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: HEADWORKS PTLD WTR BUR, OR **COOP ID: 353770**

Climate Division: OR 2 **NWS Call Sign:** **Elevation: 748 Feet** **Lat: 45˚27N** **Lon: 122˚09W**

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	46.2	33.9	40.1	63	1984	29	45.8	1981	2	1950	31	32.3	1979	773	0	.0	.0	9.4	1.0	11.0	.0
Feb	50.4	35.4	42.9	74	1968	29	48.9	1992	5	1989	3	35.0	1989	619	0	.0	.0	14.1	.4	7.6	.0
Mar	55.3	37.2	46.3	82	1994	27	52.2	1992	19	1971	1	41.8	1971	582	0	.0	.0	22.2	.0	4.3	.0
Apr	61.0	40.1	50.6	89	1957	29	54.1	1987	28	1950	24	45.7	1972	434	0	.0	.0	26.5	.0	1.1	.0
May	67.6	44.5	56.1	99	1983	28	62.4	1992	28	1954	1	51.8	1991	285	8	.0	.6	30.4	.0	.1	.0
Jun	73.2	49.0	61.1	104	1961	15	65.0	1992	33	1950	6	57.7	1991	137	19	@	1.0	30.0	.0	.0	.0
Jul	80.0	52.9	66.5	110	1935	13	70.6	1985	40+	1959	28	61.6	1993	50	95	.2	3.5	31.0	.0	.0	.0
Aug	80.6	53.4	67.0	107	1939	2	70.3	1977	39	1931	7	62.7	1975	39	100	.4	3.7	31.0	.0	.0	.0
Sep	75.4	50.2	62.8	104	1988	2	66.5	1974	34+	1972	27	58.7	1985	113	48	@	1.7	30.0	.0	.0	.0
Oct	64.5	44.6	54.6	94+	1991	10	59.0	1987	22	1935	30	51.2	1984	326	2	.0	.1	29.9	.0	.4	.0
Nov	51.8	38.8	45.3	79	1949	5	50.1	1995	11	1955	15	36.4	1985	592	0	.0	.0	17.7	.2	3.9	.0
Dec	45.9	34.3	40.1	63+	1980	27	44.4	1979	5+	1990	21	33.5	1990	771	0	.0	.0	8.1	1.0	9.0	.0
Ann	62.7	42.9	52.8	110	Jul 1935	13	70.6	Jul 1985	2	Jan 1950	31	32.3	Jan 1979	4721	272	.6	10.6	280.3	2.6	37.4	.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: 1904-2001

(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	10.42	11.05	4.48	1948	6	17.60	1971	.39	1985
Feb	9.00	8.55	4.04	1996	7	15.99	1996	.79	1993
Mar	8.19	7.39	4.63	1931	31	14.39	1997	2.31	1992
Apr	7.04	6.76	3.45	1990	27	13.18	1993	2.72	1977
May	5.60	5.15	2.74	1991	17	10.81	1998	.57	1992
Jun	4.07	4.02	3.10	1935	30	9.22	1984	.81	1987
Jul	1.57	1.26	1.99	1978	16	6.56	1983	.00	1984
Aug	1.86	1.58	1.75	1978	15	5.55	1978	.12	1998
Sep	3.90	4.01	5.30	1933	14	7.72	1973	.00	1975
Oct	6.23	5.90	6.80	1994	27	13.91	1994	.31	1987
Nov	10.90	11.44	4.39	1942	26	19.34	1995	2.13	1976
Dec	11.30	10.42	6.70	1933	6	22.83	1996	2.86	1985
Ann	80.08	82.47	6.80	Oct 1994	27	22.83	Dec 1996	.00+	Jul 1984

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	20.2	16.3	8.0	2.8
Feb	18.0	14.8	6.6	2.5
Mar	20.1	16.2	6.2	1.5
Apr	18.3	14.4	5.3	1.4
May	16.4	11.6	3.9	1.2
Jun	11.6	8.0	2.7	.7
Jul	6.8	3.9	.8	.2
Aug	6.1	3.9	1.4	.4
Sep	9.2	6.4	2.9	1.2
Oct	14.2	10.7	4.5	1.5
Nov	21.1	16.7	8.3	3.2
Dec	21.2	16.8	8.4	3.1
Ann	183.2	139.7	59.0	19.7

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	2.91	3.90	5.40	6.70	7.98	9.32	10.80	12.54	14.81	18.37	21.68
Feb	3.23	4.08	5.30	6.33	7.31	8.31	9.40	10.67	12.30	14.80	17.10
Mar	3.63	4.36	5.38	6.20	6.97	7.75	8.59	9.54	10.75	12.58	14.23
Apr	3.44	4.04	4.86	5.52	6.13	6.74	7.39	8.12	9.04	10.43	11.67
May	1.92	2.45	3.23	3.88	4.50	5.15	5.85	6.67	7.72	9.34	10.84
Jun	1.22	1.61	2.19	2.69	3.17	3.67	4.23	4.88	5.73	7.05	8.27
Jul	.07	.20	.43	.66	.90	1.18	1.51	1.92	2.49	3.43	4.35
Aug	.14	.26	.50	.76	1.04	1.37	1.76	2.26	2.94	4.09	5.23
Sep	.14	.44	.99	1.56	2.18	2.88	3.72	4.78	6.24	8.69	11.09
Oct	1.03	1.57	2.47	3.33	4.21	5.17	6.27	7.61	9.39	12.29	15.06
Nov	4.09	5.11	6.57	7.79	8.94	10.12	11.40	12.89	14.78	17.69	20.35
Dec	4.27	5.32	6.83	8.09	9.28	10.50	11.82	13.35	15.30	18.30	21.04
Ann	59.67	63.69	68.81	72.66	76.06	79.34	82.71	86.42	90.90	97.37	102.93

\+ 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: 1904-2001
(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	3.4	.0	1	0	11.0	1980	8	17.0	1982	18	1980	10	10	1993	1.3	1.0	.7	.3	.1	2.0	1.0	.7	.1
Feb	2.6	.0	#	0	8.0	1971	26	19.0	1971	16	1971	27	6	1989	.7	.7	.4	.2	.0	.6	.1	.0	.0
Mar	1.0	.0	#	0	8.0	1989	2	8.0	1989	13	1971	1	3	1971	.4	.3	.1	.1	.0	@	.0	.0	.0
Apr	.2	.0	#	0	1.0	1971	11	1.5	1972	#	1972	28	#	1972	.3	.1	.0	.0	.0	.0	.0	.0	.0
May	#	.0	0	0	#	1974	16	#	1974	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	#	1971	27	#	1971	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.5	.0	#	0	8.0	1977	22	17.5	1977	8	1985	29	3	1985	.6	.5	.3	.2	.0	.9	.6	.4	.0
Dec	2.1	.2	#	0	7.0	1972	12	9.0	1972	7	1972	12	5	1985	1.0	.7	.2	.1	.0	1.0	.3	.1	.0
Ann	10.8	.2	N/A	N/A	11.0	Jan 1980	8	19.0	Feb 1971	18	Jan 1980	10	10	Jan 1993	4.3	3.3	1.7	.9	.1	4.5	2.0	1.2	.1

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	5/17	5/11	5/06	5/02	4/29	4/25	4/21	4/17	4/11
32	5/02	4/23	4/16	4/10	4/05	3/31	3/25	3/19	3/10
28	3/14	3/01	2/20	2/12	2/05	1/29	1/21	1/12	12/30
24	2/24	2/13	2/04	1/28	1/20	1/12	1/02	12/15	0/00
20	2/12	1/28	1/15	1/02	12/14	0/00	0/00	0/00	0/00
16	1/28	1/13	12/29	12/07	0/00	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	10/02	10/10	10/15	10/20	10/24	10/28	11/02	11/07	11/14
32	10/22	10/31	11/06	11/11	11/16	11/21	11/27	12/03	12/12
28	11/04	11/16	11/24	12/01	12/08	12/15	12/22	12/30	1/11
24	11/24	12/09	12/21	12/31	1/11	1/22	2/07	0/00	0/00
20	12/11	12/26	1/07	1/21	2/13	0/00	0/00	0/00	0/00
16	12/19	1/03	1/17	2/08	0/00	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	207	197	190	183	177	171	165	158	147
32	267	252	242	233	224	216	207	196	182
28	358	334	321	311	303	294	285	274	260
24	>365	>365	>365	>365	>365	348	330	313	293
20	>365	>365	>365	>365	>365	>365	>365	362	326
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

***** 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	773	619	582	434	285	137	50	39	113	326	592	771	4721
60	618	479	427	287	158	49	10	6	41	188	444	616	3323
57	525	395	337	205	101	19	2	1	17	121	359	523	2605
55	463	342	279	156	71	9	0	0	9	85	304	462	2180
50	318	216	150	63	20	1	0	0	0	28	184	316	1296
32	16	6	0	0	0	0	0	0	0	0	5	16	43

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	266	311	441	557	746	872	1068	1084	925	700	403	268	7641
55	0	4	7	22	104	191	355	371	243	71	12	1	1381
57	0	0	4	11	72	142	295	310	192	45	7	0	1078
60	0	0	0	3	36	81	210	223	126	19	1	0	699
65	0	0	0	0	8	19	95	100	48	2	0	0	272
70	0	0	0	0	0	2	27	27	11	0	0	0	67

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	80	128	203	314	495	625	809	826	679	452	181	76	80	208	411	725	1220	1845	2654	3480	4159	4611	4792	4868
45	18	46	86	178	341	475	654	671	529	300	76	18	18	64	150	328	669	1144	1798	2469	2998	3298	3374	3392
50	0	6	25	85	200	327	499	516	379	167	18	0	0	6	31	116	316	643	1142	1658	2037	2204	2222	2222
55	0	0	0	31	96	185	344	361	236	71	2	0	0	0	0	31	127	312	656	1017	1253	1324	1326	1326
60	0	0	0	5	37	80	202	212	115	22	0	0	0	0	0	5	42	122	324	536	651	673	673	673
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	18	50	95	167	272	352	491	504	398	228	57	11	18	68	163	330	602	954	1445	1949	2347	2575	2632	2643

(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