

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. 20-33-48

# CLIMATOLOGICAL SUMMARY

STATION: Dorset, Ohio

LATITUDE 41°41'N  
LONGITUDE 80°40'W  
ELEV. (GROUND) 970 Ft.

MEANS AND EXTREMES FOR PERIOD 1957-1966

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	0° AND BELOW			MEAN	GREATEST MONTHLY	YEAR	GREATEST DAILY	YEAR	DAY	MEAN	MAXIMUM MONTHLY
JAN	32.9	19.2	21.4	42.8	36.8	21.1	17.7	1772	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	JAN	
FEB	32.7	19.2	21.4	41.8	36.8	21.1	1772	1772	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	FEB	
MAR	41.1	24.3	32.7	54.8	46.6	32.7	1566	1566	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	MAR	
APR	56.6	34.3	45.9	70.0	60.0	45.9	848	848	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	APR	
MAY	68.2	44.5	56.4	82.0	70.0	56.4	593	593	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	MAY	
JUNE	76.8	54.5	65.6	90.0	80.0	65.6	431	431	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	JUNE	
JULY	80.7	57.0	68.8	96.0	86.0	68.8	293	293	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	JULY	
AUG	78.9	55.7	67.7	93.0	83.0	67.7	167	167	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	AUG	
SEPT	69.1	49.1	59.2	85.0	75.0	59.2	87	87	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	SEPT	
OCT	60.1	39.1	50.2	75.0	65.0	50.2	47	47	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	OCT	
NOV	49.1	31.4	40.6	61.0	51.0	40.6	19	19	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	NOV	
DEC	34.9	19.2	26.1	48.0	38.0	26.1	11	11	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	DEC	
YEAR	56.8	36.4	46.6	67.0	57.0	46.6	2024	2024	2	26	134	10	16.02	8.67	50	1	70.8	34.5	66	10.0	64	2	141	82	21.4	6	1.4	5	YEAR	

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

## NARRATIVE CLIMATOLOGICAL SUMMARY

Dorset is located in the east central portion of Ashtabula County in northeast Ohio. Terrain within Ashtabula County is rolling to hilly. The elevation of the earth's surface above sea level varies from about 570 to 1200 feet. A map of the physiographic regions of Ohio shows all of Ashtabula County except for the areas bordering on Lake Erie to be a part of the State's glaciated plateau. Fruit growing is especially important near the shores of Lake Erie. Manufacturing is also an important activity of this area.

The climate of Ashtabula County 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. West to northerly winds blowing off Lake Erie tend to lower daily temperatures in summer and raise temperatures in winter. When winds are from directions other than those mentioned above the presence of the lake has little effect upon temperatures within Ashtabula County. In this area, summers are moderately warm and humid with an average of only 2 days with temperatures of 90°F or higher. Winters are reasonably cold and cloudy with an average of 10 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.

As is characteristic of continental climates, precipitation varies widely from year to year, however, it is normally abundant and well distributed throughout the year. Dorset's average annual precipitation of 38.04 inches is about 1.2 inches above the mean for northeast Ohio. Showers and thundershowers account for most of the rainfall during the growing season. Thunderstorms occur on about 35 days each year and are most frequent from April through August. Throughout much of Ohio, most precipitation during the winter months comes in the form of rain. Such is not the case, however, in most of Ashtabula County as this area averages 70 inches or more of snow each year.

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 1929-1967, extended periods of moderate to extreme drought in northeast Ohio as determined from the Palmer Drought Severity Index have occurred during the 1930-1936, 1953, 1954, 1962, and 1963 growing season. The longest continuing period of moderate to extreme drought is 32 months (July 1930-February 1933).

Normal mean temperature for the year is about 3.5 degrees below the average for northeast Ohio. On nights with clear skies and light winds there is often a large variation in observed surface temperatures within Ashtabula 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 valleys. This drainage often results in large differences in surface temperatures between the valley floors and the tops of hills. Such inversion conditions deter the dilution of contaminants emitted into the atmosphere.

Annual extremes in temperature usually occur soon after June 21 and December 22. Lowest temperature during the year is less than or equal to -17°F in 1 of 10 years, -12°F in 5 of 10 years, and -8°F in 9 of 10 years. The annual high temperature is less than or equal to 88°F in 1 of 10 years, 91°F in 5 of 10 years, and 95°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 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 133 days at Dorset. The growing season is longer than 160 days in 10% of the years and shorter than 106 days in 10% of the years. Similar information for other Ashtabula County areas may differ significantly from the Dorset data due to the variations in topography within the county.

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 30% in December. The occurrence of heavy 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 southwest quadrant averaging about 10 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, 5 such storms have been reported in Ashtabula County. During the last decade, Ohio has averaged about 11 tornadoes per year.

May 1968

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### 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	MAR 16	MAR 24	MAR 27	APR 13	MAY 3	MAY 11
70	MAR 23	MAR 29	APR 6	APR 20	MAY 12	MAY 20
50	MAR 29	APR 2	APR 12	APR 26	MAY 19	MAY 27
30	APR 3	APR 9	APR 19	MAY 6	MAY 25	JUNE 2
10	APR 11	APR 16	APR 28	MAY 15	JUNE 4	JUNE 11
PERCENT CHANCE OF EARLIER DATE IN FALL						
10	NOV 10	NOV 4	OCT 22	OCT 5	SEPT 13	SEPT 8
30	NOV 20	NOV 13	NOV 2	OCT 17	SEPT 23	SEPT 17
50	NOV 28	NOV 20	NOV 10	OCT 25	SEPT 29	SEPT 24
70	DEC 5	NOV 26	NOV 17	NOV 2	OCT 8	OCT 1
90	DEC 16	DEC 5	NOV 28	NOV 15	OCT 14	OCT 11

### STATION HISTORY

DATE	LOCATION	ELEVATION (Ft. MSL)	OBSERVER
12/1956-3/1964	2.0 miles E	1040	J. J. Lindholm
3/1964-Present	0.5 mile SW	970	E. G. Hruska

AVERAGE TEMPERATURE (°F)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
57	19.9	29.6	35.6	48.0	56.5	67.6	68.8	67.0	62.3	49.4	40.3	32.8	46.1
58	24.7	18.6	33.1	47.1	53.3	60.8	70.0	66.8	61.7	51.1	41.9	30.8	45.1
59	19.5	23.8	31.1	45.9	60.7	65.7	70.3	72.2	65.6	51.6	36.4	31.9	46.1
60	28.1	28.2	21.8	49.1	55.8	64.1	67.0	65.2	65.0	49.8	41.9	20.3	46.6
61	19.1	28.4	36.8	40.0	52.1	63.2	69.5	69.1	67.4	53.8	39.9	27.8	47.3
62	21.8	23.1	32.1	46.4	61.8	66.0	67.6	67.6	59.1	52.4	38.6	23.7	45.6
63	16.8	15.1	35.6	45.7	54.4	65.0	64.4	64.4	58.4	52.8	42.5	21.3	42.5
64	25.5	21.9	34.6	46.4	58.4	68.2	70.6	62.7	58.4	48.7	39.2	32.5	46.9
65	22.7	24.1	29.4	41.5	60.1	63.2	64.4	65.7	63.7	47.4	39.2	28.5	46.2
66	20.7	24.5	36.1	43.4	50.8	63.5	70.6	65.5	57.5	47.1	39.9	28.4	42.9
67	28.8	20.6	32.4	48.5	49.3	68.4	67.4	65.0	56.7	49.0	35.0	30.9	45.8
68	17.9	18.7											

TOTAL PRECIPITATION (INCHES)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNU
57	2.87	1.55	1.79	5.12	2.56	6.99	1.99	4.47	2.91	2.47	3.08	4.30	36.44
58	2.68	1.14	2.95	4.19	2.15	6.77	3.74	6.84	6.25	1.92	4.09	1.16	46.86
59	4.49	3.59	2.31	4.21	3.45	4.95	4.46	2.87	2.20	8.95	5.38	2.89	48.59
60	2.49	2.67	1.44	1.66	4.71	2.27	3.45	1.26	2.29	2.04	2.59	1.55	28.04
61	4.60	3.47	2.91	6.26	2.58	4.06	3.40	2.53	5.02	2.42	3.60	2.08	37.23
62	1.52	1.84	1.65	2.25	2.13	3.23	3.76	3.11	4.21	3.54	2.84	2.51	23.00
63	1.13	1.57	2.89	2.78	2.20	2.65	2.88	1.38	1.67	3.85	4.45	1.70	37.43
64	1.98	1.71	5.71	5.48	3.08	2.52	2.37	2.57	4.54	2.59	1.42	4.19	41.15
65	6.66	4.04	3.00	1.79	3.03	4.92	2.37	2.57	4.04	4.77	2.16	4.33	45.12
66	3.13	1.96	3.37	3.29	3.00	1.61	4.84	6.44	5.39	1.75	2.98	2.91	41.47
67	2.49	1.92	1.75	3.27	3.86	3.49	5.84	4.83	5.89	3.54	4.78	1.58	39.84
68													

MONTHLY AND SEASONAL SNOWFALL

STATION	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
57-58	.0	1.2	9.5	9.0	14.9	11.2	6.1	.8	.0	52.7
58-59	.0	.0	10.9	22.7	19.5	5.7	18.9	.0	.0	77.7
59-60	.0	.0	18.5	7.6	14.7	15.5	19.4	5.7	.0	81.4
60-61	.0	2.0	4.2	21.9	8.1	11.5	.8	8.7	.0	57.2
61-62	.0	.0	5.1	12.8	2.1	18.7	7.9	5.5	.0	52.1
62-63	.0	6.5	.0	34.5	7.0	7.4	10.6	1.5	.0	67.5
63-64	.0	.0	10.7	20.2	17.5	15.5	8.0	2.0	.0	73.9
64-65	.0	.0	5.0	23.0	27.0	18.3	22.0	1.0	.0	96.3
65-66	.0	.0	4.0	5.0	34.5	8.0	17.0	3.0	.5	72.0
66-67	.0	.0	7.0	25.5	19.0	10.5	18.5	.0	.0	75.5
67-68	.0	.0	29.0	12.0	13.5	20.0				

PRECIPITATION WITH PROBABILITY EQUAL OR LESS THAN

	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
JAN	.73	.99	1.40	1.75	2.10	2.47	2.88	3.36	3.99	4.90	5.89
FEB	.73	.94	1.26	1.57	1.78	2.05	2.74	2.68	3.12	3.81	4.43
MAR	.97	1.27	1.57	1.86	2.14	2.43	2.74	3.10	3.55	4.26	4.90
APR	1.40	1.82	2.28	2.66	3.02	3.38	3.76	4.21	4.78	5.64	6.42
MAY	1.66	1.89	2.21	2.45	2.68	2.90	3.13	3.40	3.72	4.21	4.64
JUN	1.57	1.94	2.47	2.90	3.31	3.73	4.19	4.71	5.37	6.39	7.32
JUL	2.22	2.47	2.60	3.00	3.27	3.50	3.73	3.95	4.30	4.77	5.18
AUG	.61	.92	1.43	1.91	2.40	2.92	3.52	4.25	5.21	6.76	8.20
SEP	1.58	1.86	2.24	2.64	2.82	3.11	3.41	3.75	4.17	4.82	5.39
OCT	1.82	1.98	1.53	1.93	2.32	2.74	3.20	3.75	4.46	5.38	6.63
NOV	1.82	2.18	2.60	2.97	3.30	3.64	4.01	4.42	4.93	5.71	6.41
DEC	1.17	1.39	1.71	1.96	2.19	2.43	2.68	2.97	3.33	3.88	4.37
ANN	27.07	29.96	32.48	34.39	36.08	37.71	39.38	41.23	43.46	46.87	49.43

Median precipitation amounts (0.50 probability level) in the above table differ from the means shown on the opposite page because of the methods 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.