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: MOUNT ADAMS RANGER STN, WA **COOP ID: 455659**

Climate Division: WA 6 **NWS Call Sign:** **Elevation: 1,960 Feet** **Lat: 46˚00N** **Lon: 121˚33W**

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	37.9	24.0	31.0	57+	1994	18	37.2	1994	-24	1957	26	18.4	1979	1057	0	.0	.0	2.6	6.7	25.7	.8
Feb	42.3	26.6	34.5	62+	1988	20	40.4	1991	-24	1950	3	25.6	1989	856	0	.0	.0	4.1	2.9	22.8	.8
Mar	50.0	29.5	39.8	74	1966	29	44.7	1992	-7	1955	5	35.1	1971	783	0	.0	.0	14.6	.2	21.5	.0
Apr	58.2	32.8	45.5	84	1987	28	49.5	1987	15+	2001	16	41.5	1972	585	0	.0	.0	25.3	.0	15.6	.0
May	67.1	38.6	52.9	97	1986	30	57.7	1992	20	1954	1	47.7	1977	379	2	.0	.2	30.6	.0	5.1	.0
Jun	74.4	44.2	59.3	100	1961	17	64.7	1992	28+	1999	2	55.3	1991	192	20	.0	1.3	30.0	.0	.7	.0
Jul	82.6	48.6	65.6	102	1998	27	70.5	1998	28	1981	8	58.8	1993	72	91	.3	7.6	31.0	.0	.2	.0
Aug	82.5	47.6	65.1	108	1981	10	70.7	1981	28	1980	28	61.1	1995	80	82	.4	6.9	31.0	.0	.1	.0
Sep	74.0	41.3	57.7	98	1988	3	62.2	1998	11	2000	25	51.4	1985	242	21	.0	1.0	29.9	.0	3.4	.0
Oct	61.2	34.4	47.8	89	1980	5	54.1	1988	12	1991	30	43.4	1984	534	0	.0	.0	27.5	.0	13.5	.0
Nov	44.5	30.2	37.4	70+	1975	4	42.5	1974	-14	1985	24	27.6	1985	829	0	.0	.0	7.3	2.1	19.8	.2
Dec	36.7	24.9	30.8	60	1975	9	36.6	1975	-20+	1983	23	19.5	1985	1060	0	.0	.0	1.3	7.3	26.0	.8
Ann	59.3	35.2	47.3	108	Aug 1981	10	70.7	Aug 1981	-24+	Jan 1957	26	18.4	Jan 1979	6669	216	.7	17.0	235.2	19.2	154.4	2.6

\+ 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: 1948-2001

(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	7.10	6.96	4.80	1999	19	15.36	1972	.11	1985
Feb	6.15	5.64	3.21	1949	17	15.35	1982	.76	1993
Mar	4.67	4.46	3.70	1999	1	11.96	1971	1.14	2000
Apr	2.53	2.25	2.02	1996	23	7.01	1993	.00	1977
May	1.50	1.33	1.89	1949	1	3.48	1984	.00	1992
Jun	1.06	.87	2.00	1981	8	3.45	1981	.08	1976
Jul	.43	.19	1.15	1995	9	2.04	1993	.00+	2000
Aug	.72	.21	2.20	1979	26	3.56	1979	.00+	2000
Sep	1.49	1.29	2.09	1972	21	4.62	1997	.00+	1991
Oct	3.21	3.03	3.35	1994	27	10.63	1997	.07	1978
Nov	7.19	7.00	3.75	1999	26	16.88	1983	.95	1976
Dec	7.34	6.23	3.65	1977	13	18.41	1980	.75	2000
Ann	43.39	42.41	4.80	Jan 1999	19	18.41	Dec 1980	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.8	9.2	4.2	2.0
Feb	11.5	8.7	3.8	1.1
Mar	10.3	8.0	3.0	1.0
Apr	7.1	5.2	1.6	.3
May	6.5	3.6	.8	.1
Jun	4.7	2.3	.5	.2
Jul	2.3	1.2	.2	@
Aug	3.1	1.7	.4	.1
Sep	4.6	2.9	.8	.3
Oct	8.5	5.3	1.6	.6
Nov	14.8	11.3	4.7	1.7
Dec	13.3	10.1	4.9	2.2
Ann	98.5	69.5	26.5	9.6

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	1.08	1.69	2.71	3.70	4.72	5.83	7.11	8.68	10.78	14.19	17.47
Feb	1.54	2.12	3.02	3.81	4.59	5.42	6.34	7.43	8.86	11.12	13.23
Mar	1.38	1.82	2.49	3.06	3.62	4.21	4.85	5.60	6.58	8.11	9.53
Apr	.28	.59	1.01	1.37	1.74	2.14	2.58	3.12	3.83	4.96	6.05
May	.20	.39	.65	.86	1.07	1.30	1.55	1.85	2.25	2.88	3.48
Jun	.12	.20	.35	.50	.65	.83	1.04	1.30	1.65	2.23	2.79
Jul	.00	.00	.00	.06	.13	.23	.35	.51	.74	1.14	1.55
Aug	.00	.00	.00	.02	.12	.27	.49	.79	1.25	2.08	2.94
Sep	.00	.00	.13	.35	.61	.93	1.31	1.82	2.53	3.74	4.97
Oct	.17	.35	.74	1.17	1.66	2.25	2.96	3.87	5.16	7.36	9.55
Nov	1.78	2.46	3.51	4.44	5.36	6.33	7.41	8.70	10.39	13.05	15.55
Dec	1.49	2.16	3.24	4.22	5.22	6.28	7.49	8.93	10.84	13.91	16.81
Ann	27.41	30.36	34.22	37.21	39.89	42.52	45.26	48.31	52.06	57.56	62.38

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	7.4	-99.9	14	6	15.5	1980	8	29.4	1988	62	1971	15	45	1971	3.6	3.2	1.7	1.1	.4	-9.9	-9.9	-9.9	-9.9
Feb	9.2	7.4	12	6	18.0	1976	27	33.4	1985	43	1996	6	37	1997	3.0	2.7	1.9	1.2	.3	-9.9	-9.9	-9.9	-9.9
Mar	5.0	1.3	7	1	12.0	1999	29	29.3	1971	40	1971	16	37	1971	1.9	1.5	.7	.4	.1	-9.9	-9.9	-9.9	-9.9
Apr	1.1	.0	1	0	6.0	1989	2	13.0	1972	34	1971	1	16	1971	.5	.4	.1	.1	.0	.1	.1	.0	.0
May	.0	.0	#	0	.5	1974	14	.5	1974	#	1999	7	#	1999	@	.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	.2	.0	#	0	4.5	1991	29	4.5	1991	3	1991	31	#	1991	.1	.1	@	.0	.0	.1	.1	.0	.0
Nov	4.5	2.5	1	#	16.0	1984	27	16.5	1977	30	1996	25	7	1996	1.5	1.1	.6	.3	@	2.5	1.9	1.3	.0
Dec	15.1	10.3	6	3	22.0	1973	27	49.0	1981	52	1996	31	31	1996	4.9	3.9	2.1	1.0	.2	-9.9	-9.9	-9.9	-9.9
Ann	42.5	-9.9	N/A	N/A	22.0	Dec 1973	27	49.0	Dec 1981	62	Jan 1971	15	45	Jan 1971	15.5	12.9	7.1	4.1	1.0	-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	7/19	7/11	7/05	6/30	6/25	6/21	6/16	6/10	6/02
32	6/30	6/21	6/15	6/09	6/04	5/30	5/24	5/18	5/09
28	6/02	5/25	5/18	5/13	5/08	5/03	4/28	4/22	4/13
24	4/29	4/21	4/16	4/11	4/07	4/03	3/29	3/24	3/16
20	4/05	3/27	3/19	3/13	3/08	3/02	2/24	2/17	2/07
16	3/10	2/28	2/20	2/14	2/07	2/01	1/25	1/17	1/04

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	8/22	8/27	8/31	9/04	9/08	9/13	9/17	9/24
32	8/30	9/05	9/09	9/13	9/16	9/20	9/24	9/28	10/04
28	9/10	9/18	9/23	9/28	10/02	10/06	10/11	10/16	10/24
24	9/30	10/09	10/15	10/20	10/25	10/30	11/04	11/11	11/19
20	10/17	10/26	11/02	11/09	11/14	11/20	11/26	12/03	12/13
16	10/31	11/12	11/21	11/29	12/06	12/14	12/22	1/01	1/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	104	92	84	77	70	64	57	48	37
32	138	126	118	111	104	97	90	82	70
28	177	166	159	152	146	140	134	126	115
24	237	224	215	208	201	193	186	177	164
20	297	281	270	260	251	241	231	220	204
16	>365	335	321	310	301	292	282	271	257

***** 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	1057	856	783	585	379	192	72	80	242	534	829	1060	6669
60	902	716	628	435	237	92	19	24	135	382	679	905	5154
57	809	632	535	346	164	51	8	10	86	294	589	812	4336
55	747	576	473	288	123	31	3	4	61	241	530	750	3827
50	592	436	320	158	47	6	0	0	19	128	390	595	2691
32	153	67	10	0	0	0	0	0	0	1	54	151	436

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	120	135	250	405	646	819	1042	1026	768	490	215	114	6030
55	0	0	0	4	56	159	331	317	139	17	1	0	1024
57	0	0	0	1	35	119	274	260	104	9	0	0	802
60	0	0	0	0	15	71	193	181	63	3	0	0	526
65	0	0	0	0	2	20	91	82	21	0	0	0	216
70	0	0	0	0	0	3	27	23	5	0	0	0	58

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	9	14	58	182	399	578	797	787	525	258	45	3	9	23	81	263	662	1240	2037	2824	3349	3607	3652	3655
45	0	0	9	83	253	428	642	632	376	133	12	0	0	0	9	92	345	773	1415	2047	2423	2556	2568	2568
50	0	0	0	28	137	287	487	477	238	55	0	0	0	0	0	28	165	452	939	1416	1654	1709	1709	1709
55	0	0	0	5	59	156	335	324	127	13	0	0	0	0	0	5	64	220	555	879	1006	1019	1019	1019
60	0	0	0	0	22	68	192	185	52	2	0	0	0	0	0	0	22	90	282	467	519	521	521	521
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	8	53	138	269	373	500	505	361	186	15	0	0	8	61	199	468	841	1341	1846	2207	2393	2408	2408

(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