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: REDWOOD CITY, CA **COOP ID: 047339**

Climate Division: CA 4 **NWS Call Sign:** **Elevation: 31 Feet** **Lat: 37˚29N** **Lon: 122˚14W**

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	57.7	39.1	48.4	75+	1968	22	52.8	1995	16	1949	11	44.2	1972	515	0	.0	.0	30.2	.0	3.8	.0
Feb	61.7	41.7	51.7	80	1977	14	55.1	1986	25+	1989	7	47.2	1989	371	0	.0	.0	27.7	.0	1.3	.0
Mar	65.1	43.6	54.4	86	1966	31	57.5	1978	29	1953	2	51.0	1999	332	1	.0	.0	30.9	.0	.3	.0
Apr	69.9	45.2	57.6	96	1981	29	61.3	1992	33	1976	2	52.3	1975	232	8	.0	.3	30.0	.0	.0	.0
May	74.0	48.9	61.5	102	1950	29	66.8	1997	36	1950	4	56.9	1977	145	34	.1	2.1	31.0	.0	.0	.0
Jun	78.7	52.7	65.7	109	1961	15	70.5	1981	39	1975	25	62.6	1980	51	72	1.0	4.6	30.0	.0	.0	.0
Jul	80.8	55.2	68.0	110+	1972	15	71.0	1984	40	1979	3	64.4	1987	17	109	.8	4.9	31.0	.0	.0	.0
Aug	80.5	55.0	67.8	105	1983	7	70.4	1998	43	1979	6	65.2	1973	12	98	.4	4.4	31.0	.0	.0	.0
Sep	78.5	53.2	65.9	106+	1971	14	70.8	1984	38	1980	26	61.9	1986	54	79	.4	4.4	30.0	.0	.0	.0
Oct	73.0	48.7	60.9	104	1980	2	64.5	1992	33+	1971	30	56.4	1971	149	21	.1	.9	31.0	.0	.0	.0
Nov	63.2	42.9	53.1	87	1967	2	57.8	1995	29+	1975	19	49.2	1994	358	0	.0	.0	30.0	.0	.5	.0
Dec	57.4	38.6	48.0	76	1958	12	53.0	1995	19	1990	22	43.6	1990	528	0	.0	.0	29.6	.0	4.5	.0
Ann	70.0	47.1	58.6	110+	Jul 1972	15	71.0	Jul 1984	16	Jan 1949	11	43.6	Dec 1990	2764	422	2.8	21.6	362.4	.0	10.4	.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	4.20	3.22	4.80	1967	21	9.81	1993	.27	1976
Feb	4.04	3.87	2.99	1987	13	12.42	1998	.08	1997
Mar	3.37	2.89	2.57	1982	31	9.20	1983	.05	1988
Apr	1.07	.89	2.54	1958	2	3.58	1983	.01	1977
May	.43	.18	1.33	1957	18	2.23	1998	.00+	1992
Jun	.10	.03	.60+	1995	16	.69	1995	.00+	1998
Jul	.03	.00	.30	1966	30	.23	1979	.00+	2000
Aug	.10	.00	.81	1997	20	.90	1976	.00+	2000
Sep	.21	.10	3.05	1959	18	1.03	1982	.00+	1997
Oct	1.06	.70	4.88	1962	13	4.19	1972	.00+	1995
Nov	2.62	1.63	3.01	1950	18	7.60	1997	.00	1995
Dec	2.93	2.58	4.00	1955	23	6.46	1996	.00	1989
Ann	20.16	18.41	4.88	Oct 1962	13	12.42	Feb 1998	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.7	7.0	3.0	1.4
Feb	9.9	7.1	2.9	1.0
Mar	10.4	7.1	2.2	.6
Apr	5.6	3.2	.6	.0
May	2.8	1.4	.1	.0
Jun	.9	.4	@	.0
Jul	.4	.1	.0	.0
Aug	.7	.3	@	.0
Sep	1.6	.7	@	.0
Oct	3.1	2.0	.8	.3
Nov	7.5	4.8	1.9	.6
Dec	8.5	5.6	1.8	.8
Ann	62.1	39.7	13.3	4.7

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	.39	.69	1.26	1.84	2.48	3.20	4.05	5.12	6.58	9.02	11.41
Feb	.26	.50	1.01	1.56	2.18	2.90	3.78	4.89	6.45	9.08	11.70
Mar	.23	.43	.86	1.32	1.84	2.44	3.16	4.08	5.37	7.54	9.69
Apr	.06	.11	.24	.38	.55	.74	.98	1.29	1.72	2.46	3.20
May	.00	.00	.00	.01	.07	.17	.29	.48	.74	1.23	1.73
Jun	.00	.00	.00	.00	.00	.02	.06	.11	.18	.30	.42
Jul	.00	.00	.00	.00	.00	.00	.00	.01	.04	.11	.18
Aug	.00	.00	.00	.00	.00	.00	.00	.01	.10	.34	.62
Sep	.00	.00	.00	.00	.03	.10	.17	.26	.39	.60	.80
Oct	.00	.00	.16	.32	.51	.72	.98	1.30	1.75	2.53	3.29
Nov	.02	.10	.34	.65	1.05	1.56	2.20	3.07	4.33	6.55	8.83
Dec	.18	.47	.93	1.36	1.82	2.32	2.90	3.61	4.58	6.17	7.71
Ann	8.74	10.55	13.08	15.15	17.08	19.03	21.13	23.54	26.57	31.19	35.38

+ 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:
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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.0	.0	0	0
Feb	.0	.0	0	0
Mar	.0	.0	0	0
Apr	.0	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	.0	.0	0	0
Dec	.0	.0	0	0
Ann	.0	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	.0	0	0	.0	0	0	0	0	0	0
Feb	.0	0	0	.0	0	0	0	0	0	0
Mar	.0	0	0	.0	0	0	0	0	0	0
Apr	.0	0	0	.0	0	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	0	0	0	0	0
Nov	.0	0	0	.0	0	0	0	0	0	0
Dec	.0	0	0	.0	0	0	0	0	0	0
Ann	.0	0	0	.0	0	0	0	0	0	0

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.0	.0	.0	.0	.0
Feb	.0	.0	.0	.0	.0
Mar	.0	.0	.0	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0
Ann	.0	.0	.0	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.0	.0	.0	.0
Feb	.0	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	.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	4/09	3/28	3/20	3/13	3/06	2/27	2/20	2/12	1/31
32	2/28	2/17	2/10	2/04	1/28	1/22	1/16	1/08	12/26
28	2/01	1/20	1/10	12/27	0/00	0/00	0/00	0/00	0/00
24	12/11	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	11/07	11/13	11/18	11/22	11/27	12/01	12/07	12/15
32	11/18	11/28	12/05	12/12	12/18	12/24	12/31	1/08	1/25
28	12/14	12/28	1/10	1/30	0/00	0/00	0/00	0/00	0/00
24	12/26	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	304	289	278	269	260	252	243	232	217
32	>365	364	342	331	321	313	304	295	281
28	>365	>365	>365	>365	>365	>365	>365	>365	342
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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	515	371	332	232	145	51	17	12	54	149	358	528	2764
60	360	234	190	114	60	9	1	0	11	55	217	373	1624
57	273	159	120	65	27	2	0	0	3	23	143	287	1102
55	217	115	85	39	15	0	0	0	0	11	103	230	815
50	104	39	22	7	2	0	0	0	0	1	35	116	326
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	508	553	692	765	912	1012	1116	1108	1015	895	632	495	9703
55	12	24	64	114	214	322	403	395	325	193	45	12	2123
57	6	11	38	80	164	263	341	333	268	142	26	6	1678
60	0	3	14	39	104	181	248	240	186	81	9	0	1105
65	0	0	1	8	34	72	109	98	79	21	0	0	422
70	0	0	0	0	7	14	25	16	19	2	0	0	83

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	297	371	468	554	695	804	904	903	818	695	438	289	297	668	1136	1690	2385	3189	4093	4996	5814	6509	6947	7236
45	155	228	314	404	540	654	749	748	668	540	288	151	155	383	697	1101	1641	2295	3044	3792	4460	5000	5288	5439
50	53	100	167	254	385	504	594	593	518	385	146	49	53	153	320	574	959	1463	2057	2650	3168	3553	3699	3748
55	6	24	58	122	233	354	439	438	368	232	49	7	6	30	88	210	443	797	1236	1674	2042	2274	2323	2330
60	0	0	8	36	106	209	284	283	218	104	8	0	0	0	8	44	150	359	643	926	1144	1248	1256	1256
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	144	191	251	322	407	487	568	571	509	416	237	150	144	335	586	908	1315	1802	2370	2941	3450	3866	4103	4253

(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