

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. 26-33 -21

LATITUDE 41°09'N
 LONGITUDE 84°54'W
 ELEV. (GROUND) 715 Ft.

CLIMATOLOGICAL SUMMARY

STATION: Paulding, Ohio

MEANS AND EXTREMES FOR PERIOD 1936-1965

MONTH	TEMPERATURE (°F)													PRECIPITATION TOTALS (INCHES)													MONTH											
	MEANS				EXTREMES				MEAN DEGREE DAYS ^{65°}	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	RECORD LOWEST	YEAR	DAY	9° AND ABOVE		32° AND BELOW	32° AND BELOW							32° AND BELOW	32° 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	JUN	JULY	AUG	SEP	OCT	NOV	DEC	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC	YEAR		JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV
	34.6	17.3	25.9	69*	50	26	-18*	63	24	1203*	0	12	28	3	2.29	6.08	37	2.00	52	17	5.6	23.0	39	10.0	39	30	10	5	1.3	4	JAN							
	37.6	19.1	28.3	70	54	19	-17	63	26	1033*	0	8	26	2	2.13	4.75	50	1.80	50	14	5.6	12.3	62	8.5	52	6	9	5	1.1	3	FEB							
	47.4	26.7	37.0	83	38	22	-13	43	8	862*	0	2	23	0	3.00	6.11	45	3.00	45	31	3.1	9.7	47	8.5	64	10	11	7	1.6	4	MAR							
	61.4	36.6	49.0	89*	42	30	10*	57	9	482*	0	0	10	0	3.57	6.60	57	2.96	55	24	8	7.6	57	5.5	58	8	12	8	2.2	5	APR							
	73.2	47.1	60.1	94*	68	18	24	63	1	194*	0	0	1	0	3.52	9.39	43	3.71	49	22	8	7.6	57	5.5	58	8	11	7	2.1	6	MAY							
	82.3	56.8	69.5	100	52	29	37	56	2	33*	0	0	0	0	4.51	7.30	51	3.55	53	8	8	7.6	57	5.5	58	8	10	7	3.2	1.3	JUNE							
	86.1	60.2	73.1	111	36	14	43	50	1	5*	0	0	0	0	3.56	5.97	58	2.77	42	31	8	7.6	57	5.5	58	8	9	6	2.5	1.9	JULY							
	84.8	59.1	71.9	102	48	27	36	63	29	12*	0	0	0	0	2.52	6.36	42	1.37	41	15	8	7.6	57	5.5	58	8	7	5	1.9	1.4	AUG							
	78.5	51.8	65.1	102	53	2	26	42	29	101*	3	0	0	0	2.51	7.32	50	4.29	50	1	8	7.6	57	5.5	58	8	7	5	1.4	1.5	SEP							
	67.0	41.2	54.1	92	51	4	16	57	21	348*	0	0	6	0	2.57	7.50	41	2.98	50	9	8	7.6	57	5.5	58	8	7	4	1.5	1.7	OCT							
	50.3	30.5	40.4	80	50	1	-2*	50	25	735*	0	1	18	0	2.24	4.89	48	1.55	55	2	1.6	8.0	50	6.5	42	29	10	6	1.4	3	NOV							
	37.6	20.6	29.1	65*	56	6	-15	50	27	1109*	0	9	26	1	1.88	4.20	57	1.28	57	7	4.2	15.0	44	5.0	64	3	9	5	1.0	1	DEC							
YEAR	61.7	38.9	50.2	111	36	14	-18	63	24	611.7	23	32	138	6	34.40	9.39	43	4.29	50	1	20.9	23.0	39	10.0	39	30	112	70	21	6	YEAR							

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

NARRATIVE CLIMATOLOGICAL SUMMARY

Paulding is located near the center of Paulding County in northwest Ohio. Terrain within Paulding County is flat; the elevation of the earth's surface above sea level varies from about 690 to 765 feet. A map of the physiographic regions of Ohio shows Paulding County to be a part of Ohio's Lake Plains. The Lake Plains were so heavily forested and the drainage so inadequate, this area was referred to historically as the "Black Swamps" of northern Ohio. With artificial drainage, the lands covered by old Lake Maumee have become well suited to general farming which is the prevailing agricultural activity of the area.

The climate of Paulding is classified as continental. Such a climate is a characteristic of a land mass the size of North America and is marked by large annual, daily, and day to day ranges in temperature. Summers are moderately warm and humid with occasional days when temperatures exceed 90° F; winters are reasonably cold and cloudy with an average of 6 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.

Mean temperature for the year is nearly one degree below the average for northwest 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 1936-66 is 129 degrees. Coldest month of record for the period 1936-66 is January 1940. In that month, daily maximum temperatures were below freezing on 27 days while sub-zero temperatures were recorded on 10 days. Maximum temperatures below 32° F occur most frequently from mid-December through February. Warmest month of record since January 1936 is July 1936. In that month, the daily maximum temperature exceeded 89° F on 21 days while daily lows greater than 69° F were recorded on 8 days. From July 7 through July 15, 1936, daily highs ranged from 100 to 111° F. Since 1936, a temperature of 90° F has been recorded as early as May 5; however, such days are more common during the period June through August.

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 155 days in length. The growing season is 175 days or more in 10% of the years, and less than 134 days in 10% of the years. During the period 1936-1966, a temperature of 32° F or less was 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 the Paulding area varies widely from year to year; however, it is normally abundant and well distributed throughout the year with fall being the driest season. The mean annual precipitation of 34.40 inches is about one half inch above the average for northwest Ohio. Showers and thunderstorms account for most of the rainfall during the growing season. Thunderstorms occur on about 43 days each year. Most of these occur April through August.

As is typical of much of Ohio, most precipitation during the winter months comes in the form of rain. Snowfall averages about 21 inches a year although during the period 1936-1966 as little as 6.5 inches fell during the winter of 1948-49 and as much as 39.1 inches fell during the winter of 1938-39. The yearly snowfall average of 21 inches is about 7 inches below the average for this area. This deficiency is in part caused by the 6 to 7 PM observation time (8 AM after August 1964) because snow that fell during the night has often melted, settled, or blown away before the evening snow observation time.

Evaporation is greatest during the warm months and is then most critical for agriculture. During the period May through September, potential evaporation normally exceeds rainfall by about 9 inches. During the period 1936-1966, the driest growing season of record is 1953. In that year, the potential evaporation exceeded the rainfall by more than 16 inches. When evaporation exceeds rainfall for prolonged periods, a drought may occur; however, severe droughts seldom occur in Paulding County.

Humidity, cloudiness, sunshine, and wind observations are not recorded in Paulding; 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 82% at 1 AM, 84% at 7 AM, 60% at 1 PM, and 67% at 7 PM. Cloudiness is greatest in winter and least in summer. This seasonal variation is most clearly illustrated by the percentage of possible sunshine which is about 71% in July and August and about 38% in December and January. Heavy fog occurs about 20 days each year and is most frequent in the cold half of the year. Death from smog is unknown. During summer, the wind near the ground blows most frequently from the southwest, averaging 8 mph. In winter, the prevailing direction is west-southwest, averaging 11 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, 2 such storms have been reported in Paulding County. During the last decade, Ohio has averaged slightly more than 11 tornadoes a year.

July 1967

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STATION HISTORY

DATE	LOCATION	ELEVATION	OBSERVER
9/1914 - 12/1920	(From Post Office) (Ft. MSL) 1.5 miles S	730	Numberous observers at Experimental Farm
1/1921 - 2/1947	1.5 miles S	730	R. C. Beatty
3/1947 - 7/1950	1.5 miles S	730	F. Johnson
8/1950 - 10/1963	0.3 miles NNE	720	J. J. Leslie
11/1963 - 9/1964	0.3 miles NNE	720	Mose Miller
9/1964 - Present	0.9 miles NE	715	Mose Miller

Average precipitation amounts (0.50 probability level) in the above table differ from the means 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.

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 25	MAR 9	MAR 21	APR 5	APR 18	MAY 1		
70	MAR 8	MAR 20	MAR 31	APR 14	APR 27	MAY 10		
50	MAR 16	MAR 28	APR 7	APR 20	MAY 3	MAY 15		
30	MAR 23	APR 5	APR 14	APR 26	MAY 9	MAY 21		
10	APR 3	APR 16	APR 24	MAY 5	MAY 18	MAY 29		
PERCENT CHANCE OF EARLIER DATE IN FALL								
10	NOV 11	OCT 24	OCT 17	OCT 6	SEPT 21	SEPT 10		
30	NOV 20	NOV 3	OCT 27	OCT 15	SEPT 30	SEPT 18		
50	NOV 26	NOV 11	NOV 3	OCT 21	OCT 5	SEPT 23		
70	DEC 3	NOV 18	NOV 11	OCT 27	OCT 11	SEPT 28		
90	DEC 12	NOV 28	NOV 21	NOV 5	OCT 19	OCT 5		

AVERAGE TEMPERATURE (°F)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
36	20.2	17.4	41.0	44.8	63.5	69.3	78.3	76.4	69.2	52.8	38.1	33.1	50.4
37	31.6	33.3	48.6	58.9	68.7	79.1	74.4	62.5	49.9	37.3	28.1	22.4	42.4
38	27.0	38.2	43.6	51.8	60.1	68.0	74.2	74.1	68.3	54.8	40.8	29.6	52.5
39	29.9	28.6	38.8	46.1	63.1	71.9	72.8	71.7	69.8	54.8	39.1	31.6	51.8
40	15.4	28.8	32.7	45.5	57.4	70.4	73.8	72.6	62.9	55.0	37.6	34.2	48.9
41	27.3	29.4	32.6	54.0	63.1	70.1	74.8	72.5	69.1	57.1	43.3	35.1	52.1
42	27.5	27.7	40.8	53.6	61.3	70.0	73.7	69.9	63.6	52.8	41.8	23.6	50.3
43	24.0	28.6	33.7	44.3	58.4	73.2	73.2	71.6	60.5	51.3	37.6	21.0	48.7
44	30.5	30.2	33.7	45.0	64.9	72.6	73.3	73.2	65.2	51.7	41.6	22.9	53.4
45	17.2	27.8	48.6	51.2	53.3	66.3	71.1	70.7	66.2	50.4	41.9	22.4	48.9
46	28.0	30.4	48.7	49.9	56.9	67.7	72.3	67.4	65.1	58.2	44.7	32.8	51.8
47	30.0	27.5	31.5	58.1	59.1	68.7	78.1	78.2	71.5	67.2	48.8	23.2	49.4
48	39.4	42.6	38.9	43.1	60.9	72.5	78.3	73.0	73.0	59.0	45.6	33.9	52.1
49	32.4	28.1	32.0	41.3	60.1	67.0	70.9	69.8	63.0	57.5	36.0	22.4	48.6
50	24.5	28.4	38.8	47.8	61.9	68.7	72.6	70.0	62.5	56.5	33.8	28.1	49.8
51	28.5	28.4	38.8	47.8	61.9	68.7	72.6	70.0	62.5	56.5	33.8	28.1	49.8
52	31.6	33.4	40.3	50.6	59.1	74.5	77.0	71.6	64.7	49.2	43.4	31.9	52.1
53	32.0	35.8	40.3	46.6	63.1	73.6	72.8	73.4	66.0	57.0	43.3	33.3	53.1
54	29.0	38.5	38.1	54.4	55.6	71.8	72.8	69.5	67.0	54.5	40.9	30.7	51.6
55	26.0	29.4	38.7	55.8	61.9	67.1	77.8	75.0	67.0	54.4	38.2	28.6	51.5
56	24.7	29.8	36.0	46.3	59.4	69.8	71.6	71.2	62.7	58.2	41.0	32.5	50.6
57	20.4	32.5	37.5	49.7	58.7	68.9	72.9	71.7	64.1	50.0	42.8	32.2	48.2
58	26.6	22.7	38.9	51.0	59.1	64.8	72.5	70.9	64.1	54.3	42.8	31.6	51.2
59	22.2	28.4	38.9	50.3	64.6	71.1	70.3	72.8	67.2	52.6	42.2	24.4	49.6
60	29.8	27.9	28.1	53.2	58.1	67.1	70.9	72.8	67.2	54.0	42.2	24.4	49.6
61	32.8	33.1	41.4	44.6	55.9	67.5	72.1	71.2	69.2	55.1	41.5	28.9	50.1
62	22.3	23.9	33.3	48.7	66.1	69.8	70.6	71.9	62.4	55.3	39.8	28.0	49.4
63	16.8	20.3	38.7	49.3	57.1	69.6	72.2	67.8	63.3	61.0	44.5	28.2	48.5
64	29.3	27.3	36.9	51.1	64.7	71.1	73.9	70.6	64.3	47.3	42.0	30.4	48.3
65	24.5	22.0	28.8	44.6	64.7	68.0	68.7	67.1	64.6	50.5	39.6	30.0	48.3
66	20.5	25.9	35.1	44.0	52.3	69.1	74.0	68.4	60.9	47.8	40.3	28.4	47.5

TOTAL PRECIPITATION (INCHES)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
36	1.34	3.19	3.26	2.37	1.95	3.10	.98	3.54	3.17	2.71	2.62	32.09	
37	6.08	1.26	1.76	4.67	3.69	6.63	5.91	1.72	1.83	1.41	1.77	38.97	
38	1.15	2.94	5.68	2.87	2.90	7.09	4.31	1.05	2.14	1.88	1.74	34.37	
39	3.56	4.31	3.01	3.93	3.08	6.02	5.12	1.92	1.35	1.78	.78	29.14	
40	1.51	1.72	2.20	4.91	3.06	4.41	1.83	1.89	1.08	1.15	2.98	29.56	
41	1.91	.71	1.16	1.44	2.05	4.38	1.29	2.85	1.54	1.51	28.68		
42	1.51	2.88	3.88	3.77	2.42	2.32	3.55	6.36	2.58	1.51	1.50	41.50	
43	1.82	2.02	3.12	4.63	3.57	4.38	1.01	1.90	1.31	1.83	2.18	1.43	
44	1.86	1.91	6.11	2.74	5.79	5.88	3.75	1.37	6.30	3.98	1.56	2.61	
45	1.86	1.91	6.11	2.74	5.79	5.88	3.75	1.37	6.30	3.98	1.56	2.61	
46	1.08	1.41	2.68	.77	4.89	5.94	2.26	1.27	7.0	2.90	2.54	28.86	
47	3.96	.60	1.55	4.85	4.45	5.76	2.21	2.34	3.76	3.45	2.26	1.98	
48	1.72	3.22	4.02	2.07	3.97	4.52	4.37	2.14	1.79	1.74	4.89	2.90	
49	5.78	2.45	1.93	2.39	6.86	6.32	4.25	1.66	3.66	4.27	.59	2.26	
50	5.78	4.75	3.29	3.98	1.00	4.78	2.01	2.14	7.32	3.83	4.48	2.75	
51	1.54	2.94	3.68	3.76	4.41	1.20	4.07	1.33	2.04	3.33	1.77	4.19	
52	1.52	1.97	3.93	3.52	6.31	1.12	3.69	2.89	2.88	1.12	2.38	1.79	
53	2.32	2.11	3.28	2.26	2.80	5.21	1.08	2.06	1.82	5.32	2.00	1.54	
54	1.83	1.80	4.51	4.98	2.57	1.39	4.64	2.77	1.95	4.86	4.50	.41	
55	1.23	2.56	3.45	3.33	4.48	3.64	3.16	.59	.23	1.87	30.71		
56	1.67	1.56	1.17	1.60	4.25	6.46	1.96	3.07	3.23	4.17	1.98	4.20	
57	1.08	.80	.77	3.27	1.77	6.30	3.15	3.92	.84	3.73	.22	21.82	
58	4.07	3.08	3.13	4.34	4.01	3.77	3.21	2.03	3.23	3.08	3.01	37.69	
59	2.66	2.40	.54	1.94	3.34	4.33	4.11	2.53	1.04	1.33	1.98	.67	
60	1.23	2.56	3.45	3.33	4.48	3.64	3.16	.59	.23	1.87	30.71		
61	.23	3.64	4.59	4.52	2.17	4.46	3.89	2.98	4.60	1.86	2.33	1.41	
62	3.06	1.82	1.11	1.14	2.70	3.3	3.86	3.02	2.16	2.00	1.35	.69	
63	1.76	.92	3.51	3.44	2.33	3.31	5.54	1.40	.87	.28	1.73	.76	
64	1.76	.92	4.24	4.01	3.58	3.43	3.22	1.94	1.91	1.23	1.12	1.82	
65	3.01	1.71	2.19	4.01	1.75	1.80	3.50	3.43	3.17	4.30	3.17	1.95	
66	.74	.81	1.71	2.51	3.78	3.76	5.70	4.09	3.07	.96	5.66	4.83	

MONTHLY AND SEASONAL SNOWFALL

SEASON	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
36-37	.0	.0	.0	5.0	5.0	2.5	2.0	.0	.0	14.5
37-38	.0	.0	.0	7.5	3.0	4.3	.0	3.5	.0	13.8
38-39	.0	.0	.0	4.5	1.1	2.0	10.5	.0	.0	32.1
39-40	.0	.0	.0	1.5	5.9	11.0	.0	.0	.0	17.4
40-41	.0	.0	.0	3.0	.0	4.9	.0	.0	.0	7.9
41-42	.0	.0	.0	4.0	.0	4.0	1.5	1.0	.0	10.5
42-43	.0	.0	.0	6.5	7.0	2.0	3.3	.0	.0	24.8
43-44	.0	.0	.0	4.5	.5	10.0	3.5	.0	.0	15.0
44-45	.0	.0	.0	15.0	8.5	6.7	1.5	.0	.0	31.7
45-46	.0	.0	.0	5	8.5	2.0	.0	.0	.0	13.9
46-47	.0	.0	.0	6.5	.5	6.0	9.7	.0	.0	22.7
47-48	.0	.0	.0	1.0	6.2	2.2	3.0	.0	.0	18.2
48-49	.0	.0	.0	2.1	1.5	.5	2.0	.4	.0	6.5
49-50	.0	.0	.0	1.1	6.6	5.8	5.2	1.1	.0	19.4
50-51	.0	.0	.0	8.0	3.3	5.2	3.0	.0	.0	28.5
51-52	.0	.0	.0	4.0	9.0	4.0	8.5	.0	.0	26.0
52-53	.0	.0	.0	6.2	2.5	5.0	1.5	.0	.0	15.2
53-54	.0	.0	.0	1.5	7.7	5.3	4.5	.0	.0	19.4
54-55	.0	.0	.0	2.0	1.7	3.5	7.3	.0	.0	17.5
55-56	.0	.0	.0	2.0	2.0	5.0	2.5	.0	.0	20.5
56-57	.0	.0	.0	.0	7.5	11.5	.9	2.5	.0	30.0
57-58	.0	.0	.0	.4	5.2	2.6	3.0	6.6	.0	17.8
58-59	.0	.0	.0	3.5	7.9	1.0	1.0	.0	.0	13.9
59-60	.0	.0	.0	4.5	3.5	7.8	6.4	.0	.0	23.1
60-61	.0	.0	.0	4.0	5.2	2.1	1.0	3.3	.0	18.0
61-62	.0	.0	.0	1.0	8.5	6.2	12.2	.0	.0	33.0
62-63	.0	.0	.0	.6	6.7	4.8	10.6	.0	.0	22.7
63-64	.0	.0	.0	2.0	6.0	7.5	11.0	.0	.0	30.2
64-65	.0	.0	.0	2.0	1.0	3.0	7.5	.0	.0	13.5
65-66	.0	.0	.0	2.0	1.0	2.0	1.5	.0	.0	7.5

PRECIPITATION WITH RELATIVITY LOCAL ON LOW MAIN

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
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