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: CANTON, OK **COOP ID: 341445**

Climate Division: OK 4 **NWS Call Sign:** **Elevation: 1,590 Feet** **Lat: 36˚04N** **Lon: 98˚35W**

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	45.3	21.6	33.5	83	1967	22	40.7	1990	-11	1988	8	22.6	1979	979	0	.0	.0	13.4	5.5	27.6	.5
Feb	51.9	26.6	39.3	90	1996	23	49.0	1976	-16	1996	4	25.4	1978	722	0	.0	@	16.6	3.6	20.3	.4
Mar	60.6	35.2	47.9	91+	1967	11	52.9	1986	-3	1948	11	42.0	1996	530	0	.0	.1	24.9	.7	11.6	.0
Apr	69.4	44.6	57.0	100	1972	12	64.5	1981	17	1975	3	50.3	1983	267	27	@	.5	28.6	@	2.2	.0
May	78.4	54.8	66.6	104	1985	31	72.3	1996	30	1954	3	62.0	1976	76	126	.1	3.3	31.0	.0	@	.0
Jun	87.6	64.0	75.8	110	1953	15	80.3	1984	41	1951	2	70.5	1982	7	332	1.3	13.9	30.0	.0	.0	.0
Jul	94.0	69.1	81.6	112	1986	30	87.6	1980	51+	1952	9	78.5	1989	0	514	7.0	24.4	31.0	.0	.0	.0
Aug	92.8	67.2	80.0	113	1964	6	86.1	2000	47	1950	27	73.3	1992	1	466	6.3	22.6	31.0	.0	.0	.0
Sep	84.5	58.7	71.6	109	2000	4	79.4	1998	30+	1989	24	63.7	1974	32	230	1.6	10.7	30.0	.0	.1	.0
Oct	72.8	46.7	59.8	98+	1979	8	63.0	1979	16	2000	9	53.6	1976	188	26	.0	1.0	30.5	@	1.6	.0
Nov	58.1	34.0	46.1	88	1980	9	54.0	1999	5	1950	24	39.6	1991	568	0	.0	.0	22.5	.4	12.5	.0
Dec	47.6	25.1	36.4	89	1955	24	41.0	1988	-7	1983	22	24.1	1983	889	0	.0	.0	15.8	3.0	24.5	.7
Ann	70.3	45.6	58.0	113	Aug 1964	6	87.6	Jul 1980	-16	Feb 1996	4	22.6	Jan 1979	4259	1721	16.3	76.5	305.3	13.2	100.4	1.6

\+ 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	.84	.80	1.40	1982	30	2.52	1973	.00+	1986
Feb	1.10	.87	2.07	1997	21	3.38	1997	.00	1991
Mar	2.53	2.19	2.99	2000	23	9.43	1973	.00	1971
Apr	2.61	2.11	3.00	1997	11	7.35	1997	.09	1996
May	4.79	4.00	6.07	1957	16	10.19	1982	.88	1971
Jun	3.66	3.39	4.07	1963	23	9.30	1995	.36	1998
Jul	2.40	2.46	4.71	1987	13	6.35	1987	.00	1983
Aug	2.80	2.08	6.31	1995	3	9.74	1995	.00	2000
Sep	2.78	2.69	3.76	1959	25	7.14	1996	.00	2000
Oct	2.44	1.89	3.77	1959	2	8.40	2000	.07	1987
Nov	1.93	1.84	4.04	1974	3	4.78	1974	.00	1989
Dec	1.05	.69	1.60	1953	3	3.15	1999	.00	1976
Ann	28.93	29.64	6.31	Aug 1995	3	10.19	May 1982	.00+	Sep 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.5	1.9	.7	.1
Feb	4.1	2.3	.7	.2
Mar	6.5	4.3	1.7	.7
Apr	7.3	4.5	1.8	.5
May	9.2	6.2	3.3	1.7
Jun	8.3	5.7	2.2	1.0
Jul	5.9	3.9	1.8	.7
Aug	6.4	4.4	1.8	.8
Sep	7.2	4.4	1.9	.8
Oct	5.5	3.3	1.7	.7
Nov	5.2	3.0	1.0	.5
Dec	4.0	2.3	.6	.2
Ann	73.1	46.2	19.2	7.9

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	.06	.19	.32	.46	.62	.81	1.04	1.35	1.89	2.41
Feb	.03	.10	.24	.40	.58	.78	1.03	1.34	1.78	2.53	3.26
Mar	.07	.23	.57	.93	1.33	1.80	2.37	3.09	4.09	5.78	7.46
Apr	.31	.51	.87	1.24	1.62	2.06	2.56	3.19	4.04	5.44	6.80
May	.98	1.42	2.12	2.76	3.41	4.10	4.89	5.83	7.07	9.06	10.95
Jun	.75	1.09	1.62	2.11	2.61	3.14	3.73	4.45	5.40	6.92	8.36
Jul	.22	.50	.89	1.24	1.60	1.99	2.43	2.97	3.68	4.84	5.95
Aug	.03	.15	.45	.81	1.26	1.79	2.46	3.34	4.61	6.80	9.01
Sep	.18	.46	.90	1.31	1.74	2.21	2.76	3.43	4.33	5.82	7.25
Oct	.16	.31	.61	.94	1.32	1.76	2.28	2.96	3.90	5.48	7.06
Nov	.09	.25	.54	.82	1.13	1.47	1.87	2.38	3.07	4.22	5.34
Dec	.03	.11	.25	.40	.57	.76	1.00	1.29	1.69	2.38	3.05
Ann	21.36	22.85	24.75	26.18	27.44	28.66	29.92	31.30	32.97	35.39	37.47

\+ 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	2.2	#	#	0
Feb	2.1	.0	#	0
Mar	.3	.0	#	0
Apr	.5	.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	1.6	.0	#	0
Dec	1.3	.0	#	0
Ann	8.0	#	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	6.0	1973	22	12.8	1973	5+	2000	29	3	1974
Feb	8.0	1975	16	14.0	1975	18	1971	22	2	1978
Mar	2.0	1999	14	3.0	1999	3	1999	14	#+	2000
Apr	5.0	1973	8	8.0	1973	7	1973	9	#	1973
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	.0	0	0	.0	0	0	0	0	0	0
Nov	6.0	1971	23	12.0	1972	8	1972	21	1	1972
Dec	3.0	2000	26	8.0	2000	9	1971	3	1+	2000
Ann	8.0	Feb 1975	16	14.0	Feb 1975	18	Feb 1971	22	3	Jan 1974

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.6	.3	.2	.0
Feb	.6	.6	.5	.2	.0
Mar	.2	.2	.0	.0	.0
Apr	.1	.1	.1	.1	.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	.3	.3	.2	.2	.0
Dec	.6	.6	.1	.0	.0
Ann	2.7	2.4	1.2	.7	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.1	.8	.6	.0
Feb	.2	.1	.0	.0
Mar	.1	@	.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	.0
Nov	.3	.2	.1	.0
Dec	.5	.3	.0	.0
Ann	2.2	1.4	.7	.0

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

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

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

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	4/30	4/25	4/22	4/20	4/17	4/15	4/12	4/09	4/05
32	4/21	4/17	4/14	4/11	4/08	4/06	4/03	3/31	3/27
28	4/12	4/08	4/05	4/02	3/30	3/28	3/25	3/22	3/18
24	4/02	3/27	3/23	3/19	3/16	3/12	3/08	3/04	2/26
20	3/26	3/18	3/12	3/08	3/03	2/26	2/22	2/16	2/08
16	3/15	3/06	2/27	2/21	2/16	2/11	2/05	1/29	1/20

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	10/02	10/07	10/10	10/13	10/16	10/19	10/22	10/26	10/31
32	10/08	10/14	10/19	10/23	10/26	10/30	11/03	11/07	11/14
28	10/24	10/29	11/02	11/05	11/08	11/10	11/13	11/17	11/22
24	10/29	11/05	11/10	11/14	11/17	11/21	11/25	11/30	12/07
20	11/03	11/11	11/17	11/22	11/27	12/02	12/07	12/14	12/22
16	11/05	11/17	11/25	12/02	12/09	12/15	12/23	12/31	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	201	194	189	185	181	177	173	168	162
32	222	214	209	205	200	196	192	186	179
28	242	235	230	226	222	218	213	208	201
24	268	261	255	251	246	242	237	232	224
20	301	290	282	275	269	262	256	248	237
16	336	320	309	301	293	285	276	267	253

***** 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	979	722	530	267	76	7	0	1	32	188	568	889	4259
60	824	592	381	161	28	1	0	0	9	87	425	734	3242
57	732	514	297	111	12	0	0	0	3	48	344	642	2703
55	672	464	245	83	7	0	0	0	0	31	293	581	2376
50	525	348	139	32	1	0	0	0	0	7	184	437	1673
32	125	76	4	0	0	0	0	0	0	0	11	73	289

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	169	279	498	750	1074	1314	1537	1487	1188	860	433	207	9796
55	3	23	26	143	368	624	824	774	498	178	25	3	3489
57	1	17	15	111	311	564	762	712	441	133	16	1	3084
60	0	10	7	71	233	475	669	619	357	79	7	0	2527
65	0	0	0	27	126	332	514	466	230	26	0	0	1721
70	0	0	0	8	54	204	360	319	131	5	0	0	1081

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	57	137	309	542	846	1099	1312	1261	967	644	248	84	57	194	503	1045	1891	2990	4302	5563	6530	7174	7422	7506
45	20	77	202	400	691	949	1157	1106	817	491	148	34	20	97	299	699	1390	2339	3496	4602	5419	5910	6058	6092
50	1	33	112	269	537	799	1002	951	669	349	80	9	1	34	146	415	952	1751	2753	3704	4373	4722	4802	4811
55	0	11	55	163	387	649	847	796	520	222	33	1	0	11	66	229	616	1265	2112	2908	3428	3650	3683	3684
60	0	1	22	84	249	499	692	641	382	119	10	0	0	1	23	107	356	855	1547	2188	2570	2689	2699	2699
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	59	114	211	338	542	735	868	829	630	403	165	70	59	173	384	722	1264	1999	2867	3696	4326	4729	4894	4964

(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