

Climatography of the United States No. 20

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

Station: WATSONVILLE WATERWORKS, CA

1971-2000

COOP ID: 049473

Climate Division: CA 4

NWS Call Sign:

Elevation: 95 Feet

Lat: 36° 56N

Lon: 121° 46W

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	60.6	38.7	49.7	81	1962	8	54.3	1986	20	1949	10	45.7	1982	477	0	.0	.0	30.6	.0	3.9	.0
Feb	62.6	41.1	51.9	85	1986	27	55.9	1995	24	1989	6	47.6	1979	368	0	.0	.0	27.7	.0	1.1	.0
Mar	63.8	43.0	53.4	85	1969	27	57.4	1978	28	1966	3	49.1	1991	360	0	.0	.0	31.0	.0	.4	.0
Apr	67.6	44.7	56.2	96+	1989	8	60.9	1992	31	1953	8	50.6	1975	272	6	.0	.3	30.0	.0	.1	.0
May	68.9	48.0	58.5	98+	1997	18	63.7	1997	31	1978	24	54.7	1977	211	9	.0	.4	31.0	.0	@	.0
Jun	71.3	50.8	61.1	103	1973	21	64.8	1981	38	1952	12	57.9	1991	130	11	.1	.7	30.0	.0	.0	.0
Jul	72.0	52.7	62.4	103	1959	11	65.7	1992	40	1948	29	59.6	1994	101	20	@	.5	31.0	.0	.0	.0
Aug	72.7	53.2	63.0	98+	1993	1	66.9	1983	41	1963	18	60.5	1973	84	21	.0	.3	31.0	.0	.0	.0
Sep	73.7	52.3	63.0	105	1971	15	69.3	1984	37	1950	30	59.2	1986	104	43	.2	1.3	30.0	.0	.0	.0
Oct	72.0	48.2	60.1	106+	1987	6	63.6	1983	29	1949	19	55.8	1971	165	12	.2	1.1	31.0	.0	.1	.0
Nov	65.9	42.3	54.1	93	1956	10	59.0	1995	25	1991	30	49.5	1994	328	1	.0	.1	30.0	.0	.8	.0
Dec	60.9	38.1	49.5	84+	1958	5	53.2	1977	12	1990	22	44.4	1990	480	0	.0	.0	30.3	.0	4.3	.0
Ann	67.7	46.1	56.9	106+	Oct 1987	6	69.3	Sep 1984	12	Dec 1990	22	44.4	Dec 1990	3080	123	.5	4.7	363.6	.0	10.7	.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/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	4.72	4.07	4.23	2000	24	11.61	1995	.23	1984	10.1	7.3	3.4	1.5	.40	.72	1.35	2.00	2.72	3.54	4.51	5.74	7.43	10.27	13.05
Feb	4.45	4.57	5.93	2000	14	15.99	1998	.14	1997	9.5	6.6	3.1	1.1	.31	.58	1.15	1.76	2.44	3.23	4.19	5.40	7.09	9.94	12.77
Mar	3.92	2.89	3.32	1967	16	11.74	1991	.02	1988	10.4	7.0	2.8	.9	.24	.47	.95	1.48	2.08	2.79	3.65	4.74	6.28	8.88	11.47
Apr	1.62	.91	2.85	1983	28	5.93	1983	.02	1977	5.3	3.3	1.0	.3	.06	.14	.32	.53	.77	1.07	1.44	1.93	2.62	3.81	5.02
May	.51	.15	2.21	1996	16	2.53	1996	.00+	1999	2.7	1.2	.2	.1	.00	.00	.00	.02	.08	.18	.32	.53	.86	1.47	2.13
Jun	.12	.09	1.25	1967	2	.64	1995	.00+	1996	1.2	.5	.0	.0	.00	.00	.00	.01	.03	.06	.10	.14	.21	.32	.43
Jul	.08	.00	1.16	1974	9	1.27	1974	.00+	2000	.4	.2	.1	@	.00	.00	.00	.00	.00	.00	.00	.00	.02	.20	.44
Aug	.07	.00	.41	1976	19	1.12	1976	.00+	1999	.5	.2	.0	.0	.00	.00	.00	.00	.00	.00	.00	.00	.03	.20	.42
Sep	.29	.05	5.90	1959	19	1.45	1982	.00+	1997	1.6	.6	.2	@	.00	.00	.00	.00	.02	.06	.14	.27	.48	.88	1.32
Oct	1.06	.76	1.94	1962	14	3.10	2000	.00+	1995	3.4	2.0	.9	.3	.00	.03	.15	.29	.47	.67	.93	1.27	1.75	2.59	3.43
Nov	3.00	2.30	3.59	1983	11	8.01	1983	.01	1992	6.8	4.8	2.1	.8	.07	.17	.45	.81	1.26	1.82	2.55	3.51	4.92	7.40	9.94
Dec	3.41	2.70	3.02	1979	24	10.95	1996	.03	1989	8.4	5.5	2.4	.9	.31	.55	1.00	1.48	2.00	2.58	3.28	4.16	5.36	7.38	9.35
Ann	23.25	20.94	5.93	Feb 2000	14	15.99	Feb 1998	.00+	Jul 2000	60.3	39.2	16.2	5.9	10.32	12.39	15.28	17.62	19.81	22.01	24.37	27.08	30.50	35.68	40.36

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Lat: 36° 56N

Lon: 121° 46W

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	0	.0	0	0	.0	0	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	.0	N/A	N/A	.0	0	0	.0	0	0	0	0	0	0	.0	.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

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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	4/29	4/17	4/08	3/31	3/24	3/17	3/09	2/28	2/16
32	4/03	3/17	3/04	2/21	2/11	2/01	1/21	1/08	12/18
28	1/27	1/14	1/01	12/17	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	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	10/31	11/06	11/10	11/14	11/17	11/21	11/25	11/29	12/05
32	11/06	11/17	11/26	12/03	12/10	12/16	12/24	1/02	1/16
28	12/11	12/23	1/04	1/23	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	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	283	268	256	247	238	229	219	208	192
32	>365	363	335	317	301	287	272	255	232
28	>365	>365	>365	>365	>365	>365	>365	>365	338
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	Ann
65	477	368	360	272	211	130	101	84	104	165	328	480	3080
60	322	233	217	145	96	39	24	13	32	60	190	327	1698
57	235	158	143	90	50	11	6	2	12	24	123	241	1095
55	180	116	105	60	27	5	2	0	6	11	87	187	786
50	76	41	33	14	4	0	0	0	0	0	27	85	280
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	546	556	663	723	820	871	940	960	929	870	663	543	9084
55	13	28	55	94	135	186	228	247	245	168	60	17	1476
57	6	15	31	63	95	132	171	187	191	119	36	9	1055
60	0	5	12	29	48	70	96	105	122	62	14	2	565
65	0	0	0	6	9	11	20	21	43	12	1	0	123
70	0	0	0	0	0	0	0	1	8	1	0	0	10

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	316	364	431	497	581	639	702	725	696	631	434	315	316	680	1111	1608	2189	2828	3530	4255	4951	5582	6016	6331
45	168	223	277	347	426	489	547	570	546	476	284	168	168	391	668	1015	1441	1930	2477	3047	3593	4069	4353	4521
50	66	103	139	201	272	339	392	415	396	323	148	59	66	169	308	509	781	1120	1512	1927	2323	2646	2794	2853
55	9	31	43	84	129	190	238	260	246	172	55	4	9	40	83	167	296	486	724	984	1230	1402	1457	1461
60	0	0	2	26	41	66	92	107	110	70	12	0	0	0	2	28	69	135	227	334	444	514	526	526
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	177	195	223	274	314	349	393	415	401	359	250	179	177	372	595	869	1183	1532	1925	2340	2741	3100	3350	3529

(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