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: OSKALOOSA, IA **COOP ID: 136327**

Climate Division: IA 9 **NWS Call Sign:** **Elevation: 830 Feet** **Lat: 41˚19N** **Lon: 92˚39W**

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	29.1	9.8	19.5	69	1989	31	31.6	1990	-31	1912	12	7.0	1979	1413	0	.0	.0	1.9	16.9	30.0	7.6
Feb	35.3	15.3	25.3	78	1930	24	36.9	1998	-31	1905	13	11.3	1978	1112	0	.0	.0	4.8	11.8	25.4	3.6
Mar	47.9	26.5	37.2	88	1895	29	43.8	1973	-30	1962	1	28.0	1984	862	0	.0	.0	14.1	3.4	20.3	.4
Apr	60.7	37.4	49.1	92+	1930	10	56.0	1981	9	1975	3	43.0	1983	481	3	.0	.1	25.2	.2	7.3	.0
May	71.8	50.0	60.9	106	1934	31	67.7	1977	24	1907	4	56.1	1997	181	54	.0	.1	30.9	.0	.2	.0
Jun	81.0	59.6	70.3	104+	1934	2	77.1	1971	36+	1910	8	65.7	1982	22	181	.1	3.5	30.0	.0	.0	.0
Jul	85.4	64.0	74.7	112	1936	25	79.0	1977	44+	1918	31	69.7	1992	3	304	.6	9.9	31.0	.0	.0	.0
Aug	83.3	61.4	72.4	112	1934	8	80.6	1983	36	1950	20	65.9	1992	22	251	.4	6.2	31.0	.0	.0	.0
Sep	75.9	51.7	63.8	101+	1936	11	68.9	1998	20	1942	28	57.8	1993	107	71	.0	2.0	29.9	.0	.4	.0
Oct	64.1	40.7	52.4	96	1953	2	60.4	1971	3	1925	30	46.3	1988	397	5	.0	.1	28.4	.0	5.8	.0
Nov	47.1	27.2	37.2	82	1938	1	46.4	1999	-7	1937	21	30.1	1991	835	0	.0	.0	13.2	3.1	19.7	.3
Dec	33.5	15.9	24.7	71	1998	5	31.7	1982	-30	1924	28	9.9	1983	1249	0	.0	.0	3.1	12.5	28.7	4.2
Ann	59.6	38.3	49.0	112+	Jul 1936	25	80.6	Aug 1983	-31+	Jan 1912	12	7.0	Jan 1979	6684	869	1.1	21.9	243.5	47.9	137.8	16.1

\+ 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: 1893-2001

(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	1.12	1.04	1.35	1947	30	3.03	1996	.12	1981
Feb	1.24	1.13	1.60	1997	21	3.42	1997	.24	1991
Mar	2.14	1.96	2.37	1919	16	5.84	1990	.02	1994
Apr	3.47	3.45	2.75	1897	24	7.25	1976	.53	1985
May	4.63	3.97	3.43	1903	26	12.29	1996	.59	1980
Jun	4.65	3.87	6.51	2000	24	15.49	2000	.72	1992
Jul	4.27	3.60	4.35	1994	8	11.63	1992	.38	1975
Aug	4.39	3.35	5.36	1970	5	9.60	1993	.89	1971
Sep	3.89	3.32	5.55	1961	13	9.18	1992	.55	1979
Oct	2.91	2.52	3.21	1970	9	6.93	1997	.12	1975
Nov	2.84	2.61	4.65	1952	17	9.08	1983	.00	1989
Dec	1.43	1.45	1.92	1980	8	3.25	1978	.26	1976
Ann	36.98	37.52	6.51	Jun 2000	24	15.49	Jun 2000	.00	Nov 1989

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.1	3.3	.5	.1
Feb	5.8	3.5	.7	@
Mar	7.6	4.8	1.4	.4
Apr	9.7	6.9	2.5	.6
May	11.8	8.4	3.4	1.3
Jun	10.0	7.4	3.0	1.3
Jul	8.8	6.5	2.9	1.3
Aug	9.5	6.6	2.9	1.4
Sep	8.7	6.2	2.7	1.3
Oct	7.9	5.5	1.8	.7
Nov	8.1	5.4	1.9	.6
Dec	6.2	3.9	.8	.2
Ann	100.2	68.4	24.5	9.2

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	.21	.31	.48	.63	.78	.95	1.14	1.36	1.66	2.15	2.61
Feb	.25	.36	.54	.71	.88	1.05	1.26	1.50	1.83	2.34	2.84
Mar	.21	.36	.65	.95	1.27	1.64	2.07	2.61	3.35	4.57	5.78
Apr	.95	1.28	1.78	2.21	2.64	3.09	3.59	4.18	4.95	6.16	7.28
May	1.08	1.51	2.19	2.80	3.40	4.04	4.75	5.61	6.73	8.51	10.18
Jun	1.13	1.56	2.24	2.84	3.44	4.08	4.79	5.63	6.73	8.49	10.13
Jul	.71	1.08	1.70	2.28	2.89	3.54	4.29	5.21	6.43	8.40	10.29
Aug	1.32	1.73	2.36	2.90	3.42	3.96	4.56	5.27	6.18	7.60	8.92
Sep	.98	1.34	1.91	2.41	2.91	3.43	4.01	4.70	5.60	7.03	8.36
Oct	.47	.72	1.15	1.55	1.96	2.41	2.93	3.56	4.40	5.76	7.07
Nov	.35	.71	1.19	1.59	2.00	2.43	2.92	3.50	4.27	5.50	6.66
Dec	.30	.43	.63	.83	1.02	1.22	1.45	1.73	2.10	2.69	3.25
Ann	25.30	27.53	30.39	32.58	34.54	36.43	38.39	40.57	43.22	47.08	50.43

\+ 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: 1893-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	5.6	5.4	2	2	7.0	1984	1	11.7	1978	17	1984	2	9	1982	3.6	2.3	.6	.2	.0	13.8	9.3	3.7	.0
Feb	7.1	6.2	2	1	6.5	1994	23	19.5	1994	12	1996	5	5	1994	3.1	2.1	.8	.2	.0	9.5	5.0	2.2	.5
Mar	3.0	1.5	#	0	6.0	1984	20	15.6	1984	12	1984	22	3	1984	1.5	1.0	.4	.1	.0	3.1	1.0	.6	.2
Apr	1.2	.0	#	0	8.0	1973	10	11.0	1973	11	1973	10	1+	1997	.6	.4	.2	.1	.0	.8	.5	.3	.1
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	.2	.0	0	0	4.0	1980	28	4.0	1980	0	0	0	0	0	@	@	@	.0	.0	.0	.0	.0	.0
Nov	2.6	.5	#	0	7.0	1972	14	10.5	1974	7	1974	30	1	1991	1.0	.6	.3	.1	.0	1.5	.9	.2	.0
Dec	5.3	3.3	1	#	10.0	1987	15	25.3	1977	10	1983	31	4	1983	2.5	1.7	.6	.3	@	8.0	5.3	1.3	.4
Ann	25.0	16.9	N/A	N/A	10.0	Dec 1987	15	25.3	Dec 1977	17	Jan 1984	2	9	Jan 1982	12.3	8.1	2.9	1.0	@	36.7	22.0	8.3	1.2

+ 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

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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	5/16	5/12	5/09	5/06	5/03	5/01	4/28	4/24	4/20
32	5/04	4/30	4/27	4/24	4/22	4/20	4/17	4/14	4/10
28	4/22	4/18	4/15	4/12	4/10	4/07	4/05	4/02	3/28
24	4/14	4/10	4/07	4/05	4/03	4/01	3/29	3/27	3/23
20	4/11	4/06	4/02	3/30	3/28	3/25	3/22	3/18	3/14
16	3/29	3/24	3/19	3/16	3/13	3/10	3/06	3/02	2/25

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	9/20	9/24	9/26	9/29	10/01	10/03	10/05	10/07	10/11
32	9/24	9/28	10/01	10/04	10/07	10/09	10/12	10/15	10/20
28	10/03	10/09	10/13	10/16	10/20	10/23	10/26	10/31	11/05
24	10/17	10/22	10/26	10/29	11/01	11/04	11/08	11/12	11/17
20	10/26	11/01	11/05	11/08	11/11	11/14	11/18	11/22	11/27
16	11/03	11/09	11/13	11/16	11/20	11/23	11/26	12/01	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	166	160	156	153	150	147	143	139	134
32	185	179	175	171	167	163	160	155	149
28	210	204	200	196	192	189	185	180	174
24	230	224	219	215	212	208	204	199	193
20	249	242	236	232	228	224	219	214	206
16	276	268	261	256	251	246	241	234	226

***** 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	1413	1112	862	481	181	22	3	22	107	397	835	1249	6684
60	1258	972	707	343	94	4	0	5	41	261	685	1094	5464
57	1165	888	617	268	58	1	0	1	19	192	597	1001	4807
55	1103	837	561	223	40	0	0	0	10	152	540	939	4405
50	950	706	420	129	12	0	0	0	1	76	404	792	3490
32	451	301	87	3	0	0	0	0	0	1	78	327	1248

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	60	114	248	515	896	1149	1324	1252	954	633	232	100	7477
55	0	5	9	45	223	459	611	539	274	71	4	0	2240
57	0	0	3	30	179	400	549	478	223	49	2	0	1913
60	0	0	0	15	122	313	456	389	155	25	0	0	1475
65	0	0	0	3	54	181	304	251	71	5	0	0	869
70	0	0	0	0	17	82	167	141	24	0	0	0	431

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	5	29	125	349	680	939	1102	1027	746	424	108	11	5	34	159	508	1188	2127	3229	4256	5002	5426	5534	5545
45	0	9	67	229	525	789	947	872	599	288	54	5	0	9	76	305	830	1619	2566	3438	4037	4325	4379	4384
50	0	1	34	133	373	639	792	717	453	174	24	1	0	1	35	168	541	1180	1972	2689	3142	3316	3340	3341
55	0	0	12	65	240	489	637	562	315	92	4	0	0	0	12	77	317	806	1443	2005	2320	2412	2416	2416
60	0	0	3	29	128	342	482	408	194	38	0	0	0	0	3	32	160	502	984	1392	1586	1624	1624	1624
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	21	85	217	415	627	752	690	482	256	70	5	1	22	107	324	739	1366	2118	2808	3290	3546	3616	3621

(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