

Climatography of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: SATUS PASS 2 SSW, WA

1971-2000

COOP ID: 457342

Climate Division: WA 6

NWS Call Sign:

Elevation: 2,610 Feet Lat: 45° 58N

Lon: 120° 40W

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	36.4	22.1	29.3	60+	1971	31	36.9	1994	-15	1969	26	15.8	1979	1108	0	.0	.0	1.5	8.1	25.5	1.0
Feb	42.0	25.0	33.5	64	1995	24	39.9	1991	-14	1996	3	22.5	1989	883	0	.0	.0	4.8	3.5	24.6	.4
Mar	50.4	27.9	39.2	70	1972	17	43.1	1992	5	1976	3	34.8	1976	801	0	.0	.0	15.3	.3	24.9	.0
Apr	58.6	30.8	44.7	87	1977	24	48.8	2000	12	1985	21	39.7	1975	608	0	.0	.0	24.7	.0	18.2	.0
May	67.7	35.3	51.5	95	1986	30	55.8	1993	16	1985	11	47.6	1977	419	0	.0	.3	30.6	.0	11.1	.0
Jun	74.6	40.6	57.6	93	1987	26	62.8	1992	23	1976	2	53.0	1991	234	12	.1	1.4	30.0	.0	4.1	.0
Jul	82.6	45.3	64.0	102	1979	19	69.7	1998	26	1968	13	57.4	1993	115	82	.5	6.5	31.0	.0	1.1	.0
Aug	82.4	45.4	63.9	102	1998	4	68.6	1991	21	1985	31	58.9	1975	115	81	.1	7.0	31.0	.0	1.1	.0
Sep	73.8	40.6	57.2	99	1998	1	64.5	1990	20	1985	28	48.5	1985	272	37	.0	1.4	29.9	.0	4.0	.0
Oct	60.9	33.0	47.0	85+	2001	2	55.1	1988	13+	1985	9	41.5	1984	559	0	.0	.0	28.1	@	15.5	.0
Nov	43.5	27.8	35.7	68	1988	1	40.9	1999	-11	1985	23	23.4	1985	881	0	.0	.0	6.3	2.3	22.8	.2
Dec	35.4	21.9	28.7	58	1980	27	34.6	1980	-15	1972	8	18.0	1985	1127	0	.0	.0	1.7	8.5	28.1	.9
Ann	59.0	33.0	46.0	102+	Aug 1998	4	69.7	Jul 1998	-15+	Dec 1972	8	15.8	Jan 1979	7122	212	.7	16.6	234.9	22.7	181.0	2.5

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1968-2001

(3) Derived from 1971-2000 serially complete daily data

089-A

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Lon: 120°40W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	3.93	3.88	3.34	1974	15	9.61	1974	.24	1985	12.4	7.9	2.2	.5	.86	1.22	1.80	2.32	2.84	3.40	4.02	4.77	5.75	7.33	8.81
Feb	3.24	3.22	3.36	1990	3	6.80	1996	.54	1993	10.8	7.2	1.8	.4	.92	1.23	1.69	2.10	2.49	2.90	3.36	3.89	4.59	5.68	6.69
Mar	1.96	1.62	2.83	1991	3	6.94	1983	.45	1973	9.0	5.0	.8	.1	.41	.59	.88	1.14	1.41	1.69	2.00	2.38	2.88	3.68	4.44
Apr	1.14	.93	1.42	1982	7	3.24	1982	.00	1977	6.2	3.4	.5	.1	.14	.29	.48	.64	.81	.98	1.17	1.41	1.71	2.20	2.67
May	.98	.68	2.20	1983	7	4.98	1984	.00	1992	4.9	2.7	.4	.1	.06	.16	.31	.46	.61	.78	.97	1.21	1.53	2.06	2.57
Jun	.80	.51	2.00	1984	9	4.48	1984	.00+	1999	3.7	1.6	.4	.1	.00	.00	.08	.18	.31	.48	.68	.96	1.35	2.04	2.74
Jul	.35	.23	.78	1975	6	1.29	1992	.00+	2000	2.1	.9	.1	.0	.00	.00	.00	.04	.11	.19	.29	.43	.62	.95	1.28
Aug	.47	.14	.91	1990	21	2.18	1989	.00+	2000	2.1	1.2	.3	.0	.00	.00	.00	.01	.08	.19	.33	.53	.81	1.33	1.86
Sep	.76	.65	1.33	1971	1	3.09	1986	.00+	1999	3.3	2.1	.3	@	.00	.00	.00	.15	.31	.48	.69	.95	1.31	1.93	2.53
Oct	1.26	1.03	1.73	1973	31	3.56	1973	.00	1978	5.8	3.2	.5	.2	.03	.11	.27	.45	.65	.88	1.17	1.53	2.04	2.91	3.76
Nov	3.68	3.31	3.15	1998	21	8.40	1984	.14	1993	12.9	8.0	1.9	.4	.49	.78	1.31	1.82	2.36	2.95	3.64	4.49	5.64	7.52	9.34
Dec	4.23	3.61	3.23	1977	13	9.19	1980	.60	1976	11.5	8.2	2.4	.7	.93	1.32	1.94	2.50	3.06	3.65	4.33	5.13	6.19	7.88	9.48
Ann	22.80	22.77	3.36	Feb 1990	3	9.61	Jan 1974	.00+	Aug 2000	84.7	51.4	11.6	2.6	13.04	14.78	17.08	18.88	20.52	22.14	23.84	25.76	28.12	31.63	34.73

+ 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: 1968-2001

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Climate Division: WA 6

NWS Call Sign:

Elevation: 2,610 Feet

Lat: 45° 58N

Lon: 120° 40W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	14.0	11.4	6	6	10.5	1982	3	28.8	1982	33	1982	8	22	1986	4.9	3.8	2.0	.8	.1	10.0	7.8	6.9	3.1
Feb	8.3	7.2	4	1	8.5	1985	7	24.8	1985	28	1986	20	21	1986	3.2	2.6	1.0	.5	.0	7.9	6.3	5.3	2.3
Mar	2.4	.0	1	0	6.0	1972	1	24.0	1971	13	1971	14	5	1971	1.1	.9	.4	.1	.0	2.5	1.7	1.2	.2
Apr	.8	.0	#	0	5.0	1971	17	8.0	1971	12	1982	6	1	1982	.3	.3	.1	@	.0	.2	.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	.4	.0	#	0	2.0	1971	15	6.0	1971	2	1971	30	#	1971	.2	.2	.0	.0	.0	.2	.0	.0	.0
Nov	4.5	.4	1	#	12.0	1985	10	35.3	1985	21	1985	22	10	1985	1.8	1.1	.6	.2	.1	1.5	.7	.4	.0
Dec	12.2	8.9	3	1	9.5	1981	15	41.0	1971	22+	1981	29	18	1985	5.4	4.2	1.4	.6	.0	9.5	7.9	5.2	2.1
Ann	42.6	27.9	N/A	N/A	12.0	Nov 1985	10	41.0	Dec 1971	33	Jan 1982	8	22	Jan 1986	16.9	13.1	5.5	2.2	.2	31.8	24.4	19.0	7.7

+ 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:

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NWS Call Sign:

Elevation: 2,610 Feet

Lat: 45° 58N

Lon: 120° 40W

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	7/30	7/23	7/18	7/14	7/11	7/07	7/03	6/28	6/22
32	7/21	7/12	7/05	6/30	6/24	6/19	6/13	6/07	5/28
28	7/03	6/22	6/13	6/06	5/31	5/24	5/17	5/09	4/28
24	6/02	5/22	5/15	5/08	5/02	4/26	4/19	4/11	4/01
20	5/07	4/23	4/13	4/05	3/28	3/20	3/11	3/01	2/16
16	3/28	3/13	3/02	2/21	2/12	2/03	1/25	1/14	12/29
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	7/30	8/08	8/14	8/20	8/25	8/30	9/05	9/11	9/21
32	8/14	8/23	8/29	9/04	9/09	9/15	9/20	9/27	10/06
28	8/31	9/08	9/14	9/19	9/24	9/29	10/04	10/10	10/18
24	9/20	9/30	10/07	10/12	10/18	10/23	10/29	11/05	11/15
20	10/15	10/24	10/30	11/05	11/10	11/15	11/20	11/27	12/06
16	10/31	11/09	11/16	11/21	11/26	12/02	12/07	12/14	12/23
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	83	70	60	52	45	37	29	19	6
32	124	107	96	86	76	67	57	45	29
28	162	146	135	125	116	106	96	85	69
24	215	199	187	178	168	159	149	138	122
20	277	260	247	236	226	216	205	193	175
16	343	322	307	296	285	274	263	250	232

* 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:

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NWS Call Sign:

Elevation: 2,610 Feet Lat: 45° 58N

Lon: 120° 40W

Degree Days to Selected Base Temperatures (° F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1108	883	801	608	419	234	115	115	272	559	881	1127	7122
60	953	743	646	458	273	120	46	46	170	407	731	972	5565
57	860	659	553	371	194	71	22	23	121	319	641	879	4713
55	798	603	491	315	149	45	13	14	93	264	581	817	4183
50	648	463	337	186	65	10	1	3	40	146	440	662	3001
32	201	86	11	2	0	0	0	0	0	2	79	188	569

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	116	127	233	383	604	768	990	989	756	466	188	85	5705
55	0	0	0	6	40	124	290	290	158	16	0	0	924
57	0	0	0	3	23	89	237	237	126	9	0	0	724
60	0	0	0	0	9	48	168	167	85	3	0	0	480
65	0	0	0	0	0	12	82	81	37	0	0	0	212
70	0	0	0	0	0	2	28	26	13	0	0	0	69

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	8	15	54	156	342	532	741	741	519	245	30	1	8	23	77	233	575	1107	1848	2589	3108	3353	3383	3384
45	0	0	9	69	206	382	586	586	372	128	6	0	0	0	9	78	284	666	1252	1838	2210	2338	2344	2344
50	0	0	0	30	102	239	432	431	237	54	0	0	0	0	0	30	132	371	803	1234	1471	1525	1525	1525
55	0	0	0	4	40	128	289	286	129	17	0	0	0	0	0	4	44	172	461	747	876	893	893	893
60	0	0	0	0	12	50	161	160	55	3	0	0	0	0	0	0	12	62	223	383	438	441	441	441
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	7	45	128	260	369	493	495	361	192	16	0	0	7	52	180	440	809	1302	1797	2158	2350	2366	2366

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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