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: CEDAR RAPIDS AP, IA **COOP ID: 131314**

Climate Division: IA 6 **NWS Call Sign: CID** **Elevation: 840 Feet** **Lat: 41˚53N** **Lon: 91˚43W**

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	27.1	9.6	18.4	65	1989	31	30.3	1990	-28	1974	12	6.1	1979	1446	0	.0	.0	.9	20.3	30.2	8.8
Feb	33.3	16.0	24.7	67	2000	25	35.3	1998	-21	1979	5	11.9	1978	1130	0	.0	.0	2.9	13.6	25.7	4.6
Mar	46.1	26.8	36.5	88	1986	29	45.4	1973	-20	1962	1	25.5	1975	885	0	.0	.0	11.4	4.5	21.5	.6
Apr	60.2	38.0	49.1	95	1980	22	55.1	1977	1	1982	6	42.8	1975	480	2	.0	.1	23.7	.4	7.7	.0
May	72.4	49.8	61.1	96	1978	26	67.4	1977	26+	1961	2	54.9	1997	181	59	.0	.9	30.7	.0	.3	.0
Jun	81.7	59.2	70.5	100+	1954	25	77.1	1971	39	1993	1	65.9	1982	25	190	.1	3.8	30.0	.0	.0	.0
Jul	85.3	63.4	74.4	104	1988	31	78.0	1983	46	1967	4	70.0	1992	4	293	.2	6.5	31.0	.0	.0	.0
Aug	82.8	61.0	71.9	102	1988	15	79.5	1983	40	1986	28	66.5	1992	26	240	.2	4.2	31.0	.0	.0	.0
Sep	75.2	52.0	63.6	98+	1953	1	68.2	1978	27	1984	29	58.0	1993	110	68	.0	1.5	30.0	.0	.4	.0
Oct	63.1	40.4	51.8	94	1997	3	59.0	1971	18	1993	31	45.7	1976	418	6	.0	.1	27.6	.0	6.7	.0
Nov	45.7	27.9	36.8	78	1999	8	43.6	1999	-11	1977	26	28.8	1976	847	0	.0	.0	11.4	4.2	20.6	.2
Dec	31.8	15.3	23.6	69	1998	4	31.8	1982	-22	1989	23	10.0	2000	1285	0	.0	.0	2.1	15.0	29.4	4.8
Ann	58.7	38.3	48.5	104	Jul 1988	31	79.5	Aug 1983	-28	Jan 1974	12	6.1	Jan 1979	6837	858	.5	17.1	232.7	58.0	142.5	19.0

\+ 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: 1953-2001

(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	1.05	1.03	2.02	1960	12	2.45	1974	.04	1981
Feb	1.10	1.00	1.43	1983	2	2.73	1997	.04	1995
Mar	2.23	1.91	2.01	1976	4	6.09	1977	.14	1981
Apr	3.22	2.90	2.79	1959	27	5.72	1973	.73	1988
May	3.85	3.71	3.32	1962	28	8.68	1974	.34	1981
Jun	4.47	4.70	4.77	1990	16	11.06	1990	1.09	1992
Jul	4.06	3.32	4.18	1993	5	17.03	1993	.44	1991
Aug	4.23	4.04	5.10	1993	9	13.09	1993	.42	1984
Sep	3.27	2.89	3.39	1958	3	9.92	1973	.39	1979
Oct	2.21	1.92	2.51	1960	31	5.55	1984	.28	1994
Nov	2.24	2.07	2.70	1961	2	6.44	1992	.16	1976
Dec	1.48	1.44	1.56	1980	7	3.58	1971	.24+	1995
Ann	33.41	30.41	5.10	Aug 1993	9	17.03	Jul 1993	.04+	Feb 1995

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.1	3.3	.3	.1
Feb	6.8	3.4	.4	.1
Mar	9.2	4.9	1.6	.3
Apr	10.6	6.5	2.0	.7
May	11.6	7.5	2.6	1.0
Jun	10.5	7.0	3.0	1.1
Jul	9.4	6.3	2.5	1.0
Aug	9.8	6.4	2.7	1.0
Sep	8.8	5.7	2.2	.7
Oct	8.0	4.9	1.5	.3
Nov	9.0	5.0	1.3	.5
Dec	8.3	3.7	.7	.2
Ann	110.1	64.6	20.8	7.0

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	.18	.28	.43	.57	.72	.88	1.06	1.28	1.58	2.05	2.51
Feb	.17	.26	.42	.57	.73	.90	1.10	1.35	1.67	2.21	2.72
Mar	.31	.50	.82	1.13	1.45	1.81	2.22	2.72	3.40	4.51	5.57
Apr	1.17	1.47	1.91	2.27	2.62	2.98	3.37	3.82	4.40	5.29	6.10
May	.90	1.26	1.82	2.33	2.83	3.36	3.96	4.67	5.60	7.08	8.48
Jun	1.21	1.63	2.28	2.84	3.40	3.98	4.62	5.39	6.38	7.94	9.40
Jul	.63	.98	1.57	2.13	2.71	3.34	4.07	4.96	6.15	8.09	9.95
Aug	.61	.97	1.58	2.16	2.77	3.44	4.22	5.17	6.44	8.52	10.52
Sep	.72	1.02	1.50	1.93	2.37	2.83	3.35	3.96	4.78	6.08	7.31
Oct	.58	.79	1.11	1.39	1.67	1.96	2.29	2.67	3.17	3.96	4.70
Nov	.47	.67	1.00	1.30	1.60	1.92	2.29	2.72	3.30	4.22	5.10
Dec	.25	.38	.60	.80	1.01	1.24	1.49	1.81	2.22	2.90	3.54
Ann	20.41	22.78	25.90	28.32	30.51	32.65	34.89	37.39	40.48	45.02	49.01

\+ 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: 1953-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Climate Division: IA 6 **NWS Call Sign: CID** **Elevation: 840 Feet** **Lat: 41°53N** **Lon: 91°43W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	6.9	6.4	3	2
Feb	6.7	6.3	3	3
Mar	3.3	1.8	#	1
Apr	1.7	#	#	0
May	#	.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	3.0	1.1	#	0
Dec	7.1	4.4	1	1
Ann	28.8	20.0	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	9.7	1971	3	20.1	1979	20	1979	19	13	1979
Feb	9.0	1983	2	14.8	1975	18	1979	8	14	1979
Mar	6.2	1975	6	16.3	1984	9	1975	10	3	1975
Apr	8.0	1973	8	14.5	1973	12	1973	10	1+	1982
May	#	1990	5	#	1990	0	0	0	#	1995
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	1.3	1972	18	1.3	1972	#+	1982	20	0	0
Nov	7.0	1991	23	11.6	1974	7	1991	24	1+	1992
Dec	11.0	1978	1	21.3+	1978	14+	1977	10	6	1985
Ann	11.0	Dec 1978	1	21.3+	Dec 1978	20	Jan 1979	19	14	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.6	2.9	.9	.2	.0
Feb	4.3	2.7	.6	.2	.0
Mar	2.6	1.3	.3	.1	.0
Apr	.7	.6	.4	.1	@
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	.0	.0	@	@	.0
Nov	1.8	1.2	.3	.1	.0
Dec	4.3	2.4	.9	.3	@
Ann	18.3	11.1	3.4	1.0	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.5	12.8	6.1	1.0
Feb	15.6	10.5	5.5	1.4
Mar	5.8	2.5	.8	.0
Apr	.9	.6	.2	.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	.0	.0	.0	.0
Nov	2.3	1.0	.2	.0
Dec	11.6	6.8	3.4	.5
Ann	55.7	34.2	16.2	3.0

+ 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	5/16	5/12	5/09	5/07	5/04	5/02	4/29	4/26	4/22
32	5/04	4/30	4/27	4/24	4/22	4/19	4/17	4/14	4/10
28	4/20	4/17	4/14	4/12	4/10	4/08	4/06	4/03	3/31
24	4/17	4/13	4/10	4/07	4/05	4/03	3/31	3/29	3/25
20	4/14	4/08	4/04	4/01	3/29	3/26	3/23	3/19	3/13
16	4/02	3/27	3/22	3/18	3/14	3/10	3/06	3/02	2/23

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	9/17	9/21	9/24	9/26	9/28	10/01	10/03	10/06	10/09
32	9/23	9/28	10/01	10/04	10/07	10/09	10/12	10/15	10/20
28	10/03	10/08	10/12	10/16	10/19	10/22	10/25	10/29	11/04
24	10/14	10/20	10/24	10/28	10/31	11/03	11/07	11/11	11/17
20	10/23	10/28	11/01	11/04	11/07	11/10	11/13	11/17	11/22
16	11/05	11/10	11/14	11/17	11/20	11/22	11/25	11/29	12/04

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	164	158	153	150	146	143	139	135	129
32	185	179	174	171	167	164	160	156	150
28	209	203	199	195	191	187	184	179	173
24	226	220	215	212	208	205	201	197	190
20	244	236	231	227	222	218	213	208	201
16	276	267	260	255	250	245	239	233	224

***** 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	1446	1130	885	480	181	25	4	26	110	418	847	1285	6837
60	1291	990	730	339	94	6	0	7	43	282	697	1130	5609
57	1198	906	638	263	58	2	0	2	20	211	609	1037	4944
55	1136	850	582	217	40	1	0	0	11	170	551	975	4533
50	981	719	439	122	12	0	0	0	2	90	414	827	3606
32	478	301	94	2	0	0	0	0	0	1	81	353	1310

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	55	95	232	515	902	1154	1313	1237	948	613	224	91	7379
55	0	0	8	40	228	465	600	524	269	68	4	0	2206
57	0	0	2	26	185	406	538	464	218	47	2	0	1888
60	0	0	0	12	128	320	445	376	151	25	0	0	1457
65	0	0	0	2	59	190	293	240	68	6	0	0	858
70	0	0	0	0	20	91	157	135	22	0	0	0	425

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	15	92	310	657	913	1063	990	707	374	87	7	0	15	107	417	1074	1987	3050	4040	4747	5121	5208	5215
45	0	4	50	193	504	763	908	835	557	246	41	4	0	4	54	247	751	1514	2422	3257	3814	4060	4101	4105
50	0	0	23	107	354	613	753	680	413	147	18	1	0	0	23	130	484	1097	1850	2530	2943	3090	3108	3109
55	0	0	8	56	223	463	598	525	279	78	3	0	0	0	8	64	287	750	1348	1873	2152	2230	2233	2233
60	0	0	2	20	122	321	443	371	169	33	0	0	0	0	2	22	144	465	908	1279	1448	1481	1481	1481
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	9	62	182	391	604	725	664	444	223	51	4	0	9	71	253	644	1248	1973	2637	3081	3304	3355	3359

(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.
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