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: CLARK 3 NE, WY **COOP ID: 481775**

Climate Division: WY 1 **NWS Call Sign:** **Elevation: 4,090 Feet** **Lat: 44˚56N** **Lon: 109˚08W**

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	34.6	3.9	19.3	67+	1986	19	30.1	1986	-37	1997	13	-.3	1979	1418	0	.0	.0	5.0	11.1	30.4	9.5
Feb	41.7	10.5	26.1	70+	1995	25	37.0	1991	-38	1996	2	11.8	1989	1090	0	.0	.0	9.4	6.0	27.1	5.0
Mar	50.9	19.6	35.3	79	1986	28	44.9	1986	-26	1989	4	26.4	1996	923	0	.0	.0	18.5	1.9	27.9	1.2
Apr	59.3	28.0	43.7	89	1987	29	51.4	1987	1	1997	12	36.5	1975	640	0	.0	.0	24.4	.4	19.9	.0
May	68.7	38.2	53.5	95+	1987	15	59.9	1987	14	1982	5	48.9	1995	364	5	.0	.4	29.7	.0	6.1	.0
Jun	78.4	46.7	62.6	104	1984	29	73.9	1988	27	1979	8	56.1	1998	141	68	.1	4.2	29.9	.0	.4	.0
Jul	85.2	51.8	68.5	105	1985	26	72.7+	1989	36	1972	19	60.3	1993	43	151	.4	10.5	31.0	.0	.0	.0
Aug	84.2	49.6	66.9	102	1995	8	71.2	1971	28	1992	26	61.9	1974	63	122	.1	9.1	31.0	.0	.1	.0
Sep	73.7	39.0	56.4	103	1983	1	63.5	1998	16+	1985	30	51.8	1984	283	23	@	2.1	29.0	.1	5.4	.0
Oct	61.7	27.2	44.5	90	1963	4	48.0	1979	-12	1991	30	39.3	1971	636	0	.0	.0	26.8	.4	20.3	.1
Nov	46.0	15.4	30.7	78+	1999	14	42.0	1999	-30	1975	30	14.0	1985	1029	0	.0	.0	13.3	4.3	27.9	2.5
Dec	36.7	5.4	21.1	67	1999	1	30.1	1979	-44	1990	21	4.4	1983	1362	0	.0	.0	6.2	9.6	30.3	7.8
Ann	60.1	27.9	44.1	105	Jul 1985	26	73.9	Jun 1988	-44	Dec 1990	21	-.3	Jan 1979	7992	369	.6	26.3	254.2	33.8	195.8	26.1

\+ 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: 1961-2001

(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	.34	.26	.73	2000	12	1.19	2000	.00+	1986
Feb	.19	.13	.60	1976	29	.66	1997	.00+	1998
Mar	.28	.27	.75	1976	1	.90	1976	.00	1999
Apr	.54	.41	1.25	1963	27	1.25	1976	.00	1987
May	1.33	1.21	1.40	1987	25	3.31	1981	.24	1973
Jun	1.24	1.05	2.20	1969	25	3.23	1992	.16	1990
Jul	1.01	.95	1.45	1987	11	2.99	1993	.00	1988
Aug	.69	.59	1.75	1986	25	2.52	1986	.00	1975
Sep	.80	.67	1.13	1973	8	2.35	1973	.05	1979
Oct	.61	.42	1.50	1988	16	2.25	1975	.00+	1998
Nov	.30	.21	.80+	1994	2	1.21	1994	.00	1987
Dec	.19	.17	.80	1967	26	1.09	1996	.00+	1998
Ann	7.52	7.25	2.20	Jun 1969	25	3.31	May 1981	.00+	Mar 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.0	1.0	.1	.0
Feb	2.3	.9	@	.0
Mar	3.0	1.0	@	.0
Apr	5.0	2.1	.1	@
May	8.2	4.2	.6	.1
Jun	7.3	3.5	.7	.1
Jul	6.7	3.0	.4	@
Aug	5.4	2.0	.2	.1
Sep	4.8	2.3	.3	.1
Oct	3.7	1.9	.2	@
Nov	2.8	1.0	.1	.0
Dec	2.5	1.0	@	.0
Ann	54.7	23.9	2.7	.4

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	.00	.00	.04	.09	.15	.22	.30	.41	.56	.83	1.09
Feb	.00	.00	.00	.03	.07	.12	.17	.24	.33	.49	.65
Mar	.02	.04	.08	.12	.17	.22	.27	.34	.44	.60	.75
Apr	.07	.13	.22	.30	.38	.46	.55	.66	.81	1.04	1.26
May	.36	.49	.68	.85	1.01	1.18	1.37	1.60	1.89	2.35	2.78
Jun	.31	.43	.61	.77	.93	1.09	1.28	1.50	1.79	2.24	2.67
Jul	.12	.25	.42	.56	.71	.86	1.03	1.24	1.51	1.95	2.36
Aug	.08	.17	.28	.38	.48	.59	.71	.85	1.04	1.34	1.63
Sep	.08	.13	.24	.35	.47	.61	.77	.97	1.25	1.71	2.16
Oct	.00	.07	.18	.27	.37	.48	.61	.76	.97	1.31	1.63
Nov	.01	.02	.06	.10	.15	.21	.28	.36	.48	.69	.90
Dec	.00	.00	.00	.05	.10	.14	.19	.25	.33	.47	.60
Ann	5.34	5.76	6.30	6.70	7.07	7.42	7.78	8.18	8.66	9.36	9.97

+ 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: 1961-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	6.1	4.0	3	2
Feb	1.9	.5	1	#
Mar	3.3	3.0	#	#
Apr	2.1	1.5	#	#
May	.3	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.5	.0	#	0
Oct	1.4	.0	#	0
Nov	2.1	1.6	1	#
Dec	3.7	2.2	1	#
Ann	21.4	12.8	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	18.0	1975	26	18.6	1975	29	1979	12	24	1979
Feb	12.0	1976	29	12.0	1976	18	1979	1	18	1975
Mar	14.0	1976	1	16.0	1976	14	1976	6	4	1976
Apr	6.0	1976	27	10.0	1976	6	1982	4	1	1982
May	4.0	1983	11	4.0	1983	4	1983	11	#+	1995
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	4.0	1984	23	7.0	1984	4	1984	23	#+	2000
Oct	6.0	1971	18	8.0	1975	6	1971	18	1	1971
Nov	4.0	1971	27	9.0	1983	18	1978	27	11	1978
Dec	12.0	1996	25	21.0	1996	18	1996	26	11	1978
Ann	18.0	Jan 1975	26	21.0	Dec 1996	29	Jan 1979	12	24	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.2	1.5	.7	.4	.1
Feb	1.1	.6	.2	@	@
Mar	1.6	1.4	.4	.1	@
Apr	1.1	.9	.3	@	.0
May	.2	.1	@	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.2	.1	.1	.0	.0
Oct	.6	.6	.2	.1	.0
Nov	1.2	.9	.3	.0	.0
Dec	2.0	1.5	.3	.1	@
Ann	10.2	7.6	2.5	.7	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	4.3	2.4	1.7	.7
Feb	2.7	.8	.2	.1
Mar	2.0	1.0	.7	.3
Apr	.6	.1	.1	.0
May	.1	@	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.2	.1	.0	.0
Oct	.6	.2	.1	.0
Nov	1.9	.7	.2	.0
Dec	6.6	1.9	.6	.3
Ann	19.0	7.2	3.6	1.4

+ 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	6/28	6/22	6/17	6/13	6/09	6/06	6/02	5/28	5/22
32	6/10	6/04	5/31	5/27	5/24	5/20	5/17	5/12	5/07
28	5/28	5/22	5/18	5/14	5/11	5/07	5/03	4/29	4/23
24	5/12	5/07	5/04	5/01	4/28	4/25	4/22	4/19	4/14
20	5/05	4/29	4/25	4/22	4/19	4/15	4/12	4/08	4/03
16	4/23	4/18	4/14	4/11	4/08	4/05	4/02	3/30	3/25

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	8/23	8/29	9/02	9/05	9/08	9/11	9/15	9/18	9/24
32	9/03	9/07	9/10	9/12	9/15	9/17	9/20	9/23	9/27
28	9/10	9/15	9/18	9/21	9/24	9/27	9/30	10/04	10/09
24	9/19	9/23	9/27	9/30	10/02	10/05	10/08	10/11	10/16
20	10/01	10/06	10/09	10/12	10/15	10/18	10/21	10/24	10/29
16	10/07	10/13	10/17	10/21	10/24	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	113	105	99	95	90	85	81	75	67
32	135	128	122	118	113	109	105	99	92
28	160	152	146	141	136	131	126	120	111
24	174	168	164	160	156	153	149	145	139
20	202	194	188	183	179	174	169	163	155
16	218	211	206	202	198	194	190	185	178

***** 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	1418	1090	923	640	364	141	43	63	283	636	1029	1362	7992
60	1263	950	768	491	229	66	11	20	171	481	879	1207	6536
57	1170	866	675	405	161	36	3	8	117	389	790	1114	5734
55	1108	810	613	350	122	23	1	4	87	329	736	1052	5235
50	957	678	467	224	52	5	0	1	34	192	596	900	4106
32	464	260	86	10	0	0	0	0	0	6	204	412	1442

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	69	94	187	361	664	916	1131	1082	730	393	165	72	5864
55	0	0	0	11	74	249	419	373	127	3	7	0	1263
57	0	0	0	6	50	203	360	315	97	1	2	0	1034
60	0	0	0	1	25	143	274	234	61	0	0	0	738
65	0	0	0	0	5	68	151	122	23	0	0	0	369
70	0	0	0	0	1	24	67	47	7	0	0	0	146

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	6	18	72	203	449	702	909	869	533	235	47	10	6	24	96	299	748	1450	2359	3228	3761	3996	4043	4053
45	3	3	28	109	307	552	754	714	390	130	16	1	3	6	34	143	450	1002	1756	2470	2860	2990	3006	3007
50	0	0	5	47	182	406	599	560	264	57	2	0	0	0	5	52	234	640	1239	1799	2063	2120	2122	2122
55	0	0	0	15	93	265	446	405	150	15	0	0	0	0	0	15	108	373	819	1224	1374	1389	1389	1389
60	0	0	0	4	35	150	294	257	68	2	0	0	0	0	0	4	39	189	483	740	808	810	810	810
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	13	35	93	189	309	449	570	554	374	220	59	18	13	48	141	330	639	1088	1658	2212	2586	2806	2865	2883

(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