CLIMATE OF THE

SOUTHEAST LOWLANDS

OF MISSOURI

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Contents

Climate of the Southeast Lowlands of Missouri

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This bulletin is part of a series of publications from the Agricultural Experiment Station on various aspects of the climate of Missouri. The preceding bulletins have dealt with state-wide climatological patterns. This bulletin shows in detail features of the climate in the southeast lowlands which are important in the economy of that section of the state. Since southeast Missouri is a highly productive agricultural area, much of the climatic information is concerned with the weather elements that affect the planting, growth, and harvesting of major crops.

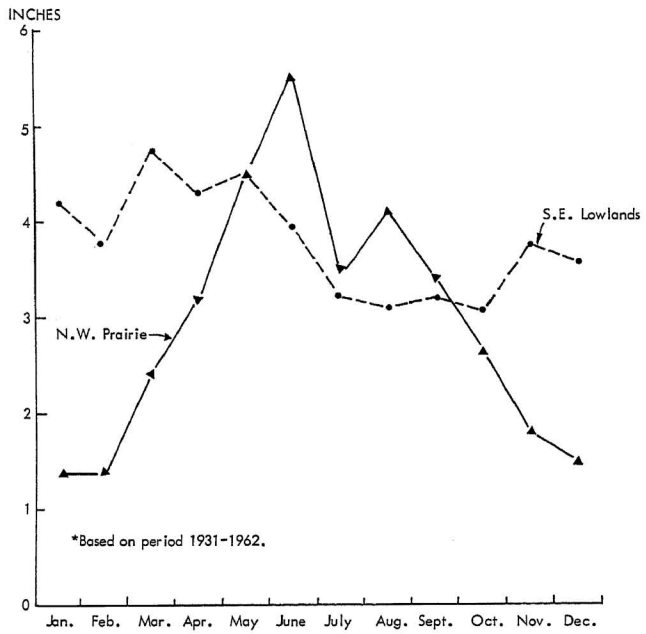
Weather records for this bulletin came from several sources, including the U.S. Weather Bureau, the University of Missouri, and the Federal Aviation Agency. Many of the summaries of data were prepared especially for this bulletin; others have been taken from existing Weather Bureau and University of Missouri publications. There is a wealth of weather data, including many articles, books, and bulletins containing information about the various characteristics of the climate of southeast Missouri. Many of these additional sources of information are listed in the references at the end of this bulletin.

General Features of the Climate

Precipitation

On the average, the southeast lowlands receive more precipitation in a year's time than the other sections of Missouri. Also, the precipitation pattern of the southeast lowlands differs from the remainder of the state, because more than half of the average annual precipitation occurs from October through March. Figure 1 compares the average monthly precipitation in the southeast lowlands with that for northwest Missouri.

Fig. 1—Normal Precipitation by Months for Northwest and Southeast Missouri.*



Much of the autumn and winter precipitation occurs as rain. Snowfall averages 7 inches for the winter, with a yearly total of less than one inch of snow in about one year in 20, and more than 10 inches in about one year in five. On the average, the smallest amounts of rainfall occur during the late spring and summer months, which is the time of the year when the use of water by growing crops is the greatest. This has resulted in increased interest in supplemental irrigation, in spite of the fact that annual totals of precipitation are quite generous.

Table 1 lists average monthly and annual precipitation for the southeast lowlands for the period 1931 through 1962. The average snowfall for the same period is given in Table 2.

Thunderstorms have been known to occur in every month of the year in southeast Missouri, but they are most likely to occur from May through July. This part of Missouri has about 55 days with thunderstorms in a year's time. Some of the largest amounts of precipitation in 24 hours have occurred in connection with thunderstorms. Records from specific locations in southeast Missouri show the largest 24-hour totals range from 5 to 7 inches of precipitation.

Temperature

The southeast lowlands area of Missouri is warmer, on the average, than other sections of the state. This difference in temperature is most noticeable in the winter months, as shown in Figure 2.

Fig. 2—Average Temperatures by Months for Southeast and Northwest Missouri and for Northern Mississippi.

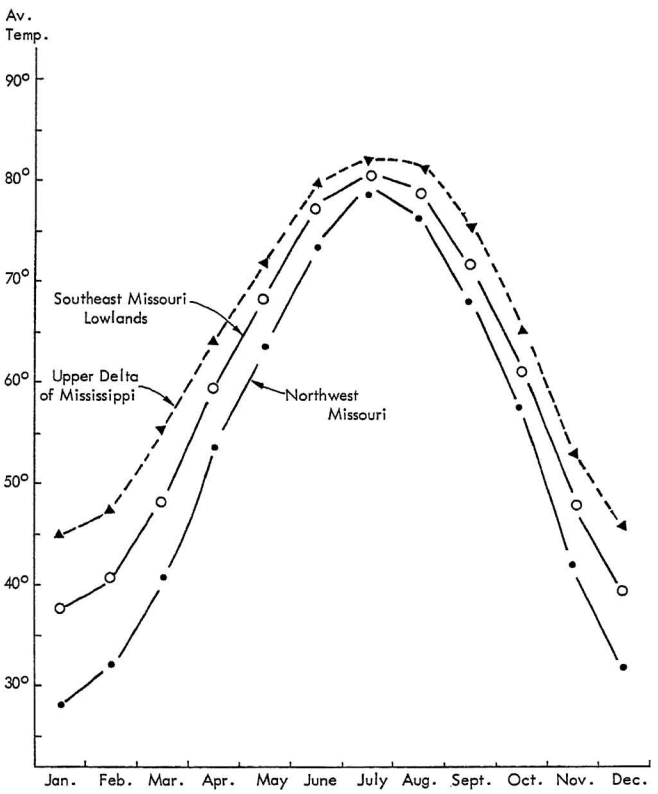


TABLE 1—AVERAGE PRECIPITATION BY MONTHS FOR SOUTHEAST MISSOURI

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec	Total
1931	1.47	3.95	4.51	2.78	3.15	1.64	5.20	5.84	2.00	1.85	6.32	5.60	44.31
1932	8.29	4.22	4.28	3.56	1.04	2.59	3.08	3.63	7.02	3.72	2.17	7.60	51.20
1933	4.11	3.01	7.56	5.02	7.41	1.06	4.73	4.33	7.87	2.98	1.41	3.28	52.77
1934	2.06	1.92	6.08	2.48	2.06	3.89	1.40	7.10	5.06	1.98	8.30	3.68	46.01
1935	4.89	1.85	12.43	3.53	7.51	6.68	2.17	1.56	2.44	3.70	2.23	2.19	51.18
1936	.95	1.72	2.85	4.34	2.13	.45	4.56	.54	8.26	5.07	2.21	3.98	37.06
1937	14.16	1.51	1.92	5.45	2.70	5.26	5.50	1.83	4.76	5.28	2.49	3.38	54.24
1938	4.07	4.82	7.86	2.19	3.75	4.53	6.45	1.79	1.44	.97	3.37	2.09	43.33
1939	5.45	7.48	4.70	6.43	3.24	2.54	3.21	2.92	1.46	2.77	1.83	2.18	44.21
1940	2.28	4.11	3.43	6.90	2.59	3.15	3.36	4.13	.82	.63	4.59	4.43	40.42
1941	3.28	.77	.81	2.52	2.03	2.49	3.91	4.57	1.84	7.26	2.15	4.00	35.63
1942	4.28	3.65	3.44	5.10	2.92	4.21	1.04	8.07	1.74	2.62	6.12	2.75	45.94
1943	.40	1.29	5.87	3.74	6.84	3.52	1.53	1.85	4.16	2.45	1.10	2.67	35.42
1944	.85	5.47	4.36	9.17	4.12	1.71	1.96	3.15	1.91	.94	3.08	4.68	41.40
1945	2.03	6.76	10.47	7.94	6.29	13.46	2.09	3.18	8.30	3.00	3.86	1.84	69.22
1946	4.59	5.46	2.89	4.18	9.26	1.26	4.75	3.78	2.20	2.79	6.78	3.38	51.32
1947	2.08	.38	2.01	5.74	4.93	5.42	1.49	2.15	2.75	4.94	4.07	3.29	39.25
1948	2.87	3.44	6.12	3.21	2.69	5.76	2.70	.94	4.21	2.21	6.70	5.40	46.25
1949	9.62	4.71	6.95	1.23	3.64	6.19	2.90	2.28	3.14	8.97	.56	6.22	56.41
1950	13.89	6.72	5.10	4.16	6.22	3.30	4.07	5.33	3.49	2.41	3.92	1.68	60.29
1951	5.21	5.47	2.89	3.72	1.65	9.06	4.91	1.36	4.69	2.67	7.72	5.02	54.37
1952	4.35	3.93	7.03	3.45	3.25	.97	2.31	3.62	2.78	.95	3.24	3.53	39.41
1953	3.41	2.47	6.98	4.32	3.61	1.68	2.47	1.04	.32	2.25	1.33	2.66	32.54
1954	4.83	2.68	2.98	2.08	4.80	2.97	1.25	3.34	2.72	3.68	1.02	6.51	38.86
1955	.67	3.26	5.12	4.78	5.99	3.39	4.15	1.48	2.29	3.26	1.95	.76	37.10
1956	3.24	7.63	2.40	3.92	3.44	3.70	2.42	2.21	1.54	2.06	3.11	2.83	38.50
1957	6.01	4.22	2.26	8.70	11.86	7.99	5.25	4.85	2.12	5.11	12.60	5.97	76.94
1958	3.20	2.22	7.70	4.10	5.23	2.83	5.93	2.55	4.46	1.09	4.76	.69	44.76
1959	4.34	4.09	1.95	1.76	4.39	2.85	3.10	2.95	4.44	3.23	3.26	3.81	40.17
1960	3.15	2.15	2.77	2.17	5.12	3.57	2.44	3.22	1.94	2.66	4.42	4.01	37.62
1961	1.18	4.53	7.38	4.06	9.17	3.69	4.45	1.95	1.62	.97	7.21	4.52	51.03
1962	5.42	7.18	4.57	3.59	3.07	4.57	4.40	1.78	5.80	3.11	1.04	2.03	46.56
Ave.	4.27	3.85	4.93	4.26	4.56	3.95	3.41	3.11	3.43	3.05	3.90	3.66	46.3

TABLE 2—AVERAGE MEASURABLE SNOWFALL BY MONTHS FOR SOUTHEAST MISSOURI

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1931	3.2	0.0	0.3	0							0	0	3.5
1932	0.3	0.0	1.3	0							0	3.2	4.8
1933	0.0	4.1	0.0	0							0	0	4.1
1934	0.0	0.8	1.4	0							0	1.1	3.3
1935	0.0	0.0	0	0							0	3.9	3.9
1936	2.6	6.6	0	0							2.8	0.3	12.3
1937	0.6	1.5	0	0							0.8	0.1	3.0
1938	0.1	0.0	0	0							0.1	0	0.2
1939	4.1	10.7	0	0							0	2.6	17.4
1940	7.2	5.9	6.9	0							0	0.3	20.3
1941	0.0	1.1	0.2	0							0	0	1.3
1942	5.9	0.6	1.3	0							0	2.4	10.2
1943	3.0	0.2	2.6	0							0	0.2	6.0
1944	1.9	5.9	0.1	0							0	0.3	8.2
1945	3.6	0.7	0	0							0	5.6	9.9
1946	0.3	0.5	0	0							0	0.4	1.2
1947	1.1	6.1	1.7	0							0	1.3	10.2
1948	4.0	4.2	0.7	0							0	0.4	9.3
1949	2.1	0.0	1.3	0							0	0	3.4
1950	2.3	0.6	0	0							1.1	4.9	8.9
1951	3.1	2.8	0.8	0.1							0.8	0.2	7.8
1952	0.0	2.2	0	0							0.3	0	2.5
1953	0.0	0.0	0	0							0	0	0
1954	3.1	0.1	0	0							0	0	3.2
1955	2.4	0.0	0	0							0	0.2	2.6
1956	6.6	0.7	0	0							0	0	7.3
1957	0.0	0.1	0	0.1							0	0	2.0
1958	0.2	2.1	6.6	0							4.7	T	13.6
1959	0.1	2.0	T	T							0.1	T	2.2
1960	2.3	8.9	20.5	0							0	3.3	35.0
1961	3.5	2.6	0	T							T	0.5	6.6
1962	2.6	0.1	0.1	T							0	1.9	4.7
Ave.	2.1	2.2	1.4	T							.3	1.0	7.2

T is less than .05 inch of snow.

Below freezing temperatures occur less frequently in southeast Missouri than in the other sections of the state, and below zero temperatures are rare.

However, temperatures in the Bootheel are not as warm on the average as they are in the Delta section of northwest Mississippi, which is another heavy cotton producing area. The Bootheel is the northern border of the commercial cotton producing area; it encounters a greater risk of freezing temperatures than further south in the Delta.

The graphical presentation in Figure 2 shows the long term average temperature pattern in southeast Missouri, compared with northeast Missouri and northern Mississippi. The data in Table 3 give the average temperatures for each year since 1931. The greatest year-to-year variation occurs during the winter and early spring months and smallest variation in the late spring, summer, and early fall.

TABLE 3—AVERAGE TEMPERATURE BY MONTHS FOR SOUTHEAST MISSOURI

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Ave.
1931	38.5	44.1	44.1	58.8	64.6	79.5	81.5	76.4	77.2	65.0	56.4	47.9	61.2
1932	44.0	48.2	45.1	60.9	68.5	79.0	82.6	79.4	70.9	57.8	43.9	37.1	59.8
1933	45.1	38.0	48.7	58.5	70.5	79.0	80.1	77.3	76.7	59.2	48.6	44.7	60.5
1934	40.9	35.7	46.2	59.9	70.4	80.5	84.5	81.1	69.2	63.6	52.1	36.8	60.1
1935	39.3	42.5	55.3	56.3	65.6	72.2	81.7	79.8	70.2	61.3	47.4	33.1	58.7
1936	31.7	31.7	53.3	55.8	70.6	79.4	84.1	83.7	76.0	59.5	45.2	41.9	59.4
1937	38.6	38.4	44.4	58.5	69.2	77.3	78.2	81.8	70.8	58.2	45.7	36.7	58.2
1938	37.3	47.3	56.8	60.7	68.6	74.3	80.5	81.7	72.9	63.5	48.4	38.7	60.9
1939	41.9	38.1	50.7	55.7	67.9	76.6	80.2	77.0	76.6	62.0	45.3	40.6	59.4
1940	21.7	36.9	46.5	56.8	64.8	75.8	77.9	78.0	70.1	63.7	46.7	42.5	56.8
1941	38.9	36.5	44.3	63.0	71.5	77.8	82.0	81.2	74.8	65.9	46.8	41.9	60.4
1942	33.0	36.6	49.9	60.3	67.5	76.4	81.4	76.5	70.0	60.5	51.2	37.6	58.4
1943	37.6	42.7	43.5	58.4	69.0	79.0	81.6	81.3	68.2	58.2	46.1	35.6	58.4
1944	38.8	43.1	47.0	56.9	70.7	79.3	80.0	78.6	71.8	60.9	48.7	32.6	59.0
1945	34.0	39.4	55.9	60.1	63.3	73.1	77.7	77.6	71.9	58.2	49.8	32.4	57.8
1946	38.1	42.7	57.6	62.4	64.6	75.5	79.5	74.9	69.9	61.7	52.2	44.4	60.4
1947	40.0	32.8	41.5	58.8	65.8	75.5	75.9	83.9	73.1	66.8	45.3	40.3	58.3
1948	29.7	38.5	49.0	63.3	67.2	76.2	79.3	78.2	71.3	57.6	49.8	42.3	58.5
1949	40.3	42.2	47.8	57.9	69.9	76.9	80.7	77.8	66.7	62.4	49.3	42.5	59.5
1950	43.8	41.8	45.5	55.5	68.9	76.0	76.7	74.2	68.7	65.0	42.7	34.1	57.7
1951	37.7	39.6	47.3	54.9	68.4	75.1	79.1	79.1	68.8	61.0	40.9	39.4	57.6
1952	41.9	44.0	47.4	57.0	68.0	83.7	82.0	78.8	69.4	54.6	48.0	40.3	59.6
1953	40.6	43.4	52.4	55.5	69.2	83.0	80.8	79.1	73.1	62.4	48.3	38.7	60.5
1954	37.2	47.8	47.5	64.7	64.2	78.8	84.2	82.5	75.2	61.3	48.6	39.6	61.0
1955	38.2	40.4	49.9	64.0	70.5	72.0	81.6	79.7	75.0	60.3	46.6	36.8	59.6
1956	33.8	43.2	48.9	57.9	70.2	75.6	79.7	79.8	70.1	64.4	48.1	44.8	59.7
1957	33.6	44.7	47.9	61.4	68.8	76.4	78.7	77.3	70.3	57.3	48.0	44.6	59.1
1958	34.6	31.0	42.6	58.3	68.1	75.6	79.6	77.9	70.9	59.9	51.1	35.2	57.1
1959	34.2	39.9	48.9	60.3	72.2	75.1	77.9	79.6	72.9	60.5	43.7	42.2	59.0
1960	38.6	36.9	35.2	61.8	66.0	75.9	78.1	79.2	74.5	61.8	48.6	34.1	57.6
1961	33.4	44.4	51.5	55.2	64.3	74.2	78.5	76.3	72.9	61.3	47.9	37.7	58.1
1962	32.7	43.4	44.3	56.6	75.8	76.3	80.0	78.0	69.3	63.3	47.1	36.3	58.6
Ave.	37.1	40.5	48.0	58.9	68.3	76.9	80.2	79.0	71.9	61.2	47.8	39.2	59.1
S*	4.7	4.4	4.8	2.7	2.4	2.7	2.1	2.4	2.8	2.8	3.1	4.1	

* Standard deviation of the monthly mean temperatures.

Since the southeast lowlands area is frequently in the path of outbreaks of arctic air in the winter, and often in the flow of warm air from the south and southwest in the summer, the range of temperatures from summer highs to winter lows is large. But this range is not as large as found in other sections of Missouri.

Below zero temperatures have occurred occasionally during the period December through March, although there have been many winters with no temperatures below zero. Both Sikeston and Poplar Bluff have on rare occasions experienced days with temperatures as cold as 20° below zero.

Temperatures above 90° occur with an average frequency of about 70 days a year. Temperatures above 100° may also be expected, although there have been several summers when such readings have not been recorded.

Detailed Weather Summaries

Detailed summaries in this section contain data concerning extreme temperatures for several representative locations in southeast Missouri.

A review of these data will show the extent of variability in the climate of southeast Missouri. Some of these weather records have been collected at the same location for many years. At these locations it is possible to formulate a detailed description of the climate. Such summaries are included for the locations shown in Figure 5.

TABLE 4—WEATHER DATA FROM CAIRO, ILL.

NORMALS, MEANS, AND EXTREMES

Month	TEMPERATURE							Normal degree days	MEAN NUMBER OF DAYS				RELATIVE HUMIDITY		WIND			
	Normal			Extremes					Temperatures Max.		Temperatures Min.						Fastest mile	
	Daily maximum	Daily Minimum	Monthly	Record highest	Year	Record lowest	Year		90° and above	32° and below	32° and below	0° and below	6:00 A.M. CST	Noon CST	Mean hourly speed	Prevailing direction	Speed	Direction	Year
(a)	30	30	30	19		19			19	19	19	19	19	19	19	19	19		
J	44.9	29.8	37.4	75	1950	3	1959	856	0	4	19	0	80	68	9.8	SW	42	NW	1953
F	48.4	32.7	40.6	73	1961+	-5	1951	683	0	2	13	*	80	65	9.9	NE	56	SW	1956
M	57.9	40.1	49.0	82	1946	6	1960	523	0	1	8	0	79	59	10.5	SW	43	SW	1948
A	69.0	50.9	60.0	88	1959+	30	1944	182	0	0	*	0	78	54	10.2	SW	59	SW	1957
M	78.2	59.4	68.8	98	1953	39	1944	47	2	0	0	0	82	58	8.2	SW	49	SW	1961
J	87.2	68.4	77.8	104	1954+	51	1956	0	12	0	0	0	82	58	7.5	SW	50	NE	1953
J	90.7	71.7	81.2	104	1954+	54	1947	0	17	0	0	0	84	60	6.5	SW	45	SW	1952
A	88.7	70.2	79.5	103	1956+	53	1946	0	16	0	0	0	87	59	6.2	NE	44	NW	1954
S	82.4	63.6	73.0	103	1954	42	1949	28	5	0	0	0	87	57	7.0	NE	35	W	1952
O	71.7	52.2	62.0	92	1953	29	1952	161	*	0	*	0	86	53	7.3	S	33	SW	1957
N	56.8	40.3	48.6	82	1955	5	1950	492	0	*	7	0	79	58	9.2	S	47	SW	1952
D	47.0	32.3	39.7	73	1951	5	1960+	784	0	3	17	0	79	66	9.3	S	43	S	1957+
Yr.	68.6	51.0	59.8	104	1954+ July	-5	1951 Feb.	3756	52	10	64	*	82	60	8.5	SW	59	SW	1957 Apr.

Month	PRECIPITATION											Pct. of possible sunshine	Mean sky cover sunrise to sunset	NUMBER OF DAYS						
								Snow, sleet						Sunrise to sunset						
	Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year			Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog
	30	19		19		19		19	19		19		19	19	19	19	19	19	19	19	19
J	4.48	14.95	1950	.33	1943	6.09	1949	2.7	11.3	1951	6.3	1951	43	6.9	7	6	18	11	1	1	1
F	3.33	8.88	1950	.55	1947	4.79	1950	2.1	8.9	1960	5.8	1944	52	6.4	7	6	15	10	1	2	1
M	4.72	9.22	1945	1.74	1946	3.70	1952	2.3	20.3	1960	7.3	1960	58	6.3	8	8	15	12	1	3	*
A	3.96	8.27	1945	.95	1949	3.79	1944	T	T	1961+	T	1961+	64	6.1	8	9	13	12	0	6	*
M	4.09	11.15	1946	1.97	1948	5.53	1946	0	0		0		68	6.4	7	10	14	12	0	7	*
J	3.84	10.24	1951	.76	1952	5.91	1961	0	0		0		74	5.9	7	12	11	10	0	9	*
J	2.60	8.19	1955	.84	1945	2.79	1952	0	0		0		77	5.7	8	12	11	9	0	9	*
A	3.21	8.13	1952	.81	1955	7.56	1952	0	0		0		80	5.1	10	12	9	8	0	6	*
S	3.32	6.30	1945	.47	1953	3.40	1959	0	0		0		74	4.7	13	8	9	8	0	4	*
O	2.97	6.55	1949	.63	1944	2.94	1949	0	0		0		73	4.5	15	7	9	7	0	2	1
N	3.80	13.05	1957	.70	1954	4.33	1957	.5	5.2	1958	5.2	1958	58	5.6	10	8	12	9	*	2	1
D	3.33	7.99	1951	.66	1955	2.49	1947	1.4	7.5	1950	6.6	1950	47	6.6	8	7	16	9	*	1	1
Yr	43.65	14.95	1950 Jan.	.33	1943 Jan.	7.56	1952 Aug.	9.0	20.3	1960 Mar.	7.3	1960 Mar.	65	5.9	108	105	152	117	3	52	5

(a)Length of record, years + Also on Earlier Dates * Less than one-half day

(CAIRO DATA CONT'D)

Average Temperature

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	39.0	43.8	43.4	58.8	64.0	79.2	80.9	76.2	77.0	65.0	56.6	47.8	61.0
1932	44.1	48.6	42.7	60.3	68.4	78.2	81.5	79.0	70.2	58.2	43.8	37.2	59.4
1933	45.8	37.8	47.6	58.5	70.3	79.6	79.4	76.8	77.1	59.6	48.4	44.5	60.4
1934	40.9	34.5	44.4	59.4	70.9	80.4	83.5	79.0	68.6	63.7	52.6	37.6	59.6
1935	38.6	41.8	55.2	56.4	65.2	72.6	81.2	79.6	71.4	61.6	47.1	33.0	58.6
1936	30.8	31.0	52.8	55.0	71.6	68.2	82.6	83.4	75.6	60.0	44.6	42.3	59.0
1937	39.2	37.4	44.8	58.4	69.4	77.4	79.2	82.0	70.2	57.8	45.5	35.9	58.1
1938	37.3	47.8	56.4	61.0	68.8	74.2	80.5	81.2	73.2	64.6	50.2	39.5	61.2
1939	43.2	38.8	51.7	55.8	69.0	76.4	80.4	77.8	77.4	63.3	46.6	41.7	60.2
1940	22.0	36.8	46.6	56.6	64.8	75.4	77.6	68.4	70.9	64.8	47.2	43.4	57.0
1941	38.6	35.4	43.0	62.8	71.0	77.6	81.6	80.6	75.2	66.0	48.0	42.8	60.2
1942	34.2	36.7	50.3	61.3	67.4	77.4	82.5	77.4	71.2	61.6	51.8	37.4	59.1
1943	37.2	42.6	43.8	58.3	69.4	79.8	82.4	81.8	68.6	59.3	46.0	36.1	58.8
1944	39.2	43.7	47.5	57.9	72.2	80.2	80.2	79.2	72.4	61.6	49.6	33.6	59.8
1945	33.7	40.0	57.4	61.4	64.0	74.1	79.0	78.5	72.8	59.3	49.6	33.4	58.6
1946	38.6	44.4	59.1	63.5	65.7	78.0	80.3	75.3	71.8	63.8	52.3	44.6	61.4
1947	40.6	32.2	41.6	59.8	67.1	76.6	77.5	84.8	73.2	67.8	45.6	40.6	59.0
1948	29.2	38.7	49.6	64.0	68.4	77.8	80.8	79.4	72.1	58.4	50.4	43.2	59.4
1949	41.0	42.9	48.4	58.4	71.1	78.0	82.3	79.1	67.4	63.2	49.5	43.5	60.4
1950	44.8	42.3	45.1	56.2	70.4	77.3	77.0	74.6	69.2	66.2	42.9	34.0	58.4
1951	37.9	40.5	47.2	55.9	69.7	76.1	80.7	80.6	69.8	62.2	42.1	40.9	58.6
1952	41.9	44.8	48.0	58.7	69.4	85.2	82.8	79.6	71.0	55.3	48.9	41.0	60.6
1953	41.1	43.6	52.5	55.9	70.2	83.2	82.6	80.5	74.5	63.6	48.9	39.3	61.3
1954	36.8	47.3	47.6	65.3	64.9	80.4	84.9	82.9	76.4	61.5	49.3	40.0	61.4
1955	37.7	40.3	49.3	65.1	71.0	72.7	83.1	81.5	76.2	60.5	46.7	37.2	60.1
1956	34.4	34.6	49.5	58.4	70.9	77.1	81.6	81.1	71.5	66.0	48.1	45.3	59.9
1957	33.0	45.0	48.3	63.0	69.6	77.6	80.1	78.9	71.3	57.9	48.0	44.6	59.8
1958	34.6	30.8	42.8	59.0	69.4	75.5	80.6	79.4	72.2	61.2	51.0	34.4	57.6
1959	34.2	40.0	49.1	59.9	72.4	76.9	79.1	80.8	73.8	60.8	42.9	42.6	59.4
1960	38.3	36.3	35.4	62.3	66.7	76.5	79.2	80.6	75.5	62.0	48.7	34.2	58.0
1961	33.0	42.9	51.4	54.7	64.4	75.3	79.3	77.5	73.5	61.5	47.9	38.6	58.3

(CAIRO DATA CONT'D)

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	1.77	3.38	4.20	4.00	2.99	3.13	1.97	7.14	1.19	2.66	5.35	4.15	41.93
1932	7.02	4.43	4.19	3.28	0.50	1.78	2.58	3.79	5.67	3.56	2.65	6.88	46.33
1933	3.78	3.77	6.39	3.68	9.02	0.91	7.49	4.41	7.81	2.75	1.23	2.60	53.84
1934	1.28	2.01	3.86	1.69	1.59	0.92	3.41	2.70	6.02	2.68	8.45	3.30	37.91
1935	4.74	1.34	12.00	3.69	4.83	7.51	1.86	5.99	1.23	5.00	1.70	1.99	51.88
1936	0.95	2.01	4.04	3.79	1.72	2.18	2.64	0.12	3.57	3.81	2.78	4.06	31.67
1937	15.45	1.57	1.36	4.39	4.92	3.06	1.53	0.42	3.18	4.47	1.99	3.04	45.38
1938	4.27	2.88	12.40	1.27	2.71	3.32	7.47	1.56	0.99	1.16	3.25	1.35	42.63
1939	4.15	7.70	4.78	4.95	3.62	2.56	1.36	1.22	1.20	1.47	2.22	1.75	36.98
1940	2.64	3.51	3.25	7.92	1.92	3.17	1.39	0.77	1.75	0.73	4.09	2.92	34.06
1941	2.33	0.71	0.58	2.06	1.77	1.18	2.54	4.06	1.58	7.66	1.42	3.90	29.79
1942	3.12	4.52	3.07	4.19	3.21	3.51	0.62	5.05	0.96	1.96	5.23	2.18	37.62
1943	0.33	1.11	5.06	3.24	6.11	2.69	2.08	1.48	4.26	1.61	1.17	2.56	31.70
1944	0.74	4.63	5.12	6.50	3.79	2.04	1.11	4.40	1.86	0.63	2.60	4.89	38.31
1945	2.13	5.92	9.22	8.27	6.94	10.17	0.84	3.28	6.30	1.97	5.12	1.82	61.98
1946	4.80	5.73	1.74	4.61	11.15	3.01	2.68	5.25	1.27	2.69	6.01	3.54	52.48
1947	2.80	0.55	2.44	6.30	5.71	4.37	1.06	0.87	2.40	4.80	3.77	4.15	39.22
1948	1.55	3.25	6.62	2.19	1.97	5.16	3.77	0.85	4.70	1.59	8.25	5.03	44.93
1949	13.16	6.01	7.00	0.95	3.64	5.55	4.41	3.21	1.64	6.55	0.79	5.54	58.45
1950	14.95	8.88	4.98	4.40	6.84	4.04	5.43	6.81	3.29	2.06	6.13	2.59	70.40
1951	6.81	6.24	2.90	3.99	2.40	10.24	2.22	2.05	4.52	1.94	8.02	7.99	59.32
1952	5.36	4.69	7.25	3.06	3.08	0.76	5.47	8.13	4.90	1.25	1.98	3.37	49.30
1953	4.54	2.27	7.77	3.51	3.31	2.21	1.83	1.54	0.47	2.59	1.38	2.41	33.83
1954	4.87	2.47	2.14	3.28	4.67	3.87	3.26	4.52	3.56	4.00	0.70	6.30	43.64
1955	0.61	3.09	5.76	4.60	5.49	4.72	8.19	0.81	1.40	2.80	2.32	0.66	40.45
1956	2.53	6.78	2.29	4.09	4.95	5.61	2.36	1.77	1.66	1.34	3.80	3.04	40.22
1957	5.49	3.49	2.21	7.81	10.54	9.13	5.28	2.62	1.57	4.90	13.05	6.89	72.98
1958	3.09	1.38	6.91	4.40	2.53	6.41	5.16	3.69	2.94	1.73	4.02	1.07	43.33
1959	5.61	3.94	1.98	2.94	6.42	2.69	4.31	2.44	4.68	3.19	2.66	4.14	45.00
1960	2.95	1.96	2.29	3.10	3.23	8.07	1.34	2.09	3.81	2.72	3.97	5.87	41.40
1961	1.51	6.00	7.56	4.61	8.86	7.28	5.26	4.69	1.58	1.27	7.81	4.20	60.63

(CAIRO DATA CONT'D)

TOTAL MONTHLY AND SEASONAL SNOWFALL

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1931-32	0	0	0	0	0	0	0.9	T	2.0	0	0	0	2.9
1932-33	0	0	0	0	1.6	2.0	T	3.8	T	0	0	0	7.4
1933-34	0	0	0	0	0	T	T	1.3	1.4	0	0	0	2.7
1934-35	0	0	0	0	0	1.5	0.1	T	0	0	0	0	1.6
1935-36	0	0	0	0	T	4.7	1.4	8.0	T	T	0	0	14.1
1936-37	0	0	0	0	4.3	T	T	3.6	T	0	0	0	7.9
1937-38	0	0	0	0	1.3	0.5	1.1	0.1	0	T	0	0	3.0
1938-39	0	0	0	0	0.4	T	2.1	12.0	T	0	0	0	14.5
1939-40	0	0	0	T	0	1.9	7.8	4.3	2.6	T	0	0	16.6
1940-41	0	0	0	0	0	0.2	T	2.4	1.3	0	0	0	3.9
1941-42	0	0	0	0	T	T	5.4	1.3	0.2	0	0	0	6.9
1942-43	0	0	0	0	0	2.4	1.9	0.8	4.5	0	0	0	9.6
1943-44	0	0	0	0	T	0.5	1.8	5.9	0.1	0	0	0	8.3
1944-45	0	0	0	0	0	0.6	3.7	0.1	0	0	0	0	4.4
1945-46	0	0	0	0	T	4.5	0.2	1.4	0	0	0	0	6.1
1946-47	0	0	0	0	0	1.6	T	6.2	3.8	T	0	0	11.6
1947-48	0	0	0	0	T	0.8	5.0	4.4	0.5	0	0	0	10.7
1948-49	0	0	0	0	0.2	T	1.9	0	4.0	0	0	0	6.1
1949-50	0	0	0	T	T	T	4.2	T	T	T	0	0	4.2
1950-51	0	0	0	0	2.6	7.5	11.3	0.2	1.9	T	0	0	23.5
1951-52	0	0	0	0	1.0	1.3	T	4.8	T	T	0	0	7.1
1952-53	0	0	0	0	0.6	0.4	T	T	0.1	T	0	0	1.1
1953-54	0	0	0	0	0	T	4.0	T	T	0	0	0	4.0
1954-55	0	0	0	0	T	T	3.6	0.5	0.1	0	0	0	4.2
1955-56	0	0	0	0	0	0.9	6.1	0.9	T	0	0	0	7.9
1956-57	0	0	0	0	0.1	T	T	0	T	T	0	0	0.1
1957-58	0	0	0	0	T	T	1.0	1.5	8.6	0	0	0	11.1
1958-59	0	0	0	0	5.2	T	0.5	1.0	T	0	0	0	6.7
1959-60	0	0	0	0	0.4	T	3.0	8.9	20.3	0	0	0	32.6
1960-61	0	0	0	0	0	6.4	3.2	3.1	T	T	0	0	12.7
1961-62	0	0	0	0	0	1.2	2.7	0.6	0.1	.2	0	0	4.8

(CAIRO DATA CONT'D)

MONTHLY AND SEASONAL

Degree Days

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1950-51	0	0	21	59	664	954	837	685	549	311	30	3	4113
1951-52	0	0	24	155	682	743	710	576	520	226	46	0	3682
1952-53	0	0	4	310	484	738	735	593	382	298	48	0	3592
1953-54	0	0	4	127	478	791	865	495	531	100	103	2	3496
1954-55	0	0	3	210	466	768	838	681	492	73	2	9	3542
1955-56	0	0	0	186	564	857	942	614	479	236	35	6	3919
1956-57	0	0	5	50	507	608	985	553	511	169	37	2	3427
1957-58	0	0	7	226	501	628	934	952	682	190	48	0	4168
1958-59	0	0	18	156	428	941	945	695	487	190	26	0	3886
1959-60	0	0	2	196	660	684	820	826	911	148	97	0	4344
1960-61	0	0	0	143	483	946	986	612	417	337	81	3	4008
1961-62	0	0	16	156	514	810	985	626	630	266	4	0	4007

STATION LOCATION

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude	Longitude	Elevation above Sea level		Elevation above Ground						
						Ground	Actual barometer elevation (H_z)	Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage
701 Commer. Ave.	6/1/71	8/19/71		37° 00'	89° 10'	314		50	27					50
607-609 Ohio St.	8/20/71	6/30/77	325 ft. ENE	37° 00.1'	89° 09.9'	314	352	67	62					58
U.S. Custom House (third floor)	7/1/77	6/30/22	2200 ft. WNW	37° 00.2'	89° 10.3'	314	356	93	87	87		80		79
U.S. Custom House (second floor)	7/1/22	5/31/42		37° 00.2'	89° 10.3'	314	341	93	87	87		80		79
U.S. Post Office and Court House	6/1/42	Present	300 ft. NW	37° 00.2'	89° 10.3'	314	374	99	5	5		3		3

TABLE 5—WEATHER DATA FROM CAPE GIRARDEAU

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	.82	2.85	4.36	3.70	6.42	1.15	.66	8.17	2.76	2.29	6.52	4.09	43.79
1932	5.98	2.85	3.96	3.77	.96	2.03	1.52	4.89	5.44	5.05	2.21	7.96	46.62
1933	3.02	3.04	5.09	6.27	10.50	.22	4.31	1.81	5.86	2.58	.96	2.48	46.14
1934	1.51	1.47	3.19	2.65	1.82	1.22	1.78	4.00	8.23	2.94	7.64	2.26	38.71
1935	4.02	1.37	10.74	2.02	5.18	6.74	1.64	1.97	4.17	4.95	2.38	1.60	46.78
1936	.94	2.07	2.17	4.55	1.54	.90	2.47	T	3.59	2.87	2.24	3.95	27.29
1937	12.32	1.62	1.14	5.86	6.01	6.35	1.82	.78	4.26	4.19	2.07	2.19	48.61
1938	3.94	2.70	5.40	1.63	3.63	7.17	5.07	2.23	1.46	.97	2.36	1.98	38.54
1939	5.24	5.60	4.93	6.51	2.64	3.05	2.68	2.86	1.14	2.77	1.37	1.33	40.12
1940	1.86	3.25	2.45	5.76	2.77	2.73	.82	3.52	.63	.16	3.89	2.87	30.71
1941	3.16	.58	1.45	3.05	3.26	.67	.87	4.63	3.15	7.44	2.21	4.22	34.69
1942	4.02	4.54	3.65	3.78	5.43	6.22	1.29	6.74	1.63	2.88	8.37	1.72	50.27
1943	T	1.06	6.23	2.58	9.89	3.33	1.24	4.91	4.74	1.59	2.09	1.61	39.27
1944	.58	3.79	3.53	6.53	4.03	2.23	1.78	5.88	2.52	.02	1.23	2.92	35.04
1945	1.72	7.09	12.75	9.63	4.47	9.11	2.23	8.27	10.76	3.17	3.23	1.15	73.58
1946	3.09	5.32	1.32	2.86	9.25	1.01	6.01	6.81	2.29	1.69	4.48	2.33	46.46
1947	1.77	.42	2.12	6.55	4.71	6.31	1.36	1.97	5.75	6.14	3.05	2.68	42.83
1948	3.97	3.17	4.99	3.10	5.04	4.94	1.70	.80	3.67	2.67	8.11	4.90	47.06
1949	11.11	4.97	5.72	.91	3.47	6.32	7.33	1.59	3.75	11.11	.42	5.83	62.53
1950	15.34	5.43	4.28	7.96	5.30	1.88	2.84	6.79	4.39	1.78	4.83	1.11	61.93
1951	4.65	5.22	1.76	2.31	1.92	5.38	3.58	3.33	6.81	2.61	7.21	3.39	48.17
1952	2.68	3.53	7.43	3.10	2.84	.56	2.68	6.69	3.00	.65	3.93	2.35	39.44
1953	2.58	.95	5.25	5.10	3.72	1.79	1.30	1.72	.48	1.50	.86	1.45	26.70
1954	4.11	2.78	2.13	3.59	3.67	4.29	.67	4.21	3.68	3.08	1.16	7.24	40.61
1955	.55	2.05	5.88	5.42	5.17	4.82	5.66	3.02	1.74	3.70	1.91	.22	40.14
1956	1.64	7.36	2.13	2.72	2.92	2.51	2.57	3.25	3.40	2.24	3.69	3.01	37.44
1957	4.34	3.68	1.92	11.35	12.30	3.75	2.81	1.92	1.54	3.32	9.04	6.24	62.21
1958	2.66	1.67	5.26	4.10	4.89	10.24	11.78	4.24	5.05	.83	4.98	.74	56.44
1959	4.60	3.39	2.36	1.50	5.41	4.20	2.07	2.08	4.14	3.95	1.91	4.00	39.61
1960	3.18	1.96	3.24	2.94	4.71	3.20	2.92	2.96	1.95	2.81	4.07	4.15	38.09
Ave.	3.85	3.19	4.23	4.39	4.80	3.81	2.85	3.73	3.73	3.07	3.61	3.07	44.33
1961	1.35	3.91	6.72	2.92	8.23	2.10	4.15	1.02	1.15	.58	6.70	4.02	42.85
1962	5.31	5.56	4.79	2.79	1.63	3.93	2.71	4.01	M	4.63	1.23	2.73	-----
Ave.	3.82	3.29	4.33	4.29	4.81	3.76	2.89	3.65	3.65	3.04	3.63	3.09	44.28

HISTORY OF PRECIPITATION OBSERVATIONS

No.	Latitude	Longitude	Elevation	Location	Instruments	Name of Observer	Period of Observations	
1.	37° 18'	89° 31'	340	0.3 ESE Post Office		Walter S. Albert	11-1-04	11-30-04
2.	37° 18'	89° 31'	340	0.3 ESE Post Office		Daisy L. Albert	12-1-04	9-30-32
3.	37° 18'	89° 31'	340	0.3 ESE Post Office		Lee L. Albert	10-1-32	Present

TABLE 6—WEATHER DATA FROM CARUTHERSVILLE

NORMALS, MEANS, AND EXTREMES

Month	TEMPERATURE							MEAN NUMBER OF DAYS			
	Ø Normal			Extremes				Max. temp.		Min. temp.	
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	90° V ≡	32° V ≡	32° V ≡	Zero V ≡
(a)	30	30	30	58		58		36	36	36	36
J	48.7	30.3	39.6	79	1907	-15	1930+	0	3	18	*
F	52.0	32.5	42.3	83	1911	- 8	1951	0	1	14	*
M	60.2	39.0	49.6	93	1910+	5	1943	0	*	8	0
A	71.5	49.4	60.4	97	1912	23	1921	*	0	1	0
M	80.4	58.7	69.6	102	1921	33	1909	2	0	0	0
J	88.4	67.4	78.0	109	1918	44	1917	13	0	0	0
J	91.1	70.7	80.9	109	1921	54	1911	20	0	0	0
A	90.3	69.8	80.0	111	1918	51	1917+	18	0	0	0
S	84.0	62.2	73.2	108	1925	36	1902	8	0	0	0
O	74.0	50.8	62.4	98	1919	20	1910	1	0	*	0
N	60.2	39.1	49.7	87	1948	5	1950+	0	*	8	0
D	50.6	32.7	41.5	79	1918	-16	1917	0	1	16	0
Yr.	71.0	50.2	60.6	111	1918 Aug.	-16	1917 Dec.	62	5	65	*

Ø Normal degree days	Mean no. days Precipitation .10 inch or more	PRECIPITATION							Snow, Sleet		
		Ø Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Ø Mean total	Maximum monthly	Year
30	58	30	62		62		58		30	58	
791	7	4.66	15.76	1937	0.57	1943	4.42	1907	1.6	23.0	1918
636	7	4.08	9.54	1956	0.66	1941	3.50	1956	1.5	9.0	1921
512	8	5.05	13.29	1922	0.81	1911	3.70	1933	0.4	13.3	1960
174	7	4.02	16.46	1927	0.90	1949	3.33	1956	T	1.0	1957
47	7	4.25	13.93	1957	0.35	1941	4.91	1905	T	-	-
-	6	3.36	10.90	1928	0.09	1936	4.02	1930	0	-	-
-	5	3.59	7.75	1922	0.15	1902	3.76	1957	0	-	-
-	5	3.04	10.79	1915	0.15	1913	4.45	1952	0	-	-
27	5	3.03	8.39	1933	0.18	1953	3.25	1904	0	-	-
155	5	3.13	11.36	1910	0.31	1908	4.15	1910	T	0.5	1913
459	6	3.87	12.00	1957	T	1904	4.00	1908	0.3	4.0	1936
722	7	4.03	9.38	1915	0.57	1925	4.00	1931	0.5	16.5	1917
3523	75	46.11	16.46	1927	T	1904	4.91	1905 May	4.3	23.0	1918 Jan.

(a) Length of record, years.

Ø 1931 thru 1960

\+ Also on earlier dates

* Less than one-half

(CARUTHERSVILLE DATA CONT'D)

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	39.6	45.2	44.8	60.3	67.8	82.5	84.7	77.4	79.5	68.8	58.4	50.4	63.3
1932	47.4	50.2	47.6	62.0	70.4	80.2	84.2	82.0	71.8	57.6	44.5	39.2	61.4
1933	47.4	40.6	50.9	61.1	72.6	80.6	81.9	79.1	78.2	61.3	50.9	47.6	62.7
1934	43.1	38.2	48.4	62.9	72.3	81.5	85.3	82.2	71.0	65.1	54.1	39.8	62.0
1935	41.3	44.2	57.8	58.2	68.7	74.7	83.5	82.0	72.8	63.7	49.5	35.6	61.0
1936	33.8	34.1	56.0	58.6	73.3	81.6	84.9	84.9	78.0	60.8	45.6	42.0	61.1
1937	40.2	38.9	45.2	59.2	71.2	79.4	79.8	82.8	71.0	58.0	46.2	38.0	59.1
1938	38.0	47.9	56.5	61.9	70.0	75.4	82.3	82.1	72.8	62.5	48.3	38.6	61.4
1939	41.6	40.2	50.3	54.8	68.1	76.7	79.6	79.2	77.8	63.5	M	40.8	59.8
1940	22.2	36.6	47.0	57.7	66.2	76.6	78.0	79.0	71.0	64.5	48.4	43.2	57.5
1941	39.7	36.9	44.3	63.2	72.2	78.3	81.8	80.6	75.2	66.4	46.8	42.2	60.6
1942	34.2	37.2	49.2	60.1	67.6	77.0	81.0	76.2	69.5	60.4	51.1	38.0	58.5
1943	37.3	43.0	43.8	58.1	69.0	79.2	81.7	81.4	68.2	58.6	47.6	37.6	58.8
1944	40.9	43.8	48.4	56.8	70.7	79.0	78.7	78.4	71.8	60.6	49.2	34.6	59.3
1945	35.6	40.2	56.6	60.9	63.0	73.0	77.7	77.4	72.0	57.6	52.2	36.1	58.5
1946	40.7	46.4	58.8	64.4	66.1	76.4	79.4	75.4	71.2	63.0	55.0	47.8	62.0
1947	42.8	35.9	43.8	61.8	68.2	77.0	76.8	83.8	75.0	69.0	48.4	44.0	60.5
1948	32.8	41.5	52.1	65.8	69.6	78.0	80.6	79.3	73.1	60.6	52.7	45.3	61.0
1949	43.9	45.7	50.7	59.9	71.7	77.4	80.9	78.5	69.2	64.7	51.4	45.7	61.6
1950	46.9	45.9	47.4	57.1	70.6	76.7	77.0	74.9	69.9	66.6	46.3	36.5	59.6
1951	40.9	42.5	M	54.0	67.6	73.9	78.4	80.5	69.5	61.4	42.2	41.9	----
1952	43.0	46.0	50.4	56.3	70.4	84.7	83.2	80.4	71.1	57.1	50.4	43.4	61.5
1953	43.5	46.2	54.1	57.3	71.2	83.5	81.5	80.3	74.8	64.6	51.2	40.8	62.4
1954	40.5	50.7	50.6	66.1	65.0	79.7	84.5	83.6	77.4	64.0	48.2	42.2	62.7
1955	40.8	43.1	51.5	65.4	71.8	72.4	81.2	80.7	76.9	62.5	49.6	41.2	61.4
1956	37.3	46.2	51.1	60.2	71.7	76.5	81.1	81.0	72.8	M	51.1	47.4	----
1957	37.0	48.2	50.6	63.7	71.1	77.7	80.0	78.2	71.5	59.3	50.2	46.3	61.2
1958	36.5	32.4	43.3	59.4	69.5	77.4	80.0	79.1	72.7	61.7	53.9	38.2	58.7
1959	37.6	42.8	50.5	61.7	72.9	76.1	78.7	80.2	74.4	62.7	46.3	43.5	60.6
1960	40.1	38.3	36.9	63.3	67.0	76.5	79.5	80.0	75.5	63.3	50.8	36.8	59.0
1961	36.1	47.3	53.6	57.4	66.7	75.7	79.4	78.0	74.4	63.1	50.5	40.2	60.2
1962	34.4	46.8	45.9	58.2	76.9	76.7	80.7	78.1	70.7	64.1	47.9	36.8	59.7
Ave.	39.3	42.6	49.6	60.2	69.7	77.9	80.9	79.9	73.1	62.5	49.6	41.3	60.6

CARUTHERSVILLE DATA CONT'D)

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	1.17	2.49	3.81	2.65	1.62	1.01	4.65	8.30	1.60	1.35	7.27	9.32	45.24
1932	9.14	3.98	4.84	5.79	1.61	1.57	1.66	3.10	7.66	2.88	2.17	7.56	51.96
1933	5.47	1.88	10.39	4.41	5.56	0.25	4.84	3.98	8.39	3.98	1.30	3.78	54.23
1934	1.84	2.05	7.33	2.18	4.64	5.95	2.31	9.35	5.10	0.78	8.94	3.24	53.71
1935	4.44	1.50	10.66	2.16	5.96	4.73	2.78	0.92	1.80	2.79	2.48	1.80	42.02
1936	1.35	1.92	2.77	2.74	1.57	0.09	3.25	0.56	4.88	5.24	1.65	2.91	28.93
1937	15.76	1.62	1.87	6.95	2.27	2.05	7.53	3.17	3.36	7.12	2.55	3.86	58.11
1938	4.08	5.96	4.96	1.80	3.98	5.40	5.45	3.97	1.38	1.67	2.25	2.31	43.21
1939	5.95	8.79	3.58	6.22	4.88	4.70	3.22	2.00	1.75	1.17	1.75	2.53	46.34
1940	2.79	4.99	3.89	6.38	4.13	2.69	3.90	3.63	0.72	1.14	2.95	4.67	41.88
1941	2.80	0.66	0.97	3.34	0.35	1.39	3.92	5.53	1.78	6.08	1.78	2.16	30.76
1942	4.58	4.23	4.62	4.42	1.25	4.45	2.17	6.73	0.80	3.11	6.28	3.23	45.87
1943	0.57	2.16	7.36	3.67	6.28	2.73	1.23	2.04	3.53	1.97	1.45	3.49	36.48
1944	1.32	7.22	5.23	6.94	4.44	1.86	2.00	1.27	2.86	2.30	3.06	6.28	44.78
1945	3.14	5.65	9.33	6.75	5.60	9.21	2.97	3.05	7.13	6.15	4.92	2.52	66.42
1946	6.76	5.99	4.76	2.63	4.55	0.68	6.47	2.96	1.77	2.75	5.92	3.58	48.82
1947	3.00	0.81	2.16	6.00	5.01	4.23	2.44	0.74	0.94	4.87	5.92	3.10	39.02
1948	3.91	3.69	6.58	2.35	2.07	3.91	3.71	1.38	4.45	3.86	5.45	6.47	47.83
1949	7.76	4.00	7.08	0.90	3.85	8.72	3.21	2.18	3.06	8.21	0.62	6.00	55.59
1950	11.18	7.85	5.21	2.86	4.83	2.57	5.05	4.82	3.78	2.00	4.59	2.31	57.05
1951	1.63	4.33	3.85	3.35	5.55	7.61	3.53	6.96	6.52	4.34	4.57	1.82	54.06
1952	1.46	3.06	3.71	4.15	1.95	1.30	2.77	7.99	0.36	0.57	3.47	2.78	33.57
1953	3.17	3.66	9.35	5.20	5.69	0.91	1.21	1.14	0.18	2.06	1.47	3.19	37.23
1954	4.76	2.42	2.47	2.47	4.05	1.16	2.13	1.73	1.10	3.71	1.07	5.14	32.19
1955	1.06	4.98	4.29	5.19	4.71	4.08	4.63	0.44	2.10	3.04	1.99	2.05	38.56
1956	3.53	9.54	2.12	4.54	2.36	1.84	0.56	2.13	0.82	M	2.95	2.78	-----
1957	5.97	4.83	1.65	6.53	13.93	8.60	5.91	4.55	2.84	3.30	12.00	6.07	76.18
1958	3.86	3.41	7.51	4.65	8.93	1.93	6.77	0.88	5.78	1.03	6.00	1.97	45.41
1959	5.03	4.98	2.87	1.47	3.96	4.16	1.96	2.26	3.49	1.88	4.08	4.81	40.95
1960	4.56	2.84	4.23	2.17	5.87	5.02	2.89	1.50	2.65	3.49	4.14	3.71	43.07
1961	1.46	5.87	7.61	4.26	6.35	2.82	4.50	2.10	.70	.67	9.92	5.72	51.98
1962	5.52	6.26	4.97	3.82	3.32	7.65	2.17	4.32	8.02	1.51	.59	.83	48.98
Ave.	4.34	4.18	4.67	4.03	4.41	3.60	3.49	3.30	3.17	3.07	3.92	3.81	46.47

(CARUTHERSVILLE DATA CONT'D)

TOTAL MONTHLY SNOWFALL

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1929-30	0	0	0	0	1.0	4.0	5.0	0	0.3	0	0	0
1930-31	0	0	0	0	T	8.0	1.5	0	0.2	0	0	0
1931-32	0	0	0	0	0	0	T	0	1.0	0	0	0
1932-33	0	0	0	0	T	2.2	0	3.5	T	0	0	0
1933-34	0	0	0	0	0	0	T	T	0.7	0	0	0
1934-35	0	0	0	0	0	T	T	T			0	0
1935-36	0	0	0	0	0	3.5	3.3	7.0	0	T	0	0
1936-37	0	0	0	0	4.0	1.0	0	T	0	0	0	0
1937-38	0	0	0	0	1.4	0	0	0	0	0	0	0
1938-39	0	0	0	0	T	0	1.5	0	0	0	0	0
1939-40	0	0	0	0	0	T	6.0	8.0	7.0	0	0	0
1940-41	0	0	0	0	0	0.4	0	2.5	T	0	0	0
1941-42	0	0	0	0	T	0	7.0	T	T	0	0	0
1942-43	0	0	0	0	0	0.4	5.5	T	0	0	0	0
1943-44	0	0	0	0	T	T	3.0	1.8	T	0	0	0
1944-45	0	0	0	0	T	T	1.6	1.0	0	0	0	0
1945-46	0	0	0	0	0	4.5	T	2.0	0	0	0	0
1946-47	0	0	0	0	0	T	3.0	7.8	1.0	T	0	0
1947-48	0	0	0	0	0	T	6.8	2.6	0.2	0	0	0
1948-49	0	0	0	0	T	T	0	0	2.0	0	T	0
1949-50	0	0	0	0	0	T	1.0	0	T	T	0	0
1950-51	0	0	0	0	2.0	4.0	2.5	4.5	1.0	T	0	0
1951-52	0	0	0	0	0	0	0	1.0	T	0	0	0
1952-53	0	0	0	0	0.5	T	0	0	T	0	0	0
1953-54	0	0	0	0	0	T	0.3	1.0	T	0	0	0
1954-55	0	0	0	T	0	T	0	T	T	T	0	0
1955-56	0	0	0	0	T	T	4.0	0	T	0	0	0
1956-57	0	0	0	M	T	0	T	T	T	1.0	0	0
1957-58	0	0	0	0	0	0	T	3.5	0	0	0	0
1958-59	0	0	0	0	0	T	0	0	T	0	0	0
1959-60	0	0	0	0	T	0	M	M	13.3	0	0	0
1960-61	0	0	0	0	0	M	6.0	1.0	0	M	0	0
1961-62	0	0	0	0	T	T	4.0	0	T	T	0	0

(CARUTHERSVILLE DATA CONT'D)

MONTHLY AND SEASONAL

Heating Degree Days

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1950-51	0	0	12	47	561	974	741	627	M	350	46	1	M
1951-52	0	0	21	169	675	708	660	551	446	226	37	0	3493
1952-53	0	0	4	261	441	666	667	520	329	261	33	0	3182
1953-54	0	0	2	114	411	754	753	398	450	83	96	5	3066
1954-55	0	0	5	170	415	701	744	611	422	74	3	3	3148
1955-56	0	0	0	152	499	729	850	551	439	184	18	4	3426
1956-57	0	0	1	32	420	542	858	468	435	140	25	0	2921
1957-58	0	0	5	198	437	572	876	908	665	175	51	0	3887
1958-59	0	0	7	151	341	824	822	615	446	147	18	0	3371
1959-60	0	0	1	148	554	659	766	771	864	118	93	0	3974
1960-61	0	0	0	113	426	868	890	491	350	269	52	0	3459
1961-62	0	0	10	132	446	761	942	505	585	248	8	0	3637

HISTORY OF WEATHER OBSERVATIONS

No.	Latitude	Longitude	Elevation	Location	Instruments	Name of Observer	Period of Observation
1.	36° 20'	89° 38'	M	Station known as Gayoso	Mx Mn SRG	J. W. Collet	1/1/1878-11/30/1896
2.	36° 20'	89° 38'	M	8 Mi. S.P.O.	Mx Mn SRG	Harvey E. Averill	11/1/1898-4/30/02
3.	36° 12'	89° 40'	M	9 Blks. SE. P. O.	Mx Mn SRG	Harvey E. Averill	7/1/02-11/31/24
4.	36° 12'	89° 40'	265	In Town	Mx Mn SRG	L. W. Dillman	6/1/25-3/31/1926
5.	36° 12'	89° 40'	265	In Town	Mx Mn SRG	John T. Markey	4/1/1926-10/1/1927
6.	36° 12'	89° 40'	265	100 ft. W. P. O.	Mx Mn SRG	Sam Smith	1/24/1928-4/25/1940
7.	36° 11'	89° 39'	270	0.5 Mi. SSE. P. O.	Mx Mn SRG	Victor T. Malloure	4/26/1940-12/31/1946
8.	36° 11'	89° 39'	270	0.5 Mi. SSE. P. O.	Mx Mn SRG	Victor T. Malloure	1/1/1947-7/1/60
9.	36° 11'	89° 39'	270	0.5 Mi. SSE. P. O.	Mx Mn SRG	Cora S. Malloure	7/1/60

TABLE 7—WEATHER DATA FROM DEXTER

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	1.22	3.63	3.79	2.69	3.67	5.19	2.24	3.88	1.21	2.63	5.52	4.32	39.99
1932	5.29	4.31	3.60	3.54	.58	1.79	2.43	5.13	5.87	4.25	2.37	8.85	48.01
1933	3.36	3.29	4.90	5.49	8.71	.55	3.16	3.91	12.02	2.84	.38	2.10	50.71
1934	2.53	1.81	5.25	1.71	1.27	4.32	3.37	6.07	4.98	1.24	7.12	3.64	43.31
1935	5.11	1.96	12.90	1.22	8.52	11.57	1.19	3.03	2.28	3.82	2.02	2.31	55.93
1936	.97	1.48	2.96	4.55	2.14	1.07	1.82	.76	8.71	6.44	2.43	6.29	39.62
1937	15.68	2.39	1.95	3.27	3.46	5.97	7.77	1.39	4.26	5.84	1.60	2.50	56.08
1938	3.94	4.15	9.59	2.51	2.21	3.67	7.06	1.78	1.07	1.39	4.59	1.44	43.40
1939	5.75	8.14	4.27	6.99	4.56	6.12	4.09	4.76	1.28	2.53	1.87	2.57	52.93
1940	2.36	4.12	2.62	7.00	1.89	6.23	4.33	3.87	.84	.47	4.87	4.66	43.26
1941	2.86	.73	.60	2.66	2.26	3.12	2.09	4.01	2.29	9.51	1.56	5.13	36.82
1942	5.70	3.89	2.78	5.21	2.60	4.88	.70	7.21	1.51	2.84	5.03	2.92	45.27
1943	.14	.81	4.50	3.81	7.42	3.69	3.56	2.79	7.43	2.52	1.19	2.94	40.80
1944	.83	5.03	5.36	9.00	4.01	1.43	1.48	3.14	2.93	1.37	2.83	4.61	42.02
1945	2.26	8.28	11.02	9.72	6.41	12.25	2.70	3.86	9.85	3.31	4.21	2.09	75.96
1946	5.28	5.72	3.85	4.82	10.79	3.71	.99	3.92	1.27	2.36	7.75	3.13	53.59
1947	2.35	.33	2.47	5.32	4.40	5.95	2.66	2.29	4.63	4.55	5.13	2.77	42.85
1948	3.93	3.59	5.79	2.96	3.22	5.40	3.29	.69	5.16	1.75	7.67	3.80	47.25
1949	9.83	5.34	5.91	1.54	6.07	3.47	2.54	2.52	2.85	8.89	.29	6.87	56.12
1950	14.65	8.76	4.95	3.61	6.23	3.86	4.30	3.87	3.52	2.67	3.70	1.75	61.87
1951	5.53	5.51	3.98	3.59	.96	5.83	8.85	.69	6.40	3.72	8.76	4.80	58.62
1952	4.07	5.33	7.19	3.57	2.76	.26	2.77	2.38	2.54	1.04	3.49	3.28	38.68
1953	3.62	2.29	8.17	4.10	3.33	1.53	3.65	1.34	.66	1.50	1.28	1.67	33.14
1954	5.20	3.00	2.91	1.35	6.66	3.54	.79	5.56	2.56	2.95	.36	6.73	41.61
1955	.51	2.50	5.67	4.83	4.07	2.58	2.73	1.81	3.10	3.68	1.73	.73	33.94
1956	2.96	6.76	2.54	4.17	4.96	2.74	2.84	1.63	2.44	2.39	3.04	2.41	38.88
1957	7.40	4.09	2.22	11.93	11.09	8.43	2.14	5.50	1.17	5.51	12.14	5.79	77.41
1958	2.64	3.22	8.25	4.23	5.08	3.07	3.56	4.07	3.27	.77	5.44	.15	43.75
1959	4.80	3.18	2.19	2.34	3.21	3.32	4.75	7.86	4.54	3.55	2.86	3.74	46.34
1960	3.25	1.63	2.86	2.46	5.22	5.09	2.76	3.40	1.48	1.22	4.87	4.55	38.79
Ave.	4.47	3.84	4.83	4.34	4.59	4.35	3.22	3.44	3.74	3.25	3.87	3.62	47.57
1961	1.49	3.56	7.88	4.16	12.61	2.45	3.33	1.50	1.98	1.11	7.35	4.30	51.72
1962	4.93	6.39	4.40	3.86	2.15	3.10	3.48	5.74	4.85	4.92	1.00	2.37	47.19
Ave.	4.39	3.91	4.91	4.32	4.76	4.25	3.23	3.45	3.72	3.24	3.89	3.60	47.68

HISTORY OF PRECIPITATION OBSERVATIONS

No.	Latitude	Longitude	Elevation	Location	Instruments	Name of Observer	Period of Observation	
1.	36° 48'	89° 58'	375	0.3 NW Post Office	SRG	W. A. Sherwood	9-1-23	12-31-31
2.	36° 48'	89° 58'	375	0.3 NW Post Office	SRG	Mrs. W.A. Sherwood	1-31-31	1-9-35
3.	36° 48'	89° 58'	375	0.4 NW Post Office	SRG	Gus W. Hart	1-10-35	4-30-41
4.	36° 48'	89° 58'	375	0.4 NW Post Office	SRG	Jacob L. Jackson	8-1-41	Present

TABLE 8—WEATHER DATA FROM POPLAR BLUFF

NORMALS, MEANS, AND EXTREMES

Month	TEMPERATURE							MEAN NUMBER OF DAYS			
	Ø Normal			Extremes				Max. temp.		Min. temp.	
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	90° or ≥	32° or ≤	32° or ≤	Zero or ≤
(a)	30	30	30	46	-	46	-	46	46	46	46
J	47.7	27.1	37.5	78	1943	-23	1930	0	4	23	1
F	51.1	29.4	40.2	81	1918	-18	1953	0	1	18	*
M	59.8	36.5	48.2	92	1929	0	1943	*	*	13	*
A	71.4	47.0	59.3	94	1927	23	1939+	*	0	2	0
M	79.8	55.5	67.7	100	1934	31	1944	3	0	0	0
J	88.3	64.4	76.4	110	1936	41	1917	13	0	0	0
J	91.9	67.8	79.9	109	1930	48	1947	21	0	0	0
A	91.4	66.8	79.1	112	1930	45	1946+	19	0	0	0
S	85.2	58.3	71.7	108	1925	31	1924	10	0	0	0
O	74.9	46.7	60.9	96	1953+	17	1952	1	*	3	0
N	60.3	34.9	47.6	85	1924	4	1950	0	*	14	0
D	49.7	28.8	39.3	79	1939	-17	1916	0	2	21	*
Yr.	71.0	46.9	59.0	112	1930 Aug.	-23	1930 Jan.	67	7	94	1

PRECIPITATION										
								Snow, Sleet		
Ø Normal degree days	Mean no. days Precipitation .10 inch or more	Ø Normal Total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Ø Mean total	Maximum monthly	Year
30	46	30	46		46		46		46	46	
856	6	3.84	13.11	1937	0.18	1943	4.40	1927	3.4	47.5	1918
692	5	3.45	7.65	1945	0.19	1947	3.50	1949	2.4	12.0	1939
536	6	4.50	10.84	1945	0.55	1918	3.75	1935	1.2	23.7	1960
201	7	4.49	12.89	1927	1.29	1930	3.80	1944	T	T	1957+
47	7	4.83	13.10	1927	0.51	1934	4.79	1918	-	-	-
-	6	4.16	14.93	1928	0.48	1952	4.00	1928	-	-	-
-	5	3.33	9.42	1951	0.14	1934	5.56	1937	-	-	-
-	5	3.13	14.58	1915	0.53	1936	5.67	1942	-	-	-
36	5	3.47	10.82	1936	0.21	1917	6.17	1936	-	-	-
195	5	3.26	11.02	1949	0.10	1924	3.56	1919	0.1	3.0	1925
522	6	3.78	9.01	1957	0.11	1920	3.34	1931	0.3	7.0	1958
797	6	3.40	9.87	1932	0.07	1958	3.62	1918	1.7	10.7	1917
3882	69	45.64	14.93	1928	0.07	1958	6.17	1936 Sep.	9.1	47.5	1918 Jan.

(a) Length of record, years. Ø 1931 thru 1960 + Also on Earlier Dates

(POPLAR BLUFF DATA CONT'D)

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	37.6	43.4	44.1	58.0	62.8	77.3	79.6	75.5	75.6	62.8	55.0	45.8	59.8
1932	44.2	47.8	44.4	60.8	68.6	79.0	82.0	79.3	70.6	58.4	44.3	36.7	59.7
1933	43.4	36.8	47.8	57.8	69.0	77.1	79.0	76.4	76.0	57.8	46.4	42.2	59.2
1934	37.7	33.0	43.6	57.1	69.2	79.8	83.8	80.6	68.2	63.8	51.7	35.6	58.7
1935	39.0	42.4	54.2	55.8	64.8	72.0	81.4	79.8	69.4	59.8	46.4	32.0	58.1
1936	31.8	30.8	51.8	54.4	68.6	77.3	82.9	83.6	74.8	57.4	44.8	41.2	58.3
1937	37.1	38.5	44.0	57.2	68.4	76.4	77.2	80.6	70.0	57.9	45.1	36.5	57.4
1938	36.6	46.5	55.6	59.8	67.4	73.2	79.0	81.2	73.0	63.6	47.8	38.4	60.2
1939	42.0	37.8	50.4	55.5	67.4	76.2	79.8	76.6	76.7	61.6	45.8	40.6	59.2
1940	23.2	37.4	47.0	57.0	64.6	75.2	77.5	77.8	69.8	63.8	47.1	43.2	57.0
1941	39.8	37.6	45.6	64.2	72.0	77.9	82.4	82.2	75.6	66.0	46.4	42.0	61.0
1942	32.8	36.3	51.1	61.1	67.4	76.2	82.1	77.0	70.4	60.8	51.7	38.1	58.8
1943	39.0	44.2	44.7	59.0	69.4	78.2	81.4	81.8	68.8	58.5	46.5	35.7	58.9
1944	38.8	44.5	47.5	57.8	71.6	81.4	80.0	79.2	71.4	61.0	48.5	32.6	59.5
1945	34.6	39.2	55.6	59.4	63.3	72.6	77.0	78.2	71.9	58.5	49.4	32.3	57.6
1946	37.9	43.3	57.6	63.1	65.4	75.6	80.0	75.7	70.2	61.2	52.3	44.5	60.6
1947	40.2	34.6	42.4	60.1	66.1	75.8	76.4	83.6	72.8	66.7	45.6	41.0	58.8
1948	30.8	39.8	49.6	64.0	67.4	76.0	80.2	78.7	72.0	57.8	50.5	42.6	59.1
1949	40.8	42.5	48.6	58.7	70.1	77.2	81.1	M	66.6	62.3	49.4	42.7	----
1950	44.3	41.9	46.4	55.1	68.5	75.6	76.3	74.6	69.5	65.1	43.7	35.8	58.0
1951	37.9	40.6	48.2	56.2	67.8	75.4	79.9	79.2	69.4	61.3	41.9	40.6	58.2
1952	43.7	45.0	47.6	57.4	67.9	82.1	82.1	79.4	69.2	54.5	47.8	40.7	59.8
1953	M	43.4	52.5	M	68.7	81.7	79.8	78.6	72.7	61.9	48.0	39.0	----
1954	37.9	M	48.0	65.2	63.5	77.7	83.2	82.5	74.6	61.2	48.9	39.1	----
1955	38.6	40.4	51.5	64.0	69.4	71.3	81.4	78.9	73.3	59.4	45.4	36.3	59.2
1956	33.9	42.9	48.8	57.7	68.9	74.0	78.9	79.5	70.0	63.8	47.8	45.2	59.3
1957	34.0	44.5	48.2	62.2	68.9	76.4	78.6	77.0	70.6	57.7	48.0	44.9	59.3
1958	35.4	32.6	43.0	58.7	66.9	74.0	78.9	77.5	70.3	60.1	50.8	35.5	56.9
1959	34.1	39.1	49.0	59.9	71.2	75.0	77.2	79.5	72.9	59.8	43.1	42.2	58.6
1960	39.1	37.7	36.5	61.6	65.8	75.6	78.2	79.5	75.2	62.1	48.0	34.5	57.8
1961	34.1	45.2	51.9	56.3	64.6	74.2	78.8	76.3	72.8	61.4	48.1	37.9	58.5
1962	33.2	43.6	45.1	56.3	75.0	76.1	80.1	78.9	69.5	63.5	47.6	37.0	58.8
Avg.	37.2	40.4	48.2	59.1	67.8	76.4	79.9	79.0	71.4	61.0	47.6	39.1	58.8

(POPLAR BLUFF DATA CONT'D)

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	1.43	3.62	6.03	2.47	3.76	1.48	5.02	5.55	1.87	2.18	6.09	5.09	44.59
1932	7.29	4.13	3.24	2.39	0.85	3.23	4.57	6.23	2.92	5.49	2.12	9.87	52.33
1933	3.05	3.19	4.76	5.79	6.70	0.63	1.70	5.27	6.86	2.26	1.68	3.21	45.10
1934	2.43	2.05	5.05	2.65	0.51	4.87	0.14	6.05	4.07	2.35	5.99	3.71	39.87
1935	4.70	1.50	10.16	5.37	9.88	9.27	1.77	1.26	3.00	4.82	2.12	2.55	56.40
1936	0.66	1.65	1.42	5.04	1.99	0.65	4.00	0.53	10.82	5.59	2.68	3.91	38.94
1937	13.11	2.16	1.42	4.29	2.12	7.08	7.62	1.00	4.71	4.68	2.77	2.90	53.86
1938	3.97	4.53	8.46	3.05	4.49	5.73	7.33	1.70	1.54	0.68	4.08	1.88	47.44
1939	5.26	6.56	4.23	6.13	3.05	3.13	2.06	2.66	1.32	2.94	2.22	2.24	41.80
1940	2.30	2.52	3.25	7.96	2.58	3.31	3.18	4.75	0.57	0.59	4.98	4.00	39.99
1941	3.68	0.71	0.71	2.54	3.27	2.71	6.35	4.02	1.01	8.13	2.58	4.16	39.87
1942	5.24	2.36	1.74	6.12	3.82	4.16	0.65	11.19	3.30	3.22	4.82	2.61	49.22
1943	0.18	1.03	7.32	3.79	7.13	3.34	0.95	M	4.37	3.74	0.86	2.14	-----
1944	0.65	5.30	3.44	10.90	4.33	1.17	2.09	3.19	1.96	1.06	2.60	3.77	40.46
1945	1.43	7.65	10.84	7.32	6.26	12.56	1.75	3.20	9.62	1.21	2.38	1.50	65.72
1946	3.54	5.23	2.79	4.30	11.47	1.48	3.25	3.87	4.38	4.33	7.62	2.94	55.20
1947	1.06	0.19	1.91	5.52	5.26	6.64	1.00	1.24	2.50	4.54	3.25	2.46	35.57
1948	2.35	3.55	5.05	4.31	2.84	7.40	1.09	0.88	3.47	1.78	8.12	4.87	45.71
1949	8.46	4.89	4.83	1.62	3.50	5.82	3.24	2.02	3.05	11.02	0.70	5.98	55.13
1950	12.12	5.45	5.03	3.93	8.43	4.33	3.26	5.35	4.12	2.31	3.61	1.09	59.03
1951	4.61	6.71	4.51	3.38	2.18	9.72	9.42	1.02	5.54	2.24	6.72	2.61	58.66
1952	2.25	3.18	7.36	4.15	3.53	0.48	1.25	2.74	M	0.91	5.15	3.49	-----
1953	2.72	1.84	6.37	4.20	2.96	1.11	1.25	0.68	0.45	2.15	1.78	2.02	27.53
1954	4.24	2.96	2.50	1.84	7.11	3.56	1.43	1.41	4.21	2.27	1.61	6.96	40.10
1955	0.45	2.38	5.80	3.40	6.19	3.35	1.57	0.78	4.12	4.21	1.93	0.32	34.50
1956	1.76	7.57	1.12	4.05	3.07	4.43	3.43	1.19	0.98	2.21	3.01	1.91	34.73
1957	6.36	3.60	2.45	10.99	10.29	5.04	6.45	2.74	0.95	3.72	9.01	6.28	67.88
1958	2.61	1.79	7.87	3.35	6.43	2.62	7.87	3.02	4.00	0.23	5.31	0.07	45.17
1959	4.22	2.99	2.67	2.19	5.18	2.33	3.52	2.90	3.66	4.41	2.62	3.80	40.49
1960	3.03	2.18	2.67	1.60	5.84	3.21	2.75	4.33	1.28	2.66	5.13	3.59	38.27
1961	1.13	3.41	5.86	4.01	11.06	2.44	3.50	2.57	1.39	1.72	6.04	4.13	47.26
1962	4.93	3.11	4.45	3.23	3.98	3.34	3.21	4.38	3.31	2.84	.98	2.31	40.07
Ave.	3.79	3.44	4.54	4.43	5.00	4.08	3.33	3.15	3.40	3.20	3.77	3.39	46.03

(POPLAR BLUFF DATA CONT'D)

TOTAL MONTHLY SNOWFALL

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1931-32	0	0	0	0	0	0	4.2	0	0.3	0	0	0
1932-33	0	0	0	0	T	5.0	T	0	0.8	0	0	0
1933-34	0	0	0	0	0	0	0	4.0	T	0	0	0
1934-35	0	0	0	0	0	3.0	T	1.5	1.2	0	0	0
1935-36	0	0	0	0	0	6.0	0	0	0	0	0	0
1936-37	0	0	0	T	2.5	0	2.5	4.5	0	0	0	0
1937-38	0	0	0	0	1.0	T	2.5	2.5	T	0	0	0
1938-39	0	0	0	0	T	T	0	0	0	0	0	0
1939-40	0	0	0	0	0	3.0	3.0	12.0	0	0	0	0
1940-41	0	0	0	0	0	0.5	8.1	2.5	7.5	0	0	0
1941-42	0	0	0	0	0	T	0	0.5	T	0	0	0
1942-43	0	0	0	0	0	4.0	8.0	0.5	0	0	0	0
1943-44	0	0	0	0	T	0.5	2.0	T	4.0	0	0	0
1944-45	0	0	0	0	0	T	2.0	8.0	T	0	0	0
1945-46	0	0	0	0	0	7.0	5.0	1.8	0	0	0	0
1946-47	0	0	0	0	0	T	0	0.5	0	0	0	0
1947-48	0	0	0	0	0	2.0	1.0	3.0	T	0	0	0
1948-49	0	0	0	0	T	3.0	2.5	5.9	1.0	0	0	0
1949-50	0	0	0	0	0	0	2.0	0	0.7	0	0	0
1950-51	0	0	0	0	1.0	6.5	5.0	1.0	0	0	0	0
1951-52	0	0	0	M	2.5	1.0	2.0	4.0	.3	0	0	0
1952-53	0	0	0	0	T	0	0	3.0	T	0	0	0
1953-54	0	0	0	0	0	0	0	0	0	0	0	0
1954-55	0	0	0	0	T	T	4.5	0	T	0	0	0
1955-56	0	0	0	0	0	0	3.0	T	T	0	0	0
1956-57	0	0	0	0	0	0	5.0	M	0	0	0	0
1957-58	0	0	0	0	0	0	M	0	T	T	0	0
1958-59	0	0	0	0	7.0	0	M	2.5	7.0	0	0	0
1959-60	0	0	0	0	0	0	T	2.5	0	0	0	0
1960-61	0	0	0	0	0	2.0	2.0	8.5	23.7	0	0	0
1961-62	0	0	0	0	0	T	M	0	0	0	0	0

(POPLAR BLUFF DATA CONT'D)

MONTHLY AND SEASONAL
Degree Days

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1950-51	0	6	25	67	636	903	833	675	515	298	39	2	3399
1951-52	0	0	24	M	685	M	657	M	539	243	43	0	M
1952-53	0	0	23	326	514	750	M	M	M	M	M	0	M
1953-54	0	0	11	165	503	802	842	M	522	97	119	9	M
1954-55	0	0	12	214	477	801	806	700	432	93	5	11	3551
1955-56	0	0	2	209	594	610	957	633	508	252	45	11	4094
1956-67	0	0	17	81	517	610	954	569	512	179	39	0	3478
1957-58	0	0	8	233	502	614	909	904	675	193	62	0	4100
1958-59	0	0	31	175	434	905	952	717	492	183	34	0	3923
1959-60	0	0	0	209	653	699	795	785	876	141	103	0	4264
1960-61	0	0	0	140	502	936	952	543	402	307	75	2	3859
1961-62	0	0	26	175	517	834	977	592	611	293	2	0	4027

HISTORY OF WEATHER OBSERVERS

No.	Latitude	Longitude	Elevation	Location	Instruments	Name of Observer	Period of Observation
1.	36° 45'	90° 25'	344	In Town	Mx Mn SRG	M. E. Shelton	7/1/92-6/15/96
2.	36° 45'	90° 25'	344	In Town	Mx Mn SRG	J. T. Withers	8/1/96-6/30/01
3.	36° 45'	90° 25'	344	In Town	Mx Mn SRG	D. B. Deem	7/1/01-8/31/03
4.	36° 45'	90° 23'	343	In Town	Mx Mn SRG	M. S. Wiseheart Albert E. Cox	8/14/14-9/11/16
5.	36° 45'	90° 23'	339	1/3 mi from Post Office	Mx Mn SRG	Belle Kinne	9/12/16-5/11/21
6.	36° 45'	90° 23'	339	3/4 mi West Post Office	Mx Mn SRG	Gertrude Bock	5/12/21-2/26/22
7.	36° 45'	90° 23'	339	1/2 mi NW. Post Office	Mx Mn SRG	John A. Gallaher	3/1/22-4/30/24
8.	36° 45'	90° 23'	339	1.5 mi NW. Post Office	Mx Mn SRG	J. H. Wolpers 5/1/24-11/30/33 Mrs. J. H. Wolpers 12/1/33-10/31/40	5/1/24-10/31/40
9.	36° 45'	90° 23'	339	In Town	Mx Mn SRG	Bernard Wheetly	11/1/40-9/30/43
10.	36° 45'	90° 24'	339	8 blocks N. and 2 E. Post Office	Mxn Mn SRG	Joe L. Roehm	10/1/43-3/19/46
11.	36° 45'	90° 23'	M	0.4 East of Post Office	Mx Mn SRG	O. M. Richardson	3/20/46-9/22/52
12.	36° 45'	90° 23'	332	0.65 mi SSE. Post Office	Mx Mn SRG	O. M. Richardson	9/23/52 to date

TABLE 9—WEATHER DATA FROM NEW MADRID

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	2.06	3.79	4.29	3.35	3.13	2.05	6.85	6.38	3.17	2.80	6.67	5.29	49.83
1932	9.92	3.23	5.09	4.60	.70	3.28	3.70	7.85	7.66	3.42	3.26	7.58	60.29
1933	4.06	3.65	7.10	5.64	8.38	1.07	5.60	3.92	7.27	3.21	1.95	4.65	56.50
1934	2.04	2.88	6.88	2.13	2.16	2.67	2.32	5.04	7.47	2.12	9.43	3.63	48.77
1935	6.57	2.32	13.73	3.56	6.00	4.76	3.21	1.28	2.51	3.86	2.55	2.66	53.01
1936	.92	1.95	4.05	5.21	2.02	1.45	6.29	.58	13.69	4.45	3.83	2.76	47.20
1937	13.66	1.15	2.00	7.80	3.33	3.70	2.63	.97	3.96	5.41	2.61	2.12	49.34
1938	2.47	2.86	5.42	1.88	3.46	5.61	9.49	2.16	1.90	.81	2.36	2.00	40.42
1939	5.71	10.09	3.68	5.57	4.48	5.42	3.94	2.80	1.54	2.33	1.71	2.46	49.73
1940	2.29	5.50	3.56	5.56	4.09	4.19	1.44	3.67	.71	.65	4.60	5.20	41.46
1941	2.41	.99	.44	3.29	2.74	2.57	7.04	7.46	.61	7.66	2.16	3.99	41.36
1942	4.71	4.00	3.88	4.57	2.51	3.76	1.11	4.49	.75	2.27	4.57	2.38	39.00
1943	.58	1.23	5.11	3.30	8.72	4.26	3.67	2.97	2.95	2.16	-	-	-
1944	.70	7.09	4.76	4.21	2.08	1.53	1.20	2.56	2.24	.95	3.66	5.08	36.06
1945	2.75	5.47	9.62	8.15	7.22	12.51	2.01	.55	5.58	2.84	4.08	2.85	63.63
1946	5.07	5.13	3.24	3.61	9.72	1.76	3.03	3.38	1.49	2.44	7.38	3.72	49.97
1947	3.03	.34	1.95	7.16	5.63	3.42	1.64	1.43	1.93	4.03	4.42	2.54	37.52
1948	4.61	4.71	8.39	1.74	3.46	4.65	2.74	.84	4.30	1.29	8.36	4.73	49.82
1949	8.63	6.56	5.75	.69	3.55	4.00	4.78	3.69	2.94	8.00	.37	6.05	55.01
1950	5.91	9.70	6.42	2.40	7.58	5.87	3.68	3.65	3.86	3.08	4.62	3.00	59.77
1951	6.51	6.47	2.68	4.57	.94	7.39	3.78	1.17	3.38	2.45	7.79	7.76	54.89
1952	6.56	3.98	7.23	3.48	3.19	1.17	3.35	3.32	2.76	1.07	2.24	4.71	43.06
1953	4.33	4.00	7.28	4.47	4.79	.32	2.39	.07	.16	1.98	1.45	2.70	33.94
1954	6.06	2.67	3.29	2.25	4.89	3.64	1.12	2.79	4.07	4.40	1.26	6.79	43.23
1955	1.28	3.64	5.16	5.36	6.06	4.17	3.89	3.00	3.15	2.85	3.29	1.20	43.05
1956	4.36	7.89	2.19	3.55	4.52	2.36	6.01	2.60	1.69	2.77	3.09	3.58	44.61
1957	5.86	5.39	2.67	7.05	12.68	9.14	4.93	6.30	2.13	5.83	15.41	6.92	84. 1
1958	3.83	2.79	9.22	4.23	6.29	2.33	6.82	1.79	3.38	2.19	5.38	1.09	49.34
1959	6.15	4.20	2.92	2.31	7.67	3.24	2.63	3.15	3.91	2.96	3.83	3.85	46.82
1960	3.69	3.53	3.12	2.49	4.95	7.53	2.47	2.74	1.29	1.76	4.78	3.99	42.34
Ave.	4.56	4.24	5.04	4.14	4.90	3.99	3.79	3.09	3.42	3.07	4.38	3.98	48.78
1961	1.90	5.69	8.24	5.74	6.79	3.38	3.61	2.41	1.44	1.96	8.90	5.46	55.52
1962	6.36	8.63	5.38	3.76	2.44	5.35	3.26	4.88	8.08	4.28	1.27	2.02	55.71
Ave.	4.53	4.42	5.15	4.18	4.88	4.01	3.77	3.12	3.50	3.07	4.43	3.96	49.22

HISTORY OF PRECIPITATION OBSERVATIONS

No.	Latitude	Longitude	Elevation	Location	Instruments	Name of Observer	Period of Observation	
1.	36° 35'	89° 31'	295	0.3 mi. ENE Post Office		Powell and Hummel	8-1-93	12-14-97
2.	36° 35'	89° 31'	295	0.3 mi. ENE Post Office		Theo. Schottle	2-1-98	5-31-98
3.	36° 35'	89° 31'	295	0.3 mi. ENE Post Office		Frank W. Hale	6-1-98	11-30-00
4.	36° 35'	89° 31'	295	0.3 mi. ENE Post Office		Josie G. Smith	3-1-01	10-31-43
5.	36° 35'	89° 31'	295	0.3 mi. ENE Post Office		Lonnie W. Hensley	12-18-43	Present

TABLE 10—WEATHER DATA FROM SIKESTON

NORMALS, MEANS, AND EXTREMES

Month	TEMPERATURE							MEAN NUMBER OF DAYS			
	Ø Normal			Extremes				Max. temp.		Min. temp.	
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	≥ 90°	≤ 32°	≤ 32°	= Zero
(a)	30	30	30	53		53		35	35	35	35
J	46.2	26.9	36.6	80	1943	-15	1930	0	4	22	1
F	49.4	28.9	39.1	78	1932+	-23	1899	0	2	19	*
M	58.2	36.0	47.1	89	1910	- 4	1960	0	1	11	*
A	70.1	46.7	58.4	91	1915	24	1960	*	0	1	0
M	79.2	56.3	67.7	98	1953+	31	1903	3	0	*	0
J	88.6	65.7	77.2	109	1930	43	1903	14	0	0	0
J	91.9	68.5	80.2	111	1940+	47	1947	21	0	0	0
A	91.0	67.1	79.1	111	1930+	41	1915	19	0	0	0
S	84.8	58.9	71.8	104	1954+	29	1899	10	0	0	0
O	74.6	47.3	61.0	99	1938	19	1901	1	0	1	0
N	58.7	35.4	47.1	87	1950	0	1950	0	*	13	0
D	47.8	29.0	38.4	76	1939	- 8	1901	0	3	20	*
Yr.	70.0	47.2	58.6	111	1940+ July	-23	1899 Feb.	68	10	87	1

Ø Normal degree days	Mean no. days Precipitation .10 inch or more	PRECIPITATION									
		Ø Normal Total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Sleet		
									Ø Mean Total	Maximum monthly	Year
30	35	30	35		35		53		30	53	
880	7	4.70	15.38	1950	0.18	1943	3.90	1937	2.3	19.0	1899
722	6	3.88	8.71	1939	0.35	1947	4.06	1949	2.7	11.0	1960+
570	8	4.99	14.61	1935	0.45	1941	5.45	1935	1.9	22.0	1960
225	7	4.37	13.87	1927	0.90	1930	5.29	1944	T	1.0	1899
43	8	4.51	13.34	1927	0.97	1951	4.96	1946	0	-	-
-	7	4.19	16.88	1928	0.61	1936	6.98	1945	0	-	-
-	5	3.06	8.65	1926	0.32	1942	6.00	1926	0	-	-
	5	2.89	12.70	1926	0.35	1936	3.86	1942	0	-	-
33	5	3.76	11.23	1933	0.14	1928	5.82	1927	0	-	-
189	5	2.98	8.08	1949	0.15	1944	5.50	1910	T	T	1955
537	6	4.17	13.86	1957	0.60	1949	5.40	1934	0.2	4.0	1906
825	7	3.69	7.50	1932	0.21	1958	3.55	1941	1.1	6.8	1929
4024	76	47.19	16.88	1928	0.14	1928	6.98	1945 June	8.2	22.0	1960 Mar.

*Less than one-half

(a) Length of record, years.

+ Also on earlier dates

Ø 1931 thru 1960

(SIKESTON DATA CONT'D)

Average Temperature (^{o}F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	39.2	44.8	44.1	59.4	64.6	79.6	81.0	77.0	77.4	65.4	56.9	48.6	61.5
1932	44.2	47.8	44.4	60.8	68.6	79.0	82.0	79.3	70.6	58.4	44.3	36.7	59.7
1933	46.6	37.8	49.0	58.4	70.7	79.6	80.0	77.1	77.1	60.2	49.2	44.8	60.9
1934	42.6	36.6	46.8	60.4	70.6	81.2	85.2	80.9	69.5	63.8	52.6	37.0	60.6
1935	39.6	42.6	55.2	56.3	65.6	72.6	80.9	80.0	70.4	62.0	47.3	33.3	58.8
1936	30.8	30.7	53.0	54.0	69.4	78.4	82.4	82.8	75.5	59.8	45.2	42.3	58.7
1937	37.8	38.0	44.6	58.5	69.8	77.0	78.4	82.8	70.6	59.2	45.6	36.0	58.2
1938	36.6	46.6	57.0	60.6	68.9	74.4	81.4	82.2	73.5	64.6	48.3	38.9	61.1
1939	42.6	38.0	50.9	56.2	68.4	76.4	80.2	75.5	75.8	60.9	44.7	39.8	59.1
1940	19.5	35.6	45.6	55.7	64.7	77.0	79.2	78.7	71.3	64.8	46.5	42.0	56.7
1941	38.0	36.4	44.0	63.0	71.8	78.2	82.5	82.0	75.4	66.2	47.0	42.0	60.5
1942	32.6	36.2	50.0	60.2	67.8	76.5	82.4	76.6	70.6	60.4	50.4	36.3	58.3
1943	36.4	41.1	41.7	56.8	68.5	79.2	81.2	81.0	67.4	57.6	45.2	34.8	57.6
1944	38.2	42.0	47.0	56.8	71.4	78.8	79.6	79.1	71.2	59.8	48.9	31.5	58.7
1945	34.0	40.2	56.2	60.5	63.6	73.5	78.2	75.7	72.8	58.9	48.6	31.6	57.8
1946	37.3	42.8	57.8	62.4	64.7	76.8	79.8	74.3	70.4	61.7	51.2	42.8	60.2
1947	39.1	30.8	40.2	55.5	64.9	75.6	76.0	85.4	72.8	67.0	44.5	39.1	57.6
1948	28.0	36.8	47.6	62.8	67.1	76.8	79.4	78.6	71.3	56.8	49.7	41.3	58.0
1949	39.5	40.5	46.3	56.8	69.6	76.8	81.5	78.3	66.6	62.7	48.1	41.2	59.0
1950	42.7	39.0	43.3	54.0	68.6	76.1	76.5	74.1	68.4	64.8	40.9	32.3	56.7
1951	36.8	37.2	45.9	54.4	68.1	75.5	79.3	79.1	68.8	61.5	40.0	37.9	57.0
1952	40.2	42.2	45.9	56.0	64.6	84.1	82.1	79.4	70.0	53.7	47.5	38.7	58.7
1953	38.8	42.0	50.3	54.1	68.8	84.1	81.8	80.1	73.5	62.7	47.6	37.9	60.1
1954	34.9	45.5	45.7	63.2	63.5	79.2	84.4	82.3	74.9	60.8	47.2	38.5	60.0
1955	36.7	38.6	48.4	64.0	71.1	73.0	82.1	80.9	76.0	58.7	44.1	34.0	59.0
1956	31.5	40.4	46.5	56.1	68.5	75.6	78.7	78.9	68.1	61.7	44.9	41.8	57.7
1957	30.3	42.1	45.4	59.8	66.2	75.5	77.3	76.3	68.8	55.7	46.4	42.3	57.2
1958	33.1	28.6	40.4	56.7	65.7	74.1	78.1	77.0	70.4	58.4	49.6	32.3	55.4
1959	31.4	37.5	47.1	59.0	71.3	74.5	76.9	78.7	72.1	59.8	42.7	42.0	57.8
1960	38.1	35.9	32.8	60.0	65.0	75.4	77.5	78.3	73.5	61.0	47.3	33.0	56.5
1961	32.4	43.4	50.5	53.4	63.3	73.7	77.7	75.5	73.0	60.3	47.4	37.1	57.3
1962	31.8	42.9	43.4	55.5	75.0	75.5	78.2	76.6	68.2	62.6	47.0	36.8	57.8
Ave.	36.3	39.4	47.1	58.2	67.8	77.0	80.1	78.9	71.7	61.0	47.1	38.3	58.5

SIKESTON DATA CONT'D)

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annl.
1931	1.58	4.63	4.36	3.32	3.67	3.24	6.55	3.25	1.45	2.05	5.65	3.68	43.43
1932	7.35	5.25	4.50	2.51	1.07	2.92	2.59	2.19	11.06	3.22	1.52	7.50	51.68
1933	4.23	4.05	6.78	5.21	8.25	1.20	7.26	3.80	11.23	3.13	1.32	2.86	59.32
1934	1.63	1.28	4.29	2.87	1.13	1.98	1.76	4.43	5.45	3.76	10.04	3.65	42.27
1935	4.83	1.80	14.61	3.96	6.62	7.51	2.24	2.06	1.79	3.59	2.35	1.92	53.28
1936	0.74	1.86	3.48	4.23	2.87	0.61	4.45	0.35	5.93	4.45	1.70	3.83	34.50
1937	14.48	1.44	2.00	5.84	5.30	4.83	1.63	1.10	6.18	5.46	2.14	3.37	53.77
1938	4.35	3.83	9.54	1.83	3.07	3.19	7.24	0.81	1.08	1.29	4.64	1.84	42.71
1939	5.50	8.71	5.19	6.60	3.22	2.29	2.92	3.17	1.34	2.43	1.84	2.19	45.40
1940	2.65	6.84	3.55	7.39	2.88	3.87	4.19	3.12	1.68	0.56	5.60	3.88	46.21
1941	3.06	0.72	0.45	1.54	2.92	1.81	2.80	5.86	1.76	7.59	2.93	4.94	36.38
1942	4.04	3.99	4.58	4.60	3.26	3.15	0.32	6.27	0.81	2.39	5.57	2.64	41.62
1943	0.18	1.09	4.80	3.86	5.69	6.73	1.26	2.43	5.90	1.32	1.24	3.20	37.70
1944	1.16	5.11	5.63	9.16	2.81	2.37	1.17	4.22	1.98	0.15	3.12	5.37	42.25
1945	2.50	5.98	9.52	8.21	6.68	16.33	2.16	3.43	6.16	2.18	4.81	2.05	70.01
1946	5.50	6.07	2.17	5.37	11.72	0.91	3.51	3.34	3.06	2.44	6.36	3.17	53.62
1947	2.90	0.35	2.35	6.40	4.85	4.54	1.65	1.67	4.02	4.30	5.61	2.51	41.15
1948	3.88	3.65	6.08	2.26	2.06	4.25	3.68	1.06	5.63	1.26	7.96	4.40	46.17
1949	12.62	5.33	7.02	0.96	2.90	5.71	1.80	3.25	1.89	8.08	0.60	5.89	56.05
1950	15.83	8.62	6.80	5.13	6.31	2.39	3.72	3.39	3.78	2.74	4.15	2.63	65.49
1951	6.20	5.78	3.30	3.81	0.97	11.71	2,80	1.60	5.25	1.91	9.76	6.41	59.50
1952	4.92	4.39	6.73	2.65	3.19	0.93	2.59	1.75	3.20	1.24	2.84	4.18	38.61
1953	4.46	2.05	6.38	4.34	2.47	1.22	3.76	0.92	0.42	2.31	1.11	3.43	32.87
1954	4.66	2.54	3.32	1.96	5.35	4.97	0.39	5.28	2.34	3.69	0.68	7.03	42.21
1955	0.53	3.07	5.65	5.88	6.18	3.56	3.21	2.30	2.07	3.13	1.69	0.73	38.00
1956	3.39	7.19	2.49	4.17	4.58	3.86	2.35	1.86	2.94	1.41	2.86	2.80	39.90
1957	6.81	3.53	2.15	7.86	11.50	10.56	3.82	3.80	3.32	6.52	13.86	5.88	79.61
1958	2.76	1.91	7.81	4.28	4.41	2.75	5.69	3.25	4.86	0.85	4.89	0.21	43.67
1959	5.28	3.71	1.91	2.02	4.77	2.75	3.20	3.44	3.92	4.42	2.97	3.69	42.08
1960	3.12	1.62	2.23	2.92	4.57	3.48	0.94	3.28	2.25	1.66	5.43	4.88	36.38
1961	1.14	5.12	7.16	3.70	9.60	3.67	5.05	2.20	.78	1.00	7.13	4.50	51.05
1962	5.73	7.32	4.39	3.05	2.83	3.86	3.48	5.62	7.08	4.46	.93	2.57	51.32
Ave.	4.62	4.03	5.03	4.31	4.62	4.16	3.14	2.95	3.77	2.96	4.16	3.68	47.40

(SIKESTON DATA CONT'D)

TOTAL MONTHLY SNOWFALL

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1931-32	0	0	0	0	0	0	0.9	T	2.0	0	0	0
1932-33	0	0	0	0	1.6	2.0	T	3.8	T	0	0	0
1933-34	0	0	0	0	0	T	T	1.3	1.4	0	0	0
1934-35	0	0	0	0	0	1.5	0.1	T	0	0	0	0
1935-36	0	0	0	0	T	4.7	1.4	8.0	T	T	0	0
1936-37	0	0	0	0	4.3	T	T	3.6	T	T	0	0
1937-38	0	0	0	0	2.0	0	T	2.0	0	0	0	0
1938-39	0	0	0	0	0.2	T	3.7	10.5	0	0	0	0
1939-40	0	0	0	0	0	2.2	8.6	8.8	6.5	T	0	0
1940-41	0	0	0	0	0	0.5	0	0.5	T	0	0	0
1941-42	0	0	0	0	T	0	6.5	1.2	1.2	0	0	0
1942-43	0	0	0	0	0	1.6	1.5	1.0	6.0	0	0	0
1943-44	0	0	0	0	T	0.2	2.0	5.5	0.5	0	0	0
1944-45	0	0	0	0	0	0.5	6.0	T	0	0	0	0
1945-46	0	0	0	0	0	5.6	0.7	T	0	0	0	0
1946-47	0	0	0	0	0	T	1.4	6.8	1.5	0	0	0
1947-48	0	0	0	0	T	2.0	4.7	4.2	0.3	0	0	0
1948-49	0	0	0	0	T	T	M	M	2.1	0	0	0
1949-50	0	0	0	0	0	T	2.8	0	0	0	0	0
1950-51	0	0	0	0	2.0	5.2	4.5	4.0	1.7	0.1	0	0
1951-52	0	0	0	0	T	0.2	T	3.0	T	0	0	0
1952-53	0	0	0	0	T	T	T	T	T	T	0	0
1953-54	0	0	0	0	0	T	4.0	T	T	T	0	0
1954-55	0	0	0	0	T	T	M	T	T	T	0	0
1955-56	0	0	0	0	0	0.8	10.0	1.4	T	0	0	0
1956-57	0	0	0	0	T	T	T	T	T	T	0	0
1957-58	0	0	0	0	0	T	0.5	2.0	9.0	0	0	0
1958-59	0	0	0	0	6.0	T	0.5	1.5	T	0	0	0
1959-60	0	0	0	0	T	0	2.0	11.0	22.0	0	0	0
1960-61	0	0	0	0	0	M	1.5	M	0	0	0	0
1961-62	0	0	0	0	0	1.0	5.0	0.4	0	0	0	0

(SIKESTON DATA CONT'D)

Degree Days

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1950-51							852	700	532	346	45	1	
1951-52	0	0	37	174	719	784	727	659	570	289	62	0	4021
1952-53	0	0	26	352	517	775	263	614	424	328	64	0	3363
1953-54	0	0	12	165	526	829	865	493	579	124	122	7	3722
1954-55	0	0	11	249	526	813	870	736	519	85	6	12	3827
1955-56	0	0	0	227	626	954	1035	704	567	293	68	8	4482
1956-57	0	3	44	114	600	713	1067	634	599	229	65	7	4072
1957-58	0	0	29	292	553	699	983	1014	755	220	97	1	4643
1958-59	0	2	27	221	464	1007	793	715	530	214	34	0	4187
1959-60	0	0	7	209	664	707	826	839	993	177	109	0	4531
1960-61	0	0	23	234	579	1074	1186	831	637	491	200	21	5276
1961-62	0	1	27	187	534	869	1024	614	662	310	7	0	4235

HISTORY OF WEATHER OBSERVATIONS

No.	Latitude	Longitude	Elevation	Location	Instruments	Name of Observer	Period of Observation	
1.	36° 52'	89° 36'	328	In Town	Mx, Mn, SRG		1894	
2.	36° 52'	89° 36'	328	In Town	Mx, Mn, SRG	D. W. Lutes	1-14-95	5-31-96
3.	36° 52'	89° 36'	328	In Town	Mx, Mn, SRG	A. A. Harrison	8-1-96	10-31-10
4.	36° 52'	89° 36'	328	In Town	Mx, Mn, SRG	H. B. Derr	9-10-14	9-30-16
5.	36° 52'	89° 36'	328	In Town	Mx, Mn, SRG	W. E. Burnham	10-1-16	5-27-17
6.	36° 52'	89° 36'	328	In Town	Mx, Mn, SRG	H. B. Derr	5-28-17	9-30-17
7.	36° 53'	89° 35'	318	½ Mi. SE Post Office	Mx, Mn, SRG	R. B. Drummond	3-22-26	2-29-28
8.	36° 53'	89° 35'	318	1/3 Mi. N Post Office	Mx, Mn, SRG	Glen R. Fisher	6-1-28	6-14-31
9.	36° 53'	89° 35'	318	3/4 Mi. WSW Post Office	Mx, Mn, SRG	John A. LaFont	6-15-31	4-3-39
10.	36° 53'	89° 35'	318	3/4 Mi. WSW Post Office	Mx, Mn, SRG	John Calvin	4-4-39	6-1-39
11.	36° 53'	89° 35'	318	1½ Blks. W Post Office	Mx, Mn, SRG	Hazelle P. Young	6-2-39	7-31-43
12.	36° 53'	89° 35'	318	In Town	Mx, Mn, SRG	William B. Seabaugh	8-1-43	12-31-44
13.	36° 53'	89° 35'	318	900 ft. N Post Office	Mx, Mn, SRG	Lucy W. Humphrey	1-1-45	4-30-59
14.	36° 51'	89° 35'	325	2 Mi. S Post Office	Mx, Mn, SRG Soil Temp.	Univ. of Missouri Sikeston Exp. Farm	5-1-59	Present

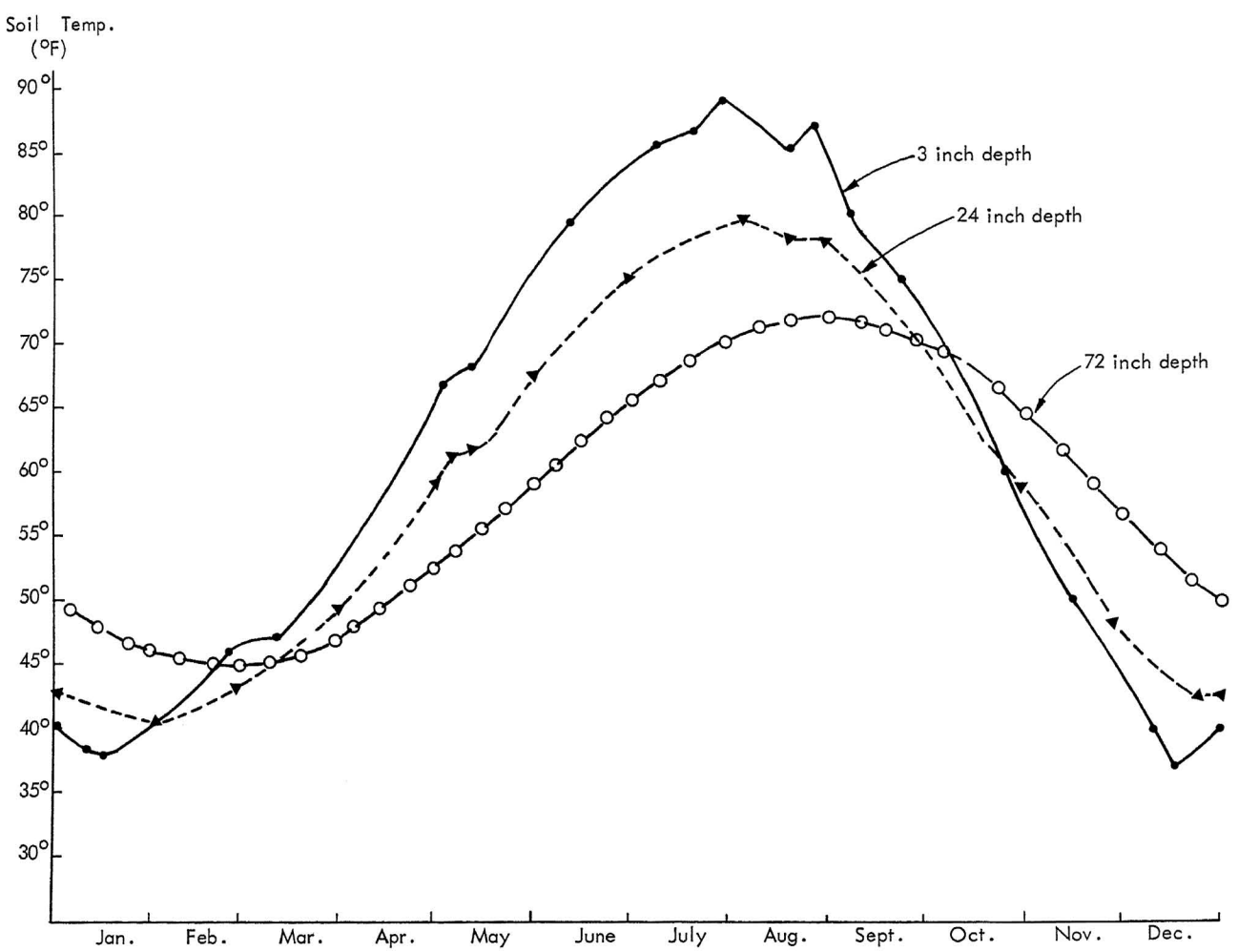
Summaries of Climatological Events

The Temperature of the Soil

During the past ten years soil temperature observations have been recorded at the Delta Research Center near Sikeston. Thermometers are at depths varying from one to 72 inches below the surface of a sandy loam soil. Daily readings of the temperature at each depth are recorded at about 5 p.m. The temperature at this time corresponds to the highest temperature for the day for the levels near to the surface. Generally speaking, the high temperature for the day would occur a little after 5 p.m. at the 1 foot depth, and at levels below 2 feet no daily variations in soil temperature are normally noted. In the depth where root activity and germination occur, the soil temperature observations correspond very closely to the high temperature for the day.

To show the seasonal trend in temperature, a ten-year daily average for three depths is depicted in Figure 3. Note that there is considerable variability in the temperature at the 3 inch depth, which is representative of conditions that prevailed from depths of one to six inches below the surface. In this case there appear to be two **minimum** temperatures, one occurring in mid-December when day lengths are shortest and the incoming solar energy is at its lowest value and one occurring in late January. This second minimum corresponds to the time of the coldest

Fig. 3—Average Soil Temperature at 3, 24, and 72 Inches Below the Surface at Delta Research Center, Sikeston.

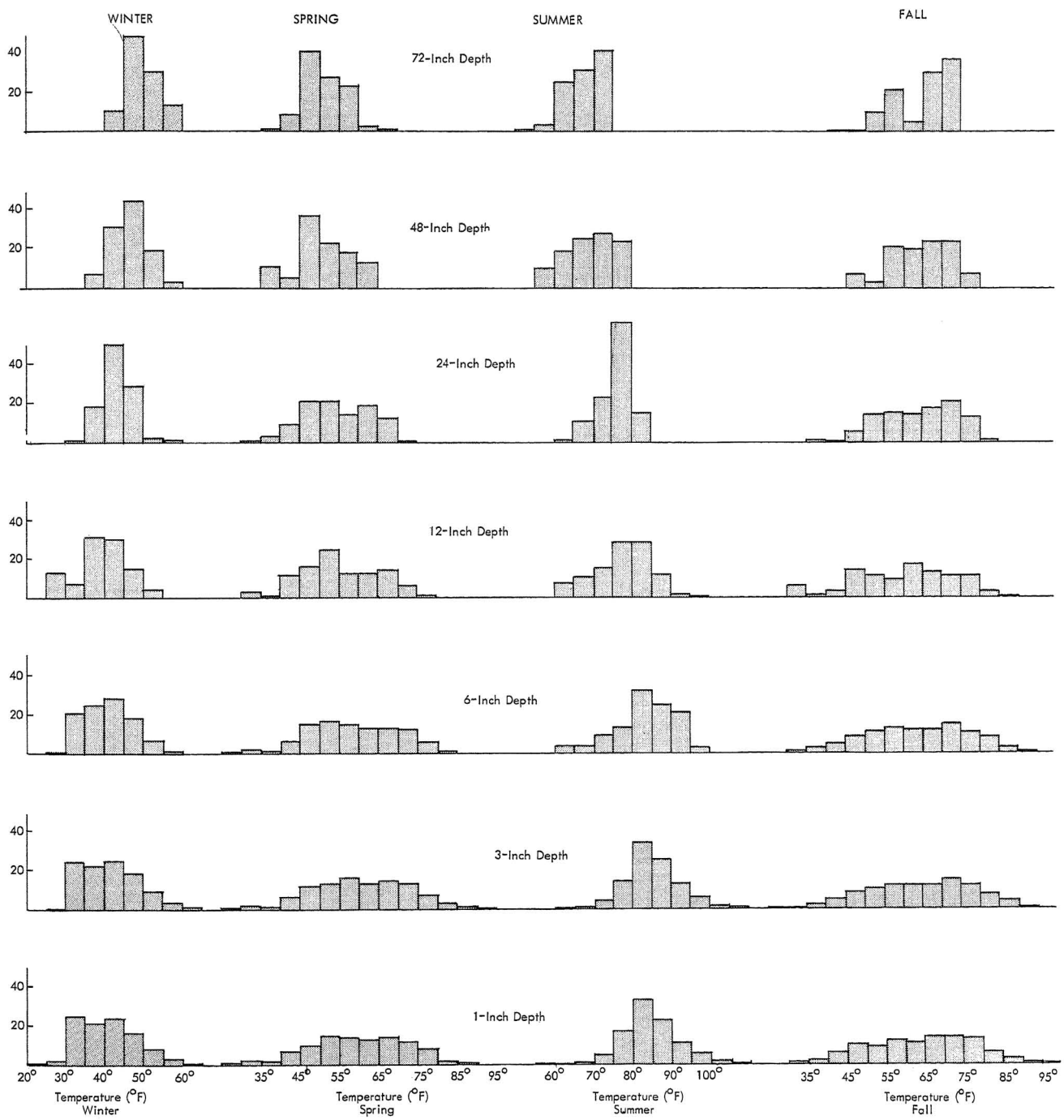


air temperatures due to the incidence of cold air masses from Canada.

There is a similar double **maximum** in soil temperatures at these shallow depths during the summer period. The first maximum occurs about the first of July when maximum solar energy is being received, while the second maximum occurs in late August. For deeper levels in the soil only a single maximum and minimum occur, and the times of these maxima and minima occur at a later date for the deeper layers of soil. For the six-inch depth the minimum temperature occurs about March 1, while the maximum occurs about September 1.

Since these observations were recorded in late afternoon, only during the winter season, from October through February, do the soil temperatures in-

Fig. 4—Percent of Days Soil Temperature Fell Within Various Ranges at Different Depths.



crease with depth. Undoubtedly the temperature also increases with depth during early morning hours of other times of the year.

Figure 4 shows the percentages of the time that the soil temperature was within different five-degree ranges at the different depths. It is apparent that the range in temperature is greater during the warm season of the year than during the cold season. Similarly, the greatest range of soil temperatures occurs at the shallow depths.

In the spring the temperature of the soil often is a limiting factor to the germination of seeds and the development of rooting systems. Each crop has its own particular temperature which favors growth, but for many of our economic crops springtime temperatures of about 50° are considered favorable.

The first occurrence of a 50° soil temperature is not a good indicator on the advisability of planting because the soil temperature may fall again. A review of the soil temperature observations reveals that after the soil has warmed to 65°F. it is almost certain that cool soil temperature will not prevail again during the spring. During the 10-year period of these observations the soil temperature at the 3-inch depth never fell below 50° during the spring after it had once reached 65°F. By comparison, in seven out of the 10 years the temperature fell below 50° after it had first reached the 60° mark.

Thus, it appears that the occurrence of a 65° soil temperature is a good indicator of continued favorable conditions for germination and seedling development at the 3-inch depth. In general, the average date of the first occurrence of a 65° temperature at a 3-inch level is April 20, with the earliest record on April 5 and the latest on May 3.

Killing Freezes—A Hazard to Agricultural Production

A hazard to agricultural production in the spring is the occurrence of below freezing temperatures. This generalization is true throughout the temperate regions of the United States, because of the urgency of beginning springtime operations and the planting of freeze-sensitive plants at the earliest possible date. In the Southeast Lowlands of Missouri, freezing temperatures occur with a consistent regularity throughout the month of March and into early April. Weather records reveal that the last occurrence of a 32° temperature will occasionally occur as early as the first few days of March. Such a case occurred at Caruthersville in 1927, when the temperature fell below 32° for the last time during the spring season on March 4.

There are several factors which complicate discussion of the danger of freezing temperatures: (1) The official temperatures, which are measured in shelters at five feet above the surface, do not normally represent the coldest temperatures. (2) Plants are not injured by the same temperature. (3) Temperature is dependent upon the elevation of the land.

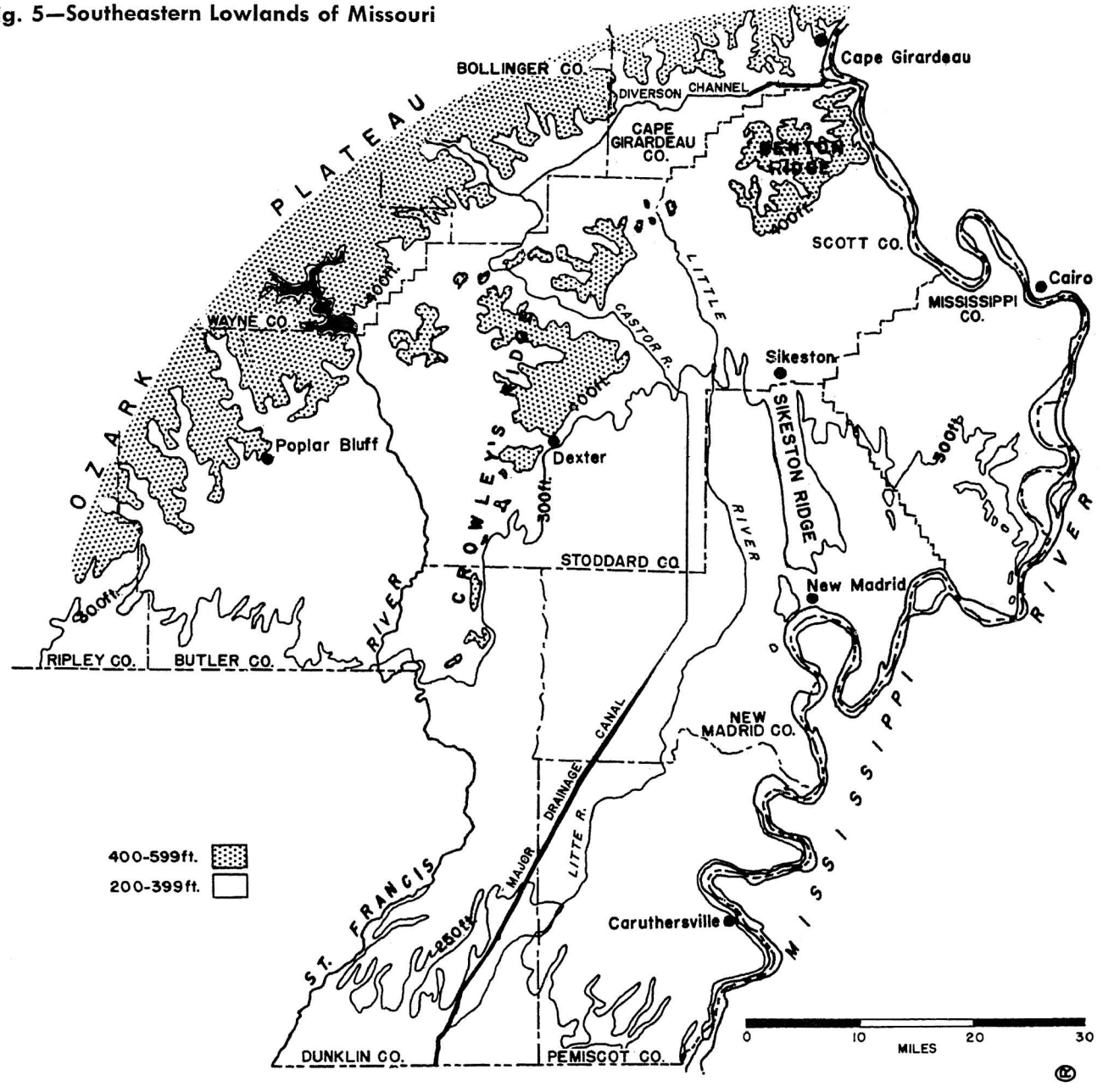
In late spring and in early fall, temperatures below freezing normally occur under conditions of clear weather. Under such conditions the lowest temperature occurs at the soil level or at the top of the vegetative canopy, where minimum temperatures are 2 to 5 degrees colder than those measured in the instrument shelter at the official weather stations. Thus, freezing temperatures normally occur at the plant height on nights when above freezing temperatures are registered at the official stations.

Different kinds of plants are not injured in the same degree by a sub-freezing temperature. A review of many investigations indicates that hardy plants may withstand temperatures recorded in the instrument shelter as low as 24°F., while sensitive plants are usually killed by temperatures in the instrument shelter of 32°F. As a result, three types of freezing have been defined: severe freeze with temperatures below 24°F.; moderate freeze, temperatures below 28°F.; light freeze, temperatures below 32°F.

Cold air, being heavier than warm air, will drain from the higher locations into adjacent valleys or depressions during the hours of darkness. This produces lower nighttime temperatures in the valleys and depressions than on the adjacent uplands. Although the landscape in southeast Missouri is quite uniform, Figure 5 shows that systematic variations in elevations occur. On cold, clear nights, cold air will drain from Crowley's, Benton, and Sikeston Ridges into the lower areas of southeast Missouri. This should be particularly noticeable along the eastern and southern borders of Crowley's and Benton Ridges, where differences of 100 feet occur within a short distance.

In spite of this tendency for cooler air to drain from the uplands into the neighboring valleys, there is also a tendency for higher elevations to experience generally cooler temperatures. By this token a ridge

Fig. 5—Southeastern Lowlands of Missouri



at a high elevation will have a lower average temperature than the same type of ridge located at a lower elevation. In southern Pemiscot and Dunklin counties, elevations are about 250 feet above sea level. To the north, through Butler, Stoddard, and Scott counties, the elevations become generally about 300 feet above sea level. As one moves into the Ozark border region in Carter, Wayne, and Bollinger counties, elevations increase sharply to approximately 600 feet above sea level.

These contours are shown in Figure 5. Generally, cooler temperatures will occur in the Ozark border region than in the areas of the southeast lowlands. Freezing temperatures occur at later springtime dates in these higher elevations and a shorter growing season results. The variability in average dates of the last occurrence of a severe, moderate, and light freeze is shown in Missouri Agricultural Experiment Station Bulletin 649. These figures indicate that the final freezing temperature in the

spring occurs much later along the Ozark border region than in the southern-most tip of Missouri. There is a difference of about two weeks between the average date of the last killing freeze at Caruthersville and that of the Ozark border area.

Table 11 reveals that at Caruthersville the last severe freeze will occur before February 28 half the years, and that a severe freeze will occur after March 24 only one year out of twenty. The figures from this table give specific information concerning the hazards of killing freezes in southeast Missouri. There is considerable variability of this aspect of climate when comparing the extreme southern portion of Missouri with the area only 50 or 60 miles further north.

TABLE 11 - DATES IN SPRING AFTER WHICH THERE IS A GIVEN CHANCE FOR THE OCCURRENCE OF SEVERE, MODERATE AND LIGHT FREEZES

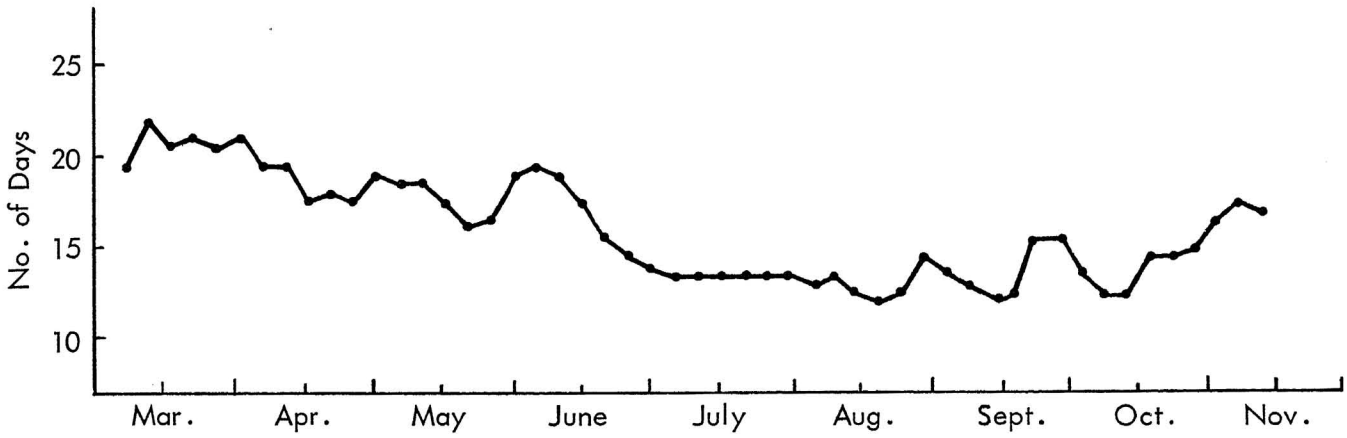
Location	Type of freeze	One-half of the years	Two years out of ten	One year out of ten	One year out of twenty
Cairo, Ill.	Severe	March 4	March 15	March 21	March 26
	Moderate	March 15	March 27	April 3	April 7
	Light	March 24	April 4	April 10	April 15
Caruthers-ville, Mo.	Severe	Feb. 28	March 12	March 19	March 24
	Moderate	March 18	March 26	April 1	April 6
	Light	March 29	April 5	April 10	April 14
Jackson, Mo.	Severe	March 20	April 1	April 8	April 14
	Moderate	April 3	April 14	April 20	April 25
	Light	April 16	April 26	May 1	May 5
Poplar Bluff	Severe	March 15	March 28	April 3	April 9
	Moderate	March 25	April 5	April 11	April 16
	Light	April 10	April 19	April 25	April 29
Sikeston	Severe	March 9	March 22	March 29	April 3
	Moderate	March 22	April 2	April 8	April 13
	Light	April 5	April 15	April 20	April 24

Work Day Analysis

In southeast Missouri, as winter draws to a close, the necessity to begin the preparation of the soil for planting the coming year's crops becomes great.

If rainy days are frequent and amounts of rain are heavy, it is difficult and sometimes impossible to operate field machinery. The amount of rain that will make it impossible to use machinery and the length of drying time required following the end of a series of rainy days varies from soil to soil. It is possible to define the general pattern of time required for the completion of an outdoor operation. An example of such tabulation is shown in Figure 6. In this case it is assumed that the operation requires seven days, each with less than 0.20 inch of rain for completion. By way of example, an operation beginning in early March would be completed in 20 days in three out of four years.

Fig. 6—Three out of 4 Years no More than the Indicated Number of Days Will Be Required to Complete an Operation Needing 7 Days Uninterrupted by Rain.



Comfort Index

For years people have been saying, "It's not the heat, it's the humidity." Actually, both temperature and the moisture content of the air have a lot to do with how comfortable humans (and animals) are. Several other weather elements are also related to comfort, such as wind velocity and the amount of energy from the sun at a particular time and place.

An index which represents the combined effect of temperature and the amount of moisture in the air was developed by the U.S. Weather Bureau. This index has been called *discomfort index* and *temperature-humidity index* at various times, but in this bulletin the most common title, *comfort index,* will be used.

The index may be computed by either of the following equations.

$I = 0.4 (T + T_w) + 15$

$I = .55T + 0.2T_d + 17.5,$

Where

I = Comfort Index

T = Dry bulb temperature

T_w = Wet bulb temperature

T_d = Dew point temperature

The wet bulb temperature and the dew point temperature are related to the moisture content, i.e. high humidity is associated with high wet bulb and dew point temperatures.

Hourly weather data of dry bulb and dew point temperature are available for the nine year period 1951 through 1959 for Malden. Values of the comfort index were computed for each day at 7 a.m. and 2 p.m. from May 1 through October 31 for this nine-year period. Seven a.m. is often the coolest time of the day, while 2 p.m. is close to being the warmest time of the day.

The exact value of this index at which discomfort is noticeable and efficiency begins to drop off varies somewhat for different people and for different types of domestic animals. At a comfort index of 70, only a few people are noticeably uncomfortable: at 75, many are uncomfortable; while at 80 most are uncomfortable and human efficiency drops noticeably.

Research in the University of Missouri's climatic laboratory with dairy cattle under controlled conditions indicates that with a comfort index of 75 or higher production of milk falls off rapidly.

Table 12 gives percentages of the days at Malden with comfort index values, greater than 65, 70, 75, 80, and 85 at 7 a.m. Table 13 gives percentages for

TABLE 12 - PERCENT OF DAYS PER MONTH WITH THE 7 A. M. COMFORT INDEX ABOVE THE VALUE INDICATED

Comfort Index	April	May	June	July	August	Sept.	Oct.
65 or more	20%	62%	93%	100%	97%	62%	15%
70 or more	3%	24%	70%	91%	81%	27%	6%
75 or more	0	3%	29%	48%	36%	1%	0
80 or more	0	0	6%	3%	1%	0	0
85 or more	0	0	0	0	0	0	0

TABLE 13 - PERCENT OF DAYS PER MONTH WITH 2 P. M. COMFORT INDEX ABOVE THE VALUE INDICATED

Comfort Index	April	May	June	July	August	Sept.	Oct.
65 or more	50%	84%	99%	100%	100%	98%	67%
70 or more	31	70	94	99	99	83	37
75 or more	24	45	74	92	92	54	24
80 or more	0	10	47	68	61	22	3
85 or more	0	0	13	15	13	1	0
90 or more	0	0	1	1	0	0	0

2 p.m. The years of record used to compile this comfort index data included the extremely hot summer of 1954.

Degree Days Above the Base 50°F.

The growth and development of plants, insects, and diseases are determined by the integration of many environmental and weather elements. These weather elements include air and soil temperature, humidity, solar radiation, and precipitation. To obtain a complete knowledge of how growth is related to weather and climate all these factors should be included. However, the problem of predicting growth and development when temperature is the limiting factor is often simplified by relating development to the sum of temperatures above a minimum value. These accumulated temperatures are called "growing degree days."

One commonly used minimum temperature for these computations is 50°F. The growing degree days for a maximum temperature of 70°F. and minimum of 50°F. would be computed from the mean temperature for that day where the mean temperature is $\frac{70 + 50}{2} = 60°F$. The growing degree days above 50 for the day would be 60 - 50 = 10. If the mean temperature for a day is less than 50°F., the growing degree days for that date would be zero. To realte them to crop or insect development the growing degree days are summarized for the period of growth under study. The normal growing degree days above 50° were computed for several stations in southeast Missouri using a method developed by the chief climatologist for the U.S. Weather Bureau. These are shown in Table 14.

Fall Killing Freezes in Southeast Missouri

In southeast Missouri sub-freezing temperatures seldom are experienced before October 15. By November the nighttime temperatures fall below freezing with more regularity. One out of every three years has more than six days during November when temperatures fall below freezing. However, in Dunklin and Pemiscot counties there have been years when killing freezes did not occur until after December 1.

TABLE 14 - LONG TERM AVERAGE NUMBER OF GROWING DEGREE DAYS ABOVE BASE 50°F.

Stations	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cairo, Ill.	30	40	120	310	580	830	960	920	680	370	70	40
Sikeston	30	50	140	260	560	820	940	900	650	360	60	30
Caruthersville	50	50	190	310	610	850	970	940	740	380	110	40
Poplar Bluff	40	70	150	300	550	790	930	900	650	340	70	50

As in the case of spring freezes, there is considerable variability in the likelihood for killing freezes in the fall over the lowlands of southeast Missouri. The average date of the last killing freeze is 10 to 20 days later in southern Pemiscot county than in the Ozark border region of Wayne and Carter counties.

Specific information concerning the likelihood for freezing temperatures before an indicated date is given in Table 15. From this table the variation through the season, as well as the variability from place to place, becomes evident. For example, a severe freeze will occur before November 6 two out of ten years at Sikeston, while such a freeze will be experienced at Caruthersville before November 21 only two years in 10. Similar data for moderate and light freezes at other locations are shown in this table.

Humidity and Cotton Harvest in Southeast Missouri

When a grower or a county agent goes into a cotton field early in the morning and measures the moisture content of cotton, he usually notes it is too moist for immediate harvest. His problem is to estimate when the moisture content of the cotton will be down to 8 percent or less. It has been shown that this is essentially the same as the problem of forecasting the time when the relative humidity will fall below 60 percent.

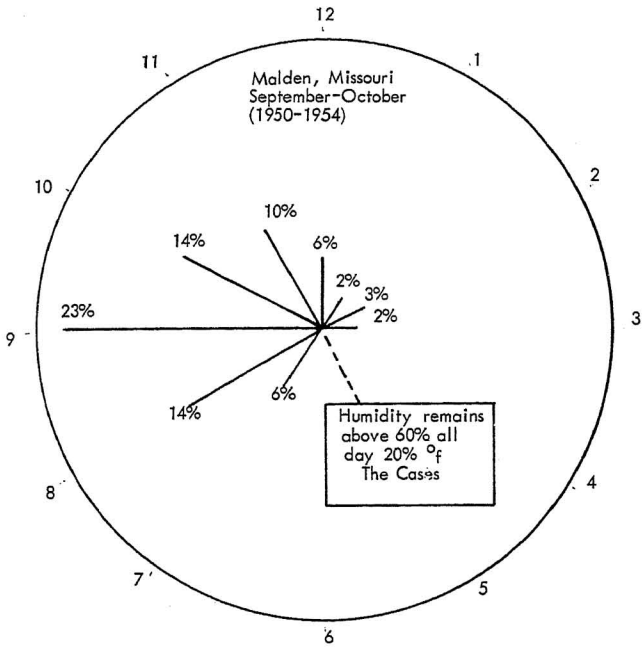
Five years of hourly weather observations by the Federal Airways Station at Malden were summarized for September and October; results of this summary indicate the expected pattern of humidity through the day. Figure 7 shows the frequency with which the relative humidity has fallen below 60 percent in September and October. Six percent of the time the relative humidity was below 60 percent at 7 a.m. On 20 percent of the days, the relative humidity did not drop below 60 percent at any time and thus was unfavorable for cotton picking throughout the day.

In about 50 percent of the cases studied, relative humidity was below 60 percent by 9:30 a.m. In about 66 percent of the cases, relative humidity was below 60 percent by 11 a.m.; thus, on two-thirds of

TABLE 15 - DATES IN THE FALL BEFORE WHICH THERE IS A GIVEN CHANCE OF THE OCCURRENCE OF A SEVERE, MODERATE, AND LIGHT FREEZES

Location	Type of freeze	Chance of a Freeze: One-half of the years	Two years out of ten	One year out of ten	One year out of twenty
Cairo, Ill.	Severe	Dec. 2	Nov. 22	Nov. 15	Nov. 10
	Moderate	Nov. 22	Nov. 10	Nov. 4	Oct. 29
	Light	Nov. 9	Oct. 28	Oct. 21	Oct. 15
Caruthers-ville, Mo.	Severe	Dec. 2	Nov. 21	Nov. 16	Nov. 11
	Moderate	Nov. 20	Nov. 10	Nov. 5	Nov. 1
	Light	Nov. 13	Oct. 31	Oct. 26	Oct. 22
Jackson	Severe	Nov. 10	Oct. 30	Oct. 25	Oct. 20
	Moderate	Oct. 30	Oct. 20	Oct. 15	Oct. 10
	Light	Oct. 16	Oct. 6	Oct. 1	Sept. 27
Poplar Bluff	Severe	Nov. 16	Nov. 5	Oct. 31	Oct. 26
	Moderate	Nov. 5	Oct. 26	Oct. 21	Oct. 16
	Light	Oct. 22	Oct. 12	Oct. 8	Oct. 4
Sikeston	Severe	Nov. 17	Nov. 6	Nov. 1	Oct. 27
	Moderate	Nov. 8	Oct. 29	Oct. 24	Oct. 20
	Light	Oct. 31	Oct. 20	Oct. 16	Oct. 11

Fig. 7—A Timeclock Showing Percent Chance That Humidity will Drop to 60% or Less in Hour Ending at Indicated Time in September and October at Malden.



the days cotton picking could begin by 11 a.m.

Nine years of hourly weather observations at Malden during September and October were studied for cases with clear, partly cloudy, cloudy, and rainy weather. Figures 8 and 9 show the average relative humidity by hours of the day for the four main types of weather during September and October. An examination of these diagrams reveals the expected pattern of relative humidity for each type of day.

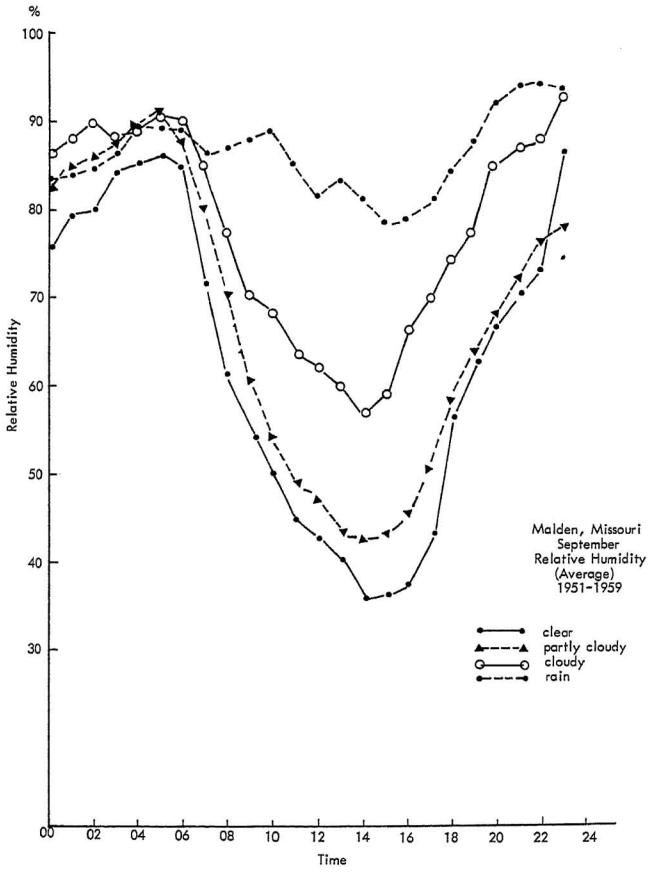
Availability of Water for Plant Growth

Water is one of the most basic, and often limiting, resources of southeast Missouri. This is true for the development of an urban economy as well as for successful agricultural production. It has been noted that although the climate of the southeast area of Missouri is variable, there are consistent patterns in the receipt of rainfall and the occurrence of temperature.

The amount of water available to the region is determined by the distribution and quantity of the rainfall. Of the 46 inches of rain that occur in southeast Missouri during an average year, only a portion may be utilized by a growing crop. A portion of the rainfall passes through and over the soil where it enters the drainage ditches and rivers. That water which remains may be used by the plant, and the amount of water required by a growing crop will be determined by the climate. Warm temperatures dictate a higher use of water by the plants while cool temperatures favor lower water use.

Water reaching the soil as rain either drains from the land or is used in evaporation from soil surfaces and transpiration from plants. Figure 10 shows the annual variation in these three routes of disappearance for rain water. Note that the average precipitation in southeast Missouri has a smaller month to month variability than that in other regions of Missouri. There is a tendency for slightly higher precipitation during the cold season of the year. The potential evapotranspiration, which is the estimated maximum amount of evaporation, follows the reverse annual trend due to its dependence upon temperature. Runoff, as shown in the figure, is high when the precipitation is large and the evapotrans-

Fig. 8—Average Relative Humidity Under Various Cloud Conditions, September, 1951, Through 1959.



piration low, reaching a minimum during late summer.

The monthly and annual runoffs from the Little River Drainage District for a 13 year period are shown in Table 9. Runoff is expressed in this Table as its equivalent inches of water. The values in Table 16 or Figure 10 can be converted to tons per acre by multiplying by 113. Thus in January 1950, with runoff 10.37 inches, there would have been an average of 1172 tons of water runoff per acre. The average

Fig. 9—Average Relative Humidity Under Various Cloud Conditions, October, 1951, Through 1959.

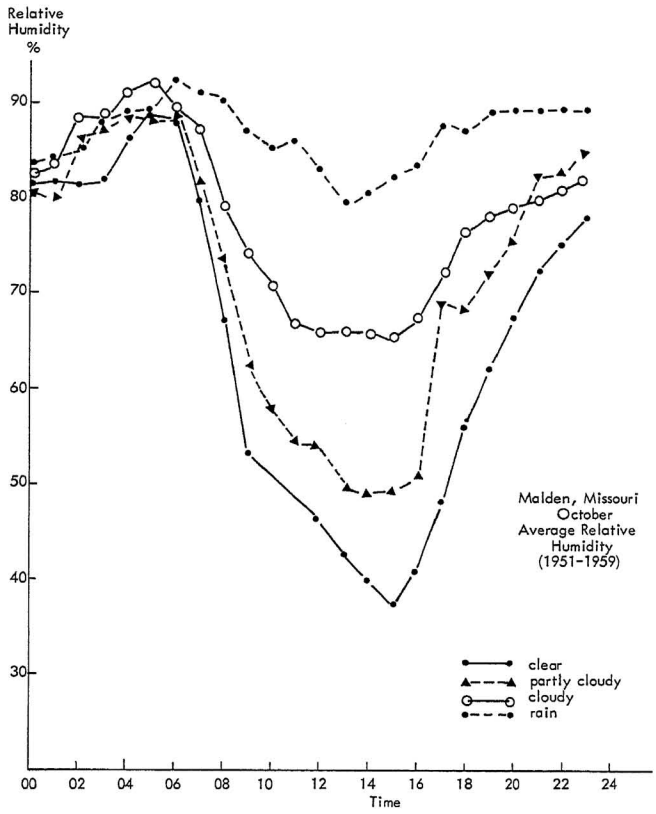


Fig. 10—Average Precipitation, Runoff, and Potential Evapotranspiration (1947-1959); Southeast Missouri Lowlands.

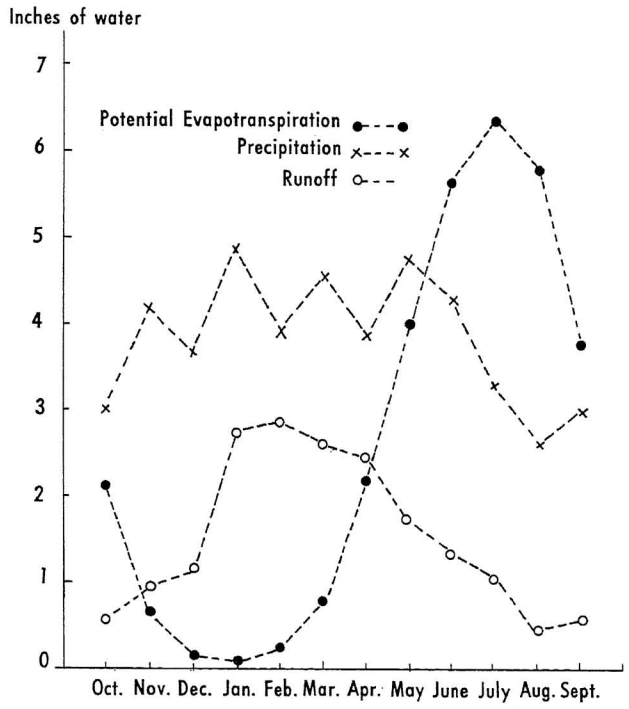


TABLE 16 - LITTLE RIVER DRAINAGE DISTRICT RUNOFF IN INCHES PER MONTH THROUGH RIGHT HAND CHUTE OF LITTLE RIVER AT RIVERVALE, ARKANSAS

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1947	1.47	.81	.68	1.85	1.34	1.30	1.39	.33	.18	.14	.58	.87	10.94
1948	2.02	1.76	2.80	3.36	1.17	.58	.68	.41	.32	.22	.68	1.64	15.64
1949	4.73	7.25	4.04	3.89	.94	1.70	.96	.57	.42	2.70	1.04	2.09	30.33
1950	10.37	9.07	4.00	4.38	2.73	1.52	1.08	.95	1.24	.60	1.27	1.81	39.02
1951	3.74	3.60	3.57	1.65	1.01	.85	2.11	.68	.49	.39	1.27	4.78	24.14
1952	5.84	3.02	4.71	3.01	1.08	.72	.36	.47	2.10	1.28	.18	.47	23.24
1953	.64	1.12	2.91	1.85	2.29	1.02	.48	.22	.09	.08	.10	.19	10.99
1954	.58	.77	.68	.74	.92	.77	.28	.21	.07	.09	.14	.35	5.60
1955	.70	.50	1.44	2.29	1.28	1.18	.73	.35	.16	.14	.16	.21	9.14
1956	.24	3.27	1.86	.91	.88	.65	.40	.21	.15	.10	.12	.19	8.98
1957	.68	2.30	1.42	3.51	4.24	4.94	3.58	.23	.98	1.09	6.13	.45	29.55
1958	3.23	1.96	4.07	3.71	3.92	1.24	1.26	.73	.49	.38	.63	.58	22.20
1959	1.22	2.18	1.66	.80	.59	.69	.44	.32	.29	.40	.63	1.15	10.37
Average	2.73	2.89	2.60	2.46	1.72	1.32	1.06	.44	.54	.59	.98	1.14	18.47

annual runoff of 18.47 inches represents an average of 2087 tons of water per acre.

In general, the potential evapotranspiration will not be reached by a growing crop. This is because the water stored in the soil is removed one or more times during the summer and evapotranspiration is reduced because of the unavailability of water. The amount of water that may be evaporated and transpired from a growing crop will depend not only on the amount of rain and the temperature, but also upon the type of soil and the depth of root penetration. Sand and sandy loams hold the smallest amounts of water, followed by clay loams. Loamy soils are able to supply the greatest amount of water to the plant. Table 17 shows the water-holding capacities for different types of soil and different rooting depths.

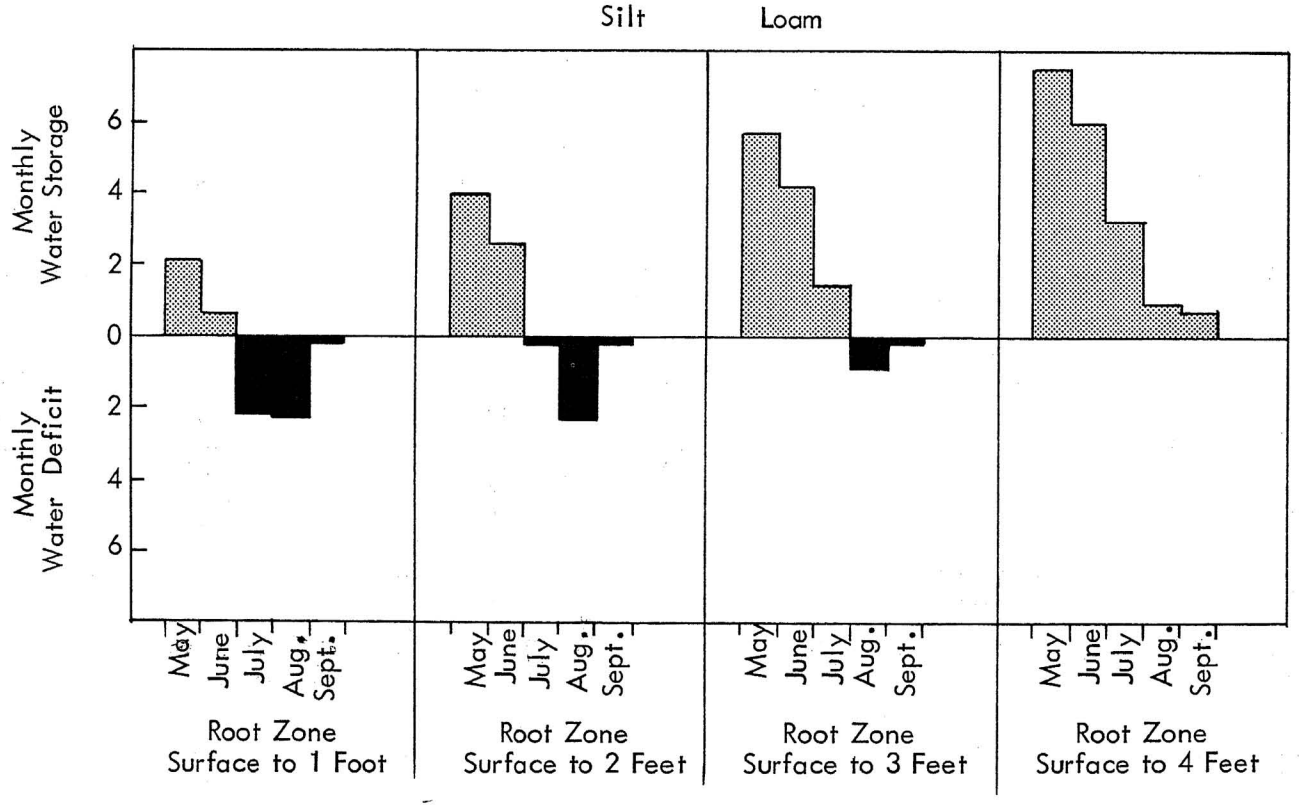
In southeast Missouri on an average year the soil is fully charged with water at the beginning of the growing season. The rapidity with which this water is used depends upon the depth of rooting, type of soil, and rainfall distribution. This is demonstrated in Figure 11.

TABLE 17 - WATER HELD IN RESERVE BY DIFFERENT TEXTURAL CLASSES OF SOIL.

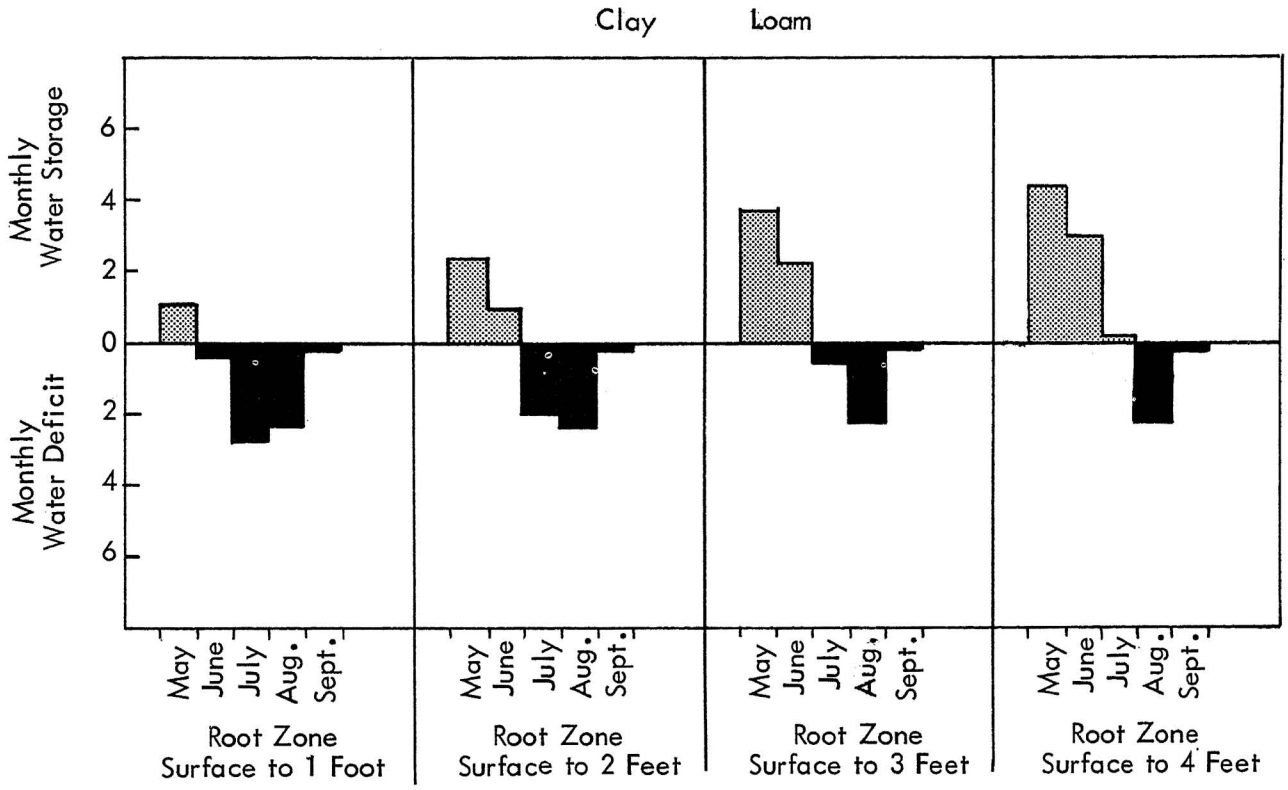
Rooting Depth	Textural Class		
	Sandy loam	Loam	Clay loam
0-12	.4	2.1	1.1
0-24	.9	4.1	2.4
0-36	1.4	5.7	3.7
0-48	1.8	7.5	4.4

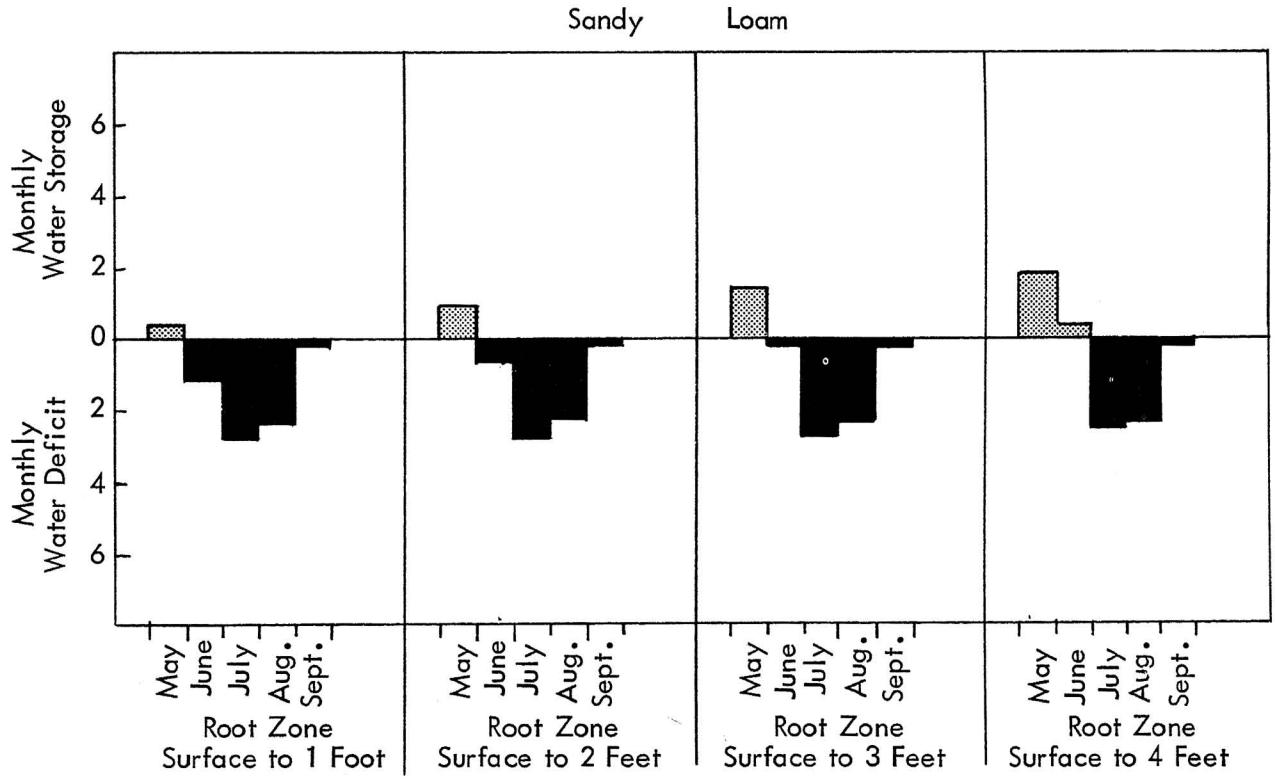
In sandy soils, except for the four-foot rooting zone, the water available for plant use is exhausted by early June and crops remain dependent solely upon rainfall through September. The rainfall is usually insufficient to supply the needs of the crop and deficit periods occur throughout the summer. The values for clay loams (Figure 11) indicate that enough water is in storage to supply the needs for the growing plant until about the first of July; deficits occur for the remaining three months of the growing season.

Fig. 11—The Average Content and Deficit of Soil Water for Different Types and Depths of Soil by Months.



(FIG. 11 CONT'D)


Clay Loam
Monthly Water Storage
Monthly Water Deficit
6
4
2
0
2
4
6
May
June
July
Aug.
Sept.
Root Zone Surface to 1 Foot
Root Zone Surface to 2 Feet
Root Zone Surface to 3 Feet
Root Zone Surface to 4 Feet


Sandy Loam
Monthly Water Storage
Monthly Water Deficit
6
4
2
0
2
4
6
May
June
July
Aug.
Sept.
Root Zone Surface to 1 Foot
Root Zone Surface to 2 Feet
Root Zone Surface to 3 Feet
Root Zone Surface to 4 Feet

For silt loam soils a much better picture is obtained. For crops which extract water to a depth of four feet, no deficits would be expected during the average year and water would be adequate for the needs of the crop except during the dry years. But water deficits do occur on silt loam soils for crops with rooting systems that extend only one, two, or three feet.

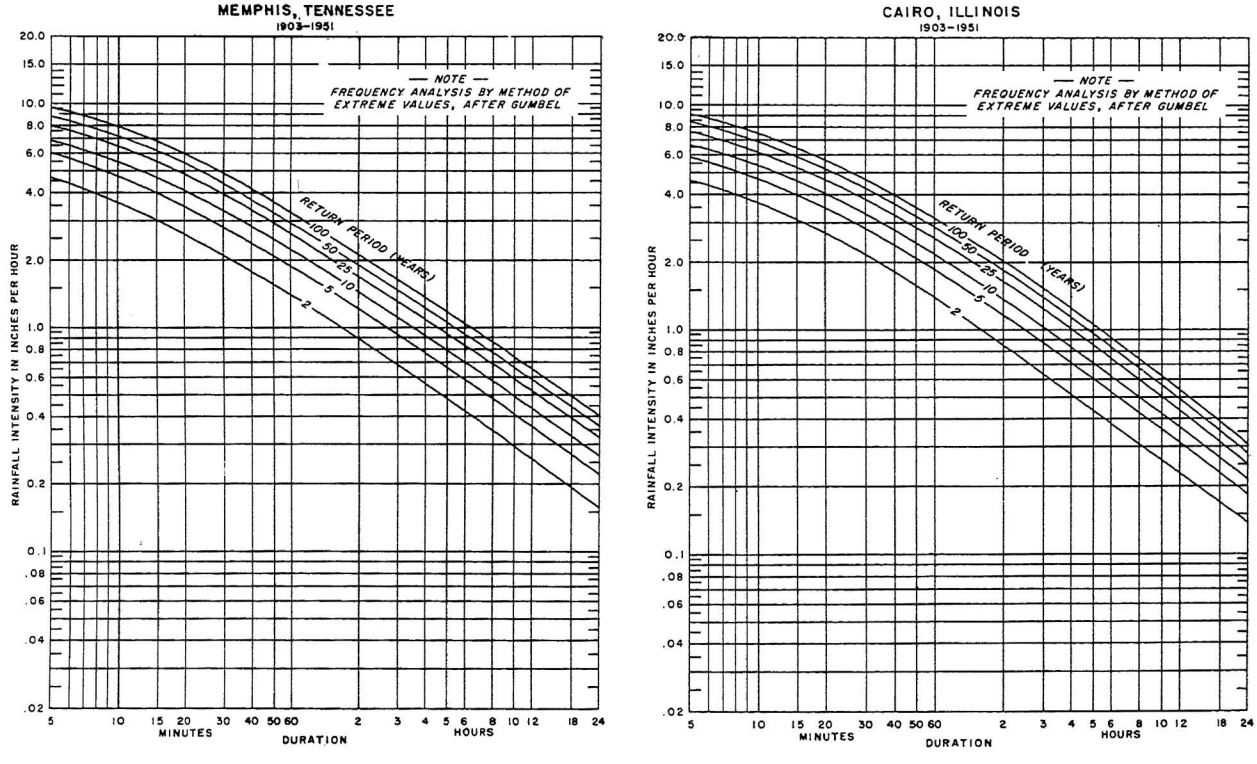
These observations indicate a climatic characteristic of the southeast lowlands region. Abundant rainfall during the cold season of the year and low temperatures produce conditions where water excesses occur. During the warm season, because of the decline in rainfall and the low water retention properties of the soil, the evapotranspiration needs of the crop cannot be supplied. This indicates the need for water removal through drainage during the cold season of the year and irrigation during the warm summer season.

Rainfall Intensity in Southeast Missouri

The rate at which precipitation falls has significance to the soil conservationist, engineer, and hydrologist. The frequency of storms of varying duration and intensity can be determined from rainfall analyses. These intensities have been derived for all first-order Weather Bureau stations; Figure 12, gives intensity curves for Memphis, Tenn., and Cairo, Ill. The Cairo, Illinois data should be representative of the rainfall occurrences in the northern portions of the lowlands of southeast Missouri, while the Memphis data should indicate conditions along the southern border.

Lines on the charts represent the expected number of years between storms of a given duration and intensity. For example, for a 60 minute storm at Memphis, an intensity of 1.3 inches per hour will occur every two years, 1.8 inches per hour every five years, 2.3 inches per hour every 10 years, 2.6 inches per hour intensity every 25 years, 2.9 inches per hour every 50 years, and 3.3 inches per hour every hundred years. These values are useful because they give the entire spectrum of intensities and storm durations from very short rainfall up to steady rains which last all day. In interpreting these figures, remember that the intensities are expressed in the depth of rainfall per hour. An intensity of 6.0 inches per hour for five minute storm duration would mean that 0.5 inch of rain fell in a five minute period.

Fig. 12—Rainfall Intensity—Duration—Frequency Curves



Chances for Selected Amounts of Precipitation in Southeast Missouri

Estimates of the probability of receiving varying amounts of rainfall have been computed for more than 120 locations in the north central states. One of these locations was Poplar Bluff, Mo., which is located in the western edge of the southeast lowlands. Data on Poplar Bluff are presented in Figures 13, 14, and 15. Figure 13 shows the percent chance of receiving varying amounts of rainfall for one

Fig. 13—Expected Number of Occurrences of Zero, 0.2, and 1.2 Inches of Precipitation Each Week Through the Year.

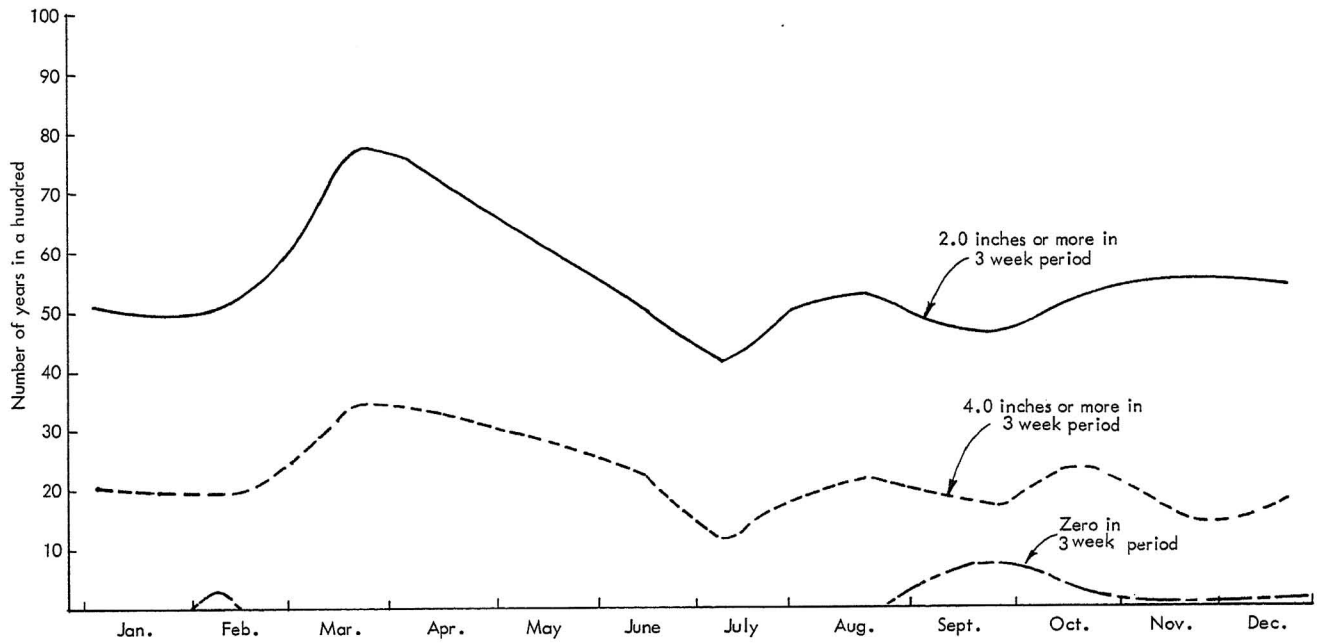


Fig. 14—Expected Number of Occurrences of Zero, 1.0 Inch, and 2.8 Inches of Precipitation During Two Week Periods Beginning Each Week Throughout the Year.

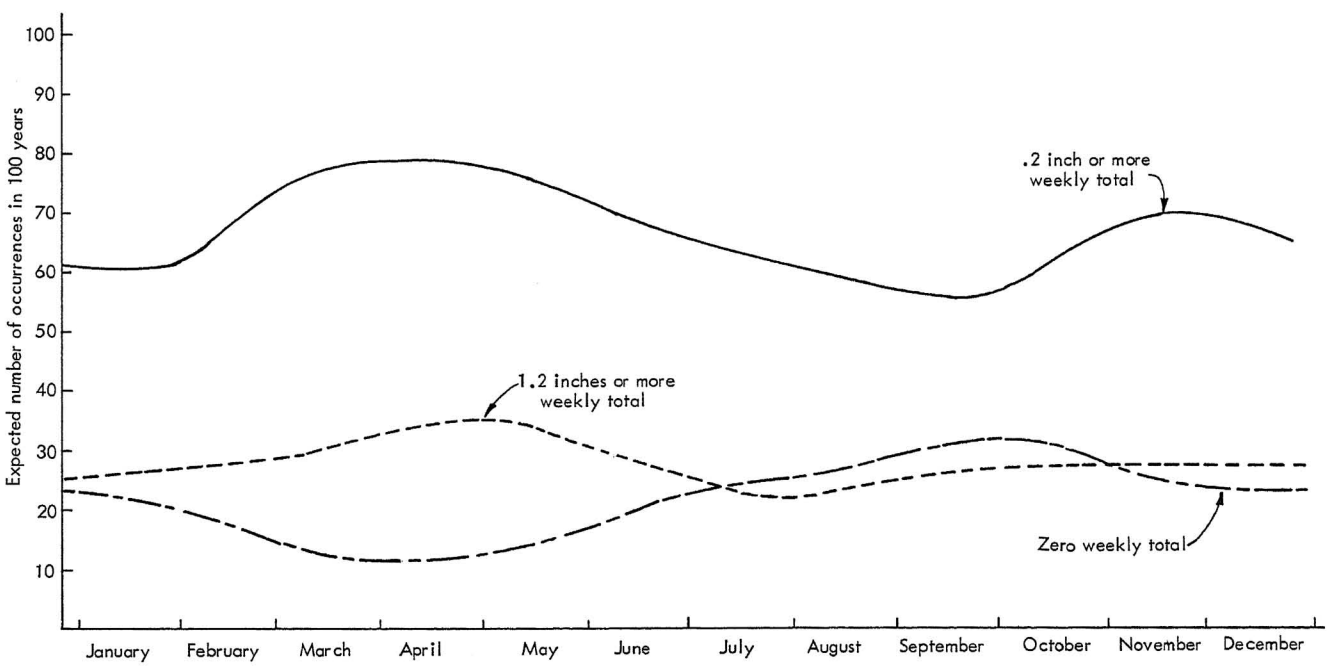
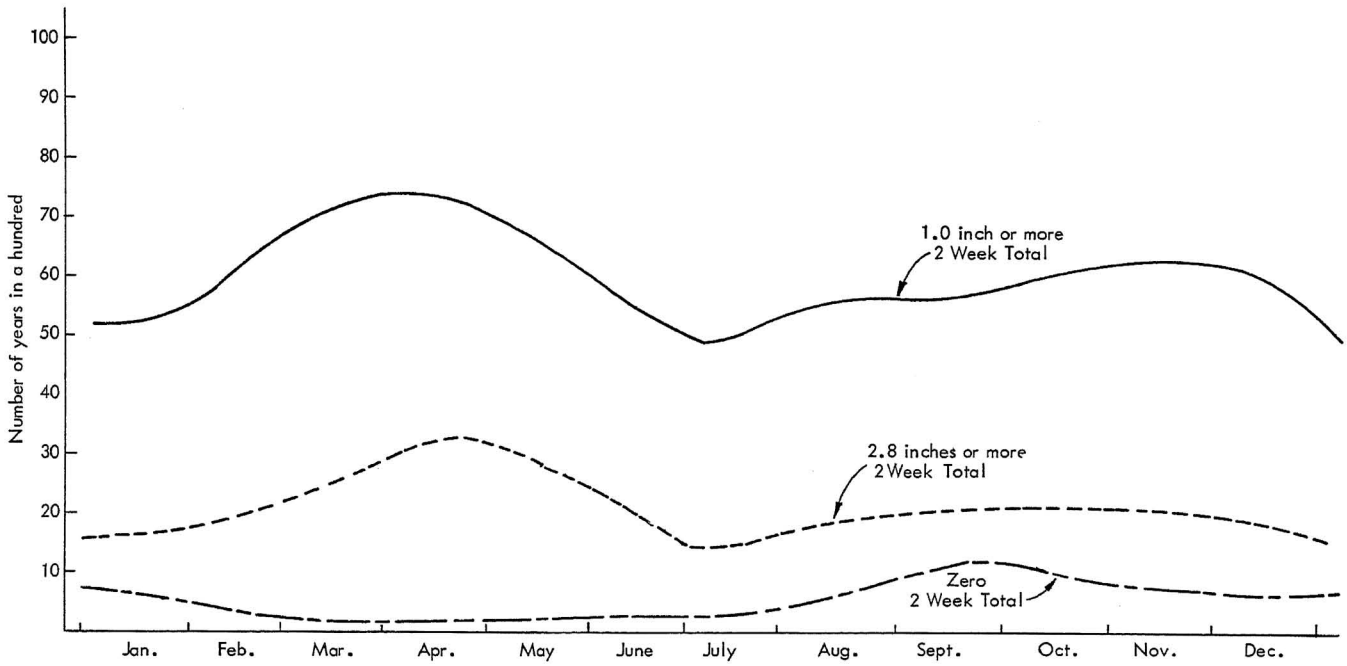


Fig. 15—Expected Number of Occurrences of Zero, 2.0 Inches, and 4.0 Inches of Precipitation During a Three Week Period Beginning Each Week Throughout the Year.



week periods. Note that during the week beginning March 1 about 14 percent of the years have no precipitation. Weekly totals of 0.2 of an inch or more are quite likely throughout the year with a 0.2 inch total occurring two out of three years. For large weekly totals the probabilities are, of course, a great deal lower. Figure 13 gives the chances of receiving 1.2 inches of rain or more during each week. The chance of receiving this amount is quite uniform (at about one out of four years) throughout the year, except for an increase during the spring when 35 percent of the years have more than 1.2 inches per week.

The same type of data are shown in Figure 14 and 15 for two and three week periods. These data give an estimate of the likelihood of varying amounts of rainfall during these periods. Two characteristics of these curves are striking. First there is an increased likelihood for heavy precipitation during the spring season. For example, during early April on one out of three years, over 4 inches of rain will occur during a three week period. Second, there is a decline in the likelihood of substantial precipitation during the mid-summer period of July and August.

It is also of interest to note that the likelihood of zero rainfall during one, two, and three week periods, is substantially increased during the September through October period, and that there is a decline in the likelihood of no precipitation when the season advances from winter to spring. This characteristic of the cold season can not be found by reviewing the average monthly precipitation. But it indicates that the chances for periods of dry weather are greater during the winter months than during the spring in southeast Missouri.