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: BLOOMFIELD 1 WNW, IA **COOP ID: 130753**

Climate Division: IA 9 **NWS Call Sign:** **Elevation: 812 Feet** **Lat: 40˚46N** **Lon: 92˚26W**

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	30.9	11.8	21.4	70	1989	31	34.0	1989	-29	1974	12	7.9	1979	1354	0	.0	.0	2.7	14.2	29.3	6.3
Feb	37.2	16.8	27.0	75	1972	29	37.8	1998	-26	1996	3	13.3	1978	1064	0	.0	.0	6.5	9.8	24.3	3.1
Mar	49.5	28.1	38.8	86	1986	29	44.4	1973	-19	1962	1	30.4	1975	813	0	.0	.0	16.4	2.3	18.3	.3
Apr	61.3	38.9	50.1	89+	1952	28	56.7	1981	10	1982	6	43.1	1983	452	4	.0	.0	26.4	.1	5.1	.0
May	72.2	50.8	61.5	95	1956	12	67.3	1977	26	1966	10	56.6	1997	167	59	.0	.1	30.9	.0	.1	.0
Jun	81.4	60.2	70.8	101+	1956	30	75.9	1971	36	1969	3	66.3	1974	17	191	.1	4.1	30.0	.0	.0	.0
Jul	86.4	64.8	75.6	107	1956	27	80.2	1980	43	1975	13	71.7	1971	1	328	.6	10.6	31.0	.0	.0	.0
Aug	84.3	62.6	73.5	106+	1954	4	82.3	1983	40+	1950	20	67.8	1992	17	279	.9	7.7	31.0	.0	.0	.0
Sep	76.3	53.2	64.8	100	2000	1	69.5	1998	29+	1949	29	58.7	1974	96	87	@	2.0	30.0	.0	.2	.0
Oct	65.2	42.0	53.6	93+	1953	2	60.1	1971	14	1972	19	47.6	1976	358	4	.0	@	29.1	.0	4.2	.0
Nov	48.7	29.0	38.9	83	1950	1	47.6	1999	-11	1964	30	32.1	1976	785	0	.0	.0	15.3	2.1	16.8	.2
Dec	35.6	17.7	26.7	70	1998	5	32.6	1982	-23	1989	23	12.2	1983	1189	0	.0	.0	4.4	9.7	27.5	3.2
Ann	60.8	39.7	50.2	107	Jul 1956	27	82.3	Aug 1983	-29	Jan 1974	12	7.9	Jan 1979	6313	952	1.6	24.5	253.7	38.2	125.8	13.1

\+ 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

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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	1.15	1.00	1.31	1955	5	3.26	1973	.00	1981
Feb	1.21	1.13	2.16	2001	9	3.50	1997	.50	1977
Mar	2.44	2.21	1.88	1977	12	4.92	1991	.35	1994
Apr	3.53	3.47	4.00	1973	21	10.24	1973	.50	1985
May	4.86	4.37	2.80+	1960	6	10.89	1996	.87	1980
Jun	4.49	3.56	5.12	1993	8	10.87	1980	.60	1992
Jul	4.89	4.32	5.29	1974	4	13.71	1993	.41	1975
Aug	4.45	4.27	4.45	1980	17	13.21	1980	.39	1984
Sep	4.09	3.46	4.10	1978	18	11.60	1986	.65	1979
Oct	2.82	2.71	3.71	1954	5	7.30	1984	.41+	1988
Nov	2.59	2.51	3.19	1958	17	7.79	1983	.02	1989
Dec	1.50	1.30	3.35	1971	15	5.33	1971	.12	1996
Ann	38.02	37.75	5.29	Jul 1974	4	13.71	Jul 1993	.00	Jan 1981

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.6	3.2	.5	.1
Feb	6.9	3.8	.5	@
Mar	8.4	5.2	1.6	.4
Apr	10.5	6.7	2.3	.8
May	11.7	8.6	3.3	1.3
Jun	10.2	7.2	3.0	1.2
Jul	8.8	6.7	3.0	1.6
Aug	9.3	6.6	2.9	1.5
Sep	8.8	6.6	2.7	1.0
Oct	7.9	5.3	1.8	.6
Nov	8.2	5.2	1.8	.4
Dec	7.1	3.3	.8	.2
Ann	104.4	68.4	24.2	9.1

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	.08	.20	.39	.56	.73	.93	1.15	1.42	1.79	2.39	2.97
Feb	.43	.54	.71	.85	.98	1.12	1.27	1.44	1.66	2.01	2.32
Mar	.50	.73	1.08	1.41	1.74	2.09	2.49	2.97	3.60	4.62	5.58
Apr	.83	1.16	1.67	2.14	2.60	3.08	3.63	4.28	5.13	6.49	7.77
May	1.35	1.81	2.51	3.12	3.72	4.34	5.03	5.85	6.91	8.58	10.13
Jun	1.13	1.55	2.20	2.78	3.35	3.95	4.63	5.42	6.46	8.11	9.65
Jul	.73	1.15	1.85	2.53	3.23	4.00	4.89	5.97	7.43	9.80	12.07
Aug	1.14	1.56	2.21	2.78	3.34	3.93	4.59	5.38	6.40	8.02	9.53
Sep	1.25	1.64	2.22	2.72	3.20	3.70	4.26	4.91	5.74	7.05	8.27
Oct	.49	.73	1.14	1.53	1.93	2.36	2.84	3.44	4.23	5.51	6.74
Nov	.32	.52	.89	1.25	1.63	2.06	2.55	3.17	4.00	5.36	6.69
Dec	.20	.32	.53	.74	.96	1.20	1.48	1.83	2.30	3.07	3.82
Ann	24.43	26.96	30.26	32.80	35.08	37.31	39.63	42.21	45.38	50.02	54.08

\+ 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	6.7	7.4	3	2
Feb	6.1	5.0	3	2
Mar	3.8	2.0	1	#
Apr	2.3	.0	#	0
May	#	.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	.0	#	0
Nov	2.3	1.0	#	#
Dec	6.1	5.5	2	#
Ann	27.5	20.9	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	9.0	1979	13	14.5	1985	24	1979	28	17	1979
Feb	7.0	1978	14	23.0	1978	22	1978	14	13	1979
Mar	7.0	1999	9	17.5	1978	13	1978	6	7	1978
Apr	14.0	1997	11	22.0	1997	22	1997	12	3	1997
May	#	1989	1	#	1989	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	4.0	1980	28	4.0	1980	2+	1997	27	#+	1997
Nov	8.0	1974	30	9.5	1975	9	1974	30	1	1991
Dec	10.0	1987	15	22.0	2000	15	2000	29	9	2000
Ann	14.0	Apr 1997	11	23.0	Feb 1978	24	Jan 1979	28	17	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.2	3.2	.8	.4	.0
Feb	3.3	2.4	.9	.3	.0
Mar	2.1	1.7	.4	.2	.0
Apr	.8	.7	.3	.2	@
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.1	.1	@	.0	.0
Nov	1.2	1.0	.3	.1	.0
Dec	3.3	2.0	.8	.3	@
Ann	15.0	11.1	3.5	1.5	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.2	10.3	4.6	1.0
Feb	12.5	8.4	4.7	1.0
Mar	4.0	2.0	1.4	.3
Apr	.8	.4	.3	.1
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	.0	.0	.0
Nov	1.5	.4	.1	.0
Dec	7.5	4.2	2.6	1.1
Ann	41.6	25.7	13.7	3.5

+ 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	5/12	5/08	5/05	5/02	4/30	4/28	4/25	4/22	4/18
32	4/30	4/25	4/22	4/19	4/16	4/13	4/10	4/07	4/02
28	4/18	4/14	4/12	4/10	4/08	4/06	4/03	4/01	3/29
24	4/14	4/09	4/06	4/03	3/31	3/28	3/25	3/22	3/17
20	4/10	4/04	4/01	3/28	3/25	3/22	3/19	3/15	3/10
16	3/30	3/23	3/18	3/13	3/09	3/05	3/01	2/24	2/17

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	9/18	9/23	9/27	9/30	10/03	10/06	10/09	10/13	10/18
32	9/27	10/02	10/06	10/09	10/12	10/15	10/18	10/22	10/27
28	10/09	10/15	10/18	10/21	10/24	10/27	10/30	11/03	11/08
24	10/24	10/29	11/01	11/04	11/07	11/10	11/13	11/16	11/21
20	10/29	11/04	11/09	11/12	11/16	11/19	11/22	11/27	12/03
16	11/05	11/11	11/16	11/20	11/23	11/27	12/01	12/05	12/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	173	167	162	159	155	152	148	144	138
32	200	193	187	183	178	174	170	164	157
28	218	211	207	203	199	195	191	187	180
24	238	232	227	224	220	217	213	208	202
20	259	251	244	239	235	230	225	219	210
16	286	277	270	264	258	253	247	240	230

***** 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	1354	1064	813	452	167	17	1	17	96	358	785	1189	6313
60	1199	924	659	316	84	3	0	3	35	223	635	1034	5115
57	1106	843	573	242	50	1	0	0	16	155	548	941	4475
55	1044	791	514	199	34	0	0	0	8	117	492	879	4078
50	895	661	376	110	10	0	0	0	1	50	358	735	3196
32	412	270	68	2	0	0	0	0	0	0	59	285	1096

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	80	130	277	544	915	1164	1351	1285	982	670	263	119	7780
55	0	7	11	51	236	474	638	572	300	73	7	0	2369
57	0	3	7	34	190	415	576	510	247	49	3	0	2034
60	0	0	0	18	131	327	483	420	177	24	0	0	1580
65	0	0	0	4	59	191	328	279	87	4	0	0	952
70	0	0	0	0	19	87	188	161	33	0	0	0	488

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	7	41	154	394	706	959	1129	1067	787	474	144	22	7	48	202	596	1302	2261	3390	4457	5244	5718	5862	5884
45	1	12	87	264	551	809	974	912	638	330	76	6	1	13	100	364	915	1724	2698	3610	4248	4578	4654	4660
50	0	2	46	160	400	659	819	757	489	209	33	1	0	2	48	208	608	1267	2086	2843	3332	3541	3574	3575
55	0	0	20	84	262	510	664	602	349	113	10	0	0	0	20	104	366	876	1540	2142	2491	2604	2614	2614
60	0	0	6	39	145	360	509	447	228	52	3	0	0	0	6	45	190	550	1059	1506	1734	1786	1789	1789
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	30	103	236	437	647	770	723	509	286	83	12	3	33	136	372	809	1456	2226	2949	3458	3744	3827	3839

(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