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: ATHENS 2 N, OH **COOP ID: 330279**

Climate Division: OH10 **NWS Call Sign:** **Elevation: 650 Feet** **Lat: 39˚22N** **Lon: 82˚06W**

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	38.9	17.7	28.3	77	1950	25	37.9	1998	-24	1984	21	14.4	1977	1137	0	.0	.0	5.5	9.8	28.0	3.2
Feb	43.5	19.5	31.5	78	1997	22	39.4	1998	-14	1985	3	17.3	1978	938	0	.0	.0	7.1	2.4	24.1	2.2
Mar	54.1	27.3	40.7	86	1986	31	48.6	1973	0+	1986	9	33.7	1996	754	0	.0	.0	18.4	1.2	21.5	.3
Apr	65.0	36.0	50.5	91+	1990	28	55.9	1985	12	1989	11	45.0	1975	437	2	.0	.1	26.4	@	11.3	.0
May	74.6	46.7	60.7	93	1991	26	69.8	1991	26	1983	9	56.2+	1997	192	58	.0	.6	31.0	.0	1.7	.0
Jun	82.4	55.5	69.0	102	1988	26	73.2	1991	33	1988	11	64.2	1972	27	146	@	2.5	30.0	.0	@	.0
Jul	85.6	59.7	72.7	104	1988	9	76.6	1986	35	1988	1	69.3	1984	5	241	.2	5.5	31.0	.0	.0	.0
Aug	84.1	56.8	70.5	103	1988	18	75.9	1995	36+	1982	30	65.8	1982	20	189	.1	3.5	31.0	.0	.0	.0
Sep	77.8	50.1	64.0	97+	1998	15	68.4	1986	24	1989	28	60.6	1975	93	61	.0	1.0	30.0	.0	.8	.0
Oct	66.8	38.1	52.5	90+	1949	9	59.3	1971	18	1987	26	46.7	1988	399	8	.0	.0	29.9	.0	9.1	.0
Nov	54.5	29.5	42.0	83	1948	5	48.5	1985	5	1991	5	34.6	1976	691	0	.0	.0	17.8	.3	18.0	@
Dec	43.5	22.1	32.8	80	1982	4	39.8	1984	-26	1989	22	17.3	1989	997	0	.0	.0	9.0	5.2	27.5	.8
Ann	64.2	38.3	51.3	104	Jul 1988	9	76.6	Jul 1986	-26	Dec 1989	22	14.4	Jan 1977	5690	705	.3	13.2	267.1	18.9	142.0	6.5

\+ 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	2.71	2.42	2.24	1951	15	5.41	1978	.62	1981
Feb	2.72	2.57	2.72	2000	19	5.49	1989	.50	1978
Mar	3.29	3.06	4.23	1963	5	5.78	1982	1.12	1979
Apr	3.03	2.87	1.58	1970	2	6.06	1973	.61	1997
May	4.06	3.91	3.85	1968	24	8.78	1990	1.37	1991
Jun	3.83	3.72	3.70	1974	23	8.60	1974	.82	1984
Jul	4.25	4.02	4.48	1981	14	7.78	1976	.65	1974
Aug	4.02	3.26	2.96	1949	4	10.24	1974	1.27	1981
Sep	2.96	2.53	3.15	1966	21	6.69	1975	.67	1985
Oct	2.56	2.49	2.49	1975	18	6.19	1983	.39	1982
Nov	3.09	2.73	2.06	1999	3	7.71	1985	.66	1976
Dec	3.08	2.66	3.76	1991	3	7.46	1990	1.39	1976
Ann	39.60	38.15	4.48	Jul 1981	14	10.24	Aug 1974	.39	Oct 1982

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.1	6.7	1.6	.2
Feb	10.9	6.0	1.6	.4
Mar	12.7	7.4	2.4	.5
Apr	12.4	7.5	2.0	.6
May	12.8	8.5	2.9	.6
Jun	11.3	7.2	2.8	.8
Jul	11.6	7.8	3.1	1.1
Aug	10.4	6.6	2.7	1.2
Sep	8.7	5.5	1.9	.7
Oct	9.5	5.7	1.5	.4
Nov	11.7	7.3	2.1	.4
Dec	12.4	7.1	1.7	.4
Ann	137.5	83.3	26.3	7.3

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	.90	1.16	1.53	1.85	2.16	2.48	2.82	3.23	3.75	4.55	5.30
Feb	.72	.98	1.37	1.72	2.06	2.41	2.81	3.28	3.89	4.84	5.74
Mar	1.27	1.58	2.01	2.37	2.72	3.07	3.45	3.89	4.44	5.30	6.08
Apr	1.01	1.29	1.72	2.07	2.42	2.77	3.16	3.61	4.20	5.10	5.94
May	1.41	1.79	2.35	2.82	3.27	3.74	4.24	4.83	5.59	6.76	7.84
Jun	1.30	1.66	2.19	2.63	3.06	3.51	3.99	4.56	5.28	6.41	7.44
Jul	1.45	1.85	2.44	2.93	3.41	3.90	4.43	5.05	5.85	7.09	8.23
Aug	1.27	1.65	2.21	2.70	3.17	3.65	4.18	4.81	5.61	6.87	8.03
Sep	.88	1.16	1.58	1.94	2.30	2.67	3.07	3.55	4.17	5.14	6.03
Oct	.64	.88	1.26	1.59	1.91	2.26	2.64	3.10	3.69	4.63	5.51
Nov	1.03	1.32	1.75	2.11	2.46	2.82	3.22	3.68	4.27	5.19	6.03
Dec	1.22	1.50	1.91	2.24	2.56	2.88	3.23	3.63	4.14	4.92	5.63
Ann	29.76	31.70	34.17	36.03	37.67	39.25	40.87	42.65	44.80	47.90	50.57

+ 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

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	8.3	4.5	1	#
Feb	7.5	4.3	2	#
Mar	3.0	2.8	#	#
Apr	.9	.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	.9	.0	#	#
Dec	2.6	1.0	#	#
Ann	23.2	12.6	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	8.0	1978	20	34.0	1978	21	1978	21	8	1978
Feb	10.0	1985	13	25.0+	1985	16	1979	19	8	1979
Mar	6.5	1999	15	10.5	1999	10	1980	2	3	1978
Apr	9.0	1987	5	17.5	1987	17	1987	5	1	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	#	1980	26	#+	1980	0	0	0	0	0
Nov	4.0	1984	19	5.0	1987	3	1996	21	3	1996
Dec	6.0	1984	6	13.0	1989	6	1984	7	2	1989
Ann	10.0	Feb 1985	13	34.0	Jan 1978	21	Jan 1978	21	8+	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.4	3.1	1.0	.2	.0
Feb	2.8	2.0	.8	.4	@
Mar	1.6	1.1	.4	.1	.0
Apr	.2	.2	.1	.1	.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	.6	.4	.1	.0	.0
Dec	1.8	1.1	.2	.1	.0
Ann	11.4	7.9	2.6	.9	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	9.2	5.9	3.7	.8
Feb	7.2	5.3	3.8	.8
Mar	2.3	1.1	.7	@
Apr	.2	.2	.1	@
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	.7	@	.0	.0
Dec	2.9	1.0	.2	.0
Ann	22.5	13.5	8.5	1.6

+ 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	6/05	5/29	5/24	5/20	5/16	5/12	5/08	5/03	4/26
32	5/21	5/16	5/12	5/09	5/06	5/03	4/30	4/26	4/21
28	5/06	5/01	4/27	4/24	4/22	4/19	4/16	4/12	4/07
24	4/20	4/16	4/13	4/10	4/07	4/05	4/02	3/30	3/25
20	4/14	4/08	4/04	3/31	3/28	3/25	3/21	3/17	3/11
16	4/06	3/29	3/23	3/19	3/14	3/10	3/05	2/27	2/20

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	9/12	9/17	9/21	9/23	9/26	9/29	10/02	10/05	10/10
32	9/20	9/26	9/29	10/02	10/05	10/08	10/12	10/15	10/20
28	9/30	10/06	10/10	10/13	10/16	10/19	10/23	10/27	11/01
24	10/13	10/19	10/23	10/27	10/31	11/03	11/07	11/11	11/17
20	10/26	11/01	11/05	11/09	11/13	11/16	11/20	11/25	12/01
16	11/02	11/11	11/17	11/22	11/27	12/01	12/06	12/12	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	158	149	143	137	132	127	122	116	107
32	175	167	161	156	152	147	142	136	128
28	199	192	186	181	177	172	168	162	155
24	230	222	216	210	206	201	196	190	181
20	255	246	240	234	229	224	219	212	203
16	287	277	269	263	257	250	244	236	226

***** 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	1137	938	754	437	192	27	5	20	93	399	691	997	5690
60	982	798	599	296	104	5	0	3	32	265	541	842	4467
57	889	714	513	220	66	2	0	0	14	197	452	749	3816
55	827	660	455	175	46	1	0	0	7	158	394	694	3417
50	683	530	320	86	15	0	0	0	1	80	261	549	2525
32	239	158	42	0	0	0	0	0	0	0	15	158	612

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	124	144	311	555	888	1109	1259	1192	959	633	315	183	7672
55	0	2	12	40	221	420	546	479	276	77	4	6	2083
57	0	0	8	25	179	361	484	417	223	55	2	0	1754
60	0	0	0	11	125	274	391	327	151	30	0	0	1309
65	0	0	0	2	58	146	241	189	61	8	0	0	705
70	0	0	0	0	20	56	113	88	15	1	0	0	293

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	30	34	146	342	647	883	1030	941	739	403	168	37	30	64	210	552	1199	2082	3112	4053	4792	5195	5363	5400
45	10	17	84	220	492	733	875	786	589	262	92	17	10	27	111	331	823	1556	2431	3217	3806	4068	4160	4177
50	3	0	41	131	340	583	720	631	440	153	47	6	3	3	44	175	515	1098	1818	2449	2889	3042	3089	3095
55	0	0	21	70	208	434	565	476	298	72	17	0	0	0	21	91	299	733	1298	1774	2072	2144	2161	2161
60	0	0	3	30	103	287	410	322	174	25	3	0	0	0	3	33	136	423	833	1155	1329	1354	1357	1357
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	23	28	119	240	423	585	702	627	477	279	115	36	23	51	170	410	833	1418	2120	2747	3224	3503	3618	3654

(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