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: MURRAY, KY **COOP ID: 155694**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 527 Feet** **Lat: 36˚37N** **Lon: 88˚18W**

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	43.8	26.9	35.4	76	1952	16	44.6	1990	-16	1982	10	23.0	1977	920	0	.0	.0	10.0	5.7	21.6	.5
Feb	50.2	30.9	40.6	81	1962	13	48.8	1976	-9	1951	3	27.4	1978	686	0	.0	.0	15.2	2.6	15.9	.1
Mar	60.2	39.3	49.8	88	1982	18	56.1	1976	-3	1960	5	43.6	1996	478	5	.0	.0	25.4	.2	9.2	.0
Apr	70.3	48.1	59.2	90+	1989	27	65.3	1981	23	1961	2	52.2	1983	206	32	.0	.1	29.3	.0	1.7	.0
May	78.2	57.2	67.7	95+	1982	30	73.2	1987	34+	1963	1	63.1	1997	66	149	.0	1.4	31.0	.0	.0	.0
Jun	86.3	65.5	75.9	106	1952	28	78.8	1971	44	1956	2	71.7	1974	2	328	.2	9.7	30.0	.0	.0	.0
Jul	89.9	69.4	79.7	110	1952	28	84.9	1980	52+	1971	31	76.5	1971	0	455	1.1	17.4	31.0	.0	.0	.0
Aug	88.7	67.4	78.1	108	1954	16	83.7	1980	49+	1964	13	73.1	1992	1	406	.9	13.8	31.0	.0	.0	.0
Sep	82.1	60.4	71.3	108	1954	5	76.1	1998	31	1949	30	66.2	1974	24	211	.1	5.1	30.0	.0	.0	.0
Oct	71.4	48.7	60.1	96	1953	1	65.8	1971	21	1952	29	54.6	1976	194	40	.0	@	30.7	.0	1.0	.0
Nov	58.4	39.4	48.9	83+	2000	1	54.8	1999	-1	1950	25	40.4	1976	486	2	.0	.0	22.8	.1	8.1	.0
Dec	47.9	30.6	39.3	79	1951	31	47.6	1984	-13	1989	22	28.2	1983	798	0	.0	.0	13.8	3.0	17.8	.3
Ann	69.0	48.7	58.8	110	Jul 1952	28	84.9	Jul 1980	-16	Jan 1982	10	23.0	Jan 1977	3861	1628	2.3	47.5	300.2	11.6	75.3	.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

Issue Date: February 2004

(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

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: MURRAY, KY **COOP ID: 155694**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 527 Feet** **Lat: 36˚37N** **Lon: 88˚18W**

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	4.25	4.34	4.10+	1999	22	10.12	1999	1.05	1986
Feb	4.59	3.91	4.62	1961	21	14.60	1989	1.55	1978
Mar	5.25	4.81	6.81	1997	1	16.04	1975	1.43	1971
Apr	5.09	4.59	2.81	1975	30	10.26	1979	1.64	1976
May	5.39	4.86	4.22	2000	25	11.30	2000	1.67	1982
Jun	4.85	4.16	4.21	1989	12	12.10	1998	.09	1988
Jul	4.50	4.47	4.01	1972	28	10.93	1972	1.30	1978
Aug	3.46	2.91	4.89	1978	11	8.42	1982	.07	1999
Sep	3.64	3.58	4.22	1998	20	9.50	1980	.39	1983
Oct	3.52	3.31	3.88	1984	6	9.70	1984	.65	1987
Nov	5.41	4.96	6.76	2001	29	14.30	1988	1.86	1976
Dec	5.34	4.53	4.30	1982	25	15.21	1990	1.07	1976
Ann	55.29	55.18	6.81	Mar 1997	1	16.04	Mar 1975	.07	Aug 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.9	6.6	3.0	1.2
Feb	9.2	6.7	3.0	1.4
Mar	11.6	8.3	3.3	1.2
Apr	10.2	7.8	3.6	1.5
May	10.6	7.7	3.5	1.6
Jun	8.9	6.9	3.3	1.2
Jul	8.3	6.4	2.9	1.3
Aug	7.2	5.4	2.1	.9
Sep	7.7	5.6	2.5	1.1
Oct	7.2	4.9	2.5	.9
Nov	9.5	7.5	3.5	1.8
Dec	10.1	7.3	3.2	1.3
Ann	110.4	81.1	36.4	15.4

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	1.23	1.63	2.24	2.77	3.28	3.81	4.41	5.10	6.01	7.42	8.74
Feb	1.32	1.76	2.42	2.99	3.54	4.12	4.76	5.51	6.49	8.02	9.44
Mar	1.62	2.11	2.86	3.50	4.12	4.76	5.46	6.29	7.36	9.03	10.58
Apr	1.89	2.37	3.05	3.62	4.16	4.72	5.32	6.02	6.91	8.28	9.53
May	1.78	2.29	3.04	3.68	4.29	4.93	5.62	6.43	7.48	9.10	10.59
Jun	1.14	1.59	2.30	2.94	3.57	4.23	4.98	5.87	7.04	8.90	10.65
Jul	1.58	2.00	2.62	3.14	3.63	4.14	4.70	5.35	6.18	7.46	8.64
Aug	.42	.69	1.18	1.66	2.17	2.74	3.41	4.23	5.34	7.17	8.95
Sep	.69	1.01	1.55	2.04	2.54	3.08	3.70	4.43	5.42	6.99	8.49
Oct	1.04	1.38	1.88	2.31	2.74	3.17	3.66	4.23	4.96	6.11	7.18
Nov	1.86	2.37	3.11	3.74	4.35	4.97	5.65	6.44	7.45	9.02	10.47
Dec	1.20	1.70	2.48	3.18	3.89	4.64	5.48	6.48	7.81	9.91	11.90
Ann	42.02	44.66	48.00	50.51	52.72	54.84	57.03	59.42	62.31	66.47	70.04

\+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: MURRAY, KY **COOP ID: 155694**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 527 Feet** **Lat: 36°37N** **Lon: 88°18W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.5	2.4	1	#
Feb	4.2	2.1	1	#
Mar	1.2	.0	#	#
Apr	#	.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	.0	#	0
Dec	.8	.0	#	0
Ann	12.0	4.5	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	8.2	1985	31	29.4	1985	10	1985	31	5	1978
Feb	9.8	1979	7	19.9	1979	13	1985	2	5	1985
Mar	4.3	1975	10	5.8	1975	4	1980	1	#+	1996
Apr	#	2000	8	#+	2000	#+	2000	8	#+	2000
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	1.6	1993	30	2.2	1993	#	1993	31	#	1993
Nov	2.1	1976	11	4.1	1976	1	1996	10	#+	1996
Dec	2.4	2000	17	5.8	2000	4	1992	25	#+	2000
Ann	9.8	Feb 1979	7	29.4	Jan 1985	13	Feb 1985	2	5+	Feb 1985

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.2	1.6	.7	.3	.0
Feb	1.7	1.2	.6	.2	.0
Mar	.5	.4	.2	.0	.0
Apr	.0	.0	.0	.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	.1	@	.0	.0	.0
Nov	.1	.1	.0	.0	.0
Dec	.8	.3	.0	.0	.0
Ann	5.4	3.6	1.5	.5	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	4.6	2.5	1.2	.1
Feb	3.4	2.0	1.2	.3
Mar	.4	.1	.0	.0
Apr	.0	.0	.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	@	.0	.0	.0
Dec	.9	.0	.0	.0
Ann	9.3	4.6	2.4	.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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: MURRAY, KY **COOP ID: 155694**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 527 Feet** **Lat: 36˚37N** **Lon: 88˚18W**

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	4/24	4/21	4/18	4/15	4/13	4/11	4/09	4/06	4/02
32	4/17	4/13	4/10	4/08	4/05	4/03	3/31	3/28	3/24
28	4/14	4/08	4/03	3/30	3/26	3/23	3/19	3/14	3/08
24	3/28	3/22	3/17	3/13	3/09	3/06	3/01	2/25	2/18
20	3/17	3/10	3/05	2/28	2/24	2/20	2/15	2/10	2/03
16	3/07	2/28	2/22	2/18	2/13	2/09	2/04	1/29	1/20

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	10/01	10/06	10/09	10/12	10/14	10/17	10/20	10/23	10/27
32	10/10	10/16	10/21	10/25	10/28	11/01	11/05	11/09	11/15
28	10/30	11/03	11/06	11/09	11/12	11/15	11/17	11/21	11/25
24	11/07	11/14	11/18	11/22	11/26	11/29	12/03	12/08	12/14
20	11/17	11/24	11/29	12/04	12/08	12/12	12/16	12/21	12/28
16	11/24	12/03	12/09	12/15	12/20	12/25	12/30	1/06	1/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	198	193	189	186	183	180	177	173	168
32	226	219	214	209	205	201	197	191	184
28	252	244	239	234	230	225	221	215	208
24	287	278	272	266	261	256	250	244	234
20	315	305	298	292	286	280	274	267	257
16	>365	332	322	314	308	301	295	287	277

***** 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: MURRAY, KY **COOP ID: 155694**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 527 Feet** **Lat: 36˚37N** **Lon: 88˚18W**

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	920	686	478	206	66	2	0	1	24	194	486	798	3861
60	765	552	337	110	23	0	0	0	5	100	347	648	2887
57	681	474	262	68	10	0	0	0	1	60	271	561	2388
55	622	423	218	46	6	0	0	0	0	41	225	504	2085
50	481	305	128	14	0	0	0	0	0	12	132	370	1442
32	123	48	4	0	0	0	0	0	0	0	4	67	246

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	226	286	555	816	1107	1316	1478	1428	1177	868	511	292	10060
55	12	17	55	172	399	626	765	715	487	196	42	16	3502
57	9	12	38	134	342	566	703	653	428	154	27	12	3078
60	0	6	20	86	261	476	610	560	342	100	14	5	2480
65	0	0	5	32	149	328	455	406	211	40	2	0	1628
70	0	0	0	8	69	189	300	259	109	10	0	0	944

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	82	152	338	578	862	1081	1236	1185	943	632	302	120	82	234	572	1150	2012	3093	4329	5514	6457	7089	7391	7511
45	39	83	222	437	707	931	1081	1030	793	481	195	62	39	122	344	781	1488	2419	3500	4530	5323	5804	5999	6061
50	16	41	129	300	552	781	926	875	643	332	111	28	16	57	186	486	1038	1819	2745	3620	4263	4595	4706	4734
55	4	17	66	189	401	631	771	720	496	204	54	8	4	21	87	276	677	1308	2079	2799	3295	3499	3553	3561
60	0	2	27	99	254	481	616	565	352	109	18	0	0	2	29	128	382	863	1479	2044	2396	2505	2523	2523
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	48	91	201	359	560	741	853	816	628	389	174	64	48	139	340	699	1259	2000	2853	3669	4297	4686	4860	4924

(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