

# 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: LARAMIE 2 NW, WY

1971-2000

COOP ID: 485435

Climate Division: WY10

NWS Call Sign:

Elevation: 7,140 Feet Lat: 41° 20N

Lon: 105° 36W

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	32.7	7.8	20.3	62	1981	23	27.1	1986	-43	1979	1	8.0	1979	1387	0	.0	.0	1.4	14.7	30.8	9.0
Feb	36.0	9.8	22.9	68	1982	21	30.3	1991	-40	1989	6	12.5	1989	1179	0	.0	.0	3.1	10.3	28.0	6.3
Mar	42.4	16.9	29.7	69	1972	10	36.5	1972	-25	1998	8	23.1	1977	1097	0	.0	.0	9.0	5.8	30.2	1.7
Apr	50.2	23.2	36.7	78	1992	30	43.9	1981	-18	1975	2	27.6	1984	850	0	.0	.0	16.5	2.6	26.4	.3
May	60.7	32.3	46.5	83	1969	28	52.3	1993	11	1979	3	40.5	1983	574	0	.0	.0	26.3	.1	15.7	.0
Jun	72.3	41.1	56.7	94	2001	29	62.0	1977	20	1976	14	51.2	1984	262	14	.0	.1	29.7	.0	2.5	.0
Jul	79.4	46.3	62.9	97	1976	9	66.3	1976	29	1988	1	59.5	1986	97	30	.0	1.4	31.0	.0	.2	.0
Aug	78.1	43.4	60.8	97	2001	3	64.9	2000	26	1980	21	55.3	1974	158	26	.0	.8	31.0	.0	.9	.0
Sep	69.6	34.8	52.2	92	1995	1	57.9	1990	5	1996	27	45.2	1974	389	5	.0	.2	28.4	@	10.4	.0
Oct	57.3	25.1	41.2	81+	1991	16	45.7	1988	-7+	1991	31	36.8	1984	739	0	.0	.0	24.0	1.2	25.1	.2
Nov	40.9	14.1	27.5	72+	1999	15	35.5	1999	-28	1993	24	13.1	2000	1126	0	.0	.0	8.5	8.0	28.9	3.7
Dec	33.3	8.1	20.7	63	1990	10	32.0	1980	-40	1972	6	11.1	1983	1375	0	.0	.0	2.3	13.8	30.4	7.8
Ann	54.4	25.2	39.8	97+	Aug 2001	3	66.3	Jul 1976	-43	Jan 1979	1	8.0	Jan 1979	9233	75	.0	2.5	211.2	56.5	229.5	29.0

+ 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/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: 1966-2001

(3) Derived from 1971-2000 serially complete daily data

057-A

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**Climate Division: WY10**

**NWS Call Sign:**

**Elevation: 7,140 Feet Lat: 41°20N**

**Lon: 105°36W**

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	.34	.28	.90	1983	28	.90	1974	.01	1986	5.4	1.5	.1	.0	.04	.07	.12	.16	.21	.27	.33	.41	.52	.69	.86
Feb	.39	.34	.48	1989	2	1.36	1989	.00	1999	5.9	1.2	.0	.0	.03	.08	.14	.20	.26	.32	.39	.48	.59	.78	.96
Mar	.69	.58	1.00	1977	11	1.70	1973	.05	1972	7.8	2.1	@	@	.16	.22	.33	.42	.51	.60	.71	.84	1.01	1.28	1.53
Apr	1.08	.98	1.68	1983	21	3.43	1983	.23	1989	8.8	3.0	.2	@	.30	.40	.56	.70	.83	.97	1.12	1.30	1.54	1.90	2.25
May	1.68	1.42	1.92	2000	17	3.90	1995	.30	1975	11.0	4.8	.6	.1	.42	.58	.82	1.04	1.26	1.48	1.73	2.03	2.42	3.04	3.62
Jun	1.30	1.10	1.78	1986	9	4.51	1991	.06	1971	8.6	3.4	.4	.2	.20	.31	.50	.68	.86	1.06	1.30	1.59	1.97	2.59	3.19
Jul	1.53	1.38	1.39	1981	1	3.28	1981	.11	1988	9.3	4.5	.9	.1	.33	.47	.70	.90	1.10	1.32	1.56	1.85	2.24	2.85	3.43
Aug	1.37	1.20	1.12	1994	1	3.22	1984	.26	1999	9.5	4.0	.5	@	.42	.55	.75	.92	1.08	1.24	1.43	1.64	1.92	2.36	2.76
Sep	.96	.74	1.18	1973	11	2.31	1990	.05	1987	7.5	2.8	.4	.1	.11	.19	.32	.45	.60	.76	.94	1.17	1.48	2.00	2.50
Oct	.85	.74	1.37	1998	28	2.66	1998	.06	1988	6.8	2.5	.3	.1	.11	.18	.30	.42	.54	.68	.84	1.03	1.30	1.73	2.15
Nov	.58	.40	.62	1987	2	1.84	1983	.08	1999	6.4	1.8	.1	.0	.07	.12	.20	.28	.36	.46	.57	.70	.89	1.19	1.48
Dec	.42	.34	.42	1997	8	1.24	1973	.00	1977	5.5	1.0	.0	.0	.04	.09	.16	.22	.29	.35	.43	.52	.64	.83	1.01
Ann	11.19	10.92	1.92	May 2000	17	4.51	Jun 1991	.00+	Feb 1999	92.5	32.6	3.5	.6	7.46	8.16	9.07	9.76	10.39	10.99	11.62	12.32	13.17	14.41	15.50

+ 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: 1966-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:  
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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**COOP ID: 485435**

**Climate Division: WY10**

**NWS Call Sign:**

**Elevation: 7,140 Feet**

**Lat: 41° 20N**

**Lon: 105° 36W**

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	4.0	-99.9	1	0	5.0	1974	18	8.0	1975	7	1974	22	5	1974	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	.7	-99.9	#	0	1.0	1974	5	2.8	1975	3+	1974	7	2	1973	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	1.9	-99.9	#	0	4.0	1975	27	7.7	1975	10	1973	16	2	1973	-9.9	-9.9	-9.9	-9.9	-9.9	2.7	.1	.0	.0
Apr	1.1	-99.9	#	0	4.0	1975	27	5.5	1975	4	1973	20	1	1973	-9.9	-9.9	-9.9	-9.9	-9.9	.3	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Oct	1.8	-99.9	#	0	3.5	1972	21	9.0	1972	5	1972	30	1	1972	-9.9	-9.9	-9.9	-9.9	-9.9	.2	.1	.1	.0
Nov	5.7	-99.9	#	0	6.0	1973	3	17.0	1973	8	1973	4	2	1973	-9.9	-9.9	-9.9	-9.9	-9.9	2.0	.8	.3	.0
Dec	3.4	-99.9	#	0	3.5	1972	8	13.4	1972	6	1972	8	2	1972	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	18.6	-9.9	N/A	N/A	6.0	Nov 1973	3	17.0	Nov 1973	10	Mar 1973	16	5	Jan 1974	-9.9	-9.9	-9.9	-9.9	-9.9	-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

Complete documentation available from:

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**NWS Call Sign:**

**Elevation: 7,140 Feet**

**Lat: 41° 20N**

**Lon: 105° 36W**

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	7/17	7/12	7/08	7/05	7/02	6/28	6/25	6/21	6/16
32	7/01	6/25	6/20	6/17	6/13	6/09	6/05	6/01	5/25
28	6/16	6/10	6/05	6/01	5/28	5/25	5/21	5/16	5/10
24	6/03	5/28	5/23	5/19	5/16	5/12	5/09	5/04	4/28
20	5/20	5/15	5/11	5/07	5/04	5/01	4/28	4/24	4/18
16	5/05	4/30	4/26	4/23	4/20	4/17	4/14	4/10	4/05
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	8/03	8/09	8/13	8/17	8/21	8/24	8/28	9/01	9/08
32	8/15	8/21	8/26	8/29	9/02	9/05	9/09	9/13	9/19
28	8/30	9/04	9/07	9/10	9/13	9/16	9/19	9/22	9/27
24	9/11	9/15	9/18	9/20	9/22	9/24	9/27	9/29	10/03
20	9/14	9/19	9/23	9/26	9/29	10/02	10/05	10/08	10/13
16	9/19	9/26	10/01	10/05	10/09	10/12	10/17	10/22	10/28
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	72	64	59	54	49	45	40	35	27
32	109	99	92	86	80	74	68	61	51
28	134	125	118	112	107	101	96	89	80
24	148	142	137	132	129	125	120	116	109
20	168	161	156	151	147	142	138	132	125
16	196	188	181	176	171	166	160	154	145

\* 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:

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**NWS Call Sign:**

**Elevation: 7,140 Feet    Lat: 41° 20N    Lon: 105° 36W**

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	1387	1179	1097	850	574	262	97	158	389	739	1126	1375	9233
60	1232	1039	942	700	422	149	24	68	255	584	976	1220	7611
57	1139	955	849	610	336	97	8	34	186	491	886	1127	6718
55	1077	899	787	552	282	70	2	20	145	430	826	1065	6155
50	922	759	632	412	166	24	0	4	66	279	676	910	4850
32	385	289	169	66	4	0	0	0	0	12	230	380	1535

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	21	35	96	206	453	742	956	891	606	296	94	29	4425
55	0	0	0	2	18	121	246	198	61	0	0	0	646
57	0	0	0	0	10	89	189	150	41	0	0	0	479
60	0	0	0	0	3	50	112	90	21	0	0	0	276
65	0	0	0	0	0	14	30	26	5	0	0	0	75
70	0	0	0	0	0	2	4	4	0	0	0	0	10

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	17	69	239	520	721	656	392	140	20	1	0	0	17	86	325	845	1566	2222	2614	2754	2774	2775
45	0	0	0	23	127	372	566	502	257	60	0	0	0	0	0	23	150	522	1088	1590	1847	1907	1907	1907
50	0	0	0	1	50	235	412	348	142	16	0	0	0	0	0	1	51	286	698	1046	1188	1204	1204	1204
55	0	0	0	0	11	120	261	202	54	1	0	0	0	0	0	0	11	131	392	594	648	649	649	649
60	0	0	0	0	0	44	120	73	12	0	0	0	0	0	0	0	0	44	164	237	249	249	249	249
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	4	27	80	187	346	474	444	307	157	28	1	0	4	31	111	298	644	1118	1562	1869	2026	2054	2055

(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.  
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)