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: MITCHELL CAVERNS, CA **COOP ID: 045721**

Climate Division: CA 7 **NWS Call Sign:** **Elevation: 4,350 Feet** **Lat: 34˚57N** **Lon: 115˚33W**

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	54.4	36.9	45.7	77+	1971	17	52.5	1986	13	1963	12	38.2	1979	600	0	.0	.0	22.2	.3	6.4	.0
Feb	57.6	39.5	48.6	81	1986	26	54.5	1995	12	1989	6	42.0	1998	460	0	.0	.0	22.9	.1	3.9	.0
Mar	61.6	42.0	51.8	83	1997	21	61.7	1972	21	1985	4	43.6	1973	425	14	.0	.0	28.5	.0	2.5	.0
Apr	69.5	48.2	58.9	89+	1996	26	65.3	1989	26+	1999	8	51.1	1975	233	48	.0	.0	29.5	.0	.8	.0
May	78.4	55.7	67.1	98	1983	28	74.6	1997	28	1964	5	59.5	1977	96	159	.0	2.1	31.0	.0	.1	.0
Jun	89.1	65.4	77.3	106	1970	25	83.9	1974	34	1976	11	71.5	1998	9	376	1.3	14.7	30.0	.0	.0	.0
Jul	94.0	71.1	82.6	110	1980	23	86.6	1972	48	1993	16	78.6	1993	0	544	4.0	24.2	31.0	.0	.0	.0
Aug	92.1	69.6	80.9	106	1993	2	84.4	1995	44	1993	25	77.3	1989	0	492	1.8	20.6	31.0	.0	.0	.0
Sep	86.0	63.7	74.9	100+	1990	2	80.3	1979	38+	1993	17	68.5	1985	7	302	.1	7.7	30.0	.0	.0	.0
Oct	75.1	54.4	64.8	97	1980	3	72.1	1988	24	1972	31	58.7	1972	122	114	.1	1.2	30.8	.0	.2	.0
Nov	63.1	43.6	53.4	83	1974	12	60.5	1995	17	1958	17	45.0	1994	364	15	.0	.0	27.8	.0	2.6	.0
Dec	55.1	37.3	46.2	76	1958	3	54.1	1980	11	1990	22	39.1	1971	586	2	.0	.0	22.9	.2	6.3	.0
Ann	73.0	52.3	62.7	110	Jul 1980	23	86.6	Jul 1972	11	Dec 1990	22	38.2	Jan 1979	2902	2066	7.3	70.5	337.6	.6	22.8	.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: 1958-2001

(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	1.54	1.19	2.34	1989	4	5.80	1980	.00+	1984
Feb	1.73	.73	4.50	1980	14	8.08	1980	.00+	1977
Mar	1.74	1.04	2.61	1983	3	9.56	1992	.00+	1997
Apr	.53	.22	1.40	1965	3	3.11	1999	.00+	1996
May	.27	.12	.95	1981	27	1.10	1981	.00+	2000
Jun	.13	.00	.67	1972	7	1.22	1990	.00+	2000
Jul	.90	.30	5.66	1984	27	9.58	1984	.00+	2000
Aug	1.80	.73	3.88	1979	12	8.89	1983	.00+	1992
Sep	.90	.15	2.66	1982	7	4.70	1997	.00+	1993
Oct	.73	.64	1.38	1987	31	3.10	1987	.00+	1999
Nov	.58	.39	1.75	1987	1	2.56	1985	.00+	1999
Dec	.97	.56	2.02	1994	25	4.68	1984	.00+	1999
Ann	11.82	11.63	5.66	Jul 1984	27	9.58	Jul 1984	.00+	Jul 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.8	3.0	1.0	.3
Feb	5.0	3.1	1.0	.4
Mar	4.8	3.3	1.0	.4
Apr	2.4	1.4	.3	.0
May	1.8	.6	.2	.0
Jun	.6	.4	.1	.0
Jul	2.5	1.4	.4	.2
Aug	3.3	2.2	.9	.5
Sep	2.5	1.5	.5	.4
Oct	2.4	1.6	.5	.1
Nov	2.0	1.3	.5	.1
Dec	3.3	1.9	.6	.2
Ann	35.4	21.7	7.0	2.6

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	.14	.44	.74	1.08	1.47	1.96	2.62	3.71	4.83
Feb	.00	.02	.15	.34	.61	.95	1.39	2.00	2.90	4.50	6.16
Mar	.00	.00	.05	.27	.57	.94	1.42	2.06	2.98	4.59	6.26
Apr	.00	.00	.00	.04	.14	.26	.41	.62	.93	1.46	2.01
May	.00	.00	.00	.00	.04	.11	.20	.32	.49	.77	1.05
Jun	.00	.00	.00	.00	.00	.00	.01	.07	.19	.45	.72
Jul	.00	.00	.00	.04	.14	.31	.56	.93	1.51	2.59	3.74
Aug	.00	.00	.03	.21	.48	.86	1.36	2.04	3.07	4.89	6.81
Sep	.00	.00	.00	.05	.15	.32	.56	.92	1.50	2.58	3.74
Oct	.00	.00	.03	.14	.27	.43	.63	.89	1.26	1.88	2.53
Nov	.00	.00	.00	.00	.09	.22	.40	.66	1.02	1.68	2.35
Dec	.00	.02	.11	.23	.39	.58	.82	1.15	1.62	2.44	3.27
Ann	4.20	5.32	6.93	8.28	9.58	10.90	12.35	14.03	16.19	19.51	22.56

+ 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: 1958-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	.6	.0	#	0	4.5	1977	6	4.5	1977	9	1974	5	1	1974	.3	.2	@	.0	.0	.1	@	.0	.0
Feb	.3	.0	#	0	4.5	1979	1	4.5	1983	1	1992	10	#+	1999	.4	.2	.1	.0	.0	.1	.0	.0	.0
Mar	.3	.0	#	0	2.5	1995	23	2.5	1995	1	1976	3	#	1976	.2	.2	.0	.0	.0	@	.0	.0	.0
Apr	.2	.0	#	0	2.5	1999	4	3.0	1975	#	1982	12	#	1982	.2	.2	.0	.0	.0	.0	.0	.0	.0
May	#	.0	#	0	#	1995	6	#+	1995	#	1995	6	#	1995	.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	#	1996	27	#+	1996	#	1996	27	#	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	2.0	1982	30	2.0	1982	#	1982	30	#	1982	.1	@	.0	.0	.0	.0	.0	.0	.0
Dec	.6	.0	#	0	5.0	1987	17	5.0	1987	3	1972	28	#+	1978	.4	.2	.1	@	.0	.2	@	.0	.0
Ann	2.1	.0	N/A	N/A	5.0	Dec 1987	17	5.0	Dec 1987	9	Jan 1974	5	1	Jan 1974	1.6	1.0	.2	@	.0	.4	@	.0	.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	5/18	5/08	5/01	4/24	4/18	4/12	4/06	3/30	3/19
32	5/03	4/20	4/11	4/03	3/26	3/19	3/11	3/01	2/16
28	3/25	3/08	2/23	2/12	2/02	1/22	1/09	12/23	0/00
24	2/22	2/06	1/26	1/14	1/02	12/15	0/00	0/00	0/00
20	1/26	1/12	12/29	12/08	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00

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	10/19	10/27	11/02	11/07	11/11	11/16	11/21	11/26	12/04
32	10/30	11/08	11/14	11/19	11/24	11/29	12/04	12/10	12/18
28	11/15	11/24	11/30	12/06	12/11	12/17	12/23	1/02	0/00
24	11/28	12/13	12/25	1/06	1/19	2/11	0/00	0/00	0/00
20	12/17	12/31	1/15	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	246	232	222	214	206	198	190	180	166
32	284	270	259	250	242	233	224	214	199
28	>365	>365	350	327	311	298	285	270	251
24	>365	>365	>365	>365	>365	>365	362	331	302
20	>365	>365	>365	>365	>365	>365	>365	>365	353
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

***** 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	600	460	425	233	96	9	0	0	7	122	364	586	2902
60	447	326	292	141	43	2	0	0	1	59	241	441	1993
57	361	250	225	97	24	0	0	0	0	34	180	358	1529
55	304	202	186	73	15	0	0	0	0	22	144	306	1252
50	181	109	106	30	4	0	0	0	0	7	74	197	708
32	4	0	0	0	0	0	0	0	0	0	0	11	15

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	427	464	613	805	1086	1357	1567	1515	1285	1015	641	451	11226
55	14	22	86	187	388	667	854	802	595	324	95	33	4067
57	8	13	63	152	335	608	792	740	535	274	70	22	3612
60	1	5	37	106	261	519	699	647	446	206	42	12	2981
65	0	0	14	48	159	376	544	492	302	114	15	2	2066
70	0	0	3	18	84	246	389	337	175	52	3	0	1307

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	220	276	392	578	850	1121	1314	1258	1030	765	396	238	220	496	888	1466	2316	3437	4751	6009	7039	7804	8200	8438
45	114	160	251	429	695	971	1159	1103	880	611	265	123	114	274	525	954	1649	2620	3779	4882	5762	6373	6638	6761
50	45	80	140	296	540	821	1004	948	730	461	154	48	45	125	265	561	1101	1922	2926	3874	4604	5065	5219	5267
55	6	28	69	184	395	672	849	793	581	322	77	10	6	34	103	287	682	1354	2203	2996	3577	3899	3976	3986
60	0	2	32	94	261	523	694	638	434	197	25	0	0	2	34	128	389	912	1606	2244	2678	2875	2900	2900
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	102	134	206	344	555	760	883	854	705	477	208	108	102	236	442	786	1341	2101	2984	3838	4543	5020	5228	5336

(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