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: HAYDEN, CO **COOP ID: 053867**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 6,440 Feet** **Lat: 40˚30N** **Lon: 107˚15W**

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	29.7	7.2	18.5	65	1950	24	30.8	1981	-45	1963	12	6.2	1973	1443	0	.0	.0	.4	18.1	30.8	8.4
Feb	34.7	10.6	22.7	61+	1981	25	31.1	2000	-44	1989	6	12.2	1973	1185	0	.0	.0	1.1	10.4	28.1	5.6
Mar	45.1	20.6	32.9	72	1986	30	39.9	1986	-25	1948	11	24.3	1973	996	0	.0	.0	9.3	2.4	29.7	.9
Apr	57.4	28.5	43.0	80+	1981	26	48.3	1992	-3	1973	8	35.2	1973	661	0	.0	.0	22.3	.2	21.1	.1
May	68.1	36.5	52.3	88+	2000	29	56.4	1994	15	1972	1	48.0	1995	394	0	.0	.0	30.0	.0	7.2	.0
Jun	79.0	43.1	61.1	100	1956	14	66.8	1977	24	1951	3	56.1	1998	151	32	.0	1.6	29.9	.0	.9	.0
Jul	84.9	48.9	66.9	98	1981	6	69.5	1976	29	1968	1	63.3	1993	34	93	.0	5.9	31.0	.0	@	.0
Aug	83.1	47.9	65.5	98	1979	5	70.1	1983	28+	1972	24	61.5	1972	59	74	.0	2.7	31.0	.0	.2	.0
Sep	74.3	39.6	57.0	94	1978	5	61.9	1998	14	1985	30	51.2	1971	256	15	.0	.4	29.7	.0	4.8	.0
Oct	61.8	29.4	45.6	83	1992	2	49.8	1988	-1	1971	30	40.2	1984	602	0	.0	.0	26.7	.4	21.0	@
Nov	43.8	19.3	31.6	74	1999	7	39.1	1999	-27	1955	16	21.5	2000	1004	0	.0	.0	9.9	5.4	28.4	1.5
Dec	31.8	9.3	20.6	61+	1980	18	34.4	1980	-33	1990	23	13.2	1978	1379	0	.0	.0	1.2	16.4	30.8	7.2
Ann	57.8	28.4	43.1	100	Jun 1956	14	70.1	Aug 1983	-45	Jan 1963	12	6.2	Jan 1973	8164	214	.0	10.6	222.5	53.3	203.0	23.7

\+ 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

Issue Date: February 2004

(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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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	1.66	1.55	.85+	1980	28	3.46	1996	.53	1981
Feb	1.22	1.22	1.06	1986	20	2.62	1986	.40	1982
Mar	1.28	1.30	.78	1979	28	2.50	1981	.22	1997
Apr	1.57	1.37	1.28	1995	30	3.31	1985	.58	1989
May	1.66	1.41	1.33	1992	26	4.11	1995	.09	1974
Jun	1.06	.96	1.15	1957	15	2.81	1984	.02	1980
Jul	1.44	1.25	1.14	1987	30	3.46	1992	.30	1994
Aug	1.34	1.25	1.10+	1989	12	3.07	1997	.45	1971
Sep	1.45	1.31	1.84	1997	19	6.20	1997	.17	1979
Oct	1.64	1.48	1.54	1979	20	3.76	1981	.14	1988
Nov	1.52	1.28	1.14	1973	3	3.71	1985	.12	1976
Dec	1.50	1.30	1.82	1951	30	5.11	1983	.31	1986
Ann	17.34	16.73	1.84	Sep 1997	19	6.20	Sep 1997	.02	Jun 1980

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.6	5.9	.4	.0
Feb	9.9	4.2	.4	@
Mar	9.9	4.8	.2	.0
Apr	10.0	5.3	.5	.1
May	10.4	5.1	.5	.1
Jun	7.1	3.1	.5	.0
Jul	8.5	4.0	.7	.1
Aug	8.5	4.0	.5	.1
Sep	8.7	4.5	.5	.1
Oct	7.8	4.5	.9	.1
Nov	9.6	5.0	.4	.1
Dec	11.1	5.3	.3	@
Ann	114.1	55.7	5.8	.7

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	.46	.61	.85	1.06	1.27	1.48	1.72	2.00	2.36	2.94	3.47
Feb	.37	.48	.66	.80	.95	1.10	1.27	1.46	1.71	2.11	2.47
Mar	.40	.52	.70	.86	1.01	1.16	1.33	1.53	1.79	2.19	2.57
Apr	.58	.73	.94	1.12	1.29	1.46	1.64	1.86	2.13	2.56	2.95
May	.36	.51	.76	.98	1.20	1.43	1.70	2.01	2.43	3.10	3.73
Jun	.11	.19	.33	.48	.64	.82	1.03	1.30	1.66	2.26	2.85
Jul	.33	.46	.67	.86	1.05	1.25	1.48	1.75	2.11	2.68	3.21
Aug	.43	.56	.75	.91	1.06	1.22	1.40	1.60	1.87	2.28	2.67
Sep	.24	.36	.57	.77	.98	1.20	1.45	1.77	2.18	2.85	3.49
Oct	.24	.38	.61	.84	1.08	1.34	1.64	2.00	2.50	3.30	4.08
Nov	.35	.49	.72	.91	1.11	1.32	1.56	1.84	2.21	2.79	3.34
Dec	.35	.49	.71	.90	1.10	1.31	1.54	1.82	2.18	2.77	3.31
Ann	12.11	13.11	14.40	15.39	16.26	17.11	17.99	18.96	20.14	21.85	23.34

+ 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	26.6	22.3	15	16
Feb	18.6	18.0	17	18
Mar	14.2	14.0	7	5
Apr	8.5	8.4	#	#
May	1.2	.0	#	0
Jun	.3	.0	#	0
Jul	.0	.0	#	0
Aug	.0	.0	0	0
Sep	.4	.0	#	0
Oct	6.1	5.0	#	#
Nov	18.0	16.0	2	1
Dec	24.4	21.5	8	7
Ann	118.3	105.2	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	1996	25	65.5	1996	38	1984	1	32	1984
Feb	11.5	1986	20	49.0	1989	34	1979	6	29	1984
Mar	8.0	1980	7	30.5	1980	29+	1984	5	23	1984
Apr	9.0	1985	20	21.5	1985	17	1980	3	4	1980
May	4.0	1978	6	9.0	1978	1+	1999	10	#+	1999
Jun	8.0	1976	14	8.0	1976	#	1998	4	#	1998
Jul	.0	0	0	.0	0	#	1992	24	#	1992
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	4.0	1984	25	4.0+	2000	#+	1999	28	#+	1999
Oct	13.0	1975	23	24.0	1984	10	1975	23	1	1996
Nov	14.0	1973	3	51.0	1973	22	1973	3	7	2000
Dec	14.5	1987	23	74.5	1983	43	1978	5	20	1983
Ann	18.0	Jan 1996	25	74.5	Dec 1983	43	Dec 1978	5	32	Jan 1984

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	12.4	9.3	3.5	1.3	.2
Feb	9.7	7.0	2.1	.9	.1
Mar	8.0	5.8	1.8	.5	.0
Apr	4.2	3.4	1.1	.4	.0
May	1.0	.7	@	.0	.0
Jun	.1	@	@	@	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.2	.1	.1	.0	.0
Oct	2.6	2.1	.8	.3	@
Nov	8.1	6.0	2.5	.7	.1
Dec	10.7	8.0	3.2	1.2	@
Ann	57.0	42.4	15.1	5.3	.4

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	29.5	28.6	27.8	23.7
Feb	26.2	24.7	23.6	22.2
Mar	16.3	13.2	12.0	9.2
Apr	2.2	1.1	.6	.2
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	2.2	1.3	.3	@
Nov	12.4	8.3	5.6	1.3
Dec	25.6	23.0	20.0	11.0
Ann	114.5	100.2	89.9	67.6

+ 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	7/06	6/29	6/25	6/21	6/17	6/13	6/09	6/05	5/29
32	6/20	6/14	6/10	6/07	6/03	5/31	5/28	5/23	5/18
28	6/08	5/31	5/26	5/22	5/17	5/13	5/08	5/03	4/26
24	5/14	5/09	5/05	5/02	4/29	4/27	4/24	4/20	4/15
20	5/01	4/26	4/22	4/19	4/15	4/12	4/09	4/05	3/30
16	4/21	4/15	4/10	4/06	4/02	3/29	3/25	3/20	3/13

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	8/21	8/27	8/31	9/04	9/08	9/11	9/15	9/19	9/25
32	8/30	9/05	9/09	9/13	9/16	9/19	9/23	9/27	10/03
28	9/10	9/15	9/19	9/22	9/25	9/28	10/01	10/05	10/10
24	9/18	9/23	9/27	9/30	10/03	10/06	10/09	10/13	10/18
20	9/29	10/05	10/09	10/13	10/17	10/20	10/24	10/28	11/03
16	10/12	10/17	10/21	10/24	10/27	10/30	11/02	11/06	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	112	101	94	88	82	76	70	62	52
32	128	120	114	109	104	99	94	88	80
28	157	148	141	135	130	125	119	112	103
24	181	172	166	161	156	151	146	140	131
20	206	198	193	188	184	179	174	169	161
16	232	224	217	212	208	203	198	191	183

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1443	1185	996	661	394	151	34	59	256	602	1004	1379	8164
60	1288	1045	841	511	245	64	4	14	142	448	854	1224	6680
57	1195	961	748	426	167	31	1	4	90	356	764	1131	5874
55	1133	905	686	371	123	17	0	2	63	298	704	1069	5371
50	978	765	536	243	45	2	0	0	19	168	558	914	4228
32	448	298	119	15	0	0	0	0	0	3	144	388	1415

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	28	37	146	344	629	872	1082	1039	749	424	130	32	5512
55	0	0	0	10	39	199	369	327	122	5	0	0	1071
57	0	0	0	5	21	153	308	268	89	2	0	0	846
60	0	0	0	0	6	95	218	184	51	0	0	0	554
65	0	0	0	0	0	32	93	74	15	0	0	0	214
70	0	0	0	0	0	6	21	15	3	0	0	0	45

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	23	158	390	640	845	799	517	220	25	0	0	0	23	181	571	1211	2056	2855	3372	3592	3617	3617
45	0	0	1	75	250	490	690	644	373	110	5	0	0	0	1	76	326	816	1506	2150	2523	2633	2638	2638
50	0	0	0	22	132	347	535	489	238	34	0	0	0	0	0	22	154	501	1036	1525	1763	1797	1797	1797
55	0	0	0	0	49	208	381	334	120	4	0	0	0	0	0	0	49	257	638	972	1092	1096	1096	1096
60	0	0	0	0	3	97	229	185	40	0	0	0	0	0	0	0	3	100	329	514	554	554	554	554
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	33	143	289	436	549	523	375	209	43	2	0	0	33	176	465	901	1450	1973	2348	2557	2600	2602

(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