

10-1-1962

Climatic patterns of Mississippi

John C. McWhorter

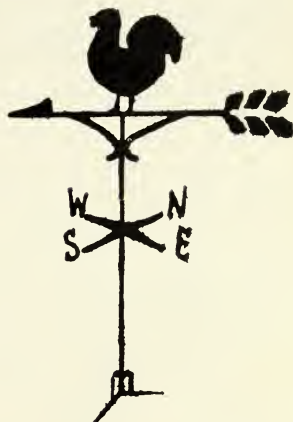
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Climatic Patterns Of Mississippi



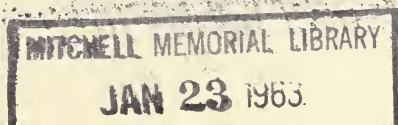
By J. C. McWHORTER

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AGRICULTURAL EXPERIMENT STATION

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STATE COLLEGE

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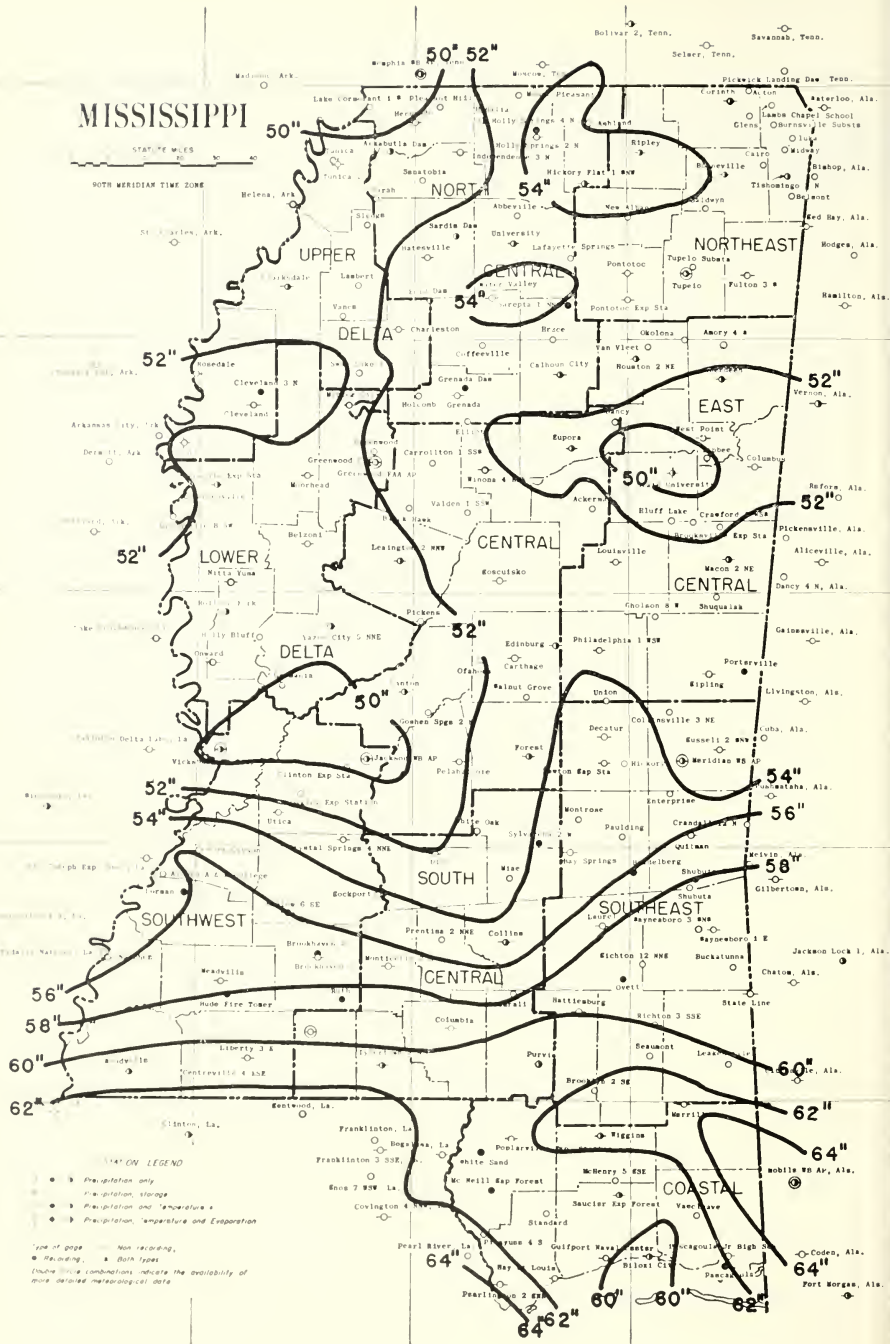


Figure 1.—Mean annual precipitation.

CLIMATIC PATTERNS OF MISSISSIPPI

By J. C. McWHORTER

Moisture, temperature, soils, and vegetation are intimate factors influencing the cultural and economic development of society. In agriculture, certain areas are especially suited by both climate and soil to the crops they produce. If climate is not adequately considered, crops, soils, and man may fail. Today agriculture and industry must thoughtfully evaluate the influence of day-to-day weather and climatic characteristics in developing plans and operations.

Climate is the average condition of the weather at a place over a period of years as shown by temperature, precipitation, wind, sunshine, and other weather occurrences.

To arrive at this average condition for Mississippi, the United States Weather Bureau maintains a network of approximately 165 stations in the state which observe the daily weather. This daily observation is made by cooperative observers in accordance with certain standards. Reports are forwarded to the Bureau where the data is recorded.

For many years the Mississippi Agricultural Experiment Station has participated in this program by observing and reporting the weather at State College and at most of its Branch Stations.

The purpose of this report is to present data accumulated over a long period of years in such a manner that certain climatic characteristics of the state can be defined readily. Tables 1 to 3 include average temperature and precipitation values¹ from which portions of this report were developed.

Figure 1 was plotted by recording the mean annual precipitation at the location of its occurrence. Whole number values were then interpolated between the different stations. Lines denoting depth of precipitation were then plotted by con-

necting points of equal depth. Lines drawn through points of approximately equal value are known as isolines.

Similarly the other maps were constructed by isolines drawn through points of equal precipitation, equal temperatures, equal dates of occurrence (average dates of freezing temperatures) and equal numbers of tornadoes or winds of certain force.

A study of the graphical presentations in Figures 1 to 17 will enable one to characterize the climate for a specific location or the state as a whole.

Figures 1 to 9 show some of the precipitation patterns for the state. For example, Figure 1 reveals that the mean annual precipitation on the Gulf Coast at Pascagoula is 62 inches; while in north west Mississippi at Hernando the average is 50 inches. The other maps in this group enable one to make a rapid comparison of the precipitation between areas, seasons of the year, and extremes.

Temperature patterns for the warmest and coldest months are shown along with the mean annual temperature in Figures 10 to 12. The average date for the last spring and first fall day with temperatures of 32 degrees or lower are shown in Figures 13 and 14. It should be noted that the average date means that there is a 50 percent chance of the 32 degree day occurring before or after the average date.

The number of tornadoes, gale, and hurricane force winds are shown in Figures 15 to 17. To determine the frequency, the number of occurrences is divided into the period of years. For instance, in Figure 15, it is noted that four tornadoes have occurred in the Jackson area in 42 years. The frequency or recurrence interval would therefore be one tornado in ten years.

ACKNOWLEDGEMENT: Consultation and assistance were given by the Weather Bureau state climatologist at New Orleans, Louisiana, Ralph Sanders, retired.

¹Data furnished by Weather Bureau, U. S. Department of Commerce.

Table 1.—Mean precipitation 1931-1960.

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann.
Upper Delta Division													
Clarksdale	5.89	5.17	5.47	4.82	4.24	3.84	3.83	2.25	2.78	2.44	4.58	5.05	50.36
Cleveland	5.88	4.93	6.34	5.05	4.28	3.97	4.65	2.53	3.32	2.82	4.64	5.22	53.63
Scott	5.98	4.94	5.92	4.97	4.29	3.41	3.78	2.55	2.83	2.51	4.60	4.97	50.75
Swan Lake	5.77	4.91	5.89	4.83	3.87	4.03	4.54	2.75	3.03	2.46	4.73	5.03	51.84
North Central Division													
Batesville	6.05	4.92	5.85	5.21	3.97	3.57	4.05	3.32	3.14	2.65	4.57	5.30	52.60
Grenada	5.63	5.14	6.47	4.43	4.00	3.61	4.21	3.23	3.13	2.40	4.89	5.16	52.30
Holly Springs	6.43	5.48	5.71	4.79	4.26	3.72	4.60	3.19	3.79	2.91	4.68	5.03	54.59
University	5.97	5.29	5.76	5.05	4.02	3.88	4.04	2.91	3.53	2.83	4.84	5.09	53.21
Water Valley	5.64	5.14	6.23	5.20	3.92	3.86	4.57	3.09	3.57	2.69	4.60	5.25	53.76
Northeast Division													
Booneville	6.04	5.70	5.90	4.87	4.12	3.70	4.06	3.22	3.25	2.99	4.68	5.42	53.95
Corinth	6.23	5.38	5.35	4.72	4.02	3.77	3.95	3.40	3.16	2.77	4.56	4.84	52.15
Fulton	5.48	5.78	6.40	4.88	4.11	3.60	4.75	3.16	3.18	2.48	4.38	5.05	53.25
Pontotoc	5.66	5.17	6.23	5.06	3.70	4.05	4.87	3.28	3.43	2.45	4.57	5.16	53.63
Tupelo	5.85	5.49	6.64	4.36	3.97	3.89	4.30	2.57	3.17	2.87	4.39	5.33	52.63
Lower Delta Division													
Belzoni	5.55	5.12	5.53	5.09	3.66	3.77	3.78	2.75	2.61	2.53	4.69	5.31	50.39
Greenville	6.43	5.22	5.70	5.41	4.03	3.24	4.42	2.62	3.21	2.38	4.64	5.25	52.55
Greenwood	5.62	5.04	5.70	4.81	4.06	3.75	4.45	3.06	3.12	2.39	4.70	5.41	52.11
Moorhead	5.48	4.77	5.76	5.16	3.59	3.81	4.58	2.81	3.10	2.44	4.53	4.85	50.88
Stoneville	5.59	4.98	5.56	4.96	4.21	3.87	4.03	2.55	2.99	2.61	4.23	5.28	50.86
Yazoo City	5.06	5.19	5.49	4.83	3.97	3.99	4.29	2.98	2.36	2.51	4.47	5.10	50.24
Central Division													
Canton	5.21	4.95	5.75	4.73	4.26	3.52	4.78	3.40	2.29	2.03	4.02	5.37	50.31
Edinburg	5.45	5.57	6.12	5.00	4.34	3.86	5.50	3.36	2.80	2.26	3.89	5.30	53.45
Eupora	5.72	5.10	5.88	4.44	3.67	4.06	4.90	3.35	2.77	2.53	3.96	4.98	51.36
Kosciusko	5.54	5.52	5.82	4.96	4.08	3.72	5.36	3.21	2.98	2.43	4.33	5.12	53.07

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann.
East Central Division													
Aberdeen	5.57	5.53	6.01	4.70	3.71	4.02	4.88	3.08	2.89	2.60	3.97	4.88	51.84
Columbus	5.74	5.44	5.68	4.19	3.38	3.51	5.12	2.99	3.37	2.77	3.81	4.72	50.72
Louisville	5.73	5.88	6.10	4.55	4.11	3.61	6.08	3.36	3.19	2.41	4.00	4.92	53.94
Macon	5.50	5.92	6.01	4.90	3.86	3.13	5.49	3.31	3.19	2.74	4.10	4.91	53.06
State University	5.34	5.09	5.65	4.00	3.51	3.31	5.15	3.13	2.67	2.59	3.72	4.77	48.93
Southwest Division													
Brookhaven	5.31	5.21	6.22	5.44	4.89	4.58	5.71	3.74	3.58	2.47	4.10	5.78	57.03
Jackson	4.94	4.88	5.57	4.51	4.16	3.85	4.64	3.34	2.48	1.94	3.70	5.32	49.33
Natchez	5.52	5.47	6.24	5.08	5.98	4.03	4.18	3.86	2.83	2.21	4.46	5.64	54.97
Port Gibson	5.60	5.49	6.09	5.67	4.95	4.44	4.86	3.87	2.86	2.41	4.47	5.41	56.12
Utica	5.39	5.05	5.90	5.50	4.71	4.00	4.85	3.24	2.81	2.16	3.98	5.21	52.80
Vicksburg	5.13	5.31	5.73	4.92	4.13	3.46	3.90	3.01	2.50	2.04	4.43	4.94	49.50
South Central Division													
Collins	4.89	4.95	5.82	5.06	4.72	4.07	6.12	4.00	3.79	2.50	3.52	5.10	54.54
Columbia	5.04	5.32	6.34	5.67	4.90	4.93	6.17	4.37	4.34	2.92	3.99	5.78	59.77
Monticello	5.50	5.29	6.33	5.54	4.97	4.04	5.84	3.84	3.47	2.58	3.67	5.56	56.63
Southeast Division													
Enterprise	5.07	5.16	6.34	5.32	4.04	4.08	6.48	3.30	3.78	2.06	3.59	5.10	54.32
Hattiesburg	4.74	5.32	6.73	5.52	5.16	4.16	6.79	5.12	4.21	2.70	4.05	5.68	60.18
Hickory	5.41	5.19	6.50	5.62	4.02	3.52	6.24	3.69	3.58	2.47	3.93	5.66	55.83
Laurel	5.08	5.37	6.78	5.70	4.49	4.12	6.77	4.09	3.95	2.59	3.79	5.18	57.91
Leakesville	4.69	4.48	6.68	5.57	4.70	4.72	7.41	4.89	4.65	2.56	4.32	5.53	60.20
Meridian	4.69	5.09	6.32	5.33	3.91	4.07	6.22	3.54	3.33	2.22	3.10	5.31	53.13
Shubuta	4.92	5.36	6.93	5.44	4.49	4.25	7.77	3.47	4.14	2.21	3.86	5.59	58.43
Waynesboro	4.61	5.18	7.00	5.64	4.13	4.17	6.70	4.53	4.14	2.38	4.01	5.66	58.15
Coastal Division													
Bay Saint Louis	4.33	4.57	5.95	5.79	4.63	4.73	7.86	5.96	6.24	2.68	3.43	5.25	61.42
Bitloxi City	3.85	4.00	6.10	4.75	4.71	5.09	7.33	5.71	6.50	2.52	3.29	4.73	58.58
Merrill	4.54	4.43	6.64	5.75	5.05	5.15	8.32	5.66	5.62	2.69	4.23	5.52	63.60
Pearlington	4.50	5.20	6.32	5.63	4.52	5.28	8.64	6.72	6.00	2.62	3.82	5.14	64.39
Poplarville	4.63	5.04	6.58	5.24	5.07	5.04	7.05	5.70	4.99	2.49	4.29	5.69	61.81

Table 2.—Mean Temperatures 1931-1960.

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann.
Upper Delta Division													
Clarksdale	45.2	48.1	55.1	65.0	73.4	81.1	83.4	83.0	76.9	66.5	53.7	46.5	64.8
Scott	44.2	47.1	53.8	63.4	71.8	79.3	81.6	81.1	75.1	62.8	52.5	45.6	63.2
North Central Division													
Batesville	43.8	46.6	53.2	62.9	70.9	78.5	81.2	80.7	74.5	63.7	51.8	45.0	62.7
Holly Springs	42.7	45.1	52.0	61.9	69.9	77.8	80.7	80.2	73.9	63.6	51.3	44.1	61.9
University	44.2	46.9	53.7	63.3	70.9	78.6	81.0	81.0	75.0	64.7	52.3	45.6	63.1
Water Valley	44.8	47.5	53.7	62.9	70.4	78.2	81.1	80.7	74.7	64.4	52.8	46.0	63.1
Northeast Division													
Booneville	42.4	44.5	51.4	61.2	69.6	77.4	80.2	79.9	73.9	63.4	50.8	43.6	61.5
Corinth	43.2	45.6	52.5	62.6	71.0	78.9	81.7	81.2	74.9	64.1	51.5	44.6	62.7
Pontotoc	44.5	47.0	53.7	63.0	70.8	78.4	80.8	80.6	74.8	64.7	52.4	45.6	63.0
Tupelo	44.1	46.6	53.2	62.9	71.5	79.5	81.9	81.6	75.2	64.3	51.8	45.3	63.2
Lower Delta Division													
Belzoni	46.9	49.9	56.4	65.1	73.1	80.2	82.4	82.0	76.1	66.0	54.1	48.1	65.0
Greenville	46.2	48.9	55.5	64.5	72.6	79.9	82.3	82.0	76.2	66.4	54.1	47.3	64.7
Greenwood	46.4	49.2	55.7	64.7	72.9	80.2	82.5	82.1	76.0	65.5	53.4	47.3	64.7
Moorhead	46.1	48.9	55.4	64.5	72.6	80.0	82.3	81.3	75.6	64.9	53.3	47.3	64.4
Stoneville	46.1	48.7	55.1	64.0	71.9	79.3	81.7	81.2	75.5	65.2	53.5	47.2	64.1
Yazoo City	47.6	50.3	56.7	65.3	73.0	80.0	82.3	82.0	76.7	66.5	54.6	48.7	65.2
Central Division													
Canton	48.3	50.7	56.5	64.5	72.2	79.2	81.5	81.2	76.0	66.0	54.7	49.3	65.0
Edinburg	47.6	49.9	55.6	63.6	70.9	78.1	80.4	79.9	74.8	64.6	53.5	48.1	63.9
Eupora	46.1	48.5	54.5	63.1	70.8	78.3	80.7	80.2	74.7	64.7	53.0	46.7	63.4
Kosciusko	46.3	48.7	55.1	63.5	71.4	78.6	80.9	80.7	75.2	65.3	53.5	47.3	63.9

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann.
East Central Division													
Aberdeen	46.2	48.6	55.0	63.7	71.7	79.3	81.7	81.5	75.4	64.9	53.1	46.9	64.0
Columbus	46.9	49.1	55.5	64.0	71.9	79.6	81.7	81.6	76.0	65.5	53.6	47.5	64.4
Louisville	46.5	48.8	55.1	63.5	71.4	78.8	81.0	80.9	75.1	65.1	53.4	47.1	63.9
Macon	47.0	49.5	56.0	64.6	72.6	80.1	82.3	82.0	76.6	66.3	54.3	47.6	64.9
State University	46.9	49.3	55.5	64.2	72.0	79.3	81.4	81.1	75.9	65.7	54.1	47.7	64.4
Southwest Division													
Brookhaven	50.7	53.0	58.4	65.7	73.2	79.8	81.5	81.4	76.9	67.9	56.9	51.4	66.4
Jackson	48.0	50.7	56.4	64.4	72.5	79.4	81.6	81.3	76.2	66.5	54.9	49.0	65.1
Natchez	51.0	53.8	59.0	66.5	73.5	80.1	82.0	81.9	77.3	68.0	57.2	52.2	66.9
Port Gibson	48.5	51.5	57.3	64.7	72.1	78.7	81.0	80.6	75.4	65.5	54.4	49.2	64.9
Utica	50.0	52.6	58.0	65.6	73.1	80.0	82.1	81.9	77.2	67.6	56.5	51.0	66.3
Vicksburg	49.0	51.8	57.6	65.7	73.4	79.7	81.8	81.7	76.6	67.5	56.2	50.3	65.9
South Central Division													
Columbia	52.2	54.7	59.9	67.2	74.4	81.0	82.4	82.0	77.4	67.9	57.5	52.7	67.4
Monticello	50.8	53.1	58.3	65.6	72.9	79.6	81.8	81.2	76.6	67.0	56.2	51.2	66.2
Southeast Division													
Hattiesburg	51.6	54.0	59.1	66.3	73.8	80.2	81.7	81.3	76.7	67.0	56.7	51.7	66.7
Laurel	50.1	52.2	58.0	65.6	73.3	80.1	81.7	81.6	76.8	67.4	56.2	50.3	66.1
Meridian	48.1	50.6	56.5	64.4	72.4	79.5	81.5	81.2	75.9	65.6	54.1	48.3	64.9
Waynesboro	50.2	52.7	57.9	65.3	72.6	79.3	80.8	80.6	76.0	66.4	55.6	50.4	65.7
Coastal Division													
Bay Saint Louis	53.2	55.6	60.4	67.9	75.3	80.9	82.1	82.1	78.6	69.9	59.3	53.8	68.3
Biloxi City	53.6	55.4	60.1	67.3	74.8	80.6	81.9	81.9	78.1	69.9	59.6	54.4	68.1
Poplarville	53.5	55.7	60.2	67.0	74.3	80.3	81.6	81.4	77.6	69.5	59.3	54.3	67.9

Table 3—Mean Precipitation 1931-60

Station	Winter	Spring	Summer	Fall	Growing Season	Annual
Upper Delta Division						
Clarksdale	16.11	14.53	9.92	9.80	24.45	50.36
Cleveland	16.03	15.67	11.15	10.78	26.82	53.63
Scott	15.89	15.18	9.74	9.94	24.92	50.75
Swan Lake	15.71	14.59	11.32	10.22	25.91	51.84
North Central Division						
Batesville	16.27	15.03	10.94	10.36	25.97	52.60
Grenada	15.93	14.90	11.05	10.42	25.95	52.30
Holly Springs	16.94	14.76	11.51	11.38	26.27	54.59
University	16.35	14.83	10.83	11.20	25.66	53.21
Water Valley	16.03	15.35	11.52	10.86	26.87	53.76
Northeast Division						
Booneville	17.16	14.89	10.98	10.92	25.87	53.95
Corinth	16.45	14.09	11.12	10.49	25.21	52.15
Fulton	16.31	15.39	11.51	10.04	26.90	53.25
Pontotoc	15.99	14.99	12.20	10.45	27.19	53.63
Tupelo	16.67	14.97	10.56	10.43	25.53	52.63
Lower Delta Division						
Belzoni	15.98	14.28	10.30	9.83	24.58	50.39
Greenville	16.90	15.14	10.28	10.23	25.42	52.55
Greenwood	16.07	14.57	11.26	10.21	25.83	52.11
Moorhead	15.10	14.51	11.20	10.07	25.71	50.88
Stoneville	15.85	14.73	10.45	9.83	25.18	50.86
Yazoo City	15.35	14.29	11.26	9.34	25.55	50.24
Central Division						
Canton	15.53	14.74	11.70	8.34	26.44	50.31
Edinburg	16.32	15.46	12.72	8.95	28.18	53.45
Fupora	15.80	13.99	12.31	9.26	26.30	51.36
Kosciusko	16.18	14.86	12.29	9.74	27.15	53.07
East Central Division						
Aberdeen	15.98	14.42	11.98	9.46	26.40	51.84
Columbus	15.90	13.25	11.62	9.95	24.87	50.72
Louisville	16.53	14.76	13.05	9.60	27.81	53.94
Macon	16.33	14.77	11.93	10.03	26.70	53.06
State University	15.20	13.16	11.59	8.98	24.75	48.93
Southwest Division						
Brookhaven	16.30	16.55	14.03	10.15	30.58	57.03
Jackson	15.14	14.24	11.83	8.12	26.07	49.33
Natchez	16.10	17.30	12.07	9.50	29.37	54.97
Port Gibson	16.48	16.71	13.19	9.74	29.90	56.12
Utica	15.65	16.11	12.09	8.95	28.20	52.80
Vicksburg	15.38	14.78	10.37	8.97	25.15	49.50
South Central Division						
Collins	14.94	15.60	14.19	9.81	29.79	54.54
Columbia	16.14	16.91	15.47	11.25	32.38	59.77
Monticello	16.35	16.84	13.72	9.72	30.56	56.63
Southeast Division						
Enterprise	15.33	15.70	13.86	9.43	29.56	54.32
Hattiesburg	15.74	17.41	16.07	10.96	33.48	60.18
Hukory	16.26	16.14	13.45	9.98	29.59	55.83
Laurel	15.63	16.97	14.98	10.33	31.95	57.91
Leakesville	14.70	16.95	17.02	11.53	33.97	60.20
Meridian	15.09	15.56	13.83	8.65	29.39	53.13
Shubuta	15.87	16.86	15.49	10.21	32.35	58.43
Waynesboro	15.45	16.77	15.40	10.53	32.17	58.15
Coastal Division						
Bay Saint Louis	14.15	16.37	18.55	12.35	34.92	61.42
Biloxi City	12.58	15.56	18.13	12.31	33.69	58.58
Morrill	14.49	17.44	19.13	12.54	36.57	63.60
Passapatanz	14.84	16.47	20.64	12.44	37.11	64.39
Paplarville	15.36	16.89	17.79	11.77	34.68	61.81

Winter — Dec., Jan., Feb.

Spring — Mar., Apr., May

Summer — June, July, Aug.

Fall — Sept., Oct., Nov.

Growing Season — Spring and Summer

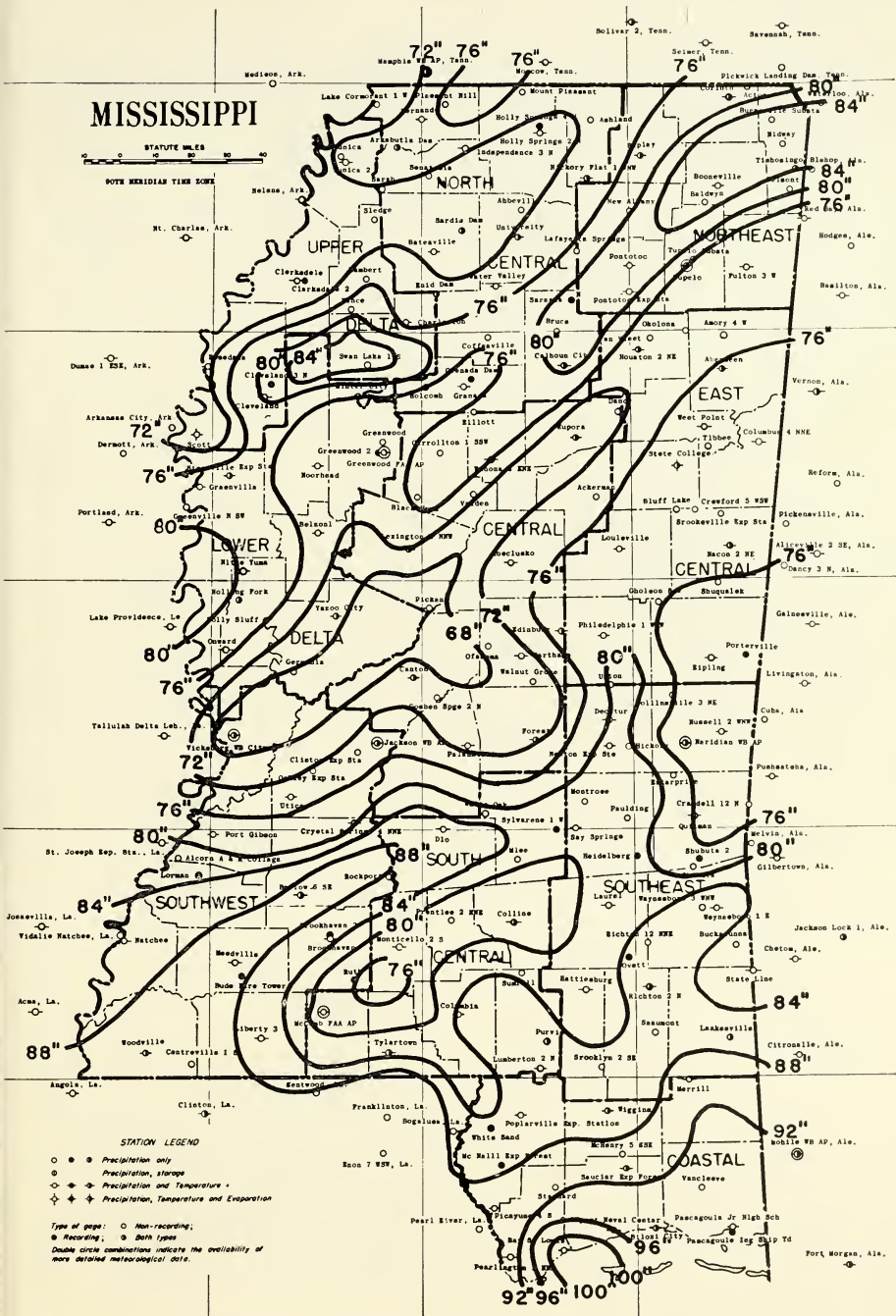


Figure 2.—Greatest annual precipitation 1891-1958.

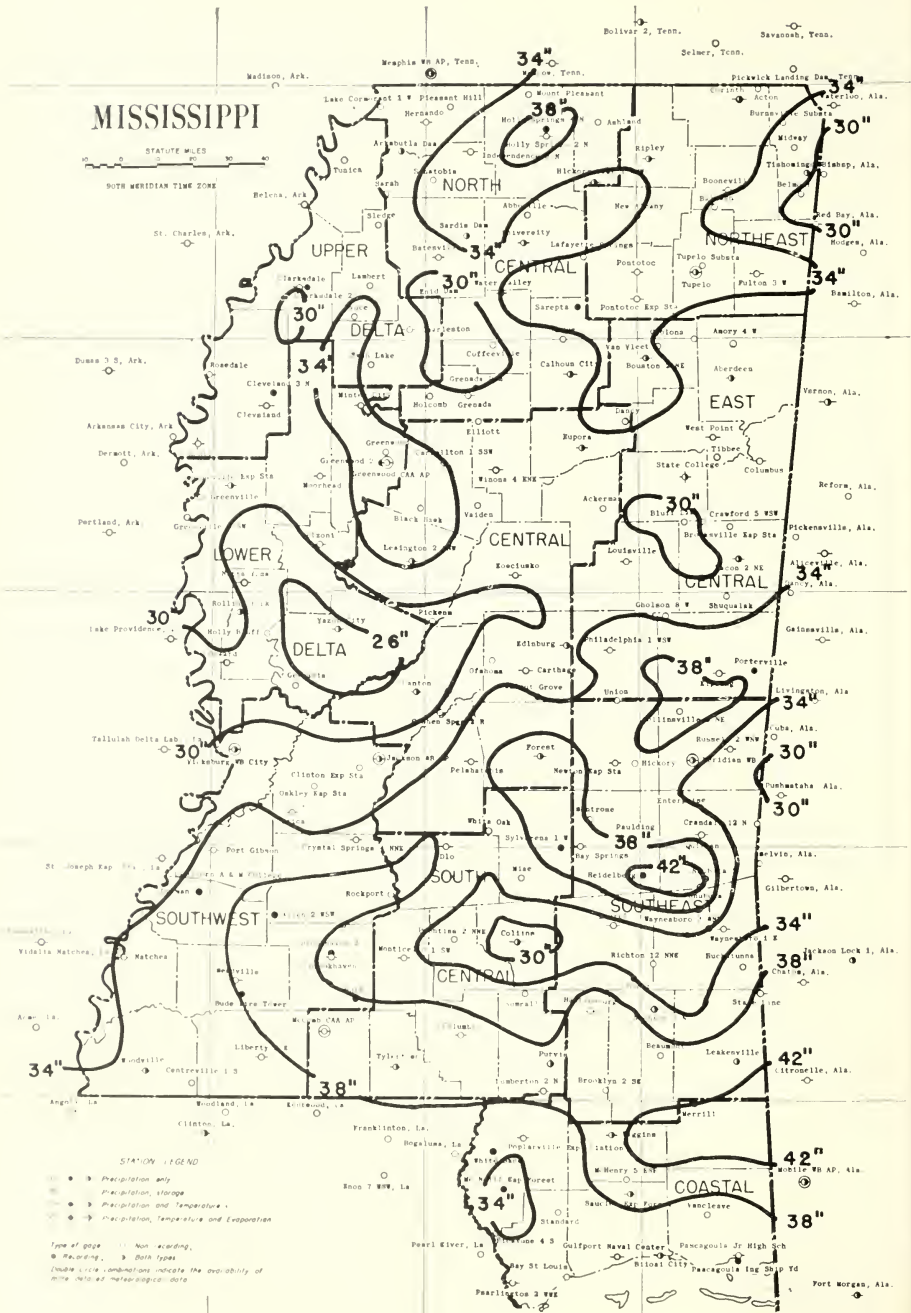


Figure 3.—Least annual precipitation, 1891-1958.

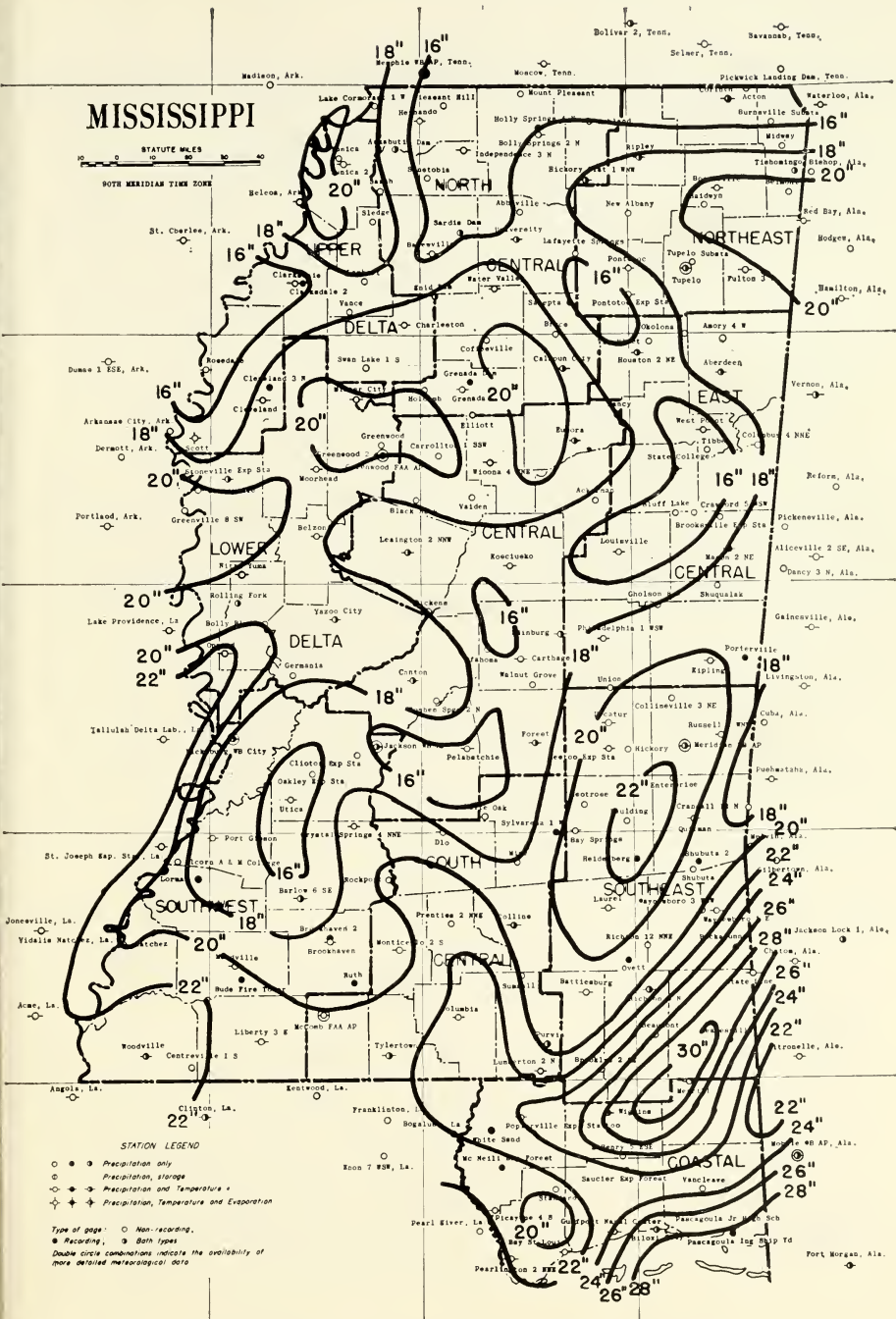


Figure 4.—Greatest monthly precipitation, 1891-1958.

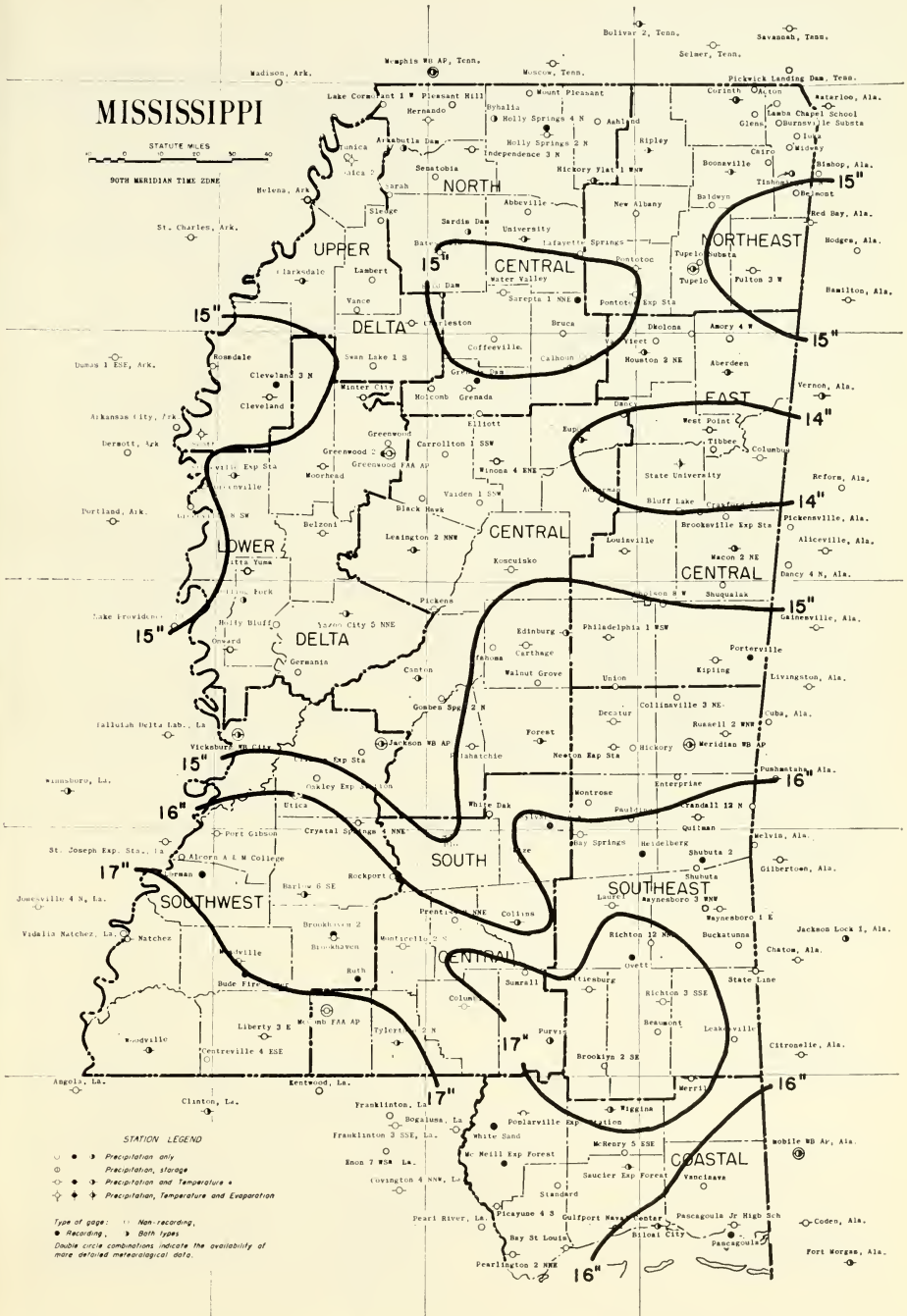


Figure 6.—Man spring precipitation, 1931-60.

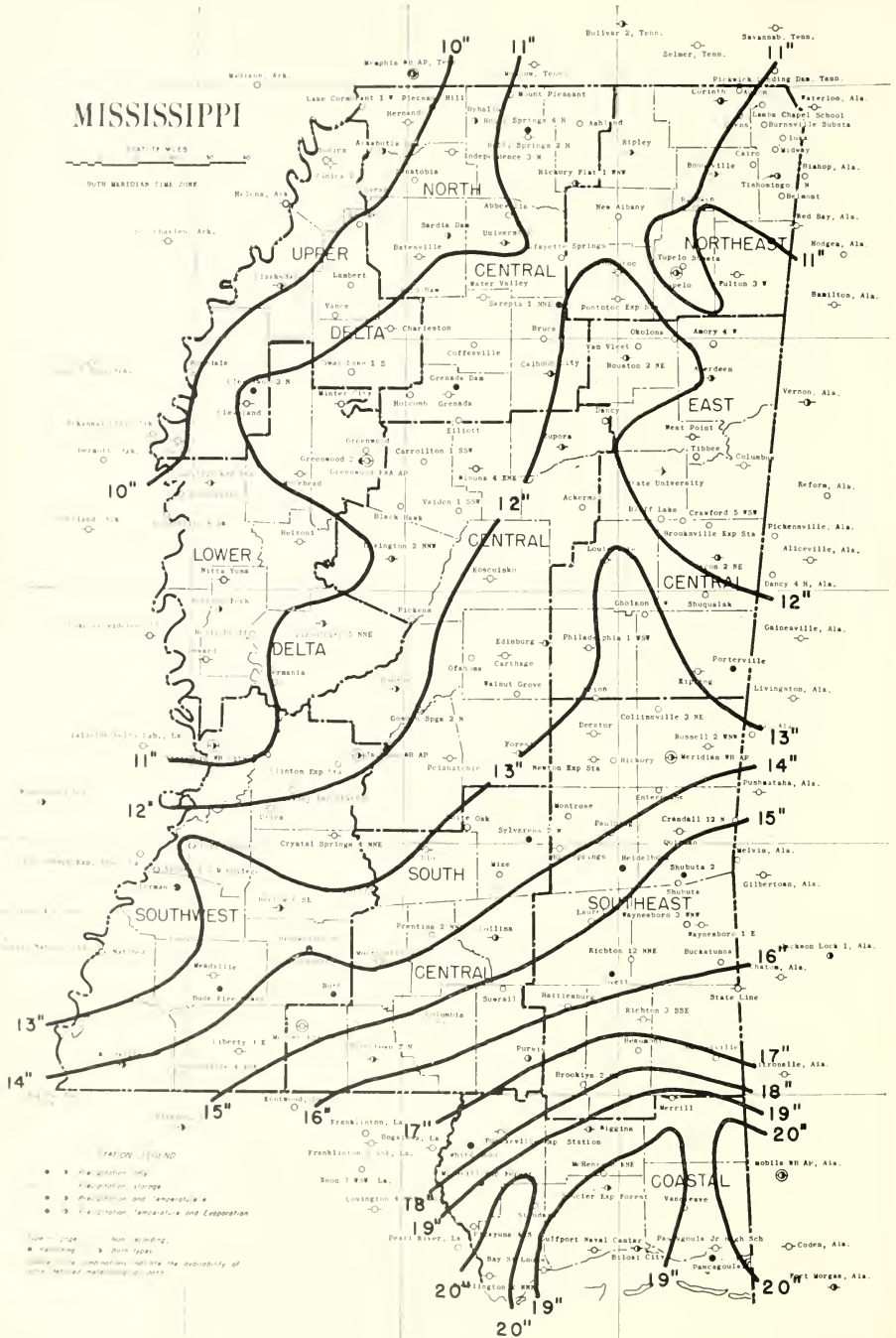


Figure 7.—Mean summer precipitation, 1931-60.

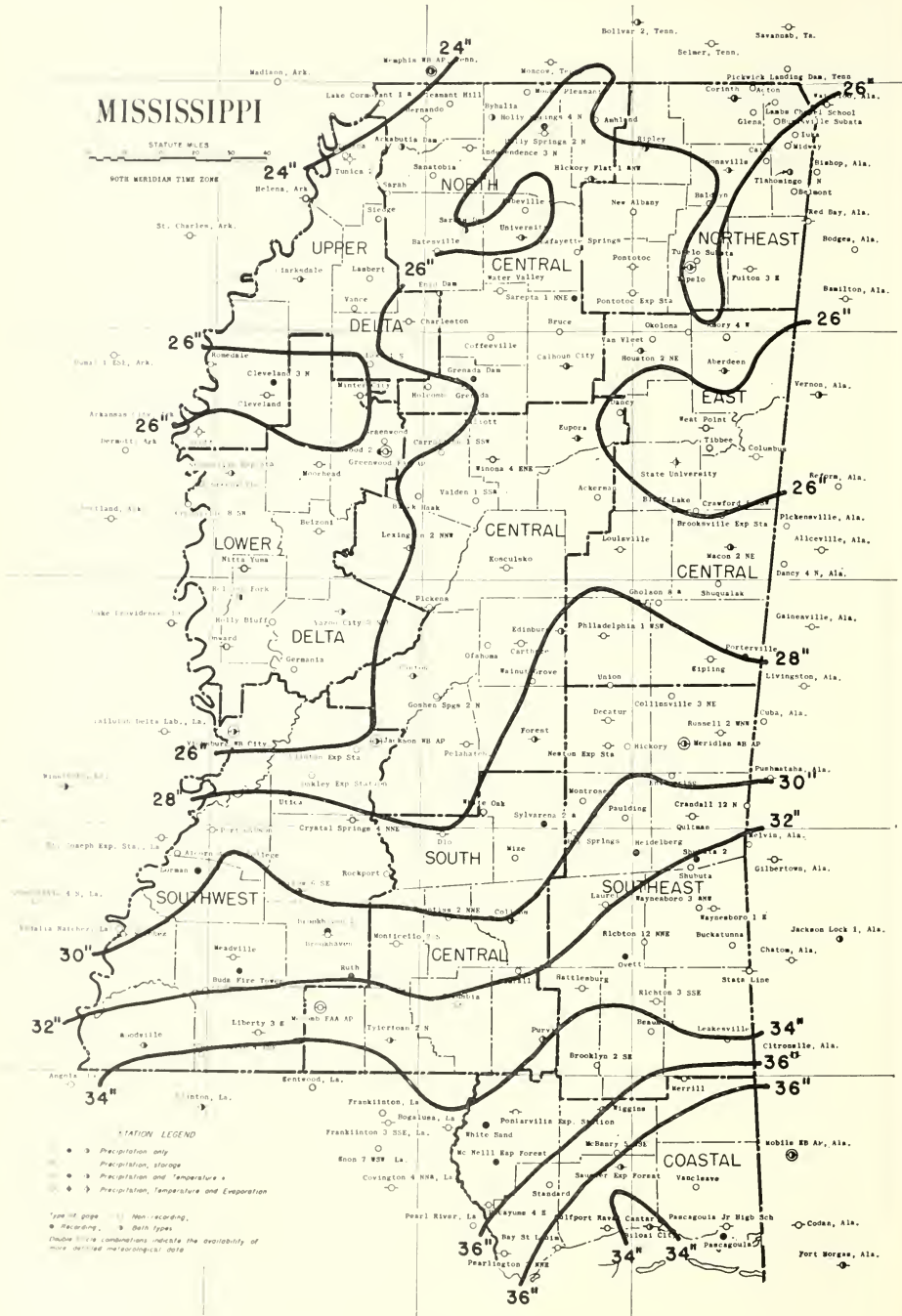


Figure 9.—Mean growing season precipitation, 1931-60.

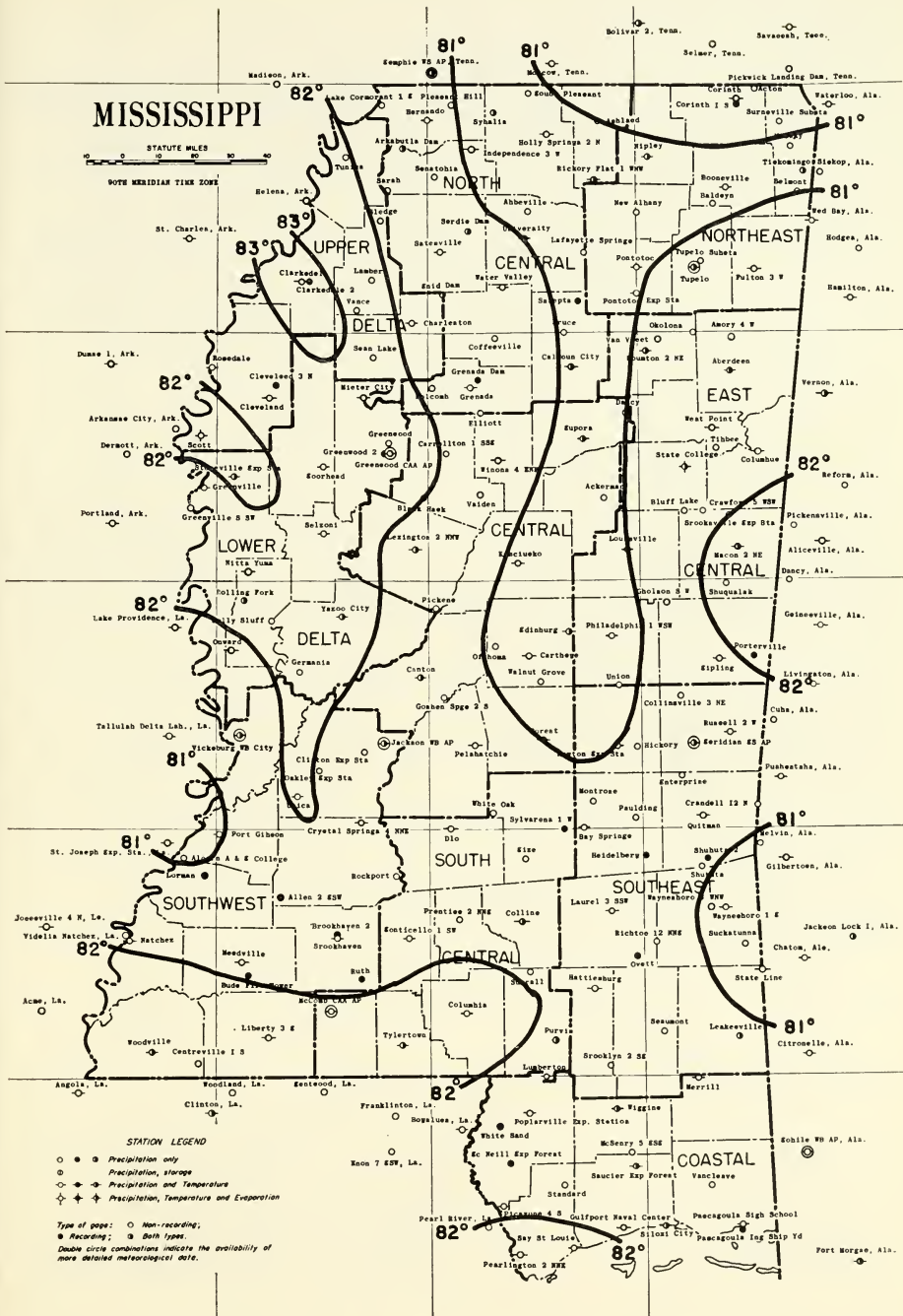


Figure 10.—Man July temperature, 1931, 1960.

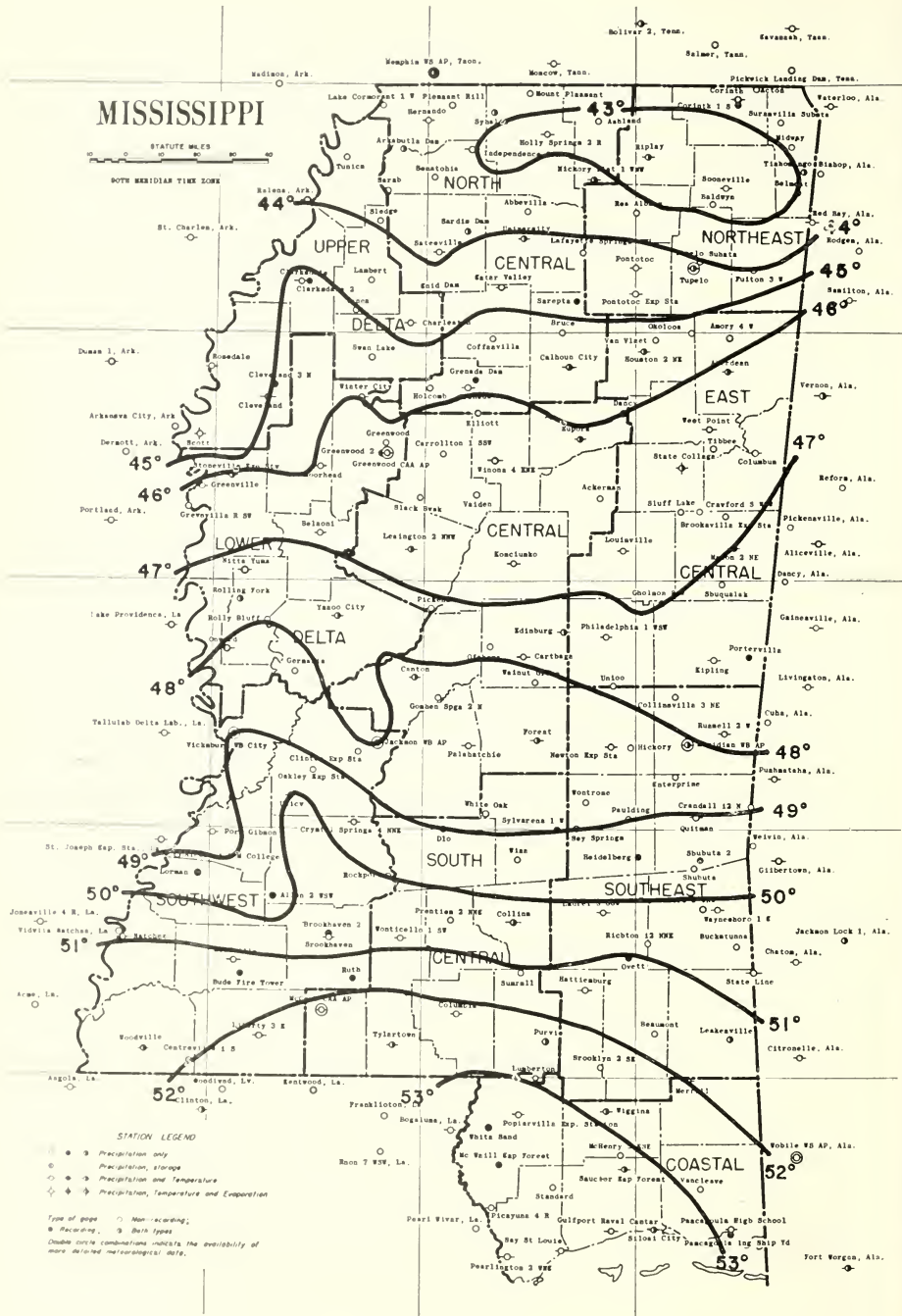


Figure 11.—Mean January temperature, 1931-60.

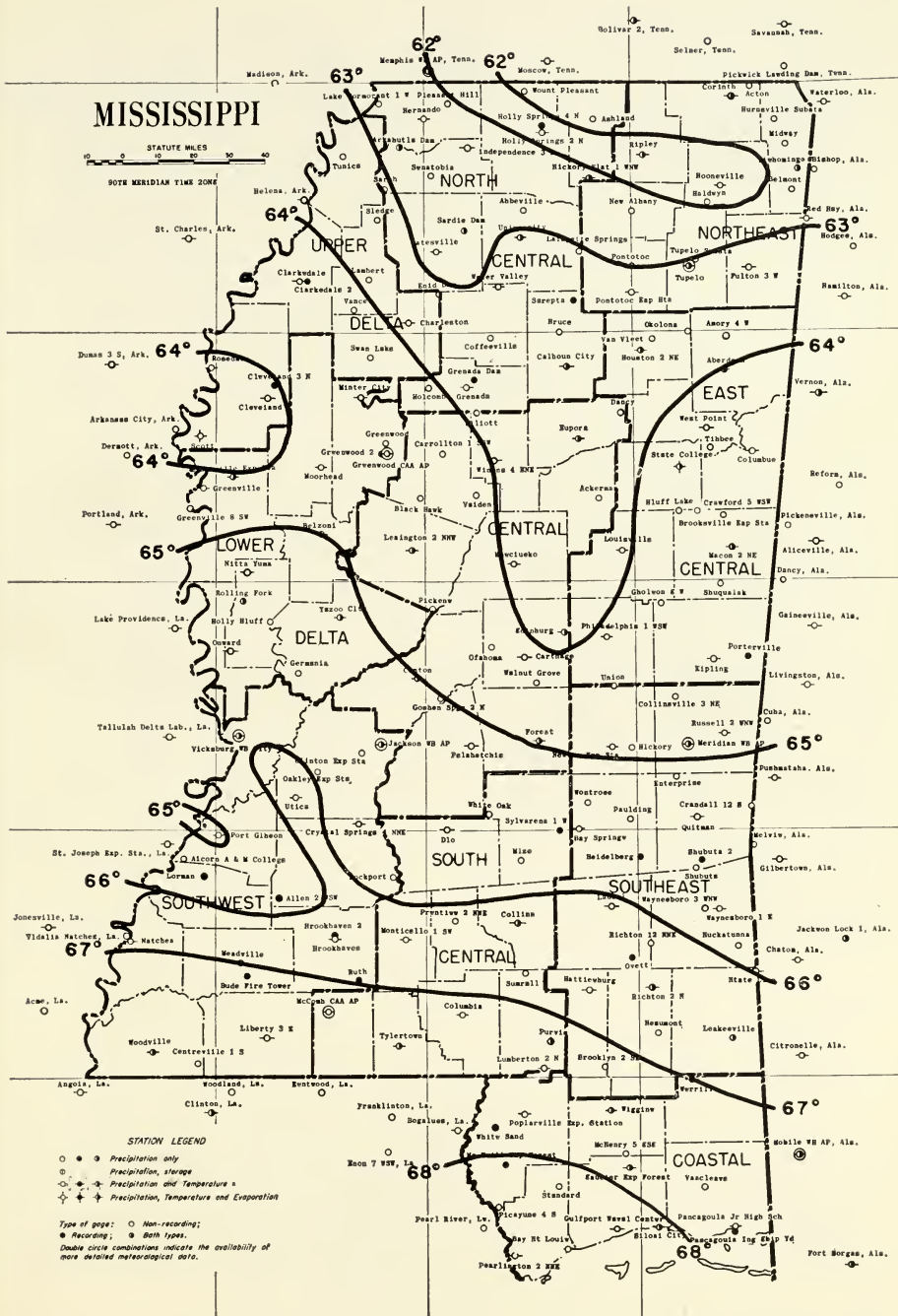


Figure 12. Mean annual temperature, 1931-1960.

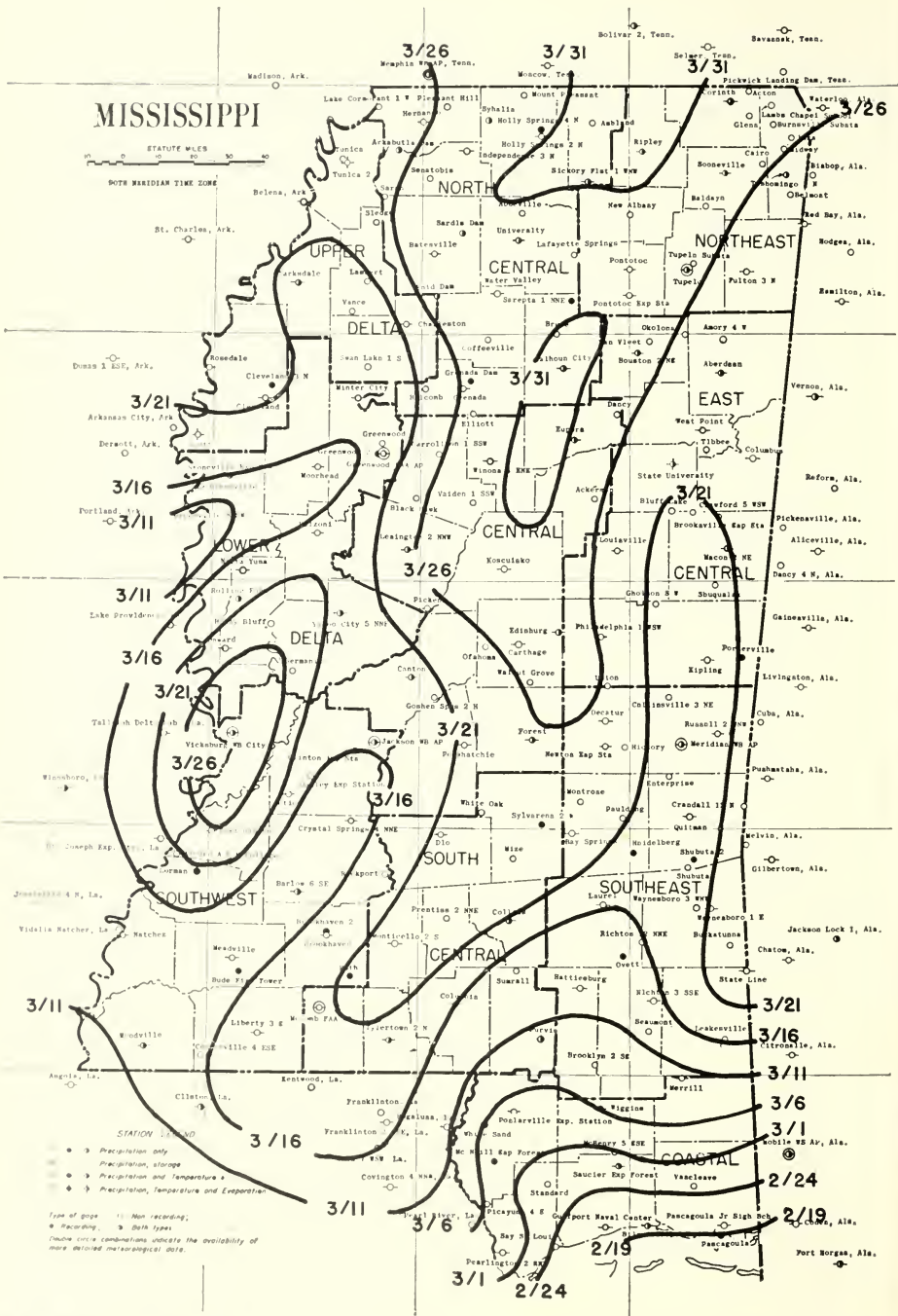


Figure 13. Average date last spring day with temperature of 32° or lower, 1921-1950.

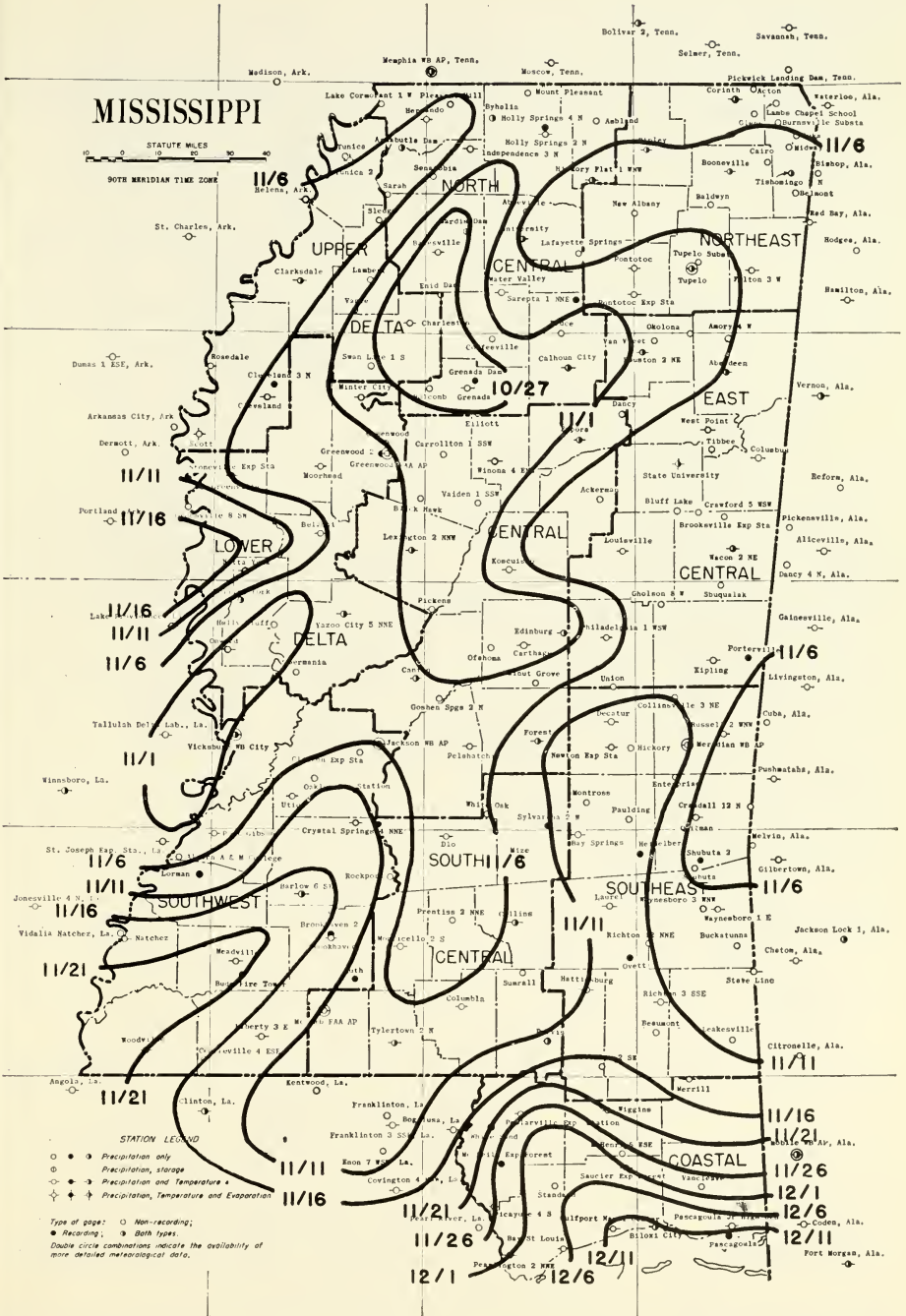


Figure 14. Average date first fall day with temperature of 32° or lower, 1921-1950.

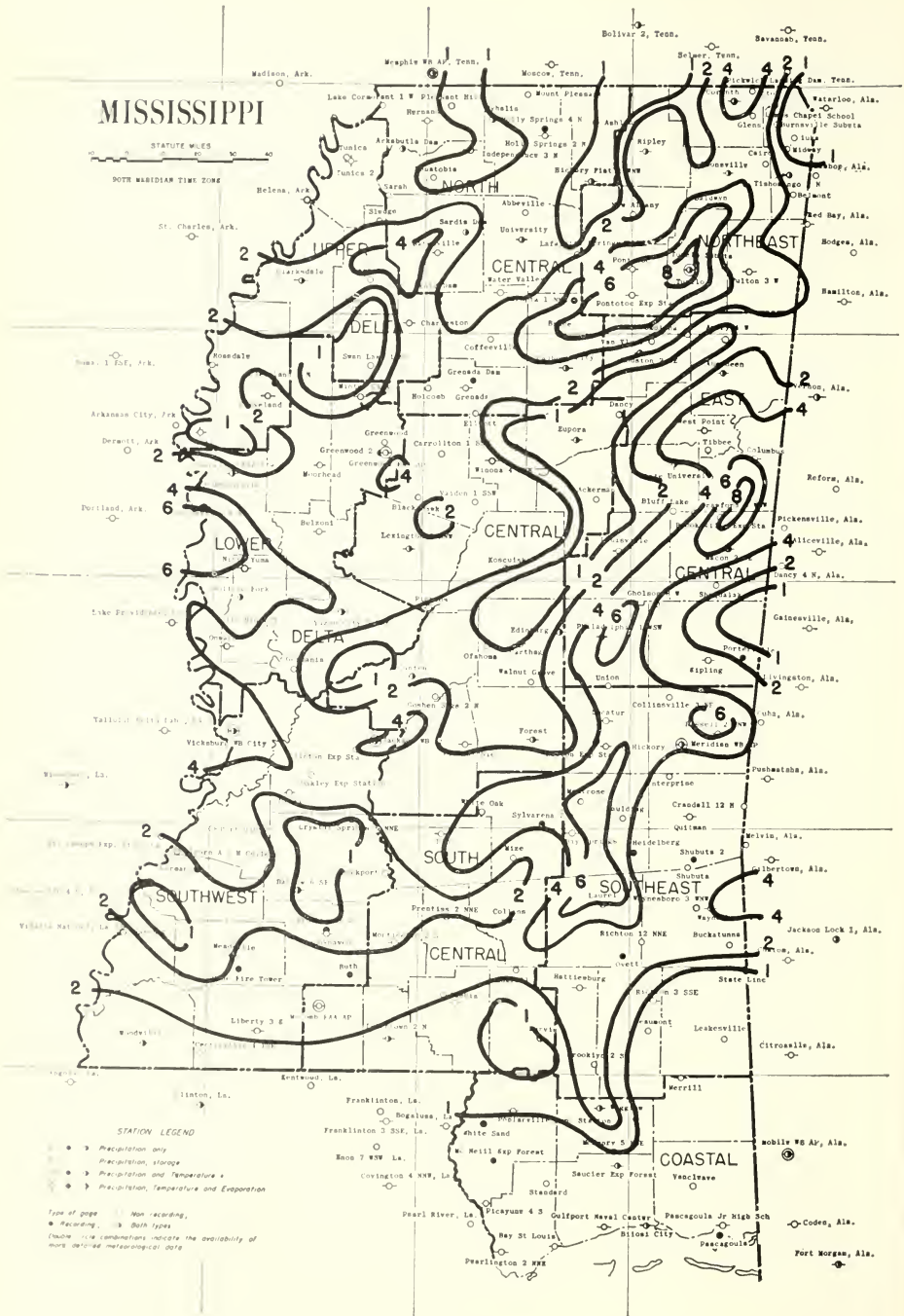


Figure 15. Number of tornadoes in 42 years.

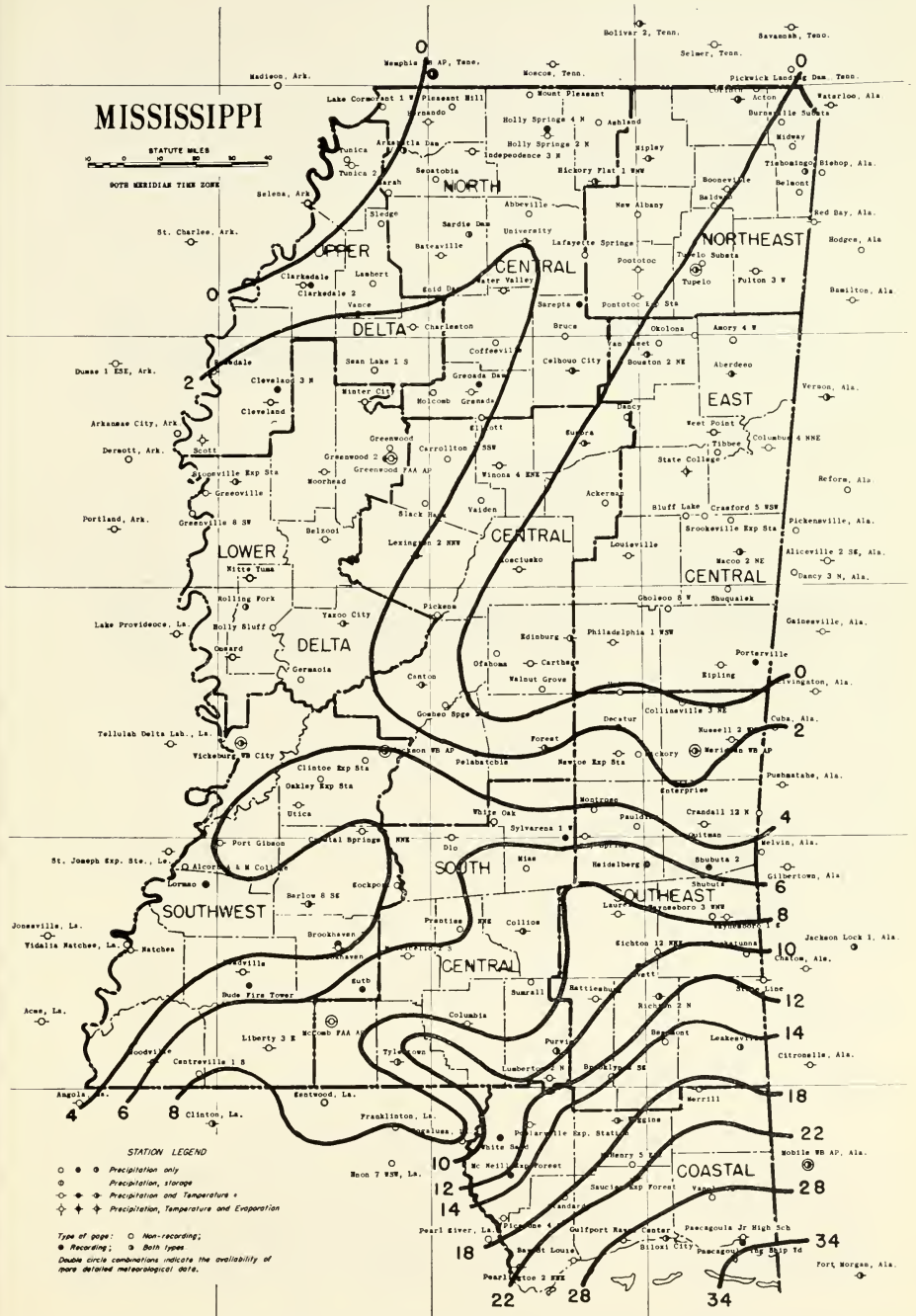


Figure 16.—Numbers of gale winds or higher during tropical storms and hurricanes in 84 years, (1875-1959). (Gale winds begin at 39 miles per hour).

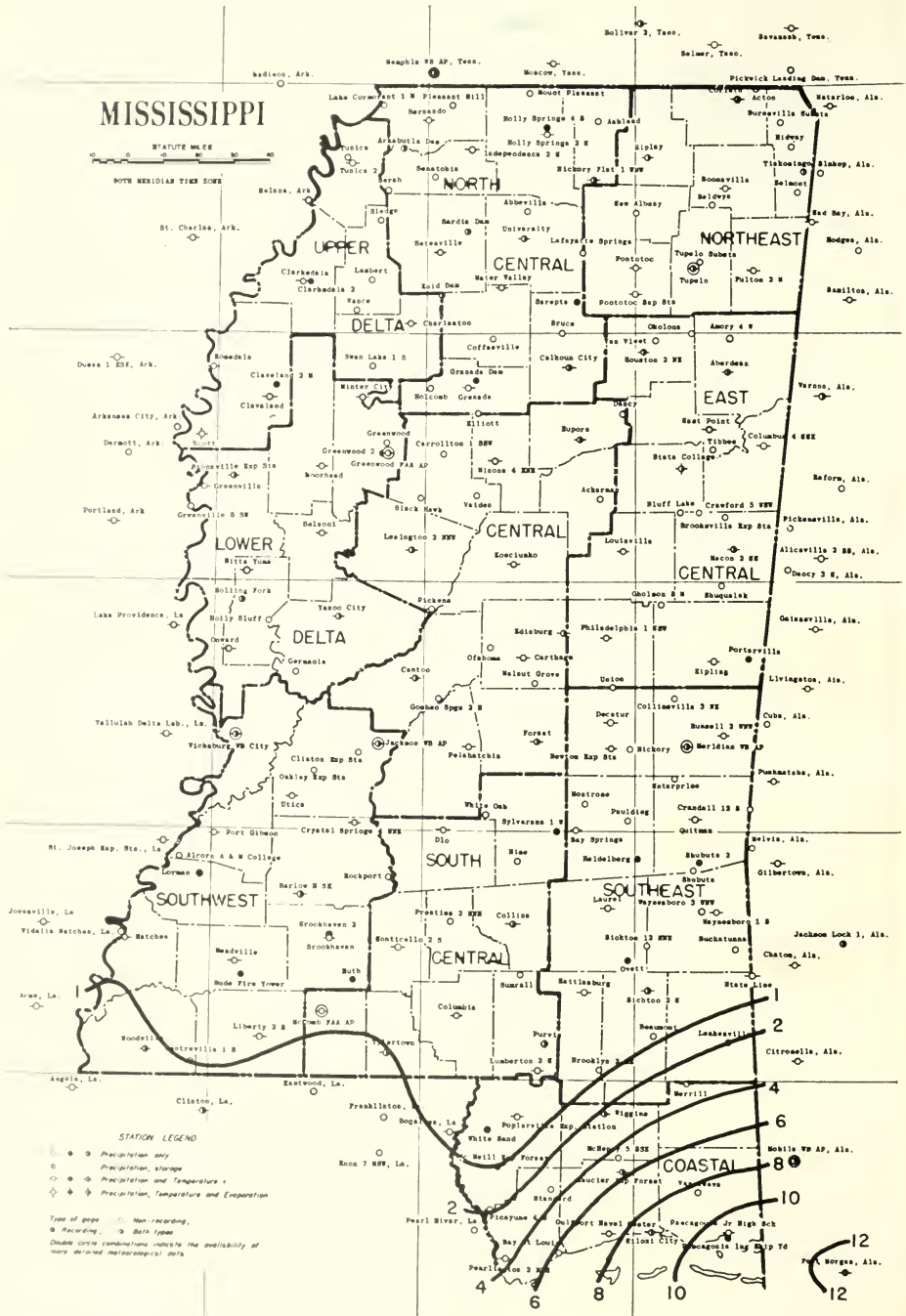


Figure 17.—Number of hurricane force winds during hurricanes in 84 years, 1875-1959. (Hurricane winds begin at 75 miles per hour).