

Climatology of the United States

No. 20

1971-2000

Station: HOLYOKE, CO

COOP ID: 054082

Climate Division: CO 3

NWS Call Sign:

Elevation: 3,730 Feet Lat: 40°35N

Lon: 102°18W

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	39.4	14.4	26.9	75	1982	26	35.4	1986	-22	1959	4	14.1	1979	1181	0	.0	.0	8.3	8.1	30.4	4.3
Feb	45.1	18.8	32.0	80	1962	11	39.0+	1999	-24	1982	5	21.8	1978	926	0	.0	.0	12.6	5.4	27.2	2.1
Mar	52.6	25.8	39.2	89	1963	28	45.5	1986	-23	1960	3	33.7	1996	800	0	.0	.0	19.6	2.6	24.9	.4
Apr	61.9	35.2	48.6	92+	1989	22	56.0	1981	2	1975	2	43.1	1984	495	0	.0	.1	25.1	.3	12.7	.0
May	71.0	46.0	58.5	99+	1967	24	62.8	1994	21	1953	12	50.9	1995	225	24	.0	.8	30.3	.0	1.5	.0
Jun	82.1	56.6	69.4	107	1963	29	72.7	1988	31	1954	3	64.6	1989	37	166	.7	8.1	29.9	.0	.0	.0
Jul	87.5	61.5	74.5	110	1954	11	78.2	1974	37	1952	8	69.3	1992	4	298	1.4	15.1	31.0	.0	.0	.0
Aug	85.7	59.7	72.7	106	1969	8	78.8	2000	39+	1964	30	67.1	1992	12	250	.5	11.8	31.0	.0	.0	.0
Sep	76.9	49.7	63.3	104	1959	6	69.3	1998	18	1985	30	58.4	1993	113	63	.0	3.5	29.4	.0	1.0	.0
Oct	65.2	36.8	51.0	96	1967	3	54.0	1974	3	1993	30	45.7	1976	434	0	.0	.2	27.5	.3	10.4	.0
Nov	49.2	24.2	36.7	83	1999	7	46.5	1999	-12	1952	28	26.8	1985	849	0	.0	.0	16.0	3.4	25.9	.4
Dec	41.6	16.3	29.0	75	1959	3	35.7	1999	-33+	1989	23	13.7	1983	1118	0	.0	.0	9.5	6.7	30.2	2.7
Ann	63.2	37.1	50.2	110	Jul 1954	11	78.8	Aug 2000	-33+	Dec 1989	23	13.7	Dec 1983	6194	801	2.6	39.6	270.2	26.8	164.2	9.9

+ 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/normal/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

055-A

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: HOLYOKE, CO

COOP ID: 054082

Climate Division: CO 3

NWS Call Sign:

Elevation: 3,730 Feet Lat: 40°35N

Lon: 102°18W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.50	.42	1.26	1990	20	1.38	1990	.00	1998	3.9	1.6	.2	@	.04	.09	.17	.24	.32	.40	.50	.62	.78	1.04	1.29
Feb	.50	.40	.82	1971	19	1.65	1987	.00	1996	4.3	1.5	.2	.0	.01	.05	.11	.18	.26	.36	.47	.61	.80	1.13	1.46
Mar	1.30	1.04	2.06	2000	8	4.49	1981	.10	1998	6.7	3.0	.7	.2	.09	.17	.34	.52	.72	.95	1.23	1.58	2.07	2.89	3.71
Apr	1.77	1.57	2.10	1955	12	4.14	1977	.20	1992	7.8	4.2	.9	.3	.39	.55	.81	1.05	1.28	1.53	1.82	2.15	2.60	3.31	3.98
May	3.39	3.16	3.53	1951	15	6.64	1987	.23	2000	10.8	6.5	2.1	.7	.74	1.05	1.54	1.99	2.44	2.92	3.46	4.11	4.97	6.33	7.61
Jun	2.86	2.60	2.31	1969	8	8.22	1982	.36	1990	9.0	5.5	1.8	.7	.48	.72	1.14	1.53	1.94	2.38	2.88	3.49	4.31	5.63	6.89
Jul	2.63	2.52	3.00	1963	27	6.51	1998	.44	1999	9.2	4.8	1.8	.6	.87	1.12	1.48	1.80	2.10	2.41	2.75	3.14	3.65	4.44	5.17
Aug	2.15	1.57	2.37	1982	14	5.69	1996	.33	1991	7.9	4.2	1.4	.5	.40	.60	.91	1.20	1.50	1.82	2.18	2.62	3.20	4.13	5.02
Sep	1.09	.87	2.45	2001	18	3.20	1996	.11	1978	6.3	2.9	.5	.2	.12	.21	.36	.51	.67	.86	1.07	1.33	1.69	2.28	2.85
Oct	.88	.71	1.92	1997	25	3.19	1997	.00	1988	4.8	2.0	.5	.2	.02	.07	.17	.30	.44	.60	.81	1.07	1.44	2.07	2.70
Nov	.74	.58	1.26	1972	1	2.76	1972	.06+	1997	4.2	2.1	.4	@	.05	.10	.20	.30	.41	.54	.70	.90	1.18	1.64	2.10
Dec	.37	.24	.66	1973	18	1.19	1982	.00	1980	3.4	1.2	.1	.0	.01	.05	.10	.15	.21	.28	.36	.46	.60	.83	1.05
Ann	18.18	17.65	3.53	May 1951	15	8.22	Jun 1982	.00+	Jan 1998	78.3	39.5	10.6	3.4	11.87	13.05	14.59	15.77	16.83	17.86	18.94	20.13	21.59	23.73	25.60

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: HOLYOKE, CO

COOP ID: 054082

Climate Division: CO 3

NWS Call Sign:

Elevation: 3,730 Feet

Lat: 40°35N

Lon: 102°18W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	7.2	6.4	1	1	12.0	1992	8	24.0	1992	12	1992	8	4	1984	2.8	1.9	.8	.4	.1	11.4	5.4	3.0	.0
Feb	4.8	3.6	1	#	15.0	1987	28	19.5	1987	8	1980	8	4	1978	2.7	1.8	.4	.1	@	6.1	2.5	.9	.0
Mar	7.5	5.6	1	#	20.0	1977	11	28.0	1977	20	1977	11	3	1977	3.1	2.1	1.0	.5	.1	4.1	1.8	.8	.1
Apr	3.0	1.0	#	#	8.0	1973	7	16.0	1995	10	1980	8	2	1980	1.0	.9	.5	.2	.0	.8	.4	.2	.0
May	.2	.0	#	0	4.5	1979	10	4.5	1979	#+	1982	5	#+	1982	@	@	@	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.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	.4	.0	#	0	4.0	1985	28	6.0	1985	6	1985	29	1	1985	.2	.2	@	.0	.0	.1	.1	@	.0
Oct	1.1	.0	#	0	8.0	1995	23	9.0	1995	8	1995	23	#+	1997	.5	.3	.1	.1	.0	.4	.2	.1	.0
Nov	6.4	3.0	1	#	11.0	1975	19	27.0	1972	13	1972	13	6	1972	2.0	1.9	.7	.3	.1	4.4	2.3	1.6	.8
Dec	5.4	5.0	1	#	6.8	1982	25	12.5	1973	12	1982	26	6	1983	2.3	1.8	.7	.2	.0	5.7	3.7	2.5	.3
Ann	36.0	24.6	N/A	N/A	20.0	Mar 1977	11	28.0	Mar 1977	20	Mar 1977	11	6+	Dec 1983	14.6	10.9	4.2	1.8	.3	33.0	16.4	9.1	1.2

+ 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

Complete documentation available from:

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Climate Division: CO 3

NWS Call Sign:

Elevation: 3,730 Feet

Lat: 40° 35N

Lon: 102° 18W

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	5/26	5/22	5/19	5/16	5/13	5/11	5/08	5/05	4/30
32	5/14	5/11	5/09	5/07	5/05	5/03	5/02	4/29	4/26
28	5/06	5/02	4/29	4/27	4/24	4/22	4/20	4/17	4/13
24	4/26	4/21	4/18	4/15	4/12	4/10	4/07	4/04	3/30
20	4/16	4/11	4/06	4/03	3/30	3/27	3/24	3/19	3/14
16	4/07	4/01	3/27	3/23	3/20	3/16	3/13	3/08	3/02
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	9/11	9/15	9/18	9/20	9/23	9/25	9/27	9/30	10/04
32	9/19	9/24	9/27	9/30	10/03	10/05	10/08	10/12	10/16
28	9/28	10/03	10/06	10/10	10/13	10/15	10/19	10/22	10/27
24	10/04	10/09	10/13	10/16	10/19	10/22	10/26	10/29	11/04
20	10/11	10/17	10/21	10/25	10/28	11/01	11/04	11/09	11/15
16	10/28	11/02	11/05	11/08	11/11	11/14	11/17	11/20	11/25
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	149	143	139	135	132	128	124	120	114
32	168	162	157	154	150	146	142	138	131
28	185	180	176	173	170	168	164	161	156
24	205	200	196	192	189	186	182	178	173
20	237	228	221	216	211	206	201	194	185
16	258	250	244	240	235	231	226	221	213

* 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

Complete documentation available from:

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NWS Call Sign:

Elevation: 3,730 Feet Lat: 40°35N Lon: 102°18W

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	1181	926	800	495	225	37	4	12	113	434	849	1118	6194
60	1026	786	645	351	118	9	0	2	42	283	699	963	4924
57	933	702	552	270	72	3	0	0	19	200	609	870	4230
55	871	646	491	221	49	1	0	0	9	152	553	808	3801
50	717	517	345	120	14	0	0	0	0	64	414	660	2851
32	241	146	30	0	0	0	0	0	0	0	80	217	714

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	83	143	253	496	822	1120	1318	1261	940	589	221	122	7368
55	0	0	0	27	158	431	605	548	259	28	4	0	2060
57	0	0	0	16	120	373	543	486	209	14	0	0	1761
60	0	0	0	6	73	289	450	394	143	4	0	0	1359
65	0	0	0	0	24	166	298	250	63	0	0	0	801
70	0	0	0	0	5	78	162	130	21	0	0	0	396

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	15	45	133	298	584	868	1060	1003	697	364	89	25	15	60	193	491	1075	1943	3003	4006	4703	5067	5156	5181
45	0	13	62	184	433	719	905	848	549	237	41	4	0	13	75	259	692	1411	2316	3164	3713	3950	3991	3995
50	0	1	20	101	289	571	750	693	406	128	14	0	0	1	21	122	411	982	1732	2425	2831	2959	2973	2973
55	0	0	6	44	173	421	595	539	273	54	1	0	0	0	6	50	223	644	1239	1778	2051	2105	2106	2106
60	0	0	0	12	83	281	441	388	160	17	0	0	0	0	0	12	95	376	817	1205	1365	1382	1382	1382
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	26	67	130	226	363	548	684	645	440	268	96	41	26	93	223	449	812	1360	2044	2689	3129	3397	3493	3534

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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