

# Climatography of the United States No. 20

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

Station: PAULINA, OR

1971-2000

COOP ID: 356500

Climate Division: OR 7

NWS Call Sign:

Elevation: 3,684 Feet Lat: 44°08N

Lon: 120°00W

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	39.8	17.5	28.7	59+	1999	10	35.6	1981	-36	1962	22	14.8	1979	1127	0	.0	.0	2.7	7.0	28.5	3.4
Feb	45.8	22.2	34.0	71	1995	23	40.9	1991	-33	1985	4	21.8	1993	868	0	.0	.0	7.9	2.5	25.0	1.4
Mar	52.7	25.9	39.3	78	1966	30	44.0	1986	1	1989	3	34.8	1985	796	0	.0	.0	18.6	.1	25.5	.0
Apr	60.3	28.3	44.3	87+	1987	27	50.0	1987	7	1968	13	38.5	1975	621	0	.0	.0	25.4	.0	22.0	.0
May	67.9	34.3	51.1	98	1992	7	58.2	1992	8	1992	1	45.8	1977	431	0	.0	.4	30.3	.0	13.6	.0
Jun	76.5	39.5	58.0	99	1992	23	62.9	1986	18	1992	14	54.0	1976	222	12	.0	3.1	30.0	.0	4.6	.0
Jul	85.6	42.9	64.3	103	1979	17	68.4	1996	26	1981	8	57.2	1993	96	72	.5	13.7	31.0	.0	1.1	.0
Aug	85.1	40.7	62.9	105	1972	8	67.2	1986	21+	1992	24	58.5	1980	116	51	.7	12.1	31.0	.0	2.0	.0
Sep	77.4	32.6	55.0	101	1988	3	59.9	1990	11	1970	14	49.0	1972	310	10	.1	3.9	29.9	.0	13.5	.0
Oct	65.4	25.9	45.7	92	1980	6	52.2	1988	-8	1991	30	42.2	1984	600	0	.0	.1	28.4	.1	23.3	.1
Nov	47.9	23.6	35.8	74	1980	4	42.0	1999	-20	1985	23	23.8	1985	878	0	.0	.0	12.2	1.2	24.4	1.0
Dec	40.0	17.4	28.7	65	1966	2	34.5	1980	-38	1972	8	17.3	1985	1126	0	.0	.0	3.2	5.7	28.5	2.6
Ann	62.0	29.2	45.7	105	Aug 1972	8	68.4	Jul 1996	-38	Dec 1972	8	14.8	Jan 1979	7191	145	1.3	33.3	250.6	16.6	212.0	8.5

+ 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: 1961-2001

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

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**Elevation: 3,684 Feet Lat: 44°08N**

**Lon: 120°00W**

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	1.30	1.25	2.00	1998	13	5.55	1998	.00	1985	8.6	4.2	.6	.1	.19	.36	.58	.76	.94	1.13	1.35	1.60	1.93	2.46	2.96
Feb	.85	.83	.75	1981	16	2.18	1983	.00	1997	7.2	3.5	.2	.0	.09	.19	.33	.45	.57	.71	.86	1.05	1.29	1.68	2.06
Mar	1.14	1.03	.68	1972	1	3.73	1983	.05	1999	8.9	4.1	.2	.0	.23	.34	.50	.66	.81	.97	1.16	1.38	1.68	2.15	2.60
Apr	.96	.66	.90	1997	21	2.58	1978	.15	1977	6.9	3.4	.3	.0	.21	.30	.44	.57	.70	.83	.98	1.16	1.40	1.78	2.14
May	1.28	1.11	1.25	1998	29	4.12	1998	.22	1975	6.2	3.7	.6	.1	.24	.36	.55	.72	.89	1.08	1.29	1.55	1.89	2.44	2.97
Jun	.91	.77	1.29	1980	12	3.12	1980	.00+	1999	5.0	2.9	.4	@	.00	.07	.22	.36	.51	.68	.88	1.12	1.47	2.03	2.59
Jul	.65	.48	2.04	1987	22	4.20	1987	.00+	1996	3.1	1.9	.2	.1	.00	.00	.13	.26	.38	.51	.65	.83	1.07	1.45	1.83
Aug	.64	.47	2.00	1984	31	3.15	1984	.00+	2000	3.2	1.6	.3	.1	.00	.00	.00	.10	.22	.37	.55	.78	1.11	1.68	2.25
Sep	.48	.33	1.28	1966	14	1.71	1985	.00+	1999	3.4	1.9	@	.0	.00	.00	.00	.09	.18	.29	.42	.59	.83	1.23	1.63
Oct	.82	.80	1.15	1982	29	1.84	1979	.00+	1988	4.7	2.9	.3	@	.00	.10	.26	.39	.52	.66	.83	1.02	1.28	1.71	2.13
Nov	1.19	1.14	1.00	1970	23	3.29	1973	.08	1989	8.4	4.2	.4	.0	.16	.25	.42	.59	.77	.96	1.18	1.46	1.83	2.45	3.04
Dec	1.10	.67	1.36	1964	22	3.39	1981	.00	1997	7.8	4.1	.3	@	.03	.10	.25	.40	.58	.78	1.02	1.33	1.77	2.50	3.23
Ann	11.32	10.91	2.04	Jul 1987	22	5.55	Jan 1998	.00+	Aug 2000	73.4	38.4	3.8	.4	5.97	6.89	8.13	9.11	10.01	10.90	11.85	12.92	14.25	16.23	18.01

+ 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: 1961-2001

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

Complete documentation available from:  
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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**Station: PAULINA, OR**

**COOP ID: 356500**

**Climate Division: OR 7**

**NWS Call Sign:**

**Elevation: 3,684 Feet**

**Lat: 44°08N**

**Lon: 120°00W**

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	7.5	6.5	2	#	7.0	1976	7	15.0+	1976	12+	1993	19	8	1993	3.2	2.5	.7	.2	.0	8.9	4.7	1.2	.0
Feb	2.8	2.0	1	#	4.0	1975	1	12.4	1975	10	1985	6	5	1993	2.0	1.5	.2	.0	.0	3.4	.5	.1	.0
Mar	2.0	2.0	#	0	8.0	1972	1	8.0	1972	8	1993	1	1	1993	1.2	.8	.2	.1	.0	.2	.1	.1	.0
Apr	.7	.0	#	0	2.0	1975	5	4.0	1975	1	1975	5	#+	1984	.7	.3	.0	.0	.0	.1	.0	.0	.0
May	.1	.0	#	0	1.5	1977	7	1.5	1977	2	1977	7	#+	1977	.1	.1	.0	.0	.0	.1	.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	.4	.0	#	0	4.0	1971	30	6.0	1971	2	1971	30	#+	1975	.2	.1	.1	.0	.0	.1	.0	.0	.0
Nov	3.5	1.7	#	0	8.0	1973	5	21.5	1973	10	1985	30	4	1985	1.9	1.4	.2	.2	.0	1.3	.5	.1	.0
Dec	7.4	7.5	1	0	9.5	1981	26	15.7	1981	12+	1985	1	6	1983	3.5	2.5	1.1	.3	.0	6.4	3.1	1.1	.0
Ann	24.4	19.7	N/A	N/A	9.5	Dec 1981	26	21.5	Nov 1973	12+	Jan 1993	19	8	Jan 1993	12.8	9.2	2.5	.8	.0	20.5	8.9	2.6	.0

+ 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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**Elevation: 3,684 Feet**

**Lat: 44° 08N**

**Lon: 120° 00W**

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	7/30	7/25	7/22	7/19	7/17	7/14	7/11	7/08	7/03
32	7/18	7/12	7/08	7/04	7/01	6/28	6/24	6/20	6/14
28	7/04	6/27	6/22	6/17	6/13	6/09	6/05	5/30	5/23
24	6/06	5/30	5/25	5/20	5/16	5/12	5/07	5/02	4/25
20	5/27	5/18	5/11	5/05	4/30	4/25	4/19	4/13	4/03
16	5/15	5/03	4/24	4/17	4/10	4/03	3/27	3/18	3/06
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	7/31	8/03	8/06	8/08	8/11	8/13	8/15	8/18	8/22
32	8/07	8/12	8/16	8/19	8/22	8/25	8/29	9/02	9/07
28	8/25	8/30	9/02	9/05	9/07	9/10	9/13	9/16	9/20
24	9/06	9/10	9/14	9/17	9/20	9/22	9/25	9/29	10/03
20	9/14	9/20	9/25	9/28	10/02	10/05	10/09	10/13	10/19
16	9/21	9/28	10/03	10/07	10/11	10/14	10/18	10/23	10/30
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	42	36	32	28	24	21	17	13	6
32	74	66	61	56	51	47	42	37	29
28	107	100	94	90	86	81	77	71	64
24	156	145	138	132	126	120	114	106	96
20	181	172	165	159	154	148	143	136	127
16	222	208	199	191	183	175	167	157	144

\* 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	1127	868	796	621	431	222	96	116	310	600	878	1126	7191
60	972	728	641	472	284	109	31	42	186	445	728	971	5609
57	879	644	548	385	204	62	13	19	127	354	638	878	4751
55	818	588	486	329	158	38	7	10	94	294	578	816	4216
50	674	457	333	201	71	8	0	1	35	162	437	661	3040
32	236	102	12	4	0	0	0	0	0	1	77	201	633

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	132	158	239	373	592	780	999	959	690	425	189	98	5634
55	1	0	0	8	37	128	293	256	94	4	0	0	821
57	0	0	0	4	21	92	237	202	67	2	0	0	625
60	0	0	0	0	8	50	162	133	37	0	0	0	390
65	0	0	0	0	0	12	72	51	10	0	0	0	145
70	0	0	0	0	0	1	20	12	2	0	0	0	35

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	1	20	62	159	349	561	787	752	484	227	46	4	1	21	83	242	591	1152	1939	2691	3175	3402	3448	3452
45	0	0	13	73	216	413	632	597	339	113	12	0	0	0	13	86	302	715	1347	1944	2283	2396	2408	2408
50	0	0	0	24	106	266	477	442	210	44	1	0	0	0	0	24	130	396	873	1315	1525	1569	1570	1570
55	0	0	0	1	46	152	322	288	108	9	0	0	0	0	0	1	47	199	521	809	917	926	926	926
60	0	0	0	0	11	68	186	157	33	0	0	0	0	0	0	0	11	79	265	422	455	455	455	455
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	27	74	168	286	407	525	524	417	261	43	1	1	28	102	270	556	963	1488	2012	2429	2690	2733	2734

(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/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/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> |
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## 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)