia	Brazoria	Jun 13
Max. Snowfall Ann.	16.0"	Amarillo	Potter	
Max. Snowfall Mo.	11.5"	Amarillo	Potter	Feb

1895

For the state as a whole precipitation totalled near average but the mean annual temperature was nearly 2F cooler making this rank as

one of the coldest years on record. January brought some very low temperatures to the northwest; Coldwater (Sherman) reached -16F on the 28th and for five consecutive days minimums were 0F or below. February was exceptionally cold, with some of the lowest temperatures ever recorded during the month, averaging 10F below the mean. The state's low was the -17F at Hartley (Hartley). Mean February temperatures for the state had been dropping about 5F every year since 1892, when the mean value was 56.3F compared with this year's 40.4F. March and April temperatures were close to average but May was relatively cool in the eastern sector. Summer temperatures were near their means but October was cool by 6F in the northern counties, while December was cool along the coast. In Amarillo temperatures remained below freezing for a record 261 hours, from December 6th to 17th.

On January 24 Marshall (Harrison) reported an intense hailstorm with drifts 2 to 3 feet deep. The outstanding precipitation event of the year was the phenomenal snowfall of around February 12th to 15th. Galveston reported 15", Orange (Orange) and Houston 20" and Victoria 12". Fig. 4 shows the distribution for the period based on newspaper reports and official records. It was noted that in some places the snow remained in sheltered spots for 8 to 10 days. The state mean values of precipitation in May and June present the only instance ever of exceeding 5" in consecutive months, almost twice their averages. In September the mean was only half the long-period average. Both the Panhandle and Trans-Pecos districts had around 140% of their average annual precipitation but the lower Rio Grande valley had a 20% deficit.

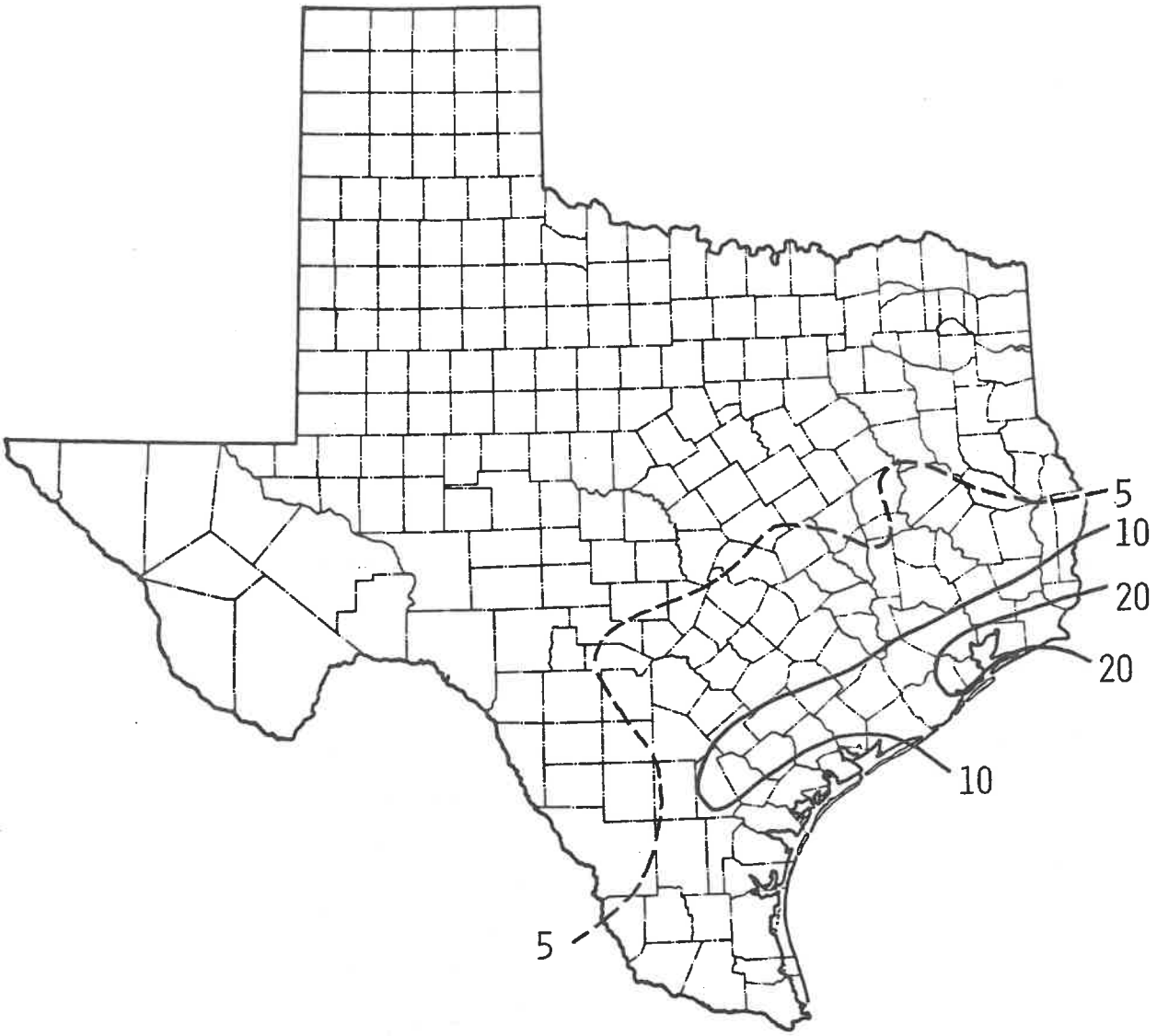


Figure 4

Total Snowfall (Inches) During the Storm of February 12th to 15th, 1895

1895

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Duval	Travis	Aug 3
Lowest Temp.	-17F	Hartley	Hartley	Feb 15
Highest Prec. Ann.	62.6"	Marshall	Harrison	
Lowest Prec. Ann.	9.9"	Sierra Blanca	Hudspeth	
Max Excess Ann.	16.4"	Marshall	Harrison	
Max. Deficit Ann.	5.9"	Fort McIntosh	Webb	
Max. % Ann.	150	Abilene	Jones	
Min. % Ann.	65	Fort McIntosh	Webb	
Max. Prec. Mo.	15.9"	Hearne	Robertson	May
Max. 24-hr. Prec.	7.5"	Marshall	Harrison	Jul 23
Max. Snowfall Ann.	40.0"	Amarillo	Potter	
Max. Snowfall Mo.	18.0"	Amarillo	Potter	Feb
(unofficial	30.0"	Wallisville	Chambers	Feb)

1896

The state-wide annual precipitation was a little below but the temperature was higher than the mean. January was very close to average but February was slightly warmer and wetter than usual and parts of the eastern area had around twice their expected rainfall. March was cool and April warm but both were slightly deficient in precipitation. On April 11 a youth was killed in Colorado City (Mitchell) by flying debris from high winds. May was the hottest and one of the driest on record with a temperature about 5F above average while Weatherford (Parker) reported an excess of 8F. On May 15 a tornado hit Sherman (Grayson) and killed 70 persons, one of the worst such disasters in Texas. Five others were killed by tornadoes on the same day in that area. June was appreciably hotter and drier than average; many stations had an excess of over 5F, a large amount for a summer month, and nearly all regions had deficient

rainfall. July, for the state as a unit, was about as close to average as has been noted but Augsut was hot and dry like June. During August Forestburg (Montague) was 6F above its mean and many places had less than 10% of their average rainfall. September was wet but had close to average temperatures while October was cool and very wet, a number of stations recording over twice their monthly mean, while Waco received 8.9" or 300% above average. November was slightly warmer and much drier than usual for the month, while December gave unusual temperature patterns. Much of the central and northeast was very cold, Panter (Hood) being 10F below its average, while in the Panhandle the temperature excess averaged 5 to 7F.

An interesting comment appears in the Report of the Chief of the Weather Bureau for this year that is especially relevent today because of the current (1981) interest in the subject of climatic change:

"The extraordinary period of drought which reached its culmination in the autumn of 1895 created a feeling of apprehension in many localities in regard to the stability of climatic conditions over a large extent of territory. A feeling of unrest was also created by the attempt to show that the changed conditions were a result of man's agency in the breaking up and the cultivation of the soil. In order to meet the call for information on the subject a brief study of the rainfall records collected and preserved in the files of the Weather Bureau was made. It was clearly shown from the investigation made that periods of alternating wet and dry weather were characteristics of the seasons forty and fifty years ago, and that there was no general law governing the recurrence of years of drought or abundant rainfall."

1896

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Roby Henrietta	Fisher Clay	Jun 9 Aug 3
Lowest Temp.	1F	Coldwater	Sherman	Jan 3
Highest Prec. Ann.	55.1"	Stafford	Fort Bend	
Lowest Prec. Ann.	9.8"	El Paso	El Paso	
Max Excess Ann.	9.0"	Brownwood	Brown	
Max. Deficit Ann.	39.1"	Orange	Orange	
Max. % Ann.	135	Brownwood	Brown	
Min. % Ann.	35	Orange	Orange	
Max. Prec. Mo.	15.5"	Marshall	Harrison	Jan
Max. 24-hr. Prec.	7.1"	College Station	Brazos	Jan 30
Max. Snowfall Ann.	5.0"	Happy	Swisher	
Max. Snowfall Mo.	4.0"	Happy	Swisher	Jan

1897

This was a year of about mean temperature but deficient in precipitation, especially in the southern region. January was much colder than average, with heavy snowfall. Precipitation was nearly twice the usual in the western area. The January 27/28 cold wave brought the coastal region its lowest temperatures for eight years. February was extremely dry, with precipitation only about 20% of the mean, and quite mild, the monthly low for the state of only 11F being unusually high. March was warm and very wet in all except the west but April was quite cool and very dry over the entire state. May and June were close to average in both temperature and precipitation but hot, dry winds during June 20th to 23rd did considerable damage to crops in the northern part of the state.

July was very dry over the eastern sector while August had average precipitation. September was a little drier and cooler than usual and

brought high speed winds to the southeast on the 12th, when a hurricane moved in from Louisiana, killed 13 people and did great damage; Port Arthur being hit very badly. The western region had four consecutive dry months to end the year but the rest of the state was really dry only in November, which like February, yielded about 20% of the usual amount. October was warm, but December was cold, the mean state-wide temperature being 4F below average, while Dallas and Cuero (De Witt) were 12F below their means.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Waxahachie	Ellis	Jul 26
Lowest Temp.	-7F	Tulia	Swisher	Jan 27
Highest Prec. Ann.	49.3"	Longview	Gregg	
Lowest Prec. Ann.	8.8"	Point Isabel	Cameron	
Max Excess Ann.	5.4"	Panter	Hood	
Max. Deficit Ann.	13.0"	Galveston	Galveston	
Max. % Ann.	115	Panter	Hood	
Min. % Ann.	35	Point Isabel	Cameron	
Max. Prec. Mo.	11.0"	Colmesneil	Tyler	Dec
Max. 24-hr. Prec.	5.3"	Blanco	Blanco	Oct 15
Max. Snowfall Ann.	27.0"	Amarillo	Potter	
Max. Snowfall Mo.	20.0"	Amarillo	Potter	Jan

1898

The year was both cooler and drier than average. The western and southern area had only about 70% of their annual precipitation and in the lower Rio Grande valley values of around half the average total were general. January was cool and February relatively warm while March had close to mean temperatures. These first three months gave nearly average precipitation in the central and eastern areas but the drought that began

in the previous year was continued in the west. April and May also were below average in rainfall but temperatures were around expected values. June was extremely wet, most areas having at least one and a half times the usual monthly mean, while July and August brought about average rainfall. September and October were dry with totals of around one to two-thirds of average, and even less in the west. Temperatures from June to October were close to mean values but November showed a deficit of 4F and December was one of the coldest recorded, with a deficit of 6F. Cuero (De Witt) had a monthly mean 20.5F below average, a record deviation. A severe cold wave on December 10/11 took freezing temperatures almost to the extreme south. Weather disasters were, fortunately, not frequent this year, the worst being at Ganado (Jackson) on March 6 and Atlanta (Cass) on April 22 when tornadoes killed two people in each incident and at Mobeetie (Wheeler) on May 1 when four were killed.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Fort Ringgold Fruitland	Starr Montague	Jul 23
Lowest Temp.	-2F	Tulia	Swisher	Dec 10
Highest Prec. Ann.	53.2"	Huntsville	Walker	
Lowest Prec. Ann.	6.2"	El Paso	El Paso	
Max Excess Ann.	8.2"	Huntsville	Walker	
Max. Deficit Ann.	13.2"	Mount Blanco	Crosby	
Max. % Ann.	120	Huntsville	Walker	
Min. % Ann.	40	Mount Blanco	Crosby	
Max. Prec. Mo.	10.9"	Ballinger	Runnels	Jun
Max. 24-hr. Prec.	5.0"	Huntsville	Walker	May 23
Max. Snowfall Ann.	23.0"	Tulia	Swisher	
Max. Snowfall Mo.	10.5"	Tulia	Swisher	Dec

1899

The year was close to average for both temperature and precipitation. For individual months May, August and October showed the largest positive deviations of mean temperature, about 3F warmer than average. From August 10th to 30th very hot, dry winds affected much of the state. February was the phenomenal month, being 10F cooler than average, while Tyler (Smith) and Fort Worth were 16F below their long-period mean. On February 11th to 13th there was one of the most intense cold waves the state has ever known. The pattern began in early February when the state was invaded by cold polar air from Canada on the 4th that reached the central area two days later. On the 8th another cold surge entered the state and penetrated to Brownsville by the 10th. The coldest wave was yet to come, and in the early morning of the 10th it hit Texas. The lowest temperatures were reached from the 11th to 13th, by which time the cold air had reached into southern Mexico and El Salvador. Many counties recorded subzero temperatures and even in the extreme south, in Cameron County, the mercury went to 12F. It was at this time that the lowest temperature ever recorded in Texas occurred, -23F at Tulia (Swisher) on the 12th (see Table 6). Unofficial reports note temperatures of -30F at Wolf Creek and a site southeast of Perryton, both in Ochiltree County, on the 12th. The pattern of the minimum temperature on the 12th is shown in Fig. 5. The outbreak did not reach the lower Rio Grande valley until the 13th. The maximum on that day at Tulia was 30F. Tulia had a string of very cold nights, starting on February 1 they were 11, 8, 17, 8, 4, 2, -11, 4, 2, 4, -4, -23, 9F. At Dumas (Moore) the temperature on the 12th went from a minimum of -18F to a maximum of zero (see Table 5). Even at Galveston the daily range was from 8F to 25F, thus recording the lowest temperatures ever at that station. On the 13th when the temperature was 10F the whole Galveston Bay, except for the main channel, was covered with thin ice.

Precipitation was very unevenly distributed with wide variations among months and areas. For example, the High Plains had 133% of average compared with 76% in the Trans-Pecos. January, April, July, October, November and December recorded state-wide means close to the usual but, for example, in January the west had a 70% deficit, the east a 40% excess.

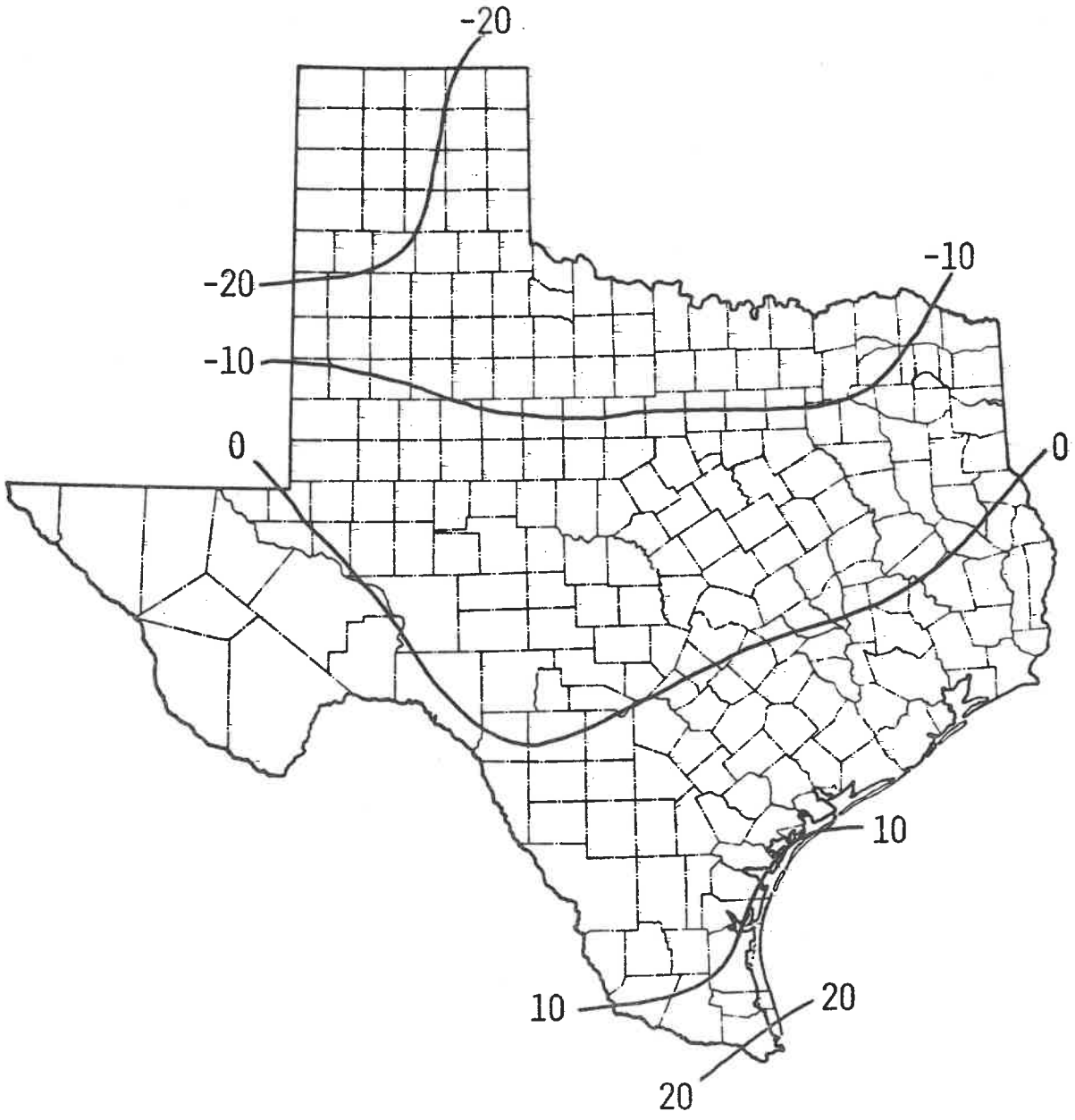


Figure 5
Minimum Temperatures (F) on Texas' Coldest Night, February 12, 1899

February, May, August and September were dry, while March was one of the driest on record - totals being only 15 to 25% of average. The wettest June on record (state average 7.1") plus excessive rain in early July brought the severest flood in the history of the state (to date) in the Brazos River valley, causing the loss of 35 lives and $9 million in damage. All lowlands along the Brazos from McLennan County south to the Gulf were inundated with water from a depth of from 2 to 12 feet and, in places, it is said that the river was more than 12 miles wide. All crops on lowlands along the river were generally destroyed. The number of people who were left without sustenance was very large. Notwithstanding, rescue parties were organized as rapidly as possible but some of the sufferers were in tree tops and on houses for two or three days without food. Unofficial reports suggest that Hearne (Robertson) received 30" and Turnersville (Coryell) had 33" in three days. A severe storm hit Erath County on May 21 and one man was killed by lightning.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Mann	Navarro	Aug 23
Lowest Temp.	-23F	Tulia	Swisher	Feb 12
Highest Prec. Ann.	59.7"	Alvin	Brazoria	
Lowest Prec. Ann.	7.3"	El Paso	El Paso	
Max Excess Ann.	16.5"	Cuero	De Witt	
Max. Deficit Ann.	27.0"	Paris	Lamar	
Max. % Ann.	140	Cuero	De Witt	
Min. % Ann.	40	Paris	Lamar	
Max. Prec. Mo.	22.3"	Fort Clark	Kinney	Jun
Max. 24-hr. Prec.	18.0"	Fort Clark	Kinney	Jun 15
Max. Snowfall Ann.	7.5"	Hale Center	Hale	
Max. Snowfall Mo.	6.0"	Colorado City	Mitchell	Dec

THE 1900s

The decade of the 1900s was famous, or notorious, because of the Galveston hurricane (1900), the worst weather disaster in U.S. history. Other disasters were the Goliad (Goliad) tornado (1902) that killed 114 persons and the Velasco (Brazoria) hurricane (1909) that nearly destroyed the town and resulted in 41 deaths. During other years there were, fortunately, no devastating hurricanes or tornadoes. Texas had one of its coldest years ever in 1903 but the first three months of 1907 rank as the warmest first quarter on record. The average annual precipitation was about 25% above the mean in 1900 and 1905 but 25% deficient in 1909.

1900

Although the temperatures were about average this was a very wet year. April was 2F below the monthly mean but September was over 3F in excess. Many months gave state-wide minimums that were unusually high, for instance, October's lowest was 34F and November's was 22F. The record for the year, 108F at Brownwood (Brown) on June 26, probably was the lowest extreme annual maximum reading on record! There was a cold wave in mid-February and another on the last day of December; however, these were not unusually severe. March, April, July and September had monthly precipitation totals around 2" above average, the greatest excess being 3.4" in April, which, with over twice its mean, was one of the wettest on record (see 1957). During the year the Upper Coast had precipitation of more than 50% above average, one of its wettest on record (see 1946), and the High Plains and Edwards Plateau recorded 160% of mean value, but annual totals were quite low (60%) in the extreme south. In early April heavy rains caused the collapse of the McDonald Dam on the Colorado River and the subsequent loss of 23 lives in Austin. February, June, November and, especially, December were the only months with below average precipitation. June of 1899 was 5.0" wetter than this year, the biggest swing in consecutive Junes.

The great and tragic weather news of the year was the terrible

hurricane that decimated Galveston and took about 6,000 lives, the worst weather disaster in U.S. history (see Fig. 13). The following is taken from the regular Weather Service report.

"A West India hurricane of marked intensity moved inland just west of Galveston on the evening of September 8, 1900, and crossed the state in a northerly direction. This storm seriously damaged many towns over the southern portion of the state. It diminished in intensity as it moved northward. At Galveston the tide commenced coming in over low portions of the city early Saturday morning and continued to rise slowly all day, taking on a rapid rise after 3 p.m. A sudden rise of four feet occurred at 7:30 p.m. The entire city was under water from eight to fifteen feet deep at 8 p.m. An extreme wind velocity of 100 miles was recorded at 6:15 p.m., when the anemometer blew away, and it is estimated that the wind reached a maximum velocity of 120 miles an hour when it shifted to the east and southeast, between 7:30 and 8:30 p.m. The entire south, east, and west portions of the city, from two to five blocks inland, were swept clean — not a house left standing. Many other buildings were blown down and all buildings were damaged more or less. Three thousand six hundred and thirty six houses were completely destroyed. Many men, women and children were drowned; some entire families. The number of persons killed and drowned was more than 6,000. The streets were one mass of debris, and dead bodies were being taken out of the drift at the rate of 20 to 30 a day at the close of September. Many were killed while floating on the drifting timbers endeavoring to save themselves. The damage to property is estimates at $30,000,000.

"Warning of the approach of this hurricane was received and distributed at Galveston on the afternoon of September 4. Storm warnings were hoisted all along the west Galveston coast from one to two days in advance of the hurricane, and every person who could read had an opportunity to learn of its approach long before it reached Galveston. People in low portions of the city not securely located were advised to move to higher grounds from six to ten hours before dangerous conditions existed, and in this manner thousands of lives were saved. It is estimated that about 12,000 people moved out prior to the crisis, otherwise the loss of life would doubtless have been more than double what it was

for it is believed that less than 1,000 people who stayed in the storm-swept district came through with their lives."

Dr. Isaac Cline, the Chief of Galveston's Weather Bureau Office, was caught in the hurricane with his family and lost his wife and one child when his house was swept away. Most of the survivors had miraculous escapes.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	108F	Brownwood	Brown	Jun 26
Lowest Temp.	1F	Amarillo	Potter	Dec 31
Highest Prec. Ann.	77.2"	Brazoria	Brazoria	
Lowest Prec. Ann.	8.0"	El Paso	El Paso	
Max Excess Ann.	28.0"	Brazoria	Brazoria	
Max. Deficit Ann.	15.1"	Point Isabel	Cameron	
Max. % Ann.	240	Camp Eagle Pass	Maverick	
Min. % Ann.	40	Point Isabel	Cameron	
Max. Prec. Mo.	18.7"	Galveston	Galveston	Jul
Max. 24-hr. Prec.	14.3"	Galveston	Galveston	Jul 14
Max. Snowfall Ann.	4.5"	Waxahachie	Ellis	
Max. Snowfall Mo.	4.5"	Waxahachie	Ellis	Mar

1901

The year was a little warmer than average as regards to temperature but quite dry, with only September having much above average rainfall. The annual precipitation was almost 20" lower than in 1900, the largest year-to-year change. February was much colder than the relatively mild January and, like April, over 3F below the mean. Excluding September, the period June to November saw monthly temperatures about 1 to 2.5F higher than average. December was cold but only one very severe widespread cold wave occurred around the middle of the month and caused

Brownsville to record a 15F minimum. Rainfall was below the average in ten months. January averaged only about one-third of the mean precipitation across the whole state while June and December reached about 40%. The annual precipitation deficiencies were great in some areas, for instance, 21.1" or about 45% at Houston. Many regions had only half the previous year's total of precipitation, the change being greatest in the southern sector where the ratio was one-third. Except for the Panhandle area and the Trans-Pecos most regions had only some 60 to 70% of the average annual total. The southern area showed a deficiency of 60%, but Amarillo had an excess of 20%.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Haskell	Haskell	Aug 28
Lowest Temp.	-2F	Mount Blanco	Crosby	Dec 14, 15
Highest Prec. Ann.	51.3"	Galveston	Galveston	
Lowest Prec. Ann.	7.3"	Sanderson	Pecos	
Max Excess Ann.	4.2"	Amarillo	Potter	
Max. Deficit Ann.	21.1"	Houston	Harris	
Max. % Ann.	120	Amarillo	Potter	
Min. % Ann.	45	Houston	Harris	
Max. Prec. Mo.	15.0"	Galveston	Galveston	Oct
Max. 24-hr. Prec.	14.1"	Galveston	Galveston	Oct 7/8
Max. Snowfall Ann.	16.0"	Mount Blanco	Crosby	
Max. Snowfall Mo.	10.0"	Mount Blanco	Crosby	Feb

1902

Both temperature and precipitation were above average this year. From March through June temperatures were in excess of the mean values while November was nearly 5F above average. Although January and February were cooler than usual there were no very severe cold waves.

The highest temperatures ever in February and March, 104F and 108F, respectively, were recorded at Fort Ringgold (Starr). April was very unusual in that no freeze was reported anywhere in the state. November was extremely warm, with some stations having values 9 or 10F in excess of their mean. The eastern part of the state was quite wet during the latter half of the year. However, there was a marked deficiency in the southern region where, for eleven consecutive years the annual precipitation had been below average. On May 18 a tornado at Goliad (Goliad) killed 114 persons and destroyed much of the city. It was one of the most disastrous ever to occur in Texas (see 1953).

January had less than half its average precipitation and the relative dryness continued into June. A hurricane made landfall near Victoria on June 26 but it did not bring great rain to the region, only Alvin (Brazoria) and Wharton (Wharton) reporting in excess of 6". July was one of the wettest ever (see 1913), with over twice its mean value. Late in the month heavy rains persisted for many days in the central region, causing serious flooding and heavy crop losses to the amount of $5 million. August, as well as being very hot, was the driest ever for that month with a state average of only 0.3" and very few stations reported over 1"; the central area having only 5 to 10% of its monthly mean total. For precipitation, November was most outstanding as it recorded about three times its average total.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Cotulla	La Salle	Jun 28
Lowest Temp.	-4F	Amarillo	Potter	Jan 26
Highest Prec. Ann.	63.7"	Beaumont	Jefferson	
Lowest Prec. Ann.	5.3"	Fort Ringgold	Starr	
Max Excess Ann.	25.2"	Temple	Bell	
Max. Deficit Ann.	14.4"	Fort Ringgold	Starr	
Max. % Ann.	75	Temple	Bell	
Min. % Ann.	30	Fort Ringgold	Starr	
Max. Prec. Mo.	22.7"	Beaumont	Jefferson	Nov
Max. 24-hr. Prec.	14.2"	Nacogdoches	Nacogoches	Jun 28
Max. Snowfall Ann.	10.0"	Estelle	Dallas	
Max. Snowfall Mo.	7.0"	Estelle	Dallas	Jan

1903

The year was one of the coldest on record, about 2F below average, but precipitation was just at the mean. The temperature for every month except December was below the long term mean with February and May being 4F cooler. However, really cold weather did not affect the state until late February and early March. June showed the greatest deficit, 6F, and was the coolest on record. Precipitation showed wide variation from month-to-month. In regions the range was from 130% in the south to near 80% in the High Plains. January was close to average but February had a state mean of over 5.7", its highest ever, about 300% of the usual amount for the month. March was wet, 150% of mean in the central and eastern areas but very dry (10%) in the west. April and May were both dry but June and July (state average 5.8") were wetter than average, except in the west. November had a state mean of under 0.2", the second lowest ever for the month (see 1949), about 2.5" with the western one-third reporting no rain. The monthly mean was 6.4" lower than the previous November.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	College Station	Brazos	Jul 24 Aug 17
Lowest Temp.	-3F	Amarillo	Potter	Feb 16
Highest Prec. Ann.	58.7"	Alvin	Brazoria	
Lowest Prec. Ann.	8.7"	Mount Blanco	Crosby	
Max Excess Ann.	21.2"	Beeville	Bee	
Max. Deficit Ann.	8.0"	Big Springs	Howard	
Max. % Ann.	205	Fort McIntosh	Webb	
Min. % Ann.	60	Big Springs	Howard	
Max. Prec. Mo.	17.7"	Marlin Port Lavaca	Falls Calhoun	Jul Aug
Max. 24-hr. Prec.	12.2"	Port Lavaca	Calhoun	Aug 11
Max. Snowfall Ann.	31.0"	Amarillo	Potter	
Max. Snowfall Mo.	29.0"	Amarillo	Potter	Feb

1904

Both temperature and precipitation were very close to the mean values this year, but February and March were appreciably warmer than average (4 to 6F), especially in the northern third of the state. A few stations had monthly means over 10F above average in these months, with Kerrville (Kerr) registering an excess of 13F in March. The remaining months showed little variation from their means. The most severe cold wave occurred on January 25 when freezing temperatures reached to the coast. The first three months were drier than average, especially in the western sector which averaged only 10 to 15% of the mean. April was close to average in rainfall while May and June were both quite wet with some stations having excesses of over 6". From July through October area means were close to or above average, although September recorded twice the expected totals in many western stations. November was very dry, particularly in the central area, a condition that continued into December.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	109F	Bowie	Montague	Jul 12
		Brownwood	Brown	Aug 29
Lowest Temp.	1F	Menardville	Menard	Jan 29
Highest Prec. Ann.	47.4"	Columbia	Brazoria	
Lowest Prec. Ann.	9.4"	Mount Blanco	Crosby	
Max Excess Ann.	12.9"	Brighton	Nueces	
Max. Deficit Ann.	14.1"	Palestone	Anderson	
Max. % Ann.	160	Brighton	Nueces	
Min. % Ann.	60	Ballinger	Runnels	
Max. Prec. Mo.	11.5"	Bonham	Fannin	Jun
Max. 24-hr. Prec.	9.2"	Galveston	Galveston	Apr 22
Max. Snowfall Ann.	10.0"	Amarillo	Potter	
Max. Snowfall Mo.	7.5"	Texline	Dallam	Dec

1905

This was a relatively cool and extremely wet year. Severe cold weather began in late January and lasted about a month, with some fronts taking freezing temperatures to the coast. February was the coldest on record, over 11F below average, 16.2F lower than February of the previous year with some locations being 14 to 15F below their mean. The severe cold lasted until the 20th and only in the southwest and along the coast were minimums as high as the teens. March was relatively warm, the state-wide mean temperature being 22.2F above that of February, the largest difference ever between two consecutive months. Childress (Childress) went from a mean of 28F in February to 57F in March. For all other months, except December, state-wide averages were close to the means. December was very cold (8F below average) in the eastern area, Tyler (Smith), reporting a deficit of 11F.

January had close to average precipitation in most areas but from February through July every month had above its mean in all regions. The western sector had twice its February, four times its March and three times its April mean. All areas had at least twice their mean rainfall in April which had a state-wide value of 6.3". August had only some 50% of its average but from September through December the wet conditions returned. For the year as a whole, some stations in the northeast exceeded their annual average by 30" to 40". The High Plains had an annual total of about 170% of the mean and all regions exceeded their average totals, the Upper Coast having one of the wettest years on record (see 1946).

1905

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	109F	Knickerbocker Eagle Pass Fort McIntosh	Tom Green Maverick Webb	Jul 12 Aug 1 Aug 3
Lowest Temp.	-16F	Claude		Feb 13
Highest Prec. Ann.	86.3"	Jefferson	Marion	
Lowest Prec. Ann.	17.8"	El Paso	El Paso	
Max Excess Ann.	39.5"	Texarkana	Bowie	
Max. Deficit Ann.	1.1"	Ballinger	Runnels	
Max. % Ann.	230	El Paso	El Paso	
Min. % Ann.	95	Ballinger	Runnels	
Max. Prec. Mo.	16.0"	Sulphur Springs	Hopkins	Jul
Max. 24-hr. Prec.	7.3"	Temple	Bell	Sep 19
Max. Snowfall Ann.	44.0"	Amarillo	Potter	
Max. Snowfall Mo.	24.0"	Greenville	Hunt	Feb

1906

As far as mean values for the state were concerned temperatures were average and precipitation was a little high for the year. However, variations by time and region were appreciable. January, April, May, June, September and November were all within 1F of average and of the remaining months only December was above the mean. March was 4F colder than usual and brought a cold wave around the equinox that broke records in many localities. July and August were cooler than average by about 3F. Claytonville (Fisher) reported minimum temperatures of 40F on two July days, tying the all-time record for the month. October was also cold, but it was November that set a unique record — the all time extremes recorded for the month (to date) were, within a few days of each other, 101F at Fort McIntosh (Webb) on 17th and -9F at Plemons (Hutchinson) on the 21st (see 1976). December was over 5F in excess of

the average. Monthly precipitation amounts were mostly close to the expected although January received only about 60% of its average while July and August had around 150%. Heavy flooding occurred along the Colorado River in the first half of August. The eastern Panhandle had a very wet year, about 150% of average, but the Upper Coast recorded only around 75% of its mean total. A tornado in Clay County on April 26 caused 17 deaths and almost completely demolished Bellevue.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Tilden	McMullen	Jun 22
Lowest Temp.	-9F	Plemons	Hutchinson	Nov 21
Highest Prec. Ann.	50.8"	Jefferson	Marion	
Lowest Prec. Ann.	15.0"	El Paso	El Paso	
Max Excess Ann.	13.0"	Albany	Shackelford	
Max. Deficit Ann.	17.0"	Rock Island	Colorado	
Max. % Ann.	160	Albany Rhineland	Shackelford Knox	
Min. % Ann.	55	Blanco	Blanco	
Max. Prec. Mo.	12.5"	Ballinger	Runnels	Aug
Max. 24-hr. Prec.	8.0"	Alvin	Brazoria	Oct 14
Max. Snowfall Ann.	28.0"	Amarillo	Potter	
Max. Snowfall Mo.	16.0"	Claude	Armstrong	Nov

1907

This year was, as a whole, warmer and slightly wetter than average. Nearly all the state had mean annual temperatures above average. January was 7F, February 3F, and March 10F above their respective mean. In the latter month (the warmest ever) some stations were 13F in excess of average while over the three months Amarillo and Georgetown (Williamson) totalled 31F excess. The next four months were cooler than average, expecially May, the coldest on record. A killing frost was reported at

Lieb (Hutchinson) on the 27th, one of the latest on record. August through mid-October was relatively warm. In late June very hot, dry winds occurred in the north and west causing great desiccation of vegetation. November was cooler than average with a cold wave on the 12/13. Although December was warmer than average the period 18th and 21st brought the coldest temperatures of the year to many regions. The 5F readings at Texline (Dallam) and Plemons (Hutchinson) probably were the highest extreme minima for the state during any year on record. Most of the state, except the south, had annual precipitation totals of around or above average. January through April were drier than usual but May was 3" above average. In the eastern sector the rainfall averaged over 10", about twice the mean for the month. However, it was October and November that brought the greatest rainfalls, over twice the average, the monthly amounts being the wettest on record to this date, with severe flooding in mid-November. On May 6 a tornado at Sulphur Springs (Hopkins) resulted in five deaths.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	117F	Big Spring	Howard	Jun 30
Lowest Temp.	5F	Texline	Dallam	Dec 18, 20
		Plemons	Hutchinson	Dec 18
Highest Prec. Ann.	62.5"	Houston	Harris	
Lowest Prec. Ann.	8.4"	El Paso	El Paso	
Max Excess Ann.	14.4"	Houston	Harris	
Max. Deficit Ann.	12.3"	Corpus Christi	Nueces	
Max. % Ann.	160	Luling	Caldwell	
Min. % Ann.	60	Corpus Christi	Nueces	
Max. Prec. Mo.	19.4"	Beaumont	Jefferson	May
Max. 24-hr. Prec.	8.5"	Liberty	Liberty	May 30
Max. Snowfall Ann.	28.0"	Amarillo	Potter	
Max. Snowfall Mo.	10.0"	Channing	Hartley	Apr

1908

Over the state average conditions were very similar to those of 1907, with March again very much warmer than average (6F excess). The first six months all exceeded their mean temperatures but July through October were relatively cool. Four cold waves occurred, the most severe being in early February. June was a hot month, with high winds around Amarillo causing some damage; however, August was the warmest month. November had a severe outbreak of cold with freezing conditions nearly to the coast.

Eastern and central counties were generally slightly deficient in rainfall but the northern part of the state had excess amounts. January, October and December all experienced only some 50 to 60% of average rainfall, the western area reporting only 1% in December. April and May were very wet and many rivers flooded. These floods, and severe storms, resulted in the loss of several lives plus an immense amount of property damage. The most unusual was when a severe storm moved in from the Pacific during May 22-25 and brought heavy floods around Dallas. A tornado at Linden (Cass) killed four persons on May 13.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Fort McIntosh	Webb	Jun 17
Lowest Temp.	-2F	Plemons	Hutchinson	Feb 1
Highest Prec. Ann.	59.6"	Beaumont	Jefferson	
Lowest Prec. Ann.	1.9"	Torcer	El Paso	
Max Excess Ann.	18.0"	Fort Worth	Tarrant	
Max. Deficit Ann.	11.0"	Nacogdoches	Nacogdoches	
Max. % Ann.	165	Fort Worth	Tarrant	
Min. % Ann.	80	Nacogdoches	Nacogdoches	
Max. Prec. Mo.	16.1"	Kaufman	Kaufman	Aug
Max. 24-hr. Prec.	14.2"	Kaufman	Kaufman	Aug 22/23
Max. Snowfall Ann.	?			
Max. Snowfall Mo.	14.0"	Higgins	Lipscomb	Feb

1909

The year was unusually warm and very dry, the state's average precipitation being over 20% below the mean. In mid-January a severe cold wave led to freezing temperatures throughout the state, a condition reported again in mid-February. Freezing weather extended into May in the Panhandle, Tulia (Swisher) reporting 15F, the lowest ever during the month. The summer months had some very hot periods and the weather continued unseasonally warm even through November, which was 6F above average. However, December was very cold, especially the period of 17th to 22nd and a few stations were 10F below their mean for the month.

January averaged only 0.15" of precipitation (the driest ever) and drought conditions (below average rainfall) actually continued until November. Only the High Plains had near their annual mean precipitation, most areas receiving about 70 to 75% of their average. Tornadoes caused two deaths in Febraury and 12 deaths in March, eleven being killed at Slidell (Wise) on the 23rd. May saw severe hail and windstorms in some areas and a tornado at Zephyr (Brown) on the 30th killed 28 persons. An unusually severe rainstorm that originated on the Pacific coast brought heavy flooding in the upper Trinity River area and caused the loss of 11 lives in the Dallas region during May. The hurricane of July 21 which passed over Velasco (Brazoria) destroyed half the town, causing 41 deaths and over $2 million in damage to property and crops.

For a few years, beginning in 1909, monthly precipitation totals are available for stations in the Trans-Pecos run by the Galveston, Harrisburg and San Antonio Railway. They were located in a very arid area and are featured in the next four tables under the Lowest Precipitation, Annual.

1909

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	*115F	Dallas	Dallas	Aug 18
Lowest Temp.	-11F	Tulia	Swisher	Dec 20
Highest Prec. Ann.	42.7"	Beaumont	Jefferson	
Lowest Prec. Ann.	4.3" (1.1"	El Paso Watkins	El Paso Terrell	Railway station)
Max Excess Ann.	2.3"	Haskell	Haskell	
Max. Deficit Ann.	16.5"	Palestine	Anderson	
Max. % Ann.	110	Haskell	Haskell	
Min. % Ann.	60	Palestine El Paso	Anderson El Paso	
Max. Prec. Mo.	13.8"	Port Lavaca	Calhoun	May
Max. 24-hr. Prec.	8.1"	Haskell	Haskell	Jun 11
Max. Snowfall Ann.	28.0"	Hereford	Deaf Smith	
Max. Snowfall Mo.	18.0"	Tulia	Swisher	Mar

*Also Grapevine (Tarrant), Greenville (Hunt), Wills Point (Van Zandt), Waxahachie (Ellis)

THE 1910s

This was a period that gave Texas' driest year ever (1917), with only 50% of average precipitation, and also one of the wettest (1919) with 150% of the mean. The drought of 1917-1918 was among the worst recorded for the state and it was not broken until the extremely wet October of 1918, which recorded just a little more than the very wet month of May, 1914. From the temperature viewpoint 1911 was one of the hottest years while March, 1915 was very cold and January, 1918, had the severest cold wave since 1899. Many lives were lost due to weather in this decade, the Brazos River floods (1913) claimed 177; floods in the north and east in April, 1915, killed 40; the Galveston hurricane (August, 1915) took 275 lives; tornadoes killed 62 persons on April 8/9, 1919, and, in September, 1919, a hurricane that hit Corpus Christi caused 284 deaths.

1910

This was a warm and very dry year (see 1917 and 1956) and, following on dry 1909, gave the driest two consecutive years on record to this time and the only time that the state precipitation mean has had back-to-back values below 21" (75% of the average). In early January a severe outbreak of cold air brought freezing temperatures throughout the state. However, February 16th to 19th gave the lowest temperatures for the year, with much sleet and snow. March was unusually warm but April and May were cool. From June to December the state-wide average temperatures were above expected with September being the warmest on record to this date. The highest temperature ever for July was reported from Tilden (McMullen), 119F (see Table 5). However, Plemons (Hutchinson) dropped to 39F in August, the lowest ever for the month. State monthly rainfall totals were deficient in all except May and December, but the southeast had heavy rains in mid-July. River flows were generally very much below normal. All areas of the state, except the Lower Valley, had low annual totals, ranging from 43% of the mean in the Trans-Pecos, its lowest ever, to 75% along the Upper Coast. Torrential rains on September 5/6 in Comanche County caused disastrous flooding of the Leon River, a tributary of the

Brazos. A 25-foot wall of water swept away houses, 13 persons lost their lives and much damage occurred. In this year Clarksville (Red River) received only 25.4" of precipitation, nearly 84" less than its record fall in 1873.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	119F	Tilden	McMullen	Jul 2
Lowest Temp.	-12F	Dalhart	Dallam	Feb 17
Highest Prec. Ann.	47.5"	Galveston	Galveston	
Lowest Prec. Ann.	4.0" (0.7"	El Paso Ysleta	El Paso El Paso	Railway station)
Max Excess Ann.	4.9"	Cuero	De Witt	
Max. Deficit Ann.	25.5"	Greenville	Hunt	
Max. % Ann.	115	Cuero	De Witt	
Min. % Ann.	40	Greenville	Hunt	
Max. Prec. Mo.	12.4"	Cuero	De Witt	May
Max. 24-hr. Prec.	6.6"	Galveston	Galveston	Oct 5/6
Max. Snowfall Ann.	12.0"	Bonham	Fannin	
Max. Snowfall Mo.	10.0"	Paris	Lamar	Mar

1911

The mean temperature for the state as a whole was one of the highest on record while precipitation, although exceeding that in 1909 or 1910, was a little below the mean value. January opened with a very severe cold wave with the thermometer falling to 19F at Galveston, and 21F at Brownsville and Corpus Christi. The temperature stayed below freezing for over two days in many coastal areas but, nevertheless, January averaged some 7F above the mean with Amarillo being 12F above average. From February 19th to 24th temperatures below zero were recorded in the Panhandle; however, both February and March state-wide means were above average. June was unseasonally warm, Bowie (Montague) having 25 straight

days above 100F. Readings during September were the warmest ever across the state as a whole. The year ended as it had begun, on a cold note, for November and December were both some 4F below average; the cold wave in November broke many records for the time of year.

The Panhandle had about twice the precipitation of 1910 while the Trans-Pecos had three times, receiving around 130% of average, but the Lower Valley area received only 70% of its mean total. A hailstorm in April killed many full grown cattle in Briscoe County. May and June were very deficient in rainfall although Matagorda (Matagorda) received 15.7" in one spell of ten hours on May 1. July saw heavy flooding along the Rio Grande and Pecos rivers due to intense rains in New Mexico but both rivers were way below average during August. It was not until December that an appreciable excess (3") of precipitation above the monthly average was recorded.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Haskell Barstow Bonham	Haskell Ward Fannin	Jun 23 Jun 24 Aug 22
Lowest Temp.	-16F	Plemons	Hutchinson	Jan 3
Highest Prec. Ann.	60.3"	Brazoria	Brazoria	
Lowest Prec. Ann.	10.9" (5.7"	El Paso Haymond	El Paso Brewster	 Railway Station)
Max Excess Ann.	11.0"	Brazoria Columbia	Brazoria Brazoria	
Max. Deficit Ann.	11.0"	Denison	Grayson	
Max. % Ann.	125	Brazoria	Brazoria	
Min. % Ann.	70	Del Rio	Val Verde	
Max. Prec. Mo.	19.1"	Matagorda	Matagorda	May
Max. 24-hr. Prec.	15.7"	Matagorda	Matagorda	May 1
Max. Snowfall Ann.	35.0"	Tulia	Swisher	
Max. Snowfall Mo.	15.0"	Stratford	Sherman	Dec

1912

This was a cold and relatively dry year, the fourth in succession of below mean precipitation. On January 11/12 a cold wave brought below zero temperatures to many areas, dropped the mercury to around 10F and 11F in Brenham (Washington), College Station (Brazos) and Nacogdoches (Nacogdoches), and gave Brownsville a low of 24F. In early February another cold outbreak brought freezes to the Lower Valley. March and June also were cool but other months had close to average temperatures, although a rare freeze hit the extreme northwest in September. Greenville (Hunt) was 12F below average in March.

Monthly rainfall totals tended to alternate about the averages with deviations generally around an inch or less. The Lower Valley had an annual total about 20% above average but the rest of the state received only 80 to 90% of its mean; the southern areas experiencing drought conditions from July to mid-October. In late April severe windstorms and tornadoes in northern counties caused ten deaths. There were no fatalities reported on land from the hurricane of October 16 (the latest time of the year on record) that made landfall south of Corpus Christi, although a steamer was sunk just off Padre Island with the loss of six members of the crew.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Graham	Young	Jul 29
Lowest Temp.	-19F	Plemons	Hutchinson	Jan 8
Highest Prec. Ann.	59.2"	Beaumont	Jefferson	
Lowest Prec. Ann.	7.3"	Theodore	Winkler	
	(2.6"	Emerson	Terrell	Railway station)
Max Excess Ann.	13.7"	Brownsville	Cameron	
Max. Deficit Ann.	21.0"	Arthur City	Lamar	
Max. % Ann.	155	Brownsville	Cameron	
Min. % Ann.	55	Junction	Kimble	
Max. Prec. Mo.	16.6"	Mount Belvieu	Chambers	Dec
Max. 24-hr. Prec.	6.6"	Corpus Christi	Nueces	May 5/6
Max. Snowfall Ann.	38.0"	Panhandle	Carson	
Max. Snowfall Mo.	17.0"	Tulia	Swisher	Feb

1913

The year was colder and wetter than average. In the first week of January a severe cold wave took freezing temperatures to the Upper Coast and March brought a late freeze that caused much damage to crops. March, September and October averaged some 3F below their mean values but November had an excess of 6F, Colorado City (Mitchell) exceeding its average by 11F. Every division of the state had annual precipitation totals above the average, the highest being the 150% in the Edwards Plateau area. In late April Jasper and Newton counties suffered severe flooding that killed two children; although there were no official rain gages in the area the fall in Newton was estimated as 36" (an official report suggests this was much too high). The southwest area had unusually heavy rains from a Gulf disturbance in late June, Montell (Uvalde) receiving 20.6" in 19 hours. Dry conditions in July and August were followed by four very wet months that totalled over 10" above the state mean. However, in Hunt County the period July 1st to 4th saw heavy rains that did damage estimated at $1 million. November was very wet in the center of the state, most places recording 200 to 300% of average but the damage came with the rains of December. Unprecedented floods on the Guadalupe, the Colorado below Austin and the Brazos (18 feet above flood stage at Waco) caused over 3,000 square miles to be inundated, 177 persons perished and property damage was over $8.5 million. Two unusual phenomena were a severe local windstorm around Humble (Harris) on February 26/27 that blew down over 200 derricks, and the hail as large as teacups that fell at Tahoka (Lynn) on May 19 killing much livestock.

1913

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Denton Jewett Graham	Denton Leon Young	Jul 10 Jul 20 Jul 23,Aug 26
Lowest Temp.	-15F	Romero	Hartley	Jan 8
Highest Prec. Ann.	66.1"	Beaumont	Jefferson	
Lowest Prec. Ann.	7.1"	El Paso	El Paso	
Max Excess Ann.	22.0"	Boerne	Kendall	
Max. Deficit Ann.	4.3"	Sugarland	Fort Bend	
Max. % Ann.	170	Boerne	Kendall	
Min. % Ann.	90	Sugarland	Fort Bend	
Max. Prec. Mo.	22.9"	Montell	Uvalde	Jun
Max. 24-hr. Prec.	20.6"	Montell	Uvalde	Jun 29
Max. Snowfall Ann.	28.5"	Romero	Hartley	
Max. Snowfall Mo.	12.0"	Amarillo	Potter	Dec

1914

This was the second consecutive year that was colder and wetter than average, the western area having about 150% of its mean precipitation. However, January gave no clue to what was in store as daily temperatures were some 4 to 7F above the mean and there was little precipitation. Fort McIntosh (Webb) reported the highest temperature ever recorded in January, 98F (see 1936). Amarillo and San Angelo both exceeded their monthly means by 11.5F. The cold wave of early February covered most of the state and was particularly damaging to the crops. March and April also were cold months and the latter was quite wet. On April 26 a tornado almost completely destroyed Peacock (Stonewall) but miraculously there was no loss of life. May was cool and very wet, averaging 7.7" over the whole state - the greatest monthly mean to date (see 1929). Many rivers flooded and losses were estimated at $2 million, with

11 persons drowned (the report says "as a result of accident or foolhardiness"). June and July were hotter and drier than average but August was relatively cool and probably the wettest ever. On October 23 heavy rains caused rapid flooding of the San Antonio River and nine persons were drowned. The last three months were quite wet and December was the coldest to this time, some 6F below average - a complete reversal of the way the year began.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	*110F	Blanco	Blanco	Jul 19
Lowest Temp.	-5F	Plemons Stratford	Hutchinson Sherman	Feb 6
Highest Prec. Ann.	71.7"	Beaumont	Jefferson	
Lowest Prec. Ann.	14.0"	Buena Vista	Pecos	
Max Excess Ann.	18.9"	Liberty	Liberty	
Max. Deficit Ann.	4.6"	Nacogdoches	Nacogdoches	
Max. % Ann.	140	Liberty	Liberty	
Min. % Ann.	90	Nacogdoches	Nacogdoches	
Max. Prec. Mo.	20.5"	Tivoli	Refugio	Oct
Max. 24-hr. Prec.	10.9"	Matagorda	Matagorda	Oct 24
Max. Snowfall Ann.	19.0"	Romero	Hartley	
Max. Snowfall Mo.	16.0"	Romero	Hartley	Dec

*Also Greenville (Hunt), Jul 30
Bowie (Montague), Jul 31
Graham (Young), Jul 31
Henrietta (Clay), Jul 31
Seymour (Baylor), Jul 31
Brownwood (Brown), Aug 1

1915

For the third successive time the year was cooler and wetter than average. The precipitation excess was not great but regional means varied from nearly 140% in the High Plains to 76% in the Lower Valley. The year started with a cold and wet January but February was very mild with average precipitation. March was the coldest on record, with freezes on the 22nd that extended almost to the coast. More than half the stations were over 10F below their mean temperature, and Albany (Shackelford)

reported a 15F deficit. April was a stormy month over much of the state, four persons were killed by lightning while other strokes ignited oil tanks. On April 22/23 heavy rains caused the loss of at least 40 lives by drowning, 32 of these in Austin. In May unseasonal snow fell in the Panhandle region. On June 9 there was extensive flooding around Fort Worth and Dallas when levees broke, but no one was hurt. Later in the month, at Tahoka (Lynn) one person was beaten to death by hail while trying to seek shelter. The weather tragedy of the year was the hurricane of August 16/17 that went ashore just south of Galveston (see Fig. 13), and caused the loss of 275 lives (69 of these at sea), plus 100 reported missing, and over $50 million damage in the eastern part of the state. At Galveston the wind reached 120 mph. Both San Augustine (San Augustine) and Rockland (Tyler) totaled over 25" of rain in the month. The last four months were warmer and, generally, drier than average. An unusual freeze in mid-November reached almost to the coast.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Fort Stockton	Pecos	Jun 19
Lowest Temp.	-12F	Stratford	Sherman	Dec 28
Highest Prec. Ann.	60.8"	Paris	Lamar	
Lowest Prec. Ann.	10.3"	El Paso	El Paso	
Max Excess Ann.	19.4"	Wichita Falls	Wichita	
Max. Deficit Ann.	15.8"	Beeville	Bee	
Max. % Ann.	165	Wichita Falls	Wichita	
Min. % Ann.	45	Beeville	Bee	
Max. Prec. Mo.	26.8"	San Augustine	San Augustine	Aug
Max. 24-hr. Prec.	10.6"	San Augustine	San Augustine	Aug 18
Max. Snowfall Ann.	30.0"	Tulia	Swisher	
Max. Snowfall Mo.	22.0"	Marathon	Brewster	Mar

1916

The state as a whole was drier and warmer than average during the year. Except for the Lower Valley all divisions reported a deficit, often around 30% of average. January was warm over the coastal and southwestern regions, being some 5F above average, but the month ended with an intense cold spell that took the freeze line as far as Brownsville. February was abnormally dry, with one of the lowest means ever recorded in any month, less than 0.1" (see 1952). It was the beginning of a six-month drought in the lower Rio Grande valley. March also was generally dry and warm, a few stations exceeding their monthly mean by 10F; on the 4th Clarendon (Donley) reported a daily range of 74F, from 11F to 85F, a phenomenal change. April and May were wetter than average, except along the coast and the extreme southern counties. By the time the drought broke in early July the lower Rio Grande valley had recorded less than 2" during five months. On August 18 a tropical storm came ashore between Corpus Christi and Brownsville, causing the loss of 20 lives and damage of $1.6 million. The last four months of the year all were dry with December having only about a quarter of its mean precipitation amount.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Eagle Pass	Maverick	Jun 6
Lowest Temp.	-11F	Lieb	Hutchinson	Dec 21
Highest Prec. Ann.	48.1"	Lufkin	Angelina	
Lowest Prec. Ann.	6.5"	Grand Falls	Ward	
Max Excess Ann.	10.5"	Uvalde	Uvalde	
Max. Deficit Ann.	16.9" 16.8"	Bonham Arthur City	Fannin Lamar	
Max. % Ann.	140	Uvalde	Uvalde	
Min. % Ann.	60	Bonham Arthur City	Fannin Lamar	
Max. Prec. Mo.	13.9"	Rockland	Tyler	May
Max. 24-hr. Prec.	6.5"	Santa Gertrudis	Kleberg	Jan 10
Max. Snowfall Ann.	17.0"	Amarillo	Potter	
Max. Snowfall Mo.	9.0"	Romero	Hartley	Jan

1917

This was the driest year on record and averages over the state were deficient in precipitation every month. Generally, the first few months were warm but appreciable cold waves occurred in early February and early March. In February, for the state as a whole, the temperature ranged 106F, from the -5F at Stratford (Sherman) on the 2nd to the 101F at Eagle Pass (Maverick) on the 21st. By March all areas except the northeastern and eastern counties were beginning to feel the effects of the drought. On May 16 hail at Ballinger (Runnels) was washed in places to a depth of three feet and took seven days to clear. May was relatively very cold and early in the month heavy snows and freezing weather hit the Panhandle. The month was drier than average but rainfall was well distributed. The next three months were both hot and dry, but in June the lowest temperature ever recorded for the month, 32F, occurred at Tulia (Swisher). June was exceptionally dry, one of the driest on record (see 1933). By late August the drought had become the worst ever in parts of the central and western areas. October also was very dry and brought early killing frosts over most of the state. December recorded severe cold waves across the state, the temperature dropping to the low and mid-20s south of Corpus Christi. One of the lowest temperatures ever reported in October, 11F, was reported both at Dalhart (Dallam) and Lieb (Hutchinson). The December precipitation was less than 0.2" (the driest ever), only 7% of the average and the 16th consecutive dry month.

The distribution of annual precipitation is shown in Fig. 6. This map should be compared with Fig. 14, the 1941-1970 mean annual precipitation totals. In many areas this was the driest year on record, with only 1956 coming close. Most of the stations in the western area had only about 40% of their average, the lowest being Barstow (Ward) with only one-fifth. Only 2.0" fell at Fowlerton (La Salle) during the year, one of the lowest totals ever recorded (see Table 10). In the eastern region the totals were about two-thirds of the long-period mean. No station had more than its average, the closest was Fort Worth with 88%.

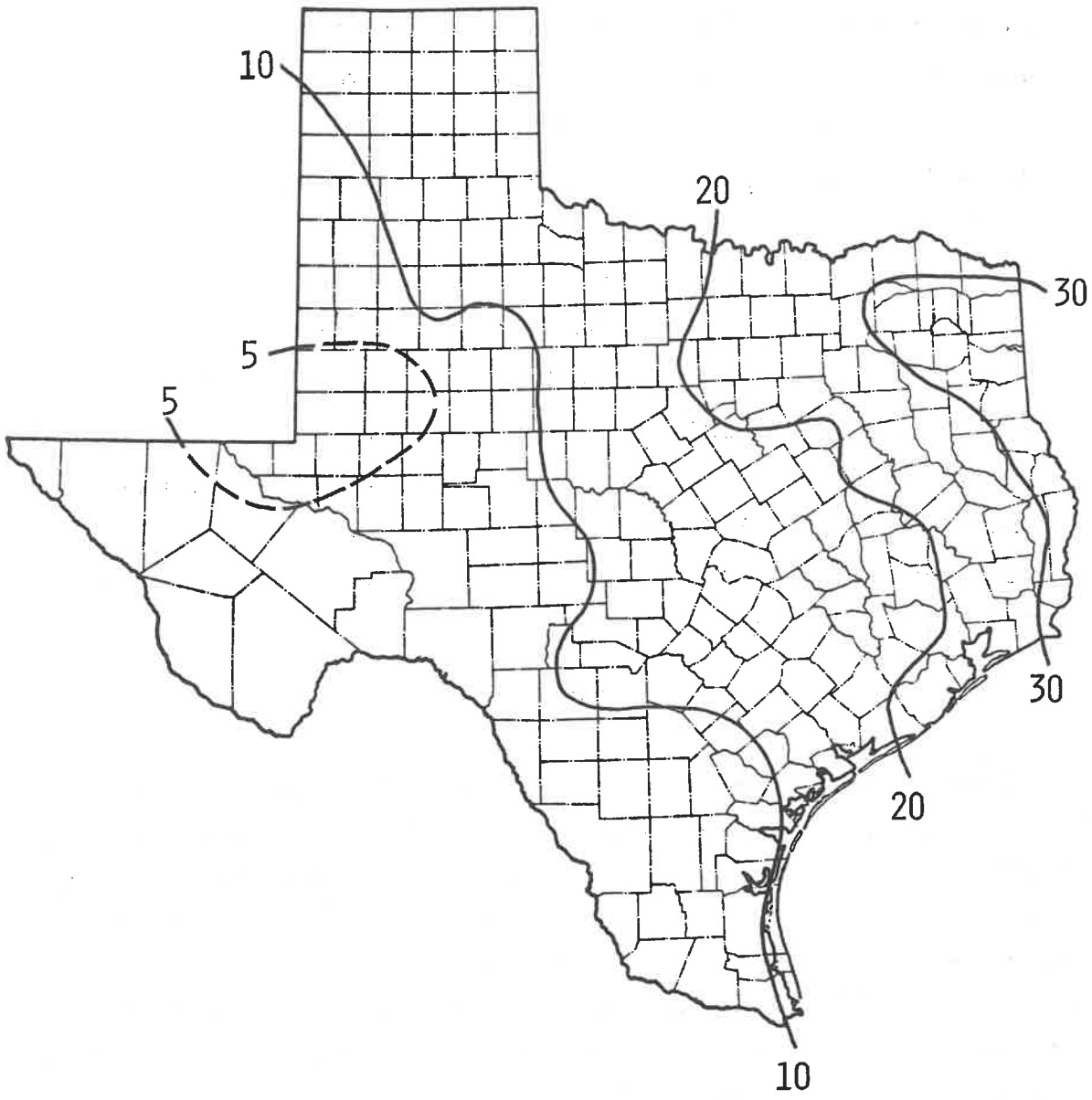


Figure 6
Annual Precipitation (Inches), 1917

1917

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Midland	Midland	Jun 12
Lowest Temp.	-5F	Stratford	Sherman	Feb 2
Highest Prec. Ann.	37.3"	Jefferson	Marion	
Lowest Prec. Ann.	2.3" (*2.0"	Barstow Fowlerton	Ward La Salle)	
Max Excess Ann.	None with excess			
Max. Deficit Ann.	31.5"	Houston	Harris	
Max. % Ann.	88	Fort Worth	Tarrant	
Min. % Ann.	35	Houston	Harris	
Max. Prec. Mo.	9.5"	Long Lake	Anderson	Jul
Max. 24-hr. Prec.	6.3"	Palestine	Anderson	Jul 19/20
Max. Snowfall Ann.	22.0"	Amarillo	Potter	
Max. Snowfall Mo.	9.0"	Amarillo	Potter	May

*Three months estimated

1918

Although the mean annual precipitation for the state was very close to average the poor seasonal distribution led to one of the most serious droughts - and this following on the state's driest year ever. January was very cold, Bonham (Fannin) being 14F below its mean and many stations showed a 10F deficit. An outbreak of cold air around the 11th brought a blizzard to the High Plains and saw Galveston's temperature drop to 16F and Brownsville's to 25F. It was the most severe cold wave since February, 1899. The monthly temperatures ranged 111F, from 96F at Falfurrias (Brooks) on the 26th and 27th, to the -15F at Romero (Hartley) on the 11th. February and March were mild but April was cooler than average. However, the important feature of April's weather was that it was the first month since August, 1916, that the precipitation exceeded the average. Nevertheless, the drought was still intense in the west and

northwest. On April 14 a series of tornadoes killed nine persons, three in one incident at Belleview (Clay). May and June brought reasonable rains but from mid-June to the end of August conditions were very hot and very dry. On August 6 the counties along the Louisiana border benefited from good rains associated with a tropical disturbance. September was very cool with less than average rainfall. October really broke the drought - since September, 1916, only one month had exceeded its average and the state-wide deficit in those 25 months was over 24". In the last three months the state-wide excess was 5" and by the end of the year most parts of the state, except the east, had annual totals about twice that of 1917. November was the snowiest on record.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Barstow	Ward	Jun 28
Lowest Temp.	-15F	Romero	Hartley	Jan 11
Highest Prec. Ann.	57.1"	Orange	Orange	
Lowest Prec. Ann.	8.2"	El Paso	El Paso	
Max Excess Ann.	13.4"	Brighton	Nueces	
Max. Deficit Ann.	11.5"	Taylor	Williamson	
Max. % Ann.	150	Brighton	Nueces	
Min. % Ann.	65	Taylor	Williamson	
Max. Prec. Mo.	18.1"	Stephenville	Erath	Nov
Max. 24-hr. Prec.	8.9"	Matagorda	Matagorda	May 4
Max. Snowfall Ann.	46.0"	Amarillo	Potter	
Max. Snowfall Mo.	30.0"	Bovina	Parmer	Dec

1919

This was one of the wettest years on record (see 1941), ten months exceeding the state mean, while temperatures were a little below average. The Edwards Plateau, South Central and South Texas had their wettest year

ever. January was the wettest since 1896 and began with a very severe cold wave that dipped temperatures to the 20s at the coast. Dalhart (Dallam) was 15F colder than average. March was the sixth consecutive month to exceed the precipitation average but severe duststorms were reported early in the month. April recorded two undesirable phenomena, the heaviest snows ever for so late in the year, that killed many young calves, and an outbreak of severe tornadoes around the 8th and 9th that killed 64 persons and injured 258. They occurred generally at nighttime and people were unprepared. The most casualties occurred in Camp, Fannin, Red River, Van Zandt and Wood counties. Many violent thunderstorms, accompanied by high winds, rain and hail, hit the lower Rio Grande valley, killing ten persons, seven of them in Mission (Hidalgo) which was badly affected. Later, on the 24th, more severe thunderstorms occurred between Houston and Port Arthur, killing three persons and destroying many oil derricks. June was very cool and wet, and heavy rains in July along the coast and in the southwest led to flood damage estimated at $3 million.

A destructive hurricane moved ashore near Corpus Christi on September 15 (see Fig. 13), killing 284 persons, and causing property damage of $20 million, while heavy rains were felt as far as the High Plains. October was very wet, giving a mean value (7.4") that at this time was second only to May, 1914 (7.7"). It was the first month in ten to exceed the mean temperature. November also was quite wet but December had only some 70% of the average rainfall. Two severe cold waves in the middle of the month took freezing temperatures as far south as Brownsville. Very few places had less than their annual average precipitation, the lowest were Lieb (Hutchinson) with only 93% and Denison (Grayson) 95%. The usual amount was well over 125% with some places recording twice average. It is astonishing to note the change that occurred from 1917, the driest year on record, to this, the second wettest ever (see Fig. 7). In the southern region the average went from 7" in 1917 to 20" in 1918 and 43" in 1919.

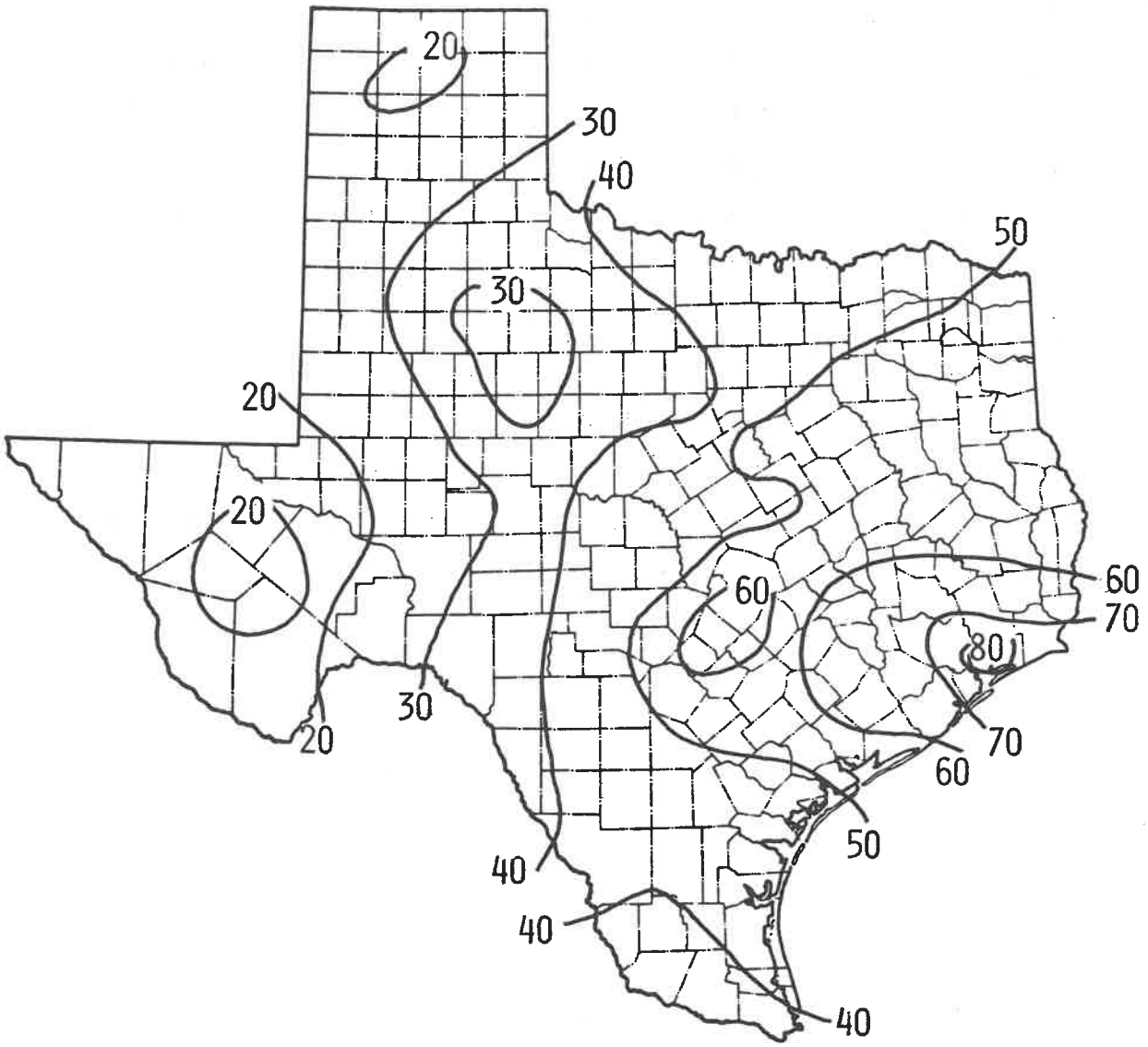


Figure 7
Annual Precipitation (Inches), 1919

1919

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Midland	Midland	Aug 16
Lowest Temp.	-17F	Dalhart	Dallam	Jan 1
Highest Prec. Ann.	85.1"	Anahuac	Chambers	
Lowest Prec. Ann.	9.9"	El Paso	El Paso	
Max Excess Ann.	35.4"	Liberty	Liberty	
Max. Deficit Ann.	1.3"	Denison	Red River	
Max. % Ann.	230	Big Spring Rossville	Howard Atascosa	
Min. % Ann.	93	Lieb	Hutchinson	
Max. Prec. Mo.	21.5"	Hitchcock	Galveston	Jun
Max. 24-hr. Prec.	12.0"	George West	Live Oak	Sep 15
Max. Snowfall Ann.	31.0"	Romero	Hartley	(Incomplete)
Max. Snowfall Mo.	22.0"	Hamilton Romero	Hamilton Hartley	Jan Apr

THE 1920s

This decade was a favorable one in that few major weather disasters occurred. The worst one happened in the extremely warm year of 1921. In September the central areas received phenomenal rains and the resultant flooding caused 215 deaths. The other major weather catastrophes were in 1927 when tornadoes in April and May killed 113 persons, 72 of them in Rocksprings (Edwards) where the town was almost completely destroyed. In 1929, May produced one of the wettest months on record and December gave the state its greatest average snowfall ever.

1920

This was a year with temperatures a little cooler than and precipitation somewhat above average. The Low Rolling Plains and the Trans-Pecos had around 130% of their mean annual precipitation, but the Lower Valley reported only 70%. It was a rather unusual year with no tropical storms, not many tornadoes and few months with any significant deviations from their monthly means. January was the wettest for 30 years and quite cold, but the severest freeze damage to early crops was reported on February 29. April was very dry (state average only 1") and cool, with a freeze during the first week reaching nearly to the coast. There were record snows and lows for the month in the Panhandle, some stations reporting readings of 9F. May was wet in the northeast and on the 16th high winds over the Spindletop oil fields in Jefferson County blew down 185 oil wells causing $200,000 worth of damage. From May to August rainfall was above the mean, the latter month having twice its average, and being one of the wettest Augusts on record. Both November and December had cold spells that reached the coast, but they were not severe.

1920

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Clayton	Fisher	Jul 29
Lowest Temp.	-4F	Canadian	Hemphill	Mar 7
Highest Prec. Ann.	63.1"	Hitchcock	Galveston	
Lowest Prec. Ann.	6.2"	El Paso	El Paso	
Max Excess Ann.	28.5"	Gatesville	Coryell	
Max. Deficit Ann.	9.5"	Falfurrias	Brooks	
Max. % Ann.	190	Gatesville	Coryell	
Min. % Ann.	60	Falfurrias	Brooks	
Max. Prec. Mo.	17.5"	Arthur City	Lamar	May
Max. 24-hr. Prec.	10.5"	Arthur City	Lamar	May 12
Max. Snowfall Ann.	24.0"	Miami	Roberts	
Max. Snowfall Mo.	14.0"	Miami	Roberts	Jan

1921

This probably was the warmest year ever across Texas, but with precipitation less than average. January was relatively hot, being from 5 to 8F above average, although, like the warm February following, the precipitation was close to average. March also was warm, 4 to 6F in excess of the mean, but a cold spell at the very end of the month damaged much tender vegetation. April was cool and brought a number of severe tornadoes, 11 were killed at Melissa (Collin) on the 13th and two days later eight died at Avinger (Cass) and two at Texarkana. May was quite dry but June was one of the state's wettest months on record and had twice its average rainfall, mainly due to the hurricane of the 22nd that came ashore over Matagorda Bay and brought over 10" to some places. July and August were slightly warmer and drier than average.

During the warm September one of the most intense rainstorms ever to be recorded in the United States hit the San Antonio-Austin-Taylor area. A rather weak hurricane entered Mexico near Tampico on September 7, then its remnants moved into south central Texas a couple of days later. There were two bursts of great intensity to hit the Taylor-Thrall (Williamson) region, one about 0630 on the 9th, the other at 0400 on the 10th. Official measurements record 23.1" in 24 hours, and 19.6" in 12 hours. Unofficial totals are 38.2" in 24 hours and 32" in 12 hours, occuring some two miles north of Thrall (see Fig. 8). The torrential storm led to flood destruction of homes and crops, washing out bridges and railroad tracks. The storm took 215 lives and caused damage estimated at $19 million. The rainfall intensities were so great that the storm is included in calculations of the maximum rainfall rate against time (duration) and area for the United States. October was very dry - the state average being only 22% of the mean - and November and December also were deficient in precipitation. November temperatures were about 5F above average, and the warm spell continued through December, which was the warmest ever across Texas. Encinal (La Salle) reported 98F readings on both the 1st and 2nd, the all-time record for the month (see 1951).

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Fairland Temple	Burnet Bell	Aug 5 Aug 21
Lowest Temp.	4F	Romero Dalhart	Hartley Dallam	Jan 13 Feb 19, 20
Highest Prec. Ann.	66.2"	Alvin	Brazoria	
Lowest Prec. Ann.	5.9"	Clint	El Paso	
Max Excess Ann.	19.2"	Austin	Bexar	
Max. Deficit Ann.	16.3"	Brownwood	Brown	
Max. % Ann.	155	Austin	Bexar	
Min. % Ann.	40	Brownwood	Brown	
Max. Prec. Mo.	25.9"	Taylor	Williamson	Sep
Max. 24-hr. Prec.	23.1"	Taylor	Williamson	Sep 9/10
Max. Snowfall Ann.	21.0"	Amarillo	Potter	
Max. Snowfall Mo.	14.0"	Paducah	Cottle	Feb

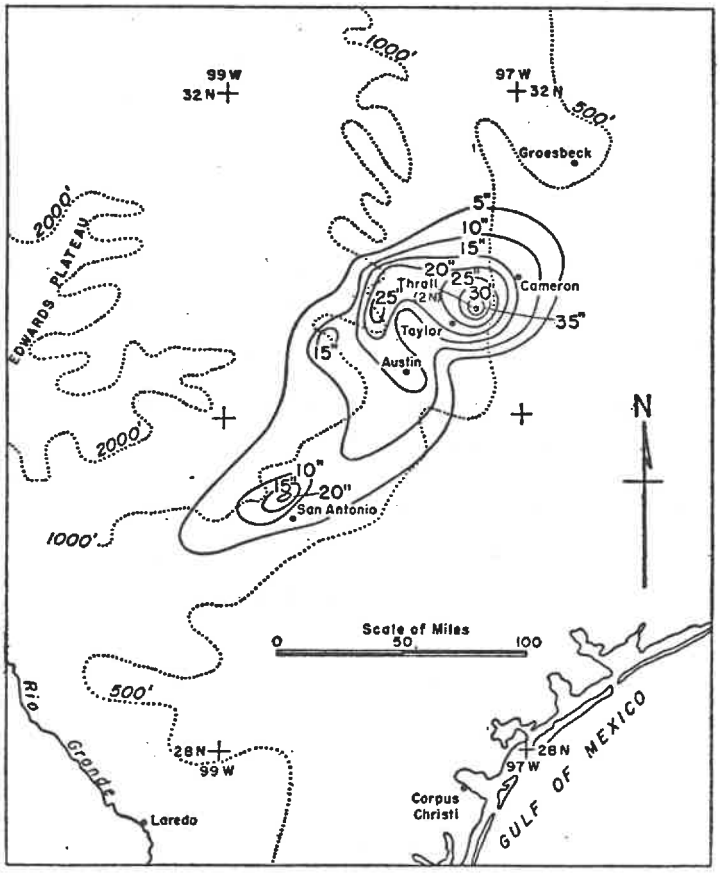


Figure 8

Rainfall Pattern (Inches) for the Thrall Storm, September 8th to 10th, 1921

(From -- Lott, G.A., 1953: The unparalleled Thrall, Texas rainstorm. Monthly Weather Review, 81, 195-203)

1922

Both mean annual temperature and precipitation were above average, but only slightly so. January was quite cold, due mainly to the last decad (ten days) being extremely cold. In contrast February was 4F above the mean. March gave the severest cold weather of the year, the -12F at Romero (Hartley) being the lowest temperature ever recorded in the month (see 1948). On the 25th two persons were killed by a tornado in Jefferson County. Tornado activity continued well into April (very wet with twice average rain), 12 being killed on the 8th at Rowena (Runnels) and Ophin (Callahan). An unusual storm affected the state from April 23rd to 28th and brought amounts over 10" in Parker, Dallas and Tarrant counties. Severe floods resulted in the upper Trinity River at Fort Worth, causing the loss of 11 lives and over $1 million in damage. Flooding in May was the most disastrous since December, 1913, causing damage estimated at $3 million. On the 4th two tornadoes killed 12 persons near Austin. In Nueces County large hail, up to 3" in diameter, injured 20 people, plus cattle and horses, and killed many small animals. In June a tropical storm over Mexico brought flooding to the Rio Grande, causing $3 million damage to crops and roads. During the remaining six months temperatures were generally above the mean, especially in December which had an excess of 5F, Fort Stockton (Pecos) was over 10F above average. Precipitation amounts were not up to the mean, especially in October which averaged only some 45% of the expected.

1922

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Quanah	Hardeman	Aug 3, 24
Lowest Temp.	-12F	Romero	Hartley	Mar 1
Highest Prec. Ann.	68.0"	Angleton	Brazoria	
Lowest Prec. Ann.	3.7"	Clint	El Paso	
Max Excess Ann.	22.4"	Ricardo	Kleberg	
Max. Deficit Ann.	10.7"	Greenville	Hunt	
Max. % Ann.	200	Ricardo	Kleberg	
Min. % Ann.	60	El Paso	El Paso	
Max. Prec. Mo.	18.2"	San Benito	Cameron	Sep
Max. 24-hr. Prec.	10.0"	Brazos	Palo Pinto	May 8
Max. Snowfall Ann.	26.5"	Spearman	Hansford	
Max. Snowfall Mo.	19.0"	Spearman	Hansford	Mar

1923

The state-wide mean temperature was close to the average but the precipitation showed a very large excess in all regions. Annual totals one-third over average were reported in the Panhandle, Edwards Plateau, South Central, Upper Coast and South Texas regions. The High Plains has reported only one wetter year, 1941. One outstanding aspect of the weather was the warmest January on record, 8F above the mean, up to 10F in excess in the coastal region and 13F high at Corsicana (Navarro). During the first week of a very wet February all stations recorded at least one freeze and the monthly precipitation was 250% of the average. In mid-March a severe and costly freeze extended to south of Corpus Christi. In May tornadoes on the 14th hit Howard and Mitchell counties, one passed over Spade causing 23 deaths. On the 18th a rainstorm brought 12.8" in 4 1/2 hours to Beaumont. June, July and August gave temperatures

and rainfall very close to average but September's rainfall gave an excess of 2". October was cool and very wet with about twice the mean monthly precipitation. However, this was beaten by the warm December, which recorded 250% of its average precipitation, the greatest ever for the month. In the coastal divisions the December rainfall was nearly four times the average. In this year Fowlerton (La Salle) reported 34.9", more than 17 times its 2.0" fall in 1917, to show the greatest percentage range ever noted in annual totals at a station. Beaumont's total of 95.3" was among the highest ever recorded in Texas (see Table 10).

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Henrietta	Clay	Jul 15, 26
Lowest Temp.	-5F	Dalhart	Dallam	Dec 31
Highest Prec. Ann.	95.3"	Beaumont	Jefferson	
Lowest Prec. Ann.	8.1"	El Paso	El Paso	
Max Excess Ann.	38.7"	Beaumont	Jefferson	
Max. Deficit Ann.	13.6"	Longview	Gregg	
Max. % Ann.	165	Beaumont	Jefferson	
Min. % Ann.	70	Longview	Gregg	
Max. Prec. Mo.	20.6"	Beaumont	Jefferson	May
Max. 24-hr. Prec.	13.5"	Beaumont	Jefferson	May 18
Max. Snowfall Ann.	43.5"	Romero	Hartley	
Max. Snowfall Mo.	28.5"	Romero	Hartley	Dec

1924

The year was a little cooler and much drier than average. January was a complete reversal from 1923, their two means differed by 13F, as this year the state average was 5F in deficit and as much as 10F low at Blanco (Blanco). February brought a damaging late freeze to the Lower Valley and heavy snow in central and southwestern areas. Temple (Bell)

had 16" of snow while even at Boerne (Kendall) 6" was recorded. March was unseasonally cool and out west, Vernon (Wilbarger) and Lamesa (Dawson) experienced a bad sandstorm on the 28th. In April a tornado killed five persons in Travis County, and many severe hailstorms were reported. May and June had temperatures and precipitation close to average but July was very dry, the eastern part of the state having only 4% of its mean value. A serious drought persisted from June 23 to September 10 but after a wet spell dry conditions set in again from October through December. In October the eastern and western regions had only 5% of their average, the same as the southwest received in November. December showed varying temperature patterns, being average in the east but 4F cooler than the mean in the northwest. On December 18/19 a severe cold wave reached Brownsville and sent the temperature down to 21F. The High Plains had less than half of the previous year's precipitation.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Spur	Dickens	Jun 15
		Fort Stockton	Pecos	Jun 17
Lowest Temp.	-9F	Dalhart	Dallam	Dec 19
Highest Prec. Ann.	46.6"	Conroe	Montgomery	
Lowest Prec. Ann.	5.3"	Clint	El Paso	
Max Excess Ann.	9.3"	Raymondville	Willacy	
Max. Deficit Ann.	23.6"	Beaumont	Jefferson	
Max. % Ann.	135	Raymondville	Willacy	
Min. % Ann.	55	Fort McIntosh	Webb	
Max. Prec. Mo.	16.5"	Conroe	Montgomery	May
Max. 24-hr. Prec.	13.9"	Conroe	Montgomery	May 30
Max. Snowfall Ann.	30.0"	Romero*	Hartley	
Max. Snowfall Mo.	19.5"	Romero	Hartley	Mar

* During the winter of 1923-24 Romero received 65.0" of snow, the highest seasonal total on record.

1925

The year was warmer and drier than average. Two months, April and July, were the warmest ever recorded for those months. January was cold, being about 3F below the long-term mean, and with a severe freeze reaching over the whole state at the end of the month. Warm weather set in during February and persisted through July. February was very dry, about 25% of average, while the southwestern area had less than 5%, but the state mean temperature was the highest to date. March also was hot and very dry, and in the central division April was 7F above the mean. On April 18 unusually high daytime temperatures were recorded and on the 28th a severe storm killed three persons at Kyle (Hays) and left hailstones to a depth of 10" in many places. May was a close-to-average month although unseasonally hot temperatures persisted from the 18th to 24th. At Encinal (La Salle) the mercury rose to 115F, one of the hottest May readings ever (see Table 4).

June and July were extremely warm and much drier than usual but August saw some areas with below average temperatures. In August a storm at Seabrook (Harris) killed two persons on the 22nd, while on the 29th a tornado resulted in two deaths at Electra (Wichita). September continued the succession of warm months but gave the first real excess of precipitation over the monthly average since May, 1924, and finally broke the drought. A mild tropical disturbance came ashore south of Brownsville on the 6th but caused little damage. October was very wet and there was some flooding in the lower Rio Grande valley, upper Trinity and Guadalupe rivers. October was 6F below the mean in the northwest but right at average along the coast. The first week of November gave good rains but thereafter the state was relatively dry. December was very cold, 4F below average, closing with severe snow, ice and sleetstorms down to the coast. Brownsville's maximum temperature on the 28th was only 31F.

1925

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Encinal	La Salle	May 24
Lowest Temp.	-3F	Dalhart	Dallam	Jan 27
Highest Prec. Ann.	61.8"	Galveston	Galveston	
Lowest Prec. Ann.	6.5"	El Paso	El Paso	
Max Excess Ann.	19.6"	Galveston	Galveston	
Max. Deficit Ann.	17.3"	McKinney	Collin	
Max. % Ann.	155	Brownsville	Cameron	
Min. % Ann.	52	Runge	Karnes	
Max. Prec. Mo.	19.2"	Brownsville	Cameron	Sep
Max. 24-hr. Prec.	10.4"	Brownsville	Cameron	Sep 6/7
Max. Snowfall Ann.	20.5"	Haskell	Haskell	
Max. Snowfall Mo.	20.5"	Haskell	Haskell	Jan

1926

The year was slightly cooler and somewhat wetter than average. January was quite cold with precipitation over twice the mean value in central, northeastern, southwestern and western regions; very heavy snowfall extended to the lower coast on the 23rd and 24th. February was unusually warm and very dry, the western and northwestern areas having less than 10% of their monthly mean. March was an active month, temperatures averaged 4F low, precipitation was the highest ever, two to three times the mean, a late freeze extended nearly to the coast and, on the 30th, destructive thunderstorms and tornadoes killed 11 people. In the southeastern sector 1000 derricks were destroyed or damaged and the total loss was over $2 million. April was cold and wet and some portion of most trunk streams flooded. Strangely, the northeastern, eastern and coastal areas were drier than average. On the 20th hail, the size of hen's eggs,

lay 12" deep in Uvalde County. Hailstorms continued into May and caused damage of over $3 million, a very intense fall occurring around Dallas on the 8th, with stones reported to weigh up to 22 ounces and be 8 to 12" in circumference. June was an average month although the east was rather wet. In July the northeast area had three times its mean rainfall. August's precipitation was generally very close to average and on the 27th a tropical storm moved in from Louisiana. September was warm but precipitation showed wide variation, from 40% of average in the southwest to 150% in the northwest. On the 22nd the second tropical storm of the year crossed into Texas from Louisiana. October was very warm (excess of 4F) and wet with a severe, extensive hailstorm in the east on the 23rd. The mercury rose to 109F at Victoria on the 11th, a state-wide record for October. November was cool and a little drier than average and saw some very high winds on the 25th, bringing severe sandstorms in the west and causing one death at Slayton (Lubbock). December was warm along the coast but close to average elsewhere. A storm around the 18th to 22nd brought heavy snow to the central and southern areas, Hillsboro (Hill) received 26" in under 48 hours and Jefferson (Marion) had 20".

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Encinal	La Salle	Aug 1
Lowest Temp.	-3F	Clarendon	Donley	Jan 21
Highest Prec. Ann.	66.2"	Jefferson	Marion	
Lowest Prec. Ann.	11.7"	El Paso	El Paso	
Max Excess Ann.	23.1"	Columbus	Colorado	
Max. Deficit Ann.	13.7"	Angleton	Brazoria	
Max. % Ann.	175	Colorado	Mitchell	
Min. % Ann.	75	Angleton	Brazoria	
Max. Prec. Mo.	14.7"	Paris	Lamar	Jul
Max. 24-hr. Prec.	10.0"	Sabinal	Uvalde	Apr 20
Max. Snowfall Ann.	43.5"	Vega	Oldham	
Max. Snowfall Mo.	16.0"	Knickerbocker	Tom Green	Jan

1927

This was a dry year but one of the warmest on record. January was slightly drier than average and generally warm, the greatest excess (4F) being reported in the coastal region although San Marcos (Hays) was 10F warmer than usual. February was relatively hot, some 5 to 7F above the mean, while precipitation was very close to the average. Boerne (Kendall) and Uvalde (Uvalde) both exceeded their mean by 11F. In the eastern region March was quite wet and the last decad brought freezing weather over much of the state. April, slightly warmer and wetter than usual, was notable for numerous tornado episodes. The worst of these occurred at Rocksprings (Edwards) where of the 800 population 72 were killed and over 200 injured as the town was virtually levelled. May was very hot and dry, the coast getting only some 20% of its mean rainfall. Fort McIntosh (Webb) reported a maximum of 115F on the 7th, one of the highest readings ever in May (see Table 4). Hailstorms were frequent and caused over $0.5 million in damage. However, the big tragedy was the loss of 39 lives and injuring of 280 people in Dallas, Collin, Hunt and Lamar Counties when tornadoes hit on the 9th. June and July had average conditions state-wide although some regions had good rainfall. August was generally very dry, especially in the central and coastal regions where less than 10% of the mean was received. The heaviest rains in September were over the western and northern parts of the state but in October it was the center that received the moisture. November was very hot, the mean temperature being the maximum ever for that month; most of the western half of the state had less than 10% of its average rainfall. December's temperature, in contrast to November, was much below average and brought a number of cold waves of not-too-great severity.

1927

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Fort McIntosh	Webb	May 7
Lowest Temp.	-6F	Romero	Hartley	Dec 8
Highest Prec. Ann.	63.1"	Winfield	Titus	
Lowest Prec. Ann.	5.3"	Clint	El Paso	
Max Excess Ann.	17.3"	Winfield	Titus	
Max. Deficit Ann.	20.8"	Matagorda	Matagorda	
Max. % Ann.	140	Winfield	Titus	
Min. % Ann.	45	Brownfield	Terry	
Max. Prec. Mo.	14.3"	Brazoria	Brazoria	Sep
Max. 24-hr. Prec.	9.0"	Encinal	La Salle	Oct 8
Max. Snowfall Ann.	12.0"	Presidio	Presidio	(incomplete)
Max. Snowfall Mo.	12.0"	Presidio	Presidio	Dec

1928

Annual temperatures were above average in the west and northwest and slightly below in the northeast, east and along the coast, while precipitation totals showed a deficiency in most areas except the northeast. The first few days of January were very cold, temperatures dropping to 18F at Port Arthur and 29F at Brownsville; precipitation was only about one-third of the monthly mean. February and March were slightly warmer than average with only small excesses or deficits of rainfall in most regions. April was quite cold with a severe frost in the middle of the month. Rainfall amounts varied from 120% of the mean in the northeast to only 35% in the northwest. There were many destructive storms around the 20th with a tornado in Cass and Bowie counties causing one death and leaving 43 injured. May was close to average in temperature but, like April, showed a great precipitation range from 160%

in the northwest to 35% in the central area. The worst storm killed three people in Laredo (Webb) on the 21st. June was cool in the east and warm in the west with generally heavy rains. July and August showed some divisional variation but no serious drought conditions developed. September had below average temperature and was very dry in the north, northwest and east; however, the southwest and coastal areas received twice their mean rainfall for the month, mainly due to a small tropical storm that passed inland between Brownsville and Tampico, Mexico, on September 7. October was uniformly warm and generally wet, except for the southwest. The last two months had near average temperatures and rainfall, although the northeast was quite wet in December. Two persons were killed in local storms that hit Zavalla (Angelina) and Center (Shelby).

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Spur	Dickens	Jun 28
Lowest Temp.	-7F	Dalhart	Dallam	Jan 1
Highest Prec. Ann.	69.7"	Winfield	Titus	
Lowest Prec. Ann.	6.4"	Presidio	Presidio	
Max Excess Ann.	23.7"	Winfield	Titus	
Max. Deficit Ann.	17.6"	Denison	Grayson	
Max. % Ann.	200	Grandfalls	Ward	
Min. % Ann.	50	Seymour	Baylor	
Max. Prec. Mo.	15.9"	Corpus Christi	Nueces	Sep
Max. 24-hr. Prec.	7.8"	Winfield	Titus	Jun 23
Max. Snowfall Ann.	36.0"	Vega Perryton	Oldham Ochiltree	
Max. Snowfall Mo.	14.0"	Amarillo	Potter	Nov

1929

Taking the year as a whole, average precipitation and slightly cooler temperatures prevailed over the state. However, moisture was deficient over the northwest and excessive in parts of the southwest, coastal and eastern areas. January was mild and very wet over the eastern half of the state, but close to average elsewhere. On the 4th a tornado hit Bay City (Matagorda) killing five persons. February was memorable for very low mean and extreme temperatures. From the 7th to 11th many places in the Panhandle experienced minimums below zero while for Miami (Roberts) the monthly mean was 26F, 14F below average. Tornadoes at Grand Prairie (Dallas) and Cooper (Delta) on the 25th each caused two deaths. March and April were both warm and generally gave close to average precipitation; the exception was in the northwest where March's total was twice the monthly mean but only 25% in April. On April 24 a tornado at Slocum (Anderson) killed seven persons. May was not only cool it was one of the wettest months ever recorded in the state with a mean value of 7.7" (see 1914) and all areas having at least twice their expected amount. Major flooding occurred on most rivers but, considering the area covered, the damage was relatively light, about $7 million. June was warm and generally dry although heavy rain accompanied a small but intense tropical storm at Matagorda (Matagorda) on the 28th that caused three deaths and much damage. August was warm and very dry, only 35% of average rainfall being recorded. September and October were generally a little warmer than average but precipitation amounts showed wide variation over the state. November was extremely cold, some 6 to 7F below the mean and 12F cooler than average at Kerrville (Kerr), and very wet in the east and along the coast. December began unusually warm but a cold wave during the 17th to the 24th brought a freeze to the coast, even down to Brownsville. During this period snow was widespread – 26" at Hillsboro (Hill), 24" at Clifton (Bosque) and even a trace at Brownsville. It was the highest monthly snow average ever for the state – 3.8".

1929

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Cleburne	Johnson	Aug 4
Lowest Temp.	-16F	Romero	Hartley	Feb 9
Highest Prec. Ann.	66.6"	Groveton	Trinity	
Lowest Prec. Ann.	8.4"	Presidio	Presidio	
Max Excess Ann.	20.9"	Cuero	DeWitt	
Max. Deficit Ann.	12.4"	Denison	Grayson	
Max. % Ann.	160	Cuero	DeWitt	
Min. % Ann.	65	Denison	Grayson	
Max. Prec. Mo.	22.5"	Rockland	Tyler	May
Max. 24-hr. Prec.	11.0"	Rockland	Tyler	May 27/28
Max. Snowfall Ann.	30.0"	Perryton	Ochiltree	
Max. Snowfall Mo.	26.0"	Hillsboro	Hill	Dec

THE 1930s

The best known weather happening of the 1930s is probably the severe drought which plagued sections of the state during the middle and latter parts of the decade. However, in Texas the drought of the early and middle 1950s was more devastating. One of the warmest years on record occurred in 1933, while one week in August, 1936, was one of the hottest periods ever in the state. Cool weather dominated the spring of 1931, while snowfall totals in northern and western sections during the winter of 1931-1932 were extremely large. Tornadoes and hurricanes took a heavy toll of both lives and property throughout the decade.

1930

Considering state values the annual temperature was slightly below and the precipitation a little above the average. The northwestern and central divisions were a bit deficient in moisture but other divisions had positive deviations. The year began with the coldest month on record to this date (see 1940), some 7 to 12F below the mean at most stations. Miami (Roberts) had an average of 22F, 16F below its long-term mean. In mid-January a severe cold wave took temperatures down to 13F at Galveston, 14F at Corpus Christi, 24F at Brownsville and 28F at Point Isabel (Cameron). In sharp contrast February temperatures went some 5 to 9F above average to record the highest mean ever for that month. Miami's mean temperature was 26F higher than the January value while Quanah (Hardeman) had an increase of 29F (26.7F to 55.4F). Precipitation showed a spotty pattern, 20% of average in the west and northwest, 130% in the northeast. March was rather cool, while April was very warm but quite dry, some 60% of average rainfall overall. May was extremely wet, divisions had amounts varying from 130% to 220% of their monthly means. May 6 was a tragic day for tornadoes caused 77 deaths; 41 in Hill, Ellis and Navarro counties, and 36 in another incident in Karnes and De Witt counties. Other tornadoes during the month killed six persons. June through August was a little warmer than usual but very dry, and drought conditions were evident over much of the state. In September the eastern area received good rains

but the drought persisted until October in most regions. October was very wet, the state mean was 6.2" and every area had at least twice its average monthly precipitation. November was slightly wetter than average and temperatures were below the mean. December was also cooler than usual, with a little less precipitation than expected in the month.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	McKinney	Collin	Aug 19
Lowest Temp.	-15F	Miami	Roberts	Jan 10
Highest Prec. Ann.	55.9"	Finley	Bowie	
Lowest Prec. Ann.	5.8"	Clint	El Paso	
Max Excess Ann.	13.5"	Kaufman	Kaufman	
Max. Deficit Ann.	12.6"	Rosenberg Runge	Fort Bend Karnes	
Max. % Ann.	160	Mission	Hidalgo	
Min. % Ann.	60	Runge	Karnes	
Max. Prec. Mo.	18.4"	Winfield	Titus	May
Max. 24-hr. Prec.	12.4"	Sinton	San Patricio	Apr 28
Max. Snowfall Ann.	24.0"	Plainview	Hale	
Max. Snowfall Mo.	16.0"	Plainview	Hale	Jan

1931

One of the coolest springs on record across the state was followed by a correspondingly warm autumn, which resulted in mean annual temperatures that were deceivingly close to average values. Precipitation was slightly below average except in the southwestern third of the state where annual totals 20% higher than usual were common.

Rainfall over the state as a whole was 1" above average during both January and February. The Edwards Plateau experienced its wettest January ever (4.3"), while amounts recorded in South Texas were not exceeded

until January, 1958. Many stations in the Trans-Pecos received 2 to 3 times their expected rainfall during the first two months of the year.

Temperatures, which had been near seasonal levels over much of the state during January and February, dipped sharply below average from March until May, in what was one of the coolest springs ever experienced by Texans. In March the mean temperature for the entire state was 5F below average, as South Texas and the Upper Coast posted exceptionally low readings. In addition, a few stations scattered throughout the state recorded monthly temperatures 10F below average. Heavy snows hit the High Plains, where Vega (Oldham) received 27" during the month. April was the coolest on record for the entire southern half of Texas (excluding the Trans-Pecos), and all other divisions also were several degrees below average. Record-setting rains in the Trans-Pecos totalled more than five times the average monthly amount. The unusual cool spell continued into May, as mean temperature records were set in the Low Rolling Plains, Upper Coast and South Texas, while extremely cool readings also were common across the remainder of the state.

Temperatures rose as usual as the summer began, but the northern half of the state and the Trans-Pecos received only about 50% of the expected rainfall in June. Late in the month a tropical storm brought rains to South Texas and the Lower Valley. August was slightly cooler than usual in all sections, as exemplified by Encinal (La Salle) and Longview (Gregg), both with mean temperatures at least 5F below average.

Like the spring, the fall of 1931 set several records, but in this case for unusually warm temperatures. In what was one of the warmest Septembers ever (see 1911), readings across the state averaged almost 5F higher than usual. The High Plains, Low Rolling Plains, North Central and Trans-Pecos divisions all experienced the warmest September on record, as stations through the region were commonly 7 to 8F warmer than average. In addition, this was the driest September ever for the entire state (0.6"), and also in the Edwards Plateau, South Central and East Texas. Warm weather continued to dominate through October as records were broken or approached in all areas except northwestern Texas and the Lower Valley. Stations in the Hill Country reported temperatures as much as 9F

above average. The warm spell continued into November, especially in the Trans-Pecos and Edwards Plateau. However, heavy snows of up to 10" fell in the Panhandle and mountains of western Texas. The year closed on a wet note over most of the state, with the rainfall for Texas averaging twice the usual amount for December. Very heavy snows again fell in western and northwestern Texas, where Clarendon (Donley) recorded 25".

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	109F	Fort Stockton	Pecos	Jun 19
Lowest Temp.	4F	Miami	Roberts	Mar 27
Highest Prec. Ann.	61.0"	Bon Wier	Newton	
Lowest Prec. Ann.	10.0"	Presidio	Presidio	
Max Excess Ann.	14.6"	Laredo	Webb	
Max. Deficit Ann.	22.8"	Denison	Grayson	
Max. % Ann.	192	Clint	El Paso	
Min. % Ann.	39	Denison	Grayson	
Max. Prec. Mo.	16.4"	Bronson	Sabine	Dec
Max. 24-hr. Prec.	8.0"	Corpus Christi	Nueces	Jun 27
Max. Snowfall Ann.	52.5"	Vega	Oldham	
Max. Snowfall Mo.	27.0"	Vega	Oldham	Mar

1932

With the exception of the Upper Coast, 1932 was a wet year across Texas as annual precipitation totals 20% above average were common in many areas. Some stations in the Trans-Pecos and Edwards Plateau reported amounts as much as 50% higher than usual. Temperatures were slightly below average over the state during most of the year, and would have been lower had it not been for a very warm February. During the year Texans were plagued by flooding and a hurricane, which were responsible for scores of deaths and injuries and appreciable property damage.

The unusually heavy rain and snow of late 1931 continued into the first few months of 1932. Both January and February were among the wettest ever across Texas (see 1891 and 1903). Record-setting amounts were recorded during January in North Central and East Texas, and in the Trans-Pecos during February. Several stations in the Panhandle each received more than 10" of snow in January. In what was an extremely warm February, average temperatures across the state were some 6F higher than expected (see 1930). Stations from Amarillo to Blanco (Blanco) reported mean monthly temperatures which were in excess of 10F warmer than usual. Cold weather returned during March, when both Llano (Llano) and Kerrville (Kerr) reported temperatures 9F below average during the month. Almost the entire state north of a line from Corpus Christi to Laredo received measurable snowfall in March, led by a report of 19" at Romero (Hartley). Snowfall totals were unusually high in the Panhandle during the winter of 1931-1932, as Amarillo recorded 41" and numerous other stations received 20" or more.

Precipitation in April and May was somewhat below average state-wide, especially in South Central and East Texas. However, throughout the summer months rainfall totals were generally higher than expected. June rains across the High Plains exceeded anticipated amounts by 3.5", a record that stood until 1965.

Torrential rains over the Edwards Plateau in late June and early July resulted in floods on the Nueces, Frio and Guadalupe rivers which caused seven deaths and over $500,000 damage. As if this was not bad enough, on August 13 a hurricane struck the coast near Velasco (Brazoria) and left 40 dead and more than 200 injured. Winds, estimated to be near 100 mph at East Columbia (Brazoria), helped cause at least $7.5 million damage in Harris, Galveston, Brazoria, Fort Bend, Wharton and Matagorda counties.

Unusually heavy amounts of rain continued to fall in western Texas in September. Stations in the Trans-Pecos and Edwards Plateau recorded surpluses of 6" and 4", respectively. Consequently, during September and the first half of October floods hit the Rio Grande valley and were responsible for 10 deaths and over $2.5 million damage. Flood crests broke

records from Del Rio to Brownsville. The rains ended abruptly over the Edwards Plateau, as the area experienced the second driest October on record (see 1952). Additionally, all other areas of the state except the Lower Valley reported precipitation totals 1 to 2" below average. The dry spell continued through November, but was broken in December as record-setting rains soaked the Low Rolling Plains.

Cool weather prevailed over Texas from October through the end of the year. State-wide, temperatures were 3F below average in both October and November, but dropped almost 5F under the expected values for December. The High Plains and Low Rolling Plains both experienced the coldest December ever, and readings in North Central and South Central Texas also were unusually low. On December 11, Booker (Lipscomb) reported a low temperature of -16F, the lowest temperature ever recorded in Texas during the month of December.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Presidio	Presidio	Jun 14
		McCamey	Upton	Jul 31,Aug 2
Lowest Temp.	-16F	Booker	Lipscomb	Dec 11
Highest Prec. Ann.	56.1"	Dialville	Cherokee	
Lowest Prec. Ann.	9.5"	Presidio	Presidio	
Max Excess Ann.	22.8"	Abilene	Taylor	
Max. Deficit Ann.	14.7"	Rosenberg	Fort Bend	
Max. % Ann.	235	Balmorhea	Reeves	
Min. % Ann.	60	Kingsville	Kleberg	
Max. Prec. Mo.	21.0"	Uvalde	Uvalde	Jul
Max. 24-hr. Prec.	13.5"	Uvalde	Uvalde	Jul 2
Max. Snowfall Ann.	49.0"	Romero	Hartley	
Max. Snowfall Mo.	21.0"	Romero	Hartley	Dec

1933

Texans experienced one of the warmest years on record during 1933 (see 1921). The Edwards Plateau, Upper Coast, East, South and South Central Texas divisions set records for mean annual temperatures that still stand today. Rains accompanying tropical disturbances were responsible for unusually high annual precipitation amounts in the Lower Valley (see 1941), while elsewhere rainfall ranged from near average in East Texas to less than 70% of the expected totals throughout western Texas. During the year tornadoes killed 31 persons and injured another 226, while damage from tornadoes and hailstorms exceeded $2 million.

Temperatures state-wide were 6F higher than usual during January, while a few stations from Wichita Falls to Seguin (Guadalupe) recorded monthly temperatures as much as 12F above average. Crop damage was sustained in all sections of Texas during the cold wave of February 6th to 11th. On February 7, the maximum temperature at Amarillo was only 0F, one of the lowest daily maximums ever recorded in the state (see Table 5). Maximum temperatures at a few stations in the Panhandle on the 7th were as much as 65F lower than on the 6th. Clarendon (Donley) recorded maximum and minimum readings of 69F and -6F, respectively, on the 6th, an amazing daily range of 75F. The temperature dropped to -23F at Seminole (Gaines) on February 8, tying the record for the lowest reading ever in Texas, first set at Tulia (Swisher) on February 12, 1899. Three other stations recorded minimums of -20F or less (see Table 6).

During the first three months of the year, precipitation across the state was generally as expected, except in the Trans-Pecos where both January and March were extremely dry. In April, rains were deficient in all areas, especially the Low Rolling Plains and Upper Coast. Temperatures during May were the warmest ever in southern and eastern sections of Texas.

June rainfall was the lightest ever over the entire northern half of the state and the Edwards Plateau, which gave the lowest state-wide average for any June on record. Additionally, several cities in the Panhandle reported temperatures at least 5F above average during the month.

The 115F readings at Haskell (Haskell) and Llano (Llano) in June gave the state a record temperature range for a year, 138F. The dry spell was only short-lived, however, due to heavy rains during July and August.

Temperatures were well above average over most of Texas throughout the remainder of the year. September readings across the Upper Coast and South Texas were the highest ever, while in October stations from Corsicana (Navarro) to Cline (El Paso) were as much as 9F warmer than usual. December was one of the warmest on record state-wide (see 1921), as all divisions except the Low Rolling Plains experienced unusually warm, if not record-setting, temperatures. From September until December, precipitation was slightly below average in most sections. Of note were the dry November in East Texas and yet another very dry month for the Trans-Pecos in December.

Severe local storms were prominent features of Texas' weather during 1933, as shown by the following table:

STORM	DATE	AREA	DEATHS	INJURIES	DAMAGE
Tornado	Jan 20	Lamar County Red River County	2	19	----
Tornadoes	Mar 30	East Texas	14	108	$350,000
Hailstorm	Apr 25	Hunt County Dallas County	0	0	478,000
Tornado	Apr 26	Texarkana	5	38	14,000
Tornado	May 10	Brownwood	4	7	250,000
Wind and Hail	Jul 14	Ochiltree County Hardeman County	0	0	350,000
Tornado	Jul 30	Dallas	5	30	500,000

Three tropical disturbances during the late summer had a great impact on coastal areas. A tropical storm made landfall near Freeport (Brazoria) on July 22 and slowly moved through East Texas during the next several days, generating torrential rains over the watersheds of the Neches and Sabine rivers. Subsequent flooding resulted in over $1 million damage. Another Gulf storm struck the Mexican coast south of

Brownsville on August 4 and destroyed almost 10% of the citrus crop in the Lower Valley. Exactly one month later a strong hurricane came ashore just north of Brownsville, with peak winds estimated to be near 125 mph. Forty died and at least 500 were injured, while damage totalled $17 million (including what remained of the citrus crop).

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Haskell	Haskell	Jul 12
	115F	Llano	Llano	Jul 14
Lowest Temp.	-23F	Seminole	Gaines	Feb 8
Highest Prec. Ann.	58.6"	Marshall	Harrison	
Lowest Prec. Ann.	2.1"	Presidio	Presidio	
Max Excess Ann.	21.8"	San Benito	Cameron	
Max. Deficit Ann.	15.2"	Conroe	Montgomery	
Max. % Ann.	185	San Benito	Cameron	
Min. % Ann.	25	Presidio	Presidio	
Max. Prec. Mo.	20.3"	Bronson	Sabine	Jul
Max. 24-hr. Prec.	15.0"	Mercedes	Hidalgo	Sep 4/5
Max. Snowfall Ann.	10.0"	Post	Garza	
		Vega	Oldham	
Max. Snowfall Mo.	10.0"	Post	Garza	Feb

1934

The dry spell which began in late 1933 across Texas persisted throughout 1934 and into 1935. Severe drought conditions existed in western and northwestern Texas, while the northern and eastern sections were stricken to a lesser extent. However, conditions were even worse over the Great Plains, in the "dustbowl". (As far as Texas is concerned, the drought of the early and middle 1950s was both more severe and more widespread than that of the 1930s.) Annual precipitation totals were less than 50% of the expected amounts in the Trans-Pecos, while stations in the High Plains, Low Rolling Plains, North Central and Edwards Plateau

divisions were routinely at least 20% below average. In addition, for the second year in a row mean temperatures across the state were extremely high (2F above average). For example, 1934 was the warmest year ever in the High Plains, while both the Low Rolling Plains and Edwards Plateau were also unusually warm.

During the first two months of 1934, the precipitation pattern for the entire year was previewed. In western and northwestern parts of the state, totals were well below average, while along the coast and in East Texas rains were more than sufficient (January was the wettest ever in South Central Texas). Beneficial rains fell in all zones except the Trans-Pecos during March, and continued into April. However, insufficient rain fell during May and farmers and ranchers began feeling the effects of drought, especially in the Trans-Pecos.

Throughout the summer, areas which had been experiencing rainfall deficiencies for several months failed to receive badly needed moisture. By the middle of August, that part of the state north of a line from Del Rio to Austin to Beaumont was in the throes of a severe drought, which would last through the summer of 1935 in western and northwestern Texas. Stresses on plant and animal life were intensified by the heat, as temperatures averaged 3F higher than usual over Texas during the summer. The Low Rolling Plains, North Central, East Texas and Edwards Plateau divisions set temperature records for June that were not broken until 1953, while in South Central Texas the record still stands. Record-setting heat also scorched the High Plains and the Low Rolling Plains during July. Late in the month a hurricane struck the coast near Seadrift (Calhoun), killed 19 persons and caused over $4 million damage, mostly to crops. However, the storm did provide beneficial rainfall over southern and southeastern Texas.

In October the combination of unusually warm temperatures and very spotty rainfall helped prolong the drought. Heavy November rains broke the drought in North Central and East Texas, but at the end of the year moisture conditions were still very serious in the High Plains, Low Rolling Plains, Edwards Plateau and Trans-Pecos.

1934

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Snyder	Scurry	Jun 20
Lowest Temp.	3F	Booker	Lipscomb	Feb 25
Highest Prec. Ann.	68.6"	Orange	Orange	
Lowest Prec. Ann.	2.7"	El Paso	El Paso	
Max Excess Ann.	14.8"	Matagorda	Matagorda	
Max. Deficit Ann.	19.3"	Denison	Grayson	
Max. % Ann.	135	Matagorda	Matagorda	
Min. % Ann.	32	Balmorhea	Reeves	
Max. Prec. Mo.	13.7"	Orange	Orange	Mar
Max. 24-hr. Prec.	8.1"	Freeport	Brazoria	Nov 3
Max. Snowfall Ann.	26.3"	Amarillo	Potter	
Max. Snowfall Mo.	21.5"	Amarillo	Potter	Mar

1935

Drought continued to plague western and northwestern Texas during the first half of 1935. However, two consecutive months with heavy rain (May and June) effectively put an end to the problem. As a matter of fact, the state-wide average rainfall for the year was more than 7" higher than usual. The High Plains and Trans-Pecos reported totals slightly below average, but elsewhere rainfall was typically 20 to 25% more than expected. It was one of the wettest years ever for the Edwards Plateau (see 1919). The heavy rains during May and June caused devastating floods, especially along the Colorado and Nueces rivers. In December eight persons drowned as bayous in Harris County spilled over their banks. Total flood damage state-wide during the year approached $30 million. Severe local storms, most of which occurred during the

first six months of the year, were responsible for 29 deaths, more than 350 injuries and about $3.5 million damage.

During the first three months of 1935, rainfall was near average in most locations, but continued to be slightly deficient in drought-stricken areas. Even though January temperatures averaged 5F warmer than usual across Texas, a hard freeze at the end of the month caused extensive damage to winter crops as far south as the Rio Grande valley. East Texas experienced the warmest March to date during 1935 (see 1938), while temperatures state-wide were 6F above average.

Severe thunderstorms were common early in the year. On February 8, tornadic winds tore through Grapeland (Houston) and left 11 dead and 38 injured. A severe hailstorm pelted San Antonio on March 5 and caused an estimated $1 million damage to homes and autos.

Continued warm, dry weather in western and northwestern Texas led to widespread duststorms during March. April also was extremely dry in the High Plains, so behind an outbreak of cold air from the north during the middle of the month one of the worst duststorms on record developed. The dust even reached the southern part of the state, where visibility was reduced to less than one mile in many locations. However, heavy rain during the next two months finally broke the drought across Texas. In what was a very rainy May (see 1914 and 1929), the state-wide average precipitation totalled 7". North Central, South Central, East Texas and the Edwards Plateau were particularly wet. The first week of May was white in the Panhandle, where as much as 3" of snow was reported at a few stations. Temperatures warmed appreciably later in the month, however, as both the High Plains and Trans-Pecos recorded near record-breaking readings. The rain failed to let up in June, when record amounts were received in both the Edwards Plateau and North Central Texas. As would be expected, two consecutive months of unusually heavy rain led to floods on the state's rivers and streams. Record flood stages were reached at many stations including Austin, Victoria and Cotulla (La Salle). Damage by river system was as follows:

Colorado	$13.0 million
Nueces	9.4 million
Guadalupe	1.6 million
Brazos	1.3 million

For the next several months, Texas residents received a respite from the extremes of weather that had plagued them for more than a year. With one exception, from July through November temperatures and rainfall also were at expected levels state-wide. September was 2" wetter than average and also was unusually cool. Wichita Falls and Big Spring (Howard) recorded mean temperatures that were 7F below average for the month. In early December, heavy rains hit the Upper Coast, which caused Buffalo and White Oak bayous to flow over their banks in Harris County. Eight persons drowned in the flood, which covered 100 city blocks.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Quanah Seymour	Hardeman Baylor	Aug 10
Lowest Temp.	-6F	Booker	Lipscomb	Jan 20
Highest Prec. Ann.	66.6"	Conroe	Montgomery	
Lowest Prec. Ann.	5.7"	El Paso	El Paso	
Max Excess Ann.	30.3"	Hondo	Medina	
Max. Deficit Ann.	8.6"	Stratford	Sherman	
Max. % Ann.	231	Ballinger	Runnels	
Min. % Ann.	53	Stratford	Sherman	
Max. Prec. Mo.	22.4"	Hondo	Medina	May
Max. 24-hr. Prec.	9.8"	Karnes City	Karnes	Jun 12
Max. Snowfall Ann.	21.5"	Brownfield	Terry	
Max. Snowfall Mo.	14.0"	Brownfield	Terry	Feb

1936

Mean temperatures across Texas generally were as expected during 1936, with the exception of the Lower Valley where readings were the coolest to date (see 1976). The Edwards Plateau received 40% more rain than usual during the year, while southern sections commonly were 20 to 30% above average. In East Texas there was a deficit of almost 20%, but elsewhere rainfall was near average. Floods from May through October caused more than $8 million damage, particularly in the Guadalupe, Colorado and Brazos river systems. One peculiar note: in the months of January, February and November of 1936, no station in the state recorded more than 2.0" during any 24-hour period.

Dry weather prevailed during the first four months of the year. It was one of the driest Februarys on record in the Low Rolling Plains (see 1976), and also extremely dry in the Trans-Pecos. The reading at Laredo hit 98F on January 17, which tied the state record for the month (see 1914). During February cold weather dominated the state, as stations from Sealy (Austin) to Canadian (Hemphill) reported temperatures more than 10F below average. Severe thunderstorms and a tornado on March 24 caused $1.5 million damage from Tyler (Smith) to Texarkana. An extremely cold surge of air swept across the Panhandle in early April, which sent the temperature at Romero (Hartley) down to 5F on the 2nd and 6th, the lowest readings ever recorded in the state during the month.

Rains during May exceeded expected totals by an average of 2.5". The Upper Coast, Trans-Pecos and South Central Texas all reported unusually large amounts. In late June a weak hurricane came inland near Port Aransas (Nueces) and damaged crops in the area surrounding Corpus Christi Bay. The remnants of the storm swept westward across southern Texas and dropped 15.6" of rain on Eagle Pass (Maverick) in just 24 hours. Additional heavy rain in South Central Texas during July led to a flood on the Guadalupe River, in which 20 persons drowned.

The second week of August was one of the hottest periods ever in Texas. On August 12 Seymour (Baylor) recorded 120F, the highest official temperature ever recorded in the state. During the spell, at least six

other stations recorded temperatures of 117F or higher (see Table 5). In the Panhandle the month was extremely dry and moisture was badly needed to prevent another drought. Unexpectedly, any chance of drought quickly was washed away in what was the wettest September on record across the state. In addition, record-setting amounts were recorded in the High Plains, Low Rolling Plains, Edwards Plateau and North Central Texas. The area around San Angelo was inundated, as 25.2" were recorded from September 15th to 18th. The Concho River flowed over its banks, killed four persons and caused $5 million damage in the city. Later in the month a flood on the Brazos River in central Texas caused $3 million damage. October was unusually cold across the state, particularly in South Texas and the Lower Valley.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	120F	Seymour	Baylor	Aug 12
Lowest Temp.	-10F	Follett	Lipscomb	Feb 8
Highest Prec. Ann.	62.2"	Hallettsville	Lavaca	
Lowest Prec. Ann.	6.8"	Pecos	Reeves	
Max Excess Ann.	26.0"	Hallettsville	Lavaca	
Max. Deficit Ann.	20.0"	Mount Pleasant	Titus	
Max. % Ann.	230	San Angelo	Tom Green	
Min. % Ann.	53	Stratford	Sherman	
Max. Prec. Mo.	27.7"	San Angelo	Tom Green	Sep
Max. 24-hr. Prec.	15.6"	Eagle Pass	Maverick	Jun 29
Max. Snowfall Ann.	23.0"	Muleshoe	Bailey	
Max. Snowfall Mo.	17.0"	Muleshoe	Bailey	Jan

1937

Except for a rather cool March and a warmer than expected August, mean temperatures during 1937 were about average across the state. However, on April 28 both Laredo and Rio Grande City (Starr) recorded temperatures of 112F, two of the highest ever in the state during April (see 1963). The Low Rolling Plains, Upper Coast, North Central and South Central Texas had small precipitation deficiencies, while in South Texas totals were almost 30% below average. The only division which reported significantly higher than expected rainfall was the Lower Valley, where totals were 11% above average. The highest 24-hour precipitation amount at a station during the year, 6.9" at Centerville (Leon), was an unusually low value.

The year began on a dreary note, due to the unusually high number of cloudy or rainy days across Texas. A severe icestorm, thought to be the worst to date, paralyzed northeastern Texas from January 6th to 12th and caused $3 to 4 million damage. February rains were deficient state-wide, but particularly in North Central Texas where it was the driest ever. During March, rains averaged 1" over the mean, and were especially heavy in South Central Texas. Mean temperatures during March were 3 to 4F below average in all divisions. Both April and May were unusually dry across the entire state, but particularly along the Upper Coast where each month was the driest ever.

Tornadoes and hailstorms were common in June, and caused almost $1 million damage. August temperatures were a few degrees warmer than usual, especially in the Edwards Plateau. A very unseasonal heavy snowstorm struck central and northeastern parts of the state on November 22/23. Austin and Cameron (Milam) each reported 10", while at least half a dozen stations from Temple (Bell) to Kaufman (Kaufman) received 6" or more. During December, precipitation across Texas was 2" above average, as both the Edwards Plateau and South Texas experienced the wettest December on record.

1937

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Henrietta	Clay	Aug 10
		Seymour	Baylor	Aug 12
Lowest Temp.	-4F	Dalhart	Dallam	Jan 8, 9
Highest Prec. Ann.	55.4"	Lufkin	Angelina	
Lowest Prec. Ann.	5.3"	Clint	El Paso	
Max Excess Ann.	12.4"	Lufkin	Angelina	
Max. Deficit Ann.	22.7"	Orange	Orange	
Max. % Ann.	150	Fort Stockton	Pecos	
Min. % Ann.	53	Laredo	Webb	
Max. Prec. Mo.	11.7"	Lufkin	Angelina	Jan
Max. 24-hr. Prec.	6.9"	Centerville	Leon	Nov 9
Max. Snowfall Ann.	15.6"	Vega	Oldham	
Max. Snowfall Mo.	10.0"	Cameron	Milam	Nov

1938

With the exception of the Trans-Pecos, all sections of Texas reported annual rainfall totals which were below average. South Texas and the Lower Valley were the driest areas, where less than 80% of the expected rain was measured. By the end of the year, North Central Texas and the Edwards Plateau were experiencing a moderate drought, one which would envelop virtually the entire state in 1939. Mean temperatures were warmer than usual across the state, particularly from January through March and in October. Tornadoes and severe thunderstorms were responsible for 22 deaths, over 100 injuries and more than $6 million damage during the year. Three small tropical disturbances developed in the Gulf of Mexico during 1938, but none caused any damage in Texas.

Temperatures state-wide were unusually warm during the first three months of the year. March was the warmest ever in the Edwards Plateau,

North Central, South Central and East Texas, while the Upper Coast and South Texas also had unexpectedly high readings. During the month a few stations from Seguin (Guadalupe) to Longview (Gregg) reported temperatures 10F above average. Precipitation slightly exceeded mean values in most areas early in the year, except in the Panhandle where large amounts in February set new records. Snow was heavy in northern sections during February, and unseasonally large amounts also were reported in April.

Severe storms plagued the state during the spring and early summer. On April 26 a tornado killed three and injured more than 50 at Draw (Lynn). High winds and locally heavy rain on May 16 resulted in $1.5 million damage to crops and property losses of $3 million across Bee, Refugio and San Patricio counties. In the worst weather-related disaster of the year, 14 died and nine others were injured in Clyde (Callahan) as a tornado ripped through the town on June 10.

In the Trans-Pecos, June was the second wettest on record (see 1941) and the July total has yet to be surpassed. Heavy rains over the Colorado River watershed resulted in floods from San Saba (San Saba) to the coast late in July and into August. The floodwaters were responsible for six drownings and over $5 million damage. State-wide, precipitation during the three month period August through October averaged 4" less than usual. October temperatures were slightly warmer than average, but readings were seasonal the remainder of the year.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Llano	Llano	Jul 6
		Eagle Pass	Maverick	Jul 21
Lowest Temp.	0F	Muleshoe	Bailey	Feb 18
		Stratford	Sherman	Feb 19
Highest Prec. Ann.	52.9"	Bronson	Sabine	
Lowest Prec. Ann.	6.3"	Langtry	Val Verde	
Max Excess Ann.	12.3"	Hillsboro	Hill	
Max. Deficit Ann.	21.1"	Freeport	Brazoria	
Max. % Ann.	136	Abilene	Taylor	
Min. % Ann.	49	Port Isabel	Cameron	
Max. Prec. Mo.	22.6"	Sloan	San Saba	Jul
Max. 24-hr. Prec.	10.7"	Yoakum	Lavaca	Apr 25
Max. Snowfall Ann.	26.0"	Spearman	Hansford	
Max. Snowfall Mo.	15.7"	Amarillo	Potter	Feb

1939

Precipitation across Texas was 15% below average during 1939, as totals were particularly deficient in the Low Rolling Plains, Lower Valley and South Central Texas. Consequently, most sections of the state (with the exception of the Trans-Pecos and Upper Coast) experienced at least moderate drought conditions from late spring through the end of the year, and into 1940 in some areas. Hardest hit were the Low Rolling Plains, Edwards Plateau and South Central Texas, where deficiencies became severe during the summer. Crops and livestock were affected, but not to the extent as in 1934-1935.

Temperatures during January and March were relatively mild, as readings averaged 3F higher than usual. The lowest temperature in the state during January was 13F at Muleshoe (Bailey), an unusually high minimum temperature for the month. The majority of Texas received more than ample rainfall in January, particularly across the High Plains. East Texas experienced the wettest February ever, while temperatures state-wide were 3F below average. The period of dry weather began in March, when duststorms damaged winter wheat throughout Armstrong, Castro, Parmer, Randall and Swisher counties. Rainfall amounts in April typically were 1" less than expected, but were especially light in South Texas.

Unusually warm weather in May set a record across the Edwards Plateau, while temperatures also were unexpectedly high in South Central Texas. On May 7, a hailstorm caused $500,000 damage to crops in McLennan County, while one day later in Luling (Caldwell) a severe thunderstorm accompanied by hail and high winds killed two persons and injured 24 others. On June 20/21, flash floods hit Snyder (Scurry) and Colorado City (Mitchell) after a period of intense rainfall in the upper Colorado River watershed. Summer precipitation was near average in many areas and helped relieve moisture deficiencies, but in the Low Rolling Plains, Edwards Plateau and South Central Texas more rain was needed. Unfortunately, September proved to be very dry state-wide (more than 2" below average), which prolonged the drought. In the Low Rolling Plains and North Central Texas, monthly rainfall amounts were the lowest ever. In addition, northeastern Texas was unusually warm during the month. Below

average rains during October helped push the drought into the beginning of 1940, despite near average precipitation in many areas during November and December.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Seymour	Baylor	Jul 8
		Encinal	La Salle	Jul 9
		Cleburne	Johnson	Sep 2
Lowest Temp.	-9F	Muleshoe	Bailey	Dec 27
Highest Prec. Ann.	51.3"	Bronson	Sabine	
Lowest Prec. Ann.	5.9"	El Paso	El Paso	
Max Excess Ann.	5.5"	Balmorhea	Reeves	
Max. Deficit Ann.	21.5"	Orange	Orange	
Max. % Ann.	129	Balmorhea	Reeves	
Min. % Ann.	40	New Braunfels	Comal	
Max. Prec. Mo.	15.5"	Angleton	Brazoria	Jul
Max. 24-hr. Prec.	11.6"	Richmond	Fort Bend	Jul 12
Max. Snowfall Ann.	31.3"	Dumas	Moore	
Max. Snowfall Mo.	14.5"	Dumas	Moore	Dec
		Vega	Oldham	

THE 1940s

The extended period of drought during the 1930s gave way to the relatively wet 1940s, when dry weather became a serious problem only in late 1948. Annual precipitation across Texas was 14" higher than usual in 1941, the wettest year since the beginning of comprehensive records in 1892. Texans experienced the coldest month to date during January, 1940, and it was not until January, 1979, that the record was broken. Icestorms were frequent during the decade, particularly in the northern and central sections of the state. Tornadoes struck with deadly force throughout the 1940s as 68 persons were killed during one storm over the Panhandle in 1947. Hurricanes during 1942, 1943, 1945 and 1949 caused considerable damage in coastal areas, not to mention the loss of more than 30 lives.

1940

Despite the fact that the state-wide precipitation average was 4.5" above the mean during 1940, some sections still experienced periods of drought, particularly in the first half of the year. Moisture conditions were severe through May in South Central Texas and through July in the Low Rolling Plains. The situation was not quite as serious in the Lower Valley, Upper Coast, North Central and East Texas due to beneficial spring rains. In the High Plains, where the annual rainfall was 20% below average, July through October were the driest months. The Low Rolling Plains was the only other division which reported a deficit for the year. Heavy rains during the last six months resulted in annual totals which were 30% above average in the Trans-Pecos, Edwards Plateau, North Central, South Central and East Texas.

January probably was one of the two coldest months ever in Texas, along with January, 1979. In every division except the Trans-Pecos and Lower Valley, mean temperatures for the month were the lowest ever recorded (a few records would be broken in the late 1970s). Except in the Lower Valley and along the lower Texas coast, stations which reported temperatures at least 10F below average were the rule rather than the

exception. At least a few inches of snow fell during the month everywhere except in extreme southern Texas. In the eastern half of the state and in the Lower Valley, only the hardiest crops and citrus were able to survive the cold weather.

From February through May, temperatures were as expected. Precipitation amounts were generally close to mean values also, which helped to relieve drought conditions in most areas. The string of months with typical weather ended in June, when temperatures state-wide were the lowest for the month since 1903. The Edwards Plateau and North Central Texas experienced the coolest June ever, and several stations in northern and central sections of Texas reported temperatures at least 5F cooler than average. The month was also extremely wet, particularly in South Central Texas as Smithville (Bastrop) recorded 16.1" on June 30. In July, floods on the Guadalupe, Colorado and Lavaca rivers resulted in three drownings and over $1 million damage, while over the High Plains a very dry month brought on a period of moderate drought through October. On August 7 a hurricane which made landfall on the Texas-Louisiana border caused extensive damage to crops in the southeastern corner of the state.

September rainfall was 2" below average across Texas, but both November and December proved to be unusually wet months. Record-breaking totals were noted in the High Plains and all of northeastern and central Texas in November, and the Lower Valley and South Central Texas in December. The state average of 5.3" in November is second only to the 5.4" in 1907. An icestorm across northwestern sections of the state during the week of November 22 disrupted electric power, communications and transportation for several days.

1940

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Memphis	Hall	Jul 11
		Seymour	Baylor	Aug 3
Lowest Temp.	-8F	Spearman	Hansford	Jan 7
		Canadian	Hemphill	Jan 8
Highest Prec. Ann.	81.9"	Bon Wier	Newton	
Lowest Prec. Ann.	5.2"	Ysleta	El Paso	
Max Excess Ann.	27.1"	Bon Wier	Newton	
Max. Deficit Ann.	7.3"	Clarendon	Donley	
Max. % Ann.	171	Cuero	De Witt	
Min. % Ann.	66	Clarendon	Donley	
Max. Prec. Mo.	25.6"	Hempstead	Waller	Nov
Max. 24-hr. Prec.	16.1"	Smithville	Bastrop	Jun 30
Max. Snowfall Ann.	38.7"	Vega	Oldham	
Max. Snowfall Mo.	18.5"	Spearman	Hansford	Jan

1941

The wettest year across the entire state since the beginning of reliable weather records was 1941. The state-wide average precipitation was 40.9" (0.6" higher than in 1919), almost 14" more than the typical annual rainfall. Compare the precipitation map for 1941 (Fig. 9) with that of the long-term mean (Fig. 14). The High Plains, Low Rolling Plains, Trans-Pecos and Lower Valley received record-setting rainfall, while in all other divisions totals were at least 25% higher than usual. During the year, only in the months of January, August, November and December were state-wide precipitation averages near or slightly below expected values.

January temperatures were typically 3F warmer than usual across Texas, while unusually heavy rains soaked the Lower Valley. Precipitation amounts in the Edwards Plateau during February and March were the

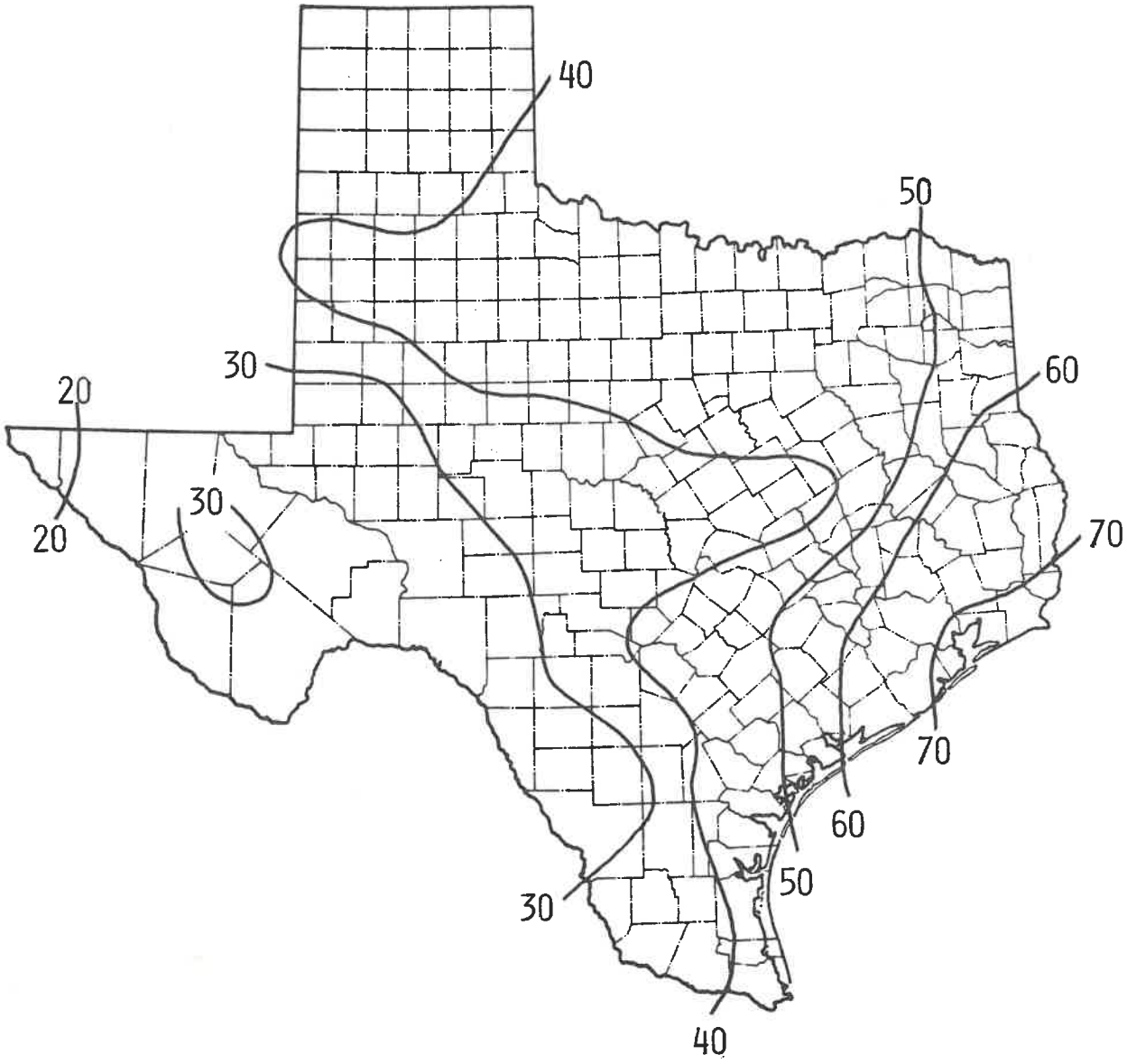


Figure 9
Annual Precipitation (Inches), 1941

largest ever recorded. March was much cooler than expected particularly in South Texas (coolest on record) and the Lower Valley.

Rainfall totals over the High Plains and Trans-Pecos during May, and over the Low Rolling Plains and Trans-Pecos during June, never have been surpassed. Subsequent flash floods near Albany (Shackelford) were responsible for 12 deaths on June 10. Cloudy, rainy weather in June across the Panhandle and the Trans-Pecos dropped mean temperatures to record-setting levels. Numerous stations throughout the area recorded temperatures at least 5F below average for the month. On June 9, a tornado tore a path through parts of Lamb, Swisher and Donley counties, killed four persons and injured approximately 30 others. Heavy rains during June and July in North Central and East Texas resulted in a flood on the Trinity River which caused almost $1 million damage.

On September 23, a hurricane crossed the coast near Matagorda (Matagorda), passed through the Houston area and dissipated in East Texas. Only four lives were lost in the storm due to early warnings which allowed time to evacuate the immediate coastal areas. Damage from Matagorda County eastward to the Sabine River exceeded $6 million, primarily to crops. The month of October proved to be one of the wettest ever (see 1919), as record-setting rains again deluged the High Plains, Low Rolling Plains and Trans-Pecos. Warm weather prevailed in East Texas and the Upper Coast, where October was the warmest on record.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Henrietta	Clay	Jul 31
Lowest Temp.	2F	Dumas	Moore	Dec 31
Highest Prec. Ann.	79.6"	Anahuac	Chambers	
Lowest Prec. Ann.	15.7"	El Paso	El Paso	
Max Excess Ann.	30.1"	Throckmorton	Throckmorton	
Max. Deficit Ann.	5.4"	Waxahachie	Ellis	
Max. % Ann.	277	Presidio	Presidio	
Min. % Ann.	85	Waxahachie	Ellis	
Max. Prec. Mo.	18.8"	Richmond	Fort Bend	Sep
Max. 24-hr. Prec.	9.1"	Nacogdoches	Nacogdoches	Oct 31
Max. Snowfall Ann.	19.0"	Spearman	Hansford	
Max. Snowfall Mo.	12.0"	Seminole	Gaines	Mar

1942

The year 1942 was not characterized by record-setting extremes of temperature or precipitation. Instead, it will be remembered for the death and destruction caused by two storms, a tornado and a hurricane. On April 28, a tornado tore through Crowell (Foard), killing 11 persons and injuring 250 others. Damage was estimated to be near $1.5 million. Four months later, winds in excess of 100 mph buffetted the coast from Austwell (Refugio) to Matagorda (Matagorda) as a hurricane made landfall on August 30. Before the storm deteriorated over the Edwards Plateau eight persons had died while property and crop damage reached $26 million. The hurricane's fury was felt as far inland as Atascosa County.

Precipitation totals across the state during 1942 were typically 10% above average, except in the Lower Valley where amounts were 20% deficient. Both temperature and precipitation were slightly below average from January through March. Several stations across the northern third of Texas recorded 10" or more of snow during March. A severe ice storm paralyzed the Amarillo area on April 7/8. The remainder of the month was very wet statewide, particularly in the High Plains where it was the wettest April ever. A hailstorm caused $750,000 damage to crops over 750 square miles of Parmer and Castro counties on June 14.

Extremely heavy rains soaked all of southern Texas, except the Lower Valley, during July. August proved to be wet also, especially in East Texas and the Trans-Pecos, where record-setting monthly totals were reported. A tropical storm moved northward over the Bolivar Peninsula and Galveston Bay on August 21. No deaths and less than $1 million damage were reported, in sharp contrast to the hurricane which struck nine days later. September temperatures were rather cool across the state, but were offset by readings that were warmer than expected in November. Heavy snow (up to 18") fell in northwestern Texas during December.

1942

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Encinal Laredo	La Salle Webb	Jun 11
Lowest Temp.	-15F	Miami	Roberts	Jan 5
Highest Prec. Ann.	71.3"	Port Arthur	Jefferson	
Lowest Prec. Ann.	8.7"	Fort Stockton Presidio	Pecos Presidio	
Max Excess Ann.	27.7"	Hamilton	Hamilton	
Max. Deficit Ann.	12.9"	Freeport	Brazoria	
Max. % Ann.	194	Hamilton	Hamilton	
Min. % Ann.	68	Harlingen	Cameron	
Max. Prec. Mo.	17.0"	Fort Worth	Tarrant	Apr
Max. 24-hr. Prec.	10.0"	Alice	Jim Wells	Jul 6
Max. Snowfall Ann.	30.5"	Quanah	Hardeman	
Max. Snowfall Mo.	18.0"	Quanah	Hardeman	Dec

1943

Annual precipitation totals were at least 20% below the long-term means across all of the northern half of Texas during 1943. Elsewhere, amounts were near or only slightly below average. Temperatures showed an unusually wide range during the year, from -17F at Dalhart (Dallam) in January to 119F at Vernon (Wilbarger) in August (see Tables 5 and 6).

Rainfall was very deficient in Febraury, particularly in the High Plains, East Texas, Trans-Pecos and Edwards Plateau where the month was the driest on record. Temperatures were generally warmer than usual state-wide in February, but were slightly below average in March. Readings rose a few degrees higher than expected in April, especially in the Trans-Pecos. On May 10 a tornado struck Laird Hill (Rusk) and Kilgore (Gregg), killed four persons and injured 25 others. Even more destruction occurred as a result of a hurricane which came onshore

across the Bolivar Peninsula on July 27. Wind gusts up to 104 mph were recorded at Texas City (Galveston) before the storm moved into East Texas and deteriorated. The storm produced heavy rains over the Upper Coast, as 17.8" fell in 24 hours at Port Arthur. Nineteen persons died during the hurricane and damage estimates exceeded $16 million.

August was very dry in Texas, as all divisions except the High Plains, East Texas and Upper Coast reported unusually low monthly totals. In addition, mean temperatures across the state were 3F above average, as readings in the High Plains, Low Rolling Plains, Trans-Pecos and Lower Valley approached record levels. On August 3 Quanah (Hardeman) recorded 117F and Vernon 119F, one of the hottest days on record, perhaps second only to the period August 10th to 12th, 1936. During the middle of September a tropical disturbance threatened the middle and upper coastal areas of Texas, but eventually came onshore in Louisiana. Some crops in the extreme southeastern portion of the state were affected. On November 6 a tornado hit Freeport (Brazoria) and then continued onto Galveston Island. Two people were killed and more than 300 were injured. Temperatures were a few degrees cooler than average in both October and December.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	119F	Vernon	Wilbarger	Aug 3
Lowest Temp.	-17F	Dalhart	Dallam	Jan 19
Highest Prec. Ann.	75.5"	Port Arthur	Jefferson	
Lowest Prec. Ann.	7.0"	El Paso	El Paso	
Max Excess Ann.	20.4"	Port Arthur	Jefferson	
Max. Deficit Ann.	18.8"	Bronson	Sabine	
Max. % Ann.	137	Port Arthur	Jefferson	
Min. % Ann.	51	Throckmorton	Throckmorton	
Max. Prec. Mo.	24.3"	Port Arthur	Jefferson	Jul
Max. 24-hr. Prec.	17.8"	Port Arthur	Jefferson	Jul 27/28
Max. Snowfall Ann.	23.5"	Vega	Oldham	
Max. Snowfall Mo.	18.5"	Vega	Oldham	Dec

1944

Temperatures during 1944 rose and fell as expected throughout most of the year, as monthly readings never approached record-setting levels in the climatic divisions. Precipitation, on the other hand, averaged 6" higher than usual across Texas. The Trans-Pecos, Edwards Plateau and East Texas all received at least 30% more rain than was expected, while none of the remaining divisions reported annual amounts that were less than average.

Measurable amounts of snow fell in all areas except extreme southern and southeastern Texas during January. East Texas was hit by an ice-storm on January 13/14 which caused considerable damage to power lines and poles. In addition, timber losses were estimated at $16 million. The Upper Coast experienced the wettest January ever, as over 9" were recorded. February temperatures were generally a few degrees warmer than expected while in March a cold spell resulted in frost damage to fruit in parts of central Texas. Across the Trans-Pecos virtually no rain at all fell during either March or April. On April 2, a hailstorm pelted San Antonio and caused $1 million property damage. May rainfall was above average in most sections, particularly East Texas and the Upper Coast. A tornado killed three persons in the communities of Kimbro (Travis) and Hutto (Williamson) on May 1. During June and July, precipitation was slightly less than expected, especially in East Texas, where July was the driest ever. Memphis (Hall) recorded 117F on August 3, a rare occurrence in Texas. Rainfall was below average in most sections in October, but substantial rains in November and December made up the deficit. December temperatures were rather cool, as readings averaged almost 4F less than usual.

1944

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	117F	Memphis	Hall	Aug 3
Lowest Temp.	-6F	Stratford	Sherman	Jan 8
Highest Prec. Ann.	74.7"	Beaumont	Jefferson	
Lowest Prec. Ann.	9.1"	El Paso	El Paso	
Max Excess Ann.	28.8"	Jefferson	Marion	
Max. Deficit Ann.	4.3"	Alice	Jim Wells	
Max. % Ann.	175	Vernon Presidio	Wilbarger Presidio	
Min. % Ann.	81	Paducah	Cottle	
Max. Prec. Mo.	21.2"	Bronson	Sabine	May
Max. 24-hr. Prec.	9.9"	Freeport	Brazoria	Sep 27/28
Max. Snowfall Ann.	27.3"	Vega	Oldham	
Max. Snowfall Mo.	12.5"	Ballinger	Runnels	Jan

1945

Annual precipitation amounts varied appreciably from division to division during 1945. The Upper Coast, North Central and East Texas all reported surplusses of at least 20% over average, while over the High Plains and Lower Valley rainfall totals were 20% less than expected. The year was one of the warmest ever in the Lower Valley. Severe storms were frequent in June, but the most destructive weather event proved to be a hurricane in late August.

January and February temperature and rainfall reports were near average across most of Texas, except in North Central Texas where February was the wettest ever. In late February an icestorm affected the same region, particularly Cooke and Grayson counties. March weather was warm and one of the wettest ever (see 1926), especially in the eastern half of the state. North Central and East Texas received record-setting

rains, while temperature records were approached and even broken in East Texas, the Upper Coast and Lower Valley. In May, dry weather was the rule in western Texas, where the High Plains, Low Rolling Plains, Trans-Pecos and Edwards Plateau all reported totals that were the lowest ever for the month. The dry spell continued through June in the Trans-Pecos.

High winds were responsible for almost $400,000 damage to crops and property near Wichita Falls on June 3, while on June 11 winds blew through Mexia (Limestone) and caused $500,000 damage. A tornado hit near Brady (McCulloch) on the same day and killed one person. A hurricane made landfall near Seadrift (Calhoun) during the night of August 26. Wind gusts were estimated at near 135 mph across Calhoun County. Two lives were lost in boating accidents near Brownsville before the storm struck the coast and one person died when a tornado spawned by the hurricane hit a section of northern Houston. Storm damage totalled more than $20 million. Three stations in southeastern Texas received more than 15" in 24 hours (see Table 12). Rains from the hurricane coupled with heavy rains earlier in the month (15.9" at Anahuac (Chambers) on the 17th) resulted in record-setting totals for August along the Upper Coast.

Mount Locke (Jeff Davis) in the Davis Mountains recorded a low of 29F on September 29, the lowest reading ever in Texas during September. Temperatures state-wide were below average in October and December, but were 4F warmer than usual in November. In the Trans-Pecos, October was unusually wet, but virtually no rain fell the remainder of the year.

1945

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Memphis Spur	Hall Dickens	Jun 27
Lowest Temp.	-1F	Spearman	Hansford	Dec 15
Highest Prec. Ann.	77.3"	Orange	Orange	
Lowest Prec. Ann.	6.7"	El Paso	El Paso	
Max Excess Ann.	22.0"	Liberty	Liberty	
Max. Deficit Ann.	12.0"	Floresville	Wilson	
Max. % Ann.	147	Mexia	Limestone	
Min. % Ann.	48	Seminole	Gaines	
Max. Prec. Mo.	24.0"	Danevang	Wharton	Aug
Max. 24-hr. Prec.	15.9"	Anahuac	Chambers	Aug 27
Max. Snowfall Ann.	19.5"	Follett	Lipscomb	
Max. Snowfall Mo.	11.0"	Quanah	Hardeman	Feb

1946

The year was the rainiest ever along the Upper Coast, where Anahuac (Chambers) recorded a total of 98.1", one of the highest annual totals ever at a Texas station (see Table 10). East Texas recorded precipitation amounts that were not exceeded until 1973. North Central, South Central and South Texas also received at least 20% more rainfall than expected, while in other divisions totals were about average. Temperatures were higher than expected in March, April and December. Severe local storms plagued the state, particularly in January and May. Tornadoes, hailstorms and high winds were responsible for 36 deaths, 368 injuries and over $12 million damage.

Rainfall was heavier than usual in most parts of Texas during January, especially in the Trans-Pecos where the month was the wettest on record. Virtually no rain fell in this same region during February

and March however. Heavy snows covered the Davis Mountains in January, as Alpine (Jeff Davis) reported a monthly total of 26.3". On January 4, two tornadoes devastated parts of East Texas. The first cut a swath through Lufkin (Angelina) and Nacogdoches (Nacogdoches), killed 13 persons, injured 250 others and caused in excess of $2 million damage. The second tornado struck Palestine (Anderson), where 15 died and 60 were injured.

March and April temperatures were 3F warmer than usual across Texas. April readings at Amarillo were 9F above average, as the High Plains experienced one of the warmest Aprils ever. Severe weather affected the San Antonio area twice during May. On the 16th a hailstorm caused over $5 million property damage, and 20 persons were injured due to the hail and broken glass. High winds accompanying a thunderstorm inflicted another $1 million damage on May 29. A tornado killed four persons in Clay, Montague and Denton counties on May 18.

Summer weather was rather uneventful, except for record low temperatures along the Upper Coast during June. During September heavy rains resulted in severe flooding in the San Antonio area. November rainfall was exceptionally high across the Upper Coast, North Central and East Texas. Baytown (Harris) recorded 25.3" during the month. December temperatures were slightly warmer than usual.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Henrietta	Clay	Aug 7
Lowest Temp.	*0F	Muleshoe	Bailey	Jan 16
Highest Prec. Ann.	98.1"	Anahuac	Chambers	
Lowest Prec. Ann.	6.6"	Presidio	Presidio	
Max Excess Ann.	45.2"	Anahuac	Chambers	
Max. Deficit Ann.	8.4"	Sterling City	Sterling	
Max. % Ann.	186	Anahuac	Chambers	
Min. % Ann.	56	Sterling City	Sterling	
Max. Prec. Mo.	25.3"	Goose Creek (Baytown)	Harris	Nov
Max. 24-hr. Prec.	13.3"	Anahuac	Chambers	Jun 1
Max. Snowfall Ann.	32.3"	Alpine	Jeff Davis	
Max. Snowfall Mo.	26.3"	Alpine	Jeff Davis	Jan

*Also McCamey (Upton) Jan 22, Stratford (Sherman) Dec 29, Happy (Swisher) Dec 31

1947

Unusually cool weather prevailed over Texas during Febraury and March of 1947, while October readings were much warmer than expected. Rainfall was slightly below normal in all climatic divisions, but was lowest (20% below average) across the Edwards Plateau. One of the deadliest tornadoes ever to strike Texas roared through three Panhandle counties in April, and in August two tropical disturbances brought heavy rains to coastal areas.

After a reasonably average January, temperatures failed to rise as expected during the next two months. Low readings in February set records along the Upper Coast and in South and South Central Texas which were not broken until 1978. March temperatures were also unusually low, as several stations from Bronson (Sabine) to Miami (Roberts) reported monthly readings as much as 8F below average. On April 9 a killer tornado hit the communities of White Deer (Carson), Glazier (Hemphill) and Higgins (Lipscomb). A total of 68 persons died and more than 200 were injured, while property damage exceeded $1 million. The tornado continued on a path through Oklahoma and into Kansas (Woodward, Oklahoma, was particularly hard hit).

July showers failed to fall across most of the state, especially in East Texas. However, in August two tropical systems brought needed precipitation to some areas. A disturbance came ashore south of Brownsville on August 1, then on the 24th a tropical storm hit near Galveston. Rains from the first storm helped set a precipitation record for the month in the Lower Valley. Throckmorton (Throckmorton) reached 119F on August 30, the latest such a high temperature has been recorded in the state. Dry weather returned during September, which was the driest ever in the High Plains, South Texas and the Lower Valley. It was the warmest October on record for the state, and in the Low Rolling Plains, Upper Coast, North Central and South Texas. Several stations reported readings at least 8F warmer than expected during the month. A hailstorm caused $2 million damage to crops and buildings in Hockley County on October 8.

1947

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	119F	Throckmorton	Throckmorton	Aug 30
Lowest Temp.	-15F	Stratford	Sherman	Jan 4
Highest Prec. Ann.	54.9"	Goose Creek (Baytown)	Harris	
Lowest Prec. Ann.	7.1"	Pecos	Reeves	
Max Excess Ann.	5.4"	Goose Creek (Baytown)	Harris	
Max. Deficit Ann.	16.0"	Blanco	Blanco	
Max. % Ann.	121	Alpine	Brewster	
Min. % Ann.	53	Blanco	Blanco	
Max. Prec. Mo.	12.6"	College Station	Brazos	Aug
Max. 24-hr. Prec.	9.9"	College Station	Brazos	Aug 26
Max. Snowfall Ann.	38.1"	Stratford	Sherman	
Max. Snowfall Mo.	17.0"	Mount Locke	Jeff Davis	Jan

1948

Moderate to severe drought plagued almost all sections of Texas during the latter half of 1948, a year in which state-wide precipitation was approximately 25% below average. Totals were lowest in the Trans-Pecos (almost 40% less than expected), where drought conditions became apparent in April. Elsewhere the situation did not appear serious until late in the summer.

Temperatures during the first quarter of the year were cooler than expected, especially in January. During the month several stations scattered throughout the state reported mean temperatures at least 8F below average. Vega (Oldham) recorded 23" of snow during the month, and all but the extreme southern and southeastern sections of the state received measurable amounts. Heavy rains over the upper Trinity River watershed led to a flood in the Dallas area on February 25. The next

day tornadoes struck Lewisville (Denton) and Ranger (Eastland) and killed three persons. Spearman (Hansford) reported a low temperature of -12F on March 6, which tied the record for the lowest temperature ever recorded in Texas during March, first set at Romero (Hartley) on March 1, 1922. One week later another blast of cold air caused extensive damage to various crops in almost all areas of the state.

April readings averaged 4F warmer than usual in Texas, while stations such as Abilene and Henrietta (Clay) were as much as 8F above average. It also was the warmest April on record in the Trans-Pecos. This fact, coupled with dry weather during March, led to the beginning of a period of moderate drought in the Trans-Pecos. On May 3, a tornado killed three persons and injured 43 others at McKinney (Collin). Three hundred homes and buildings were severely damaged. A heavy rainstorm on June 23/24 affected the area east of Del Rio in Val Verde, Edwards and Kinney counties. The highest official rainfall total was 11.9" at Loma Alta (Val Verde), but several reliable, unofficial reports in excess of 20" were received, particularly in western Kinney County.

Dry weather seemed to prevail elsewhere, however, and moderate drought conditions took hold in August across East Texas, Upper Coast and South Texas. The situation became severe during September in the Trans-Pecos and during October in East Texas. By November, the Low Rolling Plains, Edwards Plateau and South Central Texas also were being affected. The situation did not improve in December, which again was dry and unusually warm across Texas.

1948

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Presidio	Presidio	Jun 18
		Henrietta	Clay	Aug 21
Lowest Temp.	-12F	Plains	Yoakum	Jan 29
		Spearman	Hansford	Mar 6
Highest Prec. Ann.	49.2"	Atlanta	Cass	
Lowest Prec. Ann.	4.0"	Pecos	Reeves	
Max Excess Ann.	7.2"	Rio Grande City	Starr	
Max. Deficit Ann.	20.8"	Galveston	Galveston	
Max. % Ann.	138	Rio Grande City	Starr	
Min. % Ann.	51	Brenham	Washington	
		Galveston	Galveston	
Max. Prec. Mo.	13.2"	Engelman Garden	Hidalgo	Sep
Max. 24-hr. Prec.	11.9"	Loma Alta	Val Verde	Jun 24
Max. Snowfall Ann.	47.5"	Vega	Oldham	
Max. Snowfall Mo.	23.2"	Vega	Oldham	Jan

1949

The drought which had existed across Texas since late 1948 was broken early in 1949, a year in which all climatic divisions except the Lower Valley reported precipitation surpluses of at least 15%. Heavy rainfall caused considerable problems, however, as floods during April and May were very destructive. Despite the flooding and damage from severe storms, farmers reported extremely large crop yields in most areas.

Unusually cold, wet weather dominated the state during January. Several stations in the Panhandle reported monthly readings at least 10F below average, while in the Trans-Pecos it was the coldest month ever. At the end of the month a cold wave (see Fig. 10) brought back memories of the frigid weather during February, 1899. Rainfall totals set records across the High Plains and Low Rolling Plains, and also were high in

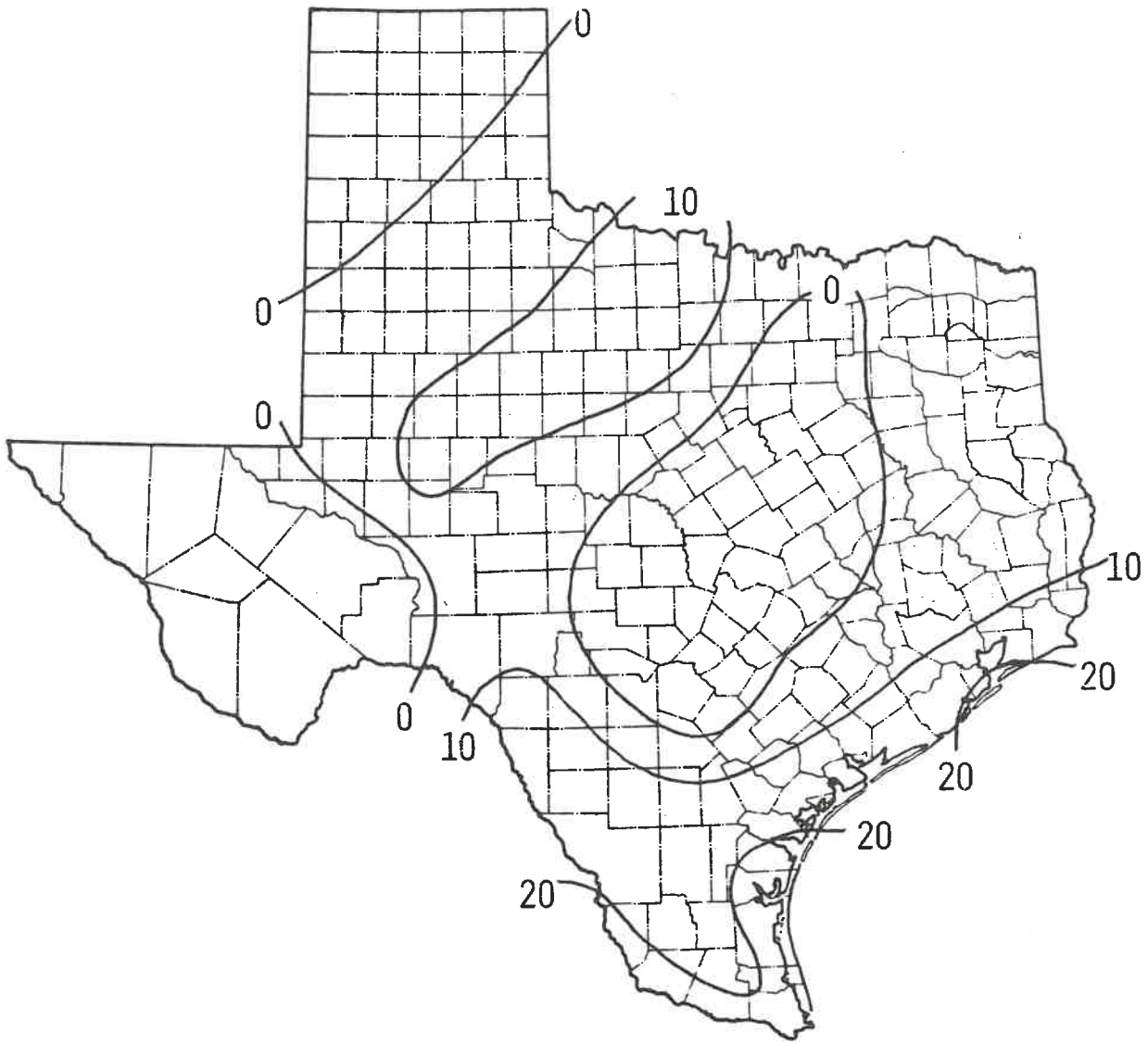


Figure 10
Minimum Temperatures (F) During the Cold Wave of Late January, 1949

East Texas and the Trans-Pecos. Measurable amounts of snow fell all across Texas, while two icestorms during the month disrupted power and communications in the area bounded by Amarillo, San Antonio and Palestine (Anderson). Conditions during February and March were more seasonal, but unexpectedly cool and rainy weather returned in April, particularly over the southwestern part of the state. Crop damage was estimated at $3.3 million in the Rio Grande valley due to floodwaters late in the month. Earlier, on the 19th, hail pelted the Del Rio area and destroyed much of the citrus crop. On April 30 a tornado killed three persons at Bonham (Fannin). May brought more bad news, as floods struck Lubbock and the Dallas-Fort Worth area on the 6th and 7th. Then on the 15th Amarillo was hit by a tornado which left six dead, 83 injured and over $5 million property damage. On May 30, Boquillas Ranger Station (Brewster) in Big Bend National Park recorded 114F, an extremely high reading for so early in the season.

August temperatures were a few degrees below the mean in most areas, but otherwise the weather from June to September was quite average. A hurricane struck the coast near Freeport (Brazoria) late on October 3 with winds of up to 135 mph. The storm passed through the Houston area (winds were clocked at 90 mph) and into East Texas. Torrential, record-setting rains of more than 20" fell across the Upper Coast and East Texas. The monthly total at the Houston airport reached 22.3", the most rainfall recorded there in any month on record. Two deaths were attributed to the hurricane, which caused an estimated $6.5 million damage. Interestingly, following a wet October came the driest November ever across Texas. Virtually no rain at all fell in the western half of the state, while the Upper Coast, North Central and East Texas also received record low amounts. The average rainfall for the entire state during the month was 0.1", while the "wettest" station was Beaumont where 2.2" fell.

1949

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Boquillas Ranger Station	Brewster	May 30
Lowest Temp.	-12F	Lampasas	Lampasas	Jan 31
Highest Prec. Ann.	87.4"	Beaumont	Orange	
Lowest Prec. Ann.	7.9"	Presidio	Presidio	
Max Excess Ann.	30.9"	Beaumont	Orange	
Max. Deficit Ann.	4.8"	Kaufman	Kaufman	
Max. % Ann.	188	Sonora	Sutton	
Min. % Ann.	80	Mission	Hidalgo	
Max. Prec. Mo.	25.3"	Splendora	Montgomery	Oct
Max. 24-hr. Prec.	11.7"	Splendora	Montgomery	Oct 8
Max. Snowfall Ann.	18.3"	Borger	Hutchinson	
Max. Snowfall Mo.	15.4"	Plainview	Hale	Jan

THE 1950s

Nation-wide, when people hear the word drought it usually brings to mind visions of the Great Plains "dustbowl" of the 1930s. However, as far as Texas is concerned the extended period of drought from 1950 through early 1957 was more severe than in the 1930s. The worst years were 1954 and 1956, two of the five driest in Texas history. Heavy crop losses would have been even greater had it not been for the increase in irrigated acreage since the dry 1930s. The drought broke in 1957, the third wettest year ever in Texas. An extremely severe cold wave hit the state in early January, 1959, when numerous records were set.

1950

Almost all sections of Texas experienced at least a moderate drought during 1950, but the effects were most widespread at the end of the year. Hardest hit was the southern half of the state (excluding the Trans-Pecos) where annual rainfall totals were 20 to 35% below average. In the Lower Valley, drought conditions were moderate to severe during every month except July. In South Texas and the Lower Valley the year also was the warmest on record, a fact that contributed to the moisture deficiency.

Temperatures during January and February were several degrees warmer than usual, which marked the winter of 1949-1950 as one of the warmest ever. January readings were the highest on record in South Texas, the Lower Valley and Upper Coast. Houston, Corpus Christi and Laredo were among the stations which reported temperatures at least 10F above average. On the 30th an icestorm struck the area immediately south of the Red River and caused even more problems than the storm of the previous January. An outbreak of tornadoes resulted in extensive damage across East Texas on February 11/12. Dry weather prevailed in the High Plains, Low Rolling Plains and Trans-Pecos during March, when duststorms were frequent across the Panhandle. Moderate drought across the High Plains resulted, not to be broken until June. Elsewhere, floodwaters rose on the lower Trinity and Neches rivers at the beginning of the month.

Severe storms caused loss of life and extensive damage from May through July. Downed power lines electrocuted four persons in Greenville (Hunt) on May 29 after a wind and hailstorm caused more than $2 million damage. A severe thunderstorm resulted in another $2 million damage at Kenney (Austin) on June 5. Later, on June 21, in Marshall (Harrison) four persons who sought refuge under a tree during a thunderstorm were killed when lightning struck. A hailstorm on July 16 destroyed 25,000 acres of cotton and 15,000 acres of other crops in Hall County.

Record rains in the High Plains and Low Rolling Plains during July helped relieve the moisture shortage in the Panhandle. Elsewhere, conditions slowly deteriorated over the summer. Three consecutive dry months at year's end left virtually the entire state with a serious moisture deficit. December was one of the driest on record (see 1917), as records were set everywhere except the Panhandle and Upper Coast. A severe cold wave brought freezing temperatures to the coastal areas and even the Lower Valley on December 6, as many stations reported record low readings for so early in the winter.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	110F	Mansfield Dam	Travis	Aug 10
Lowest Temp.	-8F	Dalhart Exp.Sta.	Hartley	Jan 4
Highest Prec. Ann.	65.7"	McCartney Bridge	Bowie	
Lowest Prec. Ann.	5.3"	Fabens	El Paso	
Max Excess Ann.	14.6"	Bronson	Sabine	
Max. Deficit Ann.	22.1" 22.0"	Port Lavaca Freeport	Calhoun Brazoria	
Max. % Ann.	164	Spearman Austwell	Hansford Refugio	
Min. % Ann.	43	Falfurrias Port Lavaca	Brooks Calhoun	
Max. Prec. Mo.	20.6"	Galveston Airport	Galveston	Jun
Max. 24-hr. Prec.	13.9"	Galveston Airport	Galveston	Jun 2/3
Max. Snowfall Ann.	8.0"	Vega	Oldham	
Max. Snowfall Mo.	4.0"	Vega	Oldham	Dec

1951

The drought which began in late 1950 continued through 1951 and tightened its grip on Texas by the end of the year. Problems were most severe across the Edwards Plateau where only 54% of the expected precipitation fell. Moderate to extreme drought conditions existed all year in all divisions except the High Plains, where rainfall was only 12% below average, and in the Trans-Pecos from January through June.

January precipitation was unusually light across South Texas and the Edwards Plateau. Although mean temperatures across Texas during the first six months of the year varied only slightly from expected levels, a severe cold wave gripped the state from late January into early February. At Edinburg (Hidalgo) and Houston, temperatures remained at or below freezing for 88 and 123 hours, respectively, both of which were records. Livestock and crop losses were heavy across the southeastern half of the state, while in the Lower Valley the citrus crop was virtually destroyed. The accompanying icestorm affected the area from Tyler (Smith) to Port Arthur to Laredo. Temperatures dropped to -19F at Dalhart (Hartley) and to -17F at both Hereford (Deaf Smith) and Vega (Oldham) on February 1. Later in February another icestorm coated the area from Eagle Pass (Maverick) northward to the Red River.

Heavy rains gave temporary relief to South Texas during March, but April was very dry state-wide. Rainfall was heavy in May across the High Plains, the only division which did not experience a serious moisture deficiency during the year. A tornado inflicted $1.5 million damage to 150 homes in Olney (Archer) on May 18. Presidio (Presidio) reported 114F on the 28th, an unusually high reading for the month of May. Severe thunderstorms accompanied by hail and several tornadoes moved through the Panhandle on June 6 and caused $3 million damage. Four days later hail and high winds battered Abilene. July and August were unusually hot and dry, which compounded the already serious drought situation. Stations from Palestine (Anderson) to Abilene were at least 6F warmer than average in August. September brought needed rains to eastern and southern sections, but on September 13/14 heavy rains west of Corpus Christi resulted in floods which left 3000 persons homeless.

October and December were a few degrees warmer than expected while November was rather cool. An unusually early freeze during the first week of November caused some crop damage, while record high temperatures were reported in the Panhandle late in December. Cotulla Airport (La Salle) and Carrizo Springs (Dimmit) tied the state record for December with readings of 98F on the 6th and 7th, respectively. During all three months precipitation across Texas was 1" below average.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Presidio	Presidio	Jun 20
		Henrietta	Clay	Aug 6
Lowest Temp.	-19F	Dalhart Airport	Hartley	Feb 1
Highest Prec. Ann.	53.9"	Neuville	Shelby	
Lowest Prec. Ann.	3.3"	Salt Flat	Hudspeth	
Max Excess Ann.	8.3"	Panhandle	Carson	
Max. Deficit Ann.	18.6"	Conroe	Montgomery	
Max. % Ann.	140	Panhandle	Carson	
Min. % Ann.	32	Sonora	Sutton	
Max. Prec. Mo.	18.9"	Rockport	Refugio	Sep
Max. 24-hr. Prec.	13.2"	Alice	Jim Wells	Sep 13
Max. Snowfall Ann.	22.1"	Borger	Hutchinson	
		Vega	Oldham	
Max. Snowfall Mo.	12.0"	Vega	Oldham	Jan

1952

Precipitation was more than 15% below average across Texas during 1952, as the drought continued to plague most areas of the state. Only 57% of the expected precipitation fell in South Texas, while the High Plains and South Central Texas each received only 65%. By the end of the year the levels of many major reservoirs across Texas had dropped considerably. Temperatures during August probably never have been surpassed during any month, while October was the driest month ever in Texas.

During the first few months of 1952 the Edwards Plateau and North Central Texas were hit hardest by the dry weather. January temperatures were exceeded only during 1923, as stations throughout the eastern half of the state reported monthly readings 10F above average. Warm weather continued through February, when rains over East Texas and the Upper Coast temporarily relieved the drought. Late in March a mass of cold air pushed through Texas and dropped temperatures to record levels for so late in the season. Widespread rains during April and May provided some relief in drought-stricken areas. At Boquillas Ranger Station (Brewster) the mercury rose to 115F on May 8, which tied the state record for the month (see Table 4).

Unusually high temperatures and sparse rainfall during the summer meant a return to devastatingly poor moisture conditions, particularly in the Low Rolling Plains, North Central and South Texas. The situation was worst in August, which probably was the hottest month ever in Texas. Also, precipitation averaged just over 0.5" state-wide during the month, one of the driest on record (see 1902). The remnants of a weak tropical disturbance brought heavy rains to the Hill Country west and southwest of Austin in mid-September. Streams in the Guadalupe and Colorado River watersheds overflowed and claimed five lives. In Blanco County, both Hye and Blanco reported more than 17" within 24 hours on September 11. Elsewhere, rainfall continued to be lighter than usual. In October, the average precipitation received state-wide was on amazing 0.02", which gave this the dubious distinction of being the driest month ever across Texas. November rains alleviated the severe drought conditions in most areas, so at year's end moisture supplies were critical only in the Low Rolling Plains and South Texas. The Panhandle was covered with 10" of snow in November, and the area also experienced a white Christmas.

1952

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Boquillas Ranger Station	Brewster	May 8, Aug 8 Aug 31, Sep 1
Lowest Temp.	-3F	Vega	Oldham	Nov 26
Highest Prec. Ann.	70.9"	Orange	Orange	
Lowest Prec. Ann.	4.1"	Boquillas Ranger Station	Brewster	
Max Excess Ann.	19.3"	Blanco	Blanco	
Max. Deficit Ann.	13.7"	Graham	Young	
Max. % Ann.	160	Fredericksburg	Gillespie	
Min. % Ann.	38	Eagle Pass	Maverick	
Max. Prec. Mo.	24.1"	Hye	Blanco	Sep
Max. 24-hr. Prec.	20.7"	Hye	Blanco	Sep 11
Max. Snowfall Ann.	25.2"	Borger	Hutchinson	
Max. Snowfall Mo.	13.6"	Amarillo	Potter	Nov

1953

A drought, which had its beginnings in late 1950, continued to affect large portions of Texas throughout 1953. During the period 1951 through 1953, cities such as Big Spring (Howard), Brownsville and Del Rio received less than 70% of the expected precipitation. Hardest hit in 1953 were the High Plains, Low Rolling Plains, Trans-Pecos, South Texas and the Lower Valley, while across East Texas, South Central Texas and the Upper Coast moisture conditions improved substantially during the year. Imperial (Pecos) had one of the lowest annual totals ever recorded, 2.0" (see Table 10). A devastating tornado struck Waco in May.

Early in the year moisture conditions were most severe in the High Plains, Low Rolling Plains, North Central and South Texas. For the second year in a row, January temperatures were exceptionally high statewide. Several stations across the Panhandle reported monthly readings as

much as 10F above average. Virtually no rain at all fell in the Trans-Pecos during January and totals also were low in South Texas. As the official National Weather Service report stated, February was "a mixture of warm, cold, clear, cloudy, windy, dusty, rainy weather"! We certainly could not have said it any better.

March temperatures were the highest ever recorded in South Texas and the Lower Valley. A tornado killed 17 persons and damaged 200 buildings in Haskell and Knox counties on March 13. However, the destruction was small compared to May 11 when tornadoes touched down in Waco and near San Angelo. North of San Angelo 11 died and more than 150 were injured as damage exceeded $3 million. Two hours later 114 were killed and almost 600 injured in Waco as another tornado tore through the city. More than 1500 homes and businesses were damaged or destroyed as damage estimates reached $40 million.

The drought was most severe during the summer, as unusually hot weather compounded the moisture problem. Average June temperatures were the highest ever in all divisions except the Trans-Pecos and South Central Texas. Several stations set records for the number of consecutive days on which readings reached 100F. July also was hotter than usual, especially in the Edwards Plateau and South Texas. Heavy rains hit the Lower Valley and Upper Coast during August, while floodwaters caused the evacuation of 2000 families in and near Corpus Chirsti. Important precipitation fell during the latter part of the year and began to relieve the drought in all areas except the Trans-Pecos. Temperatures were seasonal, with the exception of December, when readings were almost 4F below average.

1953

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Memphis Boquillas Ranger Station	Hall Brewster	Jun 14 Aug 10
Lowest Temp.	-3F	Marathon	Brewster	Dec 24
Highest Prec. Ann.	73.0"	Bon Wier	Newton	
Lowest Prec. Ann.	*2.0"	Imperial	Pecos	
Max Excess Ann.	16.8"	Nacogdoches	Nacogdoches	
Max. Deficit Ann.	13.5"	Brownsville	Cameron	
Max. % Ann.	135	Nacogdoches	Nacogdoches	
Min. % Ann.	37	Fort Stockton	Pecos	
Max. Prec. Mo.	20.4"	Bon Wier	Newton	May
Max. 24-hr. Prec.	9.0"	Borger	Hutchinson	Apr 29
Max. Snowfall Ann.	9.5"	Spearman	Hansford	
Max. Snowfall Mo.	6.4"	Amarillo	Potter	Jan

*Three months estimated

1954

Across Texas, 1954 was one of the five driest years since 1892, which kept alive the string of five consecutive years of below average precipitation. Annual totals were ample only in the Lower Valley, while elsewhere amounts were at least 23% less than expected. In South Texas and the Edwards Plateau only 50% of the expected precipitation was received. In addition to the extremely dry weather, temperatures were unusually warm during the year, which complicated the drought conditions. Many temperature records were broken, especially in the Panhandle, North Central and South Central Texas. March and May were the only months during which readings were below average state-wide. Duststorms, particularly in February, March and December, brought back memories of the 1930s. During the first half of 1954 effects of the drought were most noticeable in the High Plains, Trans-Pecos, Edwards Plateau and South Texas.

Conditions then deteriorated and by the end of the year all areas except East Texas and the Lower Valley were experiencing severe or even extreme drought.

January and February temperatures were several degrees warmer than usual. Readings were as much as 10F above average during February in the Panhandle. Across the state, February was the driest since 1916, as totals were the smallest ever in South Central Texas and the Upper Coast. In March, precipitation state-wide was the lightest to date (March, 1971, would be drier), and for the second consecutive month no Texas station reported more than 3" during the month. On March 30 Rio Grande City (Starr) recorded 108F, which tied the record high for March in Texas, first set in 1902 nearby at Fort Ringgold (Starr).

Heavy rains during April in the Lower Valley temporarily relieved the drought, while in other areas showers gave farmers some hope. An outbreak of severe thunderstorms and a few tornadoes caused considerable damage in East Texas on April 30. A hailstorm caused in excess of $7 million damage, primarily to crops, in Cottle County on June 1. Hurricane Alice struck the Mexican coast south of Brownsville on June 25, as heavy rains spread up the Rio Grande. On June 26/27 torrential rains (up to 27") fell over the Pecos River valley, particularly in the area bounded by Langtry (Val Verde), Sheffield (Pecos) and Ozona (Crockett). The ensuing flood on the Rio Grande was one of the worst on record, but most of the damage occurred in Mexico. The remainder of the state was badly in need of water, but relief was not in sight.

The heat was stifling in July, when readings almost reached the record levels of 1925. Dry weather continued through September, as the drought intensified. By October, rains in East Texas and the Lower Valley had broken the drought, but other areas were not as fortunate. Heavy snow fell between Wichita Falls and Lubbock at year's end.

1954

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Palestine Boquillas Ranger Station	Anderson Brewster	Jul 25 Jul 27
Lowest Temp.	-4F	Littlefield	Lamb	Jan 21
Highest Prec. Ann.	46.0"	Marshall	Harrison	
Lowest Prec. Ann.	4.7"	Fabens	El Paso	
Max Excess Ann.	9.1"	Hidalgo	Hidalgo	
Max. Deficit Ann.	30.4"	Angleton	Brazoria	
Max. % Ann.	146	Hidalgo	Hidalgo	
Min. % Ann.	30	New Braunfels	Comal	
Max. Prec. Mo.	25.7"	Pandale	Val Verde	Jun
Max. 24-hr. Prec.	16.0"	Pandale	Val Verde	Jun 26
Max. Snowfall Ann.	13.5"	Knox City Munday	Knox Knox	
Max. Snowfall Mo.	11.5"	Munday	Knox	Dec

1955

Precipitation during 1955 was below average across Texas for the sixth consecutive year. In all sections except the Low Rolling Plains totals were at least 12% less than expected. For the second year in a row the area hardest hit by drought was the Edwards Plateau and South Central Texas, where severe to extreme conditions prevailed all year long. Conditions during the latter half of the year also were severe in the Panhandle and North Central Texas, and along the Upper Coast into South Texas. East Texas and the Lower Valley were virtually unaffected. Dry weather resulted in the worst wheat crop across Texas in 20 years.

Although the state-wide precipitation averages in January and February were not deficient, many drought-stricken areas received little effective relief. Rains generally were lighter than usual in all sections during March and April, and conditions became severe across the southern

half of the state (excluding the Trans-Pecos) and in the High Plains. Temperatures from March through May were consistently a few degrees above average. In late March two northers blew through Texas and brought freezing temperatures which severely damaged the fruit crop. Dust kicked up by the incoming masses of cold air reached as far as the coast, as did dust from two other storms during April. On April 6 a tornado killed one person and injured 44 others as it moved through Sherman (Grayson) and Bonham (Fannin). Four students at a high school in Kingsville (Kleberg) were among the 17 Texans killed by lightning from May through August.

Summer temperatures were seasonal, while rainfall continued to be spotty across Texas. A hailstorm on June 19 caused in excess of $2 million damage to buildings and automobiles in Amarillo. In early September rains from Hurricane Gladys caused flooding in parts of the Upper Coast and South Central Texas, while later in the month flash floods hit Wichita Falls and Clarksville (Red River). Rainfall totals routinely were 1" below average across most of Texas from October to the end of the year, however, as the drought kept its hold on the state.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Presidio	Presidio	Jun 8, 25, 26
Lowest Temp.	-1F	Stratford	Sherman	Feb 20, 21
Highest Prec. Ann.	65.3"	Bon Wier	Newton	
Lowest Prec. Ann.	5.7"	Fabens	El Paso	
Max Excess Ann.	11.7"	Chillicothe	Hardeman	
Max. Deficit Ann.	16.2"	Greenville	Hunt	
Max. % Ann.	147	Chillicothe	Hardeman	
Min. % Ann.	47	George West	Live Oak	
Max. Prec. Mo.	17.2"	Anahuac	Chambers	Aug
Max. 24-hr. Prec.	10.5"	Aransas Pass	San Patricio	Sep 6
Max. Snowfall Ann.	15.0"	Mount Locke	Jeff Davis	
Max. Snowfall Mo.	9.0"	Mount Locke	Jeff Davis	Jan

1956

The drought which had been affecting parts of Texas since 1950 reached its most extreme stage in 1956, as conditions were even worse than in the 1930s. Only 57% of the expected precipitation fell across the state as a whole, in what was one of the two driest years ever (see 1917). Compare 1956 totals state-wide (Fig. 11) with the long-term average amounts (Fig. 14). Record low amounts were recored in the High Plains, Edwards Plateau and North Central Texas, in cities such as Amarillo, Abilene, Del Rio and Dallas. At least two stations, Wink Airport (Winkler) and Presidio (Presidio), reported less than 2" during the entire year (see Table 10). There apparently was no station in Texas which received a surplus of precipitation during 1956, but a few stations along the coast reported just over 90% of their long-term means. During the first half of the year East Texas and the Lower Valley were the only areas which received sufficient rainfall, as extreme drought plagued the Edwards Plateau, North Central and South Central Texas. By the middle of the summer, however, devastating drought had spread across all areas except parts of the Lower Valley and East Texas. Frequent duststorms, particularly in February, April and December eroded precious topsoil, and crops were ravaged like they were in 1873, 1917, 1925 and the mid-1930s. Yields would have been even worse had it not been for the large increase in irrigated acreage since the 1930s.

Sleet and freezing rain in mid-January made travel hazardous across the northern half of Texas and four persons died on icy roads. Texans became even better acquainted with winter during the first five days of February, when a tremendous blizzard dumped snow across the Panhandle and South Plains. At Hale Center (Hale) 33" of snow fell during the period, which made this the greatest single snowstorm on record in Texas. A week later residents still were digging out from under the white blanket, a reminder of an event which had killed 20 persons.

Across the state, precipitation was at least 1" below average in every month from March through September. Unusually high temperatures in May (one of the warmest ever), June and September put even more stress on the extremely serious moisture situation. In June some streams in the

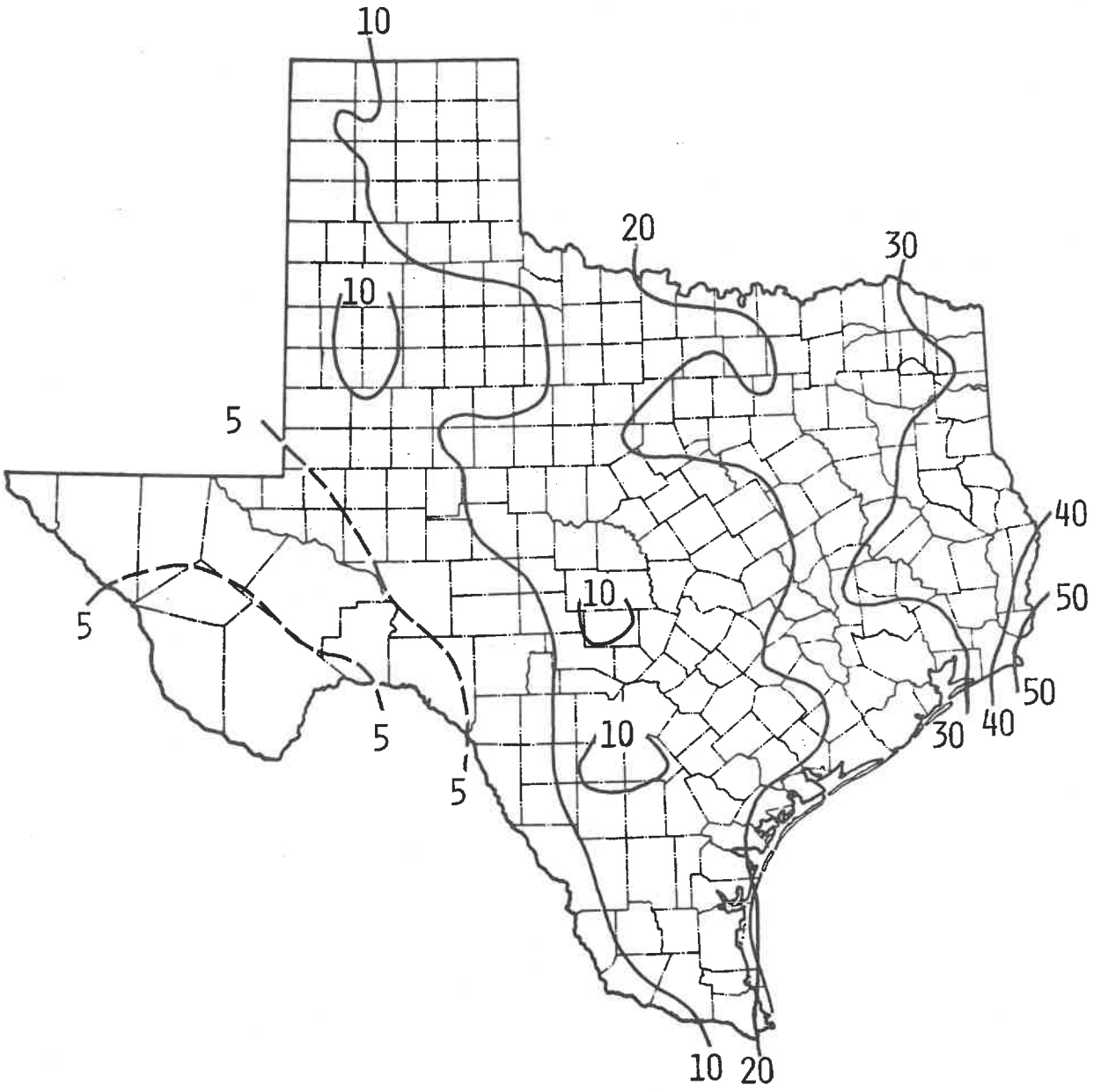


Figure 11
Annual Precipitation (Inches), 1956

Guadalupe Basin dried up for the first time ever, while flows elsewhere were the lowest on record. Water rationing became necessary in some cities during July when ground water dropped to record low levels. By December the only area where extreme drought conditions were not being experienced was the Lower Valley.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Presidio	Presidio	Jun 15
Lowest Temp.	-2F	Mount Locke	Jeff Davis	Feb 3
Highest Prec. Ann.	53.4"	Orange	Orange	
Lowest Prec. Ann.	1.8"	Wink	Winkler	
	*1.6"	Presidio	Presidio	
Max Excess Ann.	None with excess			
Max. Deficit Ann.	23.5"	Edna	Jackson	
Max. % Ann.	91	Port Arthur A'port	Jefferson	
		Port Isabel	Cameron	
		Stephenville	Erath	
Min. % Ann.	16	Wink	Winkler	
Max. Prec. Mo.	15.1"	Orange	Orange	Dec
Max. 24-hr. Prec.	9.7"	Stephenville 3NE	Erath	May 1
Max. Snowfall Ann.	36.0"	Hale Center	Hale	
Max. Snowfall Mo.	36.0"	Hale Center	Hale	Feb

*April amount estimated

1957

After years of severe drought, rains came to Texas in record amounts during 1957. Extreme drought continued through February in most areas, but beginning in March steady downpours brought relief. For the state as a whole, only 1919 and 1941 were wetter years. The Low Rolling Plains, Edwards Plateau and North Central Texas received at least 40% more rain than expected, while the only division with a slight deficit was the Lower Valley.

February temperatures were more than 6F above average in Texas, as readings were especially high in the southern and western sections. Marathon (Brewster) recorded more precipitation during the month (3.4") than fell during all of 1956. March was a month of contrasts. Record rains fell across the Trans-Pecos, Upper Coast and South Central Texas, while in North Central Texas the month was the driest ever, and the drought continued. In the Trans-Pecos monthly temperatures were the highest ever, while in South Central Texas it was the coolest March on record. Ten persons died as a result of a blizzard which hit the Panhandle on March 22. State-wide precipitation during April was 4" above average, as monthly totals rivalled those recorded in April, 1900. Widespread flooding late in the month claimed 17 lives, and at least five others died near San Antonio in May after torrential rains.

Severe weather took a heavy toll in 1957. A tornado roared through a section of Dallas on April 2. Ten residents were killed, 200 were injured and property damage was estimated at $4 million. On May 15, 21 persons died when a tornado struck Silverton (Briscoe). Hurricane Audrey passed over Orange (Orange) on June 27 and caused in the neighborhood of $18 million damage, primarily in Orange and Jefferson counties. The storm killed nine Texans and injured over 400.

Summer precipitation and temperatures were about average across most of Texas, although at Presidio (Presidio) the mercury rose to 117F on June 18. However, both October and November were unusually cool and wet. A cold front which moved through the state late in October plunged the temperature at Austin to 32F, the earliest freeze since 1926. On November 21 a snowstorm dropped as much as 15" of snow across the Panhandle.

1957

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	117F	Presidio	Presidio	Jun 28
Lowest Temp.	-2F	Plains	Yoakum	Nov 23
Highest Prec. Ann.	84.5"	Glenfawn	Rusk	
Lowest Prec. Ann.	4.4"	Presidio	Presidio	
Max Excess Ann.	32.2"	Greenville	Hunt	
Max. Deficit Ann.	5.5"	Valentine	Presidio	
Max. % Ann.	193	La Pryor	Zavala	
Min. % Ann.	52	Presidio	Presidio	
Max. Prec. Mo.	20.5"	Glenfawn	Rusk	Apr
Max. 24-hr. Prec.	10.8"	Long Lake	Anderson	Aug 11
Max. Snowfall Ann.	22.0"	Spearman	Hansford	
Max. Snowfall Mo.	15.0"	Eden	Concho	Nov

1958

Precipitation totals for 1958 were 50% larger than usual in South Texas and the Lower Valley, and also were above average in the Edwards Plateau and South Central Texas. Only 1919 and 1976 were wetter in South Texas, while Brownsville recorded the highest annual total since 1887.

Record rains fell across South Texas and the Lower Valley in both January and February, which resulted in flooding along the Nueces River. In January as much as 20" of snow fell in the Davis Mountains and across the Panhandle, but in February measurable amounts fell as far south as Corpus Christi and Kingsville (Kleberg) and also along the Upper Coast. Temperatures from February through April were generally cooler than expected state-wide. March readings were commonly 10F below average in the Panhandle and North Central Texas. However, on April 24 Rio Grande City (Starr) reported 111F, close to the record for April (see Table 4).

Readings were slightly above average in most parts of Texas during the summer, and rainfall was generally sufficient. Some areas received a surplus of moisture, due to Hurrican Alma and Tropical Storm Ella. Alma hit the Mexican coast south of Brownsville in mid-June and produced as much as 20" of rain in parts of the Edwards Plateau. Early in September, Ella crossed the coast south of Corpus Christi and dropped rains along the coast and inland along the Rio Grande. As much as 14" fell in the southeastern section of the state on September 20/21, which caused flooding on the Neches and Sabine rivers. Rainfall totals again set records in both South Texas and the Lower Valley during October, as the Rio Grande overflowed its banks. Parts of the Panhandle and North Central Texas received up to 10" of snow in December, when temperatures were slightly below average state-wide.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Presidio Pecos	Presidio Reeves	Jul 13, 14 Jul 15
Lowest Temp.	-4F	Stratford	Sherman	Nov 28
Highest Prec. Ann.	64.5"	Orange	Orange	
Lowest Prec. Ann.	10.2"	Fabens	El Paso	
Max Excess Ann.	24.5"	Brackettville	Kinney	
Max. Deficit Ann.	10.9"	Rosenberg	Fort Bend	
Max. % Ann.	221	El Paso	El Paso	
Min. % Ann.	72	Wichita Falls	Wichita	
Max. Prec. Mo.	25.1"	Galveston Airport	Galveston	Sep
Max. 24-hr. Prec.	12.8"	Deweyville	Newton	Sep 21
Max. Snowfall Ann.	43.0"	Spearman	Hansford	
Max. Snowfall Mo.	20.5"	Mount Locke	Jeff Davis	Jan

1959

Annual precipitation totals during 1959 were slightly above average across Texas, with the exception of the Trans-Pecos and Lower Valley. However, several cities received record-setting monthly amounts. Temperatures state-wide were well below average in November and also were a few degrees cooler than expected in January, April and July.

The year began on an exceptionally cold note, as an Arctic air mass entered the northern Panhandle on January 2. The maximum temperature at Vega (Oldham) on January 4 was -2F, probably the lowest maximum ever recorded at a Texas station (see Table 5). In addition, the mercury rose to only -1F at Spearman (Hansford) and 0F at Dumas (Moore). The reading dropped to -22F early on January 4 at Spearman, which set a state-wide record for the month and was only one degree from the all-time record of -23F. The temperatures at Dalhart Airport (Hartley) and Stratford (Sherman) fell to -21F and -19F, respectively, on the same date (see Table 6).

Early in the year precipitation was less than expected, particularly in January and March. Portions of the Low Rolling Plains and North Central Texas experienced a very mild drought until June. The monthly total at Dallas in January was the lowest ever recorded. However, Houston reported the wettest February to date. Rio Grande City (Starr) recorded a temperature of 108F on March 30, which tied the all-time record for March (see Table 4). On March 31 a tornado killed six residents of Vaughn and Bynum, in Hill County.

June and July rainfall was generally heavier than usual, especially along the Upper Coast and in East Texas during July when Hurricane Debra came ashore. Wind gusts up to 105 mph were reported near Freeport (Brazoria) but no deaths or injuries were attributed to the storm. In September, showery weather resulted in an unusually spotty rainfall pattern, as San Angelo recorded over 9" (a new record) while 55 miles away at Eldorado (Schleicher) no measurable rainfall was reported. Late in the month and into the first part of October torrential rains fell over the upper basins of many rivers and streams in northern and central sections of the state, which resulted in flash flooding.

Cold weather was the rule in November, when monthly readings were the lowest to date at Austin, Corpus Christi, San Angelo, San Antonio, Waco and Wichita Falls. The southern part of Texas was hit by a freeze on November 29 which caused considerable damage to vegetables, especially near Laredo. An icestorm paralyzed the Panhandle on December 14/15.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Presidio	Presidio	Jun 22
Lowest Temp.	-22F	Spearman	Hansford	Jan 4
Highest Prec. Ann.	87.0"	Houston (Independence Heights)	Harris	
Lowest Prec. Ann.	2.5"	Fabens	El Paso	
Max Excess Ann.	25.7"	Baytown	Harris	
Max. Deficit Ann.	7.8"	Weslaco 2E	Hidalgo	
Max. % Ann.	193	San Angelo Airport	Tom Green	
Min. % Ann.	64	El Paso	El Paso	
Max. Prec. Mo.	19.4"	Freeport 5NW	Brazoria	Aug
Max. 24-hr. Prec.	11.0"	Overton	Rusk	May 3
Max. Snowfall Ann.	20.0"	Coldwater	Dallam	
Max. Snowfall Mo.	12.0"	Coldwater	Dallam	Dec

THE 1960s

Unlike the three previous decades, the 1960s as a whole can not be categorized as either "wet" or "dry" across Texas. The driest years were from 1962 through 1964, when some areas, particularly in the southern half of the state, experienced periods of moderate drought. However, most sections received generous rains in 1960, 1968 and 1969. Two devastating hurricanes struck the Texas coast during the 1960s: Carla in September, 1961, and Beulah in September, 1967. The storms were responsible for 47 deaths and almost $600 million damage.

1960

Precipitation state-wide was at least 10% above average during 1960, for the fourth consecutive year. In the High Plains, Upper Coast, South Central and South Texas totals were commonly 30% heavier than usual. The months of June, October and December were especially wet. Readings in February, March and December were generally several degrees below average across the state.

On February 9 several stations in the southern half of Texas set high temperature records for so early in the year (102F at Rio Grande City (Starr) and 98F at Laredo), but three days later a rare storm dumped from 3 to 7" of snow across central and southern Texas, all the way to the coast. From 8 to 10" were reported in the Beaumont-Port Arthur area while Galveston received 2". The remainder of the month was unusually cold, particularly in North Central and East Texas. The trend continued through March, when readings set new low temperature records in East Texas. April rainfall was slightly less than expected, but during May the deficiency averaged 2" state-wide.

The mercury rose to 117F at Presidio (Presidio) on June 18, just short of the state record for the month of June (see Table 4). On June 23 a tropical storm moved onshore and brought torrential rains to the Upper Coast and coastal bend. Over a four-day period almost 30" fell at Port Lavaca No. 2 (Calhoun), and two other stations in Wharton and Calhoun counties reported more than 25" during the month (see Table 11).

The storm moved northward and then to the northeast, as the entire eastern half of the state received soaking rains. Flooding became a problem along the lower Colorado, Navidad, Lavaca and Guadalupe rivers. Seven persons died as a result of the high water. The remainder of the summer was slightly wetter than usual in most areas, while temperatures were seasonal.

Rains totalling 7 to 10" fell across South Central Texas on October 28. The resulting flash floods killed 11 people and forced 300 families to evacuate in a section of Austin. Damage was estimated to be $2.5 million. The rest of the state also was unusually wet, as monthly amounts were routinely 3" above average. Hailstorms during October were devastating, particularly in western sections and North Central Texas, where crop damage exceeded $13 million. Virtually no rain at all fell over the High Plains in November, but December was the wettest in Texas since 1923. Cold weather also prevailed state-wide as readings were several degrees less than expected. A storm dropped 5 to 18" of snow from the Trans-Pecos northward through the Panhandle from December 7th to 10th.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	117F	Presidio	Presidio	Jun 18
Lowest Temp.	-9F	Dalhart Airport	Hartley	Jan 19
Highest Prec. Ann.	77.5"	Cypress	Hayes	
Lowest Prec. Ann.	5.2"	La Tuna 1S	El Paso	
Max Excess Ann.	25.2"	Danevang	Wharton	
Max. Deficit Ann.	10.3"	Galveston	Galveston	
Max. % Ann.	181	Amarillo	Potter	
Min. % Ann.	70	Presidio	Presidio	
Max. Prec. Mo.	29.8"	Port Lavaca No. 2	Calhoun	Jun
Max. 24-hr. Prec.	14.8"	Maurbro	Jackson	Jun 26
Max. Snowfall Ann.	30.8"	Wellington	Collingsworth	
Max. Snowfall Mo.	17.0"	Memphis	Hall	Dec

1961

The most significant weather event of 1961 was Hurricane Carla, which struck the Texas coast near Port O'Connor (Calhoun) on September 11 (see Fig. 13). Carla, classified as an extreme hurricane, was one of the most devastating in Texas history. At Port Lavaca (Calhoun) wind gusts were estimated at 175 mph, while tides ran more than 18 feet above mean sea level. Rainfall totalled more than 16" in a band from Galveston to Bay City (Matagorda), but as much as 13" were reported in areas up to 130 miles inland. The remnants of the storm moved through central Texas and into Oklahoma, and left 34 dead and 465 injured in its wake. Had it not been for early warnings which allowed an estimated 500,000 people to evacuate immediate coastal areas, the death toll might have been much higher. Damage estimates reached $400 million in the coastal areas from Corpus Christi to Port Arthur, and also Jackson, Wharton and Harris counties.

Annual precipitation totals showed a large variation in Texas, from 20% below average in South Texas and the Trans-Pecos to as much as 30% above average across the Upper Coast. The state-wide average was slightly higher than usual, for the fifth consecutive year. Interestingly, April was the driest ever in Texas, as totals were less than 1" across much of the state. The following month also was dry, but heavy rains in June (only 1899 was wetter) and July offset the deficit. As much as 20" of snow fell in the Panhandle and parts of western Texas during three separate periods in February, March and November. The area around El Paso experienced the earliest heavy snow on record when almost 8" fell on November 13/14.

Readings were generally cooler than usual across the state in 1961, particularly in January and November. Texans also enjoyed a relatively cool summer, as temperatures were commonly 2F below average. Slightly warmer than average weather was common only during March.

1961

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Presidio	Presidio	May 12
Lowest Temp.	-12F	Dalhart Airport	Hartley	Dec 12
Highest Prec. Ann.	77.1"	Freeport 5NW	Brazoria	
Lowest Prec. Ann.	4.0"	Fabens	El Paso	
Max Excess Ann.	28.0"	Freeport 5NW	Brazoria	
Max. Deficit Ann.	11.3"	Karnes City	Karnes	
Max. % Ann.	167	Sterling City	Sterling	
Min. % Ann.	56	Eagle Pass	Maverick	
Max. Prec. Mo.	20.0"	Bay City Waterworks	Matagorda	Sep
Max. 24-hr. Prec.	11.0"	Giddings	Lee	Sep 12
Max. Snowfall Ann.	38.4"	Levelland	Hockley	
Max. Snowfall Mo.	24.0"	Levelland	Hockley	Feb

1962

The string of wet years ended in 1962 as state-wide precipitation totalled 10% less than average. Amounts in northern sections were about average, but much of the southern half of the state experienced a period of moderate drought from late spring through the fall. Hardest hit were areas in the Edwards Plateau and South Texas. Temperatures varied considerably during the year. Readings in January and March were unusually low while those in February, May and October were substantially higher than usual.

January temperatures averaged 5F below average, primarily due to a cold wave which gripped the state from January 9th to 12th. Readings dropped to as low as -14F in the Panhandle and 10F in the Lower Valley. Ice formed on Galveston Bay as far as 100 to 150 yards out from the shore near Texas City (Galveston)! Damage to citrus and vegetables in southern

Texas was estimated at $17 million as a result of 65 consecutive hours of freezing temperatures. Losses to crops and property state-wide totalled $60 million. As many as 38 deaths were attributed to the cold weather. Unseasonally warm weather was the rule in February, particularly in southern sections. Corpus Christi experienced the warmest February since records were begun in 1887.

Only 55% of the expected precipitation fell across Texas during the first three months of the year. April rains provided some relief but May (normally the wettest month of the year) proved to be the driest on record. The dry weather was accompanied by temperatures which were several degrees higher than usual, particularly in the Panhandle and North Central Texas. Substantial rains in June were welcome, but July precipitation was spotty. Dallas reported one of the largest July totals ever, while in central and southern sections rain was scarce. Dry weather continued into August, as both San Antonio and Austin experienced more than 50 consecutive days without measurable rainfall. El Paso received no rain at all during the month. The southern half of the state endured unusually hot temperatures during August, as readings at San Antonio reached 100F on 21 consecutive days. Temperatures were generally seasonal, except in October when the Lower Valley reported record-setting warm readings.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Gonzales 2	Gonzales	Aug 10
		Dalhart Airport	Hartley	Jan 10
Lowest Temp.	-14F	Red Bluff Dam	Reeves	Jan 11
		Wink Airport	Winkler	
Highest Prec. Ann.	56.4"	Bonham	Fannin	
Lowest Prec. Ann.	4.0"	Imperial	Pecos	
Max Excess Ann.	18.8"	Dallas Airport	Dallas	
Max. Deficit Ann.	19.9"	Port Arthur	Jefferson	
Max. % Ann.	152	Dallas Airport	Dallas	
Min. % Ann.	48	Carrizo Springs	Dimmit	
Max. Prec. Mo.	18.9"	Kaufman	Kaufman	Jul
Max. 24-hr. Prec.	12.8"	Kaufman	Kaufman	Jul 27
Max. Snowfall Ann.	12.2"	Borger 3W	Hutchinson	
Max. Snowfall Mo.	8.5"	Lake Colorado City	Mitchell	Mar
		Cope Ranch	Sterling	

1963

Unusually dry weather was the rule across most of Texas in 1963. The Lower Valley, where precipitation was only 6% below average, was the "wettest" division. In North Central Texas annual rainfall totals were lower only in 1956, while in South Central Texas and the Edwards Plateau deficiencies of more than 30% were common.

Four blasts of cold, Arctic air reached the Lower Valley in January, which set a new record. Commercial vegetables in South Texas were hit hard but damage to citrus was light compared to 1962. A few stations in the northeastern corner of the state reported temperatures as much as 10F below average for the month. The mercury dropped to -18F at Dalhart Airport (Hartley) on the 13th (see Table 6) after the passage of one of the cold fronts. Precipitation amounts generally were more than 1" below average during January. Snows of up to 10" brought needed moisture to Panhandle farms in February.

Continued dry weather in March marked the onset of a severe drought across the southern half of Texas (except the Trans-Pecos), which would last through the end of the year in some areas. Through April, Corpus Christi had recorded only 19.1" of precipitation during the previous 19 months! Dallas received significant rains in April after the driest first quarter on record. Temperatures state-wide were several degrees warmer than usual in both March and April. On April 10, Falcon Dam (Starr) recorded 113F, the highest temperature ever recorded in Texas during April. From the end of May through June 4, 500,000 acres of cotton in a 23-county section of the Low Rolling Plains and southern High Plains were either hailed out, washed out or destroyed by high winds. By the end of the summer, drought had spread into North Central and East Texas.

Deweyville (Newton) and a station near Orange (Orange) both received over 15" of rain in 24 hours (see Table 12) after Hurricane Cindy came ashore on September 17 between Galveston and Port Arthur. Rainfall totals of from 15 to 20" were common along the Sabine and Neches rivers, and the resulting floods caused $12 million damage in Jefferson, Newton and Orange counties. Elsewhere, rainfall was spotty and the drought

continued. Virtually no rain fell across the entire state during the first 15 days of October, while temperatures reached record levels in the northern half of the state. November rains relieved the situation in some areas, particularly in East Texas. The coldest December in Texas history closed out the year. Readings averaged 7F cooler than usual across the state, while scattered stations reported temperatures as much as 10F below average.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Falcon Dam	Starr	Apr 10
Lowest Temp.	-18F	Dalhart Airport	Hartley	Jan 13
Highest Prec. Ann.	67.1"	Orange (Gulf States Utilities)	Orange	
Lowest Prec. Ann.	4.5"	La Tuna 1S	El Paso	
Max Excess Ann.	7.1"	Orange (Gulf States Utilities)	Orange	
Max. Deficit Ann.	24.3"	Honey Grove	Fannin	
Max. % Ann.	133	Post	Garza	
Min. % Ann.	45	Denton	Denton	
		Honey Grove	Fannin	
Max. Prec. Mo.	25.3"	Orange (Gulf States Utilities)	Orange	Sep
Max. 24-hr. Prec.	20.6"	Deweyville	Newton	Sep 18
Max. Snowfall Ann.	20.8"	Polar	Kent	
Max. Snowfall Mo.	13.8"	Polar	Kent	Dec

1964

Moisture shortages occurred over most of Texas again in 1964, the third consecutive year of below average precipitation. During the year, the High Plains, Trans-Pecos and Lower Valley received only about 70% of their expected amounts. Elsewhere, deficits were not quite so large, but were still significant because dry conditions already existed in most areas at the beginning of the year. North Central Texas was the only division which reported above average annual totals. During the summer,

parts of the High Plains, Edwards Plateau, North Central and East Texas experienced moderate drought conditions, but the situation never was as severe as in 1963. The year was unusual in that very few monthly divisional means (temperature and precipitation) broke or even threatened previous records.

Precipitation during the first quarter of the year was adequate in most areas of the state, so the moisture deficiency was relieved temporarily. Across northern Texas, a sizable amount fell as snow. In January many parts of North Central and East Texas were covered with 10" of snow, while Hico (Hamilton) recorded 15" during the month. A blizzard dumped up to 25" of snow across the Panhandle the first week of February. Winds of 30 to 35 mph piled the snow into drifts 8 to 10 feet high which paralyzed traffic and isolated some towns and ranches for up to three days. Four deaths were attributed to the storm, believed to be the second worst on record (see 1956). February was one of the coldest ever state-wide, and in the High Plains, Trans-Pecos and Edwards Plateau in particular. El Paso and Port Arthur experienced the coldest winter (December through February) on record, while at El Paso no measurable precipitation was recorded during the entire three-month period.

On April 3 tragedy struck the Wichita Falls area as a tornado killed seven, injured more than 100 and caused approximately $15 million damage. With the exception of a few areas, the summer months were dry across Texas and drought conditions prevailed. Heavy thunderstorms dropped more than 13" of rain at McGregor (McLennan) on June 16, while other stations in the area also reported more than 8". In July, many small communities began experiencing water shortages. Major reservoirs state-wide were filled to an average of only 54% of capacity. Dallas broke a streak of 38 days without rain on July 25, and at Wichita Falls temperatures reached 100F on all but four days during the month. Tropical Storm Abby came ashore near Freeport (Brazoria) on August 7 and dropped 5 to 7" rains across Victoria, Karnes and Bee counties. One week later parts of the northeastern half of the state received temporary relief from the dry weather.

September rains over the eastern half of Texas were the heaviest in two years. Flash flooding occurred along the Trinity River and its

tributaries. Late in the month heavy rains in the southwestern portion of Texas brought the Rio Grande to a near-record flood stage at Del Rio. However, rainfall was more than 1" below average in most areas in October, and totals were generally low again in December.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Guthrie Seymour Henrietta	King Baylor Clay	Aug 7
Lowest Temp.	-5F	Spearman	Hansford	Jan 13
Highest Prec. Ann.	57.4"	Bon Wier 2E	Newton	
Lowest Prec. Ann.	3.7"	Fabens	El Paso	
Max Excess Ann.	10.9"	McGregor	McLennan	
Max. Deficit Ann.	18.9"	Henderson	Rusk	
Max. % Ann.	133	McGregor	McLennan	
Min. % Ann.	48	Brownfield 2E	Terry	
Max. Prec. Mo.	21.6"	McKinney	Collin	Sep
Max. 24-hr. Prec.	13.1"	McGregor	McLennan	Jun 16
Max. Snowfall Ann.	30.0"	Borger 3W	Hutchinson	
Max. Snowfall Mo.	26.0"	Borger 3W	Hutchinson	Feb

1965

In contrast to 1964, the year 1965 was characterized by months with both unexpectedly high and low mean monthly temperatures and precipitation amounts. January, April, November and December were several degrees above average across Texas, while readings in February and March were colder than usual. Across the Trans-Pecos and Upper Coast, annual rainfall totals were deficient by 23% and 16%, respecively. In the Trans-Pecos, this was the fifth consecutive year with at least a 10% deficiency, and the fourth across the Upper Coast. South Central Texas received a surplus of 21%. Elsewhere, amounts were about average, but the seasonal distribution was such that many areas experienced brief periods of drought.

On January 25 South Plains residents experienced the worst duststorm since February, 1956. Winds, which gusted up to 75 mph at Lubbock, carried the dust up as far as 31,000 feet, while surface visibilities dropped to near zero. Little snow fell in February, although the month was generally cooler and wetter than expected in most parts of the state. Several blasts of very cold air pushed through Texas in March and dropped readings close to those recorded in 1915 and 1969. Dallas and Waco reported the coldest March in half a century. April rains were generally at least 1" below average, but in East Texas it was the driest April on record.

Frequent thunderstorms brought significant rains to all divisions except the High Plains, Trans-Pecos and Upper Coast in May. Waco recorded 15" during the month, an all-time record. During the middle of May, tributaries of the Brazos River flowed over their banks and caused extensive damage in Bell County. A severe hailstorm on May 27 caused more than $5 million damage in Wichita Falls and levelled crops in surrounding fields. Tragedy struck the state twice in June. On the 2nd four persons died and more than 70 were injured when a tornado hit near Hale Center (Hale). Nine days later a heavy thunderstorm dropped almost 8" of rain in two hours at Sanderson (Terrell). The flash flood that resulted claimed 26 lives. In the High Plains it was the wettest June ever as at least ten stations reported rainfall totals of 10" or more. However, July was another story. In the driest July on record, state-wide rainfall averaged only 0.9".

Conditions in August and September were about average in most sections of the state, but October readings were generally a few degrees cooler than expected. Record-setting warm temperatures in the Low Rolling Plains, North Central and East Texas, combined with unusually warm readings elsewhere, made for the second warmest November ever in Texas (see 1927). Abilene, Houston and Lubbock all reported record high mean readings for the month. Heavy December rains totalling 2" above average soaked the Lower Valley, Upper Coast, South and South Central Texas.

1965

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	*110F	Castolon	Brewster	Jun 14
Lowest Temp.	0F	Bravo	Hartley	Feb 24
Highest Prec. Ann.	56.3"	Long Lake	Anderson	
Lowest Prec. Ann.	4.4"	Toyah	Reeves	
Max Excess Ann.	16.6"	Flatonia	Fayette	
Max. Deficit Ann.	20.6"	Port Arthur Airport	Jefferson	
Max. % Ann.	149	Luling	Caldwell	
Min. % Ann.	47	Lamesa 1SSE	Dawson	
Max. Prec. Mo.	18.4"	Ross	Mc Lennan	May
Max. 24-hr. Prec.	9.0"	Round Mountain 4 WNW	Blanco	Sep 22
Max. Snowfall Ann.	25.8"	Vega	Oldham	
Max. Snowfall Mo.	14.0"	Merrill Ranch	Jeff Davis	Feb

*Also Candelaria (Presidio), Jun 14
Presidio (Presidio), Jun 14, 15; Jul 9
La Pryor (Zavala), Jul 10

1966

Divisional precipitation totals in 1966 ranged from 15% below average over the High Plains to 23% above average in the Lower Valley. Most areas received adequate moisture, but excessive rainfall across northeastern Texas during April, and in Hudspeth and Jefferson counties during August caused devastating flash floods.

Cold weather dominated the state during January and February. Mean monthly temperatures of from 6 to 9F less than usual were the rule rather than the exception across much of the state. Up to 20" of snow fell in the Panhandle and North Central Texas in January, while in February snows of up to 10" set records in central Texas. March was dry in all ten climatic divisions, but in April most areas except the High Plains received at least 2" more than expected. Torrential rains of 20 to 26" fell across northeastern Texas from April 22nd to 29th. Hardest hit were the

following counties: Wood, Smith, Morris, Upshur, Gregg, Marion and Harrison. Floodwaters from the Trinity, Brazos, Sulphur and Sabine river systems drowned 19 persons and caused an estimated $12 million damage. Gladewater (Gregg) and Harleton (Harrison) each recorded over 25" during the month. On April 28 heavy rains caused flash flooding in Dallas County, where 14 residents died and damage reached $15 million.

In May, South Texas and the Lower Valley reported record-setting rainfall amounts, while across the Panhandle and in North Central Texas it was unusually dry. June was one of the coolest ever in the extreme southern portion of Texas. Jefferson County received more than 10" of rain on August 11/12 and the floods which resulted caused over $1 million damage. Ten days later a similar amount of rain put Dell City (Hudspeth) under two feet of water and left over $3 million damage.

The last quarter of the year was very dry over much of the western half of the state. Moisture conditions became serious by the end of the year. November was one of the driest on record for Texas (see 1949), as the mean rainfall for the state during the month was only 0.4". Cool and dry conditions prevailed state-wide during December.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	*110F	Presidio	Presidio	Jun 6, Jul 22 Aug 1
Lowest Temp.	-12F	Lipscomb	Lipscomb	Jan 23
Highest Prec. Ann.	75.5"	Orange 4NW	Orange	
Lowest Prec. Ann.	6.9"	Imperial	Pecos	
Max Excess Ann.	18.8"	Port Arthur	Jefferson	
Max. Deficit Ann.	9.9"	Comanche	Comanche	
Max. % Ann.	183	Mission	Hidalgo	
Min. % Ann.	66	Comanche	Comanche	
Max. Prec. Mo.	26.7"	Gladewater	Gregg	May
Max. 24-hr. Prec.	10.8"	Leakey	Real	Aug 13
Max. Snowfall Ann.	22.6"	Munday	Knox	
Max. Snowfall Mo.	20.5"	Forestburg 4S	Montague	Jan

*Also Guthrie (King), Jul 16
Candelaria (Presidio), Jul 22
Pecos,(Reeves), Aug 2

1967

The most important weather event of 1967 was undoubtedly Hurricane Beulah. This storm, believed to be one of the largest on record, struck the Texas coast near the mouth of the Rio Grande River on September 20 (see Fig. 13). A ship docked at the Port of Brownsville recorded a wind gust of 136 mph, and hurricane-force winds were felt as far north as Corpus Christi. Tides ran 20 feet above normal at South Padre Island. However, torrential rains (10 to 20" in most areas south of San Antonio) accompanying the storm resulted in record-setting floods which were responsible for most of the destruction. At Falfurrias (Brooks) total storm rainfall amounted to 25", more than the station usually receives in an entire year! This helped push their monthly total to 32.8", at that time the largest amount ever recorded at an official observing station in Texas during any one month. At least 6 other stations in the region recorded at least 25" during the month (see Table 11). Floodwaters covered an estimated 1.4 million acres, as record crests were observed on the San Antonio and Nueces rivers. Beulah spawned a record 115 tornadoes, the worst of which struck Palacios (Matagorda) on the 20th and killed four persons. All told, 13 died, 37 were injured, and damage to crops and property was estimated at $200 million.

The heavy September rains pushed annual totals to as much as 70% above average in the Lower Valley, where it was the third wettest year ever. Yearly amounts also were somewhat higher than expected in South and South Central Texas, but elsewhere deficits of at least 15% were common. The dry spell which began in late 1966 continued through the first half of the year, and extreme drought conditions prevailed across the Edwards Plateau, North Central, East and South Texas during the summer. January, February, May and June were all dry months in most areas. However, the rains from Hurricane Beulah effectively broke the drought in September.

On January 9 a freak snowstorm blanketed the area south of San Antonio, as both Zapata (Zapata) and Freer (Duval) recorded 8". March readings were above average, and the trend continued through April, one of the warmest ever (see 1925). Temperatures averaged about 6F higher

than expected, and records were set everywhere except in the Panhandle and the Trans-Pecos. Temperatures were a few degrees below seasonal levels in September, October and December. Lipscomb (Lipscomb) recorded 30F on September 29, only one degree off the state record for September.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	*110F	Presidio	Presidio	May 9, Jun 22, 23
Lowest Temp.	-1F	Lipscomb	Lipscomb	Mar 18
Highest Prec. Ann.	55.2"	Negley 4SSW	Red River	
		Falfurrias	Brooks	
Lowest Prec. Ann.	4.5"	Fort Hancock	Hudspeth	
Max Excess Ann.	31.0"	Falfurrias	Brooks	
Max. Deficit Ann.	22.3"	Baytown	Harris	
Max. % Ann.	233	Mission	Hidalgo	
Min. % Ann.	55	Baytown	Harris	
Max. Prec. Mo.	32.8"	Falfurrias	Brooks	Sep
Max. 24-hr. Prec.	15.7"	Whitsett 2SW	Live Oak	Sep 22
Max. Snowfall Ann.	23.3"	Vega	Oldham	
Max. Snowfall Mo.	9.5"	Marathon	Brewster	Jan

*Also Dryden (Terrell), May 12
Encinal 3NW (La Salle), May 13
Boquillas Ranger Station (Brewster), Jun 14

1968

The mean temperature for the state as a whole during 1968 was the lowest ever recorded (although the record would be broken in 1976). Annual readings were unusually low across the Low Rolling Plains, Edwards Plateau, North Central, South Central and South Texas. These records were somewhat misleading, since no month during the year was extremely cool. The year was the wettest since 1957 and no division reported less than 102% of the expected annual total. In general, the entire eastern half of the state and the Trans-Pecos received at least 25% more rain than usual.

Virtually the entire state (except the High Plains and Trans-Pecos) experienced a soggy January, when totals 2" above average were common. A flash flood took five lives in the San Antonio area after as much as 10" fell from January 18th to 21st. San Antonio's monthly total of 8.5" set an all-time record, as did amounts at Abilene and Wichita Falls. A dangerous icestorm paralyzed most of Texas north of the Austin area on January 8. February temperatures averaged 4 to 6F below average in the southeastern half of Texas. At San Antonio the month was the coldest in 63 years. Panhandle stations reported up to 16" of snow during February, and 12" during March. The entire southern half of the state was a few degrees cooler than usual again in March. May rains were more than 3" above average across the Upper Coast, East and South Central Texas.

Tropical Storm Candy came ashore near Port Aransas (Nueces) on June 23. The storm dropped up to 10" of rain on the area north of Corpus Christi, and caused almost $3 million damage. All Texas coastal areas were unusually wet during the month, especially the Upper Coast where an average of more than 13" fell, a new record. Late in the month Pecos (Reeves) reached 118F, the highest reading ever at a Texas station in June. Unseasonally cool weather prevailed in July and September, except along the coast. Fort Worth had the coolest July in 62 years. Rainfall was below average across the western and central portions of Texas in October, but November rains were more than adequate. An unusual pre-Thanksgiving storm dropped 10" of snow in the Davis Mountains and areas to the east as far as Dallas. December was dry, except in northeastern Texas.

1968

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	118F	Pecos	Reeves	Jun 29
Lowest Temp.	-3F	Gruver	Hansford	Jan 7
Highest Prec. Ann.	76.0"	Freeport 2NW	Brazoria	
Lowest Prec. Ann.	9.4"	Friona Garcia Lake 12ENE	Parmer Deaf Smith	
Max Excess Ann.	21.9"	Angleton 2W	Brazoria	
Max. Deficit Ann.	5.4"	Riomedina 2N	Medina	
Max. % Ann.	155	Ballinger 1SW El Paso	Runnels El Paso	
Min. % Ann.	79	Muleshoe 1	Bailey	
Max. Prec. Mo.	19.9"	Austwell Wildlife Refuge	Aransas	Jun
Max. 24-hr. Prec.	12.9"	Port Mansfield	Willacy	Jun 27
Max. Snowfall Ann.	32.0"	Tahoka	Lynn	
Max. Snowfall Mo.	16.1"	Paducah	Cottle	Feb

1969

Adequate precipitation fell in most parts of Texas during 1969, when only one divison (Lower Valley) reported annual totals more than 10% below average. Amounts commonly were 20% higher than usual in the Panhandle and Edwards Plateau. However, rainfall was spotty in the Trans-Pecos, where El Paso received only 4.3", the smallest total in 35 years. Rainfall in most areas was at least 1" less than expected in January, June and July, but in March, May and October rains were heavier than usual. Torrential rains totalling almost 10" fell across Johnson County on May 6/7. That same month, Honey Grove (Fannin) reported a total of 17.3". July amounts at Corpus Christi, Waco and Dallas were all less than 0.1", but Port Arthur received more than 10"! Heavy rains over southwestern Texas during the first two weeks in October caused streams to overflow their banks across much of South Texas.

Texans experienced unusually warm weather in January and July, and unseasonally cool temperatures in March and October. Mean temperatures in March were almost 7F cooler than expected state-wide, as divisional records were set from the High Plains to the Lower Valley. March readings were lower across the entire state only in 1915. Cities such as Port Arthur, Corpus Christi and Austin set new records for the month. The cold weather meant that precipitation often fell as snow rather than rain, and as much as 28.5" fell at Follett (Lipscomb). Readings jumped to record levels in July as Texas sweltered in heat exceeded only in July, 1925. Waco reported a mean temperature for the month of 90.5F, a new record. Cool weather returned in October as a severe cold wave damaged cotton across the High Plains on the 17th.

An unusually intense storm, packing hurricane-force winds, heavy rains and high tides struck the middle and upper Texas coast on February 13. Wind gusts of near 100 mph were reported at High Island (Chambers) and Palacios (Matagorda), while tides on Galveston Bay ran 9 feet above normal.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Presidio	Presidio	Jun 21
Lowest Temp.	-1F	Perryton 5NNE	Ochiltree	Jan 1
Highest Prec. Ann.	55.5"	Daingerfield 9S	Morris	
Lowest Prec. Ann.	4.3"	El Paso	El Paso	
Max Excess Ann.	16.3"	Del Rio	Val Verde	
Max. Deficit Ann.	12.8"	Baytown	Harris	
Max. % Ann.	197	Del Rio	Val Verde	
Min. % Ann.	56	El Paso	El Paso	
Max. Prec. Mo.	17.3"	Honey Grove	Fannin	May
Max. 24-hr. Prec.	11.2"	San Saba	San Saba	Oct 5
Max. Snowfall Ann.	38.1"	Follett	Lipscomb	
Max. Snowfall Mo.	28.5"	Follett	Lipscomb	Mar

THE 1970s

Torrential rains and flash floods seemed to be very common during the 1970s. Tropical Storms Amelia and Claudette (August, 1978, and July, 1979) produced record-setting precipitation amounts across portions of central and southeastern Texas. Claudette dropped as much as 43" of rain in three days near Alvin (Brazoria). From time to time, some sections of Texas experienced periods of drought which lasted a few months. However, 1973 was one of the five wettest years on record. Hurricane Celia caused tremendous damage in August, 1970, but Fern (September, 1971) was the last hurricane to strike the coast during the decade. Devastating tornadoes struck Lubbock in 1970, and Vernon (Wilbarger) and Wichita Falls in 1979.

1970

A wide variety of severe weather affected Texas during 1970, including an extreme hurricane, devastating tornadoes, an unexpected snowstorm, flash flooding and drought. Annual rainfall amounts varied considerably across the state. In the High Plains and Low Rolling Plains, where totals were generally 35% below average, 1970 was the driest year since 1956. Amarillo received only 9.6", the smallest total on record. Farther south, in the Edwards Plateau, rains came up 25% short. However, amounts were more than 10% above average in the Trans-Pecos, Upper Coast and Lower Valley.

January temperatures were 4 to 5F cooler than usual across the entire state, with the exception of the Panhandle. Port Arthur and Galveston reported the coldest January in over 20 years. Interestingly, during a brief warm spell both El Paso and Lubbock set new high temperature records for the month (80F and 83F, respecively, on the 24th). Across all but the southern portion of the state rainfall was well below average, but was particularly light in the Panhandle. Readings during March, as in January, were generally 4 to 5F below average state-wide. From 8 to 16" of snow fell across the Panhandle during the month, which drastically improved the soil moisture situation.

A cold front moved across the state on April 17/18 and triggered lines of severe thunderstorms which caused damage in many areas. One storm spawned a tornado which struck near Clarendon (Donley) on the 18th and took 18 lives. However, on May 11 an even more devastating tornado killed 26 persons in Lubbock. Almost 15 square miles of the city were destroyed, and damage estimates reached $135 million (the costliest tornado in Texas to date). Three days later, rains of up to 15" over the watershed of the San Marcos River resulted in a flood which covered more than one-third of the city of San Marcos (Hays), the worst on record. Both June and July were dry across the state, particularly in the Low Rolling Plains and North Central Texas where crops and pastures were badly in need of rain. Mount Locke (Jeff Davis) reported a low temperature of 40F on July 13, which tied the state-wide record low for July (see Table 4).

On August 3 Hurricane Celia (the costliest in Texas history in terms of dollar damage) struck the coast between Corpus Christi and Aransas Pass (San Patricio) (see Fig. 13). The storm, which intensified just before landfall, developed winds of at least 160 mph. Most of the $500 million damage (primarily in the Corpus Christi metropolitan area) was caused by the high winds, as opposed to the storm surge or flooding from heavy rains. Before Celia broke up in the mountains of northern Mexico, 11 persons had been killed and over 450 had been injured. In mid-September Tropical Storm Felice moved over High Island (Galveston) and brought welcome rains to sections of central and northeastern Texas. During the month, all divisons except the High Plains and Low Rolling Plains received abundant rainfall.

October was unusually cool in Texas, especially in the area north of a Beaumont to Austin to Del Rio line. At El Paso it was the coolest October since the beginning of records in 1880 (the record would be broken in 1976). The reading at Fort Hancock (Hudspeth) dropped to 8F on the 28th, the lowest temperature ever recorded in Texas during October. As much as 10" of snow fell across part of the High Plains on the 8th and 9th, a record amount for so early in the season. Hundreds of cattle perished in the storm. Late in the month rains of almost 20" soaked the extreme southeastern corner of the state. Deweyville 5S (Orange) reported

15.5" in 24 hours, which brought its monthly total to 29.0" (see Table 11). A record number of tornadoes (20) were reported during the month, but this record would be broken in 1974. November and December were very dry state-wide. By the end of the year, the Panhandle was experiencing moderate drought conditions. Unusually warm readings in December set records from North Central Texas to the Lower Valley.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Candelaria	Presidio	Jun 17
		Wichita Falls	Wichita	Aug 9
Lowest Temp.	-3F	Vega	Oldham	Jan 6
Highest Prec. Ann.	69.5"	Beaumont Filter Plant	Jefferson	
Lowest Prec. Ann.	6.0"	Ysleta	El Paso	
		La Tuna 1S	El Paso	
Max Excess Ann.	14.7"	Edna Hwy 59 Bridge	Jackson	
Max. Deficit Ann.	14.3"	Huntsville	Walker	
Max. % Ann.	181	Presidio	Presidio	
Min. % Ann.	46	Shamrock	Wheeler	
		Plainview	Hale	
Max. Prec. Mo.	29.0"	Deweyville 5S	Orange	Oct
Max. 24-hr. Prec.	15.5"	Deweyville 5S	Orange	Oct 28
Max. Snowfall Ann.	46.1"	Follett	Lipscomb	
Max. Snowfall Mo.	16.7"	Borger 3W	Hutchinson	Mar

1971

Although annual precipitation across Texas was slightly above average, the major weather event of 1971 was drought. The spell of dry weather which began in late 1970 continued through July, but widespread heavy rains in August and rains triggered by Hurricane Fern and several cold fronts in September replenished moisture supplies. The most critical period was in June and July, when the Low Rolling Plains, Edwards Plateau, North Central and South Central Texas were hit hardest. The areas least affected were the High Plains, Trans-Pecos and Lower Valley.

Interestingly, rains during the latter half of the year in South Texas were enough to bring the annual total to the highest level in over 20 years.

The month of January was one of the two driest on record (see 1909), as an average of only 0.2" fell across Texas. Amazingly, more than 100 official observing stations (out of approximately 700) received no measurable precipitation during the month. The three-month period ending in January was the driest on record at Austin, Dallas and Houston. The unusually fair weather was accompanied by temperatures 3 to 4F higher than usual. Record-setting high readings were recorded at several stations in southern Texas at the end of the month. This same area was dry in February, but the worst blizzard since March, 1957, struck the Panhandle on the 20th. Snows of from 6 to 26" were piled into drifts 12 feet high by winds which gusted up to 60 mph. Three persons died in the storm, and the damage reached $3 million. As many as 13,000 head of cattle perished due to the cold.

More than 140 Texas stations (primarily in the southwestern half of the state) experienced a completely dry March, the driest ever across the state. Drought conditions became severe from the Low Rolling Plains to South Texas. Rainfall also was deficient in most areas through April and May, so conditions deteriorated further. In May, Buffalo Lake, near Canyon (Randall), dried up for the first time since its construction in 1939. Heavy rains in June broke the drought over South Texas, but elsewhere the dry weather continued. In late July, sections of central Texas were fortunate to receive significant showers (the July total at Waco was the highest since 1903), but severe drought still prevailed for most of the month from the Low Rolling Plains to the Upper Coast.

Unusually large rainfall totals across virtually the entire state from August through September signalled the end of the dry regime. August was the wettest on record in the Low Rolling Plains, Edwards Plateau, South Central and South Texas, areas that were being affected most by the drought only a few months earlier. The cloudy, rainy weather helped bring mean temperatures state-wide to the lowest levels on record, as eight of the ten climatic divisions experienced the coolest August ever. During the second week of September Hurricane Fern brought heavy

rains to the coastal bend and inland into South and South Central Texas. At Kaffie Ranch (Jim Hogg) and Benavides No. 2 (Duval), 24-hour totals were 21.0" and 19.2", respectively. Monthly amounts at Kaffie Ranch and Refugio (Refugio) exceeded 25" (see Tables 11 and 12).

In October torrential rains near Rocksprings (Edwards) resulted in a flash flood which took five lives. December temperatures were 3 to 4F above average throughout the eastern half of the state. For the first time since 1898, the mercury never reached the freezing point at Fort Worth. However, an early season snowstorm left the Panhandle under a white blanket 4 to 9" deep on the 1st and 2nd. Severe thunderstorms and several tornadoes rumbled through North Central and East Texas on the 14th. A total of 23 tornadoes were sighted in Texas during the month, a new record.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Matador	Motley	Jul 5
Lowest Temp.	-12F	Sunray	Moore	Jan 6
Highest Prec. Ann.	61.4"	Paris	Lamar	
Lowest Prec. Ann.	6.2"	Imperial	Pecos	
Max Excess Ann.	23.7"	Cotulla	La Salle	
Max. Deficit Ann.	13.2"	Longview	Gregg	
Max. % Ann.	214	Cotulla	La Salle	
Min. % Ann.	71	Brenham	Washington	
Max. Prec. Mo.	27.9"	Kaffie Ranch	Jim Hogg	Sep
Max. 24-hr. Prec.	21.0"	Kaffie Ranch	Jim Hogg	Sep 12
Max. Snowfall Ann.	41.0"	Follett	Lipscomb	
Max. Snowfall Mo.	30.0"	Follett	Lipscomb	Feb

1972

Compared to the two previous years, the 1972 Texas weather scene would have to be termed "uneventful". The only area with deficient annual rainfall was North Central Texas, where mild drought conditions prevailed from May through September. In the Trans-Pecos, Lower Valley and South Central Texas, stations generally reported surpluses of from 10 to 15%, but across the remainder of the state amounts were about average.

Temperatures during the first two months of the year were seasonal in most areas. However, rainfall was sparse in some sections, especially in the northern two-thirds of the state in February. The dry spell continued through April from the High Plains to South Texas. No measurable rain was reported during March at Austin, El Paso, Midland, Lubbock and San Angelo. However, torrential rains hit parts of southeastern Texas on the 20th, when 1500 homes were damaged by floodwaters in Harris County. During both March and April, readings were several degrees warmer than usual everywhere except in southern and eastern Texas. Spearman (Hansford) reported a mean monthly temperature 10F above average.

At the beginning of May only the southern section of Texas was unaffected by the dry spell of the past few months. The situation changed in parts of South Central Texas during the second week of the month when heavy downpours over the Comal and Guadalupe rivers sent floodwaters into New Braunfels (Comal) and Seguin (Guadalupe). Seventeen persons drowned and damage estimates reached $17 million. All summer long, temperatures were a few degrees below seasonal levels. For the second time in three years, Mount Locke (Jeff Davis) tied the state record minimum temperature for July (see Table 4). Scattered stations through the Panhandle and Edwards Plateau were as much as 5F cooler than average in August. During the month, generous rains put to rest worries of another extended dry spell in most sections.

September and October temperatures were about average state-wide, but November was the coldest to date in Texas (the record would be broken in 1976). Stations throughout the state were as much as 8 to 9F colder than expected, while at Port Arthur, November was one of the coldest ever. Monthly snowfall totals of from 10 to 22" were common across the

Panhandle. Cool, dry weather closed out the year, but an icestorm caused transportation problems over the northwestern two-thirds of the state on December 10/11.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Albany	Shackleford	Jun 27
Lowest Temp.	-12F	Perryton	Ochiltree	Dec 6
Highest Prec. Ann.	63.9"	Hemphill	Sabine	
Lowest Prec. Ann.	9.0"	El Paso	El Paso	
Max Excess Ann.	19.1"	Goliad	Goliad	
Max. Deficit Ann.	17.5"	Greenville 7NW	Hunt	
Max. % Ann.	180	Brownfield No. 2	Terry	
Min. % Ann.	59	Greenville 7NW	Hunt	
Max. Prec. Mo.	18.1"	Cuero 3E	De Witt	May
Max. 24-hr. Prec.	8.9"	Palacios Airport	Matagorda	May 7
Max. Snowfall Ann.	31.1"	Perryton 5NNE	Ochiltree	
Max. Snowfall Mo.	22.0"	Perryton 5NNE	Ochiltree	Nov

1973

Precipitation state-wide was heavy enough during 1973 (30% above average) to make the year one of the five wettest ever, and wettest since 1957. In the Panhandle and western Texas, amounts were near average, but south and east of a line from Texarkana to Del Rio rainfall was as least 50% heavier than expected. It was the wettest year ever in East Texas, and near-record falls were reported along the Upper Coast and in South Central and South Texas. Angleton 2W (Brazoria) and Cypress 1SW (Harris) recorded 100.2" and 92.6", respectively, two of the highest totals ever measured in Texas (see Table 10).

January was cold and wet across virtually the entire state. During the second week of the month, a snow and icestorm moved southeastward

through the Panhandle into central and eastern Texas. The storm dropped 8" of snow at Abilene, 6 to 8" in North Central Texas, and remarkably, 10" at Cleveland (Liberty), 3" at Port Arthur and 2.5" at Galveston. Port Arthur had not seen so much snow since February, 1895, when 15" fell. Most parts of North Central, South Central and East Texas were at a standstill, as the accompanying cold weather resulted in fuel shortages which forced the closing of schools and factories. Freezing temperatures, which lasted almost seven consecutive days at Amarillo, combined with the snow to kill an estimated 150,000 head of cattle state-wide. Weather in February was more of the same, particularly across the southern half of the state. Snows of from 2 to 3" fell in parts of South Texas during the month.

Rains were unusually heavy in northern portions of Texas in March, while readings in southern sections were a little above seasonal levels. However, temperatures plunged in April, the coldest ever across Texas. Records were set in the Trans-Pecos and all across the northern half of the state. Del Rio reported a reading of 33F on the 9th, the lowest ever during April. At Port Arthur it not only was very cool, but it also was the wettest April on record. In the Panhandle, snows of up to 13" fell early in the month, at the close of an unusually snowy winter in which at least six stations received more than 40". The entire state was granted a respite from heavy precipitation in May, when most stations reported deficiencies of at least 1".

All summer long, temperatures state-wide were a few degrees cooler than usual, but particularly in the southeastern one-third of the state in August. As one might suspect, the lower readings were the result of unusually heavy cloud cover. These clouds brought record-setting heavy rains to the Lower Valley, South, South Central and East Texas during June. Corpus Christi received 13.4" (about five times the average amount), a new record. However, on the 12th and 13th rains of 10 to 15" caused disastrous floods in southeastern Texas which took 10 lives and caused over $50 million damage to crops and property. Northern and western sections received surpluses of more than 1" in July, but these same areas were dry in August. However, coastal communities and parts of South Texas reported soaking rains. In September, Tropical Storm Delia

dropped up to 9" across the Upper Coast, while the remainder of the state (except the High Plains and Trans-Pecos) also was wet. Rainfall followed a similar pattern in October.

Unseasonally warm and dry weather was the rule across Texas in November. Numerous temperature records were set or threatened throughout the eastern half of the state. At Galveston, November was the warmest since records began in 1873. Only in North Central and East Texas was rainfall sufficient. Dry weather continued in December, when 132 reporting stations received no measurable precipitation. For the second consecutive month, virtually no rain at all fell in the Trans-Pecos.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	Pecos Candelaria	Reeves Presidio	Jun 30
Lowest Temp.	-10F	Lipscomb	Lipscomb	Jan 12
Highest Prec. Ann.	*100.2"	Angleton 2W	Brazoria	
Lowest Prec. Ann.	6.2"	La Tuna 1S	El Paso	
Max Excess Ann.	48.0"	Angleton 2W	Brazoria	
Max. Deficit Ann.	5.5"	Lubbock	Lubbock	
Max. % Ann.	200	Falfurrias	Brooks	
Min. % Ann.	70	Lubbock	Lubbock	
Max. Prec. Mo.	20.1"	Coldspring 5SSW	San Jacinto	Jun
Max. 24-hr. Prec.	13.5"	Coldspring 5SSW	San Jacinto	Jun 14
Max. Snowfall Ann.	34.7"	Follett	Lipscomb	
Max. Snowfall Mo.	17.0"	Tahoka	Lynn	Feb

*February amount estimated

1974

An unusually wet period from August through November pushed 1974 precipitation totals state-wide to almost 20% above average. In the Trans-Pecos, where the surplus exceeded 60%, it was the wettest year since 1941. Central and eastern portions of Texas received at least 15%

more rain than expected. However, because most of the rain fell in the latter half of the year, moderate to severe drought conditions developed across the Panhandle and western Texas during June and July.

In general, temperatures during January and February were seasonal, with the exception being a two-day period in early January when Lipscomb (Lipscomb) recorded -18F (see Table 6). Eastern and southeastern sections received soaking rains (up to 3.5" above average) in January, but dry weather prevailed across the remainder of the state through February. March was one of the warmest ever (see 1907), as readings were commonly more than 6F above average. At Ballinger 1SW (Runnels) the mean temperature for the month was 10F warmer than usual, very uncommon for March in Texas. However, the month was not without a cold spell, as an icestorm struck eastern and northeastern Texas on the 24th. Accidents on icy roads took five lives, and the cold weather damaged as much as 85% of the East Texas peach crop. April was dry across the High Plains and in a wide swath from Texarkana to Laredo.

Texans experienced a warm May, as readings climbed 3 to 4F above seasonal levels. On the 5th a severe hailstorm damaged 12,000 acres of cotton and sorghum in Willacy County. Dry weather continued through July across western and northwestern Texas, and the resulting drought caused agricultural losses of almost $2 million. Exceptionally heavy rains in August and September put an end to the spell of dry weather. August was one of the wettest on record across the state (see 1914), as a few scattered stations received as much as 10" more than usual during the month. The story was the same in September, when a large portion of Texas reported amounts totalling at least 3" above average. The rainfall and cloudiness resulted in unusually cool temperatures during both months. Many stations in northern Texas were at least 5F cooler than usual in August. September was the coolest ever in Texas, as the state-wide average temperature was almost 7F less than expected. It also was the coldest September on record in all of the climatic divisions except the Lower Valley.

Rains were not quite as heavy in October and November, but amounts were still generally 1" above average. Flash floods on November 23 killed 13 persons in central Texas (10 in Austin) and resulted in $1 million

damage. Readings during the last quarter of the year were 1 to 2F below average around the state.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	113F	Bridgeport	Wise	Jul 24
Lowest Temp.	-18F	Lipscomb	Lipscomb	Jan 4, 5
Highest Prec. Ann.	77.5"	Buffalo	Leon	
Lowest Prec. Ann.	9.4"	Boquillas Ranger Station	Brewster	
Max Excess Ann.	39.1"	Buffalo	Leon	
Max. Deficit Ann.	8.6"	Ricardo	Kleberg	
Max. % Ann.	301	Bakersfield	Pecos	
Min. % Ann.	60	Gruver	Hansford	
Max. Prec. Mo.	19.8"	Juno	Val Verde	Sep
Max. 24-hr. Prec.	14.4"	Welder Wildlife Foundation	San Patricio	Sep 13
Max. Snowfall Ann.	15.0"	Wink Airport	Winkler	
Max. Snowfall Mo.	11.0"	Wink Airport	Winkler	Jan

1975

Temperatures generally were seasonal or a few degrees cooler than usual during 1975. The only exception was January, when readings were 2F above average in central and eastern Texas. Annual precipitation totals state-wide were about as "average" as ever could be expected. North Central Texas reported a deficit of 6%, while South Texas and the Lower Valley received surpluses of 14% and 26%, respectively. The values for remaining divisions fell somewhere in between these limits. The only tropical system to affect Texas during the year was Hurricane Caroline, which struck northern Mexico in August and brought rains of up to 6" to the Lower Valley.

Torrential rains fell across parts of Nacogdoches County on January 31 and February 1. Unofficial reports of from 8 to 13" were received,

and the floodwaters took three lives and caused more than $5.5 million damage. The Governor declared 32 counties in the northeastern quarter of the state disaster areas after an additional 2 to 4" fell on the 2nd and resulted in widespread flooding. February temperatures were slightly cooler than usual, expecially in northern Texas. From 10 to 18" of snow fell over the Panhandle during the month, but precipitation was sparse in southern Texas and along the coast.

Springtime temperatures were pleasant state-wide, even a degree or two below average in April. March was dry, except in North Central, East and South Texas, while the Lower Valley experienced the driest April on record. However, rains were abundant in May, particularly in central and eastern sections. Severe weather struck during each spring month. On March 26, a tornado killed two persons, injured 42 others and destroyed 160 homes in Lefors (Gray). Another twister took three lives in Yancey (Medina) on April 29. The central Texas area around Austin was hit by severe thunderstorms on May 23. Floods caused by 4 to 7" rains resulted in four drownings in Lee, Travis and Milam counties. Damage from winds (up to 80 mph) and hail totalled $5 million.

Summer was relatively "cool" across Texas, as readings ranged from 1 to 3F below average through August. July was the coolest ever for the state as a whole (1976 would be even cooler). Records were threatened across western, northwestern and southern Texas. The southeastern part of the state received significant rains in June, when Deer Park (Harris) reported 12" in only 24 hours on the 9th. In July, heavy rains (1" above average) were common everywhere except in East Texas and the Lower Valley.

Cool readings continued through September, which was one of the coolest ever (see 1974). San Antonio set three low temperature records on consecutive days late in the month. Farmers across the southern High Plains suffered an estimated $40 to 50 million loss to the cotton crop when an unseasonally cool, wet front moved through on the 11th, only to be followed by an unusually rapid warming trend. Seasonal temperatures were common from October through the end of the year, but precipitation was generally below average.

1975

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	111F	Falcon Dam	Starr	Aug 1
Lowest Temp.	-7F	Dalhart Airport Perryton 5NNE	Hartley Ochiltree	Jan 12
Highest Prec. Ann.	72.4"	Orange 4NW	Orange	
Lowest Prec. Ann.	3.7"	La Tuna 1S	El Paso	
Max Excess Ann.	25.9"	Buffalo	Leon	
Max. Deficit Ann.	15.0"	Freeport 2NW	Brazoria	
Max. % Ann.	177	McAllen	Hidalgo	
Min. % Ann.	62	Vega	Oldham	
Max. Prec. Mo.	18.1"	Houston (Deer Park)	Harris	Jun
Max. 24-hr. Prec.	12.0"	Houston (Deer Park)	Harris	Jun 9
Max. Snowfall Ann.	29.8"	Spearman	Hansford	
Max. Snowfall Mo.	18.5"	Borger 3W	Hutchinson	Feb

1976

Across Texas, 1976 was the coldest year since reliable weather observations became available state-wide in the 1880s. All divisions except the High Plains reported the lowest mean annual temperatures on record (although northern and eastern sections would be even colder in 1979). Rainy weather was common during most of the year, especially in the Lower Valley, South and South Central Texas where amounts were more than 40% above average. Only in the Panhandle were annual totals deficient. However, a wide area from Texarkana to Laredo experienced drought conditions through March because of a dry spell which began in September, 1975.

January and February precipitation averaged only 0.5" across the state. The two months were among the driest ever in the Low Rolling Plains. In northern Texas the dry weather resulted in water rationing,

increased fire danger and some crop damage. From August 1, 1975, through March 1, 1976, Dallas received only 3.7", almost 12.5" less than usual. February and March were the only two months of the year with above average temperatures. Records were set during February in the Panhandle and in North Central Texas, where a few stations reported readings as much as 10F warmer than usual. The combination of scant precipitation and high temperatures gave Texans unusually light amounts of snow during the winter of 1975-1976.

Record-setting rains hit the Lower Valley and South Central Texas in April, but totals also were high throughout the central two-thirds of the state. Thirteen lives were lost in the Gulf of Mexico on April 15 when the oil rig "Ocean Express", located 60 miles off Corpus Christi, sank after being battered by high winds and heavy seas. Flash floods hit the Dallas area and several counties immediately south and east of the city on the 18th and 19th. May was one of the coolest ever state-wide (see 1907) as readings averaged 4F less than expected. Severe thunderstorms rumbled through northern and central Texas from May 22nd to 26th and caused damage which reached well into the millions of dollars. At least 118 tornadoes were sighted in Texas during April and May, a new record.

June and August temperatures were not quite as warm as usual, but every climatic division in the state experienced the coolest July on record. Monthly readings at Del Rio and San Angelo were 8.5F below average, during a month in which 5F departures from average are rare. Consequently, this probably was the "coldest" summer ever in Texas. Precipitation was scarce in many sections in June, but not in southeastern Texas as eight persons died and damage reached $25 million when more than 13" fell over Harris County on the 15th. Record-setting amounts were recorded in July across southwestern sections of the state, while totals averaged 2" higher than usual elsewhere in what was the wettest July since 1923. Dry weather returned in August, while cool, wet conditions characterized September. Late in the month severe hailstorms caused an estimated $10 million damage to crops across the High Plains and Low Rolling Plains.

October and November, like July, were the coldest in Texas history. Each climatic division set a new record in October, and several stations

reported monthly temperatures more than 10F below average. New records also were set in November everywhere but in the Panhandle. The mercury dropped to -10F on the 28th at Stratford (Sherman), the lowest temperature ever recorded in Texas during November. Readings remained 3 to 4F below average through December. Unusually heavy snows of from 2 to 4" covered the Panhandle on October 28/29. On November 13, much of northern Texas received 3 to 6", probably the earliest heavy snow ever in that area. Southern and coastal sections received significant rains during the last two months of the year.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	115F	Pecos	Reeves	Jun 23
Lowest Temp.	-11F	Lipscomb	Lipscomb	Jan 8
Highest Prec. Ann.	83.8"	Buffalo	Leon	
Lowest Prec. Ann.	6.6"	Cornudas Service Station	Hudspeth	
Max Excess Ann.	45.4"	Buffalo	Leon	
Max. Deficit Ann.	10.2"	Shamrock	Wheeler	
Max. % Ann.	218	Buffalo	Leon	
Min. % Ann.	53	Gruver	Hansford	
Max. Prec. Mo.	19.5"	Ennis	Ellis	Sep
Max. 24-hr. Prec.	12.5"	Port O'Connor	Calhoun	Jul 10
Max. Snowfall Ann.	23.0"	Levelland	Hockley	
Max. Snowfall Mo.	13.2"	Dublin	Erath	Nov

1977

Rainfall totals during 1977 were the lowest since 1963 across Texas. Stations in the southwestern third of the state received about 25% less than usual, while along the coast precipitation was only 5 to 10% below average. During the second half of the year, sections of the Trans-Pecos, Edwards Plateau, Low Rolling Plains and North Central Texas experienced

periods of moderate drought. Although hurricanes struck both Louisiana and northern Mexico, no damage was reported in Texas.

Very cold temperatures characterized the first month of the year. Many stations in North Central and East Texas were as much as 10F colder than usual, while records were set in South Texas and the Lower Valley. Late on the 8th an icestorm coasted the area north of a line from Waco to Longview (Gregg) with up to 3" of ice. Five lives were lost on slick highways in the region. Northern portions of North Central and East Texas received the heaviest snow since 1966, as 15" fell at Forestburg 4S (Montague) during the month. Two duststorms (February 22/23 and March 10th to 12th) reduced visibilities to less than one mile across a wide area from western Texas as far east as Lufkin (Angelina). The winds destroyed almost 25% of the winter wheat crop, a loss of $25 million. Precipitation was a bit below average in February and March across the western half of Texas. However, five persons drowned in Tarrant, Somervell and Dallas counties when flash floods struck on March 27.

April rains were heavy except in extreme western and northeastern sections. Brownsville recorded 6.6", the highest total in over a century. Showers were scarce across the eastern two-thirds of the state in May, as Dallas was the driest since 1934. July totals were deficient in virtually all areas, and the dry weather began to concern farmers. Summer readings were only slightly above average, but the mercury reached 100F the first 28 days of August at Pecos (Reeves). September was unusually warm, as records were set in the Edwards Plateau, South Central and South Texas. On October 1, Aspermont 1E reported 108F, just shy of the state record for October. Dry weather was the rule across the state in December. At the end of the year much of the state was in need of moisture, particularly the western portion. A freak December tornado killed one person and injured 40 others in Harris County on the 13th.

1977

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	114F	Pecos	Reeves	Jun 18
Lowest Temp.	-8F	Lipscomb	Lipscomb	Dec 10, 12
Highest Prec. Ann.	61.1"	Liberty	Liberty	
Lowest Prec. Ann.	4.9"	Boquillas Ranger Station Pecos	Brewster Reeves	
Max Excess Ann.	11.4"	Liberty	Liberty	
Max. Deficit Ann.	15.8"	Honey Grove	Fannin	
Max. % Ann.	137	Pampa No. 2	Gray	
Min. % Ann.	48	Carrizo Springs	Dimmit	
Max. Prec. Mo.	17.7"	Liberty	Liberty	Nov
Max. 24-hr. Prec.	11.3"	Liberty	Liberty	Nov 22
Max. Snowfall Ann.	18.0"	Panhandle	Carson	
Max. Snowfall Mo.	15.0"	Forestburg 4S	Montague	Jan

1978

The spell of dry weather which began in late 1977 continued through October, 1978, in some parts of Texas. All sections except the Trans-Pecos and coastal areas experienced at least moderate drought conditions sometime during the year. North Central and East Texas were hit hardest, particularly during the summer. Unusually cold air chilled the state early in the year, while at the opposite extreme, a heat wave grilled the northern half of Texas in July.

January temperatures state-wide averaged almost 8F colder than usual. Numerous stations throughout North Central and East Texas were more than 10F below average for the month, but at Center (Shelby) the departure was 13F! At Houston, Dallas and Wichita Falls it was the coldest January of the century. From 4 to 8" of snow fell over northeastern Texas, while much of the western half of the state was in need of moisture. February

was one of the coldest of all time (see 1905), as records were set in all divisions except the Trans-Pecos. For the second consecutive month, readings at individual stations were more than 10F below average, particularly across northern Texas and the Upper Coast. Up to 20" of snow fell over the Panhandle and North Central Texas during the month, which helped make the winter one of the snowiest ever in northern parts of North Central and East Texas.

Precipitation was well below average in most sections of the state during March and April. The April total at Port Arthur, 0.4", was the second lowest amount in 67 years. Drought effects were being felt in most areas, except in the High Plains and along the middle and lower coast. A severe hailstorm caused property damage of over $15 million in the Texarkana area on the 22nd. During the first week of May a freak snowstorm dropped as much as 12" across the northern High Plains. Late in the month torrential rains near Canyon (Randall) sent a flash flood through Palo Duro Canyon. A wall of water 12 feet high took four lives and caused $8 million damage.

By July the drought had reached its most advanced stage, as moisture conditions were severe in the Edwards Plateau, Low Rolling Plains, North Central and East Texas. High temperatures (2 to 3F above average) put additional stress on crops across northern Texas. In the Dallas-Fort Worth area the mercury rose to 100F on 18 consecutive days, a period when 21 deaths and over 50 injuries were believed to be heat-related. The moisture situation suddenly reversed in early August across parts of central Texas. The remnants of Tropical Storm Amelia dropped torrential rains which caused some of the worst flooding of the century in the Hill Country northwest of San Antonio and in the area around Albany (Shackelford). A total of 29" fell at Albany in only 24 hours on the 4th, the largest amount ever recorded in a day at an official station in Texas (see Table 12). The total for August at Albany was over 31", one of the five highest monthly amounts on record (see Table 11). Six persons died in Shackelford County, while in Bandera, Kendall, Kerr and Gillespie counties the death toll reached 27.

Two other tropical storms helped relieve the moisture stress across much of the state, with the exception of northeastern sections. Deborah

brought substantial rains to East Texas and the Upper Coast in late August. A month later Paul, a Pacific storm, caused heavy rains and flooding in northern Mexico and parts of the Trans-Pecos. At Presidio (Presidio), the Rio Grande crested at the highest level since 1904. A small tropical depression dumped 16" of rain on Victoria during the middle of September. After a fairly dry October, the rains returned in November and broke the drought in northeastern Texas. At year's end a severe icestorm paralyzed North Central Texas, especially the Dallas-Fort Worth area. The storm was blamed for six deaths and $14 million damage.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	116F	Olney Munday	Young Knox	Jul 15
Lowest Temp.	-10F	Bootleg Corner	Deaf Smith	Dec 9
Highest Prec. Ann.	57.1"	Center	Shelby	
Lowest Prec. Ann.	10.7"	Ysleta	El Paso	
Max Excess Ann.	22.0"	Albany	Shackelford	
Max. Deficit Ann.	17.4"	Port Arthur Airport	Jefferson	
Max. % Ann.	245	Cornudas Service Station	Hudspeth	
Min. % Ann.	59	Rainbow	Somervell	
Max. Prec. Mo.	31.2"	Albany	Shackelford	Aug
Max. 24-hr. Prec.	29.1"	Albany	Shackelford	Aug 4
Max. Snowfall Ann.	39.8"	Panhandle	Carson	
Max. Snowfall Mo.	26.1"	Valley View	Cooke	Feb

1979

Despite the fact that 1979 was the second coldest year ever across Texas (see 1976), two other stories claimed most of the headlines: the terrible tornado outbreak in the Red River valley on April 10, and the record-setting rains spawned by Tropical Storm Claudette over the Upper Coast in late July.

On the afternoon of April 10, Vernon (Wilbarger) and Wichita Falls were hit by huge twisters within the space of a few hours. All told, 53 persons died and more than 1800 were injured, in what was the worst tornado disaster in Texas since the Waco storm of 1953. More than 20,000 people were left homeless in Wichita Falls, where damage estimates reached $400 million.

The broad, diffuse center of Tropical Storm Claudette made landfall west of Port Arthur late on July 24 and caused little damage, as winds did not exceed 50 to 60 mph. However, over the following three days the remnants of the storm remained virtually stationary over southeastern Texas, and the resulting rainfall totals were extraordinary. The largest 24-hour total at an official station was the 25.8" recorded at the Alvin National Weather Service (NWS) Office in Brazoria County, but NWS investigators determined that a point three miles northwest of Alvin had received an incredible 43" in a 24-hour period during the 25th and 26th (see Table 12). This may constitute a record 24-hour total for the U.S.* Most of Matagorda, Brazoria and Galveston counties, along with the southern half of Harris County, received rains of more than 10", and 20" totals were not uncommon (see Fig. 12). Disastrous flooding which followed caused an estimated $230 million damage. The July rainfall at Alvin, 35.7", is the largest amount ever recorded in any month at an official station in Texas, yet the three-day total a few miles from Alvin was an astounding 45" (see Table 11).

Mean annual temperatures were the lowest on record during 1979 across the four northernmost climatic divisions. January was the coldest ever state-wide (the third consecutive cold January), as numerous stations in northern Texas were as much as 10F colder than usual. Residents in San Angelo and Amarillo experienced the coldest January ever. A hard freeze in the Lower Valley on the 3rd cost citrus growers $25 million. Readings were several degrees below average again in February, particularly in northern and eastern portions of Texas. The months of May, June, August

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* Hill, J.D., 1980: An apparent new record for extreme rainfall. Weatherwise, 33, 157-161.

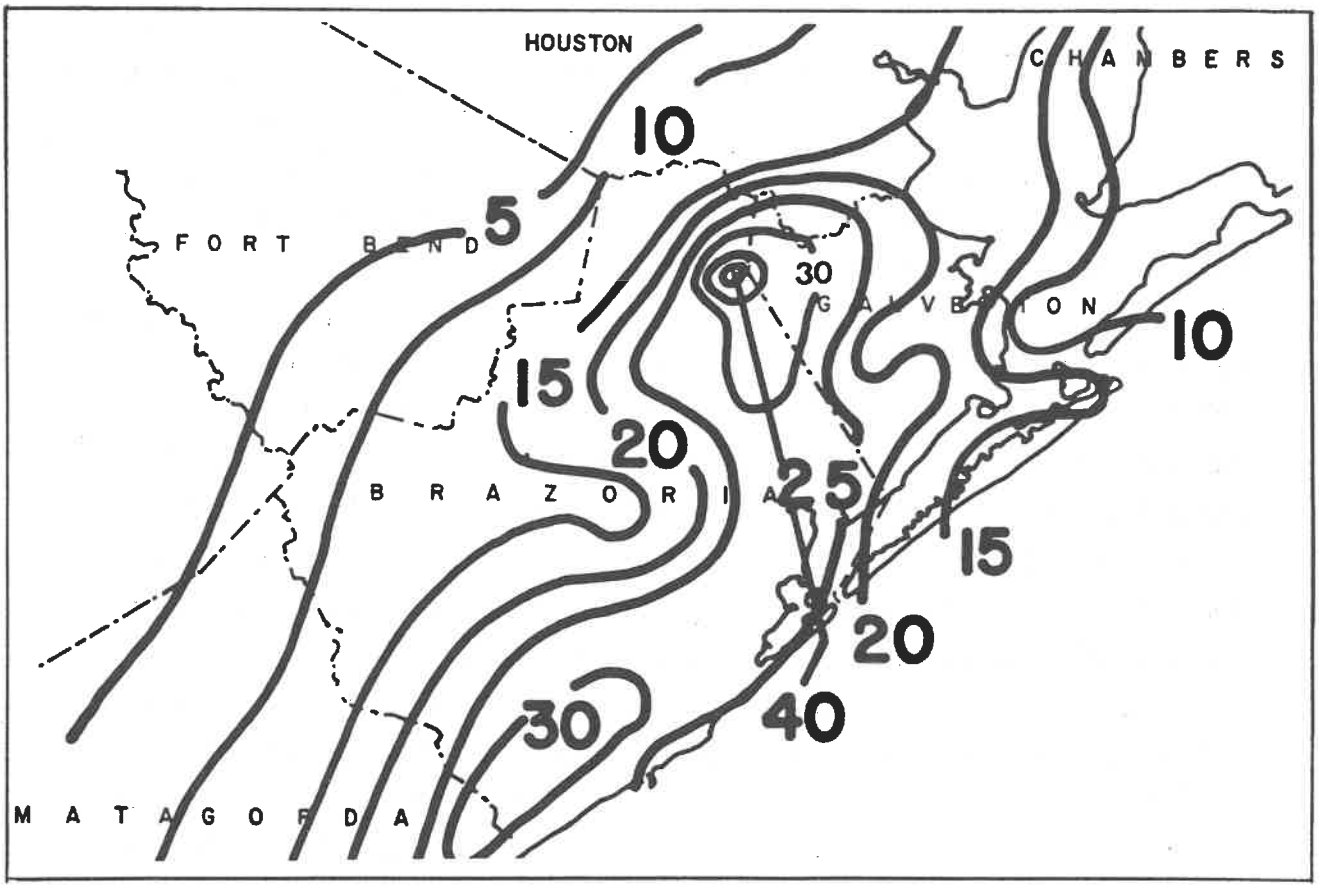

Figure 12

Rainfall Pattern (Inches) for Tropical Storm Claudette,
July 24th to 27th, 1979

(From -- Bomar, G.W., 1980: 1979: Too much rain -- then not enough. Texas Department of Water Resources, Austin, Texas, 48pp)

and November also were cooler than expected in most parts of the state. Unusually warm weather was rare: El Paso recorded 112F in July (the highest ever at the station), while much of the western two-thirds of Texas experienced 100F readings during the first ten days of October.

Most areas of the state received more than adequate moisture during the first eight months of the year. However, precipitation was scarce in some sections at year's end, especially in the Edwards Plateau and South Texas where indications of moderate drought began to appear. Annual totals in the Upper Coast, East and South Texas were at least 30% above average, due primarily to heavy July and September rains. In Brazoria County, Freeport 2NW and Alvin received 106.4" and 102.6", respectively, but less than Clarksville's (Red River) total of 109.4" in 1873 (see Table 10). Floodwaters caused $100 million damage in Hardin and Montgomery counties after heavy April rains. In early June, torrential rains resulted in some of the worst flooding of the century in Nacogdoches (Nacogdoches). A non-tropical system produced copious rains along the coast from Corpus Christi to the Louisiana border from September 18th to 20th. More than 27" fell at Freeport 2NW, which raised the total for the month to over 30" (see Table 11). On the dry side, Lubbock had the driest September to November period (0.9") on record.

The effects of the icestorm which struck North Central Texas at the end of 1978 were felt for the first few days of 1979. Thousands of Dallas residents were without power for at least one day. For the second year in a row, an early May storm blanketed the northern Panhandle with up to 3" of snow. In late October, an early season blizzard struck the same area. At least 9000 head of cattle perished, while thousands of motorists were stranded.

As the year came to a close, Texans had been spared the onslaught of a hurricane for the eighth consecutive year, the longest lull in history.

1979

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	112F	El Paso Airport	El Paso	Jul 10
Lowest Temp.	-12F	Bravo	Hartley	Jan 2
		Lipscomb	Lipscomb	
Highest Prec. Ann.	106.4"	Freeport 2NW	Brazoria	
Lowest Prec. Ann.	5.8"	El Paso Airport	El Paso	
Max Excess Ann.	57.3"	Freeport 2NW	Brazoria	
Max. Deficit Ann.	7.4"	Big Wells 1W	Dimmit	
Max. % Ann.	217	Freeport 2NW	Brazoria	
Min. % Ann.	65	Big Wells 1W	Dimmit	
		McCamey	Upton	
Max. Prec. Mo.	35.7"	Alvin	Brazoria	Jul
Max. 24-hr. Prec.	25.8"	Alvin	Brazoria	Jul 26
Max. Snowfall Ann.	31.3"	Panhandle	Carson	
Max. Snowfall Mo.	15.5"	Levelland	Hockley	Feb

APPENDIX A

MISCELLANEOUS FIGURES AND TABLES

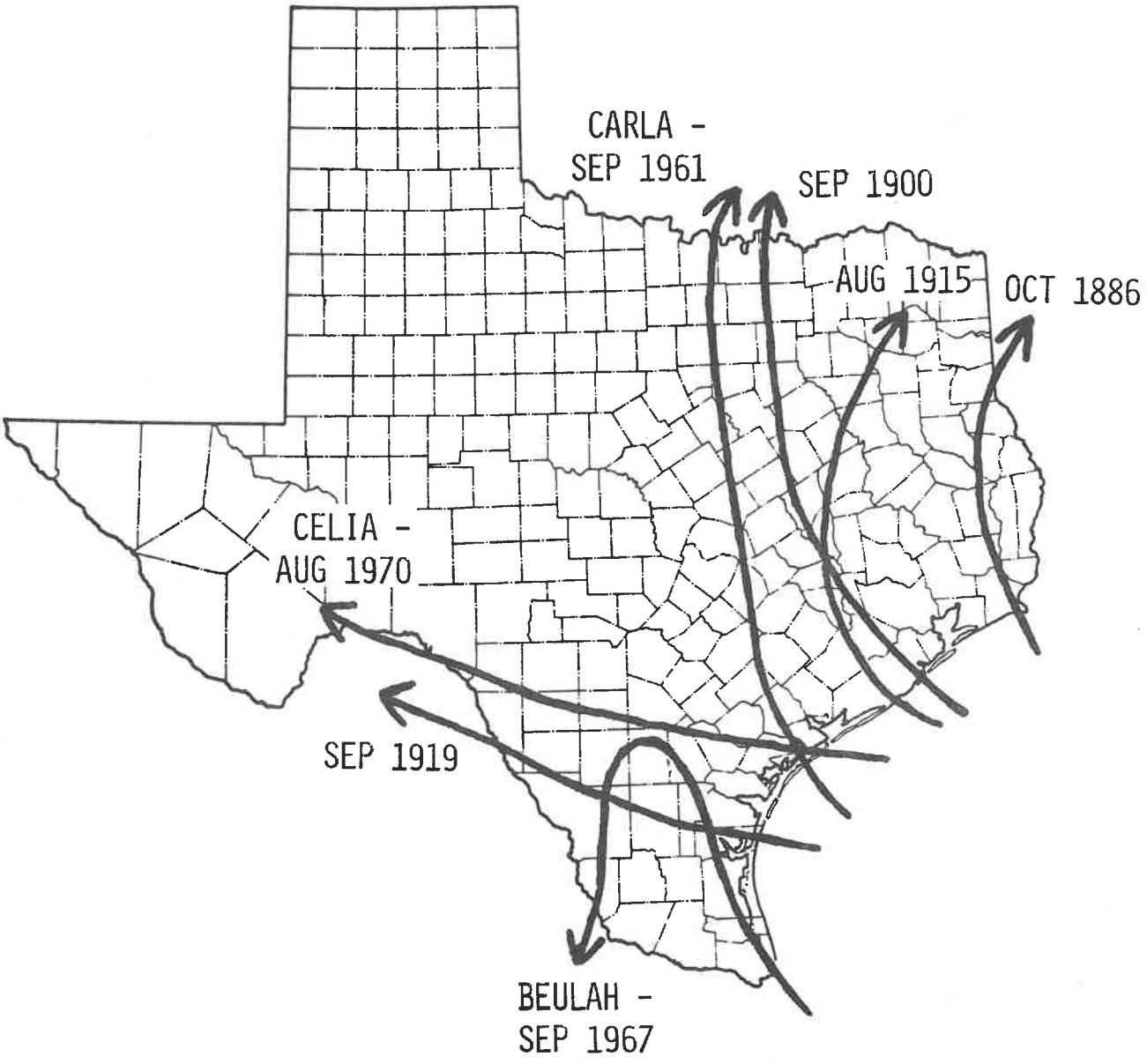

Figure 13
Tracks of Significant Hurricanes Which Have Struck the Texas Coast

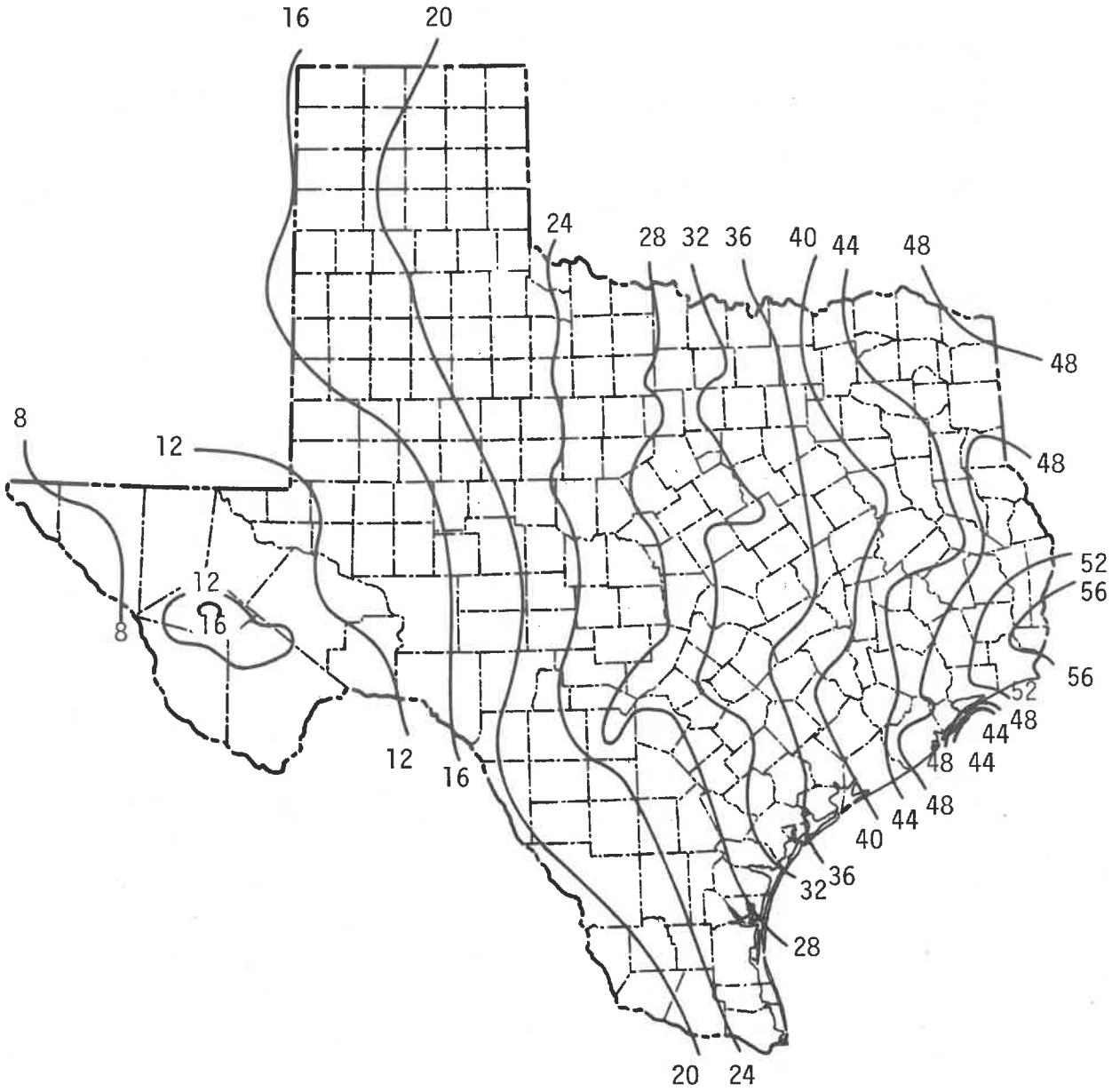

Figure 14

Mean Annual Precipitation (Inches), 1941-1970

Table 2

Record Mean Monthly and Annual Temperatures (F) State-wide*, Compared with Average Values

1931-1979

Month	Max	Year	Average	Min	Year
Jan	54.2	1952	46.2	37.7	1979
Feb	56.9	1932	50.2	41.0	1978
Mar	63.1	1938, 1974	56.9	49.8	1969
Apr	71.1	1967	65.6	60.4	1973
May	76.2	1956	72.8	68.5	1976
Jun	85.1	1953	79.9	77.0	1940
Jul	85.4#	1954	82.6	78.3	1976
Aug	85.9	1952	82.2	77.5	1971
Sep	80.9	1931	76.2	69.5	1974
Oct	72.2	1947	67.0	58.7	1976
Nov	60.9	1965	55.3	48.3	1976
Dec	54.7	1933	48.5	41.7	1963
Ann	67.4	1933	65.3	63.2	1976

#86.5F in July, 1980

Pre-1931**

Month	Max	Year	Min	Year
Jan	56.4	1923	----	----
Feb	59.5	1930	39.2	1905
Mar	67.3	1907	49.1	1915
Apr	71.4	1925	----	----
May	78.0	1896	68.3	1907
Jun	----	----	74.7	1903
Jul	85.6	1925	----	----
Aug	----	----	----	----
Sep	82.2	1911	----	----
Oct	----	----	----	----
Nov	64.4	1927	----	----
Dec	55.0	1921	----	----
Ann	68.6	1921	----	----

* Within each of the ten climatic divisions, arithmetic averaging was used. The ten divisional averages then were weighted according to division size.

** Means prior to 1931 are less reliable because of poor station density in many areas. However, it is clear that these months are worthy of note.

Table 3

Record Mean Temperatures (F) by Division (1931-1979)

MONTHLY

Division	Coldest		Warmest	
HIGH PLAINS (HP)	27.9	Jan 1979	83.8	Jul 1934
LOW ROLLING PLAINS (LRP)	31.4	Jan 1979	89.1	Aug 1952
NORTH CENTRAL TEXAS (NC)	34.6	Jan 1940	89.1	Aug 1952, Jul 1954
EAST TEXAS (E)	36.4	Jan 1978	87.2	Aug 1951
TRANS-PECOS (TP)	38.0	Jan 1949	83.6	Aug 1977*
EDWARDS PLATEAU (EP)	38.8	Jan 1979	86,9	Aug 1952
SOUTH CENTRAL TEXAS (SC)	42.4	Jan 1940	87.4	Aug 1951
UPPER COAST (UC)	42.5	Jan 1940	86.1	Aug 1951
SOUTH TEXAS (S)	46.9	Jan 1940	89.4	Jul 1953
LOWER VALLEY (LV)	52.3	Jan 1977	87.1	Jul 1969**

* 85.8F in July, 1980

** 87.4F in July, 1980

ANNUAL

Division	Coldest		Warmest	
HP	57.0	1979	61.2	1934
LRP	61.0	1979	66.0	1954
NC	62.8	1979	67.6	1954
E	63.1	1979	68.1	1933
TP	61.7	1976	66.6	1934
EP	63.5	1976	69.0	1933
SC	67.4	1976	72.0	1933
UC	67.2	1976, 1979	71.5	1933
S	69.4	1976	73.8	1933, 1950
LV	71.0	1976	76.1	1950

Table 4

State Temperature Records by Month

Month	F	Station	County	Date
January	98	Fort McIntosh	Webb	18 Jan 1914
	98	Laredo	Webb	17 Jan 1936
	-22	Spearman	Hansford	4 Jan 1959
February	104	Fort Ringgold	Starr	26 Feb 1902
	-23	Tulia	Swisher	12 Feb 1899
	-23	Seminole	Gaines	8 Feb 1933
March	108	Fort Ringgold	Starr	14 Mar 1902
	108	Rio Grande City	Starr	30 Mar 1954
	-12	Romero	Hartley	1 Mar 1922
	-12	Spearman	Hansford	6 Mar 1948
April	113	Falcon Dam	Starr	10 Apr 1963
	5	Romero	Hartley	2, 6 Apr 1936
May	115	Encinal	La Salle	24 May 1925
	115	Fort McIntosh	Webb	7 May 1927
	115	Boquillas Ranger Station	Brewster	8 May 1952
	15	Tulia	Swisher	1 May 1909
June	118*	Pecos	Reeves	29 Jun 1968
	32	Tulia	Swisher	3 Jun 1917
July	119	Tilden	McMullen	2 Jul 1910
	40	Claytonville	Fischer	4, 9 Jul 1906
	40	Mount Locke	Jeff Davis	13 Jul 1970
	40	Mount Locke	Jeff Davis	16 Jul 1972

* 119F at Weatherford (Parker), 26 Jun 1980

Table 4 (cont)

Month	F	Station	County	Date
August	120	Seymour	Baylor	12 Aug 1936
	39	Plemons	Hutchinson	26 Aug 1910
September	115	Boquillas Ranger Station	Brewster	1 Sep 1952
	29	Mount Locke	Jeff Davis	29 Sep 1945
October	109	Victoria	Victoria	11 Oct 1926
	8	Fort Hancock	Hudspeth	28 Oct 1970
November	101	Fort McIntosh	Webb	17 Nov 1906
	-10	Stratford	Sherman	28 Nov 1976
December	98	Encinal	La Salle	1, 2 Dec 1921
	98	Cotulla Airport	La Salle	6 Dec 1951
	98	Carrizo Springs	Dimmit	7 Dec 1951
	-16	Booker	Lipscomb	11 Dec 1932

The following readings have appeared in published reports, but are suspiciously high (low) and unconfirmed:

114	Fort Ringgold	Starr	Apr 1878
123	Fort Ringgold	Starr	May 1879
116	Eagle Pass	Maverick	May 1879
116	Twohig	La Salle	Sep 1893
-30	Two locations	Ochiltree	Feb 1899
35	Hereford	Deaf Smith	Aug 1936

Table 5

Extreme Maximum Temperatures

HIGHEST

F	Station	County	Date
*120	Seymour	Baylor	12 Aug 1936
119	Tilden	McMullen	2 Jul 1910
119	Quanah	Hardeman	12 Aug 1936
119	Vernon	Wilbarger	3 Aug 1943
119	Throckmorton	Throckmorton	30 Aug 1947
119	Weatherford	Parker	26 Jun 1980
118	McKinney	Collin	10 Aug 1936
118	Mount Pleasant	Titus	10 Aug 1936
118	Pecos	Reeves	29 Jun 1968
117	Big Spring	Howard	30 Jun 1907
117	Graham	Young	11 Aug 1936
117	Clarendon	Donley	12 Aug 1936
117	Memphis	Hall	13 Aug 1936
117	Quanah	Hardeman	3 Aug 1943
117	Memphis	Hall	3 Aug 1944
117	Presidio	Presidio	28 Jun 1957
117	Presidio	Presidio	18 Jun 1960
117	Weatherford	Parker	25 Jun 1980
117	Wichita Falls	Wichita	28 Jun 1980

* A reading of 123F in May, 1879, at Fort Ringgold (Starr) is almost surely an error. A value of 103F is more likely.

LOWEST

F	Station	County	Date
-2	Vega	Oldham	4 Jan 1959
-1	Spearman	Hansford	4 Jan 1959
0	Amarillo	Potter	11 Feb 1899
0	Dumas	Moore	12 Feb 1899
0	Amarillo	Potter	7 Feb 1933
0	Dumas	Moore	4 Jan 1959

Table 6

Extreme Minimum Temperatures

LOWEST

F	Station	County	Date
-23	Tulia	Swisher	12 Feb 1899*
-23	Seminole	Gaines	8 Feb 1933
-22	Spearman	Hansford	4 Jan 1959
-21	Muleshoe	Bailey	8 Feb 1933
-21	Dalhart Airport	Hartley	4 Jan 1959
-20	Stratford	Sherman	7 Feb 1933
-20	Romero	Hartley	8 Feb 1933
-19	Plemons	Hutchinson	8 Jan 1912
-19	Dalhart Airport	Hartley	1 Feb 1951
-19	Dalhart Exp. Station	Hartley	1 Feb 1951
-19	Stratford	Sherman	4 Jan 1959
-18	Dalhart Exp. Station	Hartley	2 Feb 1951
-18	Dalhart Airport	Hartley	3 Jan 1959
-18	Dumas	Moore	4 Jan 1959
-18	Dumas	Moore	5 Jan 1959
-18	Dalhart Airport	Hartley	13 Jan 1963
-18	Lipscomb	Lipscomb	4 Jan 1974
-18	Lipscomb	Lipscomb	5 Jan 1974

HIGHEST

Minimums in the low 80s are often recorded during the summer, especially in coastal regions.

* Unofficial reports of -30F were received from two locations in Ochiltree County on this date.

Table 7

State-wide Annual Mean Precipitation (Inches)*

	0	1	2	3	4	5	6	7	8	9	DECADE
1890			26.2	18.3	25.2	30.4	25.1	24.2	24.9	26.9	25.1
1900	36.7	19.7	28.4	27.7	26.0	35.8	29.0	28.2	27.9	20.6	28.0
1910	17.6	26.3	23.1	32.2	33.9	29.0	21.8	14.3	25.3	40.3	26.4
1920	30.2	24.3	27.6	35.7	20.8	23.6	32.5	24.5	26.7	27.8	27.4
1930	26.9	27.4	32.7	23.1	23.0	34.6	28.6	25.2	25.0	23.2	27.0
1940	32.1	40.9	30.3	22.4	33.4	29.4	33.3	23.7	20.7	34.1	30.0
1950	25.0	20.8	22.4	23.6	18.0	22.8	15.5	36.9	30.8	30.3	24.6
1960	31.9	28.9	24.3	19.8	23.8	26.8	26.9	25.5	33.2	29.8	27.1
1970	23.9	28.3	27.0	35.5	32.3	27.3	30.7	22.8	25.9	31.4	28.5
Mean	28.0	27.1	26.9	26.5	26.3	28.9	27.0	25.0	26.7	29.4	

1892-1979 Mean -- 27.1

Wettest Years		Driest Years	
1941	40.9	1917	14.3
1919	40.3	1956	15.5
1957	36.9	1910	17.6

* Within each of the ten climatic divisions, arithmetic averaging was used. The ten divisional averages then were weighted according to division size.

Table 8

Record Mean Monthly and Annual Precipitation (Inches) State-wide*, Compared with Average Values

1931-1979

Month	Max	Year	Average	Min	Year
Jan	3.9	1932	1.7	0.2	1971
Feb	2.9	1932	1.7	0.3	1954
Mar	3.2	1945	1.6	0.3	1971
Apr	6.7	1957	2.5	0.8	1961
May	7.1	1935	3.4	1.2	1962
Jun	5.6	1961	2.8	0.7	1933
Jul	5.1	1976	2.4	0.9	1965
Aug	5.7	1974	2.4	0.6	1952
Sep	6.9	1936	3.2	0.6	1931
Oct	5.9	1941	2.4	0.0	1952
Nov	5.3	1940	1.7	0.1	1949
Dec	4.0	1960	1.8	0.2	1950
Ann	40.9	1941	27.6	15.5	1956

PRE-1931**

Month	Max	Year	Min	Year
Jan	5.0	1891	0.2	1909
Feb	5.7	1903	0.1	1916
Mar	4.8	1926	----	----
Apr	6.7	1900	----	----
May	7.7	1914, 1929	----	----
Jun	7.1	1899	----	----
Jul	5.8	1902	----	----
Aug	6.4	1914	0.3	1902
Sep	----	----	----	----
Oct	7.4	1919	----	----
Nov	5.4	1907	----	----
Dec	5.5	1923	0.2	1917
Ann	----	----	14.3	1917

* Within each of the ten climatic divisions, arithmetic averaging was used.. The ten divisional averages then were weighted according to division size.

** Means prior to 1931 are less reliable because of poor station density in many areas. However, it is clear that these months are worthy of note.

Table 9

Record Mean Precipitation (Inches) by Division

MONTHLY

Division	Wettest		Driest	
HP	8.48	May 1941	0.01	Numerous months
LRP	10.36	Sep 1936	0.00	Three months
NC	11.87	Apr 1957	0.05	Oct 1952
E	13.41	Nov 1940	0.08	Oct 1952
TP	8.15	Sep 1974	0.00	Numerous months
EP	11.52	Sep 1936	0.00	Three months
SC	13.80	Sep 1967	0.01	Oct 1952
UC	17.97	Oct 1949	0.00	Oct 1952
S	14.37	Sep 1967	0.00	Three months
LV	18.75	Sep 1967	0.00	Dec 1950, Jul 1962

ANNUAL

Division	Wettest				Driest			
HP	37.59	1941			9.48	1956		
LRP	44.28	1941			13.02	1956	(11.46	1917)
NC	47.87	1957			20.03	1956		
E	68.19	1973			31.29	1956	(27.09	1917)
TP	27.15	1941			5.27	1956	(5.19	1910)
EP	41.91	1935	(44.82	1919)	11.22	1956		
SC	49.88	1973	(54.46	1919)	16.75	1954	(13.81	1917)
UC	70.70	1946			26.20	1954	(22.96	1917)
S	35.93	1976	(43.25	1919)	11.82	1956	(7.22	1917)
LV	41.16	1941			12.88	1956	(11.55	1917)

* Exceptionally wet or dry years also have been indicated for the period prior to 1931, although these figures are considered to be slightly less reliable than those from more recent years.

Table 10

Extremes of Annual Precipitation

OVER 90"

Inches	Station	County	Date
109.4	Clarksville	Red River	1873
106.4	Freeport 2NW	Brazoria	1979
102.6	Alvin	Brazoria	1979
*100.2	Angleton 2W	Brazoria	1973
98.1	Anahuac	Chambers	1946
95.3	Beaumont	Jefferson	1923
92.6	Cypress 1SW	Harris	1973

2" or Less

**1.6	Presidio	Presidio	1956
1.8	Wink Airport	Winkler	1956
***2.0	Imperial	Pecos	1953
***2.0	Fowlerton	La Salle	1917

Galveston, Harrisburg and San Antonio Railway Stations

0.7	Ysleta	El Paso	1910
0.8	Marathon	Brewster	1910
0.9	Maxon	Brewster	1910
1.1	Watkins	Terrell	1909

In 1909 two stations in El Paso County, and in 1910 six stations in the Trans-Pecos also recorded less than 2".

* February amount estimated
** April amount estimated
*** Three months estimated

Table 11

Stations Which Have Received 25" or More During a Month

OFFICIAL

Inches	Station	County	Date
35.70	Alvin	Brazoria	Jul 1979
32.78	Falfurrias	Brooks	Sep 1967
31.61	Freeport 2NW	Brazoria	Sep 1979
31.19	Albany	Shackelford	Aug 1978
30.95	Freeport 2NW	Brazoria	Jul 1979
30.57	Brownsville	Cameron	Sep 1886
29.76	Port Lavaca No. 2	Calhoun	Jun 1960
29.22	Aransas Pass No. 2	San Patricio	Sep 1967
29.19	Whitsett 2SW	Live Oak	Sep 1967
28.96	Deweyville 5S	Orange	Oct 1970
27.94	Weatherford	Parker	May 1884
27.89	Kaffie Ranch	Jim Hogg	Sep 1971
27.65	San Angelo	Tom Green	Sep 1936
26.86	Port Arthur (City)	Jefferson	Jul 1979
26.79	San Augustine	San Augustine	Aug 1915
26.68	Gladewater	Gregg	Apr 1966
26.31	Beaumont Filter Plant	Jefferson	Oct 1970
26.30	Refugio	Refugio	Sep 1971
26.06	Rio Grande City 3W	Starr	Sep 1967
26.01	Galveston	Galveston	Sep 1885
26.00	Cibolo Creek	Karnes	Sep 1967
25.87	Taylor	Williamson	Sep 1921
25.67	Pandale	Val Verde	Jun 1954
25.59	Sinton	San Patricio	Sep 1967
25.57	Hempstead	Waller	Nov 1940
25.54	New Gulf	Wharton	Jun 1960
25.34	Splendora	Montgomery	Oct 1949
25.30	Rockland	Tyler	Aug 1915
25.30	Goose Creek (Baytown)	Harris	Nov 1946

Table 11 (cont)

OFFICIAL

Inches	Station	County	Date
25.27	Orange (Gulf Sts. Util.)	Orange	Sep 1963
25.24	Point Comfort	Calhoun	Jun 1960
25.06	Galveston Airport	Galveston	Sep 1958
25.06	Harleton	Harrison	Apr 1966
25.01	Armstrong	Kenedy	Sep 1967

Oct 1949 - 8 other stations reported 20" or more
Sep 1967 - 17 other stations reported 20" or more

UNOFFICIAL

A total of 45" was reported three miles northwest of Alvin during Tropical Storm Claudette in July, 1979 (see Table 12). There were several other reports of more than 25" around Freeport (Brazoria) and Clear Lake (Galveston).

During the storm of September 9/10, 1921, a total of more than 38" was reported in only 24 hours at a point two miles north of Thrall (Williamson). See Table 12.

Table 12

Stations Which Have Received 15" or More During 24 Hours

OFFICIAL

Inches	Station	County	Date
29.05	Albany	Shackelford	4 Aug 1978
25.75	Alvin	Brazoria	26 Jul 1979
*23.11	Taylor	Williamson	9-10 Sep 1921
21.02	Kaffie Ranch	Jim Hogg	12 Sep 1971
20.70	Hye	Blanco	11 Sep 1952
20.60	Montell	Uvalde	27 Jun 1913
20.60	Deweyville	Newton	18 Sep 1963
19.29	Danevang	Wharton	27-28 Aug 1945
19.20	Benavides No. 2	Duval	11 Sep 1971
19.03	Austin	Travis	9-10 Sep 1921
18.00	Fort Clark	Kinney	14-15 Jun 1899
17.76	Port Arthur	Jefferson	27-28 Jul 1943
17.47	Blanco	Blanco	11 Sep 1952
16.72	Freeport 2NW	Brazoria	26 Jul 1979
16.05	Smithville	Bastrop	30 Jun 1940
16.02	Hills Ranch	Travis	10 Sep 1921
16.02	Pandale	Val Verde	27 Jun 1954
16.00	Hempstead	Waller	24 Nov 1940
15.87	Anahuac	Chambers	27-28 Aug 1945
15.80	Orange (Gulf Sts. Util.)	Orange	18 Sep 1963
15.71	Matagorda	Matagorda	1 May 1911
15.69	Whitsett 2SW	Live Oak	22 Sep 1967
15.65	Houston Airport	Harris	27-28 Aug 1945
15.60	Eagle Pass	Maverick	29 Jun 1936
15.49	Deweyville 5S	Orange	28 Oct 1970
15.20	World's End Ranch	Kerr	2 Aug 1978
15.00	Mercedes	Hidalgo	5 Sep 1933

*19.7" in 12 hours

Table 12 (cont)

UNOFFICIAL

From July 24th to 27th, 1979, when Tropical Storm Claudette was affecting southeastern Texas some extreme 24-hour amounts were reported. These given below were investigated by NWS personnel and judged to be of good accuracy.

3.2 miles northwest of Alvin (Brazoria) - 43"
League City (Galveston) - 24"
Pearland (Brazoria) - 22"

Other gages of lower reliability:

Friendswood (Harris) and Clear Lake and Friendswood Village (Galveston) reported in excess of 20"

An unofficial 24-hour total of 38.2", and a 12-hour total of 32.0" were reported two miles north of Thrall (Williamson) during the storm of September 9/10, 1921.

APPENDIX B

THE WEATHER OF 1980

Record-breaking summer temperatures proved to be the most important weather story of 1980. The state record for the month of June (118F in 1968) was broken on the 26th when Weatherford (Parker) reached 119F. All-time records also were set at Dallas-Fort Worth and Wichita Falls. El Paso sweltered through 21 consecutive days with temperatures of at least 100F, the longest spell in 93 years of observations. The heat was responsible for the deaths of over 70 people and almost one million chickens and turkeys state-wide. Across Texas, June rainfall was 1 to 3" below average, which complicated matters for farmers, particularly in southern Texas. Conditions did not improve, however, as July was the hottest month Texans had ever experienced (see August, 1952 and July, 1925). The state-wide mean temperature of 86.5F was 4F higher than usual, and six of the ten climatic divisions set new July records. Wichita Falls recorded at least 110F every day from June 24 to July 3. The dry spell continued unabated, especially in the High Plains, Trans-Pecos and North Central Texas where it was the driest July ever. In the southern third of the state cattle and crop losses were estimated at near $250 million. August readings remained above average in northern Texas, but were more seasonal to the south. Both Dallas-Fort Worth and Waco had strings of 42 consecutive days equal to or above 100F broken early in the month.

Annual precipitation totals were slightly less than expected in all divisions except the Trans-Pecos, which enjoyed a surplus of almost 15%. February was dry across the southern two-thirds of the state, but several stations in the Panhandle received more than 10" of snow during the month. Three record-breaking surges of cold Arctic air brought freezes to southern Texas. The first, in late February and early March, killed 60-80% of the sheep and goats in some Hill Country herds, along with 40-60% of the potential fruit crop. Another cold blast on March 18 brought total damage in some orchards to 90%. Snow dusted sections of the state as far south as Burnet (Burnet), Fredericksburg (Gillespie)

and Junction (Kimble) on April 13/14, and frost resulted in heavy crop damage across DeWitt, Goliad, Karnes and Live Oak counties.

Rain continued to be sparse through March and April in many areas, particularly in southern and southwestern sections. The costliest hailstorm in Tarrant County history caused an estimated $60 million damage (primarily to roofs and autos) on April 2. Beneficial rains fell in May, but were the last until the end of the summer in some areas. Severe thunderstorms (hail, high winds and flash floods) caused several million dollars damage in May and June. The areas hit hardest in May were Williamson and Travis counties on the 8th, central Texas on the 13th and the southern Panhandle on the 28th. Moore and Randall counties suffered extensive hail and flood damage on June 10, while on the 18th a severe hailstorm struck sections of Carson County.

Relief from the dry spell came to southern Texas in August in the form of Hurricane Allen. Not since Fern (September, 1971) had a hurricane struck the Texas coast, an unprecedented lull of almost nine years. Allen came ashore across southern Padre Island late on the 9th with wind gusts up to 138 mph at Port Mansfield (Willacy) and storm tides as much as 12 feet above mean sea level. Pounding waves generated by the storm caused unusually severe beach erosion along the entire Texas coast. The majority of the $650-750 million damage was the result of flooding due to torrential rains and the storm surge. Along a north-south line from Pleasanton (Atascosa) to McAllen (Hidalgo) storm rainfall totals of 15" and more were reported. Flooding in Corpus Christi was thought to be the worst since the hurricane of 1919. Allen generated at least 29 tornadoes, the worst of which struck Austin on the 10th and caused an estimated $50 million damage. San Marcos (Hays) was hit by another twister later in the day which resulted in losses of $18 million.

September readings along the Upper Coast and in the Lower Valley were among the warmest ever (see 1933 and 1950). In early September, Tropical Storm Danielle brought heavy rains to dry sections of southeastern Texas, and later to the Hill Country and Edwards Plateau. Several stations around Port Arthur received over 17" during the period, while an unofficial report of 24" was received from Kimble County. Final damage estimates exceeded $20 million. Cooler temperatures (at least

2 to 3F less than expected) were the rule in both October and November. October rainfall deficits (1 to 2") were erased in many areas by substantial rains during the following month. Jeanne, the first November hurricane in the Gulf of Mexico since 1942, threatened the Texas coast during the second week of the month. The storm moved to within 120 miles of Brownsville and dissipated, but not before it caused tides of up to five feet above mean sea level along the entire length of the coast. Extensive beach erosion took place since protective dunes had been destroyed earlier by Allen. As much as 20" of snow was recorded in November at several Panhandle stations, due to snowstorms on the 16th and 24th. The year closed on a dry note, especially in East Texas.

VARIABLE	VALUE	STATION	COUNTY	DATE
Highest Temp.	119F	Weatherford	Parker	Jun 26
Lowest Temp.	-2F	Lipscomb	Lipscomb	Mar 2
		Boys Ranch	Oldham	Nov 26
Highest Prec. Ann.	63.5"	Evadale	Jasper	
Lowest Prec. Ann.	7.1"	Salt Flat	Hudspeth	
Max Excess Ann.	25.0"	Paint Rock	Concho	
Max. Deficit Ann.	16.7"	Huntsville	Walker	
Max. % Ann.	212	Paint Rock	Concho	
Min. % Ann.	59	Carrollton	Dallas	
Max. Prec. Mo.	24.7"	Paint Rock	Concho	Sep
Max. 24-hr. Prec.	13.4"	Port Arthur City	Jefferson	Sep 6
Max. Snowfall Ann.	29.9"	Matador	Motley	
Max. Snowfall Mo.	22.0"	Plains	Yoakum	Nov
		Post	Garza	