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: PORT ANGELES, WA **COOP ID: 456624**

Climate Division: WA 2 **NWS Call Sign:** **Elevation: 90 Feet** **Lat: 48˚07N** **Lon: 123˚26W**

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	45.6	34.4	40.0	64	1986	8	44.7	1981	7	1950	25	34.8	1993	774	0	.0	.0	6.5	.4	10.5	.0
Feb	48.0	35.5	41.8	71	1966	22	45.3	1977	10	1989	4	33.9	1989	652	0	.0	.0	9.8	.2	7.4	.0
Mar	51.4	37.3	44.4	68+	1969	30	48.3	2000	15	1955	4	40.7	1971	641	0	.0	.0	20.6	.0	5.1	.0
Apr	55.7	40.0	47.9	82	1998	30	50.5	1980	25	1975	6	43.4	1986	516	0	.0	.0	27.6	.0	1.6	.0
May	60.8	44.9	52.9	86	1983	29	57.4	1993	30+	1988	1	49.0	1986	376	0	.0	.0	30.9	.0	.1	.0
Jun	64.7	49.1	56.9	89+	1958	18	61.5	2000	36+	1985	24	53.8	1985	246	2	.0	.0	30.0	.0	.0	.0
Jul	68.8	51.7	60.3	94	1961	13	64.4	1999	40+	1987	15	53.6	1986	164	17	.0	@	31.0	.0	.0	.0
Aug	69.1	52.1	60.6	94	1981	9	64.2	1999	39	1965	29	56.3	1987	151	15	.0	.1	31.0	.0	.0	.0
Sep	66.3	49.0	57.7	85	1955	4	61.0+	1999	31	1972	27	53.0	1986	229	8	.0	.0	30.0	.0	@	.0
Oct	57.8	43.4	50.6	73+	1980	6	54.9	1999	29+	1985	29	47.8	1985	447	0	.0	.0	29.9	.0	.6	.0
Nov	50.0	38.2	44.1	67	1950	26	47.3	1997	6	1985	30	34.7	1985	628	0	.0	.0	16.6	.3	4.5	.0
Dec	45.8	35.1	40.5	65	1963	24	46.8	1999	6	1964	16	34.7	1985	762	0	.0	.0	6.7	1.0	10.3	.0
Ann	57.0	42.6	49.8	94+	Aug 1981	9	64.4	Jul 1999	6+	Nov 1985	30	33.9	Feb 1989	5586	42	.0	.1	270.6	1.9	40.1	.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

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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	3.86	3.80	3.64	1986	18	7.81	1999	.40	1981
Feb	2.79	2.73	3.30	1949	16	5.41	1999	.37	1993
Mar	2.12	1.79	1.12+	1988	23	4.86	1997	.54	1979
Apr	1.30	1.12	1.58	1991	4	3.55	1991	.23	1998
May	1.07	.96	1.22	1998	15	3.43	1998	.10	1972
Jun	.88	.76	.87	1985	7	2.26	1980	.17	1978
Jul	.61	.51	1.10	1999	17	2.02	1995	.00	1984
Aug	.76	.45	1.52	1975	23	3.67	1975	.00	1986
Sep	1.07	.99	1.40	1972	21	3.08	1972	.02	1991
Oct	2.46	2.03	2.38	1985	27	7.28	1985	.00	1987
Nov	4.40	4.18	2.47	1980	21	9.64	1990	.52	1979
Dec	4.40	4.29	2.02	1979	14	9.01	1996	.17	1985
Ann	25.72	25.13	3.64	Jan 1986	18	9.64	Nov 1990	.00+	Oct 1987

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	16.3	9.3	2.0	.5
Feb	14.8	7.6	1.4	.3
Mar	13.4	6.2	.9	.2
Apr	11.6	4.1	.4	.1
May	10.2	3.3	.3	@
Jun	8.4	3.1	.2	.0
Jul	5.4	1.9	.2	@
Aug	5.6	2.4	.3	.1
Sep	7.8	3.1	.4	.1
Oct	12.1	6.9	1.4	.2
Nov	18.1	10.3	2.7	.7
Dec	17.4	10.2	2.8	.9
Ann	141.1	68.4	13.0	3.1

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	.90	1.26	1.82	2.33	2.83	3.37	3.97	4.68	5.62	7.11	8.51
Feb	.82	1.09	1.49	1.83	2.17	2.51	2.90	3.35	3.94	4.86	5.71
Mar	.61	.81	1.12	1.38	1.64	1.90	2.20	2.55	3.00	3.71	4.36
Apr	.29	.41	.60	.77	.94	1.12	1.33	1.57	1.90	2.41	2.90
May	.19	.28	.44	.59	.74	.90	1.08	1.31	1.61	2.09	2.55
Jun	.19	.27	.40	.52	.64	.76	.90	1.07	1.30	1.66	1.99
Jul	.06	.13	.23	.32	.41	.51	.62	.75	.92	1.21	1.48
Aug	.02	.07	.16	.27	.39	.53	.70	.92	1.23	1.75	2.27
Sep	.05	.10	.22	.36	.53	.72	.97	1.28	1.73	2.50	3.27
Oct	.23	.52	.92	1.28	1.65	2.05	2.50	3.04	3.77	4.95	6.07
Nov	1.04	1.46	2.10	2.67	3.24	3.84	4.52	5.33	6.38	8.05	9.63
Dec	1.12	1.53	2.17	2.74	3.30	3.89	4.54	5.32	6.34	7.94	9.45
Ann	17.20	18.81	20.90	22.49	23.92	25.31	26.76	28.36	30.31	33.17	35.65

\+ 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

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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	1.0	.0	0	0	3.2	1980	8	5.9	1980	0	0	0	0	0	.5	.4	.1	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1976	25	#+	1976	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1974	6	#+	1974	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	#	.0	0	0	#	1975	5	#	1975	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	.0	.0	0	0	.5	1977	23	.5	1977	0	0	0	0	0	.1	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.6	.0	0	0	3.0	1992	28	5.0	1992	11	1984	30	11	1984	.3	.2	.1	.0	.0	.0	.0	.0	.0
Ann	1.6	.0	N/A	N/A	3.2	Jan 1980	8	5.9	Jan 1980	11	Dec 1984	30	11	Dec 1984	.9	.6	.2	.0	.0	.0	.0	.0	.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	5/23	5/14	5/08	5/02	4/27	4/22	4/17	4/10	4/01
32	5/06	4/23	4/14	4/07	3/30	3/23	3/15	3/06	2/21
28	4/03	3/20	3/09	2/28	2/19	2/11	2/01	1/21	1/03
24	2/24	2/15	2/08	2/02	1/27	1/20	1/13	1/01	0/00
20	2/13	1/27	1/13	12/28	12/03	0/00	0/00	0/00	0/00
16	1/20	1/04	12/14	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	10/02	10/09	10/15	10/19	10/24	10/28	11/02	11/07	11/15
32	10/18	10/26	11/01	11/06	11/11	11/15	11/20	11/26	12/05
28	11/08	11/18	11/25	11/30	12/06	12/12	12/18	12/25	1/05
24	11/24	12/06	12/15	12/23	12/31	1/09	1/19	2/08	0/00
20	12/07	12/23	1/05	1/20	2/13	0/00	0/00	0/00	0/00
16	12/22	1/10	2/05	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	219	205	195	187	179	171	162	152	138
32	275	257	245	234	225	215	204	192	174
28	>365	330	312	299	288	277	266	253	235
24	>365	>365	>365	351	337	327	317	307	294
20	>365	>365	>365	>365	>365	>365	>365	>365	327
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	774	652	641	516	376	246	164	151	229	447	628	762	5586
60	619	512	486	366	229	117	66	55	112	293	478	607	3940
57	526	428	393	277	152	63	28	21	62	203	388	514	3055
55	464	372	331	220	109	36	14	9	37	149	330	452	2523
50	316	239	187	97	35	5	0	0	6	47	195	309	1436
32	12	5	0	0	0	0	0	0	0	0	3	15	35

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	261	277	382	474	647	746	876	887	769	576	365	276	6536
55	0	0	0	4	44	92	177	183	116	12	2	0	630
57	0	0	0	1	24	59	129	132	80	4	0	0	429
60	0	0	0	0	8	24	74	74	41	1	0	0	222
65	0	0	0	0	0	2	17	15	8	0	0	0	42
70	0	0	0	0	0	0	2	0	0	0	0	0	2

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	72	90	149	242	404	513	634	649	531	337	153	73	72	162	311	553	957	1470	2104	2753	3284	3621	3774	3847
45	10	24	42	105	251	363	479	494	381	186	53	18	10	34	76	181	432	795	1274	1768	2149	2335	2388	2406
50	0	0	0	26	115	213	324	339	234	65	6	0	0	0	0	26	141	354	678	1017	1251	1316	1322	1322
55	0	0	0	4	34	80	172	186	104	11	0	0	0	0	0	4	38	118	290	476	580	591	591	591
60	0	0	0	0	3	19	60	57	28	0	0	0	0	0	0	0	3	22	82	139	167	167	167	167
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	21	42	89	178	242	337	346	271	130	38	6	3	24	66	155	333	575	912	1258	1529	1659	1697	1703

(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

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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