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: POLEBRIDGE, MT **COOP ID: 246615**

Climate Division: MT 1 **NWS Call Sign:** **Elevation: 3,520 Feet** **Lat: 48˚46N** **Lon: 114˚17W**

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	28.5	5.8	17.2	51+	1962	31	26.3	1994	-46+	1957	25	-1.2	1979	1485	0	.0	.0	.1	17.0	30.6	10.2
Feb	35.7	9.9	22.8	60	1995	25	30.0	1983	-42+	1996	2	9.1	1989	1182	0	.0	.0	1.3	7.7	27.8	6.0
Mar	43.4	17.2	30.3	67	1986	28	37.3	1992	-38	1960	3	22.2	1975	1077	0	.0	.0	7.2	2.4	30.3	2.1
Apr	53.9	24.7	39.3	83	1987	29	43.6	1987	-9	1951	19	31.7	1975	771	0	.0	.0	19.4	.2	26.3	.1
May	62.8	32.0	47.4	91+	1986	31	52.8	1993	-5	1954	1	43.8	1974	545	0	.0	.1	28.1	.0	16.8	.0
Jun	70.3	38.3	54.3	94	1992	24	59.4	1992	21+	2000	1	50.4	1976	323	2	.0	.2	29.6	.0	5.7	.0
Jul	78.2	40.7	59.5	100	1960	19	64.7	1975	25	1979	3	54.1	1993	191	20	.0	2.9	31.0	.0	2.1	.0
Aug	78.8	39.1	59.0	102	1969	25	62.5	1991	26+	1994	28	54.2	1980	206	18	.0	3.9	31.0	.0	4.5	.0
Sep	68.0	30.9	49.5	99	1967	5	55.6	1998	11+	1985	29	44.5	1985	468	2	.0	.5	28.4	.0	18.3	.0
Oct	55.0	23.4	39.2	85+	1992	3	44.8	1988	-13	1991	30	33.9	1971	799	0	.0	.0	21.8	.6	27.4	.2
Nov	37.5	17.3	27.4	65+	1988	2	33.9	1999	-38	1959	16	12.1	1985	1128	0	.0	.0	2.6	6.8	28.1	2.7
Dec	29.1	8.4	18.8	53	1980	17	29.0	1979	-48	1990	29	4.9	1983	1434	0	.0	.0	.1	17.4	30.5	8.1
Ann	53.4	24.0	38.7	102	Aug 1969	25	64.7	Jul 1975	-48	Dec 1990	29	-1.2	Jan 1979	9609	42	.0	7.6	200.6	52.1	248.4	29.4

\+ 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: 1948-2000

(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	2.23	1.71	1.53	1953	9	6.79	1971	.05	1985
Feb	1.79	1.66	1.15	1982	14	3.81	1982	.10	1998
Mar	1.46	1.40	1.50	1954	27	2.85	1971	.08	1992
Apr	1.21	1.12	1.10	1974	27	2.35	1996	.00	1999
May	1.70	1.42	1.73	1959	18	3.83	1980	.29	1983
Jun	2.24	1.63	2.43	1966	4	5.28	1971	.79	1977
Jul	1.57	1.38	1.33	1948	28	4.60	1993	.37	1973
Aug	1.32	1.16	1.34	1954	26	2.99	1976	.29	2000
Sep	1.16	1.17	1.03	1959	11	2.61	1984	.00	1994
Oct	1.34	1.12	1.38	1967	28	3.99	1975	.09	1987
Nov	2.36	2.36	1.34	1958	24	6.08	1973	.18	1979
Dec	2.38	2.35	1.27	1964	22	5.69	1980	.37	1986
Ann	20.76	19.98	2.43	Jun 1966	4	6.79	Jan 1971	.00+	Apr 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.3	7.0	.9	.1
Feb	9.9	6.0	.7	@
Mar	10.4	5.4	.3	.0
Apr	9.5	4.5	.3	@
May	10.8	5.5	.6	.1
Jun	11.2	6.2	.9	.2
Jul	9.2	4.8	.7	.0
Aug	8.3	4.0	.6	@
Sep	8.0	3.7	.2	.0
Oct	8.5	4.1	.4	@
Nov	12.6	6.9	1.0	.1
Dec	12.2	7.6	.9	.1
Ann	122.9	65.7	7.5	.6

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	.37	.56	.89	1.19	1.51	1.85	2.24	2.72	3.36	4.40	5.39
Feb	.38	.55	.81	1.05	1.29	1.54	1.83	2.17	2.62	3.35	4.03
Mar	.40	.54	.75	.93	1.11	1.30	1.51	1.76	2.08	2.59	3.06
Apr	.43	.60	.79	.92	1.04	1.17	1.30	1.45	1.63	1.92	2.17
May	.44	.61	.85	1.07	1.28	1.50	1.75	2.05	2.43	3.04	3.60
Jun	.72	.94	1.25	1.52	1.78	2.04	2.34	2.68	3.12	3.81	4.45
Jul	.32	.46	.69	.90	1.11	1.34	1.60	1.91	2.31	2.96	3.58
Aug	.36	.48	.67	.84	1.00	1.17	1.36	1.59	1.88	2.34	2.77
Sep	.09	.22	.40	.57	.75	.94	1.16	1.43	1.79	2.37	2.94
Oct	.19	.31	.50	.68	.88	1.09	1.34	1.64	2.04	2.70	3.33
Nov	.55	.77	1.12	1.43	1.73	2.06	2.43	2.86	3.44	4.35	5.20
Dec	.58	.80	1.15	1.46	1.77	2.09	2.45	2.88	3.44	4.34	5.17
Ann	13.83	15.14	16.83	18.12	19.28	20.41	21.58	22.89	24.48	26.80	28.82

+ 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: 1948-2000
(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	28.2	23.5	18	15
Feb	21.9	18.8	20	20
Mar	10.2	10.3	14	14
Apr	4.6	3.5	3	1
May	.2	.0	#	0
Jun	.2	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.2	.0	#	0
Oct	2.2	.0	#	0
Nov	12.5	11.0	3	3
Dec	21.5	18.6	10	9
Ann	101.7	85.7	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	18.0	1972	11	76.1	1972	46	1972	25	35+	1997
Feb	15.0	1975	2	58.4	1976	47	1975	12	40	1972
Mar	8.0	1997	6	17.0	1977	47	1997	9	37	1997
Apr	11.0	2000	14	16.0	1982	33	1975	3	19	1975
May	2.0	1978	4	2.0+	1978	3	1975	3	1	1975
Jun	4.8	1971	29	4.8	1971	3	1995	7	#	1995
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	3.0	1972	23	4.5	1972	1	1984	25	#	1984
Oct	6.0	1975	22	17.0	1975	11	1984	31	2	1991
Nov	22.0	1993	22	43.6	1973	35	1996	22	14	1996
Dec	9.0	1971	21	67.8	1971	48	1996	30	33	1996
Ann	22.0	Nov 1993	22	76.1	Jan 1972	48	Dec 1996	30	40	Feb 1972

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	8.6	7.3	2.9	1.2	.3
Feb	6.1	5.3	2.2	1.0	.2
Mar	4.1	3.6	1.0	.3	.0
Apr	1.8	1.5	.4	.1	@
May	.2	.2	.0	.0	.0
Jun	@	@	@	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	@	.0	.0
Oct	.9	.8	.3	.2	.0
Nov	5.5	4.7	1.8	.7	.1
Dec	8.7	7.1	3.2	1.1	.0
Ann	36.0	30.6	11.8	4.6	.6

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	27.3	25.3	23.2	20.4
Mar	23.6	21.3	19.8	16.7
Apr	6.2	4.7	3.8	2.4
May	.4	.1	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	@	.0	.0	.0
Oct	1.5	.7	.3	.1
Nov	14.1	10.9	5.7	1.6
Dec	26.5	22.1	19.8	10.6
Ann	-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	8/04	7/31	7/29	7/26	7/24	7/22	7/20	7/17	7/14
32	7/31	7/24	7/19	7/14	7/10	7/06	7/01	6/26	6/19
28	7/07	6/29	6/22	6/17	6/12	6/07	6/02	5/26	5/18
24	6/04	5/29	5/24	5/19	5/15	5/12	5/07	5/02	4/26
20	5/15	5/09	5/04	5/01	4/27	4/24	4/20	4/16	4/10
16	4/25	4/20	4/17	4/14	4/11	4/08	4/05	4/02	3/28

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	7/31	8/02	8/04	8/05	8/07	8/08	8/10	8/11	8/14
32	8/05	8/09	8/12	8/15	8/17	8/20	8/22	8/25	8/30
28	8/17	8/22	8/25	8/28	8/31	9/03	9/06	9/09	9/14
24	9/08	9/12	9/15	9/18	9/20	9/23	9/25	9/28	10/03
20	9/11	9/19	9/24	9/29	10/03	10/08	10/12	10/18	10/26
16	9/21	9/30	10/06	10/11	10/16	10/20	10/26	11/01	11/09

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	28	23	19	16	13	10	7	3	0
32	64	55	48	43	37	32	26	20	10
28	107	98	91	85	79	74	68	61	51
24	149	142	136	131	127	123	118	112	105
20	186	177	170	164	159	153	147	140	131
16	214	205	198	192	187	181	176	169	159

***** 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	1485	1182	1077	771	545	323	191	206	468	799	1128	1434	9609
60	1330	1042	922	621	390	187	90	102	326	644	978	1279	7911
57	1237	958	829	531	300	120	47	57	247	551	888	1186	6951
55	1175	902	767	471	244	84	27	36	200	489	828	1124	6347
50	1020	762	612	327	124	24	5	8	104	336	678	969	4969
32	495	304	142	20	0	0	0	0	0	18	227	448	1654

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	33	46	88	239	479	669	852	835	524	242	89	37	4133
55	0	0	0	0	10	63	166	158	34	0	0	0	431
57	0	0	0	0	4	39	124	117	21	0	0	0	305
60	0	0	0	0	0	16	73	69	9	0	0	0	167
65	0	0	0	0	0	2	20	18	2	0	0	0	42
70	0	0	0	0	0	0	3	3	0	0	0	0	6

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	0	0	4	75	251	442	618	599	308	87	7	0	0	0	4	79	330	772	1390	1989	2297	2384	2391	2391
45	0	0	0	25	134	299	463	445	181	28	0	0	0	0	0	25	159	458	921	1366	1547	1575	1575	1575
50	0	0	0	7	56	163	310	294	83	4	0	0	0	0	0	7	63	226	536	830	913	917	917	917
55	0	0	0	0	16	73	177	157	26	0	0	0	0	0	0	0	16	89	266	423	449	449	449	449
60	0	0	0	0	1	20	71	60	4	0	0	0	0	0	0	0	1	21	92	152	156	156	156	156
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	19	98	217	315	440	444	287	122	9	0	0	1	20	118	335	650	1090	1534	1821	1943	1952	1952

(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