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: TUSCOLA, IL **COOP ID: 118684**

Climate Division: IL 7 **NWS Call Sign:** **Elevation: 655 Feet** **Lat: 39˚48N** **Lon: 88˚17W**

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	34.4	18.0	26.2	70	1952	17	37.4	1989	-24	1977	17	9.9	1977	1203	0	.0	.0	3.3	13.0	27.9	4.0
Feb	40.4	22.9	31.7	73	1996	26	40.4	1976	-19	1951	2	17.8	1978	935	0	.0	.0	6.9	7.7	22.6	2.2
Mar	52.6	32.7	42.7	86	1981	31	49.9	1973	-10	1960	6	33.4	1984	693	0	.0	.0	17.9	1.4	16.9	.1
Apr	65.5	42.3	53.9	90	1987	29	59.8	1977	15	1990	7	48.7	1983	342	8	.0	@	27.7	.0	5.4	.0
May	76.4	53.1	64.8	95+	1998	19	72.1	1987	26	1966	10	59.2	1997	134	127	.0	2.1	30.9	.0	.2	.0
Jun	85.4	62.3	73.9	105	1954	26	78.0	1991	40+	1992	21	68.7	1982	9	273	.2	9.1	30.0	.0	.0	.0
Jul	88.0	65.9	77.0	113	1954	14	80.7	1999	45	1963	10	74.1	2000	0	370	.6	12.4	31.0	.0	.0	.0
Aug	86.0	63.8	74.9	104	1988	18	80.7	1995	42	1967	31	70.5	1992	8	314	.2	8.7	31.0	.0	.0	.0
Sep	80.4	56.4	68.4	102+	1954	4	73.4	1998	30	1967	29	63.5	1974	44	147	.0	4.1	30.0	.0	.2	.0
Oct	68.3	45.2	56.8	93	1953	2	64.1	1971	18+	1962	26	50.3	1976	279	25	.0	.1	30.1	.0	4.1	.0
Nov	52.2	34.5	43.4	82	1950	1	50.0	1990	-7	1950	25	35.9	1996	649	0	.0	.0	17.0	.9	14.6	.0
Dec	39.3	23.9	31.6	70+	1998	4	39.6	1982	-26	1989	22	17.7	1989	1037	0	.0	.0	5.6	7.0	24.8	1.7
Ann	64.1	43.4	53.8	113	Jul 1954	14	80.7+	Jul 1999	-26	Dec 1989	22	9.9	Jan 1977	5333	1264	1.0	36.5	261.4	30.0	116.7	8.0

\+ 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

(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

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	2.29	2.17	2.29	1950	3	5.64	1982	.14	1986
Feb	2.12	2.03	2.30	1985	23	6.16	1990	.43	1978
Mar	3.14	3.23	2.38	1962	21	6.07	1998	.45	1987
Apr	3.84	3.24	2.77	1996	29	9.55	1994	.64	1971
May	3.96	3.12	3.79	1961	8	13.14	1996	.68	1992
Jun	4.15	4.41	3.64	1957	28	8.88	1973	.46	1988
Jul	4.64	3.91	3.20	1984	4	14.03	1992	1.01	1999
Aug	3.73	2.93	5.30	1978	2	9.16	1981	.70	1988
Sep	3.14	2.73	3.49	1969	17	7.67	1972	.13	1979
Oct	2.86	2.37	3.27	1949	11	6.61	1983	.63	1971
Nov	3.74	3.35	3.02	1985	18	11.31	1985	.57	1976
Dec	3.05	2.55	3.00	1990	29	8.34	1990	.31	1976
Ann	40.66	39.78	5.30	Aug 1978	2	14.03	Jul 1992	.13	Sep 1979

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.5	5.3	1.5	.4
Feb	7.1	4.5	1.2	.5
Mar	9.8	7.1	2.4	.5
Apr	11.2	8.1	2.6	.9
May	10.3	7.5	2.5	1.0
Jun	9.2	6.9	3.3	1.1
Jul	8.3	6.4	3.0	1.3
Aug	7.7	5.2	2.5	1.2
Sep	6.9	5.1	2.5	.8
Oct	7.6	5.5	2.0	.6
Nov	8.6	6.6	2.8	1.0
Dec	8.8	6.0	1.8	.7
Ann	104.0	74.2	28.1	10.0

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	.44	.65	.98	1.29	1.61	1.94	2.32	2.78	3.39	4.37	5.30
Feb	.43	.62	.94	1.22	1.51	1.81	2.16	2.57	3.12	4.00	4.84
Mar	.89	1.19	1.64	2.03	2.42	2.82	3.26	3.78	4.45	5.51	6.50
Apr	.83	1.18	1.74	2.26	2.77	3.31	3.93	4.67	5.64	7.20	8.66
May	.97	1.34	1.91	2.43	2.94	3.48	4.08	4.79	5.73	7.21	8.60
Jun	.92	1.31	1.92	2.46	3.01	3.60	4.25	5.04	6.07	7.71	9.26
Jul	1.07	1.50	2.18	2.79	3.40	4.05	4.77	5.63	6.77	8.57	10.26
Aug	.77	1.11	1.66	2.16	2.66	3.20	3.81	4.54	5.51	7.05	8.52
Sep	.57	.85	1.31	1.74	2.17	2.64	3.18	3.83	4.70	6.09	7.42
Oct	.92	1.19	1.59	1.93	2.26	2.60	2.98	3.41	3.98	4.85	5.66
Nov	.82	1.17	1.72	2.21	2.71	3.23	3.83	4.54	5.47	6.96	8.36
Dec	.67	.95	1.40	1.80	2.21	2.64	3.13	3.71	4.48	5.70	6.85
Ann	29.90	32.01	34.70	36.73	38.53	40.26	42.04	44.01	46.38	49.81	52.77

\+ 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	3.9	4.5	2	1	15.0	1982	31	15.0	1982	20	1974	12	8	1974	3.1	2.4	.8	.3	@	5.3	3.7	1.9	.9
Feb	5.0	4.0	1	1	8.4	1984	27	13.0	1986	19	1982	7	9	1982	2.4	1.6	.5	.2	.0	6.3	2.8	.8	.0
Mar	2.5	1.0	#	#	7.0	1989	6	13.5	1978	7	1989	7	1	1989	1.1	.8	.4	.2	.0	1.8	.8	.3	.0
Apr	.3	.0	#	0	2.0	1980	14	3.0	1980	2	1994	6	#+	2000	.2	.2	.0	.0	.0	.2	.0	.0	.0
May	#	.0	0	0	#	1989	6	#	1989	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	1989	19	1.0	1989	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Nov	1.8	.5	#	0	8.0	1980	27	9.0	1980	8	1980	27	1	1980	.8	.6	.2	.1	.0	.5	.2	.1	.0
Dec	4.6	2.0	1	#	14.0	1973	19	30.5	1973	17	1973	20	4+	2000	2.3	1.6	.5	.2	@	4.4	1.4	.6	.3
Ann	18.1	12.0	N/A	N/A	15.0	Jan 1982	31	30.5	Dec 1973	20	Jan 1974	12	9	Feb 1982	9.9	7.2	2.4	1.0	@	18.5	8.9	3.7	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	5/11	5/08	5/05	5/02	4/29	4/26	4/22	4/17
32	5/05	4/30	4/26	4/23	4/20	4/16	4/13	4/09	4/04
28	4/17	4/13	4/11	4/08	4/06	4/04	4/02	3/30	3/26
24	4/12	4/07	4/03	3/31	3/28	3/25	3/22	3/18	3/13
20	4/04	3/30	3/26	3/23	3/20	3/17	3/14	3/10	3/05
16	3/25	3/19	3/15	3/11	3/08	3/04	3/01	2/24	2/18

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	9/23	9/27	9/29	10/02	10/04	10/07	10/09	10/12	10/16
32	9/26	10/02	10/05	10/09	10/12	10/15	10/18	10/22	10/27
28	10/10	10/16	10/20	10/23	10/26	10/29	11/01	11/05	11/11
24	10/20	10/26	10/31	11/04	11/07	11/11	11/15	11/20	11/26
20	11/02	11/08	11/13	11/17	11/20	11/24	11/27	12/02	12/08
16	11/11	11/18	11/22	11/26	11/30	12/04	12/08	12/12	12/19

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	172	166	162	158	155	151	148	143	137
32	196	189	183	179	174	170	165	160	153
28	220	214	209	205	202	199	195	190	184
24	245	238	232	228	224	219	215	209	202
20	265	258	253	249	245	241	236	231	225
16	290	282	276	271	267	262	257	251	243

***** 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	1203	935	693	342	134	9	0	8	44	279	649	1037	5333
60	1048	795	543	215	68	2	0	0	12	167	502	882	4234
57	955	714	457	151	41	0	0	0	4	115	420	796	3653
55	893	662	401	115	28	0	0	0	2	86	366	738	3291
50	750	533	275	48	9	0	0	0	0	37	246	595	2493
32	297	174	33	0	0	0	0	0	0	0	23	203	730

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	117	163	364	656	1016	1254	1393	1329	1092	768	364	189	8705
55	0	7	18	81	331	564	680	616	404	142	17	11	2871
57	0	4	12	57	281	505	618	554	346	108	11	7	2503
60	0	0	6	31	216	416	525	461	264	68	3	0	1990
65	0	0	0	8	127	273	370	314	147	25	0	0	1264
70	0	0	0	2	63	149	221	184	65	6	0	0	690

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	17	45	180	423	768	1010	1137	1073	841	513	173	45	17	62	242	665	1433	2443	3580	4653	5494	6007	6180	6225
45	3	18	102	291	613	860	982	918	691	366	100	17	3	21	123	414	1027	1887	2869	3787	4478	4844	4944	4961
50	1	4	56	182	458	710	827	763	541	237	51	3	1	5	61	243	701	1411	2238	3001	3542	3779	3830	3833
55	0	2	29	97	317	560	672	608	396	136	19	0	0	2	31	128	445	1005	1677	2285	2681	2817	2836	2836
60	0	0	6	45	191	413	517	453	259	64	4	0	0	0	6	51	242	655	1172	1625	1884	1948	1952	1952
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	8	29	113	257	487	681	776	730	550	321	96	23	8	37	150	407	894	1575	2351	3081	3631	3952	4048	4071

(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