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: WILLITS 1 NE, CA **COOP ID: 049684**

Climate Division: CA 1 **NWS Call Sign:** **Elevation: 1,350 Feet** **Lat: 39˚25N** **Lon: 123˚21W**

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	32.1	43.4	77	1962	8	47.2	1986	12	1980	30	39.5	1982	669	0	.0	.0	25.7	.0	15.6	.0
Feb	57.7	34.6	46.2	80	1986	26	51.3	1995	13+	1989	8	41.0	1989	529	0	.0	.0	24.1	.2	10.6	.0
Mar	60.1	35.9	48.0	83+	1997	26	53.0	1993	10	1985	3	43.8	1985	527	0	.0	.0	29.0	.0	8.8	.0
Apr	64.3	36.8	50.6	94	1968	28	55.2	1989	21+	2001	3	45.6	1975	434	0	.0	.1	29.5	.0	5.8	.0
May	70.7	40.2	55.5	98+	1982	23	61.2	1992	27	1988	1	50.1	1977	301	6	.0	1.3	31.0	.0	1.8	.0
Jun	77.8	44.3	61.1	104	1961	15	65.6	1977	31+	1999	8	57.1	1980	139	20	.5	4.8	30.0	.0	.1	.0
Jul	84.5	47.4	66.0	108	1972	15	69.9	1996	32	1981	7	62.0	1987	56	84	1.0	10.5	31.0	.0	@	.0
Aug	84.6	46.1	65.4	107	1981	8	68.4	1998	35+	1999	31	62.3	1985	44	54	.8	9.5	31.0	.0	.0	.0
Sep	81.9	42.5	62.2	105+	1998	3	65.7	1991	28+	1972	23	58.2	1986	109	26	.5	7.6	30.0	.0	.5	.0
Oct	74.0	37.9	56.0	102	1980	2	59.6	1991	17	1971	29	52.6	1998	285	3	.1	2.3	31.0	.0	5.1	.0
Nov	60.4	34.5	47.5	90	1966	1	53.7	1995	13	1978	11	41.9	1994	525	0	.0	.0	28.6	.0	11.0	.0
Dec	54.7	31.2	43.0	73	1967	25	47.9	1995	5	1972	9	36.7	1990	684	0	.0	.0	25.4	@	17.6	.0
Ann	68.8	38.6	53.7	108	Jul 1972	15	69.9	Jul 1996	5	Dec 1972	9	36.7	Dec 1990	4302	193	2.9	36.1	346.3	.2	76.9	.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: 1960-2001

(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	9.91	10.27	5.90	1974	16	28.36	1995	.83	1984
Feb	8.78	7.93	6.66	1960	8	21.62	1986	.23	1988
Mar	7.40	5.46	4.53	1974	29	18.93	1995	.69	1994
Apr	3.08	2.84	2.38	1974	1	6.93	1982	.13	1985
May	1.61	1.10	1.76	1990	26	8.40	1990	.00	1982
Jun	.32	.08	1.13+	1997	4	1.63	1992	.00+	1999
Jul	.10	.00	1.25	1974	8	1.26	1974	.00+	2000
Aug	.21	.02	1.29	1968	20	1.61	1976	.00+	1999
Sep	.87	.18	1.69	1972	26	4.93	1986	.00+	1999
Oct	2.77	2.41	3.60	1962	12	6.85	1979	.00+	1995
Nov	6.89	5.89	3.90	1962	26	19.18	1983	.75	1990
Dec	7.83	6.76	8.80	1964	22	25.17	1996	.18	1989
Ann	49.77	46.84	8.80	Dec 1964	22	28.36	Jan 1995	.00+	Jul 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	14.1	11.2	6.3	3.4
Feb	13.1	10.2	6.0	3.0
Mar	13.7	9.9	5.2	2.6
Apr	8.8	5.9	2.2	.6
May	5.8	3.3	1.1	.4
Jun	1.9	.8	.2	.1
Jul	.4	.2	.1	@
Aug	1.2	.5	.1	@
Sep	2.5	1.5	.6	.2
Oct	6.5	4.1	2.0	.9
Nov	12.6	8.8	4.9	2.7
Dec	12.6	9.7	5.4	2.6
Ann	93.2	66.1	34.1	16.5

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	1.54	2.38	3.82	5.19	6.60	8.15	9.93	12.10	15.01	19.74	24.27
Feb	1.15	1.86	3.11	4.33	5.62	7.04	8.69	10.72	13.47	17.97	22.32
Mar	1.10	1.73	2.79	3.82	4.88	6.05	7.39	9.04	11.25	14.84	18.30
Apr	.44	.69	1.13	1.56	2.01	2.50	3.07	3.77	4.71	6.24	7.72
May	.04	.14	.35	.57	.83	1.13	1.50	1.96	2.61	3.72	4.82
Jun	.00	.00	.00	.02	.07	.13	.22	.35	.55	.90	1.27
Jul	.00	.00	.00	.00	.00	.00	.00	.00	.02	.23	.52
Aug	.00	.00	.00	.00	.00	.01	.06	.16	.33	.67	1.03
Sep	.00	.00	.00	.00	.06	.22	.47	.85	1.46	2.61	3.84
Oct	.00	.34	.86	1.30	1.75	2.24	2.80	3.46	4.37	5.85	7.27
Nov	.63	1.11	2.04	2.99	4.04	5.22	6.63	8.39	10.81	14.85	18.81
Dec	.68	1.21	2.25	3.34	4.53	5.89	7.51	9.54	12.34	17.02	21.62
Ann	25.51	29.63	35.22	39.67	43.77	47.85	52.17	57.08	63.19	72.36	80.55

\+ 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: 1960-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	1.5	.0	#	0
Feb	.8	.0	#	0
Mar	.5	.0	#	0
Apr	#	.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
Dec	.5	.0	#	0
Ann	3.3	.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	8.0	1972	27	8.1	1972	6	1975	31	#+	1975
Feb	8.0	1990	17	8.0	1990	8	1990	17	1	1990
Mar	3.0	1982	29	5.0	1982	2	1976	2	#+	1995
Apr	#	1975	4	#	1975	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	1.0	1978	12	1.0	1978	1	1978	12	#	1978
Dec	4.0	1972	7	8.5	1972	4	1988	27	#+	1990
Ann	8.0+	Feb 1990	17	8.5	Dec 1972	8	Feb 1990	17	1	Feb 1990

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.6	.5	.2	.1	.0
Feb	.3	.2	.1	.1	.0
Mar	.3	.3	.1	.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
Dec	.3	.2	@	.0	.0
Ann	1.5	1.2	.4	.2	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.2	.1	@	.0
Feb	.2	.1	.1	.0
Mar	.1	.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
Dec	@	.0	.0	.0
Ann	.5	.2	.1	.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	7/02	6/26	6/21	6/17	6/13	6/09	6/05	5/31	5/25
32	6/05	5/27	5/21	5/16	5/11	5/06	5/01	4/25	4/16
28	5/10	4/26	4/17	4/09	4/01	3/24	3/16	3/06	2/21
24	3/16	3/01	2/18	2/09	1/31	1/22	1/12	12/31	12/13
20	2/08	1/25	1/15	1/06	12/28	12/17	11/30	0/00	0/00
16	1/27	1/04	12/04	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	8/19	8/29	9/05	9/11	9/17	9/22	9/28	10/05	10/15
32	9/21	9/27	10/02	10/06	10/09	10/13	10/17	10/21	10/28
28	10/04	10/14	10/21	10/27	11/01	11/07	11/13	11/20	11/30
24	10/28	11/08	11/16	11/23	11/29	12/06	12/13	12/22	1/04
20	11/15	11/28	12/08	12/17	12/26	1/05	1/21	0/00	0/00
16	12/14	1/10	2/15	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	130	118	109	102	95	88	80	72	60
32	177	168	161	156	151	145	140	133	124
28	267	249	236	224	214	203	192	179	160
24	>365	341	321	308	297	287	277	265	249
20	>365	>365	>365	>365	>365	346	331	318	302
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	669	529	527	434	301	139	56	44	109	285	525	684	4302
60	514	389	372	288	170	50	11	4	32	152	376	529	2887
57	421	308	286	207	109	20	3	0	11	91	291	436	2183
55	359	256	231	159	77	10	0	0	4	60	237	376	1769
50	211	141	118	69	23	1	0	0	0	15	124	233	935
32	0	0	0	0	0	0	0	0	0	0	0	3	3

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	354	396	496	556	727	871	1051	1033	907	742	465	343	7941
55	0	7	14	25	91	191	339	320	221	89	12	2	1311
57	0	4	7	13	62	142	279	258	168	58	6	0	997
60	0	0	0	4	29	82	194	169	99	26	1	0	604
65	0	0	0	0	6	20	84	54	26	3	0	0	193
70	0	0	0	0	0	2	21	6	3	0	0	0	32

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	159	209	280	350	501	662	827	803	692	518	260	143	159	368	648	998	1499	2161	2988	3791	4483	5001	5261	5404
45	51	94	144	205	347	512	672	648	542	363	133	47	51	145	289	494	841	1353	2025	2673	3215	3578	3711	3758
50	4	29	50	96	203	364	517	493	392	222	44	5	4	33	83	179	382	746	1263	1756	2148	2370	2414	2419
55	0	0	4	31	94	222	363	338	244	108	6	0	0	0	4	35	129	351	714	1052	1296	1404	1410	1410
60	0	0	0	2	38	110	218	191	118	32	0	0	0	0	0	2	40	150	368	559	677	709	709	709
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	102	127	178	238	336	424	520	514	466	381	176	103	102	229	407	645	981	1405	1925	2439	2905	3286	3462	3565

(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