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: COLUSA 2 SSW, CA **COOP ID: 041948**

Climate Division: CA 2 **NWS Call Sign:** **Elevation: 50 Feet** **Lat: 39˚11N** **Lon: 122˚02W**

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	53.5	37.6	45.6	78	1962	8	49.9	1978	20+	1960	2	41.3	1972	603	0	.0	.0	24.3	.0	7.5	.0
Feb	59.8	41.3	50.6	80	1977	14	54.3	1992	21	1989	7	46.5	1989	406	0	.0	.0	27.3	.1	2.9	.0
Mar	64.8	44.4	54.6	89	1966	31	59.3	1986	25+	1976	18	49.7	1991	329	6	.0	.0	30.9	.0	1.1	.0
Apr	72.4	46.8	59.6	95+	1987	26	64.5	1990	26	1953	10	53.2	1975	190	27	.0	.6	30.0	.0	.3	.0
May	80.7	54.3	67.5	106+	1984	29	73.6	1992	34	1975	4	59.9	1998	67	145	.4	6.5	31.0	.0	.0	.0
Jun	88.4	58.9	73.7	112	1961	15	79.1	1981	38	1984	6	69.1	1980	4	262	3.9	15.0	30.0	.0	.0	.0
Jul	93.2	60.5	76.9	112+	1972	15	82.3	1988	40	1987	17	73.2	1999	0	367	7.1	23.2	31.0	.0	.0	.0
Aug	92.1	58.7	75.4	113+	1978	10	77.9	1971	43	1983	22	73.0	1976	0	322	5.5	21.2	31.0	.0	.0	.0
Sep	88.0	55.0	71.5	112	1950	2	74.7	1984	35	1983	9	66.5	1986	8	202	2.3	15.3	30.0	.0	.0	.0
Oct	78.6	49.0	63.8	105+	2001	3	69.6	1991	31	1949	20	59.9	1984	105	68	.1	4.4	31.0	.0	@	.0
Nov	62.9	41.5	52.2	89	1949	27	57.8	1995	22	1948	29	47.3	1994	385	2	.0	.0	29.3	.0	2.9	.0
Dec	54.0	37.0	45.5	76+	1967	27	49.4	1996	15	1972	14	39.8	1972	605	0	.0	.0	24.5	.1	8.4	.0
Ann	74.0	48.8	61.4	113+	Aug 1978	10	82.3	Jul 1988	15	Dec 1972	14	39.8	Dec 1972	2702	1401	19.3	86.2	350.3	.2	23.1	.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

Issue Date: February 2004

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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	3.65	3.31	3.03	1995	10	13.57	1995	.01	1976
Feb	3.07	2.36	3.56	1998	2	12.09	1998	.03	1971
Mar	2.71	2.20	2.80	1995	9	7.91	1995	.35	1972
Apr	.77	.58	2.00	1953	27	3.03	1983	.04+	1987
May	.65	.15	1.38	1996	16	3.71	1998	.00+	1992
Jun	.20	.11	.96	1968	7	.83	1992	.00+	1994
Jul	.04	.00	.96	1974	8	.96	1974	.00+	2000
Aug	.04	.00	.85	1965	11	.50	1997	.00+	2000
Sep	.34	.08	2.17	1989	17	2.95	1989	.00+	1999
Oct	.94	.64	3.35	1962	12	3.15	1982	.00+	1995
Nov	2.15	1.83	3.07	1970	28	6.31	1984	.12	1995
Dec	2.34	2.21	2.05	1995	12	7.97	1983	.00	1989
Ann	16.90	15.95	3.56	Feb 1998	2	13.57	Jan 1995	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.0	7.0	2.7	.7
Feb	8.8	6.0	2.2	.6
Mar	8.5	5.9	2.0	.4
Apr	4.3	2.1	.4	@
May	2.6	1.6	.5	.1
Jun	1.3	.6	.1	.0
Jul	.1	.1	@	.0
Aug	.3	.2	@	.0
Sep	1.5	.9	.1	.1
Oct	3.5	2.2	.7	.1
Nov	7.0	4.7	1.6	.3
Dec	7.6	5.3	1.6	.4
Ann	55.5	36.6	11.9	2.7

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	.20	.40	.83	1.32	1.88	2.54	3.35	4.39	5.86	8.36	10.85
Feb	.14	.30	.65	1.06	1.53	2.09	2.78	3.68	4.95	7.14	9.33
Mar	.42	.65	1.04	1.41	1.80	2.23	2.71	3.31	4.11	5.40	6.65
Apr	.05	.10	.20	.30	.42	.56	.72	.93	1.23	1.72	2.22
May	.00	.00	.00	.00	.06	.19	.39	.68	1.12	1.94	2.80
Jun	.00	.00	.00	.00	.00	.07	.15	.24	.37	.58	.80
Jul	**	**	**	**	**	**	**	**	**	**	**
Aug	**	**	**	**	**	**	**	**	**	**	**
Sep	.00	.00	.00	.00	.00	.07	.19	.35	.60	1.04	1.50
Oct	.00	.00	.13	.27	.43	.62	.85	1.16	1.57	2.30	3.02
Nov	.13	.25	.51	.80	1.14	1.52	1.99	2.60	3.44	4.88	6.31
Dec	.15	.39	.76	1.10	1.46	1.86	2.32	2.88	3.65	4.90	6.11
Ann	7.13	8.66	10.81	12.58	14.23	15.91	17.71	19.78	22.41	26.40	30.03

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	8	1973	8	#	1973	.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	.1	.0	#	0	2.3	1972	13	2.3	1972	4	1988	27	#	1988	@	@	.0	.0	.0	.0	.0	.0	.0
Ann	.1	.0	N/A	N/A	2.3	Dec 1972	13	2.3	Dec 1972	8	Jan 1973	8	#+	Dec 1988	@	@	.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	5/05	4/20	4/10	4/01	3/24	3/16	3/07	2/24	2/10
32	4/16	3/30	3/17	3/07	2/25	2/15	2/04	1/22	1/05
28	3/02	2/13	2/01	1/22	1/12	1/01	12/19	11/29	0/00
24	1/16	12/31	12/14	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

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	10/14	10/22	10/28	11/03	11/07	11/12	11/17	11/23	12/02
32	11/01	11/09	11/15	11/20	11/25	11/30	12/05	12/11	12/20
28	11/19	11/27	12/04	12/09	12/15	12/21	12/29	1/11	0/00
24	12/10	12/27	1/16	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	276	260	248	237	228	218	208	196	179
32	335	314	298	285	273	261	247	232	211
28	>365	>365	>365	361	338	322	307	292	272
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	603	406	329	190	67	4	0	0	8	105	385	605	2702
60	448	268	194	93	23	0	0	0	1	39	246	450	1762
57	356	190	131	53	10	0	0	0	0	18	174	358	1290
55	298	143	97	32	6	0	0	0	0	10	132	300	1018
50	165	56	32	8	0	0	0	0	0	1	55	166	483
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	420	518	700	828	1101	1248	1390	1345	1185	986	606	418	10745
55	6	18	84	170	393	558	677	632	495	283	48	5	3369
57	1	9	56	130	336	498	615	570	435	229	30	1	2910
60	0	2	27	81	256	408	522	477	345	157	13	0	2288
65	0	0	6	27	145	262	367	322	202	68	2	0	1401
70	0	0	0	6	67	134	220	171	88	19	0	0	705

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	196	324	461	598	849	1010	1147	1099	955	741	378	194	196	520	981	1579	2428	3438	4585	5684	6639	7380	7758	7952
45	86	184	309	448	694	860	992	944	805	586	234	79	86	270	579	1027	1721	2581	3573	4517	5322	5908	6142	6221
50	24	74	168	299	539	710	837	789	655	431	118	23	24	98	266	565	1104	1814	2651	3440	4095	4526	4644	4667
55	0	17	65	170	385	560	682	634	505	284	38	0	0	17	82	252	637	1197	1879	2513	3018	3302	3340	3340
60	0	1	12	72	241	410	527	479	357	154	6	0	0	1	13	85	326	736	1263	1742	2099	2253	2259	2259
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	86	164	262	369	527	629	704	673	590	464	215	95	86	250	512	881	1408	2037	2741	3414	4004	4468	4683	4778

(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