

# Climatology of the United States

## No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

**Station: PENDLETON BR EXP STN, OR**

**1971-2000**

**COOP ID: 356540**

**Climate Division: OR 6**

**NWS Call Sign:**

**Elevation: 1,487 Feet Lat: 45°43N**

**Lon: 118°38W**

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	40.7	25.9	33.3	70	1968	21	41.0	1999	-30+	1957	27	15.9	1979	982	0	.0	.0	7.9	7.6	23.3	1.8
Feb	46.5	28.9	37.7	74	1986	25	44.6	1991	-20+	1996	3	24.2	1989	764	0	.0	.0	11.7	3.5	18.8	.9
Mar	54.5	32.5	43.5	79	1964	31	47.9	1986	-3	1993	1	39.9	1971	667	0	.0	.0	23.5	.3	15.8	.0
Apr	62.1	35.9	49.0	88	1968	30	53.0	1987	14	1966	19	43.2	1975	480	0	.0	.0	28.9	.0	8.7	.0
May	69.7	41.7	55.7	96+	1986	31	60.1	1993	23	1985	12	51.9	1977	291	3	.0	.7	30.9	.0	2.1	.0
Jun	78.1	47.3	62.7	105	1961	17	68.2	1992	28	1966	1	58.5	1971	122	53	.2	4.0	30.0	.0	.2	.0
Jul	88.2	52.1	70.2	110+	1960	18	76.4	1998	33+	1971	7	65.2	1993	21	180	2.8	14.7	31.0	.0	.0	.0
Aug	87.7	51.6	69.7	115	1961	4	74.3	1971	30	1964	31	65.5	1995	29	174	2.4	13.3	31.0	.0	.0	.0
Sep	77.9	43.7	60.8	105	1967	1	66.1	1998	20	1985	29	55.2	1985	168	42	.2	3.4	30.0	.0	2.1	.0
Oct	65.2	35.2	50.2	90+	1997	1	56.6	1988	11	1991	30	47.3	1971	459	0	.0	.2	29.8	@	12.6	.0
Nov	49.2	32.5	40.9	81	1965	2	46.0	1999	-21+	1985	24	28.1	1985	725	0	.0	.0	15.8	1.7	16.1	.3
Dec	40.9	26.6	33.8	67+	1980	27	40.5	1973	-26+	1990	29	19.6	1985	970	0	.0	.0	7.6	7.8	23.5	1.3
Ann	63.4	37.8	50.6	115	Aug 1961	4	76.4	Jul 1998	-30+	Jan 1957	27	15.9	Jan 1979	5678	452	5.6	36.3	278.1	20.9	123.2	4.3

+ 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1956-2001

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

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**Lon: 118°38W**

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.94	2.11	1.06	1989	10	3.73	1975	.69	1985	14.3	6.1	.6	.1	.76	.94	1.19	1.40	1.60	1.81	2.03	2.28	2.61	3.10	3.55
Feb	1.61	1.55	.91	2000	15	3.35	2000	.32	1988	13.2	5.5	.3	.0	.55	.70	.92	1.11	1.29	1.48	1.68	1.91	2.22	2.68	3.11
Mar	1.90	1.73	1.14	1983	4	3.90	1983	.52	1994	12.9	6.2	.6	.1	.81	.98	1.22	1.42	1.61	1.79	2.00	2.23	2.52	2.97	3.38
Apr	1.66	1.37	1.02	1978	1	3.64	1974	.46	1977	10.7	5.1	.7	@	.52	.68	.92	1.11	1.31	1.51	1.73	1.98	2.31	2.83	3.30
May	1.67	1.66	1.57	1991	19	4.73	1991	.20	1992	9.3	4.6	.7	.1	.40	.56	.81	1.02	1.24	1.47	1.72	2.02	2.42	3.05	3.64
Jun	1.06	.91	1.21	1971	3	3.14	1971	.09	1986	7.4	3.4	.4	@	.14	.23	.38	.53	.69	.86	1.05	1.30	1.63	2.16	2.68
Jul	.39	.27	.89	1974	9	1.74	1992	.00+	1996	3.4	1.2	.1	.0	.00	.00	.05	.11	.18	.26	.36	.48	.65	.95	1.24
Aug	.72	.38	1.84	1993	16	2.60	1993	.00+	2000	4.0	2.0	.4	.1	.00	.00	.05	.13	.25	.39	.58	.83	1.20	1.87	2.55
Sep	.81	.79	.97	1971	2	1.87	1986	.00+	1999	5.5	2.6	.2	.0	.00	.00	.10	.23	.38	.55	.75	1.01	1.37	1.96	2.55
Oct	1.29	1.29	1.61	1980	14	3.76	1980	.00+	1987	7.9	3.3	.6	.1	.00	.21	.46	.67	.87	1.09	1.33	1.61	1.99	2.60	3.18
Nov	2.44	2.36	1.46	1996	19	5.06	1973	.47	1976	14.9	7.4	.9	.2	.78	1.01	1.36	1.65	1.93	2.22	2.54	2.92	3.40	4.15	4.84
Dec	2.06	1.90	1.33	1971	6	4.23	1996	.49	1989	14.3	7.1	.7	.1	.59	.78	1.08	1.33	1.59	1.85	2.14	2.48	2.92	3.62	4.27
Ann	17.55	17.67	1.84	Aug 1993	16	5.06	Nov 1973	.00+	Aug 2000	117.8	54.5	6.2	.8	12.68	13.63	14.84	15.75	16.57	17.35	18.16	19.06	20.14	21.71	23.06

+ 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: 1956-2001

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

Complete documentation available from:  
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**COOP ID: 356540**

**Climate Division: OR 6**

**NWS Call Sign:**

**Elevation: 1,487 Feet**

**Lat: 45° 43N**

**Lon: 118° 38W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	5.8	4.3	1	1	8.0	1975	10	21.6	1993	13	1993	19	6	1993	3.6	2.5	.6	.1	.0	8.7	5.9	3.0	.6
Feb	2.7	1.0	1	#	9.0	1994	24	12.8	1985	11	1979	4	2	1996	2.0	1.3	.3	.2	.0	3.6	1.4	.6	.1
Mar	.7	.0	#	0	3.0	1980	6	4.0	1980	8	1993	3	1	1993	.5	.3	@	.0	.0	.1	.0	.0	.0
Apr	.1	.0	#	0	1.0	1972	13	1.0	1972	1	1972	13	#+	1999	.1	@	.0	.0	.0	@	.0	.0	.0
May	#	.0	#	0	#	1999	9	#	1999	#	1999	9	#	1999	.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	.2	.0	#	0	2.5	1971	31	3.5	1991	3	1971	31	#	1971	.2	.1	.0	.0	.0	.1	@	.0	.0
Nov	2.0	.0	#	#	6.0	1977	22	22.4	1985	13	1985	22	5	1985	1.1	.8	.2	.1	.0	2.0	1.2	.8	.2
Dec	5.8	3.3	1	#	7.5	1985	2	20.6	1983	17	1985	2	9	1985	3.0	2.0	.6	.1	.0	6.6	3.0	2.2	.2
Ann	17.3	8.6	N/A	N/A	9.0	Feb 1994	24	22.4	Nov 1985	17	Dec 1985	2	9	Dec 1985	10.5	7.0	1.7	.5	.0	21.1	11.5	6.6	1.1

+ 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

Complete documentation available from:

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**Lon: 118° 38W**

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	6/28	6/21	6/16	6/12	6/08	6/04	5/31	5/26	5/19
32	6/04	5/29	5/24	5/21	5/17	5/13	5/09	5/05	4/28
28	5/16	5/08	5/02	4/27	4/23	4/18	4/13	4/07	3/30
24	4/26	4/15	4/08	4/01	3/26	3/20	3/14	3/06	2/24
20	4/03	3/18	3/06	2/24	2/15	2/06	1/27	1/15	12/30
16	3/05	2/21	2/13	2/05	1/29	1/22	1/14	1/04	12/16
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	8/31	9/04	9/07	9/10	9/13	9/16	9/20	9/25
32	9/12	9/16	9/19	9/22	9/25	9/27	9/30	10/03	10/08
28	9/23	9/28	10/02	10/05	10/08	10/10	10/14	10/17	10/22
24	10/01	10/08	10/14	10/19	10/23	10/27	11/01	11/07	11/14
20	10/08	10/20	10/28	11/04	11/11	11/18	11/25	12/04	12/16
16	11/08	11/19	11/26	12/03	12/09	12/15	12/23	1/01	1/18
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	120	111	105	99	94	88	83	76	67
32	156	147	141	135	130	125	120	113	105
28	195	186	179	173	167	162	156	149	139
24	253	238	227	219	210	202	193	182	168
20	319	299	286	275	265	256	246	234	217
16	>365	>365	335	322	312	303	294	284	270

\* 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

Complete documentation available from:

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Degree Days to Selected Base Temperatures (° F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	982	764	667	480	291	122	21	29	168	459	725	970	5678
60	827	624	512	333	155	48	3	6	79	305	575	815	4282
57	743	543	419	250	92	22	0	2	43	218	493	722	3547
55	685	490	357	199	60	12	0	1	26	166	437	667	3100
50	543	361	210	96	14	1	0	0	5	66	307	522	2125
32	168	59	2	0	0	0	0	0	0	0	39	138	406

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	208	219	358	510	735	921	1182	1167	864	564	305	191	7224
55	13	6	0	18	82	243	469	455	200	17	12	8	1523
57	9	3	0	10	52	193	407	394	157	7	8	1	1241
60	0	0	0	3	22	129	317	305	103	2	0	0	881
65	0	0	0	0	3	53	180	174	42	0	0	0	452
70	0	0	0	0	0	14	80	79	12	0	0	0	185

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	44	71	149	283	500	689	938	917	620	320	106	45	44	115	264	547	1047	1736	2674	3591	4211	4531	4637	4682
45	7	25	59	155	345	539	783	762	471	187	45	12	7	32	91	246	591	1130	1913	2675	3146	3333	3378	3390
50	1	2	17	73	211	392	628	607	327	88	12	0	1	3	20	93	304	696	1324	1931	2258	2346	2358	2358
55	0	0	0	26	106	249	473	452	198	33	0	0	0	0	0	26	132	381	854	1306	1504	1537	1537	1537
60	0	0	0	3	42	136	325	303	101	8	0	0	0	0	0	3	45	181	506	809	910	918	918	918
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	19	43	95	190	317	435	581	568	420	246	55	23	19	62	157	347	664	1099	1680	2248	2668	2914	2969	2992

(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:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

## 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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)