

# Climatology of the United States

No. 20

1971-2000

Station: OAKLAND, IA

COOP ID: 136151

Climate Division: IA 7

NWS Call Sign:

Elevation: 1,170 Feet Lat: 41° 19N

Lon: 95° 23W

## 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	29.4	9.0	19.2	66	1981	24	30.7	1989	-31	1974	12	5.6	1979	1421	0	.0	.0	1.9	16.2	30.4	8.3
Feb	35.4	14.8	25.1	75	1972	29	35.1	1987	-29	1996	3	9.8	1979	1118	0	.0	.0	5.1	11.6	26.2	4.2
Mar	47.9	25.5	36.7	89	1986	29	43.2	2000	-24	1960	5	28.6	1975	876	0	.0	.0	15.0	3.6	21.9	.8
Apr	61.3	36.6	49.0	93+	1989	27	56.0	1981	0	1975	3	42.0	1983	485	4	.0	.4	25.2	.2	9.0	@
May	72.2	49.5	60.9	100	1967	25	67.4	1977	21	1961	2	55.6	1995	187	59	.0	.7	30.9	.0	.8	.0
Jun	81.7	59.3	70.5	101	1956	19	75.5	1988	33+	1951	4	66.1	1982	19	184	.2	5.1	30.0	.0	.0	.0
Jul	84.7	63.8	74.3	105+	1955	31	78.9	1974	36	1971	30	69.4	1992	5	292	.2	7.9	31.0	.0	.0	.0
Aug	82.4	61.1	71.8	102	1954	4	78.3	1983	35	1950	20	66.2	1992	23	232	.1	5.0	31.0	.0	.0	.0
Sep	75.9	51.6	63.8	101	1953	28	69.8	1998	23	1983	23	58.0	1993	114	76	.0	2.4	29.9	.0	.9	.0
Oct	64.1	39.1	51.6	93+	1953	2	56.4	2000	12+	1949	31	45.6	1976	417	3	.0	.1	28.4	.0	7.4	.0
Nov	46.3	25.9	36.1	83	1999	14	45.2	1999	-17	1964	30	28.2	1991	867	0	.0	.0	13.2	3.7	21.4	.3
Dec	33.0	14.4	23.7	67	1998	2	30.4	1998	-30	1983	24	6.9	1983	1281	0	.0	.0	3.3	12.8	29.9	4.4
Ann	59.5	37.6	48.6	105+	Jul 1955	31	78.9	Jul 1974	-31	Jan 1974	12	5.6	Jan 1979	6813	850	.5	21.6	244.9	48.1	147.9	18.0

+ 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](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

084-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: OAKLAND, IA

COOP ID: 136151

Climate Division: IA 7

NWS Call Sign:

Elevation: 1,170 Feet Lat: 41°19N

Lon: 95°23W

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	.77	.58	1.57	1949	27	2.39	1975	.00+	1997	5.5	2.4	.4	@	.00	.05	.18	.29	.42	.57	.74	.95	1.24	1.73	2.21
Feb	.85	.76	2.30	1954	19	2.95	1998	.00+	1997	5.7	2.5	.5	@	.00	.08	.23	.37	.51	.66	.84	1.06	1.36	1.85	2.32
Mar	2.17	1.99	1.78	1982	19	4.83	1973	.00	1996	7.7	4.8	1.6	.4	.06	.21	.51	.82	1.16	1.56	2.04	2.65	3.50	4.93	6.34
Apr	3.39	2.64	2.68	1986	4	9.74	1986	.86	1989	10.0	6.4	2.0	.8	.74	1.06	1.55	2.00	2.45	2.93	3.47	4.11	4.96	6.31	7.59
May	4.55	4.14	2.82	1999	17	9.68	1993	.19	1994	11.6	8.0	3.0	1.2	1.03	1.45	2.12	2.72	3.32	3.96	4.67	5.53	6.65	8.43	10.12
Jun	4.57	3.64	3.88	1952	22	9.75	1998	.95	1992	10.2	7.0	3.0	1.2	1.31	1.74	2.40	2.97	3.52	4.10	4.74	5.50	6.48	8.01	9.44
Jul	4.56	4.05	4.01	1955	9	13.28	1993	.37	1975	9.5	6.3	2.7	1.2	.71	1.10	1.76	2.39	3.04	3.75	4.57	5.57	6.90	9.07	11.15
Aug	3.88	2.98	6.46	1999	7	11.66	1980	.71	1976	8.9	5.9	2.4	1.0	.68	1.02	1.58	2.11	2.66	3.25	3.92	4.73	5.82	7.58	9.25
Sep	3.64	2.85	4.65	1954	29	8.91	1978	.61	1971	8.3	5.5	2.0	1.1	.62	.94	1.47	1.97	2.48	3.04	3.67	4.44	5.47	7.13	8.72
Oct	2.42	2.20	2.19	1973	11	5.61	1986	.07	1975	7.2	4.4	1.5	.7	.36	.56	.91	1.25	1.59	1.98	2.42	2.95	3.67	4.85	5.98
Nov	1.73	1.62	1.91	1997	30	4.06	1971	.00	1989	6.1	3.6	1.1	.3	.12	.30	.57	.83	1.09	1.38	1.72	2.14	2.69	3.61	4.49
Dec	1.00	.76	2.16	1982	28	3.63	1982	.00	1989	6.4	2.6	.5	.1	.08	.19	.36	.50	.65	.82	1.00	1.23	1.54	2.03	2.50
Ann	33.53	33.03	6.46	Aug 1999	7	13.28	Jul 1993	.00+	Feb 1997	97.1	59.4	20.7	8.0	21.70	23.90	26.77	28.99	30.97	32.91	34.92	37.16	39.91	43.93	47.45

+ 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

# 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](http://www.ncdc.noaa.gov)

Station: OAKLAND, IA

COOP ID: 136151

Climate Division: IA 7

NWS Call Sign:

Elevation: 1,170 Feet

Lat: 41°19N

Lon: 95°23W

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	6.0	4.7	3	2	7.5	1971	3	18.0	1975	11+	1993	21	7	1984	3.4	1.9	.7	.3	.0	15.1	10.9	7.4	.7
Feb	6.1	6.5	2	1	9.0	1999	23	16.2	1999	11	1999	24	8	1979	2.4	1.9	.9	.2	.0	12.6	8.0	4.6	.3
Mar	4.5	3.0	1	#	12.0	1987	29	15.5	1984	12	1987	29	4+	1998	1.4	1.1	.5	.2	@	3.6	2.0	.6	.2
Apr	1.2	.0	#	0	7.0	1997	13	10.0	1997	9	1997	13	1	1997	.6	.4	.2	.1	.0	.4	.2	@	.0
May	#	.0	#	0	#	1997	2	#	1997	#	1997	2	#	1997	.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	#	1995	21	#	1995	#	1995	21	#	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.8	.0	#	0	8.0	1997	26	11.0	1997	9	1997	27	1	1997	.2	.2	.2	.1	.0	.1	@	.0	.0
Nov	2.3	1.4	#	#	6.0	1972	14	13.0	1972	6	1987	30	1	1991	1.0	.7	.4	@	.0	2.0	.8	.2	.0
Dec	6.3	5.3	2	1	7.5	1995	6	19.6	2000	10+	2000	19	6	2000	3.0	2.0	.5	.1	.0	11.1	6.8	3.5	.2
Ann	27.2	20.9	N/A	N/A	12.0	Mar 1987	29	19.6	Dec 2000	12	Mar 1987	29	8	Feb 1979	12.0	8.2	3.4	1.0	@	44.9	28.7	16.3	1.4

+ 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:

[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

# Climatography of the United States

## No. 20 1971-2000

**Station: OAKLAND, IA**

**COOP ID: 136151**

**Climate Division: IA 7**

**NWS Call Sign:**

**Elevation: 1,170 Feet**

**Lat: 41° 19N**

**Lon: 95° 23W**

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	5/31	5/22	5/16	5/11	5/06	5/01	4/26	4/20	4/12
32	5/11	5/07	5/04	5/01	4/28	4/26	4/23	4/20	4/16
28	5/02	4/27	4/23	4/20	4/17	4/14	4/11	4/07	4/02
24	4/24	4/18	4/15	4/11	4/08	4/05	4/02	3/29	3/24
20	4/11	4/06	4/02	3/30	3/28	3/25	3/22	3/18	3/14
16	4/05	3/30	3/26	3/22	3/18	3/15	3/11	3/06	2/28
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	9/10	9/14	9/17	9/20	9/22	9/24	9/27	9/30	10/04
32	9/12	9/19	9/23	9/27	10/01	10/05	10/08	10/13	10/19
28	9/26	10/01	10/05	10/09	10/12	10/15	10/18	10/22	10/27
24	10/04	10/11	10/15	10/19	10/23	10/27	10/31	11/04	11/11
20	10/21	10/27	10/31	11/03	11/07	11/10	11/14	11/18	11/24
16	10/25	11/01	11/06	11/11	11/15	11/19	11/23	11/28	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	168	157	150	144	138	132	126	119	109
32	181	172	165	160	155	150	144	138	129
28	199	192	186	181	177	172	167	162	154
24	221	213	207	202	197	192	187	181	173
20	248	240	233	228	224	219	214	208	199
16	270	260	253	246	241	235	229	222	211

\* 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:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

**Climatography  
of the United States  
No. 20  
1971-2000**

**Station: OAKLAND, IA**

**COOP ID: 136151**

**Climate Division: IA 7**

**NWS Call Sign:**

**Elevation: 1,170 Feet    Lat: 41°19N    Lon: 95°23W**

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	1421	1118	876	485	187	19	5	23	114	417	867	1281	6813
60	1266	978	721	347	101	3	0	5	46	275	717	1126	5585
57	1173	894	630	272	65	1	0	1	23	201	628	1033	4921
55	1111	842	573	227	46	0	0	0	13	158	570	971	4511
50	959	711	430	133	16	0	0	0	2	76	432	818	3577
32	465	305	87	3	0	0	0	0	0	1	89	341	1291

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	67	111	234	512	895	1155	1310	1232	952	609	212	83	7372
55	0	4	7	46	227	465	597	519	275	53	3	0	2196
57	0	0	1	32	184	406	535	458	225	34	1	0	1876
60	0	0	0	16	128	318	442	369	159	15	0	0	1447
65	0	0	0	4	59	184	292	232	76	3	0	0	850
70	0	0	0	0	20	81	157	125	27	0	0	0	410

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	24	115	336	671	933	1073	1006	739	407	94	8	2	26	141	477	1148	2081	3154	4160	4899	5306	5400	5408
45	0	5	61	219	516	783	918	851	589	275	43	3	0	5	66	285	801	1584	2502	3353	3942	4217	4260	4263
50	0	1	31	131	368	633	763	696	447	166	13	0	0	1	32	163	531	1164	1927	2623	3070	3236	3249	3249
55	0	0	6	66	232	484	608	541	309	87	3	0	0	0	6	72	304	788	1396	1937	2246	2333	2336	2336
60	0	0	3	32	125	339	455	388	193	36	1	0	0	0	3	35	160	499	954	1342	1535	1571	1572	1572
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	25	87	224	414	618	730	681	478	261	66	5	0	25	112	336	750	1368	2098	2779	3257	3518	3584	3589

(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)