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: DUBOIS, WY **COOP ID: 482715**

Climate Division: WY 9 **NWS Call Sign:** **Elevation: 6,960 Feet** **Lat: 43˚32N** **Lon: 109˚38W**

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	32.4	11.2	21.8	60	1974	16	30.2	1981	-44+	1963	12	9.4	1979	1339	0	.0	.0	1.3	13.1	30.2	6.6
Feb	36.4	12.4	24.4	63	1988	27	31.8	1991	-35	1956	1	11.6	1989	1137	0	.0	.0	2.7	7.4	27.6	4.8
Mar	41.9	18.3	30.1	65+	1978	31	36.5	1986	-38+	1956	12	24.7	1976	1083	0	.0	.0	8.1	4.1	29.6	1.6
Apr	49.0	23.2	36.1	74+	1989	21	42.5	1987	-12+	1953	9	28.9	1975	866	0	.0	.0	16.1	1.3	25.8	.2
May	59.1	31.5	45.3	83+	1979	16	49.8	1994	3	1967	4	41.2	1983	610	0	.0	.0	26.2	.1	16.0	.0
Jun	70.1	38.6	54.4	93	1974	27	61.9	1988	20	1984	2	48.0	1998	327	8	.0	.2	29.4	.0	3.7	.0
Jul	78.1	43.3	60.7	100	1978	28	64.7	1988	22	1977	8	52.5	1993	165	31	@	.9	31.0	.0	.7	.0
Aug	77.4	42.2	59.8	95	1978	10	63.8	1971	25+	1965	30	55.9	1993	170	9	.0	.3	31.0	.0	1.6	.0
Sep	66.6	34.3	50.5	93	1978	6	55.8	1981	8+	1984	25	45.6	1985	437	1	.0	.1	27.7	.2	11.6	.0
Oct	55.4	27.3	41.4	85	1979	3	47.9	1988	-3	1972	31	34.0	1984	734	0	.0	.0	22.9	.8	24.6	.2
Nov	40.0	17.6	28.8	74	1956	14	38.1	1999	-26	1959	13	18.7	1985	1087	0	.0	.0	6.6	6.5	27.2	2.8
Dec	34.1	12.7	23.4	61	1958	4	33.4	1980	-49	1972	5	13.3	1990	1290	0	.0	.0	1.9	11.4	30.1	4.5
Ann	53.4	26.1	39.7	100	Jul 1978	28	64.7	Jul 1988	-49	Dec 1972	5	9.4	Jan 1979	9245	49	@	1.5	204.9	44.9	228.7	20.7

\+ 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	.28	.20	.60+	1956	27	1.15	1980	.00	1976
Feb	.26	.17	.85	1994	25	1.14	1986	.00+	1980
Mar	.43	.42	.60	1954	30	1.17	1998	.02	1978
Apr	1.16	.90	1.55	1976	25	4.52	1999	.00	1974
May	1.63	1.41	1.37	1999	31	3.76	1999	.74	1998
Jun	1.18	.97	1.95	1967	1	3.19	1993	.08	1996
Jul	1.08	1.00	1.28	1958	25	2.54	1987	.22	1999
Aug	.85	.76	.63+	1997	11	2.15	1972	.18	1988
Sep	1.20	1.03	1.61	1984	23	3.74	1982	.00	1987
Oct	.64	.52	1.14	1949	18	2.24	1986	.06	1984
Nov	.50	.38	.59	1955	11	1.90	1990	.03+	1982
Dec	.29	.19	.50	1987	3	1.20	1996	.00+	1986
Ann	9.50	9.15	1.95	Jun 1967	1	4.52	Apr 1999	.00+	Sep 1987

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.2	.9	.0	.0
Feb	3.7	1.1	@	.0
Mar	5.4	1.6	.1	.0
Apr	6.7	2.8	.5	.1
May	9.7	4.9	.8	.1
Jun	7.7	3.3	.4	.1
Jul	7.6	3.8	.4	.0
Aug	8.3	3.2	.2	.0
Sep	6.3	3.5	.6	.1
Oct	4.7	2.1	.3	.0
Nov	4.5	1.6	.2	.0
Dec	3.4	1.0	@	.0
Ann	71.2	29.8	3.5	.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	.01	.04	.08	.12	.16	.21	.27	.34	.44	.60	.76
Feb	.00	.01	.04	.08	.12	.17	.23	.31	.42	.61	.81
Mar	.08	.12	.18	.24	.30	.36	.43	.52	.64	.83	1.01
Apr	.02	.09	.23	.39	.58	.79	1.06	1.40	1.88	2.70	3.52
May	.60	.75	.97	1.15	1.33	1.51	1.70	1.93	2.22	2.66	3.07
Jun	.12	.21	.37	.53	.71	.91	1.15	1.45	1.85	2.52	3.17
Jul	.24	.34	.49	.64	.78	.93	1.10	1.31	1.57	2.00	2.41
Aug	.21	.29	.41	.52	.63	.75	.88	1.03	1.23	1.55	1.85
Sep	.07	.19	.37	.55	.74	.94	1.19	1.49	1.89	2.56	3.21
Oct	.05	.09	.18	.27	.37	.48	.61	.78	1.02	1.41	1.79
Nov	.03	.07	.13	.20	.27	.36	.47	.60	.79	1.11	1.43
Dec	.00	.01	.04	.08	.13	.19	.26	.35	.48	.71	.94
Ann	5.35	6.08	7.06	7.82	8.52	9.21	9.94	10.75	11.77	13.27	14.60

+ 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	3.4	2.3	1	1
Feb	4.5	3.0	#	#
Mar	5.2	5.0	#	#
Apr	7.9	4.1	#	#
May	2.7	1.0	#	0
Jun	.5	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	2.6	.3	#	0
Oct	2.1	1.0	#	0
Nov	5.1	3.8	#	#
Dec	4.6	3.3	1	#
Ann	38.6	23.8	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	4.0	1991	25	11.0	1996	5+	1997	13	2	1997
Feb	6.0	1986	20	19.0	1986	5+	1996	28	1	1997
Mar	5.0	1998	29	15.5	1998	11	1998	30	3	1998
Apr	10.0	1986	9	36.2	1995	14	1999	25	4	1999
May	8.0	1986	7	14.7	1986	5	1999	15	#+	2000
Jun	4.5	1993	4	6.0	1998	3	1998	4	#+	2000
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	16.0	1984	23	22.5	1984	14	1984	24	2	1984
Oct	7.0	1997	24	8.6	1986	7+	1997	24	1	1998
Nov	8.0	1988	14	14.6	1985	5	1996	18	2	1998
Dec	7.0	1992	4	15.5	1996	10	1972	4	4	1972
Ann	16.0	Sep 1984	23	36.2	Apr 1995	14+	Apr 1999	25	4+	Apr 1999

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.1	1.5	.3	.0	.0
Feb	2.7	1.7	.4	.1	.0
Mar	3.3	1.8	.4	.1	.0
Apr	3.9	2.7	.8	.4	@
May	1.0	.7	.3	.2	.0
Jun	.2	.2	.1	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.9	.6	.3	.1	.1
Oct	1.3	.7	.2	@	.0
Nov	3.5	2.0	.6	.1	.0
Dec	4.1	2.0	.6	.2	.0
Ann	24.0	13.9	4.0	1.2	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.4	1.9	.1	.0
Feb	2.9	.9	.2	.0
Mar	3.0	.6	.2	.1
Apr	3.0	1.9	.7	.3
May	.5	.3	@	.0
Jun	.1	@	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.6	.4	.2	.1
Oct	.5	.2	.1	.0
Nov	4.7	2.4	.2	.0
Dec	8.4	3.4	1.7	.0
Ann	30.1	12.0	3.4	.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	7/30	7/23	7/19	7/15	7/11	7/08	7/04	6/29	6/23
32	7/14	7/07	7/02	6/28	6/24	6/20	6/16	6/11	6/04
28	6/24	6/17	6/11	6/06	6/01	5/28	5/23	5/17	5/09
24	6/05	5/30	5/25	5/21	5/17	5/13	5/09	5/04	4/27
20	5/18	5/13	5/09	5/06	5/03	4/29	4/26	4/22	4/17
16	5/03	4/28	4/25	4/22	4/19	4/17	4/14	4/10	4/06

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	8/05	8/09	8/12	8/15	8/18	8/21	8/25	8/30
32	8/11	8/18	8/22	8/26	8/30	9/02	9/06	9/11	9/17
28	8/27	9/01	9/05	9/09	9/12	9/15	9/18	9/22	9/27
24	9/11	9/16	9/20	9/23	9/26	9/29	10/03	10/06	10/12
20	9/19	9/24	9/28	10/01	10/04	10/07	10/10	10/14	10/19
16	9/24	9/30	10/05	10/09	10/13	10/16	10/20	10/25	10/31

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	61	52	45	39	34	29	23	16	7
32	94	85	78	72	66	61	55	48	38
28	129	120	113	107	101	96	90	83	74
24	161	151	144	137	132	126	120	113	103
20	177	169	163	158	154	149	144	139	131
16	201	192	186	181	176	170	165	159	150

***** 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	1339	1137	1083	866	610	327	165	170	437	734	1087	1290	9245
60	1184	997	928	716	456	200	76	63	296	579	937	1135	7567
57	1091	913	835	626	365	138	39	27	219	487	847	1042	6629
55	1029	857	773	566	306	103	23	14	174	426	787	980	6038
50	874	717	618	420	175	40	5	2	86	282	637	825	4681
32	347	251	141	53	2	0	0	0	0	13	181	318	1306

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	30	38	81	177	414	671	889	862	553	302	84	51	4152
55	0	0	0	0	5	84	199	163	38	2	0	0	491
57	0	0	0	0	2	59	153	114	23	1	0	0	352
60	0	0	0	0	0	31	97	57	9	0	0	0	194
65	0	0	0	0	0	8	31	9	1	0	0	0	49
70	0	0	0	0	0	1	7	0	0	0	0	0	8

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	15	66	219	448	653	615	343	137	25	0	0	0	15	81	300	748	1401	2016	2359	2496	2521	2521
45	0	0	0	20	109	305	498	461	216	57	4	0	0	0	0	20	129	434	932	1393	1609	1666	1670	1670
50	0	0	0	1	37	177	346	308	106	13	0	0	0	0	0	1	38	215	561	869	975	988	988	988
55	0	0	0	0	5	81	201	163	34	0	0	0	0	0	0	0	5	86	287	450	484	484	484	484
60	0	0	0	0	0	25	81	55	5	0	0	0	0	0	0	0	0	25	106	161	166	166	166	166
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	2	21	72	175	316	456	435	270	141	23	0	0	2	23	95	270	586	1042	1477	1747	1888	1911	1911

(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