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: HYSHAM, MT **COOP ID: 244358**

Climate Division: MT 5 **NWS Call Sign:** **Elevation: 2,660 Feet** **Lat: 46˚18N** **Lon: 107˚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	31.9	9.5	20.7	72	1992	31	34.1	1992	-48	1954	20	3.6	1979	1373	0	.0	.0	4.2	12.5	29.6	9.5
Feb	39.4	14.9	27.2	75	1992	27	38.9	1991	-37	1996	2	10.9	1979	1060	0	.0	.0	9.4	7.7	25.9	5.6
Mar	49.8	23.6	36.7	82	1978	30	46.3	1986	-27+	1960	3	26.2	1996	878	0	.0	.0	18.0	2.8	25.7	1.5
Apr	60.8	32.9	46.9	97	1952	26	53.5	1987	5	1955	6	39.2	1975	545	1	.0	.1	25.5	.5	14.3	.0
May	70.1	42.7	56.4	100	1980	22	61.8	1985	14	1954	3	51.3	1996	284	17	@	1.2	30.3	.0	2.7	.0
Jun	79.4	51.7	65.6	106	1988	5	75.8	1988	29	1969	13	59.8	1998	87	103	.6	5.4	30.0	.0	@	.0
Jul	86.3	56.3	71.3	108	1960	19	75.4	1998	37	1972	4	63.8	1993	25	219	1.6	14.2	31.0	.0	.0	.0
Aug	85.5	55.1	70.3	108+	1961	3	77.4	1983	32	1992	25	65.2	1974	41	205	1.0	12.9	31.0	.0	@	.0
Sep	74.4	44.7	59.6	105	1983	1	66.5	1998	19	1985	30	54.2	1985	207	44	.1	3.0	29.4	.0	2.5	.0
Oct	62.0	34.4	48.2	93	1980	4	52.6	1974	-9	1991	30	43.6	1984	520	0	.0	.2	27.1	.5	13.6	.2
Nov	43.9	22.3	33.1	79	1999	12	42.2	1999	-31	1985	23	14.1	1985	957	0	.0	.0	12.6	5.2	26.1	1.9
Dec	34.2	12.9	23.6	70	1980	15	35.2	1999	-46	1989	22	2.8	1983	1286	0	.0	.0	4.7	10.7	29.3	6.7
Ann	59.8	33.4	46.6	108+	Aug 1961	3	77.4	Aug 1983	-48	Jan 1954	20	2.8	Dec 1983	7263	589	3.3	37.0	253.2	39.9	169.7	25.4

\+ 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: 1948-2001

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

Issue Date: February 2004

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Climate Division: MT 5 **NWS Call Sign:** **Elevation: 2,660 Feet** **Lat: 46˚18N** **Lon: 107˚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	.51	.40	1.02	1971	27	2.52	1971	.00	1992
Feb	.34	.29	.60+	1986	4	1.10	1986	.00	1976
Mar	.82	.66	.87	1995	25	2.44	1995	.04	1991
Apr	1.31	1.32	1.65	1970	28	3.19	1991	.00	1977
May	2.52	1.75	2.17	1977	15	6.73	1977	.69	1994
Jun	1.93	1.52	1.81	1957	21	4.53	1991	.44	1987
Jul	1.48	1.04	2.27	1993	3	9.66	1993	.00+	1988
Aug	.93	.71	1.70	1971	30	2.37	1977	.00	2000
Sep	1.40	.97	3.05	1961	10	5.47	1978	.04	1990
Oct	1.19	.94	1.60	1980	22	4.28	1971	.00	1987
Nov	.59	.53	1.50	1957	1	1.47	1978	.00	1971
Dec	.46	.38	.75+	1958	7	1.60	1977	.05+	1976
Ann	13.48	12.55	3.05	Sep 1961	10	9.66	Jul 1993	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	2.0	.1	@
Feb	3.0	1.4	.1	.0
Mar	5.8	3.0	.3	.0
Apr	6.4	3.8	.6	.1
May	7.8	5.5	1.9	.6
Jun	7.5	5.2	1.0	.2
Jul	5.1	3.3	.9	.3
Aug	4.4	2.8	.4	.1
Sep	4.8	3.3	.7	.3
Oct	4.8	3.2	.7	.3
Nov	3.9	2.4	.1	.0
Dec	4.2	2.1	.1	.0
Ann	62.0	38.0	6.9	1.9

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	.03	.08	.15	.23	.31	.40	.50	.63	.81	1.09	1.37
Feb	.03	.07	.13	.18	.23	.28	.35	.42	.53	.69	.85
Mar	.10	.16	.27	.39	.51	.65	.80	1.00	1.27	1.70	2.13
Apr	.10	.24	.45	.64	.84	1.05	1.31	1.61	2.02	2.70	3.34
May	.58	.82	1.19	1.52	1.85	2.20	2.59	3.06	3.67	4.65	5.57
Jun	.62	.81	1.08	1.31	1.53	1.76	2.01	2.31	2.69	3.28	3.82
Jul	.00	.06	.25	.46	.70	.99	1.35	1.80	2.44	3.53	4.63
Aug	.07	.17	.32	.46	.60	.75	.93	1.15	1.44	1.91	2.36
Sep	.12	.22	.40	.60	.81	1.06	1.34	1.71	2.21	3.05	3.87
Oct	.10	.23	.42	.60	.78	.97	1.20	1.47	1.84	2.44	3.01
Nov	.04	.10	.20	.28	.37	.47	.59	.73	.92	1.23	1.53
Dec	.05	.08	.15	.21	.28	.36	.45	.57	.72	.98	1.24
Ann	8.03	9.02	10.32	11.33	12.25	13.15	14.10	15.16	16.46	18.39	20.09

\+ 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

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	6.9	5.2	#	#
Feb	4.0	3.3	#	#
Mar	5.5	4.0	#	0
Apr	3.4	.0	#	0
May	.5	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.3	.0	0	0
Oct	1.6	.0	#	0
Nov	6.1	3.5	#	0
Dec	6.2	4.5	#	0
Ann	34.5	20.5	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	9.0	1989	22	22.0	1994	2	1997	25	2	1997
Feb	6.0	1978	11	10.0	1972	6	1988	9	#+	2000
Mar	8.0	1994	23	22.0	1989	4	1999	5	#+	2000
Apr	14.0	1982	7	16.0	1982	1	1999	1	#	1999
May	12.0	1983	11	12.0	1983	#	1999	11	#	1999
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	8.0	1984	23	8.0	1984	0	0	0	0	0
Oct	9.0	1993	8	10.8	1993	#+	2000	5	#+	2000
Nov	13.0	1985	17	23.0+	1985	1	1999	26	#+	2000
Dec	8.0	1989	20	15.0	1971	#+	1999	31	#+	1999
Ann	14.0	Apr 1982	7	23.0+	Nov 1985	6	Feb 1988	9	2	Jan 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.5	2.9	1.2	.4	.0
Feb	2.2	1.9	.7	.2	.0
Mar	2.3	2.1	1.0	.2	.0
Apr	.8	.7	.4	.3	.1
May	.2	.2	.2	.1	@
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.1	@	.0
Oct	.5	.4	.3	.1	.0
Nov	2.5	2.3	1.0	.2	@
Dec	3.3	3.0	1.3	.3	.0
Ann	15.4	13.6	6.2	1.8	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	-9.9	-9.9	-9.9	-9.9
May	-9.9	-9.9	-9.9	-9.9
Jun	-9.9	-9.9	-9.9	-9.9
Jul	-9.9	-9.9	-9.9	-9.9
Aug	-9.9	-9.9	-9.9	-9.9
Sep	-9.9	-9.9	-9.9	-9.9
Oct	-9.9	-9.9	-9.9	-9.9
Nov	-9.9	-9.9	-9.9	-9.9
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

Complete documentation available from:
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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	6/08	6/04	5/31	5/28	5/25	5/22	5/19	5/16	5/11
32	5/25	5/20	5/17	5/15	5/12	5/10	5/07	5/04	4/29
28	5/14	5/09	5/05	5/02	4/29	4/26	4/23	4/19	4/14
24	5/02	4/27	4/23	4/20	4/17	4/14	4/10	4/06	4/01
20	4/21	4/16	4/12	4/09	4/06	4/03	3/30	3/27	3/21
16	4/13	4/06	4/02	3/28	3/25	3/21	3/17	3/12	3/06

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	9/07	9/10	9/12	9/14	9/16	9/18	9/21	9/24
32	9/07	9/12	9/15	9/18	9/21	9/24	9/27	9/30	10/05
28	9/18	9/23	9/26	9/29	10/02	10/05	10/08	10/12	10/17
24	9/25	10/01	10/05	10/09	10/13	10/16	10/20	10/25	10/31
20	10/04	10/11	10/15	10/19	10/23	10/27	10/31	11/04	11/11
16	10/19	10/25	10/30	11/03	11/06	11/10	11/14	11/18	11/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	129	123	118	115	111	108	104	100	94
32	151	144	139	135	131	127	123	118	112
28	177	170	164	160	155	151	146	141	134
24	201	193	188	183	178	174	169	164	156
20	227	217	211	205	200	194	189	182	173
16	249	241	235	230	226	221	216	211	203

***** 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	1373	1060	878	545	284	87	25	41	207	520	957	1286	7263
60	1224	933	724	402	166	32	6	13	111	366	807	1131	5915
57	1137	854	634	321	111	15	1	5	69	278	727	1039	5191
55	1081	802	577	270	82	8	0	3	47	225	670	986	4751
50	936	677	434	164	31	1	0	0	14	115	533	839	3744
32	484	316	92	5	0	0	0	0	0	3	174	386	1460

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	133	180	237	450	757	1006	1217	1187	827	506	207	123	6830
55	17	23	9	26	125	324	504	476	184	15	13	11	1727
57	12	19	3	16	93	270	443	417	146	6	10	1	1436
60	6	14	1	7	54	198	356	332	98	2	0	0	1068
65	0	0	0	1	17	103	219	205	44	0	0	0	589
70	0	0	0	0	3	41	117	111	15	0	0	0	287

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	7	32	89	258	532	786	991	956	601	296	57	15	7	39	128	386	918	1704	2695	3651	4252	4548	4605	4620
45	0	5	36	152	382	636	836	801	455	173	20	2	0	5	41	193	575	1211	2047	2848	3303	3476	3496	3498
50	0	0	10	72	246	487	681	646	316	88	5	0	0	0	10	82	328	815	1496	2142	2458	2546	2551	2551
55	0	0	0	26	133	338	526	492	193	28	0	0	0	0	0	26	159	497	1023	1515	1708	1736	1736	1736
60	0	0	0	7	57	205	376	340	99	8	0	0	0	0	0	7	64	269	645	985	1084	1092	1092	1092
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	6	35	94	206	344	490	623	606	398	228	54	13	6	41	135	341	685	1175	1798	2404	2802	3030	3084	3097

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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