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: OCHOCO RANGER STATION, OR **COOP ID: 356243**

Climate Division: OR 7 **NWS Call Sign:** **Elevation: 3,975 Feet** **Lat: 44˚24N** **Lon: 120˚26W**

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	35.6	16.8	26.2	61	1999	11	32.3	1981	-26	1950	30	14.4	1979	1204	0	.0	.0	.8	9.7	29.7	2.1
Feb	41.1	20.2	30.7	69	1995	23	38.4	1995	-26+	1989	6	20.1	1989	961	0	.0	.0	4.3	4.2	27.4	1.3
Mar	48.5	24.2	36.4	74+	1997	26	42.7	1986	-8	1955	5	30.4	1971	889	0	.0	.0	13.6	.9	29.0	.1
Apr	55.9	27.2	41.6	85+	1987	27	47.8	1987	9	1968	13	32.7	1975	704	0	.0	.0	20.6	.1	24.7	.0
May	63.7	32.1	47.9	95	1986	30	53.7	1992	13	1954	1	41.4	1977	530	0	.0	.2	28.6	.0	17.8	.0
Jun	72.8	37.0	54.9	98	1992	23	60.6	1987	21	1984	1	50.2	1991	309	7	.0	.9	29.8	.0	7.4	.0
Jul	81.9	41.7	61.8	100	1977	16	68.7	1998	18	1984	7	56.1	1986	150	50	.1	6.5	31.0	.0	2.1	.0
Aug	83.2	40.8	62.0	101	1972	8	65.9	1971	23	1951	30	57.1	1980	142	48	.2	7.7	31.0	.0	2.2	.0
Sep	74.3	33.9	54.1	100+	1998	1	61.2	1994	17+	2000	25	47.1	1986	341	14	.0	1.6	29.6	.0	12.9	.0
Oct	61.8	28.2	45.0	93	1991	1	54.0	1988	0	1991	30	39.9	1984	621	0	.0	@	26.4	.1	24.7	@
Nov	43.3	23.9	33.6	71	1995	14	40.0	1999	-11	1955	15	25.4	1985	942	0	.0	.0	7.1	2.6	26.8	.4
Dec	35.4	18.2	26.8	55	1965	4	32.6	1993	-24	1983	23	17.9	1983	1185	0	.0	.0	.7	9.4	29.9	1.6
Ann	58.1	28.7	43.4	101	Aug 1972	8	68.7	Jul 1998	-26+	Feb 1989	6	14.4	Jan 1979	7978	119	.3	16.9	223.5	27.0	234.6	5.5

\+ 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: 1948-2001

(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	2.13	1.85	2.50	1998	7	6.75	1998	.28	1992
Feb	1.62	1.54	2.10	1996	5	4.50	1996	.00+	1998
Mar	1.40	1.25	1.66	1987	17	3.80	1972	.00	1997
Apr	1.11	1.03	1.22	1978	26	3.12	1978	.00	1985
May	1.29	1.26	1.56	1956	8	3.32	1977	.18	1997
Jun	1.03	.97	2.02	1950	12	2.95	1978	.00	1973
Jul	.82	.44	2.70	1983	31	4.59	1983	.00+	1994
Aug	.82	.52	1.45	1993	20	5.07	1976	.00+	2000
Sep	.85	.68	1.30	1982	19	3.53	1982	.00+	1999
Oct	1.16	1.15	1.04	1979	19	2.65	1979	.00	1987
Nov	2.18	1.99	2.40	1996	18	5.38	1973	.42	1976
Dec	2.10	1.51	2.42	1964	23	6.84	1981	.16	1976
Ann	16.51	16.94	2.70	Jul 1983	31	6.84	Dec 1981	.00+	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.5	5.4	1.2	.4
Feb	7.4	5.0	.7	.2
Mar	7.0	4.7	.5	.1
Apr	6.1	4.0	.5	.1
May	6.0	3.8	.7	.0
Jun	5.3	3.1	.4	.1
Jul	3.1	1.9	.5	.1
Aug	3.9	2.6	.4	.1
Sep	3.9	2.7	.3	@
Oct	5.2	3.2	.4	@
Nov	9.2	6.2	1.1	.2
Dec	8.5	5.6	.9	.2
Ann	74.1	48.2	7.6	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	.44	.63	.95	1.23	1.52	1.83	2.17	2.59	3.14	4.02	4.86
Feb	.00	.32	.66	.91	1.16	1.41	1.70	2.02	2.46	3.15	3.80
Mar	.19	.38	.61	.81	1.00	1.21	1.44	1.72	2.08	2.65	3.19
Apr	.10	.22	.40	.57	.73	.91	1.12	1.37	1.70	2.24	2.76
May	.27	.38	.57	.75	.92	1.11	1.32	1.57	1.91	2.44	2.95
Jun	.08	.20	.36	.51	.67	.84	1.03	1.27	1.59	2.10	2.60
Jul	.00	.00	.05	.15	.29	.46	.68	.97	1.40	2.13	2.89
Aug	.00	.00	.02	.13	.27	.45	.67	.97	1.40	2.15	2.93
Sep	.00	.00	.00	.25	.43	.62	.84	1.10	1.45	2.04	2.59
Oct	.09	.22	.41	.58	.75	.94	1.16	1.43	1.79	2.38	2.94
Nov	.66	.87	1.18	1.45	1.71	1.97	2.27	2.62	3.06	3.76	4.41
Dec	.28	.45	.76	1.05	1.36	1.69	2.09	2.57	3.22	4.29	5.32
Ann	10.37	11.50	12.98	14.13	15.16	16.16	17.21	18.39	19.83	21.94	23.80

\+ 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	9.7	8.5	6	2	20.0	1982	4	20.5	1975	40	1982	4	27	1982	3.7	2.6	1.0	.3	@	-9.9	-9.9	-9.9	-9.9
Feb	7.6	8.0	6	3	6.5	1986	17	19.0	1971	28	1985	7	24	1985	3.2	2.2	.9	.2	.0	8.6	2.9	1.5	.0
Mar	3.6	3.0	2	#	10.0	1972	2	10.0	1972	23	1985	6	23	1985	2.1	1.4	.2	@	@	4.7	2.1	1.3	.0
Apr	2.0	.8	#	#	4.0	1972	12	8.5	1972	7	1998	15	1	1998	1.0	.8	.1	.0	.0	1.0	.2	.0	.0
May	.5	.0	#	0	5.0	1973	4	6.5	1977	5	1973	4	#+	1985	.2	.1	.1	.1	.0	.1	@	@	.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	#	1971	29	#	1971	#+	2000	22	#+	2000	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.1	.0	#	0	1.5	1971	28	1.5	1989	5	1971	31	#+	1999	.2	.2	.0	.0	.0	.2	.0	.0	.0
Nov	6.6	4.5	1	#	10.5	1973	5	18.6	1988	17	1985	21	5	1973	2.5	2.0	.9	.2	.0	3.1	1.9	1.2	.0
Dec	7.7	9.3	3	2	8.0	1971	10	15.0	1975	23	1971	15	20	1985	3.3	2.8	.8	.3	.0	9.6	5.6	1.5	.0
Ann	37.8	34.1	N/A	N/A	20.0	Jan 1982	4	20.5	Jan 1975	40	Jan 1982	4	27	Jan 1982	16.2	12.1	4.0	1.1	@	-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	8/02	7/28	7/25	7/22	7/19	7/16	7/13	7/10	7/05
32	7/23	7/17	7/12	7/09	7/05	7/01	6/28	6/23	6/17
28	7/06	6/28	6/22	6/17	6/12	6/07	6/02	5/26	5/18
24	6/11	6/02	5/27	5/22	5/17	5/11	5/06	4/30	4/21
20	5/25	5/16	5/09	5/03	4/28	4/23	4/17	4/10	4/01
16	4/23	4/13	4/05	3/30	3/24	3/19	3/12	3/05	2/23

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	7/29	8/01	8/04	8/07	8/09	8/11	8/14	8/17	8/21
32	8/03	8/10	8/15	8/19	8/23	8/26	8/30	9/04	9/11
28	8/23	8/30	9/03	9/07	9/11	9/15	9/18	9/23	9/30
24	9/13	9/20	9/25	9/29	10/02	10/06	10/10	10/15	10/22
20	9/26	10/03	10/08	10/13	10/17	10/21	10/25	10/30	11/06
16	10/18	10/25	10/31	11/04	11/09	11/13	11/18	11/24	12/01

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	34	29	24	20	16	11	6	0
32	74	65	59	53	48	43	37	30	21
28	123	112	104	97	90	84	77	69	57
24	165	156	149	143	138	133	127	121	112
20	205	193	185	178	171	165	157	149	138
16	268	255	245	237	229	221	213	203	189

***** 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	1204	961	889	704	530	309	150	142	341	621	942	1185	7978
60	1049	821	734	554	380	182	68	62	219	468	792	1030	6359
57	956	737	641	467	295	122	35	31	159	378	702	937	5460
55	894	681	579	411	241	88	21	18	125	322	642	875	4897
50	739	541	427	278	133	30	4	3	59	195	496	720	3625
32	232	134	49	19	1	0	0	0	0	4	100	221	760

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	51	98	183	305	494	688	923	929	663	406	148	59	4947
55	0	0	0	7	21	86	231	234	98	11	0	0	688
57	0	0	0	4	12	59	183	184	72	6	0	0	520
60	0	0	0	0	4	30	123	122	42	2	0	0	323
65	0	0	0	0	0	7	50	48	14	0	0	0	119
70	0	0	0	0	0	0	14	12	3	0	0	0	29

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	7	37	118	261	459	679	690	433	191	21	1	1	8	45	163	424	883	1562	2252	2685	2876	2897	2898
45	0	0	6	55	145	313	524	535	293	95	3	0	0	0	6	61	206	519	1043	1578	1871	1966	1969	1969
50	0	0	0	15	70	183	371	382	170	36	0	0	0	0	0	15	85	268	639	1021	1191	1227	1227	1227
55	0	0	0	0	28	87	230	238	80	10	0	0	0	0	0	0	28	115	345	583	663	673	673	673
60	0	0	0	0	3	32	116	114	23	0	0	0	0	0	0	0	3	35	151	265	288	288	288	288
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	12	48	119	223	350	478	490	366	198	17	0	0	12	60	179	402	752	1230	1720	2086	2284	2301	2301

(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