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: URBANA WWTP, OH **COOP ID: 338552**

Climate Division: OH 4 **NWS Call Sign:** **Elevation: 1,000 Feet** **Lat: 40˚06N** **Lon: 83˚47W**

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	33.6	17.8	25.7	71	1950	25	35.8	1998	-26	1985	20	9.7	1977	1218	0	.0	.0	3.0	13.8	28.1	4.0
Feb	37.8	20.1	29.0	71+	2000	27	38.6	1998	-19	1951	2	14.9	1978	1009	0	.0	.0	5.2	10.0	24.1	2.7
Mar	48.7	29.1	38.9	82+	1939	24	46.5	1973	-11	1967	1	30.2	1984	808	0	.0	.0	13.8	3.0	20.9	.3
Apr	60.7	38.1	49.4	88	1942	30	54.6	1985	11	1964	1	44.0	1975	470	1	.0	.0	24.5	.1	8.6	.0
May	72.0	49.2	60.6	94	1962	19	67.4	1991	25+	1966	10	55.1	1997	205	68	.0	.4	30.7	.0	.7	.0
Jun	80.9	58.5	69.7	99+	1994	21	73.4	1994	35	1954	5	63.7	1992	32	173	.0	2.9	30.0	.0	.0	.0
Jul	84.7	62.1	73.4	110	1936	14	77.5	1999	41	1947	20	70.3	1979	1	262	@	5.9	31.0	.0	.0	.0
Aug	82.8	59.6	71.2	102	1936	19	76.9	1995	36	1965	29	67.8	1976	16	208	@	3.3	31.0	.0	.0	.0
Sep	76.1	52.2	64.2	100	1953	2	67.9	1998	28+	1983	25	59.0	1975	89	65	.0	1.1	30.0	.0	.3	.0
Oct	63.5	41.4	52.5	90	1951	4	59.7	1971	17+	1964	11	46.8	1988	396	6	.0	.0	28.4	.0	6.2	.0
Nov	50.2	33.0	41.6	79	1950	1	46.4	1975	-10	1958	30	34.1	1976	702	0	.0	.0	15.3	1.1	16.7	.0
Dec	38.5	23.6	31.1	72	1982	4	39.6	1982	-22	1989	22	17.2	1989	1052	0	.0	.0	5.3	8.4	25.4	1.3
Ann	60.8	40.4	50.6	110	Jul 1936	14	77.5	Jul 1999	-26	Jan 1985	20	9.7	Jan 1977	5998	783	.0	13.6	248.2	36.4	131.0	8.3

\+ 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: 1936-2001

(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	2.38	2.10	3.48	1959	21	5.28	1982	.65	1984
Feb	2.09	2.01	2.13	1959	10	4.16+	1999	.13	1987
Mar	2.84	2.88	2.52	1964	10	4.83	1982	.85	1981
Apr	3.49	3.46	2.70	2000	7	6.88	1996	1.05	1971
May	4.34	3.91	2.47	1990	5	9.30	1981	1.35	1988
Jun	4.44	4.37	3.75	1973	20	8.83	1973	1.07	1988
Jul	5.04	4.39	4.37	1946	20	13.61	1992	.41	1982
Aug	3.69	3.50	3.00	1969	10	7.88	1995	.05	1996
Sep	2.92	2.62	3.60	1990	9	6.59	1996	.21	1978
Oct	2.80	2.23	3.05	1986	4	7.41	1986	.77	1994
Nov	3.09	2.76	2.25	1950	20	10.06	1985	.74	1976
Dec	2.88	2.62	1.82	1941	25	6.97	1990	.63	1976
Ann	40.00	39.64	4.37	Jul 1946	20	13.61	Jul 1992	.05	Aug 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.2	6.3	1.2	.5
Feb	9.4	5.5	1.3	.3
Mar	10.9	7.2	1.9	.2
Apr	12.3	7.9	2.3	.5
May	11.7	8.4	3.1	1.0
Jun	10.1	7.7	2.9	1.2
Jul	8.9	7.0	3.5	1.6
Aug	8.8	6.4	2.4	1.0
Sep	7.9	5.4	1.9	.8
Oct	8.9	5.8	1.7	.6
Nov	10.7	6.9	1.9	.7
Dec	11.1	6.5	1.9	.5
Ann	121.9	81.0	26.0	8.9

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	.68	.90	1.24	1.54	1.83	2.14	2.47	2.87	3.38	4.19	4.94
Feb	.44	.64	.94	1.22	1.50	1.80	2.14	2.54	3.08	3.93	4.74
Mar	1.22	1.47	1.83	2.13	2.40	2.68	2.98	3.32	3.75	4.41	5.01
Apr	1.29	1.62	2.09	2.48	2.86	3.24	3.65	4.14	4.75	5.70	6.57
May	1.66	2.06	2.64	3.12	3.57	4.04	4.54	5.13	5.87	7.01	8.05
Jun	1.56	1.98	2.59	3.10	3.59	4.09	4.64	5.28	6.09	7.36	8.51
Jul	1.19	1.66	2.40	3.06	3.71	4.41	5.18	6.11	7.32	9.25	11.06
Aug	.63	.95	1.49	1.99	2.51	3.07	3.72	4.50	5.54	7.23	8.84
Sep	.46	.71	1.13	1.53	1.95	2.41	2.93	3.57	4.42	5.81	7.15
Oct	.85	1.12	1.52	1.86	2.19	2.53	2.91	3.35	3.93	4.82	5.65
Nov	.98	1.27	1.71	2.08	2.44	2.81	3.21	3.69	4.31	5.27	6.15
Dec	1.06	1.33	1.72	2.04	2.35	2.67	3.01	3.41	3.92	4.70	5.42
Ann	29.26	31.37	34.05	36.07	37.87	39.60	41.38	43.35	45.73	49.17	52.13

\+ 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: 1936-2001
(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	4.2	4.5	1	#	4.0	1975	31	11.0	1995	8	1974	15	4	1974	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	4.8	2.6	#	#	5.0	1971	13	15.5	1971	6	1971	15	2	1972	-9.9	-9.9	-9.9	-9.9	-9.9	2.5	1.2	.4	.0
Mar	1.9	1.2	#	0	6.0	1987	31	6.0	1987	6	1987	31	#+	1988	.7	.3	.1	.1	.0	.4	.1	.1	.0
Apr	.8	.0	#	0	6.0	1974	9	6.0	1974	6	1974	9	#+	1987	.6	.2	.1	.1	.0	.2	@	@	.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	.2	.0	#	0	4.1	1974	20	4.1	1974	4	1974	20	#	1974	.1	.1	.1	.0	.0	@	@	.0	.0
Nov	.2	.0	#	0	2.0	1971	7	2.0	1971	2	1972	27	#+	1974	.2	.1	.0	.0	.0	.1	.0	.0	.0
Dec	3.0	#	#	0	5.4	1974	1	8.9	1974	7	1974	2	4	1974	-9.9	-9.9	-9.9	-9.9	-9.9	.1	.1	.1	.0
Ann	15.1	8.3	N/A	N/A	6.0+	Mar 1987	31	15.5	Feb 1971	8	Jan 1974	15	4+	Dec 1974	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9

+ 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	5/25	5/19	5/15	5/12	5/08	5/05	5/02	4/27	4/22
32	5/09	5/04	5/01	4/28	4/25	4/23	4/20	4/17	4/12
28	4/23	4/20	4/17	4/15	4/13	4/11	4/09	4/06	4/02
24	4/15	4/10	4/07	4/04	4/01	3/30	3/27	3/24	3/19
20	4/04	3/30	3/26	3/23	3/20	3/17	3/14	3/10	3/05
16	3/26	3/19	3/14	3/10	3/06	3/03	2/27	2/22	2/15

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	9/20	9/24	9/27	9/29	10/01	10/03	10/06	10/09	10/12
32	9/25	9/30	10/05	10/08	10/11	10/15	10/18	10/22	10/28
28	10/04	10/10	10/15	10/19	10/23	10/27	10/31	11/05	11/12
24	10/23	10/29	11/02	11/06	11/09	11/12	11/16	11/20	11/26
20	11/02	11/09	11/13	11/17	11/20	11/24	11/28	12/02	12/09
16	11/13	11/21	11/26	12/01	12/06	12/10	12/15	12/20	12/28

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	156	152	148	145	142	138	134	128
32	190	182	177	172	168	164	159	154	147
28	216	208	202	197	193	188	183	177	169
24	245	237	231	226	221	216	211	205	196
20	267	260	254	249	245	240	235	230	222
16	300	291	284	279	273	268	263	256	247

***** 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	1218	1009	808	470	205	32	1	16	89	396	702	1052	5998
60	1063	869	653	325	117	9	0	2	30	260	552	897	4777
57	970	785	564	247	77	3	0	0	13	191	464	804	4118
55	908	729	507	198	56	2	0	0	6	151	406	749	3712
50	762	598	367	100	21	0	0	0	1	74	273	604	2800
32	296	202	59	0	0	0	0	0	0	0	20	198	775

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	101	116	274	522	886	1131	1284	1215	966	634	308	168	7605
55	0	0	9	30	228	442	571	502	282	72	4	6	2146
57	0	0	4	18	187	384	509	440	228	50	2	0	1822
60	0	0	0	7	135	299	416	349	156	26	0	0	1388
65	0	0	0	1	68	173	262	208	65	6	0	0	783
70	0	0	0	0	27	79	124	99	17	0	0	0	346

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	18	31	120	306	637	883	1027	965	720	390	149	36	18	49	169	475	1112	1995	3022	3987	4707	5097	5246	5282
45	3	9	62	194	482	733	872	810	571	252	80	15	3	12	74	268	750	1483	2355	3165	3736	3988	4068	4083
50	0	2	32	112	338	584	717	655	423	151	38	5	0	2	34	146	484	1068	1785	2440	2863	3014	3052	3057
55	0	0	10	53	212	436	562	500	288	78	15	0	0	0	10	63	275	711	1273	1773	2061	2139	2154	2154
60	0	0	1	20	120	295	407	347	169	27	2	0	0	0	1	21	141	436	843	1190	1359	1386	1388	1388
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	4	17	80	188	384	583	694	641	464	238	86	17	4	21	101	289	673	1256	1950	2591	3055	3293	3379	3396

(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