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: CHICAGO OHARE INTL AP, IL **COOP ID: 111549**

Climate Division: IL 2 **NWS Call Sign: ORD** **Elevation: 658 Feet** **Lat: 41˚59N** **Lon: 87˚55W**

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	29.6	14.3	22.0	65	1989	31	33.8	1990	-27	1985	20	9.7	1977	1333	0	.0	.0	1.3	17.2	28.5	5.8
Feb	34.7	19.2	27.0	72	2000	25	38.7	1998	-19	1996	3	15.2	1979	1075	0	.0	.0	3.0	11.9	24.1	2.6
Mar	46.1	28.5	37.3	88	1986	29	44.2	2000	-8	1962	1	30.0	1984	858	1	.0	.0	10.7	3.7	20.4	.1
Apr	58.0	37.6	47.8	91	1980	22	53.7	1977	7	1982	7	41.9	1975	513	9	.0	@	22.5	.1	7.5	.0
May	69.9	47.5	58.7	93+	1977	28	65.8	1977	24	1966	10	53.3	1973	232	48	.0	.8	30.4	.0	.6	.0
Jun	79.2	57.2	68.2	104	1988	20	72.4	1971	36+	1972	11	62.3	1982	49	159	.1	3.8	30.0	.0	.0	.0
Jul	83.5	63.2	73.3	104	1995	13	78.4	1999	40	1965	1	69.0	1992	6	279	.4	7.2	31.0	.0	.0	.0
Aug	81.2	62.2	71.7	101	1991	2	78.7	1995	41+	1965	29	66.7	1992	9	233	.1	4.3	31.0	.0	.0	.0
Sep	73.9	53.7	63.8	99+	1985	7	68.3	1971	28	1974	23	58.9	1993	112	91	.0	1.7	30.0	.0	.2	.0
Oct	62.1	42.1	52.1	91	1963	6	60.6	1971	17	1981	24	45.7	1988	401	10	.0	@	28.1	.0	4.5	.0
Nov	47.1	31.6	39.3	78	1978	5	46.1	1975	1+	1976	29	31.3	1976	759	0	.0	.0	12.3	2.1	16.1	.0
Dec	34.4	20.4	27.4	71	1982	2	36.7	1982	-25	1983	24	15.1	1983	1151	0	.0	.0	2.5	10.9	26.6	2.4
Ann	58.3	39.8	49.1	104+	Jul 1995	13	78.7	Aug 1995	-27	Jan 1985	20	9.7	Jan 1977	6498	830	.6	17.8	232.8	45.9	128.5	10.9

\+ 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: 1958-2001

(3) Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

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Precipitation (inches)

Precipitation Totals

Means/Medians(1)

Month	Mean	Median
Jan	1.75	1.45
Feb	1.63	1.39
Mar	2.65	2.28
Apr	3.68	3.75
May	3.38	3.02
Jun	3.63	3.52
Jul	3.51	3.58
Aug	4.62	3.92
Sep	3.27	2.99
Oct	2.71	2.14
Nov	3.01	2.50
Dec	2.43	2.12
Ann	36.27	36.13

Extremes

Month	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	2.00	1960	12	4.47	1999	.10	1981
Feb	3.44	1997	21	5.56	1997	.41+	1995
Mar	1.75	1985	4	5.91	1976	.63	1981
Apr	2.37	2000	20	7.69	1983	.97	1971
May	3.45	1981	29	6.95	1996	.30	1992
Jun	3.09	1967	10	9.96	1993	.95	1991
Jul	2.90	1993	18	8.33	1982	1.18	1977
Aug	6.49	1987	14	17.10	1987	.67	1973
Sep	2.88	1961	13	8.14	1972	.02	1979
Oct	4.25	1969	10	7.36	1991	.72	1971
Nov	2.93	1990	27	8.22	1985	.44	1999
Dec	4.47	1982	2	8.56	1982	.46	1989
Ann	6.49	Aug 1987	14	17.10	Aug 1987	.02	Sep 1979

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.3	4.9	.9	.2
Feb	9.4	4.1	.8	.2
Mar	11.7	6.2	1.4	.4
Apr	12.6	6.9	2.3	.9
May	11.4	6.8	2.3	.6
Jun	10.1	6.1	2.7	1.0
Jul	9.5	6.1	2.3	1.0
Aug	10.1	6.7	2.9	1.3
Sep	8.8	5.5	2.1	.9
Oct	9.5	5.2	1.8	.5
Nov	11.4	6.2	1.7	.6
Dec	11.2	5.2	1.3	.5
Ann	127.0	69.9	22.5	8.1

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	.48	.74	.97	1.22	1.48	1.77	2.13	2.60	3.36	4.09
Feb	.37	.52	.76	.97	1.19	1.41	1.67	1.98	2.38	3.01	3.61
Mar	.78	1.04	1.41	1.74	2.06	2.39	2.75	3.18	3.74	4.61	5.41
Apr	1.20	1.55	2.07	2.50	2.92	3.36	3.84	4.39	5.11	6.23	7.25
May	.86	1.18	1.67	2.11	2.54	2.99	3.49	4.09	4.87	6.10	7.26
Jun	1.09	1.43	1.95	2.39	2.83	3.28	3.77	4.35	5.11	6.29	7.38
Jul	1.33	1.66	2.13	2.52	2.89	3.27	3.68	4.15	4.75	5.68	6.53
Aug	.90	1.31	1.99	2.61	3.25	3.93	4.70	5.63	6.86	8.83	10.71
Sep	.37	.62	1.07	1.53	2.02	2.56	3.20	4.00	5.08	6.86	8.60
Oct	.76	1.02	1.41	1.75	2.08	2.42	2.80	3.26	3.84	4.76	5.62
Nov	.65	.93	1.37	1.77	2.17	2.60	3.08	3.66	4.42	5.63	6.78
Dec	.54	.76	1.12	1.44	1.76	2.11	2.49	2.95	3.56	4.52	5.44
Ann	27.22	29.01	31.28	32.99	34.50	35.95	37.45	39.09	41.07	43.93	46.38

\+ 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: 1958-2001
(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	10.8	7.5	2	2	18.6	1999	2	34.3	1979	28	1979	14	18	1979	8.4	3.5	.8	.2	.1	17.6	10.5	5.5	1.6
Feb	8.3	8.1	2	2	11.1	2000	18	26.2	1994	19+	1979	20	16	1979	6.4	2.7	.6	.2	@	13.3	8.8	5.4	1.9
Mar	6.0	4.5	#	1	8.5	1982	4	18.2	1999	12	1994	1	2	1982	4.6	2.0	.6	.2	.0	4.2	1.8	.7	.1
Apr	1.6	.4	#	0	10.7	1975	2	11.1	1975	11	1975	3	1	1975	1.2	.4	.1	.1	@	.7	.3	.1	@
May	.0	.0	#	0	.5	1989	6	.5	1989	#	1973	14	#	2000	.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	.3	.0	#	0	3.8	1989	19	6.3	1989	3	1989	20	#	1989	.3	.1	@	.0	.0	.1	@	.0	.0
Nov	1.8	1.0	#	0	5.0	1975	26	6.4	1975	6	1975	27	1	1977	2.2	.6	.1	@	.0	1.1	.3	.1	.0
Dec	8.7	6.6	1	0	10.1	1978	31	35.3	1978	17+	2000	31	8	2000	7.1	2.6	.8	.3	@	8.7	3.9	2.3	.8
Ann	37.5	28.1	N/A	N/A	18.6	Jan 1999	2	35.3	Dec 1978	28	Jan 1979	14	18	Jan 1979	30.2	11.9	3.0	1.0	.1	45.7	25.6	14.1	4.4

+ 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	5/26	5/21	5/16	5/13	5/10	5/06	5/03	4/29	4/23
32	5/10	5/05	5/01	4/28	4/25	4/22	4/19	4/15	4/10
28	4/24	4/20	4/17	4/14	4/12	4/10	4/07	4/04	3/31
24	4/15	4/11	4/08	4/06	4/03	4/01	3/29	3/26	3/22
20	4/05	3/31	3/27	3/24	3/22	3/19	3/16	3/12	3/07
16	3/31	3/24	3/19	3/14	3/10	3/06	3/02	2/25	2/17

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	9/21	9/26	9/29	10/02	10/04	10/07	10/10	10/13	10/17
32	9/28	10/03	10/07	10/10	10/13	10/16	10/19	10/23	10/28
28	10/08	10/14	10/19	10/23	10/26	10/30	11/03	11/07	11/14
24	10/24	10/29	11/02	11/06	11/09	11/12	11/16	11/20	11/25
20	11/01	11/07	11/11	11/15	11/18	11/21	11/25	11/29	12/04
16	11/11	11/17	11/21	11/24	11/27	11/30	12/03	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	169	162	156	151	147	143	138	132	125
32	194	186	180	175	170	166	161	155	147
28	219	211	206	201	197	192	188	182	175
24	242	234	228	224	219	215	210	204	197
20	264	256	250	245	241	236	231	225	218
16	285	277	271	266	261	256	251	245	236

***** 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	1333	1075	858	513	232	49	6	9	112	401	759	1151	6498
60	1179	925	704	374	145	15	0	5	38	272	620	1011	5288
57	1086	841	611	293	99	6	0	0	17	203	531	918	4605
55	1024	785	550	244	74	3	0	0	9	162	474	856	4181
50	869	652	407	139	31	0	0	0	1	84	339	712	3234
32	380	242	66	2	0	0	0	0	0	1	44	268	1003

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	37	72	230	489	842	1099	1297	1247	969	636	265	74	7257
55	0	0	12	45	184	412	584	534	294	78	10	1	2154
57	0	0	8	33	146	355	522	473	244	57	6	1	1845
60	0	0	4	21	100	274	430	380	177	33	3	0	1422
65	0	0	1	9	48	159	279	233	91	10	0	0	830
70	0	0	0	3	18	72	150	115	38	3	0	0	399

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	20	103	282	603	871	1061	1008	736	404	117	20	6	26	129	411	1014	1885	2946	3954	4690	5094	5211	5231
45	0	7	60	172	453	721	906	853	587	269	62	8	0	7	67	239	692	1413	2319	3172	3759	4028	4090	4098
50	0	1	28	93	307	571	751	698	445	162	27	3	0	1	29	122	429	1000	1751	2449	2894	3056	3083	3086
55	0	0	10	48	190	425	596	543	305	83	8	0	0	0	10	58	248	673	1269	1812	2117	2200	2208	2208
60	0	0	3	23	108	282	441	390	182	36	2	0	0	0	3	26	134	416	857	1247	1429	1465	1467	1467
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	11	62	163	362	563	716	684	458	233	60	6	0	11	73	236	598	1161	1877	2561	3019	3252	3312	3318

(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