

Climatology of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: PETALUMA FIRE STA 2, CA

1971-2000

COOP ID: 046826

Climate Division: CA 1

NWS Call Sign:

Elevation: 31 Feet

Lat: 38°16N

Lon: 122°39W

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	57.9	38.9	48.4	85	1962	8	53.0	1986	20	1963	13	43.7	1972	515	0	.0	.0	28.6	.0	6.9	.0
Feb	62.6	41.2	51.9	81	1986	27	56.1	1991	18	1989	7	47.2	1989	366	0	.0	.0	27.7	.1	3.1	.0
Mar	65.3	42.5	53.9	87	1970	25	58.4	1986	26+	1966	3	50.3	1977	345	0	.0	.0	30.9	.0	.7	.0
Apr	69.8	44.2	57.0	97	1981	29	61.3	1990	24+	1998	14	51.2	1975	247	8	.0	.3	30.0	.0	.5	.0
May	73.9	46.9	60.4	101+	1976	12	65.1	1987	27	1985	10	55.6	1998	167	23	.1	1.3	31.0	.0	@	.0
Jun	79.3	50.2	64.8	110+	1961	14	70.5	1981	33	1982	5	61.9	1982	65	56	.7	3.5	30.0	.0	.0	.0
Jul	82.7	51.8	67.3	110	1972	14	71.8	1984	40	1985	3	64.5	2000	22	93	.8	4.7	31.0	.0	.0	.0
Aug	82.8	52.1	67.5	105+	1968	30	70.3	1983	36	1987	21	64.0	1973	13	88	.3	4.8	31.0	.0	.0	.0
Sep	82.2	51.5	66.9	109+	1971	15	71.4	1984	37+	1985	12	63.6	1986	32	88	.6	5.5	30.0	.0	.0	.0
Oct	77.1	47.5	62.3	106	1980	2	65.8	1983	25	1948	30	58.9	1971	110	27	.2	2.5	31.0	.0	@	.0
Nov	65.9	42.2	54.1	89+	1967	1	59.0	1995	23	1993	25	49.0	1994	329	2	.0	.0	29.9	.0	2.5	.0
Dec	58.1	37.7	47.9	81	1967	26	52.0	1981	19	1972	9	43.3	1990	530	0	.0	.0	28.1	.0	8.5	.0
Ann	71.5	45.6	58.5	110+	Jul 1972	14	71.8	Jul 1984	18	Feb 1989	7	43.3	Dec 1990	2741	385	2.7	22.6	359.2	.1	22.2	.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/normal/usnormals.html

Issue Date: February 2004

(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									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	5.41	5.01	4.06	1979	10	16.31	1995	.32	1976	11.8	8.1	3.7	1.6	.47	.84	1.56	2.31	3.13	4.07	5.18	6.58	8.51	11.74	14.90
Feb	5.31	4.39	3.28	1998	3	19.59	1998	.31	1971	10.8	7.9	3.6	1.5	.42	.77	1.46	2.19	3.00	3.93	5.05	6.45	8.40	11.67	14.90
Mar	3.85	3.05	3.69	1995	9	15.04	1983	.08	1988	11.0	7.2	2.5	.9	.27	.51	1.00	1.52	2.11	2.80	3.62	4.67	6.12	8.58	11.02
Apr	1.40	1.16	1.85	1953	27	4.59	1983	.06	1977	6.0	3.6	.8	.1	.08	.17	.34	.53	.74	.99	1.30	1.69	2.24	3.16	4.09
May	.62	.26	1.78	1996	16	3.74	1998	.00+	1992	3.4	1.6	.3	@	.00	.00	.00	.04	.14	.27	.46	.71	1.08	1.74	2.42
Jun	.15	.01	1.75	1967	2	1.12	1992	.00+	1996	1.1	.4	.1	.0	.00	.00	.00	.00	.00	.02	.05	.12	.24	.47	.74
Jul	.05	.00	.91	1974	8	.95	1974	.00+	2000	.3	.1	@	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.30
Aug	.08	.00	1.00	1997	20	1.04	1997	.00+	1999	.4	.2	@	@	.00	.00	.00	.00	.00	.00	.00	.00	.02	.21	.44
Sep	.29	.10	1.85	1959	18	1.77	1989	.00+	1995	2.0	.7	.2	.0	.00	.00	.00	.00	.03	.10	.18	.31	.50	.85	1.21
Oct	1.37	.96	2.94	1962	13	4.64	1975	.00+	1995	4.4	2.3	1.2	.4	.00	.12	.35	.57	.79	1.05	1.34	1.71	2.21	3.03	3.84
Nov	3.52	2.99	3.78	1970	28	9.70	1973	.26	1986	9.6	6.3	2.6	.8	.24	.46	.91	1.39	1.93	2.56	3.31	4.27	5.60	7.85	10.08
Dec	3.80	3.13	3.80	1995	12	10.82	1996	.00	1989	9.7	6.4	2.5	.8	.28	.68	1.29	1.85	2.43	3.07	3.80	4.69	5.90	7.86	9.75
Ann	25.85	23.57	4.06	Jan 1979	10	19.59	Feb 1998	.00+	Jul 2000	70.5	44.8	17.5	6.1	11.21	13.53	16.78	19.43	21.91	24.41	27.10	30.19	34.08	40.01	45.37

+ 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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Climate Division: CA 1

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Lat: 38°16N

Lon: 122°39W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	#	.0	0	0	#	1974	3	#	1974	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1989	24	#	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	#	.0	#	0	#	1999	9	#	1999	#	1999	9	#	1999	.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	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	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	#	0	.5	1972	12	.5	1972	#	1972	13	#	1972	@	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	.5	Dec 1972	12	.5	Dec 1972	#+	Apr 1999	9	#+	Apr 1999	@	.0	.0	.0	.0	.0	.0	.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

Complete documentation available from:

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Climate Division: CA 1

NWS Call Sign:

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Lat: 38° 16N

Lon: 122° 39W

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	5/12	4/29	4/20	4/13	4/06	3/30	3/22	3/13	2/28
32	4/15	3/30	3/19	3/09	2/28	2/19	2/09	1/28	1/13
28	3/16	2/27	2/14	2/03	1/23	1/12	12/30	12/13	0/00
24	2/23	1/23	12/23	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	0/00	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
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	10/10	10/19	10/26	11/01	11/06	11/12	11/17	11/24	12/04
32	10/29	11/08	11/15	11/21	11/27	12/03	12/09	12/16	12/26
28	11/21	12/04	12/13	12/21	12/29	1/07	1/17	2/01	0/00
24	12/14	1/13	2/14	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	0/00	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	262	245	233	223	214	204	194	182	166
32	328	306	292	281	270	259	248	235	217
28	>365	>365	>365	>365	342	322	305	287	264
24	>365	>365	>365	>365	>365	>365	>365	>365	>365
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
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

Complete documentation available from:

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Climate Division: CA 1 NWS Call Sign: Elevation: 31 Feet Lat: 38°16N Lon: 122°39W

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	515	366	345	247	167	65	22	13	32	110	329	530	2741
60	360	232	202	126	73	13	1	0	4	31	193	376	1611
57	272	158	130	75	35	3	0	0	0	10	126	289	1098
55	216	116	92	48	19	1	0	0	0	4	90	232	818
50	103	42	26	10	3	0	0	0	0	0	30	117	331
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	509	558	679	751	879	982	1093	1099	1046	940	663	493	9692
55	12	29	58	108	186	293	380	386	356	231	63	12	2114
57	6	15	33	76	139	235	318	324	296	175	39	6	1662
60	0	5	13	37	84	155	227	231	210	103	16	1	1082
65	0	0	0	8	23	56	93	88	88	27	2	0	385
70	0	0	0	0	4	9	18	12	20	2	0	0	65

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	248	340	426	496	632	746	849	853	800	685	414	241	248	588	1014	1510	2142	2888	3737	4590	5390	6075	6489	6730
45	115	199	271	346	477	596	694	698	650	530	266	112	115	314	585	931	1408	2004	2698	3396	4046	4576	4842	4954
50	33	81	132	199	322	446	539	543	500	375	132	34	33	114	246	445	767	1213	1752	2295	2795	3170	3302	3336
55	2	20	37	84	172	296	384	388	350	225	45	0	2	22	59	143	315	611	995	1383	1733	1958	2003	2003
60	0	0	0	24	66	152	229	233	201	99	6	0	0	0	0	24	90	242	471	704	905	1004	1010	1010
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	126	189	237	296	369	446	522	527	486	423	245	133	126	315	552	848	1217	1663	2185	2712	3198	3621	3866	3999

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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