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: MALIN 5 E, OR **COOP ID: 355174**

Climate Division: OR 7 **NWS Call Sign:** **Elevation: 4,627 Feet** **Lat: 42˚00N** **Lon: 121˚19W**

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	.0	.0	.0	64	2001	10	.0	0	-5	1987	16	.0	0	0	0	.0	.0	4.3	3.3	27.3	.5
Feb	.0	.0	.0	76	1977	20	.0	0	-18	1989	5	.0	0	0	0	.0	.0	7.3	1.6	22.6	.3
Mar	.0	.0	.0	72+	1994	14	.0	0	1+	1989	3	.0	0	0	0	.0	.0	14.3	.3	23.8	.0
Apr	.0	.0	.0	83+	1987	27	.0	0	9	1999	13	.0	0	0	0	.0	.0	22.1	.0	18.6	.0
May	.0	.0	.0	93+	1986	31	.0	0	18+	1999	12	.0	0	0	0	.0	.2	28.9	.0	9.7	.0
Jun	.0	.0	.0	96+	1992	22	.0	0	25	1984	20	.0	0	0	0	.0	1.0	29.9	.0	2.2	.0
Jul	.0	.0	.0	98+	1999	14	.0	0	29	1976	1	.0	0	0	0	.0	6.4	31.0	.0	.1	.0
Aug	.0	.0	.0	102	1972	7	.0	0	29	1999	31	.0	0	0	0	.1	5.3	31.0	.0	.1	.0
Sep	.0	.0	.0	98+	1988	3	.0	0	23	1970	14	.0	0	0	0	.0	1.1	29.7	.0	2.6	.0
Oct	.0	.0	.0	88	1996	9	.0	0	8	1971	29	.0	0	0	0	.0	.0	27.1	@	12.2	.0
Nov	.0	.0	.0	74	1980	4	.0	0	-3	1993	24	.0	0	0	0	.0	.0	11.3	1.0	23.0	.1
Dec	.0	.0	.0	62	1997	5	.0	0	-20	1972	8	.0	0	0	0	.0	.0	4.1	4.0	28.0	.6
Ann	.0	.0	.0	102	Aug 1972	7	-99.9	0	-20	Dec 1972	8	99.9	0	0	0	.1	14.0	241.0	10.2	170.2	1.5

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1968-2001

(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	1.66	1.60	2.10	2000	31	5.02	2000	.10	1984
Feb	1.27	1.13	1.50	1999	10	2.83+	1996	.01	1988
Mar	1.57	1.47	1.35	1995	3	4.12	1995	.15	1996
Apr	1.14	.96	2.04	2000	19	3.53	1978	.00	1977
May	1.42	1.23	1.09	1971	31	5.41	1998	.01	1976
Jun	.99	.78	1.09	1987	15	3.16	1998	.00	1973
Jul	.44	.19	2.03	1997	29	3.07	1987	.00+	1996
Aug	.60	.18	1.40	1976	15	6.22	1976	.00+	1996
Sep	.77	.73	1.23	1997	22	2.45	1977	.00+	1995
Oct	1.05	.92	1.04	1979	25	2.76	1979	.00	1978
Nov	1.44	1.11	1.27	2001	25	3.64	1979	.29	1976
Dec	1.40	1.08	1.40	1992	10	4.05	1983	.00	2000
Ann	13.75	13.24	2.10	Jan 2000	31	6.22	Aug 1976	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.6	4.9	.8	.2
Feb	8.3	3.9	.4	.1
Mar	9.5	4.8	.6	.1
Apr	6.8	3.2	.4	.1
May	6.3	3.5	.7	@
Jun	4.6	2.3	.4	@
Jul	1.8	1.0	.2	.1
Aug	2.6	1.5	.3	.1
Sep	3.6	2.1	.5	.1
Oct	5.5	3.4	.4	@
Nov	8.6	4.7	.4	.0
Dec	8.6	4.4	.3	.1
Ann	74.8	39.7	5.4	.9

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	.29	.44	.68	.90	1.14	1.39	1.68	2.02	2.49	3.23	3.95
Feb	.18	.28	.46	.64	.82	1.03	1.26	1.55	1.94	2.58	3.19
Mar	.37	.52	.75	.95	1.16	1.37	1.61	1.90	2.28	2.88	3.44
Apr	.16	.30	.50	.66	.82	.99	1.18	1.41	1.70	2.18	2.63
May	.07	.14	.31	.50	.72	.98	1.29	1.70	2.28	3.27	4.27
Jun	.03	.09	.22	.36	.52	.71	.93	1.21	1.60	2.26	2.92
Jul	.00	.00	.00	.00	.09	.20	.34	.53	.79	1.25	1.71
Aug	.00	.00	.00	.00	.06	.19	.37	.63	1.03	1.76	2.51
Sep	.00	.00	.08	.24	.40	.56	.75	.99	1.30	1.81	2.34
Oct	.07	.17	.34	.49	.65	.83	1.04	1.29	1.63	2.20	2.74
Nov	.28	.41	.62	.81	1.01	1.22	1.47	1.76	2.14	2.76	3.35
Dec	.08	.22	.44	.64	.86	1.10	1.38	1.72	2.19	2.96	3.70
Ann	8.90	9.81	10.98	11.88	12.70	13.49	14.31	15.23	16.35	17.99	19.42

+ 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: 1968-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	7.7	4.3	2	1
Feb	6.6	6.0	1	#
Mar	3.7	3.3	#	#
Apr	1.7	.0	#	0
May	.8	.0	#	0
Jun	#	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	0	0
Oct	.5	.0	#	0
Nov	4.4	2.6	#	#
Dec	6.6	3.5	1	#
Ann	32.0	19.7	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	9.0	1977	2	25.6	1989	19	1993	10	14	1993
Feb	8.0	1975	1	22.5	1975	18	1999	10	10	1989
Mar	7.0	1989	2	13.0	1989	8+	1989	4	2	1971
Apr	5.5	1983	26	11.5	1978	6	1982	1	1	1982
May	7.0	1991	18	9.5	1991	2	1991	18	#+	2000
Jun	#	1988	7	#+	1988	0	0	0	0	0
Jul	.5	1987	17	.5	1987	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	#	1982	28	#	1982	0	0	0	0	0
Oct	4.0	1984	28	5.0	1975	4	1984	18	#+	1984
Nov	8.0	1983	23	19.5	1983	10	1973	26	4	1994
Dec	12.0	1983	13	23.5	1971	13+	1998	3	8	1992
Ann	12.0	Dec 1983	13	25.6	Jan 1989	19	Jan 1993	10	14	Jan 1993

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.6	2.8	.7	.3	.0
Feb	2.4	1.7	.9	.3	.0
Mar	2.1	1.6	.4	.1	.0
Apr	1.2	.9	.2	.1	.0
May	.4	.4	.1	@	.0
Jun	.0	.0	.0	.0	.0
Jul	@	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.3	.3	.1	.0	.0
Nov	2.1	1.7	.5	.1	.0
Dec	3.7	3.0	1.0	.3	.1
Ann	15.8	12.4	3.9	1.2	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	12.7	8.0	4.4	1.5
Feb	6.8	3.1	1.5	.8
Mar	2.3	1.0	.3	.0
Apr	.6	.4	.2	.0
May	.2	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	@	.0	.0
Nov	2.5	1.0	.6	@
Dec	8.7	4.8	2.2	.1
Ann	33.9	18.3	9.2	2.4

+ 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	7/23	7/17	7/12	7/08	7/04	6/30	6/26	6/22	6/15
32	7/04	6/28	6/24	6/20	6/17	6/14	6/10	6/06	5/31
28	6/15	6/08	6/03	5/29	5/25	5/21	5/17	5/12	5/05
24	5/21	5/15	5/11	5/08	5/05	5/01	4/28	4/24	4/18
20	5/01	4/23	4/17	4/13	4/08	4/04	3/30	3/24	3/16
16	4/19	4/09	4/01	3/26	3/20	3/14	3/07	2/28	2/17

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	8/08	8/16	8/22	8/27	8/31	9/05	9/10	9/16	9/24
32	9/02	9/08	9/12	9/16	9/20	9/23	9/27	10/01	10/07
28	9/17	9/23	9/28	10/02	10/05	10/09	10/13	10/18	10/24
24	10/01	10/09	10/14	10/19	10/24	10/28	11/02	11/07	11/15
20	10/19	10/25	10/30	11/02	11/06	11/09	11/13	11/17	11/23
16	10/29	11/06	11/11	11/16	11/21	11/25	11/30	12/06	12/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	92	80	72	64	58	51	43	35	23
32	120	111	104	99	94	89	83	77	68
28	162	152	144	138	132	127	120	113	103
24	199	189	183	177	171	166	160	153	144
20	243	232	224	217	211	205	198	190	179
16	287	272	262	254	245	237	229	218	204

***** 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	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	11	36	62	162	358	568	803	784	559	297	58	5	11	47	109	271	629	1197	2000	2784	3343	3640	3698	3703
45	0	6	18	76	226	420	649	629	413	179	17	0	0	6	24	100	326	746	1395	2024	2437	2616	2633	2633
50	0	0	0	32	125	283	495	474	277	89	2	0	0	0	0	32	157	440	935	1409	1686	1775	1777	1777
55	0	0	0	5	59	161	345	321	160	34	0	0	0	0	0	5	64	225	570	891	1051	1085	1085	1085
60	0	0	0	0	19	75	206	184	69	10	0	0	0	0	0	0	19	94	300	484	553	563	563	563
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	2	25	56	131	256	378	521	510	383	225	44	3	2	27	83	214	470	848	1369	1879	2262	2487	2531	2534

(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

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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