

The Climate of Marshall County

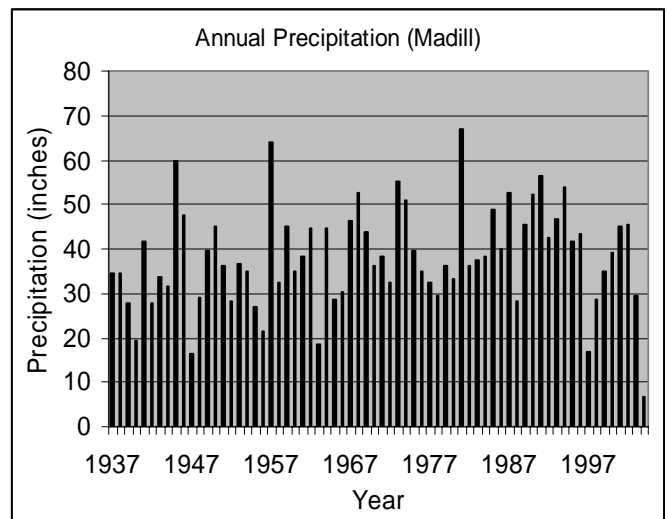
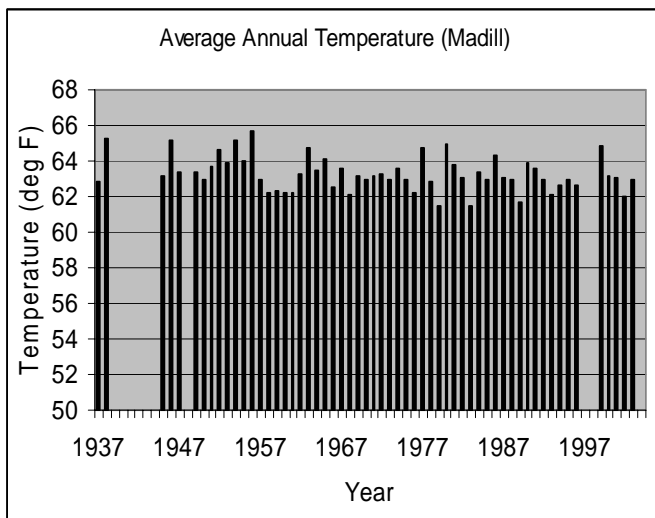


Marshall County is part of the Crosstimbers. This region is a transition region from the Central Great Plains to the more irregular terrain of southeastern Oklahoma. Average annual precipitation ranges from about 39 inches in western Marshall County to 45 inches in the east. June and October are the wettest months, on average, but much of the spring through fall receives sufficient rainfall. One year in two has at least one inch of snow, with one year in ten having ten or more inches.

Temperatures average near 63 degrees, with a slight increase from north to south. Temperatures range from an average daytime high of 95 degrees in July and August to an average low of 30 degrees in January. Marshall County averages a growing season of 230 days, but plants that can withstand short periods of colder temperatures may have an additional two to seven weeks.

Winds from the south to southeast are quite dominant, averaging just over seven miles-per-hour. Relative humidity, on average, ranges from 40% to 93% during the day. During the year, humidity is highest in May and June and lowest in August. Winter months tend to be cloudier than summer months. The percentage of possible sunshine ranges from an average of about 55% in winter to nearly 75% in summer.

Thunderstorms occur on about 45 days each year, predominantly in the spring and summer. During the period 1950 - 2003, Marshall County recorded 24 tornadoes. The most recent significant tornado (F2 intensity or greater) occurred on May 8, 2003. This F2 tornado tracked harmlessly for seven miles through Marshall County near Antioch. There were no injuries. Typically, there are about 2 events each year of hail exceeding one inch in diameter. As information collection improves, both the number of reported tornadoes and the number of severe hail events have increased.



Temperature (deg Fahrenheit)												
	AVERAGES (1971-2000)			EXTREMES (1936-2003)				AVG # DAYS PER MONTH (1971-2000)				
	Daily Max	Daily Min	Daily Avg	Record High		Record Low		Max>100	Max>90	Max<32	Min<32	Min<0
Jan	51.8	30.0	40.9	85	(23rd, 1943)	1	(19th, 1940)			2	18	
Feb	57.9	34.9	46.4	93	(22nd, 1996)	1	(2nd, 1951)		*	1	11	
Mar	66.6	43.0	54.8	97	(31st, 1974)	7	(11th, 1948)		*	*	5	
Apr	74.7	51.1	62.9	96	(12th, 1972)	26	(3rd, 1975)		1		1	
May	81.5	60.1	70.8	101	(31st, 2003)	35	(4th, 1954)		3			
Jun	89.0	67.8	78.4	109	(27th, 1980)	47	(4th, 1954)	1	15			
Jul	94.7	72.1	83.4	110	(21st, 1939)	53	(6th, 1972)	6	26			
Aug	94.5	70.8	82.7	111	(5th, 1964)	53	(8th, 1989)	6	25			
Sep	86.8	63.7	75.2	110	(2nd, 1939)	37	(24th, 1989)	2	12			
Oct	76.8	52.8	64.8	100	(5th, 1937)	22	(31st, 1993)		2		*	
Nov	63.8	42.2	53.0	88	(4th, 1948)	14	(17th, 1959)			*	6	
Dec	54.2	33.2	43.7	86	(24th, 1955)	-8	(22nd, 1989)			1	15	*
Annual	74.5	51.9	63.2	111	(Aug 5, 1964)	-8	(Dec 22, 1989)	15	83	5	55	*

Precipitation (inches)											
	AVERAGE	EXTREMES (1936-2003)				AVG # DAYS PER MONTH (1971-2000)					
	1971-2000	Monthly Max	Daily Max		any	meas	0.10"+	0.25"+	0.50"+	1.00"+	
Jan	2.15"	5.92" (1989)	3.99"	(26th, 1989)	7	5	4	3	2	*	
Feb	2.43"	8.33" (1945)	3.57"	(9th, 1966)	6	5	4	3	2	1	
Mar	3.71"	11.81" (1945)	4.68"	(27th, 1977)	7	6	5	4	3	1	
Apr	3.60"	15.73" (1942)	5.17"	(18th, 1959)	7	7	6	4	2	1	
May	5.45"	11.85" (1967)	5.12"	(17th, 1968)	9	8	7	5	4	2	
Jun	5.15"	17.18" (1991)	6.57"	(1st, 1957)	7	7	6	4	3	2	
Jul	2.28"	10.97" (1950)	4.23"	(23rd, 1950)	5	4	3	2	2	1	
Aug	2.79"	9.02" (1974)	4.30"	(11th, 1974)	5	5	3	2	1	1	
Sep	4.62"	12.02" (1974)	6.33"	(28th, 1980)	6	6	5	4	3	1	
Oct	4.75"	25.80" (1981)	10.17"	(13th, 1981)	7	6	5	4	3	1	
Nov	3.14"	8.05" (1957)	3.31"	(22nd, 1961)	6	6	4	3	2	1	
Dec	2.73"	7.07" (1987)	2.91"	(11th, 1946)	6	5	4	3	2	1	
Annual	42.81"	25.80" (Oct 1981)	10.17"	(Oct 13, 1981)	79	71	57	41	28	13	

Snow and Sleet (inches)											
	AVERAGE	EXTREMES (1936-2003)				AVG # DAYS PER MONTH (1971-2000)					
	1971-2000	Monthly Max	Daily Max		Greatest Depth		any	meas	0.50"+	1.00"+	Pot. Glazing
Jan	1.3"	11.6" (1992)	9.6"	(18th, 1992)	6.0"	(16th, 1964)	1	1	1	1	1
Feb	1.4"	16.4" (1978)	8.0"	(7th, 1961)	8.0"	(7th, 1961)	1	1	1	*	1
Mar	0.0"	4.0" (1964)	4.0"	(10th, 1964)	3.0"	(29th, 1937)	*	*			*
Apr		0.0" (1938)	0.0"	(7th, 1938)							
May											
Jun		0.0" (1951)	0.0"	(11th, 1951)							
Jul											
Aug											
Sep		0.0" (1952)	0.0"	(2nd, 1952)							
Oct											
Nov	0.1"	3.1" (1976)	3.0"	(14th, 1976)	2.0"	(26th, 1990)	*	*	*	*	*
Dec	0.7"	10.0" (1975)	10.0"	(25th, 1975)	6.0"	(25th, 1975)	*	*	*	*	1
Annual	3.5"	16.4" (Feb 1978)	10.0"	(Dec 25, 1975)	8.0"	(Feb 7, 1961)	2	1	1	1	3

TEMPERATURE AND PRECIPITATION

From Madill Cooperative Observer Station (345468); December 1936 – December 2003

Latitude: 3406N Longitude: 09647W Elevation: 709 ft

Exceedence values (2 in 10 years)				
Month:	Maximum Temperature Higher Than:	Minimum Temperature Lower Than:	Precipitation Less Than:	Precipitation More Than:
January	77	6	0.64	3.17
February	82	12	0.75	3.72
March	88	20	1.45	5.37
April	90	31	1.97	6.91
May	94	43	2.92	8.04
June	99	53	2.44	7.04
July	106	60	0.75	3.70
August	107	58	0.76	4.28
September	103	44	1.62	7.18
October	95	32	1.06	5.91
November	85	20	0.87	4.47
December	78	11	0.97	4.12
Annual	108	4	32.3	47.62

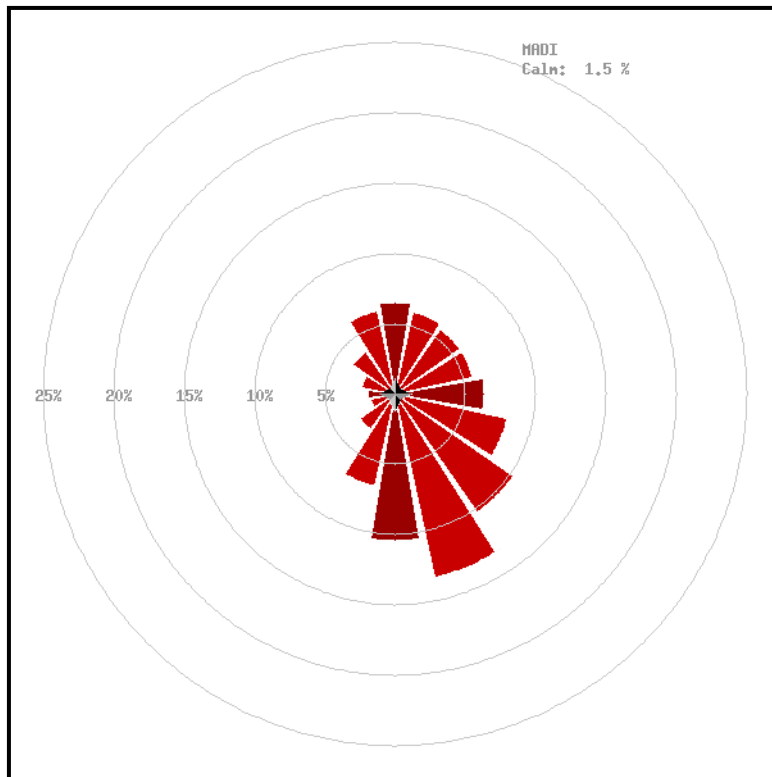
First Freezing Temperature in Fall			
Probability	24 F or Lower	28 F or Lower	32 F or Lower
1 Year in 10 Earlier Than –	November 8	November 3	October 25
2 Years in 10 Earlier Than –	November 13	November 5	November 2
5 Years in 10 Earlier Than –	November 30	November 21	November 9
Last Freezing Temperature in Spring			
Probability	24 F or Lower	28 F or Lower	32 F or Lower
1 Year in 10 Later Than –	March 17	March 30	April 11
2 Years in 10 Later Than –	March 13	March 25	April 7
5 Years in 10 Later Than –	February 27	March 16	March 27

Number of Days in Growing Season			
Probability	Higher than 24 F	Higher than 28 F	Higher than 32 F
9 Years in 10	239	226	205
8 Years in 10	253	230	211
5 Years in 10	283	247	230
2 Years in 10	297	274	244
1 Year in 10	307	290	255

WINDS

From Madill Mesonet Site (MADI); Jan 1994 – Dec 2001

Latitude: 3404N Longitude: 09694W Elevation: 761 ft



Wind Roses show the prevailing direction from which the wind is blowing. North is up in the image. The circles show the percentage of time from which the wind is blowing in that direction. For example, Madill records a south-southeasterly wind about 13 percent of the time, with northerly winds nearly 7 percent of the time.

The table below shows the percentage of time the wind is blowing from each of the 16-point compass headings, and the percent of time the prevailing wind is recorded in each speed bin.

Maximum Gust: 65.5 mph
Maximum Sustained: 41.0 mph
Overall Average Speed: 7.3 mph

MADI	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Totals
Calm																	1.5%
1- 5 mph	1.4	1.8	1.9	2.0	2.0	2.1	2.2	1.6	1.3	1.1	0.9	0.7	0.8	1.0	1.4	1.5	23.8%
6-10 mph	3.1	3.1	3.2	3.0	3.5	4.7	5.7	6.5	5.0	2.9	1.4	0.7	0.7	0.8	1.4	2.6	48.2%
11-15 mph	1.7	1.0	0.5	0.6	0.8	1.2	2.0	4.1	3.2	2.1	0.7	0.3	0.3	0.4	0.7	1.5	21.2%
16-20 mph	0.3	0.1	0.0	0.1	0.1	0.2	0.3	1.1	0.9	0.5	0.1	0.1	0.2	0.2	0.2	0.4	4.7%
21-25 mph	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5%
26-30 mph	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
31-35 mph	0.0				0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0%
35+ mph	0.0	0.0			0.0	0.0		0.0						0.0	0.0	0.0	0.0%
Totals	6.6	6.0	5.7	5.6	6.4	8.2	10.2	13.3	10.5	6.7	3.1	1.8	2.0	2.5	3.8	6.1	100.0%
MADI	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
Max Gust	59	57	39	48	49	47	52	46	49	54	48	54	48	68	56	62	
Max 5 Min	39	35	23	27	39	36	34	36	30	27	28	27	34	41	32	38	
Avg Speed	7.8	6.6	5.9	5.8	6.2	6.6	7.2	8.8	8.9	8.6	7.4	6.7	7.3	7.1	6.9	7.8	

Due to rounding, column and row totals may not sum to exactly 100.0%.

HUMIDITY

From Madill Mesonet Site (MADI); Jan 1994 – Dec 2003

Latitude: 3404N Longitude: 09694W Elevation: 761 ft

Mean Monthly Humidity and Moisture					
	Daily Maximum Relative Humidity	Daily Minimum Relative Humidity	Daily Average Relative Humidity	Daily Average Dewpoint (°F)	Daily Average Vapor Deficit
January	90	47	69	32	3.5
February	87	43	66	35	4.9
March	88	45	66	41	5.6
April	90	46	68	50	7.3
May	93	54	74	62	8.1
June	93	52	74	69	10.1
July	88	43	66	70	15.8
August	89	40	65	68	16.2
September	91	46	71	63	10.6
October	91	47	71	54	7.3
November	91	48	71	43	4.8
December	90	48	71	34	3.5
Annual	90	46	69	52	8.2

Vapor pressure is given in millibars.

SOIL TEMPERATURES

From Madill Mesonet Site (MADI); Jan 1994 – Dec 2003

Latitude: 3404N Longitude: 09694W Elevation: 761 ft

Soil Temperatures at 10 cm (4-inch) depth				
	Average Temperature beneath sod	Average Temperature beneath bare soil	Average Daily Max Temperature	Average Daily Min Temperature
January	45	44	48	40
February	48	47	53	43
March	53	53	60	48
April	61	63	70	57
May	70	73	81	67
June	76	81	89	74
July	81	87	97	80
August	83	87	96	79
September	77	78	85	71
October	68	67	74	61
November	58	55	61	50
December	49	46	51	42
Annual	64	65	72	59

Average daily maximum and minimum temperatures based on bare soil.

TORNADOES

Significant Tornadoes (F2 intensity or greater) affecting Marshall County, 1880 – 2003. Source: *Significant Tornadoes, 1880-1989: Volume I* and National Weather Service, Norman office.

Date	Path	Deaths	Injuries	Rating	Counties Affected
April 28, 1893	10 miles	0	4	F3	Grayson (TX), Marshall, Bryan
April 26, 1925	1 mile	2	4	F3	Marshall
March 28, 1938	6 miles	0	2	F2	Carter, Marshall
March 29, 1945	4 miles	0	5	F2	Marshall
May 9, 1951	16 miles	0	0	F2	Marshall, Bryan, Johnston
March 13, 1953	40 miles	2	11	F3	Love, Marshall, Carter, Johnston
April 2, 1957	8 miles	2	6	F4	Marshall
March 31, 1959	12 miles	0	10	F3	Marshall
April 2, 1964	15 miles	0	1	F2	Marshall, Bryan
May 13, 1968	3 miles	0	0	F2	Marshall
March 12, 1971	40 miles	0	4	F3	Marshall, Bryan
April 11, 1979	unknown	0	0	F2	Marshall
May 11, 1992	2 miles	0	13	F2	Marshall
May 8, 2003	7 miles	0	0	F2	Marshall

About the Data:

The temperature and precipitation data from Madill are from the National Weather Service Cooperative Observer station, which records daily maximum and minimum temperatures, precipitation, and snowfall. The station has been in operation since 1936, yielding a 67-year series of data. Extremes, frost and freeze data, and growing season lengths were determined using the entire 67-year series. The means for temperature, precipitation, and snowfall were determined using a subset of the series, from 1971-2000, corresponding with official national standards set by the National Climatic Data Center.

Wind and humidity data are compiled from the Oklahoma Mesonet station at Madill (4.5 miles south-southeast of town), which has been operational since 1994. The Madill Mesonet site was because it is the only Mesonet site in Marshall County. The Oklahoma Mesonet is a cooperative project between Oklahoma State University and The University of Oklahoma. Data are collected and archived at the Oklahoma Climatological Survey. The Mesonet records a variety of weather information at 5-minute intervals throughout the day, with at least one reporting station in every county in Oklahoma. For more information on the Mesonet, see <http://www.mesonet.org/>.

Solar radiation (sunshine) data were obtained from the *Climatic Atlas of the United States*, U.S. Department of Commerce, 1968. Severe storm information is available from the National Climatic Data Center, <http://www.ncdc.noaa.gov/>, under Weather/Climate Events: Climatology & Extreme Events, U.S. Storm Events Database. The best site for online county tornado information for Oklahoma is through the National Weather Service, Norman Office, <http://www.srh.noaa.gov/oun/tornadodata/>.

The tables and summary were prepared by the Oklahoma Climatological Survey. For more information, please contact OCS at 405-325-2541. Many climate summary products are available on the worldwide web at <http://www.ocs.ou.edu/>.

Need Additional Information?

If you cannot find what you need here, or want some help interpreting what this means for your particular needs, please contact:

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Norman, OK 73019-1012
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In addition to maintaining records of all weather and climate information for Oklahoma, OCS has a staff of climatologists who specialize in tailoring information for particular needs. Whether you want to know how dry it has been or are planning a construction project, OCS can help.