

# The Climate of Tillman County

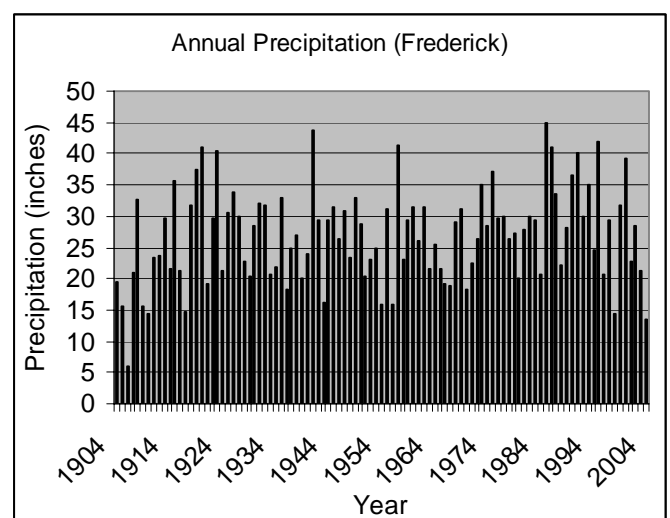
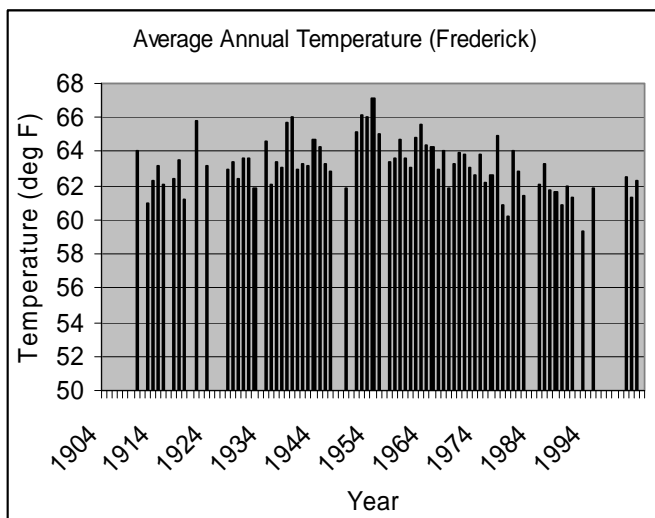


Tillman County is part of the Central Great Plains, encompassing some of the best agricultural land in Oklahoma. Average annual precipitation ranges from about 27 inches in southern Tillman County to 33 inches in the north. May and October are the wettest months, on average, but much of the spring through fall receives sufficient rainfall. Nearly every winter has at least one inch of snow, with one year in six having ten or more inches.

Temperatures average near 62 degrees, with a slight increase from north to south. Temperatures range from an average daytime high of 97 degrees in July to an average low of 27 degrees in January. Tillman County averages a growing season of 222 days, but plants that can withstand short periods of colder temperatures may have an additional three to six weeks.

Winds from the south to southeast are quite dominant, averaging just over ten miles-per-hour. Relative humidity, on average, ranges from 33% to 91% during the day. During the year, humidity is highest in November and lowest in July. Winter months tend to be cloudier than summer months. The percentage of possible sunshine ranges from an average of about 60% in winter to nearly 80% in summer.

Thunderstorms occur on about 43 days each year, predominantly in the spring and summer. During the period 1950 - 2003, Tillman County recorded 53 tornadoes. The most recent significant tornado (F2 intensity or greater) occurred on May 27, 1982. This F2 tornado passed 12 miles nearly harmlessly through Tillman County near Frederick. There were no injuries. Typically, there are about 5 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 (1904-2004)				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	51.2	26.6	38.9	90	(31st, 1911)	-8	(3rd, 1911)			3	23	
Feb	57.4	31.4	44.4	93	(25th, 1917)	-5	(8th, 1933)			2	15	*
Mar	66.5	39.8	53.1	104	(27th, 1971)	3	(11th, 1948)	*	1	*	6	
Apr	75.0	48.5	61.8	103	(12th, 1972)	23	(2nd, 1936)	*	2		1	
May	83.0	57.7	70.4	110	(24th, 2000)	34	(18th, 1983)	1	8			
Jun	91.6	66.8	79.2	115	(28th, 1994)	40	(1st, 1983)	4	19			
Jul	97.2	71.6	84.4	114	(19th, 1936)	52	(5th, 1924)	12	28			
Aug	95.5	70.0	82.8	117	(3rd, 1943)	48	(31st, 1915)	10	25			
Sep	87.2	62.4	74.8	111	(1st, 1947)	34	(26th, 1912)	3	14			
Oct	76.7	50.7	63.7	104	(1st, 1977)	17	(30th, 1917)	*	3	*	1	
Nov	63.1	38.6	50.9	93	(5th, 1914)	9	(29th, 1911)		*	*	8	
Dec	53.8	29.3	41.5	86	(4th, 1954)	-11	(23rd, 1989)			2	20	*
Annual	75.0	49.5	62.2	117	(Aug 3, 1943)	-11	(Dec 23, 1989)	30	99	7	73	*

Precipitation (inches)											
	AVERAGE	EXTREMES (1904-2004)				AVG # DAYS PER MONTH (1971-2000)					
	1971-2000	Monthly Max	Daily Max		any	meas	0.10"+	0.25"+	0.50"+	1.00"+	
Jan	1.13"	5.14" (1949)	2.03"	(8th, 1939)	5	3	2	1	1	*	
Feb	1.47"	4.13" (1911)	2.55"	(18th, 1911)	5	4	3	2	1	*	
Mar	2.42"	5.87" (1953)	2.85"	(30th, 1953)	7	5	4	3	2	1	
Apr	2.57"	9.67" (1922)	3.25"	(7th, 1922)	7	6	4	3	2	1	
May	4.82"	11.67" (1982)	4.95"	(8th, 1922)	9	8	6	4	3	2	
Jun	4.06"	11.55" (1941)	6.39"	(22nd, 1975)	7	6	5	4	3	1	
Jul	2.15"	6.08" (1958)	3.45"	(20th, 1915)	6	5	3	2	1	1	
Aug	2.93"	7.93" (1966)	3.59"	(28th, 1977)	7	6	4	3	2	1	
Sep	3.30"	9.77" (1936)	5.90"	(22nd, 1969)	7	6	4	3	2	1	
Oct	3.27"	15.16" (2000)	4.35"	(22nd, 2000)	7	6	4	3	2	1	
Nov	1.60"	6.66" (1909)	2.30"	(27th, 1919)	5	4	3	2	1	1	
Dec	1.32"	6.41" (1911)	3.06"	(23rd, 1932)	5	4	3	2	1	*	
Annual	31.03"	15.16" (Oct 2000)	6.39"	(Jun 22, 1975)	76	63	44	32	21	9	

Snow and Sleet (inches)											
	AVERAGE	EXTREMES (1904-2004)				AVG # DAYS PER MONTH (1971-2000)					
	1971-2000	Monthly Max	Daily Max		Greatest Depth		any	meas	0.50"+	1.00"+	Pot. Glazing
Jan	1.0"	20.0" (1949)	7.0"	(10th, 1918)	9.0"	(7th, 1988)	1	*	*	*	1
Feb	1.6"	12.0" (1968)	6.0"	(9th, 1946)	6.0"	(19th, 1921)	1	1	1	1	1
Mar	0.1"	12.0" (1924)	10.2"	(1st, 1942)	10.0"	(1st, 1942)	*	*	*	*	*
Apr	0.0"	8.0" (1938)	8.0"	(8th, 1938)	8.0"	(8th, 1938)	*				
May		0.0" (1955)	0.0"	(1st, 1949)							
Jun		0.0" (1955)	0.0"	(3rd, 1949)							
Jul											
Aug											
Sep											
Oct		0.0" (1954)	0.0"	(12th, 1954)							
Nov	0.2"	12.5" (2001)	6.5"	(28th, 2001)	3.0"	(1st, 1951)	*	*	*	*	*
Dec	0.5"	13.0" (1942)	8.0"	(6th, 1942)	11.0"	(29th, 1954)	1	*	*	*	1
Annual	3.5"	20.0" (Jan 1949)	10.2"	(Mar 1, 1942)	11.0"	(Dec 29, 1954)	3	2	1	1	3

## **TEMPERATURE AND PRECIPITATION**

From Frederick Cooperative Observer Station (343353); May 1904 – February 2004

Latitude: 3423N      Longitude: 09901W      Elevation: 1284 ft

Exceedence values (2 in 10 years)				
Month:	Maximum Temperature Higher Than:	Minimum Temperature Lower Than:	Precipitation Less Than:	Precipitation More Than:
January	78	4	0.14	1.74
February	85	9	0.30	2.33
March	93	17	0.55	2.86
April	96	30	0.86	4.03
May	102	40	1.93	7.16
June	107	53	1.55	5.42
July	109	61	0.54	3.35
August	109	58	0.48	3.92
September	105	42	0.78	4.65
October	97	32	0.73	5.00
November	86	19	0.19	2.56
December	78	9	0.22	2.30
<b>Annual</b>	<b>111</b>	<b>1</b>	<b>20.67</b>	<b>32.69</b>

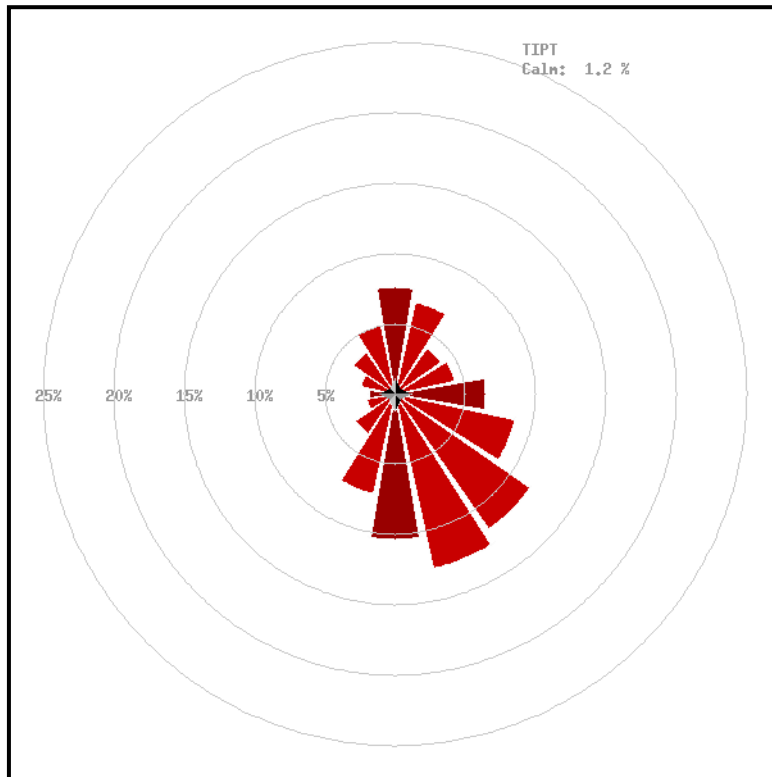
First Freezing Temperature in Fall			
Probability	24 F or Lower	28 F or Lower	32 F or Lower
1 Year in 10 Earlier Than –	November 11	October 30	October 26
2 Years in 10 Earlier Than –	November 15	November 3	October 30
5 Years in 10 Earlier Than –	November 29	November 19	November 7
Last Freezing Temperature in Spring			
Probability	24 F or Lower	28 F or Lower	32 F or Lower
1 Year in 10 Later Than –	March 27	April 8	April 13
2 Years in 10 Later Than –	March 22	March 31	April 10
5 Years in 10 Later Than –	March 6	March 20	March 31

Number of Days in Growing Season			
Probability	Higher than 24 F	Higher than 28 F	Higher than 32 F
9 Years in 10	237	217	202
8 Years in 10	247	224	211
5 Years in 10	267	242	222
2 Years in 10	290	266	235
1 Year in 10	301	272	239

## WINDS

From Tipton Mesonet Site (TIPT); Jan 1994 – Dec 2001

Latitude: 3444N Longitude: 09914W Elevation: 1273 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, Tipton records a south-southeasterly wind about 13 percent of the time, with northerly winds nearly 8 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: 69.3 mph*

*Maximum Sustained: 53.9 mph*

*Overall Average Speed: 10.1 mph*

TIPT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Totals
Calm																	1.2%
1- 5 mph	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.8	0.9	0.8	12.1%
6-10 mph	2.0	2.1	1.9	2.1	3.4	4.2	4.1	3.6	2.7	2.1	1.2	0.7	0.7	1.0	1.2	1.6	34.5%
11-15 mph	2.1	2.0	0.9	1.0	1.7	2.8	4.8	5.0	3.6	2.3	1.0	0.4	0.3	0.5	0.7	1.1	30.2%
16-20 mph	1.7	1.2	0.3	0.3	0.4	0.8	1.7	2.5	2.4	1.5	0.5	0.2	0.1	0.2	0.5	0.9	15.2%
21-25 mph	0.8	0.5	0.1	0.1	0.1	0.1	0.3	0.8	0.9	0.5	0.1	0.1	0.1	0.1	0.2	0.5	5.3%
26-30 mph	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	1.3%
31-35 mph	0.1	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	0.2%
35+ 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	0.1%
<b>Totals</b>	<b>7.7</b>	<b>6.7</b>	<b>4.0</b>	<b>4.3</b>	<b>6.5</b>	<b>8.8</b>	<b>11.7</b>	<b>12.8</b>	<b>10.3</b>	<b>7.2</b>	<b>3.5</b>	<b>2.1</b>	<b>2.0</b>	<b>2.5</b>	<b>3.6</b>	<b>5.0</b>	<b>100.0%</b>
TIPT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
Max Gust	56	65	49	54	65	61	53	69	60	47	62	54	57	68	67	63	
Max 5 Min	42	41	40	43	47	42	41	54	48	34	40	39	40	45	49	46	
<b>Avg Speed</b>	<b>12.4</b>	<b>11.2</b>	<b>8.5</b>	<b>8.5</b>	<b>8.6</b>	<b>9.3</b>	<b>10.7</b>	<b>11.9</b>	<b>12.3</b>	<b>11.7</b>	<b>9.7</b>	<b>8.7</b>	<b>7.8</b>	<b>8.0</b>	<b>9.9</b>	<b>11.3</b>	

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

## HUMIDITY

From Tipton Mesonet Site (TIPT); Jan 1994 – Dec 2003

Latitude: 3444N Longitude: 09914W Elevation: 1273 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	87	39	65	27	3.8
February	87	42	65	32	4.6
March	88	40	65	38	5.8
April	88	38	63	46	8.4
May	89	40	65	58	11.8
June	88	39	63	64	15.5
July	81	33	56	65	21.9
August	82	34	57	64	20.4
September	86	39	63	59	13.7
October	88	41	65	49	8.6
November	91	45	70	40	4.9
December	90	43	69	30	3.5
<b>Annual</b>	<b>87</b>	<b>39</b>	<b>64</b>	<b>48</b>	<b>10.3</b>

Vapor pressure is given in millibars.

## SOIL TEMPERATURES

From Tipton Mesonet Site (TIPT); Jan 1994 – Dec 2003

Latitude: 3444N Longitude: 09914W Elevation: 1273 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	44	43	47	39
February	46	46	51	42
March	52	53	59	48
April	59	64	70	57
May	69	74	81	68
June	76	82	89	76
July	82	88	95	82
August	83	87	94	81
September	77	78	85	73
October	67	67	72	62
November	56	54	59	50
December	47	44	49	41
<b>Annual</b>	<b>63</b>	<b>65</b>	<b>71</b>	<b>60</b>

Average daily maximum and minimum temperatures based on bare soil.

## **TORNADOES**

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

<b>Date</b>	<b>Path</b>	<b>Deaths</b>	<b>Injuries</b>	<b>Rating</b>	<b>Counties Affected</b>
May 10, 1905	40 miles	97	150	F5	Jackson, Tillman, Kiowa
May 22, 1908	unknown	3	0	F1	Tillman
April 10, 1911	1 mile	1	4	F3	Tillman
April 18, 1917	15 miles	1	20	F2	Tillman, Kiowa
April 8, 1922	unknown	1	1	F2	Tillman
July 3, 1923	1 mile	0	0	F2	Tillman
March 28, 1924	10 miles	0	4	F3	Wilbarger (TX), Tillman
April 19, 1933	4 miles	0	4	F3	Tillman
May 11, 1933	15 miles	1	1	F3	Tillman, Kiowa
September 9, 1934	unknown	0	0	F2	Tillman
June 6, 1936	7 miles	0	0	F2	Tillman
October 8, 1937	0.5 miles	0	1	F2	Tillman
June 3, 1938	10 miles	0	0	F2	Tillman, Cotton
June 20, 1948	35 miles	0	1	F2	Tillman, Comanche
April 30, 1949	unknown	0	1	F2	Tillman
April 30, 1949	6 miles	0	0	F3	Tillman
April 30, 1949	unknown	0	0	F3	Tillman
May 1, 1954	65 miles	0	5	F4	Foard, Wilbarger (TX), Tillman, Kiowa
May 1, 1954	12 miles	2	4	F3	Tillman, Cotton
March 4, 1963	7 miles	0	unknown	F2	Tillman
June 18, 1973	2.5 miles	0	58	F3	Tillman
May 20, 1977	1.5 miles	0	0	F3	Tillman
April 10, 1979	39 miles	11	67	F4	Foard, Wilbarger (TX), Tillman
April 10, 1979	64 miles	1	5	F2	Wilbarger, Wichita (TX), Tillman, Cotton Comanche, Stephens
April 10, 1979	8 miles	0	1	F2	Tillman
May 27, 1982	12 miles	0	2	F2	Tillman

### ***About the Data:***

The temperature and precipitation data from Frederick 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 1904, yielding a 99-year series of data. Extremes, frost and freeze data, and growing season lengths were determined using the entire 99-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 Tipton (4 miles south of town), which has been operational since 1994. The Tipton Mesonet site was chosen because of its ten year data set. An additional Mesonet site is located in Tillman County at the Grandfield Airport but has an incomplete data set. 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:

The Oklahoma Climatological Survey  
100 E. Boyd Street, Suite 1210  
Norman, OK 73019-1012  
Phone: 405-325-2541  
E-mail: [ocs@ou.edu](mailto:ocs@ou.edu)

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.