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: LUSK 2 SW, WY **COOP ID: 485830**

Climate Division: WY 7 **NWS Call Sign:** **Elevation: 5,090 Feet** **Lat: 42˚45N** **Lon: 104˚29W**

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	33.6	10.1	21.9	69	1953	9	31.2	1981	-38	1972	14	7.6	1979	1338	0	.0	.0	3.2	11.1	29.9	6.8
Feb	38.3	14.3	26.3	69+	1982	21	35.3	1991	-32	1936	8	15.3+	1993	1084	0	.0	.0	6.5	6.9	26.9	4.0
Mar	45.7	20.7	33.2	79	1921	17	39.9	1986	-20	1960	3	27.4	1996	986	0	.0	.0	13.9	3.9	28.1	1.0
Apr	54.7	28.6	41.7	87	1962	20	48.3	1981	-9	1975	2	35.1	1997	701	0	.0	@	20.9	1.1	20.6	@
May	64.6	38.0	51.3	94+	1969	27	56.6	1994	8	1954	3	45.7	1995	427	2	.0	.1	28.5	.0	6.6	.0
Jun	75.7	46.9	61.3	105	1954	23	69.5	1988	24	1950	1	55.4	1998	160	50	.1	3.0	29.8	.0	.5	.0
Jul	83.3	52.7	68.0	105+	1936	5	71.5	1989	33	1971	30	62.4	1992	35	128	.3	9.1	31.0	.0	.0	.0
Aug	82.5	50.9	66.7	102	1960	21	71.3	1983	31	1964	28	62.5	1974	55	108	.1	6.7	30.9	.0	.0	.0
Sep	72.6	40.9	56.8	100	1960	4	63.7	1998	6	1926	24	52.7+	1993	269	21	.0	1.6	28.6	.1	4.4	.0
Oct	59.9	30.0	45.0	87+	1992	2	47.8	1988	-8	1991	31	40.8	1984	622	0	.0	.0	25.5	.6	18.0	.1
Nov	43.3	18.6	31.0	76	1949	4	41.4	1999	-24	1916	12	18.8	1985	1022	0	.0	.0	11.4	6.2	27.0	1.7
Dec	35.7	11.0	23.4	70	1941	3	32.2	1980	-36+	1990	22	10.3	1983	1292	0	.0	.0	5.0	9.9	29.9	5.6
Ann	57.5	30.2	43.9	105+	Jun 1954	23	71.5	Jul 1989	-38	Jan 1972	14	7.6	Jan 1979	7991	309	.5	20.5	235.2	39.8	191.9	19.2

\+ 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: 1915-2001

(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	.59	.51	1.45	1949	4	1.44	1978	.01	1989
Feb	.62	.44	1.50	1998	26	2.54	1998	.00	1983
Mar	1.23	1.11	2.00	1988	12	3.06	1977	.06	1974
Apr	2.25	2.14	2.71	2000	19	5.67	1984	.25	1982
May	2.74	2.14	3.00	1976	23	6.35	1995	.79	1985
Jun	2.13	1.95	2.54	1941	10	5.29	1993	.21	1981
Jul	1.96	1.74	3.20	1941	12	4.16	1992	.35	1987
Aug	1.00	.91	3.19	1968	9	2.26	1998	.09	1976
Sep	1.29	.93	1.85	1999	3	4.96	1973	.00	1983
Oct	1.28	1.03	2.30	1998	5	5.09	1998	.07	1988
Nov	.77	.71	1.16	2000	1	2.31	2000	.00	1982
Dec	.65	.56	1.25	1987	31	2.52	1987	.00	1971
Ann	16.51	16.32	3.20	Jul 1941	12	6.35	May 1995	.00+	Sep 1983

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.3	1.9	.1	.0
Feb	4.3	1.8	.2	@
Mar	6.4	3.0	.5	.2
Apr	9.1	4.9	1.4	.4
May	10.8	6.0	1.7	.3
Jun	8.6	4.6	1.1	.3
Jul	6.1	3.7	1.0	.2
Aug	5.2	2.7	.3	.1
Sep	6.0	3.2	.9	.2
Oct	5.1	2.9	.7	.3
Nov	5.0	2.4	.3	@
Dec	4.8	2.2	.2	@
Ann	76.7	39.3	8.4	2.0

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	.11	.17	.26	.34	.42	.50	.60	.72	.88	1.14	1.38
Feb	.06	.13	.23	.32	.41	.51	.63	.77	.95	1.25	1.54
Mar	.15	.25	.43	.60	.78	.98	1.21	1.50	1.89	2.54	3.16
Apr	.47	.67	1.00	1.30	1.61	1.93	2.30	2.74	3.32	4.25	5.13
May	.61	.87	1.27	1.63	1.99	2.37	2.81	3.32	4.00	5.08	6.10
Jun	.36	.54	.85	1.14	1.44	1.77	2.14	2.60	3.20	4.18	5.12
Jul	.49	.67	.96	1.21	1.46	1.73	2.02	2.37	2.83	3.55	4.23
Aug	.20	.29	.44	.58	.71	.85	1.02	1.21	1.47	1.89	2.28
Sep	.06	.18	.37	.56	.76	.99	1.25	1.58	2.03	2.78	3.50
Oct	.16	.26	.44	.62	.81	1.02	1.26	1.57	1.98	2.66	3.31
Nov	.11	.21	.34	.45	.56	.67	.80	.95	1.15	1.47	1.77
Dec	.03	.09	.18	.28	.38	.49	.63	.80	1.03	1.42	1.79
Ann	11.45	12.42	13.67	14.62	15.47	16.29	17.14	18.08	19.22	20.88	22.33

\+ 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: 1915-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	8.0	6.5	2	1	12.0	1976	1	18.0	1972	13	1994	7	8	1993	4.3	3.3	.9	.3	.1	14.1	7.9	5.9	1.2
Feb	7.9	6.7	2	1	15.0	1998	26	23.0+	1998	22	1993	24	13	1993	3.0	2.5	1.3	.4	@	9.2	6.7	3.8	1.4
Mar	10.1	8.0	2	#	20.0	1988	12	27.5	1975	21	1993	1	11	1993	3.7	2.7	1.4	.3	.2	8.5	5.1	3.0	2.1
Apr	9.8	10.5	1	#	20.0	1997	6	22.0	1997	11+	1997	12	8	1984	2.2	1.8	.8	.4	.2	2.7	1.3	.4	.0
May	.6	.0	#	0	5.0	1983	12	6.0	1983	5	1983	12	#+	1999	.2	.2	.1	@	.0	.2	.1	@	.0
Jun	.0	.0	#	0	.5	1995	9	.5	1995	1	1995	9	#+	1998	@	.0	.0	.0	.0	.1	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	.4	.0	#	0	6.0	1995	20	8.0	1995	6	1995	21	1	1995	.1	.1	.1	@	.0	.2	.2	.1	.0
Oct	3.6	3.0	#	#	12.0	1971	28	12.0	1971	11	1993	9	1	1997	1.2	1.1	.6	.3	.1	1.5	.7	.4	.1
Nov	5.7	4.0	1	#	12.0	1973	3	18.5	2000	18	1983	26	10	1983	2.8	2.3	.6	.4	.1	6.1	3.6	2.0	.5
Dec	11.2	10.0	2	1	17.0	1987	31	33.5	1987	11+	2000	17	8	1992	4.4	3.7	1.2	.6	.2	13.9	8.7	5.5	1.5
Ann	57.3	48.7	N/A	N/A	20.0+	Apr 1997	6	33.5	Dec 1987	22	Feb 1993	24	13	Feb 1993	21.9	17.7	7.0	2.7	.9	56.5	34.3	21.1	6.8

+ 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	7/06	6/28	6/22	6/17	6/12	6/07	6/02	5/28	5/19
32	6/12	6/06	6/02	5/30	5/27	5/24	5/20	5/16	5/11
28	5/25	5/20	5/17	5/14	5/11	5/09	5/06	5/03	4/28
24	5/12	5/07	5/04	5/01	4/29	4/26	4/24	4/20	4/16
20	5/02	4/27	4/23	4/20	4/17	4/14	4/10	4/07	4/01
16	4/26	4/20	4/16	4/13	4/10	4/06	4/03	3/30	3/24

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	8/26	8/31	9/03	9/07	9/09	9/12	9/15	9/19	9/24
32	9/08	9/11	9/14	9/16	9/18	9/20	9/22	9/25	9/28
28	9/11	9/16	9/19	9/21	9/24	9/26	9/29	10/02	10/06
24	9/15	9/21	9/25	9/29	10/02	10/06	10/09	10/13	10/19
20	9/22	9/30	10/05	10/09	10/13	10/17	10/21	10/26	11/02
16	10/06	10/12	10/16	10/20	10/23	10/27	10/31	11/04	11/10

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	118	108	101	94	88	83	76	69	58
32	134	127	122	117	113	109	105	100	93
28	154	148	143	139	135	131	127	122	116
24	178	170	165	160	155	151	146	141	133
20	206	196	190	184	179	173	168	161	152
16	221	213	206	201	196	191	186	180	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	1338	1084	986	701	427	160	35	55	269	622	1022	1292	7991
60	1183	944	831	551	284	78	7	15	157	467	872	1137	6526
57	1090	860	738	463	208	44	2	6	104	375	782	1044	5716
55	1028	804	676	405	163	28	0	3	75	314	722	982	5200
50	873	666	521	269	77	7	0	0	26	177	582	827	4025
32	366	243	94	13	0	0	0	0	0	4	176	333	1229

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	50	84	132	302	598	880	1116	1076	741	405	144	64	5592
55	0	0	0	4	48	219	404	366	126	3	0	0	1170
57	0	0	0	2	31	174	343	307	95	1	0	0	953
60	0	0	0	0	14	118	255	223	59	0	0	0	669
65	0	0	0	0	2	50	128	108	21	0	0	0	309
70	0	0	0	0	0	15	45	35	5	0	0	0	100

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	4	15	56	164	404	689	910	871	544	238	55	9	4	19	75	239	643	1332	2242	3113	3657	3895	3950	3959
45	0	0	20	83	263	539	755	716	401	132	17	1	0	0	20	103	366	905	1660	2376	2777	2909	2926	2927
50	0	0	0	37	151	391	600	562	271	65	1	0	0	0	0	37	188	579	1179	1741	2012	2077	2078	2078
55	0	0	0	11	67	254	446	409	162	15	0	0	0	0	0	11	78	332	778	1187	1349	1364	1364	1364
60	0	0	0	0	20	139	300	261	76	2	0	0	0	0	0	0	20	159	459	720	796	798	798	798
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	2	23	64	143	274	430	578	558	378	205	58	14	2	25	89	232	506	936	1514	2072	2450	2655	2713	2727

(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