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: BARREN RIVER LAKE, KY **COOP ID: 150422**

Climate Division: KY 2 **NWS Call Sign:** **Elevation: 620 Feet** **Lat: 36˚54N** **Lon: 86˚08W**

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	24.2	34.0	74+	2000	4	43.2	1998	-19+	1985	21	18.4	1977	961	0	.0	.0	10.4	6.1	23.2	1.4
Feb	49.3	26.9	38.1	82	1996	24	45.9	1990	-8+	1971	1	24.4	1978	753	0	.0	.0	14.0	3.4	19.4	.6
Mar	59.3	35.4	47.4	86+	1998	30	53.7	1973	0	1980	3	41.3	1996	549	1	.0	.0	24.2	.4	13.6	@
Apr	69.4	43.6	56.5	94	1995	11	62.3	1981	19	1995	1	50.6	1983	272	17	.0	.3	28.7	.0	4.4	.0
May	77.9	53.2	65.6	94+	1996	25	72.6	1987	30+	1976	4	60.9	1971	110	127	.0	1.7	31.0	.0	.2	.0
Jun	85.9	62.2	74.1	104+	1988	27	77.1	1994	38	1966	1	68.9	1974	6	278	.2	10.2	30.0	.0	.0	.0
Jul	89.8	66.5	78.2	106	1988	10	82.3	1993	48+	1988	2	74.2	1984	0	409	1.0	17.8	31.0	.0	.0	.0
Aug	88.6	64.8	76.7	104	1988	19	82.7	1995	47+	1986	30	72.9	1976	1	364	.6	14.6	31.0	.0	.0	.0
Sep	82.3	57.9	70.1	102+	1995	1	76.0	1998	33	2001	26	65.6	1974	33	185	.1	6.3	30.0	.0	.0	.0
Oct	71.5	45.8	58.7	91+	2000	5	65.1	1971	23	1976	29	52.1	1988	239	42	.0	.2	30.5	.0	3.5	.0
Nov	59.2	37.0	48.1	85+	2000	3	54.7	1985	5	1976	30	38.4	1976	509	2	.0	.0	23.0	.2	11.4	.0
Dec	48.4	28.6	38.5	80	1998	5	46.4	1984	-15	1989	23	25.9	1989	823	0	.0	.0	14.9	3.1	19.6	.4
Ann	68.8	45.5	57.2	106	Jul 1988	10	82.7	Aug 1995	-19+	Jan 1985	21	18.4	Jan 1977	4256	1425	1.9	51.1	298.7	13.2	95.3	2.4

\+ 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: 1963-2001

(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	3.88	3.68	3.08	1999	23	8.81	1999	.47	1986
Feb	3.86	3.43	2.75	1997	4	10.81	1989	.87	1978
Mar	4.74	3.78	3.65	1975	12	13.04	1975	2.30	1971
Apr	4.10	3.71	4.02	1994	11	8.54	1983	.86	1976
May	5.39	4.58	4.61	1983	19	13.53	1983	2.91	1991
Jun	4.63	4.04	4.26	1969	23	10.30	1981	.92	1988
Jul	4.62	4.30	3.48	2001	26	8.70	1982	.57	1997
Aug	3.98	3.23	5.70	1982	31	15.39	1982	.85	1996
Sep	3.78	2.84	4.80	1979	14	12.07	1979	.45	1983
Oct	3.20	2.78	3.90	1991	28	7.22	1984	.21	1987
Nov	4.33	4.11	3.67	1973	27	9.38	1973	.72	1976
Dec	4.85	4.51	3.60	1978	4	13.04	1990	1.29	1995
Ann	51.36	51.60	5.70	Aug 1982	31	15.39	Aug 1982	.21	Oct 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.2	7.0	2.8	.9
Feb	8.9	6.7	2.7	1.0
Mar	10.7	8.1	3.4	1.2
Apr	10.1	7.7	2.7	1.1
May	10.6	8.5	3.8	1.4
Jun	9.6	7.7	3.2	1.4
Jul	8.5	6.9	3.3	1.6
Aug	7.0	5.5	2.8	1.2
Sep	7.3	5.7	2.4	1.1
Oct	7.4	5.4	2.1	.7
Nov	9.6	7.0	3.0	1.1
Dec	10.2	7.2	3.1	1.3
Ann	109.1	83.4	35.3	14.0

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	.95	1.32	1.88	2.38	2.88	3.41	3.99	4.69	5.61	7.05	8.41
Feb	1.32	1.68	2.21	2.67	3.10	3.55	4.03	4.60	5.33	6.46	7.50
Mar	1.66	2.11	2.76	3.31	3.83	4.37	4.95	5.63	6.51	7.86	9.10
Apr	1.14	1.53	2.12	2.64	3.14	3.66	4.25	4.93	5.83	7.23	8.53
May	2.38	2.86	3.53	4.08	4.59	5.10	5.65	6.28	7.07	8.28	9.37
Jun	1.48	1.92	2.57	3.13	3.66	4.21	4.82	5.53	6.44	7.86	9.18
Jul	1.50	1.94	2.58	3.13	3.66	4.21	4.81	5.51	6.42	7.82	9.12
Aug	.69	1.04	1.62	2.16	2.72	3.32	4.01	4.85	5.97	7.78	9.50
Sep	.61	.94	1.49	2.01	2.55	3.13	3.80	4.62	5.71	7.48	9.17
Oct	.70	1.00	1.47	1.89	2.32	2.77	3.28	3.89	4.69	5.97	7.17
Nov	1.35	1.76	2.37	2.89	3.40	3.93	4.50	5.18	6.06	7.42	8.68
Dec	1.41	1.87	2.57	3.17	3.75	4.36	5.03	5.83	6.85	8.46	9.95
Ann	38.67	41.18	44.36	46.76	48.88	50.91	53.00	55.30	58.07	62.07	65.50

\+ 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: 1963-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	2.6	1.8	1	#
Feb	2.5	1.3	#	#
Mar	.9	.0	#	#
Apr	.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
Nov	.2	.0	#	0
Dec	.8	.0	#	#
Ann	7.0	3.1	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	5.5	1981	30	13.3	1978	9	1978	20	3	1978
Feb	6.0	1979	7	12.5	1986	9	1986	15	3	1979
Mar	5.0	1987	31	5.0	1987	5	1996	21	#+	1999
Apr	.5	1983	18	.5	1983	1	1983	18	#+	1987
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	#	1993	31	#	1993	0	0	0	0	0
Nov	3.0	1977	27	4.5	1977	3	1977	27	#+	1980
Dec	4.0	1997	31	5.1	1989	4	1997	31	1+	2000
Ann	6.0	Feb 1979	7	13.3	Jan 1978	9+	Feb 1986	15	3+	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.3	.9	.4	@	.0
Feb	1.4	1.0	.4	.1	.0
Mar	.5	.4	.1	@	.0
Apr	@	.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	.0	.0	.0	.0	.0
Nov	.2	.1	@	.0	.0
Dec	.9	.4	@	.0	.0
Ann	4.3	2.8	.9	.1	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	3.6	1.8	.8	.0
Feb	1.9	1.0	.5	.0
Mar	.6	.2	@	.0
Apr	@	.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	.2	@	.0	.0
Dec	.9	.1	.0	.0
Ann	7.2	3.1	1.3	.0

+ 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	5/17	5/11	5/07	5/03	4/29	4/25	4/22	4/17	4/11
32	4/29	4/24	4/21	4/17	4/15	4/12	4/09	4/05	3/31
28	4/18	4/14	4/10	4/07	4/04	4/02	3/30	3/26	3/21
24	4/11	4/05	4/01	3/28	3/25	3/21	3/17	3/13	3/07
20	3/28	3/21	3/15	3/11	3/07	3/03	2/26	2/21	2/14
16	3/15	3/08	3/03	2/27	2/23	2/19	2/15	2/10	2/03

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	9/29	10/03	10/06	10/09	10/12	10/14	10/17	10/20	10/24
32	10/05	10/10	10/14	10/18	10/21	10/24	10/27	10/31	11/05
28	10/21	10/27	10/31	11/03	11/07	11/10	11/13	11/17	11/23
24	10/31	11/06	11/10	11/14	11/18	11/21	11/25	11/29	12/05
20	11/07	11/14	11/19	11/23	11/27	12/01	12/05	12/10	12/17
16	11/20	11/27	12/02	12/07	12/11	12/15	12/20	12/25	1/02

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	186	178	173	169	165	161	156	151	144
32	207	201	196	192	188	185	181	176	169
28	239	231	225	220	215	211	206	200	192
24	263	254	248	242	237	232	227	221	212
20	290	281	275	269	264	259	254	248	239
16	319	309	302	296	290	285	279	272	262

***** 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	961	753	549	272	110	6	0	1	33	239	509	823	4256
60	813	613	404	158	50	1	0	0	8	140	370	676	3233
57	725	537	323	105	28	0	0	0	3	94	291	587	2693
55	667	484	273	76	18	0	0	0	2	70	244	530	2364
50	528	359	169	27	5	0	0	0	0	27	146	396	1657
32	166	67	8	0	0	0	0	0	0	0	5	83	329

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	228	238	484	735	1040	1262	1432	1386	1142	826	487	283	9543
55	16	11	35	121	344	572	719	673	454	183	37	17	3182
57	12	8	23	89	292	512	657	611	396	145	24	12	2781
60	7	0	12	52	222	423	564	518	311	98	12	8	2227
65	0	0	1	17	127	278	409	364	185	42	2	0	1425
70	0	0	0	3	59	150	257	221	90	14	0	0	794

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	77	127	285	508	803	1033	1191	1147	910	591	290	125	77	204	489	997	1800	2833	4024	5171	6081	6672	6962	7087
45	41	67	184	370	648	883	1036	992	760	438	185	65	41	108	292	662	1310	2193	3229	4221	4981	5419	5604	5669
50	18	30	106	251	493	733	881	837	610	303	111	29	18	48	154	405	898	1631	2512	3349	3959	4262	4373	4402
55	2	7	54	152	344	583	726	682	462	186	60	11	2	9	63	215	559	1142	1868	2550	3012	3198	3258	3269
60	0	1	24	77	216	434	571	527	322	99	22	1	0	1	25	102	318	752	1323	1850	2172	2271	2293	2294
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	48	86	190	328	520	698	808	775	600	378	180	70	48	134	324	652	1172	1870	2678	3453	4053	4431	4611	4681

(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