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: GILLETTE 6 SE, WY **COOP ID: 483855**

Climate Division: WY 6 **NWS Call Sign:** **Elevation: 4,640 Feet** **Lat: 44˚15N** **Lon: 105˚27W**

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	30.9	10.0	20.5	67	1981	23	31.5	1981	-36	1930	17	4.3	1979	1380	0	.0	.0	1.5	13.5	29.7	7.5
Feb	36.6	14.8	25.7	70	1982	21	35.2	1992	-40	1936	8	10.9	1989	1100	0	.0	.0	4.8	8.8	26.7	3.9
Mar	45.2	21.5	33.4	78	1943	29	41.0	1986	-23	1960	3	26.0	1996	982	0	.0	.0	12.5	4.7	26.8	1.4
Apr	54.7	29.1	41.9	88	1980	24	47.4	1987	-12	1936	2	34.5	1975	694	0	.0	.0	20.3	1.1	18.0	.1
May	64.5	38.4	51.5	95	1934	28	57.4	1994	11	1954	3	46.8	1983	423	3	.0	.1	28.6	.0	5.0	.0
Jun	76.0	47.7	61.9	104	1954	23	72.0	1988	28	1969	14	55.6	1998	162	67	.1	2.7	29.8	.0	.1	.0
Jul	84.5	54.1	69.3	107+	1981	6	73.3	1988	35	1968	31	61.0	1993	40	173	.7	9.9	31.0	.0	.0	.0
Aug	83.5	53.3	68.4	106	1949	7	74.9	1983	32	1964	20	62.4	1987	60	164	.2	8.5	30.9	.0	.0	.0
Sep	71.8	43.2	57.5	102+	1978	6	64.5	1998	10	1926	25	52.4	1986	259	34	.1	2.3	28.7	.1	2.8	.0
Oct	58.7	32.4	45.6	89+	1963	4	49.2	1979	-12	1925	28	41.3	1984	602	0	.0	.0	24.1	.7	12.8	.1
Nov	42.1	20.3	31.2	75+	1999	12	44.3	1999	-26	1959	16	15.6	1985	1015	0	.0	.0	9.3	6.7	25.6	1.6
Dec	32.9	12.1	22.5	69+	1939	6	30.8	1999	-37	1983	24	5.6	1983	1317	0	.0	.0	3.2	12.7	29.1	5.4
Ann	56.8	31.4	44.1	107+	Jul 1981	6	74.9	Aug 1983	-40	Feb 1936	8	4.3	Jan 1979	8034	441	1.1	23.5	224.7	48.3	176.6	20.0

\+ 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: 1925-2001

(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	.56	.57	.70	1943	14	1.40	1997	.05	1992
Feb	.54	.47	1.31	1998	25	1.67	1998	.02	1985
Mar	1.00	.90	1.60	1933	22	1.96	1998	.36	1979
Apr	1.97	1.89	2.43	1993	30	4.76	1999	.20	1981
May	2.95	2.45	3.23	1978	18	11.08	1978	1.04	1973
Jun	2.64	2.33	4.10	1964	22	7.96	1993	.36	1996
Jul	1.78	1.74	2.25	1988	10	3.85	1997	.39	1996
Aug	1.33	1.19	2.82	1960	17	3.96	1977	.30	1971
Sep	1.43	1.24	2.05	1998	13	4.41	1986	.05	1975
Oct	1.57	1.02	2.16	1994	6	6.77	1994	.10	1985
Nov	.70	.72	.90	1964	13	1.68	2000	.05	1981
Dec	.67	.62	.80	1982	24	1.82	1996	.05	1991
Ann	17.14	16.45	4.10	Jun 1964	22	11.08	May 1978	.02	Feb 1985

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.9	2.0	.1	.0
Feb	6.4	1.7	.2	@
Mar	8.3	3.5	.3	.0
Apr	10.0	5.0	1.0	.2
May	10.6	6.5	1.8	.5
Jun	10.2	6.0	1.7	.4
Jul	7.9	4.1	1.0	.3
Aug	6.6	3.3	.7	.2
Sep	6.2	3.2	.9	.2
Oct	7.2	3.6	.9	.3
Nov	6.8	2.4	.1	.0
Dec	7.7	2.4	.1	.0
Ann	95.8	43.7	8.8	2.1

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	.08	.12	.20	.28	.36	.45	.55	.68	.85	1.13	1.40
Feb	.07	.11	.19	.27	.34	.43	.53	.66	.83	1.11	1.38
Mar	.37	.46	.60	.71	.82	.93	1.05	1.19	1.36	1.64	1.89
Apr	.34	.52	.80	1.07	1.35	1.65	1.99	2.40	2.95	3.84	4.68
May	.80	1.08	1.51	1.88	2.24	2.63	3.05	3.55	4.20	5.22	6.18
Jun	.73	.98	1.36	1.69	2.02	2.35	2.73	3.17	3.75	4.65	5.50
Jul	.45	.62	.88	1.10	1.33	1.57	1.83	2.15	2.56	3.20	3.81
Aug	.26	.38	.58	.76	.94	1.13	1.35	1.62	1.97	2.53	3.06
Sep	.22	.35	.55	.75	.95	1.18	1.43	1.74	2.16	2.84	3.49
Oct	.17	.29	.51	.73	.96	1.22	1.53	1.92	2.44	3.31	4.15
Nov	.18	.25	.35	.44	.53	.62	.72	.84	1.00	1.25	1.48
Dec	.12	.18	.28	.37	.46	.56	.68	.81	1.00	1.29	1.57
Ann	11.39	12.47	13.87	14.94	15.90	16.83	17.80	18.88	20.19	22.11	23.79

\+ 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: 1925-2001
(3) Derived from 1971-2000 serially complete daily data

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Climate Division: WY 6 **NWS Call Sign:** **Elevation: 4,640 Feet** **Lat: 44°15N** **Lon: 105°27W**

Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

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
Jan	8.0	8.2	2	2	6.0	1996	17	17.7	1971	11+	1997	16	6	1979
Feb	7.5	6.8	1	1	13.0	1998	25	18.6	1971	14+	1998	27	6	1978
Mar	11.0	9.9	1	1	8.5	1977	29	24.8	1977	15+	1998	11	6	1998
Apr	9.9	9.0	1	1	15.0	1997	5	28.1	1984	21	1997	10	6	1997
May	2.1	.3	#	1	10.0	1975	20	11.0	1978	6	1978	7	1	1984
Jun	.1	.0	#	0	2.0	1998	4	3.0	1998	0	0	0	#	1995
Jul	.0	.0	#	0	.0	0	0	.0	0	1	1995	15	#	1995
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0
Sep	.8	.0	#	0	3.6	1980	16	5.4	2000	2+	2000	23	#	2000
Oct	4.7	2.7	#	0	12.0	1971	2	21.5	1971	8	1973	10	1+	1996
Nov	8.6	8.0	1	1	10.5	1978	10	23.8	1978	10	1978	11	5	1978
Dec	11.2	9.9	2	1	8.2	1980	1	23.5	1996	19	1996	25	8+	1983
Ann	63.9	54.8	N/A	N/A	15.0	Apr 1997	5	28.1	Apr 1984	21	Apr 1997	10	8+	Dec 1983

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	8.0	3.1	.6	.2	.0
Feb	7.0	2.8	.6	.2	@
Mar	7.5	3.9	1.1	.4	.0
Apr	5.2	3.1	1.1	.5	.1
May	.9	.6	.3	.1	@
Jun	.1	.1	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.7	.3	.1	.0	.0
Oct	2.5	1.4	.6	.2	@
Nov	6.1	2.9	.9	.3	@
Dec	8.4	4.2	.9	.3	.0
Ann	46.4	22.4	6.2	2.2	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.9	9.9	4.2	.1
Feb	12.7	7.1	2.8	.2
Mar	9.4	4.0	1.8	.7
Apr	3.2	2.1	1.3	.6
May	.6	.3	.1	.0
Jun	.0	.0	.0	.0
Jul	@	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	.0	.0	.0
Oct	1.7	.9	.3	.0
Nov	9.0	4.6	1.7	@
Dec	18.0	9.9	4.9	.6
Ann	74.6	38.8	17.1	2.2

+ 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	6/21	6/14	6/09	6/05	6/01	5/28	5/24	5/19	5/12
32	5/30	5/26	5/23	5/20	5/18	5/16	5/13	5/10	5/05
28	5/16	5/12	5/08	5/05	5/03	4/30	4/27	4/24	4/19
24	5/07	5/01	4/27	4/24	4/21	4/18	4/14	4/10	4/05
20	4/30	4/24	4/20	4/16	4/13	4/09	4/06	4/01	3/26
16	4/22	4/15	4/10	4/05	4/01	3/28	3/24	3/18	3/11

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	9/06	9/09	9/12	9/14	9/15	9/17	9/19	9/22	9/25
32	9/12	9/15	9/18	9/20	9/22	9/24	9/27	9/29	10/03
28	9/15	9/21	9/25	9/28	10/02	10/05	10/08	10/13	10/18
24	9/20	9/26	10/01	10/04	10/08	10/11	10/15	10/20	10/26
20	10/02	10/08	10/12	10/16	10/20	10/23	10/27	10/31	11/06
16	10/21	10/25	10/28	10/30	11/02	11/04	11/07	11/10	11/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	127	120	114	110	105	101	97	91	84
32	141	136	132	129	127	124	121	117	112
28	174	166	161	156	151	147	142	136	128
24	194	186	180	174	169	165	159	153	145
20	215	206	200	194	189	184	179	172	164
16	237	229	223	218	214	209	204	199	191

***** 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	1380	1100	982	694	423	162	40	60	259	602	1015	1317	8034
60	1225	960	827	544	282	83	11	21	154	448	865	1162	6582
57	1132	876	734	457	207	49	3	10	104	357	775	1069	5773
55	1070	820	672	401	164	33	1	5	76	297	715	1007	5261
50	917	689	519	269	79	10	0	1	28	167	577	855	4111
32	423	271	106	17	0	0	0	0	0	4	179	369	1369

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	66	95	146	314	603	896	1156	1127	765	425	155	74	5822
55	0	0	0	7	54	239	444	419	152	5	0	0	1320
57	0	0	0	4	36	195	384	361	119	2	0	0	1101
60	0	0	0	0	17	139	299	280	79	1	0	0	815
65	0	0	0	0	3	67	173	164	34	0	0	0	441
70	0	0	0	0	0	25	84	81	12	0	0	0	202

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	13	62	179	410	691	941	912	562	260	53	9	0	13	75	254	664	1355	2296	3208	3770	4030	4083	4092
45	0	2	24	94	272	542	786	757	424	153	18	1	0	2	26	120	392	934	1720	2477	2901	3054	3072	3073
50	0	0	4	46	157	395	631	602	292	71	4	0	0	0	4	50	207	602	1233	1835	2127	2198	2202	2202
55	0	0	0	16	75	262	477	448	183	27	0	0	0	0	0	16	91	353	830	1278	1461	1488	1488	1488
60	0	0	0	5	29	145	328	302	96	4	0	0	0	0	0	5	34	179	507	809	905	909	909	909
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	12	57	133	257	427	595	580	362	184	45	6	0	12	69	202	459	886	1481	2061	2423	2607	2652	2658

(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