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: GRASS VALLEY NO 2, CA **COOP ID: 043573**

Climate Division: CA 2 **NWS Call Sign:** **Elevation: 2,400 Feet** **Lat: 39˚12N** **Lon: 121˚04W**

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	52.9	31.4	42.2	77+	1975	19	46.8	1986	15	1979	29	36.9	1982	708	0	.0	.0	20.3	.0	18.3	.0
Feb	55.0	33.3	44.2	81	1971	12	49.6	1995	9+	1989	7	39.0	1990	584	0	.0	.0	19.9	.2	12.5	.0
Mar	56.9	35.9	46.4	81+	1986	29	51.4	1972	19	1970	2	41.1	1991	578	0	.0	.0	24.5	.0	9.3	.0
Apr	62.6	39.0	50.8	88+	1987	28	56.3	1987	26+	1999	9	43.8	1975	429	3	.0	.0	26.9	.0	3.9	.0
May	70.3	44.9	57.6	99	1984	29	64.7	1992	27	1988	1	50.4	1977	257	27	.0	.5	30.4	.0	.4	.0
Jun	79.3	50.8	65.1	100	2000	14	69.3	1977	36+	1988	8	59.6	1980	82	83	@	4.3	30.0	.0	.0	.0
Jul	86.6	55.2	70.9	108+	1972	16	75.6	1996	40	1987	22	64.4	1983	18	200	.4	11.6	31.0	.0	.0	.0
Aug	86.4	54.2	70.3	108	1971	11	74.2	1996	41	1989	30	64.3	1976	17	182	.6	12.1	31.0	.0	.0	.0
Sep	81.0	49.7	65.4	104	1971	14	70.4	1975	35	1986	28	58.0	1986	88	97	.2	5.4	30.0	.0	.0	.0
Oct	71.5	42.7	57.1	97	2001	2	62.2	1991	27	1969	14	50.7	1984	265	20	.0	1.3	30.7	.0	1.2	.0
Nov	58.1	35.3	46.7	87	1966	1	54.0	1995	19	1977	19	41.2	1994	549	0	.0	.0	24.9	.0	9.5	.0
Dec	53.1	31.0	42.1	80	1980	16	45.6	1989	3+	1972	10	36.1	1972	712	0	.0	.0	20.5	.1	19.5	.0
Ann	67.8	42.0	54.9	108+	Jul 1972	16	75.6	Jul 1996	3+	Dec 1972	10	36.1	Dec 1972	4287	612	1.2	35.2	320.1	.3	74.6	.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: 1966-2001

(3) Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

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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	9.86	9.79	6.31	1997	2	25.22	1995	.34	1984
Feb	9.21	7.64	6.77	1986	17	25.45	1986	.38	1988
Mar	8.52	6.82	4.92	1983	13	23.45	1995	1.49	1994
Apr	3.69	2.78	3.30	1982	3	11.31	1982	.24	1973
May	1.97	1.21	3.61	1996	16	7.85	1998	.00+	1992
Jun	.62	.42	1.52	1995	16	2.77	1995	.00+	1986
Jul	.18	.00	2.62	1974	9	3.82	1974	.00+	2000
Aug	.23	.04	1.82	1976	15	2.34	1976	.00+	2000
Sep	1.10	.48	2.09	1986	27	5.77	1986	.00+	1999
Oct	2.72	2.13	4.32	1991	26	7.87	1975	.00+	1995
Nov	7.08	5.24	5.49	1988	23	21.29	1973	.60	1995
Dec	7.89	6.26	5.31	1981	20	27.81	1996	.00	1989
Ann	53.07	48.96	6.77	Feb 1986	17	27.81	Dec 1996	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.4	9.5	6.0	3.8
Feb	11.8	9.1	5.5	3.1
Mar	12.7	10.0	5.6	3.0
Apr	8.3	5.5	2.7	1.1
May	5.4	3.5	1.4	.5
Jun	2.6	1.3	.4	.2
Jul	.5	.2	.1	.1
Aug	1.2	.4	.2	@
Sep	2.6	1.9	.9	.3
Oct	5.1	3.5	1.7	1.1
Nov	10.2	7.9	4.8	2.3
Dec	10.9	8.4	4.9	2.7
Ann	83.7	61.2	34.2	18.2

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	.95	1.66	3.00	4.37	5.86	7.55	9.54	12.03	15.44	21.11	26.67
Feb	.91	1.58	2.84	4.12	5.51	7.07	8.92	11.23	14.40	19.65	24.80
Mar	1.35	2.08	3.32	4.49	5.70	7.03	8.55	10.40	12.88	16.90	20.76
Apr	.49	.79	1.32	1.83	2.37	2.97	3.66	4.51	5.65	7.53	9.35
May	.00	.05	.27	.53	.85	1.24	1.73	2.36	3.26	4.83	6.42
Jun	.00	.00	.05	.13	.23	.35	.52	.73	1.04	1.58	2.14
Jul	.00	.00	.00	.00	.00	.00	.00	.00	.04	.42	1.09
Aug	.00	.00	.00	.00	.00	.01	.06	.17	.36	.74	1.15
Sep	.00	.00	.00	.06	.19	.41	.72	1.17	1.86	3.15	4.51
Oct	.00	.00	.48	.92	1.39	1.93	2.57	3.39	4.49	6.35	8.20
Nov	.74	1.27	2.25	3.23	4.30	5.49	6.90	8.65	11.04	15.00	18.86
Dec	.51	1.30	2.54	3.70	4.92	6.27	7.82	9.73	12.32	16.56	20.66
Ann	26.60	31.05	37.12	41.97	46.44	50.89	55.63	61.01	67.73	77.82	86.85

\+ 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: 1966-2001
(3) Derived from 1971-2000 serially complete daily data

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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	2.1	.0	#	0
Feb	1.9	.0	#	0
Mar	2.0	.0	#	0
Apr	.8	.0	#	0
May	#	.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	.5	.0	#	0
Dec	2.1	.0	#	0
Ann	9.4	.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	12.0	1974	6	23.0	1974	17	1974	7	3	1974
Feb	8.0	1989	4	11.1	1989	22	1990	17	10	1990
Mar	6.0	1991	26	18.0	1991	7	1991	26	1	1991
Apr	6.5	1975	5	13.3	1975	8	1975	6	1	1975
May	#	1974	17	#	1974	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	4.5	1978	13	4.5+	1985	5	1985	12	#+	1985
Dec	10.8	1984	16	15.1	1971	11	1984	16	2	1972
Ann	12.0	Jan 1974	6	23.0	Jan 1974	22	Feb 1990	17	10	Feb 1990

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.8	.5	.2	.1	@
Feb	.8	.6	.2	.2	.0
Mar	.9	.6	.4	.2	.0
Apr	.4	.2	.1	@	.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	.1	.1	.1	.0	.0
Dec	1.0	.8	.2	.1	@
Ann	4.0	2.8	1.2	.6	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.7	.4	.3	.1
Feb	.5	.1	@	.0
Mar	.3	.2	.1	.0
Apr	.3	.1	.1	.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	.1	@	@	.0
Dec	1.3	.7	.4	.1
Ann	3.2	1.5	.9	.2

+ 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	5/29	5/22	5/18	5/13	5/10	5/06	5/02	4/27	4/20
32	5/12	5/04	4/29	4/25	4/20	4/16	4/12	4/06	3/30
28	4/17	4/07	3/31	3/25	3/19	3/13	3/07	2/28	2/18
24	3/07	2/21	2/11	2/03	1/26	1/18	1/08	12/28	12/06
20	1/31	1/19	1/09	12/30	12/15	0/00	0/00	0/00	0/00
16	12/31	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	9/27	10/05	10/10	10/15	10/19	10/24	10/28	11/03	11/11
32	10/18	10/25	10/29	11/02	11/06	11/10	11/14	11/18	11/25
28	11/06	11/12	11/15	11/19	11/22	11/25	11/28	12/02	12/07
24	11/17	11/28	12/06	12/14	12/21	12/28	1/06	1/17	0/00
20	12/09	12/21	12/31	1/11	1/29	0/00	0/00	0/00	0/00
16	12/31	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	194	183	175	168	162	156	149	141	130
32	226	217	210	204	199	194	188	181	172
28	282	270	261	254	247	240	233	224	212
24	>365	>365	354	335	322	311	300	288	272
20	>365	>365	>365	>365	>365	>365	>365	>365	336
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	708	584	578	429	257	82	18	17	88	265	549	712	4287
60	553	444	425	291	150	27	2	2	32	152	403	557	3038
57	460	361	339	217	101	11	0	0	15	99	320	464	2387
55	398	308	283	174	73	6	0	0	8	71	268	405	1994
50	250	183	163	89	27	0	0	0	1	25	156	262	1156
32	1	0	0	0	0	0	0	0	0	0	3	8	12

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	316	340	446	563	793	991	1205	1188	1000	778	444	319	8383
55	0	4	15	47	153	307	492	475	318	136	19	2	1968
57	0	1	9	30	118	252	430	413	264	102	11	0	1630
60	0	0	2	15	75	178	339	322	191	61	4	0	1187
65	0	0	0	3	27	83	200	182	97	20	0	0	612
70	0	0	0	0	7	26	95	79	36	4	0	0	247

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	127	164	231	345	561	762	966	953	779	551	239	131	127	291	522	867	1428	2190	3156	4109	4888	5439	5678	5809
45	44	72	115	216	406	612	811	798	629	398	122	43	44	116	231	447	853	1465	2276	3074	3703	4101	4223	4266
50	3	20	42	109	266	462	656	643	480	259	48	0	3	23	65	174	440	902	1558	2201	2681	2940	2988	2988
55	0	0	3	40	150	319	501	488	334	143	13	0	0	0	3	43	193	512	1013	1501	1835	1978	1991	1991
60	0	0	0	5	68	190	348	336	204	56	0	0	0	0	0	5	73	263	611	947	1151	1207	1207	1207
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	95	110	140	209	336	474	616	596	485	353	155	98	95	205	345	554	890	1364	1980	2576	3061	3414	3569	3667

(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