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: MADRAS 2 N, OR **COOP ID: 355142**

Climate Division: OR 7 **NWS Call Sign:** **Elevation: 2,440 Feet** **Lat: 44˚40N** **Lon: 121˚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	40.4	23.8	32.1	66	1989	31	38.3	1994	-26	1957	26	15.5	1979	1021	0	.0	.0	5.9	6.2	25.0	1.2
Feb	45.4	26.3	35.9	73	1995	21	43.5	1991	-14	1989	5	25.3	1989	817	0	.0	.0	9.6	2.9	21.3	.7
Mar	53.0	29.2	41.1	79	2001	24	45.5	1992	0	1955	5	36.9	1976	741	0	.0	.0	20.9	.2	21.6	.0
Apr	59.7	32.9	46.3	89	1987	28	52.5	1990	18+	1997	11	39.6	1975	562	0	.0	.0	26.3	.0	14.9	.0
May	67.7	38.6	53.2	101	1986	31	59.6	1992	18	1954	1	47.9	1977	372	4	@	.3	30.6	.0	5.8	.0
Jun	75.9	44.9	60.4	101+	1992	25	66.4	1992	28	1955	1	55.7	1976	174	37	.1	2.3	30.0	.0	.6	.0
Jul	84.2	49.6	66.9	105	1994	23	72.8	1998	33	1954	2	60.2	1993	68	126	.7	10.0	31.0	.0	.0	.0
Aug	84.4	49.2	66.8	106	1998	5	71.2	1991	35	1955	25	62.3	1980	62	118	.6	9.5	31.0	.0	.0	.0
Sep	75.5	42.6	59.1	101	1998	2	64.9	1998	25	1954	30	52.8	1985	220	42	@	2.1	29.9	.0	1.7	.0
Oct	62.9	34.9	48.9	90	1991	1	56.0	1988	11	1991	30	45.3	1982	500	0	.0	@	28.7	@	10.4	.0
Nov	48.0	28.9	38.5	75	1999	15	45.4	1999	-12	1955	15	27.3	1985	797	0	.0	.0	13.2	1.5	19.1	.3
Dec	40.5	24.2	32.4	65	1980	31	37.4	1973	-16	1983	23	20.9	1985	1012	0	.0	.0	6.1	6.1	25.4	.9
Ann	61.5	35.4	48.5	106	Aug 1998	5	72.8	Jul 1998	-26	Jan 1957	26	15.5	Jan 1979	6346	327	1.4	24.2	263.2	16.9	145.8	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: 1952-2001

(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	1.74	1.74	1.10	1995	14	3.68	1995	.17	1985
Feb	1.17	1.00	1.40	1956	21	3.42	1986	.16	1990
Mar	1.05	.87	.70+	1993	17	2.60	1989	.10	1977
Apr	.99	.83	1.30	1978	26	2.74	1995	.04	1977
May	1.06	.70	1.44	1998	30	5.64	1998	.17	1975
Jun	.74	.60	1.06	1978	30	1.94	1978	.01	2000
Jul	.57	.38	1.71	1995	9	3.06	1987	.00+	1994
Aug	.51	.18	1.40	1983	1	2.28	1983	.00+	2000
Sep	.49	.38	1.01	1982	20	2.19	1982	.00+	1999
Oct	.77	.64	.90	1999	28	2.48	1982	.00+	1988
Nov	1.57	1.15	3.07	1996	19	5.11	1996	.26	1989
Dec	1.37	1.03	1.40	1981	6	5.32	1981	.08	1976
Ann	12.03	10.71	3.07	Nov 1996	19	5.64	May 1998	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.5	4.9	.8	.1
Feb	9.5	4.0	.2	.0
Mar	10.1	4.0	.2	.0
Apr	7.3	2.9	.3	@
May	7.0	3.4	.3	.1
Jun	4.7	2.2	.4	@
Jul	3.1	1.4	.3	.1
Aug	3.3	1.7	.2	@
Sep	3.9	1.6	.1	@
Oct	5.6	2.5	.3	.0
Nov	10.5	4.8	.5	.1
Dec	9.9	4.8	.5	.1
Ann	84.4	38.2	4.1	.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	.32	.48	.73	.97	1.21	1.47	1.77	2.12	2.60	3.36	4.09
Feb	.22	.33	.50	.66	.82	.99	1.19	1.43	1.74	2.25	2.73
Mar	.26	.36	.51	.65	.78	.92	1.08	1.28	1.53	1.92	2.29
Apr	.12	.20	.34	.47	.62	.79	.98	1.21	1.54	2.07	2.58
May	.14	.22	.38	.52	.68	.85	1.05	1.30	1.63	2.18	2.71
Jun	.05	.10	.20	.30	.41	.54	.70	.90	1.18	1.64	2.10
Jul	.00	.00	.05	.13	.23	.35	.49	.69	.96	1.42	1.89
Aug	.00	.00	.00	.03	.13	.26	.42	.62	.90	1.39	1.88
Sep	.00	.00	.08	.20	.29	.39	.50	.63	.81	1.07	1.35
Oct	.00	.00	.29	.43	.55	.68	.82	.99	1.19	1.53	1.85
Nov	.23	.37	.59	.81	1.04	1.29	1.57	1.92	2.39	3.15	3.89
Dec	.12	.21	.39	.58	.79	1.03	1.31	1.66	2.15	2.97	3.78
Ann	6.81	7.73	8.96	9.93	10.81	11.68	12.60	13.63	14.90	16.80	18.47

\+ 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: 1952-2001
(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	5.1	1.5	1	#	10.0	1998	11	19.0	1998	15	1998	12	7	1993	2.4	1.7	.8	.3	@	2.4	1.2	.4	.0
Feb	3.8	1.5	1	#	14.0	1986	12	20.5	1986	17	1986	14	3	1986	2.0	1.2	.4	.2	@	2.4	1.6	.9	.2
Mar	1.2	.0	#	0	7.0	1999	31	7.0	1999	7	1999	31	1	1993	.6	.4	@	@	.0	.2	.1	.1	.0
Apr	.0	.0	#	0	.5	1982	2	.5	1982	3	1999	1	#+	1999	.1	.0	.0	.0	.0	.1	.1	.0	.0
May	#	.0	0	0	#	1986	22	#	1986	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	#	1984	20	#	1984	3	1991	29	#	1991	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	2.3	1.0	#	0	8.5	1977	22	14.5	1977	6	1985	26	2	1985	1.3	.9	.4	@	.0	1.6	.7	.3	.0
Dec	3.7	1.5	#	#	5.0	1981	26	19.7	1983	12	1985	3	4	1985	1.9	1.1	.5	.2	.0	2.8	2.1	.6	.1
Ann	16.1	5.5	N/A	N/A	14.0	Feb 1986	12	20.5	Feb 1986	17	Feb 1986	14	7	Jan 1993	8.3	5.3	2.1	.7	@	9.5	5.8	2.3	.3

+ 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	7/02	6/26	6/22	6/18	6/15	6/11	6/08	6/03	5/28
32	6/12	6/06	6/01	5/29	5/25	5/22	5/18	5/14	5/08
28	5/21	5/15	5/10	5/06	5/02	4/28	4/24	4/19	4/12
24	5/09	5/01	4/25	4/21	4/16	4/12	4/07	4/01	3/24
20	4/18	4/05	3/27	3/18	3/11	3/03	2/23	2/14	2/01
16	3/21	3/07	2/26	2/17	2/09	2/02	1/24	1/15	1/01

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	8/31	9/06	9/09	9/13	9/16	9/19	9/22	9/26	10/02
32	9/12	9/18	9/22	9/26	9/29	10/03	10/06	10/10	10/16
28	9/29	10/04	10/08	10/11	10/14	10/17	10/20	10/23	10/28
24	10/15	10/21	10/26	10/29	11/02	11/06	11/10	11/14	11/20
20	10/23	11/01	11/07	11/13	11/18	11/24	11/29	12/06	12/15
16	10/29	11/09	11/18	11/25	12/01	12/08	12/15	12/23	1/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	119	110	103	98	92	87	81	75	66
32	155	145	138	132	126	121	115	108	98
28	191	182	175	170	164	159	153	147	137
24	231	220	212	205	199	193	187	179	168
20	300	283	271	261	252	242	232	220	203
16	350	324	310	300	290	281	271	259	243

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1021	817	741	562	372	174	68	62	220	500	797	1012	6346
60	866	677	586	416	234	85	21	18	125	347	647	857	4879
57	773	593	493	332	165	47	9	7	81	259	561	764	4084
55	715	537	431	280	127	29	4	3	57	207	504	702	3596
50	570	403	281	166	55	7	0	0	20	97	368	550	2517
32	166	61	5	3	0	0	0	0	0	1	58	128	422

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	168	168	286	431	655	853	1082	1079	812	524	251	140	6449
55	4	0	0	18	69	192	373	369	179	17	7	0	1228
57	0	0	0	11	46	150	316	311	143	8	4	0	989
60	0	0	0	4	22	98	235	229	96	3	0	0	687
65	0	0	0	0	4	37	126	118	42	0	0	0	327
70	0	0	0	0	0	10	52	44	14	0	0	0	120

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	33	49	101	209	418	619	847	843	580	300	77	32	33	82	183	392	810	1429	2276	3119	3699	3999	4076	4108
45	2	12	38	112	274	469	692	688	432	173	31	6	2	14	52	164	438	907	1599	2287	2719	2892	2923	2929
50	0	0	7	51	155	324	537	534	293	82	7	0	0	0	7	58	213	537	1074	1608	1901	1983	1990	1990
55	0	0	0	19	79	195	384	380	174	29	0	0	0	0	0	19	98	293	677	1057	1231	1260	1260	1260
60	0	0	0	2	33	98	247	237	88	6	0	0	0	0	0	2	35	133	380	617	705	711	711	711
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	14	28	82	154	280	394	533	529	391	216	44	12	14	42	124	278	558	952	1485	2014	2405	2621	2665	2677

(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