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: WHEATON 3 SE, IL **COOP ID: 119221**

Climate Division: IL 2 **NWS Call Sign:** **Elevation: 680 Feet** **Lat: 41˚49N** **Lon: 88˚04W**

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	32.0	14.2	23.1	65	1989	31	34.6	1990	-26	1985	20	10.1	1977	1298	0	.0	.0	1.3	15.8	28.7	6.2
Feb	38.0	18.9	28.5	74	2000	25	40.2	1998	-21	1977	6	16.7	1978	1023	0	.0	.0	4.0	9.6	24.5	3.6
Mar	50.0	28.4	39.2	85+	1986	31	47.0	2000	-10	1962	1	30.4	1984	800	0	.0	.0	14.1	2.1	21.2	.2
Apr	62.8	37.6	50.2	90+	1986	27	56.1	1977	4	1982	7	44.4	1975	447	3	.0	.1	25.3	.0	9.3	.0
May	74.8	47.6	61.2	95+	1967	27	68.0	1977	25	1966	10	56.0	1997	191	72	.0	1.5	30.9	.0	1.5	.0
Jun	83.8	57.4	70.6	103	1988	25	74.9	1991	32	1972	11	64.6	1982	22	191	.1	6.9	30.0	.0	@	.0
Jul	86.8	62.8	74.8	105	1995	14	79.8	1999	41	1967	6	71.1	1996	2	306	.4	9.7	31.0	.0	.0	.0
Aug	85.0	61.5	73.3	100	1991	2	80.2	1995	38	1963	18	68.4	1992	13	267	@	6.6	31.0	.0	.0	.0
Sep	78.4	53.4	65.9	100	1953	1	70.5	1978	27	1974	23	61.3	1993	65	91	.0	2.3	30.0	.0	.4	.0
Oct	66.5	42.1	54.3	90+	1971	1	61.5	1971	14	1988	30	47.8	1988	343	12	.0	@	29.4	.0	5.9	.0
Nov	50.0	31.7	40.9	78+	1978	5	48.0	1999	-4	1950	24	32.4	1976	724	0	.0	.0	14.5	1.4	17.1	.1
Dec	36.9	20.5	28.7	70	2001	5	37.0	1982	-21	1983	24	17.0	1983	1125	0	.0	.0	3.5	9.5	26.7	2.6
Ann	62.1	39.7	50.9	105	Jul 1995	14	80.2	Aug 1995	-26	Jan 1985	20	10.1	Jan 1977	6053	942	.5	27.1	245.0	38.4	135.3	12.7

\+ 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	1.85	1.62	2.89	1960	12	4.17	1999	.12	1981
Feb	1.56	1.32	2.85	1997	21	5.58	1997	.00	1987
Mar	2.62	2.52	2.61	1972	13	5.33	1985	.65	1981
Apr	3.80	3.50	2.15	1963	30	7.01	1999	.68	1971
May	3.94	3.86	3.79	1990	10	8.34	1990	.04	1992
Jun	3.91	3.43	3.35	1949	15	9.20	1993	.56	1991
Jul	3.97	3.60	9.24	1996	18	11.95	1996	1.59	1975
Aug	4.60	3.63	6.01	1987	14	15.53	1987	.99	1976
Sep	3.38	2.95	3.35	1998	7	8.94	1986	.00	1979
Oct	2.66	2.19	5.60	1954	10	9.15	1991	.77	1992
Nov	3.20	2.90	2.98	1995	11	7.20	1985	.40	1999
Dec	2.45	2.38	3.04	1982	3	6.14	1982	.47	1989
Ann	37.94	37.66	9.24	Jul 1996	18	15.53	Aug 1987	.00+	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.4	4.7	1.0	.3
Feb	7.7	4.0	.8	.2
Mar	9.4	5.9	1.4	.4
Apr	10.6	6.8	2.4	1.1
May	10.4	7.3	2.7	1.0
Jun	9.8	6.8	2.9	1.0
Jul	9.0	6.3	2.5	1.0
Aug	9.3	6.5	3.0	1.3
Sep	7.6	5.4	2.1	.8
Oct	8.4	5.1	1.8	.6
Nov	9.4	5.9	2.1	.7
Dec	9.8	5.2	1.3	.5
Ann	110.8	69.9	24.0	8.9

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	.33	.49	.76	1.02	1.27	1.55	1.87	2.26	2.77	3.60	4.39
Feb	.20	.39	.66	.88	1.10	1.34	1.60	1.92	2.34	3.01	3.64
Mar	.76	1.01	1.39	1.71	2.02	2.35	2.72	3.14	3.70	4.56	5.36
Apr	1.25	1.61	2.14	2.59	3.03	3.47	3.96	4.54	5.28	6.42	7.48
May	.92	1.28	1.86	2.37	2.89	3.43	4.05	4.78	5.73	7.25	8.69
Jun	1.18	1.55	2.11	2.59	3.05	3.54	4.07	4.69	5.50	6.77	7.94
Jul	1.46	1.83	2.37	2.82	3.24	3.68	4.15	4.70	5.40	6.48	7.47
Aug	.91	1.33	2.00	2.62	3.25	3.92	4.68	5.60	6.81	8.75	10.60
Sep	.70	1.18	1.74	2.20	2.63	3.08	3.56	4.13	4.87	6.02	7.08
Oct	.65	.90	1.29	1.63	1.98	2.34	2.74	3.22	3.85	4.84	5.78
Nov	.70	1.00	1.47	1.89	2.31	2.77	3.28	3.88	4.69	5.97	7.17
Dec	.61	.84	1.19	1.51	1.82	2.15	2.52	2.96	3.53	4.44	5.29
Ann	29.56	31.24	33.36	34.95	36.34	37.68	39.05	40.55	42.36	44.95	47.17

+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	10.7	9.2	4	3
Feb	8.1	7.8	3	2
Mar	4.1	2.4	1	#
Apr	.7	.0	#	0
May	#	.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	2.0	.4	#	#
Dec	6.6	6.3	1	#
Ann	32.2	26.1	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	12.1	1999	2	41.1	1979	29	1979	29	22	1979
Feb	10.0	1990	15	20.3	1994	28	1979	12	25	1979
Mar	6.4	1983	21	16.8	1972	13	1979	3	4	1978
Apr	11.2	1975	2	11.2	1975	8	1975	3	1	1975
May	#	1997	15	#	1997	#	1997	15	#	1997
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	#	1997	27	#+	1997	#+	1997	27	#+	1997
Nov	10.3	1975	27	11.5	1975	10	1975	27	1	1977
Dec	10.0	2000	12	14.9	1977	21	2000	30	9	2000
Ann	12.1	Jan 1999	2	41.1	Jan 1979	29	Jan 1979	29	25	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	6.6	3.6	1.1	.5	.1
Feb	4.5	2.4	.8	.3	@
Mar	2.5	1.5	.6	.2	.0
Apr	.3	.3	.2	.1	@
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	1.3	.7	.2	.1	@
Dec	4.6	2.5	.6	.3	@
Ann	19.8	11.0	3.5	1.5	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	16.7	13.6	10.6	1.9
Feb	10.9	7.9	5.2	2.5
Mar	3.7	1.9	1.2	.0
Apr	.1	.1	.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	1.1	.3	.1	@
Dec	10.0	5.7	2.8	.7
Ann	42.5	29.5	19.9	5.1

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

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	10/04	10/07	10/11
32	9/26	9/30	10/03	10/06	10/08	10/10	10/13	10/16	10/20
28	10/04	10/09	10/14	10/17	10/20	10/24	10/27	10/31	11/06
24	10/22	10/26	10/29	11/01	11/03	11/06	11/09	11/12	11/16
20	10/28	11/02	11/06	11/09	11/12	11/15	11/18	11/22	11/28
16	11/05	11/11	11/15	11/19	11/22	11/25	11/29	12/03	12/09

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	155	148	143	139	135	131	127	123	116
32	175	168	163	158	154	150	146	141	134
28	203	196	190	185	181	176	171	166	158
24	221	216	212	209	206	202	199	195	190
20	246	240	235	231	227	223	218	214	207
16	270	261	255	250	245	240	234	228	219

***** 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	1298	1023	800	447	191	22	2	13	65	343	724	1125	6053
60	1143	883	645	309	107	5	0	1	19	218	576	970	4876
57	1050	799	555	235	69	2	0	0	7	156	489	877	4239
55	988	743	499	191	50	1	0	0	3	121	434	816	3846
50	836	613	359	101	18	0	0	0	0	58	304	672	2961
32	356	216	55	1	0	0	0	0	0	0	37	236	901

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	80	117	278	547	904	1159	1327	1277	1016	692	303	134	7834
55	0	0	9	47	240	469	614	564	329	100	10	0	2382
57	0	0	3	31	198	410	552	502	273	73	5	0	2047
60	0	0	0	15	142	323	459	410	195	41	1	0	1586
65	0	0	0	3	72	191	306	267	91	12	0	0	942
70	0	0	0	0	28	89	168	147	30	2	0	0	464

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	6	25	123	328	657	920	1083	1031	771	444	135	22	6	31	154	482	1139	2059	3142	4173	4944	5388	5523	5545
45	0	8	67	206	502	770	928	876	622	300	71	6	0	8	75	281	783	1553	2481	3357	3979	4279	4350	4356
50	0	1	33	118	355	620	773	721	474	183	34	3	0	1	34	152	507	1127	1900	2621	3095	3278	3312	3315
55	0	0	13	59	226	471	618	566	332	102	10	0	0	0	13	72	298	769	1387	1953	2285	2387	2397	2397
60	0	0	3	29	130	329	463	413	209	49	3	0	0	0	3	32	162	491	954	1367	1576	1625	1628	1628
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	16	82	211	425	607	733	695	501	276	74	6	1	17	99	310	735	1342	2075	2770	3271	3547	3621	3627

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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