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: BONDURANT, WY **COOP ID: 480865**

Climate Division: WY 2 **NWS Call Sign:** **Elevation: 6,535 Feet** **Lat: 43˚14N** **Lon: 110˚26W**

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	22.4	-6.2	8.1	46+	1977	19	14.7	1999	-56	1951	30	-3.0	1979	1766	0	.0	.0	.0	24.4	31.0	18.5
Feb	27.9	-3.8	12.1	54	1977	20	21.3	1995	-57	1951	1	3.3	1985	1483	0	.0	.0	.1	18.2	28.2	16.5
Mar	36.8	5.7	21.3	60	1977	23	28.4	1992	-39	1976	5	9.9	1976	1356	0	.0	.0	1.0	6.3	30.8	9.8
Apr	46.3	18.6	32.5	77+	1977	25	38.7	1992	-23	1975	1	25.4	1982	977	0	.0	.0	10.8	.7	29.1	1.4
May	59.7	28.6	44.2	82+	1967	23	48.1	1987	7	1966	23	40.5	1983	648	0	.0	.0	26.5	.0	23.7	.0
Jun	69.4	32.1	50.8	89+	1990	30	56.8	1977	13	1969	1	47.4	1998	427	0	.0	.0	29.4	.0	18.6	.0
Jul	77.4	35.3	56.4	93	2000	31	60.2	1998	18	1993	13	49.3	1993	271	3	.0	.3	31.0	.0	12.7	.0
Aug	76.7	33.7	55.2	93+	2000	2	58.9	1971	12+	1960	28	51.1	1975	307	3	.0	.1	31.0	.0	14.8	.0
Sep	67.3	25.6	46.5	89	1950	4	52.5	1998	3	1985	30	41.8	1972	556	0	.0	.0	28.5	.0	23.6	.0
Oct	54.4	16.8	35.6	79	2001	1	40.5	1988	-14+	1991	30	29.6	1984	912	0	.0	.0	21.8	.6	29.5	.5
Nov	35.7	7.1	21.4	66	1999	7	28.9	1995	-39	1955	16	15.4	1975	1309	0	.0	.0	3.4	10.5	29.6	8.8
Dec	22.3	-6.4	8.0	49+	1995	2	15.8	1980	-51	1972	10	.1	1984	1770	0	.0	.0	.0	25.3	31.0	19.1
Ann	49.7	15.6	32.7	93+	Aug 2000	2	60.2	Jul 1998	-57	Feb 1951	1	-3.0	Jan 1979	11782	6	.0	.4	183.5	86.0	302.6	74.6

\+ 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	2.41	2.25	2.10	1950	28	5.09	1998	.01	1992
Feb	1.94	1.62	1.85	1950	20	6.55	1986	.07	1977
Mar	1.66	1.48	1.80	1950	6	4.37	1974	.19	1977
Apr	1.20	.98	1.35	1990	28	4.46	1972	.07	1977
May	1.67	1.41	1.31+	1964	27	3.48	1995	.11	1976
Jun	1.56	1.42	1.32	1998	5	4.71	1998	.30	1990
Jul	1.42	1.17	1.30	1977	24	3.49	1984	.13	1979
Aug	1.34	1.25	1.58	1995	24	3.20	1977	.32	1996
Sep	1.35	1.19	1.51	1973	8	3.91	1982	.00	1974
Oct	1.35	1.19	1.39	1975	26	6.52	1971	.07	1978
Nov	2.07	1.45	1.26	2001	25	6.20	1973	.30	1976
Dec	2.20	1.71	1.66	1964	23	6.40	1971	.08	1986
Ann	20.17	19.07	2.10	Jan 1950	28	6.55	Feb 1986	.00	Sep 1974

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.2	6.7	1.3	.1
Feb	8.8	5.6	1.1	.1
Mar	9.6	4.7	.8	.1
Apr	7.7	3.4	.4	.1
May	11.4	5.4	.4	.0
Jun	8.8	4.2	.5	.1
Jul	7.5	4.0	.6	.1
Aug	7.7	4.2	.5	@
Sep	7.1	4.0	.6	.1
Oct	6.4	3.6	.6	.1
Nov	9.6	5.8	1.1	.1
Dec	10.1	6.0	1.4	.1
Ann	105.9	57.6	9.3	1.0

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	.22	.39	.71	1.05	1.41	1.83	2.32	2.94	3.79	5.20	6.59
Feb	.24	.39	.66	.93	1.22	1.54	1.91	2.37	2.99	4.02	5.01
Mar	.34	.49	.73	.96	1.18	1.42	1.69	2.02	2.45	3.14	3.79
Apr	.20	.30	.48	.64	.81	1.00	1.21	1.46	1.81	2.36	2.89
May	.39	.54	.79	1.01	1.22	1.45	1.71	2.02	2.43	3.07	3.68
Jun	.29	.43	.66	.87	1.08	1.32	1.58	1.90	2.32	3.00	3.65
Jul	.25	.37	.58	.77	.97	1.18	1.43	1.73	2.13	2.77	3.38
Aug	.39	.52	.71	.87	1.04	1.20	1.39	1.61	1.89	2.34	2.75
Sep	.09	.23	.44	.64	.85	1.08	1.34	1.67	2.11	2.84	3.54
Oct	.14	.24	.43	.62	.82	1.05	1.31	1.64	2.10	2.85	3.58
Nov	.35	.53	.83	1.12	1.41	1.72	2.09	2.52	3.11	4.06	4.97
Dec	.20	.35	.65	.95	1.29	1.67	2.12	2.69	3.46	4.77	6.04
Ann	11.38	12.93	15.00	16.63	18.11	19.57	21.10	22.84	24.98	28.16	30.98

\+ 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	31.4	31.3	25	26
Feb	19.8	13.6	29	29
Mar	15.8	17.0	27	29
Apr	4.5	3.0	12	11
May	.8	.0	#	#
Jun	.3	.0	#	0
Jul	#	.0	0	0
Aug	.0	.0	0	0
Sep	.3	.0	#	0
Oct	2.3	.3	#	#
Nov	20.2	18.5	5	4
Dec	29.2	25.3	17	17
Ann	124.6	109.0	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	20.0	1980	10	82.1	1998	65	1978	18	60	1978
Feb	14.0	1986	13	70.6	1999	69	1978	11	57	1978
Mar	13.0	1976	1	38.4	1971	56	1999	1	48	1999
Apr	7.0	1972	19	15.6	1999	47	1999	2	33	1999
May	3.5	1971	17	4.0	1975	14	1999	1	2	1999
Jun	4.5	1998	5	4.5	1998	4	1998	5	#+	1999
Jul	#	1975	2	#	1975	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	3.0	1982	14	3.0+	1982	1+	2000	23	#+	2000
Oct	16.0	1975	26	19.0	1975	16	1975	26	2	1975
Nov	14.0	1986	17	51.0	1985	32	1985	25	13	1985
Dec	15.5	1998	28	59.9	1971	50	1977	31	35	1996
Ann	20.0	Jan 1980	10	82.1	Jan 1998	69	Feb 1978	11	60	Jan 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	9.8	8.5	3.9	1.9	.4
Feb	7.6	6.1	3.0	1.7	.2
Mar	6.4	5.1	1.8	.7	.1
Apr	1.8	1.5	.5	.2	.0
May	.7	.5	.1	.0	.0
Jun	.1	.1	@	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.3	.2	@	.0	.0
Oct	.9	.7	.2	.1	@
Nov	6.9	6.0	2.4	1.0	.2
Dec	8.9	7.2	3.4	1.7	.4
Ann	43.4	35.9	15.3	7.3	1.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	30.1	30.1	28.7	27.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	19.3	18.1	16.6	12.5
May	.6	.2	@	.0
Jun	.1	@	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.2	.0	.0	.0
Oct	.7	.4	.2	.1
Nov	18.1	11.9	8.4	4.6
Dec	29.2	27.8	27.0	18.4
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

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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	8/03	8/01	7/31	7/30	7/29	7/28	7/27	7/26	7/24
32	8/02	7/31	7/30	7/28	7/27	7/26	7/24	7/22	7/20
28	7/28	7/24	7/20	7/17	7/14	7/11	7/08	7/05	6/30
24	7/17	7/10	7/05	7/01	6/27	6/23	6/19	6/14	6/07
20	6/29	6/19	6/12	6/06	5/31	5/26	5/20	5/13	5/03
16	6/01	5/24	5/18	5/13	5/09	5/04	4/30	4/24	4/16

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	7/31	7/31	8/01	8/02	8/02	8/03	8/04	8/04	8/06
32	7/29	7/31	8/02	8/03	8/05	8/06	8/07	8/09	8/12
28	7/30	8/02	8/06	8/09	8/11	8/14	8/17	8/20	8/25
24	8/06	8/12	8/16	8/20	8/24	8/27	8/31	9/04	9/10
20	8/17	8/23	8/28	8/31	9/04	9/08	9/12	9/16	9/23
16	9/02	9/07	9/11	9/14	9/17	9/20	9/24	9/27	10/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	10	8	6	5	4	2	1	0	0
32	20	16	13	10	8	6	3	0	0
28	47	41	35	31	27	23	19	14	7
24	84	75	68	62	57	51	45	39	29
20	126	115	108	101	95	89	82	75	64
16	161	150	143	137	131	125	118	111	100

***** 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	1766	1483	1356	977	648	427	271	307	556	912	1309	1770	11782
60	1611	1343	1201	827	493	281	138	170	408	757	1159	1615	10003
57	1518	1259	1108	737	400	199	80	107	323	664	1069	1522	8986
55	1456	1203	1046	677	338	151	50	74	269	602	1009	1460	8335
50	1301	1063	891	528	194	60	10	21	152	447	859	1305	6831
32	743	560	355	111	2	0	0	0	0	39	341	747	2898

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	0	1	22	125	377	563	755	719	435	151	22	0	3170
55	0	0	0	0	0	23	92	79	13	0	0	0	207
57	0	0	0	0	0	12	60	51	7	0	0	0	130
60	0	0	0	0	0	4	25	21	2	0	0	0	52
65	0	0	0	0	0	0	3	3	0	0	0	0	6
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	0	0	24	177	332	521	488	233	40	0	0	0	0	0	24	201	533	1054	1542	1775	1815	1815	1815
45	0	0	0	4	71	192	366	333	118	6	0	0	0	0	0	4	75	267	633	966	1084	1090	1090	1090
50	0	0	0	0	17	85	216	186	39	0	0	0	0	0	0	0	17	102	318	504	543	543	543	543
55	0	0	0	0	0	20	86	66	9	0	0	0	0	0	0	0	0	20	106	172	181	181	181	181
60	0	0	0	0	0	1	16	12	0	0	0	0	0	0	0	0	0	1	17	29	29	29	29	29
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	0	48	187	313	446	433	284	132	8	0	0	0	0	48	235	548	994	1427	1711	1843	1851	1851

(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