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: SPAVINAW, OK **COOP ID: 348380**

Climate Division: OK 3 **NWS Call Sign:** **Elevation: 685 Feet** **Lat: 36˚23N** **Lon: 95˚03W**

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	47.7	27.1	37.4	78	1950	24	45.8	1990	-21	1984	19	24.6	1979	857	0	.0	.0	15.1	3.6	21.9	.6
Feb	53.9	31.4	42.7	85+	1962	13	51.7	1976	-10	1996	4	30.9	1978	629	0	.0	.0	18.3	2.1	15.9	.2
Mar	63.4	40.4	51.9	92+	1995	22	55.7	1974	-2	1948	12	45.9	1975	407	2	.0	.1	27.6	.2	7.6	.0
Apr	72.5	49.1	60.8	92	1972	12	67.1	1981	19	1957	13	54.6	1983	161	35	.0	.2	29.6	.0	1.3	.0
May	79.0	58.5	68.8	96	1991	27	74.0	1987	34	1952	11	63.4	1976	45	161	.0	.7	31.0	.0	.0	.0
Jun	86.6	67.0	76.8	103+	1952	29	81.4	1980	47+	1954	4	73.2	1989	2	356	.1	9.5	30.0	.0	.0	.0
Jul	92.5	72.0	82.3	111	1954	13	90.1	1980	50	1973	11	78.1	1989	0	534	2.9	22.5	31.0	.0	.0	.0
Aug	92.5	70.5	81.5	109	1984	29	86.8	1980	51+	1949	31	75.6	1992	0	511	3.5	22.2	31.0	.0	.0	.0
Sep	84.6	63.4	74.0	106+	2000	1	81.1	1998	35	1984	30	66.1	1974	17	288	.7	8.8	30.0	.0	.0	.0
Oct	74.4	52.7	63.6	98	1953	1	67.0	1973	19	1993	31	57.1	1976	111	65	.0	.4	30.7	.0	.6	.0
Nov	60.8	41.5	51.2	83	1950	1	60.3	1999	7	1950	24	45.0	1976	424	9	.0	.0	25.0	.1	7.1	.0
Dec	50.8	31.3	41.1	78+	1948	14	46.8	1971	-11	1989	23	27.0	1983	743	0	.0	.0	18.0	2.0	17.9	.4
Ann	71.6	50.4	61.0	111	Jul 1954	13	90.1	Jul 1980	-21	Jan 1984	19	24.6	Jan 1979	3396	1961	7.2	64.4	317.3	8.0	72.3	1.2

\+ 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

Issue Date: February 2004

(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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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	1.97	1.83	2.53	1950	4	4.81	1998	.00	1986
Feb	2.10	2.02	3.15	2001	24	4.54	1997	.40	1996
Mar	3.84	3.80	2.60	1959	5	9.17	1973	.33	1971
Apr	4.29	3.52	3.00	1976	20	8.91	1995	.06	1989
May	4.89	4.57	4.51	1957	25	9.00	1982	1.77	1994
Jun	4.72	4.28	5.44	1964	13	12.60	1999	.42	1988
Jul	3.10	3.12	4.59	1958	12	6.19	1975	.43	1983
Aug	3.47	3.11	8.35	1961	14	8.65	1997	.00	2000
Sep	5.00	4.41	7.43	1998	14	12.67	1986	.05	1979
Oct	3.68	3.00	6.52	1998	5	9.91	1998	.60	1978
Nov	4.47	3.83	4.55	1972	1	9.42	1994	.22	1989
Dec	2.89	2.39	3.85	1992	14	8.02	1984	.27	1996
Ann	44.42	43.55	8.35	Aug 1961	14	12.67	Sep 1986	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.6	4.0	1.2	.4
Feb	5.9	4.1	1.4	.4
Mar	8.0	6.1	2.9	1.2
Apr	7.9	6.4	3.1	1.2
May	9.3	7.5	3.6	1.6
Jun	8.3	6.5	3.2	1.5
Jul	5.7	4.5	2.0	1.1
Aug	6.1	5.0	2.1	1.3
Sep	7.4	6.1	3.1	1.4
Oct	6.6	5.0	2.4	1.1
Nov	6.8	5.5	2.9	1.6
Dec	6.0	4.6	2.3	.9
Ann	83.6	65.3	30.2	13.7

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	.15	.36	.67	.96	1.26	1.59	1.97	2.43	3.05	4.07	5.04
Feb	.42	.61	.92	1.20	1.48	1.79	2.14	2.56	3.11	3.99	4.84
Mar	.82	1.17	1.73	2.24	2.76	3.31	3.92	4.67	5.64	7.20	8.68
Apr	.70	1.07	1.69	2.28	2.89	3.55	4.31	5.23	6.47	8.47	10.39
May	1.88	2.33	2.98	3.52	4.03	4.55	5.11	5.77	6.60	7.88	9.04
Jun	.85	1.27	1.96	2.60	3.26	3.97	4.77	5.75	7.05	9.15	11.15
Jul	.50	.77	1.22	1.65	2.09	2.56	3.11	3.78	4.67	6.12	7.51
Aug	.43	.87	1.46	1.95	2.45	2.97	3.57	4.28	5.21	6.71	8.12
Sep	.58	.97	1.67	2.37	3.11	3.94	4.90	6.10	7.74	10.42	13.04
Oct	.79	1.12	1.66	2.15	2.65	3.17	3.76	4.47	5.41	6.90	8.31
Nov	.77	1.16	1.82	2.43	3.06	3.74	4.51	5.46	6.71	8.74	10.68
Dec	.36	.59	1.00	1.40	1.83	2.30	2.85	3.53	4.46	5.97	7.44
Ann	31.21	33.75	37.01	39.50	41.70	43.84	46.05	48.49	51.46	55.77	59.50

\+ 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	2.7	1.9	#	#
Feb	2.0	.8	#	#
Mar	1.7	.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	0	0
Nov	.2	.0	#	0
Dec	1.1	.0	#	0
Ann	7.7	2.7	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	9.0	1995	9	1988	7	3	1979
Feb	10.0	1975	24	14.1	1975	10	1975	24	1	1985
Mar	15.0	1989	6	17.0	1989	15	1989	7	2	1989
Apr	#	1980	14	#+	1980	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	2.8	2000	9	2.8	2000	3	2000	9	#+	2000
Dec	7.0	2000	13	7.0	2000	9	2000	14	1+	2000
Ann	15.0	Mar 1989	6	17.0	Mar 1989	15	Mar 1989	7	3	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.1	.9	.3	.1	.0
Feb	.9	.6	.2	.1	@
Mar	.4	.3	.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	.1	.1	.0	.0	.0
Dec	.8	.5	.2	@	.0
Ann	3.3	2.4	.8	.3	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	2.1	.9	.2	.0
Feb	1.3	.5	.1	@
Mar	.5	.3	.2	.2
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	.2	@	.0	.0
Dec	1.6	.7	.1	.0
Ann	5.7	2.4	.6	.2

+ 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	4/24	4/20	4/17	4/15	4/12	4/10	4/08	4/05	4/01
32	4/14	4/10	4/08	4/05	4/03	3/31	3/29	3/26	3/22
28	4/06	4/01	3/29	3/26	3/23	3/20	3/17	3/13	3/08
24	3/31	3/23	3/18	3/13	3/08	3/04	2/27	2/21	2/13
20	3/17	3/08	3/02	2/24	2/19	2/14	2/09	2/03	1/25
16	3/10	3/02	2/23	2/18	2/13	2/08	2/02	1/27	1/18

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	10/06	10/11	10/15	10/18	10/21	10/24	10/27	10/31	11/05
32	10/16	10/22	10/27	10/31	11/04	11/08	11/12	11/17	11/24
28	10/29	11/04	11/08	11/12	11/15	11/19	11/22	11/27	12/03
24	11/06	11/13	11/18	11/22	11/26	11/30	12/05	12/10	12/17
20	11/14	11/21	11/26	12/01	12/05	12/09	12/13	12/18	12/25
16	11/13	11/25	12/03	12/10	12/17	12/24	12/31	1/08	1/19

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	213	205	200	195	191	186	182	176	169
32	235	228	223	219	215	211	206	201	194
28	261	253	247	242	237	232	227	221	213
24	291	281	274	268	262	257	250	243	233
20	322	310	302	294	288	281	274	265	254
16	>365	323	314	306	300	294	287	280	270

***** 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	857	629	407	161	45	2	0	0	17	111	424	743	3396
60	705	499	267	73	12	0	0	0	4	43	292	597	2492
57	620	423	194	38	4	0	0	0	0	20	225	511	2035
55	563	376	152	22	2	0	0	0	0	11	185	456	1767
50	426	269	75	4	0	0	0	0	0	2	106	329	1211
32	95	42	1	0	0	0	0	0	0	0	4	52	194

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	261	341	618	864	1139	1344	1557	1534	1260	977	579	333	10807
55	16	30	57	196	428	654	844	821	570	275	70	23	3984
57	12	22	36	152	369	594	782	759	510	223	49	17	3525
60	4	14	16	97	283	504	689	666	424	152	27	10	2886
65	0	0	2	35	161	356	534	511	288	65	9	0	1961
70	0	0	0	8	74	219	380	360	174	20	0	0	1235

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	103	190	402	636	901	1109	1310	1282	1014	724	355	148	103	293	695	1331	2232	3341	4651	5933	6947	7671	8026	8174
45	48	114	273	489	746	959	1155	1127	864	570	236	76	48	162	435	924	1670	2629	3784	4911	5775	6345	6581	6657
50	16	58	168	349	591	809	1000	972	714	420	142	38	16	74	242	591	1182	1991	2991	3963	4677	5097	5239	5277
55	3	27	91	222	436	659	845	817	566	283	74	12	3	30	121	343	779	1438	2283	3100	3666	3949	4023	4035
60	0	7	37	122	289	509	690	662	423	168	34	1	0	7	44	166	455	964	1654	2316	2739	2907	2941	2942
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	69	133	253	406	595	770	896	866	685	462	211	90	69	202	455	861	1456	2226	3122	3988	4673	5135	5346	5436

(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