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: AUBURN, CA **COOP ID: 040383**

Climate Division: CA 2 **NWS Call Sign:** **Elevation: 1,292 Feet** **Lat: 38˚54N** **Lon: 121˚05W**

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	54.2	37.6	45.9	81	1962	9	52.3	1986	20	1968	7	41.9	1985	593	0	.0	.0	23.8	.0	8.0	.0
Feb	58.2	40.5	49.4	78+	1977	16	54.4	1991	21	1962	27	44.6	1990	437	0	.0	.0	24.8	.1	2.5	.0
Mar	61.6	42.4	52.0	85	1952	27	57.1	1972	25+	1971	2	46.5	1991	405	3	.0	.0	29.5	.0	1.1	.0
Apr	67.7	45.4	56.6	90	1951	11	62.3	1987	30+	1999	9	49.6	1975	269	16	.0	.0	29.5	.0	.2	.0
May	75.9	50.8	63.4	102	1950	31	70.3	1992	32	1953	9	55.7	1998	142	90	@	2.6	31.0	.0	.0	.0
Jun	84.6	57.1	70.9	110+	1961	22	77.1	1981	36	1952	12	65.8	1980	27	203	1.1	9.1	30.0	.0	.0	.0
Jul	91.3	62.7	77.0	113	1972	15	81.4	1996	41	1948	4	70.7	1987	1	372	3.4	19.2	31.0	.0	.0	.0
Aug	90.7	62.0	76.4	111	1978	10	80.0	1996	41	1948	8	69.8	1976	1	352	3.3	18.1	31.0	.0	.0	.0
Sep	85.2	58.8	72.0	109	1950	3	76.6	1975	39	1948	26	64.3	1986	21	232	1.0	10.2	30.0	.0	.0	.0
Oct	75.6	52.3	64.0	99	1952	3	69.6	1991	30	1949	19	57.9	1984	126	93	.0	2.1	31.0	.0	.1	.0
Nov	61.4	43.2	52.3	89	1965	1	58.6	1995	25	1977	19	45.5	1994	386	5	.0	.0	28.2	.0	1.2	.0
Dec	54.6	37.7	46.2	76	1958	15	50.6	1979	16	1972	9	40.9	1972	584	0	.0	.0	24.7	.1	7.3	.0
Ann	71.8	49.2	60.5	113	Jul 1972	15	81.4	Jul 1996	16	Dec 1972	9	40.9	Dec 1972	2992	1366	8.8	61.3	344.5	.2	20.4	.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	6.68	6.69	4.75	1995	10	18.42	1995	.52	1976
Feb	6.28	5.24	3.98	1986	19	17.61	1986	.26	1988
Mar	6.16	5.31	3.22	1995	10	16.77	1991	.93	1994
Apr	2.50	1.99	2.89	1963	6	6.93	1982	.07	1977
May	1.30	.69	2.94	1996	16	5.58	1998	.00+	1992
Jun	.37	.27	1.20	1993	5	1.57	1995	.00+	1990
Jul	.14	.00	2.03	1974	9	2.97	1974	.00+	2000
Aug	.14	.00	1.21	1976	15	1.59	1976	.00+	2000
Sep	.77	.32	1.72	1959	19	3.68	1986	.00+	1999
Oct	1.93	1.17	5.41	1962	13	6.42	1982	.00+	1995
Nov	4.89	3.68	3.76	1950	21	13.45	1983	.12	1995
Dec	5.35	4.64	4.02	1981	20	16.78	1996	.00	1989
Ann	36.51	33.48	5.41	Oct 1962	13	18.42	Jan 1995	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.4	8.6	4.7	2.2
Feb	10.5	8.0	4.3	2.2
Mar	11.1	8.7	4.5	1.9
Apr	6.8	4.6	1.8	.5
May	4.4	2.8	.9	.1
Jun	2.0	.9	.3	.1
Jul	.4	.2	.1	@
Aug	.9	.3	@	@
Sep	2.4	1.3	.7	.2
Oct	4.4	2.8	1.3	.5
Nov	9.2	6.6	3.2	1.7
Dec	9.8	7.4	3.7	1.8
Ann	73.3	52.2	25.5	11.2

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	.69	1.19	2.11	3.04	4.04	5.17	6.50	8.15	10.41	14.16	17.81
Feb	.66	1.13	1.99	2.87	3.81	4.87	6.11	7.67	9.78	13.29	16.72
Mar	.82	1.31	2.19	3.05	3.95	4.95	6.11	7.53	9.45	12.61	15.65
Apr	.21	.38	.71	1.06	1.44	1.87	2.39	3.04	3.94	5.45	6.93
May	.00	.00	.06	.27	.51	.79	1.14	1.60	2.23	3.31	4.42
Jun	.00	.00	.00	.06	.13	.21	.31	.45	.64	.96	1.29
Jul	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.84
Aug	.00	.00	.00	.00	.00	.00	.00	.05	.20	.48	.77
Sep	.00	.00	.00	.01	.08	.23	.45	.78	1.29	2.27	3.30
Oct	.00	.06	.28	.55	.86	1.24	1.72	2.32	3.19	4.69	6.20
Nov	.39	.72	1.36	2.04	2.78	3.64	4.66	5.95	7.73	10.72	13.67
Dec	.35	.88	1.73	2.51	3.34	4.25	5.30	6.60	8.35	11.23	14.00
Ann	18.04	21.13	25.35	28.73	31.85	34.96	38.28	42.04	46.75	53.83	60.18

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.5	.0	#	0
Feb	.2	.0	#	0
Mar	.3	.0	#	0
Apr	.2	.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	.2	.0	0	0
Dec	.2	.0	#	0
Ann	1.6	.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	4.0	1972	27	6.5	1972	4	1972	27	#+	1975
Feb	4.0	1989	3	4.0	1989	#	1976	5	#	1976
Mar	3.5	1991	15	4.0	1991	2	1975	14	#	1975
Apr	4.5	1982	1	4.5	1982	2	1982	1	#+	1982
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	5.5	1985	11	5.5	1985	0	0	0	0	0
Dec	4.2	1972	6	4.2	1972	3	1972	6	#+	1988
Ann	5.5	Nov 1985	11	6.5	Jan 1972	4	Jan 1972	27	#+	Dec 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.2	.1	.1	.0	.0
Feb	.1	@	@	.0	.0
Mar	.1	.1	@	.0	.0
Apr	.1	.1	@	.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
Dec	.1	.1	@	.0	.0
Ann	.6	.4	.1	@	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.1	.1	.0	.0
Feb	.0	.0	.0	.0
Mar	@	.0	.0	.0
Apr	.1	.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	.1	@	.0	.0
Ann	.3	.1	.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	5/03	4/24	4/17	4/11	4/05	3/31	3/25	3/18	3/08
32	4/02	3/18	3/08	2/27	2/18	2/10	2/01	1/21	1/06
28	2/07	1/27	1/19	1/12	1/05	12/27	12/15	0/00	0/00
24	1/17	12/30	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	10/29	11/04	11/08	11/11	11/14	11/18	11/21	11/25	11/30
32	11/09	11/16	11/22	11/26	12/01	12/05	12/10	12/15	12/23
28	12/08	12/15	12/21	12/26	12/31	1/06	1/18	0/00	0/00
24	12/25	1/11	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	256	245	236	229	222	216	209	200	189
32	338	320	306	295	285	274	263	250	232
28	>365	>365	>365	>365	>365	356	340	326	312
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	593	437	405	269	142	27	1	1	21	126	386	584	2992
60	438	300	264	155	69	6	0	0	5	57	252	430	1976
57	346	222	189	103	39	2	0	0	1	31	183	342	1458
55	288	173	148	74	25	1	0	0	0	20	143	285	1157
50	154	80	67	24	7	0	0	0	0	5	67	161	565
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	430	487	620	737	972	1166	1394	1375	1200	991	609	439	10420
55	5	16	55	120	284	477	681	662	510	297	63	11	3181
57	1	8	34	89	235	418	619	600	452	247	43	6	2752
60	0	2	16	51	172	332	526	507	365	180	22	1	2174
65	0	0	3	16	90	203	372	352	232	93	5	0	1366
70	0	0	0	3	36	104	229	207	126	38	1	0	744

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	191	279	375	501	732	937	1153	1129	962	742	366	204	191	470	845	1346	2078	3015	4168	5297	6259	7001	7367	7571
45	82	151	231	354	577	787	998	974	812	587	224	86	82	233	464	818	1395	2182	3180	4154	4966	5553	5777	5863
50	21	60	112	218	423	637	843	819	662	432	112	22	21	81	193	411	834	1471	2314	3133	3795	4227	4339	4361
55	0	17	40	113	281	487	688	664	512	291	45	0	0	17	57	170	451	938	1626	2290	2802	3093	3138	3138
60	0	0	3	44	161	343	533	509	367	167	12	0	0	0	3	47	208	551	1084	1593	1960	2127	2139	2139
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	87	134	196	283	452	595	748	731	618	453	186	97	87	221	417	700	1152	1747	2495	3226	3844	4297	4483	4580

(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