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: LA GRANGE, WY **COOP ID: 485260**

Climate Division: WY 8 **NWS Call Sign:** **Elevation: 4,590 Feet** **Lat: 41˚38N** **Lon: 104˚10W**

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	41.2	14.9	28.1	70	1982	27	37.0	1986	-34	1963	19	16.2	1979	1146	0	.0	.0	7.4	8.6	29.4	5.8
Feb	46.1	19.0	32.6	79	1962	11	39.3	1992	-32+	1982	5	20.6	1989	909	0	.0	.0	10.5	4.9	26.4	3.4
Mar	53.0	24.3	38.7	82	1986	31	45.8	1986	-23	1960	3	33.2	1987	817	0	.0	.0	18.0	2.9	27.3	.9
Apr	62.2	30.8	46.5	88+	1992	30	52.7	1981	-13	1975	2	40.2	1984	555	0	.0	.0	23.8	.3	17.7	@
May	72.0	39.9	56.0	95+	1969	28	61.3	1994	11	1983	12	50.4	1995	294	12	.0	.4	29.6	.0	5.1	.0
Jun	82.6	48.6	65.6	104	1954	23	71.7	1988	27	1951	3	60.6	1982	82	99	.3	6.3	30.0	.0	.2	.0
Jul	89.5	54.5	72.0	107	1954	11	74.7	1976	35	1952	8	68.5	1992	3	220	1.3	15.2	31.0	.0	.0	.0
Aug	87.8	52.5	70.2	109	1995	7	74.9	1983	32	1964	30	65.9	1998	25	185	.3	11.6	31.0	.0	.0	.0
Sep	78.5	43.1	60.8	100	1978	7	65.0	1977	9	1985	30	56.6	1974	165	39	@	2.9	29.2	@	4.0	.0
Oct	66.0	32.2	49.1	90+	1967	3	52.9	1973	-5	1991	29	42.2	1976	493	0	.0	.0	26.9	.5	16.8	.1
Nov	50.3	22.5	36.4	83	1999	7	46.0	1999	-26	1976	27	27.9+	2000	858	0	.0	.0	14.9	3.8	26.6	1.4
Dec	42.4	15.8	29.1	70+	1996	9	38.1	1980	-35+	1990	22	15.4	1983	1114	0	.0	.0	8.2	7.1	29.0	4.4
Ann	64.3	33.2	48.8	109	Aug 1995	7	74.9	Aug 1983	-35+	Dec 1990	22	15.4	Dec 1983	6461	555	1.9	36.4	260.5	28.1	182.5	16.0

+ 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: 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	.54	.53	1.00	1988	19	1.45	1988	.00	1989
Feb	.53	.39	.95	1984	15	1.86	1984	.00+	1996
Mar	1.33	.97	2.50	1979	18	5.62	1983	.21	1994
Apr	1.89	1.73	2.55	1967	13	4.49	1986	.33	1992
May	2.76	2.82	2.22	1988	19	4.86	1983	.21	1974
Jun	2.22	1.93	2.89	1970	12	4.36	1991	.19	1980
Jul	2.14	1.76	3.32	1990	4	7.16	1990	.46	1995
Aug	1.45	1.15	2.70	1968	9	5.52	1997	.12	1974
Sep	1.32	1.07	1.74	2001	17	4.60	1973	.10	1978
Oct	1.09	.79	1.80	1994	6	3.91	1986	.00	1988
Nov	.83	.80	2.20	1979	21	3.74	1979	.08+	1975
Dec	.68	.58	1.90	1987	27	2.34	1987	.02+	1991
Ann	16.78	15.89	3.32	Jul 1990	4	7.16	Jul 1990	.00+	Feb 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.5	1.9	.2	@
Feb	3.8	1.8	.2	.0
Mar	6.2	3.2	.6	.2
Apr	8.5	4.8	.9	.2
May	10.6	6.4	1.7	.6
Jun	8.1	4.9	1.5	.3
Jul	7.9	4.7	1.2	.4
Aug	7.4	3.9	.8	.2
Sep	5.4	3.4	.9	.1
Oct	4.7	2.8	.7	.1
Nov	4.6	2.6	.4	@
Dec	4.2	2.1	.2	.1
Ann	75.9	42.5	9.3	2.2

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	.03	.08	.16	.24	.33	.42	.53	.66	.84	1.15	1.44
Feb	.00	.04	.13	.21	.30	.40	.52	.66	.86	1.19	1.52
Mar	.15	.25	.44	.63	.82	1.05	1.31	1.63	2.07	2.79	3.49
Apr	.54	.72	.99	1.22	1.45	1.69	1.96	2.27	2.67	3.30	3.89
May	.67	.92	1.33	1.69	2.04	2.42	2.84	3.34	4.00	5.04	6.01
Jun	.45	.65	.97	1.27	1.57	1.90	2.26	2.70	3.28	4.22	5.10
Jul	.55	.75	1.06	1.33	1.61	1.89	2.21	2.59	3.08	3.85	4.58
Aug	.16	.27	.47	.67	.89	1.13	1.42	1.77	2.25	3.04	3.82
Sep	.12	.22	.40	.58	.78	1.01	1.28	1.61	2.08	2.85	3.60
Oct	.05	.15	.32	.48	.65	.84	1.07	1.35	1.73	2.36	2.98
Nov	.10	.16	.28	.39	.51	.65	.81	1.01	1.28	1.73	2.16
Dec	.04	.08	.17	.26	.36	.48	.63	.82	1.08	1.53	1.98
Ann	10.78	11.89	13.35	14.47	15.48	16.46	17.48	18.63	20.02	22.07	23.86

\+ 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	7.7	6.0	2	1
Feb	6.9	5.2	1	1
Mar	11.5	9.5	1	1
Apr	8.3	5.0	#	#
May	.7	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.9	.0	#	0
Oct	3.6	1.8	#	#
Nov	9.8	6.3	1	#
Dec	9.5	8.2	1	1
Ann	58.9	42.0	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	16.0	1992	7	18.5	1992	17	1974	8	7	1976
Feb	10.0	1984	15	27.0	1984	15	1971	20	4	1986
Mar	22.0	1979	18	37.2	1983	22	1979	18	5	1983
Apr	20.0	1984	3	48.0	1984	16	1984	3	2	1983
May	6.0	1983	18	10.0	1983	3+	1990	9	#+	1991
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	6.0	1974	12	10.5	1985	8	2000	24	#+	2000
Oct	12.0	1997	25	18.0	1997	18	1997	25	2	1997
Nov	26.0	1979	21	47.2	1979	42	1979	22	10	1979
Dec	19.0	1987	27	21.5	1982	26	1979	2	5	1979
Ann	26.0	Nov 1979	21	48.0	Apr 1984	42	Nov 1979	22	10	Nov 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.6	2.6	.8	.4	.1
Feb	3.1	2.4	.8	.4	@
Mar	4.1	3.4	1.3	.7	.2
Apr	2.3	2.1	1.2	.6	.1
May	.4	.3	.1	@	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.3	.3	.1	@	.0
Oct	1.0	1.0	.5	.3	.1
Nov	3.2	2.6	1.0	.5	.2
Dec	4.1	3.1	1.2	.5	.1
Ann	22.1	17.8	7.0	3.4	.8

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	9.7	5.4	3.6	1.4
Feb	7.2	4.0	1.8	.3
Mar	6.0	3.4	2.0	.8
Apr	2.3	1.5	.9	.1
May	.2	.1	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.2	.1	@	.0
Oct	1.0	.6	.4	.1
Nov	5.4	2.4	1.5	.6
Dec	10.2	4.9	2.8	.8
Ann	42.2	22.4	13.0	4.1

+ 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

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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	6/19	6/14	6/10	6/07	6/04	6/01	5/28	5/25	5/19
32	6/07	6/01	5/28	5/24	5/21	5/17	5/14	5/09	5/03
28	5/18	5/14	5/11	5/09	5/06	5/04	5/01	4/28	4/24
24	5/08	5/03	4/30	4/27	4/25	4/22	4/19	4/16	4/11
20	4/28	4/22	4/18	4/14	4/11	4/08	4/04	3/31	3/25
16	4/23	4/16	4/11	4/07	4/03	3/30	3/26	3/21	3/14

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	124	115	109	103	98	93	87	80	71
32	141	134	130	126	122	118	114	109	103
28	164	158	153	148	145	141	136	131	125
24	187	180	175	171	167	163	159	154	147
20	214	205	199	194	190	185	180	174	165
16	238	226	218	211	205	198	191	183	171

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1146	909	817	555	294	82	3	25	165	493	858	1114	6461
60	991	769	662	409	171	30	0	5	76	343	708	959	5123
57	898	685	569	325	113	13	0	1	42	261	621	866	4394
55	836	629	507	273	82	8	0	0	25	211	565	804	3940
50	689	497	363	160	29	1	0	0	5	110	428	653	2935
32	238	125	36	3	0	0	0	0	0	2	91	209	704

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	115	141	243	438	741	1007	1240	1183	864	532	223	119	6846
55	0	0	1	18	110	324	527	471	200	28	7	0	1686
57	0	0	0	10	79	270	465	410	156	16	3	0	1409
60	0	0	0	4	44	197	372	320	101	5	0	0	1043
65	0	0	0	0	12	99	220	185	39	0	0	0	555
70	0	0	0	0	2	36	93	84	10	0	0	0	225

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	16	35	89	223	477	761	984	921	602	293	73	28	16	51	140	363	840	1601	2585	3506	4108	4401	4474	4502
45	2	8	38	125	333	611	829	766	456	176	36	4	2	10	48	173	506	1117	1946	2712	3168	3344	3380	3384
50	0	0	10	58	205	461	674	611	320	89	7	0	0	0	10	68	273	734	1408	2019	2339	2428	2435	2435
55	0	0	1	19	105	320	519	457	200	32	1	0	0	0	1	20	125	445	964	1421	1621	1653	1654	1654
60	0	0	0	1	43	190	368	306	102	8	0	0	0	0	0	1	44	234	602	908	1010	1018	1018	1018
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	25	44	99	189	330	480	613	582	411	253	81	33	25	69	168	357	687	1167	1780	2362	2773	3026	3107	3140

(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