

Climatography of the United States

No. 20

1971-2000

Station: GREENFIELD, IA

COOP ID: 133438

Climate Division: IA 7

NWS Call Sign:

Elevation: 1,340 Feet Lat: 41° 18N

Lon: 94° 27W

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	30.1	12.0	21.1	66	1981	24	33.1	1989	-28	1963	20	7.9	1979	1362	0	.0	.0	2.1	15.8	29.9	7.1
Feb	36.6	17.8	27.2	74	1972	29	36.9	2000	-26	1996	2	13.4	1979	1059	0	.0	.0	5.6	11.4	24.8	3.8
Mar	49.4	27.9	38.7	89	1986	29	45.2	2000	-20	1960	5	30.2	1975	817	0	.0	.0	15.5	2.9	20.6	.5
Apr	62.8	39.1	51.0	91+	1987	26	58.4	1981	7	1975	3	44.2	1983	429	6	.0	.2	25.8	.1	7.0	.0
May	72.9	50.2	61.6	96+	1967	25	67.6	1977	24	1967	2	57.1	1997	173	65	.0	.3	31.0	.0	.3	.0
Jun	82.1	59.5	70.8	101	1977	5	75.8	1988	39+	1948	20	65.8	1982	16	191	.2	4.8	30.0	.0	.0	.0
Jul	85.8	64.2	75.0	106+	1974	21	79.9	1974	43+	1967	4	70.8	1992	4	315	.6	10.3	31.0	.0	.0	.0
Aug	84.1	61.8	73.0	102	1988	15	80.8	1983	39	1950	20	67.5	1992	19	266	.4	7.0	31.0	.0	.0	.0
Sep	77.2	53.3	65.3	101	2000	2	71.8	1998	28+	1951	28	59.7	1993	89	97	.1	2.5	29.9	.0	.3	.0
Oct	65.3	41.8	53.6	93	1997	3	58.5	1971	13	1997	27	47.8	1976	361	6	.0	.2	28.9	@	5.4	.0
Nov	47.2	29.1	38.2	79+	1999	8	48.6	1999	-8	1964	30	29.9	1991	807	0	.0	.0	14.1	3.1	18.7	.2
Dec	33.8	17.2	25.5	67	1984	28	31.9	1998	-25	1989	22	8.7	1983	1225	0	.0	.0	3.4	12.4	29.0	4.0
Ann	60.6	39.5	50.1	106+	Jul 1974	21	80.8	Aug 1983	-28	Jan 1963	20	7.9	Jan 1979	6361	946	1.3	25.3	248.3	45.7	136.0	15.6

+ 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/normal/usnormals.html

Issue Date: February 2004

(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

050-A

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: GREENFIELD, IA

COOP ID: 133438

Climate Division: IA 7

NWS Call Sign:

Elevation: 1,340 Feet Lat: 41°18N

Lon: 94°27W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.99	.79	1.39	1960	13	2.56	1973	.00	1986	6.4	2.7	.5	@	.09	.20	.36	.50	.65	.81	.99	1.22	1.52	2.00	2.46
Feb	1.05	.88	2.25	1976	21	3.08	1976	.23	1987	6.1	3.0	.5	.1	.21	.30	.45	.60	.74	.89	1.07	1.28	1.55	2.00	2.42
Mar	2.26	1.85	3.04	1967	26	5.56	1973	.10	1994	8.6	5.0	1.5	.5	.25	.42	.73	1.05	1.38	1.76	2.21	2.76	3.52	4.77	5.99
Apr	3.73	3.25	3.26	1974	21	8.59	1991	.71	1990	11.2	7.0	2.7	.9	.96	1.31	1.85	2.33	2.80	3.30	3.85	4.50	5.35	6.70	7.96
May	4.31	4.11	3.00	1998	22	8.57	1996	1.40	1994	12.0	8.1	2.9	1.1	1.30	1.71	2.32	2.85	3.36	3.90	4.48	5.17	6.07	7.46	8.75
Jun	4.28	4.54	4.11	1949	24	8.91	1980	.52	1988	10.1	6.6	2.6	1.3	.98	1.38	2.01	2.57	3.13	3.73	4.40	5.20	6.24	7.91	9.48
Jul	4.65	4.83	6.47	1948	21	12.03	1993	.48	1975	9.8	6.4	3.0	1.5	.83	1.24	1.92	2.56	3.20	3.90	4.70	5.67	6.95	9.02	11.00
Aug	3.69	2.77	5.30	1977	28	12.63	1977	.24	1976	9.2	5.8	1.8	.9	.38	.65	1.15	1.67	2.22	2.85	3.58	4.50	5.75	7.84	9.87
Sep	3.94	2.32	8.00	1992	15	13.67	1992	.71	1990	8.5	6.0	2.3	1.2	.58	.91	1.48	2.03	2.60	3.22	3.94	4.82	6.00	7.92	9.77
Oct	2.51	2.86	3.15	1973	11	5.09	1977	.19	1975	7.9	4.8	1.6	.6	.41	.62	.99	1.33	1.69	2.08	2.52	3.06	3.78	4.96	6.08
Nov	2.22	2.17	2.22	1992	2	5.80	1983	.01	1976	7.8	4.6	1.5	.4	.20	.35	.65	.96	1.29	1.68	2.13	2.70	3.48	4.79	6.08
Dec	1.31	1.05	1.81	1982	28	4.95	1982	.17	1976	7.4	3.0	.7	.2	.19	.30	.48	.67	.85	1.06	1.30	1.60	1.99	2.64	3.26
Ann	34.94	32.38	8.00	Sep 1992	15	13.67	Sep 1992	.00	Jan 1986	105.0	63.0	21.6	8.7	22.41	24.74	27.78	30.11	32.21	34.26	36.40	38.78	41.69	45.97	49.71

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: GREENFIELD, IA

COOP ID: 133438

Climate Division: IA 7

NWS Call Sign:

Elevation: 1,340 Feet

Lat: 41°18N

Lon: 94°27W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	7.5	6.8	3	3	12.0	1971	4	22.0	1973	19	1979	31	13	1971	3.6	2.8	1.0	.3	@	17.5	12.0	7.3	1.8
Feb	6.2	4.0	3	2	9.0	1976	21	16.0	1971	21	1979	12	17	1979	2.9	2.4	.8	.4	.0	14.4	9.7	6.3	1.6
Mar	3.4	1.8	1	#	10.0	1983	27	14.0	1984	13	1978	7	8	1982	1.5	1.2	.4	.2	.1	4.6	3.3	2.2	.6
Apr	1.2	.0	#	#	6.0	1973	9	10.5	1973	9	1997	12	1	1997	.6	.5	.2	@	.0	.6	.2	.1	.0
May	#	.0	#	0	#	1994	1	#	1994	#	1998	22	#	1998	.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	.4	.0	#	0	8.0	1997	26	9.0	1997	9	1997	27	#+	1997	.2	.2	.1	.1	.0	.1	.1	.0	.0
Nov	2.8	1.5	#	#	8.0	1972	14	10.0	1972	8	1972	16	3	1972	1.3	1.0	.4	.1	.0	2.9	1.5	.6	.0
Dec	5.4	5.1	2	1	8.0	1972	12	12.0	1983	14	2000	24	8	2000	3.4	2.5	.6	.2	.0	11.4	6.3	2.9	.0
Ann	26.9	19.2	N/A	N/A	12.0	Jan 1971	4	22.0	Jan 1973	21	Feb 1979	12	17	Feb 1979	13.5	10.6	3.5	1.3	.1	51.5	33.1	19.4	4.0

+ 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

Complete documentation available from:

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Lat: 41° 18N

Lon: 94° 27W

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	5/13	5/09	5/06	5/03	5/01	4/28	4/26	4/23	4/18
32	5/08	5/04	4/30	4/28	4/25	4/22	4/19	4/16	4/11
28	4/25	4/20	4/17	4/14	4/12	4/09	4/06	4/03	3/30
24	4/14	4/10	4/07	4/05	4/03	3/31	3/29	3/26	3/22
20	4/11	4/05	4/01	3/29	3/26	3/23	3/19	3/15	3/10
16	3/31	3/25	3/21	3/18	3/15	3/11	3/08	3/04	2/26
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	9/25	9/28	9/30	10/03	10/06	10/09	10/14
32	9/22	9/28	10/02	10/05	10/08	10/12	10/15	10/19	10/25
28	9/29	10/05	10/10	10/13	10/17	10/20	10/24	10/28	11/03
24	10/12	10/19	10/23	10/27	10/31	11/03	11/07	11/12	11/18
20	10/25	10/30	11/04	11/07	11/11	11/14	11/18	11/22	11/28
16	10/30	11/06	11/10	11/14	11/18	11/22	11/26	11/30	12/07
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	170	164	159	156	152	148	145	140	134
32	185	179	174	170	166	162	158	153	146
28	210	202	197	192	187	183	178	172	164
24	231	224	219	215	211	207	202	197	191
20	253	245	239	234	229	225	220	214	206
16	274	265	258	253	248	243	237	231	222

* 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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Elevation: 1,340 Feet Lat: 41°18N Lon: 94°27W

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	1362	1059	817	429	173	16	4	19	89	361	807	1225	6361
60	1207	919	662	295	91	3	0	4	32	229	657	1070	5169
57	1114	841	574	225	56	1	0	1	15	162	571	977	4537
55	1052	789	517	184	39	0	0	0	8	125	516	915	4145
50	901	658	378	99	13	0	0	0	1	57	382	770	3259
32	416	273	68	1	0	0	0	0	0	0	74	312	1144

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	76	137	274	569	916	1164	1334	1269	997	668	258	110	7772
55	0	9	10	61	242	474	621	556	315	79	9	0	2376
57	0	6	5	43	197	415	559	495	262	55	4	0	2041
60	0	0	0	23	139	327	466	406	190	28	1	0	1580
65	0	0	0	6	65	191	315	266	97	6	0	0	946
70	0	0	0	1	23	85	177	152	38	1	0	0	477

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	2	30	135	369	694	953	1117	1047	781	448	109	10	2	32	167	536	1230	2183	3300	4347	5128	5576	5685	5695
45	0	10	71	249	539	803	962	892	632	309	56	5	0	10	81	330	869	1672	2634	3526	4158	4467	4523	4528
50	0	1	37	150	389	653	807	737	484	193	22	0	0	1	38	188	577	1230	2037	2774	3258	3451	3473	3473
55	0	0	13	79	253	503	652	582	343	103	3	0	0	0	13	92	345	848	1500	2082	2425	2528	2531	2531
60	0	0	3	37	140	357	497	427	221	45	0	0	0	0	3	40	180	537	1034	1461	1682	1727	1727	1727
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	24	95	233	431	635	761	710	503	273	65	5	1	25	120	353	784	1419	2180	2890	3393	3666	3731	3736

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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