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: POLSON KERR DAM, MT **COOP ID: 246640**

Climate Division: MT 1 **NWS Call Sign:** **Elevation: 2,730 Feet** **Lat: 47˚41N** **Lon: 114˚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	32.9	20.0	26.5	57+	1971	30	35.5	1994	-23	1957	26	6.4	1979	1194	0	.0	.0	.9	12.6	27.4	2.4
Feb	39.0	22.5	30.8	67	1995	24	37.4	1991	-20+	1989	4	16.1	1989	959	0	.0	.0	2.9	6.2	24.2	1.5
Mar	48.2	27.7	38.0	75	1986	28	43.5	1986	-9	1989	4	32.1	1989	839	0	.0	.0	13.4	1.2	22.8	.2
Apr	58.6	34.1	46.4	82+	1980	28	51.7	1987	17	1953	2	40.1	1975	560	0	.0	.0	25.9	.0	11.4	.0
May	66.4	41.2	53.8	89	1966	26	58.3	1992	23	1954	1	48.5	1974	351	4	.0	.0	30.6	.0	2.5	.0
Jun	73.6	47.7	60.7	95	1992	23	66.9	1986	31	1952	13	55.0	1981	172	41	.0	.8	30.0	.0	.0	.0
Jul	82.2	52.4	67.3	104	1960	19	73.5	1985	34	1971	7	60.2	1993	62	133	@	6.3	31.0	.0	.0	.0
Aug	82.7	52.4	67.6	99+	1983	6	71.6	1971	35+	1965	30	61.9	1980	57	137	.0	6.6	31.0	.0	.0	.0
Sep	71.2	44.1	57.7	98	1967	1	65.2	1998	22	1985	29	52.4	1985	245	25	.0	.4	29.6	.0	1.5	.0
Oct	57.9	35.7	46.8	82	1980	7	52.5	1988	6	1971	29	44.0	1972	565	0	.0	.0	25.8	.2	10.9	.0
Nov	41.3	27.9	34.6	71	1999	12	40.5	1999	-18	1959	16	22.7	1985	912	0	.0	.0	4.7	4.3	21.9	.3
Dec	33.3	21.3	27.3	60	1965	4	34.4	1980	-28+	1968	31	15.7	1983	1168	0	.0	.0	1.1	12.8	27.3	1.3
Ann	57.3	35.6	46.5	104	Jul 1960	19	73.5	Jul 1985	-28+	Dec 1968	31	6.4	Jan 1979	7084	340	@	14.1	226.9	37.3	149.9	5.7

\+ 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: 1951-2001

(3) Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

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Climate Division: MT 1 **NWS Call Sign:** **Elevation: 2,730 Feet** **Lat: 47˚41N** **Lon: 114˚14W**

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	.97	.84	1.20	1980	5	2.63	1980	.15	1985
Feb	.79	.79	.84	1958	13	1.88	1979	.08	1990
Mar	.82	.82	.80	1987	19	2.12	1987	.02	1994
Apr	1.15	1.05	1.85	1951	30	2.68	1984	.02	1977
May	2.21	2.01	2.30	1985	30	6.41	1980	.85	1999
Jun	2.15	1.94	2.97	1980	13	4.81	1980	.54	1979
Jul	1.37	1.08	1.48	1956	3	3.92	1993	.05	1973
Aug	1.13	.89	1.57	1968	15	3.27	1989	.14	1998
Sep	1.22	.97	1.55	1959	15	3.84	1986	.02	1990
Oct	1.00	.67	2.25	1994	2	4.39	1994	.01	1987
Nov	1.07	.89	.92	1966	15	2.74	1996	.18	1979
Dec	1.08	.87	1.07	1977	30	5.88	1977	.16	1976
Ann	14.96	14.55	2.97	Jun 1980	13	6.41	May 1980	.01	Oct 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.6	3.2	.2	@
Feb	8.8	2.9	.1	.0
Mar	9.3	2.7	.1	.0
Apr	8.7	3.6	.4	.1
May	11.1	6.0	1.1	.3
Jun	11.1	5.9	1.0	.3
Jul	7.1	4.0	.6	.1
Aug	6.5	3.5	.5	.1
Sep	7.7	3.6	.6	.1
Oct	7.5	3.4	.2	@
Nov	10.6	3.7	.2	.0
Dec	10.5	4.1	.2	@
Ann	109.5	46.6	5.2	1.0

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	.18	.27	.41	.54	.68	.82	.98	1.18	1.44	1.86	2.26
Feb	.13	.20	.32	.43	.54	.66	.80	.97	1.19	1.56	1.91
Mar	.11	.18	.30	.41	.53	.66	.82	1.01	1.26	1.68	2.08
Apr	.21	.31	.48	.64	.80	.97	1.17	1.40	1.72	2.23	2.72
May	.81	1.02	1.32	1.57	1.80	2.05	2.31	2.62	3.01	3.62	4.17
Jun	.77	.97	1.26	1.51	1.74	1.98	2.24	2.55	2.94	3.54	4.09
Jul	.14	.25	.43	.63	.83	1.06	1.33	1.67	2.13	2.90	3.65
Aug	.19	.28	.45	.60	.76	.94	1.13	1.38	1.70	2.22	2.72
Sep	.14	.24	.41	.58	.76	.96	1.20	1.49	1.89	2.54	3.18
Oct	.06	.11	.23	.37	.52	.70	.92	1.20	1.60	2.27	2.94
Nov	.27	.37	.53	.67	.80	.95	1.11	1.30	1.55	1.94	2.31
Dec	.16	.25	.41	.56	.71	.88	1.08	1.32	1.65	2.18	2.69
Ann	9.92	10.87	12.10	13.04	13.89	14.71	15.57	16.52	17.68	19.38	20.86

\+ 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: 1951-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Climate Division: MT 1 **NWS Call Sign:** **Elevation: 2,730 Feet** **Lat: 47°41N** **Lon: 114°14W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	10.4	6.9	4	3
Feb	3.6	2.5	3	2
Mar	2.5	.5	1	#
Apr	.4	.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	0	0
Oct	.1	.0	#	0
Nov	5.5	3.3	1	#
Dec	7.7	8.2	3	2
Ann	30.2	21.4	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	10.0	1980	5	26.5	1978	27	1978	3	18	1978
Feb	11.0	1986	15	14.1	1978	22	1978	2	10	1978
Mar	6.0	1980	4	11.2	1996	18	1978	1	6	1989
Apr	2.0	2000	14	3.0	2000	2	2000	14	#+	2000
May	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Oct	.5	1991	26	1.5	1991	2	1971	31	#+	1991
Nov	15.0	1996	19	30.5	1996	20	1996	27	7	1996
Dec	9.0	1986	6	11.0	1986	28	1996	29	12	1996
Ann	15.0	Nov 1996	19	30.5	Nov 1996	28	Dec 1996	29	18	Jan 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.9	3.7	1.3	.3	.1
Feb	2.7	2.1	.4	.1	.1
Mar	2.0	1.1	.3	.1	.0
Apr	.3	.3	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.1	.0	.0	.0	.0
Nov	2.1	1.6	.6	.2	.1
Dec	4.7	3.5	1.1	.4	.0
Ann	17.8	12.3	3.7	1.1	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	9.5	5.6	2.2	.0
Mar	3.3	1.0	.7	.0
Apr	.1	.0	.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	.0	.0
Oct	.2	.0	.0	.0
Nov	4.5	2.1	1.4	.9
Dec	-9.9	-9.9	-9.9	-9.9
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	6/17	6/11	6/06	6/02	5/29	5/26	5/22	5/17	5/10
32	5/24	5/20	5/16	5/14	5/11	5/08	5/06	5/02	4/28
28	5/07	5/02	4/28	4/25	4/22	4/19	4/16	4/12	4/07
24	4/18	4/13	4/09	4/05	4/02	3/30	3/27	3/23	3/18
20	4/05	3/29	3/23	3/19	3/14	3/10	3/05	2/28	2/20
16	3/29	3/19	3/12	3/06	2/28	2/22	2/16	2/09	1/30

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	9/04	9/08	9/12	9/14	9/17	9/19	9/22	9/25	9/30
32	9/16	9/21	9/24	9/27	9/30	10/02	10/05	10/09	10/13
28	9/25	9/30	10/04	10/07	10/10	10/13	10/16	10/20	10/25
24	10/06	10/12	10/17	10/21	10/24	10/28	11/01	11/05	11/11
20	10/20	10/29	11/04	11/09	11/14	11/19	11/25	12/01	12/09
16	11/01	11/09	11/15	11/20	11/25	11/29	12/04	12/10	12/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	134	126	120	115	110	105	100	94	85
32	163	155	150	145	141	136	132	126	119
28	193	185	179	175	170	166	161	155	147
24	222	216	212	208	204	200	197	192	186
20	277	266	258	251	244	238	231	223	212
16	306	293	284	276	269	262	254	245	232

***** 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	1194	959	839	560	351	172	62	57	245	565	912	1168	7084
60	1039	819	684	411	213	85	19	17	137	410	762	1013	5609
57	946	735	591	325	145	48	8	6	87	318	672	920	4801
55	884	679	529	271	107	30	4	3	61	259	612	858	4297
50	739	547	380	153	39	7	0	0	18	130	470	703	3186
32	283	159	35	1	0	0	0	0	0	1	96	232	807

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	112	124	220	431	676	859	1094	1103	770	459	174	87	6109
55	0	0	0	11	70	199	385	393	141	4	0	0	1203
57	0	0	0	5	45	157	327	334	107	2	0	0	977
60	0	0	0	1	21	104	245	252	67	0	0	0	690
65	0	0	0	0	4	41	133	137	25	0	0	0	340
70	0	0	0	0	0	12	57	59	7	0	0	0	135

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	2	11	58	213	441	627	855	858	535	230	33	6	2	13	71	284	725	1352	2207	3065	3600	3830	3863	3869
45	0	0	10	106	290	477	700	703	388	119	9	0	0	0	10	116	406	883	1583	2286	2674	2793	2802	2802
50	0	0	1	45	161	328	545	548	252	49	0	0	0	0	1	46	207	535	1080	1628	1880	1929	1929	1929
55	0	0	0	14	66	194	390	395	136	15	0	0	0	0	0	14	80	274	664	1059	1195	1210	1210	1210
60	0	0	0	0	26	90	247	249	59	1	0	0	0	0	0	0	26	116	363	612	671	672	672	672
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	4	42	139	265	376	538	547	335	141	10	0	0	4	46	185	450	826	1364	1911	2246	2387	2397	2397

(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