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: LOS BANOS, CA **COOP ID: 045118**

Climate Division: CA 5 **NWS Call Sign:** **Elevation: 120 Feet** **Lat: 37˚03N** **Lon: 120˚52W**

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	54.9	36.8	45.9	75+	1981	20	51.1	1986	14	1949	11	39.9	1972	594	0	.0	.0	24.3	.0	8.7	.0
Feb	62.4	40.5	51.5	79+	1991	26	55.0	1992	20+	1989	7	47.1	1971	380	0	.0	.0	27.4	@	2.7	.0
Mar	67.5	43.9	55.7	89	1968	30	59.8	1993	24	1971	2	50.9	1973	298	9	.0	.0	31.0	.0	.4	.0
Apr	74.1	47.0	60.6	97+	1985	15	65.6	1987	30	1953	9	54.1	1975	174	40	.0	1.0	30.0	.0	.0	.0
May	81.6	52.7	67.2	106+	2001	31	73.2	1997	35	1964	4	61.2	1977	64	130	.3	6.6	31.0	.0	.0	.0
Jun	89.0	57.7	73.4	114	1950	30	78.9	1981	39	1952	12	69.2	1980	6	255	3.0	15.2	30.0	.0	.0	.0
Jul	94.6	61.5	78.1	113	1950	1	82.0	1996	45	1994	5	73.1	1987	0	404	7.7	24.8	31.0	.0	.0	.0
Aug	93.5	60.6	77.1	111	1950	19	80.3+	1998	46	1955	26	72.6	1976	0	373	5.5	23.1	31.0	.0	.0	.0
Sep	88.8	57.3	73.1	111	1950	2	76.7	1984	41	1948	26	68.6	1986	4	246	1.9	15.2	30.0	.0	.0	.0
Oct	79.6	50.6	65.1	100+	1961	15	69.7	1991	28	1971	30	60.6	1971	84	87	.0	3.9	31.0	.0	@	.0
Nov	65.3	41.4	53.4	87	1949	2	59.1	1995	24+	1958	17	48.2	1994	354	3	.0	.0	29.7	.0	2.4	.0
Dec	55.1	35.4	45.3	74+	1958	4	50.9	1983	14	1990	22	40.9	1990	612	0	.0	.0	25.1	.0	10.2	.0
Ann	75.5	48.8	62.2	114	Jun 1950	30	82.0	Jul 1996	14+	Dec 1990	22	39.9	Jan 1972	2570	1547	18.4	89.8	351.5	@	24.4	.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	1.93	1.60	1.21	1969	19	5.77	1995	.12	1984
Feb	1.97	1.47	1.88	1958	19	8.08	1998	.23	1997
Mar	1.65	1.46	1.35	1958	16	3.98	1978	.00	1972
Apr	.63	.52	1.20	1988	21	2.40	1988	.00	1992
May	.44	.14	1.58	1998	13	3.87	1998	.00+	1992
Jun	.07	.00	.43	1998	7	.43	1998	.00+	1999
Jul	.04	.00	.47	1992	12	.52	1992	.00+	2000
Aug	.05	.00	.40	1976	20	.73	1976	.00+	2000
Sep	.28	.01	2.25	1983	30	2.77	1983	.00+	1999
Oct	.56	.48	1.36	1964	30	2.58	2000	.00+	1999
Nov	1.11	.66	1.73	1965	17	4.99	1972	.00+	1995
Dec	1.22	.85	1.60	1955	24	3.54	1996	.01	1989
Ann	9.95	8.42	2.25	Sep 1983	30	8.08	Feb 1998	.00+	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.8	5.4	1.1	@
Feb	8.7	5.0	1.2	.2
Mar	8.2	4.4	.8	.1
Apr	4.1	2.3	.3	@
May	2.0	1.1	.2	.1
Jun	.8	.2	.0	.0
Jul	.2	.1	.0	.0
Aug	.4	.2	.0	.0
Sep	1.1	.6	.1	.1
Oct	2.7	1.5	.2	.1
Nov	5.3	2.9	.8	.1
Dec	7.4	3.6	.5	.1
Ann	49.7	27.3	5.2	.8

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	.15	.28	.53	.80	1.09	1.43	1.83	2.34	3.05	4.23	5.40
Feb	.18	.32	.58	.86	1.16	1.50	1.90	2.40	3.10	4.25	5.38
Mar	.05	.17	.39	.63	.89	1.20	1.56	2.02	2.65	3.73	4.79
Apr	.01	.05	.13	.22	.32	.44	.58	.77	1.03	1.47	1.92
May	.00	.00	.00	.00	.02	.11	.26	.46	.77	1.32	1.88
Jun	.00	.00	.00	.00	.00	.00	.02	.06	.12	.23	.34
Jul	**	**	**	**	**	**	**	**	**	**	**
Aug	**	**	**	**	**	**	**	**	**	**	**
Sep	.00	.00	.00	.00	.00	.00	.02	.12	.35	.79	1.40
Oct	.00	.00	.06	.18	.29	.41	.55	.71	.94	1.30	1.67
Nov	.00	.00	.13	.29	.48	.71	.98	1.35	1.85	2.73	3.61
Dec	.11	.19	.36	.53	.71	.92	1.17	1.49	1.93	2.65	3.36
Ann	4.58	5.45	6.65	7.63	8.53	9.44	10.41	11.53	12.92	15.04	16.94

\+ 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	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1976	6	#	1976	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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	#	Feb 1976	6	#	Feb 1976	0	0	0	0	0	.0	.0	.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	4/14	4/04	3/28	3/23	3/17	3/12	3/06	2/27	2/17
32	3/06	2/26	2/20	2/15	2/10	2/06	2/01	1/26	1/18
28	2/10	2/01	1/26	1/20	1/15	1/09	1/03	12/26	12/11
24	1/25	1/13	1/03	12/22	12/03	0/00	0/00	0/00	0/00
20	1/07	12/19	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	11/01	11/06	11/10	11/13	11/16	11/19	11/22	11/26	12/01
32	11/02	11/11	11/17	11/23	11/28	12/03	12/08	12/14	12/23
28	11/23	12/01	12/08	12/13	12/18	12/23	12/29	1/05	1/19
24	12/13	12/19	12/25	12/31	0/00	0/00	0/00	0/00	0/00
20	1/01	1/20	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	265	256	249	243	236	229	221	210
32	321	309	301	294	288	282	275	268	258
28	>365	>365	363	347	336	327	318	307	294
24	>365	>365	>365	>365	>365	>365	>365	360	327
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	594	380	298	174	64	6	0	0	4	84	354	612	2570
60	439	242	169	87	20	0	0	0	0	29	219	457	1662
57	353	166	111	49	8	0	0	0	0	12	151	366	1216
55	296	122	79	31	4	0	0	0	0	6	112	309	959
50	172	43	23	8	0	0	0	0	0	1	44	177	468
32	3	0	0	0	0	0	0	0	0	0	0	2	5

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	432	544	734	857	1089	1240	1427	1396	1232	1026	640	413	11030
55	12	22	100	197	381	550	714	683	542	319	62	7	3589
57	7	10	70	156	323	490	652	621	482	263	40	2	3116
60	0	2	35	103	241	400	559	528	392	187	19	0	2466
65	0	0	9	40	130	255	404	373	246	87	3	0	1547
70	0	0	1	11	54	132	253	222	121	29	0	0	823

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	206	349	497	633	853	1012	1184	1154	1005	793	417	191	206	555	1052	1685	2538	3550	4734	5888	6893	7686	8103	8294
45	92	212	343	483	698	862	1029	999	855	638	269	82	92	304	647	1130	1828	2690	3719	4718	5573	6211	6480	6562
50	34	96	197	333	543	712	874	844	705	483	142	21	34	130	327	660	1203	1915	2789	3633	4338	4821	4963	4984
55	2	26	86	193	389	562	719	689	555	330	54	0	2	28	114	307	696	1258	1977	2666	3221	3551	3605	3605
60	0	0	21	92	242	414	564	534	405	192	11	0	0	0	21	113	355	769	1333	1867	2272	2464	2475	2475
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	105	196	286	386	530	635	733	717	636	494	241	106	105	301	587	973	1503	2138	2871	3588	4224	4718	4959	5065

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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