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: ANAMOSA 1 WNW, IA **COOP ID: 130213**

Climate Division: IA 6 **NWS Call Sign:** **Elevation: 805 Feet** **Lat: 42˚07N** **Lon: 91˚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	26.6	6.6	16.6	66	1989	31	28.4	1989	-30+	1994	19	3.2	1979	1501	0	.0	.0	1.0	18.9	30.2	9.6
Feb	32.7	12.0	22.4	67+	1981	17	34.8	1998	-37	1996	3	9.6	1979	1194	0	.0	.0	2.9	12.4	26.0	5.2
Mar	45.3	24.3	34.8	87	1986	29	42.9	1973	-22	1962	1	25.1	1975	935	0	.0	.0	11.9	3.7	22.7	.8
Apr	59.6	35.9	47.8	90+	1986	25	53.9	1977	0	1982	6	41.2	1983	520	2	.0	.1	25.1	.2	10.7	@
May	70.9	46.6	58.8	93	1985	26	65.8	1977	24	1963	1	53.7	1983	234	40	.0	.6	30.9	.0	2.1	.0
Jun	80.3	56.5	68.4	100+	1988	20	72.3	1991	33	1993	1	62.9	1982	32	135	.1	3.6	30.0	.0	.0	.0
Jul	83.8	60.9	72.4	102	1988	31	76.6	1987	39	1972	5	67.9	1992	8	235	.2	7.4	31.0	.0	.0	.0
Aug	81.7	58.8	70.3	102	1987	1	76.9	1995	37+	1950	20	64.4	1992	31	193	.3	5.1	31.0	.0	.0	.0
Sep	74.2	48.9	61.6	99	1955	9	66.3	1978	23	1984	29	57.0	1993	147	42	.0	1.5	30.0	.0	1.3	.0
Oct	62.5	37.8	50.2	93	1997	4	57.8	1971	10	1952	29	44.2	1988	463	3	.0	.1	28.0	@	9.1	.0
Nov	44.9	25.2	35.1	78+	1999	9	41.9	1999	-14+	1976	30	27.4	1976	900	0	.0	.0	11.7	3.6	21.0	.3
Dec	31.6	13.6	22.6	71	1998	4	30.7	1998	-27+	1950	27	10.6	1985	1314	0	.0	.0	1.9	13.5	29.3	4.9
Ann	57.8	35.6	46.8	102+	Jul 1988	31	76.9	Aug 1995	-37	Feb 1996	3	3.2	Jan 1979	7279	650	.6	18.4	235.4	52.3	152.4	20.8

\+ 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

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	1.17	1.07	1.89	1960	12	2.71	1974	.04	1981
Feb	1.19	1.08	3.35	2001	8	2.91	1971	.00	1995
Mar	2.36	1.93	2.32	1998	31	6.33	1991	.31	1981
Apr	3.51	2.98	2.35	1974	29	7.30	1995	1.05	1980
May	4.13	3.67	4.38	1962	29	9.22	1974	.41	1992
Jun	4.36	4.00	3.90	1990	17	9.81	1990	.65	1988
Jul	4.19	3.68	6.52	1999	3	14.61	1993	.57	1991
Aug	4.50	3.94	4.97	1968	5	12.64	1987	.73	1995
Sep	3.36	3.34	4.57	1961	13	9.03	1986	.38	1976
Oct	2.54	2.10	2.65	1984	19	7.56	1998	.27	1975
Nov	2.54	2.20	3.20	1952	17	7.37	1992	.10	1976
Dec	1.48	1.42	2.20	1971	15	3.38	1971	.26	1995
Ann	35.33	36.41	6.52	Jul 1999	3	14.61	Jul 1993	.00	Feb 1995

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.8	3.5	.6	.1
Feb	5.4	3.4	.7	.2
Mar	7.2	5.4	1.5	.5
Apr	9.9	6.8	2.4	.8
May	10.7	7.6	2.6	1.3
Jun	10.1	7.6	3.2	.9
Jul	9.2	6.5	2.6	1.0
Aug	8.5	6.7	2.7	1.3
Sep	8.6	6.2	2.3	1.0
Oct	7.1	4.9	1.8	.6
Nov	8.0	5.2	1.7	.7
Dec	6.8	4.4	.8	.1
Ann	97.3	68.2	22.9	8.5

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	.24	.35	.52	.68	.84	1.01	1.20	1.43	1.73	2.22	2.68
Feb	.06	.16	.34	.51	.70	.91	1.16	1.46	1.88	2.57	3.25
Mar	.40	.60	.94	1.27	1.60	1.96	2.37	2.88	3.55	4.63	5.67
Apr	1.13	1.46	1.95	2.37	2.78	3.20	3.66	4.19	4.89	5.97	6.96
May	.91	1.29	1.90	2.44	2.99	3.58	4.23	5.02	6.05	7.70	9.26
Jun	1.24	1.65	2.28	2.82	3.35	3.91	4.52	5.24	6.18	7.65	9.02
Jul	.83	1.21	1.83	2.39	2.96	3.58	4.27	5.10	6.20	7.97	9.65
Aug	.81	1.20	1.86	2.48	3.10	3.78	4.55	5.49	6.73	8.73	10.65
Sep	.77	1.08	1.57	2.01	2.46	2.92	3.45	4.08	4.90	6.21	7.45
Oct	.58	.81	1.18	1.52	1.85	2.20	2.60	3.07	3.70	4.69	5.62
Nov	.40	.61	.98	1.33	1.70	2.09	2.55	3.10	3.85	5.05	6.21
Dec	.33	.47	.68	.88	1.07	1.28	1.51	1.79	2.16	2.74	3.29
Ann	22.23	24.65	27.81	30.25	32.45	34.60	36.84	39.34	42.41	46.92	50.88

\+ 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)

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	6.5	7.8	4	3	9.5	1978	1	12.5	1999	23	1979	31	17	1979	3.7	2.6	1.1	.3	.0	13.5	9.4	5.9	.1
Feb	4.8	4.4	3	2	9.0	1975	24	15.0	1975	23	1979	5	21	1979	2.6	2.0	.5	.1	.0	11.3	7.1	4.6	.5
Mar	3.2	1.8	1	#	8.0	1999	9	9.2	1999	11	1979	5	10	1979	1.4	1.3	.3	.1	.0	3.2	1.3	.3	@
Apr	1.3	.0	#	0	8.5	1973	9	13.0	1973	13	1973	10	1	1982	.3	.3	.1	.1	.0	.3	.1	.1	@
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.1	.0	#	0	3.0	1997	27	3.0	1997	3	1997	27	#	1997	.1	@	@	.0	.0	.1	@	.0	.0
Nov	1.9	.5	#	#	6.1	1971	29	6.5	1997	6+	1997	15	1	1997	.9	.6	.1	.1	.0	1.7	.6	.2	.0
Dec	5.4	4.7	2	2	10.0	1990	3	13.0	1987	17	2000	31	13	2000	3.0	2.3	.8	.2	.1	9.9	4.9	1.4	.1
Ann	23.2	19.2	N/A	N/A	10.0	Dec 1990	3	15.0	Feb 1975	23+	Feb 1979	5	21	Feb 1979	12.0	9.1	2.9	.9	.1	40.0	23.4	12.5	.7

+ 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	6/03	5/29	5/25	5/22	5/19	5/16	5/13	5/09	5/04
32	5/24	5/19	5/15	5/11	5/08	5/05	5/02	4/28	4/23
28	5/08	5/04	4/30	4/27	4/25	4/22	4/19	4/16	4/11
24	4/19	4/15	4/13	4/11	4/09	4/07	4/05	4/02	3/30
20	4/17	4/13	4/10	4/07	4/05	4/02	3/31	3/28	3/24
16	4/09	4/05	4/01	3/29	3/26	3/23	3/20	3/17	3/12

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	9/08	9/12	9/15	9/18	9/20	9/22	9/25	9/28	10/02
32	9/17	9/21	9/24	9/26	9/29	10/01	10/03	10/06	10/10
28	9/24	9/29	10/02	10/05	10/08	10/11	10/14	10/17	10/22
24	10/02	10/08	10/12	10/15	10/19	10/22	10/25	10/29	11/04
20	10/16	10/21	10/25	10/28	10/31	11/03	11/06	11/10	11/15
16	11/01	11/05	11/09	11/12	11/14	11/17	11/20	11/23	11/28

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	141	135	131	127	123	120	116	111	105
32	160	154	149	146	142	139	135	131	125
28	184	178	173	169	165	162	158	153	147
24	212	205	200	196	192	188	184	179	172
20	226	220	216	212	209	205	202	197	191
16	255	247	242	237	232	228	223	217	209

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1501	1194	935	520	234	32	8	31	147	463	900	1314	7279
60	1346	1054	780	377	135	7	0	7	64	320	750	1159	5999
57	1253	970	687	298	90	2	0	2	33	244	660	1066	5305
55	1191	914	627	249	66	1	0	0	19	198	600	1004	4869
50	1036	779	484	146	25	0	0	0	3	107	457	849	3886
32	523	344	111	3	0	0	0	0	0	2	91	364	1438

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	45	74	198	475	829	1093	1250	1185	885	565	182	74	6855
55	0	0	2	30	182	404	537	472	214	48	1	0	1890
57	0	0	0	19	144	345	475	412	168	32	0	0	1595
60	0	0	0	9	96	260	382	325	109	15	0	0	1196
65	0	0	0	2	40	135	235	193	42	3	0	0	650
70	0	0	0	0	12	50	113	96	10	0	0	0	281

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	11	86	305	636	887	1041	974	699	373	84	6	0	11	97	402	1038	1925	2966	3940	4639	5012	5096	5102
45	0	1	46	191	482	737	886	819	550	245	39	4	0	1	47	238	720	1457	2343	3162	3712	3957	3996	4000
50	0	0	21	106	333	587	731	664	403	142	17	1	0	0	21	127	460	1047	1778	2442	2845	2987	3004	3005
55	0	0	7	54	209	437	576	509	269	73	3	0	0	0	7	61	270	707	1283	1792	2061	2134	2137	2137
60	0	0	1	23	117	295	421	356	163	32	0	0	0	0	1	24	141	436	857	1213	1376	1408	1408	1408
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	8	65	203	407	588	702	652	453	238	53	4	0	8	73	276	683	1271	1973	2625	3078	3316	3369	3373

(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

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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