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: BASIN, WY **COOP ID: 480540**

Climate Division: WY 4 **NWS Call Sign:** **Elevation: 3,837 Feet** **Lat: 44˚23N** **Lon: 108˚02W**

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	27.4	1.7	14.6	62	1953	9	28.3	1981	-43	1951	30	-7.2	1979	1565	0	.0	.0	.9	16.9	31.0	13.5
Feb	37.6	10.3	24.0	73	1982	21	33.8	1999	-41	1996	2	9.1	1989	1150	0	.0	.0	4.9	7.5	28.1	6.1
Mar	51.0	23.0	37.0	80+	1986	30	44.8	1986	-25	1978	3	27.3	1996	868	0	.0	.0	18.8	2.2	27.5	.8
Apr	61.6	32.7	47.2	89+	1989	22	53.0	1987	5+	1983	6	39.2	1975	535	0	.0	.0	25.6	.1	15.1	.0
May	71.4	42.3	56.9	97	1969	27	62.2	1994	18+	1984	25	50.8	1983	268	16	.0	.8	30.1	.0	3.3	.0
Jun	82.4	50.9	66.7	110	1981	30	74.6	1988	30+	1982	7	59.5	1998	75	124	.9	8.2	30.0	.0	.1	.0
Jul	89.8	56.0	72.9	106	1954	11	76.7	1974	39	1972	4	64.8	1993	14	259	2.3	18.1	31.0	.0	.0	.0
Aug	88.6	53.5	71.1	112	1983	7	78.4	1983	27	1956	4	66.7	1993	27	215	1.1	16.1	31.0	.0	.0	.0
Sep	76.3	42.4	59.4	102+	1950	4	66.1	1998	16	1984	25	54.4	1985	206	37	@	3.6	29.2	.0	3.6	.0
Oct	62.5	31.8	47.2	90+	1957	1	51.3	1973	-1+	1991	31	44.6	1991	555	0	.0	.0	27.1	.4	18.2	.1
Nov	43.1	18.2	30.7	77	1999	1	39.3	1999	-28	1959	16	17.6	2000	1030	0	.0	.0	10.5	5.5	28.7	2.4
Dec	30.6	5.9	18.3	67	1995	2	28.3	1980	-43	1978	31	3.9	1978	1450	0	.0	.0	2.2	14.5	30.9	9.1
Ann	60.2	30.7	45.5	112	Aug 1983	7	78.4	Aug 1983	-43+	Dec 1978	31	-7.2	Jan 1979	7743	651	4.3	46.8	241.3	47.1	186.5	32.0

\+ 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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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	.25	.23	.50	1986	21	.72	1996	.00	1983
Feb	.16	.11	.31	1998	10	.81	1978	.00+	1992
Mar	.33	.24	.95	1989	17	1.07	1989	.00	1997
Apr	.71	.59	1.17	1978	28	1.97	1988	.00	1979
May	1.30	1.02	2.00	1988	7	2.95	1975	.22	1998
Jun	1.00	.89	1.15	1997	14	3.62	1997	.16	1971
Jul	.60	.56	.95	1990	21	2.26	1993	.00+	1996
Aug	.44	.39	1.03	1962	10	1.25	1979	.00	1975
Sep	.81	.74	1.40	1994	15	2.23	1973	.00+	1979
Oct	.61	.33	1.20	1993	8	2.81	1971	.00	1996
Nov	.28	.24	.50+	1979	5	.91	1986	.00+	1981
Dec	.28	.19	.90	1989	15	1.71	1989	.00+	1986
Ann	6.77	6.70	2.00	May 1988	7	3.62	Jun 1997	.00+	Mar 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.0	1.0	@	.0
Feb	2.2	.7	.0	.0
Mar	2.7	1.2	@	.0
Apr	4.6	2.1	.3	.1
May	6.5	3.8	.6	.1
Jun	5.9	3.5	.4	@
Jul	3.6	1.7	.3	.0
Aug	3.4	1.4	.1	@
Sep	4.6	2.4	.5	@
Oct	3.1	1.8	.2	.1
Nov	3.0	1.0	.1	.0
Dec	3.2	1.0	@	.0
Ann	45.8	21.6	2.5	.3

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	.04	.07	.11	.15	.19	.24	.30	.39	.53	.66
Feb	.00	.00	.00	.04	.07	.11	.15	.20	.28	.40	.52
Mar	.01	.03	.08	.13	.18	.24	.31	.40	.53	.74	.95
Apr	.07	.16	.28	.38	.48	.60	.73	.88	1.09	1.42	1.74
May	.22	.33	.52	.70	.89	1.09	1.31	1.59	1.96	2.56	3.13
Jun	.20	.29	.44	.57	.71	.85	1.02	1.22	1.48	1.90	2.30
Jul	.00	.04	.13	.22	.32	.44	.57	.74	.98	1.39	1.78
Aug	.02	.05	.11	.17	.24	.32	.42	.54	.70	.98	1.25
Sep	.00	.06	.19	.32	.45	.60	.78	1.01	1.32	1.83	2.33
Oct	.01	.03	.10	.18	.28	.39	.54	.73	1.00	1.46	1.94
Nov	.00	.04	.09	.13	.18	.23	.28	.35	.44	.59	.73
Dec	.00	.00	.03	.08	.13	.19	.26	.34	.47	.67	.87
Ann	4.42	4.86	5.43	5.87	6.27	6.65	7.05	7.49	8.04	8.83	9.53

\+ 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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Climate Division: WY 4 **NWS Call Sign:** **Elevation: 3,837 Feet** **Lat: 44°23N** **Lon: 108°02W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	4.1	4.1	3	2
Feb	2.5	1.0	2	1
Mar	2.3	1.3	#	#
Apr	1.3	.0	#	0
May	.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.3	.0	#	0
Oct	.6	.0	#	0
Nov	2.1	.8	1	#
Dec	4.0	3.2	2	1
Ann	17.3	10.4	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	5.5	1980	18	11.5	1978	11	1979	31	9	1979
Feb	5.0	1994	24	18.8	1978	13	1979	15	11	1979
Mar	6.0	1989	17	12.0	1998	12	1979	3	3	1996
Apr	8.0	1975	7	11.0	1975	4	1991	14	#+	1999
May	3.2	1983	11	3.2	1983	#	1985	17	#	1985
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	2000	22	6.0	2000	12	1984	24	1	1984
Oct	6.0	1971	28	6.5	1971	6	1991	31	1	1991
Nov	5.0	1976	29	8.5	1975	10	1978	13	4	1978
Dec	9.0	1989	15	18.7	1989	13	1989	16	9	1978
Ann	9.0	Dec 1989	15	18.8	Feb 1978	13+	Dec 1989	16	11	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.7	1.8	.4	.1	.0
Feb	1.8	1.2	.3	@	.0
Mar	1.4	1.0	.2	.1	.0
Apr	.7	.5	.1	@	.0
May	@	@	@	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.2	.1	@	.0	.0
Oct	.2	.1	.1	.1	.0
Nov	1.5	.9	.2	@	.0
Dec	2.5	1.9	.4	.1	.0
Ann	11.0	7.5	1.7	.4	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	18.0	7.4	2.4	.0
Feb	8.8	2.8	.7	.0
Mar	1.8	1.0	.6	.0
Apr	.3	.1	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	@	.0	.0
Oct	.2	.2	.2	.0
Nov	3.0	1.0	.2	.0
Dec	10.3	4.6	2.0	.2
Ann	42.5	17.1	6.1	.2

+ 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	6/13	6/06	6/02	5/29	5/25	5/21	5/17	5/13	5/06
32	5/31	5/25	5/20	5/17	5/13	5/09	5/06	5/01	4/25
28	5/14	5/09	5/06	5/03	5/01	4/28	4/26	4/23	4/18
24	5/05	4/30	4/26	4/22	4/19	4/16	4/12	4/08	4/02
20	4/30	4/23	4/18	4/14	4/10	4/06	4/01	3/27	3/20
16	4/19	4/12	4/07	4/02	3/29	3/25	3/21	3/16	3/09

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	9/15	9/17	9/20	9/23
32	9/09	9/13	9/16	9/18	9/20	9/23	9/25	9/28	10/02
28	9/18	9/23	9/26	9/29	10/02	10/05	10/08	10/11	10/16
24	9/27	10/02	10/06	10/09	10/12	10/15	10/19	10/22	10/28
20	10/07	10/12	10/15	10/19	10/21	10/24	10/27	10/31	11/05
16	10/18	10/23	10/27	10/30	11/02	11/05	11/08	11/12	11/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	133	125	120	115	111	106	102	96	88
32	152	144	139	134	130	125	121	115	107
28	175	168	162	158	153	149	145	139	132
24	204	194	187	181	176	170	164	157	148
20	223	213	206	200	194	188	182	175	165
16	245	235	228	222	217	211	205	198	189

***** 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	1565	1150	868	535	268	75	14	27	206	555	1030	1450	7743
60	1410	1010	713	390	151	26	2	6	107	400	880	1295	6390
57	1317	926	620	308	97	12	0	2	64	309	790	1202	5647
55	1255	875	559	257	69	6	0	1	42	250	732	1140	5186
50	1101	744	414	149	23	0	0	0	10	127	593	986	4147
32	591	334	68	2	0	0	0	0	0	3	196	485	1679

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	49	108	223	458	771	1040	1268	1211	821	471	156	58	6634
55	0	5	1	22	127	356	555	499	173	6	3	0	1747
57	0	0	0	13	93	302	493	438	135	2	0	0	1476
60	0	0	0	5	54	226	401	349	88	0	0	0	1123
65	0	0	0	0	16	124	259	215	37	0	0	0	651
70	0	0	0	0	3	55	141	110	11	0	0	0	320

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	0	8	79	251	531	800	1021	964	589	250	29	1	0	8	87	338	869	1669	2690	3654	4243	4493	4522	4523
45	0	1	32	148	386	650	866	809	446	140	6	0	0	1	33	181	567	1217	2083	2892	3338	3478	3484	3484
50	0	0	8	72	251	502	711	655	309	61	1	0	0	0	8	80	331	833	1544	2199	2508	2569	2570	2570
55	0	0	0	25	138	359	556	502	191	18	0	0	0	0	0	25	163	522	1078	1580	1771	1789	1789	1789
60	0	0	0	7	62	227	405	348	96	4	0	0	0	0	0	7	69	296	701	1049	1145	1149	1149	1149
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	13	95	205	350	501	632	598	406	221	43	4	0	13	108	313	663	1164	1796	2394	2800	3021	3064	3068

(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