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: POMONA LAKE, KS **COOP ID: 146498**

Climate Division: KS 6 **NWS Call Sign:** **Elevation: 1,063 Feet** **Lat: 38˚39N** **Lon: 95˚34W**

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	37.3	17.2	27.3	73+	1981	25	38.3	1990	-15+	1974	13	13.2	1979	1170	0	.0	.0	5.8	10.6	29.2	3.3
Feb	43.6	22.3	33.0	79	1972	29	44.0	1976	-20	1979	1	18.9	1979	898	0	.0	.0	9.6	7.1	23.2	2.2
Mar	54.9	32.5	43.7	86+	1995	23	48.5	1986	-7	1978	4	36.8	1984	661	0	.0	.0	19.9	1.3	15.7	.2
Apr	65.6	43.3	54.5	92+	1989	27	62.6	1981	13	1975	4	46.9	1983	329	13	.0	.4	27.3	@	3.5	.0
May	74.6	53.9	64.3	95+	1996	25	69.9	1987	32+	1978	2	58.9	1995	117	93	.0	.7	30.9	.0	.1	.0
Jun	83.7	63.4	73.6	108	1980	28	77.6	1988	43	1982	1	67.6	1982	9	266	.2	6.8	30.0	.0	.0	.0
Jul	89.5	68.3	78.9	110	1980	11	87.9	1980	51+	1972	6	74.0	1971	0	430	2.3	15.7	31.0	.0	.0	.0
Aug	88.7	66.0	77.4	108+	2000	29	85.5	2000	48	1986	28	70.8	1992	9	391	2.2	14.5	31.0	.0	.0	.0
Sep	80.3	57.1	68.7	108	2000	3	75.5	1998	22	1964	10	61.6	1974	56	166	.3	5.9	30.0	.0	.1	.0
Oct	68.8	45.1	57.0	95+	1963	5	61.9	1971	18	1993	31	51.3	1976	263	13	.0	.3	29.5	@	2.2	.0
Nov	53.5	32.9	43.2	85	1980	9	53.1	1999	3+	1976	29	36.5	1976	654	0	.0	.0	18.5	1.2	14.5	.0
Dec	41.3	22.3	31.8	73	2001	6	36.8	1991	-18	1989	23	14.5	1983	1030	0	.0	.0	8.1	7.3	26.5	1.3
Ann	65.2	43.7	54.5	110	Jul 1980	11	87.9	Jul 1980	-20	Feb 1979	1	13.2	Jan 1979	5196	1372	5.0	44.3	271.6	27.5	115.0	7.0

\+ 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: 1963-2001

(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	1.07	.90	1.94	1971	3	2.73	1979	.01	1986
Feb	1.15	1.20	2.35	2001	9	2.39	1992	.00	1991
Mar	2.83	2.42	3.15	1987	18	8.19	1973	.45	1971
Apr	3.55	2.97	3.60	1994	28	9.83	1999	.15	1989
May	5.15	4.85	3.42	1975	23	9.66	1987	1.33+	1998
Jun	4.97	4.39	5.10	1985	4	10.68	1985	2.04	1991
Jul	3.24	2.76	3.60	1973	19	9.94	1993	.19	1975
Aug	3.70	3.41	3.46	1980	6	7.58	1985	.36	2000
Sep	4.24	3.86	5.45	1965	4	11.91	1973	.66	1990
Oct	3.01	3.18	3.12	1998	5	7.44	1998	.23	1975
Nov	2.91	2.89	6.00	1998	2	9.42	1998	.00	1989
Dec	1.55	1.35	1.51	1980	8	3.64	1997	.03	1979
Ann	37.37	36.76	6.00	Nov 1998	2	11.91	Sep 1973	.00+	Feb 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.4	3.0	.4	.1
Feb	4.8	3.0	.7	.2
Mar	7.6	5.4	2.2	.6
Apr	10.5	6.4	2.3	.9
May	11.4	7.6	3.6	1.6
Jun	9.7	6.8	3.1	1.5
Jul	7.6	5.3	2.2	.9
Aug	8.5	5.6	2.2	1.1
Sep	8.1	5.6	2.6	1.4
Oct	7.8	5.4	2.2	.8
Nov	6.4	4.5	1.8	.9
Dec	5.4	3.0	1.0	.3
Ann	93.2	61.6	24.3	10.3

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	.07	.14	.27	.42	.58	.77	1.01	1.30	1.71	2.41	3.09
Feb	.08	.20	.38	.55	.73	.92	1.15	1.42	1.80	2.41	3.00
Mar	.60	.86	1.28	1.65	2.03	2.44	2.90	3.44	4.17	5.32	6.41
Apr	.63	.94	1.46	1.94	2.44	2.97	3.58	4.32	5.31	6.90	8.42
May	1.50	1.99	2.73	3.37	3.99	4.63	5.35	6.19	7.28	8.98	10.57
Jun	1.74	2.21	2.89	3.46	4.01	4.57	5.19	5.90	6.81	8.23	9.52
Jul	.33	.57	1.01	1.46	1.95	2.50	3.15	3.96	5.06	6.89	8.69
Aug	.48	.78	1.30	1.82	2.36	2.96	3.66	4.52	5.68	7.58	9.43
Sep	.80	1.18	1.80	2.38	2.96	3.59	4.30	5.16	6.30	8.14	9.88
Oct	.50	.76	1.20	1.61	2.04	2.50	3.03	3.67	4.53	5.93	7.26
Nov	.43	.81	1.31	1.71	2.12	2.54	3.01	3.58	4.32	5.49	6.59
Dec	.14	.24	.45	.67	.90	1.17	1.49	1.89	2.44	3.35	4.25
Ann	23.55	26.10	29.43	32.01	34.33	36.60	38.97	41.61	44.85	49.60	53.77

\+ 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: 1963-2001
(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	5.1	2.3	1	#
Feb	3.0	2.0	1	#
Mar	1.4	.0	#	0
Apr	#	.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
Nov	.8	.0	#	0
Dec	1.1	.5	#	0
Ann	11.4	4.8	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	1985	10	18.5	1985	13	1979	31	11	1979
Feb	6.5	1971	22	10.0	1983	13	1979	6	9	1979
Mar	6.0	1975	10	6.5	1975	6	1975	10	1	1978
Apr	#	1982	9	#+	1982	5	1975	3	#+	1994
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	31	#+	1993	#	1976	30	#	1976
Nov	8.0	1975	26	8.0	1975	8	1975	26	1	1975
Dec	2.5	1981	23	3.0+	1995	10	1983	31	5	1983
Ann	8.0	Nov 1975	26	18.5	Jan 1985	13+	Feb 1979	6	11	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.2	1.5	.5	.1	.0
Feb	1.5	1.0	.3	.1	.0
Mar	.7	.5	.2	.1	.0
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	.2	.1	.1	.0
Dec	.9	.7	.0	.0	.0
Ann	5.5	3.9	1.1	.4	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.5	3.0	1.3	.0
Feb	2.6	1.7	1.4	.1
Mar	.6	.4	.1	.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	.2	.1	.1	.0
Dec	.7	.1	.0	.0
Ann	10.6	5.3	2.9	.1

+ 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	5/05	5/01	4/27	4/25	4/22	4/20	4/17	4/14	4/09
32	4/22	4/18	4/15	4/13	4/10	4/08	4/05	4/03	3/29
28	4/13	4/09	4/07	4/04	4/02	3/31	3/29	3/26	3/22
24	4/05	3/30	3/26	3/23	3/20	3/17	3/13	3/09	3/04
20	3/31	3/25	3/20	3/16	3/12	3/09	3/05	2/28	2/22
16	3/22	3/14	3/09	3/04	2/27	2/23	2/18	2/12	2/04

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	9/26	10/02	10/05	10/09	10/12	10/15	10/18	10/22	10/27
32	10/08	10/13	10/16	10/19	10/22	10/25	10/28	10/31	11/05
28	10/19	10/24	10/27	10/31	11/03	11/06	11/09	11/12	11/18
24	10/29	11/04	11/08	11/12	11/15	11/19	11/23	11/27	12/03
20	11/07	11/13	11/17	11/21	11/24	11/28	12/01	12/06	12/11
16	11/13	11/19	11/23	11/27	11/30	12/04	12/07	12/12	12/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	193	186	180	176	172	167	163	158	150
32	213	207	202	198	194	190	186	182	175
28	234	227	222	218	214	210	205	200	194
24	267	258	251	245	240	235	229	222	213
20	281	272	266	261	256	251	246	240	232
16	304	294	287	281	275	270	264	257	247

***** 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	1170	898	661	329	117	9	0	9	56	263	654	1030	5196
60	1015	765	510	207	52	1	0	1	18	145	509	875	4098
57	923	687	424	148	28	0	0	0	8	91	427	783	3519
55	863	634	368	114	17	0	0	0	3	64	373	723	3159
50	719	509	245	50	4	0	0	0	0	22	254	579	2382
32	275	176	24	0	0	0	0	0	0	0	28	172	675

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	128	202	386	674	1000	1246	1453	1405	1101	774	364	165	8898
55	3	16	18	98	304	556	740	692	414	125	19	3	2988
57	1	13	11	71	252	496	678	630	358	90	13	1	2614
60	0	7	4	41	183	408	585	539	278	50	5	0	2100
65	0	0	0	13	93	266	430	391	166	13	0	0	1372
70	0	0	0	3	36	146	283	257	86	2	0	0	813

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	18	71	209	451	761	1017	1213	1168	870	541	193	41	18	89	298	749	1510	2527	3740	4908	5778	6319	6512	6553
45	3	35	126	316	607	867	1058	1013	721	394	109	14	3	38	164	480	1087	1954	3012	4025	4746	5140	5249	5263
50	1	10	63	201	454	717	903	858	572	261	54	5	1	11	74	275	729	1446	2349	3207	3779	4040	4094	4099
55	0	3	29	115	307	567	748	703	428	154	23	0	0	3	32	147	454	1021	1769	2472	2900	3054	3077	3077
60	0	0	8	57	185	419	593	548	299	76	5	0	0	0	8	65	250	669	1262	1810	2109	2185	2190	2190
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	22	59	140	271	469	692	827	784	560	329	117	35	22	81	221	492	961	1653	2480	3264	3824	4153	4270	4305

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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