

# Climatology of the United States

No. 20

1971-2000

Station: NORTHWOOD, IA

COOP ID: 136103

Climate Division: IA 2

NWS Call Sign:

Elevation: 1,190 Feet Lat: 43° 26N

Lon: 93° 13W

## 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	20.7	2.8	11.8	57	1981	24	25.0	1990	-32	1967	18	-1.0	1979	1651	0	.0	.0	.2	24.0	31.0	12.8
Feb	27.0	9.5	18.3	65	1981	17	29.7	1987	-33+	1996	2	6.1	1979	1308	0	.0	.0	1.1	16.4	27.4	7.1
Mar	39.4	22.1	30.8	83	1986	29	40.0	2000	-27	1962	1	21.8	1975	1061	0	.0	.0	7.4	7.2	25.4	1.8
Apr	55.0	33.9	44.5	93	1980	21	52.2	1977	6	1982	6	37.4	1975	619	2	.0	.1	21.3	.7	11.6	.0
May	68.6	47.3	58.0	94	1978	25	66.3	1977	21	1967	3	50.4	1997	264	45	.0	.7	30.4	.0	1.0	.0
Jun	77.8	57.3	67.6	102	1985	8	73.3	1988	37	1992	21	62.1	1982	53	130	.2	3.4	30.0	.0	.0	.0
Jul	81.1	61.3	71.2	102	1988	31	75.3	1974	44	1970	20	64.0	1992	19	210	.2	5.5	31.0	.0	.0	.0
Aug	78.7	58.7	68.7	101+	1988	16	73.9	1983	36	1950	20	63.4	1992	39	153	.1	3.1	31.0	.0	.0	.0
Sep	71.1	48.5	59.8	97	1978	7	64.8	1978	26+	1949	29	53.5	1993	182	26	.0	.8	29.6	.0	.9	.0
Oct	58.8	36.9	47.9	93	1963	5	54.2	1973	12	1952	29	42.3	1987	532	0	.0	.1	25.8	.2	9.3	.0
Nov	39.9	22.9	31.4	79	1999	9	40.6	1999	-14	1977	26	23.7	1985	1009	0	.0	.0	7.4	7.8	24.3	.8
Dec	25.5	9.5	17.5	66	1998	2	25.2	1998	-27+	1983	19	3.5	1983	1472	0	.0	.0	.6	20.9	30.5	7.4
Ann	53.6	34.2	44.0	102+	Jul 1988	31	75.3	Jul 1974	-33+	Feb 1996	2	-1.0	Jan 1979	8209	566	.5	13.7	215.8	77.2	161.4	29.9

+ 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](http://www.ncdc.noaa.gov/oa/climate/normals/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

083-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: NORTHWOOD, IA**

**COOP ID: 136103**

**Climate Division: IA 2**

**NWS Call Sign:**

**Elevation: 1,190 Feet Lat: 43°26N**

**Lon: 93°13W**

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	.98	.86	1.80	1971	4	2.14	1971	.11	1981	6.1	2.9	.5	@	.16	.25	.39	.53	.67	.82	.99	1.20	1.48	1.94	2.37
Feb	.72	.60	1.00	1971	19	3.08	1971	.00	1996	4.6	2.0	.4	@	.04	.11	.23	.33	.44	.56	.71	.88	1.12	1.51	1.89
Mar	2.09	1.97	2.06	1966	23	4.45	1990	.00	1994	7.4	4.7	1.4	.4	.40	.69	1.04	1.33	1.60	1.89	2.20	2.57	3.04	3.79	4.48
Apr	3.20	2.85	2.80	1993	20	6.70	1999	.41	1971	9.1	6.7	2.0	.6	.85	1.15	1.62	2.02	2.42	2.84	3.31	3.86	4.58	5.71	6.77
May	3.92	4.12	3.00	1957	29	7.49	1991	1.04	1988	10.1	7.0	2.9	.9	1.57	1.93	2.44	2.86	3.26	3.66	4.10	4.61	5.25	6.22	7.12
Jun	4.50	3.97	5.06	1978	15	8.98	1978	1.30	1988	10.0	7.6	3.3	1.1	1.38	1.81	2.44	2.99	3.52	4.07	4.67	5.39	6.30	7.74	9.06
Jul	4.35	3.85	3.56	1990	29	11.58	1990	.83	1976	8.4	6.3	3.0	1.4	1.00	1.40	2.04	2.61	3.18	3.79	4.47	5.28	6.35	8.04	9.64
Aug	4.88	4.39	6.65	1990	19	12.92	1990	.61	1971	8.9	6.3	3.3	1.4	.99	1.43	2.15	2.80	3.46	4.17	4.97	5.93	7.20	9.24	11.17
Sep	3.28	2.81	3.70	1978	13	9.13	1972	.57	1975	8.5	6.1	2.0	.8	.61	.91	1.39	1.83	2.28	2.77	3.33	4.00	4.88	6.31	7.67
Oct	2.31	2.08	2.30	1979	23	5.76	1984	.21	1975	6.7	4.9	1.5	.4	.50	.71	1.05	1.36	1.66	1.99	2.36	2.81	3.39	4.33	5.21
Nov	1.98	1.24	1.95	1991	1	5.65	1991	.02	1980	6.0	4.0	1.3	.5	.13	.25	.50	.76	1.07	1.42	1.85	2.40	3.16	4.44	5.72
Dec	1.10	.88	1.27	1987	27	2.70	1982	.01	1989	6.3	3.3	.5	.1	.14	.23	.39	.54	.70	.88	1.09	1.34	1.68	2.24	2.78
Ann	33.31	33.15	6.65	Aug 1990	19	12.92	Aug 1990	.00+	Feb 1996	92.1	61.8	22.1	7.6	21.68	23.85	26.68	28.85	30.80	32.70	34.67	36.87	39.56	43.50	46.94

+ 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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**Climate Division: IA 2**

**NWS Call Sign:**

**Elevation: 1,190 Feet**

**Lat: 43°26N**

**Lon: 93°13W**

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	9.5	8.3	7	5	13.0	1971	4	22.7	1996	24	1979	31	17+	1991	4.9	3.4	1.5	.4	.1	-9.9	-9.9	-9.9	-9.9
Feb	5.8	5.9	6	6	10.5	1994	23	17.0	1994	25	1971	5	19	1971	3.4	1.9	.5	.2	.1	18.8	13.1	9.1	6.2
Mar	5.4	4.8	2	#	9.5	1995	7	15.0	1975	19	1993	23	14	1993	2.6	1.6	.9	.3	.0	7.7	5.0	3.4	2.6
Apr	2.3	.5	#	0	8.0	1983	14	12.0	1982	5	1996	15	#+	2000	.9	.7	.3	.2	.0	.7	.2	.2	.0
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	.4	.0	#	0	3.0	1976	24	3.0	1976	2	1972	18	#	1972	.2	.2	@	.0	.0	.1	.0	.0	.0
Nov	4.4	2.5	#	#	7.0	1985	30	21.3	1985	8	1988	30	2	1996	2.6	1.7	.6	.2	.0	3.9	1.1	.6	.0
Dec	8.0	9.0	3	2	13.5	1987	27	16.0	1973	22	2000	31	11+	2000	4.7	3.1	.9	.3	@	15.5	6.6	2.6	.4
Ann	35.8	31.0	N/A	N/A	13.5	Dec 1987	27	22.7	Jan 1996	25	Feb 1971	5	19	Feb 1971	19.3	12.6	4.7	1.6	.2	-9.9	-9.9	-9.9	-9.9

+ 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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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	5/20	5/16	5/12	5/09	5/07	5/04	5/01	4/28	4/24
32	5/13	5/08	5/05	5/02	4/29	4/26	4/24	4/20	4/15
28	5/01	4/26	4/22	4/19	4/16	4/13	4/10	4/06	4/01
24	4/17	4/13	4/11	4/08	4/06	4/04	4/01	3/29	3/25
20	4/14	4/09	4/06	4/03	3/31	3/28	3/25	3/22	3/17
16	4/06	4/01	3/28	3/24	3/21	3/18	3/15	3/11	3/05
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	9/17	9/20	9/22	9/25	9/27	9/30	10/02	10/06
32	9/21	9/25	9/29	10/01	10/04	10/06	10/09	10/12	10/16
28	9/28	10/03	10/07	10/11	10/14	10/18	10/21	10/25	10/31
24	10/10	10/16	10/20	10/23	10/27	10/30	11/02	11/06	11/12
20	10/22	10/26	10/30	11/01	11/04	11/07	11/10	11/13	11/18
16	10/26	11/01	11/06	11/09	11/13	11/17	11/21	11/25	12/01
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	159	152	148	144	140	136	132	128	121
32	174	168	164	160	157	153	150	146	140
28	203	195	190	185	181	176	172	166	159
24	223	216	211	207	203	199	195	190	183
20	237	230	226	221	218	214	210	205	198
16	262	253	247	241	236	231	225	219	210

\* 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

Complete documentation available from:  
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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	1651	1308	1061	619	264	53	19	39	182	532	1009	1472	8209
60	1496	1168	906	475	164	16	4	9	86	383	859	1317	6883
57	1403	1084	813	394	116	6	0	2	47	300	769	1224	6158
55	1341	1028	752	342	90	3	0	1	29	250	710	1162	5708
50	1186	888	607	228	41	0	0	0	6	144	565	1007	4672
32	655	433	186	18	0	0	0	0	0	5	158	492	1947

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	28	49	148	390	804	1067	1215	1138	834	496	138	43	6350
55	0	0	1	25	181	380	502	425	173	28	0	0	1715
57	0	0	0	16	145	323	440	365	131	17	0	0	1437
60	0	0	0	8	100	243	351	279	79	6	0	0	1066
65	0	0	0	2	45	130	210	153	26	0	0	0	566
70	0	0	0	0	16	53	106	68	5	0	0	0	248

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	1	57	244	603	874	1006	934	640	306	49	1	0	1	58	302	905	1779	2785	3719	4359	4665	4714	4715
45	0	0	22	144	455	724	851	779	496	187	22	0	0	0	22	166	621	1345	2196	2975	3471	3658	3680	3680
50	0	0	5	78	311	575	696	624	353	105	4	0	0	0	5	83	394	969	1665	2289	2642	2747	2751	2751
55	0	0	2	40	189	426	541	469	228	46	1	0	0	0	2	42	231	657	1198	1667	1895	1941	1942	1942
60	0	0	1	14	105	280	387	316	126	15	0	0	0	0	1	15	120	400	787	1103	1229	1244	1244	1244
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	1	36	152	361	565	677	619	401	185	31	0	0	1	37	189	550	1115	1792	2411	2812	2997	3028	3028

(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](http://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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)