

U. S. DEPARTMENT OF COMMERCE, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION  
 IN COOPERATION WITH THE OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER  
 AND THE OHIO DEPARTMENT OF NATURAL RESOURCES - DIVISION OF WATER  
 CLIMATOGRAPHY OF THE UNITED STATES NO. 20-35-28

LATITUDE 40°6' N  
 LONGITUDE 83°47' W  
 ELEV. (GROUND) 1045 Ft.

# CLIMATOLOGICAL SUMMARY

STATION: Urbana, Ohio

MEANS AND EXTREMES FOR PERIOD 1936-1965

MONTH	TEMPERATURE (° F)											PRECIPITATION TOTALS (INCHES)														MONTH									
	MEANS			EXTREMES					MEAN DEGREE DAYS **	MEAN NUMBER OF DAYS				MEAN	GREATEST MONTHLY	YEAR	GREATEST DAILY	YEAR	DAY	SNOW, SLEET				MEAN NUMBER OF DAYS											
	DAILY MAXIMUM	DAILY MINIMUM	MONTHLY	RECORD HIGHEST	YEAR	DAY	RECORD LOWEST	YEAR		DAY	90° AND ABOVE	32° AND BELOW	32° AND BELOW							0° AND BELOW	MEAN	MAXIMUM MONTHLY	YEAR	GREATEST DAILY	YEAR		DAY	.01 or MORE	.10 or MORE	.50 or MORE	1.00 or MORE				
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN		FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT
JAN	36.4	19.2	27.8	71	50	25	-19*	63	29	1146.4	0	11	27	2	3.08	12.25	37	2.48	59	21	6.6	24.0	51	8.0	51	7	10	6	1.7	.6	JAN				
FEB	39.1	20.8	29.6	70	44	26	-19	51	2	986.	0	7	24	1	2.49	4.97	56	2.13	59	10	4.7	11.7	39	5.0	64	16	9	5	1.7	.3	FEB				
MAR	48.8	28.7	33.7	82	39	24	-8	60	8	811.	0	2	21	0	3.43	8.49	64	2.52	64	10	3.2	12.5	47	5.0	51	19	11	6	2.0	.6	MAR				
APR	61.1	38.4	49.7	88	42	30	11	64	1	460.0	0	0	8	0	3.86	7.36	64	2.10	58	29	.4	4.0	46	4.0	46	12	11	6	2.8	.6	APR				
MAY	72.3	48.9	60.6	94	42	19	2*	57	5	184.	0	0	1	0	3.27	7.40	45	1.52	45	17	.0	.0	36	.0	.0	0	9	7	2.9	.9	MAY				
JUNE	80.9	58.0	69.4	99	44	78	3*	54	5	31.	0	0	0	0	2.22	9.48	35	2.08	39	15	.0	.0	36	.0	.0	0	9	6	2.9	1.1	JUNE				
JULY	84.7	61.1	72.9	110	38	14	41	47	20	6.	0	0	0	0	3.97	7.43	43	4.37	46	26	.0	.0	36	.0	.0	0	9	6	2.9	1.1	JULY				
AUG	82.7	59.6	71.4	102	36	13	36	65	29	14.	5	0	0	0	3.13	7.65	54	2.25	54	5	.0	.0	36	.0	.0	0	8	5	2.2	.9	AUG				
SEPT	76.6	52.6	64.6	100	53	2	28*	63	30	108.	2	0	0	0	2.83	6.14	65	3.42	62	14	.0	.0	36	.0	.0	0	6	5	2.1	.7	SEPT				
OCT	65.6	41.8	53.7	90	51	4	17*	64	11	358.	0	0	5	0	2.38	6.71	41	2.27	35	23	.0	1.0	54	1.0	54	31	7	5	1.6	.5	OCT				
NOV	50.4	31.2	40.6	79	50	1	-10	58	30	725.	0	1	17	0	2.51	5.70	48	2.25	50	20	2.1	23.0	50	14.0	50	26	9	6	1.4	.2	NOV				
DEC	38.6	22.0	30.3	68	56	6	-20	51	15	1073.	0	8	25	1	2.11	4.49	57	1.82	61	25	5.2	14.5	45	9.5	45	19	9	5	1.2	.2	DEC				
YEAR	61.4	40.1	50.8	110	36	14	-20	51	15	5896.	15	29	128	4	37.53	12.25	37	4.37	46	20	23.0	24.0	51	14.0	50	26	109	73	25.	6.	YEAR				

\*\* BASE 65° F. \*Also on earlier dates, months, or years

## NARRATIVE CLIMATOLOGICAL SUMMARY

Urbana is located in the south central portion of Champaign County in West Central Ohio. Terrain within Champaign County is flat to gently rolling; the elevation of the earth's surface above sea level varies from about 950 to 1350 feet. A map of the physiographic regions of Ohio shows Champaign County to be a part of Ohio's Till Plains. Within this area, there are a great variety of soil types of glacial origin. Most of these soils are predominantly fertile and well drained.

The climate of Urbana is classified as continental. Such a climate is a characteristic of the interior of a landmass the size of North America. It is marked by large annual, daily, and day to day ranges of temperature. The annual extremes of temperature normally occur soon after June 21 and December 22. In Champaign County, summers are moderately warm and humid with occasional days when temperatures exceed 90° F. Winters are reasonably cold and cloudy with an average of 4 days with sub-zero temperatures. Weather changes occur every few days from the passing of cold or warm fronts and their associated centers of high and low pressure.

Normal mean temperature for the year is less than one degree below the normal for West Central Ohio. The normal daily range in temperature is greatest in late summer and least in winter. Extreme temperature range (record high minus record low) during the period 1936-1966 is 130 degrees. Coldest month of record during the above mentioned period is January 1940. In that month, temperature was above freezing on only 6 days while sub-zero temperatures were recorded on 11 days. Maximum temperatures below freezing occur most frequently from mid-December through mid-February. Warmest month of record during the period 1936-66 is July 1936. During that month, the daily maximum temperature exceeded 89° F on 20 days while the minimum was 70° F or more on 9 days. From July 8-14, 1936, daily highs ranged between 104 and 110° F. This is the warmest 7-day period of record.

Taking the number of days between the last freezing temperature (32° F) of spring and the first freezing temperature in fall as the crop growing season, this season averages 161 days in length. The growing season is 183 days or more in 10% of the years, 170 days or more in 30% of the years, less than 151 days in 30% of the years, and less than 138 days in 10% of the years. Since 1935, temperatures of 32° F or less have been recorded as late as May 23 in Spring and as early as September 13 in Fall.

Heating degree days, as shown in the above table, are a measure of the departure of the mean daily temperature from 65° F. The daily totals are accumulated from July 1 through June 30. At any point during the year, the accumulated degree days can be used as an index of past temperature effect upon power consumption and fuel consumption for heating of homes and businesses.

As is characteristic of continental climates, precipitation in the Urbana area varies widely from year to year; however, it is normally abundant and well distributed throughout the year with falling being the driest season. The average annual precipitation of 37.53 inches is nearly one inch above the mean for West Central Ohio. Showers and thundershowers account for most of the rainfall during the growing season. Thunderstorms occur on about 40 days each year. Most of these occur May through August. Snowfall averages 23 inches a year although during the period 1936-66 as little as 4 inches fell during the winter of 1949-50 and as much as 66 inches fell during the winter of 1950-51. As is typical of much of Ohio, most precipitation during the winter months comes in the form of rain.

Evaporation is greatest during the warm months and is then most critical for agriculture. During the period May through September, potential evaporation exceeds the normal rainfall by about 11 inches. The driest growing season of record during the period 1936-66 is 1959. In that year, the potential evaporation exceeded the rainfall by about 21 inches. When evaporation exceeds rainfall for prolonged periods, a drought may occur; however, severe droughts seldom occur in Champaign County.

Humidity, cloudiness, sunshine and wind observations are not recorded at the Urbana weather observing site but estimates of these variables can be made from observations taken at other locations. Relative humidity, the ratio between the amount of moisture in the air and the amount which could be present, without condensation, at the same temperature and pressure, is an important factor in human and animal comfort and in the growth and development of vegetation. Generally, humidity rises and falls inversely with the daily temperature and is lowest in summer and highest in winter. For the year, relative humidity averages about 79% at 1 AM, 80% at 7 AM, 59% at 1 PM, and 67% at 7 PM. Cloudiness is greatest in winter and least in summer. This variation is most clearly illustrated by the percentage of possible sunshine which is about 70% in July and 35% in December. Heavy fog occurs about 14 times each year and is most frequent during the cold half of the year. Death from smog is unknown. The prevailing wind direction for the year is south, averaging nearly 8 mph in summer and 11 mph in winter. Damaging winds occur most often during spring and summer. Such storms are usually associated with migrating thunderstorms.

The tornado, one of the most destructive of all atmospheric storms, is characterized by a violently rotating column of air which is nearly always observable as a "funnel cloud". It frequently leaves great destruction along a narrow path, and is usually accompanied by heavy rain and hail, and often by lightning and thunder. Since 1900, 4 such storms have been reported in Champaign County. During the last decade, Ohio has averaged slightly more than 11 tornadoes a year.

Marvin E. Miller

December 1967 ESSA Weather Bureau State Climatologist  
 Box 357, New Post Office Building  
 Columbus, Ohio 43216

### PROBABILITY OF FREEZES OCCURRING AS LATE IN THE SPRING OR AS EARLY IN THE FALL AS DATES SHOWN IN THE FOLLOWING TABLE

PERCENT CHANCE OF LATER DATE IN SPRING	TEMPERATURE LEVELS									
	16°	20°	24°	28°	32°	36°				
90	FEB 22	MAR 3	MAR 18	APR 3	APR 13	APR 28				
70	MAR 4	MAR 15	MAR 28	APR 12	APR 23	MAY 7				
50	MAR 10	MAR 23	APR 3	APR 18	APR 30	MAY 13				
30	MAR 17	MAR 31	APR 10	APR 24	MAY 7	MAY 20				
10	MAR 27	APR 12	APR 19	MAY 2	MAY 17	MAY 29				
PERCENT CHANCE OF EARLIER DATE IN FALL										
10	NOV 13	OCT 27	OCT 18	OCT 4	SEPT 21	SEPT 11				
30	NOV 22	NOV 7	OCT 28	OCT 14	OCT 1	SEPT 20				
50	NOV 29	NOV 14	NOV 4	OCT 21	OCT 8	SEPT 26				
70	DEC 5	NOV 22	NOV 10	OCT 27	OCT 15	OCT 2				
90	DEC 14	DEC 3	NOV 20	NOV 6	OCT 25	OCT 11				

### STATION HISTORY

DATE	LOCATION	ELEVATION	OBSERVER
11/25- 3/20	0.4 mile N	1031	J. H. Williams
8/21- 6/22	0.7 mile W	1031	Water Works Employees
7/22- 9/28	0.4 mile N	1050	J. H. Williams
10/28- 9/32	1.0 mile SW	1050	F. H. Blackmer
9/32-10/40	1.0 mile SW	1050	A. D. Sanders
11/40- 3/42	1.0 mile SW	1050	C. L. Motts
4/42- 5/53	1.0 mile SW	1050	E. F. Memmott
5/53- 8/59	2.0 miles WSW	1045	R. R. Cummins
9/59-Present	2.0 miles WSW	1045	L. Haldeman

AVERAGE TEMPERATURE (°F)

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
36	21.5	22.6	43.2	46.1	63.6	70.1	79.2	79.8	68.4	53.1	36.6	35.0	51.4
37	35.7	31.7	35.2	49.7	60.0	69.2	72.4	74.1	61.6	51.5	38.3	26.0	50.5
38	29.7	37.9	45.9	52.9	59.7	67.8	73.1	73.4	65.1	51.5	43.8	32.6	53.0
39	33.2	31.8	41.0	47.0	53.9	71.9	72.4	72.0	61.0	39.2	33.3	32.6	52.6
40	15.2	29.9	36.8	46.7	57.6	70.8	74.5	73.0	62.3	50.9	40.0	37.3	48.9
41	29.9	27.2	33.9	55.2	62.8	70.2	74.4	71.5	68.4	57.7	43.3	36.8	52.7
42	28.0	26.9	41.9	53.4	60.9	67.8	73.3	69.1	62.1	52.6	41.3	26.4	50.5
43	29.1	31.4	38.0	48.4	60.6	67.8	73.7	71.3	61.2	51.5	38.3	26.0	50.5
44	21.8	32.6	36.9	48.9	58.0	73.1	74.6	73.5	63.9	38.5	42.1	29.4	50.8
45	30.2	30.2	32.4	52.4	62.0	67.8	71.4	71.2	61.0	37.3	43.4	29.0	50.8
46	31.2	33.8	51.1	51.2	58.2	68.4	72.7	76.0	64.3	50.7	46.5	35.6	53.9
47	34.6	22.7	32.8	45.9	57.8	67.4	68.5	66.5	65.4	68.6	39.1	31.2	50.5
48	21.3	30.9	42.2	46.8	59.3	69.4	74.0	71.0	66.0	50.3	46.4	34.8	51.7
49	35.7	35.4	41.5	45.8	52.5	72.7	77.0	71.6	59.3	58.1	42.0	34.9	53.4
50	38.9	32.6	37.3	45.0	52.9	67.4	70.3	68.2	62.8	57.1	36.8	23.5	50.3
51	30.5	29.7	38.9	47.6	61.8	69.0	72.7	70.3	63.4	57.0	34.3	20.8	50.2
52	31.2	32.0	49.1	49.7	59.3	73.0	75.9	70.4	63.7	46.1	40.0	32.5	51.0
53	31.5	33.9	40.1	49.8	68.0	72.1	73.5	71.5	65.0	55.2	42.2	33.3	51.9
54	30.5	36.2	35.7	50.8	59.1	70.3	72.5	70.1	67.2	54.7	41.6	30.9	51.6
55	28.7	31.5	40.8	53.9	62.6	69.2	76.9	75.2	67.7	58.2	38.0	28.9	51.9
56	25.3	32.8	38.4	47.0	60.6	69.4	71.4	70.5	60.7	54.8	40.8	30.3	51.0
57	23.6	34.8	39.2	51.6	63.0	69.7	72.5	69.2	58.9	48.8	42.2	32.1	51.0
58	28.4	33.4	35.6	50.5	58.9	64.5	71.6	68.8	62.6	55.7	42.1	22.0	48.8
59	35.4	32.8	39.5	52.0	62.1	69.1	73.4	76.1	67.4	62.0	42.2	34.2	51.8
60	30.1	27.6	23.8	52.8	57.2	67.7	70.0	72.0	68.0	58.5	42.4	22.2	48.0
61	21.1	33.3	41.8	45.0	54.5	66.4	71.9	71.0	68.4	53.8	41.1	28.9	49.6
62	23.8	19.5	34.6	47.3	65.7	69.7	70.8	67.0	60.6	55.4	39.4	24.5	49.0
63	18.9	26.1	39.7	50.5	57.1	69.1	71.7	67.1	61.8	57.6	31.3	18.4	47.8
64	26.6	24.5	37.0	50.2	61.8	68.3	71.5	67.9	62.8	47.3	42.1	34.7	50.1
65	24.8	24.8	33.1	48.2	66.7	69.5	70.5	69.6	62.8	51.0	41.5	34.7	50.1
66	21.6	27.7	39.8	47.4	55.1	69.1	74.2	69.3	61.1	48.3	39.7	29.2	48.5

MONTHLY AND SEASONAL SNOWFALL

SEASON	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
36-37	0.0	5.0	2.7	5.5	1.5	6.6	0.0	0.0	0.0	16.3
37-38	0.0	2.2	3.5	3.2	7.0	8.8	0.0	0.0	0.0	17.1
38-39	0.0	3.0	1.8	8.5	11.7	11.7	0.0	0.0	0.0	26.8
39-40	0.0	0.0	1.8	13.2	7.7	2.7	1.4	0.0	0.0	26.8
40-41	0.0	0.0	0.0	3.1	3.3	0.5	0.0	0.0	0.0	6.9
41-42	0.0	0.0	0.0	4.0	0.9	3.4	0.0	0.0	0.0	8.2
42-43	0.0	2.0	6.1	5.0	9.6	4.0	0.0	0.0	0.0	19.3
43-44	0.0	2.0	9.0	9.0	9.5	4.0	0.0	0.0	0.0	23.0
44-45	0.0	0.0	1.0	12.0	4.0	0.0	0.0	0.0	0.0	23.0
45-46	0.0	0.0	14.9	2.0	0.0	0.0	0.0	0.0	0.0	23.0
46-47	0.0	0.0	6.0	1.2	9.5	12.5	0.0	0.0	0.0	29.2
47-48	0.0	0.0	9.0	17.0	7.0	5.0	0.0	0.0	0.0	38.0
48-49	0.0	0.0	9.0	9.0	4.3	5.6	0.0	0.0	0.0	14.9
49-50	0.0	0.0	0.0	0.0	2.3	1.0	1.0	0.0	0.0	4.3
50-51	0.0	0.0	23.0	13.0	24.0	0.0	0.0	0.0	0.0	60.6
51-52	0.0	0.0	2.5	12.0	2.2	8.0	1.0	0.0	0.0	25.7
52-53	0.0	0.0	1.6	2.5	4.5	4.0	3.2	2.0	0.0	13.8
53-54	0.0	0.0	1.8	7.2	2.9	1.8	4.1	1.0	0.0	19.3
54-55	0.0	1.0	5.0	5.4	4.0	9.2	3.2	0.0	0.0	25.7
55-56	0.0	0.0	5.0	2.2	6.2	0.0	0.0	0.0	0.0	13.4
56-57	0.0	0.0	7.2	5.2	8.1	1.3	1.2	0.0	0.0	18.5
57-58	0.0	0.0	7.0	2.5	5.1	2.3	4.3	0.0	0.0	14.3
58-59	0.0	0.0	3.6	4.6	1.3	8.3	0.0	0.0	0.0	30.4
59-60	0.0	0.0	3.7	11.7	8.6	5.2	4.5	3.1	0.0	29.8
60-61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61-62	0.0	0.0	1.6	8.6	2.9	9.4	9.0	0.0	0.0	31.5
62-63	0.0	0.0	8.1	5.0	6.6	9.2	0.0	0.0	0.0	29.4
63-64	0.0	0.0	7.5	14.8	11.0	1.0	0.0	0.0	0.0	34.4
64-65	0.0	0.0	3.4	7.5	5.1	7.9	0.0	0.0	0.0	23.9
65-66	0.0	0.0	2.4	6.9	6.8	1.8	0.0	0.0	0.0	18.5

TOTAL PRECIPITATION (INCHES)

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
36	1.41	3.21	3.71	3.98	2.39	0.99	1.87	3.68	4.63	4.35	2.74	1.73	34.69
37	1.25	1.29	1.59	2.11	5.08	2.55	3.44	2.28	2.38	1.50	1.75	3.72	31.72
38	1.47	3.86	5.82	2.18	4.00	6.28	4.80	4.88	1.62	4.88	1.45	4.04	40.40
39	2.64	3.64	2.12	3.28	3.15	2.84	4.94	4.88	1.71	2.32	2.87	2.42	29.47
40	1.52	2.22	2.54	2.66	2.30	5.23	3.41	2.72	1.13	6.71	1.46	2.66	31.69
41	1.01	1.95	2.78	2.46	2.93	4.50	5.96	4.37	2.73	1.66	2.90	2.77	35.72
42	1.84	1.64	4.11	2.18	5.15	2.14	7.43	2.87	1.38	1.29	1.46	1.52	32.01
43	1.84	1.64	4.11	2.18	5.15	2.14	7.43	2.87	1.38	1.29	1.46	1.52	32.01
44	1.50	1.95	4.98	4.72	4.25	2.52	1.29	6.27	1.81	1.54	1.59	2.15	31.97
45	1.05	2.64	7.04	3.21	4.85	4.30	3.43	6.5	5.15	2.30	3.28	1.02	39.52
46	1.05	3.33	4.00	2.05	7.40	5.63	2.92	1.13	2.91	2.68	3.25	41.51	
47	4.49	1.52	1.93	6.10	5.05	6.33	3.81	5.38	3.67	1.94	1.75	1.92	41.06
48	2.05	3.25	5.99	6.10	4.38	5.25	2.96	7.28	4.33	2.72	5.78	2.16	42.97
49	6.73	2.63	2.95	1.93	3.08	6.21	2.16	7.03	2.91	2.92	4.29	2.16	48.81
50	11.59	4.02	2.11	3.74	1.43	4.05	4.43	4.43	2.62	2.62	4.29	2.16	48.81
51	2.81	3.21	3.29	3.74	3.88	4.35	1.63	3.93	2.62	2.26	4.90	4.22	38.85
52	3.60	1.52	4.88	4.23	5.56	3.13	2.69	1.82	4.52	1.77	1.58	2.66	38.85
53	2.60	1.52	2.53	2.64	1.56	1.86	4.05	1.65	1.26	1.70	1.88	2.81	28.19
54	2.40	1.81	4.02	2.73	2.55	4.17	2.09	1.29	3.34	3.88	1.66	2.15	38.52
55	1.48	3.39	4.89	2.81	2.50	2.87	2.93	1.29	4.89	3.06	3.74	1.56	35.77
56	1.25	4.97	2.60	4.80	5.23	1.91	6.00	1.08	1.42	1.58	1.44	2.72	34.80
57	1.57	1.04	1.06	7.13	6.25	5.20	5.19	2.09	4.28	1.90	3.26	4.49	44.56
58	1.82	1.68	1.94	5.65	3.94	8.68	6.15	3.67	3.88	1.17	2.32	1.36	37.26
59	7.86	3.24	1.94	3.25	3.62	1.07	2.91	1.72	2.54	3.89	3.21	2.31	37.05
60	2.26	2.14	1.06	1.20	6.48	4.23	2.36	3.98	3.4	2.08	1.32	2.02	28.62
61	0.91	2.99	4.34	6.09	2.60	3.16	4.97	4.89	4.51	1.96	3.39	3.44	43.65
62	3.25	2.63	2.68	3.08	4.29	1.24	4.57	2.61	4.71	1.17	1.17	1.10	34.88
63	1.30	1.64	8.08	7.90	1.62	2.13</							