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: JEFFERSON, IA **COOP ID: 134228**

Climate Division: IA 4 **NWS Call Sign:** **Elevation: 1,045 Feet** **Lat: 42˚01N** **Lon: 94˚22W**

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	27.6	8.1	17.9	66	1981	24	31.0	1990	-25+	1957	14	4.4	1979	1461	0	.0	.0	1.5	17.3	30.3	8.6
Feb	34.0	13.7	23.9	68+	1981	17	33.9	1987	-27	1996	2	9.8	1979	1152	0	.0	.0	4.7	11.6	25.8	4.3
Mar	46.5	25.0	35.8	91	1986	29	42.9	2000	-26	1962	1	27.0	1975	907	0	.0	@	14.2	3.4	21.8	.6
Apr	60.8	35.6	48.2	96	1980	22	54.7	1981	8	1982	6	41.9	1983	506	3	.0	.5	25.2	.1	8.3	.0
May	72.4	48.3	60.4	98	1967	26	67.3	1977	19	1961	2	55.4	1997	195	52	.0	.7	30.9	.0	.8	.0
Jun	81.6	58.2	69.9	104	1988	20	74.3	1988	39+	1964	1	65.4	1982	21	168	.3	5.4	30.0	.0	.0	.0
Jul	85.8	63.1	74.5	107	1974	21	78.9	1974	44	1972	5	68.8	1992	6	298	1.1	11.3	31.0	.0	.0	.0
Aug	83.5	60.3	71.9	106	1988	15	79.4	1983	39	1950	20	66.6	1992	19	233	.5	7.2	31.0	.0	.0	.0
Sep	76.7	50.5	63.6	101	2000	3	69.6	1998	29+	1949	29	57.9	1993	113	71	.1	2.7	29.9	.0	.5	.0
Oct	64.5	38.7	51.6	96	1976	1	57.3	1973	12	1976	22	45.9	1976	420	3	.0	.2	28.6	.1	6.9	.0
Nov	45.5	25.6	35.6	80+	1999	9	44.9	1999	-9	1991	7	27.3	1991	883	0	.0	.0	12.2	4.1	20.6	.3
Dec	31.4	13.5	22.5	68	1998	2	30.3	1998	-24+	1989	22	7.0	1983	1319	0	.0	.0	2.5	13.8	29.8	4.9
Ann	59.2	36.7	48.0	107	Jul 1974	21	79.4	Aug 1983	-27	Feb 1996	2	4.4	Jan 1979	7002	828	2.0	28.0	241.7	50.4	144.8	18.7

\+ 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	.96	.79	1.64	1971	3	2.37	1996	.03	1981
Feb	.96	.94	1.60	1951	25	3.27	1971	.00	1987
Mar	2.16	1.83	2.58	1991	23	5.90	1991	.15	1994
Apr	3.19	2.72	4.90	1955	24	9.38	1991	.59	2000
May	4.14	4.19	3.02	1959	31	9.21	1974	1.02	1988
Jun	4.67	4.69	5.51	1986	30	10.24	1986	.64	1992
Jul	4.10	3.40	7.83	1993	9	12.11	1993	.26	1975
Aug	3.84	3.69	5.50	1954	22	9.75	1977	.44	1984
Sep	2.95	3.07	4.67	1978	13	8.12	1973	.45	1999
Oct	2.41	2.28	2.05	1986	12	5.02	1986	.16	1988
Nov	1.92	1.73	2.13	1991	1	4.86	1983	.00	1976
Dec	1.18	1.17	1.92	1982	28	4.48	1982	.32	1998
Ann	32.48	32.05	7.83	Jul 1993	9	12.11	Jul 1993	.00+	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.0	2.8	.4	@
Feb	4.7	3.1	.4	.1
Mar	7.0	4.9	1.3	.4
Apr	8.9	6.3	2.0	.7
May	10.4	7.9	2.7	1.0
Jun	9.6	7.3	3.3	1.3
Jul	8.4	5.9	2.5	1.1
Aug	8.3	6.2	2.9	1.1
Sep	7.4	5.3	2.1	.6
Oct	6.5	4.7	1.8	.6
Nov	6.0	4.0	1.2	.3
Dec	5.8	3.2	.6	.1
Ann	88.0	61.6	21.2	7.3

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	.10	.17	.30	.44	.58	.74	.93	1.17	1.50	2.03	2.56
Feb	.09	.20	.36	.50	.64	.80	.97	1.19	1.47	1.94	2.38
Mar	.31	.49	.80	1.10	1.41	1.76	2.16	2.64	3.30	4.37	5.39
Apr	.63	.92	1.38	1.81	2.25	2.72	3.25	3.88	4.73	6.08	7.37
May	1.36	1.76	2.33	2.82	3.30	3.79	4.32	4.94	5.75	7.00	8.15
Jun	1.18	1.62	2.30	2.90	3.49	4.12	4.82	5.64	6.73	8.44	10.04
Jul	.54	.87	1.45	2.02	2.62	3.28	4.06	5.00	6.29	8.39	10.43
Aug	.85	1.20	1.76	2.27	2.78	3.32	3.93	4.66	5.63	7.16	8.60
Sep	.59	.86	1.29	1.69	2.09	2.52	3.01	3.59	4.37	5.61	6.79
Oct	.41	.62	.98	1.31	1.65	2.02	2.44	2.95	3.63	4.73	5.78
Nov	.17	.39	.71	.99	1.28	1.59	1.94	2.38	2.95	3.89	4.78
Dec	.26	.37	.54	.70	.85	1.02	1.21	1.43	1.72	2.19	2.63
Ann	20.65	22.85	25.71	27.92	29.91	31.85	33.87	36.13	38.90	42.96	46.52

+ 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	7.3	6.0	4	3
Feb	6.5	5.8	4	2
Mar	4.4	4.0	1	1
Apr	1.9	.5	#	#
May	#	.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	2.8	2.0	#	#
Dec	6.6	7.0	2	2
Ann	29.7	25.3	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	12.0	1971	3	16.4	1979	30	1979	31	14	1979
Feb	9.0	1997	4	16.0	1972	24	1979	9	19	1979
Mar	7.5	1995	7	12.3	1999	15	1979	5	6	1979
Apr	7.3	1973	9	13.0	1973	8	1985	1	1	1973
May	#	1997	1	#	1997	#	1997	1	#	1997
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	2.5	1997	26	4.0	1997	3	1997	26	#+	1997
Nov	6.0	1972	14	15.0	1983	6	1992	26	2	1991
Dec	8.0	1990	3	13.0	1985	12	2000	31	8+	2000
Ann	12.0	Jan 1971	3	16.4	Jan 1979	30	Jan 1979	31	19	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.2	2.7	.8	.3	@
Feb	3.3	2.4	1.0	.2	.0
Mar	2.3	1.6	.6	.3	.0
Apr	.9	.6	.3	.1	.0
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	.2	.1	.0	.0	.0
Nov	1.7	1.2	.4	.1	.0
Dec	4.0	2.7	.8	.2	.0
Ann	16.6	11.3	3.9	1.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.3	13.7	8.6	1.6
Feb	16.6	12.3	8.0	2.3
Mar	7.4	4.3	2.9	.6
Apr	.9	.5	.2	.0
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
Nov	3.0	.9	.1	.0
Dec	15.4	8.5	5.6	.6
Ann	62.7	40.2	25.4	5.1

+ 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	5/19	5/14	5/11	5/08	5/05	5/03	4/30	4/27	4/22
32	5/11	5/06	5/03	4/30	4/27	4/24	4/21	4/18	4/13
28	4/25	4/21	4/18	4/15	4/13	4/11	4/08	4/05	4/01
24	4/17	4/13	4/10	4/07	4/05	4/02	3/31	3/28	3/23
20	4/14	4/08	4/03	3/31	3/27	3/24	3/20	3/16	3/10
16	4/06	3/30	3/25	3/21	3/17	3/13	3/08	3/03	2/24

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	161	155	150	147	143	140	136	132	126
32	181	174	169	165	161	157	153	148	141
28	204	198	193	189	185	181	177	173	166
24	224	218	213	209	205	202	198	193	187
20	252	243	236	231	225	220	214	207	198
16	275	265	257	250	244	238	232	224	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

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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	1461	1152	907	506	195	21	6	19	113	420	883	1319	7002
60	1306	1012	752	366	106	3	0	3	45	280	733	1164	5770
57	1213	928	660	289	68	1	0	0	22	207	644	1071	5103
55	1151	872	600	243	48	0	0	0	12	164	586	1009	4685
50	998	742	458	144	17	0	0	0	2	82	448	856	3747
32	498	321	99	4	0	0	0	0	0	1	99	373	1395

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	60	94	215	491	879	1137	1315	1237	948	607	206	77	7266
55	0	0	3	39	214	447	602	524	270	58	3	0	2160
57	0	0	1	26	172	388	540	462	220	38	1	0	1848
60	0	0	0	13	117	301	447	372	154	18	0	0	1422
65	0	0	0	3	52	168	298	233	71	3	0	0	828
70	0	0	0	0	17	70	164	124	24	0	0	0	399

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	18	113	350	697	958	1112	1037	763	418	92	7	0	18	131	481	1178	2136	3248	4285	5048	5466	5558	5565
45	0	2	58	233	542	808	957	882	613	286	44	2	0	2	60	293	835	1643	2600	3482	4095	4381	4425	4427
50	0	0	27	136	391	658	802	727	466	173	18	0	0	0	27	163	554	1212	2014	2741	3207	3380	3398	3398
55	0	0	8	69	255	509	647	572	327	89	3	0	0	0	8	77	332	841	1488	2060	2387	2476	2479	2479
60	0	0	3	35	144	360	492	417	207	39	0	0	0	0	3	38	182	542	1034	1451	1658	1697	1697	1697
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	21	81	230	434	633	752	698	494	266	59	4	0	21	102	332	766	1399	2151	2849	3343	3609	3668	3672

(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