

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: SKAMANIA FISH HATCHERY, WA

1971-2000

COOP ID: 457696

Climate Division: WA 4

NWS Call Sign:

Elevation: 440 Feet

Lat: 45° 37N

Lon: 122° 13W

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	44.5	29.5	37.0	64	1976	31	42.3	1983	5	1969	1	27.3	1979	868	0	.0	.0	8.5	1.5	18.9	.0
Feb	49.1	31.4	40.3	72+	1988	29	46.8	1991	3	1989	4	32.5	1989	694	0	.0	.0	14.0	.6	15.0	.0
Mar	54.8	33.4	44.1	82	1994	28	49.8	1992	15	1971	1	39.1	1971	649	0	.0	.0	22.4	.0	14.3	.0
Apr	59.9	35.7	47.8	89	1998	30	52.1	1989	21+	1997	22	42.5	1975	517	0	.0	.0	26.8	.0	8.8	.0
May	66.4	40.1	53.3	100	1983	29	58.0	1992	22	1997	7	49.0	1977	365	0	@	.8	30.6	.0	3.2	.0
Jun	71.8	44.3	58.1	104	1992	23	63.5	1992	29+	1976	3	54.0	1980	217	9	.1	1.3	30.0	.0	.3	.0
Jul	78.4	46.8	62.6	105	1965	31	66.9	1996	32+	1997	3	58.8	1981	120	46	.5	4.3	31.0	.0	.1	.0
Aug	79.6	46.0	62.8	107	1977	18	66.9	1986	33+	1973	19	58.8	1975	109	39	.7	4.6	31.0	.0	.0	.0
Sep	74.5	42.2	58.4	105	1987	1	62.1	1998	26+	1997	20	55.2	1977	210	10	.1	2.5	30.0	.0	1.4	.0
Oct	63.9	37.4	50.7	93	1987	2	55.1	1987	17+	1997	21	47.2	1997	444	0	.0	.2	29.7	.0	6.9	.0
Nov	50.8	34.2	42.5	71	1975	5	49.0	1995	11+	1985	25	34.7	1985	675	0	.0	.0	17.5	.3	11.4	.0
Dec	44.3	30.4	37.4	64	1975	9	41.7	1999	0	1968	31	31.4	1985	857	0	.0	.0	6.8	1.4	17.6	.0
Ann	61.5	37.6	49.6	107	Aug 1977	18	66.9+	Jul 1996	0	Dec 1968	31	27.3	Jan 1979	5725	104	1.4	13.7	278.3	3.8	97.9	.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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1965-2001

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

092-A

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Elevation: 440 Feet Lat: 45°37N

Lon: 122°13W

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	11.75	11.93	5.57	1982	23	23.17	1971	.19	1985	20.1	16.4	8.4	3.9	2.43	3.50	5.23	6.80	8.39	10.08	11.99	14.29	17.33	22.19	26.80
Feb	10.05	9.66	4.37	1968	19	16.50	1996	1.24	1993	18.0	14.5	7.4	2.8	3.86	4.80	6.13	7.24	8.29	9.36	10.52	11.86	13.57	16.19	18.59
Mar	8.65	8.24	2.89	1988	25	15.40	1997	2.40	1992	20.3	15.1	7.1	2.0	3.60	4.39	5.50	6.41	7.26	8.13	9.06	10.14	11.50	13.58	15.47
Apr	6.94	6.65	2.13	1993	3	13.84	1993	2.44	1999	18.6	13.8	5.3	1.3	3.08	3.70	4.56	5.26	5.91	6.57	7.27	8.08	9.10	10.65	12.04
May	5.38	4.99	2.32	2000	11	9.38	1998	.75	1992	15.8	10.8	3.9	1.0	1.92	2.43	3.16	3.78	4.36	4.97	5.62	6.39	7.36	8.87	10.26
Jun	4.18	4.14	2.66	1985	7	12.05	1981	1.20	1979	11.6	7.6	2.8	.9	1.18	1.58	2.18	2.70	3.21	3.74	4.33	5.03	5.94	7.36	8.68
Jul	1.46	1.25	2.30	1966	3	6.97	1983	.00	1984	6.3	3.4	.9	.2	.04	.15	.35	.56	.79	1.06	1.38	1.79	2.35	3.31	4.25
Aug	1.82	1.57	2.98	1977	26	5.18+	1977	.16	1998	6.1	3.7	1.2	.2	.15	.27	.51	.76	1.04	1.36	1.74	2.22	2.88	3.99	5.08
Sep	3.92	3.63	2.76	1996	15	8.67	1986	.00	1993	9.5	6.7	2.8	1.1	.15	.47	1.03	1.60	2.22	2.93	3.77	4.82	6.26	8.67	11.03
Oct	6.40	5.67	4.20	1994	27	14.29	1990	.12	1987	13.8	10.7	4.8	1.7	.94	1.47	2.40	3.28	4.21	5.22	6.39	7.82	9.75	12.88	15.90
Nov	12.67	13.27	5.86	1999	25	23.55	1995	2.77	1976	21.1	17.1	9.9	3.7	4.74	5.93	7.62	9.04	10.39	11.76	13.25	14.98	17.19	20.58	23.69
Dec	12.97	12.61	4.00	1977	2	23.76	1971	3.61	1976	20.7	16.9	9.3	4.7	4.74	5.95	7.71	9.17	10.57	12.00	13.56	15.37	17.68	21.23	24.49
Ann	86.19	87.80	5.86	Nov 1999	25	23.76	Dec 1971	.00+	Sep 1993	181.9	136.7	63.8	23.5	63.01	67.55	73.33	77.71	81.58	85.32	89.17	93.41	98.54	105.96	112.36

+ 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: 1965-2001

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

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NWS Call Sign:

Elevation: 440 Feet

Lat: 45° 37N

Lon: 122° 13W

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	2.9	1.0	1	#	7.5	1980	8	14.0	1982	49	1980	10	7	1980	1.6	1.0	.2	@	.0	3.5	1.7	.5	.1
Feb	2.3	.7	#	0	9.0	1990	13	14.5	1990	10	1990	15	3	1985	1.3	.8	.2	.1	.0	2.3	1.5	1.0	.1
Mar	.7	.0	#	0	8.5	1989	2	12.0	1989	12	1989	3	1	1989	.3	.2	.1	@	.0	.7	.4	.2	@
Apr	#	.0	#	0	#	1982	14	#	1982	#	1982	15	#	1982	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.2	.0	#	0	8.0	1985	22	11.0	1985	9	1985	23	2	1985	.5	.4	.2	.1	.0	1.1	.7	.5	.0
Dec	1.7	.7	#	0	5.5	1971	29	10.0	1971	10	1972	12	4	1985	1.1	.6	.1	@	.0	3.0	1.6	.6	.0
Ann	8.8	2.4	N/A	N/A	9.0	Feb 1990	13	14.5	Feb 1990	49	Jan 1980	10	7	Jan 1980	4.8	3.0	.8	.2	.0	10.6	5.9	2.8	.2

+ 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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Elevation: 440 Feet

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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	7/12	7/03	6/26	6/20	6/15	6/09	6/04	5/28	5/18
32	6/15	6/06	6/01	5/27	5/22	5/17	5/12	5/07	4/29
28	5/17	5/06	4/28	4/21	4/15	4/09	4/02	3/25	3/14
24	4/07	3/24	3/14	3/05	2/25	2/17	2/09	1/30	1/16
20	3/06	2/23	2/14	2/07	1/31	1/23	1/15	1/03	0/00
16	2/18	2/06	1/27	1/18	1/08	12/26	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	8/16	8/24	8/30	9/03	9/08	9/12	9/17	9/22	9/30
32	9/10	9/18	9/23	9/28	10/02	10/06	10/11	10/17	10/24
28	9/28	10/08	10/15	10/21	10/27	11/01	11/07	11/15	11/24
24	10/15	10/27	11/04	11/11	11/18	11/25	12/02	12/10	12/22
20	10/30	11/15	11/27	12/07	12/16	12/27	1/07	1/23	0/00
16	12/09	12/22	1/01	1/11	1/22	2/07	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	126	112	101	92	84	76	67	56	42
32	169	157	147	140	132	125	117	108	95
28	240	224	213	203	194	185	175	164	148
24	329	307	291	278	265	252	239	223	201
20	>365	>365	>365	346	322	304	289	273	252
16	>365	>365	>365	>365	>365	>365	348	328	308

* 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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Elevation: 440 Feet Lat: 45° 37N Lon: 122° 13W

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	868	694	649	517	365	217	120	109	210	444	675	857	5725
60	713	554	494	367	219	102	43	33	99	292	525	702	4143
57	620	470	401	280	144	55	18	12	53	208	439	609	3309
55	558	414	343	225	104	32	9	6	31	158	383	547	2810
50	412	283	206	108	33	5	0	0	5	65	252	393	1762
32	51	15	3	0	0	0	0	0	0	0	14	25	108

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	206	244	377	473	659	782	949	953	790	579	329	191	6532
55	0	0	5	8	49	124	245	246	131	24	8	0	840
57	0	0	0	3	28	87	191	190	93	12	4	0	608
60	0	0	0	0	10	45	124	119	49	2	0	0	349
65	0	0	0	0	0	9	46	39	10	0	0	0	104
70	0	0	0	0	0	1	10	7	1	0	0	0	19

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	45	84	153	248	423	552	712	715	563	342	127	43	45	129	282	530	953	1505	2217	2932	3495	3837	3964	4007
45	4	23	58	124	272	402	557	560	413	198	46	3	4	27	85	209	481	883	1440	2000	2413	2611	2657	2660
50	0	2	10	49	142	254	402	405	266	89	5	0	0	2	12	61	203	457	859	1264	1530	1619	1624	1624
55	0	0	0	13	66	129	251	252	141	27	0	0	0	0	0	13	79	208	459	711	852	879	879	879
60	0	0	0	1	24	50	126	121	58	5	0	0	0	0	0	1	25	75	201	322	380	385	385	385
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	13	45	101	161	262	330	439	455	371	226	57	11	13	58	159	320	582	912	1351	1806	2177	2403	2460	2471

(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.

- 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/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