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: LE CLAIRE L & D 14, IA **COOP ID: 134705**

Climate Division: IA 6 **NWS Call Sign:** **Elevation: 577 Feet** **Lat: 41˚34N** **Lon: 90˚24W**

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	29.0	13.2	21.1	63+	1950	24	33.6	1990	-23+	1982	10	9.0	1979	1360	0	.0	.0	1.2	17.9	29.7	7.3
Feb	34.5	19.0	26.8	68	1976	27	37.7	1998	-28	1996	3	13.8	1978	1071	0	.0	.0	3.3	12.3	25.1	4.0
Mar	46.7	29.7	38.2	83	1986	29	45.8	2000	-14	1960	6	29.8	1975	831	0	.0	.0	11.7	3.7	20.2	.2
Apr	60.4	41.2	50.8	88+	1977	18	57.6	1977	11+	1975	4	44.6	1975	433	7	.0	.0	24.6	.1	5.5	.0
May	72.5	52.9	62.7	93	1978	27	70.5	1977	30+	1978	2	57.3	1997	162	91	.0	.3	30.8	.0	.2	.0
Jun	81.9	62.2	72.1	100+	1987	12	77.1	1971	42	1978	9	67.6	1982	13	224	.1	3.6	30.0	.0	.0	.0
Jul	85.4	67.0	76.2	102+	1955	31	80.4	1999	48	1971	30	71.4	1992	0	346	.3	7.2	31.0	.0	.0	.0
Aug	83.1	64.7	73.9	103	1983	17	79.6	1983	43	1986	28	69.1	1992	11	288	.3	4.4	31.0	.0	.0	.0
Sep	75.6	56.8	66.2	97+	1953	1	71.9	1978	32	1984	29	61.4	1993	68	103	.0	1.1	29.9	.0	@	.0
Oct	63.6	45.1	54.4	90+	1953	2	63.0	1971	18	1952	29	48.1	1976	344	13	.0	@	28.3	.0	2.8	.0
Nov	47.0	32.2	39.6	78+	1978	3	47.4	1999	-4	1976	29	31.8	1976	762	0	.0	.0	12.5	2.6	16.7	.1
Dec	33.6	19.6	26.6	69+	1970	3	34.4	1982	-21+	1983	23	14.1	2000	1191	0	.0	.0	2.3	12.4	28.0	3.3
Ann	59.4	42.0	50.7	103	Aug 1983	17	80.4	Jul 1999	-28	Feb 1996	3	9.0	Jan 1979	6246	1072	.7	16.6	236.6	49.0	128.2	14.9

\+ 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

(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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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	1.13	1.03	1.95	1960	12	2.48	1996	.10	1981
Feb	1.28	1.10	1.55	1997	21	3.67	1997	.00	1989
Mar	2.37	2.00	2.10	1976	5	5.65	1991	.30	1981
Apr	3.21	2.80	2.69	2000	21	7.85	1973	.84	1997
May	3.76	3.17	3.08	1974	17	9.70	1974	.19	1992
Jun	4.71	4.60	7.53	1990	17	17.80	1990	.98	1988
Jul	3.51	2.91	3.11+	1949	21	14.23	1992	.31	1991
Aug	4.31	3.45	4.26	1987	26	13.72	1987	.57	1971
Sep	2.96	2.80	4.40	1961	14	6.74	1986	.45	1979
Oct	2.46	2.03	3.43	1998	18	7.25	1985	.40	1993
Nov	2.39	2.36	1.90	1961	16	6.75	1985	.28	1980
Dec	2.02	1.99	1.95	1984	29	5.15	1984	.14	1995
Ann	34.11	34.79	7.53	Jun 1990	17	17.80	Jun 1990	.00	Feb 1989

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.2	3.3	.5	.1
Feb	6.9	3.3	.9	.2
Mar	9.0	5.4	1.4	.4
Apr	9.9	6.3	2.3	.7
May	10.3	6.8	2.7	1.2
Jun	9.7	7.1	3.2	1.4
Jul	8.2	6.1	2.4	.9
Aug	9.2	6.2	2.7	1.3
Sep	7.6	5.0	1.9	.8
Oct	7.8	4.8	1.7	.5
Nov	8.5	5.0	1.7	.4
Dec	7.8	4.7	1.2	.4
Ann	102.1	64.0	22.6	8.3

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	.26	.37	.53	.68	.83	.98	1.16	1.37	1.64	2.08	2.48
Feb	.06	.18	.37	.56	.76	.99	1.25	1.58	2.03	2.77	3.50
Mar	.46	.68	1.03	1.35	1.67	2.02	2.41	2.89	3.52	4.53	5.49
Apr	.93	1.23	1.69	2.09	2.48	2.88	3.33	3.86	4.54	5.61	6.60
May	.83	1.18	1.73	2.23	2.72	3.25	3.85	4.56	5.50	6.99	8.40
Jun	.98	1.41	2.11	2.74	3.37	4.05	4.81	5.73	6.94	8.88	10.71
Jul	.64	.95	1.46	1.94	2.43	2.95	3.56	4.28	5.25	6.81	8.29
Aug	.70	1.07	1.70	2.29	2.90	3.57	4.33	5.26	6.51	8.53	10.46
Sep	.63	.90	1.34	1.73	2.13	2.55	3.03	3.60	4.36	5.56	6.70
Oct	.41	.62	.98	1.32	1.66	2.04	2.47	3.00	3.70	4.83	5.92
Nov	.40	.61	.96	1.29	1.62	1.99	2.40	2.91	3.59	4.68	5.73
Dec	.39	.57	.87	1.14	1.42	1.72	2.06	2.47	3.01	3.87	4.70
Ann	21.74	24.03	27.03	29.34	31.42	33.45	35.57	37.93	40.82	45.06	48.77

\+ 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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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	6.9	7.0	3	1	16.0	1971	4	16.1	1985	31	1979	18	20	1979	2.5	2.1	.6	.3	.1	15.7	10.4	7.0	.9
Feb	3.5	2.0	2	1	9.5	1975	24	15.8	1975	17	1979	14	15	1979	1.4	1.0	.3	.2	.0	10.1	6.3	3.1	.5
Mar	1.9	.0	#	#	6.0	1991	13	8.0	1984	9	1979	1	2	1984	.7	.5	.2	.1	.0	1.6	.5	.3	.0
Apr	.7	.0	#	0	6.0	1982	6	9.0	1982	6	1982	6	1	1982	.2	.2	.1	.1	.0	.3	.2	.1	.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	.0	.0	0	0	1.0	1972	18	1.0	1972	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Nov	.5	.0	#	0	8.0	1975	27	8.0	1975	8	1975	28	1	1977	.3	.2	@	@	.0	.4	.2	.0	.0
Dec	2.4	.0	1	#	7.0	1987	15	9.0	1985	15	1978	31	5	1983	1.3	1.0	.3	.1	.0	4.8	3.0	2.2	.3
Ann	15.9	9.0	N/A	N/A	16.0	Jan 1971	4	16.1	Jan 1985	31	Jan 1979	18	20	Jan 1979	6.4	5.0	1.5	.8	.1	32.9	20.6	12.7	1.7

+ 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	5/09	5/04	4/30	4/28	4/25	4/22	4/19	4/16	4/11
32	4/27	4/22	4/19	4/16	4/13	4/11	4/08	4/05	3/31
28	4/16	4/13	4/11	4/09	4/07	4/05	4/03	3/31	3/28
24	4/11	4/06	4/02	3/30	3/27	3/24	3/21	3/18	3/13
20	4/06	3/31	3/27	3/23	3/20	3/16	3/13	3/08	3/02
16	3/27	3/21	3/17	3/13	3/10	3/07	3/03	2/27	2/21

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	9/25	9/30	10/03	10/06	10/08	10/11	10/14	10/17	10/22
32	10/03	10/09	10/13	10/16	10/19	10/22	10/26	10/30	11/04
28	10/17	10/22	10/26	10/29	11/01	11/04	11/07	11/11	11/16
24	10/30	11/03	11/06	11/09	11/11	11/14	11/16	11/19	11/24
20	11/05	11/10	11/14	11/17	11/20	11/23	11/26	11/30	12/05
16	11/11	11/17	11/22	11/25	11/29	12/02	12/06	12/11	12/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	187	180	175	170	166	162	157	152	144
32	210	202	197	192	188	184	179	174	167
28	224	218	214	211	207	204	200	196	191
24	248	241	237	232	228	225	220	215	209
20	269	261	254	249	244	240	234	228	220
16	290	281	274	268	263	258	252	246	237

***** 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	1360	1071	831	433	162	13	0	11	68	344	762	1191	6246
60	1205	931	676	300	87	2	0	1	22	219	613	1036	5092
57	1112	847	586	230	55	1	0	0	8	158	526	943	4466
55	1050	793	530	188	38	0	0	0	4	123	470	881	4077
50	897	663	390	103	14	0	0	0	0	59	338	736	3200
32	408	262	71	1	0	0	0	0	0	0	51	285	1078

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	70	116	263	565	952	1201	1369	1300	1025	692	279	117	7949
55	0	3	9	61	277	511	656	587	339	102	8	0	2553
57	0	0	3	43	232	452	594	525	283	75	4	0	2211
60	0	0	0	24	171	364	501	433	207	44	1	0	1745
65	0	0	0	7	91	224	346	288	103	13	0	0	1072
70	0	0	0	1	39	111	202	163	39	2	0	0	557

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	18	97	334	693	956	1109	1040	773	436	110	10	2	20	117	451	1144	2100	3209	4249	5022	5458	5568	5578
45	0	3	52	216	538	806	954	885	623	296	55	5	0	3	55	271	809	1615	2569	3454	4077	4373	4428	4433
50	0	0	22	121	387	656	799	730	475	175	22	0	0	0	22	143	530	1186	1985	2715	3190	3365	3387	3387
55	0	0	6	60	254	507	644	575	335	91	5	0	0	0	6	66	320	827	1471	2046	2381	2472	2477	2477
60	0	0	1	23	142	358	489	420	208	39	0	0	0	0	1	24	166	524	1013	1433	1641	1680	1680	1680
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	10	58	187	416	641	771	713	485	240	54	5	0	10	68	255	671	1312	2083	2796	3281	3521	3575	3580

(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

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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