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: OMAK 4 N, WA **COOP ID: 456123**

Climate Division: WA 7 **NWS Call Sign: OMK** **Elevation: 1,301 Feet** **Lat: 48˚28N** **Lon: 119˚31W**

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	29.4	16.6	23.0	59	1945	13	30.7	1992	-22+	1950	15	12.1	1979	1302	0	.0	.0	.2	18.7	30.1	2.7
Feb	38.6	22.2	30.4	63	1932	27	37.4	1998	-26	1950	1	19.6	1975	969	0	.0	.0	2.1	5.7	25.9	1.3
Mar	51.2	30.0	40.6	76	1994	31	47.9	1992	-7	1951	10	33.0	1971	756	0	.0	.0	18.7	.3	23.0	@
Apr	62.4	36.7	49.6	96	1934	23	54.4	1994	15	1936	2	44.2	1972	465	0	.0	.0	28.5	.0	10.4	.0
May	70.8	44.4	57.6	98	1934	28	63.8	1993	19	1954	1	52.9	1974	242	13	.0	.5	31.0	.0	2.2	.0
Jun	78.4	50.7	64.6	102	1992	24	71.7	1992	30+	1976	1	60.2	1976	95	81	.1	2.1	30.0	.0	.1	.0
Jul	85.3	56.6	71.0	109	1939	27	79.1	1998	35+	1973	1	65.3	1993	33	217	.8	9.7	31.0	.0	.0	.0
Aug	85.1	55.8	70.5	106	1998	5	73.5	1977	34+	1965	30	65.4	1975	17	186	.6	9.7	31.0	.0	.0	.0
Sep	75.6	47.3	61.5	101	1938	2	67.6	1994	20	1945	27	54.3	1972	172	67	.0	1.5	29.9	.0	1.9	.0
Oct	60.3	35.3	47.8	86+	1943	2	52.6	1988	8	1935	31	44.9+	1984	534	0	.0	.0	27.7	.1	13.2	.0
Nov	41.3	27.9	34.6	70	1933	24	39.5	1999	-3+	1993	29	22.7	1985	913	0	.0	.0	5.9	3.2	23.5	.4
Dec	31.0	19.0	25.0	67	1932	2	31.1	1979	-21	1948	27	16.2	1983	1239	0	.0	.0	.5	15.0	29.9	1.7
Ann	59.1	36.9	48.0	109	Jul 1939	27	79.1	Jul 1998	-26	Feb 1950	1	12.1	Jan 1979	6737	564	1.5	23.5	236.5	43.0	160.2	6.1

\+ 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: 1931-2001

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

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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	1.16	.88	.76	1967	29	4.68	1995	.12	1977
Feb	1.24	1.33	1.09	1943	10	2.94	1980	.13	1993
Mar	1.00	1.11	.72	1950	10	1.61	1974	.03	1979
Apr	1.11	1.17	1.25	1953	27	2.67	1994	.04	1977
May	1.08	.96	1.75	1998	27	2.75	1977	.07	1992
Jun	1.22	1.11	2.21	1936	2	3.37	1997	.04	1974
Jul	.80	.43	2.04	1992	23	4.65	1992	.00+	1999
Aug	.65	.63	1.15	1951	28	2.04	1976	.02	1996
Sep	.54	.47	1.43	1980	13	1.83	1996	.00+	1987
Oct	.76	.62	1.08	1940	24	2.21	1979	.01	1978
Nov	1.45	1.44	.94	1968	11	3.60	1973	.00	1976
Dec	1.82	1.71	1.90	1997	1	4.63	1973	.26	1978
Ann	12.83	12.55	2.21	Jun 1936	2	4.68	Jan 1995	.00+	Jul 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.3	2.7	.3	.0
Feb	7.4	3.4	.3	@
Mar	8.7	3.7	.3	.0
Apr	6.9	2.6	.4	.0
May	8.7	3.5	.3	.1
Jun	7.8	2.0	.4	.1
Jul	3.9	1.2	.4	.1
Aug	4.7	1.3	.2	.0
Sep	5.1	1.6	.2	@
Oct	6.5	2.1	.3	.0
Nov	9.5	4.1	.2	.0
Dec	10.2	4.3	.3	@
Ann	87.7	32.5	3.6	.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	.18	.28	.44	.61	.77	.95	1.16	1.42	1.77	2.33	2.86
Feb	.31	.43	.61	.77	.93	1.10	1.28	1.50	1.79	2.25	2.68
Mar	.24	.34	.48	.61	.74	.88	1.03	1.22	1.46	1.83	2.19
Apr	.17	.26	.43	.58	.74	.91	1.11	1.36	1.69	2.22	2.74
May	.22	.32	.48	.62	.77	.92	1.10	1.31	1.59	2.03	2.45
Jun	.22	.32	.50	.67	.84	1.02	1.23	1.48	1.82	2.36	2.88
Jul	.00	.01	.08	.18	.31	.46	.67	.93	1.33	2.02	2.73
Aug	.03	.07	.14	.23	.33	.45	.60	.79	1.05	1.51	1.97
Sep	.00	.01	.06	.13	.22	.33	.46	.64	.89	1.34	1.80
Oct	.07	.13	.23	.33	.45	.58	.74	.93	1.20	1.64	2.08
Nov	.20	.39	.64	.84	1.04	1.26	1.50	1.79	2.16	2.76	3.33
Dec	.36	.53	.80	1.04	1.29	1.55	1.85	2.21	2.69	3.45	4.18
Ann	8.64	9.44	10.46	11.25	11.95	12.64	13.34	14.13	15.09	16.49	17.70

\+ 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

Complete documentation available from:
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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	3.2	-99.9	6	4
Feb	6.2	5.5	3	#
Mar	1.2	.0	#	0
Apr	.0	.0	0	0
May	#	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	#	.0	#	0
Nov	1.8	.0	#	0
Dec	1.5	-99.9	2	#
Ann	13.9	-9.9	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	7.0	1971	15	16.0	1980	37	1971	16	26	1971
Feb	7.0	1975	19	17.6	1975	19	1975	19	14	1975
Mar	4.5	1997	11	8.5	1997	8	1975	2	3	1975
Apr	.0	0	0	.0	0	0	0	0	0	0
May	#	1974	14	#	1974	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	#	1973	31	#	1973	3	1971	31	#	1971
Nov	8.0	1979	22	8.0	1979	8+	1979	25	2+	1979
Dec	7.0	1999	9	7.7	1974	22	1971	31	16	1971
Ann	8.0	Nov 1979	22	17.6	Feb 1975	37	Jan 1971	16	26	Jan 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	1.5	1.5	.6	.3	.0
Mar	.4	.4	.2	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	-9.9	-9.9	-9.9	-9.9	-9.9
Dec	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9	-9.9

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	1.6	1.3	.5	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	1.3	1.1	.5	.0
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9

+ 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

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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	6/17	6/09	6/03	5/29	5/24	5/19	5/14	5/08	4/29
32	5/30	5/23	5/18	5/14	5/10	5/06	5/01	4/26	4/20
28	5/08	5/02	4/27	4/24	4/20	4/16	4/13	4/08	4/02
24	4/22	4/15	4/10	4/06	4/02	3/29	3/24	3/19	3/12
20	4/03	3/27	3/22	3/18	3/14	3/10	3/06	3/01	2/22
16	3/17	3/10	3/04	2/28	2/23	2/19	2/14	2/09	2/01

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	9/05	9/10	9/14	9/17	9/19	9/22	9/25	9/28	10/03
32	9/14	9/18	9/22	9/25	9/27	9/30	10/03	10/06	10/11
28	9/27	9/30	10/03	10/06	10/08	10/10	10/12	10/15	10/19
24	10/01	10/09	10/14	10/19	10/24	10/28	11/02	11/07	11/15
20	10/16	10/24	10/30	11/05	11/10	11/14	11/20	11/26	12/04
16	10/27	11/06	11/13	11/19	11/25	11/30	12/07	12/14	12/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	149	138	131	124	118	112	105	97	86
32	169	159	152	146	140	134	128	121	111
28	195	186	180	175	170	165	160	154	145
24	229	220	214	209	204	199	194	188	179
20	274	262	254	247	240	233	226	218	206
16	315	301	291	282	274	266	257	247	233

***** 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	1302	969	756	465	242	95	33	17	172	534	913	1239	6737
60	1147	829	601	319	126	33	10	2	91	382	763	1084	5387
57	1054	745	508	238	75	14	4	1	56	294	673	991	4653
55	992	689	448	189	49	8	1	0	39	239	613	929	4196
50	837	552	305	91	12	0	0	0	12	122	467	774	3172
32	326	153	22	0	0	0	0	0	0	1	88	278	868

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	48	108	289	526	794	977	1207	1192	884	490	165	61	6741
55	0	0	2	24	131	294	495	479	233	16	0	0	1674
57	0	0	0	13	94	241	435	418	191	9	0	0	1401
60	0	0	0	4	52	169	348	327	135	3	0	0	1038
65	0	0	0	0	13	81	217	186	67	0	0	0	564
70	0	0	0	0	2	28	118	80	25	0	0	0	253

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	70	271	521	701	921	921	615	247	26	0	0	0	70	341	862	1563	2484	3405	4020	4267	4293	4293
45	0	0	18	149	369	551	766	766	465	133	5	0	0	0	18	167	536	1087	1853	2619	3084	3217	3222	3222
50	0	0	1	62	225	403	611	611	317	53	0	0	0	0	1	63	288	691	1302	1913	2230	2283	2283	2283
55	0	0	0	19	116	259	457	456	190	16	0	0	0	0	0	19	135	394	851	1307	1497	1513	1513	1513
60	0	0	0	4	47	138	307	305	95	1	0	0	0	0	0	4	51	189	496	801	896	897	897	897
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	64	185	325	433	579	582	400	183	12	0	0	0	64	249	574	1007	1586	2168	2568	2751	2763	2763

(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:
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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