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: SAN FRANCISCO OCEANSIDE, CA **COOP ID: 047767**

Climate Division: CA 4 **NWS Call Sign:** **Elevation: 8 Feet** **Lat: 37˚44N** **Lon: 122˚30W**

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	56.5	44.6	50.6	79	1962	8	54.1	1986	29	1981	9	47.1	1972	448	0	.0	.0	30.2	.0	.4	.0
Feb	58.7	46.4	52.6	77+	1996	12	55.7	1992	29	1960	26	49.0	1989	355	0	.0	.0	27.7	.0	.3	.0
Mar	58.9	47.4	53.2	81	2000	31	56.6	1992	33+	1991	11	49.6	1985	352	0	.0	.0	31.0	.0	.0	.0
Apr	59.0	48.0	53.5	87+	1989	9	57.5	1992	35	1976	1	49.1	1975	345	0	.0	.0	30.0	.0	.0	.0
May	58.8	49.7	54.3	89	1985	4	58.8	1997	40+	1975	5	51.0	1971	333	0	.0	.0	31.0	.0	.0	.0
Jun	60.1	51.5	55.8	88	1976	25	58.6	1992	36	1965	11	53.1	1972	277	0	.0	.0	30.0	.0	.0	.0
Jul	61.1	53.5	57.3	86+	1985	1	60.6	1995	45	1975	1	52.9	1971	240	1	.0	.0	31.0	.0	.0	.0
Aug	62.5	54.8	58.7	95	1968	29	63.2	1983	47+	1975	7	54.6	1973	202	4	.0	.0	31.0	.0	.0	.0
Sep	64.3	54.6	59.5	96+	1979	11	64.5+	1997	43	1970	5	56.7	1975	174	8	.0	.1	30.0	.0	.0	.0
Oct	64.5	53.3	58.9	99	1961	15	62.1	1987	40	1990	8	55.4	1975	193	4	.0	.1	31.0	.0	.0	.0
Nov	60.7	48.7	54.7	85	1966	1	58.3	1997	33	1977	19	50.8	1994	309	0	.0	.0	30.0	.0	.0	.0
Dec	56.7	45.2	51.0	73+	1999	19	54.3	1983	26+	1990	22	46.8	1990	437	0	.0	.0	29.8	.0	.4	.0
Ann	60.2	49.8	55.0	99	Oct 1961	15	64.5+	Sep 1997	26+	Dec 1990	22	46.8	Dec 1990	3665	17	.0	.2	362.7	.0	1.1	.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	4.14	3.82	2.65	1967	21	9.97	1993	.40	1976
Feb	3.74	3.21	3.90	1998	2	13.90	1998	.22	1997
Mar	3.23	2.46	2.52	1992	5	9.74	1983	.15	1994
Apr	1.17	.95	1.45	1978	15	3.91	1978	.00	1985
May	.51	.17	1.44	1996	15	3.68	1998	.00+	1992
Jun	.09	.02	1.66	1967	2	.53	1995	.00+	1996
Jul	.03	.00	.50	1974	8	.55	1974	.00+	2000
Aug	.08	.00	1.20	1965	11	.75	1997	.00+	2000
Sep	.17	.03	1.98	1959	18	1.13	1989	.00+	1995
Oct	1.03	.73	3.15	1962	13	4.87	1972	.00+	1980
Nov	2.61	2.21	2.12	1972	13	7.30	1973	.02	1995
Dec	2.97	3.02	3.43	1995	11	6.88	1995	.00	1989
Ann	19.77	17.94	3.90	Feb 1998	2	13.90	Feb 1998	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.8	7.8	2.8	1.2
Feb	9.5	6.7	2.6	.7
Mar	9.2	5.8	2.0	.5
Apr	4.9	2.7	.5	.2
May	3.0	1.5	.2	.1
Jun	.8	.3	.0	.0
Jul	.3	.1	@	.0
Aug	.7	.3	@	.0
Sep	1.3	.6	.1	.0
Oct	3.7	2.1	.9	.1
Nov	7.6	4.8	1.7	.6
Dec	8.5	5.6	1.8	.6
Ann	60.3	38.3	12.6	4.0

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	.50	.83	1.41	1.99	2.60	3.28	4.08	5.06	6.39	8.58	10.70
Feb	.36	.63	1.14	1.66	2.23	2.86	3.62	4.56	5.84	7.99	10.08
Mar	.32	.55	.99	1.44	1.93	2.47	3.12	3.93	5.04	6.89	8.70
Apr	.03	.10	.25	.42	.60	.82	1.09	1.43	1.90	2.71	3.52
May	.00	.00	.01	.05	.13	.23	.38	.57	.87	1.41	1.98
Jun	.00	.00	.00	.00	.00	.02	.05	.10	.17	.28	.40
Jul	**	**	**	**	**	**	**	**	**	**	**
Aug	.00	.00	.00	.00	.00	.00	.00	.03	.10	.26	.45
Sep	.00	.00	.00	.00	.00	.03	.09	.17	.29	.51	.73
Oct	.00	.05	.19	.34	.51	.71	.95	1.25	1.68	2.41	3.13
Nov	.11	.24	.53	.87	1.27	1.75	2.35	3.12	4.22	6.12	8.03
Dec	.33	.69	1.18	1.61	2.04	2.51	3.03	3.66	4.49	5.83	7.11
Ann	10.07	11.71	13.94	15.72	17.35	18.98	20.71	22.67	25.11	28.78	32.05

\+ 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	3/10	2/22	2/10	1/30	1/19	1/07	12/22	0/00	0/00
32	2/02	1/22	1/12	1/02	12/16	0/00	0/00	0/00	0/00
28	0/00	0/00	0/00	0/00	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	11/28	12/07	12/15	12/21	12/28	1/04	1/16	0/00	0/00
32	12/26	1/06	1/16	1/27	0/00	0/00	0/00	0/00	0/00
28	0/00	0/00	0/00	0/00	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	>365	>365	>365	>365	349	330	314	299	279
32	>365	>365	>365	>365	>365	>365	>365	>365	339
28	>365	>365	>365	>365	>365	>365	>365	>365	>365
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	448	355	352	345	333	277	240	202	174	193	309	437	3665
60	293	212	222	201	186	133	103	80	68	73	170	284	2025
57	206	136	145	126	111	66	49	34	27	29	101	199	1229
55	152	94	104	87	74	35	23	15	12	12	67	149	824
50	55	24	31	21	15	2	0	0	0	0	14	57	219
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	575	575	655	645	690	713	783	826	823	834	681	586	8386
55	14	25	46	42	51	58	93	127	146	133	57	22	814
57	6	12	24	21	26	29	57	84	101	88	32	11	491
60	0	3	9	7	8	6	19	37	51	39	10	3	192
65	0	0	0	0	0	0	1	4	8	4	0	0	17
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	337	380	433	442	493	533	588	623	615	603	459	351	337	717	1150	1592	2085	2618	3206	3829	4444	5047	5506	5857
45	187	236	278	292	338	383	433	468	465	448	309	201	187	423	701	993	1331	1714	2147	2615	3080	3528	3837	4038
50	66	104	128	145	183	233	278	313	315	293	162	72	66	170	298	443	626	859	1137	1450	1765	2058	2220	2292
55	4	23	33	34	54	87	124	158	166	143	55	8	4	27	60	94	148	235	359	517	683	826	881	889
60	0	0	1	3	2	11	24	37	40	43	9	0	0	0	1	4	6	17	41	78	118	161	170	170
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	132	159	183	184	210	238	280	313	316	303	203	134	132	291	474	658	868	1106	1386	1699	2015	2318	2521	2655

(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