

U. S. DEPARTMENT OF COMMERCE  
WEATHER BUREAU

# LOCAL CLIMATOLOGICAL DATA

## WITH COMPARATIVE DATA

1960

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. Because of proximity to open waters of the Chesapeake Bay and the Atlantic Ocean, they contribute to the warm and 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 temperature in the upper forties. Temperatures seldom lower to zero. The record lowest temperature of minus 12 degrees 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 four 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 six-weeks 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 18th through August 20th.

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 mph with a peak gust of 79 mph 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 9, 1956, has been the latest date in spring when a temperature of 32 degrees or lower was recorded; October 8, 1935, has been the earliest date in autumn.

LATITUDE 37° 30' N  
LONGITUDE 77° 20' W  
ELEVATION (ground) 162 feet

# METEOROLOGICAL DATA FOR THE CURRENT YEAR

RICHMOND, VIRGINIA  
BYRD FIELD  
1960

Month	Temperature							Precipitation							Relative humidity				Wind				Number of days																
	Averages			Extremes				Degree days	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	Average hourly speed	Prevailing direction	Fastest mile		Percent of possible sunshine	Average sky cover sunrise to sunset	Sunrise to sunset			Precipitation 0.1 inch or more	Snow, Sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures							
	Daily maximum	Daily minimum	Monthly	Highest	Date	Lowest	Date					Total	Greatest in 24 hrs.	Date							Speed	Direction			Date	Clear	Partly cloudy					Cloudy	90° and above	32° and below	32° and below	0° and below			
JAN	47.0	30.5	38.8	71	13	16	25	807	2.13	.47	27	2.5	2.3	6	75	78	56	65	8.3	SW	34	S	3	45	6.7	9	4	18	11	1	0	3	0	0	19	0			
FEB	49.2	29.3	39.3	70	10	16	16	737	4.56	1.12	13-14	8.9	8.7	13-14	70	73	46	55	9.8	W	31	S	19	64	5.9	9	9	11	9	1	0	0	0	0	22	0			
MAR	45.5	26.2	35.9	82	29+	11	14	894	3.29	1.05	16-17	19.7	8.4	2-3	70	74	45	55	9.5	NW	32	NW	22	66	5.8	10	7	14	12	4	0	0	0	7	24	0			
APR	75.6	48.0	61.8	96	26	27	11	184	3.57	1.63	4-5	.0	.0	.0	70	77	37	47	9.4	SSW	25	W	8+	79	5.4	11	10	9	7	0	2	1	1	0	2	0	0		
MAY	76.5	53.2	64.9	91	21	40	3	98	3.59	.87	8-9	.0	.0	.0	85	85	51	62	8.8	SE	28	NE	21	68	6.2	6	13	12	10	0	2	2	1	0	0	0	0		
JUN	86.3	61.1	73.7	98	24	49	27+	2	.91	.45	29	.0	.0	.0	90	81	47	60	8.0	S	31	N	29	78	6.4	6	12	12	6	0	6	0	0	0	0	0	0		
JUL	87.4	65.2	76.3	99	23	55	16	0	7.34	2.39	29-30	.0	.0	.0	88	86	55	65	7.3	S	30	NW	31	70	5.7	10	9	12	9	0	6	2	2	0	0	0	0	0	
AUG	87.1	67.9	77.5	90	5	4+	58	25	7.20	2.85	10	.0	.0	.0	94	94	63	82	6.5	SSW	32	W	7	64	7.1	9	10	16	14	0	11	1	1	15	0	0	0	0	
SEP	79.7	58.8	69.3	89	5	47	27+	24	6.21	3.11	11-12	.0	.0	.0	96	96	61	85	5.9	NE	30	W	10	60	6.8	7	8	15	8	0	5	0	0	0	0	0	0	0	
OCT	67.8	46.3	57.1	82	14	30	26	257	3.31	1.36	19-20	.0	.0	.0	91	91	57	84	6.6	NW	32	W	24	93	6.0	11	4	16	8	0	1	1	0	0	0	0	0	0	0
NOV	63.2	36.9	50.1	77	16	27	12+	439	.85	.37	10	.0	.0	.0	77	81	43	68	7.0	SSW	27	SW	16	61	5.3	10	8	12	5	0	1	1	0	0	0	0	0	0	0
DEC	46.5	22.7	34.6	73	5	10	13	936	3.04	2.03	11-12	1.7	1.7	1.7	68	74	40	60	6.2	SW	38	NW	12	65	4.5	16	6	10	5	1	1	0	0	0	0	3	31	0	0
YEAR	67.7	45.5	56.6	99	JUL 23	10	DEC 13	4368	46.00	3.11	11-12	32.8	8.7	13-14	81	83	50	66	7.8	S	38	NW	DEC 12	64	6.0	109	100	157	105	7	40	20	39	10	107	0	0		

## NORMALS, MEANS, AND EXTREMES

Month	Temperature							Normal degree days	Precipitation							Relative humidity				Wind				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		Pct. of possible sunshine	Mean sky cover sunrise to sunset	Sunrise to sunset			Precipitation .01 inch or more	Snow, Sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures								
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year							Total	Maximum in 24 hrs.	Year							Speed	Direction			Year	Clear	Partly cloudy					Cloudy	90° and above	32° and below	32° and below	0° and below				
	(b)	(b)	(b)	31	Year	31	Year							(b)	(b)	23							Year	23			Year	23	Year					23	Year	23	Year	23	Year	23	Year	23
(a)	(b)	(b)	(b)	31	Year	31	Year	(b)	(b)	23	Year	23	Year	23	Year	23	Year	23	Year	23	Year	23	Year	23	Year	23	Year	23	Year	23	Year	31	Year	31	Year	31	Year	31	Year			
J	48.1	28.4	38.3	80	1950	-12	1940	828	3.64	5.71	1952	1.08	1951	3.23	1940	4.3	28.5	1940	21.6	1940	79	81	58	71	8.2	S	40	S	1959	49	6.7	7	7	17	10	1	*	3	0	2	20	*
F	50.3	29.0	39.7	83	1932+	-10	1936	730	2.85	5.61	1944	1.03	1942	1.56	1953	2.5	11.0	1952	9.2	1947	75	80	53	64	8.9	WSW	45	SW	1951	54	6.1	9	6	13	9	1	*	2	0	1	18	
M	59.2	35.8	47.5	93	1938	-11	1960+	550	3.42	5.85	1944	1.33	1945	2.04	1942	2.7	19.7	1960	8.4	1960	74	78	48	60	9.1	W	42	SE	1952	57	6.2	8	9	14	11	1	*	2	*	10	0	
A	68.3	43.8	56.1	96	1960	26	1950+	271	3.23	5.32	1952	.74	1950	2.07	1952	.1	2.0	1940	2.0	1940	85	76	46	58	9.0	S	40	NW	1954	63	6.2	7	10	13	10	*	2	2	1	0	2	0
M	77.7	53.9	65.8	100	1941	31	1956	66	3.64	7.73	1946	1.11	1942	2.30	1958	.0	.0	.0	.0	.0	74	78	49	66	7.6	SSW	39	SW	1956	65	6.3	6	12	13	11	0	6	2	3	0	0	0
J	85.4	63.1	74.3	104	1952	41	1938+	0	3.87	9.24	1938	.91	1960	2.85	1938	.0	.0	.0	.0	.0	87	80	52	68	7.3	S	52	NW	1952	69	5.9	7	13	10	9	0	7	2	10	0	0	
J	87.8	67.2	77.5	104	1936+	51	1940	0	5.64	18.87	1945	1.30	1954	4.90	1945	.0	.0	.0	.0	.0	89	84	55	73	7.0	SSW	56	NW	1955	70	5.9	8	11	12	12	0	10	2	14	0	0	
A	86.3	65.4	75.9	102	1953	46	1934	0	5.05	18.10	1955	.52	1943	8.79	1955	.0	.0	.0	.0	.0	90	87	57	76	6.7	S	50	SE	1952	65	6.0	8	11	12	10	0	7	3	11	0	0	
S	80.9	59.7	70.3	103	1954	38	1942	33	3.65	8.49	1945	6.69	1954	3.82	1955	.0	.0	.0	.0	.0	90	89	55	79	7.0	S	45	SE	1952	64	5.8	9	8	13	8	0	3	4	5	0	0	
O	70.4	47.2	58.8	99	1941	23	1936+	210	2.61	6.74	1942	.35	1941	3.96	1957	.0	.0	.0	.0	.0	87	89	53	78	7.2	NNE	68	SE	1954	58	5.5	12	7	12	8	0	1	4	1	0	2	0
N	59.6	37.2	48.4	86	1950	10	1933+	498	2.49	7.64	1959	.66	1941	4.07	1956	.6	7.3	1953	7.3	1953	81	84	50	71	7.5	S	35	S	1957	54	5.7	10	7	13	9	*	1	2	0	*	11	0
D	49.4	29.5	39.5	78	1956	-1	1942	791	2.89	6.88	1957	.86	1955	3.16	1958	1.8	12.5	1958	6.7	1958	78	82	55	71	7.5	SW	40	SE	1957	52	6.0	10	7	14	9	1	*	3	0	2	21	*
YR	68.6	46.7	57.7	104	JUN 1952+	-12	1940	3955	42.98	18.87	JUL 1945	.35	OCT 1941	8.79	AUG 1955	12.0	28.5	JAN 1940	21.6	JAN 1940	82	82	53	70	7.7	S	68	SE	OCT 1954	60	6.0	101	108	156	116	4	38	31	45	5	84	*

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

### REFERENCE NOTES

- (a) Length of record, years.
- (b) Normal values are based on the period 1931-1960, and are means adjusted to represent observations taken at the present standard location.
- \* Less than one half.
- † No record.
- ‡ Airport data.
- § City office data.
- ¶ Also on earlier dates, months, or years.
- ‡ Trace, an amount too small to measure.

Mean values at the end of the Average Temperature and Total Precipitation tables are long-term means based on the period of record beginning in 1930%. Values have not been corrected for changes in instrument location listed in the Station Location Table.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation and snowfall in inches; wind movement in miles per hour; and relative humidity in percent.

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 tenths; partly cloudy days on 4-7 tenths and cloudy days on 8-10 tenths. Monthly 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 1948.

Data for earlier years may be obtained by contacting the Weather Bureau Office for which this summary was issued.

Heavy fog in the Means and Extremes Table also includes data referred to at various times in the past as "Dense" or "Thick". The upper visibility limit for heavy fog is 1/4 mile.

Below zero temperatures are preceded by a minus sign.

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% Average Temperature Table, 1930. Total Precipitation Table, 1938

AVERAGE TEMPERATURE

Table with columns for Year, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec., and Annual average temperature.

RECORD MEAN TEMP MAX MIN

TOTAL PRECIPITATION

RICHMOND, VIRGINIA BYRD FIELD 1960

Table with columns for Year, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec., and Annual total precipitation.

RECORD MEAN

MONTHLY AND SEASONAL DEGREE DAYS

Table with columns for Season, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., May, June, and Total degree days.

MONTHLY AND SEASONAL SNOWFALL

Table with columns for Season, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., May, June, and Total snowfall.

The horizontal lines drawn on the Average Temperature, Total Precipitation, Monthly and Seasonal Degree Days, and Monthly and Seasonal Snowfall tables separate the data according to station location (see Station Location table).

# STATION LOCATION

RICHMOND, VIRGINIA  
BYRD FIELD  
1960

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude	Longitude	Elevation above								REMARKS		
						Sea level		Ground								
						Ground	Actual barometer elevation (ft.)	Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighting rain gage		8" rain gage	Hygrothermometer
<b>CITY OFFICE</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' N	77° 24' W	196										Capt. J.C. Shafer, Temperatures only.
State Library Building Capitol Square	9-18-95	5-22-97	4 mi. S	37° 32' N	77° 27' W	142										Section Center, No Observations.
Chamber of Commerce Bldg Ninth & Main Streets	5-22-97	10- 4-97	3/8 mi. SW	37° 32' N	77° 27' W	104										Section Center, No Observations.
Chamber of Commerce Bldg. Ninth & Main Sts.	10- 5-97	5-31-00				143.70	107	98	98		89		89			Observational Program begun 10-5-97.
Times Bldg., 10th & Bank Streets	5-31-00	6-30-05	1/8 mi. NE	37° 32' N	77° 27' W	115	156.90	92	82	82		76		76		
Mutual Assurance Bldg. 9th & Main Streets	6-30-05	1-30-10	1/8 mi. SW			104	214.82	154	145	145		138		138		
Weather Bureau Building Chimborazo Park, 3301 E Broad Street	1-30-10	7- 1-39	1-1/2 mi. E	37° 32' N	77° 25' W	162	189.59	53	11	11				3		
Weather Bureau Building Chimborazo Park, 3301 E Broad Street	7- 1-39	9-24-42														Observational program at Airport
Weather Bureau Building Chimborazo Park, 3301 E Broad Street	9-24-42	4-19-46												4		Observations, including Pibal, returned to WBO. Byrd Field occupied by AAF.
Weather Bureau Building Chimborazo Park, 3301 E Broad Street	4-19-46	6- 1-50														
Observational and Pibal Program returned to WBAS, Byrd Field. Climatological Observations only at WBO. Triple register and associated instruments moved to WBAS. Weighing gage returned to WBO. Climatological observations.																
Weather Bureau Building Chimborazo Park, 3301 E Broad Street	6- 1-50	7- 1-53		37° 32' N	77° 25' W	162		# 53	11					4	3	# Wind instruments for display. WBO consolidated with WBAS 7-1-53.
<b>AIRPORT STATION</b>																
Old WB/CAA Bldg. location	7-15-25	8- 3-30	None	37° 30' N	77° 20' W	*158	163.96	-	-	-	-	-	-	-	-	Branch service of City Office and CAA cooperating.
WB-CAA Building	8- 3-30	5-26-35	None	37° 30' N	77° 20' W	158	163.96	40	5	5	-	-	-	3		Full WBAS established; closed 1935.
WB-CAA Building	5-27-35	7-14-38	None	37° 30' N	77° 20' W	158	163.96	* 40	5	5	-	-	-	3		Observations by CAA during period WB closed.
WB-CAA Building	7-14-38	9-24-42	None	37° 30' N	77° 20' W	158	163.96	* 50	5	5	-	-	-	3		Reopened same location; closed 1942 because AF had AP.
Army Hangar (Operations Annex)	9-24-42	4-19-46	1/2 mi. NNW	37° 30' N	77° 20' W	156	159.72	55	5	5	-	-	-	3		Army base closed after World War II.
Old Airport Administration Building	4-19-46	6- 1-50	1/3 mi. SSE	37° 30' N	77° 20' W	156	166.85	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' N	77° 20' W	162	180.24	67	6	6	-	3	-	3 (a)5		All Airport operations consolidated in new Terminal Building. (a) Hygrothermometer installed 6-25-59 * Data doubtful.