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: MIAMI, OK **COOP ID: 345855**

Climate Division: OK 3 **NWS Call Sign:** **Elevation: 805 Feet** **Lat: 36˚53N** **Lon: 94˚53W**

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	44.9	21.0	33.0	77	1950	25	43.4	1990	-15	1984	20	19.7	1979	994	0	.0	.0	10.9	5.2	26.8	1.3
Feb	51.3	26.3	38.8	85	1996	23	47.5	1976	-12	1996	4	26.2	1979	735	0	.0	.0	15.2	3.1	20.3	.7
Mar	60.8	35.4	48.1	91	1995	23	52.8	1973	-3	1948	12	41.7	1996	525	0	.0	@	24.9	.5	12.0	.0
Apr	70.6	44.8	57.7	98	1972	12	63.1	1981	17	1957	13	51.1	1983	236	16	@	.3	29.2	.0	2.3	.0
May	77.6	54.3	66.0	95	1953	26	72.4	1987	32	1976	3	61.0	1976	83	111	.0	.5	31.0	.0	@	.0
Jun	85.4	63.7	74.6	105	1952	29	78.7	1994	44	1985	12	70.5	1982	5	292	.1	9.0	30.0	.0	.0	.0
Jul	90.8	67.9	79.4	116	1954	14	86.5	1980	47	1971	31	76.6	1992	0	444	2.3	20.5	31.0	.0	.0	.0
Aug	90.9	65.8	78.4	110	1956	16	84.6	2000	47+	1950	21	72.1	1992	4	418	3.0	20.3	31.0	.0	.0	.0
Sep	82.3	57.5	69.9	106	1956	16	77.3	1998	29	1984	30	62.0	1974	49	196	.5	7.7	30.0	.0	.1	.0
Oct	71.8	45.5	58.7	99	1953	1	63.3	1971	13	1993	31	52.5	1976	221	25	.0	.4	30.5	.0	2.1	.0
Nov	58.3	35.0	46.7	85+	1978	4	56.1	1999	7	1976	29	39.5	1976	553	3	.0	.0	22.9	.4	12.1	.0
Dec	48.0	25.3	36.7	78	1966	7	43.5	1971	-15	1989	23	21.8	1983	879	0	.0	.0	13.8	3.2	23.6	.7
Ann	69.4	45.2	57.3	116	Jul 1954	14	86.5	Jul 1980	-15+	Dec 1989	23	19.7	Jan 1979	4284	1505	5.9	58.7	300.4	12.4	99.3	2.7

\+ 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	1.64	1.43	1.75	1975	31	4.68	1973	.10	1986
Feb	2.09	1.93	5.78	1985	23	7.83	1985	.20	1998
Mar	3.88	3.23	3.96	1984	3	10.46	1973	1.06	1971
Apr	4.07	3.79	3.40	1970	30	9.83	1983	.16	1989
May	5.34	5.67	4.00	1960	6	9.82	1993	.44	1998
Jun	4.16	4.52	5.40	1948	22	7.86	2000	1.13	1984
Jul	3.51	3.06	9.15	1958	7	9.59	1989	.00	1998
Aug	3.39	3.16	4.08	1989	20	7.83	1985	.46	2000
Sep	5.06	4.14	6.00	1993	25	14.94	1986	.23	1979
Oct	3.66	3.16	4.95	1980	16	8.23	1983	.25	1978
Nov	4.40	4.47	4.47	1985	12	11.08	1985	.00	1989
Dec	2.69	1.65	3.63	1992	14	7.27	1992	.00	1996
Ann	43.89	42.79	9.15	Jul 1958	7	14.94	Sep 1986	.00+	Jul 1998

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.0	4.0	1.2	.3
Feb	5.4	3.6	1.6	.4
Mar	8.3	6.1	2.8	1.1
Apr	8.7	6.3	2.6	1.4
May	10.5	7.7	4.1	1.9
Jun	8.9	6.7	3.1	1.1
Jul	6.3	4.9	2.2	1.0
Aug	6.5	4.5	2.3	.9
Sep	8.4	6.2	2.9	1.5
Oct	7.3	5.3	2.4	1.0
Nov	6.9	5.3	2.7	1.5
Dec	6.2	4.1	1.9	.9
Ann	89.4	64.7	29.8	13.0

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	.21	.35	.58	.81	1.05	1.31	1.62	2.00	2.51	3.36	4.17
Feb	.30	.47	.77	1.06	1.36	1.70	2.08	2.56	3.19	4.24	5.24
Mar	.98	1.34	1.91	2.41	2.90	3.42	4.00	4.69	5.58	7.00	8.33
Apr	.80	1.16	1.76	2.31	2.87	3.47	4.14	4.96	6.04	7.78	9.42
May	1.62	2.12	2.88	3.54	4.17	4.83	5.55	6.41	7.51	9.23	10.82
Jun	1.54	1.93	2.49	2.96	3.40	3.86	4.35	4.92	5.65	6.77	7.80
Jul	.41	.84	1.43	1.94	2.45	2.99	3.60	4.33	5.30	6.85	8.32
Aug	.83	1.15	1.65	2.09	2.52	2.98	3.50	4.11	4.91	6.17	7.36
Sep	.64	1.05	1.76	2.47	3.21	4.04	5.00	6.18	7.78	10.42	12.96
Oct	.58	.89	1.43	1.93	2.45	3.02	3.67	4.47	5.53	7.27	8.92
Nov	.56	1.12	1.86	2.49	3.12	3.78	4.53	5.43	6.61	8.49	10.27
Dec	.20	.48	.92	1.31	1.72	2.17	2.69	3.32	4.18	5.57	6.90
Ann	29.97	32.62	36.04	38.66	40.99	43.25	45.60	48.20	51.37	55.99	59.99

+ 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	2.4	1.5	1	#
Feb	.6	.0	#	#
Mar	.4	.0	#	0
Apr	#	.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	.4	.0	#	0
Dec	1.6	.0	#	0
Ann	5.4	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	7.0	1995	19	7.0	1995	9	1988	8	2	1988
Feb	5.0	1985	4	5.0	1985	8	1993	16	1	1993
Mar	4.0	1994	9	4.0	1994	9	1989	7	1	1989
Apr	#	1994	6	#	1994	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	1	1994	21	#	1994
Nov	5.5	1971	23	5.5	1971	1	1988	20	#	1988
Dec	6.0	1987	15	8.0	1987	6	1987	17	2	1983
Ann	7.0	Jan 1995	19	8.0	Dec 1987	9+	Mar 1989	7	2+	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.8	.5	.2	.0
Feb	.7	.4	.1	.1	.0
Mar	.3	.2	.1	.0	.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	.1	.1	.0
Dec	.8	.6	.2	.1	.0
Ann	2.8	2.1	1.0	.5	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.9	1.1	.5	.0
Feb	1.1	.3	.1	.0
Mar	@	.0	.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	@	.0	.0	.0
Dec	.9	.1	.0	.0
Ann	3.9	1.5	.6	.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	5/04	4/29	4/26	4/23	4/21	4/18	4/15	4/12	4/08
32	4/23	4/19	4/16	4/13	4/11	4/08	4/06	4/03	3/30
28	4/11	4/07	4/04	4/01	3/29	3/27	3/24	3/21	3/16
24	4/02	3/27	3/23	3/19	3/15	3/12	3/08	3/04	2/26
20	3/23	3/16	3/12	3/08	3/04	3/01	2/25	2/20	2/14
16	3/13	3/05	2/27	2/22	2/17	2/12	2/07	2/01	1/24

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	9/20	9/26	9/30	10/04	10/07	10/10	10/14	10/18	10/23
32	10/07	10/13	10/17	10/21	10/24	10/28	10/31	11/04	11/10
28	10/21	10/27	11/01	11/04	11/08	11/12	11/16	11/20	11/26
24	10/31	11/06	11/11	11/15	11/19	11/22	11/26	12/01	12/07
20	11/08	11/16	11/21	11/26	12/01	12/05	12/10	12/16	12/24
16	11/09	11/21	11/29	12/06	12/13	12/19	12/26	1/03	1/15

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	189	182	177	173	169	164	160	155	148
32	218	211	205	200	196	191	187	181	173
28	246	238	232	228	223	219	214	208	200
24	273	265	258	253	248	242	237	230	222
20	300	290	283	277	271	265	259	252	242
16	336	318	308	300	293	286	279	271	260

***** 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	994	735	525	236	83	5	0	4	49	221	553	879	4284
60	839	602	379	126	29	0	0	0	16	114	414	726	3245
57	748	524	296	77	13	0	0	0	7	69	336	639	2709
55	693	472	245	52	7	0	0	0	3	47	288	582	2389
50	548	353	143	14	0	0	0	0	0	14	186	443	1701
32	161	74	5	0	0	0	0	0	0	0	14	102	356

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	191	264	504	771	1052	1277	1467	1437	1137	827	454	246	9627
55	9	18	30	132	345	587	754	724	451	161	37	13	3261
57	3	13	19	97	289	527	692	662	394	121	25	9	2851
60	0	7	9	56	213	437	599	569	314	73	14	3	2294
65	0	0	0	16	111	292	444	418	196	25	3	0	1505
70	0	0	0	3	45	164	291	277	109	5	0	0	894

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	52	122	309	553	820	1051	1240	1213	929	616	268	88	52	174	483	1036	1856	2907	4147	5360	6289	6905	7173	7261
45	21	63	195	408	665	901	1085	1058	779	464	167	41	21	84	279	687	1352	2253	3338	4396	5175	5639	5806	5847
50	5	29	115	279	512	751	930	903	631	325	95	15	5	34	149	428	940	1691	2621	3524	4155	4480	4575	4590
55	0	10	57	164	361	601	775	748	486	196	44	2	0	10	67	231	592	1193	1968	2716	3202	3398	3442	3444
60	0	1	24	84	219	451	620	593	348	104	15	0	0	1	25	109	328	779	1399	1992	2340	2444	2459	2459
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	43	91	203	348	529	717	838	807	612	396	174	63	43	134	337	685	1214	1931	2769	3576	4188	4584	4758	4821

(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/normals/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.
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