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: CLEARBROOK, WA **COOP ID: 451484**

Climate Division: WA 3 **NWS Call Sign:** **Elevation: 64 Feet** **Lat: 48˚58N** **Lon: 122˚20W**

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	42.5	32.1	37.3	65	1986	10	44.0	1994	-3	1943	21	29.3	1979	858	0	.0	.0	5.6	3.9	15.0	.0
Feb	47.4	34.3	40.9	67	1968	27	45.3	1992	2	1986	19	32.7	1989	676	0	.0	.0	10.9	1.0	10.9	.0
Mar	53.1	36.6	44.9	76	1994	29	49.2	1992	9	1955	4	39.8	1976	624	0	.0	.0	22.3	.1	8.0	.0
Apr	59.6	39.9	49.8	86	1934	22	52.8	1989	21	1954	23	45.7+	1975	458	0	.0	.0	28.9	.0	3.2	.0
May	65.7	45.1	55.4	98	1983	29	60.3	1993	28+	1949	4	52.7+	1999	300	1	.0	.1	31.0	.0	.5	.0
Jun	70.0	49.2	59.6	96	1942	30	63.0	1992	31	1933	10	55.3	1971	170	9	.0	.1	30.0	.0	.0	.0
Jul	75.2	51.3	63.3	102+	1958	27	66.5	1990	34+	1949	3	60.4	1986	79	25	.0	.8	31.0	.0	.0	.0
Aug	75.9	50.6	63.3	98	1960	9	66.2	1997	33	1945	20	59.2	1973	90	35	.0	.9	31.0	.0	.0	.0
Sep	70.8	46.4	58.6	95+	1988	3	61.9	1990	28+	1972	27	54.4	1972	202	9	.0	.1	30.0	.0	.3	.0
Oct	59.5	41.5	50.5	84+	1935	2	53.7	1993	19	1984	31	47.6	1972	449	0	.0	.0	29.2	@	3.7	.0
Nov	48.4	36.7	42.6	69	1949	2	46.7	1987	0	1985	27	31.0	1985	673	0	.0	.0	13.5	.9	8.1	@
Dec	42.5	32.6	37.6	65	1980	27	42.6	1979	-4	1968	29	31.5	1984	851	0	.0	.0	4.5	2.9	14.3	.0
Ann	59.2	41.4	50.3	102+	Jul 1958	27	66.5	Jul 1990	-4	Dec 1968	29	29.3	Jan 1979	5430	79	.0	2.0	267.9	8.8	64.0	@

\+ 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

(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

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	5.23	5.24	7.77	1935	24	9.96	1971	1.18	1985
Feb	4.20	4.14	3.09	1982	14	10.73	1982	.33	1993
Mar	4.04	3.99	2.39	1972	5	7.83	1972	.93	1992
Apr	3.66	3.27	1.79+	1996	23	7.16	1972	1.60	1975
May	3.31	3.07	2.39	1952	20	6.72	1984	.76	1995
Jun	2.80	2.51	2.47	1981	10	8.30	1981	.82	1987
Jul	1.83	1.73	2.51	1972	12	5.12	1983	.07	1985
Aug	1.65	1.16	2.04	1965	12	6.66	1991	.02	1986
Sep	2.58	2.68	2.67	1936	1	5.98	1971	.19	1989
Oct	4.36	4.06	2.90	1945	25	8.99	1975	.53	1987
Nov	6.36	6.15	3.31	1971	3	11.41	1995	2.19	1979
Dec	5.75	5.74	3.25	1933	15	11.06	1972	.76	1985
Ann	45.77	45.75	7.77	Jan 1935	24	11.41	Nov 1995	.02	Aug 1986

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	17.7	12.2	3.3	1.1
Feb	15.5	10.1	2.8	.5
Mar	17.6	11.1	2.2	.2
Apr	15.8	9.9	2.0	.5
May	14.0	8.0	2.2	.3
Jun	12.2	6.9	1.5	.5
Jul	7.9	4.3	1.0	.3
Aug	7.4	4.0	.9	.2
Sep	9.2	5.7	1.7	.4
Oct	14.3	9.8	2.8	.7
Nov	19.5	13.5	4.2	1.3
Dec	18.4	13.2	3.8	1.1
Ann	169.5	108.7	28.4	7.1

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	1.72	2.22	2.95	3.57	4.16	4.78	5.45	6.24	7.25	8.82	10.27
Feb	1.08	1.48	2.08	2.62	3.15	3.71	4.33	5.07	6.03	7.55	8.97
Mar	1.84	2.20	2.69	3.09	3.46	3.84	4.24	4.69	5.27	6.14	6.92
Apr	1.75	2.07	2.50	2.85	3.17	3.49	3.84	4.23	4.72	5.47	6.14
May	1.09	1.40	1.86	2.25	2.63	3.02	3.45	3.95	4.59	5.58	6.50
Jun	.88	1.15	1.54	1.88	2.20	2.54	2.91	3.35	3.91	4.79	5.60
Jul	.33	.49	.76	1.01	1.26	1.54	1.85	2.23	2.74	3.55	4.33
Aug	.10	.20	.40	.62	.88	1.17	1.53	2.00	2.64	3.74	4.83
Sep	.29	.49	.85	1.21	1.59	2.02	2.53	3.16	4.01	5.42	6.80
Oct	1.28	1.69	2.31	2.85	3.38	3.92	4.53	5.24	6.16	7.60	8.93
Nov	2.66	3.24	4.06	4.72	5.35	5.98	6.67	7.45	8.45	9.97	11.34
Dec	2.05	2.59	3.38	4.04	4.67	5.31	6.01	6.83	7.87	9.49	10.97
Ann	32.97	35.46	38.64	41.05	43.19	45.26	47.39	49.74	52.59	56.72	60.28

\+ 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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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	3.2	.3	#	0	11.0	1982	23	22.0	1971	3	1971	12	3	1971	1.1	.7	.3	.1	.0	-9.9	-9.9	-9.9	-9.9
Feb	1.8	.0	#	0	4.0	1975	9	16.0	1975	2	1979	23	#+	1998	.8	.6	.2	.0	.0	.1	.0	.0	.0
Mar	.6	.0	#	0	2.0	1971	1	6.0	1971	#+	1999	30	#+	1999	.5	.4	.0	.0	.0	.0	.0	.0	.0
Apr	#	.0	0	0	#	1985	20	#+	1985	0	0	0	0	0	.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	#	1984	30	#+	1984	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.3	.0	#	0	4.0	1973	23	4.0	1973	#	1995	10	#	1995	.2	.1	@	.0	.0	.0	.0	.0	.0
Dec	1.2	.0	#	0	7.0	1998	24	7.0+	1998	#+	2000	20	#+	2000	.7	.5	.1	@	.0	-9.9	-9.9	-9.9	-9.9
Ann	7.1	.3	N/A	N/A	11.0	Jan 1982	23	22.0	Jan 1971	3	Jan 1971	12	3	Jan 1971	3.3	2.3	.6	.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	6/04	5/28	5/23	5/19	5/15	5/11	5/07	5/02	4/25
32	5/10	5/03	4/28	4/24	4/20	4/16	4/11	4/06	3/31
28	4/14	4/03	3/26	3/19	3/13	3/07	2/28	2/20	2/09
24	3/12	3/01	2/21	2/15	2/08	2/02	1/27	1/19	1/08
20	3/03	2/20	2/11	2/04	1/28	1/21	1/13	1/03	12/16
16	2/12	1/31	1/22	1/13	1/05	12/26	12/12	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	9/12	9/18	9/22	9/25	9/28	10/01	10/05	10/09	10/14
32	9/24	9/30	10/05	10/10	10/14	10/18	10/22	10/27	11/03
28	10/12	10/22	10/29	11/04	11/10	11/16	11/23	11/30	12/10
24	11/05	11/14	11/21	11/27	12/02	12/08	12/14	12/20	12/30
20	11/14	11/25	12/03	12/10	12/16	12/23	12/30	1/09	1/27
16	12/04	12/16	12/26	1/03	1/12	1/24	2/12	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	162	153	146	141	135	130	124	118	109
32	206	196	189	182	176	170	164	157	146
28	288	272	260	251	242	232	223	211	196
24	343	325	313	304	295	286	277	267	252
20	>365	361	340	328	319	310	301	291	278
16	>365	>365	>365	>365	>365	>365	347	332	318

***** 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	858	676	624	458	300	170	79	90	202	449	673	851	5430
60	703	536	469	308	159	66	13	21	89	294	523	696	3877
57	610	452	376	221	93	28	2	6	43	203	437	603	3074
55	551	396	315	167	59	13	0	2	23	148	381	542	2597
50	407	266	176	63	11	1	0	0	2	47	250	395	1618
32	58	12	0	0	0	0	0	0	0	0	16	42	128

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	222	260	399	533	724	829	969	969	797	574	333	213	6822
55	3	0	1	10	70	152	256	258	130	9	8	0	897
57	0	0	0	3	42	107	196	200	90	2	5	0	645
60	0	0	0	0	15	55	113	122	47	0	0	0	352
65	0	0	0	0	1	9	25	35	9	0	0	0	79
70	0	0	0	0	0	0	1	4	1	0	0	0	6

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	54	85	162	292	478	593	725	725	564	335	125	56	54	139	301	593	1071	1664	2389	3114	3678	4013	4138	4194
45	9	26	53	154	323	443	570	570	414	188	42	9	9	35	88	242	565	1008	1578	2148	2562	2750	2792	2801
50	0	0	3	56	177	293	415	415	265	72	10	0	0	0	3	59	236	529	944	1359	1624	1696	1706	1706
55	0	0	0	13	68	150	261	260	131	13	0	0	0	0	0	13	81	231	492	752	883	896	896	896
60	0	0	0	1	20	51	114	121	39	0	0	0	0	0	0	1	21	72	186	307	346	346	346	346
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	7	27	68	151	257	328	432	440	336	161	34	5	7	34	102	253	510	838	1270	1710	2046	2207	2241	2246

(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