U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: MC CURTAIN 1 SE, OK **COOP ID: 345693**

Climate Division: OK 6 **NWS Call Sign:** **Elevation: 659 Feet** **Lat: 35˚09N** **Lon: 94˚58W**

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	50.5	29.4	40.0	79	1986	20	48.5	1990	-9	1962	11	27.3	1979	777	1	.0	.0	17.7	2.9	19.3	.3
Feb	56.6	34.1	45.4	93	1996	22	53.8	1976	-4	1996	4	32.4	1978	560	5	.0	.1	20.3	1.3	12.9	.1
Mar	65.6	42.4	54.0	93	1974	31	59.4	1974	6	1996	9	48.3	1996	350	8	.0	.1	28.3	.1	6.0	.0
Apr	74.2	50.5	62.4	94+	1987	18	68.2	1981	22+	1975	3	56.7	1983	125	46	.0	.4	29.8	.0	.8	.0
May	80.5	59.0	69.8	95	1998	31	74.2	1987	36+	1963	1	64.4	1976	29	176	.0	2.0	31.0	.0	.0	.0
Jun	87.9	67.0	77.5	103	1988	30	81.2	1977	46	1972	1	74.0	1974	1	373	.3	12.8	30.0	.0	.0	.0
Jul	94.1	71.4	82.8	110+	1986	30	88.7	1980	50+	1967	14	78.6	1989	0	550	5.9	24.9	31.0	.0	.0	.0
Aug	94.0	69.8	81.9	109+	1964	4	88.6	2000	47	1967	13	75.6	1992	2	525	6.7	24.4	31.0	.0	.0	.0
Sep	86.1	62.4	74.3	111	1998	4	81.7	1998	33+	1989	24	66.9	1974	20	297	1.3	11.2	30.0	.0	.0	.0
Oct	76.4	51.4	63.9	98+	1963	8	67.6	1971	20	1993	31	57.3	1976	101	68	.0	1.4	30.9	.0	1.2	.0
Nov	63.3	41.1	52.2	88	1978	4	59.6	1999	9	1976	29	45.3+	2000	396	12	.0	.0	26.6	.1	7.2	.0
Dec	53.5	32.1	42.8	80	1966	7	50.0	1984	-9	1989	23	29.9	1983	689	0	.0	.0	20.1	1.7	16.2	.1
Ann	73.6	50.9	62.3	111	Sep 1998	4	88.7	Jul 1980	-9+	Dec 1989	23	27.3	Jan 1979	3050	2061	14.2	77.3	326.7	6.1	63.6	.5

\+ 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

(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

Issue Date: February 2004

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Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	2.65	2.30	3.75	1998	5	9.51	1998	.12	1986
Feb	2.80	2.49	3.73	1966	9	9.11	1990	.15	1996
Mar	4.26	4.32	3.65	1977	27	8.80	1973	1.12	1971
Apr	4.61	4.25	4.20	1964	5	9.45	1973	1.17	1989
May	5.81	5.32	5.50	1965	27	13.43	1990	1.07	1988
Jun	5.14	4.47	8.35	1980	19	11.85	1975	.80	1984
Jul	3.21	2.85	6.11	1960	24	9.11	1996	.12	1978
Aug	2.78	2.52	4.50	1955	4	8.28	1987	.00	2000
Sep	4.98	4.45	4.00+	1970	23	10.47	1974	.92	1983
Oct	3.88	3.71	4.00+	1967	30	11.17	1984	.38	1978
Nov	5.27	4.42	5.20	1973	25	14.93	1994	.40	1989
Dec	3.32	2.96	3.77	1971	10	8.26	1971	.68	1989
Ann	48.71	49.89	8.35	Jun 1980	19	14.93	Nov 1994	.00	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.9	5.1	1.8	.7
Feb	6.2	4.9	2.0	.9
Mar	7.4	6.5	3.4	1.1
Apr	8.0	6.8	3.4	1.4
May	8.4	7.6	4.4	2.2
Jun	7.7	6.7	3.4	1.8
Jul	4.9	4.2	2.3	1.2
Aug	5.1	4.5	1.8	.8
Sep	6.9	6.2	3.2	1.8
Oct	6.0	5.2	2.4	1.3
Nov	6.4	5.6	3.5	1.7
Dec	5.9	5.2	2.2	1.1
Ann	78.8	68.5	33.8	16.0

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.33	.54	.92	1.29	1.68	2.11	2.62	3.24	4.09	5.48	6.82
Feb	.32	.53	.92	1.32	1.73	2.20	2.75	3.42	4.35	5.87	7.35
Mar	1.52	1.92	2.50	2.99	3.45	3.93	4.45	5.06	5.83	7.03	8.13
Apr	1.46	1.89	2.54	3.10	3.64	4.19	4.80	5.52	6.44	7.88	9.21
May	1.89	2.44	3.25	3.94	4.61	5.30	6.05	6.94	8.07	9.84	11.47
Jun	1.23	1.71	2.46	3.13	3.80	4.50	5.29	6.23	7.46	9.41	11.24
Jul	.28	.50	.92	1.37	1.86	2.41	3.08	3.91	5.05	6.97	8.85
Aug	.39	.75	1.22	1.61	2.00	2.41	2.87	3.42	4.13	5.27	6.34
Sep	1.20	1.66	2.39	3.04	3.68	4.36	5.13	6.03	7.22	9.11	10.88
Oct	.57	.90	1.46	2.00	2.56	3.17	3.87	4.74	5.90	7.79	9.61
Nov	.86	1.32	2.08	2.81	3.56	4.37	5.30	6.44	7.95	10.41	12.77
Dec	.67	.97	1.46	1.90	2.35	2.84	3.38	4.04	4.91	6.31	7.63
Ann	32.71	35.74	39.66	42.66	45.35	47.95	50.66	53.66	57.33	62.68	67.33

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	3.5	2.0	#	#
Feb	2.3	.0	#	#
Mar	.8	.0	#	0
Apr	.0	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	#	.0	#	0
Nov	.2	.0	#	0
Dec	.5	.0	#	#
Ann	7.3	2.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	10.2	2000	28	14.9	1978	10+	2000	28	2	1988
Feb	10.0	1975	24	17.0	1975	10	1985	2	2	1985
Mar	6.0	1982	6	10.0	1989	9	1989	6	1	1989
Apr	.0	0	0	.0	0	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	#	1993	30	#	1993	#	1993	30	#	1993
Nov	3.0	1976	14	3.0	1976	3	1976	14	#+	2000
Dec	5.0	1975	25	6.0	1975	5	1975	26	1	2000
Ann	10.2	Jan 2000	28	17.0	Feb 1975	10+	Jan 2000	28	2+	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.4	1.2	.4	.2	.1
Feb	1.0	.9	.3	.1	@
Mar	.3	.2	.1	.1	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.1	.1	@	.0	.0
Dec	.6	.3	.1	@	.0
Ann	3.4	2.7	.9	.4	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	2.7	1.4	.7	.1
Feb	1.6	.7	.3	@
Mar	.4	.3	.3	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.1	@	.0	.0
Dec	.7	.2	.1	.0
Ann	5.5	2.6	1.4	.1

+ 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	4/22	4/18	4/15	4/12	4/10	4/07	4/03	3/29
32	4/12	4/07	4/04	4/01	3/29	3/27	3/24	3/20	3/16
28	4/04	3/28	3/24	3/20	3/17	3/13	3/09	3/05	2/27
24	3/29	3/20	3/14	3/08	3/03	2/26	2/20	2/14	2/05
20	3/10	3/03	2/25	2/20	2/16	2/12	2/07	2/01	1/25
16	3/07	2/24	2/16	2/10	2/03	1/28	1/21	1/14	1/03

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	10/01	10/07	10/11	10/14	10/18	10/21	10/25	10/29	11/04
32	10/11	10/17	10/22	10/25	10/29	11/02	11/05	11/10	11/16
28	10/25	10/31	11/04	11/08	11/12	11/15	11/19	11/23	11/29
24	11/01	11/09	11/15	11/20	11/24	11/29	12/04	12/10	12/18
20	11/09	11/17	11/24	11/29	12/04	12/09	12/14	12/20	12/29
16	11/18	11/29	12/06	12/12	12/18	12/24	12/30	1/07	1/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	212	204	198	193	188	183	178	172	163
32	235	228	222	217	213	208	204	198	190
28	268	258	251	245	239	233	227	220	210
24	303	290	281	273	266	258	250	241	228
20	328	315	306	298	290	282	274	265	252
16	>365	342	328	319	311	304	296	288	276

***** 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

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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	777	560	350	125	29	1	0	2	20	101	396	689	3050
60	631	431	218	49	6	0	0	0	5	37	268	542	2187
57	544	360	155	22	1	0	0	0	0	16	205	456	1759
55	488	315	120	12	0	0	0	0	0	9	168	401	1513
50	358	221	56	1	0	0	0	0	0	2	94	276	1008
32	63	28	0	0	0	0	0	0	0	0	2	29	122

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	309	401	682	911	1170	1363	1573	1546	1267	990	609	364	11185
55	22	45	88	233	457	673	860	833	577	285	84	22	4179
57	16	33	61	183	397	613	798	771	517	231	61	15	3696
60	10	21	31	120	308	523	705	678	432	158	35	9	3030
65	1	5	8	46	176	373	550	525	297	68	12	0	2061
70	0	0	0	11	80	232	395	378	185	21	1	0	1303

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	147	248	462	688	932	1133	1336	1307	1034	747	389	183	147	395	857	1545	2477	3610	4946	6253	7287	8034	8423	8606
45	79	156	325	538	777	983	1181	1152	884	593	267	99	79	235	560	1098	1875	2858	4039	5191	6075	6668	6935	7034
50	38	86	210	392	622	833	1026	997	734	442	166	50	38	124	334	726	1348	2181	3207	4204	4938	5380	5546	5596
55	13	42	121	260	468	683	871	842	585	305	94	18	13	55	176	436	904	1587	2458	3300	3885	4190	4284	4302
60	2	17	58	150	319	533	716	687	441	184	46	2	2	19	77	227	546	1079	1795	2482	2923	3107	3153	3155
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	98	166	291	438	627	783	894	867	690	488	239	116	98	264	555	993	1620	2403	3297	4164	4854	5342	5581	5697

(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:
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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.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/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 are 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.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html
Snow Climatology Project Description, 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