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: BLACK MOUNTAIN, WY **COOP ID: 480778**

Climate Division: WY 4 **NWS Call Sign:** **Elevation: 5,635 Feet** **Lat: 43˚39N** **Lon: 107˚44W**

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	34.5	14.6	24.6	60	1981	23	35.8	1981	-24	1972	26	11.7	1979	1254	0	.0	.0	2.2	10.9	29.3	5.4
Feb	38.9	18.3	28.6	65	1995	22	36.3	1991	-36+	1989	5	14.0	1989	1020	0	.0	.0	4.6	6.7	25.8	3.1
Mar	45.2	24.3	34.8	73	1986	31	41.1+	1992	-12+	1989	4	26.5	1996	938	0	.0	.0	11.5	4.1	25.8	.9
Apr	54.1	31.9	43.0	81+	2000	29	50.3	1987	4	1997	12	35.0	1975	661	0	.0	.0	19.3	1.0	17.5	.0
May	63.9	40.6	52.3	89	1985	25	60.3	1994	16	1967	1	44.9	1995	408	12	.0	.0	27.3	.1	5.8	.0
Jun	76.5	49.8	63.2	102	1988	25	73.5	1988	28+	1998	4	54.9	1998	152	96	@	2.7	29.6	.0	.5	.0
Jul	86.1	56.9	71.5	101+	1998	20	77.2	2000	37+	1983	16	63.3	1993	32	233	.3	11.6	31.0	.0	.0	.0
Aug	84.5	55.6	70.1	102	2001	6	75.7	2000	35	1981	31	63.6	1987	48	204	@	8.6	31.0	.0	.0	.0
Sep	71.7	44.4	58.1	95+	2000	16	66.0	1990	10	1984	26	50.0	1985	260	52	.0	1.2	28.0	.1	4.3	.0
Oct	58.4	33.9	46.2	86	1988	12	53.9	1979	0	1991	30	40.6	1971	586	1	.0	.0	24.0	.8	14.3	@
Nov	42.9	23.0	33.0	71+	1999	14	44.4	1999	-19	1986	10	19.7	1985	961	0	.0	.0	9.3	5.5	24.4	1.3
Dec	35.8	16.6	26.2	62	1965	5	34.6	1980	-34	1972	10	12.0	1983	1202	0	.0	.0	3.4	10.1	29.0	3.6
Ann	57.7	34.2	46.0	102+	Aug 2001	6	77.2	Jul 2000	-36+	Feb 1989	5	11.7	Jan 1979	7522	598	.3	24.1	221.2	39.3	176.7	14.3

\+ 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: 1963-2001

(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	.58	.49	.79	1972	3	1.80	1972	.00+	1992
Feb	.49	.48	.57	1967	15	1.28	1986	.00	1999
Mar	1.14	.97	1.20	1998	18	3.17	1998	.11	1979
Apr	1.83	1.62	2.35	1978	28	4.12	1984	.05	1987
May	2.42	2.18	2.08	1978	18	6.78	1978	.38	1994
Jun	1.70	1.48	1.83	1964	22	5.85	1993	.12	1978
Jul	1.09	1.00	1.26	1990	21	3.68	1997	.00	1988
Aug	.77	.51	1.38	1968	10	2.60	1976	.00	1985
Sep	1.30	1.08	1.52	1995	30	3.94	1982	.00	1979
Oct	1.50	1.37	1.35	1994	16	4.60	1998	.00	1984
Nov	.82	.73	.92	1990	2	2.51	1983	.09	1997
Dec	.60	.55	.80	1982	2	2.11	1982	.06	1980
Ann	14.24	14.07	2.35	Apr 1978	28	6.78	May 1978	.00+	Feb 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	2.3	.2	.0
Feb	4.1	1.9	.0	.0
Mar	6.2	3.6	.5	@
Apr	6.9	5.1	1.0	.2
May	7.5	5.4	1.6	.5
Jun	6.5	4.0	1.2	.2
Jul	4.8	3.0	.7	.1
Aug	4.3	2.2	.4	.0
Sep	4.8	3.0	1.0	.2
Oct	4.8	3.8	1.1	.2
Nov	4.7	2.8	.4	.0
Dec	5.0	2.3	.1	.0
Ann	63.9	39.4	8.2	1.4

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	.00	.09	.21	.30	.39	.49	.60	.73	.90	1.18	1.45
Feb	.06	.12	.20	.27	.34	.42	.50	.61	.75	.97	1.18
Mar	.21	.31	.48	.63	.79	.96	1.15	1.39	1.70	2.20	2.67
Apr	.30	.46	.72	.97	1.23	1.52	1.84	2.23	2.76	3.61	4.42
May	.60	.83	1.18	1.49	1.80	2.13	2.50	2.93	3.50	4.40	5.25
Jun	.26	.41	.65	.89	1.13	1.40	1.70	2.08	2.58	3.40	4.18
Jul	.03	.11	.25	.41	.58	.78	1.03	1.34	1.76	2.49	3.20
Aug	.04	.10	.22	.33	.45	.59	.75	.94	1.22	1.66	2.10
Sep	.06	.17	.37	.56	.76	.99	1.26	1.60	2.07	2.84	3.59
Oct	.08	.22	.46	.68	.91	1.17	1.48	1.85	2.37	3.21	4.03
Nov	.16	.23	.35	.46	.58	.70	.83	1.00	1.22	1.57	1.90
Dec	.10	.16	.24	.33	.41	.50	.60	.73	.90	1.16	1.42
Ann	8.79	9.79	11.10	12.12	13.04	13.94	14.88	15.93	17.22	19.12	20.79

\+ 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: 1963-2001
(3) Derived from 1971-2000 serially complete daily data

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Climate Division: WY 4 **NWS Call Sign:** **Elevation: 5,635 Feet** **Lat: 43°39N** **Lon: 107°44W**

Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

Snow Fall >= Thresholds

Snow Depth >= Thresholds

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	9.2	7.3	4	3	16.0	1972	3	30.0	1972	19	1973	8	13	1979	3.7	2.8	1.0	.5	.1	21.7	13.8	8.9	4.0
Feb	6.0	6.0	3	2	8.0	1977	23	14.0	1994	15	1986	15	6+	1993	3.3	2.7	.5	.1	.0	17.1	9.1	4.1	.0
Mar	10.5	8.5	2	1	12.0	1998	18	41.0	1977	20	1977	30	5	1977	4.7	4.3	1.5	.4	@	12.3	5.5	1.8	.4
Apr	8.2	7.8	1	#	10.0	1973	19	35.4	1973	23	1973	21	5	1991	3.4	2.9	1.0	.4	@	4.9	2.5	1.7	.8
May	3.7	1.3	#	#	14.0	1975	7	26.0+	1978	16	1975	7	1	1978	1.1	1.0	.5	.2	@	1.2	.7	.2	@
Jun	.6	.0	#	0	9.5	1976	14	9.5	1976	7	1998	4	#+	1998	.1	.1	.1	.1	.0	.1	.1	@	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	#	1990	5	#	1990	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.7	.0	#	0	19.0	1982	14	19.0	1982	19	1982	14	1	1982	.4	.3	.1	@	@	.3	.1	.1	@
Oct	6.2	4.0	#	#	14.0	1991	28	36.0	1971	14	1991	29	3	1971	1.8	1.6	.7	.4	@	2.0	1.3	.8	.3
Nov	9.1	9.0	2	2	12.0	1978	10	19.5	1994	16	1983	30	8	1983	3.4	2.8	1.0	.4	@	12.4	6.4	3.2	.6
Dec	9.3	7.6	3	2	9.0	1972	30	27.5	1978	16+	1982	9	13	1978	3.8	3.3	.9	.2	.0	20.5	11.4	6.0	1.9
Ann	63.5	51.5	N/A	N/A	19.0	Sep 1982	14	41.0	Mar 1977	23	Apr 1973	21	13+	Jan 1979	25.7	21.8	7.3	2.7	.1	92.5	50.9	26.8	8.0

+ 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	6/19	6/13	6/08	6/05	6/01	5/29	5/25	5/21	5/15
32	6/13	6/06	6/01	5/28	5/24	5/20	5/15	5/10	5/03
28	5/27	5/20	5/15	5/11	5/07	5/03	4/29	4/24	4/17
24	5/09	5/02	4/27	4/23	4/18	4/14	4/10	4/05	3/28
20	5/05	4/28	4/22	4/18	4/14	4/09	4/05	3/30	3/23
16	4/22	4/13	4/07	4/02	3/29	3/24	3/19	3/13	3/04

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	8/31	9/05	9/09	9/13	9/16	9/19	9/22	9/26	10/01
32	9/10	9/14	9/18	9/20	9/23	9/26	9/29	10/02	10/06
28	9/15	9/20	9/24	9/27	10/01	10/04	10/07	10/11	10/16
24	9/23	9/30	10/05	10/09	10/13	10/17	10/21	10/26	11/02
20	10/02	10/10	10/15	10/20	10/24	10/28	11/02	11/07	11/14
16	10/10	10/18	10/24	10/28	11/02	11/06	11/11	11/17	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	131	122	116	111	106	101	95	89	81
32	147	139	132	127	122	117	111	105	96
28	173	164	157	151	146	141	135	128	119
24	210	198	190	183	177	170	164	155	144
20	228	216	207	200	193	186	178	169	157
16	259	245	235	226	218	209	201	190	176

***** 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	1254	1020	938	661	408	152	32	48	260	586	961	1202	7522
60	1099	880	783	515	276	80	10	17	163	436	811	1047	6117
57	1006	796	690	431	209	49	3	8	117	350	721	954	5334
55	944	740	628	377	170	34	1	4	91	297	661	892	4839
50	789	600	477	254	91	12	0	1	42	181	521	744	3712
32	301	186	84	20	1	0	0	0	0	6	133	280	1011

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	71	90	169	349	628	934	1225	1179	782	443	162	101	6133
55	0	0	0	17	85	278	513	470	183	22	0	0	1568
57	0	0	0	10	62	234	453	411	149	13	0	0	1332
60	0	0	0	5	36	174	366	328	106	6	0	0	1021
65	0	0	0	0	12	96	233	204	52	1	0	0	598
70	0	0	0	0	3	43	132	110	21	0	0	0	309

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	1	16	52	173	403	706	976	934	560	248	56	9	1	17	69	242	645	1351	2327	3261	3821	4069	4125	4134
45	0	1	17	94	274	559	821	779	419	147	20	0	0	1	18	112	386	945	1766	2545	2964	3111	3131	3131
50	0	0	0	48	164	414	666	624	296	77	3	0	0	0	0	48	212	626	1292	1916	2212	2289	2292	2292
55	0	0	0	14	83	282	513	472	189	30	0	0	0	0	0	14	97	379	892	1364	1553	1583	1583	1583
60	0	0	0	2	31	166	362	325	101	8	0	0	0	0	0	2	33	199	561	886	987	995	995	995
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	8	40	117	243	445	628	603	361	171	30	5	0	8	48	165	408	853	1481	2084	2445	2616	2646	2651

(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

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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