

Climatology of the United States

No. 20

1971-2000

Station: SANTA MONICA PIER, CA

COOP ID: 047953

Climate Division: CA 6

NWS Call Sign: 1L2

Elevation: 14 Feet

Lat: 34°00N

Lon: 118°30W

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	63.7	50.2	57.0	85+	1977	18	61.2	1986	34	1950	13	53.2	1972	253	3	.0	.0	31.0	.0	.0	.0
Feb	63.4	51.3	57.4	89	1987	6	60.9	1992	38+	1989	6	52.9	1979	233	4	.0	.0	28.2	.0	.0	.0
Mar	62.1	52.1	57.1	90	1978	17	60.7	1988	33	1952	21	53.3	1999	233	4	.0	@	31.0	.0	.0	.0
Apr	63.4	53.9	58.7	99	1989	6	63.5	1992	39	1957	22	54.4	1975	200	9	.0	@	30.0	.0	.0	.0
May	63.6	56.5	60.1	88	1953	4	65.3	1997	43+	1983	2	56.7	1975	171	18	.0	@	31.0	.0	.0	.0
Jun	65.9	59.4	62.7	92	1957	18	67.8	1981	45	1965	23	59.4	1982	105	34	.0	.1	30.0	.0	.0	.0
Jul	68.8	62.1	65.5	91	1959	10	68.9	1984	51+	1960	12	62.7	1978	49	63	.0	.0	31.0	.0	.0	.0
Aug	70.3	63.1	66.7	95	1983	6	71.9	1983	52+	1979	5	62.8	1975	47	98	.0	.0	31.0	.0	.0	.0
Sep	70.5	62.6	66.6	104	1963	26	73.1	1984	44	1961	1	62.9	1999	56	103	.0	.1	30.0	.0	.0	.0
Oct	69.6	59.4	64.5	99+	1988	9	68.6	1983	42+	1971	30	60.1	2000	72	55	.0	.3	31.0	.0	.0	.0
Nov	67.3	54.3	60.8	100	1966	1	66.6	1976	37	1983	27	56.0	2000	155	29	.0	.1	30.0	.0	.0	.0
Dec	64.8	50.5	57.7	89	1979	5	63.2	1976	34+	1951	9	52.7	1971	236	9	.0	.0	31.0	.0	.0	.0
Ann	66.1	56.3	61.2	104	Sep 1963	26	73.1	Sep 1984	33	Mar 1952	21	52.7	Dec 1971	1810	429	.0	.6	365.2	.0	.0	.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

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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	Median	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	3.06	1.76	5.11	1969	20	17.82	1995	.00+	1976	6.0	4.6	2.3	1.1	.00	.00	.34	.77	1.28	1.90	2.68	3.69	5.12	7.61	10.13	
Feb	3.29	2.42	4.24	1962	8	12.10	1980	.00	1997	5.9	4.5	2.5	1.1	.02	.12	.41	.80	1.30	1.93	2.75	3.84	5.44	8.26	11.15	
Mar	2.56	1.95	4.14	1968	8	9.85	1978	.00	1997	5.1	3.6	1.6	.6	.04	.17	.48	.83	1.23	1.72	2.31	3.08	4.18	6.05	7.93	
Apr	.53	.26	1.72	1960	27	2.06	1975	.00+	1997	2.4	1.5	.4	.1	.00	.00	.00	.00	.08	.22	.40	.64	.96	1.53	2.09	
May	.25	.00	1.73	1998	5	2.92	1998	.00+	1999	1.0	.4	.1	.1	.00	.00	.00	.00	.00	.00	.00	.05	.24	.79	1.34	
Jun	.04	.00	.55	1993	5	.55	1993	.00+	1997	.4	.1	@	.0	.00	.00	.00	.00	.00	.00	.00	.00	.01	.11	.24	
Jul	.01	.00	.39	1969	11	.16	1991	.00+	2000	.2	.0	.0	.0	**	**	**	**	**	**	**	**	**	**	**	
Aug	.13	.00	2.81	1977	17	3.14	1977	.00+	1999	.5	.1	@	@	.00	.00	.00	.00	.00	.00	.00	.00	.01	.28	.79	
Sep	.17	.00	1.00	1983	30	1.11	1986	.00+	2000	1.0	.5	.1	@	.00	.00	.00	.00	.00	.00	.02	.10	.25	.55	.88	
Oct	.36	.23	1.45	1996	30	2.30	1987	.00+	1999	1.8	.9	.2	.1	.00	.00	.00	.03	.10	.18	.28	.42	.62	.98	1.33	
Nov	1.02	.64	4.20	1970	29	3.79	1985	.00+	2000	2.5	2.0	.7	.3	.00	.00	.00	.05	.25	.50	.81	1.22	1.80	2.82	3.84	
Dec	1.85	1.42	3.34	1951	29	6.46	1971	.00+	1999	4.0	3.0	1.3	.5	.00	.05	.26	.51	.81	1.18	1.63	2.22	3.07	4.54	6.03	
Ann	13.27	11.24	5.11	Jan 1969	20	17.82	Jan 1995	.00+	Nov 2000	30.8	21.2	9.2	3.9	4.09	5.36	7.23	8.84	10.40	12.02	13.80	15.89	18.58	22.79	26.68	

+ 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

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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	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	.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	.0	N/A	N/A	.0	0	0	.0	0	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	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
32	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
28	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	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	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
32	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
28	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	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	>365	>365	>365	>365	>365	>365	>365	>365	>365
32	>365	>365	>365	>365	>365	>365	>365	>365	>365
28	>365	>365	>365	>365	>365	>365	>365	>365	>365
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)

Base	Heating Degree Days (1)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Below 65	253	233	233	200	171	105	49	47	56	72	155	236	1810
60	119	102	116	90	73	32	6	9	13	15	69	115	759
57	64	55	62	46	33	11	1	2	5	4	34	65	382
55	36	31	35	24	17	5	0	0	0	1	19	38	206
50	5	5	5	4	2	0	0	0	0	0	3	7	31
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Above 32	773	710	778	799	870	919	1037	1075	1036	1007	864	796	10664
55	96	97	99	133	174	234	324	362	346	294	193	121	2473
57	63	66	65	95	128	180	262	302	291	236	147	86	1921
60	24	28	26	49	75	111	175	215	210	153	93	43	1202
65	3	4	4	9	18	34	63	98	103	55	29	9	429
70	0	0	0	0	2	5	9	28	34	9	6	0	93

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	544	519	546	574	644	703	807	850	815	744	636	567	544	1063	1609	2183	2827	3530	4337	5187	6002	6746	7382	7949
45	389	374	391	424	489	553	652	695	665	589	486	412	389	763	1154	1578	2067	2620	3272	3967	4632	5221	5707	6119
50	234	229	236	274	334	403	497	540	515	434	336	258	234	463	699	973	1307	1710	2207	2747	3262	3696	4032	4290
55	99	101	93	128	179	253	342	385	365	284	192	118	99	200	293	421	600	853	1195	1580	1945	2229	2421	2539
60	26	30	20	33	49	107	187	230	215	147	74	35	26	56	76	109	158	265	452	682	897	1044	1118	1153
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	257	245	246	278	334	403	497	540	514	448	347	276	257	502	748	1026	1360	1763	2260	2800	3314	3762	4109	4385

(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