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: SPRINGFIELD 7 WSW, CO **COOP ID: 057866**

Climate Division: CO 1 **NWS Call Sign:** **Elevation: 4,622 Feet** **Lat: 37˚22N** **Lon: 102˚45W**

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	44.9	14.9	29.9	79	1986	20	39.6	1986	-23	1984	18	19.1	1979	1088	0	.0	.0	14.1	5.3	29.6	2.0
Feb	50.1	18.4	34.3	83+	1982	22	42.4	2000	-22+	1996	3	25.0	1978	861	0	.0	.0	17.4	3.4	25.6	1.0
Mar	57.8	24.1	41.0	90	1989	11	47.1	1986	-10	1960	3	35.4	1998	746	0	.0	@	24.8	1.1	21.7	.2
Apr	66.3	32.7	49.5	97+	1989	22	56.6	1981	5	1997	12	42.7	1997	469	4	.0	.4	27.7	.2	10.9	.0
May	75.0	43.2	59.1	104	2000	31	64.8	2000	20	1967	1	54.0	1995	220	36	.2	2.1	30.5	.0	1.5	.0
Jun	86.3	54.2	70.3	111	1990	28	76.4	1994	37	1970	4	65.3	1995	33	191	1.8	11.7	30.0	.0	.0	.0
Jul	91.3	58.4	74.9	109	1994	1	79.6	1980	44	1994	8	72.3	1995	1	306	3.0	20.6	31.0	.0	.0	.0
Aug	88.8	57.4	73.1	104	1988	14	77.3	2000	40	1964	28	68.8	1974	7	257	.9	14.9	31.0	.0	.0	.0
Sep	80.2	48.4	64.3	101+	2001	7	68.8+	1998	21	1985	30	59.6	1974	94	72	.1	7.0	29.7	.0	.7	.0
Oct	69.7	36.8	53.3	95	2000	2	56.0	1979	6	1993	30	47.4	1976	366	1	.0	.5	29.7	.2	6.2	.0
Nov	54.4	24.1	39.3	86+	2001	1	49.1	1999	-11	1976	28	31.2	1972	773	0	.0	.0	20.8	1.6	21.5	.2
Dec	45.3	16.7	31.0	78	1980	17	37.9	1980	-18	1990	22	19.3	1983	1054	0	.0	.0	14.1	3.9	28.4	1.5
Ann	67.5	35.8	51.7	111	Jun 1990	28	79.6	Jul 1980	-23	Jan 1984	18	19.1	Jan 1979	5712	867	6.0	57.2	300.8	15.7	146.1	4.9

\+ 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: 1956-2001

(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	.47	.36	.94	1999	30	1.33	1999	.01	1982
Feb	.48	.27	1.00	1990	20	2.08	1987	.00+	2000
Mar	1.16	.78	1.20	1979	21	4.68	1973	.02	1978
Apr	1.64	1.19	1.98	1977	12	5.50	1980	.33	1982
May	2.86	2.81	3.73	1977	25	6.40	1977	.55	1997
Jun	2.00	1.74	4.25	1965	17	8.18	1992	.18+	1985
Jul	2.49	2.06	2.16	1971	19	7.57	1998	.49	1993
Aug	2.46	2.03	4.32	1976	2	9.62	1994	.33	1971
Sep	1.37	1.05	1.78	1970	13	4.43	1988	.12	1974
Oct	.96	.46	3.10	1998	1	3.57	1986	.00	1975
Nov	.73	.45	1.31	1994	20	2.65	1975	.00	1998
Dec	.42	.30	.65	1973	24	1.49	1973	.03+	1980
Ann	17.04	16.88	4.32	Aug 1976	2	9.62	Aug 1994	.00+	Feb 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.8	1.5	.1	.0
Feb	3.5	1.3	.1	@
Mar	5.8	2.9	.8	.1
Apr	5.6	3.6	1.2	.3
May	9.0	5.3	1.7	.6
Jun	6.8	4.1	1.1	.2
Jul	8.1	5.3	1.6	.5
Aug	7.4	4.6	1.4	.5
Sep	5.3	3.0	.7	.3
Oct	4.0	1.9	.6	.2
Nov	3.7	2.0	.4	.1
Dec	3.7	1.4	.1	.0
Ann	66.7	36.9	9.8	2.8

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	.03	.05	.11	.17	.24	.33	.43	.56	.75	1.07	1.38
Feb	.00	.00	.05	.12	.20	.30	.42	.58	.80	1.18	1.57
Mar	.09	.16	.31	.47	.65	.85	1.09	1.41	1.84	2.56	3.28
Apr	.25	.39	.63	.85	1.09	1.34	1.64	2.00	2.48	3.27	4.02
May	.72	.99	1.40	1.77	2.13	2.52	2.94	3.45	4.12	5.17	6.15
Jun	.19	.33	.60	.87	1.18	1.52	1.92	2.43	3.13	4.29	5.43
Jul	.51	.74	1.10	1.44	1.77	2.13	2.54	3.03	3.68	4.71	5.69
Aug	.37	.57	.93	1.27	1.62	2.01	2.46	3.01	3.74	4.94	6.09
Sep	.13	.23	.41	.60	.81	1.05	1.32	1.67	2.15	2.95	3.73
Oct	.01	.04	.13	.24	.39	.58	.82	1.13	1.59	2.40	3.23
Nov	.01	.05	.14	.24	.36	.50	.67	.88	1.19	1.71	2.24
Dec	.03	.05	.10	.16	.22	.30	.39	.50	.66	.93	1.20
Ann	11.45	12.50	13.87	14.91	15.85	16.76	17.70	18.75	20.02	21.88	23.50

\+ 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: 1956-2001
(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	5.4	4.5	1	#	7.0	1973	27	14.6	1973	10+	1990	20	4	1974	3.8	1.8	.6	.1	.0	6.8	2.9	1.2	.1
Feb	4.4	2.9	1	#	9.0	1990	20	14.0	1993	9	1990	20	3	1978	3.2	1.4	.5	.2	.0	3.4	1.8	.7	.0
Mar	7.7	5.7	#	#	12.0	1973	24	32.5	1973	15	1973	31	4	1995	3.5	2.2	1.0	.4	.1	2.2	1.0	.5	.1
Apr	3.3	1.6	#	0	10.0	1988	1	16.0	1988	10	1988	2	1	1988	1.4	.9	.6	.2	@	.7	.3	.1	.1
May	1.0	.0	#	0	8.0	1990	3	9.0	1978	2	1990	3	1	1973	.3	.3	.1	.1	.0	.1	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	#	1974	2	#	1974	.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	0	4.0	1984	29	4.0	1984	0	0	0	0	0	.2	.1	.1	.0	.0	.0	.0	.0	.0
Oct	1.8	.0	#	0	14.0	1997	25	18.0	1997	16	1997	26	2	1997	.7	.4	.2	.1	@	.4	.3	.2	.1
Nov	4.4	3.5	#	#	8.0	1975	19	23.9	1972	12	1975	21	4	1975	2.7	1.5	.7	.2	.0	2.5	1.2	.4	@
Dec	5.1	3.6	1	#	7.0	1979	28	16.9	1973	12	1979	28	3	1997	3.4	1.5	.5	.1	.0	5.6	2.5	1.1	.1
Ann	33.5	21.8	N/A	N/A	14.0	Oct 1997	25	32.5	Mar 1973	16	Oct 1997	26	4+	Mar 1995	19.2	10.1	4.3	1.4	.1	21.7	10.0	4.2	.5

+ 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	5/25	5/21	5/18	5/15	5/12	5/10	5/07	5/04	4/30
32	5/16	5/12	5/10	5/08	5/06	5/03	5/01	4/29	4/25
28	5/04	4/30	4/26	4/24	4/21	4/18	4/16	4/13	4/08
24	4/25	4/21	4/18	4/16	4/14	4/12	4/09	4/07	4/03
20	4/19	4/14	4/10	4/07	4/04	4/01	3/29	3/25	3/20
16	4/10	4/04	3/30	3/26	3/22	3/18	3/13	3/09	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	9/15	9/20	9/23	9/25	9/28	9/30	10/03	10/06	10/10
32	9/22	9/27	10/01	10/04	10/07	10/10	10/13	10/17	10/22
28	9/29	10/05	10/09	10/13	10/17	10/20	10/24	10/28	11/03
24	10/15	10/20	10/24	10/27	10/30	11/02	11/05	11/09	11/14
20	10/23	10/27	10/31	11/02	11/05	11/08	11/11	11/14	11/19
16	10/29	11/03	11/07	11/11	11/14	11/17	11/21	11/25	11/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	155	149	145	141	138	134	130	126	120
32	175	168	162	158	154	150	145	140	133
28	198	191	186	182	178	174	170	165	158
24	215	209	205	202	199	195	192	188	182
20	235	228	223	219	215	211	206	202	195
16	265	255	248	242	237	231	225	218	208

***** 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	1088	861	746	469	220	33	1	7	94	366	773	1054	5712
60	933	721	591	332	120	9	0	1	32	222	623	899	4483
57	840	637	499	257	76	3	0	0	13	150	537	806	3818
55	778	581	439	212	54	1	0	0	6	110	481	744	3406
50	624	447	297	121	18	0	0	0	0	44	347	591	2489
32	172	87	17	1	0	0	0	0	0	0	52	148	477

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	107	149	294	526	839	1147	1328	1274	968	658	269	116	7675
55	0	0	3	47	180	459	615	561	284	55	8	0	2212
57	0	0	1	32	140	401	553	499	231	33	4	0	1894
60	0	0	0	16	91	316	460	406	160	12	0	0	1461
65	0	0	0	4	36	191	306	257	72	1	0	0	867
70	0	0	0	0	9	95	161	130	23	0	0	0	418

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	44	88	201	379	657	943	1118	1058	801	487	158	56	44	132	333	712	1369	2312	3430	4488	5289	5776	5934	5990
45	15	35	106	255	503	793	963	903	653	343	84	22	15	50	156	411	914	1707	2670	3573	4226	4569	4653	4675
50	1	9	47	148	356	643	808	748	507	218	38	4	1	10	57	205	561	1204	2012	2760	3267	3485	3523	3527
55	0	0	15	70	224	493	653	593	368	115	11	0	0	0	15	85	309	802	1455	2048	2416	2531	2542	2542
60	0	0	2	25	115	343	498	438	236	47	0	0	0	0	2	27	142	485	983	1421	1657	1704	1704	1704
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	69	108	191	290	423	591	714	680	509	346	145	70	69	177	368	658	1081	1672	2386	3066	3575	3921	4066	4136

(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