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: PIPER CITY, IL **COOP ID: 116819**

Climate Division: IL 5 **NWS Call Sign:** **Elevation: 670 Feet** **Lat: 40˚46N** **Lon: 88˚12W**

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	31.1	13.2	22.2	66	1989	31	35.0	1990	-25	1985	20	7.7	1977	1330	0	.0	.0	2.0	15.6	29.4	6.0
Feb	36.9	17.9	27.4	74	2000	26	38.2	1998	-20	1996	3	13.4	1979	1053	0	.0	.0	4.8	10.1	24.9	3.2
Mar	49.3	28.1	38.7	86	1981	31	45.5	1973	-4	1978	5	29.3	1984	814	0	.0	.0	14.6	2.6	21.2	.1
Apr	62.2	37.6	49.9	93	1986	26	56.4	1977	7	1982	7	44.1	1982	457	4	.0	.2	25.7	.1	7.8	.0
May	74.2	48.8	61.5	97	1991	29	68.8	1977	25	1971	3	56.2	1997	190	81	.0	2.4	30.8	.0	.6	.0
Jun	83.5	58.9	71.2	106	1988	25	76.0	1971	37	1972	11	66.2	1982	19	204	.2	7.5	30.0	.0	.0	.0
Jul	86.1	62.4	74.3	105	1988	15	78.6	1983	42	1972	5	70.2	1971	6	293	.7	9.3	31.0	.0	.0	.0
Aug	84.0	59.5	71.8	108+	1988	17	78.3	1995	37+	1986	28	66.2	1992	22	231	.4	5.5	31.0	.0	.0	.0
Sep	78.1	51.2	64.7	98+	1990	7	69.8	1978	26	1995	23	60.3	1974	85	73	.0	2.6	30.0	.0	.4	.0
Oct	65.5	40.5	53.0	90+	1997	4	60.0	1971	17	1981	24	46.2	1988	382	9	.0	.1	29.0	.0	5.6	.0
Nov	49.2	30.3	39.8	80+	2000	2	46.9	1999	0	1977	26	31.7	1976	758	0	.0	.0	14.8	1.6	17.6	@
Dec	36.2	19.5	27.9	70	1982	2	36.6	1982	-23	1983	24	14.7	2000	1152	0	.0	.0	3.8	10.2	27.7	2.6
Ann	61.4	39.0	50.2	108+	Aug 1988	17	78.6	Jul 1983	-25	Jan 1985	20	7.7	Jan 1977	6268	895	1.3	27.6	247.5	40.2	135.2	11.9

\+ 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: 1949-2001

(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	1.91	1.32	2.24	1993	4	5.55	1999	.05	1986
Feb	1.80	1.38	2.55	1990	14	6.39	1990	.02	1994
Mar	2.77	2.86	2.11	1985	27	4.91	1998	.15	1986
Apr	3.35	3.00	2.75	1950	24	6.39	1994	.60	1971
May	4.04	3.56	4.43	1970	13	9.83	1996	1.54	1986
Jun	3.83	3.80	3.13	1980	3	9.25	1993	.06	1988
Jul	4.22	4.03	5.81	1951	8	8.78	1992	1.13	1991
Aug	3.81	3.87	4.50	1989	31	9.05	1977	.04	1986
Sep	2.91	2.68	3.04	1972	14	7.92	1972	.04	1979
Oct	2.58	2.16	2.43	1993	16	7.48	1991	.51	1971
Nov	3.08	3.09	1.92	1990	27	8.52	1985	.42	1999
Dec	2.53	2.29	3.09	1949	21	6.17	1971	.13	1976
Ann	36.83	36.39	5.81	Jul 1951	8	9.83	May 1996	.02	Feb 1994

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.6	5.2	1.0	.3
Feb	7.9	3.7	.8	.3
Mar	10.5	5.9	1.9	.7
Apr	11.9	7.2	2.0	.6
May	12.2	7.7	2.9	1.1
Jun	10.7	7.4	2.7	.9
Jul	9.2	6.2	2.7	1.4
Aug	9.6	5.8	2.4	1.2
Sep	8.1	5.3	1.9	.8
Oct	9.4	5.3	1.8	.5
Nov	10.1	6.2	2.1	.8
Dec	9.7	5.4	1.6	.4
Ann	118.9	71.3	23.8	9.0

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	.19	.33	.60	.86	1.15	1.47	1.85	2.33	2.98	4.05	5.10
Feb	.14	.26	.49	.74	1.02	1.33	1.71	2.19	2.85	3.96	5.05
Mar	.54	.79	1.19	1.57	1.94	2.35	2.81	3.37	4.10	5.29	6.41
Apr	.92	1.23	1.72	2.14	2.55	2.98	3.46	4.03	4.77	5.93	7.01
May	1.46	1.83	2.38	2.84	3.28	3.73	4.22	4.79	5.52	6.64	7.67
Jun	.64	.97	1.53	2.06	2.60	3.19	3.86	4.68	5.77	7.53	9.22
Jul	1.36	1.76	2.35	2.86	3.34	3.85	4.40	5.05	5.88	7.17	8.37
Aug	.52	.83	1.38	1.91	2.46	3.08	3.79	4.66	5.84	7.77	9.63
Sep	.35	.58	.99	1.40	1.83	2.31	2.87	3.56	4.50	6.05	7.55
Oct	.64	.88	1.26	1.59	1.92	2.27	2.66	3.12	3.73	4.69	5.58
Nov	.68	.96	1.41	1.82	2.23	2.66	3.15	3.74	4.51	5.74	6.90
Dec	.52	.75	1.12	1.46	1.80	2.17	2.58	3.08	3.73	4.78	5.78
Ann	26.02	28.11	30.79	32.82	34.63	36.38	38.19	40.18	42.61	46.13	49.18

\+ 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: 1949-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	8.5	6.9	3	2
Feb	5.2	4.4	3	#
Mar	2.4	2.2	1	#
Apr	1.1	.0	#	0
May	#	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.2	.0	#	0
Nov	1.8	.3	#	#
Dec	6.2	3.6	1	#
Ann	25.4	17.4	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	9.0	1999	2	26.6	1979	26	1979	31	13	1999
Feb	9.0	1984	28	16.0	1982	28	1979	12	21	1979
Mar	6.5	1983	21	7.6	1983	10	1984	13	5	1984
Apr	7.0	1982	6	10.7	1982	10	1982	9	2	1982
May	#	1989	6	#	1989	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	3.0	1989	19	4.0	1989	1	1972	18	#+	1995
Nov	5.8	1975	27	7.3	1980	6	1995	12	1	1997
Dec	6.7	1973	20	22.9	2000	16	2000	31	8	1977
Ann	9.0+	Jan 1999	2	26.6	Jan 1979	28	Feb 1979	12	21	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.5	2.6	.9	.1	.0
Feb	3.5	1.7	.5	.1	.0
Mar	2.2	.8	.2	.1	.0
Apr	.6	.3	.2	.1	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.2	.1	@	.0	.0
Nov	1.3	.6	.2	.1	.0
Dec	4.2	2.0	.7	.2	.0
Ann	17.5	8.1	2.7	.7	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	13.7	10.3	7.4	2.7
Feb	10.8	7.3	5.0	3.0
Mar	4.4	2.4	1.6	@
Apr	.5	.4	.2	@
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	@	.0	.0	.0
Nov	1.2	.5	.3	.0
Dec	7.2	4.1	2.7	1.2
Ann	37.8	25.0	17.2	6.9

+ 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	5/21	5/16	5/13	5/10	5/08	5/05	5/02	4/29	4/24
32	5/10	5/06	5/03	4/30	4/28	4/25	4/22	4/19	4/15
28	5/01	4/25	4/21	4/17	4/14	4/11	4/07	4/03	3/28
24	4/18	4/13	4/09	4/06	4/03	3/31	3/28	3/24	3/19
20	4/11	4/05	3/31	3/27	3/24	3/20	3/16	3/12	3/06
16	3/31	3/25	3/21	3/17	3/14	3/10	3/06	3/02	2/24

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	9/18	9/22	9/25	9/27	9/30	10/02	10/05	10/08	10/12
32	9/25	9/30	10/04	10/07	10/09	10/12	10/15	10/19	10/24
28	10/06	10/13	10/17	10/21	10/25	10/29	11/02	11/06	11/13
24	10/20	10/25	10/29	11/01	11/04	11/07	11/10	11/14	11/19
20	10/30	11/05	11/09	11/13	11/16	11/20	11/23	11/28	12/04
16	11/09	11/14	11/19	11/22	11/25	11/29	12/02	12/07	12/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	157	152	148	144	140	136	132	125
32	186	179	173	169	164	160	155	150	142
28	217	209	203	198	193	189	184	178	169
24	236	229	223	219	214	210	205	200	193
20	262	253	247	242	237	232	226	220	212
16	281	272	266	261	256	251	246	240	232

***** 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	1330	1053	814	457	190	19	6	22	85	382	758	1152	6268
60	1175	913	659	318	108	4	0	5	28	251	608	997	5066
57	1082	829	568	243	71	1	0	0	11	184	520	904	4413
55	1020	773	512	198	52	1	0	0	6	146	463	846	4017
50	868	645	372	106	20	0	0	0	1	73	329	702	3116
32	384	245	61	1	0	0	0	0	0	0	42	267	1000

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	78	115	270	538	914	1175	1310	1231	978	650	274	138	7671
55	0	0	8	45	253	486	597	518	294	83	4	4	2292
57	0	0	2	30	210	427	535	456	240	59	2	0	1961
60	0	0	0	15	154	339	442	368	167	33	0	0	1518
65	0	0	0	4	81	204	293	231	73	9	0	0	895
70	0	0	0	0	34	97	160	125	22	1	0	0	439

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	9	27	123	342	694	954	1079	1003	765	436	137	26	9	36	159	501	1195	2149	3228	4231	4996	5432	5569	5595
45	1	8	70	221	541	804	924	848	616	297	77	10	1	9	79	300	841	1645	2569	3417	4033	4330	4407	4417
50	0	1	37	131	394	654	769	693	469	182	35	6	0	1	38	169	563	1217	1986	2679	3148	3330	3365	3371
55	0	0	11	65	259	505	614	538	328	99	13	0	0	0	11	76	335	840	1454	1992	2320	2419	2432	2432
60	0	0	1	29	150	359	459	383	204	45	3	0	0	0	1	30	180	539	998	1381	1585	1630	1633	1633
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	17	84	219	435	631	729	671	494	271	76	15	1	18	102	321	756	1387	2116	2787	3281	3552	3628	3643

(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