

# Climatology of the United States

No. 20

1971-2000

Station: WALTERS, OK

COOP ID: 349278

Climate Division: OK 7

NWS Call Sign:

Elevation: 1,005 Feet Lat: 34° 22N

Lon: 98° 18W

## Temperature (°F)

Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	51.1	25.0	38.1	83+	1950	24	45.0	1990	-10	1977	10	27.3	1979	836	0	.0	.0	18.9	2.2	22.3	.1
Feb	57.4	29.5	43.5	91	1996	22	51.6	1976	-1	1980	10	30.3	1978	607	0	.0	@	21.0	1.3	14.6	@
Mar	65.7	37.1	51.4	98	1971	27	56.3	1974	3+	1948	11	47.0	1996	422	0	.0	.4	28.9	.1	6.6	.0
Apr	74.3	46.9	60.6	101	1972	12	65.5	1981	23	1975	3	53.2	1973	173	41	.1	1.2	29.9	.0	1.0	.0
May	82.4	56.8	69.6	109	2000	24	75.6	1996	34	1981	11	65.3	1976	37	179	.4	7.2	31.0	.0	.0	.0
Jun	90.8	66.1	78.5	114+	1980	27	82.8	1980	48+	1969	4	75.0	1995	1	405	2.8	19.4	30.0	.0	.0	.0
Jul	96.5	69.6	83.1	111+	1978	15	88.7	1998	55	1970	23	77.9	1976	0	560	11.1	27.8	31.0	.0	.0	.0
Aug	95.9	68.9	82.4	112	1964	6	87.9	2000	53	1967	13	77.3	1992	0	540	11.3	27.3	31.0	.0	.0	.0
Sep	87.4	61.4	74.4	111	2000	5	82.6	1998	36+	1983	21	66.1	1974	22	304	3.2	15.0	30.0	.0	.0	.0
Oct	76.6	49.5	63.1	105	1977	1	67.1	1979	21	1993	31	52.7	1976	132	71	.1	2.7	30.9	.0	1.0	.0
Nov	63.2	36.6	49.9	90	1980	7	56.2	1999	7	1976	29	42.5	1976	455	3	.0	@	26.8	.1	8.4	.0
Dec	53.1	27.7	40.4	85	1955	24	44.5	1984	-9	1989	23	28.4	1983	763	0	.0	.0	21.3	1.4	19.8	.1
Ann	74.5	47.9	61.3	114+	Jun 1980	27	88.7	Jul 1998	-10	Jan 1977	10	27.3	Jan 1979	3448	2103	29.0	101.0	330.7	5.1	73.7	.2

+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: [www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

(3) Derived from 1971-2000 serially complete daily data

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**Climatography  
of the United States  
No. 20  
1971-2000**

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

**Station: WALTERS, OK**

**COOP ID: 349278**

**Climate Division: OK 7**

**NWS Call Sign:**

**Elevation: 1,005 Feet Lat: 34°22N**

**Lon: 98°18W**

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.45	1.55	3.05	1988	8	4.44	1973	.00+	1986	3.4	2.5	1.0	.4	.00	.00	.27	.51	.76	1.05	1.38	1.81	2.38	3.34	4.29
Feb	1.75	1.33	2.90	1993	15	5.62	1985	.00+	1996	4.1	3.3	1.1	.5	.00	.17	.47	.75	1.04	1.36	1.73	2.18	2.80	3.82	4.81
Mar	2.72	2.30	3.35	1993	30	8.31	1973	.10	1971	5.0	4.0	1.8	.8	.31	.52	.90	1.27	1.68	2.13	2.66	3.32	4.22	5.70	7.14
Apr	2.91	2.70	3.00	1996	22	9.28	1990	.17	1989	5.6	4.8	2.1	1.0	.46	.71	1.14	1.54	1.95	2.41	2.92	3.56	4.40	5.78	7.09
May	4.82	4.38	11.64	1987	28	15.59	1987	.00	1988	7.0	5.8	2.9	1.5	.31	.79	1.54	2.25	3.00	3.82	4.77	5.95	7.53	10.13	12.65
Jun	4.26	3.32	5.40	1995	10	10.44	1989	1.21	1972	5.8	4.7	2.9	1.4	1.06	1.46	2.08	2.63	3.18	3.75	4.39	5.15	6.14	7.71	9.18
Jul	2.24	1.87	5.18	1960	5	6.95	1991	.00	1980	4.2	3.4	1.5	.7	.03	.14	.39	.69	1.04	1.47	2.00	2.69	3.67	5.36	7.06
Aug	2.48	2.33	4.21	1966	22	6.92	1996	.00	2000	5.3	4.0	1.7	.7	.11	.33	.70	1.06	1.45	1.89	2.40	3.05	3.93	5.39	6.82
Sep	4.08	3.16	4.58	1970	23	12.11	1986	.00	1992	5.5	4.7	2.3	1.5	.15	.47	1.05	1.64	2.29	3.02	3.90	5.00	6.52	9.07	11.57
Oct	3.51	2.62	3.80	1983	20	11.21	1983	.06	1992	5.3	4.2	2.1	1.0	.25	.47	.91	1.39	1.93	2.55	3.30	4.25	5.58	7.81	10.03
Nov	2.23	1.72	4.20	1979	21	6.28	2000	.12	1989	4.8	3.4	1.5	.6	.31	.50	.82	1.13	1.45	1.81	2.22	2.73	3.41	4.52	5.60
Dec	1.63	1.43	2.80	1991	20	5.87	1991	.00	1978	4.1	3.1	1.3	.5	.03	.12	.32	.55	.81	1.12	1.49	1.97	2.65	3.81	4.96
Ann	34.08	33.79	11.64	May 1987	28	15.59	May 1987	.00+	Aug 2000	60.1	47.9	22.2	10.6	23.41	25.45	28.07	30.07	31.86	33.59	35.38	37.37	39.78	43.30	46.36

+ Also occurred on an earlier date(s)

# Denotes amounts of a trace

@ Denotes mean number of days greater than 0 but less than .05

\*\* Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

(3) Derived from 1971-2000 serially complete daily data

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**Climate Division: OK 7**

**NWS Call Sign:**

**Elevation: 1,005 Feet**

**Lat: 34° 22N**

**Lon: 98° 18W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										Snow Fall >= Thresholds					Snow Depth >= Thresholds			
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	1.8	.0	#	0	6.0	1977	9	6.7	1973	5+	1995	22	2	1973	.9	.6	.2	.1	.0	.1	.0	.0	.0
Feb	.4	.0	#	0	2.5	1978	9	3.3	1975	2	1972	12	#+	1998	.6	.4	.0	.0	.0	.1	.0	.0	.0
Mar	.6	.0	#	0	3.0	1989	21	5.0	1989	2	1973	25	#	1973	.3	.3	.1	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	#	0	.1	1997	15	.1	1997	#	2000	8	#	2000	.1	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.7	.0	#	0	5.0	1971	2	7.0	1971	5	1971	2	#+	1997	.3	.2	.1	.1	.0	.1	@	@	.0
Ann	3.5	.0	N/A	N/A	6.0	Jan 1977	9	7.0	Dec 1971	5+	Jan 1995	22	2	Jan 1973	2.2	1.5	.4	.2	.0	.3	@	@	.0

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

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Freeze Data									
Spring Freeze Dates (Month/Day)									
Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	4/26	4/21	4/18	4/15	4/12	4/09	4/06	4/02	3/28
32	4/14	4/09	4/06	4/04	4/01	3/30	3/27	3/24	3/20
28	4/06	3/31	3/26	3/23	3/19	3/16	3/12	3/08	3/02
24	3/25	3/17	3/11	3/06	3/01	2/24	2/19	2/13	2/05
20	3/10	3/02	2/24	2/19	2/14	2/10	2/05	1/30	1/22
16	3/05	2/22	2/14	2/07	2/01	1/25	1/17	1/08	12/21
Fall Freeze Dates (Month/Day)									
Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	10/06	10/12	10/16	10/20	10/23	10/27	10/30	11/04	11/09
32	10/16	10/22	10/27	10/30	11/03	11/06	11/10	11/14	11/20
28	10/26	11/01	11/05	11/09	11/13	11/16	11/20	11/24	12/01
24	11/06	11/13	11/18	11/22	11/26	11/30	12/04	12/09	12/16
20	11/16	11/24	11/29	12/04	12/09	12/14	12/19	12/24	1/01
16	11/22	12/03	12/11	12/18	12/25	1/01	1/08	1/18	2/05
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	218	210	204	199	194	189	184	178	170
32	235	228	223	219	215	211	206	201	194
28	260	252	247	242	238	233	228	223	215
24	301	290	282	276	269	263	257	249	238
20	326	315	307	301	295	289	283	276	266
16	>365	>365	347	331	321	312	303	293	280

\* Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

**0/00** Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

Complete documentation available from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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Degree Days to Selected Base Temperatures (° F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	836	607	422	173	37	1	0	0	22	132	455	763	3448
60	682	476	274	84	9	0	0	0	6	57	317	608	2513
57	591	400	193	47	3	0	0	0	2	30	242	517	2025
55	532	352	147	29	1	0	0	0	0	18	198	459	1736
50	391	246	64	6	0	0	0	0	0	3	109	320	1139
32	57	31	0	0	0	0	0	0	0	0	2	29	119

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	244	351	602	858	1164	1394	1583	1563	1273	963	539	289	10823
55	6	28	35	196	453	704	870	850	583	268	46	6	4045
57	3	20	20	154	393	644	808	788	525	218	30	3	3606
60	1	12	7	101	306	554	715	695	439	152	14	0	2996
65	0	0	0	41	179	405	560	540	304	71	3	0	2103
70	0	0	0	12	84	264	405	388	191	26	0	0	1370

Growing Degree Units (2)																								
Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	124	237	458	681	969	1181	1370	1345	1072	767	368	155	124	361	819	1500	2469	3650	5020	6365	7437	8204	8572	8727
45	56	139	318	533	814	1031	1215	1190	922	613	244	74	56	195	513	1046	1860	2891	4106	5296	6218	6831	7075	7149
50	21	70	197	388	659	881	1060	1035	772	460	142	31	21	91	288	676	1335	2216	3276	4311	5083	5543	5685	5716
55	1	30	104	254	505	731	905	880	623	320	70	7	1	31	135	389	894	1625	2530	3410	4033	4353	4423	4430
60	0	5	48	142	353	581	750	725	476	193	26	0	0	5	53	195	548	1129	1879	2604	3080	3273	3299	3299
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	107	175	305	439	639	787	882	865	701	496	238	121	107	282	587	1026	1665	2452	3334	4199	4900	5396	5634	5755

(1) Derived from the 1971-2000 Monthly Normals

(2) Derived from 1971-2000 serially complete daily data

**Note:** For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

## Notes

- a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.
- b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.
- c. Only observed validated values were used to select the extreme daily values.
- d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.  
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.
- e. Degree Days were derived using the same techniques as the 1971-2000 normals.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)
- f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set.  
Documentation of the serially complete data set is available from the link below:
- g. Snowfall and snow depth statistics were derived from the Snow Climatology.  
Documentation for the Snow Climatology project is available from the link under references.

## Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html)  
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,  
[www1.ncdc.noaa.gov/pub/data/special/serialcomplete\\_jam\\_0900.pdf](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)