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: STAMPEDE PASS, WA **COOP ID: 458009**

Climate Division: WA 5 **NWS Call Sign: SMP** **Elevation: 3,958 Feet** **Lat: 47˚18N** **Lon: 121˚20W**

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	30.0	21.7	25.9	59	1968	23	33.5	1994	-11	1950	13	16.6	1979	1214	0	.0	.0	.2	20.7	29.3	.6
Feb	32.7	23.6	28.2	59	1988	27	33.6	1991	-10+	1989	3	20.2	1989	1031	0	.0	.0	.2	14.8	26.7	.2
Mar	37.5	27.0	32.3	61+	1960	25	40.7	1992	1	1960	2	26.0	1971	1015	0	.0	.0	1.9	9.2	26.9	.0
Apr	43.3	30.5	36.9	76	1977	24	41.8	1977	16	1951	19	30.3	1972	844	0	.0	.0	11.5	2.9	21.7	.0
May	50.5	35.7	43.1	86	1986	31	48.9	1993	20	1954	1	38.3	1974	679	0	.0	.0	17.4	.3	10.2	.0
Jun	57.6	41.2	49.4	87	1992	22	54.4	1992	28+	1991	4	45.6	1999	469	0	.0	.1	22.5	.0	1.3	.0
Jul	65.2	46.9	56.1	90	1998	26	62.5	1985	30	1955	1	48.5	1993	291	12	.0	@	28.4	.0	3.9	.0
Aug	65.8	48.1	57.0	90	1958	24	62.0	1977	34+	1973	31	50.7	1975	263	14	.0	.5	29.4	.0	.0	.0
Sep	59.4	44.0	51.7	91	1988	4	57.1	1998	26	1972	27	45.8	1972	408	9	.0	@	24.4	.0	1.0	.0
Oct	48.3	36.8	42.6	80	1988	8	49.9	1987	15	1984	31	37.5	1984	697	0	.0	.0	11.9	.9	8.7	.0
Nov	34.3	27.0	30.7	58+	1986	2	35.6	1976	-5+	1955	15	19.7	1985	1030	0	.0	.0	.4	11.9	25.7	.2
Dec	29.8	21.8	25.8	64	1980	16	32.9	1980	-21	1968	30	17.9	1983	1215	0	.0	.0	.1	21.3	29.3	.7
Ann	46.2	33.7	40.0	91	Sep 1988	4	62.5	Jul 1985	-21	Dec 1968	30	16.6	Jan 1979	9156	35	.0	.6	148.3	82.0	184.7	1.7

\+ 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: 1944-2001

(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	12.47	11.51	6.90	1954	22	27.18	1972	.97	1985
Feb	8.95	8.50	4.68	1986	23	19.34	1972	.68	1993
Mar	7.35	6.49	3.02	1956	1	14.51	1997	1.21	1992
Apr	5.69	5.52	5.35	1962	6	11.38	1981	1.66	1999
May	4.32	4.35	2.25	1971	16	8.65	1984	1.60	1992
Jun	3.98	3.51	2.17	1974	4	7.64	1981	.92	1982
Jul	1.86	1.70	2.15	1983	14	5.96	1983	.20	1985
Aug	2.20	1.52	2.51	1975	18	7.17	1975	.31	1988
Sep	4.16	3.99	4.47	1959	26	9.66	2000	.29	1991
Oct	6.45	5.94	5.14	1947	2	16.39	1985	.51	1987
Nov	12.84	13.48	7.29	1962	19	21.13	1995	2.19	1979
Dec	13.88	12.46	6.75	1975	1	28.56	1975	1.73	1985
Ann	84.15	83.33	7.29	Nov 1962	19	28.56	Dec 1975	.20	Jul 1985

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	19.8	15.4	7.8	3.7
Feb	18.3	13.9	5.9	2.3
Mar	20.3	14.6	4.4	1.3
Apr	18.6	12.2	3.7	.7
May	17.0	10.5	2.2	.2
Jun	14.7	8.7	2.2	.5
Jul	9.2	4.5	1.1	.2
Aug	8.7	4.6	.9	.4
Sep	11.4	7.3	2.2	.7
Oct	15.2	11.2	4.5	1.4
Nov	21.7	17.1	8.7	3.8
Dec	21.6	16.8	8.2	4.1
Ann	196.5	136.8	51.8	19.3

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	2.98	4.14	5.96	7.59	9.21	10.92	12.83	15.11	18.10	22.83	27.29
Feb	2.13	2.97	4.28	5.44	6.61	7.83	9.21	10.85	12.99	16.40	19.60
Mar	2.96	3.63	4.59	5.38	6.13	6.88	7.70	8.64	9.84	11.67	13.33
Apr	2.14	2.67	3.43	4.07	4.67	5.29	5.96	6.73	7.72	9.24	10.63
May	1.93	2.32	2.85	3.28	3.69	4.09	4.53	5.03	5.66	6.62	7.48
Jun	1.23	1.61	2.17	2.65	3.12	3.61	4.14	4.77	5.57	6.83	8.00
Jul	.32	.49	.76	1.01	1.27	1.56	1.88	2.27	2.79	3.63	4.43
Aug	.28	.45	.76	1.07	1.39	1.75	2.17	2.69	3.39	4.54	5.65
Sep	.48	.80	1.39	1.97	2.59	3.28	4.08	5.08	6.44	8.68	10.86
Oct	1.32	1.90	2.85	3.71	4.59	5.52	6.58	7.85	9.52	12.21	14.76
Nov	4.49	5.71	7.47	8.95	10.37	11.82	13.41	15.26	17.63	21.30	24.66
Dec	4.36	5.68	7.64	9.31	10.93	12.60	14.45	16.60	19.39	23.73	27.74
Ann	57.42	62.52	69.09	74.10	78.58	82.93	87.43	92.43	98.51	107.37	115.07

\+ 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: 1944-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	80.4	73.2	69	60
Feb	55.6	47.7	82	75
Mar	54.6	46.5	88	80
Apr	39.9	36.9	79	76
May	18.2	15.7	38	29
Jun	1.4	1.6	5	7
Jul	.6	.0	#	0
Aug	#	.0	0	0
Sep	2.7	.0	#	0
Oct	17.4	12.8	1	0
Nov	75.5	76.8	14	12
Dec	79.0	76.6	41	42
Ann	425.3	387.8	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	29.7	1972	11	230.1	1972	209	1971	26	159	1972
Feb	24.6	1979	6	113.2	1972	201	1974	5	178	1974
Mar	19.4	1974	5	95.3	1988	233	1974	7	185	1974
Apr	16.5	1974	11	79.1	1981	185	1974	12	159	1974
May	18.8	1971	16	45.9	1984	148	1972	1	127	1974
Jun	3.9	1976	25	6.4	1976	94	1974	1	37	1974
Jul	5.8	1979	1	6.4	1971	3	1971	6	#	1982
Aug	#	1993	24	#	1993	0	0	0	0	0
Sep	10.7	1972	19	26.7	1972	5	1972	20	1	1972
Oct	17.2	1977	30	65.4	1984	28	1975	29	6	1975
Nov	24.3	1992	21	140.5	1988	73+	1973	29	34	1984
Dec	23.8	1987	9	156.1	1971	113	1973	30	77	1973
Ann	29.7	Jan 1972	11	230.1	Jan 1972	233	Mar 1974	7	185	Mar 1974

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	17.2	13.2	8.7	5.9	2.1
Feb	16.3	11.8	6.3	3.7	1.2
Mar	17.8	12.1	6.9	3.5	1.0
Apr	14.9	9.9	5.2	2.5	.3
May	8.6	4.7	1.9	1.1	.1
Jun	1.2	.7	.1	.0	.0
Jul	.1	.1	.1	.1	.0
Aug	.0	.0	.0	.0	.0
Sep	1.1	.6	.3	.2	.1
Oct	5.2	3.6	2.1	1.2	.4
Nov	17.1	13.0	8.7	5.8	1.9
Dec	19.1	14.0	8.7	5.7	2.3
Ann	118.6	83.7	49.0	29.7	9.4

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	29.8	29.5	29.5	29.0
Feb	27.3	26.8	26.7	26.7
Mar	30.7	30.7	30.7	30.5
Apr	29.2	29.1	28.8	28.4
May	23.2	21.8	20.9	19.1
Jun	4.9	4.2	4.0	3.5
Jul	@	@	.0	.0
Aug	.0	.0	.0	.0
Sep	.6	.2	.1	.0
Oct	4.4	3.2	2.4	1.2
Nov	23.2	20.1	18.7	16.2
Dec	30.9	30.4	30.3	29.2
Ann	204.2	196.0	192.1	183.8

+ 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	7/20	7/13	7/08	7/03	6/29	6/25	6/21	6/16	6/08
32	7/12	7/02	6/25	6/19	6/13	6/07	6/01	5/25	5/15
28	6/29	6/15	6/05	5/28	5/20	5/12	5/03	4/23	4/10
24	6/03	5/20	5/10	5/01	4/23	4/15	4/06	3/27	3/13
20	4/04	3/25	3/18	3/12	3/06	3/01	2/23	2/15	2/06
16	3/06	2/25	2/19	2/14	2/09	2/04	1/30	1/23	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	8/29	9/05	9/10	9/14	9/18	9/22	9/27	10/02	10/09
32	9/17	9/23	9/27	10/01	10/05	10/08	10/12	10/16	10/22
28	10/09	10/15	10/19	10/23	10/26	10/30	11/02	11/07	11/13
24	10/23	10/28	11/01	11/05	11/08	11/11	11/14	11/18	11/24
20	10/31	11/07	11/12	11/17	11/21	11/25	11/30	12/05	12/13
16	11/01	11/11	11/19	11/26	12/02	12/08	12/14	12/22	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	106	97	91	85	80	75	69	63	54
32	139	130	124	118	113	108	102	95	86
28	204	188	177	168	159	150	141	130	114
24	248	231	218	208	198	188	178	165	148
20	294	282	273	266	259	252	245	236	224
16	330	316	307	299	293	286	279	270	259

***** 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	1214	1031	1015	844	679	469	291	263	408	697	1030	1215	9156
60	1059	891	860	694	524	325	168	145	277	544	880	1060	7427
57	966	807	767	604	432	245	113	94	210	454	790	967	6449
55	904	751	705	544	372	196	82	65	172	396	730	905	5822
50	749	611	550	395	233	99	27	19	93	262	580	750	4368
32	238	146	94	30	5	0	0	0	0	14	128	229	884

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	47	39	102	177	349	521	745	774	591	340	88	37	3810
55	0	0	0	0	4	27	113	126	73	9	0	0	352
57	0	0	0	0	1	16	82	93	51	5	0	0	248
60	0	0	0	0	0	6	44	51	28	2	0	0	131
65	0	0	0	0	0	0	12	14	9	0	0	0	35
70	0	0	0	0	0	0	1	0	0	0	0	0	1

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	0	0	5	72	188	319	459	569	398	130	5	1	0	0	5	77	265	584	1043	1612	2010	2140	2145	2146
45	0	0	0	32	101	200	310	418	266	62	0	0	0	0	0	32	133	333	643	1061	1327	1389	1389	1389
50	0	0	0	4	44	109	191	278	161	24	0	0	0	0	0	4	48	157	348	626	787	811	811	811
55	0	0	0	0	18	44	96	163	79	11	0	0	0	0	0	0	18	62	158	321	400	411	411	411
60	0	0	0	0	0	15	46	82	28	0	0	0	0	0	0	0	0	15	61	143	171	171	171	171
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	1	53	111	168	255	308	203	49	0	0	0	0	1	54	165	333	588	896	1099	1148	1148	1148

(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