

# CLIMATOLOGICAL SUMMARY

STATION: Put-In-Bay, Ohio

LATITUDE 41° 39' N  
 LONGITUDE 82° 48' W  
 ELEV. (GROUND) 580 Ft.

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		GREATEST DAILY	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		MEAN	GREATEST MONTHLY	YEAR	MEAN	MAXIMUM MONTHLY	YEAR	GREATEST DAILY	YEAR		DAY	.01 or MORE	.10 or MORE	.50 or MORE	1.00 or MORE			
JAN	33.2	20.4	26.8	66	50	26	-15	63	24	1120.0	0	14	26	1	2.0	5.77	37	1.93	56	21	6.0	11.8	59	6.0	64	13	9	5	1.2	.3	JAN
FEB	35.2	21.0	28.1	71	57	27	-7	38	16	1040.0	0	14	25	1	1.9	3.62	35	2.15	50	15	5.5	19.6	52	12.5	52	7	6	1.1	.2	FEB	
MAR	42.8	28.3	35.5	75	45	27	0	48	12	913.0	0	4	21	1	1.9	4.51	64	1.97	52	11	4.2	21.1	60	12.0	60	6	6	1.1	.3	MAR	
APR	55.3	38.9	47.1	87	60	24	20	54	3	535.0	0	0	0	0	3.0	6.38	61	2.25	61	25	7.0	8.1	57	8.0	57	10	7	1.9	.5	APR	
MAY	67.2	50.8	59.0	92	63	9	30	43	1	215.0	0	0	0	0	3.0	6.87	43	3.45	42	31	7.0	0.0	36	0.0	36	10	6	1.9	.5	MAY	
JUNE	78.3	61.5	69.9	99	44	28	43	61	16	26.0	0	0	0	0	3.0	6.90	37	2.15	46	18	7.0	0.0	36	0.0	36	9	6	2.0	.7	JUNE	
JULY	82.4	66.6	74.5	104	36	14	51	63	29	1.0	0	0	0	0	3.0	6.28	58	2.55	57	8	7.0	0.0	36	0.0	36	7	5	1.9	.9	JULY	
AUG	81.1	66.2	73.6	101	36	22	50	65	20	2.0	0	0	0	0	3.0	6.28	58	2.55	57	8	7.0	0.0	36	0.0	36	7	4	1.3	.4	AUG	
SEPT	74.8	59.5	67.1	95	53	11	41	47	25	5.8	0	0	0	0	3.0	6.28	58	2.55	57	8	7.0	0.0	36	0.0	36	7	4	1.3	.5	SEPT	
OCT	63.7	48.8	56.2	93	53	11	25	65	29	28.0	0	0	0	0	3.0	6.28	58	2.55	57	8	7.0	0.0	36	0.0	36	7	4	1.3	.5	OCT	
NOV	48.8	34.3	42.5	78	50	2	10	59	29	67.0	0	0	0	0	3.0	6.28	58	2.55	57	8	7.0	0.0	36	0.0	36	7	4	1.3	.5	NOV	
DEC	36.5	25.2	30.8	64	56	6	-8	44	27	1055.0	0	16	24	1	1.7	3.61	48	1.65	51	7	1.3	7.0	50	4.5	55	19	8	5	1.9	.2	DEC
YEAR	58.2	43.6	50.9	104	56	14	-15	63	24	5975.0	9	39	111	1	29.34	6.90	37	3.49	42	31	22.7	21.1	60	12.0	60	3	98	62	16.0	5.0	YEAR

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

## NARRATIVE CLIMATOLOGICAL SUMMARY

Put-In-Bay (Ottawa County) is located on South Bass Island in Lake Erie and north central Ohio. Terrain within Ottawa County is relatively flat. Within the county, the elevation of the earth's surface above mean sea level varies from about 572 to 680 feet. Following the glacial period all of Ottawa County was covered by the waters of old Lake Maumee. With Artificial drainage, the lands of the old lake bottom have become well suited for general farming. Fruit growing is especially prominent near the Lake Erie and Sandusky Bay shoreline.

The climate of Ottawa County is classified as continental. Such a climate is characteristic of a land mass the size of North America and is marked by large annual, daily and day to day ranges in temperature. The waters of Lake Erie and Sandusky Bay tend to lower daily high temperatures in summer and raise temperatures in winter over most portions of Ottawa County east of a Trowbridge-Oak Harbor line. Summers are moderately warm and humid in this part of Ohio but extended hot spells of temperatures in the 90s rarely last more than 2 days. Winters are reasonably cold and cloudy but the relatively warm waters of Lake Erie temper the air before it passes over South Bass Island. Because of this tempering effect subzero temperatures are recorded in only 1 of 2 winters at Put-In-Bay. Weather changes occur every few days from the passing of cold or warm fronts and their associated centers of high and low pressures.

For the year, Ottawa County generally receives the least precipitation in Ohio while portions of Clinton (southwest) and Geauga (northeast) Counties receive the most. Put-In-Bay has an annual variation of precipitation different from other weather observation sites within north central Ohio. These differences in precipitation amounts between Put-In-Bay and other north central Ohio locations are greatest in spring. At that time, the mean daily temperature of the water surrounding South Bass Island is lower than the mean daily temperature of north central Ohio's "land" stations (Surface temperature differences between Put-In-Bay and other north central Ohio locations are greatest during the afternoon, the normal time of maximum surface heating). Such differences in surface temperatures affect the stability of the lower atmosphere. In this case, the stability differences are related to the variation in precipitation between Put-In-Bay and other north central Ohio weather observation sites. Thunderstorms occur on about 30 days each year. Most of these occur April through August. Heavy rains of 1.8, 2.3, 2.7, 3.1, 3.4, and 3.7 inches in 24-hours can be expected to occur at least once in 2, 5, 10, 25, 50, and 100 years respectively. Average annual snowfall decreases eastward across Ottawa County being about 31 inches a few miles west of the shoreline and 23 inches over South Bass Island. As is typical of all of Ohio, seasonal snowfall in Ottawa County is subject to wide variations from the annual means.

Put-In-Bay's normal average annual temperature is near the average for north central Ohio. In 8 of 10 years the average annual temperature is in the 49.2° F to 52.7° F range. The daily range in temperature is usually greatest in late summer and early fall and least in winter. Annual extremes in temperature normally occur soon after

June 21 and December 22. The highest temperature during the year is equal to or greater than 90° F in 9 of 10 years, 94° F in 5 of 10 years, and 99° F in 1 of 10 years. Lowest temperature during the year is equal to or less than 7° F in 9 of 10 years, 0° F in 5 of 10 years, and -9° F in 1 of 10 years.

Heating degree days (mean degree days) as shown in the above table are a measure of the departure of the average daily temperature from 65° F. When the average daily temperature is above 65° F, the degree day value for that day is zero. 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.

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 208 days on South Bass Island. The growing season is longer than 224 days in 10% of the years and shorter than 191 days in 10% of the years. The average length of the growing season decreases rapidly westward from Lake Erie being about 195 days in the vicinity of Port Clinton but only 170 days at the Ottawa-Wood County line.

Generally, the relative 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 80% at 1 and 7 AM, 60% at 1 PM, and 70% at 7 PM. During summer afternoons, the relative humidity is often in the 50-60% range. Cloudiness is greatest in winter and least in summer. This seasonal variation in cloudiness is most clearly illustrated by the percentage of possible sunshine which is about 70% June through August but less than 30% in December. Fog that reduces visibility to less than 1/4 mile is most frequent during the cold half of the year. Damaging winds of 35 to 85 mph occur most often during spring and summer. Such storms are usually associated with migrating thunderstorms.

Evaporation is greatest during the warm months and is then most critical for agriculture. When evaporation greatly exceeds precipitation for prolonged periods, a drought may occur. During the period 1929-1968, extended periods of moderate to extreme drought in north central Ohio, as determined from the Palmer Drought Severity Index, have occurred during the 1930-1936, 1953, 1954, 1963, 1964, and 1965 growing seasons. The longest continuing period of moderate to extreme drought is 35 months (November 1962-September 1965).

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 often by lightning and thunder. Since 1900, 2 tornadoes have been reported in Ottawa County. During the period 1953-1968, Ohio averaged about 10 tornadoes per year.

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 18	FEB 26	MAR 8	MAR 16	APR 1	APR 10		
70	FEB 27	MAR 7	MAR 18	MAR 25	APR 7	APR 18		
50	MAR 6	MAR 13	MAR 24	MAR 31	APR 12	APR 23		
30	MAR 12	MAR 19	MAR 30	APR 5	APR 16	APR 28		
10	MAR 22	MAR 27	APR 9	APR 14	APR 23	MAY 5		

  

PERCENT CHANCE OF EARLIER DATE IN FALL								
	APR 29	SEPT 2	NOV 15	NOV 22	OCT 24	OCT 17		
30	AUG 6	OCT 20	NOV 22	NOV 19	NOV 1	OCT 23		
50	OCT 13	NOV 22	NOV 27	NOV 23	NOV 6	OCT 26		
70	DEC 21	DEC 24	DEC 2	NOV 27	NOV 11	NOV 2		
90	DEC 31	DEC 31	DEC 9	DEC 4	NOV 19	NOV 9		

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### STATION HISTORY

DATE	LOCATION	ELEVATION	OBSERVER
	(From Post Office)	(Ft. MSL)	
4/1916-12/1953	0.6 mile NW	575	Employees of Stone Inst. of Hydro-Biology
12/1953-8/1959	Gibraltar Island	582	Employees of Stone Inst. of Hydro-Biology
8/1959-Present	0.4 mile E	580	Perry Monument, Current Supt. is Mr. Hugh Gurney

AVERAGE TEMPERATURE (°F)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
36	32.2	19.0	37.6	43.4	49.8	70.7	77.8	77.3	71.5	55.5	38.7	34.3	51.0
37	32.2	29.9	32.1	46.3	59.2	69.2	72.7	74.3	66.0	51.8	49.3	27.3	50.1
38	26.7	33.0	47.2	48.8	58.4	58.4	72.7	74.4	75.0	66.8	56.7	44.0	51.3
39	17.4	26.8	34.4	42.9	60.4	67.8	73.6	69.1	55.7	40.4	34.5	47.4	47.1
40	19.4	26.8	28.3	40.1	53.8	67.8	73.3	70.5	63.7	54.4	42.0	32.7	51.4
41	27.3	24.9	30.1	49.0	61.8	71.0	75.5	72.7	69.0	56.8	42.9	35.5	51.4
42	26.2	22.1	37.4	50.7	60.8	68.6	75.1	72.6	66.6	54.7	41.5	26.4	50.0
43	21.7	26.6	31.1	48.3	57.2	73.9	75.4	73.9	64.5	53.1	39.6	29.2	48.3
44	31.2	30.1	33.3	40.9	61.1	73.2	76.3	76.1	67.8	55.2	44.1	26.1	51.3
45	18.1	27.6	44.7	50.9	59.1	66.3	72.5	72.6	68.9	53.2	44.3	26.0	49.9
46	39.4	30.0	44.5	49.3	55.8	69.1	73.8	69.7	67.4	61.3	46.3	33.4	52.6
47	22.7	31.5	44.2	52.1	64.4	71.3	77.7	74.8	71.3	62.6	40.5	30.4	50.2
48	20.2	25.0	35.0	50.3	56.2	69.2	75.6	73.9	69.2	52.0	44.7	39.9	50.6
49	32.6	32.7	36.8	46.8	61.8	73.7	75.0	74.7	69.1	56.1	41.7	34.5	52.8
50	33.7	28.6	31.1	42.6	57.1	68.4	72.8	72.9	64.8	58.0	39.7	26.5	49.7
51	29.6	30.2	35.9	47.9	51.0	69.6	73.9	72.1	66.0	58.8	38.9	30.9	51.4
52	31.5	32.0	35.9	49.3	57.8	74.6	77.9	74.2	67.3	51.1	48.0	35.1	52.4
53	32.2	33.3	39.6	51.1	59.7	72.8	75.7	72.6	66.0	58.0	46.1	34.9	53.4
54	28.1	33.9	39.6	50.4	58.1	73.0	74.9	72.3	68.1	56.1	48.8	32.2	52.2
55	28.1	29.6	37.2	53.8	62.3	69.8	79.9	77.8	69.1	57.6	39.2	28.3	52.8
56	26.2	30.3	34.5	46.4	57.2	68.7	73.4	72.8	68.0	59.5	43.2	36.2	51.1
57	27.7	22.9	36.0	48.5	56.2	64.7	73.4	71.7	68.8	56.7	44.7	32.4	51.4
58	25.0	26.1	35.9	48.8	51.8	71.0	75.4	77.8	71.8	56.1	39.3	22.0	49.6
59	30.0	29.3	26.6	51.9	57.2	63.6	73.2	72.1	68.2	59.6	43.9	25.4	50.2
60	23.2	30.7	39.3	44.7	56.1	67.7	73.9	74.0	71.4	57.9	44.1	30.9	51.2
61	23.2	25.8	33.6	50.1	66.8	71.0	71.7	72.5	64.4	57.0	42.0	26.4	50.3
62	18.9	21.5	37.2	48.9	56.1	70.8	74.8	70.7	65.6	62.8	46.2	23.9	50.1
63	29.7	28.0	37.3	48.2	63.2	70.2	76.3	71.7	66.1	52.6	46.3	31.7	50.9
64	29.7	27.4	30.9	44.5	63.9	68.1	71.6	70.7	67.9	52.6	44.9	37.0	51.5
65	23.2	30.3	34.5	46.4	57.2	68.7	73.4	72.8	68.0	59.5	43.2	36.2	51.1
66	23.2	25.8	33.6	50.1	66.8	71.0	71.7	72.5	64.4	57.0	42.0	26.4	50.3
67	18.9	21.5	37.2	48.9	56.1	70.8	74.8	70.7	65.6	62.8	46.2	23.9	50.1
68	29.7	28.0	37.3	48.2	63.2	70.2	76.3	71.7	66.1	52.6	46.3	31.7	50.9
69	29.7	27.4	30.9	44.5	63.9	68.1	71.6	70.7	67.9	52.6	44.9	37.0	51.5

ESTIMATED

MONTHLY AND SEASONAL SNOWFALL

SEASON	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
36-37	.0	.0	1.0	2.3	7.0	1.1	1.2	.0	.0	12.6
37-38	.0	.0	2.8	1.1	4.2	4.8	.5	6.0	.0	17.4
38-39	.0	.0	2.8	1.1	7.5	1.0	1.0	.0	.0	23.1
39-40	.0	.0	8.8	5.1	14.2	10.3	2.7	.0	.0	38.1
40-41	.0	.0	4.2	5.8	8.8	.5	.5	.0	.0	22.9
41-42	.0	.0	.0	7.0	11.3	6.0	.0	.0	.0	28.3
42-43	.0	.0	.0	7.1	11.6	1.1	3.4	.0	.0	23.2
43-44	.0	.0	.0	7.2	12.0	6.1	2.0	.0	.0	27.6
44-45	.0	.0	.0	5.2	2.2	1.0	.0	.0	.0	8.4
45-46	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
46-47	.0	.0	.0	6.0	1.4	4.1	8.4	.0	.0	19.9
47-48	.0	.0	2.3	6.3	3.5	3.0	.0	.0	.0	25.1
48-49	.0	.0	.0	1.0	2.0	.2	.8	.0	.0	4.0
49-50	.0	.0	.0	2.2	7.0	8.0	6.4	.0	.0	23.6
50-51	.0	.0	7.0	6.2	7.0	2.6	7.0	.0	.0	29.8
51-52	.0	.0	.0	15.0	7.5	5.8	.8	.0	.0	29.1
52-53	.0	.0	.0	7.0	6.3	4.8	.8	.0	.0	12.7
53-54	.0	.0	5.7	3.2	5.2	12.0	.0	.0	.0	34.5
54-55	.0	.0	3.0	3.2	5.0	5.0	.0	.0	.0	12.0
55-56	.0	.0	4.8	3.3	4.9	9.6	.1	.0	.0	22.5
56-57	.0	.0	.5	2.2	10.5	4.7	3.2	.0	.0	29.2
57-58	.0	.0	5	1.5	3.1	3.0	.1	.0	.0	8.2
58-59	.0	.0	4.6	4.2	11.8	1.9	3.3	.0	.0	25.8
59-60	.0	.0	4.7	6.5	3.0	21.1	.0	.0	.0	38.5
60-61	.0	.0	.0	4.0	1.0	7.0	5.0	.0	.0	21.0
61-62	.0	.0	.6	6.5	5.0	19.0	2.1	.0	.0	33.2
62-63	.0	.0	.0	20.0	8.8	11.4	11.0	.0	.0	51.2
63-64	.0	.0	.0	10.0	15.1	7.3	7.3	.0	.0	44.8
64-65	.0	.0	.0	10.5	9.0	2.3	2.0	.0	.0	24.3
65-66	.0	.0	.0	3.0	3.0	2.3	2.0	.0	.0	7.3
66-67	.0	.0	7.5	3.0	3.0	9.5	3.0	.0	.0	24.3
67-68	.0	.0	.0	.0	3.0	2.5	9.0	.0	.0	27.3
68-69	.0	.0	.0	.0	.1	4.6	4.0	.0	.0	10.2

TOTAL PRECIPITATION (INCHES)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
36	1.02	2.56	2.22	1.81	1.36	1.77	4.11	1.64	3.09	4.05	.96	1.80	26.23
37	5.77	1.58	1.66	4.18	2.68	6.90	3.64	2.09	1.80	4.85	1.84	.69	35.48
38	4.48	2.53	2.00	2.15	3.47	4.01	3.53	1.60	4.85	1.84	1.39	1.14	29.90
39	1.62	3.62	1.09	4.61	.98	2.65	3.24	1.05	1.98	3.78	.74	1.25	27.21
40	.69	2.07	1.01	3.24	4.05	4.95	2.02	6.31	1.58	1.48	1.90	3.46	33.56
41	1.28	.47	.21	2.42	3.28	2.89	4.04	3.32	.79	3.78	.91	1.46	24.95
42	1.39	2.23	2.52	2.35	6.00	2.95	4.04	4.14	2.50	1.76	2.93	2.05	35.03
43	1.83	1.58	1.58	4.42	6.97	2.92	6.21	2.67	1.50	1.76	1.93	.71	32.25
44	1.27	1.83	1.47	2.80	3.25	3.69	1.87	3.15	1.06	3.58	1.82	1.82	27.42
45	.67	1.47	3.98	2.09	9.25	4.58	1.50	3.91	3.15	1.80	1.87	32.28	
46	.68	1.55	3.11	.81	5.77	4.26	2.85	3.47	1.18	2.63	2.10	1.73	30.54
47	3.56	4.41	1.87	4.00	3.29	3.95	1.67	3.93	1.25	1.81	1.38	1.83	38.04
48	1.98	2.04	3.62	2.96	3.87	3.68	1.29	3.23	1.24	1.82	3.51	1.56	32.88
49	2.53	2.45	4.45	2.52	3.68	1.69	3.15	2.33	3.47	1.66	1.64	2.07	27.66
50	4.67	3.14	2.36	2.96	1.02	2.70	2.07	1.39	5.47	1.99	2.66	1.31	31.74
51	1.80	2.15	3.14	2.11	1.76	3.94	3.52	2.14	1.81	2.25	1.36	4.11	32.23
52	2.72	1.83	3.64	2.87	2.44	4.95	2.14	2.24	1.81	.24	1.50	2.50	26.20
53	1.45	1.84	4.05	4.23	4.14	1.81	3.61	2.67	1.05	.77	1.69	1.70	27.69
54	1.45	2.05	3.38	4.03	1.80	1.81	2.91	3.42	1.49	3.82	2.98	.51	28.42
55	1.95	2.09	4.07	3.81	4.12	3.20	1.36	4.89	.55	.23	1.10	1.09	38.02
56	2.11	2.44	1.00	3.57	2.70	3.49	5.10	3.87	3.70	1.90	2.32	2.50	26.20
57	1.07	.51	.36	2.04	1.04	4.65	6.28	2.68	2.85	2.24	2.11	1.40	22.97
58	3.46	2.65	2.18	3.72	3.38	1.61	2.69	1.73	2.21	4.21	2.34	2.40	37.58
59	3.22	1.54	1.54	2.11	3.09	3.31	2.28	3.42	.55	.94	1.32	.31	23.33
60	1.13	2.67	2.96	6.32	1.40	4.29	3.99	5.20	3.01	.78	2.28	1.31	34.34
61	1.25	1.76	1.82	2.22	1.62	3.81	3.58	2.37	2.55	2.12	1.73	27.44	38.02
62	1.44	2.58	2.58	2.22	2.43	1.92	2.61	2.51	1.05	.62	1.27	1.78	18.66
63	1.24	1.44	1.44	4.09	1.25	1.75	3.75	3.24	1.77	.26	2.18	2.65	35.32
64	4.23	2.66	1.64	1.19	3.10	2.50	2.81	3.75	2.93	3.30	2.18	2.37	28.32

PRECIPITATION WITH PROBABILITY EQUAL OR LESS THAN

	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
JAN	.38	.56	.86	1.13	1.41	1.71	2.04	2.46	2.99	3.85	4.66
FEB	.48	.86	1.32	1.53	1.74	1.97	2.22	2.56	3.08	3.85	4.66
MAR	.67	.90	1.25	1.56	1.85	2.17	2.51	2.92	3.44	4.27	5.05
APR	1.28	1.57	1.95	2.28	2.55	2.85	3.16	3.53	3.99	4.58	5.30
MAY	1.00	1.28	1.71	2.07	2.42	2.77	3.17	3.62	4.21	5.12	5.96
JUN	1.14	1.42	1.84	2.18	2.51	2.84	3				