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: BREMERTON, WA **COOP ID: 450872**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 110 Feet** **Lat: 47˚34N** **Lon: 122˚41W**

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	45.4	34.7	40.1	59+	1984	4	44.7	1994	12	1969	24	34.7	1979	775	0	.0	.0	7.5	.8	12.1	.0
Feb	48.9	35.4	42.2	71	1986	28	46.8	1991	12	1989	3	35.1	1989	641	0	.0	.0	12.8	.3	9.0	.0
Mar	53.6	37.4	45.5	75	1994	30	49.8	1992	19	1989	3	40.2	1971	605	0	.0	.0	24.0	@	5.6	.0
Apr	58.9	40.7	49.8	83	1987	28	52.7	1992	28	1956	5	45.5	1975	456	0	.0	.0	28.1	.0	1.1	.0
May	65.0	45.9	55.5	92+	1983	29	59.8	1993	27	1964	25	51.8	1996	298	2	.0	@	30.9	.0	@	.0
Jun	69.8	50.5	60.2	97	1955	10	64.4	1982	38+	1998	13	56.6	1971	160	14	.0	.5	30.0	.0	.0	.0
Jul	75.2	54.0	64.6	97+	1998	29	68.6	1985	41	1955	5	61.3	1993	67	54	.0	1.2	31.0	.0	.0	.0
Aug	75.8	54.6	65.2	101	1981	10	68.8	1981	39	1994	4	61.6	1975	61	66	@	1.0	31.0	.0	.0	.0
Sep	70.8	50.7	60.8	97	1988	3	64.2	1974	33	1972	27	57.1	1972	149	22	.0	.3	30.0	.0	.0	.0
Oct	60.4	44.3	52.4	86	1987	2	55.6	1987	27	1971	29	50.2	1984	393	0	.0	.0	30.1	.0	.3	.0
Nov	50.2	39.0	44.6	70	1980	5	49.1	1995	10	1955	15	36.0	1985	612	0	.0	.0	17.1	.3	4.5	.0
Dec	45.1	34.8	40.0	68	1980	26	44.1	1980	7	1990	21	34.1	1990	777	0	.0	.0	7.0	1.1	11.7	.0
Ann	59.9	43.5	51.7	101	Aug 1981	10	68.8	Aug 1981	7	Dec 1990	21	34.1	Dec 1990	4994	158	@	3.0	279.5	2.5	44.3	.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: 1948-2001

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

Issue Date: February 2004

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: BREMERTON, WA **COOP ID: 450872**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 110 Feet** **Lat: 47˚34N** **Lon: 122˚41W**

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	7.54	7.39	3.04	1986	19	15.68	1998	.61	1985
Feb	7.06	6.77	3.09	1999	24	18.03	1999	.64	1993
Mar	5.83	5.36	2.73	1987	4	10.69	1997	1.18	1992
Apr	3.46	3.05	2.51	1996	23	7.67	1993	.79	1977
May	2.30	2.26	1.64	1987	30	5.46	1984	.33	1972
Jun	1.59	1.59	1.96	2000	12	3.41	1997	.22	1987
Jul	.96	.76	1.50	2001	28	3.11	1974	.00	1984
Aug	1.06	.72	1.41	2001	23	3.97	1975	.01	1986
Sep	1.88	1.69	2.03	1972	21	6.49	1978	.00	1993
Oct	4.46	3.92	3.26	1981	6	12.91	1997	.18	1987
Nov	8.75	8.28	4.21	1990	24	18.29	1983	1.66	1976
Dec	9.07	9.25	3.55	1966	13	15.63	1998	1.82	1985
Ann	53.96	52.94	4.21	Nov 1990	24	18.29	Nov 1983	.00+	Sep 1993

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	19.2	13.8	4.7	1.6
Feb	17.1	12.1	5.0	1.8
Mar	18.5	11.5	4.2	1.0
Apr	15.2	8.3	2.1	.6
May	12.7	6.8	1.1	.1
Jun	10.0	4.9	.7	.1
Jul	6.8	2.7	.4	.0
Aug	6.3	2.9	.6	.1
Sep	8.7	4.1	1.0	.3
Oct	14.0	8.1	3.2	1.0
Nov	20.7	14.2	6.3	2.2
Dec	19.5	13.5	6.2	2.8
Ann	168.7	102.9	35.5	11.6

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	1.99	2.70	3.80	4.76	5.70	6.69	7.79	9.09	10.79	13.47	15.97
Feb	1.79	2.46	3.48	4.39	5.29	6.23	7.28	8.53	10.16	12.74	15.15
Mar	2.19	2.74	3.52	4.17	4.79	5.42	6.10	6.90	7.91	9.46	10.89
Apr	.94	1.26	1.76	2.20	2.63	3.08	3.58	4.16	4.93	6.14	7.26
May	.64	.86	1.19	1.48	1.76	2.05	2.38	2.77	3.26	4.05	4.78
Jun	.44	.59	.82	1.02	1.21	1.42	1.64	1.91	2.25	2.80	3.30
Jul	.08	.19	.34	.48	.63	.78	.96	1.18	1.48	1.95	2.41
Aug	.04	.09	.21	.35	.51	.71	.95	1.26	1.71	2.49	3.27
Sep	.03	.13	.35	.61	.90	1.26	1.70	2.26	3.06	4.43	5.81
Oct	.59	.96	1.59	2.21	2.87	3.59	4.42	5.45	6.84	9.11	11.31
Nov	2.36	3.19	4.46	5.56	6.65	7.79	9.06	10.55	12.51	15.57	18.43
Dec	2.94	3.80	5.07	6.15	7.19	8.27	9.45	10.83	12.61	15.37	17.92
Ann	37.38	40.56	44.64	47.75	50.52	53.20	55.98	59.06	62.80	68.25	72.97

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: BREMERTON, WA **COOP ID: 450872**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 110 Feet** **Lat: 47°34N** **Lon: 122°41W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.8	.0	1	0
Feb	1.2	.0	#	0
Mar	.4	.0	0	0
Apr	#	.0	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	1.1	.0	#	0
Dec	1.8	.0	#	0
Ann	5.3	.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	1971	13	8.0	1971	10	1971	15	10	1971
Feb	6.1	1990	17	11.5	1980	6	1995	13	1	1995
Mar	3.0	1971	2	8.3	1971	0	0	0	0	0
Apr	#	1975	3	#	1975	0	0	0	0	0
May	#	1984	6	#	1984	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	6.0	1985	27	14.4	1985	11	1985	28	3	1985
Dec	5.0	1971	26	13.3	1971	9	1985	2	7	1971
Ann	8.0	Jan 1971	13	14.4	Nov 1985	11	Nov 1985	28	10	Jan 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.5	.5	.1	.1	.0
Feb	.5	.4	.2	.1	.0
Mar	.3	.2	.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	.4	.3	.1	.1	.0
Dec	.8	.6	.2	.1	.0
Ann	2.5	2.0	.7	.4	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.3	.1	.0	.0
Feb	.2	.1	.1	.0
Mar	.0	.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	.7	.5	.4	.1
Dec	.7	.2	.1	.0
Ann	1.9	.9	.6	.1

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: BREMERTON, WA **COOP ID: 450872**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 110 Feet** **Lat: 47˚34N** **Lon: 122˚41W**

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	5/11	5/06	5/02	4/28	4/25	4/22	4/19	4/15	4/09
32	4/23	4/16	4/11	4/07	4/04	3/31	3/27	3/22	3/16
28	3/17	3/08	3/01	2/23	2/17	2/12	2/06	1/30	1/21
24	2/24	2/13	2/06	1/30	1/23	1/16	1/08	12/26	0/00
20	2/14	1/31	1/21	1/10	12/29	12/07	0/00	0/00	0/00
16	1/14	12/26	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	10/06	10/12	10/17	10/21	10/25	10/28	11/01	11/06	11/12
32	10/29	11/04	11/08	11/12	11/16	11/19	11/23	11/27	12/03
28	11/11	11/20	11/26	12/01	12/06	12/11	12/16	12/23	12/31
24	11/26	12/07	12/16	12/24	12/31	1/08	1/17	1/31	0/00
20	12/05	12/19	12/30	1/09	1/20	2/06	0/00	0/00	0/00
16	12/22	1/11	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	206	198	192	187	182	177	172	166	158
32	251	242	236	230	225	220	215	208	199
28	327	314	305	298	291	284	276	268	255
24	>365	>365	>365	>365	349	333	320	307	291
20	>365	>365	>365	>365	>365	>365	>365	330	304
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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: BREMERTON, WA **COOP ID: 450872**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 110 Feet** **Lat: 47˚34N** **Lon: 122˚41W**

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	775	641	605	456	298	160	67	61	149	393	612	777	4994
60	620	501	450	306	160	63	12	11	56	240	462	622	3503
57	527	417	357	220	96	27	3	2	23	155	374	529	2730
55	465	361	299	166	63	13	0	0	11	107	318	467	2270
50	316	228	163	63	13	1	0	0	0	29	188	318	1319
32	10	3	0	0	0	0	0	0	0	0	3	11	27

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	258	286	419	534	727	845	1010	1029	862	630	382	256	7238
55	0	0	4	10	77	168	298	316	183	24	6	0	1086
57	0	0	0	4	48	121	238	256	136	11	2	0	816
60	0	0	0	0	19	67	155	171	79	2	0	0	493
65	0	0	0	0	2	14	54	66	22	0	0	0	158
70	0	0	0	0	0	1	8	12	3	0	0	0	24

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	75	107	188	303	487	615	767	783	628	390	162	70	75	182	370	673	1160	1775	2542	3325	3953	4343	4505	4575
45	16	30	69	165	332	465	612	628	478	235	58	18	16	46	115	280	612	1077	1689	2317	2795	3030	3088	3106
50	0	3	16	63	186	315	457	473	328	105	13	0	0	3	19	82	268	583	1040	1513	1841	1946	1959	1959
55	0	0	0	19	80	170	303	318	187	30	0	0	0	0	0	19	99	269	572	890	1077	1107	1107	1107
60	0	0	0	2	31	66	158	170	73	5	0	0	0	0	0	2	33	99	257	427	500	505	505	505
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	6	31	78	144	248	330	454	469	347	176	42	7	6	37	115	259	507	837	1291	1760	2107	2283	2325	2332

(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