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: SEDRO WOOLLEY, WA **COOP ID: 457507**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 60 Feet** **Lat: 48˚30N** **Lon: 122˚14W**

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	45.8	32.4	39.1	67	1931	29	45.3	1986	-2	1957	26	32.3	1979	803	0	.0	.0	8.2	1.2	13.6	.0
Feb	49.6	34.0	41.8	74	1986	28	46.6	1991	-1	1950	1	34.0	1989	649	0	.0	.0	13.7	.4	10.1	.0
Mar	54.0	37.1	45.6	75	1942	31	49.4	1986	8	1955	4	41.3	1976	602	0	.0	.0	23.9	@	5.2	.0
Apr	59.2	40.5	49.9	82	1931	23	53.0	1992	25	1954	30	45.8	1975	454	0	.0	.0	28.3	.0	1.1	.0
May	65.0	45.1	55.1	91+	1983	30	59.9	1993	29	1954	1	51.6	1999	309	0	.0	@	30.9	.0	.1	.0
Jun	69.6	49.0	59.3	96	1955	9	63.0	1992	34	1933	1	56.2	1976	176	5	.0	.0	30.0	.0	.0	.0
Jul	74.3	51.3	62.8	94+	1958	28	66.3	1985	37	1949	2	60.3	1986	89	21	.0	.2	31.0	.0	.0	.0
Aug	75.4	51.5	63.5	97	1960	9	66.5	1997	36	1945	20	59.9	1973	80	32	.0	.1	31.0	.0	.0	.0
Sep	70.1	47.7	58.9	91	1944	5	62.3	1974	30	1972	27	54.9	1972	190	7	.0	.0	30.0	.0	@	.0
Oct	60.7	41.7	51.2	86	1987	2	53.8	1993	20+	1935	31	48.3	1972	428	0	.0	.0	29.8	.0	1.8	.0
Nov	50.8	36.9	43.9	71	1939	24	48.8	1997	3	1955	14	32.7	1985	635	0	.0	.0	16.8	.4	6.6	.0
Dec	45.5	33.0	39.3	74	1939	5	44.0	1979	1+	1968	29	33.2	1990	798	0	.0	.0	8.2	1.6	12.4	.0
Ann	60.0	41.7	50.9	97	Aug 1960	9	66.5	Aug 1997	-2	Jan 1957	26	32.3	Jan 1979	5213	65	.0	.3	281.8	3.6	50.9	.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: 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	5.77	5.50	3.23	1935	22	15.80	1971	.88	1985
Feb	4.11	4.26	3.32	1949	16	7.46	1982	.56	1993
Mar	4.15	4.06	1.93	1933	6	7.66	1989	1.11	1992
Apr	3.76	3.28	2.25	2000	14	7.64	1981	1.92	1998
May	3.03	2.93	1.87	1951	11	6.74	1996	.52	1994
Jun	2.85	2.78	2.50	2001	12	7.44	1990	.57	1996
Jul	1.77	1.55	1.55	1932	10	3.67	1983	.00	1985
Aug	1.62	1.64	1.67	1975	23	3.71	1991	.07	1986
Sep	2.68	2.60	1.92	1931	5	7.97	1978	.14	1989
Oct	3.97	3.50	2.97	1945	25	9.90	1985	.25	1987
Nov	6.88	7.28	2.80	1986	24	16.50	1990	2.30	1979
Dec	5.97	5.50	2.45	1967	25	10.10	1979	1.13	1985
Ann	46.56	46.85	3.32	Feb 1949	16	16.50	Nov 1990	.00	Jul 1985

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	19.1	12.4	3.5	1.3
Feb	17.6	10.7	2.3	.5
Mar	18.9	11.6	2.4	.3
Apr	16.5	9.7	2.2	.3
May	14.4	7.9	1.7	.4
Jun	12.1	6.6	1.8	.4
Jul	8.1	4.2	1.1	.2
Aug	7.0	3.4	1.0	.3
Sep	10.6	5.4	1.7	.6
Oct	16.0	8.8	2.7	.6
Nov	20.4	14.4	4.3	1.3
Dec	19.8	13.4	4.3	.9
Ann	180.5	108.5	29.0	7.1

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	1.44	1.98	2.82	3.57	4.30	5.08	5.94	6.97	8.32	10.44	12.43
Feb	1.40	1.79	2.36	2.84	3.30	3.77	4.29	4.90	5.68	6.88	7.99
Mar	1.94	2.30	2.80	3.20	3.58	3.95	4.35	4.81	5.38	6.24	7.02
Apr	1.82	2.14	2.58	2.94	3.26	3.59	3.94	4.34	4.84	5.59	6.27
May	1.01	1.30	1.72	2.08	2.42	2.78	3.16	3.62	4.20	5.10	5.94
Jun	.84	1.11	1.52	1.87	2.21	2.57	2.96	3.42	4.02	4.96	5.83
Jul	.14	.33	.62	.88	1.15	1.44	1.78	2.19	2.74	3.64	4.50
Aug	.19	.32	.54	.77	1.01	1.28	1.59	1.98	2.51	3.38	4.23
Sep	.39	.61	1.00	1.37	1.76	2.18	2.67	3.27	4.08	5.40	6.67
Oct	.80	1.16	1.74	2.27	2.81	3.39	4.05	4.83	5.87	7.54	9.13
Nov	2.35	3.00	3.95	4.75	5.52	6.31	7.18	8.18	9.48	11.48	13.32
Dec	2.56	3.10	3.85	4.47	5.05	5.63	6.26	6.98	7.89	9.27	10.53
Ann	33.84	36.33	39.49	41.89	44.01	46.06	48.18	50.51	53.33	57.41	60.93

\+ 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)

Extremes (2)

Mean Number of Days (1)

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	1.7	.0	#	0	5.0	1980	10	13.6	1971	10	1980	10	2	1993	1.0	.8	.2	@	.0	1.3	.4	.2	.0
Feb	.7	.0	#	0	5.0	1990	16	8.6	1971	8	1990	18	1	1990	.7	.4	.1	@	.0	.3	.1	.1	.0
Mar	.2	.0	#	0	5.5	1989	1	5.5	1989	4+	1989	3	#+	1989	.2	.1	@	@	.0	.2	.1	.0	.0
Apr	#	.0	0	0	#	1976	15	#	1976	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	.9	.0	#	0	11.8	1985	27	16.2	1985	18	1985	28	2	1985	.3	.2	.1	@	@	.4	.1	.0	.0
Dec	2.1	.0	#	0	8.0	1996	29	18.5	1996	19	1996	29	2	1996	1.1	1.0	.3	.1	.0	1.1	.8	.4	.0
Ann	5.6	.0	N/A	N/A	11.8	Nov 1985	27	18.5	Dec 1996	19	Dec 1996	29	2+	Dec 1996	3.3	2.5	.7	.1	@	3.3	1.5	.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	5/18	5/10	5/04	4/29	4/25	4/20	4/15	4/10	4/02
32	4/22	4/14	4/08	4/03	3/29	3/25	3/20	3/14	3/06
28	3/20	3/12	3/06	3/01	2/25	2/20	2/15	2/09	2/01
24	2/27	2/18	2/11	2/06	1/31	1/26	1/20	1/13	1/03
20	2/18	2/07	1/29	1/22	1/15	1/07	12/29	12/15	0/00
16	1/29	1/17	1/07	12/28	12/15	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	9/30	10/05	10/09	10/13	10/16	10/19	10/22	10/26	11/01
32	10/11	10/18	10/23	10/27	10/30	11/03	11/07	11/12	11/19
28	11/01	11/09	11/15	11/20	11/25	11/30	12/05	12/11	12/20
24	11/10	11/22	11/30	12/08	12/15	12/22	12/29	1/07	1/22
20	11/27	12/08	12/17	12/24	1/01	1/09	1/18	2/06	0/00
16	12/08	12/20	12/30	1/10	1/22	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	206	195	187	180	173	167	160	152	140
32	248	236	228	221	214	208	201	192	181
28	310	297	288	280	273	265	257	248	235
24	>365	348	336	326	317	309	300	290	276
20	>365	>365	>365	>365	355	337	325	313	298
16	>365	>365	>365	>365	>365	>365	>365	351	321

***** 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	803	649	602	454	309	176	89	80	190	428	635	798	5213
60	648	509	447	304	166	64	15	15	77	274	485	643	3647
57	555	425	354	218	97	25	3	3	33	184	400	550	2847
55	495	369	296	164	62	11	0	1	16	130	344	488	2376
50	351	241	159	61	12	0	0	0	0	39	217	342	1422
32	32	8	0	0	0	0	0	0	0	0	9	21	70

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	252	283	421	536	715	819	955	974	807	595	364	246	6967
55	2	0	4	10	64	140	242	262	133	12	9	0	878
57	0	0	0	3	37	94	183	202	90	3	5	0	617
60	0	0	0	0	12	43	102	121	44	0	0	0	322
65	0	0	0	0	0	5	21	32	7	0	0	0	65
70	0	0	0	0	0	0	1	3	0	0	0	0	4

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	80	108	186	306	476	585	715	734	577	360	158	79	80	188	374	680	1156	1741	2456	3190	3767	4127	4285	4364
45	25	34	72	161	321	435	560	579	427	211	63	28	25	59	131	292	613	1048	1608	2187	2614	2825	2888	2916
50	0	2	12	61	171	285	405	424	278	86	14	0	0	2	14	75	246	531	936	1360	1638	1724	1738	1738
55	0	0	0	16	70	141	250	270	138	19	0	0	0	0	0	16	86	227	477	747	885	904	904	904
60	0	0	0	0	18	46	110	125	43	2	0	0	0	0	0	0	18	64	174	299	342	344	344	344
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	16	37	76	141	238	310	414	435	321	173	46	15	16	53	129	270	508	818	1232	1667	1988	2161	2207	2222

(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