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: ADA, OK **COOP ID: 340017**

Climate Division: OK 8 **NWS Call Sign:** **Elevation: 1,015 Feet** **Lat: 34˚47N** **Lon: 96˚41W**

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	49.9	27.6	38.8	84	1911	31	46.5	1990	-10	1930	18	27.7	1979	815	0	.0	.0	17.1	2.9	20.9	.2
Feb	56.2	32.3	44.3	91	1996	22	54.2	1976	-1	1996	4	32.9	1978	587	0	.0	@	20.2	1.5	13.8	.1
Mar	64.9	40.4	52.7	96	1916	21	59.3	1974	3+	1943	3	48.0	1996	385	3	.0	.2	28.3	.2	6.3	.0
Apr	73.4	48.4	60.9	99	1936	12	67.1	1981	22	1975	3	56.0	1983	159	36	.0	.3	29.9	.0	.9	.0
May	80.2	57.8	69.0	100+	1927	28	73.4	1998	32	1911	5	63.3	1976	35	158	.0	1.9	31.0	.0	.0	.0
Jun	87.4	66.0	76.7	106+	1925	29	81.3	1998	42	1910	12	72.7	1983	1	352	.3	10.8	30.0	.0	.0	.0
Jul	92.9	70.7	81.8	109+	1925	19	89.0	1998	52	1971	31	77.3	1976	0	521	3.3	24.6	31.0	.0	.0	.0
Aug	92.5	69.4	81.0	116	1936	11	87.0	2000	49	1911	5	75.2	1992	1	495	3.3	23.7	31.0	.0	.0	.0
Sep	84.9	61.7	73.3	109+	1939	1	81.2	1998	34	1942	27	66.6	1974	21	270	.8	10.1	30.0	.0	.0	.0
Oct	75.1	50.7	62.9	98	1938	1	66.7	1979	18	1993	31	55.9	1976	123	59	.0	1.1	30.8	.0	.6	.0
Nov	61.9	39.4	50.7	88	1945	6	58.9	1999	10	1976	29	43.9	1972	436	5	.0	.0	26.4	.1	7.1	.0
Dec	52.5	30.5	41.5	85	1955	24	47.1	1984	-8	1989	23	27.9	1983	729	0	.0	.0	19.7	1.7	17.1	.2
Ann	72.7	49.6	61.1	116	Aug 1936	11	89.0	Jul 1998	-10	Jan 1930	18	27.7	Jan 1979	3292	1899	7.7	72.7	325.4	6.4	66.7	.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: 1907-2001

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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	1.85	1.62	6.50	1916	21	7.37	1998	.00	1986
Feb	2.19	1.63	3.30	1938	14	6.93	1989	.03	1996
Mar	3.68	3.36	3.94	1918	30	8.05	1973	.27	1972
Apr	3.75	3.33	4.43	1996	22	11.37	1990	.35	1987
May	5.53	5.42	5.73	1990	3	14.47	1982	.25	1988
Jun	4.53	4.62	6.84	1948	24	10.78	1973	1.00	1994
Jul	2.70	2.15	4.85	1927	14	8.55	1996	.00	1980
Aug	3.02	2.69	6.42	1989	17	11.13	1989	.00	2000
Sep	4.57	3.71	8.16	1993	14	12.49	1993	.51	1976
Oct	3.90	3.04	6.25	1985	18	11.60	1981	.54	1995
Nov	3.14	2.93	2.80	1964	19	6.86	1973	.31	1989
Dec	2.40	2.01	4.03	1932	23	6.60	1991	.22	1981
Ann	41.26	40.66	8.16	Sep 1993	14	14.47	May 1982	.00+	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.5	3.6	1.3	.4
Feb	5.6	3.8	1.5	.5
Mar	7.6	5.4	2.7	1.2
Apr	7.6	5.9	2.4	.9
May	9.3	6.8	3.6	2.0
Jun	8.0	6.3	3.3	1.6
Jul	5.3	3.7	1.6	.9
Aug	5.6	4.0	2.0	1.1
Sep	7.3	5.5	2.8	1.5
Oct	6.9	5.2	2.3	1.2
Nov	6.8	4.8	2.3	.8
Dec	6.2	4.1	1.5	.7
Ann	81.7	59.1	27.3	12.8

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	.14	.33	.63	.90	1.18	1.49	1.84	2.28	2.87	3.82	4.74
Feb	.20	.35	.65	.95	1.28	1.66	2.10	2.66	3.43	4.72	5.98
Mar	.65	.98	1.51	2.02	2.53	3.09	3.72	4.49	5.51	7.16	8.73
Apr	.70	1.04	1.59	2.10	2.61	3.17	3.80	4.57	5.58	7.21	8.76
May	.88	1.35	2.15	2.91	3.70	4.56	5.55	6.76	8.37	10.99	13.50
Jun	1.31	1.74	2.39	2.95	3.50	4.07	4.70	5.44	6.41	7.91	9.31
Jul	.06	.22	.56	.94	1.37	1.87	2.49	3.28	4.38	6.26	8.14
Aug	.24	.57	1.06	1.51	1.96	2.46	3.04	3.74	4.67	6.20	7.66
Sep	.84	1.25	1.92	2.54	3.17	3.85	4.63	5.57	6.81	8.81	10.72
Oct	.40	.68	1.22	1.76	2.35	3.01	3.78	4.76	6.08	8.28	10.44
Nov	.77	1.07	1.52	1.93	2.33	2.76	3.23	3.79	4.53	5.70	6.79
Dec	.31	.50	.85	1.18	1.53	1.92	2.37	2.93	3.69	4.92	6.12
Ann	27.06	29.72	33.18	35.83	38.21	40.53	42.94	45.62	48.90	53.69	57.87

\+ 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: 1907-2001
(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	2.3	.5	#	0
Feb	.9	.0	#	0
Mar	1.1	.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	.0	#	0
Dec	.9	.0	#	0
Ann	5.5	.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	8.0	1977	9	12.0	1995	12	1988	10	8	1988
Feb	5.0	1978	7	5.0	1983	9	1978	11	2	1978
Mar	10.0	1989	6	15.0	1989	6	1971	3	#	1971
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	.0	0	0	.0	0	0	0	0	0	0
Nov	3.0	1980	17	3.0	1980	3	1980	17	#+	1980
Dec	6.0	1975	25	6.0	1975	5	1975	25	#+	2000
Ann	10.0	Mar 1989	6	15.0	Mar 1989	12	Jan 1988	10	8	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.8	.3	.2	.0
Feb	1.1	.9	.2	.1	.0
Mar	.2	.2	.1	.1	.1
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	.2	.1	.1	.0	.0
Dec	.4	.3	.1	.1	.0
Ann	2.8	2.3	.8	.5	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.1	.0	.0	.0
Feb	.2	.1	.1	.0
Mar	@	@	@	.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	.1	.1	.1	.0
Ann	.5	.2	.2	.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	4/17	4/13	4/11	4/09	4/07	4/05	4/03	3/31	3/28
32	4/13	4/08	4/04	4/02	3/30	3/27	3/24	3/21	3/16
28	4/05	3/30	3/26	3/22	3/18	3/15	3/11	3/07	2/28
24	3/25	3/17	3/12	3/07	3/02	2/26	2/21	2/15	2/08
20	3/15	3/06	2/28	2/23	2/18	2/13	2/08	2/02	1/25
16	3/13	3/01	2/20	2/13	2/06	1/30	1/23	1/14	1/02

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	10/10	10/15	10/19	10/22	10/25	10/28	10/31	11/04	11/09
32	10/21	10/26	10/31	11/03	11/07	11/10	11/14	11/18	11/24
28	10/29	11/04	11/08	11/12	11/15	11/19	11/23	11/27	12/03
24	11/04	11/11	11/16	11/21	11/25	11/29	12/03	12/08	12/15
20	11/14	11/22	11/29	12/04	12/09	12/13	12/19	12/25	1/02
16	11/14	11/26	12/04	12/12	12/19	12/26	1/02	1/11	1/23

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	220	213	208	204	200	197	193	188	181
32	245	237	231	226	221	217	212	206	198
28	263	255	250	246	241	237	233	227	220
24	297	287	279	273	267	261	254	247	236
20	323	311	303	297	291	285	279	271	261
16	>365	342	324	314	306	299	292	283	272

***** 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	815	587	385	159	35	1	0	1	21	123	436	729	3292
60	661	457	246	72	7	0	0	0	5	50	301	578	2377
57	572	383	175	37	2	0	0	0	1	25	231	492	1918
55	516	336	136	22	1	0	0	0	0	14	190	436	1651
50	376	235	63	4	0	0	0	0	0	3	107	306	1094
32	57	29	1	0	0	0	0	0	0	0	3	35	125

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	265	372	641	868	1147	1341	1544	1517	1238	959	562	330	10784
55	11	35	63	199	434	651	831	804	548	259	59	17	3911
57	5	25	40	155	374	591	769	742	489	208	40	12	3450
60	2	16	18	99	286	501	676	649	404	140	21	5	2817
65	0	0	3	36	158	352	521	495	270	59	5	0	1899
70	0	0	0	8	67	213	367	347	161	17	0	0	1180

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	121	224	420	640	912	1113	1306	1287	1017	731	356	157	121	345	765	1405	2317	3430	4736	6023	7040	7771	8127	8284
45	60	135	284	491	757	963	1151	1132	867	577	233	79	60	195	479	970	1727	2690	3841	4973	5840	6417	6650	6729
50	21	66	171	351	602	813	996	977	717	427	136	31	21	87	258	609	1211	2024	3020	3997	4714	5141	5277	5308
55	4	29	89	215	447	663	841	822	568	293	67	9	4	33	122	337	784	1447	2288	3110	3678	3971	4038	4047
60	0	9	36	112	298	513	686	667	423	167	27	0	0	9	45	157	455	968	1654	2321	2744	2911	2938	2938
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	93	154	265	406	603	765	883	862	680	465	218	109	93	247	512	918	1521	2286	3169	4031	4711	5176	5394	5503

(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