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: PULLMAN 2 NW, WA **COOP ID: 456789**

Climate Division: WA10 **NWS Call Sign:** **Elevation: 2,545 Feet** **Lat: 46˚45N** **Lon: 117˚11W**

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	35.3	23.8	29.6	57	1971	31	37.7	1994	-29	1957	26	14.7	1979	1099	0	.0	.0	.9	10.8	24.9	1.4
Feb	40.8	27.2	34.0	66	1986	25	41.4	1991	-24	1996	2	23.4	1989	867	0	.0	.0	4.1	4.6	20.8	.6
Mar	48.3	31.5	39.9	73+	1999	21	45.6	1992	-4+	1955	4	34.1	1976	778	0	.0	.0	12.4	.5	18.1	.0
Apr	56.5	35.9	46.2	88	1987	30	51.8	1987	13	1966	19	40.5	1975	565	0	.0	.0	22.5	.0	9.9	.0
May	64.7	41.6	53.2	97	2001	24	59.1	1993	23	1954	2	49.3	1999	370	2	.0	.1	29.4	.0	2.6	.0
Jun	71.8	46.5	59.2	98	1992	24	64.5	1992	30	1962	4	55.4	1991	198	22	.0	.6	29.8	.0	@	.0
Jul	81.6	50.1	65.9	104	1960	18	72.0	1998	32	1945	31	60.8	1993	73	98	.2	5.9	31.0	.0	.0	.0
Aug	83.2	50.3	66.8	110	1961	4	71.9	1971	30+	1945	21	61.2	1980	64	119	.4	7.7	31.0	.0	@	.0
Sep	73.5	43.9	58.7	100+	1998	4	64.8	1998	20	1983	29	52.6	1985	224	35	.1	1.3	29.8	.0	1.7	.0
Oct	60.4	36.5	48.5	90	1992	1	55.6	1988	14	1971	29	44.8	1984	513	0	.0	@	26.3	.1	9.2	.0
Nov	43.3	30.3	36.8	71+	1999	13	43.4	1999	-14+	1959	16	24.2	1985	847	0	.0	.0	6.3	3.1	17.7	.3
Dec	35.5	24.2	29.9	59+	1980	27	35.9	1973	-32	1968	30	19.2	1985	1090	0	.0	.0	1.0	10.6	25.2	1.1
Ann	57.9	36.8	47.4	110	Aug 1961	4	72.0	Jul 1998	-32	Dec 1968	30	14.7	Jan 1979	6688	276	.7	15.6	224.5	29.7	130.1	3.4

\+ 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: 1940-2001

(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	2.46	2.06	3.18	1946	31	5.08	1974	.40	1977
Feb	2.10	1.91	1.32	1996	8	4.62	1996	.45	1977
Mar	2.01	1.91	1.85	1971	31	3.70	1971	.45	1992
Apr	1.72	1.48	1.77	1996	24	4.66	1996	.19	1973
May	1.77	1.75	1.35	1956	8	3.34	1998	.39	1992
Jun	1.30	1.14	1.47	1963	16	3.48	1971	.21	1986
Jul	.79	.83	.77+	1988	14	1.74	1983	.00	2000
Aug	.89	.62	2.45	1952	10	3.81	1989	.02	1996
Sep	.88	.94	1.61	1947	16	2.45	1986	.00+	1987
Oct	1.48	1.34	1.71	1994	27	3.32	1997	.00	1987
Nov	2.83	2.62	1.92	1994	1	5.67	1973	.52	1976
Dec	2.78	2.68	1.64	1945	28	5.51	1996	.62	1985
Ann	21.01	20.35	3.18	Jan 1946	31	5.67	Nov 1973	.00+	Jul 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.2	7.5	.9	.1
Feb	12.1	6.8	.8	.1
Mar	12.2	6.8	.6	.1
Apr	10.3	5.5	.6	.1
May	9.8	5.2	.7	@
Jun	8.3	4.1	.5	.1
Jul	5.0	2.5	.2	.0
Aug	4.5	2.3	.4	.1
Sep	5.9	2.9	.3	.0
Oct	7.3	4.3	.6	.1
Nov	14.7	9.1	1.2	.1
Dec	13.2	8.2	1.3	.2
Ann	116.5	65.2	8.1	1.0

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	.80	1.04	1.38	1.67	1.95	2.25	2.57	2.94	3.42	4.16	4.85
Feb	.56	.76	1.07	1.33	1.60	1.87	2.18	2.54	3.01	3.75	4.44
Mar	.68	.87	1.15	1.38	1.61	1.84	2.09	2.39	2.77	3.36	3.90
Apr	.37	.53	.78	1.01	1.24	1.48	1.76	2.09	2.52	3.22	3.88
May	.71	.88	1.11	1.30	1.48	1.66	1.86	2.08	2.37	2.81	3.22
Jun	.36	.49	.67	.84	1.00	1.16	1.35	1.56	1.85	2.29	2.70
Jul	.04	.12	.24	.35	.48	.61	.77	.97	1.24	1.69	2.12
Aug	.03	.06	.15	.27	.40	.57	.78	1.06	1.46	2.16	2.87
Sep	.00	.03	.14	.27	.41	.58	.80	1.07	1.46	2.12	2.78
Oct	.07	.20	.42	.64	.88	1.14	1.44	1.83	2.35	3.21	4.05
Nov	1.02	1.29	1.67	1.99	2.30	2.62	2.96	3.36	3.87	4.66	5.38
Dec	.79	1.05	1.45	1.80	2.14	2.49	2.88	3.34	3.94	4.88	5.76
Ann	15.23	16.36	17.80	18.89	19.86	20.80	21.76	22.83	24.11	25.98	27.59

\+ 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: 1940-2001
(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	10.6	9.0	3	1	10.0	1982	4	33.5	1982	21	1996	29	12	1985	5.7	3.6	1.2	.4	@	14.4	9.9	7.0	3.5
Feb	4.9	4.1	1	1	8.0	1985	8	18.6	1975	25	1985	10	14	1985	3.0	1.8	.6	.2	.0	7.5	4.7	2.9	1.3
Mar	2.2	1.3	#	1	4.5	1989	2	8.3	1985	18	1971	31	3	1971	1.9	1.0	.2	.0	.0	2.8	.9	.4	.1
Apr	.8	.0	#	0	6.0	1996	20	7.0	1996	4+	1996	20	#	1999	.6	.3	.1	@	.0	.4	.1	.0	.0
May	.0	.0	#	0	1.0	1981	4	1.0	1981	1	1981	4	#	2000	.0	.0	.0	.0	.0	@	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1981	.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	.5	.0	#	0	6.0	1973	31	6.0	1973	2+	1996	19	#	1996	.3	.2	@	@	.0	.3	.0	.0	.0
Nov	4.5	1.6	#	0	10.0	1975	30	20.9	1985	20	1975	30	3	1985	3.0	1.8	.4	.1	@	4.1	1.6	.8	.2
Dec	9.6	6.5	1	1	8.5	1996	26	44.6	1971	19	1996	30	6	1985	5.7	3.6	1.3	.4	.0	11.1	5.3	3.0	.5
Ann	33.1	22.5	N/A	N/A	10.0+	Jan 1982	4	44.6	Dec 1971	25	Feb 1985	10	14	Feb 1985	20.2	12.3	3.8	1.1	@	40.6	22.5	14.1	5.6

+ 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	7/04	6/26	6/20	6/15	6/10	6/06	5/31	5/26	5/17
32	5/31	5/24	5/20	5/16	5/12	5/08	5/04	4/29	4/22
28	5/13	5/05	4/29	4/24	4/19	4/14	4/09	4/03	3/26
24	4/16	4/06	3/30	3/24	3/19	3/13	3/07	2/28	2/19
20	3/21	3/12	3/05	2/27	2/22	2/16	2/11	2/04	1/26
16	3/02	2/22	2/16	2/11	2/06	2/01	1/27	1/20	1/07

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	8/24	8/30	9/03	9/07	9/10	9/13	9/16	9/20	9/26
32	9/09	9/15	9/19	9/23	9/27	9/30	10/04	10/08	10/14
28	9/20	9/26	10/01	10/04	10/08	10/11	10/15	10/20	10/26
24	10/03	10/11	10/17	10/22	10/27	11/01	11/06	11/12	11/21
20	10/17	10/27	11/03	11/10	11/15	11/21	11/27	12/05	12/15
16	11/04	11/13	11/21	11/27	12/03	12/09	12/15	12/24	1/09

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	121	111	103	97	91	85	78	71	60
32	167	157	149	143	137	131	125	117	107
28	203	192	184	178	171	165	159	151	140
24	259	246	237	229	222	214	206	197	184
20	302	289	281	273	266	259	251	242	230
16	>365	337	321	310	301	293	284	274	261

***** 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	1099	867	778	565	370	198	73	64	224	513	847	1090	6688
60	944	727	623	416	228	98	21	19	125	360	697	935	5193
57	851	643	530	330	156	55	9	8	80	272	609	842	4385
55	789	587	468	275	116	34	4	4	56	220	553	780	3886
50	641	454	320	154	43	8	0	0	18	109	415	627	2789
32	203	92	15	0	0	0	0	0	0	1	80	176	567

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	127	149	260	425	655	814	1048	1078	802	511	223	109	6201
55	0	0	0	10	58	158	339	369	168	17	6	0	1125
57	0	0	0	5	35	119	282	312	131	8	2	0	894
60	0	0	0	1	15	71	201	229	86	2	0	0	605
65	0	0	0	0	2	22	98	119	35	0	0	0	276
70	0	0	0	0	0	4	33	46	11	0	0	0	94

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	5	28	75	199	407	572	798	827	560	278	52	5	5	33	108	307	714	1286	2084	2911	3471	3749	3801	3806
45	0	4	23	101	263	422	643	672	412	158	14	0	0	4	27	128	391	813	1456	2128	2540	2698	2712	2712
50	0	0	1	44	150	275	488	518	275	78	2	0	0	0	1	45	195	470	958	1476	1751	1829	1831	1831
55	0	0	0	17	74	158	336	368	162	30	0	0	0	0	0	17	91	249	585	953	1115	1145	1145	1145
60	0	0	0	1	31	74	200	228	80	12	0	0	0	0	0	1	32	106	306	534	614	626	626	626
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	7	37	114	234	339	498	516	355	174	17	0	0	7	44	158	392	731	1229	1745	2100	2274	2291	2291

(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