

Climatography of the United States

No. 20

1971-2000

Station: ONAWA 3 NW, IA

COOP ID: 136243

Climate Division: IA 4

NWS Call Sign:

Elevation: 1,060 Feet Lat: 42°04N Lon: 96°08W

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	30.5	9.8	20.2	69	1944	25	31.4	1990	-32	1912	12	6.1	1979	1390	0	.0	.0	2.0	16.0	30.4	7.9
Feb	37.0	16.4	26.7	71	1987	7	36.3	1987	-30	1905	2	12.6	1979	1072	0	.0	.0	5.5	10.8	25.8	4.2
Mar	49.7	26.8	38.3	91	1986	29	44.2	2000	-23	1960	5	30.6	1975	829	0	.0	@	15.0	3.2	21.4	.7
Apr	63.9	38.2	51.1	97	1910	28	58.4	1981	4	1975	3	43.9	1983	427	8	.0	.5	25.9	.2	8.5	.0
May	74.5	49.6	62.1	106	1934	30	68.5	1977	23+	1944	6	57.0	1997	163	71	.0	1.1	30.9	.0	.8	.0
Jun	83.6	59.0	71.3	106+	1936	26	76.1	1988	36+	1915	9	66.5	1982	14	203	.3	6.7	30.0	.0	.0	.0
Jul	86.7	63.1	74.9	110+	1936	4	79.5	1974	38	1921	19	68.7	1992	5	313	.6	10.7	31.0	.0	.0	.0
Aug	84.6	61.0	72.8	108+	1934	8	80.4	1983	24	1936	29	66.8	1992	17	259	.3	7.2	31.0	.0	.0	.0
Sep	77.5	51.6	64.6	104	1939	6	71.2	1998	23+	1899	29	59.2	1993	98	85	.1	2.8	29.9	.0	.6	.0
Oct	65.5	39.8	52.7	97	1938	3	56.8	1975	-1	1925	28	47.2	1976	386	3	.0	.2	28.5	.1	6.6	.0
Nov	46.6	26.3	36.5	81	1999	7	46.4	1999	-15	1937	21	27.6	1991	857	0	.0	.0	12.4	3.6	21.5	.3
Dec	33.3	14.3	23.8	70	1998	1	31.4	1979	-27	1989	22	6.9	1983	1276	0	.0	.0	2.7	13.0	29.9	4.6
Ann	61.1	38.0	49.6	110+	Jul 1936	4	80.4	Aug 1983	-32	Jan 1912	12	6.1	Jan 1979	6534	942	1.3	29.2	244.8	46.9	145.5	17.7

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1899-2001

(3) Derived from 1971-2000 serially complete daily data

086-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: ONAWA 3 NW, IA

COOP ID: 136243

Climate Division: IA 4

NWS Call Sign:

Elevation: 1,060 Feet Lat: 42°04N

Lon: 96°08W

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	.63	.49	1.42	1949	4	2.66	1975	.00	1999	5.2	2.3	.2	.0	.01	.05	.13	.22	.32	.44	.58	.77	1.03	1.48	1.92
Feb	.67	.51	1.98	1951	28	2.54	1971	.05	1996	4.9	2.0	.2	.0	.10	.15	.25	.34	.44	.54	.66	.81	1.01	1.34	1.65
Mar	2.11	1.79	2.89	1987	23	6.70	1987	.04	1988	8.5	4.6	1.4	.4	.15	.28	.55	.84	1.16	1.54	1.99	2.56	3.36	4.70	6.04
Apr	3.10	2.78	3.20	1999	22	7.98	1999	.93	1990	9.5	6.5	2.1	.7	.78	1.08	1.53	1.93	2.32	2.74	3.20	3.75	4.47	5.61	6.67
May	4.12	3.94	2.92	1974	18	10.59	1974	1.74	1989	10.8	7.6	3.0	1.0	1.55	1.94	2.49	2.95	3.39	3.83	4.31	4.87	5.59	6.69	7.69
Jun	4.36	4.06	4.85	1934	7	10.44	1984	.54	1976	9.1	6.7	2.7	1.3	1.02	1.43	2.06	2.63	3.20	3.80	4.48	5.28	6.34	8.02	9.60
Jul	3.98	3.32	9.12	1996	17	10.88	1996	.75	1976	8.2	5.8	2.5	.9	.68	1.03	1.61	2.15	2.71	3.32	4.01	4.86	5.98	7.79	9.53
Aug	3.42	3.03	5.00	1903	26	8.50	1993	.37	2000	8.5	5.4	2.1	1.0	.71	1.02	1.53	1.98	2.44	2.93	3.49	4.16	5.04	6.44	7.78
Sep	2.94	2.67	6.98	1915	26	5.69	1982	.42	1999	7.5	4.9	2.0	.7	.56	.82	1.25	1.65	2.05	2.49	2.99	3.58	4.38	5.65	6.87
Oct	2.33	2.07	3.27	1979	30	7.54	1984	.00	1999	6.3	3.9	1.6	.6	.13	.35	.71	1.05	1.42	1.82	2.29	2.88	3.67	4.97	6.24
Nov	1.59	1.34	2.30	1905	5	4.09	1991	.01	1976	6.4	3.6	1.0	.3	.15	.26	.48	.70	.94	1.21	1.53	1.94	2.49	3.41	4.32
Dec	.83	.66	1.52	1911	10	2.87	1982	.03	1998	5.3	2.2	.5	.1	.10	.17	.28	.40	.52	.66	.81	1.01	1.27	1.71	2.13
Ann	30.08	30.92	9.12	Jul 1996	17	10.88	Jul 1996	.00+	Oct 1999	90.2	55.5	19.3	7.0	18.27	20.42	23.25	25.44	27.43	29.38	31.42	33.70	36.51	40.65	44.29

+ 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: 1899-2001

(3) Derived from 1971-2000 serially complete daily data

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Station: ONAWA 3 NW, IA

COOP ID: 136243

Climate Division: IA 4

NWS Call Sign:

Elevation: 1,060 Feet

Lat: 42°04N

Lon: 96°08W

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	7.7	5.6	3	2	10.0	1975	10	34.7	1975	20	1979	31	12	1975	4.6	2.1	.6	.2	@	17.1	10.5	8.0	1.7
Feb	6.4	5.2	3	1	12.0	1978	13	22.5	1978	20	1979	12	17	1975	3.7	1.8	.7	.2	@	12.5	9.4	6.6	3.4
Mar	5.3	4.9	1	#	12.0	1987	28	18.3	1984	18	1979	4	7	1979	2.8	1.3	.6	.3	@	5.1	3.8	2.3	1.0
Apr	2.0	.6	#	#	10.3	1997	12	15.2	1997	15	1997	12	1	1997	1.1	.7	.3	.1	@	.6	.4	.2	@
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	.5	.0	#	0	4.7	1980	27	4.7	1980	5	1980	27	#+	1995	.2	.2	.1	.0	.0	.1	.1	@	.0
Nov	3.9	3.1	#	#	7.4	1991	1	16.5	1991	10	1991	2	4	1991	2.5	1.3	.5	.1	.0	3.9	1.9	.9	.1
Dec	6.7	5.8	2	1	10.0	1982	28	18.0	1978	13	1978	10	8	1983	3.9	2.2	.6	.2	@	11.9	6.5	4.0	1.0
Ann	32.5	25.2	N/A	N/A	12.0+	Mar 1987	28	34.7	Jan 1975	20+	Feb 1979	12	17	Feb 1975	18.8	9.6	3.4	1.1	@	51.2	32.6	22.0	7.2

+ 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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Elevation: 1,060 Feet

Lat: 42° 04N

Lon: 96° 08W

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	5/02	4/29	4/26	4/21
32	5/11	5/07	5/03	5/01	4/28	4/25	4/23	4/19	4/15
28	5/03	4/28	4/25	4/22	4/19	4/16	4/13	4/10	4/05
24	4/19	4/15	4/12	4/09	4/06	4/04	4/01	3/29	3/24
20	4/12	4/06	4/03	3/30	3/27	3/24	3/21	3/17	3/12
16	4/02	3/28	3/24	3/21	3/18	3/16	3/12	3/09	3/04
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	9/15	9/18	9/21	9/23	9/25	9/27	9/29	10/02	10/05
32	9/20	9/24	9/28	10/01	10/03	10/06	10/09	10/12	10/17
28	9/26	10/02	10/06	10/10	10/13	10/16	10/20	10/24	10/30
24	10/10	10/16	10/20	10/23	10/26	10/29	11/01	11/05	11/10
20	10/17	10/23	10/28	10/31	11/04	11/07	11/11	11/15	11/21
16	10/27	11/02	11/06	11/10	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	162	155	150	146	143	139	135	130	123
32	174	168	164	161	158	154	151	147	141
28	198	191	185	181	177	172	168	162	155
24	224	217	211	206	202	197	193	187	179
20	246	237	231	226	221	216	210	204	195
16	262	254	248	244	239	235	230	224	216

* 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	1390	1072	829	427	163	14	5	17	98	386	857	1276	6534
60	1235	932	674	296	84	2	0	3	37	247	707	1121	5338
57	1142	848	583	227	52	0	0	0	17	177	619	1028	4693
55	1080	799	527	187	35	0	0	0	9	136	562	966	4301
50	930	668	386	103	12	0	0	0	1	63	426	815	3404
32	440	275	68	1	0	0	0	0	0	0	93	339	1216

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	73	127	262	573	931	1179	1331	1265	977	641	227	85	7671
55	0	7	8	68	253	489	618	552	296	63	6	0	2360
57	0	0	2	48	207	430	556	491	244	42	2	0	2022
60	0	0	0	27	147	341	463	400	174	20	0	0	1572
65	0	0	0	8	71	203	313	259	85	3	0	0	942
70	0	0	0	2	25	94	176	144	32	0	0	0	473

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	1	25	121	362	695	957	1110	1044	760	423	88	2	1	26	147	509	1204	2161	3271	4315	5075	5498	5586	5588
45	0	4	67	241	542	807	955	889	611	286	40	1	0	4	71	312	854	1661	2616	3505	4116	4402	4442	4443
50	0	1	29	142	390	657	800	734	464	174	17	0	0	1	30	172	562	1219	2019	2753	3217	3391	3408	3408
55	0	0	8	78	256	507	645	579	327	90	4	0	0	0	8	86	342	849	1494	2073	2400	2490	2494	2494
60	0	0	2	34	145	360	490	424	204	38	0	0	0	0	2	36	181	541	1031	1455	1659	1697	1697	1697
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	24	89	238	436	637	754	702	489	269	62	3	1	25	114	352	788	1425	2179	2881	3370	3639	3701	3704

(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