U. S. DEPARTMENT OF COMMERCE
Environmental Science Services Administration
in cooperation with
Cotton Economic Research and
Bureau of Business Research of
The University of Texas at Austin

CLIMATOGRAPHY OF THE UNITED STATES NO. 20-41

LATITUDE 36° 11' N
LONGITUDE 101° 12' W
ELEV. (GROUND) 3090 ft.

CLIMATOLOGICAL SUMMARY

STATION SPEARMAN, TEXAS

MEANS AND EXTREMES FOR PERIOD 1937-1966

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	** Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Year	Snow, Sleet: Mean	Maximum monthly	Year	Greatest Depth	Year	Mean number of days: Precip. .10 inch or more	Temperatures Max.: 90° and above	32° and below	Min.: 32° and below	0° and below	Month
(a)	30	30	30	30		30		11	30	30		30	30		11		11	11	11	11	11	
Jan	47.6	18.7	33.2	83	1943	-22	1959	984	0.67	1.25	1939	3.8	18.5	1940	8	1959	1	0	5	29	2	Jan
Feb	52.7	23.5	38.1	89	1963	-13	1951	760	0.81	1.35	1960	4.3	18.0	1964	18	1964	2	0	3	25	0	Feb
Mar	59.6	28.9	44.3	93	1963+	-12	1948	640	1.18	1.62	1961	4.1	16.0	1957	6	1961	3	*	1	20	0	Mar
Apr	70.8	40.2	55.5	97	1965	10	1940	275	1.59	3.00	1943	1.0	10.0	1938	T	1961+	2	1	*	5	0	Apr
May	79.2	50.8	65.0	105	1953	26	1954+	74	3.47	5.80	1965	T	T	1953+	0		5	9	0	*	0	May
Jun	88.8	60.4	74.6	108	1953	42	1947	7	3.28	4.22	1942	0	0		0		6	17	0	0	0	Jun
Jul	94.0	65.3	79.7	109	1940	50	1952	1	3.17	3.02	1961	0	0		0		6	25	0	0	0	Jul
Aug	92.9	64.0	78.5	109	1943+	48	1956+	3	2.76	3.50	1939	0	0		0		4	22	0	0	0	Aug
Sep	85.5	55.7	70.6	106	1939	33	1945	30	1.97	3.70	1960	0	0		0		4	10	0	0	0	Sep
Oct	74.8	43.5	59.2	97	1954	21	1957	201	1.79	3.60	1946	0.1	2.5	1941	0		3	3	0	2	0	Oct
Nov	60.2	29.5	44.9	87	1950	0	1940	565	0.84	2.45	1948	1.2	6.0	1957	2	1959	2	0	1	16	0	Nov
Dec	51.1	22.4	36.8	87	1955	-4	1961	813	0.76	2.38	1959	3.3	14.5	1943	5	1960	2	0	3	26	*	Dec
Year	71.4	41.9	56.7	109	Aug. 1943+	-22	Jan. 1959	4353	22.29	5.80	May 1965	17.8	18.5	Jan. 1940	18	Feb. 1964	40	87	13	123	2	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

+ Also on earlier dates, months, or years.

* Less than one half.

THE CLIMATE OF SPEARMAN, TEXAS

Spearman, county seat of Hansford County, located in the northern most sector of the Panhandle, is a major grain storage and shipping center: it is also a center for petroleum industry supplies and gas processing. Hansford is one of Texas' leading counties in the production of wheat and grain sorghums. One-half of the farm income is from beef cattle: 200,000 acres are irrigated. The terrain is generally level, draining to playas and small creeks. The altitude varies from about 2,950 to 3,300 feet. Soils are black, sandy and loam types. Gas and oil are produced in the county.

Spearman has a dry steppe climate with mild winters. It lies within the cool temperate climatic zone. Mean total precipitation is 22.29 inches annually. The climate is also continental, characterized by a wide annual range in temperature. Prevailing winds are south to southwesterly throughout the year although northerly winds are frequent during the colder months. Strong winds from southwest through north will occasionally result in blowing dust. The strongest sustained winds occur during the months of March and April.

Precipitation occurs most frequently in the form of thundershowers. Monthly and annual amounts are extremely variable. Seventy-four percent of the mean annual precipitation falls during the warm season, May through October. Monthly rainfall drops off significantly in the colder months as frequent "northers" cut off the supply of moisture from the Gulf of Mexico. During exceptionally wet years much of the precipitation results from heavy thundershowers that produce rapid run-off. Prolonged droughts have occurred in the periods 1933-1935 and 1952-1956. No-rain periods of two to three weeks are fairly common. Heavy rains from June through September swelled the 1950 total to 36.38 inches, making it the wettest year on record (since 1921). Only 8.04 inches fell during 1930, the driest year on record.

The Spearman area is subject to rapid and large temperature changes, especially during the winter months when polar and arctic air masses sweep southward across the level plains at speeds of 30 to 40 miles-per-hour. Temperature drops of from 50° to 60°F within a 12-hour period are not uncommon in association with strong, fast moving cold fronts. In spite of occasional low temperatures, Spearman winters are actually mild when compared to those of the northern Great Plains. Cold spells rarely last longer than two or three days. Cold northerly winds are soon replaced by warm southwesterly winds as the polar and arctic air masses continue their rapid movement south and southeastward out of the area. The lowest temperature on record (since 1928) at Spearman is -22°F and occurred January 4, 1959.

Mean annual snowfall is 17.8 inches, but seasonal amounts vary over a wide range. A few exceptionally heavy snows create a bias in the data and make the mathematical mean a rather poor estimate of expected snowfall. Snow fell to a depth of 18 inches on February 4-5, 1964. An even snow cover is very unusual because of high winds. Snow is usually melted within a few days after it falls.

Mid-summer days are often hot, but good wind motion and low humidity prevent the temperatures from being uncomfortable. Evaporative-type home air-conditioners operate efficiently in the dry summer air. Temperatures drop rapidly after sunset, and summer nights are delightfully cool. The highest temperature on record is 111°F and occurred August 13, 1936.

The mean length of the growing season (freeze free period) at Spearman is 186 days. The mean date of the last occurrence of 32°F in the spring is April 22, while the mean date of the first occurrence of 32°F in the fall is October 25. Low temperatures are influenced by differences in topography, wind, vegetative cover, and soil condition, so that significant departures from these mean values may exist, not only within the surrounding farming area, but within the city limits of Spearman.

Mean annual relative humidity is 73 percent at 6:00 a.m. and 42 to 43 percent at both noon and 6:00 p.m., Central Standard Time. Mean annual sunshine is 73 percent of the total possible. Mean annual lake evaporation is 64 inches.

SPEARMAN, TEXAS

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1937	24.4	36.7	41.1	-	-	74.8	83.8	83.8	74.3	60.3	46.4	37.7	-
1938	40.2	45.1	53.6	53.8	64.3	74.6	80.4	83.0	71.8	61.8	42.0	39.0	59.1
1939	39.4	31.5	47.2	55.4	66.4	76.6	81.4	77.2	73.8	59.8	45.0	39.0	57.7
1940	19.6	38.4	46.6	54.3	65.6	74.0	82.9	76.7	72.5	62.8	42.0	39.4	56.2
1941	35.6	38.2	41.0	54.2	64.2	69.9	76.4	75.6	69.6	56.8	46.0	38.2	55.5
1942	32.8	34.8	43.4	55.6	62.0	72.0	77.2	75.8	67.3	58.2	48.9	37.6	55.5
1943	36.8	42.8	42.0	60.5	61.5	75.9	80.4	81.9	69.9	58.7	45.3	29.0	57.1
1944	28.6	40.0	43.8	52.0	63.9	74.6	76.6	78.1	68.8	57.4	45.1	33.2	55.2
1945	35.2	38.4	48.4	50.0	63.6	70.0	77.7	78.0	69.4	57.4	45.2	32.0	55.4
1946	34.2	40.4	48.8	61.0	61.8	74.9	81.6	77.7	68.7	57.2	43.8	40.7	57.6
1947	32.6	33.6	40.8	51.2	60.7	70.6	76.9	79.5	72.8	-	38.6	35.8	-
1948	29.6	30.0	35.9	57.7	64.7	73.3	79.0	76.2	70.5	56.8	40.8	37.7	54.4
1949	23.8	36.0	43.6	52.6	63.4	72.1	77.2	74.9	66.9	57.8	50.5	35.5	54.5
1950	33.9	41.4	43.1	54.6	64.7	73.9	73.0	73.4	65.6	63.2	42.6	35.9	55.4
1951	33.2	38.0	42.5	51.5	64.1	70.4	81.0	79.4	68.6	58.1	40.0	36.1	55.2
1952	41.2	42.1	42.7	54.3	65.5	81.7	79.7	82.0	70.3	56.4	41.4	32.1	57.4
1953	41.3	38.6	50.5	52.8	63.7	81.6	79.1	76.6	71.4	58.9	44.1	33.9	57.7
1954	33.4	45.1	41.5	59.9	60.2	76.7	84.1	80.4	75.6	59.8	49.2	39.2	58.8
1955	35.5	35.2	45.7	58.8	67.3	72.1	80.0	79.0	71.4	59.8	42.8	37.2	57.1
1956	35.4	33.6	47.1	54.8	70.2	79.1	79.5	79.0	73.9	63.2	43.2	40.2	58.3
1957	32.5	43.6	43.8	51.6	59.7	70.5	81.6	78.9	66.9	56.3	41.4	41.6	55.7
1958	34.8	36.6	34.7	51.0	67.1	76.5	77.4	78.5	72.4	59.1	46.1	35.9	55.8
1959	29.9	37.9	44.3	53.3	67.0	77.4	76.5	80.6	70.8	54.2	40.4	39.6	56.0
1960	31.8	32.8	40.4	59.4	64.9	75.3	76.0	78.2	70.0	58.0	46.7	35.1	55.7
1961	34.0	39.5	-	53.8	-	-	-	-	-	-	-	33.9	-
1962	29.5	44.1	45.2	-	-	-	-	-	71.1	61.4	47.1	40.8	-
1963	27.4	43.3	52.7	63.2	71.2	76.9	83.9	80.8	73.8	60.1	49.6	32.5	60.2
1964	38.1	32.5	45.1	60.7	70.9	76.3	83.1	80.5	71.2	60.0	44.9	36.5	58.3
1965	40.6	38.2	38.6	60.2	67.4	72.9	79.7	76.8	69.6	58.9	52.0	42.1	58.1
1966	29.2	34.8	50.2	55.7	76.9	-	84.0	74.5	68.4	57.9	49.2	35.1	-

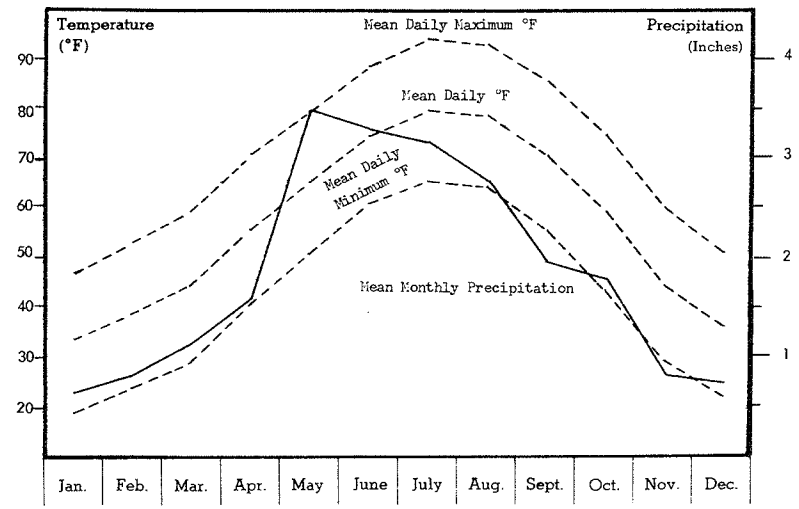
SPEARMAN, TEXAS

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1937	0.70	0.92	1.30	1.05	4.66	3.10	0.35	1.58	1.73	0.97	0.22	0.25	16.83
1938	0	2.15	1.70	3.15	4.45	2.64	1.26	1.27	3.27	1.15	0.45	0.50	21.99
1939	1.47	0.67	1.42	2.87	1.59	2.96	1.77	6.70	0.19	1.22	0.05	1.35	22.26
1940	1.88	0.91	0.62	1.73	3.47	2.20	0.96	1.91	2.20	0.34	3.65	0.66	20.53
1941	0.92	1.09	1.80	1.38	7.70	2.35	5.26	5.37	2.77	6.75	0.50	0.38	36.27
1942	0.20	0.26	2.27	5.72	1.63	8.68	1.88	2.34	2.02	6.47	T	1.40	32.87
1943	0.05	0.10	0.28	3.57	1.95	1.05	3.09	3.35	1.65	0.45	0.50	3.30	19.34
1944	1.90	0.92	0.51	2.81	3.73	1.14	5.25	3.65	1.28	1.04	1.24	2.07	25.54
1945	1.11	0.94	0.94	2.20	1.15	2.27	3.47	2.05	5.07	0.75	T	0.46	20.41
1946	0.26	1.18	0.80	0.55	3.04	1.92	1.04	2.28	1.69	8.38	2.43	0.25	23.82
1947	0.50	0.04	1.48	3.63	5.11	4.32	2.01	1.12	0.06	3.38	1.26	1.40	24.31
1948	0.41	2.86	1.73	0.96	1.99	3.57	1.82	3.29	1.54	1.41	3.30	T	22.88
1949	2.30	1.21	1.33	1.17	6.38	7.46	5.70	2.16	1.37	2.13	0	0.69	31.90
1950	T	0.40	0.20	1.55	2.67	6.33	11.14	8.24	5.15	0.58	0.12	T	36.38
1951	1.13	1.27	1.82	0.90	7.33	3.18	0.58	1.12	0.43	0.94	0.52	0.42	19.64
1952	0.27	0.71	1.41	1.51	0.91	0.65	2.14	1.20	0.21	0	1.39	0.97	11.37
1953	1.42	0.32	0.68	0.34	1.06	2.85	3.74	1.30	0.02	3.20	1.00	0.63	16.56
1954	0.57	0.25	0.25	0.59	3.84	2.32	1.63	1.57	0.46	1.09	0	0.10	12.72
1955	0.20	0.15	0.02	2.34	4.84	2.96	0.97	2.04	2.19	0.03	0.13	0	15.87
1956	0.21	0.87	0.29	0.13	2.87	2.08	5.13	1.35	0.04	0.37	T	T	13.34
1957	0.67	0.58	6.28	2.84	5.18	2.73	0.37	2.39	0.75	1.83	1.13	0	24.75
1958	1.15	0.65	2.24	1.58	2.24	1.97	6.33	5.00	1.17	0.04	0.74	1.05	24.16
1959	0.78	0.43	1.22	1.51	5.05	1.23	4.66	2.23	0.86	2.59	0.41	3.52	24.49
1960	1.08	1.60	0.49	0.86	1.49	3.24	4.93	4.27	8.47	4.30	0	0.79	31.52
1961	0.04	0.44	3.41	0.07	0.72	3.87	4.69	3.68	2.70	1.75	2.12	0.33	23.82
1962	0.41	0.30	0.09	1.85	2.87	4.19	-	-	-	0.45	0.29	0.28	-
1963	0.08	0.53	0	0.36	6.75	2.32	2.55	0.56	2.18	0.29	0.35	0.15	16.12
1964	0	1.14	0	0.05	2.32	2.59	2.61	0.25	1.44	0.05	3.38	0.38	14.21
1965	0.09	0.25	0.85	0	7.03	9.87	0.99	3.92	1.57	1.18	0	1.12	26.87
1966	0.32	1.02	0	0.35	0.15	2.36	5.60	3.81	4.59	0.62	0	0.22	19.04

T - Trace

Monthly Temperatures and Precipitation



STATION HISTORY

A precipitation station was established at Spearman, at the residence of the observer, F. W. Brandt, on July 12, 1920. Temperature instruments were added on August 1, 1927. The station was located 0.3 mile south of the Spearman Post Office. Mr. Brandt, served as Cooperative Weather Observer until December 1, 1960, a period of more than 40 years. Mr. Burl McClellan became the official observer on December 1, 1960, and the station was moved to his residence at 607 S. Roland Street, three-quarters of a mile southwest of the post office. Mr. McClellan resigned, and Mrs. Virginia L. Cates was appointed observer, September 8, 1962. The station was moved to Mrs. Cates' residence, at 522 South Evans, 200 feet north of the previous location, and still approximately three-quarters of a mile southwest of the Spearman Post Office. Station equipment consists of a standard eight-inch rain gage, cotton region shelter, and maximum and minimum thermometers. Data are published monthly in CLIMATOLOGICAL DATA-TEXAS under the High Plains division. Station index No. 41-8523-01.

Weather Bureau State Climatologist
Environmental Science Services Administration
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