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: DILLON WMCE, MT **COOP ID: 242409**

Climate Division: MT 2 **NWS Call Sign:** **Elevation: 5,228 Feet** **Lat: 45˚13N** **Lon: 112˚39W**

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	34.4	13.5	24.0	60	1953	31	32.8	1994	-36+	1937	8	7.3	1979	1274	0	.0	.0	2.2	10.9	29.6	5.9
Feb	40.4	16.9	28.7	65+	1996	13	37.5	1991	-40	1933	9	13.0	1989	1018	0	.0	.0	5.7	5.1	26.7	3.1
Mar	48.1	23.0	35.6	74+	1969	28	42.6	1986	-26	1896	3	29.3	1976	914	0	.0	.0	13.8	1.6	27.5	.9
Apr	57.3	29.2	43.3	84	1946	25	49.0	1987	-3	1982	8	34.1	1975	654	0	.0	.0	23.0	.2	20.5	@
May	66.3	36.8	51.6	91	1954	19	57.3	1992	15+	1967	11	48.1+	1975	417	0	.0	@	29.0	.0	8.3	.0
Jun	75.2	43.4	59.3	94+	1936	24	63.8	1988	23	2001	16	55.1	1998	188	17	.0	.9	29.9	.0	1.0	.0
Jul	83.5	47.4	65.5	99	1951	18	69.0	1998	30	1955	2	57.5	1993	73	86	.0	5.6	31.0	.0	.1	.0
Aug	82.3	46.0	64.2	100	1940	12	68.6	1971	25+	1992	25	59.3	1993	93	67	.0	3.5	31.0	.0	.2	.0
Sep	72.2	38.8	55.5	94	1998	4	61.6	1998	9	1926	24	49.1	1986	298	13	.0	.2	29.2	.0	5.8	.0
Oct	60.2	31.2	45.7	86+	1992	1	51.3	1988	-13	1935	30	41.1	1984	599	0	.0	.0	26.1	.3	17.5	.1
Nov	42.9	21.2	32.1	79	1908	5	39.9	1999	-31	1955	16	19.2	1985	990	0	.0	.0	8.7	4.5	25.8	1.7
Dec	34.2	14.0	24.1	65	1939	9	33.9	1980	-37	1990	22	11.2	1983	1269	0	.0	.0	2.2	11.2	29.7	4.5
Ann	58.1	30.1	44.1	100	Aug 1940	12	69.0	Jul 1998	-40	Feb 1933	9	7.3	Jan 1979	7787	183	.0	10.2	231.8	33.8	192.7	16.2

\+ 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: 1895-2001

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

Issue Date: February 2004

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Climate Division: MT 2 **NWS Call Sign:** **Elevation: 5,228 Feet** **Lat: 45˚13N** **Lon: 112˚39W**

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	.37	.25	1.10+	1916	19	1.03	1995	.00	1983
Feb	.25	.17	1.02	1920	20	.91	1986	.00+	1991
Mar	.66	.58	1.20	1909	20	1.77	1977	.07+	1999
Apr	1.22	1.13	1.75	1902	21	3.09	1995	.07	1989
May	2.25	2.18	1.94	1982	28	4.87	1981	.30	1973
Jun	1.87	1.72	1.70	1958	24	3.96	1995	.29	1974
Jul	1.19	.94	1.44	1993	3	4.25	1987	.00+	1999
Aug	1.18	.97	1.31	1905	26	3.26	1983	.00	1988
Sep	1.07	.95	2.40	1901	3	3.29	1982	.00	1979
Oct	.85	.58	1.27	1933	30	2.24	2000	.00	1987
Nov	.39	.33	4.00	1900	17	1.23	1973	.01	1976
Dec	.35	.31	.97	1955	23	1.19	1998	.00+	1991
Ann	11.65	11.50	4.00	Nov 1900	17	4.87	May 1981	.00+	Jul 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.7	1.2	.1	.0
Feb	3.0	1.0	.0	.0
Mar	5.1	2.3	.1	@
Apr	6.5	3.5	.6	@
May	11.4	6.0	1.0	.2
Jun	9.1	5.2	1.0	.1
Jul	6.9	3.2	.6	.2
Aug	7.0	3.4	.5	.1
Sep	5.4	3.1	.5	.1
Oct	4.8	2.3	.3	.2
Nov	4.4	1.3	.0	.0
Dec	3.4	1.4	.1	.0
Ann	70.7	33.9	4.8	.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	.01	.03	.07	.12	.18	.25	.34	.45	.60	.87	1.13
Feb	.00	.00	.04	.08	.12	.17	.24	.31	.42	.61	.79
Mar	.13	.19	.29	.37	.46	.56	.67	.80	.97	1.25	1.51
Apr	.18	.28	.45	.62	.80	.99	1.22	1.50	1.87	2.47	3.06
May	.57	.78	1.11	1.40	1.69	1.99	2.33	2.73	3.25	4.07	4.85
Jun	.46	.64	.91	1.16	1.40	1.65	1.93	2.27	2.71	3.40	4.05
Jul	.00	.00	.37	.58	.78	.99	1.23	1.52	1.88	2.48	3.05
Aug	.12	.26	.46	.63	.81	.99	1.21	1.46	1.80	2.35	2.87
Sep	.02	.09	.22	.37	.54	.74	.99	1.30	1.74	2.48	3.23
Oct	.03	.09	.20	.33	.46	.62	.80	1.04	1.37	1.92	2.46
Nov	.04	.06	.12	.17	.23	.30	.38	.48	.62	.85	1.07
Dec	.00	.03	.08	.14	.20	.26	.34	.44	.57	.79	1.00
Ann	7.07	7.91	9.01	9.87	10.64	11.40	12.19	13.08	14.17	15.79	17.21

\+ 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: 1895-2001
(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	-99.9	1	0
Feb	.3	.0	0	0
Mar	1.3	-99.9	#	0
Apr	#	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.3	.0	0	0
Oct	.0	.0	#	0
Nov	-99.9	-99.9	#	0
Dec	2.0	-99.9	1	0
Ann	-9.9	-9.9	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	2.5	1995	7	2.5	1995	7	1989	6	7	1989
Feb	2.3	1980	13	2.3+	1980	0	0	0	0	0
Mar	4.0	1996	13	4.0	1996	#	1991	1	#	1991
Apr	#	1981	6	#	1981	0	0	0	0	0
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	4.0	1983	19	4.0	1983	0	0	0	0	0
Oct	.1	1994	3	.1	1994	1	1983	14	#+	1991
Nov	.0	0	0	.0	0	2	1994	16	#+	1994
Dec	5.0	1982	1	10.0	1998	4	1984	11	4	1984
Ann	5.0	Dec 1982	1	10.0	Dec 1998	7	Jan 1989	6	7	Jan 1989

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9	-9.9
Apr	.0	.0	.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	.1	.1	.1	.0	.0
Oct	.1	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9	-9.9

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	.0	.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	.0	.0	.0	.0
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	7/14	7/08	7/03	6/29	6/25	6/22	6/18	6/13	6/07
32	6/27	6/20	6/15	6/11	6/08	6/04	5/31	5/26	5/19
28	5/29	5/25	5/22	5/19	5/16	5/13	5/11	5/07	5/03
24	5/18	5/13	5/09	5/06	5/03	4/30	4/27	4/24	4/19
20	5/05	4/29	4/25	4/21	4/18	4/15	4/11	4/07	4/01
16	4/24	4/18	4/14	4/10	4/06	4/03	3/30	3/25	3/19

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	8/15	8/20	8/25	8/28	9/01	9/04	9/07	9/12	9/17
32	8/31	9/04	9/07	9/10	9/12	9/14	9/17	9/19	9/23
28	9/05	9/10	9/14	9/17	9/20	9/23	9/26	9/30	10/05
24	9/14	9/19	9/23	9/26	9/29	10/02	10/05	10/09	10/14
20	9/27	10/02	10/05	10/08	10/11	10/14	10/17	10/20	10/25
16	10/05	10/11	10/15	10/19	10/23	10/26	10/30	11/03	11/10

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	97	86	79	72	66	60	54	47	36
32	116	109	104	100	96	91	87	82	75
28	148	141	135	131	126	122	118	112	105
24	168	161	156	152	148	144	140	135	128
20	201	192	186	180	175	170	165	159	150
16	228	218	211	204	199	193	186	179	169

***** 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	1274	1018	914	654	417	188	73	93	298	599	990	1269	7787
60	1119	878	759	504	269	84	19	31	179	444	840	1114	6240
57	1026	794	666	419	189	43	7	13	122	353	750	1021	5403
55	964	738	604	363	143	24	3	6	90	294	690	959	4878
50	809	602	451	235	60	3	0	1	34	167	551	805	3718
32	316	194	62	11	0	0	0	0	0	4	159	314	1060

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	65	100	171	348	606	819	1036	997	705	428	159	68	5502
55	0	0	0	9	36	153	325	290	105	6	0	0	924
57	0	0	0	5	20	112	268	235	77	2	0	0	719
60	0	0	0	1	7	63	187	160	44	0	0	0	462
65	0	0	0	0	0	17	86	67	13	0	0	0	183
70	0	0	0	0	0	2	25	17	3	0	0	0	47

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	3	14	47	158	372	591	794	754	476	228	40	5	3	17	64	222	594	1185	1979	2733	3209	3437	3477	3482
45	0	0	11	75	235	441	639	599	333	124	14	0	0	0	11	86	321	762	1401	2000	2333	2457	2471	2471
50	0	0	0	28	124	297	484	444	204	55	0	0	0	0	0	28	152	449	933	1377	1581	1636	1636	1636
55	0	0	0	4	52	170	334	291	106	15	0	0	0	0	0	4	56	226	560	851	957	972	972	972
60	0	0	0	0	11	76	189	157	34	0	0	0	0	0	0	0	11	87	276	433	467	467	467	467
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	12	50	140	267	392	520	502	345	191	30	0	0	12	62	202	469	861	1381	1883	2228	2419	2449	2449

(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