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: NEWHALEM, WA **COOP ID: 455840**

Climate Division: WA 4 **NWS Call Sign:** **Elevation: 525 Feet** **Lat: 48˚41N** **Lon: 121˚15W**

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	39.0	30.2	34.6	63	1974	15	42.6	1981	2	1979	1	28.7	1993	942	0	.0	.0	.7	3.2	17.1	.0
Feb	42.8	31.5	37.2	61	1968	28	42.9	1992	2	1989	2	30.6	1989	779	0	.0	.0	3.7	.9	13.7	.0
Mar	49.3	34.3	41.8	73	1994	30	50.3	1992	16+	1989	4	36.3	1971	720	0	.0	.0	15.0	.1	8.4	.0
Apr	57.0	38.1	47.6	89	1977	25	51.5	1987	25	1982	10	42.6	1972	523	0	.0	.0	23.5	.0	1.7	.0
May	64.4	43.7	54.1	101	1983	30	59.7	1993	32+	1999	10	49.7	1984	344	4	@	.3	29.9	.0	.2	.0
Jun	69.3	48.4	58.9	96+	1967	20	64.1	1992	35	1976	3	54.2	1971	201	17	.0	1.1	30.0	.0	.0	.0
Jul	75.6	52.1	63.9	107	1965	31	68.9	1985	41	1986	19	59.5	1993	94	59	@	3.3	31.0	.0	.0	.0
Aug	76.3	52.9	64.6	108	1965	1	69.3	1986	40	1980	29	59.3	1995	88	75	.2	2.7	31.0	.0	.0	.0
Sep	69.7	49.1	59.4	98	1988	4	64.2	1995	33	1972	28	54.3	1978	203	35	.0	.5	29.9	.0	.0	.0
Oct	57.0	42.5	49.8	80	1975	1	53.9	1987	20	1984	31	46.1	1990	473	0	.0	.0	26.2	.0	.6	.0
Nov	44.8	35.5	40.2	74	1969	2	45.4	1987	7	1985	28	29.8	1985	746	0	.0	.0	6.1	.8	7.1	.0
Dec	39.0	31.1	35.1	58	1980	27	39.2	1989	-4+	1968	30	28.0	1990	930	0	.0	.0	.9	2.6	15.8	.0
Ann	57.0	40.8	48.9	108	Aug 1965	1	69.3	Aug 1986	-4+	Dec 1968	30	28.0	Dec 1990	6043	190	.2	7.9	227.9	7.6	64.6	.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: 1959-2001

(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: NEWHALEM, WA **COOP ID: 455840**

Climate Division: WA 4 **NWS Call Sign:** **Elevation: 525 Feet** **Lat: 48˚41N** **Lon: 121˚15W**

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	11.62	11.39	3.83	1993	25	26.07	1974	1.76	1985
Feb	8.75	8.70	4.39	1986	24	18.17	1972	.14	1993
Mar	7.10	6.32	3.66	1997	19	15.93	1997	.58	1992
Apr	4.71	4.37	3.20	1959	1	10.09	1981	1.75	1999
May	3.53	3.39	1.97	1987	12	8.55	1984	.97	1995
Jun	2.80	2.41	2.66	1968	2	7.56	1981	.55	1996
Jul	2.07	1.80	2.32	1997	9	6.70	1983	.07	1984
Aug	1.82	1.49	1.43+	1982	13	4.47	1976	.01	1986
Sep	3.26	3.27	2.60	1972	21	9.37	1972	.08	1975
Oct	7.32	7.06	3.25	1988	16	15.74	1985	.37	1987
Nov	13.46	12.41	6.22	1995	8	31.62	1995	2.47	1979
Dec	13.06	12.30	4.65	1979	14	23.63	1979	1.66	1985
Ann	79.50	77.58	6.22	Nov 1995	8	31.62	Nov 1995	.01	Aug 1986

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	18.0	14.5	7.8	4.1
Feb	15.4	11.8	6.1	2.6
Mar	17.9	13.2	4.8	1.6
Apr	16.2	10.6	2.8	.7
May	14.7	8.3	2.2	.3
Jun	12.5	7.0	1.5	.3
Jul	8.2	4.3	1.1	.2
Aug	7.5	4.0	1.3	.2
Sep	10.0	6.2	2.0	.7
Oct	14.8	10.8	5.2	2.2
Nov	19.4	15.8	9.2	4.5
Dec	18.4	14.6	8.8	4.8
Ann	173.0	121.1	52.8	22.2

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	3.35	4.46	6.12	7.56	8.97	10.43	12.05	13.96	16.44	20.31	23.92
Feb	1.69	2.48	3.77	4.95	6.15	7.44	8.90	10.66	12.99	16.74	20.30
Mar	2.24	2.91	3.91	4.77	5.59	6.45	7.39	8.49	9.91	12.13	14.17
Apr	1.64	2.08	2.73	3.28	3.80	4.34	4.92	5.61	6.48	7.83	9.08
May	1.22	1.56	2.04	2.45	2.84	3.25	3.69	4.20	4.86	5.87	6.81
Jun	.83	1.10	1.50	1.84	2.18	2.53	2.91	3.36	3.95	4.86	5.71
Jul	.28	.44	.74	1.03	1.33	1.66	2.05	2.53	3.17	4.23	5.24
Aug	.13	.25	.48	.73	1.01	1.33	1.72	2.21	2.89	4.03	5.17
Sep	.33	.57	1.02	1.47	1.96	2.52	3.17	3.98	5.09	6.94	8.74
Oct	1.29	1.93	3.00	4.00	5.03	6.13	7.39	8.92	10.96	14.25	17.39
Nov	4.33	5.61	7.49	9.10	10.65	12.26	14.02	16.08	18.74	22.86	26.68
Dec	4.42	5.65	7.46	8.99	10.46	11.97	13.62	15.55	18.03	21.86	25.40
Ann	57.81	62.05	67.45	71.54	75.16	78.66	82.26	86.23	91.04	98.00	104.00

+ 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: 1959-2001
(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: NEWHALEM, WA **COOP ID: 455840**

Climate Division: WA 4 **NWS Call Sign:** **Elevation: 525 Feet** **Lat: 48°41N** **Lon: 121°15W**

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	13.6	15.5	3	2	22.0	1982	23	47.5	1972	33	1972	11	19	1972	3.3	2.7	1.5	.9	.3	6.4	2.9	1.7	.5
Feb	9.4	6.9	2	1	21.0	1995	15	29.6	1985	27	1990	15	17	1990	2.5	2.3	1.2	.7	.3	5.8	4.4	2.8	2.0
Mar	1.9	.0	#	#	6.0	1991	2	9.5	1991	10	1990	1	2	1990	1.1	.8	.1	@	.0	1.9	.8	.3	@
Apr	.1	.0	#	0	2.3	1975	3	2.3	1975	2	1975	3	#+	1982	.1	@	.0	.0	.0	@	.0	.0	.0
May	#	.0	0	0	#	1978	4	#	1978	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	1.0	1994	31	1.0	1994	#	1996	18	#	1996	@	@	.0	.0	.0	.0	.0	.0	.0
Nov	1.1	.0	#	0	8.0	1985	27	8.0	1975	11	1985	28	1+	1996	1.1	1.0	.3	.1	.0	.5	.2	.1	.1
Dec	4.4	1.0	2	1	12.0	1990	31	13.0+	1980	36	1996	30	13	1971	2.9	2.3	1.0	.7	.1	2.8	1.2	.5	.1
Ann	30.5	23.4	N/A	N/A	22.0	Jan 1982	23	47.5	Jan 1972	36	Dec 1996	30	19	Jan 1972	11.0	9.1	4.1	2.4	.7	17.4	9.5	5.4	2.7

+ 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: NEWHALEM, WA **COOP ID: 455840**

Climate Division: WA 4 **NWS Call Sign:** **Elevation: 525 Feet** **Lat: 48˚41N** **Lon: 121˚15W**

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	5/12	5/08	5/04	5/01	4/28	4/24	4/20	4/14
32	5/04	4/25	4/18	4/13	4/07	4/02	3/28	3/21	3/12
28	3/22	3/12	3/05	2/27	2/21	2/15	2/09	2/02	1/23
24	3/04	2/21	2/13	2/07	1/31	1/25	1/17	1/08	12/22
20	2/25	2/14	2/06	1/30	1/22	1/14	1/03	0/00	0/00
16	2/07	1/26	1/16	1/07	12/29	12/16	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	10/11	10/15	10/19	10/22	10/25	10/28	11/01	11/07
32	10/20	10/27	11/01	11/05	11/09	11/13	11/17	11/22	11/29
28	11/01	11/12	11/20	11/27	12/04	12/10	12/17	12/25	1/05
24	11/15	11/25	12/03	12/10	12/16	12/23	12/30	1/08	1/26
20	11/21	12/05	12/15	12/25	1/04	1/15	2/01	0/00	0/00
16	12/03	12/15	12/25	1/03	1/14	1/28	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	199	190	183	178	173	168	162	156	147
32	247	236	228	221	215	208	201	193	182
28	326	312	302	293	285	277	268	258	244
24	>365	352	334	324	315	308	300	292	280
20	>365	>365	>365	>365	361	339	326	314	299
16	>365	>365	>365	>365	>365	357	343	332	320

***** 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: NEWHALEM, WA **COOP ID: 455840**

Climate Division: WA 4 **NWS Call Sign:** **Elevation: 525 Feet** **Lat: 48˚41N** **Lon: 121˚15W**

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	942	779	720	523	344	201	94	88	203	473	746	930	6043
60	787	639	565	373	206	98	28	27	108	322	596	775	4524
57	694	555	472	287	139	55	11	11	66	236	506	682	3714
55	632	499	412	233	102	34	5	5	44	185	448	620	3219
50	480	361	271	118	35	7	0	0	13	82	310	466	2143
32	76	30	11	0	0	0	0	0	0	0	24	66	207

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	157	175	314	467	683	806	988	1010	823	550	268	159	6400
55	0	0	3	10	72	149	279	302	177	22	2	0	1016
57	0	0	0	4	47	111	223	246	138	11	0	0	780
60	0	0	0	1	21	64	148	169	91	4	0	0	498
65	0	0	0	0	4	17	59	75	35	0	0	0	190
70	0	0	0	0	0	2	13	20	10	0	0	0	45

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	13	33	113	257	460	595	762	785	599	323	76	15	13	46	159	416	876	1471	2233	3018	3617	3940	4016	4031
45	0	1	31	131	307	445	607	630	449	181	17	0	0	1	32	163	470	915	1522	2152	2601	2782	2799	2799
50	0	0	3	59	173	295	452	475	304	74	0	0	0	0	3	62	235	530	982	1457	1761	1835	1835	1835
55	0	0	0	20	88	161	301	320	178	22	0	0	0	0	0	20	108	269	570	890	1068	1090	1090	1090
60	0	0	0	3	34	76	167	180	83	3	0	0	0	0	0	3	37	113	280	460	543	546	546	546
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	5	47	130	240	318	446	472	333	131	12	0	0	5	52	182	422	740	1186	1658	1991	2122	2134	2134

(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