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: MADISONVILLE, KY **COOP ID: 155067**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 440 Feet** **Lat: 37˚22N** **Lon: 87˚31W**

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	44.3	25.2	34.8	77	1950	25	43.7	1990	-20	1994	19	20.1	1977	938	0	.0	.0	9.6	6.2	22.7	1.2
Feb	50.8	28.8	39.8	79	1954	27	47.6	1976	-23	1951	2	24.8	1978	706	0	.0	.0	14.2	3.1	17.5	.5
Mar	61.4	37.6	49.5	85+	1998	30	56.1	1973	-5	1960	6	43.6	1978	484	4	.0	.0	25.0	.3	10.9	.0
Apr	72.0	46.1	59.1	91+	1989	27	64.5	1981	22	1992	3	53.4	1983	202	24	.0	.1	29.3	.0	2.6	.0
May	80.1	55.3	67.7	95+	1987	21	72.9	1991	29	1963	1	63.2	1981	66	149	.0	1.5	31.0	.0	@	.0
Jun	87.7	63.4	75.6	105	1952	30	78.6	1984	41	1956	2	71.5	1974	1	318	.3	9.3	30.0	.0	.0	.0
Jul	91.2	67.4	79.3	105+	1966	13	82.7	1999	47	1962	27	76.2	1971	0	443	.6	18.0	31.0	.0	.0	.0
Aug	90.2	65.5	77.9	102+	1991	3	83.3	1983	45	1964	13	73.4	1992	0	400	.5	13.8	31.0	.0	.0	.0
Sep	84.3	58.7	71.5	105	1954	5	77.3	1998	33	1949	30	66.5	1975	23	218	.1	5.9	30.0	.0	.0	.0
Oct	73.2	46.9	60.1	93	1953	2	66.2	1984	20	1952	22	53.0	1988	203	49	.0	@	30.7	.0	2.6	.0
Nov	59.7	38.3	49.0	85+	1987	2	55.8	1985	-2	1950	25	40.6	1976	484	3	.0	.0	22.7	.1	9.8	.0
Dec	48.4	29.2	38.8	79	1982	3	48.4	1984	-14	1989	22	26.7	1989	812	0	.0	.0	13.5	2.9	19.9	.4
Ann	70.3	46.9	58.6	105+	Jul 1966	13	83.3	Aug 1983	-23	Feb 1951	2	20.1	Jan 1977	3919	1608	1.5	48.6	298.0	12.6	86.0	2.1

+ 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: 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	3.69	3.74	4.47	2000	3	8.51	1999	.77	1986
Feb	3.78	2.99	5.57	1989	14	12.82	1989	.86	1980
Mar	4.51	4.00	10.25	1997	2	17.65	1997	1.88	1971
Apr	4.85	4.06	4.51	1981	20	12.32	1983	1.42	1986
May	4.95	4.20	3.53	1983	3	11.08	1983	.60	1987
Jun	3.80	3.30	8.15	1969	23	10.85	1999	.56	1988
Jul	4.21	4.33	3.82	1998	16	7.49	1998	1.47	1983
Aug	3.23	2.02	6.73	1977	14	11.03	1977	.50	1983
Sep	3.36	3.41	3.85	1964	28	8.24	1996	.33	1998
Oct	3.26	2.99	3.03	1989	17	6.74	1990	.70	1987
Nov	4.22	3.55	3.70	1957	14	10.05	1988	.76	1976
Dec	4.21	3.74	3.36	1987	26	10.25	1990	.63	1976
Ann	48.07	47.32	10.25	Mar 1997	2	17.65	Mar 1997	.33	Sep 1998

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.8	6.2	2.3	.9
Feb	8.9	6.3	2.3	.9
Mar	11.7	8.3	2.8	1.1
Apr	11.5	8.0	3.2	1.2
May	11.1	7.9	3.6	1.3
Jun	10.5	6.6	2.6	1.0
Jul	9.0	6.2	2.7	1.4
Aug	7.7	5.1	1.8	.7
Sep	7.9	5.6	2.1	1.0
Oct	7.9	5.4	2.5	.9
Nov	9.9	6.9	3.0	1.2
Dec	10.5	6.7	3.1	1.3
Ann	116.4	79.2	32.0	12.9

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	.91	1.26	1.79	2.27	2.74	3.24	3.80	4.46	5.33	6.70	7.99
Feb	.79	1.14	1.69	2.20	2.71	3.25	3.86	4.60	5.57	7.12	8.59
Mar	1.46	1.89	2.52	3.06	3.58	4.11	4.70	5.39	6.27	7.65	8.92
Apr	1.38	1.84	2.53	3.14	3.73	4.34	5.03	5.83	6.88	8.51	10.04
May	1.61	2.08	2.78	3.36	3.93	4.52	5.16	5.91	6.88	8.38	9.76
Jun	.80	1.15	1.71	2.21	2.73	3.27	3.89	4.62	5.60	7.15	8.63
Jul	1.95	2.32	2.83	3.24	3.62	4.00	4.41	4.88	5.47	6.36	7.16
Aug	.47	.74	1.20	1.65	2.12	2.63	3.22	3.94	4.92	6.50	8.03
Sep	.61	.90	1.40	1.85	2.32	2.82	3.40	4.09	5.02	6.51	7.93
Oct	.97	1.28	1.75	2.15	2.54	2.94	3.39	3.91	4.59	5.65	6.64
Nov	1.23	1.63	2.23	2.76	3.27	3.80	4.38	5.07	5.97	7.37	8.68
Dec	1.06	1.45	2.07	2.61	3.15	3.71	4.35	5.10	6.08	7.63	9.08
Ann	35.42	37.91	41.07	43.46	45.57	47.61	49.70	52.01	54.80	58.83	62.31

\+ 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)

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	3.4	.3	1	#	13.5	1994	17	24.5	1978	17	1978	21	6	1978	2.0	1.2	.4	.1	@	3.0	1.4	.9	.4
Feb	2.9	1.7	#	#	4.5	1971	13	10.8	1979	9	1985	2	2	1985	1.5	1.0	.1	.0	.0	3.9	1.7	.3	.0
Mar	.7	.0	#	#	3.0	1975	14	3.1	1978	6	1994	9	#+	1998	.5	.2	@	.0	.0	.4	.1	.0	.0
Apr	#	.0	#	0	#	1997	10	#+	1997	#+	1997	10	#+	1997	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.4	.0	#	0	4.5	1977	28	8.5	1977	5	1977	28	#+	1995	.1	.1	.1	.0	.0	.1	.1	@	.0
Dec	.3	#	#	0	2.0	1997	31	2.5	1983	7	1984	6	1	1984	.2	.1	.0	.0	.0	.2	.0	.0	.0
Ann	7.7	2.0	N/A	N/A	13.5	Jan 1994	17	24.5	Jan 1978	17	Jan 1978	21	6	Jan 1978	4.3	2.6	.6	.1	@	7.6	3.3	1.2	.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	5/08	5/03	4/29	4/26	4/22	4/19	4/16	4/12	4/07
32	4/24	4/20	4/17	4/14	4/12	4/09	4/07	4/04	3/31
28	4/14	4/09	4/06	4/03	3/31	3/28	3/25	3/21	3/17
24	4/05	3/31	3/26	3/23	3/19	3/16	3/12	3/08	3/02
20	3/20	3/13	3/08	3/04	2/28	2/24	2/20	2/15	2/09
16	3/10	3/02	2/25	2/20	2/16	2/11	2/06	2/01	1/24

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	9/27	10/01	10/04	10/07	10/10	10/13	10/15	10/19	10/23
32	10/06	10/11	10/15	10/18	10/21	10/23	10/26	10/30	11/04
28	10/17	10/23	10/27	10/31	11/03	11/06	11/10	11/14	11/20
24	10/29	11/05	11/10	11/14	11/18	11/22	11/26	12/01	12/07
20	11/07	11/14	11/19	11/23	11/27	12/01	12/06	12/11	12/18
16	11/19	11/26	12/01	12/06	12/10	12/14	12/18	12/23	12/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	187	181	177	173	170	166	163	158	152
32	210	203	199	195	191	187	183	178	172
28	239	231	226	221	217	212	207	202	194
24	272	262	255	249	243	237	231	224	214
20	296	287	281	276	271	266	261	255	246
16	324	314	308	302	296	291	285	279	269

***** 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	938	706	484	202	66	1	0	0	23	203	484	812	3919
60	785	575	342	102	22	0	0	0	5	110	347	664	2952
57	701	496	266	59	10	0	0	0	2	70	272	577	2453
55	643	446	221	38	6	0	0	0	1	50	227	520	2152
50	503	329	130	9	0	0	0	0	0	17	135	387	1510
32	145	64	5	0	0	0	0	0	0	0	5	78	297

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	230	282	548	812	1106	1307	1466	1422	1186	869	514	289	10031
55	15	20	51	160	399	617	753	709	496	205	46	18	3489
57	11	15	34	121	342	557	691	647	437	164	31	13	3063
60	2	9	17	74	261	467	598	554	351	111	16	7	2467
65	0	0	4	24	149	318	443	400	218	49	3	0	1608
70	0	0	0	5	69	178	288	252	113	16	0	0	921

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	72	135	314	562	848	1058	1206	1163	934	612	295	111	72	207	521	1083	1931	2989	4195	5358	6292	6904	7199	7310
45	32	73	204	419	693	908	1051	1008	784	462	188	55	32	105	309	728	1421	2329	3380	4388	5172	5634	5822	5877
50	13	35	117	287	539	758	896	853	634	319	107	27	13	48	165	452	991	1749	2645	3498	4132	4451	4558	4585
55	3	14	61	178	387	608	741	698	485	195	50	8	3	17	78	256	643	1251	1992	2690	3175	3370	3420	3428
60	0	0	27	96	245	458	586	543	344	106	19	0	0	0	27	123	368	826	1412	1955	2299	2405	2424	2424
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	42	87	194	356	553	721	825	795	620	391	170	63	42	129	323	679	1232	1953	2778	3573	4193	4584	4754	4817

(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