

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: CONCRETE PPL FISH STN, WA

1971-2000

COOP ID: 451679

Climate Division: WA 4

NWS Call Sign:

Elevation: 195 Feet

Lat: 48° 32N

Lon: 121° 45W

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	42.2	31.7	37.0	65	1940	31	42.6	1994	0+	1950	30	31.2	1979	870	0	.0	.0	2.8	1.1	15.1	.0
Feb	46.6	33.0	39.8	74	1938	28	45.4	1992	1	1950	1	33.2	1989	706	0	.0	.0	9.0	.5	11.6	.0
Mar	52.1	35.5	43.8	80+	1994	30	50.2	1992	11	1955	4	39.4	1976	656	0	.0	.0	18.6	@	7.9	.0
Apr	58.6	39.3	49.0	91	1934	19	52.2	1994	25+	1935	9	44.8	1975	482	0	.0	.0	26.1	.0	2.0	.0
May	64.7	44.6	54.7	96+	1963	21	59.5	1993	32+	1986	14	50.8+	1996	324	3	.0	.3	30.3	.0	.1	.0
Jun	68.9	49.3	59.1	101	1942	30	63.1	1982	35	1933	1	55.0	1981	184	8	.0	.3	30.0	.0	.0	.0
Jul	74.6	52.5	63.6	102	1951	12	67.7	1985	38	1953	30	60.8	1993	88	41	.0	1.1	31.0	.0	.0	.0
Aug	75.4	52.9	64.2	102	1960	9	67.2	1971	41+	1973	18	60.2	1995	77	50	.0	1.1	31.0	.0	.0	.0
Sep	70.5	49.1	59.8	102	1944	5	63.9	1995	32	1972	27	56.4	1972	176	19	.0	.2	30.0	.0	@	.0
Oct	60.2	42.8	51.5	86+	1936	10	55.3	1993	21	1935	31	48.5	1984	418	0	.0	.0	28.8	.0	.9	.0
Nov	48.0	36.8	42.4	77	1949	3	47.1	1997	7	1955	14	32.8	1985	678	0	.0	.0	12.2	.5	6.3	.0
Dec	42.2	32.4	37.3	63+	1980	27	40.8	1991	0+	1968	29	31.1	1990	859	0	.0	.0	2.3	1.6	14.4	.0
Ann	58.7	41.7	50.2	102+	Aug 1960	9	67.7	Jul 1985	0+	Dec 1968	29	31.1	Dec 1990	5518	121	.0	3.0	252.1	3.7	58.3	.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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1931-2001

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

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Climate Division: WA 4

NWS Call Sign:

Elevation: 195 Feet Lat: 48°32N

Lon: 121°45W

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	9.99	10.01	3.56	1971	30	21.75	1971	1.47	1985	19.7	15.9	7.2	2.7	3.11	4.06	5.47	6.68	7.85	9.06	10.40	11.96	13.98	17.12	20.03
Feb	7.56	8.02	3.54	1986	24	13.54	1999	.33	1993	17.5	13.5	5.8	1.7	2.35	3.06	4.13	5.05	5.94	6.86	7.87	9.06	10.59	12.97	15.19
Mar	6.92	6.26	2.70	1997	19	13.47	1997	.96	1992	19.3	14.6	5.3	1.2	2.74	3.38	4.29	5.04	5.75	6.47	7.25	8.15	9.29	11.04	12.63
Apr	4.86	4.14	2.13	1970	10	10.10	1981	2.17	1999	16.9	11.7	2.8	.7	2.15	2.59	3.19	3.68	4.14	4.60	5.09	5.66	6.38	7.46	8.45
May	3.71	3.51	2.20	1951	11	10.48	1984	1.51	1995	15.0	9.6	2.3	.3	1.44	1.78	2.27	2.68	3.07	3.46	3.88	4.37	5.00	5.95	6.83
Jun	3.01	2.76	2.51	1957	12	7.08	1981	.51	1996	12.8	7.8	1.7	.4	.90	1.19	1.62	1.99	2.34	2.71	3.12	3.60	4.23	5.20	6.10
Jul	1.83	1.54	1.85	1932	3	5.97	1983	.00	1985	7.7	4.3	1.2	.3	.10	.28	.56	.83	1.11	1.43	1.80	2.26	2.88	3.90	4.90
Aug	1.69	1.34	1.67	1990	30	4.04	1975	.12	1981	7.1	4.1	1.0	.2	.18	.31	.55	.78	1.03	1.32	1.65	2.06	2.62	3.55	4.46
Sep	3.23	3.00	2.70	1931	5	8.37	1972	.33+	1989	9.9	6.7	2.0	.7	.48	.75	1.22	1.67	2.13	2.64	3.23	3.94	4.91	6.47	7.98
Oct	6.20	5.51	4.15	1945	24	15.16	1975	.16	1987	15.9	11.4	4.5	1.5	1.02	1.56	2.46	3.31	4.19	5.14	6.24	7.57	9.34	12.22	14.97
Nov	11.37	12.39	4.70	1989	9	22.08	1990	2.39	1979	20.7	17.2	8.6	3.2	4.08	5.15	6.70	7.99	9.23	10.50	11.88	13.49	15.54	18.71	21.62
Dec	11.02	11.09	4.25	1977	2	18.00	1979	1.57	1985	20.7	16.9	8.2	3.5	4.29	5.31	6.77	7.97	9.12	10.28	11.54	13.00	14.85	17.69	20.28
Ann	71.39	69.16	4.70	Nov 1989	9	22.08	Nov 1990	.00	Jul 1985	183.2	133.7	50.6	16.4	52.11	55.88	60.68	64.32	67.54	70.64	73.84	77.37	81.64	87.81	93.13

+ 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: 1931-2001

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

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COOP ID: 451679

Climate Division: WA 4

NWS Call Sign:

Elevation: 195 Feet

Lat: 48° 32N

Lon: 121° 45W

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	7.0	1.8	1	#	10.0	1972	11	26.8	1971	17	1991	8	7	1972	2.5	1.7	.8	.4	.1	5.2	2.6	1.6	.2
Feb	4.7	1.5	1	#	12.0	1985	7	34.3	1990	16	1985	10	4	1990	1.9	1.3	.5	.3	.1	2.9	1.1	.5	.2
Mar	1.2	.0	#	0	7.0	1989	1	14.0	1989	14	1989	2	1	1989	.8	.3	.1	.1	.0	.9	.2	.1	@
Apr	.2	.0	#	0	2.5	1972	9	2.5	1972	1+	1981	12	#+	1981	.1	.1	.0	.0	.0	.1	.0	.0	.0
May	#	.0	0	0	#	1982	4	#	1982	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	#	1991	29	#	1991	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.7	.0	#	0	11.0	1985	27	16.0	1985	13	1985	27	2	1985	.6	.5	.2	.1	@	1.2	.6	.2	.1
Dec	5.8	.8	1	#	12.0	1996	27	38.5	1996	25	1996	29	5	1996	2.7	1.6	.8	.4	@	3.7	1.6	1.0	.4
Ann	20.6	4.1	N/A	N/A	12.0+	Dec 1996	27	38.5	Dec 1996	25	Dec 1996	29	7	Jan 1972	8.6	5.5	2.4	1.3	.2	14.0	6.1	3.4	.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

Complete documentation available from:

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No. 20 1971-2000

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Climate Division: WA 4

NWS Call Sign:

Elevation: 195 Feet

Lat: 48° 32N

Lon: 121° 45W

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	5/16	5/10	5/05	5/02	4/28	4/25	4/21	4/16	4/10
32	4/29	4/22	4/16	4/12	4/08	4/03	3/30	3/24	3/17
28	3/20	3/09	3/02	2/23	2/17	2/11	2/05	1/28	1/18
24	3/01	2/20	2/14	2/08	2/03	1/28	1/22	1/14	12/31
20	2/22	2/08	1/29	1/20	1/11	1/02	12/21	11/29	0/00
16	1/29	1/17	1/07	12/28	12/14	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	10/03	10/08	10/12	10/15	10/18	10/21	10/24	10/28	11/02
32	10/14	10/23	10/30	11/04	11/09	11/15	11/20	11/27	12/06
28	11/03	11/12	11/19	11/25	12/01	12/06	12/12	12/19	12/28
24	11/21	12/02	12/09	12/16	12/22	12/28	1/04	1/13	1/30
20	11/29	12/10	12/19	12/26	1/03	1/11	1/23	0/00	0/00
16	12/12	12/26	1/06	1/18	2/08	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	194	186	181	177	172	168	164	158	151
32	254	240	231	223	215	208	199	190	177
28	327	311	300	291	283	275	267	257	243
24	>365	353	339	329	321	313	306	297	284
20	>365	>365	>365	>365	357	340	328	317	303
16	>365	>365	>365	>365	>365	>365	>365	>365	330

* 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:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

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No. 20
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COOP ID: 451679

Climate Division: WA 4 NWS Call Sign: Elevation: 195 Feet Lat: 48°32N Lon: 121°45W

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	870	706	656	482	324	184	88	77	176	418	678	859	5518
60	715	566	501	333	185	75	20	17	78	266	528	704	3988
57	622	482	408	246	119	34	6	5	38	182	439	611	3192
55	560	426	349	192	84	17	2	1	21	133	382	549	2716
50	409	292	209	82	24	2	0	0	3	47	248	396	1712
32	38	14	3	0	0	0	0	0	0	0	11	28	94

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	191	232	370	508	702	814	977	996	833	605	324	192	6744
55	0	0	3	9	73	141	265	284	164	25	5	0	969
57	0	0	0	4	46	98	208	226	121	12	1	0	716
60	0	0	0	1	19	49	129	145	71	3	0	0	417
65	0	0	0	0	3	8	41	50	19	0	0	0	121
70	0	0	0	0	0	0	6	8	3	0	0	0	17

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	33	64	141	279	461	583	739	753	601	365	114	33	33	97	238	517	978	1561	2300	3053	3654	4019	4133	4166
45	0	9	46	143	307	433	584	598	451	216	33	0	0	9	55	198	505	938	1522	2120	2571	2787	2820	2820
50	0	1	5	57	170	283	429	443	301	96	3	0	0	1	6	63	233	516	945	1388	1689	1785	1788	1788
55	0	0	0	19	73	146	274	289	165	29	0	0	0	0	0	19	92	238	512	801	966	995	995	995
60	0	0	0	0	28	58	133	151	70	5	0	0	0	0	0	0	28	86	219	370	440	445	445	445
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	25	69	146	237	307	430	449	332	171	30	0	1	26	95	241	478	785	1215	1664	1996	2167	2197	2197

(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/normal/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