

# Climatography of the United States

## No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: CASPER NATRONA CO AP, WY

1971-2000

COOP ID: 481570

Climate Division: WY 8

NWS Call Sign: CPR

Elevation: 5,338 Feet Lat: 42° 54N

Lon: 106° 28W

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	32.3	12.2	22.3	60	1971	30	31.0	1981	-40+	1972	14	8.5	1979	1312	0	.0	.0	1.9	13.0	29.3	6.7
Feb	37.0	16.4	26.7	68	1982	21	35.4	1992	-29	1989	3	11.0	1989	1073	0	.0	.0	4.9	8.3	26.0	3.6
Mar	46.9	23.1	35.0	74+	1986	29	42.1	1986	-21	1965	25	29.8	1975	921	0	.0	.0	13.9	3.4	26.4	1.0
Apr	56.1	29.3	42.7	84	1992	30	49.0	1987	-6	1997	12	34.9	1997	661	0	.0	.0	21.3	1.2	19.1	.2
May	66.4	37.9	52.1	92	1984	30	60.3	1994	16	1953	12	48.2	1975	393	3	.0	@	28.7	@	6.3	.0
Jun	78.8	46.6	62.7	102+	1990	30	71.9	1988	28+	1969	13	56.0	1998	118	64	.2	4.7	29.8	.0	.2	.0
Jul	86.8	53.2	70.0	104	1954	12	72.8	1988	30	1972	4	65.0	1972	16	182	.5	13.2	31.0	.0	@	.0
Aug	85.3	51.8	68.6	102	1979	5	74.2	1983	33+	1977	31	62.8	1974	25	152	.1	11.5	31.0	.0	.0	.0
Sep	73.4	41.7	57.6	97	1995	1	64.7	1998	16	1983	20	51.9	1984	233	27	.0	1.8	28.5	.1	3.6	.0
Oct	59.5	31.8	45.7	87+	1993	5	50.0	1992	-3	1971	30	39.7	1984	582	0	.0	.0	24.8	.9	15.0	.1
Nov	42.6	21.3	32.0	72+	1999	7	43.8	1999	-21	1985	23	19.4	1985	975	0	.0	.0	9.9	6.6	25.0	1.8
Dec	33.6	14.0	23.8	63	1995	1	34.0	1980	-41	1990	21	10.6	1983	1262	0	.0	.0	3.0	12.1	28.3	5.0
Ann	58.2	31.6	44.9	104	Jul 1954	12	74.2	Aug 1983	-41	Dec 1990	21	8.5	Jan 1979	7571	428	.8	31.2	228.7	45.6	179.2	18.4

+ 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(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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**Climate Division: WY 8**

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**Elevation: 5,338 Feet Lat: 42°54N**

**Lon: 106°28W**

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.58	.53	.53+	1987	5	1.42	1987	.16	1989	7.6	1.9	.1	.0	.17	.23	.31	.38	.45	.52	.60	.70	.82	1.01	1.18
Feb	.64	.59	.59	1995	14	1.42	1987	.23	1981	7.5	2.1	@	.0	.23	.29	.38	.45	.52	.59	.66	.75	.86	1.04	1.20
Mar	.90	.66	.98	1958	26	2.29	1983	.37	1974	9.4	3.1	.1	.0	.29	.37	.50	.61	.71	.82	.93	1.07	1.25	1.52	1.78
Apr	1.52	1.39	1.82	1974	20	3.92	1974	.08	1992	10.4	4.5	.6	.1	.31	.45	.67	.88	1.08	1.30	1.55	1.85	2.25	2.88	3.48
May	2.38	2.02	2.22	2000	17	6.46	1978	.37	1994	11.4	5.5	1.2	.4	.47	.69	1.04	1.36	1.68	2.03	2.43	2.90	3.53	4.54	5.49
Jun	1.43	1.08	2.15	1986	19	4.15	1982	.10	1980	8.9	3.7	.6	.2	.13	.23	.42	.62	.84	1.09	1.38	1.74	2.25	3.09	3.91
Jul	1.29	1.24	1.78	1983	22	2.66	1994	.09	1991	8.1	3.1	.6	.3	.17	.28	.46	.64	.83	1.04	1.28	1.57	1.97	2.62	3.25
Aug	.73	.63	1.35	1979	19	2.66	1979	.04	1995	6.0	1.9	.3	@	.06	.11	.21	.31	.42	.55	.70	.88	1.14	1.58	2.01
Sep	.98	.71	2.01	1989	20	3.40	1982	.10	1980	6.8	2.6	.5	.1	.08	.14	.27	.41	.56	.73	.94	1.19	1.55	2.15	2.74
Oct	1.14	.86	2.06	1998	16	4.62	1998	.12	1988	7.3	3.1	.4	.1	.15	.24	.40	.56	.73	.91	1.13	1.39	1.75	2.34	2.90
Nov	.82	.75	.99	1994	2	2.72	1983	.08	1997	7.2	2.9	.2	.0	.15	.23	.35	.46	.57	.69	.83	.99	1.21	1.56	1.90
Dec	.62	.47	1.26	1982	24	3.71	1982	.10+	1999	7.7	1.7	.1	.1	.10	.15	.24	.33	.42	.51	.62	.75	.93	1.22	1.49
Ann	13.03	12.48	2.22	May 2000	17	6.46	May 1978	.04	Aug 1995	98.3	36.1	4.7	1.3	8.16	9.05	10.22	11.13	11.94	12.74	13.58	14.51	15.65	17.33	18.80

+ 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 8

NWS Call Sign: CPR

Elevation: 5,338 Feet

Lat: 42° 54N

Lon: 106° 28W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	11.2	10.8	2	2	9.7	1972	12	24.0	1987	12+	1987	8	5	1987	8.0	3.7	.9	.3	.0	18.7	9.0	3.1	.5
Feb	10.3	10.5	1	1	10.2	1995	14	22.7	1987	12	1987	27	5	1989	7.4	3.9	.9	.2	.1	13.0	5.8	1.7	.3
Mar	12.3	9.3	1	1	8.6	1987	20	36.2	1975	10	1988	17	2+	1988	8.7	3.7	1.2	.6	.0	7.3	2.7	1.2	@
Apr	13.3	10.3	#	1	16.5	1973	19	56.3	1973	20	1973	20	2	1973	7.1	3.2	1.6	.6	.1	3.7	1.5	.8	.1
May	4.9	1.7	#	1	13.0	1978	4	24.6	1978	12	1973	1	1+	1975	2.0	1.2	.6	.3	.1	.8	.4	.2	.1
Jun	.1	.0	#	0	2.1	1995	9	2.1	1995	2	1995	9	#	1995	.0	.0	.0	.0	.0	@	.0	.0	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1995	.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	2.0	.0	#	0	6.9	1995	20	11.5+	2000	5	1995	20	#	1995	.9	.5	.3	.1	.0	.2	.1	@	.0
Oct	7.1	5.9	#	0	16.0	1998	16	20.2	1998	12+	1971	30	1+	1996	3.8	2.0	.7	.2	.1	2.3	1.0	.4	.1
Nov	11.9	9.7	1	1	12.0	1979	20	37.1	1983	14+	1979	21	4+	1985	6.9	3.4	1.3	.5	.1	9.8	5.8	3.2	.5
Dec	11.7	9.3	1	1	24.3	1982	24	62.8	1982	21	1982	24	9	1982	8.2	3.2	1.0	.4	.1	14.2	6.3	3.6	.5
Ann	84.8	67.5	N/A	N/A	24.3	Dec 1982	24	62.8	Dec 1982	21	Dec 1982	24	9	Dec 1982	53.0	24.8	8.5	3.2	.6	70.0	32.6	14.2	2.1

+ 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

Complete documentation available from:

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**Elevation:** 5,338 Feet

**Lat:** 42° 54N

**Lon:** 106° 28W

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	6/22	6/17	6/13	6/10	6/07	6/04	6/01	5/28	5/23
32	6/08	6/02	5/29	5/25	5/22	5/18	5/15	5/11	5/05
28	5/18	5/14	5/10	5/07	5/05	5/02	4/29	4/26	4/21
24	5/09	5/04	5/01	4/28	4/25	4/23	4/20	4/16	4/12
20	4/28	4/24	4/20	4/18	4/15	4/13	4/10	4/07	4/02
16	4/22	4/15	4/11	4/07	4/03	3/30	3/26	3/21	3/15
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	9/04	9/07	9/10	9/13	9/15	9/18	9/21	9/25
32	9/10	9/13	9/15	9/17	9/19	9/21	9/23	9/25	9/29
28	9/15	9/20	9/23	9/26	9/28	10/01	10/04	10/07	10/12
24	9/26	10/01	10/05	10/08	10/11	10/15	10/18	10/22	10/27
20	10/05	10/10	10/14	10/17	10/20	10/23	10/27	10/31	11/05
16	10/14	10/20	10/24	10/28	10/31	11/03	11/07	11/11	11/16
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	116	110	105	101	97	93	89	84	77
32	138	132	127	123	120	116	112	108	102
28	165	159	154	150	146	142	138	133	127
24	190	183	177	173	168	164	160	154	147
20	211	203	197	192	187	183	178	172	164
16	240	230	222	216	210	205	198	191	181

\* 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

Complete documentation available from:

[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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**Elevation: 5,338 Feet Lat: 42° 54N**

**Lon: 106° 28W**

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	1312	1073	921	661	393	118	16	25	233	582	975	1262	7571
60	1169	932	775	519	264	70	2	15	149	445	841	1122	6303
57	1076	848	682	433	192	40	0	7	99	354	751	1029	5511
55	1014	792	620	377	150	26	0	4	72	295	691	967	5008
50	859	652	467	248	70	7	0	0	26	166	552	813	3860
32	359	231	69	14	0	0	0	0	0	4	157	322	1156

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	42	74	186	351	635	936	1196	1156	789	459	153	57	6034
55	0	0	1	12	63	265	484	444	171	21	1	0	1462
57	0	0	0	7	42	214	423	383	132	12	0	0	1213
60	0	0	0	2	20	147	332	294	82	4	0	0	881
65	0	0	0	0	3	64	182	152	27	0	0	0	428
70	0	0	0	0	0	17	73	53	6	0	0	0	149

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	19	63	171	402	705	956	917	561	252	59	7	0	19	82	253	655	1360	2316	3233	3794	4046	4105	4112
45	0	1	25	87	264	557	801	762	421	144	21	2	0	1	26	113	377	934	1735	2497	2918	3062	3083	3085
50	0	0	4	39	148	411	647	607	292	66	4	0	0	0	4	43	191	602	1249	1856	2148	2214	2218	2218
55	0	0	0	13	68	272	492	452	180	20	0	0	0	0	0	13	81	353	845	1297	1477	1497	1497	1497
60	0	0	0	0	22	155	340	303	86	1	0	0	0	0	0	0	22	177	517	820	906	907	907	907
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	11	59	144	277	449	602	580	384	198	45	3	0	11	70	214	491	940	1542	2122	2506	2704	2749	2752

(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:

[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

## 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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)