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: PENDLETON DOWNTOWN, OR **COOP ID: 356541**

Climate Division: OR 6 **NWS Call Sign:** **Elevation: 1,040 Feet** **Lat: 45˚40N** **Lon: 118˚48W**

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	42.0	25.1	33.6	70	1997	1	41.2	1999	-25	1950	31	16.5	1979	975	0	.0	.0	7.6	7.0	21.8	1.2
Feb	48.1	27.8	38.0	73+	1995	21	44.4	1991	-25+	1950	3	24.7	1989	757	0	.0	.0	12.9	3.4	18.4	.7
Mar	56.7	32.9	44.8	78	1952	27	48.8	1986	3	1993	1	40.9	1975	626	0	.0	.0	24.7	.2	14.0	.0
Apr	63.8	37.9	50.9	86+	1998	30	55.5	1987	22+	1952	8	45.7	1975	424	0	.0	@	29.3	.0	4.0	.0
May	72.0	43.9	58.0	97+	2001	24	62.0	1993	20	1954	1	53.7	1977	230	10	.0	1.1	31.0	.0	.2	.0
Jun	80.1	49.5	64.8	103+	1992	24	69.8	1992	34+	1954	2	61.3	1991	80	75	.2	3.9	30.0	.0	.0	.0
Jul	88.5	53.8	71.2	106+	1996	27	77.4	1998	40	1955	2	65.4	1993	18	208	2.5	13.7	31.0	.0	.0	.0
Aug	88.3	52.5	70.4	110	1998	5	74.5	1977	38	1992	24	66.0	1980	22	189	1.7	11.6	31.0	.0	.0	.0
Sep	79.1	44.1	61.6	101+	1998	2	67.0	1998	27	1954	30	56.6	1985	150	47	.1	3.3	30.0	.0	6.9	.0
Oct	66.4	35.0	50.7	90	1997	2	57.2	1988	15	1991	30	47.0	1984	444	0	.0	.1	30.1	.0	12.9	.0
Nov	50.9	31.2	41.1	83	1999	13	46.6	1999	-15	1955	15	28.7	1985	719	0	.0	.0	16.6	2.0	18.3	.2
Dec	42.0	26.0	34.0	69	1995	13	40.0	1973	-22	1990	21	20.6	1985	961	0	.0	.0	6.5	7.6	23.7	1.0
Ann	64.8	38.3	51.6	110	Aug 1998	5	77.4	Jul 1998	-25+	Feb 1950	3	16.5	Jan 1979	5406	529	4.5	33.7	280.7	20.2	120.2	3.1

\+ 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: 1948-2001

(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	1.53	1.47	1.15	1995	14	3.60	1995	.31	1985
Feb	1.29	1.16	.73	2000	15	3.28	2000	.15	1988
Mar	1.35	1.29	1.07	1995	15	2.65	2000	.20	1994
Apr	1.51	1.47	1.07	1988	22	3.14	1978	.30	1977
May	1.54	1.40	1.92	1994	20	4.19	1991	.18	1992
Jun	.88	.78	.98	1991	6	2.71	1995	.19	1986
Jul	.36	.26	1.16	1993	14	1.49	1993	.00+	1999
Aug	.46	.31	.60	1989	22	2.82	1993	.00+	2000
Sep	.59	.49	.47	2000	4	1.65	2000	.00+	1999
Oct	1.18	1.08	.70	2000	1	2.76	1982	.00	1987
Nov	1.93	2.04	1.60	1994	1	4.57	1973	.39	1993
Dec	1.33	1.44	.80	1993	1	2.89	1973	.26	1989
Ann	13.95	13.99	1.92	May 1994	20	4.57	Nov 1973	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.1	4.7	.3	.1
Feb	12.5	4.4	.3	.0
Mar	12.3	5.0	.2	@
Apr	4.0	1.9	.3	.1
May	9.1	4.2	.6	.1
Jun	8.3	2.8	.2	.0
Jul	3.2	1.1	@	@
Aug	4.1	1.4	.2	@
Sep	5.3	2.5	.1	.0
Oct	8.0	3.0	.4	.1
Nov	14.5	5.9	.6	.1
Dec	13.9	5.8	.2	.0
Ann	108.3	42.7	3.4	.5

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	.53	.68	.89	1.06	1.23	1.40	1.59	1.81	2.09	2.53	2.93
Feb	.40	.52	.70	.86	1.01	1.17	1.34	1.54	1.81	2.22	2.60
Mar	.52	.64	.82	.97	1.11	1.26	1.41	1.59	1.82	2.17	2.49
Apr	.45	.60	.81	1.00	1.17	1.36	1.57	1.81	2.12	2.60	3.05
May	.33	.47	.70	.90	1.11	1.33	1.58	1.88	2.27	2.89	3.49
Jun	.22	.30	.43	.54	.65	.77	.90	1.06	1.27	1.59	1.90
Jul	.00	.00	.05	.12	.18	.26	.34	.45	.60	.84	1.08
Aug	.00	.00	.00	.05	.13	.23	.36	.54	.80	1.26	1.73
Sep	.00	.00	.05	.16	.28	.40	.56	.75	1.01	1.44	1.88
Oct	.07	.18	.36	.54	.72	.93	1.17	1.46	1.86	2.52	3.16
Nov	.64	.82	1.09	1.32	1.54	1.76	2.01	2.30	2.67	3.25	3.78
Dec	.36	.48	.67	.84	1.01	1.18	1.37	1.60	1.90	2.36	2.80
Ann	9.77	10.58	11.61	12.39	13.09	13.76	14.46	15.23	16.17	17.54	18.72

\+ 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	.4	-99.9	#	0	2.0	1993	8	2.0	1993	17	1993	15	4	1993	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Feb	2.2	-99.9	0	0	7.0	1993	24	11.0	1993	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	.1	.0	0	0	.5	1991	26	.5	1991	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Nov	#	.0	0	0	#	1991	3	#	1991	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Dec	.4	-99.9	0	0	2.0	1992	18	2.0	1992	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	3.1	-9.9	N/A	N/A	7.0	Feb 1993	24	11.0	Feb 1993	17	Jan 1993	15	4	Jan 1993	-9.9	-9.9	-9.9	-9.9	-9.9	-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	6/01	5/25	5/20	5/16	5/13	5/09	5/05	4/30	4/23
32	5/06	4/30	4/26	4/22	4/19	4/16	4/12	4/08	4/02
28	4/16	4/11	4/07	4/04	4/01	3/29	3/25	3/22	3/16
24	3/31	3/23	3/17	3/12	3/08	3/03	2/26	2/21	2/13
20	3/16	3/05	2/25	2/18	2/11	2/04	1/28	1/19	1/05
16	3/08	2/22	2/13	2/05	1/28	1/20	1/11	12/30	12/09

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	8/26	9/01	9/06	9/10	9/14	9/18	9/22	9/27	10/03
32	8/31	9/07	9/12	9/17	9/21	9/25	9/29	10/04	10/11
28	9/09	9/17	9/23	9/28	10/02	10/07	10/12	10/17	10/25
24	10/01	10/09	10/15	10/20	10/24	10/29	11/03	11/08	11/16
20	10/26	11/05	11/13	11/19	11/25	12/01	12/08	12/16	12/29
16	11/05	11/17	11/26	12/03	12/11	12/18	12/27	1/08	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	152	142	135	129	124	118	112	105	96
32	182	173	166	160	154	149	143	136	126
28	212	202	195	189	184	178	172	165	155
24	260	250	242	236	230	224	217	210	199
20	345	320	306	296	286	277	268	256	241
16	>365	363	338	324	314	304	294	282	267

***** 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	975	757	626	424	230	80	18	22	150	444	719	961	5406
60	820	617	471	280	113	23	3	3	66	291	569	806	4062
57	735	534	378	202	64	9	0	1	34	205	485	713	3360
55	677	482	317	155	40	4	0	0	20	154	429	654	2932
50	535	352	175	67	8	0	0	0	3	60	298	511	2009
32	160	52	1	0	0	0	0	0	0	0	34	127	374

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	208	219	398	566	804	985	1213	1191	887	580	306	189	7546
55	12	5	1	31	130	299	500	478	217	21	11	3	1708
57	8	1	0	17	92	244	438	416	171	10	7	0	1404
60	0	0	0	6	48	168	347	326	113	2	0	0	1010
65	0	0	0	0	10	75	208	189	47	0	0	0	529
70	0	0	0	0	1	22	102	87	14	0	0	0	226

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	48	74	166	331	560	740	982	918	572	328	104	43	48	122	288	619	1179	1919	2901	3819	4391	4719	4823	4866
45	16	24	65	191	405	590	827	763	423	189	39	12	16	40	105	296	701	1291	2118	2881	3304	3493	3532	3544
50	0	1	18	88	256	440	672	608	285	90	8	0	0	1	19	107	363	803	1475	2083	2368	2458	2466	2466
55	0	0	0	31	133	291	517	453	175	32	0	0	0	0	0	31	164	455	972	1425	1600	1632	1632	1632
60	0	0	0	8	61	162	363	300	85	4	0	0	0	0	0	8	69	231	594	894	979	983	983	983
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	22	43	105	203	338	454	611	570	416	249	58	19	22	65	170	373	711	1165	1776	2346	2762	3011	3069	3088

(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