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: NEIHART 8 NNW, MT **COOP ID: 246008**

Climate Division: MT 4 **NWS Call Sign:** **Elevation: 5,230 Feet** **Lat: 47˚02N** **Lon: 110˚47W**

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	34.3	13.8	24.1	67	1981	22	35.2	1986	-39	1971	11	9.5	1979	1271	0	.0	.0	2.5	11.3	29.1	7.4
Feb	38.6	17.2	27.9	64	1992	27	36.3	1991	-46	1989	3	11.6	1989	1038	0	.0	.0	4.9	6.8	26.1	4.7
Mar	44.3	21.7	33.0	69	1978	30	41.5	1986	-30	1976	2	26.7	1996	992	0	.0	.0	10.3	4.2	28.0	1.8
Apr	52.8	28.3	40.6	82	1987	28	47.8	1987	-19	1975	1	30.4	1975	734	0	.0	.0	17.9	1.3	23.6	.2
May	61.6	35.8	48.7	85+	1993	11	53.4	1993	11	1972	1	43.7	1974	506	0	.0	.0	26.8	.1	12.9	.0
Jun	70.6	42.6	56.6	96+	1990	30	65.6	1988	19	1969	13	51.3	1998	267	14	.0	.4	29.7	.0	2.4	.0
Jul	78.4	46.7	62.6	94+	2000	31	68.3	1985	28	1972	4	55.3	1993	133	58	.0	1.9	30.9	.0	.3	.0
Aug	79.0	46.4	62.7	97	1969	24	69.5	1971	27	1992	25	56.6	1974	157	86	.0	2.2	30.9	.0	.7	.0
Sep	68.7	39.0	53.9	93+	1998	4	60.8	1990	4+	1985	30	45.4	1985	354	19	.0	.4	27.6	.1	7.9	.0
Oct	57.3	32.0	44.7	89	1992	1	49.1	1988	-9	1991	30	39.0	1984	630	0	.0	.0	23.1	.8	18.0	.3
Nov	41.3	22.5	31.9	73	1999	15	42.2	1999	-26+	1985	27	15.2	1985	994	0	.0	.0	7.3	5.4	25.6	2.5
Dec	35.0	15.6	25.3	60	1969	1	33.6	1991	-44	1983	24	10.5	1983	1231	0	.0	.0	2.4	10.7	29.1	5.6
Ann	55.2	30.1	42.7	97	Aug 1969	24	69.5	Aug 1971	-46	Feb 1989	3	9.5	Jan 1979	8307	177	.0	4.9	214.3	40.7	203.7	22.5

\+ 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: 1967-2001

(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	.95	.88	1.46	1968	1	1.98	1978	.13	1983
Feb	.66	.63	.93	1985	25	1.58	1985	.12	1992
Mar	1.36	1.18	.85+	1987	27	2.80	1981	.51	1986
Apr	1.84	1.63	1.70	1991	11	4.94	1991	.58+	1972
May	3.49	2.93	3.26	1980	25	11.42	1981	.33	1973
Jun	3.32	3.16	2.38	1969	26	7.64	1998	.75	1990
Jul	2.28	1.86	2.40	1983	10	9.49	1993	.16	1984
Aug	2.14	1.81	1.70	1993	29	5.77	1974	.33	2000
Sep	1.98	1.83	1.85	1978	12	5.91	1985	.00	1990
Oct	1.38	1.31	1.27	1981	12	2.85	1975	.29	1987
Nov	1.01	1.03	1.09	1993	4	1.90	1976	.21	1971
Dec	1.01	.91	.75+	1973	25	2.85	1989	.26+	1995
Ann	21.42	20.41	3.26	May 1980	25	11.42	May 1981	.00	Sep 1990

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.8	3.6	.3	.0
Feb	5.3	2.6	.1	.0
Mar	7.6	4.5	.5	@
Apr	7.9	5.2	.9	.3
May	10.9	7.5	2.2	.6
Jun	11.2	7.9	1.9	.6
Jul	8.7	5.7	1.2	.3
Aug	8.4	5.5	1.4	.3
Sep	7.2	5.3	1.3	.3
Oct	6.2	4.3	.8	.1
Nov	6.2	3.6	.3	.1
Dec	6.2	3.9	.3	.0
Ann	92.6	59.6	11.2	2.6

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	.34	.43	.56	.67	.77	.88	.99	1.13	1.29	1.56	1.80
Feb	.18	.24	.34	.42	.50	.59	.68	.80	.94	1.17	1.38
Mar	.50	.63	.81	.97	1.11	1.26	1.42	1.61	1.85	2.22	2.56
Apr	.51	.68	.95	1.18	1.41	1.65	1.91	2.22	2.63	3.26	3.86
May	.82	1.15	1.66	2.12	2.57	3.05	3.59	4.23	5.07	6.40	7.66
Jun	1.10	1.42	1.88	2.27	2.65	3.03	3.46	3.96	4.60	5.59	6.50
Jul	.28	.46	.78	1.10	1.44	1.81	2.25	2.78	3.51	4.71	5.87
Aug	.45	.64	.96	1.24	1.53	1.84	2.18	2.60	3.15	4.03	4.86
Sep	.36	.63	.97	1.23	1.50	1.77	2.07	2.43	2.89	3.61	4.29
Oct	.39	.53	.72	.90	1.06	1.24	1.43	1.66	1.96	2.43	2.86
Nov	.30	.40	.54	.67	.79	.91	1.05	1.21	1.42	1.75	2.05
Dec	.29	.39	.53	.66	.78	.91	1.05	1.22	1.43	1.77	2.09
Ann	13.28	14.77	16.73	18.25	19.62	20.96	22.36	23.93	25.85	28.68	31.17

\+ 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: 1967-2001
(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	16.0	16.5	10	9
Feb	11.1	10.5	10	11
Mar	18.1	16.5	7	6
Apr	15.2	11.8	3	1
May	6.9	1.6	1	#
Jun	.3	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	3.0	.0	#	0
Oct	9.2	8.5	1	#
Nov	8.8	6.0	2	2
Dec	14.9	12.0	6	5
Ann	103.5	83.4	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	11.0	1981	25	28.5	1984	29	1994	31	21+	1979
Feb	10.0	1985	25	19.0	1988	31	1994	1	23+	1994
Mar	16.0	1988	28	37.0	1988	42	1977	30	22	1985
Apr	20.0	1991	28	63.0	1991	36	1975	9	14	1975
May	18.0	1981	12	38.5	1982	35	1982	30	6	1974
Jun	6.0	1981	14	6.0	1981	16	1982	1	1	1982
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	1.0	1992	23	1.0	1992	0	0	0	0	0
Sep	12.0	1988	18	19.0	1988	12	1988	18	1	1988
Oct	13.5	1981	12	25.0	1981	14	1981	12	3	1984
Nov	15.0	1993	4	21.5	1983	20	1976	29	8	1978
Dec	12.0	1991	2	33.0	1982	25	1993	23	16	1978
Ann	20.0	Apr 1991	28	63.0	Apr 1991	42	Mar 1977	30	23+	Feb 1994

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.8	4.7	1.5	.9	.2
Feb	4.7	3.6	1.4	.6	.1
Mar	6.8	5.6	2.8	1.2	.1
Apr	3.7	3.3	1.8	1.0	.2
May	1.2	1.1	.9	.5	.2
Jun	.1	.1	.1	.1	.0
Jul	.0	.0	.0	.0	.0
Aug	@	@	.0	.0	.0
Sep	.6	.6	.4	.2	@
Oct	2.7	2.3	1.2	.6	.1
Nov	4.7	3.8	1.5	.8	.2
Dec	6.1	5.2	2.2	1.0	.1
Ann	36.4	30.3	13.8	6.9	1.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	28.4	27.2	24.7	13.0
Feb	23.7	21.5	18.4	10.2
Mar	16.6	13.1	10.5	5.8
Apr	6.6	4.7	3.2	1.3
May	1.4	.9	.7	.4
Jun	.2	.2	.2	.1
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.6	.4	.2	.1
Oct	3.4	1.8	1.1	.2
Nov	11.5	7.2	4.8	1.1
Dec	22.8	18.1	14.8	7.3
Ann	115.2	95.1	78.6	39.5

+ 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	7/26	7/20	7/16	7/12	7/09	7/05	7/02	6/27	6/21
32	7/08	7/01	6/25	6/20	6/16	6/12	6/07	6/01	5/25
28	6/12	6/06	6/01	5/28	5/24	5/21	5/17	5/12	5/06
24	5/19	5/14	5/11	5/08	5/05	5/02	4/29	4/26	4/21
20	5/09	5/03	4/29	4/25	4/22	4/19	4/15	4/11	4/05
16	4/29	4/23	4/19	4/16	4/13	4/09	4/06	4/02	3/27

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	8/03	8/09	8/13	8/17	8/20	8/24	8/28	9/01	9/07
32	8/19	8/25	8/29	9/02	9/05	9/09	9/12	9/17	9/23
28	9/04	9/09	9/12	9/14	9/17	9/19	9/22	9/25	9/29
24	9/14	9/19	9/23	9/26	9/29	10/02	10/06	10/10	10/15
20	9/20	9/26	9/30	10/04	10/07	10/10	10/14	10/18	10/24
16	9/30	10/05	10/10	10/13	10/17	10/20	10/24	10/28	11/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	69	60	53	47	42	37	31	24	15
32	113	102	94	87	80	74	67	59	47
28	140	131	125	120	115	110	104	98	89
24	171	162	156	151	146	142	137	131	122
20	192	184	178	172	167	162	157	151	142
16	211	202	196	191	186	182	176	170	162

***** 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	1271	1038	992	734	506	267	133	157	354	630	994	1231	8307
60	1116	898	837	584	355	152	56	81	233	476	844	1076	6708
57	1023	814	744	497	271	99	26	48	173	384	754	983	5816
55	961	758	682	440	219	71	15	33	137	323	698	921	5258
50	815	623	529	306	114	23	2	11	67	187	558	774	4009
32	342	212	104	28	1	0	0	0	0	4	170	306	1167

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	94	98	135	284	517	737	948	951	655	397	166	98	5080
55	0	0	0	7	23	118	250	271	102	3	4	0	778
57	0	0	0	3	13	87	199	225	77	1	0	0	605
60	0	0	0	0	4	49	135	164	48	0	0	0	400
65	0	0	0	0	0	14	58	86	19	0	0	0	177
70	0	0	0	0	0	2	16	33	6	0	0	0	57

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	4	12	35	108	272	480	686	688	414	195	36	4	4	16	51	159	431	911	1597	2285	2699	2894	2930	2934
45	0	0	6	50	154	333	531	534	282	105	14	0	0	0	6	56	210	543	1074	1608	1890	1995	2009	2009
50	0	0	0	13	73	206	379	380	171	47	1	0	0	0	0	13	86	292	671	1051	1222	1269	1270	1270
55	0	0	0	1	28	106	231	241	84	13	0	0	0	0	0	1	29	135	366	607	691	704	704	704
60	0	0	0	0	1	39	115	118	31	2	0	0	0	0	0	0	1	40	155	273	304	306	306	306
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	6	30	96	202	319	453	458	296	156	25	1	1	7	37	133	335	654	1107	1565	1861	2017	2042	2043

(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