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: PALOMAR MOUNTAIN OBS, CA **COOP ID: 046657**

Climate Division: CA 6 **NWS Call Sign:** **Elevation: 5,550 Feet** **Lat: 33˚23N** **Lon: 116˚50W**

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	51.5	35.0	43.3	80	1971	20	49.9	1986	8	1949	4	35.6	1979	674	0	.0	.0	18.8	.7	13.5	.0
Feb	52.5	35.6	44.1	77+	1972	21	51.4	1991	12	1989	6	37.8	1998	587	0	.0	.0	16.7	.6	11.6	.0
Mar	56.1	36.5	46.3	82	1966	31	58.1	1972	16	1966	3	37.4	1973	572	8	.0	.0	22.4	.3	12.2	.0
Apr	62.2	40.1	51.2	83	1961	4	59.7	1989	19	1999	9	40.5	1975	433	18	.0	.0	25.8	.1	7.9	.0
May	69.3	45.9	57.6	91+	2001	31	67.4	1997	20	1988	6	47.3	1977	290	61	.0	@	29.4	.0	2.9	.0
Jun	79.3	55.3	67.3	99+	1972	30	74.1	1981	28+	1967	1	60.2	1998	79	149	.0	1.7	29.9	.0	.1	.0
Jul	84.9	61.3	73.1	100+	1972	30	77.4	1996	39+	1987	21	66.6	1987	10	260	.1	6.2	31.0	.0	.0	.0
Aug	84.1	62.1	73.1	100+	1972	1	77.4	1981	38+	1959	20	67.6	1976	11	262	.1	4.3	31.0	.0	.0	.0
Sep	79.3	57.1	68.2	100+	1971	13	72.0+	2000	32	1948	25	59.5+	1986	65	161	.1	1.8	29.9	.0	.0	.0
Oct	68.8	49.1	59.0	97	1971	14	66.2	1988	18	1971	29	54.0	1984	230	42	.1	.4	29.9	.0	1.0	.0
Nov	57.9	40.2	49.1	82	1954	1	56.0	1995	17+	1975	29	40.5	1994	481	2	.0	.0	23.9	.1	6.3	.0
Dec	51.8	35.6	43.7	80+	1958	4	50.9	1981	10+	1967	21	34.5	1971	661	0	.0	.0	18.6	.9	11.9	.0
Ann	66.5	46.2	56.3	100+	Aug 1972	1	77.4+	Jul 1996	8	Jan 1949	4	34.5	Dec 1971	4093	963	.4	14.4	307.3	2.7	67.4	.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: 1948-2001

(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	5.77	3.41	8.00	1969	25	32.93	1993	.00+	1976
Feb	6.29	5.29	6.00	1969	24	19.89	1980	.00	1974
Mar	6.13	4.37	9.58	1991	1	26.86	1991	.00+	1997
Apr	1.76	1.30	3.13	1958	1	6.10	1983	.00+	1993
May	.71	.27	3.69	1977	9	5.42	1998	.00+	1996
Jun	.18	.00	1.42	1993	6	1.70	1972	.00+	2000
Jul	.42	.07	1.50	1985	19	3.05	1984	.00+	2000
Aug	.91	.11	6.12	1992	14	7.26	1992	.00+	1999
Sep	.73	.50	5.00	1976	11	6.42	1976	.00+	1996
Oct	.99	.61	3.66	1974	29	4.04	1974	.00+	1999
Nov	2.60	1.78	8.87	1965	23	8.29	1996	.00+	1992
Dec	3.47	2.52	7.92	1966	6	11.00	1974	.00	1988
Ann	29.96	23.21	9.58	Mar 1991	1	32.93	Jan 1993	.00+	Jul 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.5	5.5	3.1	1.8
Feb	5.8	4.8	3.3	2.3
Mar	5.8	5.0	3.3	2.2
Apr	3.9	3.1	1.2	.5
May	1.9	1.5	.3	.1
Jun	.6	.3	.1	.1
Jul	1.4	.8	.3	.1
Aug	1.8	1.3	.6	.1
Sep	1.4	1.2	.4	.2
Oct	2.8	1.9	.6	.3
Nov	3.5	3.0	1.7	1.1
Dec	4.3	3.6	1.8	1.2
Ann	39.7	32.0	16.7	10.0

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	.19	.86	1.66	2.60	3.74	5.14	6.95	9.54	14.00	18.48
Feb	.15	.57	1.39	2.28	3.29	4.45	5.87	7.67	10.18	14.43	18.66
Mar	.00	.28	1.11	2.01	3.03	4.22	5.66	7.49	10.06	14.43	18.78
Apr	.00	.06	.28	.52	.81	1.16	1.59	2.13	2.91	4.24	5.58
May	.00	.00	.00	.00	.08	.23	.44	.75	1.22	2.08	2.97
Jun	.00	.00	.00	.00	.00	.00	.00	.01	.14	.58	1.11
Jul	.00	.00	.00	.00	.00	.06	.19	.40	.71	1.30	1.93
Aug	.00	.00	.00	.00	.00	.04	.30	.76	1.51	2.93	4.43
Sep	.00	.00	.00	.00	.00	.25	.56	.92	1.39	2.17	2.90
Oct	.00	.00	.00	.15	.36	.60	.88	1.24	1.73	2.57	3.40
Nov	.00	.00	.27	.62	1.05	1.58	2.24	3.12	4.35	6.51	8.70
Dec	.06	.25	.66	1.14	1.69	2.35	3.15	4.19	5.66	8.19	10.71
Ann	10.84	13.66	17.72	21.12	24.37	27.70	31.31	35.52	40.89	49.17	56.77

\+ 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: 1948-2001
(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	5.4	2.0	1	#	13.0	1971	2	18.5	1999	22	1971	3	8	1982	1.0	.8	.4	.3	.1	1.7	1.4	1.2	1.0
Feb	2.7	1.0	1	#	11.0	1979	3	11.0	1979	21	1990	19	6	1994	1.1	1.0	.4	.3	.1	1.1	.5	.3	.0
Mar	9.1	1.5	2	#	25.0	1982	18	31.0	1982	25	1982	18	25	1982	1.4	1.2	.8	.6	.3	1.4	.9	.7	.4
Apr	4.1	.0	#	0	8.0	1975	9	26.6	1999	16	1975	9	3	1998	1.4	1.1	.6	.3	.0	1.8	1.0	.5	@
May	.2	.0	#	0	2.0	1972	20	2.0+	1977	2+	1995	7	#+	1998	.1	.1	.0	.0	.0	.1	.0	.0	.0
Jun	.0	.0	0	0	.5	1999	4	.5	1999	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	.2	.0	#	0	4.0	1974	29	4.0	1974	4	1974	29	#+	1996	@	@	@	.0	.0	.1	@	.0	.0
Nov	2.7	.0	#	0	12.0	1978	11	14.0	1978	14	1985	13	9	1985	.6	.5	.2	.2	.1	.5	.3	.2	.1
Dec	3.5	.1	1	#	12.0	1972	9	27.0	1972	25	1972	9	10	1985	1.0	.7	.4	.3	.1	.8	.5	.4	.1
Ann	27.9	4.6	N/A	N/A	25.0	Mar 1982	18	31.0	Mar 1982	25+	Mar 1982	18	25	Mar 1982	6.6	5.4	2.8	2.0	.7	7.5	4.6	3.3	1.6

+ 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	6/18	6/10	6/05	5/31	5/27	5/22	5/17	5/12	5/04
32	6/06	5/28	5/21	5/16	5/10	5/05	4/30	4/23	4/14
28	5/15	5/04	4/25	4/18	4/11	4/05	3/29	3/20	3/09
24	4/29	4/11	3/30	3/19	3/08	2/26	2/15	2/01	1/11
20	4/02	3/14	2/28	2/15	2/03	1/21	1/04	12/04	0/00
16	2/04	1/20	1/06	12/16	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	9/29	10/08	10/15	10/21	10/26	10/31	11/06	11/13	11/22
32	10/18	10/25	10/31	11/05	11/09	11/14	11/18	11/24	12/01
28	11/01	11/11	11/17	11/23	11/29	12/04	12/10	12/17	12/27
24	11/15	11/28	12/07	12/16	12/23	12/31	1/09	1/21	2/11
20	11/21	12/09	12/22	1/02	1/14	1/27	2/13	0/00	0/00
16	12/23	1/11	1/30	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	184	173	165	158	152	145	139	131	120
32	218	206	197	189	182	175	167	158	146
28	277	261	250	240	231	222	212	200	184
24	>365	>365	317	299	285	273	260	247	228
20	>365	>365	>365	>365	>365	352	319	293	264
16	>365	>365	>365	>365	>365	>365	>365	>365	358

***** 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	674	587	572	433	290	79	10	11	65	230	481	661	4093
60	519	448	446	307	194	33	1	1	24	131	342	514	2960
57	429	368	366	243	146	18	0	0	12	86	265	429	2362
55	372	317	317	206	117	11	0	0	7	62	219	374	2002
50	236	199	213	126	60	3	0	0	1	22	126	252	1238
32	9	8	18	5	0	0	0	0	0	0	3	22	65

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	358	345	461	579	794	1060	1273	1274	1086	836	513	384	8963
55	8	10	47	90	198	381	560	561	402	184	40	23	2504
57	3	6	34	67	164	327	498	499	347	146	26	16	2133
60	0	1	20	42	119	253	406	407	270	98	13	9	1638
65	0	0	8	18	61	149	260	262	161	42	2	0	963
70	0	0	0	5	27	73	137	140	82	14	0	0	478

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	139	155	212	346	543	812	1042	1029	836	577	282	159	139	294	506	852	1395	2207	3249	4278	5114	5691	5973	6132
45	60	77	118	222	397	662	887	874	686	429	166	73	60	137	255	477	874	1536	2423	3297	3983	4412	4578	4651
50	17	28	50	128	268	513	732	719	537	289	80	21	17	45	95	223	491	1004	1736	2455	2992	3281	3361	3382
55	0	2	17	54	156	373	577	564	392	172	29	2	0	2	19	73	229	602	1179	1743	2135	2307	2336	2338
60	0	0	0	20	73	245	422	410	258	86	4	0	0	0	0	20	93	338	760	1170	1428	1514	1518	1518
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	69	78	119	204	329	535	711	702	544	332	140	71	69	147	266	470	799	1334	2045	2747	3291	3623	3763	3834

(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