

CLIMATOLOGICAL DATA

38

VIRGINIA SECTION

F. N. HIBBARD, Meteorologist

VOL. XLIII

RICHMOND, VA., YEAR 1933

No. 13

GENERAL SUMMARY

The year as a whole was considerably warmer and drier than usual; but the number of clear, partly cloudy, cloudy and rainy days was practically normal.

The average temperature, 57.6°, has been exceeded only twice in the history of the State, the years 1921 and 1931 averaging 58.4° and 57.8° respectively. The coolest in the last 43 years was that of 1917, with an average of 53.3°. Eight months averaged above normal, the outstanding of which were January, the third warmest of record; May, the second warmest; September, the fifth warmest; and December, the fourth warmest. All station averages for the year were above normal.

The rainfall for the State was 39.46 inches, or about 2.00 inches less than normal. In the 43-year record, the year 1933 ranked 13th in point of dryness. The wettest year of this record was that of 1906, with an average of 50.03 inches; the driest that of 1930, with an average of 24.99 inches. The only unusually wet months were April, May, July and August; after which last month continued dry weather approximated drought conditions, particularly in the Great Valley section of the State, where the deficiency for the year amounted to more than four inches; and the Tidewater section, where, notwithstanding the record-breaking rains of August, the year's deficiency amounted to nearly three inches. Station monthly amounts ranged from .07 inch at Mount Weather in November to 16.64 inches at Williamsburg in August. Snowfall was half the usual amount.

The production of crops over the State was fair, notwithstanding adverse weather conditions at times. Peaches, and to a less extent, apples, were damaged somewhat by March frosts. The rains of April and May seriously delayed late plantings in northern counties and prevented the proper spraying of fruits in Great Valley. The severe tropical storm of August damaged crops in the eastern section of the State to the extent of \$5,000,000; and the similar, but less intense storm in September added to the loss. Through October and November crop activities in southeastern counties were more or less at a standstill on account of hard ground and dry weather.

Damaging storms during the year are covered in the bulletins of January, March, May, June, July, August, and September.

MONTHLY STATE DATA, 1933

Month	Temperature			Precipitation			Number of days			
	Mean	Highest	Lowest	Average	Greatest 24-hour	Average snow-fall	Rainy	Clear	Partly cloudy	Cloudy
January	43.7	78	11	3.39	2.51	1.9	8	11	8	12
February	39.4	77	-7	3.03	1.83	4.3	11	12	5	11
March	44.6	84	9	3.12	2.01	0.4	10	12	8	11
April	55.0	90	23	4.50	3.05	T.	10	14	8	8
May	68.0	97	36	5.29	3.85	0.0	13	11	11	9
June	73.6	104	35	2.12	2.18	0.0	7	17	10	3
July	74.7	104	40	5.48	4.64	0.0	10	15	8	8
August	74.4	99	49	5.74	6.64	0.0	12	11	11	9
September	73.0	98	37	1.80	4.29	0.0	6	15	9	6
October	56.8	95	20	1.30	1.70	0.0	4	20	7	4
November	45.3	83	8	1.15	1.58	0.5	5	14	7	9
December	42.5	81	0	2.54	2.36	1.5	8	12	8	11

KILLING FROSTS, 1933

Stations	Last in spring	First in autumn	Stations	Last in spring	First in autumn
<i>Tidewater Virginia</i>					
Cape Henry	Mar. 6	Nov. 9			
Christchurch	Mar. 25	Nov. 9			
Dahlgren	Mar. 25	Nov. 11			
Diamond Springs	Mar. 30	Nov. 9			
Emporia	Oct. 26	Oct. 26			
Holland	Apr. 14	Oct. 26			
Hopewell	Mar. 30	Nov. 9			
Langley Field	Mar. 25	Nov. 16			
Norfolk	Mar. 11	Nov. 9			
Onley	Apr. 14	Nov. 9			
Richmond	Mar. 30	Nov. 9			
Tappahannock	Apr. 27	Oct. 26			
Walkerton	Apr. 27	Oct. 26			
Wallaceton	Mar. 30	Nov. 9			
Williamsburg	Mar. 30	Nov. 9			
<i>Middle Virginia</i>					
Callaville	Apr. 27	Oct. 26			
Charlottesville	Apr. 23	Oct. 26			
Chatham	Apr. 13	Oct. 26			
Clarendon	Mar. 30	Oct. 26			
Clarksville	Apr. 27	Oct. 19			
Columbia	Apr. 23	Oct. 26			
Culpeper	Mar. 30	Oct. 26			
Danville	Apr. 27	Oct. 26			
Farmville	Apr. 27	Oct. 15			
Fredericksburg	Apr. 27	Oct. 26			
Halifax	Apr. 14	Oct. 26			
Kenbridge	Apr. 27	Oct. 26			
Lincoln	Mar. 30	Oct. 26			
Lynchburg	Mar. 30	Oct. 26			
Martinsville	Apr. 27	Oct. 19			
Mineral	Apr. 27	Oct. 26			
Mount Weather	Apr. 21	Oct. 26			
New Canton	Apr. 27	Oct. 26			
<i>Middle Virginia Cont.</i>					
Powhatan	Mar. 30	Oct. 26			
Quantico	Apr. 27	Oct. 19			
Randolph	Apr. 27	Oct. 26			
Rocky Mount	Apr. 13	Oct. 15			
Stuart	Apr. 23	Oct. 26			
Washington	Apr. 23	Oct. 26			
<i>Great Valley</i>					
Blacksburg	Apr. 13	Oct. 6			
Buchanan	Apr. 27	Oct. 26			
Burkes Garden	Apr. 27	Oct. 6			
Catawba Sanatorium	Apr. 24	Oct. 19			
Dale Enterprise	Apr. 28	Oct. 19			
Damascus	Apr. 27	Oct. 26			
Dante	Apr. 27	Oct. 9			
Deerfield	Mar. 30	Oct. 7			
Emory	Apr. 28	Oct. 6			
Floyd	Mar. 30	Oct. 11			
Glen Lyn	Apr. 27	Oct. 26			
Hot Springs	Apr. 28	Oct. 19			
Ivanhoe	Apr. 27	Oct. 11			
Lexington	Apr. 27	Oct. 26			
Mendota	Apr. 27	Oct. 26			
Monterey	Apr. 27	Oct. 11			
North River Dam	Apr. 13	Oct. 9			
Pennington Gap	Apr. 13	Oct. 9			
Roanoke	Apr. 13	Oct. 19			
Saltville	Apr. 12	Oct. 25			
Staunton	Apr. 23	Oct. 26			
Winchester	Apr. 23	Oct. 26			
Woodstock	Apr. 27	Oct. 26			
Wytheville	Apr. 13	Oct. 11			

COMPARATIVE ANNUAL DATA FOR THE STATE

Year	Mean temperature	Highest	Lowest	Average precipitation	Average snow-fall	No. of rainy days	No. of clear days	No. of partly cloudy days	No. of cloudy days
NORMALS OR EXTREMES	55.8	109	-29	41.43	17.0	103	162	102	101
1891	55.6	106	-8	47.94		95	163	101	102
1892	54.6	104	-26	39.45		103	156	100	109
1893	54.7	104	-26	46.22	23.1	103	166	100	109
1894	56.8	106	-11	35.76	17.0	88	166	104	96
1895	54.4	107	-18	38.23	38.8	94	174	103	88
1896	56.6	105	-10	42.64	12.3	93	163	106	97
1897	56.0	103	-15	39.19	11.8	92	171	99	95
1898	56.6	105	-9	44.71	8.7	108	162	101	102
1899	55.4	106	-29	42.20	36.7	98	176	95	94
1900	57.1	107	-8	39.52	18.6	86	181	91	93
1901	54.5	106	-14	49.99	9.5	100	167	94	104
1902	55.6	108	0	40.67	14.9	95	170	97	98
1903	54.9	105	-13	44.09	8.4	95	172	89	104
1904	53.7	100	-14	36.11	24.9	95	170	101	95
1905	54.9	98	-15	43.27	18.5	111	155	112	98
1906	56.2	102	-2	50.03	15.2	124	143	120	102
1907	54.5	97	-16	44.41	17.4	115	159	115	91
1908	55.5	102	-20	46.17	30.0	110	162	108	96
1909	55.6	102	-5	38.02	12.9	101	171	104	90
1910	54.8	102	-9	41.37	20.3	112	151	116	98
1911	56.8	104	0	41.00	9.2	115	149	110	106
1912	54.9	100	-25	40.88	24.6	103	165	106	95
1913	57.2	102	-3	42.93	4.0	100	178	98	89
1914	55.1	103	-17	36.66	39.8	101	168	100	97
1915	55.6	101	-5	40.03	13.5	97	160	116	89
1916	55.6	102	-11	38.94	18.6	103	165	106	95
1917	53.3	103	-27	40.11	23.7	114	158	107	100
1918	55.5	108	-22	43.48	24.7	105	159	97	109
1919	56.8	103	-16	41.05	7.4	102	161	99	105
1920	54.8	99	-9	45.91	7.1	106	162	89	115
1921	58.4	104	-12	34.94	13.8	97	161	102	102
1922	56.9	100	-13	45.15	24.8	110	145	107	113
1923	56.1	103	-1	40.90	10.3	104	168	96	101
1924	54.4	107	-12	47.34	12.8	105	165	90	111
1925	56.6	108	-14	32.53	9.5	98	160	99	106
1926	55.5	107	-6	41.41	16.5	112	157	97	111
1927	56.5	104	-7	41.64	10.4	113	148	103	114
1928	55.7	103	-5	43.07	9.2	110	151	112	103
1929	56.2	99	-8	46.31	16.7	115	155	97	113
1930	56.9	109	-13	24.99	23.4	86	165	99	101
1931	57.8	104	-2	38.00	3.7	105	163	106	96
1932	57.5	108	-9	44.78	13.1	102	169	90	107
1933	57.6	104	-7	39.46	8.2	105	163	101	101

Monthly and Annual Precipitation for the Year 1933, with Departures from the Normal

Table with columns for Stations, months (January to November), and Annual. Each month has two sub-columns: Precipitation and Departure. Rows are grouped by region: Tidewater, Middle Virginia, and Great Valley. Each station lists its monthly and annual precipitation and departure from the normal.

NOTE.—In this publication, annual means are computed from data for all stations; whereas, in monthly reports, means may not include all stations, as in some cases reports are not received in time to be used in the computations. All means include the interpolated values.

Monthly and Annual Mean Temperatures for the Year 1933, with Departures from the Normal

Stations	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure
<i>Tidewater</i>																										
Cape Henry	48.8	+8.4	44.6	+3.4	48.2	+1.6	55.5	+0.9	68.9	+4.7	74.4	+1.5	75.0	-2.5	77.8	+0.9	76.9	+5.1	63.6	+1.5	50.1	-2.0	47.3	+3.6	60.9	+2.2
Christchurch	46.8	+8.4	41.4	+1.5	46.2	-2.0	54.8	+0.6	67.2	+5.5	74.4	+2.5	75.9	-0.1	77.0	+3.2	73.7	+4.5	57.7	+0.3	46.2	-0.7	40.1	+1.9	57.9	+2.2
Dahlgren	44.0	+8.9	39.4	+1.5	44.2	-2.0	54.8	+0.6	67.2	+5.5	74.4	+2.5	75.9	-0.1	77.0	+3.2	73.7	+4.5	57.7	+0.3	46.2	-0.7	40.1	+1.9	57.9	+2.2
Diamond Springs	51.2	+14.1	48.2	+4.8	51.2	+1.1	58.3	+0.5	71.3	+5.5	75.8	+2.2	76.8	-0.6	78.6	+2.1	77.5	+5.1	64.6	+2.0	52.2	+0.8	50.8	+7.2	63.0	+3.7
Holland	47.3	+8.9	43.2	+3.4	47.2	-0.1	55.1	+1.9	69.5	+4.0	74.6	+0.1	76.0	-2.7	77.8	+1.0	77.8	+5.6	63.4	+0.9	50.0	-1.4	47.6	+3.9	61.8	+1.4
Hopewell	47.0	+8.9	43.2	+3.4	47.2	-0.1	55.1	+1.9	69.5	+4.0	74.6	+0.1	76.0	-2.7	77.8	+1.0	77.8	+5.6	63.4	+0.9	50.0	-1.4	47.6	+3.9	61.8	+1.4
Langley Field	49.3	+8.9	44.6	+1.9	49.0	+0.8	58.6	+1.8	71.1	+4.9	76.8	+2.4	76.8	-1.9	78.4	+1.0	77.8	+5.6	63.4	+0.9	50.0	-1.4	47.6	+3.9	61.8	+1.4
Norfolk	46.2	+8.2	42.5	+2.4	46.0	+0.4	54.0	+0.2	68.5	+6.2	73.6	+1.2	75.2	-2.4	77.0	+1.5	74.8	+4.7	59.2	-1.4	47.8	-2.5	42.9	+1.8	59.0	+2.3
Onley	45.6	+7.7	41.2	+1.6	46.4	+0.8	56.8	+0.2	70.1	+3.6	75.8	+1.7	76.2	-2.3	76.6	+0.1	74.4	+3.9	58.7	-0.9	47.4	+0.9	43.2	+3.4	59.4	+1.5
Richmond	45.2	+8.1	40.7	+1.0	46.3	+0.5	55.4	+0.5	68.2	+5.8	74.6	+0.6	75.6	-2.3	76.8	+1.0	74.0	+4.0	58.4	+0.5	47.1	+0.9	43.6	+3.6	58.8	+1.5
Tappahannock	44.8	+8.2	41.8	+1.4	44.8	+0.8	55.7	+0.7	68.5	+6.2	74.7	+1.9	77.0	+0.2	77.8	+2.3	75.8	+5.9	60.7	+0.7	48.8	+0.3	45.9	+5.0	60.8	+2.7
Walkerton	47.4	+7.2	43.8	+3.0	48.2	-0.7	58.0	+0.9	71.2	+6.2	74.7	+1.9	77.0	+0.2	77.8	+2.3	75.8	+5.9	60.7	+0.7	48.8	+0.3	45.9	+5.0	60.8	+2.7
Williamsburg	47.4	+7.2	43.8	+3.0	48.2	-0.7	58.0	+0.9	71.2	+6.2	74.7	+1.9	77.0	+0.2	77.8	+2.3	75.8	+5.9	60.7	+0.7	48.8	+0.3	45.9	+5.0	60.8	+2.7
Means	47.0	+8.6	42.9	+2.8	47.5	-0.1	56.7	+0.8	70.0	+4.9	75.3	+1.9	76.1	-1.2	77.2	+1.3	75.4	+4.8	60.2	+0.4	48.2	-1.0	44.6	+3.8	60.1	+2.2
<i>Middle Virginia</i>																										
Callville	44.9	+6.1	41.8	+2.5	45.6	-2.9	56.0	-0.3	70.3	+4.8	74.4	+1.5	75.1	-1.8	76.8	+1.1	74.2	+4.0	57.9	-1.2	46.5	-2.0	44.3	+4.2	59.0	+1.3
Charlottesville (near)	43.6	+7.5	39.6	+2.4	43.8	-2.7	56.7	+0.7	68.8	+3.1	75.8	+3.3	75.8	-0.6	75.6	+1.0	74.2	+5.1	58.4	-0.1	46.0	-1.8	42.0	+4.0	58.4	+1.8
Chatham	45.2	+8.1	41.0	+0.6	47.0	-0.3	58.8	+0.8	69.8	+2.7	75.2	+2.6	77.3	-0.8	75.6	+0.8	75.4	+6.0	56.5	-0.8	46.9	-0.4	45.2	+4.0	59.2	+2.9
Clarksville	44.0	+7.5	40.2	+2.5	47.8	-0.3	57.9	+1.4	72.6	+7.9	75.8	+2.6	79.6	+3.2	78.4	+3.3	75.9	+6.4	57.9	-0.8	46.6	-0.4	43.8	+4.6	60.0	+2.9
Columbia	44.8	+8.1	40.2	+2.5	45.2	-1.4	56.0	+0.8	68.9	+4.1	75.6	+3.8	76.8	+1.0	76.0	+1.8	74.5	+6.0	56.6	-0.8	46.4	-0.1	42.6	+4.9	58.6	+2.6
Culpeper	42.3	+8.4	38.0	+1.7	43.0	-2.3	53.0	+0.6	66.9	+2.7	73.3	+2.0	74.4	-0.8	74.0	+1.2	71.8	+4.3	58.0	-1.1	44.4	-0.4	39.7	+4.0	56.5	+1.7
Danville	46.2	+6.8	42.6	+0.5	48.4	-2.2	58.0	+0.8	71.6	+4.2	77.0	+0.9	77.9	-1.4	77.0	-0.8	76.8	+4.4	59.8	-1.1	47.6	-2.0	45.7	+4.3	60.7	+1.0
Farmville	45.6	+8.2	41.8	+5.6	46.5	-0.5	56.7	+1.3	70.5	+3.6	75.2	+0.5	76.9	-3.4	77.9	+0.0	74.6	+4.0	57.6	-1.6	47.0	+0.4	43.9	+6.9	59.4	+2.1
Fredericksburg (near)	44.4	+7.3	41.1	+4.2	44.3	-2.5	56.0	+0.7	68.1	+3.2	73.7	+1.6	75.4	-1.2	76.6	+1.1	72.7	+3.5	56.8	-1.9	46.2	-0.9	41.2	+3.7	58.0	+1.6
Kenbridge	44.8	+8.1	41.3	+4.6	46.6	+5.2	57.2	+0.9	69.6	+7.0	75.0	+0.9	76.9	-0.7	77.4	+0.8	73.9	+5.8	60.0	+4.6	46.6	+0.9	44.6	+3.4	59.4	+2.8
Lincoln	42.6	+10.2	37.7	+4.2	42.1	-1.3	54.9	+1.5	67.4	+3.5	75.4	+4.0	76.6	+0.4	76.8	+2.8	72.4	+3.9	57.6	+0.0	44.5	-0.6	38.4	+4.2	57.2	+2.8
Lynchburg	45.4	+7.9	40.5	+0.2	46.4	-0.9	56.4	-0.9	69.7	+2.4	76.0	+1.4	76.5	-1.0	75.6	0.0	75.5	+6.5	57.4	-1.1	46.4	-0.8	43.6	+3.8	59.1	+1.5
Mineral (near)	43.8	+9.6	39.7	+2.2	43.6	-2.0	54.9	+1.2	66.6	+4.5	72.6	+2.7	74.1	-0.3	73.9	+0.9	71.8	+4.2	54.4	-0.8	45.0	-0.2	40.6	+4.1	56.8	+2.3
Mount Weather	40.1	+10.0	33.0	+4.6	38.7	-0.8	51.4	+2.2	62.4	+3.2	70.0	+3.3	71.4	+0.3	71.3	+2.0	67.6	+3.1	52.0	-1.7	40.4	-1.6	35.0	+2.9	52.8	+2.1
New Canton	44.6	+7.9	41.0	+3.2	45.0	-2.2	56.8	+0.4	67.9	+2.1	73.7	+1.6	74.4	-1.7	74.3	-0.1	72.6	+1.8	55.8	-1.5	46.4	-0.3	43.2	+5.3	57.9	+1.5
Quantico	42.1	+7.5	39.2	+4.6	43.8	-1.6	54.6	+0.4	66.0	+2.1	74.0	+1.9	74.7	-2.3	74.8	+0.4	71.2	+2.7	55.9	-1.2	44.6	-0.7	38.5	+2.5	56.6	+1.4
Rocky Mount	41.9	+4.1	38.7	0.0	43.4	-3.0	54.4	-1.7	67.4	+2.5	73.9	+1.9	73.4	-1.8	71.8	-2.0	70.8	+1.8	53.9	-3.1	45.2	-2.3	47.0	+8.1	56.8	+0.4
Stuart	46.4	+6.6	42.0	-0.7	46.8	-0.1	56.4	+0.1	69.9	+5.4	76.0	+3.7	75.6	-0.7	74.6	+0.2	74.6	+4.2	58.8	+0.6	47.2	-1.0	44.2	+2.2	59.4	+1.7
Washington, D. C.	42.6	+9.2	38.4	+3.1	43.0	+0.4	55.7	+2.4	67.3	+3.6	74.7	+2.5	76.1	-0.6	76.0	+1.0	71.8	+3.7	56.5	-0.9	45.0	-0.2	38.5	+1.9	57.1	+2.2
Means	44.0	+7.8	39.9	+2.3	44.8	-1.5	55.8	+0.6	68.5	+3.8	74.6	+2.3	75.7	-0.7	75.4	+0.8	73.3	+4.1	56.7	-1.0	45.8	-0.9	42.2	+4.2	58.1	+1.3
<i>Great Valley</i>																										
Blacksburg	41.0	+8.0	36.0	+2.1	42.6	-0.4	52.8	+2.0	66.0	+6.0	71.1	+3.5	72.2	+1.4	71.3	+1.5	70.5	+5.9	53.2	-0.1	42.4	-0.1	41.2	+6.7	55.0	+3.0
Buchanan	42.4	+7.3	38.0	+2.4	44.2	-4.1	54.3	-1.6	66.3	+1.9	71.8	-0.6	72.4	-3.0	73.5	-0.8	73.8	+3.7	56.2	-2.8	44.4	-1.9	43.6	+5.2	56.7	+0.1
Burkes Garden	39.3	+7.6	34.1	+2.3	39.3	-1.3	49.0	+1.3	62.0	+2.5	65.8	+2.2	67.6	+1.0	66.8	+1.1	67.1	+6.8	49.4	-0.3	39.4	-0.8	39.8	+7.5	61.6	+2.7
Catawba Sanatorium	43.2	+7.2	37.9	-0.7	43.1	-2.4	53.9	-0.3	65.8	+3.3	71.8	+2.2	72.2	-0.3	71.8	+0.2	72.9	+5.7	55.8	-0.9	45.4	-0.2	43.2	+5.2	56.4	+1.6
Dale Enterprise	40.6	+7.5	36.5	+2.0	40.2	-2.8	52.0	-0.4	65.0	+2.6	71.2	+1.2	71.8	-1.9	70.8	-1.3	69.2	+2.6	53.4	-1.9	42.3	-1.5	38.0	+3.0	54.2	+0.8
Damascus	39.6	+6.8	36.1	+2.2	42.8	+5.2	52.6	+6.7	67.0	+3.0	73.0	+0.7	73.6	+0.7	73.6	+0.7	70.2	+5.7	43.2	+0.9	44.0	+0.9	44.0	+6.5	55.5	+1.6
Dante	41.5	+6.8	36.6	-2.6	44.2	-1.9	54.2	-0.1	67.0	+6.1	70.8	+1.5	73.2	+2.0	71.3	+0.3	71.6	+4.4	53.8	-2.6	43.9	-0.9	44.8	+6.8	56.1	+1.6
Emory	41.4	+6.8	36.7	+2.2	43.2	-1.9	54.4	-0.6	67.2	+6.8	72.2	+1.6	74.1	-0.6	72.6	-0.9	72.0	+2.9	55.2	-0.2	42.0	-3.9	42.1	+5.4	56.0	+0.9
Floyd	43.1	+7.5	37.5	+2.0	43.8	+5.4	54.5	+6.0	66.0	+3.9	71.8	+2.5	72.5	-0.3	70.2	+0.8	71.7	+5.4	54.4	-0.8	42.8	-0.8	40.8	+5.8	55.8	+0.8
Glen Lyn	40.3	+6.8	35.2	+2.0	42.8	-1.6	54.6	+0.4	67.8	+2.5	72.5	+1.0	74.0	-0.3	72.6	+0.8	72.4	+5.6	55.6	-0.8	43.8	-0.8	42.0	+6.1	56.1	+1.0
Hot Springs	38.0	+6.4	34.2	+2.0	38.8	-3.3	50.3	+0.2	64.0	+4.3	67.6	+1.0	69.2	-0.1	67.4	-0.7	67.2	+4.6								