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: HOLDENVILLE 2 SSE, OK **COOP ID: 344235**

Climate Division: OK 6 **NWS Call Sign:** **Elevation: 855 Feet** **Lat: 35˚03N** **Lon: 96˚22W**

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	25.2	36.5	81+	1911	31	44.2	1990	-13	1985	20	24.7	1979	885	0	.0	.0	17.0	3.0	21.3	.2
Feb	54.2	30.1	42.2	93	1996	22	56.5	1976	-9	1905	13	28.0	1978	648	0	.0	@	19.5	1.5	14.2	.1
Mar	62.2	37.6	49.9	96	1916	21	55.3	2000	-1	1948	12	44.3	1975	468	0	.0	.1	28.2	.1	6.8	.0
Apr	71.2	47.3	59.3	98+	1925	18	64.7	1981	21	1920	5	54.3	1983	192	20	.0	.3	29.9	.0	1.1	.0
May	78.8	57.8	68.3	98+	1927	28	72.5	1998	30	1910	15	63.4	1976	40	142	.0	1.3	31.0	.0	.0	.0
Jun	86.4	65.4	75.9	108+	1925	30	80.0	1980	45	1983	1	72.5	1983	1	328	.5	11.0	30.0	.0	.0	.0
Jul	92.7	69.8	81.3	112	1936	19	87.0	1998	50	1906	4	78.5+	1989	0	505	4.4	24.6	31.0	.0	.0	.0
Aug	92.9	68.0	80.5	118	1936	10	86.1	2000	47	1915	31	74.3	1992	1	480	6.4	24.3	31.0	.0	.0	.0
Sep	84.7	60.7	72.7	113	1951	2	80.7	1998	34+	1902	30	65.0	1974	24	256	1.1	10.7	30.0	.0	.0	.0
Oct	74.4	49.4	61.9	100+	1937	6	66.1	2000	14	1917	30	56.0	1976	142	46	.0	1.1	30.9	.0	.8	.0
Nov	60.8	37.7	49.3	88	1945	6	57.0	1999	10	1976	29	43.3	1972	476	2	.0	.0	25.9	.1	7.6	.0
Dec	50.9	29.0	40.0	84+	1948	13	44.8	1984	-8	1989	23	26.6	1983	776	0	.0	.0	19.2	1.6	18.2	.2
Ann	71.4	48.2	59.8	118	Aug 1936	10	87.0	Jul 1998	-13	Jan 1985	20	24.7	Jan 1979	3653	1779	12.4	73.4	323.6	6.3	70.0	.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: 1901-2001

(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	1.73	1.53	5.72	1916	21	5.73	1998	.00+	1986
Feb	2.07	1.66	3.71	1938	16	5.95	1993	.00	1991
Mar	3.55	3.30	4.10	1977	28	7.31	1990	.18	1997
Apr	4.20	4.03	6.60	1954	30	10.35	1974	.29	1987
May	5.55	4.45	5.86	1957	22	14.07	1982	1.29	1988
Jun	4.51	4.21	5.87	1948	21	11.10	1992	1.17	1988
Jul	2.64	2.47	6.36	1953	20	8.67	1996	.00+	1980
Aug	2.92	2.08	6.00	1906	7	9.44	1992	.00	2000
Sep	4.26	4.06	6.76	1993	14	13.45	1993	.26	1978
Oct	3.89	2.97	6.63	1941	30	11.20	1981	.60	1975
Nov	3.37	3.20	3.00+	1908	29	7.15	1973	.40	1989
Dec	2.44	1.97	4.96	1932	23	7.84	1987	.13	1996
Ann	41.13	39.88	6.76	Sep 1993	14	14.07	May 1982	.00+	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.2	3.4	1.2	.4
Feb	5.3	3.9	1.3	.5
Mar	6.9	5.4	2.7	1.1
Apr	7.0	5.7	2.7	1.3
May	8.8	7.2	3.6	1.8
Jun	7.5	6.4	3.4	1.7
Jul	4.8	3.6	1.8	.9
Aug	5.2	3.9	1.7	.8
Sep	7.4	5.8	2.6	1.3
Oct	6.4	5.1	2.8	1.3
Nov	6.0	4.7	2.4	1.2
Dec	5.5	4.3	1.7	.6
Ann	76.0	59.4	27.9	12.9

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	.21	.53	.81	1.09	1.39	1.74	2.16	2.72	3.65	4.53
Feb	.07	.24	.53	.83	1.16	1.53	1.98	2.54	3.31	4.60	5.87
Mar	.66	.98	1.50	1.98	2.47	3.00	3.60	4.32	5.28	6.83	8.31
Apr	.83	1.21	1.83	2.39	2.97	3.58	4.28	5.12	6.23	8.01	9.70
May	1.88	2.40	3.17	3.82	4.45	5.09	5.79	6.61	7.67	9.30	10.80
Jun	1.32	1.75	2.40	2.95	3.50	4.06	4.68	5.42	6.37	7.85	9.23
Jul	.00	.14	.52	.91	1.35	1.86	2.48	3.24	4.32	6.14	7.95
Aug	.35	.72	1.21	1.63	2.05	2.49	3.00	3.60	4.40	5.67	6.87
Sep	.90	1.30	1.92	2.49	3.06	3.67	4.35	5.18	6.26	8.00	9.64
Oct	.64	.98	1.54	2.08	2.63	3.23	3.91	4.75	5.86	7.67	9.40
Nov	.73	1.04	1.54	1.99	2.43	2.91	3.45	4.09	4.94	6.29	7.57
Dec	.20	.36	.68	1.02	1.39	1.82	2.33	2.97	3.85	5.34	6.80
Ann	27.02	29.66	33.10	35.75	38.11	40.42	42.82	45.48	48.74	53.51	57.67

\+ 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: 1901-2001
(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	.5	#	0	6.0	1973	7	7.6	1978	11	1988	7	3	1977	.9	.6	.3	.1	.0	.7	.6	.1	.0
Feb	3.1	1.2	#	0	6.0	1978	18	13.8	1978	4	1975	23	#+	1997	1.1	1.0	.4	.1	.0	.3	.1	.0	.0
Mar	.3	.0	#	0	7.0	1989	6	7.0+	1989	2+	1995	2	#+	1995	.1	.1	.1	@	.0	.1	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.5	.0	#	0	2.0	1974	30	3.5	1980	2	1980	17	#+	1980	.3	.3	.0	.0	.0	.1	.0	.0	.0
Dec	1.0	.0	#	0	7.0	1975	25	7.0	1975	5	1975	25	#+	2000	.4	.3	.1	.1	.0	.2	.1	.1	.0
Ann	7.0	1.7	N/A	N/A	7.0+	Mar 1989	6	13.8	Feb 1978	11	Jan 1988	7	3	Jan 1977	2.8	2.3	.9	.3	.0	1.4	.8	.2	.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	4/24	4/20	4/16	4/13	4/11	4/08	4/05	4/02	3/28
32	4/15	4/10	4/06	4/03	3/31	3/28	3/25	3/22	3/17
28	4/06	3/30	3/25	3/21	3/17	3/13	3/09	3/04	2/25
24	3/23	3/16	3/11	3/07	3/03	2/27	2/23	2/18	2/12
20	3/11	3/04	2/26	2/22	2/18	2/14	2/09	2/04	1/28
16	3/07	2/25	2/19	2/13	2/08	2/02	1/28	1/21	1/12

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	10/03	10/10	10/14	10/18	10/22	10/25	10/29	11/03	11/09
32	10/15	10/22	10/26	10/30	11/02	11/06	11/10	11/14	11/21
28	10/27	11/02	11/07	11/10	11/14	11/17	11/21	11/26	12/02
24	11/05	11/12	11/17	11/21	11/24	11/28	12/02	12/07	12/13
20	11/11	11/20	11/28	12/04	12/09	12/15	12/21	12/28	1/07
16	11/16	11/28	12/06	12/13	12/20	12/27	1/03	1/12	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	218	210	204	198	193	188	183	177	168
32	237	229	224	220	216	211	207	202	194
28	270	260	253	247	241	236	230	222	213
24	292	283	276	271	265	260	254	248	239
20	326	313	305	298	291	285	278	270	260
16	>365	336	323	315	308	301	294	287	276

***** 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	885	648	468	192	40	1	0	1	24	142	476	776	3653
60	732	518	321	90	9	0	0	0	6	59	338	623	2696
57	642	444	239	48	3	0	0	0	2	30	263	535	2206
55	584	397	191	29	1	0	0	0	0	17	218	478	1915
50	443	292	99	5	0	0	0	0	0	3	127	341	1310
32	91	55	3	0	0	0	0	0	0	0	4	43	196

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	229	339	558	818	1125	1317	1528	1502	1222	927	520	290	10375
55	9	36	33	157	413	627	815	789	532	231	44	11	3697
57	5	27	19	116	353	567	753	727	473	182	29	6	3257
60	2	18	8	67	266	477	660	634	388	118	14	2	2654
65	0	0	0	20	142	328	505	480	256	46	2	0	1779
70	0	0	0	3	57	191	350	331	151	12	0	0	1095

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	118	224	425	644	915	1110	1307	1294	1022	732	358	151	118	342	767	1411	2326	3436	4743	6037	7059	7791	8149	8300
45	58	132	289	498	760	960	1152	1139	872	578	235	80	58	190	479	977	1737	2697	3849	4988	5860	6438	6673	6753
50	22	69	177	353	605	810	997	984	722	427	140	33	22	91	268	621	1226	2036	3033	4017	4739	5166	5306	5339
55	4	33	96	228	450	660	842	829	573	292	70	12	4	37	133	361	811	1471	2313	3142	3715	4007	4077	4089
60	0	8	42	120	300	510	687	674	430	168	28	1	0	8	50	170	470	980	1667	2341	2771	2939	2967	2968
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	83	148	268	405	606	766	872	855	680	468	217	103	83	231	499	904	1510	2276	3148	4003	4683	5151	5368	5471

(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