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: MORRISON, IL **COOP ID: 115833**

Climate Division: IL 1 **NWS Call Sign:** **Elevation: 603 Feet** **Lat: 41˚48N** **Lon: 89˚58W**

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	28.8	9.9	19.4	65	1944	27	30.9	1990	-28+	1999	5	6.1	1977	1417	0	.0	.0	1.1	18.1	30.1	8.3
Feb	34.3	15.3	24.8	72	1921	15	36.6	1998	-30	1905	13	12.5	1978	1126	0	.0	.0	2.9	11.6	26.1	4.9
Mar	46.6	26.9	36.8	86	1986	30	44.4	2000	-13+	1962	1	28.6	1975	877	0	.0	.0	11.6	3.5	22.3	.3
Apr	60.1	37.2	48.7	99	1926	29	54.1	1985	8	1982	7	42.9	1982	493	2	.0	.1	24.0	.2	8.6	.0
May	72.1	48.5	60.3	105	1934	31	67.1	1977	26	1918	1	55.0	1997	205	60	.0	1.0	30.7	.0	.6	.0
Jun	81.6	57.7	69.7	106+	1934	28	73.7	1971	35	1972	11	65.5	1982	23	162	.1	4.5	30.0	.0	.0	.0
Jul	85.0	61.8	73.4	112	1936	14	77.6	1999	41	1904	2	69.5	1992	4	264	.2	7.2	31.0	.0	.0	.0
Aug	82.9	59.4	71.2	105+	1988	18	78.1	1995	34	1920	30	66.1	1992	25	215	.3	5.2	31.0	.0	.0	.0
Sep	75.8	50.5	63.2	102+	1939	15	68.1	1978	24	1942	28	58.1	1974	113	57	.0	1.8	30.0	.0	.7	.0
Oct	64.0	39.0	51.5	93	1963	6	59.1	1971	9	1925	29	45.7	1976	424	5	.0	.1	28.1	.0	8.0	.0
Nov	47.4	28.4	37.9	80+	2000	1	44.4	1999	-7+	1977	27	30.0	1976	814	0	.0	.0	12.8	2.3	20.3	.2
Dec	33.8	16.4	25.1	70+	2001	6	33.7	1982	-28	1914	26	13.0	1983	1238	0	.0	.0	2.5	11.9	28.7	4.4
Ann	59.4	37.6	48.5	112	Jul 1936	14	78.1	Aug 1995	-30	Feb 1905	13	6.1	Jan 1977	6759	765	.6	19.9	235.7	47.6	145.4	18.1

\+ 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	1.52	1.52	2.23	1960	12	3.76	1974	.13	1981
Feb	1.51	1.23	1.77	1948	27	4.39	1981	.06	1987
Mar	2.79	2.56	2.49	1976	5	6.26	1991	.53	1996
Apr	3.72	3.25	4.00	1973	21	8.96	1973	1.15	1985
May	4.41	3.80	4.20	1974	17	12.78	1974	.77	1992
Jun	4.58	3.98	3.22	2000	1	11.66	2000	.76	1988
Jul	3.70	3.16	4.05	1951	8	11.27	1992	.11	1991
Aug	4.69	3.60	4.60	1979	18	13.29	1987	.69	1978
Sep	2.87	2.62	3.95	1941	8	6.67	1973	.04	1979
Oct	2.82	2.65	6.10	1954	10	7.68	1985	.34	1975
Nov	2.90	2.70	2.68	1952	17	8.55	1985	.46	1976
Dec	2.14	1.86	2.50	1942	27	5.57	1971	.18	1976
Ann	37.65	38.53	6.10	Oct 1954	10	13.29	Aug 1987	.04	Sep 1979

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.8	3.9	.8	.2
Feb	7.0	4.2	.8	.3
Mar	10.1	6.3	1.9	.4
Apr	11.2	6.9	2.5	.8
May	11.6	7.8	3.1	1.1
Jun	10.3	7.2	3.1	1.4
Jul	9.7	6.2	2.5	1.1
Aug	9.6	7.0	3.4	1.4
Sep	8.4	5.2	2.1	.7
Oct	8.8	5.2	1.9	.6
Nov	10.1	5.8	1.9	.5
Dec	8.8	4.7	1.4	.4
Ann	114.4	70.4	25.4	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	.34	.48	.70	.90	1.11	1.32	1.56	1.85	2.23	2.83	3.40
Feb	.19	.31	.53	.74	.96	1.20	1.49	1.84	2.32	3.11	3.87
Mar	.58	.84	1.25	1.62	2.00	2.40	2.85	3.39	4.11	5.25	6.34
Apr	1.28	1.63	2.14	2.58	2.99	3.42	3.89	4.43	5.13	6.21	7.21
May	1.16	1.58	2.22	2.78	3.33	3.91	4.56	5.33	6.33	7.90	9.37
Jun	1.24	1.68	2.34	2.92	3.48	4.08	4.74	5.52	6.54	8.13	9.63
Jul	.82	1.16	1.71	2.20	2.69	3.21	3.79	4.50	5.42	6.89	8.28
Aug	.91	1.33	2.02	2.65	3.29	3.98	4.77	5.71	6.96	8.97	10.88
Sep	.47	.72	1.14	1.53	1.94	2.38	2.89	3.50	4.33	5.66	6.94
Oct	.46	.70	1.11	1.50	1.90	2.33	2.83	3.44	4.25	5.57	6.82
Nov	.61	.87	1.30	1.68	2.07	2.49	2.96	3.53	4.27	5.47	6.60
Dec	.46	.66	.97	1.26	1.54	1.85	2.19	2.60	3.14	4.01	4.83
Ann	26.19	28.39	31.22	33.38	35.30	37.16	39.08	41.22	43.81	47.58	50.84

\+ 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

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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	10.6	8.0	4	3
Feb	6.9	6.2	4	3
Mar	4.4	2.3	1	#
Apr	1.3	.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	.1	.0	#	0
Nov	2.2	1.0	#	#
Dec	8.4	7.0	2	1
Ann	33.9	24.5	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	13.5	1971	3	32.5	1979	34	1979	26	26	1979
Feb	10.0	1990	15	17.5	1980	36	1979	19	32	1979
Mar	10.0	1991	13	18.5	1972	20	1979	2	6	1979
Apr	8.0	1997	12	9.0	1982	7	1982	9	1	1982
May	.0	0	0	.0	0	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	1.0	1972	18	1.0+	1997	1	1997	27	#	1997
Nov	6.0	1974	30	9.0	1997	6	1997	16	1	1997
Dec	9.0	1987	15	22.0	1978	17	2000	31	9	2000
Ann	13.5	Jan 1971	3	32.5	Jan 1979	36	Feb 1979	19	32	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.7	4.0	1.2	.6	.1
Feb	4.0	2.7	.9	.3	@
Mar	2.1	1.5	.6	.3	@
Apr	.7	.4	.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	.1	.1	.0	.0	.0
Nov	1.3	1.1	.2	.1	.0
Dec	4.7	3.8	1.1	.4	.0
Ann	18.6	13.6	4.2	1.8	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.2	12.4	8.1	2.4
Feb	15.6	10.6	5.6	1.4
Mar	5.0	1.8	.7	.1
Apr	.7	.3	.1	.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
Nov	2.0	.7	.1	.0
Dec	14.3	8.3	4.3	1.0
Ann	56.8	34.1	18.9	4.9

+ 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	5/25	5/20	5/16	5/13	5/09	5/06	5/03	4/29	4/24
32	5/12	5/07	5/03	4/29	4/26	4/23	4/20	4/16	4/11
28	4/26	4/21	4/18	4/15	4/13	4/10	4/08	4/04	3/31
24	4/15	4/11	4/09	4/06	4/04	4/02	3/30	3/28	3/24
20	4/09	4/04	3/31	3/27	3/24	3/21	3/17	3/13	3/08
16	3/31	3/25	3/20	3/16	3/13	3/09	3/05	3/01	2/22

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	9/15	9/20	9/23	9/26	9/28	10/01	10/03	10/07	10/11
32	9/24	9/28	10/01	10/04	10/06	10/09	10/11	10/14	10/19
28	10/01	10/07	10/11	10/14	10/18	10/21	10/25	10/29	11/04
24	10/15	10/21	10/25	10/28	11/01	11/04	11/07	11/11	11/17
20	10/25	10/31	11/04	11/07	11/10	11/13	11/16	11/20	11/26
16	11/05	11/11	11/15	11/18	11/22	11/25	11/28	12/02	12/08

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	161	154	149	145	141	137	133	128	121
32	182	175	170	166	162	158	154	149	142
28	210	202	197	192	187	182	177	172	164
24	229	222	218	214	210	206	202	198	191
20	253	245	239	235	230	226	221	215	208
16	277	269	263	258	253	248	243	237	229

***** 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)

Base — Heating Degree Days (1)

Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1417	1126	877	493	205	23	4	25	113	424	814	1238	6759
60	1262	986	722	351	116	5	0	6	44	286	664	1083	5525
57	1169	902	629	273	76	2	0	1	21	214	575	990	4852
55	1107	846	570	225	55	1	0	0	11	172	516	928	4431
50	952	713	428	125	21	0	0	0	2	89	379	780	3489
32	450	292	83	1	0	0	0	0	0	1	59	315	1201

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	56	90	229	501	878	1129	1282	1213	934	605	235	100	7252
55	0	0	3	34	220	440	569	500	255	63	3	0	2087
57	0	0	0	22	179	380	507	439	205	43	1	0	1776
60	0	0	0	10	126	294	414	351	138	22	0	0	1355
65	0	0	0	2	60	162	264	215	57	5	0	0	765
70	0	0	0	0	22	65	131	113	16	0	0	0	347

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	3	14	94	300	651	907	1057	982	710	382	100	11	3	17	111	411	1062	1969	3026	4008	4718	5100	5200	5211
45	0	1	48	189	497	757	902	827	560	251	48	4	0	1	49	238	735	1492	2394	3221	3781	4032	4080	4084
50	0	0	23	102	348	607	747	672	418	149	20	1	0	0	23	125	473	1080	1827	2499	2917	3066	3086	3087
55	0	0	7	53	222	458	592	517	279	78	4	0	0	0	7	60	282	740	1332	1849	2128	2206	2210	2210
60	0	0	3	22	126	314	437	362	167	33	0	0	0	0	3	25	151	465	902	1264	1431	1464	1464	1464
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	10	64	191	399	597	712	655	456	243	59	5	0	10	74	265	664	1261	1973	2628	3084	3327	3386	3391

(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