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: CINCINNATI COVINGTON AP, KY **COOP ID: 151855**

Climate Division: KY 3 **NWS Call Sign: CVG** **Elevation: 869 Feet** **Lat: 39˚03N** **Lon: 84˚40W**

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	38.0	21.3	29.7	74	1950	25	40.0	1990	-25	1977	18	13.3	1977	1110	0	.0	.0	6.1	11.0	26.1	2.7
Feb	43.1	25.0	34.1	75	2000	25	43.1	1976	-15	1951	2	19.5	1978	881	0	.0	.0	8.5	7.2	21.1	1.2
Mar	53.9	33.8	43.9	84	1986	31	52.1	1973	-11	1980	3	35.1	1984	670	3	.0	.0	18.2	1.2	15.6	.1
Apr	64.7	42.7	53.7	89	1976	20	59.7	1981	15	1997	9	48.1	1997	368	13	.0	.0	26.6	.0	4.7	.0
May	74.4	52.9	63.7	93	1962	18	70.4	1991	27	1963	1	57.2	1997	130	73	.0	.3	30.9	.0	.3	.0
Jun	82.4	61.6	72.0	102	1988	25	77.4	1971	39	1972	11	66.9	1972	19	215	@	3.5	30.0	.0	.0	.0
Jul	86.4	66.1	76.3	103+	1988	9	79.9	1983	47	1963	11	72.1	1996	1	335	.3	7.6	31.0	.0	.0	.0
Aug	84.8	64.2	74.5	102	1962	20	79.5	1995	43+	1986	29	69.6	1992	3	282	.1	5.1	31.0	.0	.0	.0
Sep	78.0	56.8	67.4	102+	1953	2	72.0	1978	31	1993	30	62.8	1974	68	126	.0	1.5	30.0	.0	@	.0
Oct	66.4	44.9	55.7	89+	1953	2	62.6	1971	16	1962	27	48.5	1988	319	16	.0	.0	29.4	.0	3.3	.0
Nov	53.6	35.7	44.7	81+	1987	2	50.4	1985	0	1950	25	36.2	1976	626	1	.0	.0	17.5	.5	12.8	.0
Dec	42.7	26.4	34.6	75+	1982	3	43.6	1982	-20	1989	22	21.6	1989	953	0	.0	.0	8.2	6.4	21.7	1.1
Ann	64.0	44.3	54.2	103+	Jul 1988	9	79.9	Jul 1983	-25	Jan 1977	18	13.3	Jan 1977	5148	1064	.4	18.0	267.4	26.3	105.6	5.1

\+ 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	2.92	2.92	3.97	1959	21	7.17	1982	.57	1981
Feb	2.75	2.31	2.84	1990	15	5.89	1971	.25	1978
Mar	3.90	3.61	5.21	1964	9	6.90	1985	1.72	1981
Apr	3.96	4.04	2.41	1996	29	9.77	1998	1.04	1971
May	4.59	4.60	3.02	1961	7	9.41	1990	1.53	1977
Jun	4.42	4.47	3.35	1974	22	9.61	1998	1.19	1988
Jul	3.75	3.56	3.93	1962	15	7.16	1973	.63	1997
Aug	3.79	3.62	3.52	1995	5	7.71	1982	.76	1996
Sep	2.82	2.62	3.19	1950	2	8.61	1979	.43	1978
Oct	2.96	2.58	4.30	1985	20	8.60	1983	.99	1982
Nov	3.46	3.01	3.28	1948	5	7.51	1985	.83	1976
Dec	3.28	3.05	2.47	1998	21	7.90	1990	.51	1976
Ann	42.60	42.36	5.21	Mar 1964	9	9.77	Apr 1998	.25	Feb 1978

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.6	6.4	1.8	.5
Feb	11.7	5.8	1.4	.6
Mar	12.9	8.5	2.6	.7
Apr	12.5	8.2	2.7	.8
May	11.8	8.2	3.3	1.1
Jun	11.5	7.4	2.9	1.2
Jul	10.2	6.9	2.4	1.0
Aug	9.7	6.7	2.6	1.0
Sep	8.4	5.1	2.0	.7
Oct	8.5	5.4	2.1	.6
Nov	10.9	6.8	2.7	.6
Dec	12.2	6.5	2.4	.6
Ann	132.9	81.9	28.9	9.4

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	.90	1.17	1.59	1.94	2.28	2.64	3.03	3.50	4.09	5.02	5.88
Feb	.66	.92	1.32	1.68	2.03	2.41	2.83	3.33	3.99	5.03	6.00
Mar	1.62	1.97	2.47	2.89	3.27	3.67	4.09	4.58	5.19	6.13	6.98
Apr	1.22	1.59	2.15	2.64	3.10	3.59	4.12	4.75	5.55	6.82	7.98
May	1.57	2.00	2.64	3.17	3.68	4.21	4.79	5.46	6.32	7.66	8.89
Jun	1.52	1.94	2.55	3.07	3.56	4.07	4.62	5.26	6.09	7.37	8.55
Jul	1.13	1.49	2.02	2.48	2.93	3.39	3.90	4.50	5.28	6.49	7.62
Aug	1.53	1.88	2.37	2.78	3.16	3.55	3.97	4.45	5.06	6.00	6.86
Sep	.44	.68	1.09	1.48	1.88	2.32	2.83	3.45	4.28	5.63	6.92
Oct	.83	1.11	1.54	1.91	2.27	2.65	3.07	3.57	4.21	5.22	6.17
Nov	1.28	1.60	2.07	2.46	2.83	3.21	3.62	4.10	4.71	5.65	6.52
Dec	1.17	1.48	1.93	2.30	2.66	3.03	3.43	3.89	4.49	5.41	6.25
Ann	31.91	34.02	36.71	38.73	40.52	42.24	44.00	45.95	48.29	51.68	54.59

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	7.8	4.2	1	0
Feb	6.0	4.1	1	1
Mar	3.8	3.5	#	0
Apr	.6	.0	#	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.4	.0	#	0
Nov	1.3	.6	#	0
Dec	3.6	2.3	#	0
Ann	23.5	14.7	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	11.6	1996	7	31.5	1978	14+	1996	8	8	1977
Feb	11.8	1998	4	19.9	1993	14	1998	6	5	1978
Mar	7.6	1987	30	9.7	1971	11+	1980	3	1+	1980
Apr	3.0	1977	6	3.7	1977	5	1987	1	#	1996
May	.2	1989	6	.2	1989	#	1989	7	#	2000
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	5.9	1993	30	6.2	1993	4+	1993	31	#	1993
Nov	5.0	1974	30	6.5	1972	3	1977	28	#	1993
Dec	7.5	1990	27	15.0	1981	8	1990	28	2	1989
Ann	11.8	Feb 1998	4	31.5	Jan 1978	14+	Feb 1998	6	8	Jan 1977

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	7.2	2.4	.8	.2	@
Feb	5.4	1.9	.5	.2	@
Mar	2.8	1.1	.4	.2	.0
Apr	.7	.3	@	.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	.1	.1	.1	.0
Nov	1.4	.4	.1	@	.0
Dec	4.3	1.1	.2	.1	.0
Ann	21.9	7.3	2.1	.8	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	8.3	4.6	2.6	1.0
Feb	7.5	4.4	2.5	.1
Mar	2.5	1.1	.4	.1
Apr	.1	@	@	.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	.1	.0	.0
Nov	.4	@	.0	.0
Dec	3.5	1.1	.5	.0
Ann	22.4	11.3	6.0	1.2

+ 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	5/15	5/10	5/07	5/04	5/01	4/28	4/25	4/22	4/17
32	5/06	5/01	4/27	4/23	4/20	4/17	4/13	4/09	4/04
28	4/18	4/14	4/11	4/09	4/07	4/04	4/02	3/30	3/26
24	4/15	4/10	4/07	4/04	4/01	3/29	3/26	3/23	3/18
20	4/01	3/26	3/22	3/18	3/15	3/12	3/08	3/04	2/26
16	3/24	3/17	3/13	3/08	3/05	3/01	2/25	2/20	2/13

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	9/25	9/29	10/02	10/05	10/07	10/10	10/13	10/16	10/20
32	10/05	10/09	10/12	10/15	10/17	10/20	10/23	10/26	10/30
28	10/14	10/19	10/23	10/27	10/30	11/02	11/05	11/09	11/15
24	10/23	10/29	11/02	11/06	11/09	11/13	11/16	11/20	11/26
20	11/03	11/10	11/15	11/20	11/24	11/28	12/02	12/07	12/14
16	11/13	11/20	11/26	11/30	12/05	12/09	12/13	12/19	12/26

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	177	171	166	162	159	155	151	147	141
32	199	192	188	184	180	176	172	167	161
28	224	218	213	209	206	202	198	193	187
24	241	234	230	225	222	218	213	209	202
20	279	270	263	258	253	248	242	236	227
16	303	293	286	280	274	269	263	255	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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1110	881	670	368	130	19	1	3	68	319	626	953	5148
60	942	727	509	214	69	3	0	0	17	197	465	790	3933
57	849	646	422	148	40	1	0	0	7	140	383	707	3343
55	796	595	367	111	26	0	0	0	4	109	330	649	2987
50	649	466	246	45	8	0	0	0	0	51	213	508	2186
32	233	128	23	0	0	0	0	0	0	0	14	147	545

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	111	159	371	630	959	1180	1353	1299	1046	716	375	173	8372
55	2	3	30	89	268	491	640	586	362	113	26	5	2615
57	1	1	21	67	219	431	578	524	308	84	17	3	2254
60	0	0	12	40	154	344	485	431	231	50	7	1	1755
65	0	0	3	13	73	215	335	282	126	16	1	0	1064
70	0	0	0	2	23	98	185	141	52	3	0	0	504

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	37	68	197	407	720	948	1111	1057	814	483	200	69	37	105	302	709	1429	2377	3488	4545	5359	5842	6042	6111
45	12	32	117	279	565	798	956	902	664	339	120	34	12	44	161	440	1005	1803	2759	3661	4325	4664	4784	4818
50	2	13	66	172	414	648	801	747	514	213	65	14	2	15	81	253	667	1315	2116	2863	3377	3590	3655	3669
55	0	2	34	93	272	498	646	592	370	120	24	3	0	2	36	129	401	899	1545	2137	2507	2627	2651	2654
60	0	0	8	43	161	353	491	437	241	54	5	0	0	0	8	51	212	565	1056	1493	1734	1788	1793	1793
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	24	40	119	246	448	638	773	728	527	288	108	36	24	64	183	429	877	1515	2288	3016	3543	3831	3939	3975

(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