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: BUTTONWILLOW, CA **COOP ID: 041244**

Climate Division: CA 5 **NWS Call Sign:** **Elevation: 269 Feet** **Lat: 35˚24N** **Lon: 119˚28W**

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	54.7	35.8	45.3	77+	2000	20	51.7	1995	9	1963	13	39.1	1972	612	0	.0	.0	24.3	.0	10.3	.0
Feb	62.4	40.0	51.2	84	2000	4	56.8	2000	19	1949	15	45.3	1971	387	0	.0	.0	27.4	@	3.8	.0
Mar	67.9	44.0	56.0	92	1986	28	61.0	1994	26+	1971	3	50.5	1977	295	14	.0	.1	30.9	.0	.8	.0
Apr	75.4	47.1	61.3	98+	1981	30	66.4+	1990	31	1980	1	54.9	1975	169	56	.0	2.2	30.0	.0	.1	.0
May	83.8	53.9	68.9	110	2000	23	75.4	1992	38+	1988	1	61.7	1977	59	178	1.5	9.9	31.0	.0	.0	.0
Jun	91.2	60.2	75.7	114	1961	16	79.8	2000	42+	1981	13	71.3	1980	2	322	5.8	19.4	30.0	.0	.0	.0
Jul	95.8	65.0	80.4	114+	1972	16	84.1	1999	49	1976	1	75.7	1987	0	478	10.5	28.0	31.0	.0	.0	.0
Aug	94.5	63.4	79.0	113	1950	21	81.8	1998	49	1968	25	73.2	1976	0	432	8.6	25.8	31.0	.0	.0	.0
Sep	89.4	58.3	73.9	113	1955	3	78.9	1999	37	1948	26	68.8	1985	10	276	3.3	17.3	30.0	.0	.0	.0
Oct	80.4	48.8	64.6	102+	2001	4	70.8	1991	25	1971	30	59.3	1971	110	98	.4	5.7	31.0	.0	.2	.0
Nov	65.7	39.1	52.4	92	1949	7	58.6	1999	21	1948	30	48.2	2000	382	3	.0	.0	29.7	.0	5.1	.0
Dec	55.2	33.4	44.3	80	1979	4	50.4	1977	12	1990	23	39.5	1985	642	0	.0	.0	25.3	.0	13.5	.0
Ann	76.4	49.1	62.8	114+	Jul 1972	16	84.1	Jul 1999	9	Jan 1963	13	39.1	Jan 1972	2668	1857	30.1	108.4	351.6	@	33.8	.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	1.31	1.18	1.70	1999	25	3.70	1993	.00+	1975
Feb	1.19	.88	3.41	1978	10	5.64	1998	.00+	1995
Mar	1.39	1.12	1.55	1991	19	4.74	1991	.00	1972
Apr	.47	.30	1.07	1982	1	1.87	1988	.00+	1997
May	.23	.02	.62	1971	27	2.32	1998	.00+	2000
Jun	.07	.00	.47	1998	13	.47	1998	.00+	2000
Jul	.01	.00	.53	1965	31	.20	1984	.00+	2000
Aug	.04	.00	.66	1983	19	.76	1983	.00+	2000
Sep	.20	.00	1.24	1978	5	1.76	1976	.00+	2000
Oct	.28	.22	.91	1968	14	1.13	1996	.00+	1999
Nov	.55	.36	1.56	1987	5	2.35	1987	.00+	2000
Dec	.70	.59	1.73	1977	28	2.30	1977	.00	2000
Ann	6.44	6.10	3.41	Feb 1978	10	5.64	Feb 1998	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.6	3.9	.4	.1
Feb	5.9	3.3	.6	@
Mar	6.7	3.8	.7	.2
Apr	3.4	1.4	.2	@
May	1.8	.7	.1	.0
Jun	.4	.2	.0	.0
Jul	.1	@	.0	.0
Aug	.3	.1	@	.0
Sep	1.0	.5	.1	.1
Oct	1.9	.9	.1	.0
Nov	3.8	1.7	.2	@
Dec	5.2	1.9	.3	@
Ann	38.1	18.4	2.7	.4

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	.00	.16	.40	.61	.82	1.05	1.32	1.64	2.07	2.77	3.45
Feb	.00	.03	.15	.30	.49	.73	1.02	1.41	1.98	2.97	3.97
Mar	.03	.12	.30	.50	.72	.98	1.29	1.69	2.25	3.20	4.15
Apr	.00	.00	.02	.09	.17	.28	.40	.57	.81	1.21	1.63
May	.00	.00	.00	.00	.00	.02	.07	.17	.36	.73	1.15
Jun	.00	.00	.00	.00	.00	.00	.00	.02	.10	.25	.41
Jul	**	**	**	**	**	**	**	**	**	**	**
Aug	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.23
Sep	.00	.00	.00	.00	.00	.00	.01	.11	.31	.68	1.09
Oct	.00	.00	.00	.06	.14	.21	.29	.38	.50	.69	.87
Nov	.00	.00	.02	.10	.20	.32	.47	.66	.94	1.42	1.91
Dec	.02	.07	.17	.27	.38	.50	.66	.85	1.12	1.58	2.03
Ann	2.54	3.14	3.99	4.69	5.35	6.02	6.75	7.59	8.66	10.30	11.79

\+ 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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Climate Division: CA 5 **NWS Call Sign:** **Elevation: 269 Feet** **Lat: 35°24N** **Lon: 119°28W**

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	4/16	4/07	3/31	3/26	3/20	3/15	3/09	3/03	2/21
32	3/22	3/10	3/03	2/24	2/17	2/11	2/03	1/26	1/12
28	2/18	2/06	1/28	1/21	1/14	1/06	12/29	12/19	11/29
24	2/01	1/21	1/12	1/05	12/28	12/19	12/06	0/00	0/00
20	1/01	12/24	12/17	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	10/19	10/26	10/30	11/03	11/07	11/10	11/14	11/19	11/25
32	10/30	11/05	11/10	11/14	11/17	11/21	11/25	11/29	12/07
28	11/13	11/18	11/22	11/25	11/28	12/01	12/05	12/09	12/18
24	11/26	12/04	12/10	12/15	12/21	12/28	1/10	0/00	0/00
20	12/15	12/23	12/31	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	262	251	243	237	231	224	218	210	199
32	329	305	292	282	272	264	254	243	229
28	>365	>365	340	325	315	306	297	288	275
24	>365	>365	>365	>365	365	344	331	320	306
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	612	387	295	169	59	2	0	0	10	110	382	642	2668
60	460	254	173	87	21	0	0	0	2	47	244	487	1775
57	373	180	117	51	10	0	0	0	0	24	173	395	1323
55	317	138	86	33	6	0	0	0	0	14	131	338	1063
50	194	59	29	10	0	0	0	0	0	2	54	203	551
32	6	0	0	0	0	0	0	0	0	0	0	4	10

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	417	537	742	877	1143	1310	1501	1455	1255	1011	611	385	11244
55	15	31	115	220	435	620	788	742	565	312	52	7	3902
57	9	17	84	177	377	560	726	680	505	260	34	2	3431
60	3	7	47	124	295	470	633	587	417	189	15	0	2787
65	0	0	14	56	178	322	478	432	276	98	3	0	1857
70	0	0	3	19	92	185	323	279	155	41	0	0	1097

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	211	354	523	659	919	1097	1278	1235	1044	796	403	193	211	565	1088	1747	2666	3763	5041	6276	7320	8116	8519	8712
45	101	217	368	509	764	947	1123	1080	894	642	261	88	101	318	686	1195	1959	2906	4029	5109	6003	6645	6906	6994
50	39	105	223	360	609	797	968	925	744	488	139	29	39	144	367	727	1336	2133	3101	4026	4770	5258	5397	5426
55	10	41	106	221	454	647	813	770	594	338	53	2	10	51	157	378	832	1479	2292	3062	3656	3994	4047	4049
60	0	2	34	114	304	497	658	615	444	202	15	0	0	2	36	150	454	951	1609	2224	2668	2870	2885	2885
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	118	213	306	413	573	686	798	771	654	510	267	130	118	331	637	1050	1623	2309	3107	3878	4532	5042	5309	5439

(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