

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU  
 IN COOPERATION WITH THE BUSINESS EXTENSION SERVICE, OKLAHOMA STATE UNIVERSITY  
 CLIMATOGRAPHY OF THE UNITED STATES NO. 20 - 34

LATITUDE 34° 39'  
 LONGITUDE 97° 58'  
 ELEV. (GROUND) 1280 feet

**CLIMATOLOGICAL SUMMARY**

STATION Marlow, Oklahoma

MEANS AND EXTREMES FOR PERIOD 1928 - 1957

Month	Temperature (°F)								** Mean degree days	Precipitation Totals (Inches)						Mean number of days						Month		
	Means				Extremes					Mean	Greatest daily	Year	Snow, Sleet			Precip. 10 inch or more 90° and above	Temperatures							
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	Mean					Maximum monthly	Year	Greatest daily		Year	32° and below	32° and below	32° and below	32° and below			
																							Max.	Min.
(a)	30	30	30	30		30			30	30														
Jan.	51.7	28.6	40.2	84	1950	-11	1930	770	1.45	2.35	1932	2.1	14.5	1930	8.0	1944	3	0	3	19	*	Jan.		
Feb.	57.2	33.1	45.2	86	1956	-7	1933	550	1.72	2.60	1938	1.0	7.2	1956	7.0	1928	4	0	1	13	*	Feb.		
Mar.	65.7	39.0	52.4	95	1940+	0	1948	420	2.09	3.02	1938	0.6	8.0	1942	8.0	1942	4	*	*	8	*	Mar.		
Apr.	75.0	49.5	62.3	96	1936	21	1936	140	3.10	4.65	1928	0.1	2.0	1938	2.0	1938	5	1	0	1	0	Apr.		
May	80.9	58.0	69.5	104	1939	34	1954	30	6.21	4.97	1930	0	0		0		7	4	0	0	0	May		
June	89.5	66.7	78.1	108	1953	48	1947	0	4.58	6.14	1945	0	0		0		6	16	0	0	0	June		
July	95.4	70.3	82.9	112	1936+	51	1952	0	2.29	2.84	1953	0	0		0		3	26	0	0	0	July		
Aug.	96.4	69.9	83.2	114	1936	53	1953	0	1.92	3.22	1953	0	0		0		3	26	0	0	0	Aug.		
Sept.	88.6	62.3	75.5	108	1947+	35	1942	10	2.95	3.56	1945	0	0		0		4	15	0	0	0	Sept.		
Oct.	77.7	52.4	65.1	102	1938	25	1957	120	3.48	5.25	1953	0	0		0		4	3	0	1	0	Oct.		
Nov.	63.0	38.8	50.9	86	1945	11	1932	460	1.83	2.04	1940	T	T	1957+	T	1957+	3	0	*	8	0	Nov.		
Dec.	54.5	32.0	43.3	86	1955	5	1950+	670	1.55	3.01	1932	0.3	6.0	1942	6.0	1942	3	0	1	17	0	Dec.		
Year	74.7	50.1	62.4	114	1936	-11	1930	3170	33.17	6.14	1945	4.1	14.5	1930	8.0	1944+	49	91	5	67	*	Year		

(a) Average length of record, years.

+ Also on earlier dates, months, or years.

T Trace, an amount too small to measure.

\* Less than one half.

\*\* Base 65°F computed from mean monthly temperatures rather than the actual degree-day averages.

CLIMATE OF MARLOW, OKLAHOMA

Marlow is located in northern Stephens County in the eastern portion of the southwestern quarter of Oklahoma. This is approximately 80 miles south-southwest of the Capitol and geographic center of the State, and 45 miles north of the Red River which forms the southern boundary of Oklahoma. The area around Marlow is gently rolling with the Arbuckle Mountains about 40 miles to the east-southeast and the Wichita Mountains about an equal distance to the west-northwest.

The climate of Marlow is typical of the Southwestern Great Plains being mostly of continental origin and classed as temperate in character. The conflict between the air mass and pressure system movements across the country and the warm, moist air currents from the Gulf of Mexico causes pronounced daily and seasonal variations in the weather elements of which most commonly noticed are temperature, wind, cloudiness and precipitation. Although changes from season to season are gradual, seasonal characteristics are distinct. The autumn season usually has a great number of pleasant, sunny days, cool bracing nights, and longer steady rains which greatly benefit fall and winter grains and pastures. Polar air masses move down from the north during fall and winter months as "northerners" causing rapid drops in temperature. Cold spells during winter are usually short and on the whole the winter season is short and mild. Weather conditions in spring are subject to rapid changes, to the most frequent occurrence of severe local storms and tornadoes, and to the greatest intensity of rainfall. Summers are long and usually hot but the apparent discomfort is considerably moderated by a good prevailing southerly breeze and low humidity.

Rainfall averages about 33 inches per year in Marlow, but as much as 58.32 inches occurred in the wettest year in 1908 and as little as 17.51 inches in the driest year in 1939. The greatest amount in any one month was 16.39 inches in June 1908. Rainfall is favorably distributed throughout the year for most agricultural pursuits with greatest amounts in spring and again in the fall when crops and pastures gain maximum benefit. Varying periods of dry conditions develop from time to time but rarely are sufficiently sustained to result in complete crop failure. Subsequent to 1900 there have been 33 months during which no measurable precipitation was recorded in Marlow. Only two of these months were consecutive, namely, October and November 1904.

Snowfall in Marlow seldom becomes an operational hazard although during this 30-year period summarized, there were only seven winter seasons when no measurable snow was reported. The greatest amount observed in any one season was the 14.5 inches, all of which fell in the month of January 1930. Records indicate that even the heavy amounts of snowfall rarely remain on the ground more than a few days.

Temperatures recorded in Marlow during the period summarized that

show winters to be mild and short are indicated by the facts that on the average there are only five days per year when the temperature did not get above freezing. The longest period that the temperature remained below freezing was 9 days in January 1930. During this time the record low for Marlow of -11° was recorded on January 18, 1930. Also, there have been only six months during this 30-year period in which below zero temperatures have been recorded. Data that further establishes mild winters and long summers are that 90° or higher temperatures occurred as early as February (94° in February 1904) and as late as October. Temperatures of 100° or higher occurred on an average of 24 days per year; the greatest number in any one year was 63 in 1934 and the least was none in only one year in 1950. The greatest number of consecutive days when the temperature reached 100° or higher was 46 in July and August 1934.

Relative humidity and wind are not observed in Marlow, however, favorable interpolations can be made from Oklahoma City and Wichita Falls data. Winter relative humidity should average near 60% in the afternoon and near 76% at night, whereas in summer readings should average near 42% during the afternoon and 74% at night. The prevailing wind direction is southerly except during the winter months when north winds predominate. The mean hourly wind speed can be expected to range near 13 miles per hour.

Average dates of occurrences of various temperature values:

Temperature equal to or lower than	Average dates of Occurrence		Length of Period
	Last in Spring	First in Fall	
32°	April 1	November 3	217 days
28°	March 22	November 16	239 "
24°	March 11	November 30	263 "
20°	March 2	December 10	283 "
16°	February 15	December 19	306 "

The latest spring freeze of 32°F or less occurred April 30, 1903 when a temperature of 31° was recorded and the earliest fall freeze occurred October 7, 1952 when 32° was recorded.

A total of 22 tornadoes were reported to have hit somewhere in Stephens County during the past 33 years. Only three of these struck the City of Marlow and four others in areas near Marlow. None of the tornadoes that hit in the vicinity of Marlow caused extensive destruction and no deaths and only four injuries resulted. Other severe storms included 11 destructive hailstorms in Stephens County during the past 30 years, four of which caused considerable damage in Marlow.

Hugo V. Lehrer, Weather Bureau State Climatologist  
 Weather Bureau Airport Station, Oklahoma City, Oklahoma

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1928	43.9	46.4	56.3	59.3	72.0	76.6	81.0	83.0	74.5	70.0	50.5	43.2	63.1
1929	38.2	34.1	56.6	67.0	67.0	78.3	81.4	84.9	73.5	64.4	45.2	45.6	61.4
1930	26.1	52.5	51.8	68.0	68.3	77.7	84.5	87.8	79.4	60.0	51.3	41.0	62.1
1931	40.5	49.3	47.3	57.2	63.1	75.9	82.5	79.6	82.5	67.4	54.6	45.6	60.7
1932	40.2	51.0	47.6	63.0	68.8	79.9	81.3	81.2	82.1	61.2	47.4	36.6	62.6
1933	47.4	42.0	52.6	63.0	70.5	79.3	83.8	79.0	78.7	65.3	52.7	43.3	63.6
1934	43.2	44.7	50.6	61.7	72.0	84.0	88.3	87.0	72.6	67.3	55.2	42.3	64.4
1935	44.4	46.4	59.3	60.4	65.4	75.6	83.3	84.2	70.2	63.4	46.7	40.6	61.7
1936	37.6	36.5	59.1	63.6	71.5	80.4	86.0	76.2	76.2	59.3	48.3	45.5	62.7
1937	33.0	43.4	47.6	62.2	72.2	79.0	85.1	85.6	77.0	63.7	47.9	38.3	61.3
1938	44.3	48.5	58.7	59.6	69.3	77.4	82.6	85.1	77.2	69.6	49.5	43.4	63.3
1939	44.7	46.2	55.9	61.5	72.3	79.4	95.3	83.2	80.4	67.2	50.6	46.3	64.0
1940	27.2	42.6	54.9	60.6	68.3	74.0	79.1	79.3	73.4	69.2	48.3	45.0	66.2
1941	44.4	43.0	48.3	62.5	72.4	74.9	81.7	81.3	74.6	65.8	51.3	45.6	62.3
1942	39.0	43.4	52.6	63.1	68.3	77.7	81.0	80.2	71.9	62.6	54.3	42.3	61.5
1943	41.4	49.0	48.2	66.0	67.3	79.4	83.6	87.5	74.3	62.6	51.4	38.3	62.5
1944	41.2	46.0	50.4	60.0	69.5	73.2	82.0	83.0	74.4	65.7	54.4	38.3	62.0
1945	41.3	43.6	56.2	59.6	68.2	75.2	78.5	80.2	74.4	63.0	55.6	38.4	61.2
1946	40.0	49.2	58.1	66.0	67.1	75.7	83.2	82.5	72.0	65.3	53.0	47.0	62.3
1947	40.3	39.8	47.1	60.0	67.6	77.5	81.0	84.6	77.9	69.6	47.0	44.0	61.4
1948	34.4	39.2	46.5	67.6	67.6	77.5	80.9	82.0	75.6	64.2	51.5	44.9	61.0
1949	32.1	40.9	50.7	58.9	70.7	77.7	83.4	79.1	70.3	62.6	54.2	42.4	60.3
1950	40.3	51.7	63.0	70.0	76.9	77.3	77.3	77.2	71.7	68.3	50.3	41.4	61.6
1951	40.7	45.9	51.9	61.5	69.7	76.5	82.8	86.0	76.3	64.9	46.9	45.1	62.3
1952	48.2	49.3	51.0	59.2	69.4	81.5	82.1	87.1	76.1	61.6	51.4	41.3	63.2
1953	46.3	46.7	58.2	60.5	70.9	85.6	81.0	80.5	77.4	65.5	51.4	42.3	63.9
1954	41.3	54.5	51.1	67.2	65.1	79.7	88.6	80.3	80.3	66.3	54.2	45.3	65.2
1955	41.8	44.7	53.6	66.4	72.3	84.6	83.1	81.9	77.3	64.4	51.0	42.3	62.3
1956	40.0	44.4	53.6	61.9	71.3	80.3	84.9	86.3	79.5	68.3	49.7	46.2	64.4
1957	37.4	49.1	49.7	58.9	67.3	79.3	84.0	82.3	72.6	60.0	48.7	47.9	61.1

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1928	1.54	1.39	1.06	5.25	2.58	6.96	3.76	1.01	1.97	3.10	2.79	1.45	33.36
1929	1.50	1.28	3.90	0.44	7.67	4.13	4.46	0.32	5.47	3.08	1.09	0.31	32.62
1930	2.40	1.02	0.62	3.80	10.05	2.34	0.17	0.63	3.20	7.83	2.30	2.70	37.13
1931	0.67	2.62	4.32	4.09	0.67	9.00	2.07	1.96	0.16	8.85	5.92	1.04	33.07
1932	4.33	2.46	0.41	2.17	1.34	0.00	1.94	1.59	2.07	2.56	0.00	5.67	33.54
1933	0.92	1.21	4.88	3.36	3.73	0.12	3.78	6.02	3.26	2.01	0.79	2.15	32.23
1934	1.32	1.34	2.25	1.15	1.60	1.32	3.78	2.17	5.10	1.17	3.49	0.21	21.32
1935	0.43	1.30	1.38	1.88	10.21	1.60	0.49	2.65	2.45	2.01	4.00	1.89	35.93
1936	0.10	T	0.51	0.30	6.56	1.60	0.05	0.00	8.73	0.93	0.00	0.74	19.52
1937	0.93	T	3.49	3.27	2.34	3.16	0.93	2.34	0.78	2.27	1.16	2.00	22.67
1938	2.02	7.39	6.32	2.73	6.89	3.22	1.36	0.40	2.84	0.26	1.71	0.52	35.56
1939	2.74	0.31	2.12	0.50	1.29	4.55	0.55	1.98	0.06	1.74	0.97	0.70	17.51
1940	0.51	2.16	0.00	4.59	5.75	4.91	4.44	2.71	1.18	2.02	5.32	2.43	36.02
1941	2.22	2.93	0.59	5.93	7.73	8.31	1.22	3.99	3.51	1.13	1.13	1.44	53.54
1942	0.42	1.05	1.32	10.09	2.30	8.18	1.47	6.61	5.43	4.52	1.52	2.04	45.02
1943	T	0.24	2.02	3.15	11.21	5.25	0.19	0.05	1.91	0.57	0.36	3.64	28.59
1944	2.40	2.67	1.33	3.61	3.38	6.17	4.79	1.92	2.94	4.46	3.09	1.57	37.73
1945	1.66	3.47	3.81	4.23	2.41	12.14	5.37	1.04	11.67	1.13	0.53	T	48.06
1946	4.15	1.95	1.83	2.07	6.00	4.85	0.78	3.70	1.53	2.23	3.06	3.68	35.83
1947	0.43	T	0.13	8.12	8.61	3.23	0.24	0.00	3.02	5.31	2.52	1.48	33.14
1948	0.07	2.41	3.40	0.59	2.68	3.96	2.55	0.71	2.22	0.39	0.76	0.73	20.91
1949	6.19	2.30	2.19	1.98	8.65	4.83	0.77	1.54	4.70	3.17	0.00	0.83	37.15
1950	1.29	3.52	T	1.55	11.11	3.79	7.37	4.84	3.50	0.60	0.11	T	37.65
1951	0.65	3.09	1.54	1.70	10.91	5.75	3.58	1.45	1.87	4.87	1.38	0.00	36.74
1952	1.05	1.14	2.24	2.37	9.30	0.90	5.97	1.30	0.10	0.00	2.57	2.10	28.99
1953	T	1.10	3.98	1.50	3.87	4.71	5.71	2.77	1.18	10.00	2.75	0.95	38.52
1954	0.13	0.57	0.98	4.11	8.00	2.32	0.15	1.33	0.19	2.06	0.31	2.73	23.43
1955	1.43	1.38	2.14	0.82	10.00	3.67	1.78	1.28	4.34	3.47	0.00	0.19	30.50
1956	0.53	1.13	0.38	1.09	3.13	3.20	1.82	1.23	0.15	4.94	1.51	1.91	21.07
1957	1.33	0.37	3.32	6.38	16.08	6.55	0.44	T	3.02	3.68	3.77	1.37	47.31

STATION HISTORY

The climatological substation was established at Marlow in October 1900 at 34° 39' latitude, 97° 57' longitude with a ground elevation of 1292 feet Mean Sea Level. The first location of the station was at the residence of Mr. W. B. Anthony who kept the records of temperature and precipitation until August 1922. The instrument shelter was evidently set up too near the ground as it was raised to standard height in March 1903.

Observers subsequent to Mr. Anthony were Mr. O. L. Tapp and Mrs. Tapp, September 1922 to September 1948, and Mr. James Prater, October 1948 to February 1955. Each of the above residence locations were not more than three-fourths mile from the Post Office and were within the city limits of Marlow.

On February 7, 1955 the station was moved one mile west of the former site at the Prater Greenhouse to the residence of Mr. Ernest W. Munro which is three-tenths of a mile west of the Post Office. The present coordinates of the station are 34° 39' latitude and 97° 58' longitude with a ground elevation of 1280 feet Mean Sea Level.