

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. 20-33-27

LATITUDE 40°50' N
 LONGITUDE 83°17' W
 ELEV. (GROUND) 860 Ft

CLIMATOLOGICAL SUMMARY

STATION: Upper Sandusky, O

MEANS AND EXTREMES FOR PERIOD 1936-1966

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							32° AND BELOW	C° AND BELOW	MEAN	GREATEST MONTHLY	YEAR	GREATEST DAILY	YEAR	DAY	MEAN		MAXIMUM MONTHLY	YEAR
									MAX.					MIN.																	
JAN	35.2	20.0	27.6	71	50	25	-18	63	24	1154.	0	12	27	2	2.59	9.22	50	2.20	37	14	6.9	13.1	64	7.0	56	30	9	5	1.6	4	JAN
FEB	38.1	21.4	29.7	71	44	26	-14	63	26	993.	0	7	24	1	2.30	4.58	50	2.25	59	10	5.0	13.7	62	7.0	62	24	8	5	1.3	3	FEB
MAR	48.0	28.6	38.3	82	38	22	-7	48	12	823.	0	2	21	0	3.35	6.68	64	2.16	39	12	5.8	13.3	42	12.0	42	30	10	7	2.4	5	MAR
APR	61.2	38.4	49.8	90	42	30	11	64	1	462.	0	0	9	0	3.39	6.40	57	1.81	64	21	1.0	11.0	57	7.0	57	8	11	8	2.1	4	APR
MAY	73.2	48.8	61.0	95	62	17	28*	63	1	178.	1	0	0	0	3.34	7.68	43	1.72	43	17	.0	.0	0	0	0	11	8	2.0	5	MAY	
JUNE	82.3	58.1	70.2	100*	52	26	39*	61	16	30.	5	0	0	0	4.20	10.86	37	5.49	37	21	.0	.0	0	0	0	9	7	2.6	1.0	JUNE	
JULY	85.7	61.3	75.5	104	36	14	36	57	6	5.	8	0	0	0	3.35	9.66	58	2.32	43	7	.0	.0	0	0	0	8	6	2.4	6	JULY	
AUG	84.5	60.0	72.2	103	36	19	35	40	25	11.	7	0	0	0	2.78	5.97	40	2.13	61	8	.0	.0	0	0	0	8	6	1.8	4	AUG	
SEPT	78.0	52.9	65.4	101	53	2	28	42	29	94.	2	0	0	0	2.63	7.36	57	3.27	57	20	.0	.0	0	0	0	6	4	1.8	5	SEPT	
OCT	66.4	42.6	54.5	93	53	3	19	52	21	336.	0	0	4	0	2.19	5.87	54	2.37	50	9	.0	.0	0	0	0	7	5	1.3	4	OCT	
NOV	50.2	32.5	41.3	82	50	1	-2	58	30	706.	0	1	15	0	2.46	5.93	48	2.36	55	16	2.9	14.0	50	9.0	50	26	8	6	1.4	2	NOV
DEC	37.9	23.4	30.6	68	56	6	-12	51	16	1062.	0	9	25	1	2.10	5.06	51	1.49	37	17	6.3	20.0	51	7.0	60	21	8	5	1.2	2	DEC
YEAR	61.7	40.6	51.1	104	36	14	-18	63	24	5854.	-23	31	125	4	34.68	10.66	37	5.49	37	21	27.9	20.0	51	12.0	42	30	103	72	22.	5.	YEAR

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

NARRATIVE CLIMATOLOGICAL SUMMARY

Upper Sandusky is located near the center of Wyandot County in North Central Ohio. Terrain within Wyandot County is relatively flat; the elevation of the earth's surface above sea level varies from about 770 to 980 feet. A map of the Physiographic Regions of Ohio shows Wyandot County to be a part of Ohio's Till Plains. Within this area, there are a variety of predominantly fertile and well drained soils of glacial origin.

The climate of Upper Sandusky is classified as continental. Such a climate 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 Wyandot 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 the same as the average for North Central Ohio. The usual 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 122 degrees. Coldest month of record during the above mentioned period is January 1940. In that month, daily maximum temperatures were 32°F or less on 26 days while sub-zero temperatures were recorded on 9 days. Maximum temperatures below freezing occur most often from mid-December through February. July 1949 and July 1955 are tied for being the warmest month of record during the period 1936-1966. In those months, the daily maximum temperature exceeded 89°F on 16 days in 1949 and 18 days in 1955.

Taking the number of days between the last freezing temperature (32°F) of spring and first freezing temperature in fall as the crop growing season, this season averages 158 days in length. The growing season is 179 days or more in 10% of the years, 167 days or more in 30% of the years, less than 149 days in 30% of the years, and less than 137 days in 10% of the years. Since 1935, temperatures of 32°F or less have been recorded as late as May 27 in Spring and as early as September 17 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 Wyandot County varies widely from year to year with fall being the driest season. The average annual precipitation of 34.68 inches is nearly one inch above the mean for North Central Ohio. Annual precipitation is less than 26.94 inches in 30% of the years, more than 37.73 inches in 30% of the years, and more than 42.99 inches in 10% of the years. 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 about 28 inches a year although during the period 1936-1966 as little as 12 inches fell during the winter of 1949-50 and as much as 49 inches fell during the winter of 1950-51. About 8 of 10 winters will have at least 20 inches of snow. 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 pan evaporation exceeds the normal rainfall by about 11 inches. The driest growing season of record in the period 1936-1966 is 1963. In that year, the potential pan evaporation exceeded the rainfall by more than 18 inches. When evaporation exceeds rainfall for prolonged periods a drought may occur, however, severe droughts seldom occur in Wyandot County.

Humidity, cloudiness, sunshine and wind observations are not recorded at Upper Sandusky, however, 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 81% at 1 AM, 78% at 7 AM, 58% 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 30% in December. Heavy fog occurs about 7 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 southwesterly, averaging 10 mph. 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, 3 such storms have been reported in Wyandot County. During the last decade, Ohio has averaged slightly more than 11 tornadoes a year.

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October 1967

STATION HISTORY

DATE	LOCATION	ELEVATION	OBSERVER
10/1886- 3/1894	(From Post Office)	(Ft. MSL)	
Unknown	Unknown	Unknown	Dr. A. Billhardt
4/1894- 6/1898	Unknown	880	F. W. Wenner
7/1899- 7/1903	Unknown	854	J. Agarter
8/1903- 8/1910	Unknown	854	R. J. Kiefer
9/1910- 5/1919	Unknown	854	R. E. Tracht
11/1919-11/1958	0.5 miles SW	854	L. M. Newcomer
11/1958-Present	0.5 miles NW	866	P. D. Gregar

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 27	MAR 6	MAR 18	APR 4	APR 14	MAY 1				
70	MAR 8	MAR 16	MAR 27	APR 11	APR 23	MAY 8				
50	MAR 14	MAR 23	APR 3	APR 15	APR 30	MAY 13				
30	MAR 21	MAR 30	APR 9	APR 20	MAY 6	MAY 19				
10	MAR 30	APR 8	APR 19	APR 27	MAY 16	MAY 26				
PERCENT CHANCE OF EARLIER DATE IN FALL										
10	NOV 16	NOV 2	OCT 20	OCT 10	SEPT 21	SEPT 1				
30	NOV 26	NOV 11	OCT 29	OCT 19	SEPT 30	SEPT 15				
50	DEC 2	NOV 18	NOV 4	OCT 25	OCT 5	SEPT 25				
70	DEC 8	NOV 25	NOV 10	OCT 31	OCT 11	OCT 4				
90	DEC 18	DEC 5	NOV 18	NOV 8	OCT 19	OCT 18				

AVERAGE TEMPERATURE (°F)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
26	21.2	20.8	42.4	45.7	64.4	69.5	76.3	75.9	70.3	58.1	36.4	35.1	50.9
27	32.2	29.8	32.6	49.2	60.3	68.8	73.9	74.4	62.5	50.7	38.2	27.9	50.2
28	28.3	33.5	45.5	51.7	61.3	68.1	73.6	74.8	64.9	55.0	43.6	31.5	51.8
29	26.2	29.7	34.3	46.1	62.8	72.0	72.3	72.1	65.9	54.6	39.4	34.7	52.2
40	16.6	29.7	36.0	45.4	58.0	71.3	73.3	72.2	62.6	53.4	38.7	35.9	49.3
41	29.0	26.2	32.6	54.7	62.2	70.5	74.6	71.0	68.3	57.2	42.8	37.1	52.2
42	27.6	24.1	30.9	52.0	61.7	71.7	74.1	72.2	63.1	55.6	32.2	28.4	50.9
43	18.9	31.6	30.4	45.7	65.4	74.9	74.0	73.2	63.1	55.0	28.6	28.3	50.0
44	21.6	21.6	31.6	46.5	65.3	73.8	74.6	74.5	65.0	55.0	35.8	31.8	52.5
45	19.5	28.0	49.6	52.5	58.4	67.2	71.1	71.2	62.6	50.8	42.0	23.8	48.3
46	29.4	21.4	50.3	49.7	58.2	68.4	73.5	67.5	65.5	57.3	48.9	33.9	52.5
47	32.2	32.6	32.6	49.2	57.4	68.0	69.8	77.7	66.9	60.8	38.3	30.8	50.5
48	20.4	29.4	40.8	54.3	62.8	69.3	74.6	71.7	66.7	49.7	46.6	33.5	51.3
49	34.3	34.6	39.8	48.8	63.8	73.2	78.0	73.3	60.9	58.8	41.3	34.2	54.9
50	36.9	30.7	34.7	43.7	62.3	68.2	71.2	69.6	68.0	57.1	35.3	24.4	48.3
51	26.6	30.0	38.0	49.1	61.6	68.8	73.4	70.7	63.4	56.7	35.6	29.6	50.7
52	27.6	34.1	41.3	46.8	53.6	62.7	70.7	72.5	65.6	49.7	42.7	34.6	52.6
53	32.3	36.1	41.3	46.8	53.6	62.7	70.7	72.5	65.6	49.7	42.7	34.6	52.6
54	30.3	37.1	37.4	58.5	65.5	73.2	74.2	71.1	67.5	54.3	48.1	35.6	52.3
55	27.7	31.0	40.1	56.7	65.1	67.4	78.6	75.6	67.6	54.6	38.0	28.6	52.4
56	24.6	31.6	38.0	47.8	59.3	70.5	72.8	72.2	62.1	58.7	42.3	37.6	51.7
57	24.6	34.1	38.0	47.8	59.3	70.5	72.8	72.2	62.1	58.7	42.3	37.6	51.7
58	21.9	23.5	36.4	54.8	58.7	65.7	73.5	78.7	64.7	54.3	48.0	22.6	49.3
59	25.7	29.1	37.6	54.8	65.6	70.6	77.7	76.2	68.4	53.6	38.4	35.4	52.0
60	36.3	28.7	26.4	54.0	58.9	68.5	70.7	73.1	68.3	54.1	43.5	24.4	50.1
61	23.7	34.7	42.5	66.7	58.4	67.5	72.5	71.9	65.0	55.8	42.0	29.1	50.8
62	16.4	27.8	35.0	46.9	66.9	70.7	71.7	71.6	62.0	54.5	40.0	24.9	49.9
63	18.5	27.8	35.0	46.9	66.9	70.7	71.7	71.6	62.0	54.5	40.0	24.9	49.9
64	18.5	27.8	35.0	46.9	66.9	70.7	71.7	71.6	62.0	54.5	40.0	24.9	49.9
65	27.5	27.8	35.0	46.9	66.9	70.7	71.7	71.6	62.0	54.5	40.0	24.9	49.9
66	22.2	28.6	40.8	47.8	68.5	70.7	74.5	70.1	61.9	50.4	48.4	30.5	49.7

MONTHLY AND SEASONAL SNOWFALL

SEASON	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
36-37	0.0	0.0	9.5	7.5	3.0	5.0	2.0	0.0	0.0	27.0
37-38	0.0	0.0	4.7	2.0	6.4	3.0	0.0	0.0	0.0	19.1
38-39	0.0	0.0	6.0	5.4	12.0	8.5	4.0	0.0	0.0	51.9
39-40	0.0	0.0	5.0	7.8	5.0	7.8	5.0	4.0	0.0	29.2
40-41	0.0	0.0	0.0	4.0	8.5	1.7	2.5	0.0	0.0	18.7
41-42	0.0	0.0	0.0	2.5	3.0	6.5	12.3	0.0	0.0	25.3
42-43	0.0	0.0	6.0	5.6	10.0	9.5	12.0	0.0	0.0	28.6
43-44	0.0	0.0	2.5	0.0	2.3	10.9	8.5	1.0	0.0	24.8
44-45	0.0	0.0	1.0	15.0	11.5	5.0	2.0	0.0	0.0	32.5
45-46	0.0	0.0	9.0	9.0	4.0	2.0	0.0	0.0	0.0	18.5
46-47	0.0	0.0	0.0	6.0	2.0	6.0	10.0	0.0	0.0	24.0
47-48	0.0	0.0	0.0	3.5	12.0	4.0	6.0	0.0	0.0	25.5
48-49	0.0	0.0	2.0	2.0	5.0	2.0	7.5	0.0	0.0	14.7
49-50	0.0	0.0	0.0	2.0	2.0	2.0	4.0	2.0	0.0	12.0
50-51	0.0	0.0	14.0	11.8	13.0	1.0	9.5	0.0	0.0	49.3
51-52	0.0	0.0	2.0	20.0	6.5	3.0	1.0	0.0	0.0	32.5
52-53	0.0	0.0	5.0	6.5	2.5	3.0	8.0	0.0	0.0	22.5
53-54	0.0	0.0	9.0	4.0	7.0	4.0	7.5	0.0	0.0	31.5
54-55	0.0	0.0	4.5	4.0	13.0	6.0	10.0	2.0	0.0	39.5
56-57	0.0	0.0	1.5	13.5	9.5	1.0	1.5	11.0	0.0	38.0
57-58	0.0	0.0	0.0	1.5	8.0	5.5	3.1	0.0	0.0	18.1
58-59	0.0	0.0	6.0	6.0	11.0	2.0	8.0	0.0	0.0	33.0
59-60	0.0	0.0	7.0	5.1	0.0	8.1	11.2	0.0	0.0	31.4
60-61	0.0	0.0	4.0	11.5	4.2	3.2	0.0	5.0	0.0	27.9
61-62	0.0	0.0	0.0	2.9	3.0	13.7	11.3	1.2	0.0	32.1
62-63	0.0	0.0	12.9	10.7	9.1	9.5	0.0	0.0	0.0	42.2
63-64	0.0	0.0	6.3	13.1	7.9	8.2	0.0	0.0	0.0	36.1
64-65	0.0	0.0	2.0	6.1	4.2	6.7	10.1	0.0	0.0	29.1
65-66	0.0	0.0	0.0	1.9	5.2	4.5	0.0	0.0	0.0	12.6

TOTAL PRECIPITATION (INCHES)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
26	1.07	2.37	3.93	1.89	1.56	2.76	2.21	2.69	2.65	2.78	1.83	1.39	27.58
27	2.94	2.17	1.69	3.90	3.06	10.86	4.64	1.50	3.78	4.20	4.82	2.85	48.82
28	4.82	3.40	5.07	1.86	2.22	4.08	3.93	4.37	3.07	4.65	4.01	1.85	38.43
29	2.62	3.36	4.11	2.38	4.93	6.32	3.82	2.72	2.48	2.70	4.93	3.86	58.86
40	1.53	2.75	3.49	5.85	3.25	5.59	2.84	5.97	4.85	1.58	3.03	5.48	39.77
41	1.52	6.88	6.85	1.84	2.46	5.92	4.22	4.74	1.09	3.93	1.53	1.36	33.07
42	1.01	2.81	2.27	3.41	3.23	5.45	6.24	1.05	2.74	2.20	4.00	3.11	35.91
43	1.93	1.86	1.09	2.71	3.59	2.51	6.76	2.54	1.46	1.13	1.45	1.41	30.08
44	1.28	1.83	5.92	3.98	5.22	6.11	3.73	1.61	4.20	3.54	2.46	1.81	46.87
45	1.72	3.76	3.09	4.31	4.82	6.84	1.32	1.42	2.49	3.19	2.51	2.58	34.58
46	4.12	6.9	3.22	4.56	5.63	5.11	2.68	3.81	3.45	2.64	1.86	1.86	41.88
47	1.86	3.66	4.15	4.89	4.41	6.45	2.83	2.81	1.87	2.53	5.83	2.88	42.30
48	4.47	1.90	3.42	6.49	4.37	3.49	2.11	3.96	2.24	1.17	0.6	4.54	34.98
49	9.22	4.85	2.78	6.69	2.34	3.87	2.85	4.47	2.94	3.64	4.84	4.34	47.82
50	2.80	3.04	4.18	3.11	2.66	3.43	1.97	1.06	2.50	1.78	1.41	5.06	36.08
51	2.17	2.38	2.07	2.38	4.98	2.98	4.13	1.89	1.47	1.51	1.48	1.48	24.90
52	2.84	2.75	3.14	4.28	1.92	1.77	3.42	4.17	2.4	3.76	3.43	3.39	32.24
53	1.86	3.13	3.02	2.26	4.32	6.89	3.39	2.73	1.54	1.66	1.99	3.50	33.46
54	2.97	2.34	1.15	4.40	4.71	7.49	3.20	1.82	7.36	2.13	2.83	3.07	44.73
55	1.76	6.4	4.88	3.78	4.08	6.93	5.03	3.03	2.37	1.08	4.83	3.35	38.92
56	1.86	3.41	2.03	5.84	3.76	2.10	2.69	1.73	1.69	3.18	3.18	1.99	35.71
57	3.75	1.40	1.18	2.10	3.35	3.76	3.66	1.81	4.4	1.38	2.39	1.37	24.40
58	4.63	2.89	6.25	5.22	1.94	4.62	3.70	2.51	5.35	4.83	2.65	2.13	36.20
59	1.87	1.87	2.77	2.96	2.69	1.89	4.38	1.84	4.84	2.85	3.28	1.82	21.63
60	1.35	1.84	5.63	2.89	1.93	2.04	2.20	1.43	3.7	1.00	1.37	3.28	31.86
61	1.57	1.24	6.68	5.85	3.28	2.80	2.42	1.82	2.56	3.7	2.40	1.23	30.23
62	2.75	3.11	2.48	5.24	1.70	1.28	2.15	3.49	2.93	3.76	2.40	1.23	30.23
66	2.40	1.81	1.49	2.45	3.87	2.71	8.20	5.55	3.40	1.61	5.59	5.44	40.52

Median precipitation amounts (0.50 probability level) in the above table differ from the mean shown on the opposite page because of the method used in making the computations. The above values were determined from the incomplete gamma distribution whose curve has been found to give best fits to precipitation climatological series.