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: DRAIN, OR **COOP ID: 352406**

Climate Division: OR 3 **NWS Call Sign:** **Elevation: 292 Feet** **Lat: 43˚40N** **Lon: 123˚20W**

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	48.6	33.7	41.2	67	1986	19	45.2	1998	0	1962	22	33.6	1979	739	0	.0	.0	15.0	.2	11.1	.0
Feb	53.3	35.5	44.4	78	1995	20	50.1	1991	4	1989	5	36.4	1989	577	0	.0	.0	20.2	.2	7.5	.0
Mar	58.1	37.0	47.6	83	1994	28	52.1	1986	20	1955	20	43.1	1971	541	0	.0	.0	28.0	.0	5.6	.0
Apr	62.8	39.3	51.1	95	1957	28	55.6	1989	10	1949	27	45.2	1975	419	0	.0	.1	29.3	.0	2.0	.0
May	69.1	43.2	56.2	99	1987	8	62.0	1992	25	1954	1	51.9	1977	280	6	.0	1.0	31.0	.0	.2	.0
Jun	75.1	47.3	61.2	102+	1961	17	65.0	1992	32	1966	1	57.2	1976	134	20	@	1.7	30.0	.0	.0	.0
Jul	82.5	50.3	66.4	106	1998	28	70.5	1996	35	1955	3	62.8	1993	46	90	.6	6.7	31.0	.0	.0	.0
Aug	83.1	50.2	66.7	107+	1981	10	69.8	1977	36+	1957	27	62.5	1975	38	88	.6	6.8	31.0	.0	.0	.0
Sep	78.5	45.9	62.2	106	1987	1	65.6	1995	26+	1970	15	58.7	1972	115	31	.1	3.6	30.0	.0	.1	.0
Oct	67.2	41.5	54.4	96+	1991	1	58.3	1988	22	1971	29	50.9	1971	330	1	.0	.4	30.7	.0	1.6	.0
Nov	54.1	38.5	46.3	75+	1980	4	50.8	1999	12	1955	15	38.9	1985	561	0	.0	.0	22.8	.1	3.9	.0
Dec	47.8	34.3	41.1	70	1979	18	44.7	1973	1+	1972	10	34.5	1990	743	0	.0	.0	13.0	.7	9.1	.0
Ann	65.0	41.4	53.2	107+	Aug 1981	10	70.5	Jul 1996	0	Jan 1962	22	33.6	Jan 1979	4523	236	1.3	20.3	312.0	1.2	41.1	.0

\+ 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: 1910-2001

(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	7.20	7.32	7.70	1951	18	13.74	2000	.60	1985
Feb	6.13	5.71	3.65	1984	13	13.36	1999	1.48	1988
Mar	5.28	5.14	2.50	1972	2	10.48	1983	1.89	1978
Apr	3.81	3.56	1.56	1992	10	7.85	1993	1.17	1977
May	2.52	2.31	1.90	1949	1	6.34	1998	.09	1992
Jun	1.30	1.00	.99+	1995	15	2.91	1995	.18	1987
Jul	.46	.21	1.18	1987	19	2.90	1987	.00+	1977
Aug	.87	.42	2.10	1983	29	3.61	1983	.00+	2000
Sep	1.38	1.10	1.84	1981	27	4.55	1986	.00	1993
Oct	3.25	2.74	3.04	1950	28	6.98	1996	.06	1987
Nov	7.79	6.77	5.92	1996	19	19.67	1973	1.24	1976
Dec	7.87	6.97	4.92	1981	6	19.18	1996	1.23	1976
Ann	47.86	46.81	7.70	Jan 1951	18	19.67	Nov 1973	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	18.7	12.6	4.9	1.9
Feb	17.2	12.5	4.7	1.2
Mar	18.8	12.4	3.5	.7
Apr	16.0	10.4	2.0	.5
May	11.4	6.9	1.2	.2
Jun	7.1	4.1	.7	@
Jul	3.0	1.1	.2	.1
Aug	3.6	2.4	.4	.1
Sep	6.1	3.5	.9	.1
Oct	11.4	7.0	2.3	.5
Nov	19.3	13.9	5.3	2.1
Dec	18.6	13.7	5.6	1.9
Ann	151.2	100.5	31.7	9.3

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	1.82	2.50	3.54	4.47	5.39	6.35	7.43	8.70	10.37	13.01	15.48
Feb	1.98	2.56	3.42	4.15	4.86	5.59	6.39	7.32	8.53	10.40	12.13
Mar	2.21	2.69	3.37	3.92	4.44	4.97	5.54	6.19	7.02	8.28	9.42
Apr	1.27	1.63	2.16	2.60	3.04	3.48	3.97	4.54	5.27	6.41	7.45
May	.50	.73	1.10	1.44	1.78	2.15	2.57	3.07	3.73	4.80	5.81
Jun	.25	.36	.55	.73	.91	1.10	1.32	1.59	1.94	2.50	3.04
Jul	.00	.00	.04	.10	.18	.28	.40	.55	.77	1.15	1.53
Aug	.00	.00	.02	.11	.25	.43	.67	1.00	1.48	2.33	3.22
Sep	.01	.05	.17	.33	.54	.81	1.15	1.60	2.28	3.46	4.68
Oct	.44	.70	1.16	1.61	2.09	2.61	3.22	3.97	4.98	6.63	8.22
Nov	2.03	2.76	3.89	4.89	5.87	6.90	8.05	9.41	11.18	13.98	16.59
Dec	1.96	2.70	3.85	4.86	5.87	6.93	8.11	9.52	11.35	14.26	16.99
Ann	31.95	34.95	38.84	41.82	44.48	47.07	49.76	52.75	56.40	61.72	66.36

\+ 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: 1910-2001
(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	.3	.0	#	0	6.0	1971	14	6.0+	1971	2	1971	13	#+	1997	.2	.1	.1	.1	.0	@	.0	.0	.0
Feb	1.6	.0	#	0	7.0	1971	28	12.5	1971	9+	1989	3	1	1989	.6	.5	.2	.1	.0	.4	.2	.2	.0
Mar	.1	.0	#	0	.5	1971	5	.5+	1973	7	1971	1	1	1971	.1	.0	.0	.0	.0	.2	.1	.1	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	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	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.3	.0	#	0	4.5	1977	21	5.0	1977	1	1985	22	#	1985	.2	.1	.1	.0	.0	@	.0	.0	.0
Dec	.9	.0	#	0	5.0	1987	15	6.0	1987	4	1972	11	1	1972	.4	.4	.2	.1	.0	.4	.3	.0	.0
Ann	3.2	.0	N/A	N/A	7.0	Feb 1971	28	12.5	Feb 1971	9+	Feb 1989	3	1+	Feb 1989	1.5	1.1	.6	.3	.0	1.0	.6	.3	.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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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	6/01	5/24	5/18	5/13	5/08	5/04	4/29	4/23	4/15
32	5/09	4/30	4/23	4/17	4/12	4/07	4/01	3/25	3/16
28	4/04	3/20	3/09	2/27	2/18	2/10	1/31	1/20	1/05
24	2/23	2/13	2/06	1/31	1/24	1/16	1/01	0/00	0/00
20	2/13	2/01	1/23	1/15	1/06	12/25	0/00	0/00	0/00
16	1/19	1/01	0/00	0/00	0/00	0/00	0/00	0/00	0/00

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	9/16	9/23	9/28	10/03	10/07	10/11	10/16	10/21	10/29
32	10/01	10/10	10/16	10/22	10/27	11/01	11/07	11/13	11/22
28	10/25	11/09	11/20	11/30	12/08	12/17	12/26	1/06	1/21
24	11/16	12/02	12/14	12/25	1/05	1/21	0/00	0/00	0/00
20	12/08	12/23	1/03	1/14	1/27	2/13	0/00	0/00	0/00
16	12/17	1/07	0/00	0/00	0/00	0/00	0/00	0/00	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	186	174	165	158	151	144	137	128	117
32	234	221	212	204	197	190	182	173	160
28	>365	333	314	300	287	276	263	249	230
24	>365	>365	>365	>365	>365	>365	331	308	284
20	>365	>365	>365	>365	>365	>365	>365	338	309
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

***** 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	739	577	541	419	280	134	46	38	115	330	561	743	4523
60	584	437	386	275	151	46	8	5	36	185	411	588	3112
57	491	354	298	196	94	18	1	0	13	113	327	495	2400
55	429	302	241	149	63	8	0	0	5	75	272	433	1977
50	283	179	123	64	16	0	0	0	0	20	154	288	1127
32	8	2	0	0	0	0	0	0	0	0	2	10	22

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	292	349	482	572	749	876	1067	1073	906	693	430	291	7780
55	0	5	10	31	99	194	354	360	221	56	11	1	1342
57	0	1	5	17	67	143	293	299	169	31	6	0	1031
60	0	0	0	6	31	82	207	211	102	10	0	0	649
65	0	0	0	0	6	20	90	88	31	1	0	0	236
70	0	0	0	0	0	2	23	20	4	0	0	0	49

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	105	165	256	351	523	662	846	852	687	468	220	105	105	270	526	877	1400	2062	2908	3760	4447	4915	5135	5240
45	36	72	122	204	369	512	691	697	537	314	102	35	36	108	230	434	803	1315	2006	2703	3240	3554	3656	3691
50	3	17	37	98	221	362	536	542	388	172	32	0	3	20	57	155	376	738	1274	1816	2204	2376	2408	2408
55	0	1	3	34	109	217	381	387	242	74	4	0	0	1	4	38	147	364	745	1132	1374	1448	1452	1452
60	0	0	0	6	43	107	231	238	118	18	0	0	0	0	0	6	49	156	387	625	743	761	761	761
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	35	78	141	205	304	394	525	532	429	279	86	32	35	113	254	459	763	1157	1682	2214	2643	2922	3008	3040

(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