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: DECATUR, IL **COOP ID: 112193**

Climate Division: IL 4 **NWS Call Sign:** **Elevation: 620 Feet** **Lat: 39˚50N** **Lon: 88˚57W**

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	34.5	17.1	25.8	73	1909	24	37.7	1990	-23	1977	17	11.0	1977	1215	0	.0	.0	3.2	13.1	27.9	4.2
Feb	40.5	22.1	31.3	76	1972	29	41.1	1998	-25	1905	13	18.3	1978	943	0	.0	.0	6.7	7.8	22.5	2.6
Mar	52.6	31.9	42.3	89	1929	24	49.1	1973	-10	1978	5	33.4	1984	706	0	.0	.0	17.9	1.5	16.6	.1
Apr	65.3	41.8	53.6	93+	1987	29	58.9	1981	15+	1982	7	48.5	1982	350	7	.0	@	27.7	@	5.0	.0
May	76.1	51.6	63.9	101	1934	31	70.6	1991	26	1903	1	58.7	1981	139	104	.0	1.9	31.0	.0	.3	.0
Jun	84.5	60.6	72.6	105+	1954	26	76.9	1971	38+	1917	16	66.9	1982	10	237	.1	7.5	30.0	.0	.0	.0
Jul	87.8	64.6	76.2	113	1954	14	80.6	1980	45+	1930	15	72.2	1971	0	348	.5	12.7	31.0	.0	.0	.0
Aug	85.8	62.8	74.3	106+	1983	20	80.6	1983	35	1986	29	69.3	1986	11	299	.6	7.7	31.0	.0	.0	.0
Sep	79.9	54.9	67.4	104	1954	5	73.8	1998	27	1928	26	62.4	1974	54	125	@	3.7	30.0	.0	.2	.0
Oct	67.8	43.9	55.9	96	1953	2	62.2	1971	12	1925	30	48.3	1988	305	22	.0	.1	30.0	.0	4.4	.0
Nov	52.0	33.5	42.8	83	1933	1	50.8	1999	-3	1929	30	34.4	1976	668	0	.0	.0	16.7	1.2	14.9	@
Dec	39.2	22.6	30.9	72+	1970	3	39.4	1982	-22	1983	24	17.7	1983	1057	0	.0	.0	5.7	7.4	25.1	1.7
Ann	63.8	42.3	53.1	113	Jul 1954	14	80.6+	Aug 1983	-25	Feb 1905	13	11.0	Jan 1977	5458	1142	1.2	33.6	260.9	31.0	116.9	8.6

\+ 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: 1901-2001

(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	2.05	1.67	2.25	1950	3	5.45	1982	.24	1981
Feb	1.95	1.70	2.42	1939	10	5.71	1990	.18	1987
Mar	3.20	2.95	3.35+	1922	14	9.11	1973	.18	1999
Apr	3.58	3.20	3.58	1979	12	7.87	1979	.94	1976
May	4.47	3.75	4.22	1974	19	12.12	1974	.86	1992
Jun	3.90	3.72	4.76	1965	2	10.21	1974	.83	1984
Jul	4.54	3.55	5.11	1992	26	16.72	1992	.46	1980
Aug	4.14	4.31	4.71	1978	2	10.97	1981	.35	1971
Sep	2.98	2.41	4.66	1904	18	7.83	1993	.02	1979
Oct	2.74	2.16	4.09	1983	22	6.93	1990	.95	1992
Nov	3.32	3.04	3.70	1936	2	9.07	1992	.54	1999
Dec	2.87	2.54	2.72	1901	13	7.56	1990	.38	1976
Ann	39.74	38.28	5.11	Jul 1992	26	16.72	Jul 1992	.02	Sep 1979

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.8	4.7	1.2	.3
Feb	8.0	4.3	1.2	.4
Mar	10.5	6.9	2.1	.5
Apr	11.4	7.2	2.5	.8
May	11.1	7.2	3.0	1.2
Jun	9.8	6.8	2.9	1.1
Jul	9.4	6.3	3.0	1.2
Aug	7.9	5.6	3.0	1.3
Sep	7.5	4.9	2.2	.8
Oct	8.2	5.0	1.8	.7
Nov	9.9	6.7	2.5	.7
Dec	10.1	5.5	1.9	.5
Ann	112.6	71.1	27.3	9.5

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	.38	.56	.86	1.14	1.43	1.73	2.08	2.50	3.06	3.96	4.81
Feb	.32	.49	.78	1.05	1.32	1.62	1.96	2.38	2.94	3.84	4.71
Mar	.76	1.06	1.53	1.95	2.36	2.80	3.29	3.87	4.64	5.85	6.99
Apr	1.07	1.41	1.92	2.36	2.78	3.23	3.72	4.29	5.03	6.20	7.27
May	.91	1.31	1.97	2.57	3.17	3.82	4.56	5.44	6.60	8.47	10.24
Jun	.98	1.35	1.92	2.42	2.92	3.44	4.02	4.71	5.62	7.04	8.38
Jul	.65	1.02	1.68	2.31	2.96	3.69	4.52	5.55	6.93	9.19	11.36
Aug	.86	1.24	1.85	2.40	2.96	3.55	4.22	5.03	6.09	7.79	9.40
Sep	.32	.54	.96	1.37	1.82	2.32	2.91	3.64	4.64	6.29	7.90
Oct	.87	1.13	1.51	1.84	2.16	2.49	2.86	3.28	3.83	4.69	5.48
Nov	.76	1.07	1.55	1.99	2.43	2.89	3.41	4.03	4.85	6.14	7.37
Dec	.54	.80	1.22	1.61	2.00	2.43	2.91	3.50	4.27	5.51	6.70
Ann	27.33	29.71	32.76	35.09	37.17	39.18	41.27	43.59	46.40	50.50	54.05

\+ 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: 1901-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	6.9	5.0	2	1
Feb	4.9	2.7	2	1
Mar	2.3	.8	1	#
Apr	.4	.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	#	.0	#	0
Nov	1.0	.0	#	0
Dec	6.6	3.4	1	#
Ann	22.1	11.9	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	7.5	1987	10	23.5	1979	19	1979	28	12	1977
Feb	7.0	1993	26	15.5	1993	20	1979	11	13	1979
Mar	6.0	1978	8	14.0	1978	16	1978	9	6	1978
Apr	3.0	1972	1	3.0	1972	3	1980	15	#+	1994
May	#	1989	7	#	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	#	1993	31	#+	1993	#+	1993	31	#+	1993
Nov	6.5	1980	27	9.0	1980	9	1980	28	1	1980
Dec	10.0	1973	20	30.5	1973	22	1973	21	4	1983
Ann	10.0	Dec 1973	20	30.5	Dec 1973	22	Dec 1973	21	13	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.3	2.5	1.1	.3	.0
Feb	2.7	1.6	.5	.3	.0
Mar	1.1	.9	.3	@	.0
Apr	.3	.1	@	.0	.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	.0	.0	.0	.0	.0
Nov	.5	.4	.2	@	.0
Dec	2.9	1.9	.6	.2	@
Ann	11.8	7.4	2.7	.8	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	12.3	10.3	5.4	1.4
Feb	9.3	6.6	3.3	.8
Mar	3.0	1.8	.9	.3
Apr	.3	@	.0	.0
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	.0
Nov	.9	.3	.1	.0
Dec	5.7	3.1	1.8	.3
Ann	31.5	22.1	11.5	2.8

+ 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	5/20	5/15	5/11	5/07	5/04	4/30	4/27	4/23	4/17
32	5/11	5/05	4/30	4/26	4/23	4/19	4/15	4/10	4/04
28	4/23	4/18	4/15	4/12	4/09	4/07	4/04	4/01	3/27
24	4/14	4/10	4/06	4/04	4/01	3/29	3/27	3/23	3/19
20	4/06	4/01	3/28	3/25	3/22	3/19	3/16	3/12	3/07
16	3/27	3/22	3/18	3/15	3/12	3/08	3/05	3/01	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	9/19	9/23	9/27	9/30	10/02	10/05	10/08	10/12	10/16
32	9/26	10/01	10/05	10/08	10/11	10/14	10/17	10/21	10/26
28	10/08	10/13	10/18	10/21	10/24	10/28	10/31	11/04	11/10
24	10/18	10/23	10/28	10/31	11/04	11/07	11/10	11/15	11/20
20	10/25	11/02	11/07	11/12	11/16	11/21	11/25	12/01	12/08
16	11/06	11/13	11/18	11/22	11/26	11/30	12/04	12/09	12/15

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	165	160	155	151	147	142	137	130
32	196	187	181	175	171	166	160	154	146
28	219	211	206	201	197	193	188	183	176
24	239	231	225	220	216	211	206	200	193
20	266	257	250	244	239	233	227	220	211
16	287	277	270	264	259	253	247	240	230

***** 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	1215	943	706	350	139	10	0	11	54	305	668	1057	5458
60	1060	803	555	221	70	2	0	1	16	190	521	902	4341
57	967	724	469	156	41	0	0	0	6	134	438	812	3747
55	906	672	412	118	27	0	0	0	3	104	384	754	3380
50	762	543	284	50	9	0	0	0	0	48	261	611	2568
32	303	186	36	0	0	0	0	0	0	0	27	206	758

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	110	167	353	647	988	1218	1371	1311	1061	741	348	172	8487
55	0	9	16	75	302	528	658	598	374	131	16	7	2714
57	0	6	11	52	254	468	596	536	316	100	10	3	2352
60	0	0	4	28	190	379	503	444	236	62	3	0	1849
65	0	0	0	7	104	237	348	299	125	22	0	0	1142
70	0	0	0	1	46	117	201	173	50	6	0	0	594

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	18	52	178	426	749	987	1133	1073	831	502	179	41	18	70	248	674	1423	2410	3543	4616	5447	5949	6128	6169
45	4	20	103	292	594	837	978	918	681	360	104	20	4	24	127	419	1013	1850	2828	3746	4427	4787	4891	4911
50	0	9	55	181	439	687	823	763	532	236	55	5	0	9	64	245	684	1371	2194	2957	3489	3725	3780	3785
55	0	2	27	97	299	537	668	608	386	138	21	2	0	2	29	126	425	962	1630	2238	2624	2762	2783	2785
60	0	0	6	49	178	389	513	454	253	65	5	0	0	0	6	55	233	622	1135	1589	1842	1907	1912	1912
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	8	33	114	261	477	660	771	727	545	315	100	23	8	41	155	416	893	1553	2324	3051	3596	3911	4011	4034

(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