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: ELK MOUNTAIN, WY **COOP ID: 482995**

Climate Division: WY10 **NWS Call Sign:** **Elevation: 7,265 Feet** **Lat: 41˚41N** **Lon: 106˚25W**

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	31.1	13.0	22.1	59	1959	12	29.6	1986	-42	1963	12	10.0	1979	1331	0	.0	.0	.5	14.7	29.7	4.0
Feb	34.1	15.4	24.8	60	1963	6	31.3	2000	-34	1973	8	15.5	1989	1127	0	.0	.0	1.3	10.0	27.2	3.3
Mar	40.5	21.2	30.9	71	1966	30	38.4	1986	-26	1965	25	24.7	1985	1059	0	.0	.0	6.3	5.1	27.9	.8
Apr	48.8	26.5	37.7	75+	1987	28	45.5	1981	-7	1966	20	30.7	1984	821	0	.0	.0	15.6	1.9	22.6	.2
May	59.7	34.7	47.2	84	1954	20	52.3	1987	10	1955	3	42.0	1995	551	0	.0	.0	26.2	.0	10.9	.0
Jun	71.5	42.8	57.2	95	1963	30	62.7	1977	18	1955	4	51.2	1998	248	13	.0	.0	29.4	.0	1.7	.0
Jul	78.7	47.9	63.3	94	1954	12	67.8	2000	28	1968	1	57.7	1993	99	46	.0	.4	31.0	.0	.0	.0
Aug	76.6	46.6	61.6	93	2000	10	65.7	1982	24+	1964	25	57.6	1985	131	26	.0	.2	31.0	.0	.1	.0
Sep	67.2	38.5	52.9	89+	1998	5	58.9	1998	6	1985	30	48.4	1984	367	3	.0	.0	28.3	.1	6.7	.0
Oct	55.2	30.5	42.9	81	1957	1	47.7	1988	-11	1969	13	34.5	1984	687	0	.0	.0	22.3	.9	18.1	.1
Nov	39.8	20.7	30.3	67+	1999	15	40.3	1999	-19	1976	27	21.7	2000	1042	0	.0	.0	7.4	7.1	25.5	1.3
Dec	33.1	14.6	23.9	58+	1980	28	36.1	1980	-35	1990	21	10.8	1983	1275	0	.0	.0	1.7	13.2	29.0	3.2
Ann	53.0	29.4	41.2	95	Jun 1963	30	67.8	Jul 2000	-42	Jan 1963	12	10.0	Jan 1979	8738	88	.0	.6	201.0	53.0	199.4	12.9

\+ 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	.70	.62	2.10	1994	6	2.53	1994	.00	1989
Feb	.70	.68	.83	1989	2	2.36	1989	.06	1988
Mar	1.09	1.00	1.36	1957	31	2.22	1990	.11	1986
Apr	1.47	1.43	1.56	1968	3	3.59	1971	.05	1987
May	1.93	1.81	2.40	1991	16	7.56	1995	.04	1986
Jun	.97	.69	3.25	1986	10	3.78	1986	.02	1977
Jul	.95	.62	1.93	1987	26	3.83	1973	.03	1986
Aug	.93	.75	1.01+	1992	17	3.50	1997	.14	1985
Sep	1.01	.92	1.52	1965	16	3.36	1997	.05	1986
Oct	.94	.86	1.27	1998	17	3.53	1972	.00	1989
Nov	1.00	.80	1.51	1990	6	3.36	1983	.13	1997
Dec	.83	.68	1.60	1992	13	2.37	1978	.02	1991
Ann	12.52	12.74	3.25	Jun 1986	10	7.56	May 1995	.00+	Oct 1989

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.3	2.6	.1	@
Feb	5.8	2.4	.1	.0
Mar	7.2	3.2	.3	.1
Apr	8.8	4.2	.5	@
May	7.9	4.4	.9	.4
Jun	4.8	2.7	.4	.1
Jul	5.5	2.3	.5	.1
Aug	5.6	2.7	.4	.1
Sep	4.3	2.7	.6	.1
Oct	4.8	2.6	.4	.2
Nov	6.5	2.7	.4	.1
Dec	6.1	2.5	.2	@
Ann	73.6	35.0	4.8	1.2

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	.02	.07	.17	.27	.39	.51	.67	.86	1.13	1.58	2.02
Feb	.12	.18	.28	.38	.48	.58	.70	.85	1.05	1.37	1.68
Mar	.28	.38	.54	.68	.82	.96	1.12	1.31	1.56	1.96	2.33
Apr	.13	.23	.42	.63	.85	1.11	1.41	1.79	2.32	3.20	4.07
May	.15	.28	.54	.80	1.10	1.43	1.84	2.34	3.05	4.22	5.38
Jun	.04	.08	.18	.31	.46	.63	.86	1.15	1.57	2.29	3.02
Jul	.04	.08	.19	.31	.45	.63	.85	1.13	1.54	2.24	2.94
Aug	.12	.20	.33	.46	.60	.75	.92	1.14	1.43	1.90	2.36
Sep	.08	.15	.28	.42	.57	.75	.96	1.22	1.59	2.21	2.82
Oct	.02	.09	.21	.34	.49	.67	.88	1.14	1.52	2.15	2.78
Nov	.13	.21	.36	.50	.64	.80	.99	1.22	1.53	2.04	2.53
Dec	.05	.09	.19	.31	.43	.58	.77	1.00	1.33	1.89	2.44
Ann	6.20	7.26	8.70	9.85	10.92	11.98	13.11	14.39	16.00	18.41	20.57

\+ 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	11.5	9.0	5	2	12.0	1996	5	37.8	1980	28	1999	31	18	1979	5.2	4.6	1.3	.5	@	24.5	11.0	8.5	4.2
Feb	11.2	10.5	5	2	12.0	1989	2	26.5	1976	23	1979	9	18+	1982	5.0	4.3	1.2	.4	.1	22.5	9.1	6.8	3.4
Mar	13.8	12.5	3	1	16.0	1997	15	35.0	1980	22	1973	14	15	1973	5.5	5.0	1.5	.5	.1	16.7	7.4	4.6	2.0
Apr	11.4	10.0	1	1	15.0	1973	19	43.1	1973	25	1973	20	10	1973	4.6	4.3	1.5	.4	.1	5.6	2.6	.8	@
May	4.9	2.0	#	#	14.0	1988	2	32.0	1978	14	1988	2	2	1995	1.4	1.2	.6	.2	.2	1.4	.7	.3	.2
Jun	.6	.0	#	0	8.0	1974	8	13.0	1974	5	1974	8	#+	1995	.1	.1	.1	.1	.0	.1	.1	@	.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	1.1	.0	#	0	9.0	1974	12	9.0	1974	9+	2000	23	1	2000	.4	.4	.1	.1	.0	.3	.1	.1	.0
Oct	5.9	4.0	1	#	20.0	1997	25	22.0+	1997	20	1997	25	8	1998	1.9	1.7	.7	.3	.1	2.3	1.1	.6	.2
Nov	11.5	12.0	1	1	15.0	1979	21	35.0	1979	20	1979	22	7	1979	4.9	4.3	1.7	.4	.1	12.0	4.6	1.8	.4
Dec	12.1	8.5	3	2	16.0	1987	27	47.7	1978	22	1978	30	16	1978	5.2	4.9	1.4	.6	.1	18.3	6.1	3.4	1.0
Ann	84.0	68.5	N/A	N/A	20.0	Oct 1997	25	47.7	Dec 1978	28	Jan 1999	31	18+	Feb 1982	34.2	30.8	10.1	3.5	.8	103.7	42.8	26.9	11.4

+ 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	7/12	7/06	7/01	6/27	6/23	6/20	6/16	6/11	6/04
32	6/20	6/14	6/10	6/07	6/04	6/01	5/28	5/24	5/19
28	6/05	5/30	5/26	5/22	5/18	5/15	5/11	5/07	5/01
24	5/16	5/12	5/09	5/06	5/04	5/01	4/29	4/26	4/22
20	5/06	5/02	4/29	4/27	4/25	4/22	4/20	4/17	4/13
16	4/28	4/23	4/19	4/16	4/13	4/10	4/06	4/03	3/28

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	8/12	8/18	8/23	8/26	8/30	9/03	9/06	9/11	9/17
32	9/03	9/07	9/09	9/11	9/13	9/15	9/17	9/20	9/23
28	9/11	9/15	9/18	9/20	9/22	9/24	9/27	9/30	10/03
24	9/14	9/19	9/22	9/25	9/28	10/01	10/04	10/07	10/12
20	9/21	9/28	10/03	10/07	10/11	10/16	10/20	10/25	11/01
16	9/30	10/07	10/12	10/17	10/21	10/25	10/30	11/04	11/11

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	93	84	78	72	67	62	57	50	41
32	120	113	109	104	101	97	93	88	81
28	147	140	135	130	126	122	117	112	105
24	165	158	154	150	146	143	139	134	128
20	190	183	178	173	169	165	160	155	148
16	216	208	201	196	190	185	180	173	165

***** 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	1331	1127	1059	821	551	248	99	131	367	687	1042	1275	8738
60	1176	987	904	671	398	134	29	46	233	532	892	1120	7122
57	1083	903	811	581	310	83	11	20	164	440	802	1027	6235
55	1021	847	749	522	255	57	4	9	126	381	742	965	5678
50	866	707	594	382	139	16	0	1	54	245	593	810	4407
32	338	238	135	49	2	0	0	0	0	11	162	307	1242

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	30	34	100	219	473	755	970	917	627	347	109	55	4636
55	0	0	0	1	14	122	261	214	62	4	0	0	678
57	0	0	0	0	6	88	205	162	41	2	0	0	504
60	0	0	0	0	2	50	131	96	19	0	0	0	298
65	0	0	0	0	0	13	46	26	3	0	0	0	88
70	0	0	0	0	0	2	8	3	0	0	0	0	13

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	22	85	269	533	739	690	419	175	33	3	0	0	22	107	376	909	1648	2338	2757	2932	2965	2968
45	0	0	0	36	148	388	584	535	284	85	7	0	0	0	0	36	184	572	1156	1691	1975	2060	2067	2067
50	0	0	0	11	63	251	430	380	165	29	0	0	0	0	0	11	74	325	755	1135	1300	1329	1329	1329
55	0	0	0	0	15	136	279	229	72	5	0	0	0	0	0	0	15	151	430	659	731	736	736	736
60	0	0	0	0	0	53	136	99	21	0	0	0	0	0	0	0	0	53	189	288	309	309	309	309
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	18	72	187	348	473	445	287	136	21	0	0	0	18	90	277	625	1098	1543	1830	1966	1987	1987

(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