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: QUINCY 1 S, WA **COOP ID: 456880**

Climate Division: WA 8 **NWS Call Sign:** **Elevation: 1,274 Feet** **Lat: 47˚13N** **Lon: 119˚51W**

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	34.4	21.1	27.8	63	1953	31	37.5	1981	-29	1950	31	14.2	1979	1155	0	.0	.0	2.0	11.9	28.6	1.8
Feb	42.4	26.5	34.5	73	1947	23	41.0	1991	-25+	1950	3	20.3	1985	857	0	.0	.0	6.9	3.7	23.5	.6
Mar	54.2	32.4	43.3	78+	1960	25	48.9	1992	0	1951	9	37.7	1971	674	0	.0	.0	24.1	.2	17.6	.0
Apr	63.5	38.6	51.1	92	1977	24	55.7	1977	14	1954	1	45.6	1982	419	1	.0	.1	29.6	.0	7.3	.0
May	72.0	46.4	59.2	99+	1986	31	65.0	1993	23	1954	1	54.5	1996	201	22	.0	1.2	31.0	.0	.7	.0
Jun	78.8	52.7	65.8	106	1961	17	71.5	1992	33+	1976	2	62.3	1991	71	93	.1	3.4	30.0	.0	.0	.0
Jul	86.0	57.5	71.8	109+	1941	17	77.5	1985	36	1962	2	66.4	1993	18	227	1.1	11.4	31.0	.0	.0	.0
Aug	85.3	57.0	71.2	107	1946	22	75.4	1986	37+	1965	29	66.6	1995	15	204	.5	10.1	31.0	.0	.0	.0
Sep	76.9	48.5	62.7	100	1944	7	68.8	1990	26+	1985	29	57.6	1985	140	71	.0	1.6	30.0	.0	.7	.0
Oct	62.7	38.0	50.4	89	1943	7	55.8	1988	13	1971	29	46.4	1984	455	0	.0	.0	29.3	.0	8.5	.0
Nov	45.3	29.8	37.6	75	1945	3	42.9	1999	-15	1985	23	23.0	1985	823	0	.0	.0	10.4	2.1	20.3	.3
Dec	34.5	21.8	28.2	64+	1972	1	35.6	1999	-19	1968	30	17.9	1985	1142	0	.0	.0	2.0	11.8	28.2	1.4
Ann	61.3	39.2	50.3	109+	Jul 1941	17	77.5	Jul 1985	-29	Jan 1950	31	14.2	Jan 1979	5970	618	1.7	27.8	257.3	29.7	135.4	4.1

\+ 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: 1941-2001

(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	.88	.78	.70+	1971	17	2.27	1995	.04	1977
Feb	.75	.67	1.09	1999	6	2.07	1999	.00	1988
Mar	.69	.73	.80+	1991	24	1.92	1983	.00+	1994
Apr	.45	.22	1.10	1963	16	1.68	1992	.00+	1985
May	.63	.54	1.10	1991	17	2.18	1990	.00+	1992
Jun	.49	.37	1.26	1951	5	1.65	1992	.02	1989
Jul	.29	.12	2.01	1992	23	2.09	1992	.00+	1999
Aug	.33	.19	.95	1990	21	1.33	1990	.00+	2000
Sep	.44	.24	.82	1948	26	1.68	1986	.00+	1999
Oct	.52	.46	1.40	1956	27	1.66	1973	.00+	1993
Nov	1.17	1.00	1.10	1973	11	4.68	1973	.00	1976
Dec	1.32	1.19	1.00	1964	21	3.38	1996	.00+	1990
Ann	7.96	7.62	2.01	Jul 1992	23	4.68	Nov 1973	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.5	3.1	.1	.0
Feb	4.9	2.8	.2	@
Mar	4.8	2.4	.2	.0
Apr	3.5	1.9	.1	.0
May	3.5	2.2	.2	.1
Jun	3.5	1.7	.2	@
Jul	1.7	1.0	.1	@
Aug	2.0	1.0	.1	.0
Sep	2.8	1.4	.2	.0
Oct	3.4	2.0	.1	.0
Nov	6.9	3.7	.5	@
Dec	7.1	4.8	.4	.0
Ann	49.6	28.0	2.4	.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	.16	.24	.37	.49	.61	.74	.89	1.07	1.31	1.70	2.07
Feb	.07	.16	.28	.39	.50	.62	.76	.92	1.14	1.49	1.82
Mar	.00	.06	.18	.29	.40	.53	.68	.86	1.10	1.51	1.91
Apr	.00	.00	.05	.12	.20	.29	.41	.56	.77	1.11	1.47
May	.00	.06	.17	.27	.38	.49	.63	.79	1.01	1.38	1.74
Jun	.04	.08	.14	.21	.28	.37	.47	.59	.76	1.05	1.33
Jul	.00	.00	.00	.02	.06	.12	.20	.32	.50	.82	1.16
Aug	.00	.00	.00	.00	.09	.18	.28	.42	.60	.91	1.21
Sep	.00	.00	.00	.05	.13	.24	.36	.53	.76	1.17	1.58
Oct	.00	.00	.08	.17	.27	.38	.50	.65	.86	1.20	1.54
Nov	.09	.22	.41	.58	.76	.95	1.17	1.44	1.80	2.39	2.95
Dec	.00	.18	.44	.65	.86	1.09	1.35	1.65	2.06	2.73	3.37
Ann	4.33	4.96	5.81	6.47	7.08	7.69	8.32	9.04	9.93	11.26	12.44

\+ 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: 1941-2001
(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	4.8	3.7	1	0	6.0	1979	10	13.7	1987	13	1971	15	7	1971	2.0	1.2	.4	.1	.0	-9.9	-9.9	-9.9	-9.9
Feb	1.1	.0	#	0	3.5	1997	11	5.8	1975	1	1999	18	#	1999	.8	.5	.1	.0	.0	.1	.0	.0	.0
Mar	.1	.0	0	0	1.0	1971	22	1.0	1971	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	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	.1	.0	#	0	1.0	1973	31	1.0	1973	1	1973	31	#	1973	.1	.1	.0	.0	.0	.1	.0	.0	.0
Nov	1.5	.0	#	0	6.5	1996	19	8.1	1996	2+	2000	30	#+	2000	.6	.5	.2	.2	.0	.2	.0	.0	.0
Dec	4.1	1.8	#	0	6.1	1996	7	12.0	1971	6	1996	7	2+	2000	1.8	1.6	.5	.1	.0	-9.9	-9.9	-9.9	-9.9
Ann	11.7	5.5	N/A	N/A	6.5	Nov 1996	19	13.7	Jan 1987	13	Jan 1971	15	7	Jan 1971	5.4	4.0	1.2	.4	.0	-9.9	-9.9	-9.9	-9.9

+ 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	5/28	5/23	5/19	5/16	5/13	5/09	5/06	5/02	4/27
32	5/14	5/08	5/04	4/30	4/26	4/23	4/19	4/15	4/08
28	4/29	4/23	4/18	4/14	4/10	4/06	4/02	3/29	3/22
24	4/15	4/07	4/01	3/27	3/23	3/18	3/13	3/07	2/27
20	3/28	3/19	3/12	3/06	2/28	2/23	2/17	2/10	1/31
16	3/07	2/27	2/21	2/16	2/11	2/06	2/01	1/25	1/15

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	9/16	9/20	9/23	9/26	9/29	10/01	10/04	10/07	10/12
32	9/23	9/28	10/02	10/05	10/08	10/12	10/15	10/19	10/24
28	10/04	10/10	10/14	10/17	10/21	10/24	10/27	10/31	11/06
24	10/17	10/23	10/27	10/30	11/02	11/06	11/09	11/13	11/19
20	10/25	11/03	11/09	11/14	11/19	11/24	11/29	12/05	12/13
16	10/31	11/10	11/17	11/24	11/30	12/05	12/12	12/20	1/01

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	154	148	143	139	134	129	123	115
32	192	183	176	170	164	159	153	146	136
28	224	213	206	199	193	187	180	172	161
24	256	245	237	230	224	218	211	203	192
20	298	286	277	270	263	256	248	240	228
16	>365	317	305	296	289	281	274	265	253

***** 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	1155	857	674	419	201	71	18	15	140	455	823	1142	5970
60	1000	717	519	277	99	20	3	2	65	303	673	987	4665
57	907	633	426	200	56	8	0	0	35	218	585	894	3962
55	845	577	365	154	35	3	0	0	22	168	530	832	3531
50	698	448	224	68	8	0	0	0	5	70	392	681	2594
32	247	102	6	0	0	0	0	0	0	0	73	228	656

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	115	169	356	572	844	1013	1232	1213	921	569	240	109	7353
55	0	0	1	36	166	326	519	500	252	24	7	0	1831
57	0	0	0	21	125	270	457	438	206	12	2	0	1531
60	0	0	0	8	75	193	367	347	145	4	0	0	1139
65	0	0	0	1	22	93	227	204	71	0	0	0	618
70	0	0	0	0	4	32	117	94	26	0	0	0	273

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	3	26	141	339	598	775	981	961	680	327	62	4	3	29	170	509	1107	1882	2863	3824	4504	4831	4893	4897
45	0	2	48	199	443	625	826	806	530	191	18	0	0	2	50	249	692	1317	2143	2949	3479	3670	3688	3688
50	0	0	12	99	298	475	671	651	381	89	3	0	0	0	12	111	409	884	1555	2206	2587	2676	2679	2679
55	0	0	0	36	166	326	516	496	245	32	0	0	0	0	0	36	202	528	1044	1540	1785	1817	1817	1817
60	0	0	0	9	77	193	362	342	130	7	0	0	0	0	0	9	86	279	641	983	1113	1120	1120	1120
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	18	102	223	371	484	628	616	435	219	30	1	0	18	120	343	714	1198	1826	2442	2877	3096	3126	3127

(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