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: WHITEHORSE RANCH, OR **COOP ID: 359290**

Climate Division: OR 7 **NWS Call Sign:** **Elevation: 4,380 Feet** **Lat: 42˚20N** **Lon: 118˚14W**

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	40.5	17.3	28.9	65	1971	30	36.1	1998	-15+	1984	18	17.7	1984	1118	0	.0	.0	5.3	5.2	27.6	1.8
Feb	45.9	21.1	33.5	70+	1995	24	42.7	1995	-21+	1989	9	23.2	1989	881	0	.0	.0	11.3	2.0	24.2	.8
Mar	52.0	25.7	38.9	83	1966	30	43.6	1978	-5	1976	2	32.1	1976	810	0	.0	.0	21.1	.2	23.6	.1
Apr	58.9	30.2	44.6	84+	1988	13	51.7	1990	8+	1972	18	35.5	1975	614	0	.0	.0	26.1	.0	17.1	.0
May	67.1	36.9	52.0	94	1983	26	59.7	1992	12	1965	5	46.3	1977	409	6	.0	.3	30.0	.0	7.4	.0
Jun	76.1	42.9	59.5	97+	1988	24	65.1	1986	21	1976	26	55.2	1984	195	30	.0	2.2	30.0	.0	1.4	.0
Jul	85.7	49.5	67.6	102	1968	27	74.6	1985	29+	1986	17	59.6	1993	65	146	.1	11.3	31.0	.0	.1	.0
Aug	84.8	49.1	67.0	103	1990	7	72.7	1994	28+	1993	25	59.0	1976	80	140	.7	11.4	31.0	.0	.3	.0
Sep	76.2	40.4	58.3	99	1998	4	64.4	1990	17	1970	24	51.9	1985	232	30	.0	1.2	29.9	.0	4.0	.0
Oct	65.8	32.1	49.0	92	1996	9	56.1	1988	5	1971	29	43.3	1984	498	1	.0	.1	28.8	.0	14.0	.0
Nov	50.1	23.2	36.7	75+	1990	12	43.6	1995	-6	1993	26	30.6	1982	851	0	.0	.0	15.8	1.1	23.6	.3
Dec	41.5	16.8	29.2	65+	1980	26	36.4	1996	-26	1972	10	21.6	1990	1112	0	.0	.0	6.6	5.0	28.1	1.8
Ann	62.1	32.1	47.1	103	Aug 1990	7	74.6	Jul 1985	-26	Dec 1972	10	17.7	Jan 1984	6865	353	.8	26.5	266.9	13.5	171.4	4.8

\+ 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: 1965-2001

(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	.63	.56	.85	1997	2	1.80	1996	.00+	1992
Feb	.70	.50	2.14	1987	24	2.38	1987	.05+	1991
Mar	.87	.88	1.66	1986	8	2.47	1986	.00	1982
Apr	.92	.92	2.00+	1987	27	2.22	1991	.11	1977
May	.93	.72	1.72	1995	5	2.73	1998	.00+	1992
Jun	.55	.47	.75	1979	18	1.77	1998	.00+	1994
Jul	.21	.13	1.13	1982	1	1.16	1982	.00+	1996
Aug	.68	.21	2.05	1984	29	3.47	1983	.00+	1997
Sep	.54	.37	1.31	1971	30	2.17	1971	.00+	1999
Oct	.57	.41	.65+	1991	29	2.04	1992	.00+	1995
Nov	.67	.58	1.00	1981	30	2.45	1981	.02	1976
Dec	.71	.51	2.03	1984	31	3.40	1983	.00	1976
Ann	7.98	7.68	2.14	Feb 1987	24	3.47	Aug 1983	.00+	Sep 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.6	2.2	.2	.0
Feb	4.8	2.0	.1	@
Mar	6.9	2.3	.3	.1
Apr	4.4	2.6	.4	.2
May	5.6	2.3	.3	.1
Jun	4.1	2.3	.3	.0
Jul	2.0	.8	.1	@
Aug	2.9	1.5	.4	.1
Sep	2.9	1.6	.2	@
Oct	3.7	2.1	.2	.0
Nov	5.9	2.2	.2	@
Dec	5.1	2.5	.2	@
Ann	54.9	24.4	2.9	.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	.00	.00	.11	.21	.31	.44	.59	.78	1.04	1.47	1.91
Feb	.07	.12	.22	.32	.42	.54	.68	.85	1.09	1.48	1.86
Mar	.16	.28	.42	.54	.66	.78	.91	1.07	1.27	1.59	1.89
Apr	.24	.33	.46	.58	.69	.81	.95	1.11	1.31	1.64	1.95
May	.00	.06	.20	.35	.50	.68	.89	1.15	1.51	2.12	2.72
Jun	.00	.00	.09	.18	.28	.39	.52	.69	.91	1.30	1.68
Jul	.00	.00	.01	.04	.07	.12	.18	.25	.36	.54	.73
Aug	.00	.00	.00	.05	.15	.30	.49	.76	1.16	1.89	2.65
Sep	.00	.00	.00	.11	.23	.36	.51	.70	.94	1.36	1.76
Oct	.00	.00	.07	.17	.27	.39	.53	.71	.95	1.36	1.76
Nov	.06	.10	.19	.28	.39	.50	.64	.82	1.06	1.47	1.87
Dec	.04	.11	.22	.33	.44	.56	.70	.88	1.12	1.51	1.89
Ann	4.63	5.23	6.02	6.64	7.20	7.76	8.34	9.00	9.80	11.00	12.06

\+ 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: 1965-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	3.0	1.5	1	#
Feb	3.0	.8	#	#
Mar	2.8	.5	#	#
Apr	.9	.0	#	0
May	.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.2	.0	#	0
Oct	.1	.0	#	0
Nov	1.6	.3	#	#
Dec	3.1	2.0	2	#
Ann	14.8	5.1	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	7.0	1977	3	8.0+	1977	38	1996	31	9+	1996
Feb	8.0	1976	29	11.0	1979	9	1987	24	4	1985
Mar	8.0	1976	1	16.0	1974	8	1976	1	1	1994
Apr	6.0	1971	23	9.5	1971	3	1987	18	#+	1987
May	2.0	1971	21	2.0	1971	#+	1985	10	#+	1985
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	6.0	1971	30	6.0	1971	3	1971	30	#	1971
Oct	3.0	1971	17	3.0	1971	2	1991	29	#+	1991
Nov	6.0	1977	21	7.5	1979	6	1977	21	2	1985
Dec	4.5	1971	25	8.0	1972	20	1992	9	10	1985
Ann	8.0+	Mar 1976	1	16.0	Mar 1974	38	Jan 1996	31	10	Dec 1985

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.9	.2	.1	.0
Feb	.8	.6	.3	.1	.0
Mar	1.0	.6	.3	.1	.0
Apr	.4	.3	.1	.1	.0
May	@	@	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	@	@	@	@	.0
Oct	@	@	@	.0	.0
Nov	.6	.4	.1	.1	.0
Dec	1.0	.9	.3	.0	.0
Ann	4.7	3.7	1.3	.5	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	2.6	.8	.3	.0
Feb	.6	.2	.1	.0
Mar	1.2	.5	.2	.0
Apr	.1	.1	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	@	@	.0	.0
Oct	.0	.0	.0	.0
Nov	.5	.3	.1	.0
Dec	.7	.2	.0	.0
Ann	5.7	2.1	.7	.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	7/15	7/10	7/06	7/02	6/29	6/26	6/23	6/19	6/13
32	6/30	6/24	6/19	6/15	6/11	6/07	6/03	5/29	5/23
28	6/07	6/01	5/28	5/24	5/21	5/17	5/13	5/09	5/03
24	5/25	5/17	5/12	5/07	5/02	4/28	4/23	4/17	4/09
20	5/07	4/28	4/22	4/17	4/12	4/07	4/02	3/27	3/18
16	4/25	4/14	4/06	3/31	3/25	3/18	3/12	3/04	2/21

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	8/18	8/23	8/27	8/31	9/03	9/06	9/09	9/13	9/19
32	8/22	8/30	9/04	9/08	9/12	9/17	9/21	9/26	10/04
28	9/05	9/12	9/16	9/20	9/24	9/28	10/02	10/07	10/13
24	9/22	9/27	10/01	10/05	10/08	10/11	10/14	10/18	10/24
20	10/02	10/09	10/14	10/18	10/22	10/27	10/31	11/05	11/12
16	10/13	10/21	10/26	10/31	11/05	11/09	11/14	11/19	11/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	89	80	75	70	65	60	55	49	41
32	121	111	104	98	93	87	81	74	65
28	151	142	136	131	126	121	116	110	101
24	186	176	169	163	158	152	146	140	130
20	228	216	207	200	193	186	178	169	157
16	266	251	241	232	224	216	207	197	183

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1118	881	810	614	409	195	65	80	232	498	851	1112	6865
60	963	741	655	472	269	99	21	29	130	348	701	957	5385
57	870	657	562	390	198	58	10	14	84	265	611	864	4583
55	808	601	501	337	157	37	4	9	59	215	551	802	4081
50	658	461	355	223	78	9	0	1	19	111	408	647	2970
32	209	88	27	16	0	0	0	0	0	1	57	173	571

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	114	131	240	392	621	825	1104	1083	789	527	196	84	6106
55	0	0	2	24	64	172	395	379	158	28	1	0	1223
57	0	0	0	16	43	133	339	323	122	16	0	0	992
60	0	0	0	8	21	83	257	244	79	6	0	0	698
65	0	0	0	0	6	30	146	140	30	1	0	0	353
70	0	0	0	0	0	7	68	65	9	0	0	0	149

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	17	39	91	221	429	636	896	881	583	324	77	21	17	56	147	368	797	1433	2329	3210	3793	4117	4194	4215
45	0	8	32	118	283	486	741	726	435	193	29	3	0	8	40	158	441	927	1668	2394	2829	3022	3051	3054
50	0	0	3	50	166	339	586	571	295	95	4	0	0	0	3	53	219	558	1144	1715	2010	2105	2109	2109
55	0	0	0	20	82	207	431	417	178	34	0	0	0	0	0	20	102	309	740	1157	1335	1369	1369	1369
60	0	0	0	0	36	103	282	276	83	10	0	0	0	0	0	0	36	139	421	697	780	790	790	790
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	12	41	90	182	303	423	574	567	411	264	70	15	12	53	143	325	628	1051	1625	2192	2603	2867	2937	2952

(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