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: ALTA 1 NNW, WY **COOP ID: 480140**

Climate Division: WY 2 **NWS Call Sign:** **Elevation: 6,430 Feet** **Lat: 43˚46N** **Lon: 111˚02W**

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	29.0	10.8	19.9	56	1981	1	28.5	1981	-35	1963	12	10.4	1979	1400	0	.0	.0	.2	20.4	30.8	8.2
Feb	33.8	13.6	23.7	60	1980	28	30.3	1991	-30	1981	10	14.6	1985	1157	0	.0	.0	.6	12.3	28.1	5.0
Mar	40.0	19.6	29.8	64+	1986	29	36.7	1986	-18+	1976	4	23.7	1976	1092	0	.0	.0	3.8	5.0	29.9	1.7
Apr	48.5	26.7	37.6	79	1977	30	45.6	1987	-14	1975	1	31.1	1975	822	0	.0	.0	12.7	1.0	23.8	.2
May	59.6	35.2	47.4	85	1966	27	52.9	1992	8+	1975	2	41.4	1975	546	0	.0	.0	25.4	@	14.4	.0
Jun	69.8	42.7	56.3	92	1970	25	63.4	1986	20+	1978	2	49.6	1998	282	19	.0	.2	29.3	.0	4.3	.0
Jul	78.2	48.4	63.3	95	1960	21	67.8	1976	20	1968	20	52.8	1993	132	79	.0	1.2	31.0	.0	.4	.0
Aug	77.4	46.5	62.0	94	1961	4	65.1	1971	20	1977	31	56.0	1993	138	42	.0	.8	31.0	.0	.8	.0
Sep	67.9	38.8	53.4	90+	1979	7	59.1	1990	10	1985	29	47.6	1986	355	5	.0	@	28.6	.1	8.2	.0
Oct	55.0	30.1	42.6	79+	1958	5	50.3	1988	-5+	1972	30	36.2	1984	696	0	.0	.0	21.7	.8	20.6	.2
Nov	38.1	19.1	28.6	69	1999	7	39.4	1999	-28	1992	24	19.7	1992	1092	0	.0	.0	4.7	10.0	28.0	2.0
Dec	29.4	10.9	20.2	57	1979	18	28.1	1980	-40	1990	22	10.1	1990	1390	0	.0	.0	.5	19.6	30.6	6.9
Ann	52.2	28.5	40.4	95	Jul 1960	21	67.8	Jul 1976	-40	Dec 1990	22	10.1	Dec 1990	9102	145	.0	2.2	189.5	69.2	219.9	24.2

\+ 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: 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	2.34	2.17	1.04	1982	16	5.14	1999	.15	1985
Feb	1.79	1.75	.90	1985	8	4.25	1986	.50+	1991
Mar	1.98	1.97	1.42	1995	21	4.81	1989	.33	1994
Apr	2.12	2.01	1.54	1957	6	4.23	1971	.49	1977
May	3.50	3.38	1.75	1988	7	7.63	1981	.76	1976
Jun	2.12	2.29	1.58	1964	17	4.32	1992	.10	1986
Jul	1.80	1.47	1.75	1993	3	4.46	1993	.10	1988
Aug	1.54	1.58	1.57	1978	13	2.97	1978	.00	1985
Sep	1.72	1.63	1.05	1963	21	4.15	1973	.00	1987
Oct	2.05	1.87	1.44	1994	6	4.66	1994	.00	1978
Nov	2.11	1.90	1.16	1968	9	4.50	1973	.00	1976
Dec	2.08	1.74	1.25	1981	19	5.72	1996	.15	1986
Ann	25.15+	24.92+	1.75+	Jul 1993	3	7.63	May 1981	.00+	Sep 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.3	7.2	1.2	.1
Feb	6.8	5.6	1.2	.0
Mar	9.5	7.0	.7	@
Apr	8.7	6.6	1.0	@
May	10.5	9.0	2.3	.4
Jun	7.5	6.1	1.4	.1
Jul	6.1	5.0	1.2	.2
Aug	6.2	4.8	.9	.1
Sep	5.5	4.5	1.2	.1
Oct	6.2	5.5	1.4	.3
Nov	8.3	6.6	1.0	.1
Dec	8.2	6.4	1.0	.1
Ann	92.8	74.3	14.5	1.5

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	.65	.87	1.21	1.50	1.79	2.09	2.42	2.81	3.32	4.12	4.87
Feb	.54	.71	.97	1.19	1.40	1.62	1.86	2.15	2.52	3.09	3.63
Mar	.69	.88	1.15	1.38	1.60	1.82	2.06	2.35	2.71	3.27	3.79
Apr	.75	.95	1.24	1.48	1.72	1.96	2.22	2.52	2.91	3.50	4.05
May	1.24	1.57	2.05	2.45	2.84	3.23	3.66	4.16	4.80	5.79	6.69
Jun	.38	.57	.88	1.17	1.46	1.78	2.15	2.59	3.18	4.12	5.03
Jul	.33	.49	.75	1.00	1.25	1.52	1.83	2.20	2.69	3.49	4.25
Aug	.30	.51	.77	.98	1.18	1.39	1.61	1.88	2.22	2.76	3.26
Sep	.14	.33	.61	.87	1.13	1.41	1.73	2.13	2.66	3.51	4.33
Oct	.24	.49	.83	1.13	1.43	1.74	2.10	2.53	3.10	4.01	4.87
Nov	.51	.81	1.16	1.43	1.69	1.95	2.24	2.57	2.99	3.64	4.25
Dec	.44	.63	.93	1.21	1.49	1.79	2.13	2.53	3.07	3.92	4.73
Ann	18.82	20.07	21.66	22.86	23.92	24.93	25.98	27.13	28.52	30.53	32.25

+ 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)

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	22.6	22.0	20	21	14.0	1980	10	45.0	1999	36	1989	23	31	1984	7.0	7.0	3.1	1.2	.1	29.0	28.9	28.1	27.2
Feb	16.0	13.9	25	25	14.0	2000	25	30.0	2000	43	1993	28	43	1993	5.3	5.2	2.1	.7	.1	27.4	27.4	27.4	27.4
Mar	14.1	13.6	23	23	10.1	1972	2	30.9	1989	45	1974	7	37+	1984	5.2	5.0	1.9	.5	.1	29.5	29.5	29.1	27.9
Apr	9.8	9.0	12	11	12.0	1991	25	26.4	1982	40	1975	9	33	1975	3.5	3.5	1.2	.5	@	19.2	18.1	17.1	14.9
May	5.0	3.5	1	#	14.0	1988	7	25.7	1975	40	1975	7	14	1975	1.5	1.5	.6	.3	.1	1.9	1.1	.7	.4
Jun	.3	.0	#	0	5.0	1982	8	5.0	1982	#+	1989	19	#+	1989	.1	.1	@	@	.0	.0	.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	.7	.0	#	0	6.1	1978	18	8.1	1978	4	1978	18	#+	2000	.3	.3	@	@	.0	.1	@	.0	.0
Oct	6.8	6.0	1	#	8.0	1975	14	34.0	1975	10	1989	28	4	1975	2.1	2.1	1.0	.5	.0	3.2	2.0	.9	.1
Nov	14.7	16.0	3	3	12.0	1971	27	34.8	1994	24+	1994	29	9	1985	5.3	5.3	2.3	.7	.1	16.5	12.8	7.4	2.8
Dec	19.5	19.1	12	11	18.0	1992	9	37.5	1981	35	1994	10	24	1994	6.4	6.3	2.5	.9	.2	29.4	27.0	23.8	17.9
Ann	109.5	103.1	N/A	N/A	18.0	Dec 1992	9	45.0	Jan 1999	45	Mar 1974	7	43	Feb 1993	36.7	36.3	14.7	5.3	.7	156.2	146.8	134.5	118.6

+ 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	7/23	7/17	7/13	7/09	7/06	7/02	6/29	6/24	6/19
32	7/15	7/08	7/03	6/29	6/25	6/20	6/16	6/11	6/04
28	6/21	6/13	6/07	6/02	5/28	5/23	5/18	5/12	5/04
24	6/04	5/27	5/22	5/17	5/13	5/09	5/04	4/29	4/21
20	5/24	5/16	5/11	5/06	5/02	4/27	4/23	4/17	4/10
16	5/13	5/06	5/01	4/27	4/23	4/19	4/15	4/10	4/04

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	8/05	8/12	8/18	8/22	8/26	8/30	9/04	9/09	9/16
32	8/16	8/23	8/28	9/01	9/05	9/09	9/13	9/18	9/25
28	9/01	9/06	9/10	9/13	9/16	9/19	9/23	9/27	10/02
24	9/10	9/16	9/20	9/24	9/27	9/30	10/04	10/08	10/14
20	9/14	9/22	9/27	10/02	10/06	10/11	10/15	10/21	10/28
16	9/29	10/06	10/12	10/17	10/21	10/26	10/30	11/05	11/13

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	83	72	64	57	51	44	37	29	18
32	103	92	84	78	72	65	59	51	40
28	144	133	124	117	111	104	97	89	77
24	170	159	150	143	136	129	122	114	102
20	193	181	172	164	157	150	142	133	120
16	216	204	195	187	180	173	166	157	144

***** 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	1400	1157	1092	822	546	282	132	138	355	696	1092	1390	9102
60	1245	1017	937	672	394	169	59	55	224	542	942	1235	7491
57	1152	933	844	582	307	115	31	26	159	451	852	1142	6594
55	1090	877	782	525	253	85	19	14	122	393	792	1080	6032
50	935	737	627	384	138	32	5	2	53	259	644	925	4741
32	389	260	143	51	1	0	0	0	0	17	199	386	1446

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	13	27	74	218	478	727	970	928	640	344	97	19	4535
55	0	0	0	2	16	122	276	229	72	7	0	0	724
57	0	0	0	0	8	92	226	178	49	3	0	0	556
60	0	0	0	0	2	56	161	115	24	1	0	0	359
65	0	0	0	0	0	19	79	42	5	0	0	0	145
70	0	0	0	0	0	5	27	10	0	0	0	0	42

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	2	72	241	475	706	674	400	151	14	0	0	0	2	74	315	790	1496	2170	2570	2721	2735	2735
45	0	0	0	30	138	332	551	519	265	71	0	0	0	0	0	30	168	500	1051	1570	1835	1906	1906	1906
50	0	0	0	11	61	207	398	367	157	22	0	0	0	0	0	11	72	279	677	1044	1201	1223	1223	1223
55	0	0	0	0	17	105	254	224	69	3	0	0	0	0	0	0	17	122	376	600	669	672	672	672
60	0	0	0	0	1	42	124	99	17	0	0	0	0	0	0	0	1	43	167	266	283	283	283	283
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	2	58	170	306	458	437	281	122	14	0	0	0	2	60	230	536	994	1431	1712	1834	1848	1848

(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