

Climatography of the United States

No. 20

1971-2000

Station: MANCHESTER 4 W, KY

COOP ID: 155111

Climate Division: KY 4

NWS Call Sign:

Elevation: 870 Feet

Lat: 37°09N

Lon: 83°49W

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	21.7	33.0	79	1952	1	43.0	1974	-30	1994	19	18.8	1977	993	0	.0	.0	11.3	4.5	24.3	1.7
Feb	49.6	23.8	36.7	80	1977	26	44.6	1976	-22	1996	5	24.9	1978	793	0	.0	.0	14.8	2.6	21.2	.8
Mar	58.9	31.0	45.0	85+	1963	31	52.5	1973	-11	1980	3	37.1	1999	623	0	.0	.0	24.8	.3	16.7	.1
Apr	68.0	38.3	53.2	92	1986	28	58.9	1994	17	1987	1	48.3	1997	358	3	.0	.1	28.5	.0	7.1	.0
May	75.5	49.4	62.5	94	1953	31	68.6	1991	25	1971	4	56.8	1997	139	61	.0	.3	31.0	.0	1.0	.0
Jun	82.2	58.2	70.2	98	1954	26	74.1	1994	31	1966	1	66.6	1972	13	170	.0	2.5	30.0	.0	.0	.0
Jul	85.7	63.2	74.5	104	1952	28	77.5	1999	36	1988	2	71.9	1984	0	293	.1	6.6	31.0	.0	.0	.0
Aug	84.4	61.5	73.0	101	1953	31	77.2	1995	36	1986	29	69.8	1992	3	249	.1	5.2	31.0	.0	.0	.0
Sep	79.2	53.9	66.6	103+	1954	6	71.2	1998	27	1993	30	63.2	1988	59	106	.0	2.0	30.0	.0	.2	.0
Oct	69.7	40.2	55.0	92	1953	2	61.6	1971	12	1987	22	46.0	1987	331	19	.0	.0	30.7	.0	6.8	.0
Nov	59.2	31.7	45.5	83+	1984	1	54.1	1985	5	1955	30	37.9	1976	586	0	.0	.0	23.8	.1	15.5	.0
Dec	48.8	25.3	37.1	80	1951	31	45.7	1971	-15	1962	13	25.6	1989	868	0	.0	.0	15.5	2.4	23.0	.3
Ann	67.1	41.5	54.4	104	Jul 1952	28	77.5	Jul 1999	-30	Jan 1994	19	18.8	Jan 1977	4766	901	.2	16.7	302.4	9.9	115.8	2.9

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1951-2001

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

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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: MANCHESTER 4 W, KY

COOP ID: 155111

Climate Division: KY 4

NWS Call Sign:

Elevation: 870 Feet Lat: 37°09N

Lon: 83°49W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	4.23	3.89	3.00	1957	29	8.12	1972	.99	1981	10.9	8.2	3.3	1.1	1.47	1.87	2.45	2.94	3.41	3.89	4.42	5.04	5.82	7.04	8.16
Feb	3.65	3.29	3.78	1962	27	7.62	1971	1.22	1980	9.8	7.4	2.4	1.0	1.29	1.63	2.13	2.55	2.95	3.37	3.81	4.34	5.00	6.03	6.98
Mar	4.59	3.79	3.97	1963	12	12.39	1975	1.41	1986	11.0	8.8	3.1	1.2	1.58	2.01	2.65	3.18	3.69	4.22	4.79	5.46	6.32	7.65	8.87
Apr	4.15	3.77	3.02	1970	28	9.61	1998	1.25	1986	10.2	7.8	3.0	1.1	1.33	1.73	2.31	2.81	3.29	3.78	4.33	4.96	5.79	7.06	8.25
May	4.83	5.04	3.21	1971	7	8.21	1973	1.17	1999	10.8	8.6	3.8	1.1	1.88	2.33	2.96	3.49	4.00	4.51	5.06	5.70	6.51	7.76	8.90
Jun	4.72	4.50	3.68	1952	22	9.18	1991	.98	1980	10.0	8.5	3.7	1.2	1.77	2.21	2.85	3.37	3.87	4.39	4.94	5.58	6.40	7.66	8.82
Jul	5.22	5.20	3.31	1996	31	9.77	1992	1.60	1975	10.0	8.3	3.8	1.7	2.11	2.59	3.27	3.83	4.35	4.89	5.47	6.14	6.99	8.28	9.46
Aug	3.77	3.87	2.76	1995	19	8.23	1977	.72	1972	8.2	6.6	2.9	1.1	1.26	1.61	2.14	2.58	3.01	3.45	3.93	4.49	5.22	6.34	7.37
Sep	3.88	3.92	2.85	1988	17	7.93	1975	.00	1978	7.1	5.9	2.8	1.3	.66	1.18	1.84	2.37	2.90	3.44	4.05	4.76	5.69	7.15	8.52
Oct	3.22	3.16	4.10	1989	17	6.50	1977	.19	1987	6.7	5.4	2.2	.9	.71	1.01	1.48	1.91	2.33	2.79	3.30	3.91	4.71	5.99	7.20
Nov	4.24	4.13	3.57	1986	9	9.37	1986	1.14	1976	9.1	7.1	3.0	1.3	1.64	2.04	2.60	3.07	3.51	3.96	4.44	5.01	5.72	6.82	7.83
Dec	4.39	3.86	3.88	1978	9	12.21	1990	1.56	1980	10.2	7.8	3.2	1.3	1.40	1.82	2.44	2.96	3.47	4.00	4.58	5.25	6.12	7.48	8.73
Ann	50.89	50.82	4.10	Oct 1989	17	12.39	Mar 1975	.00	Sep 1978	114.0	90.4	37.2	14.3	37.74	40.33	43.62	46.11	48.31	50.43	52.61	55.01	57.91	62.10	65.70

+ 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: 1951-2001

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

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Station: MANCHESTER 4 W, KY

COOP ID: 155111

Climate Division: KY 4

NWS Call Sign:

Elevation: 870 Feet

Lat: 37°09N

Lon: 83°49W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	5.7	3.8	1	#	9.0	1975	13	16.0	1978	9	1975	13	5	1985	1.5	1.2	.5	.2	.0	2.3	.9	.4	.0
Feb	3.0	1.5	1	#	6.0	1979	7	11.5	1978	8	1985	12	5	1985	1.7	1.2	.5	@	.0	1.9	.8	.2	.0
Mar	1.1	.0	#	0	8.0	1993	13	8.0	1993	6	1980	2	#+	1988	.6	.5	.1	.1	.0	.6	.1	.1	.0
Apr	.3	.0	0	0	4.0	1987	5	8.0	1987	8	1987	5	1	1987	.2	.1	.1	.0	.0	.1	.1	@	.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	4.0	1977	28	6.0	1977	2	1976	12	#+	1997	.2	.2	@	.0	.0	.1	.0	.0	.0
Dec	.8	.0	#	0	5.5	1982	12	6.5	1976	3+	1998	31	#+	1998	.8	.5	.2	@	.0	.5	.1	.0	.0
Ann	11.3	5.3	N/A	N/A	9.0	Jan 1975	13	16.0	Jan 1978	9	Jan 1975	13	5+	Feb 1985	5.0	3.7	1.4	.3	.0	5.5	2.0	.7	.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

Complete documentation available from:

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NWS Call Sign:

Elevation: 870 Feet

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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	5/23	5/17	5/13	5/09	5/06	5/02	4/29	4/24	4/18
32	5/17	5/11	5/06	5/03	4/29	4/26	4/22	4/18	4/12
28	5/01	4/26	4/22	4/19	4/16	4/12	4/09	4/05	3/31
24	4/19	4/13	4/08	4/04	4/01	3/28	3/24	3/20	3/14
20	4/12	4/03	3/28	3/22	3/17	3/12	3/06	2/28	2/19
16	3/21	3/14	3/08	3/04	2/27	2/23	2/18	2/12	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	9/15	9/20	9/24	9/27	10/01	10/04	10/07	10/11	10/16
32	9/25	10/01	10/04	10/08	10/11	10/14	10/17	10/21	10/26
28	10/05	10/11	10/16	10/20	10/24	10/28	11/01	11/06	11/13
24	10/12	10/20	10/25	10/30	11/03	11/08	11/13	11/18	11/26
20	10/26	11/03	11/09	11/14	11/18	11/23	11/28	12/04	12/12
16	11/07	11/15	11/21	11/26	12/01	12/06	12/11	12/17	12/27
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	171	163	157	152	147	142	137	131	123
32	189	180	174	168	163	158	153	147	138
28	219	209	202	196	191	185	179	172	162
24	243	234	227	221	216	211	205	198	189
20	277	266	259	252	246	239	233	225	214
16	319	301	292	285	278	271	264	257	246

* 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	993	793	623	358	139	13	0	3	59	331	586	868	4766
60	838	653	474	224	62	2	0	0	18	211	441	713	3636
57	750	569	389	157	33	0	0	0	8	153	359	627	3045
55	693	515	334	119	20	0	0	0	4	120	306	568	2679
50	549	386	216	50	4	0	0	0	1	57	193	428	1884
32	165	66	13	0	0	0	0	0	0	0	8	89	341

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	196	197	414	635	945	1147	1316	1270	1037	711	413	244	8525
55	10	2	22	64	252	457	603	557	351	117	20	11	2466
57	6	0	14	42	203	397	541	495	294	88	13	7	2100
60	0	0	7	20	139	309	448	402	215	54	5	0	1599
65	0	0	0	3	61	170	293	249	106	19	0	0	901
70	0	0	0	0	18	65	145	116	36	4	0	0	384

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	64	102	256	452	725	928	1082	1045	818	501	240	99	64	166	422	874	1599	2527	3609	4654	5472	5973	6213	6312
45	31	53	152	316	570	778	927	890	668	352	143	48	31	84	236	552	1122	1900	2827	3717	4385	4737	4880	4928
50	9	21	80	198	416	628	772	735	518	221	74	23	9	30	110	308	724	1352	2124	2859	3377	3598	3672	3695
55	0	5	34	108	275	479	617	580	373	115	31	3	0	5	39	147	422	901	1518	2098	2471	2586	2617	2620
60	0	0	6	46	156	332	462	426	242	50	7	0	0	0	6	52	208	540	1002	1428	1670	1720	1727	1727
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	50	92	194	312	471	624	745	710	542	344	178	78	50	142	336	648	1119	1743	2488	3198	3740	4084	4262	4340

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

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| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
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References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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