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: FAIRFIELD, MT **COOP ID: 242857**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 3,983 Feet** **Lat: 47˚37N** **Lon: 111˚59W**

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	31.7	11.3	21.5	65	1964	1	33.7	1992	-35	1950	3	4.3	1979	1350	0	.0	.0	3.5	11.2	27.8	7.8
Feb	37.6	15.1	26.4	70+	1995	25	39.5	1991	-35+	1989	3	9.3	1975	1082	0	.0	.0	7.2	7.5	24.5	5.0
Mar	45.4	21.9	33.7	76	1978	29	42.0	1986	-32	1951	8	24.3	1996	972	0	.0	.0	13.7	3.7	25.8	1.3
Apr	54.9	30.7	42.8	85+	1987	28	51.4	1987	-10	1954	2	29.4	1975	666	0	.0	.0	21.9	.9	17.4	.1
May	64.1	39.9	52.0	91	1986	29	56.4	1993	11	1954	2	47.1	1996	404	2	.0	.1	28.9	.0	4.3	.0
Jun	72.1	47.2	59.7	97	1977	25	67.4	1988	29+	1969	13	55.5+	1998	191	30	.0	.4	29.8	.0	@	.0
Jul	78.7	51.1	64.9	99	1953	13	69.4	1985	35	1999	16	57.0	1993	94	91	.0	3.0	31.0	.0	.0	.0
Aug	79.6	50.8	65.2	103	1969	24	73.3	1971	31+	1992	24	60.0	1987	116	122	.0	3.6	30.9	.0	.1	.0
Sep	69.6	42.1	55.9	96	1991	1	63.2	1998	18	2000	23	47.2	1985	309	34	.0	.9	28.0	.1	3.0	.0
Oct	58.5	33.1	45.8	89	1992	2	50.4	1974	-9	1991	28	40.1	1984	595	0	.0	.0	25.5	.7	13.3	.2
Nov	41.5	21.6	31.6	73	1949	3	41.6	1999	-28	1959	13	11.4	1985	1004	0	.0	.0	9.8	5.0	23.8	1.8
Dec	34.3	14.7	24.5	66	1956	29	35.8	1999	-44	1968	29	4.8	1983	1256	0	.0	.0	4.0	9.6	27.8	5.1
Ann	55.7	31.6	43.7	103	Aug 1969	24	73.3	Aug 1971	-44	Dec 1968	29	4.3	Jan 1979	8039	279	.0	8.0	234.2	38.7	167.8	21.3

\+ 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

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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	.38	.30	.79	1955	2	1.15	1989	.00	1995
Feb	.29	.22	.64	1959	17	.96	1989	.02	1973
Mar	.59	.53	.87	1961	27	1.96	1981	.12	1976
Apr	1.11	.93	1.51	1996	11	4.08	1975	.01	1981
May	2.39	1.98	2.07	1953	25	6.97	1981	.36	1979
Jun	2.07	1.72	3.26	1964	8	5.12	1991	.33	1972
Jul	1.54	1.22	1.85	1983	10	4.30	1993	.04+	1996
Aug	1.55	.97	1.88	1989	25	5.07	1985	.31+	2000
Sep	1.19	.98	1.55	1968	20	3.52	1985	.05	1990
Oct	.69	.52	.97	1986	1	3.26	1975	.00+	1987
Nov	.37	.27	.54	1961	25	1.18	1998	.00	1972
Dec	.33	.27	.63	1972	2	.95	1996	.05+	1997
Ann	12.50	10.82	3.26	Jun 1964	8	6.97	May 1981	.00+	Jan 1995

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.6	1.0	@	.0
Feb	4.5	.8	@	.0
Mar	6.2	2.3	.1	.0
Apr	6.5	3.1	.4	.1
May	9.2	5.5	1.5	.4
Jun	8.4	4.6	1.1	.5
Jul	7.1	3.9	.9	.2
Aug	7.6	3.9	.9	.2
Sep	6.1	3.4	.6	.1
Oct	4.5	2.3	.3	.0
Nov	5.0	1.4	.0	.0
Dec	4.7	1.2	@	.0
Ann	75.4	33.4	5.8	1.5

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	.02	.05	.10	.16	.22	.28	.36	.46	.60	.83	1.05
Feb	.03	.05	.09	.13	.17	.22	.28	.35	.45	.62	.78
Mar	.12	.18	.27	.35	.43	.51	.61	.72	.88	1.12	1.35
Apr	.08	.15	.29	.44	.61	.81	1.05	1.35	1.77	2.49	3.20
May	.66	.89	1.23	1.54	1.83	2.14	2.48	2.88	3.40	4.23	4.99
Jun	.42	.61	.91	1.19	1.47	1.77	2.11	2.51	3.05	3.91	4.73
Jul	.07	.15	.32	.53	.76	1.05	1.40	1.85	2.49	3.59	4.70
Aug	.18	.30	.52	.74	.97	1.22	1.52	1.89	2.39	3.21	4.01
Sep	.15	.24	.41	.57	.75	.95	1.18	1.46	1.84	2.47	3.09
Oct	.00	.09	.22	.34	.45	.57	.70	.86	1.08	1.44	1.78
Nov	.03	.06	.12	.18	.23	.30	.37	.46	.57	.77	.95
Dec	.05	.07	.12	.17	.22	.27	.33	.41	.51	.68	.84
Ann	6.83	7.82	9.15	10.20	11.15	12.10	13.10	14.23	15.63	17.72	19.57

+ 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

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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	8.4	8.8	3	2
Feb	5.0	3.4	2	1
Mar	9.8	10.0	1	1
Apr	7.5	5.5	1	#
May	1.3	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.1	.0	0	0
Sep	2.0	.0	#	0
Oct	3.0	1.5	#	#
Nov	5.5	4.3	1	#
Dec	6.5	5.4	2	1
Ann	49.1	38.9	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	8.0	1974	30	18.5	1971	26	1979	31	24	1979
Feb	9.0	2000	14	21.4	1989	26	1979	2	11	1979
Mar	8.5	1982	19	23.7	1982	17	1982	19	3	1996
Apr	10.0	1975	8	32.0	1975	29	1975	8	9	1975
May	9.0	1983	9	11.0	1989	10	1989	29	1	1989
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	2.0	1992	23	2.0	1992	0	0	0	0	0
Sep	6.5	1984	23	13.0	1984	6	1973	14	#+	1989
Oct	6.0	1985	7	11.0	1985	8	1985	8	1	1991
Nov	6.0	1986	11	21.0	1978	23	1978	23	11	1978
Dec	11.5	1984	23	16.2	1978	21	1978	28	15	1978
Ann	11.5	Dec 1984	23	32.0	Apr 1975	29	Apr 1975	8	24	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.1	3.4	.8	.3	.0
Feb	3.8	1.9	.5	.2	.0
Mar	4.6	3.2	1.1	.3	.0
Apr	2.4	2.0	.8	.3	.1
May	.4	.2	.2	.1	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	@	@	.0	.0	.0
Sep	.4	.4	.3	.2	.0
Oct	1.3	.9	.2	@	.0
Nov	3.7	2.0	.6	.1	.0
Dec	4.1	2.3	.4	.2	@
Ann	25.8	16.3	4.9	1.7	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.9	6.7	4.1	2.0
Feb	8.2	4.4	2.4	.6
Mar	8.2	4.5	2.3	.6
Apr	2.7	1.7	1.3	.5
May	.3	.2	.2	@
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.4	.2	.1	.0
Oct	1.3	.4	.2	.0
Nov	4.4	1.6	.6	.0
Dec	9.1	5.0	2.7	1.9
Ann	46.5	24.7	13.9	5.6

+ 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	6/23	6/16	6/12	6/08	6/05	6/01	5/28	5/24	5/17
32	5/30	5/25	5/22	5/18	5/16	5/13	5/09	5/06	5/01
28	5/14	5/09	5/06	5/03	4/30	4/28	4/25	4/21	4/17
24	5/05	4/29	4/24	4/21	4/18	4/14	4/11	4/06	4/01
20	4/26	4/20	4/17	4/13	4/10	4/07	4/04	3/31	3/26
16	4/16	4/11	4/07	4/04	4/01	3/29	3/25	3/22	3/16

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	8/30	9/03	9/06	9/09	9/11	9/14	9/16	9/19	9/23
32	9/06	9/11	9/14	9/17	9/20	9/23	9/26	9/30	10/04
28	9/17	9/23	9/26	9/30	10/03	10/06	10/09	10/13	10/18
24	9/26	10/02	10/06	10/09	10/13	10/16	10/19	10/23	10/29
20	10/05	10/11	10/16	10/19	10/23	10/26	10/30	11/04	11/10
16	10/16	10/22	10/26	10/30	11/02	11/06	11/09	11/14	11/19

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	121	113	108	103	98	93	88	83	75
32	151	142	137	132	127	122	117	111	103
28	178	170	164	159	155	150	145	140	132
24	205	196	189	183	177	172	166	159	149
20	219	211	205	200	195	190	185	179	171
16	237	230	224	219	215	210	206	200	192

***** 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	1350	1082	972	666	404	191	94	116	309	595	1004	1256	8039
60	1199	950	817	521	262	97	32	53	201	441	854	1101	6528
57	1116	871	724	437	188	56	14	30	147	351	772	1015	5721
55	1057	818	663	384	146	35	8	20	116	293	716	959	5215
50	912	689	517	262	67	9	0	6	55	168	577	813	4075
32	463	311	118	25	0	0	0	0	0	5	201	371	1494

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	137	153	168	349	621	829	1020	1029	715	433	187	138	5779
55	17	16	1	18	54	174	315	336	141	8	12	13	1105
57	14	12	0	12	34	135	259	283	112	3	9	7	880
60	5	8	0	6	15	86	184	213	75	1	0	0	593
65	0	0	0	0	2	30	91	122	34	0	0	0	279
70	0	0	0	0	0	7	31	54	13	0	0	0	105

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	15	28	63	186	403	602	795	798	507	267	56	16	15	43	106	292	695	1297	2092	2890	3397	3664	3720	3736
45	0	5	19	101	261	452	640	643	370	161	26	2	0	5	24	125	386	838	1478	2121	2491	2652	2678	2680
50	0	1	2	45	145	308	486	488	244	85	8	0	0	1	3	48	193	501	987	1475	1719	1804	1812	1812
55	0	0	0	16	66	180	334	340	143	36	0	0	0	0	0	16	82	262	596	936	1079	1115	1115	1115
60	0	0	0	3	26	85	192	203	67	11	0	0	0	0	0	3	29	114	306	509	576	587	587	587
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	25	55	138	256	363	497	505	327	187	33	4	0	25	80	218	474	837	1334	1839	2166	2353	2386	2390

(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