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: HENDERSON 7 SSW, KY **COOP ID: 153762**

Climate Division: KY 1 **NWS Call Sign:** **Elevation: 430 Feet** **Lat: 37˚46N** **Lon: 87˚38W**

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	41.5	23.6	32.6	78	1943	24	42.7	1990	-20	1994	19	17.7	1977	1005	0	.0	.0	8.1	7.6	22.8	1.2
Feb	47.6	27.3	37.5	80	1962	13	44.8	1976	-15	1951	2	22.4	1978	771	0	.0	.0	12.3	3.9	17.1	.5
Mar	58.3	35.8	47.1	84+	1986	31	53.4	1973	-4	1960	6	40.3	1978	556	0	.0	.0	23.7	.5	11.6	@
Apr	68.7	44.7	56.7	91	1937	17	62.5	1981	22	1990	7	50.4	1983	264	15	.0	.0	29.0	.0	2.7	.0
May	77.4	54.2	65.8	97+	1937	31	72.0	1991	31	1963	1	61.1	1976	98	123	.0	.6	31.0	.0	.0	.0
Jun	85.3	62.8	74.1	107	1936	28	77.0+	1984	41	1956	2	69.3	1974	4	276	.1	6.6	30.0	.0	.0	.0
Jul	88.4	66.7	77.6	113	1936	13	81.6	1980	45	1947	23	75.1	1971	0	389	.2	13.7	31.0	.0	.0	.0
Aug	87.5	64.4	76.0	108+	1936	18	81.3	1980	44	1986	29	71.8	1992	2	341	.3	10.9	31.0	.0	.0	.0
Sep	81.5	57.2	69.4	104+	1954	5	74.6	1998	33+	1942	29	63.8	1974	34	165	.0	4.2	30.0	.0	.0	.0
Oct	71.1	46.1	58.6	96	1953	2	64.5	1971	19	1981	24	52.2	1988	234	34	.0	@	30.6	.0	2.1	.0
Nov	57.2	37.4	47.3	85+	1933	2	53.7	1999	-5	1950	25	38.9	1976	531	1	.0	.0	21.3	.2	9.3	.0
Dec	45.6	28.0	36.8	77+	1982	2	45.2	1984	-15	1989	22	24.8	2000	875	0	.0	.0	11.7	4.1	19.1	.5
Ann	67.5	45.7	56.6	113	Jul 1936	13	81.6	Jul 1980	-20	Jan 1994	19	17.7	Jan 1977	4374	1344	.6	36.0	289.7	16.3	84.7	2.2

\+ 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: 1932-2001

(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	3.00	2.86	5.29	2000	3	6.44	1982	.50	1981
Feb	3.16	2.76	3.57	1945	26	8.47	1989	.42	1983
Mar	4.45	3.86	6.33	1935	11	10.93	1997	1.39	1971
Apr	4.51	3.77	3.91	1948	12	15.36	1983	1.05	1976
May	4.90	4.30	3.25	1957	22	12.03	1995	.99	1994
Jun	4.05	3.75	4.42	1993	9	9.51	1985	.78	1988
Jul	3.77	3.49	5.02	1965	10	10.25	1979	.58	1985
Aug	2.95	2.79	4.32	1942	23	6.08	1974	.43	1983
Sep	3.34	3.23	4.72	1984	24	10.47	1984	.26	1998
Oct	2.80	2.81	3.52	1999	9	5.36	1985	.74	2000
Nov	4.20	3.85	3.06	1996	7	9.18	1985	.79	1999
Dec	3.64	3.34	4.28	1932	30	7.61	1990	.46	1976
Ann	44.77	44.12	6.33	Mar 1935	11	15.36	Apr 1983	.26	Sep 1998

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.6	5.8	2.0	.6
Feb	9.1	5.7	2.1	.7
Mar	12.1	8.4	3.1	.8
Apr	11.7	8.0	3.1	1.1
May	11.4	8.0	3.9	1.4
Jun	9.8	6.8	2.7	1.1
Jul	8.3	6.0	2.5	1.2
Aug	7.0	5.1	1.9	.7
Sep	7.5	5.1	2.0	1.1
Oct	7.6	4.7	2.1	.6
Nov	10.0	6.3	2.9	1.4
Dec	10.5	6.7	2.7	.6
Ann	114.6	76.6	31.0	11.3

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	.78	1.07	1.50	1.88	2.26	2.65	3.09	3.62	4.30	5.37	6.37
Feb	.65	.94	1.41	1.83	2.25	2.71	3.22	3.84	4.65	5.95	7.18
Mar	1.50	1.92	2.53	3.06	3.56	4.07	4.64	5.30	6.14	7.46	8.67
Apr	1.26	1.69	2.34	2.90	3.46	4.03	4.67	5.43	6.41	7.94	9.37
May	1.57	2.04	2.72	3.31	3.88	4.46	5.11	5.86	6.83	8.34	9.74
Jun	1.21	1.59	2.17	2.67	3.15	3.65	4.20	4.86	5.70	7.01	8.24
Jul	1.31	1.67	2.19	2.62	3.04	3.47	3.94	4.48	5.18	6.26	7.25
Aug	.62	.89	1.32	1.72	2.11	2.54	3.02	3.59	4.35	5.55	6.70
Sep	.46	.74	1.22	1.68	2.17	2.70	3.32	4.08	5.10	6.77	8.38
Oct	.95	1.21	1.60	1.93	2.24	2.57	2.92	3.34	3.87	4.69	5.45
Nov	1.24	1.64	2.24	2.76	3.26	3.78	4.36	5.04	5.92	7.30	8.58
Dec	1.05	1.39	1.91	2.37	2.81	3.27	3.78	4.38	5.16	6.38	7.52
Ann	31.67	34.20	37.44	39.90	42.09	44.21	46.40	48.82	51.75	56.01	59.70

\+ 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: 1932-2001
(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	5.2	2.5	1	#	10.0	1994	17	28.5	1978	16	1978	17	7	1978	3.5	1.8	.5	.2	@	5.8	2.6	1.5	.4
Feb	4.4	2.0	1	#	11.0	1985	11	18.0	1993	12	1985	12	4	1985	2.5	1.5	.5	.2	@	5.2	2.8	1.3	.1
Mar	2.1	.9	#	#	8.0	1996	19	11.5	1996	9	1996	20	1	1996	1.1	.6	.3	.1	.0	.8	.4	.1	.0
Apr	.4	.0	#	0	7.0	1971	6	7.0	1971	3	1971	6	#+	1997	.1	.1	@	@	.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	.1	.0	#	0	4.0	1993	30	4.0	1993	2	1993	30	#	1993	@	@	@	.0	.0	@	.0	.0	.0
Nov	.4	.0	#	0	4.0	1977	27	4.0+	1977	2	1977	28	#+	1997	.2	.2	@	.0	.0	.2	.0	.0	.0
Dec	2.1	1.3	#	#	8.0	1984	5	10.0	1984	8	1984	5	1+	2000	1.6	1.1	.2	@	.0	2.2	.3	.1	.0
Ann	14.7	6.7	N/A	N/A	11.0	Feb 1985	11	28.5	Jan 1978	16	Jan 1978	17	7	Jan 1978	9.0	5.3	1.5	.5	@	14.2	6.1	3.0	.5

+ 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	5/06	5/01	4/28	4/24	4/21	4/18	4/15	4/11	4/06
32	4/20	4/16	4/14	4/11	4/09	4/07	4/05	4/02	3/29
28	4/15	4/10	4/06	4/03	3/31	3/28	3/25	3/21	3/16
24	4/01	3/27	3/24	3/21	3/18	3/15	3/12	3/09	3/04
20	3/20	3/13	3/09	3/04	3/01	2/25	2/21	2/16	2/10
16	3/10	3/02	2/24	2/19	2/14	2/09	2/04	1/30	1/22

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	9/28	10/02	10/05	10/08	10/11	10/13	10/16	10/19	10/23
32	10/07	10/13	10/17	10/21	10/24	10/28	10/31	11/04	11/10
28	10/17	10/23	10/27	10/30	11/03	11/06	11/10	11/14	11/19
24	10/31	11/07	11/11	11/15	11/18	11/22	11/26	11/30	12/06
20	11/06	11/14	11/20	11/25	11/29	12/04	12/09	12/15	12/23
16	11/20	11/28	12/03	12/08	12/12	12/16	12/21	12/26	1/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	189	183	179	175	171	168	164	160	154
32	215	209	204	201	197	194	190	186	180
28	239	231	225	220	216	211	207	201	193
24	267	259	254	249	245	240	235	230	222
20	300	291	284	278	273	267	262	255	246
16	328	318	311	306	300	295	289	282	273

***** 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	1005	771	556	264	98	4	0	2	34	234	531	875	4374
60	850	636	412	150	41	0	0	0	8	132	390	722	3341
57	766	558	329	97	21	0	0	0	3	86	310	637	2807
55	707	506	279	68	13	0	0	0	1	62	262	579	2477
50	564	383	174	22	3	0	0	0	0	22	159	440	1767
32	179	87	10	0	0	0	0	0	0	0	7	104	387

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	197	240	477	741	1048	1263	1412	1362	1120	823	467	252	9402
55	12	15	33	119	348	573	699	649	431	172	31	14	3096
57	9	11	21	87	295	513	637	587	373	134	20	10	2697
60	0	5	11	50	221	423	544	494	288	87	10	2	2135
65	0	0	0	15	123	276	389	341	165	34	1	0	1344
70	0	0	0	3	55	144	235	199	74	9	0	0	719

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	65	119	291	530	827	1047	1187	1136	904	599	278	102	65	184	475	1005	1832	2879	4066	5202	6106	6705	6983	7085
45	32	66	186	389	672	897	1032	981	754	450	180	53	32	98	284	673	1345	2242	3274	4255	5009	5459	5639	5692
50	7	31	103	263	517	747	877	826	604	308	102	25	7	38	141	404	921	1668	2545	3371	3975	4283	4385	4410
55	1	7	51	157	366	597	722	671	454	188	48	7	1	8	59	216	582	1179	1901	2572	3026	3214	3262	3269
60	0	1	21	80	227	447	567	516	315	100	18	0	0	1	22	102	329	776	1343	1859	2174	2274	2292	2292
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	36	70	175	326	536	719	828	785	601	379	153	51	36	106	281	607	1143	1862	2690	3475	4076	4455	4608	4659

(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