

# LOCAL CLIMATOLOGICAL DATA

## ANNUAL SUMMARY WITH COMPARATIVE DATA, 1966

### RICHMOND, VIRGINIA

#### NARRATIVE CLIMATOLOGICAL SUMMARY

Richmond is located in east-central Virginia at the head of navigation on the James River and along a line separating the Coastal Plains (Tidewater Virginia) from the Piedmont. The Blue Ridge Mountains lie about 90 miles to the west and the Chesapeake Bay 60 miles to the east. Elevations range from a few feet above sea level along the river to a little over 300 feet in parts of the west section of the City.

The climate might be classed as modified continental. Summers are warm and humid and winters generally mild. The mountains to the west act as a partial barrier to outbreaks of cold, continental air in winter, the coldest air being delayed long enough to be modified, then further warmed as it subsides in its approach to Richmond. The open waters of the Chesapeake Bay and Atlantic Ocean contribute to the humid summers and mild winters. The coldest weather normally occurs in late December and in January, when low temperatures usually average in the upper twenties and the high temperatures in the upper forties. Temperatures seldom lower to zero. The record lowest temperature of minus 12° was recorded at the Airport in January 1940. The record high temperature of 107° occurred in August 1918 at Chimborazo Park.

Precipitation is rather uniformly distributed throughout the year. However, dry periods lasting several weeks do occur, especially in autumn when long periods of pleasant, mild weather are most common. There is considerable variability in total monthly amounts from year to year so that no one month can be depended upon to be normal. Snow has been recorded during seven of the twelve months. Falls of 4 inches or more occur on an average of once a year. Snow usually remains on the ground only 1 or 2 days at a time, but on one occasion it remained 21 days

(January 23 to February 13, 1948). Ice storms (freezing rain or glaze) are not uncommon in winter, but they are seldom severe enough to do any considerable damage. A notable exception was the spectacular glaze storm of January 27-28, 1943, when heavy damage was done to trees and overhead transmission lines of all kinds.

The James River reaches tidewater at Richmond where flooding has occurred in every month of the year, most frequently in March (28 times in the past 61 years), and only twice in July. Hurricanes and less severe storms of tropical origin have been responsible for most of the flooding during the summer and early fall months. In recent years, three hurricanes brought more than normal rainfall to Richmond within a 6-week period in 1955. The most noteworthy of these were Hurricanes Connie and Diane that brought heavy rains five days apart, which sent the James River out of its banks at Richmond, during August 18 through August 20.

Damaging storms occur mainly from snow and freezing rain in winter and from hurricanes, tornadoes, and severe thunderstorms at other seasons. Damage may be from wind, flooding, or rain, or from any combination of these. Three tornadoes have been observed in the Richmond area, the latest July 20, 1956. The highest wind recorded has been 68 m.p.h. with a peak gust of 79 m.p.h. at the time of Hurricane Hazel, October 15, 1954.

The dates of the last freeze in spring and of the first in autumn mark the limits of the growing season for most crops. The average growing season is 216 days. May 11, 1966, has been the latest date in spring when a temperature of 32° or lower was recorded; October 5, 1965, has been the earliest date in autumn.



U.S. DEPARTMENT OF COMMERCE

JOHN T. CONNOR, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

ROBERT M. WHITE, Administrator

ENVIRONMENTAL DATA SERVICE

LATITUDE 37° 30' N  
 LONGITUDE 77° 20' W  
 ELEVATION (ground) 164 Feet

# METEOROLOGICAL DATA FOR THE CURRENT YEAR

RICHMOND, VIRGINIA  
 BYRD FIELD  
 1966

Month	Temperature							Degree days	Precipitation						Relative humidity				Wind &							Number of days											
	Averages			Extremes					Total	Greatest in 24 hrs.	Date	Snow, Sleet			1:00 A.M. EST	7:00 A.M. EST	1:00 P.M. EST	7:00 P.M. EST	Resultant		Fastest mile			Percent of possible sunshine	Average sky cover sunrise to sunset	Sunrise to sunset			Precipitation	Snow, Sleet	Thunderstorms	Heavy fog	Temperatures				
	Daily maximum	Daily minimum	Monthly	Highest	Date	Lowest	Date					Total	Greatest in 24 hrs.	Date					Direction	Speed	Speed	Direction #	Date			Direction	Speed	Speed					Direction	Direction	Speed	Speed	Speed
JAN	40.2	22.0	31.1	71	1	6	17	1043	4.58	1.28	26	26.2	13.2	26	73	77	49	63	34	3.5	8.8	29	NW	23	58	6.2	10	6	15	12	6	0	1	0	8	27	
FEB	46.1	29.2	37.7	68	11	3	6	759	3.80	1.26	12-13	3.0	1.8	1	73	81	54	65	34	1.1	7.7	40	SW	13	50	7.0	6	6	16	8	2	0	0	17			
MAR	59.1	35.9	47.5	83	22	22	9	538	0.94	0.38	4	0.0	0.0	0	68	74	40	50	24	2.6	8.9	34	SW	19	74	4.7	12	9	10	7	0	0	0	12			
APR	63.5	42.0	52.8	86	24	28	11	371	2.18	0.77	27-28	0.0	0.0	0	76	80	52	58	26	1.3	8.6	34	W	1	50	7.4	4	9	17	6	0	0	0	3			
MAY	74.2	51.9	63.1	89	21	32	11	133	2.58	1.05	27-28	0.0	0.0	0	83	84	57	65	15	1.2	8.5	25	N	10+	62	6.3	7	9	15	11	0	0	0	0			
JUN	83.2	59.6	71.4	92	30+	43	1	27	2.54	0.68	8	0.0	0.0	0	87	86	52	65	22	1.3	7.7	27	NW	16	75	5.2	11	10	9	9	0	0	0	0			
JUL	88.6	64.1	76.4	98	28	55	21	0	4.07	2.23	30	0.0	0.0	0	88	86	51	62	19	0.7	6.7	34	N	15	71	5.6	10	12	9	5	0	5	2	17			
AUG	84.1	65.0	74.6	91	23+	57	6	0	1.31	1.01	4	0.0	0.0	0	92	93	61	77	18	1.5	6.1	26	SW	11	57	6.8	4	10	17	6	0	0	0	0			
SEP	78.0	56.4	67.2	92	3	40	17	47	5.06	1.90	20-21	0.0	0.0	0	91	90	57	76	36	1.3	7.0	20	N	15	55	6.3	7	10	13	11	0	1	6	2	0		
OCT	69.2	41.8	55.5	83	10	33	31	293	4.81	3.52	18-19	0.0	0.0	0	90	94	53	81	35	1.0	6.4	24	NW	20	65	4.7	13	9	9	6	0	0	0	0			
NOV	62.3	36.6	49.5	75	10	26	4	466	1.31	0.44	2	0.2	0.2	30	83	88	49	73	25	1.5	7.4	26	SW	28	58	4.9	12	9	9	6	0	0	0	12			
DEC	47.8	28.2	38.0	79	10	4	27	833	3.07	1.16	28-29	12.2	7.5	23-24	82	85	57	77	33	1.8	7.5	24	N	24	53	6.3	10	4	17	9	3	0	2	22			
YEAR	66.4	44.4	55.4	98	JUL. 28	3	FEB. 6	4510	36.25	3.52	OCT. 18-19	41.6	13.2	JAN. 26	82	85	53	68	28	0.7	7.6	40	SW	13	61	6.0	106	103	156	96	11	16	30	30	11	94	0

## NORMALS, MEANS, AND EXTREMES

Month	Temperature							Normal degree days	Precipitation						Relative humidity				Wind	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days																				
	Normal			Extremes					Normal total	Maximum monthly	Year	Minimum monthly	Year	Snow, Sleet			1:00 A.M. EST	7:00 A.M. EST				1:00 P.M. EST	7:00 P.M. EST	Mean hourly speed	Prevailing direction	Fastest mile			Clear	Partly cloudy	Cloudy	Precipitation	Snow, Sleet	Thunderstorms	Heavy fog	Temperatures						
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year							Normal total	Maximum in 24 hrs.	Year										Mean total	Maximum monthly	Year								Maximum in 24 hrs.	Year	Maximum in 24 hrs.	Year	Speed	Direction #	Year
	(a)	(b)	(b)	(b)	37	37	(b)		(b)	29	29	29	29	29	29	29	29	29				29	29	18	15	16	16	16	21	21	21	21	29	29	29	29	37	37	37	37	37	
J	48.3	29.0	38.7	80	1950	-12	1940	815	3.46	5.95	1962	1.08	1951	3.31	1962	5.9	28.5	1940	21.6	1940	78	81	57	70	8.2	S	40	S	1959	52	6.4	9	6	16	10	2	*	3	0	3	21	*
F	50.6	29.2	39.9	83	1932+	-10	1936	703	2.90	5.61	1944	1.03	1942	1.56	1953	3.1	11.0	1952	9.2	1947	75	80	53	64	8.5	NNE	45	SW	1951	53	6.2	9	6	13	9	1	*	2	0	1	18	*
M	59.1	36.3	47.7	93	1938	11	1960+	546	3.42	5.85	1944	0.94	1966	2.04	1942	2.9	19.7	1960	12.1	1962	74	78	48	60	9.1	W	42	SE	1952	58	6.1	8	9	14	11	1	1	2	*	10	0	
A	70.4	45.8	58.1	96	1960	26	1964+	219	3.15	5.32	1952	0.64	1963	2.07	1952	0.2	2.0	1940	2.0	1940	75	75	46	57	9.0	S	40	NW	1954	60	6.2	7	10	13	10	*	2	2	1	0	2	0
M	79.3	54.6	67.0	100	1941	31	1956	53	3.72	7.73	1946	0.87	1965	2.30	1958	0.0	0.0	0	0	0	83	78	49	65	7.8	SSW	45	N	1962	64	6.2	7	11	13	10	0	6	2	3	0	0	0
J	86.8	63.4	75.1	104	1952	41	1938+	0	3.75	9.24	1938	0.91	1960	4.61	1963	0.0	0.0	0	0	0	87	81	53	68	7.4	S	52	NW	1952	67	5.9	7	12	11	10	0	7	2	10	0	0	0
J	89.4	66.7	78.1	104	1936+	51	1965+	0	5.61	18.87	1945	0.52	1963	4.90	1945	0.0	0.0	0	0	0	88	85	56	72	7.0	SSW	56	NW	1955	67	6.0	7	12	12	11	0	9	2	13	0	0	0
A	86.5	65.4	76.0	102	1953	46	1934	0	5.54	14.10	1955	0.52	1943	8.79	1955	0.0	0.0	0	0	0	90	88	57	76	6.7	S	54	W	1964	63	6.1	7	12	12	10	0	7	3	11	0	0	0
S	81.8	58.6	70.2	103	1954	37	1963	36	3.65	8.49	1945	0.69	1954	3.82	1955	0.0	0.0	0	0	0	90	89	56	79	7.0	S	45	SE	1952	64	5.7	10	8	12	8	0	3	3	5	0	0	0
O	70.6	46.7	58.7	99	1941	21	1962	214	3.00	8.78	1961	0.30	1963	6.50	1961	T	T	1954	T	1954	87	89	52	77	7.1	NNE	68	SE	1954	62	5.1	13	6	12	7	0	1	3	5	0	2	0
N	59.9	37.1	48.5	86	1950	10	1933+	495	3.04	7.64	1959	0.36	1965	4.07	1956	0.5	7.3	1953	7.3	1953	80	84	50	70	7.6	S	35	S	1957	56	5.6	10	7	13	8	*	1	2	0	10	0	
D	49.8	29.5	39.7	78	1956	-1	1942	784	2.97	6.88	1957	0.72	1965	3.16	1958	2.2	12.5	1958	7.5	1966	78	82	54	71	7.5	SW	40	SE	1957	52	6.0	10	7	14	8	1	*	3	0	2	21	*
YR	69.4	46.9	58.1	104	JUN. 1952+	-12	JAN. 1940	3865	44.21	18.87	JUL. 1945	0.30	OCT. 1963	8.79	1955	14.8	28.5	1940	21.6	1940	82	82	53	69	7.7	S	68	SE	OCT. 1954	60	6.0	104	106	155	114	4	37	29	43	6	85	1

Means and extremes in the above table are from the existing or comparable location(s). Annual extremes have been exceeded at other locations as follows:  
 Highest temperature 107 in August 1918; minimum monthly precipitation 0.11 in November 1890 and earlier date(s).

(a) Length of record, years.  
 (b) Climatological standard normals (1931-1960).  
 \* Less than one half.  
 + Also on earlier date, month or year.  
 T Trace, an amount too small to measure.  
 Below-zero temperatures are preceded by a minus sign.  
 The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Degree day totals are the sums of the negative departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1946. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3; partly cloudy days 4-7; and cloudy days 8-10 tenths.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09-East, 13-South, 27-West, 36-North, and 00-Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

# To 8 compass points only.



# STATION LOCATION

RICHMOND, VIRGINIA  
BYRD FIELD

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above								Remarks
						Sea level	Ground							
							Ground at temperature site	Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighting rain gage	
<b>COOPERATIVE</b>														
High elevation in East Richmond	1-1880	2-1893				Est. 150		?				?	W. H. Pleasants, exact address unknown.	
Near Southern RR Bridge	3-1893	3-1895				Est. 35		?				?	A. J. Duesberry, River Observer, observed temperatures.	
Westbrook Farms	4-1895	10-1897	4 mi. N	27° 36'	77° 24'	196		?					Capt. J. C. Shafer, temperatures only.	
<b>CITY OFFICE</b>														
State Library Building Capitol Square	9-18-95	5-22-97	4 mi. S	37° 32'	77° 27'	142							Section Center, no observations.	
Chamber of Commerce Bldg., Ninth & Main Sts.	5-22-97	5-31-00	3/8 mi. SW	37° 32'	77° 27'	104	107	98	98	89		89	Observational Program begun 10-5-97.	
Times Building 10th & Bank Street	5-31-00	6-30-05	1/8 mi. NE	37° 32'	77° 27'	115	92	82	82	76		76		
Mutual Assurance Bldg. 9th and Main Street	6-30-05	1-30-10	1/8 mi. SW			104	154	145	145	138		138		
Weather Bureau Building Chimborazo Park 3301 E Broad Street	1-30-10	7- 1-53	1-1/2 mi. E	37° 32'	77° 25'	162	53	11	11	3	a4	3	Climatological observations were continuous at City Office sites 10-5-97 through 6-30-53. Observational program at Airport 7-1-39 to 9-24-42 and after 4-19-46. a - At this site 9-24-42 to 4-19-46. and after 6-1-50.	
<b>AIRPORT STATION</b>														
WB-CAA Building	7-15-25	9-24-42	None	37° 30'	77° 20'	158	#	5	5				3	CAA to 8-3-30. WBAS 8-3-30 to 5-26-35 and 7-14-38 to 9-24-42. # - 40 ft. 8-3-30 to 5-26-35. estimated 40 ft. 5-26-35 to 7-14-38 and estimated 50 ft. to 9-24-42.
Army Hangar (Operations Annex)	9-24-42	4-19-46	1/2 mi. NNW	37° 30'	77° 20'	156	55	5	5				3	AF operation.
Old Airport Administration Building	4-19-46	6- 1-50	1/3 mi. SSE	37° 30'	77° 20'	156	46	5	5				4	WBAS re-opened in airport terminal building (old).
Byrd Field New Terminal Building	6- 1-50	Present	4/5 mi. N	37° 30'	77° 20'	c164	b20	d6	d6	3		3	a4	a - Installed 2700 ft. ENE of thermometer site 6-26-59. b - 67 ft. to 1-11-61. c - 162 feet to 6-26-59. d - Discontinued 6-26-59.

Requests for additional information should be directed to the Weather Bureau Office for which this summary was issued.

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