

Climatology of the United States

No. 20

1971-2000

Station: SANTA ROSA, CA

COOP ID: 047965

Climate Division: CA 1

NWS Call Sign:

Elevation: 167 Feet

Lat: 38° 27N

Lon: 122° 43W

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	57.8	39.5	48.7	85	1962	9	51.9	1984	17	1937	9	43.8	1985	507	0	.0	.0	29.3	.0	6.1	.0
Feb	62.0	42.5	52.3	83	1964	20	55.1	1991	21+	1950	2	47.8	1989	356	0	.0	.0	27.7	.1	2.4	.0
Mar	64.8	44.2	54.5	88	1952	25	59.0	1984	26+	1966	4	50.1	1985	328	2	.0	.0	30.8	.0	.9	.0
Apr	69.6	45.6	57.6	98	1981	29	61.2	1989	28	1936	1	52.3	1975	227	5	.0	.3	30.0	.0	.2	.0
May	74.2	48.7	61.5	104	1950	29	65.8	1984	31	1950	3	57.3	1985	144	35	@	1.5	31.0	.0	@	.0
Jun	79.9	52.1	66.0	109	1960	3	73.4	1981	37+	1952	12	62.2	1991	65	94	.9	4.6	30.0	.0	.0	.0
Jul	82.2	53.0	67.6	110	1972	14	70.4	1983	40	1948	8	62.6	1987	29	110	.9	5.7	31.0	.0	.0	.0
Aug	82.3	53.2	67.8	106+	1998	4	70.9+	1983	40	1938	5	62.0	1986	36	121	.6	5.6	31.0	.0	.0	.0
Sep	81.8	52.5	67.2	110+	1971	14	71.9	1984	34	1950	30	60.8	1986	52	116	.7	6.1	30.0	.0	.0	.0
Oct	76.9	48.7	62.8	105+	1980	3	66.6	1983	25	1946	30	59.4	1971	109	41	.2	2.8	31.0	.0	.0	.0
Nov	65.3	43.0	54.2	92	1967	2	58.8	1995	23	1961	17	48.9	1994	328	2	.0	.0	29.8	.0	1.5	.0
Dec	58.1	38.8	48.5	83	1967	26	52.6	1977	15+	1932	14	43.4	1985	513	0	.0	.0	28.8	.0	7.1	.0
Ann	71.2	46.8	59.1	110+	Jul 1972	14	73.4	Jun 1981	15+	Dec 1932	14	43.4	Dec 1985	2694	526	3.3	26.6	360.4	.1	18.2	.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: 1931-2001

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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	6.25	6.11	5.04	1966	5	17.08	1995	.39	1976	13.0	8.8	4.0	2.1	.71	1.18	2.05	2.93	3.86	4.90	6.12	7.63	9.69	13.09	16.40	
Feb	6.08	5.02	4.20	1937	4	19.42	1998	.19	1971	10.9	7.8	4.0	1.9	.56	1.00	1.81	2.66	3.58	4.62	5.86	7.41	9.53	13.07	16.54	
Mar	4.71	3.74	3.95	1995	9	15.74	1983	.02	1988	11.0	7.3	3.3	1.1	.35	.66	1.27	1.92	2.64	3.47	4.47	5.73	7.47	10.41	13.32	
Apr	1.67	1.60	2.97	1941	4	4.00	1982	.16	1987	6.3	3.4	1.0	.3	.20	.33	.57	.80	1.05	1.32	1.64	2.04	2.57	3.46	4.31	
May	.83	.20	2.80	1990	27	5.46	1990	.00+	1992	3.7	2.0	.5	.1	.00	.00	.03	.10	.20	.36	.58	.90	1.38	2.29	3.24	
Jun	.19	.03	1.65	1967	2	1.06	1993	.00+	1998	1.1	.6	.1	.0	.00	.00	.00	.00	.00	.04	.10	.18	.32	.58	.85	
Jul	.06	.00	1.33	1974	8	1.61	1974	.00+	2000	.3	.1	@	@	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.34	
Aug	.11	.00	1.32	1968	21	1.01	1997	.00+	1999	.6	.3	@	@	.00	.00	.00	.00	.00	.00	.00	.01	.09	.34	.65	
Sep	.49	.21	2.82	1959	18	2.75	1986	.00+	1995	2.2	1.1	.3	.1	.00	.00	.00	.02	.08	.17	.31	.52	.84	1.43	2.06	
Oct	1.81	1.32	4.67	1962	12	6.44	1975	.00+	1995	5.1	2.9	1.2	.7	.00	.17	.49	.78	1.08	1.41	1.79	2.25	2.89	3.94	4.97	
Nov	4.31	3.43	2.77	1954	9	13.23	1973	.20	1986	9.9	6.4	3.4	1.4	.27	.53	1.07	1.66	2.32	3.09	4.03	5.22	6.89	9.71	12.52	
Dec	4.50	3.76	5.23	1981	19	11.83	1996	.00	1989	10.6	6.8	2.8	1.4	.28	.73	1.44	2.10	2.80	3.56	4.46	5.55	7.04	9.48	11.84	
Ann	31.01	29.41	5.23	Dec 1981	19	19.42	Feb 1998	.00+	Jul 2000	74.7	47.5	20.6	9.1	14.73	17.41	21.10	24.07	26.82	29.58	32.52	35.88	40.08	46.43	52.14	

+ 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: 1931-2001

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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	6	#	1974	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.0	.0	0	0	.0	0	0	.0	0	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	0	0	.0	0	0	.0	0	0	0	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	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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	#	Jan 1974	6	#	Jan 1974	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0

+ Also occurred on an earlier date(s) #Denotes trace amounts

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-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	4/20	4/13	4/06	3/31	3/25	3/18	3/11	2/28
32	4/05	3/21	3/11	3/02	2/21	2/13	2/04	1/25	1/10
28	2/19	2/06	1/28	1/19	1/11	1/02	12/22	12/01	0/00
24	1/22	1/02	0/00	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	10/27	11/03	11/07	11/11	11/15	11/19	11/23	11/27	12/03
32	11/05	11/16	11/24	12/01	12/07	12/13	12/20	12/28	1/08
28	11/25	12/06	12/13	12/20	12/27	1/04	1/14	0/00	0/00
24	1/01	2/03	0/00	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	272	257	246	237	228	219	210	199	184
32	351	327	312	299	287	275	263	248	228
28	>365	>365	>365	>365	350	334	321	308	291
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

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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
65	507	356	328	227	144	65	29	36	52	109	328	513	2694
60	352	220	188	104	58	17	4	7	13	34	194	361	1552
57	263	146	121	54	25	6	0	1	5	13	129	274	1037
55	205	104	86	30	13	3	0	0	0	5	94	220	760
50	90	31	24	4	0	0	0	0	0	0	33	111	293
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
32	516	568	697	768	914	1019	1104	1108	1054	955	665	510	9878
55	8	27	70	107	214	332	391	395	364	247	68	17	2240
57	4	13	43	72	164	276	329	334	309	192	44	9	1789
60	0	4	17	31	103	196	240	247	226	120	19	2	1205
65	0	0	2	5	35	94	110	121	116	41	2	0	526
70	0	0	0	0	7	30	31	42	43	7	0	0	160

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	261	351	434	517	660	774	852	858	811	705	425	269	261	612	1046	1563	2223	2997	3849	4707	5518	6223	6648	6917
45	126	210	282	367	505	624	697	703	661	550	276	130	126	336	618	985	1490	2114	2811	3514	4175	4725	5001	5131
50	34	90	140	222	351	474	542	548	511	395	144	40	34	124	264	486	837	1311	1853	2401	2912	3307	3451	3491
55	1	21	46	99	198	325	387	393	362	247	49	1	1	22	68	167	365	690	1077	1470	1832	2079	2128	2129
60	0	0	4	33	83	183	232	239	215	120	10	0	0	0	4	37	120	303	535	774	989	1109	1119	1119
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	133	184	241	303	392	468	522	530	493	430	242	141	133	317	558	861	1253	1721	2243	2773	3266	3696	3938	4079

(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.
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 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/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