

# CLIMATOLOGICAL SUMMARY

STATION: Springfield, Ohio

LATITUDE 39° 55' N  
 LONGITUDE 83° 49' W  
 ELEV. (GROUND) 1020 FT.

MEANS AND EXTREMES FOR PERIOD 1944-1965

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	C° AND BELOW							MAX.	MIN.	MEAN	MAXIMUM MONTHLY	YEAR			GREATEST DAILY	YEAR	DAY	.01 or MORE	.10 or MORE	.50 or MORE	1.00 or MORE
JAN	38.3	22.6	30.4	73	50	25	-17	63	24	1067	0	9	25	1	3.38	9.14	50	5.50	59	21	6.8	17.1	64	8.0	64	2	12	7	1.8	.5	JAN			
FEB	41.5	24.1	32.8	71	44	26	-12	51	8	908	0	5	22	0	2.76	4.70	50	2.08	59	10	5.2	11.6	64	7.2	51	1	11	6	1.6	.5	FEB			
MAR	50.7	31.2	40.9	83	45	25	3	60	8	743	0	1	17	0	3.89	10.33	64	3.25	64	9	5.4	13.2	59	8.0	63	1	13	7	2.4	.6	MAR			
APR	63.4	41.2	52.3	89	60	24	18	64	1	391	0	0	5	0	4.16	8.62	64	1.79	44	7	1.2	9.2	61	6.0	61	16	12	8	2.8	.7	APR			
MAY	74.5	50.8	62.6	94	62	18	29	63	1	138	1	0	0	0	4.27	7.97	47	2.18	52	24	.0					12	9	2.7	.8	MAY				
JUNE	83.2	59.2	71.2	103	44	28	40	45	6	20	0	0	0	0	3.80	11.38	58	3.10	49	15	.0					9	6	2.4	.7	JUNE				
JULY	86.5	62.7	74.5	103	34	14	45	47	20	11	10	0	0	0	3.60	9.62	58	2.51	62	15	.0					10	6	2.2	1.0	JULY				
AUG	85.4	61.4	75.4	102	31	31	41	46	30	5	8	0	0	0	2.86	6.22	47	2.27	52	2	.0					8	4	2.0	.7	AUG				
SEPT	79.2	54.8	67.0	102	53	2	34	56	21	67	3	0	0	0	2.75	5.51	65	2.25	65	15	.0					7	5	2.1	.5	SEPT				
OCT	68.0	44.5	56.2	91	53	3	20	52	21	285	0	0	2	0	2.00	5.69	54	1.12	51	24	.2	2.4	62	2.4	62	25	7	4	1.1	.4	OCT			
NOV	52.2	34.6	43.4	80	50	1	0	58	30	647	0	1	13	0	2.95	6.46	48	2.96	55	16	2.7	24.4	50	12.5	50	26	10	6	1.6	.3	NOV			
DEC	39.8	24.7	32.2	69	56	6	-11	51	16	1012	0	7	24	0	2.51	5.15	57	1.51	46	12	6.9	18.8	60	7.6	51	14	11	5	1.8	.3	DEC			
YEAR	63.5	42.6	53.0	103	44	28	-17	63	24	5284	28	23	108	1	38.93	11.38	58	5.50	59	21	28.4	24.4	50	12.5	50	26	122	73	25	7	YEAR			

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

## NARRATIVE CLIMATOLOGICAL SUMMARY

Springfield is located near the center of Clark County which is the southern most county in west central Ohio. Terrain within Clark County is flat to rolling; the elevation of the earth's surface above sea level varies from about 820 to 1310 feet. A map of the physiographic regions of Ohio shows Clark County to be a part of the State's till plains. Within this area, there is a variety of predominately fertile and well drained soils.

Normal average temperature for the year is about 1.5 degrees above the average for west central Ohio. In 1 of 10 years Springfield's average annual temperature will be equal to or less than 51.4°F and in a like number of years it will be equal to or greater than 54.7°F. On nights with clear skies and light winds there is often a large variation in observed surface temperatures within Clark County. This is especially true in the vicinity of hills. On such nights, the air near the tops of hills becomes cooler and denser than air at the same heights over the valleys. These air temperature and density differences cause the cool air to drain down the slopes and into the valleys. This drainage often results in large differences in surface temperatures between valley floors and the tops of hills. 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 93°F in 9 of 10 years, 97°F in 5 of 10 years, and 101°F in 1 of 10 years. Lowest temperature during the year is equal to or less than -11°F in 1 of 10 years, -2°F in 5 of 10 years, and 45°F in 9 of 10 years.

Heating 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 heating 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 heating 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 180 days at Springfield. The growing season is longer than 196 days in 10% of the years and shorter than 164 days in 10% of the years. Similar information for other Clark County areas may differ significantly from the Springfield data due to the variations in topography within the county.

As is characteristic of continental climates, precipitation in Clark County varies widely from year to year, however, it is normally abundant and well distributed throughout the year with fall being the driest season. Springfield's mean annual precipitation of 38.93 inches is more than 2 inches above the average for west central Ohio. Showers and thunder-

showers account for most of the rainfall during the growing season. Thunderstorms occur on about 40 days each year and are most frequent from April through August. Precipitation amounts of 2.3, 3.2, 3.8, 4.6, 5.2, and 5.8 inches in 24-hours can be expected at least once in 2, 5, 10, 25, 50, and 100 years, respectively. As is typical of much of Ohio, most precipitation during the winter month's comes in the form of rain. Snowfall may fluctuate widely from the annual mean of 28 inches. About 1 of 4 winters will have at least 40 inches of snow.

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 1931-1967, extended periods of moderate to extreme drought in west central Ohio as determined from the Palmer Drought Severity Index have occurred during the 1934, 1936, 1941, 1953, 1954, 1964, 1965, and 1966 growing season. The longest continuing period of moderate to extreme drought in west central Ohio is 13 months (July 1953-July 1954).

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 80% at 1 and 7 AM, 60% at 1 PM and 70% 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 70% in July and 35% in December. The occurrence of fog that reduces visibility to less than 1/4 mile is most frequent during the cold half of the year. Prevailing wind direction for the year is from the south averaging about 9 mph. Damaging winds of 35 to 85 mph 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, 6 such storms have been reported in Clark County. During the last decade, Ohio has averaged about 11 tornadoes per year.

May 1968  
 Marvin E. Miller  
 ESSA Weather Bureau State Climatologist  
 Box 357  
 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 10	FEB 26	MAR 10	MAR 24	APR 6	APR 20				
70	FEB 23	MAR 9	MAR 20	MAR 31	APR 17	APR 29				
50	MAR 4	MAR 17	MAR 27	APR 5	APR 23	MAY 5				
30	MAR 12	MAR 25	APR 3	APR 10	APR 30	MAY 11				
10	MAR 25	APR 5	APR 12	APR 18	MAY 9	MAY 20				
PERCENT CHANCE OF EARLIER DATE IN FALL										
10	NOV 8	OCT 27	OCT 18	OCT 7	SEPT 22					
30	NOV 18	NOV 6	OCT 26	OCT 15	SEPT 29					
50	NOV 25	NOV 12	OCT 21	OCT 21	OCT 3					
70	DEC 2	NOV 18	NOV 5	OCT 26	OCT 8					
90	DEC 12	NOV 28	NOV 12	NOV 2	OCT 15					

### STATION HISTORY

DATE	LOCATION	ELEVATION	OBSERVER
4/1943-Present	1.0 mile S	1020	Hugh P. Barber

AVERAGE TEMPERATURE (°F)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
44	33.0	34.4	37.5	50.5	65.0	73.0	76.5	75.0	69.0	54.3	42.7	26.0	52.4
45	23.0	31.5	51.6	54.1	57.5	65.0	74.9	72.0	60.5	46.1	44.0	26.0	52.4
46	32.3	34.0	52.5	60.0	70.0	78.5	81.5	77.0	67.0	50.2	46.0	26.0	52.4
47	32.4	32.7	51.2	59.0	69.0	77.0	79.7	74.0	63.0	47.2	32.0	25.0	52.4
48	22.5	32.7	43.3	52.0	61.0	71.0	72.4	68.1	58.2	47.2	32.0	25.0	52.4
49	36.7	37.4	43.1	50.3	63.7	71.0	75.0	76.0	61.4	45.5	33.0	26.0	52.4
50	32.6	31.7	40.8	49.9	62.5	71.0	75.0	73.0	65.5	55.6	37.4	23.0	52.4
51	35.5	31.5	40.6	52.3	61.7	72.0	77.0	73.4	65.0	55.0	44.8	25.0	52.4
52	35.3	36.0	43.6	48.0	62.6	74.0	72.0	76.5	68.0	58.8	45.2	25.4	52.4
53	32.7	40.0	50.4	58.7	68.2	76.0	79.0	73.5	69.0	57.0	43.5	24.7	52.4
54	47.2	53.7	62.7	68.0	74.0	77.0	77.0	73.0	69.0	58.7	40.3	24.7	52.4
55	26.4	33.7	40.5	47.3	52.7	61.0	71.0	73.0	64.0	52.5	43.1	40.2	52.4
56	26.4	33.7	41.3	54.3	62.5	71.0	74.0	73.5	64.0	52.5	43.5	41.5	52.4
57	26.4	33.7	41.3	54.3	62.5	71.0	74.0	73.5	64.0	52.5	43.5	41.5	52.4
58	25.2	28.5	39.9	53.8	62.6	72.7	72.1	65.9	55.1	45.0	29.1	20.8	52.4
59	27.2	34.4	40.0	52.7	63.0	72.0	75.0	76.0	69.0	58.0	46.4	31.1	52.9
60	22.8	30.1	42.2	50.0	62.0	70.0	75.0	73.0	67.0	55.0	43.6	31.1	52.9
61	27.0	32.0	38.0	48.0	58.0	68.0	72.0	73.0	67.0	55.0	42.5	27.0	52.9
62	23.0	29.0	44.0	52.0	62.0	71.0	72.0	70.0	64.0	51.0	45.0	23.0	52.9
63	23.0	29.0	44.0	52.0	62.0	71.0	72.0	70.0	64.0	51.0	45.0	23.0	52.9
64	32.4	30.3	41.7	54.3	62.6	71.0	74.7	74.1	63.5	53.0	47.4	24.0	53.6
65	29.6	30.7	35.7	52.0	65.0	71.0	73.0	72.0	67.0	53.0	45.5	33.0	53.2
66	24.8	31.9	44.1	52.9	62.4	71.5	75.0	71.1	62.6	51.0	41.6	32.2	51.5
67	33.4	28.4	39.9	53.8	62.6	72.7	72.3	69.6	62.6	54.5	36.4	30.1	51.5
68	25.2	28.5	39.9	53.8	62.6	72.7	72.3	69.6	62.6	54.5	36.4	30.1	51.5

MONTHLY AND SEASONAL SNOWFALL

SEASON	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
44-45	0.0	0.0	1.0	6.3	5.2	1.3	0.0	1.1	0.0	15.9
45-46	0.0	0.0	0.3	10.0	2.2	1.7	0.0	2.5	0.0	17.5
46-47	0.0	0.0	0.0	4.5	1.5	2.4	0.0	0.0	0.0	19.3
47-48	0.0	0.0	0.0	7.1	12.9	10.6	2.4	0.0	0.0	36.0
48-49	0.0	0.0	0.0	0.5	4.9	4.3	0.5	0.0	0.0	10.5
49-50	0.0	0.0	0.0	4.4	1.5	4.5	0.2	1.0	0.0	13.3
50-51	0.0	0.0	0.0	24.4	6.8	7.5	0.3	0.0	0.0	39.1
51-52	0.0	0.0	0.0	22.2	10.4	3.6	4.7	0.5	0.0	28.9
52-53	0.0	0.0	0.0	3.1	4.7	4.5	3.3	6.0	0.0	22.9
53-54	0.0	0.0	2.5	4.6	5.6	1.7	8.7	1.1	0.0	22.4
54-55	0.0	1.0	2.4	1.6	7.2	4.9	5.7	0.0	0.0	22.8
55-56	0.0	0.0	5.0	2.0	11.4	7.9	5.5	2.0	0.0	37.4
56-57	0.0	0.0	1.5	6.0	8.2	7.5	1.5	0.0	0.0	25.7
57-58	0.0	1.0	4.3	4.3	6.1	3.2	5.2	0.0	0.0	24.6
58-59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59-60	0.0	0.0	3.4	5.1	1.2	4.8	11.4	0.0	0.0	26.9
60-61	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	51.6
61-62	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	42.1
62-63	0.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	39.9
63-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.6
64-65	0.0	0.0	1.5	1.8	11.0	7.1	13.0	0.0	0.0	32.5
65-66	0.0	0.0	1.0	1.0	7.0	7.0	7.0	0.0	0.0	18.8
66-67	0.0	0.0	12.0	14.0	2.9	14.4	7.7	0.0	0.0	51.0
67-68	0.0	0.0	7.6	5.2	9.1	2.7	15.1	0.0	0.0	51.0

TOTAL PRECIPITATION (INCHES)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
44	1.07	2.33	5.20	3.52	3.37	2.57	0.92	4.32	1.17	2.26	2.68	2.94	35.63
45	1.35	2.75	7.87	5.15	6.07	5.43	1.12	4.07	2.50	3.10	3.21	45.94	
46	1.56	2.95	2.70	1.72	0.86	4.56	2.75	1.70	0.94	2.70	3.41	35.81	
47	4.75	4.03	2.12	0.13	7.37	1.45	3.21	0.32	3.41	1.16	1.92	1.48	46.83
48	2.01	3.09	5.02	4.24	2.94	3.52	2.03	2.14	4.37	2.12	0.46	3.32	43.27
49	7.32	4.04	3.01	4.57	3.16	0.00	3.21	4.83	4.10	2.63	0.22	4.63	44.11
50	0.16	0.30	4.14	4.62	4.07	3.30	1.10	1.76	2.42	1.57	0.09	2.31	37.57
51	4.31	2.42	4.10	4.70	4.33	1.02	1.10	1.26	1.02	1.02	1.78	2.23	36.46
52	6.33	2.62	4.10	4.70	4.33	1.02	1.10	1.26	1.02	1.02	1.78	2.23	36.46
53	3.31	1.81	2.75	3.16	4.17	2.83	2.47	3.26	1.26	0.3	1.02	1.92	28.45
54	2.83	1.76	4.73	4.06	2.02	4.15	1.06	5.35	1.10	5.35	1.39	2.43	34.71
55	1.77	4.15	4.07	2.23	2.07	2.67	3.01	1.04	5.00	3.26	5.61	4.43	39.01
56	1.95	3.74	4.30	3.02	0.71	4.87	3.40	1.04	1.59	1.10	2.24	3.43	34.59
57	1.95	2.04	1.50	0.65	7.07	4.20	2.86	1.91	3.58	1.90	3.95	5.15	42.51
58	2.43	0.71	1.42	4.43	4.11	11.56	5.62	5.07	3.07	1.55	3.17	4.67	48.27
59	2.12	3.43	2.46	3.64	4.32	1.18	5.04	1.22	2.73	2.63	3.66	2.46	41.63
60	2.12	2.21	1.05	1.57	5.37	4.72	2.52	4.37	2.72	2.63	2.09	1.87	29.04
61	1.02	1.02	2.47	4.40	2.19	1.43	4.77	1.14	2.10	1.54	3.26	3.29	39.25
62	1.02	1.02	2.47	4.40	2.19	1.43	4.77	1.14	2.10	1.54	3.26	3.29	39.25
63	1.02	1.02	2.47	4.40	2.19	1.43	4.77	1.14	2.10	1.54	3.26	3.29	39.25
64	2.13	1.45	10.35	3.62	3.50	3.45	2.90	2.39	1.32	0.86	2.46	3.63	42.16
65	3.20	3.45	3.16	6.13	1.71	1.71	3.06	4.68	5.51	3.57	1.30	4.61	37.31
66	3.27	3.30	1.22	5.13	2.98	1.96	3.33	5.72	4.23	1.44	3.96	2.98	37.52
67	0.84	2.53	4.20	4.75	6.93	2.77	1.75	0.71	2.91	1.71	4.75	5.84	37.07
68	1.70	0.35	3.28										

PRECIPITATION WITH PROBABILITY EQUAL OR LESS THAN

	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
JAN	0.62	0.90	1.49	1.94	2.40	2.85	3.44	4.11	4.99	6.40	7.72
FEB	0.65	1.13	1.51	1.84	2.17	2.50	2.87	3.31	3.87	4.74	5.28
MAR	1.20	1.57	2.12	2.59	3.05	3.52	4.05	4.66	5.45	6.50	7.28
APR	1.21	1.71	2.29	2.79	3.28	3.78	4.35	4.98	5.81	7.10	7.82
MAY	1.79	2.17	2.72	3.15	3.59	4.01	4.47	5.00	5.68	6.87	8.16
JUN	0.96	1.31	1.57	1.84	2.18	2.35	2.52	2.68	2.83	3.13	3.37
JUL	1.09	1.34	1.28	1.21	1.12	1.02	0.92	0.80	0.68	0.57	0.46
AUG	1.02	1.20	1.28	1.36	1.42	1.46	1.48	1.48	1.46	1.42	1.36
SEP	0.87	0.80	0.78	0.76	0.74	0.72	0.70	0.68	0.66	0.64	0.62
OCT	0.71	0.60	0.58	0.56	0.54	0.52	0.50	0.48	0.46	0.44	0.42
NOV	0.51	0.40	0.38	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.22
DEC	0.42	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12

Median 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.