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: BLANCHARD 2 SSW, OK **COOP ID: 340830**

Climate Division: OK 5 **NWS Call Sign:** **Elevation: 1,275 Feet** **Lat: 35˚07N** **Lon: 97˚40W**

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	49.5	28.4	39.0	80+	1967	22	47.0	1990	-6	1988	8	28.1	1978	809	0	.0	.0	16.3	3.7	21.6	.1
Feb	55.5	32.7	44.1	91	1996	22	54.1	1976	-2	1996	4	30.9	1978	594	0	.0	@	19.0	2.4	14.4	.1
Mar	64.6	41.1	52.9	95	1967	11	57.2	1974	4	1960	3	47.8	1996	378	3	.0	.1	27.5	.2	6.9	.0
Apr	73.5	49.6	61.6	100	1972	12	66.9	1981	19	1975	3	55.0	1983	148	45	@	.4	29.7	.0	.9	.0
May	80.4	58.7	69.6	102	2000	24	74.3	1996	33	1954	3	64.9	1976	31	173	.1	2.2	31.0	.0	@	.0
Jun	88.0	66.5	77.3	107+	1953	14	81.9	1998	44	1964	5	71.9	1983	2	369	.5	11.0	30.0	.0	.0	.0
Jul	94.1	71.0	82.6	110+	1954	12	89.0	1998	53	1970	21	78.6	1976	0	543	5.4	24.3	31.0	.0	.0	.0
Aug	93.7	70.2	82.0	112	1964	5	87.5	2000	50	1962	26	74.9	1992	0	525	4.5	24.0	31.0	.0	.0	.0
Sep	85.5	62.7	74.1	110	2000	3	82.0	1998	36	1989	24	66.1	1974	18	291	1.1	10.5	30.0	.0	.0	.0
Oct	75.2	51.8	63.5	100+	1963	4	66.2	1998	18	1993	31	57.5	1976	106	59	@	1.3	30.7	.0	.7	.0
Nov	61.2	39.9	50.6	85+	1952	1	59.1	1999	10	1991	3	44.3	1972	438	3	.0	.0	25.2	.2	8.0	.0
Dec	51.7	31.2	41.5	85	1955	24	46.4	1980	-11	1989	23	26.9	1983	731	0	.0	.0	18.4	2.3	18.8	.2
Ann	72.7	50.3	61.6	112	Aug 1964	5	89.0	Jul 1998	-11	Dec 1989	23	26.9	Dec 1983	3255	2011	11.6	73.8	319.8	8.8	71.3	.4

\+ 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: 1952-2001

(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	1.25	1.27	2.82	1998	4	4.25	1998	.00+	1986
Feb	1.77	1.64	2.18	1997	21	4.01	1997	.00	1996
Mar	2.77	2.38	2.82	1987	17	6.78	1973	.33	1971
Apr	3.29	2.78	3.60	1963	26	8.23	1999	.18	1989
May	5.13	5.12	7.65	1987	28	11.71	1987	.20	1988
Jun	3.90	3.87	4.09	1985	5	10.01	1989	.62	1994
Jul	2.50	2.17	4.07	1961	21	7.84	1975	.00+	1998
Aug	2.44	2.06	3.86	1969	23	11.80	1996	.00	2000
Sep	3.87	3.82	4.90	1970	22	10.54	1991	.87	1972
Oct	3.67	2.35	8.60	1983	19	13.13	1983	.57	1978
Nov	2.19	1.84	2.48	1964	17	5.64	1992	.00	1989
Dec	1.98	1.79	2.72	1980	8	5.24	1991	.15	1981
Ann	34.76	35.62	8.60	Oct 1983	19	13.13	Oct 1983	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.6	2.5	1.0	.3
Feb	5.3	3.3	1.2	.6
Mar	7.2	4.9	1.9	.8
Apr	6.9	4.7	2.2	1.2
May	9.5	6.6	3.0	1.7
Jun	7.9	5.8	2.7	1.3
Jul	5.2	3.6	1.5	.7
Aug	5.7	4.1	1.8	.7
Sep	6.6	5.0	2.6	1.5
Oct	6.8	4.6	2.2	.9
Nov	6.3	3.7	1.6	.5
Dec	5.7	3.3	1.4	.6
Ann	77.7	52.1	23.1	10.8

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	.00	.00	.19	.42	.65	.91	1.20	1.58	2.09	2.91	3.73
Feb	.10	.26	.53	.79	1.07	1.38	1.74	2.18	2.78	3.78	4.74
Mar	.61	.87	1.28	1.64	2.01	2.40	2.84	3.37	4.06	5.16	6.20
Apr	.82	1.13	1.61	2.04	2.46	2.90	3.39	3.98	4.74	5.95	7.09
May	.95	1.40	2.15	2.85	3.56	4.32	5.19	6.25	7.65	9.90	12.04
Jun	.99	1.36	1.93	2.43	2.92	3.45	4.03	4.72	5.62	7.04	8.38
Jul	.00	.10	.42	.78	1.19	1.68	2.28	3.03	4.11	5.95	7.78
Aug	.18	.44	.83	1.19	1.56	1.97	2.44	3.01	3.78	5.04	6.25
Sep	1.03	1.39	1.95	2.44	2.93	3.43	4.00	4.67	5.54	6.91	8.19
Oct	.43	.71	1.23	1.74	2.28	2.89	3.60	4.49	5.68	7.66	9.57
Nov	.21	.46	.83	1.15	1.47	1.82	2.22	2.71	3.35	4.40	5.39
Dec	.18	.32	.59	.86	1.16	1.50	1.90	2.41	3.10	4.25	5.38
Ann	24.34	26.34	28.91	30.87	32.61	34.30	36.04	37.97	40.32	43.72	46.68

\+ 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: 1952-2001
(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	3.0	.5	#	#	13.0	1988	7	19.0	1988	7	1973	6	2	1979	1.4	.8	.4	.2	@	1.6	.9	.6	.0
Feb	1.0	.2	#	0	4.0	1972	11	5.0	1972	8	1978	17	2	1978	.9	.3	.1	.0	.0	.4	.1	.0	.0
Mar	.4	.0	#	0	5.0	1995	2	5.0	1995	5	1995	2	#+	1998	.4	.2	@	@	.0	.3	.1	.1	.0
Apr	.1	.0	0	0	2.0	1973	8	2.0	1973	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	1	1989	4	#	1989	.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	.2	1993	30	.2	1993	#	1993	30	#	1993	@	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.6	.0	#	0	4.5	1972	18	5.5	1972	1+	2000	8	#+	2000	.5	.3	@	.0	.0	.2	.0	.0	.0
Dec	.9	.4	#	0	4.0	1995	18	8.0	1995	6	1987	15	1+	2000	1.0	.5	.1	.0	.0	.5	.2	.0	.0
Ann	6.0	1.1	N/A	N/A	13.0	Jan 1988	7	19.0	Jan 1988	8	Feb 1978	17	2+	Jan 1979	4.2	2.1	.6	.2	@	3.0	1.3	.7	.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	5/01	4/25	4/21	4/17	4/13	4/10	4/06	4/01	3/26
32	4/17	4/12	4/08	4/05	4/02	3/30	3/26	3/22	3/17
28	4/04	3/29	3/25	3/22	3/19	3/15	3/12	3/08	3/03
24	3/26	3/18	3/13	3/08	3/04	2/27	2/22	2/17	2/09
20	3/17	3/07	2/28	2/23	2/17	2/12	2/06	1/30	1/21
16	3/08	2/27	2/22	2/16	2/12	2/07	2/02	1/27	1/19

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	10/07	10/13	10/17	10/20	10/23	10/26	10/30	11/03	11/08
32	10/18	10/24	10/28	11/01	11/04	11/08	11/11	11/16	11/22
28	10/25	10/31	11/05	11/09	11/12	11/16	11/20	11/24	11/30
24	11/03	11/11	11/16	11/21	11/25	11/29	12/04	12/09	12/17
20	11/13	11/20	11/25	11/30	12/04	12/08	12/13	12/18	12/25
16	11/16	11/28	12/06	12/14	12/20	12/27	1/03	1/12	1/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	217	209	202	197	192	187	182	176	167
32	239	231	225	220	216	211	206	201	193
28	256	250	245	242	238	234	230	226	220
24	298	287	279	272	266	259	253	245	234
20	325	312	304	296	289	282	274	265	253
16	>365	333	322	313	305	298	291	282	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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	809	594	378	148	31	2	0	0	18	106	438	731	3255
60	657	465	238	66	7	0	0	0	4	37	302	582	2358
57	570	393	167	33	2	0	0	0	0	16	230	496	1907
55	512	348	129	19	1	0	0	0	0	8	188	439	1644
50	375	250	59	3	0	0	0	0	0	1	105	309	1102
32	60	38	1	0	0	0	0	0	0	0	3	38	140

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	274	378	648	887	1164	1357	1566	1548	1263	976	558	330	10949
55	13	44	63	216	452	667	853	835	573	271	54	18	4059
57	9	33	40	170	391	607	791	773	513	217	36	12	3592
60	3	21	17	113	303	517	698	680	427	145	18	6	2948
65	0	0	3	45	173	369	543	525	291	59	3	0	2011
70	0	0	0	12	78	231	389	374	178	16	0	0	1278

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	113	211	404	640	902	1112	1317	1298	1022	721	333	139	113	324	728	1368	2270	3382	4699	5997	7019	7740	8073	8212
45	51	129	275	494	747	962	1162	1143	872	566	216	69	51	180	455	949	1696	2658	3820	4963	5835	6401	6617	6686
50	18	66	168	353	592	812	1007	988	722	418	127	28	18	84	252	605	1197	2009	3016	4004	4726	5144	5271	5299
55	3	29	89	231	438	662	852	833	573	277	62	6	3	32	121	352	790	1452	2304	3137	3710	3987	4049	4055
60	1	5	41	125	291	513	697	678	431	160	25	0	1	6	47	172	463	976	1673	2351	2782	2942	2967	2967
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	84	146	256	403	591	763	879	863	678	457	202	95	84	230	486	889	1480	2243	3122	3985	4663	5120	5322	5417

(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