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: TUSKAHOMA, OK **COOP ID: 349023**

Climate Division: OK 9 **NWS Call Sign:** **Elevation: 600 Feet** **Lat: 34˚38N** **Lon: 95˚17W**

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	52.8	28.5	40.7	78+	1970	28	48.0	1990	-13	1977	10	29.9	1979	755	0	.0	.0	19.2	1.8	19.8	.2
Feb	59.0	32.4	45.7	87+	1996	21	53.5	1999	-4	1985	2	33.9	1978	545	4	.0	.0	21.3	.8	14.8	.1
Mar	67.6	40.4	54.0	93	1974	31	59.3	1974	5	1996	9	48.8	1975	347	6	.0	@	29.2	.1	7.7	.0
Apr	75.4	48.0	61.7	95	1987	18	67.7	1981	21	1987	3	56.2	1983	141	42	.0	.4	29.9	.0	2.1	.0
May	81.4	57.4	69.4	96	1998	31	74.4	1998	35	1981	11	64.1	1976	35	171	.0	1.3	31.0	.0	.0	.0
Jun	88.4	65.5	77.0	103	1984	23	82.3	1998	40	1972	1	73.4	1976	1	358	.4	12.1	30.0	.0	.0	.0
Jul	94.3	69.2	81.8	112	1986	31	89.2	1998	47	1972	6	78.0	1989	0	520	6.3	24.5	31.0	.0	.0	.0
Aug	94.4	67.7	81.1	110+	1986	1	86.6	1980	47	1992	28	74.6	1992	1	498	6.9	24.6	31.0	.0	.0	.0
Sep	86.8	61.2	74.0	112	1998	4	81.7	1998	32	1989	24	66.1	1974	19	289	1.5	11.7	30.0	.0	@	.0
Oct	77.1	49.9	63.5	97	1983	4	67.2	2000	18	1993	31	56.6	1976	108	62	.0	1.9	30.9	.0	1.6	.0
Nov	63.8	39.9	51.9	86+	1987	4	59.1	1999	7	1976	29	45.1	1976	404	9	.0	.0	26.9	.1	8.8	.0
Dec	55.0	31.3	43.2	80+	1970	1	50.2	1984	-10	1989	23	31.9	1983	678	0	.0	.0	22.1	1.1	17.2	.2
Ann	74.7	49.3	62.0	112+	Sep 1998	4	89.2	Jul 1998	-13	Jan 1977	10	29.9	Jan 1979	3034	1959	15.1	76.5	332.5	3.9	72.0	.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	2.52	1.97	5.76	1949	24	8.59	1990	.14	1986
Feb	2.83	2.22	3.15	1997	21	8.91	1990	.09	1972
Mar	4.16	3.77	3.35	1991	22	7.39	1990	1.41	1982
Apr	4.80	4.54	4.46	1990	21	12.39	1990	.91	1987
May	6.85	7.02	5.15	1990	3	14.78	1990	.54	1988
Jun	5.07	4.21	4.21	1970	12	13.00	1986	1.51	1978
Jul	3.71	3.34	5.15	1951	1	8.64	1992	.02	1998
Aug	2.71	2.41	4.80	1970	21	7.28	1990	.09	1980
Sep	5.06	4.13	3.75	1993	14	13.13	1974	.70	1982
Oct	4.82	4.25	8.38	1991	25	16.96	1991	.22	1992
Nov	4.98	4.51	3.23	1985	27	11.08	1994	.28	1989
Dec	3.33	2.91	5.10	1971	10	10.10	1971	.23	1981
Ann	50.84	49.25	8.38	Oct 1991	25	16.96	Oct 1991	.02	Jul 1998

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.9	4.5	1.5	.6
Feb	7.2	4.1	2.0	1.0
Mar	9.8	6.4	2.7	1.2
Apr	9.9	6.7	3.3	1.7
May	11.4	8.0	4.4	2.4
Jun	9.5	6.9	3.6	1.9
Jul	7.5	4.9	2.3	1.2
Aug	7.6	4.5	1.8	.8
Sep	8.8	6.1	3.5	1.7
Oct	8.7	5.6	2.8	1.6
Nov	8.4	5.8	3.3	1.8
Dec	8.4	4.8	2.0	1.0
Ann	105.1	68.3	33.2	16.9

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	.28	.47	.82	1.17	1.55	1.97	2.46	3.08	3.92	5.30	6.65
Feb	.35	.57	.97	1.37	1.79	2.25	2.79	3.45	4.36	5.84	7.27
Mar	1.63	2.02	2.57	3.02	3.45	3.89	4.36	4.91	5.60	6.67	7.64
Apr	1.46	1.92	2.60	3.18	3.75	4.34	4.99	5.76	6.74	8.29	9.71
May	1.91	2.56	3.54	4.40	5.24	6.12	7.10	8.25	9.74	12.08	14.27
Jun	1.64	2.12	2.83	3.44	4.02	4.62	5.29	6.06	7.06	8.61	10.04
Jul	.23	.44	.90	1.40	1.97	2.64	3.45	4.49	5.94	8.41	10.86
Aug	.57	.82	1.21	1.57	1.94	2.33	2.76	3.29	3.98	5.09	6.14
Sep	1.07	1.53	2.28	2.95	3.63	4.35	5.17	6.15	7.44	9.50	11.45
Oct	.43	.77	1.41	2.08	2.81	3.64	4.63	5.87	7.57	10.41	13.20
Nov	.96	1.40	2.13	2.81	3.49	4.22	5.06	6.06	7.39	9.53	11.57
Dec	.54	.83	1.31	1.77	2.24	2.76	3.34	4.06	5.02	6.57	8.05
Ann	33.41	36.68	40.92	44.18	47.11	49.95	52.91	56.20	60.22	66.10	71.22

\+ 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)

Extremes (2)

Mean Number of Days (1)

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	2.1	.0	#	#	7.0	1988	7	10.0	1988	9+	2000	28	1+	2000	.9	.7	.3	.1	.0	1.7	.7	.3	.0
Feb	1.3	.0	#	#	6.0	1979	7	11.5	1979	6	1979	7	1	1985	.6	.5	.2	.1	.0	1.0	.4	.1	.0
Mar	.2	.0	#	0	1.5	1982	6	2.0	1989	2	1989	6	#+	1995	.2	.2	.0	.0	.0	.2	.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	#	1993	30	#	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	1.0	1975	26	1.5	1975	1+	1993	26	#+	1993	.2	.1	.0	.0	.0	.1	.0	.0	.0
Dec	.4	#	#	0	7.0	1975	25	7.0	1975	7	1975	25	#+	2000	.2	.2	@	@	.0	.2	.1	@	.0
Ann	4.1	#	N/A	N/A	7.0+	Jan 1988	7	11.5	Feb 1979	9+	Jan 2000	28	1+	Jan 2000	2.1	1.7	.5	.2	.0	3.2	1.2	.4	.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	5/03	4/29	4/26	4/23	4/21	4/18	4/16	4/13	4/09
32	4/21	4/17	4/14	4/11	4/09	4/07	4/05	4/02	3/29
28	4/12	4/07	4/04	4/01	3/29	3/27	3/24	3/20	3/16
24	4/03	3/27	3/22	3/18	3/14	3/10	3/06	3/01	2/22
20	3/22	3/14	3/08	3/03	2/27	2/22	2/17	2/11	2/03
16	3/06	2/26	2/21	2/16	2/12	2/07	2/03	1/28	1/21

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	9/25	9/30	10/04	10/07	10/10	10/13	10/16	10/20	10/25
32	10/09	10/14	10/18	10/21	10/24	10/27	10/31	11/04	11/09
28	10/19	10/25	10/30	11/03	11/07	11/10	11/14	11/19	11/26
24	10/26	11/02	11/07	11/12	11/16	11/20	11/25	11/30	12/07
20	11/06	11/14	11/20	11/25	11/30	12/05	12/10	12/16	12/24
16	11/24	12/05	12/13	12/20	12/26	1/02	1/09	1/17	1/28

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	191	184	179	175	171	168	163	159	152
32	217	211	206	201	197	193	189	184	177
28	245	237	231	226	221	217	212	206	198
24	277	266	259	252	246	240	234	226	216
20	309	298	289	282	276	269	262	253	242
16	>365	339	327	319	312	305	297	289	277

***** 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	755	545	347	141	35	1	0	1	19	108	404	678	3034
60	605	415	211	59	8	0	0	0	4	40	274	529	2145
57	519	341	146	29	3	0	0	0	0	18	208	444	1708
55	462	295	110	16	1	0	0	0	0	10	170	388	1452
50	330	197	46	2	0	0	0	0	0	2	94	264	935
32	45	17	0	0	0	0	0	0	0	0	2	24	88

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	314	400	682	891	1159	1347	1543	1520	1260	978	598	369	11061
55	17	34	78	217	447	657	830	807	570	274	75	21	4027
57	12	24	52	170	387	597	768	745	510	221	53	14	3553
60	5	14	24	110	299	507	675	652	424	149	29	7	2895
65	0	4	6	42	171	358	520	498	289	62	9	0	1959
70	0	0	0	10	79	219	365	349	176	18	0	0	1216

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	150	250	466	672	929	1123	1311	1288	1034	747	386	189	150	400	866	1538	2467	3590	4901	6189	7223	7970	8356	8545
45	79	157	330	523	774	973	1156	1133	884	593	260	103	79	236	566	1089	1863	2836	3992	5125	6009	6602	6862	6965
50	39	88	210	380	619	823	1001	978	734	443	162	56	39	127	337	717	1336	2159	3160	4138	4872	5315	5477	5533
55	17	42	120	244	464	673	846	823	585	302	90	25	17	59	179	423	887	1560	2406	3229	3814	4116	4206	4231
60	1	16	61	142	310	523	691	668	445	184	44	7	1	17	78	220	530	1053	1744	2412	2857	3041	3085	3092
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	109	178	310	448	630	772	870	845	693	499	244	129	109	287	597	1045	1675	2447	3317	4162	4855	5354	5598	5727

(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