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: CAMBRIDGE, OH **COOP ID: 331197**

Climate Division: OH10 **NWS Call Sign:** **Elevation: 800 Feet** **Lat: 40˚01N** **Lon: 81˚35W**

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	37.9	20.3	29.1	71	1999	22	38.3	1990	-32	1994	19	14.9	1977	1114	0	.0	.0	5.0	10.2	26.4	2.5
Feb	42.5	22.7	32.6	76	2000	26	40.3	1998	-16	1977	8	20.1	1978	907	0	.0	.0	7.8	6.9	22.1	1.6
Mar	53.4	30.8	42.1	83+	1998	31	49.6	1973	-3	1993	15	34.5	1984	711	0	.0	.0	17.7	1.2	18.6	.1
Apr	64.9	39.3	52.1	90	1990	27	57.0	1985	8	1964	1	47.3	1975	389	2	.0	@	27.2	@	8.0	.0
May	74.5	49.0	61.8	92	1991	29	69.3	1991	23	1966	10	57.5	1997	161	61	.0	.3	31.0	.0	1.2	.0
Jun	81.8	57.8	69.8	99	1971	28	72.8	1991	30	1972	11	64.2	1972	22	166	.0	2.5	30.0	.0	@	.0
Jul	85.0	62.2	73.6	102	1988	16	78.2	1999	42	1988	1	70.7	1971	1	268	.1	6.2	31.0	.0	.0	.0
Aug	83.3	60.9	72.1	99	1988	17	77.1	1995	37+	1986	29	68.2	1976	10	229	.0	3.5	31.0	.0	.0	.0
Sep	76.8	53.9	65.4	96+	1983	10	69.3	1998	32+	1991	27	61.4	1974	67	77	.0	1.0	30.0	.0	.1	.0
Oct	65.9	41.9	53.9	87	1969	13	60.1	1971	18+	1969	24	47.2	1988	356	10	.0	.0	29.7	.0	5.3	.0
Nov	53.3	33.8	43.6	79+	1982	2	49.1	1985	0	1976	30	35.4	1976	644	0	.0	.0	17.8	.5	14.7	@
Dec	42.3	25.4	33.9	77	1982	3	41.8	1982	-17+	1989	24	19.6	1989	966	0	.0	.0	8.0	6.1	23.0	.7
Ann	63.5	41.5	52.5	102	Jul 1988	16	78.2	Jul 1999	-32	Jan 1994	19	14.9	Jan 1977	5348	813	.1	13.5	266.2	24.9	119.4	4.9

\+ 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

(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	2.73	2.46	2.17	1998	8	7.15	1999	.72	1981
Feb	2.30	2.12	2.08	1965	25	4.65	1981	.36	1978
Mar	3.01	3.02	3.71	1964	10	5.29	1980	1.15	1996
Apr	3.34	3.20	2.29	1993	26	6.62	1983	.63	1971
May	3.95	3.77	2.57	1974	18	8.58	1990	1.42	1976
Jun	4.03	3.41	4.97	1998	28	15.40	1998	.69	1991
Jul	4.25	3.84	3.74	1950	5	9.02	1980	1.48	1978
Aug	3.93	3.32	5.45	1980	11	11.39	1980	.38	1993
Sep	2.99	2.62	2.44	1965	1	5.86	1990	.15	1978
Oct	2.56	2.16	2.37	1998	8	6.50	1983	.56	1991
Nov	3.24	2.94	2.32	1985	27	14.29	1985	.45	1976
Dec	2.83	2.49	1.68	1971	7	6.97	1990	1.18	1976
Ann	39.16	38.52	5.45	Aug 1980	11	15.40	Jun 1998	.15	Sep 1978

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.3	6.6	1.6	.3
Feb	10.7	5.7	1.3	.3
Mar	12.5	7.8	1.8	.3
Apr	13.1	7.2	2.2	.5
May	13.0	8.0	2.9	.7
Jun	11.1	7.6	2.8	.8
Jul	11.0	7.6	2.8	1.0
Aug	9.8	6.6	2.6	1.1
Sep	9.6	5.6	2.2	.7
Oct	10.5	5.8	1.5	.4
Nov	12.3	7.2	2.0	.6
Dec	12.7	6.4	1.7	.3
Ann	139.6	82.1	25.4	7.0

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	.91	1.17	1.55	1.87	2.18	2.50	2.85	3.25	3.77	4.58	5.33
Feb	.58	.80	1.13	1.43	1.72	2.03	2.37	2.78	3.31	4.15	4.94
Mar	1.31	1.58	1.96	2.26	2.55	2.84	3.16	3.51	3.97	4.65	5.28
Apr	1.10	1.42	1.88	2.28	2.66	3.05	3.48	3.98	4.63	5.63	6.55
May	1.48	1.85	2.38	2.82	3.24	3.67	4.14	4.68	5.36	6.42	7.38
Jun	.92	1.30	1.89	2.42	2.94	3.51	4.14	4.89	5.88	7.45	8.93
Jul	1.31	1.71	2.31	2.83	3.33	3.85	4.42	5.09	5.96	7.31	8.56
Aug	.85	1.21	1.79	2.31	2.84	3.39	4.02	4.77	5.76	7.35	8.84
Sep	.79	1.07	1.51	1.89	2.26	2.66	3.09	3.61	4.28	5.35	6.34
Oct	.71	.96	1.33	1.65	1.96	2.29	2.66	3.09	3.65	4.52	5.34
Nov	.79	1.09	1.57	1.99	2.40	2.84	3.33	3.92	4.68	5.89	7.03
Dec	1.12	1.38	1.75	2.06	2.35	2.64	2.96	3.33	3.80	4.51	5.17
Ann	29.15	31.12	33.63	35.52	37.19	38.80	40.45	42.27	44.47	47.65	50.38

\+ 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)

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	6.9	5.4	2	1	9.0	1978	9	32.3	1978	18	1978	22	8	1977	4.5	3.3	1.0	.2	.0	9.6	6.0	3.2	.9
Feb	4.1	3.3	1	#	5.5	1971	9	13.9	1979	14	1979	20	9	1979	2.7	2.0	.4	.1	.0	6.9	4.4	2.4	.3
Mar	2.7	2.0	#	#	8.3	1993	14	9.3	1993	9	1993	15	2	1978	1.5	1.1	.2	@	.0	2.0	1.0	.5	.0
Apr	.7	#	#	0	9.7	1987	4	13.7	1987	10	1987	5	1	1987	.1	.1	.1	@	.0	.2	.1	.1	.1
May	#	.0	#	0	#	1989	8	#	1989	#	1989	7	#	1989	.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	#	1993	31	#+	1993	#	1980	26	#	1980	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.8	#	#	#	4.8	1980	18	5.5	1980	5	1980	18	1	1980	.5	.3	.1	.0	.0	.4	.2	@	.0
Dec	2.8	1.8	#	#	6.0	1984	6	9.5	1989	6	1989	26	3	1989	2.0	1.2	.2	@	.0	3.5	1.2	.3	.0
Ann	18.0	12.5	N/A	N/A	9.7	Apr 1987	4	32.3	Jan 1978	18	Jan 1978	22	9	Feb 1979	11.3	8.0	2.0	.3	.0	22.6	12.9	6.5	1.3

+ 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	5/29	5/24	5/20	5/16	5/13	5/10	5/07	5/03	4/27
32	5/22	5/16	5/11	5/07	5/04	4/30	4/26	4/22	4/16
28	4/27	4/23	4/21	4/18	4/16	4/14	4/11	4/09	4/05
24	4/21	4/15	4/12	4/09	4/06	4/03	3/31	3/27	3/22
20	4/08	4/03	3/31	3/28	3/26	3/23	3/20	3/17	3/12
16	3/29	3/23	3/18	3/14	3/10	3/07	3/03	2/26	2/19

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	9/21	9/25	9/28	9/30	10/02	10/04	10/06	10/09	10/13
32	9/30	10/04	10/07	10/09	10/11	10/13	10/16	10/19	10/23
28	10/09	10/14	10/18	10/22	10/25	10/28	11/01	11/05	11/10
24	10/20	10/26	10/30	11/02	11/05	11/09	11/12	11/16	11/22
20	11/02	11/08	11/13	11/17	11/20	11/24	11/28	12/03	12/09
16	11/13	11/20	11/24	11/28	12/02	12/06	12/10	12/14	12/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	159	153	148	145	141	137	133	129	123
32	180	173	168	164	160	156	152	147	140
28	211	204	200	195	191	187	183	178	171
24	238	230	223	218	213	208	203	196	188
20	265	256	249	244	239	234	229	222	213
16	289	281	275	270	266	261	257	251	243

***** 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	1114	907	711	389	161	22	1	10	67	356	644	966	5348
60	959	767	557	250	79	4	0	0	20	227	495	811	4169
57	866	683	471	178	45	1	0	0	7	164	409	721	3545
55	804	627	413	136	29	0	0	0	4	128	355	665	3161
50	661	497	281	58	8	0	0	0	0	60	229	520	2314
32	227	133	28	0	0	0	0	0	0	0	13	143	544

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	137	150	340	603	923	1134	1290	1243	1000	677	358	200	8055
55	0	1	12	49	239	444	577	530	314	92	10	9	2277
57	0	0	8	31	193	385	515	468	258	66	5	3	1932
60	0	0	1	14	134	298	422	375	180	37	1	0	1462
65	0	0	0	2	61	166	268	229	77	10	0	0	813
70	0	0	0	0	20	69	131	111	21	1	0	0	353

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	35	54	172	381	681	902	1049	1010	774	446	179	57	35	89	261	642	1323	2225	3274	4284	5058	5504	5683	5740
45	11	22	100	257	528	752	894	855	624	301	100	28	11	33	133	390	918	1670	2564	3419	4043	4344	4444	4472
50	2	3	54	155	377	602	739	700	474	181	52	9	2	5	59	214	591	1193	1932	2632	3106	3287	3339	3348
55	0	0	27	84	238	454	584	545	332	96	17	1	0	0	27	111	349	803	1387	1932	2264	2360	2377	2378
60	0	0	6	37	132	306	430	391	203	39	3	0	0	0	6	43	175	481	911	1302	1505	1544	1547	1547
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	21	37	121	251	433	602	717	683	499	278	108	34	21	58	179	430	863	1465	2182	2865	3364	3642	3750	3784

(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