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: HOLLIS 5 E, OK **COOP ID: 344249**

Climate Division: OK 7 **NWS Call Sign:** **Elevation: 1,621 Feet** **Lat: 34˚41N** **Lon: 99˚49W**

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	51.4	24.8	38.1	85+	1928	14	44.0	1990	-12+	1930	10	28.4	1979	835	0	.0	.0	19.8	2.9	25.7	.2
Feb	57.7	29.6	43.7	92+	1962	11	51.9	1976	-10	1986	11	32.3	1978	597	0	.0	.1	21.1	1.5	17.7	.2
Mar	67.1	37.5	52.3	102	1971	27	58.2	1974	2	1980	2	47.9	1998	396	1	@	1.0	28.8	.1	8.7	.0
Apr	75.9	46.1	61.0	103	1972	12	67.1	1972	20	1975	3	55.2	1997	171	50	.1	3.1	29.6	.0	1.8	.0
May	83.6	56.7	70.2	110+	1953	23	77.0	1996	32	1960	1	66.1	1976	34	193	1.3	9.5	31.0	.0	.0	.0
Jun	92.2	65.4	78.8	117	1953	14	84.0	1998	44	1983	1	74.4	1989	1	416	4.9	20.9	30.0	.0	.0	.0
Jul	96.9	69.9	83.4	116	1936	19	89.0	1998	48	1924	3	79.1	1975	0	570	11.5	28.2	31.0	.0	.0	.0
Aug	95.3	68.2	81.8	117	1936	12	86.5	1980	50+	1961	24	77.6	1992	0	519	9.7	26.2	31.0	.0	.0	.0
Sep	87.1	60.8	74.0	110	1951	2	82.0	1998	31	1983	21	67.8	1974	16	284	2.3	14.5	30.0	.0	@	.0
Oct	76.4	48.4	62.4	106	2000	3	67.2	1979	17	1993	31	56.5	1976	131	51	.1	3.2	30.7	@	.9	.0
Nov	62.2	36.1	49.2	94	1945	5	56.0	1999	10	1993	26	44.2	1972	476	1	.0	.0	25.8	.1	10.3	.0
Dec	52.5	27.1	39.8	89	1955	24	44.7	1980	-9	1989	23	27.4	1983	781	0	.0	.0	20.9	1.7	23.2	.1
Ann	74.9	47.6	61.2	117+	Jun 1953	14	89.0	Jul 1998	-12+	Jan 1930	10	27.4	Dec 1983	3438	2085	29.9	106.7	329.7	6.3	88.3	.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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1923-2001

(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	.63	.50	2.00	1939	8	2.08	1993	.00+	1986
Feb	1.15	.87	2.23	1997	21	3.90	1987	.00+	1991
Mar	1.55	1.14	4.54	1929	27	5.20	1973	.00+	1972
Apr	2.61	2.21	3.50	1931	17	10.28	1997	.00	1996
May	4.01	3.58	4.50	1941	20	8.59	1982	.16	1984
Jun	4.22	4.39	4.28	1959	23	8.91	2000	.41	1998
Jul	1.77	1.61	3.89	1990	21	7.40	1990	.00+	1983
Aug	2.53	2.04	4.76	1979	27	9.55	1995	.00	2000
Sep	3.11	2.31	4.28	1988	18	8.82	1976	.01	1998
Oct	2.41	1.57	5.00	1923	12	11.83	1983	.00+	1992
Nov	1.23	1.13	2.57	2001	15	4.39	1992	.00+	1999
Dec	.96	.70	4.32	1932	23	4.30	1991	.00+	1977
Ann	26.18	25.97	5.00	Oct 1923	12	11.83	Oct 1983	.00+	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.2	1.8	.5	.1
Feb	3.6	2.7	.7	.2
Mar	4.4	3.1	1.1	.3
Apr	5.1	3.8	1.5	.8
May	7.3	5.1	2.6	1.2
Jun	6.7	5.4	2.7	1.1
Jul	5.1	3.1	1.1	.4
Aug	5.4	3.6	1.3	.6
Sep	6.0	4.3	1.7	1.0
Oct	5.0	3.6	1.5	.7
Nov	4.1	2.7	.8	.3
Dec	3.5	2.2	.7	.2
Ann	59.4	41.4	16.2	6.9

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	.04	.14	.24	.34	.46	.61	.78	1.03	1.44	1.84
Feb	.00	.00	.11	.26	.44	.68	.97	1.36	1.92	2.90	3.90
Mar	.00	.09	.31	.54	.80	1.10	1.46	1.91	2.53	3.59	4.63
Apr	.14	.39	.79	1.17	1.58	2.03	2.56	3.21	4.10	5.56	6.99
May	.71	1.07	1.65	2.20	2.76	3.37	4.05	4.89	6.00	7.79	9.50
Jun	1.00	1.39	2.01	2.56	3.11	3.69	4.34	5.11	6.13	7.75	9.26
Jul	.00	.09	.34	.60	.90	1.24	1.65	2.17	2.90	4.14	5.36
Aug	.04	.18	.49	.84	1.24	1.72	2.30	3.05	4.12	5.93	7.75
Sep	.08	.19	.49	.87	1.34	1.92	2.66	3.65	5.09	7.61	10.18
Oct	.00	.08	.36	.69	1.09	1.56	2.15	2.90	3.99	5.85	7.72
Nov	.00	.08	.27	.46	.66	.89	1.17	1.51	1.99	2.79	3.58
Dec	.00	.07	.22	.37	.53	.71	.92	1.19	1.55	2.16	2.76
Ann	17.03	18.74	20.96	22.67	24.20	25.70	27.25	28.98	31.10	34.20	36.90

\+ 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: 1923-2001
(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	2.6	1.5	#	#
Feb	2.2	.0	#	0
Mar	.2	.0	#	0
Apr	.1	.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
Nov	.3	.0	#	0
Dec	1.1	.0	#	0
Ann	6.5	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	5.0	1973	3	12.0	1973	6	1973	9	2	1973
Feb	6.5	1971	21	11.0	1978	7	1971	22	1	1971
Mar	3.0	1994	9	3.0+	1994	2	1994	9	#+	1999
Apr	3.0	1973	8	3.0	1973	2	1973	8	#	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	#	1993	30	#	1993	0	0	0	0	0
Nov	5.0	1972	19	6.0	1972	1+	1980	17	#+	1980
Dec	5.0	1971	2	10.0	1971	8	1971	3	1	1971
Ann	6.5	Feb 1971	21	12.0	Jan 1973	8	Dec 1971	3	2	Jan 1973

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.1	.7	.2	.1	.0
Feb	.7	.6	.3	.1	.0
Mar	.2	.1	@	.0	.0
Apr	.1	@	@	.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	@	@	.0
Dec	.7	.5	.1	.1	.0
Ann	3.0	2.0	.6	.3	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.0	.5	.3	.0
Feb	.5	.2	.1	.0
Mar	.1	.0	.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	@	.0	.0	.0
Dec	.5	.1	.1	.0
Ann	2.1	.8	.5	.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	4/25	4/21	4/18	4/15	4/13	4/10	4/08	4/05	3/31
32	4/15	4/11	4/09	4/07	4/05	4/03	4/01	3/30	3/26
28	4/11	4/06	4/03	3/31	3/28	3/25	3/23	3/19	3/15
24	3/27	3/20	3/16	3/11	3/08	3/04	2/28	2/23	2/16
20	3/21	3/12	3/06	3/01	2/25	2/20	2/15	2/09	1/31
16	3/07	2/27	2/21	2/15	2/10	2/06	1/31	1/25	1/17

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	10/01	10/07	10/11	10/14	10/18	10/21	10/24	10/29	11/03
32	10/12	10/19	10/23	10/28	10/31	11/04	11/08	11/13	11/20
28	10/23	10/29	11/02	11/05	11/08	11/11	11/15	11/19	11/24
24	11/01	11/07	11/12	11/16	11/20	11/23	11/27	12/02	12/09
20	11/09	11/16	11/21	11/25	11/29	12/03	12/08	12/13	12/20
16	11/10	11/24	12/03	12/11	12/19	12/26	1/03	1/13	1/26

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	207	200	195	191	187	183	179	174	167
32	232	224	218	213	209	204	199	194	186
28	244	237	232	228	224	220	216	211	205
24	283	274	267	262	256	251	245	239	229
20	305	295	289	283	277	272	266	259	249
16	>365	334	322	313	305	298	290	281	269

***** 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	835	597	396	171	34	1	0	0	16	131	476	781	3438
60	680	467	252	85	8	0	0	0	3	52	336	626	2509
57	589	391	177	49	3	0	0	0	0	26	258	537	2030
55	529	342	135	31	1	0	0	0	0	14	212	480	1744
50	387	235	58	8	0	0	0	0	0	2	118	341	1149
32	51	25	0	0	0	0	0	0	0	0	3	39	118

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	239	352	628	869	1183	1404	1593	1542	1258	943	517	280	10808
55	4	25	49	210	471	714	880	829	568	244	37	8	4039
57	2	17	30	168	411	654	818	767	508	194	23	4	3596
60	0	10	12	114	323	564	725	674	421	127	10	0	2980
65	0	0	1	50	193	416	570	519	284	51	1	0	2085
70	0	0	0	16	95	275	415	366	169	14	0	0	1350

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	106	213	425	658	958	1184	1356	1313	1036	728	321	126	106	319	744	1402	2360	3544	4900	6213	7249	7977	8298	8424
45	46	120	289	512	803	1034	1201	1158	886	575	204	57	46	166	455	967	1770	2804	4005	5163	6049	6624	6828	6885
50	13	64	173	367	648	884	1046	1003	736	423	113	24	13	77	250	617	1265	2149	3195	4198	4934	5357	5470	5494
55	1	22	86	236	493	734	891	848	587	285	51	1	1	23	109	345	838	1572	2463	3311	3898	4183	4234	4235
60	0	4	37	133	346	585	736	693	445	163	18	0	0	4	41	174	520	1105	1841	2534	2979	3142	3160	3160
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	115	181	305	433	612	771	870	843	675	470	230	122	115	296	601	1034	1646	2417	3287	4130	4805	5275	5505	5627

(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