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: PURCELL, OK **COOP ID: 347327**

Climate Division: OK 5 **NWS Call Sign:** **Elevation: 1,075 Feet** **Lat: 35˚02N** **Lon: 97˚22W**

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	48.3	23.2	35.8	84	1950	24	42.5	1990	-12	1977	10	25.0	1979	908	0	.0	.0	17.1	3.3	23.4	.2
Feb	54.8	28.8	41.8	90	1996	22	51.3	1976	-4+	1979	9	28.8	1978	650	0	.0	@	19.7	1.7	16.4	.1
Mar	63.0	37.2	50.1	95	1967	11	56.2	1974	3	1989	7	44.9	1996	463	0	.0	.1	27.9	.2	8.4	.0
Apr	72.2	47.6	59.9	100	1972	12	66.4	1981	18	1954	1	54.8	1983	187	34	@	.5	29.9	.0	1.5	.0
May	80.0	57.5	68.8	102	1985	30	75.1	1996	28	1954	3	64.3	1997	41	158	.2	3.2	31.0	.0	.0	.0
Jun	87.8	66.0	76.9	107+	1953	15	81.5	1980	41	1954	4	73.0	1989	1	357	.5	14.1	30.0	.0	.0	.0
Jul	93.9	70.3	82.1	109+	1954	13	87.7	1980	46	1972	5	78.1	1987	0	531	6.7	25.1	31.0	.0	.0	.0
Aug	93.6	68.8	81.2	110+	1956	16	86.5	1980	45	1950	19	74.4	1992	1	502	6.5	25.5	31.0	.0	.0	.0
Sep	85.3	61.5	73.4	111	1998	5	80.5	1998	33	1984	30	65.7	1974	24	276	1.5	11.5	30.0	.0	.0	.0
Oct	75.0	48.9	62.0	100+	1951	4	65.8	1979	12	1993	31	56.3	1976	143	47	@	1.6	30.9	.0	1.2	.0
Nov	61.1	36.6	48.9	87	1950	1	56.0	1999	9	1976	29	43.3	1972	486	1	.0	.0	25.7	.1	9.1	.0
Dec	51.0	26.8	38.9	86	1955	25	43.1	1980	-13	1989	23	26.6	1983	809	0	.0	.0	19.3	1.9	20.3	.2
Ann	72.2	47.8	60.0	111	Sep 1998	5	87.7	Jul 1980	-13	Dec 1989	23	25.0	Jan 1979	3713	1906	15.4	81.6	323.5	7.2	80.3	.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	1.62	1.52	2.00+	1985	1	4.65	1998	.00+	1986
Feb	2.24	1.68	4.60	1985	23	6.87	1985	.00	1996
Mar	3.56	3.32	2.78	1985	20	8.75	1990	.28	1971
Apr	3.83	3.50	5.20	1988	1	9.75	1990	.65	1989
May	6.07	6.36	13.58	1950	11	13.80	1982	.25	1988
Jun	4.85	4.33	5.73	1971	3	10.31	1999	.41	1990
Jul	2.76	2.14	3.86	1976	16	10.81	1975	.00+	1986
Aug	2.75	2.46	4.00	1984	6	7.59	1996	.00+	2000
Sep	4.34	4.46	5.25	1959	25	10.87	1991	.46	1978
Oct	4.21	3.19	8.00	1983	20	15.30	1983	.64	1978
Nov	2.83	2.73	3.10	1992	11	7.47	1992	.29	1976
Dec	2.59	2.05	2.80	1991	20	9.04	1984	.06	1977
Ann	41.65	43.49	13.58	May 1950	11	15.30	Oct 1983	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.6	3.3	1.2	.3
Feb	5.5	3.9	1.4	.5
Mar	7.3	5.4	2.4	1.3
Apr	6.6	5.1	2.6	1.0
May	8.8	7.4	3.7	1.9
Jun	7.5	6.4	3.2	1.5
Jul	4.8	3.7	1.6	1.0
Aug	5.7	4.4	1.8	.8
Sep	7.5	5.9	2.8	1.5
Oct	6.4	5.2	2.4	1.4
Nov	6.4	4.9	2.0	.8
Dec	5.5	4.1	1.8	.9
Ann	76.6	59.7	26.9	12.9

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	.00	.09	.32	.56	.83	1.15	1.52	1.99	2.66	3.77	4.88
Feb	.20	.45	.81	1.14	1.48	1.84	2.26	2.77	3.44	4.54	5.59
Mar	.72	1.04	1.56	2.04	2.52	3.04	3.63	4.33	5.26	6.75	8.16
Apr	1.05	1.41	1.96	2.45	2.92	3.41	3.96	4.61	5.45	6.78	8.02
May	1.22	1.77	2.66	3.48	4.30	5.18	6.18	7.38	8.97	11.52	13.93
Jun	.93	1.37	2.08	2.73	3.40	4.12	4.93	5.91	7.21	9.29	11.27
Jul	.00	.11	.46	.85	1.31	1.85	2.51	3.35	4.54	6.58	8.62
Aug	.00	.56	1.12	1.55	1.97	2.40	2.88	3.43	4.17	5.34	6.45
Sep	.86	1.26	1.89	2.48	3.07	3.70	4.42	5.29	6.43	8.27	10.01
Oct	.56	.91	1.51	2.09	2.71	3.39	4.18	5.15	6.46	8.60	10.67
Nov	.49	.74	1.16	1.54	1.94	2.37	2.86	3.46	4.25	5.53	6.75
Dec	.19	.35	.68	1.04	1.44	1.90	2.45	3.15	4.12	5.76	7.38
Ann	28.36	30.89	34.15	36.65	38.88	41.04	43.28	45.76	48.79	53.20	57.03

\+ 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

Complete documentation available from:
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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	2.9	.5	#	#
Feb	1.8	.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	#	0
Nov	.5	.0	#	0
Dec	1.4	1.0	#	#
Ann	7.4	1.5	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	9.0	1995	22	16.0	1988	15	1988	11	4	1988
Feb	6.0	1979	7	13.0	1986	8	1978	10	2	1978
Mar	14.0	1989	6	14.0	1989	14	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	.5	1993	30	.5	1993	1	1993	30	#	1993
Nov	4.0	1980	17	4.0	1980	4	1980	17	#+	2000
Dec	6.0	1984	5	7.0	1987	6	1984	5	1	2000
Ann	14.0	Mar 1989	6	16.0	Jan 1988	15	Jan 1988	11	4	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.1	.9	.4	.2	.0
Feb	1.0	.6	.3	.1	.0
Mar	.3	.2	@	@	@
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
Nov	.2	.2	@	.0	.0
Dec	.6	.6	.1	.1	.0
Ann	3.2	2.5	.8	.4	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	3.4	1.3	.9	.2
Feb	2.1	.8	.3	.0
Mar	.4	.1	.1	.1
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
Nov	.3	@	.0	.0
Dec	1.1	.1	.1	.0
Ann	7.3	2.3	1.4	.3

+ 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	5/02	4/27	4/24	4/20	4/18	4/15	4/12	4/08	4/03
32	4/18	4/14	4/11	4/09	4/07	4/05	4/02	3/30	3/27
28	4/14	4/08	4/04	4/01	3/28	3/25	3/22	3/18	3/12
24	4/03	3/27	3/22	3/18	3/14	3/10	3/05	2/28	2/21
20	3/15	3/07	3/02	2/25	2/21	2/16	2/11	2/06	1/29
16	3/03	2/24	2/19	2/15	2/11	2/07	2/03	1/29	1/22

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	10/03	10/08	10/12	10/15	10/18	10/21	10/24	10/27	11/01
32	10/12	10/17	10/21	10/25	10/28	10/31	11/04	11/07	11/13
28	10/27	11/01	11/05	11/08	11/11	11/14	11/18	11/21	11/27
24	10/31	11/07	11/12	11/16	11/20	11/23	11/28	12/02	12/09
20	11/10	11/17	11/21	11/26	11/29	12/03	12/07	12/12	12/19
16	11/14	11/24	12/01	12/07	12/13	12/19	12/25	1/01	1/11

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	202	195	190	186	182	179	175	170	163
32	222	215	211	207	204	200	196	192	185
28	249	242	236	232	227	223	218	213	205
24	282	271	263	257	250	244	237	230	219
20	309	299	293	287	281	276	270	263	253
16	338	322	313	306	300	294	288	280	271

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	908	650	463	187	41	1	0	1	24	143	486	809	3713
60	754	520	316	93	10	0	0	0	6	59	345	654	2757
57	662	442	234	53	4	0	0	0	2	30	267	565	2259
55	602	393	186	34	2	0	0	0	0	17	220	507	1961
50	458	281	94	8	0	0	0	0	0	3	125	367	1336
32	89	43	1	0	0	0	0	0	0	0	3	49	185

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	204	317	562	837	1139	1346	1554	1524	1242	927	508	263	10423
55	4	23	34	181	428	656	841	811	552	231	35	7	3803
57	2	17	20	140	368	596	779	749	494	182	21	3	3371
60	0	10	8	89	282	506	686	656	408	118	9	0	2772
65	0	0	0	34	158	357	531	502	276	47	1	0	1906
70	0	0	0	8	69	218	376	351	167	13	0	0	1202

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	99	208	411	642	924	1132	1328	1307	1035	721	334	134	99	307	718	1360	2284	3416	4744	6051	7086	7807	8141	8275
45	44	120	283	494	769	982	1173	1152	885	568	218	65	44	164	447	941	1710	2692	3865	5017	5902	6470	6688	6753
50	14	60	173	356	614	832	1018	997	735	418	126	30	14	74	247	603	1217	2049	3067	4064	4799	5217	5343	5373
55	2	25	94	230	459	682	863	842	585	284	65	10	2	27	121	351	810	1492	2355	3197	3782	4066	4131	4141
60	0	6	41	128	312	532	708	687	441	170	25	0	0	6	47	175	487	1019	1727	2414	2855	3025	3050	3050
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	87	156	273	417	613	775	878	857	684	466	212	103	87	243	516	933	1546	2321	3199	4056	4740	5206	5418	5521

(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