

Climatology of the United States

No. 20

1971-2000

Station: MERCED, CA

COOP ID: 045532

Climate Division: CA 5

NWS Call Sign:

Elevation: 153 Feet Lat: 37° 17N

Lon: 120° 31W

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	55.1	37.5	46.3	75+	1981	20	51.6	1986	16	1949	10	41.6	1972	581	0	.0	.0	24.2	.0	8.2	.0
Feb	62.5	39.9	51.2	79	1977	16	55.4	1991	20	1990	15	47.4	1971	387	0	.0	.0	27.6	@	4.0	.0
Mar	67.6	42.3	55.0	88	1972	17	60.7	1972	23	1951	3	50.3	1977	317	6	.0	.0	30.9	.0	1.3	.0
Apr	75.3	44.6	60.0	98+	2001	25	64.8	1990	22	1999	3	54.6	1975	186	34	.0	1.1	30.0	.0	.5	.0
May	83.7	50.6	67.2	106	2001	31	73.1	1997	30	1978	16	60.6	1977	67	133	.9	7.9	31.0	.0	@	.0
Jun	91.5	56.3	73.9	111	1961	15	79.5	1981	37	1979	18	69.2	1982	6	273	5.0	18.8	30.0	.0	.0	.0
Jul	96.5	60.6	78.6	111	1960	19	82.2	1996	42	1978	3	73.7	1987	0	420	10.3	27.1	31.0	.0	.0	.0
Aug	95.1	59.7	77.4	110	1996	13	80.4	1996	35	1979	24	73.0	1976	0	385	7.3	25.7	31.0	.0	.0	.0
Sep	90.5	55.8	73.2	108	1984	3	77.8	1984	35	1978	18	68.9	1986	5	249	2.8	17.5	30.0	.0	.0	.0
Oct	81.1	48.2	64.7	100	1991	10	69.1	1991	28	1971	29	60.5	1981	89	77	@	5.0	31.0	.0	.2	.0
Nov	65.5	40.7	53.1	87	1949	7	59.1	1995	23	1957	30	49.0	1994	359	1	.0	.0	29.7	.0	3.7	.0
Dec	55.1	35.8	45.5	72+	1993	10	51.2	1995	15	1990	24	40.5	1978	605	0	.0	.0	25.5	.0	11.3	.0
Ann	76.6	47.7	62.2	111+	Jun 1961	15	82.2	Jul 1996	15	Dec 1990	24	40.5	Dec 1978	2602	1578	26.3	103.1	351.9	@	29.2	.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/normal/usnormals.html

Issue Date: February 2004

(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

Climatography of the United States

No. 20 1971-2000

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COOP ID: 045532

Climate Division: **CA 5**

NWS Call Sign:

Elevation: **153 Feet** Lat: **37° 17N**

Lon: **120° 31W**

Precipitation (inches)

		Precipitation Totals								Mean Number of Days (3)				Precipitation Probabilities (1)											
														Probability that the monthly/annual precipitation will be equal to or less than the indicated amount											
Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels												
													These values were determined from the incomplete gamma distribution												
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	
Jan	2.43	2.02	2.04	1952	15	6.71	1995	.14	1976	10.6	5.9	1.6	.2	.20	.37	.69	1.03	1.39	1.82	2.32	2.95	3.82	5.29	6.72	
Feb	2.43	2.45	1.55	1975	2	6.10	1998	.26	1997	9.0	5.8	1.7	.2	.31	.50	.85	1.19	1.54	1.94	2.40	2.97	3.73	4.99	6.21	
Mar	2.23	1.97	1.72	1998	25	5.47	1983	.00+	1997	8.3	5.4	1.6	.2	.00	.23	.62	.98	1.34	1.75	2.21	2.77	3.55	4.81	6.04	
Apr	.89	.76	1.51	1958	3	3.48	1978	.02+	1992	4.2	2.6	.5	.1	.03	.08	.17	.29	.43	.59	.79	1.06	1.44	2.09	2.75	
May	.45	.16	1.13	1990	28	2.13	1998	.00+	1992	2.1	1.3	.2	@	.00	.00	.00	.00	.05	.17	.31	.51	.80	1.31	1.82	
Jun	.09	.00	.48	1998	7	.61	1993	.00+	1999	.6	.3	.0	.0	.00	.00	.00	.00	.00	.00	.01	.06	.15	.32	.50	
Jul	.03	.00	.42	1974	9	.42	1974	.00+	2000	.2	.1	.0	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.22	
Aug	.02	.00	.47	1965	12	.23	1983	.00+	2000	.3	.1	.0	.0	**	**	**	**	**	**	**	**	**	**	**	
Sep	.19	.00	.84	1976	11	1.34	1989	.00+	1999	1.2	.6	.1	.0	.00	.00	.00	.00	.00	.00	.01	.11	.29	.65	1.03	
Oct	.73	.59	1.51	1991	26	3.78	2000	.00+	1999	2.5	1.6	.6	.1	.00	.00	.00	.18	.33	.50	.69	.93	1.25	1.79	2.31	
Nov	1.41	1.01	2.02	1981	13	4.91	1972	.00+	1995	6.5	3.4	.9	.1	.00	.07	.26	.47	.71	.98	1.31	1.72	2.30	3.29	4.28	
Dec	1.60	1.52	2.10	1955	23	4.49	1996	.10	1989	8.2	4.0	.9	.2	.18	.30	.53	.75	.99	1.25	1.57	1.95	2.48	3.35	4.20	
Ann	12.50	10.78	2.10	Dec 1955	23	6.71	Jan 1995	.00+	Aug 2000	53.7	31.1	8.1	1.1	5.84	6.93	8.43	9.64	10.77	11.89	13.10	14.47	16.20	18.81	21.15	

+ 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

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Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Climatology of the United States

No. 20 1971-2000

Station: **MERCED, CA**

COOP ID: **045532**

Climate Division: **CA 5**

NWS Call Sign:

Elevation: **153 Feet**

Lat: **37° 17N**

Lon: **120° 31W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	5	#	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	5	#	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

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-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	5/04	4/24	4/17	4/11	4/05	3/30	3/24	3/17	3/07
32	4/10	3/29	3/20	3/12	3/05	2/26	2/18	2/09	1/28
28	3/16	3/02	2/19	2/10	2/01	1/23	1/14	1/02	12/15
24	2/07	1/23	1/10	12/28	12/05	0/00	0/00	0/00	0/00
20	1/05	12/15	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	10/06	10/15	10/22	10/27	11/02	11/07	11/13	11/19	11/28
32	10/29	11/04	11/09	11/13	11/16	11/20	11/23	11/28	12/04
28	11/14	11/22	11/28	12/03	12/08	12/12	12/18	12/24	1/02
24	12/08	12/20	12/30	1/11	0/00	0/00	0/00	0/00	0/00
20	12/21	1/11	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	253	238	228	218	210	201	192	181	166
32	297	283	273	264	256	247	238	228	214
28	>365	346	329	317	306	296	285	273	256
24	>365	>365	>365	>365	>365	>365	>365	344	323
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
65	581	387	317	186	67	6	0	0	5	89	359	605	2602
60	426	249	184	95	22	0	0	0	0	29	220	450	1675
57	340	172	121	55	10	0	0	0	0	12	149	364	1223
55	283	126	88	35	5	0	0	0	0	5	109	307	958
50	162	45	27	9	0	0	0	0	0	0	41	181	465
32	2	0	0	0	0	0	0	0	0	0	0	3	5

Base	Cooling Degree Days (1)												
	Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
32	444	537	712	838	1089	1256	1443	1408	1234	1011	632	421	11025
55	12	19	86	183	381	566	730	695	544	303	52	11	3582
57	7	9	58	143	324	506	668	633	484	247	32	7	3118
60	0	2	28	93	243	417	575	540	394	172	12	0	2476
65	0	0	6	34	133	273	420	385	249	77	1	0	1578
70	0	0	0	9	58	148	267	231	125	24	0	0	862

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	204	334	471	611	859	1032	1203	1161	999	765	395	189	204	538	1009	1620	2479	3511	4714	5875	6874	7639	8034	8223
45	92	195	318	461	704	882	1048	1006	849	610	249	79	92	287	605	1066	1770	2652	3700	4706	5555	6165	6414	6493
50	34	82	174	313	549	732	893	851	699	456	122	23	34	116	290	603	1152	1884	2777	3628	4327	4783	4905	4928
55	3	20	67	180	394	582	738	696	549	304	43	1	3	23	90	270	664	1246	1984	2680	3229	3533	3576	3577
60	0	1	14	81	248	433	583	541	400	172	7	0	0	1	15	96	344	777	1360	1901	2301	2473	2480	2480
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	103	194	290	393	541	640	729	711	616	489	243	103	103	297	587	980	1521	2161	2890	3601	4217	4706	4949	5052

(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/normal/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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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