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: CEDAR LAKE, WA **COOP ID: 451233**

Climate Division: WA 5 **NWS Call Sign:** **Elevation: 1,560 Feet** **Lat: 47˚25N** **Lon: 121˚45W**

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	40.4	30.5	35.5	61+	1961	22	43.3	1981	-11	1950	25	28.6	1979	916	0	.0	.0	2.6	4.1	18.9	.0
Feb	44.3	31.8	38.1	67+	1992	27	44.2	1992	0	1956	15	30.7	1989	755	0	.0	.0	6.0	1.2	15.2	.0
Mar	48.4	33.1	40.8	76	1994	29	46.7	1992	8	1955	4	35.1	1971	752	0	.0	.0	11.9	.1	15.4	.0
Apr	53.6	36.0	44.8	86	1934	20	49.1	1992	24+	1975	5	39.5	1975	606	0	.0	.0	18.1	.0	7.7	.0
May	60.2	41.2	50.7	96	1983	29	56.8	1993	28	1954	1	46.1	1974	443	0	.0	.1	26.8	.0	.8	.0
Jun	65.3	45.7	55.5	95	1942	30	60.1	1992	32	1976	3	50.8	1971	290	4	.0	.2	29.6	.0	@	.0
Jul	71.6	49.6	60.6	98+	1958	28	67.1	1985	37+	1971	2	56.0	1993	163	26	.0	.9	31.0	.0	.0	.0
Aug	72.6	50.4	61.5	98+	1981	10	65.1	1981	35	1951	29	57.2	1976	136	27	.0	1.0	31.0	.0	.0	.0
Sep	66.8	46.3	56.6	101	1988	3	61.5	1974	29	1972	27	52.3	1972	262	9	@	.3	29.7	.0	.1	.0
Oct	57.3	40.2	48.8	89	1987	2	54.0	1987	20	1935	31	45.7	1990	504	0	.0	.0	25.1	.0	2.1	.0
Nov	45.5	34.6	40.1	73	1949	5	45.3	1976	2	1955	15	30.4	1985	748	0	.0	.0	8.6	.8	11.0	.0
Dec	40.2	30.8	35.5	60+	1965	4	39.5	1980	-3	1968	30	28.7	1983	915	0	.0	.0	1.9	2.6	18.8	.0
Ann	55.5	39.2	47.4	101	Sep 1988	3	67.1	Jul 1985	-11	Jan 1950	25	28.6	Jan 1979	6490	66	@	2.5	222.3	8.8	90.0	.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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1931-2001

(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	12.92	12.75	4.84	1964	25	24.53	1971	1.33	1985
Feb	10.26	10.06	4.70	1951	9	18.86	1982	.45	1993
Mar	9.87	9.44	3.36+	1974	5	17.40	1997	2.19	1992
Apr	8.39	7.87	3.89	1991	5	14.30	1996	2.95	1999
May	6.58	6.47	3.93	1944	23	12.87	1984	2.77	1992
Jun	5.40	5.40	3.51	1993	23	11.82	1981	1.49	1996
Jul	2.97	2.45	3.28	1972	13	11.17	1983	.03	1984
Aug	2.55	2.20	3.17	1950	16	7.75	1975	.42	1986
Sep	4.80	4.35	3.57	1945	20	11.23	1978	.28	1975
Oct	8.19	7.51	5.79	1942	31	18.09	1975	.38	1987
Nov	14.81	15.10	5.85	1986	24	29.60	1990	3.75	1979
Dec	12.72	11.56	4.49	1979	15	22.64	1975	.75	1985
Ann	99.46	101.24	5.85	Nov 1986	24	29.60	Nov 1990	.03	Jul 1984

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	19.2	16.4	8.9	4.5
Feb	16.7	14.4	7.6	3.0
Mar	20.1	16.3	7.5	2.9
Apr	18.7	14.7	6.7	2.2
May	17.9	12.8	5.2	1.4
Jun	15.0	9.9	3.8	1.0
Jul	9.8	5.7	2.0	.7
Aug	9.0	5.1	1.9	.5
Sep	12.1	8.0	3.6	1.1
Oct	16.0	12.3	6.1	2.5
Nov	20.8	18.1	10.8	5.1
Dec	20.7	16.9	9.2	4.3
Ann	196.0	150.6	73.3	29.2

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	4.19	5.41	7.22	8.76	10.25	11.78	13.47	15.44	17.97	21.91	25.55
Feb	2.90	3.87	5.35	6.63	7.88	9.19	10.63	12.34	14.56	18.03	21.27
Mar	4.12	5.02	6.28	7.32	8.30	9.28	10.35	11.57	13.12	15.49	17.63
Apr	3.71	4.46	5.50	6.35	7.14	7.94	8.80	9.78	11.01	12.89	14.59
May	3.22	3.78	4.55	5.16	5.73	6.30	6.90	7.59	8.45	9.75	10.91
Jun	1.70	2.21	2.97	3.63	4.26	4.91	5.63	6.47	7.55	9.24	10.80
Jul	.28	.49	.89	1.30	1.75	2.26	2.86	3.62	4.66	6.39	8.08
Aug	.46	.69	1.06	1.41	1.76	2.15	2.58	3.11	3.81	4.94	6.02
Sep	.62	1.00	1.68	2.35	3.06	3.84	4.75	5.87	7.38	9.87	12.27
Oct	1.79	2.54	3.74	4.83	5.92	7.08	8.38	9.94	12.00	15.28	18.38
Nov	5.72	7.10	9.06	10.69	12.23	13.81	15.51	17.48	19.99	23.84	27.35
Dec	4.20	5.40	7.18	8.68	10.13	11.63	13.26	15.18	17.64	21.45	24.98
Ann	73.06	78.24	84.84	89.82	94.23	98.48	102.86	107.69	113.53	121.96	129.23

\+ 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: 1931-2001
(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	12.4	11.9	3	3
Feb	10.9	5.5	2	1
Mar	7.9	5.3	1	#
Apr	2.9	1.2	#	#
May	.2	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.3	.0	#	0
Nov	5.1	.8	1	#
Dec	11.4	6.8	2	1
Ann	51.1	31.5	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	1987	14	40.6	1996	30	1996	29	10	1975
Feb	10.8	1976	28	40.0	1990	24	1996	1	9	1996
Mar	10.5	1991	5	36.9	1971	21	1971	5	12	1971
Apr	9.0	1972	17	26.9	1972	11	1972	17	1	1999
May	1.5	1978	4	1.8	1978	1	1988	1	#+	1999
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	3.7	1971	27	5.5	1971	10	1984	31	1	1971
Nov	12.2	1977	18	30.2	1985	20	1985	23	8	1985
Dec	17.4	1974	27	42.8	1984	23	1996	29	8	1971
Ann	17.4	Dec 1974	27	42.8	Dec 1984	30	Jan 1996	29	12	Mar 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.6	4.2	1.8	.7	.0
Feb	4.2	3.0	1.2	.6	.2
Mar	3.4	2.2	.8	.4	@
Apr	1.6	1.0	.3	.1	.0
May	.2	.1	.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	.2	.1	@	.0	.0
Nov	2.3	1.4	.6	.3	@
Dec	5.5	3.6	1.6	.6	.1
Ann	23.0	15.6	6.3	2.7	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	13.1	8.9	6.1	2.5
Feb	8.4	5.3	3.1	1.0
Mar	6.6	4.1	2.9	1.3
Apr	1.9	.5	.2	@
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.3	.1	@	.0
Nov	3.4	2.2	1.6	.6
Dec	9.8	5.8	3.7	1.6
Ann	43.6	26.9	17.6	7.0

+ 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	6/07	6/02	5/29	5/26	5/23	5/20	5/16	5/13	5/07
32	5/17	5/11	5/06	5/02	4/28	4/24	4/20	4/16	4/09
28	4/20	4/11	4/04	3/29	3/23	3/18	3/12	3/05	2/24
24	3/23	3/11	3/02	2/23	2/16	2/09	2/02	1/25	1/13
20	3/09	2/26	2/19	2/12	2/05	1/30	1/22	1/11	0/00
16	3/03	2/17	2/07	1/29	1/20	1/10	12/29	12/06	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	9/23	9/28	10/01	10/04	10/07	10/10	10/13	10/16	10/21
32	10/07	10/13	10/17	10/20	10/24	10/27	10/31	11/04	11/10
28	10/22	10/30	11/05	11/10	11/14	11/19	11/24	11/30	12/08
24	11/06	11/16	11/22	11/28	12/04	12/09	12/15	12/22	12/31
20	11/22	12/03	12/11	12/18	12/25	1/01	1/10	1/24	0/00
16	11/26	12/10	12/20	12/29	1/07	1/17	1/31	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	160	152	146	141	136	132	127	121	113
32	205	196	189	183	178	173	167	160	151
28	277	262	252	243	235	227	218	208	193
24	336	320	309	299	290	281	271	260	244
20	>365	>365	347	334	324	315	306	296	282
16	>365	>365	>365	>365	354	339	327	315	300

***** 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	916	755	752	606	443	290	163	136	262	504	748	915	6490
60	761	615	597	456	295	160	71	51	142	350	598	760	4856
57	668	531	504	366	213	100	34	20	88	262	508	667	3961
55	606	475	442	308	166	69	19	10	59	208	450	605	3417
50	454	340	295	173	75	18	3	0	15	97	311	450	2231
32	59	25	10	0	0	0	0	0	0	0	23	50	167

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	167	195	282	384	580	704	886	914	737	519	265	159	5792
55	0	0	0	2	33	82	192	211	106	14	2	0	642
57	0	0	0	1	19	54	145	159	75	6	0	0	459
60	0	0	0	0	7	23	89	97	39	1	0	0	256
65	0	0	0	0	0	4	26	27	9	0	0	0	66
70	0	0	0	0	0	0	5	5	0	0	0	0	10

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	28	51	79	169	344	476	647	670	507	283	81	28	28	79	158	327	671	1147	1794	2464	2971	3254	3335	3363
45	0	15	26	78	200	326	492	515	359	153	24	0	0	15	41	119	319	645	1137	1652	2011	2164	2188	2188
50	0	1	1	31	102	185	337	360	219	66	2	0	0	1	2	33	135	320	657	1017	1236	1302	1304	1304
55	0	0	0	4	43	87	196	212	108	21	0	0	0	0	0	4	47	134	330	542	650	671	671	671
60	0	0	0	0	16	32	92	99	42	5	0	0	0	0	0	0	16	48	140	239	281	286	286	286
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	19	40	91	173	241	361	379	267	132	17	0	0	19	59	150	323	564	925	1304	1571	1703	1720	1720

(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