

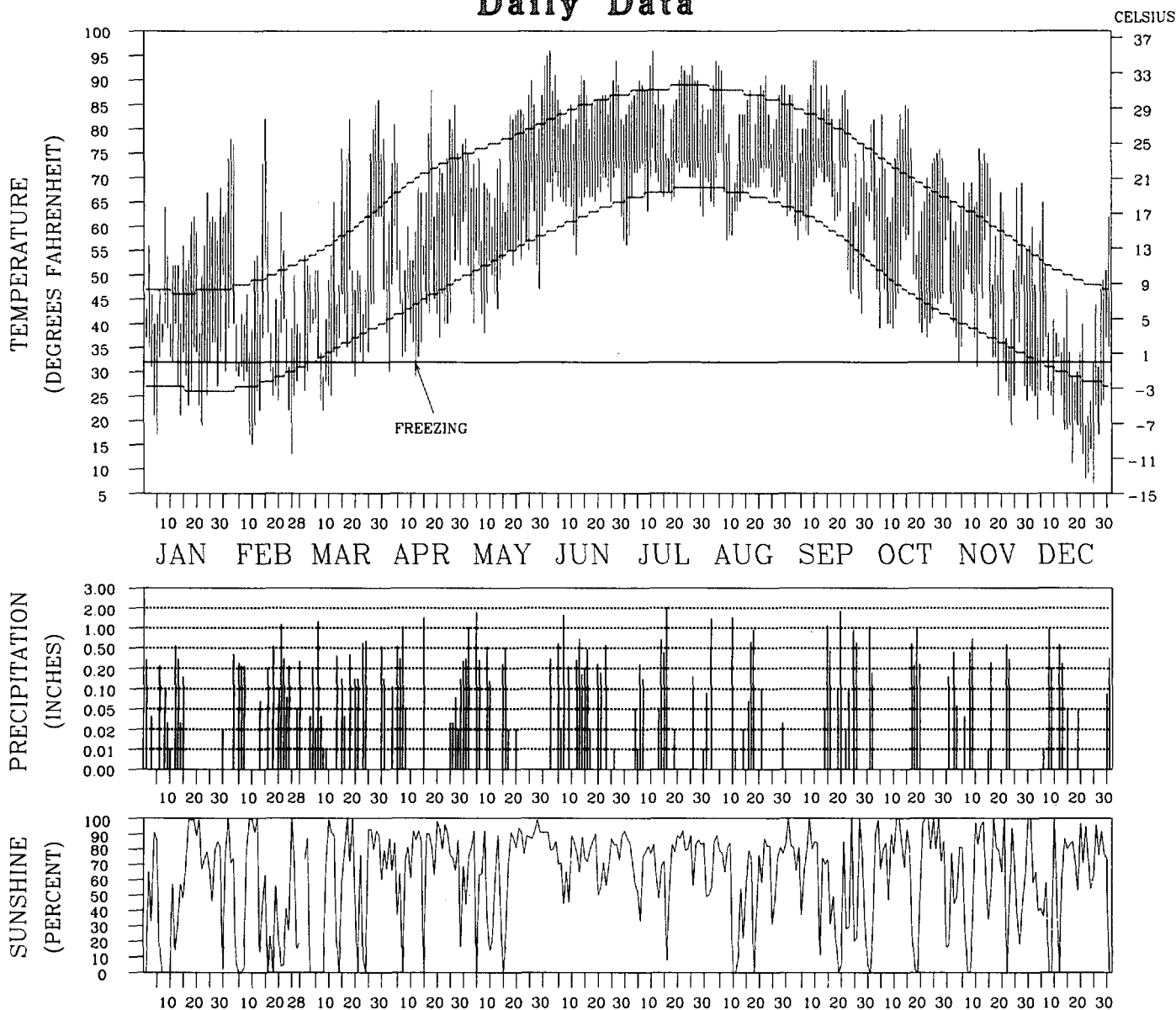
1989 LOCAL CLIMATOLOGICAL DATA

ANNUAL SUMMARY WITH COMPARATIVE DATA

RICHMOND, VIRGINIA



Daily Data



TEMPERATURE DEPICTS NORMAL MAXIMUM, NORMAL MINIMUM AND ACTUAL DAILY HIGH AND LOW VALUES (FAHRENHEIT)
 PRECIPITATION IS MEASURED IN INCHES. SCALE IS NON-LINEAR
 SUNSHINE IS PERCENT OF THE POSSIBLE SUNSHINE

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL ENVIRONMENTAL SATELLITE, DATA AND INFORMATION SERVICE

NATIONAL CLIMATIC DATA CENTER ASHEVILLE NORTH CAROLINA

Kenneth D. Haden
 DIRECTOR
 NATIONAL CLIMATIC DATA CENTER

METEOROLOGICAL DATA FOR 1989

RICHMOND, VIRGINIA

LATITUDE: 37°30' N LONGITUDE: 77°20' W ELEVATION: FT. GRND 164 BARO 178 TIME ZONE: EASTERN WBAN: 13740

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:													
Averages													
-Daily Maximum	53.4	49.3	57.9	67.5	75.5	86.1	86.9	83.5	79.9	71.9	60.4	40.3	67.7
-Daily Minimum	31.2	29.8	37.9	44.1	52.7	66.1	68.4	67.1	61.6	48.5	38.1	22.2	47.3
-Monthly	42.3	39.6	47.9	55.8	64.1	76.1	77.7	75.3	70.8	60.2	49.3	31.3	57.5
-Monthly Dewpt.	30.8	29.6	39.3	43.7	53.1	67.7	69.8	67.6	62.6	50.0	37.5	19.1	47.6
Extremes													
-Highest	68	82	86	88	93	96	96	94	94	85	76	65	96
-Date	29	15	29	18	31	2	11	4	11	15	12	6	JUL 11
-Lowest	17	13	22	29	38	54	56	57	42	37	19	7	7
-Date	5	25	8	12	8	12	1	8	28	23	24	25	DEC 25
DEGREE DAYS BASE 65 °F:													
Heating	696	709	546	293	108	0	0	3	38	181	468	1036	4078
Cooling	0	3	24	27	88	341	403	331	218	42	4	0	1481
% OF POSSIBLE SUNSHINE													
	55	44	54	71	68	75	71	60	56	68	60	63	63
AVG. SKY COVER (tenths)													
Sunrise - Sunset	6.5	7.6	6.8	6.7	7.1	6.5	7.3	7.9	7.0	4.8	5.9	6.8	6.7
Midnight - Midnight	6.2	7.2	6.5	6.0	6.6	6.4	7.1	7.7	6.6	4.5	5.0	6.2	6.3
NUMBER OF DAYS:													
Sunrise to Sunset													
-Clear	8	5	4	7	3	6	3	1	5	14	9	8	73
-Partly Cloudy	8	3	13	7	16	11	12	11	8	7	8	5	109
-Cloudy	15	20	14	16	12	13	16	19	17	10	13	18	183
Precipitation													
.01 inches or more	11	14	17	12	10	15	12	9	9	7	9	9	134
Snow, Ice pellets													
1.0 inches or more	0	3	0	0	0	0	0	0	0	0	1	3	7
Thunderstorms													
	0	0	6	1	5	14	7	5	3	0	1	0	42
Heavy Fog, visibility													
1/4 mile or less	6	2	3	2	1	2	0	2	3	5	1	4	31
Temperature °F													
-Maximum													
90° and above	0	0	0	0	2	7	11	4	2	0	0	0	26
32° and below	0	3	1	0	0	0	0	0	0	0	0	9	13
-Minimum													
32° and below	16	20	10	2	0	0	0	0	0	0	10	25	83
0° and below	0	0	0	0	0	0	0	0	0	0	0	0	0
AVG. STATION PRESS. (mb)													
	1015.2	1015.6	1013.9	1009.8	1008.5	1009.5	1010.8	1009.8	1013.0	1013.5	1010.8	1013.2	1011.9
RELATIVE HUMIDITY (%)													
Hour 01													
	75	76	85	79	85	93	93	89	90	87	77	68	83
Hour 07													
	82	82	87	80	81	89	89	89	90	91	80	74	85
Hour 13 (Local Time)													
	57	65	64	52	53	61	62	65	62	52	49	52	58
Hour 19													
	64	70	73	61	64	77	77	78	81	77	63	61	71
PRECIPITATION (inches):													
Water Equivalent													
-Total	1.88	4.34	5.00	4.27	5.02	5.85	4.00	4.89	5.33	3.54	3.00	2.62	49.74
-Greatest (24 hrs)	0.58	1.25	1.36	1.54	1.86	1.66	2.43	1.62	1.87	1.24	1.15	0.97	2.43
-Date	12-13	20-21	6	15	5-6	7	15-16	17-18	20	1-2	8-9	8	JUL 15-16
Snow, Ice pellets													
-Total	T	13.6	T	T	T	0.0	0.0	0.0	0.0	0.0	1.1	9.9	24.6
-Greatest (24 hrs)	T	7.6	T	T	T	0.0	0.0	0.0	0.0	0.0	1.1	3.9	7.6
-Date	10	18	9	11	16						23	13	FEB 18
WIND:													
Resultant													
-Direction (!!!)	267	324	024	278	240	219	212	326	049	294	240	330	280
-Speed (mph)	1.9	2.4	1.7	1.0	2.9	3.3	1.3	1.3	2.8	1.1	3.7	2.7	1.1
Average Speed (mph)	8.1	9.4	10.8	9.0	8.8	7.9	7.4	7.4	8.7	7.3	9.8	9.6	8.7
Fastest Obs. 1 Min.													
-Direction (!!!)	33	36	27	19	23	27	18	36	36	24	27	30	23
-Speed (mph)	24	26	41	29	46	28	18	21	37	23	32	28	46
-Date	4	24	18	4	6	15	31	7	23	21	16	3	MAY 6
Peak Gust													
-Direction (!!!)	NW	SW	W	SW	SW	W	SW	NW	N	SW	NW	NW	SW
-Speed (mph)	43	40	67	41	79	48	24	39	49	36	48	41	79
-Date	3	21	18	4	6	15	21	21	23	21	21	3	MAY 6

NORMALS, MEANS, AND EXTREMES

RICHMOND, VIRGINIA

LATITUDE: 37°30'N	LONGITUDE: 77°20' W	ELEVATION: FT. GRND 164 BARO 178												TIME ZONE: EASTERN	WBAN: 13740
	(a)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F:															
Normals															
-Daily Maximum		46.7	49.6	58.5	70.6	77.9	84.8	88.4	87.1	81.0	70.5	60.5	50.2	68.8	
-Daily Minimum		26.5	28.1	35.8	45.1	54.2	62.2	67.2	66.4	59.3	46.7	37.3	29.6	46.5	
-Monthly		36.6	38.9	47.2	57.9	66.1	73.5	77.8	76.8	70.2	58.6	48.9	39.9	57.7	
Extremes															
-Record Highest	60	80	83	93	96	100	104	105	102	103	99	86	80	105	
-Year		1950	1932	1938	1985	1941	1952	1977	1983	1954	1941	1974	1971	JUL 1977	
-Record Lowest	60	-12	-10	11	23	31	40	51	46	35	21	10	-1	-12	
-Year		1940	1936	1960	1985	1956	1967	1965	1934	1974	1962	1933	1942	JAN 1940	
NORMAL DEGREE DAYS:															
Heating (base 65°F)		880	731	552	226	65	0	0	0	24	221	483	778	3960	
Cooling (base 65°F)		0	0	0	13	99	258	397	366	180	23	0	0	1336	
% OF POSSIBLE SUNSHINE															
	39	54	58	61	65	65	69	68	66	64	62	58	54	62	
MEAN SKY COVER (tenths)															
Sunrise - Sunset	44	6.4	6.2	6.2	6.1	6.3	6.0	6.1	6.0	5.8	5.4	5.8	6.1	6.0	
MEAN NUMBER OF DAYS:															
Sunrise to Sunset															
-Clear	44	8.4	8.3	8.3	8.0	7.0	6.8	7.0	7.2	9.3	11.5	9.4	9.6	100.6	
-Partly Cloudy	44	6.7	6.3	8.4	9.1	10.2	11.9	11.6	11.8	8.6	7.4	7.8	6.4	106.0	
-Cloudy	44	15.9	13.7	14.4	12.9	13.8	11.3	12.5	12.0	12.1	12.2	12.9	15.0	158.6	
Precipitation															
.01 inches or more	52	10.3	9.3	10.7	9.3	10.7	9.6	11.0	9.8	7.9	7.3	8.4	8.8	112.9	
Snow, Ice pellets															
1.0 inches or more	52	1.4	1.2	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	4.0	
Thunderstorms															
Heavy Fog Visibility	52	0.2	0.4	1.6	2.5	5.6	6.8	8.7	6.7	2.9	1.0	0.6	0.3	37.2	
1/4 mile or less															
Temperature °F	60	2.7	2.1	1.7	1.7	1.9	1.5	2.1	2.5	3.0	3.3	2.3	2.8	27.7	
-Maximum															
90° and above	60	0.0	0.0	0.1	0.8	2.7	9.4	13.7	11.1	4.4	0.4	0.0	0.0	42.6	
32° and below	60	3.3	1.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.*	1.7	6.8	
-Minimum															
32° and below	60	21.6	19.0	10.4	2.2	0.1	0.0	0.0	0.0	0.0	1.8	10.1	20.2	85.3	
0° and below	60	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.*	0.5	
AVG. STATION PRESS. (mb)															
	17	1012.7	1012.4	1010.7	1008.9	1009.1	1009.5	1010.1	1011.1	1012.2	1013.4	1013.1	1013.5	1011.4	
RELATIVE HUMIDITY (%)															
Hour 01	55	77	74	73	74	83	86	88	90	90	87	80	77	82	
Hour 07	55	80	79	78	76	80	82	85	89	90	89	84	81	83	
Hour 13 (Local Time)	55	57	53	49	45	51	53	56	57	56	53	51	55	53	
Hour 19	55	68	63	58	55	64	67	71	75	78	76	70	70	68	
PRECIPITATION (inches):															
Water Equivalent															
-Normal		3.23	3.13	3.57	2.90	3.55	3.60	5.14	5.01	3.52	3.74	3.29	3.39	44.07	
-Maximum Monthly	52	7.97	5.97	8.65	7.31	8.87	9.24	18.87	14.10	10.98	9.39	7.64	7.07	18.87	
-Year		1978	1979	1984	1987	1972	1938	1945	1955	1975	1971	1959	1973	JUL 1945	
-Minimum Monthly	52	0.64	0.48	0.94	0.64	0.87	0.38	0.51	0.52	0.26	0.30	0.36	0.40	0.26	
-Year		1981	1978	1966	1963	1965	1980	1983	1943	1978	1963	1965	1980	SEP 1978	
-Maximum in 24 hrs	52	3.31	2.67	2.54	2.97	3.08	4.61	5.73	8.79	4.02	6.50	4.07	3.16	8.79	
-Year		1962	1979	1984	1987	1981	1963	1969	1955	1985	1961	1956	1958	AUG 1955	
Snow, Ice pellets															
-Maximum Monthly	52	28.5	21.4	19.7	2.0	T	0.0	0.0	0.0	0.0	T	7.3	12.5	28.5	
-Year		1940	1983	1960	1940	1989					1979	1953	1958	JAN 1940	
-Maximum in 24 hrs	52	21.6	16.8	12.1	2.0	T	0.0	0.0	0.0	0.0	T	7.3	7.5	21.6	
-Year		1940	1983	1962	1940	1989					1979	1953	1966	JAN 1940	
WIND:															
Mean Speed (mph)	41	8.1	8.6	9.1	8.9	7.8	7.3	6.8	6.4	6.6	7.0	7.5	7.7	7.7	
Prevailing Direction through 1963		S	NNE	W	S	SSW	S	SSW	S	S	NNE	S	SW	S	
Fastest Mile															
-Direction (!!!)	32	NW	SW	SE	NW	N	NW	NW	W	SE	SE	NW	SW	SE	
-Speed (MPH)	32	43	45	42	40	45	52	56	54	45	68	38	40	68	
-Year		1971	1951	1952	1972	1962	1952	1955	1964	1952	1954	1977	1968	OCT 1954	
Peak Gust															
-Direction (!!!)	5	NW	NW	W	W	SW	NW	N	NW	N	SW	SW	SW	SW	
-Speed (mph)	5	48	48	67	48	79	53	61	44	49	40	54	49	79	
-Date		1985	1987	1989	1988	1989	1987	1986	1986	1989	1987	1988	1988	MAY 1989	

(!!!) See Reference Notes on Page 6B.
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PRECIPITATION (inches)

RICHMOND, VIRGINIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1960	2.13	4.56	3.29	3.57	3.59	0.91	7.34	7.20	6.21	3.31	0.85	3.04	46.00
1961	2.57	5.39	4.02	1.73	4.83	6.49	2.85	3.90	1.64	8.78	1.81	5.05	49.06
1962	5.95	3.00	4.87	3.80	4.08	5.57	5.65	2.37	3.46	0.50	6.73	2.64	48.62
1963	1.55	2.98	5.62	0.64	2.39	7.01	0.52	3.75	3.20	0.30	6.70	2.80	37.46
1964	4.16	4.46	2.61	2.71	1.14	2.40	6.46	9.88	2.56	3.62	1.98	3.05	45.03
1965	2.51	2.77	3.68	2.13	0.87	3.39	6.33	0.81	4.81	1.38	0.36	0.72	29.76
1966	4.58	3.80	0.94	2.18	2.58	2.54	4.07	1.31	5.06	4.81	1.31	3.07	36.25
1967	1.50	3.35	2.34	1.32	3.71	3.58	5.00	6.65	0.95	1.00	1.76	6.48	37.64
1968	2.53	0.98	4.00	2.93	3.13	2.89	3.41	3.71	1.78	1.59	3.87	2.28	33.10
1969	2.04	3.95	3.95	2.60	3.32	4.36	13.90	9.31	3.89	1.88	1.87	5.26	56.33
1970	1.32	2.37	3.70	2.84	1.84	1.12	4.74	1.69	1.02	1.55	3.10	3.00	28.29
1971	1.84	4.37	2.68	1.76	6.82	4.10	4.40	3.73	2.35	9.39	2.76	0.75	44.95
1972	1.43	5.15	2.11	3.35	8.87	8.82	5.80	3.84	3.35	7.89	5.82	2.91	59.34
1973	2.66	3.11	3.44	4.58	3.56	2.45	3.64	4.34	1.82	2.56	1.27	7.07	40.50
1974	3.21	2.54	3.79	1.58	3.02	1.80	2.25	6.84	4.83	0.39	1.23	4.22	35.70
1975	5.71	2.96	8.04	2.78	2.59	4.00	12.29	2.31	10.98	3.10	2.04	4.51	61.31
1976	3.39	1.35	2.14	1.08	3.76	2.85	2.63	1.35	4.78	6.99	1.88	2.56	34.76
1977	2.22	1.34	2.67	2.33	3.99	1.25	4.20	6.15	2.16	7.88	4.32	5.57	44.08
1978	7.97	0.48	5.67	4.31	3.92	5.26	4.24	5.93	0.26	1.21	4.57	3.80	47.62
1979	6.16	5.97	2.59	3.97	3.80	2.42	4.36	7.08	9.76	3.87	5.50	1.64	57.12
1980	6.05	1.01	5.49	4.28	4.68	0.38	5.18	2.15	2.37	6.96	2.18	0.40	41.13
1981	0.64	2.76	1.52	2.96	6.62	3.69	4.01	2.89	2.70	2.36	0.68	5.04	35.87
1982	2.76	4.44	3.74	2.97	3.48	3.97	9.21	4.39	2.55	2.90	2.70	3.37	46.48
1983	1.59	3.95	6.04	5.21	2.50	5.46	0.51	0.97	3.05	4.02	5.63	4.50	43.43
1984	3.98	3.97	8.65	5.92	4.52	2.01	3.55	4.58	1.86	2.14	3.34	1.52	46.04
1985	3.54	3.20	1.80	0.65	2.36	4.01	5.31	10.58	4.97	5.09	6.99	0.58	49.08
1986	2.69	2.67	1.16	1.16	3.15	1.30	7.01	6.75	0.63	2.43	2.46	5.15	36.56
1987	5.53	2.57	1.65	7.31	2.94	6.29	1.20	1.11	4.43	1.25	3.13	2.86	40.27
1988	2.53	3.08	1.98	2.55	4.81	2.25	7.50	2.95	1.74	2.74	4.34	0.79	37.26
1989	1.88	4.34	5.00	4.27	5.02	5.85	4.00	4.89	5.33	3.54	3.00	2.62	49.74
Record													
Mean	3.13	3.04	3.52	3.01	3.72	3.70	5.42	4.87	3.56	3.34	3.26	3.13	43.70

See Reference Notes on Page 6B.
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AVERAGE TEMPERATURE (deg. F)

RICHMOND, VIRGINIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1960	38.8	39.3	35.9	61.8	64.9	73.7	76.3	77.5	69.3	57.1	50.1	34.6	56.6
1961	33.5	42.2	50.8	53.0	63.6	72.8	78.5	77.1	73.5	58.1	50.1	37.1	57.5
1962	36.6	39.7	45.0	57.5	70.6	74.0	74.8	74.6	66.2	60.5	47.2	36.1	56.9
1963	35.9	33.3	50.8	59.2	64.0	72.0	76.1	75.7	65.5	58.6	50.1	32.4	56.1
1964	38.1	37.2	47.6	55.4	66.4	73.1	75.8	73.1	67.1	53.4	51.5	42.9	56.8
1965	35.6	38.8	43.0	53.9	69.6	70.7	74.9	75.9	70.7	56.1	48.2	41.3	56.6
1966	31.1	37.7	47.5	52.8	63.1	71.4	76.4	74.6	67.2	55.5	49.5	38.0	55.4
1967	40.9	34.8	46.6	58.8	60.7	72.1	76.6	75.5	65.7	57.2	44.0	41.9	56.2
1968	33.9	34.2	52.0	58.8	64.7	74.7	78.9	78.9	70.9	61.9	51.3	37.0	58.1
1969	33.9	36.8	42.3	57.6	65.5	75.7	78.3	75.1	68.1	58.5	46.8	35.5	56.2
1970	30.1	37.1	42.9	58.2	69.1	75.7	78.3	78.0	74.8	62.9	49.9	40.4	58.1
1971	33.8	39.5	44.5	55.0	63.3	74.7	76.6	75.3	71.4	64.6	48.5	48.0	57.9
1972	40.7	37.6	47.2	56.2	64.6	70.1	77.1	75.2	70.1	55.8	47.9	45.9	57.4
1973	37.6	38.5	52.6	57.9	65.1	76.0	77.4	77.5	72.3	60.6	51.3	40.8	59.0
1974	45.8	40.1	50.4	59.9	65.8	70.6	76.9	75.7	67.4	55.4	48.5	41.7	58.2
1975	40.7	41.4	45.3	52.9	67.7	73.6	76.0	78.8	69.3	62.5	53.6	40.0	58.5
1976	35.1	48.5	52.6	60.5	65.2	74.6	77.3	75.7	68.7	54.4	42.7	36.7	57.7
1977	25.3	40.5	53.7	61.1	68.2	73.0	81.4	79.8	74.2	57.3	52.3	39.5	58.9
1978	33.4	30.3	44.5	57.3	65.5	74.7	77.5	80.1	72.9	58.3	52.5	42.5	57.5
1979	36.4	28.6	51.1	58.4	67.1	70.8	76.9	77.8	71.0	58.3	53.3	42.3	57.7
1980	38.8	36.0	47.4	61.1	68.3	72.8	80.0	80.7	74.7	56.9	46.2	38.6	58.5
1981	31.2	42.2	44.6	60.6	64.1	77.9	79.6	75.1	69.4	56.4	49.1	38.0	57.3
1982	31.6	41.7	49.1	55.9	70.4	73.4	78.6	75.0	69.8	59.2	51.9	46.1	58.6
1983	37.8	39.1	50.4	56.1	66.1	75.6	79.4	77.7	68.8	58.1	49.0	36.2	57.9
1984	32.6	44.5	43.6	55.8	65.4	77.7	76.0	77.0	67.5	66.1	46.6	47.7	58.4
1985	32.6	40.2	49.7	62.0	68.0	74.3	79.0	77.5	70.8	62.6	56.6	37.8	59.3
1986	36.2	39.3	50.0	59.2	66.9	76.1	80.9	74.2	70.8	61.8	49.1	40.9	58.8
1987	34.7	37.0	47.1	54.3	67.3	75.8	81.3	78.5	72.3	52.9	51.3	43.0	58.0
1988	32.3	39.1	47.9	56.0	65.8	72.8	79.9	79.8	68.4	53.6	50.6	39.2	57.1
1989	42.3	39.6	47.9	55.8	64.1	76.1	77.7	75.3	70.8	60.2	49.3	31.3	57.5
Record													
Mean	37.1	39.3	47.2	57.2	66.3	74.2	77.9	76.4	70.1	58.8	49.0	39.7	57.8
Max	46.9	49.9	58.6	69.6	78.1	85.3	88.3	86.6	80.9	70.6	60.4	49.8	68.8
Min	27.3	28.7	35.8	44.7	54.4	63.0	67.5	66.2	59.3	46.9	37.5	29.6	46.7

See Reference Notes on Page 6B.
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HEATING DEGREE DAYS Base 65 deg. F

RICHMOND, VIRGINIA

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
1960-61	0	0	24	257	439	936	971	632	461	390	106	7	4223
1961-62	0	0	27	218	459	860	875	702	623	276	32	0	4072
1962-63	0	0	73	175	526	891	897	882	434	218	102	1	4199
1963-64	0	0	71	197	439	1004	826	801	537	306	74	12	4267
1964-65	0	0	32	352	402	676	909	726	674	339	17	34	4161
1965-66	0	6	25	275	498	726	1043	759	538	371	133	27	4401
1966-67	0	0	47	293	466	833	738	841	560	230	171	17	4196
1967-68	0	0	64	256	623	708	956	887	416	191	86	0	4187
1968-69	0	0	0	161	403	864	957	783	695	237	66	0	4166
1969-70	0	0	45	221	541	907	1076	778	677	231	51	0	4527
1970-71	0	0	12	124	445	756	960	709	627	295	104	3	4035
1971-72	0	0	11	69	512	526	748	788	554	286	58	21	3573
1972-73	0	0	17	285	513	588	843	735	394	247	79	0	3701
1973-74	0	0	5	163	414	744	589	691	455	204	75	5	3345
1974-75	0	0	62	310	513	715	746	654	604	368	44	1	4017
1975-76	0	0	27	121	356	770	917	480	386	227	78	11	3373
1976-77	0	1	15	332	660	869	1227	680	366	176	42	7	4375
1977-78	0	0	4	259	401	784	974	964	627	235	88	5	4341
1978-79	0	0	16	214	366	694	876	1011	439	218	44	4	3882
1979-80	0	0	8	242	353	698	806	835	541	135	47	2	3667
1980-81	0	0	14	267	557	813	1042	633	626	171	107	0	4230
1981-82	0	1	29	273	473	834	1029	645	486	280	6	1	4057
1982-83	0	6	10	213	399	585	836	718	445	282	69	2	3565
1983-84	0	1	86	236	475	887	994	589	657	282	93	3	4203
1984-85	0	0	73	57	546	531	997	692	484	177	35	5	3597
1985-86	0	0	31	114	257	838	886	713	465	187	78	3	3572
1986-87	0	16	24	172	476	741	931	777	550	317	57	0	4061
1987-88	0	0	5	370	409	677	1008	746	527	279	79	32	4132
1988-89	0	0	27	361	425	794	696	709	546	293	108	0	3959
1989-90	0	3	38	181	468	1036							

See Reference Notes on Page 6B.
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COOLING DEGREE DAYS Base 65 deg. F

RICHMOND, VIRGINIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
1969	0	0	0	21	90	328	417	321	147	26	0	0	1350
1970	0	0	0	35	185	328	418	410	313	67	0	0	1756
1971	0	0	0	0	56	297	367	327	209	62	22	5	1345
1972	0	0	7	30	52	180	381	326	178	9	8	0	1171
1973	0	0	13	42	91	338	391	395	231	32	9	2	1544
1974	0	0	10	58	106	180	377	340	141	21	26	0	1259
1975	0	0	0	16	135	267	348	433	165	51	18	0	1433
1976	0	8	9	99	91	307	389	337	133	12	0	0	1385
1977	0	0	22	66	148	258	513	467	289	24	27	0	1814
1978	0	0	0	12	112	302	393	475	263	15	0	1	1573
1979	0	0	16	30	117	188	374	404	195	42	9	0	1375
1980	0	0	1	25	157	243	472	494	313	23	1	0	1729
1981	0	0	1	45	89	395	458	319	169	16	0	0	1492
1982	0	0	0	13	181	259	428	323	157	43	13	7	1424
1983	0	0	0	23	108	325	452	405	207	27	0	0	1547
1984	0	0	0	10	114	392	346	381	154	100	0	2	1499
1985	0	4	20	94	139	290	441	392	213	51	10	0	1654
1986	0	0	8	19	142	344	498	308	205	79	6	0	1609
1987	0	0	0	2	136	329	513	427	227	0	3	0	1637
1988	0	0	3	16	108	269	466	465	137	12	0	0	1476
1989	0	3	24	27	88	341	403	331	218	42	4	0	1481

See Reference Notes on Page 6B.
Page 5B

SNOWFALL (inches)

RICHMOND, VIRGINIA

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
1960-61	0.0	0.0	0.0	0.0	0.0	1.7	7.2	5.0	T	0.0	0.0	0.0	13.9
1961-62	0.0	0.0	0.0	0.0	T	0.9	20.6	1.2	16.2	0.0	0.0	0.0	38.9
1962-63	0.0	0.0	0.0	0.0	0.9	8.1	1.6	6.3	T	0.0	0.0	0.0	16.9
1963-64	0.0	0.0	0.0	0.0	T	0.4	5.7	10.2	7.0	1.2	0.0	0.0	24.5
1964-65	0.0	0.0	0.0	0.0	0.4	0.0	12.4	6.6	1.0	0.0	0.0	0.0	20.4
1965-66	0.0	0.0	0.0	0.0	0.0	T	26.2	3.0	0.0	0.0	0.0	0.0	29.2
1966-67	0.0	0.0	0.0	0.0	0.2	12.2	6.3	17.1	T	0.0	0.0	0.0	35.8
1967-68	0.0	0.0	0.0	0.0	T	5.6	2.3	2.4	2.8	0.0	0.0	0.0	13.1
1968-69	0.0	0.0	0.0	0.0	1.2	2.8	T	T	11.9	0.0	0.0	0.0	15.9
1969-70	0.0	0.0	0.0	0.0	0.0	1.8	5.4	0.4	0.0	0.0	0.0	0.0	7.6
1970-71	0.0	0.0	0.0	0.0	0.0	0.9	3.3	2.0	8.4	0.6	0.0	0.0	15.2
1971-72	0.0	0.0	0.0	0.0	T	0.0	T	13.7	0.0	T	0.0	0.0	13.7
1972-73	0.0	0.0	0.0	T	0.6	0.0	4.3	0.4	1.4	0.0	0.0	0.0	6.7
1973-74	0.0	0.0	0.0	0.0	0.0	9.9	T	5.0	T	0.0	0.0	0.0	14.9
1974-75	0.0	0.0	0.0	0.0	0.0	T	2.7	2.9	0.4	0.0	0.0	0.0	6.0
1975-76	0.0	0.0	0.0	0.0	0.0	T	0.2	T	1.0	0.0	0.0	0.0	1.2
1976-77	0.0	0.0	0.0	0.0	1.0	1.7	11.1	T	0.0	0.0	0.0	0.0	13.8
1977-78	0.0	0.0	0.0	0.0	T	T	1.3	5.1	5.0	0.0	0.0	0.0	11.4
1978-79	0.0	0.0	0.0	0.0	0.0	0.0	0.7	19.5	T	0.0	0.0	0.0	20.2
1979-80	0.0	0.0	0.0	T	0.0	T	16.6	7.0	15.0	0.0	0.0	0.0	38.6
1980-81	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.2	0.0	0.0	0.0	1.0
1981-82	0.0	0.0	0.0	0.0	T	1.9	8.3	10.8	T	0.2	0.0	0.0	21.2
1982-83	0.0	0.0	0.0	0.0	0.0	7.9	0.1	21.4	0.0	T	0.0	0.0	29.4
1983-84	0.0	0.0	0.0	0.0	0.1	T	1.1	2.8	0.3	0.0	0.0	0.0	4.3
1984-85	0.0	0.0	0.0	0.0	0.0	T	8.3	T	T	0.0	0.0	0.0	8.3
1985-86	0.0	0.0	0.0	0.0	0.0	1.3	3.3	4.4	T	T	0.0	0.0	9.0
1986-87	0.0	0.0	0.0	0.0	0.0	0.0	15.8	5.3	0.7	T	0.0	0.0	21.8
1987-88	0.0	0.0	0.0	0.0	4.5	T	8.1	T	T	T	0.0	0.0	12.6
1988-89	0.0	0.0	0.0	0.0	0.0	1.8	T	13.6	T	T	T	0.0	15.4
1989-90	0.0	0.0	0.0	0.0	1.1	9.9							
Record Mean	0.0	0.0	0.0	T	0.4	2.1	5.2	4.3	2.6	0.1	T	0.0	14.7

See Reference Notes on Page 6B.
Page 6A

REFERENCE NOTES

RICHMOND, VIRGINIA

<p>GENERAL T - TRACE AMOUNT. BLANK ENTRIES DENOTE MISSING/UNREPORTED DATA. * INDICATES A STATION OR INSTRUMENT RELOCATION. SEE STATION LOCATION TABLE ON PAGE 8.</p> <p>SPECIFIC PAGE 2 PM - INCLUDES LAST DAY OF PREVIOUS MONTH</p> <p>PAGE 3 a - LENGTH OF RECORD IN YEARS, ALTHOUGH INDIVIDUAL MONTHS MAY BE MISSING. 0.* OR * - THE VALUE IS BETWEEN 0.0 AND 0.05. NORMALS - BASED ON THE 1951-1980 RECORD PERIOD. EXTREMES - DATES ARE THE MOST RECENT OCCURRENCE. WIND DIR. - NUMERALS SHOW TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. RESULTANT DIRECTIONS ARE GIVEN TO WHOLE DEGREES.</p> <p>PAGE 4B MAX AND MIN ARE LONG TERM MEAN DAILY MAXIMUM AND MEAN DAILY MINIMUM TEMPERATURES.</p>	<p>EXCEPTIONS PAGES 4A, 4B, 6A RECORD MEANS ARE THROUGH THE CURRENT YEAR, BEGINNING IN 1930 FOR TEMPERATURE 1930 FOR PRECIPITATION 1938 FOR SNOWFALL</p>
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RICHMOND, VIRGINIA

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 western section of the city.

The climate might be classified 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 cold winter air is 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 January, when low temperatures usually average in the upper 20s, and the high temperatures in the upper 40s. Temperatures seldom lower to zero, but there have been several occurrences of below zero temperatures. Summertime high temperatures above 100 degrees are not uncommon, but do not occur every year.

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. Snow usually remains on the ground only one or two days at a time. Ice storms (freezing rain or glaze) are not uncommon, 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 nearly 1 inch of ice accumulation caused heavy damage to trees and overhead transmission lines.

The James River reaches tidewater at Richmond where flooding may occur in every month of the year, most frequently in March and least in July. Hurricanes and tropical storms have been responsible for most of the flooding during the summer and early fall months. Hurricanes passing near Richmond have produced record rainfalls. In 1955, three hurricanes brought record rainfall to Richmond within a six-week period. The most noteworthy of these were Hurricanes Connie and Diane that brought heavy rains five days apart.

Damaging storms occur mainly from snow and freezing rain in winter and from hurricanes, tornadoes, and severe thunderstorms in other seasons. Damage may be from wind, flooding, or rain, or from any combination of these. Tornadoes are infrequent but some notable occurrences have been observed within the Richmond area.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is October 26 and the average last occurrence in the spring is April 10.

STATION LOCATION

RICHMOND, VIRGINIA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above								Automatic Observing Equipment	* Type M = AMOS T = AUTOT	Remarks
						Sea level	Ground									
							Ground at temperature site	Wind instruments	Extreme thermometers	Psychrometer	Sunshine Switch	Tipping bucket rain gage	Weighting rain gage			
COOPERATIVE																
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.
Westbrook Farms	4/1895	10/1897	4 mi. N	27° 36'	77° 24'	196										Capt. J. C. Shafer; temperatures only
CITY																
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 Building, Ninth & Main Streets	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 Streets	5/31/00	6/30/05	1/8 mi. NE	37° 32'	77° 27'	115	92	82	82		76		76			
Mutual Assurance Bldg. Ninth & Main Streets	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	7/01/53	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. A - At this site 9/24/42 to 4/19/46 and after 6/1/50.
AIRPORT																
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 feet 8/3/30 to 5/26/35, estimated 40 feet 5/26/35 to 7/14/38 and estimated 50 feet 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	6/01/50	1/3 mi. SSE	37° 30'	77° 20'	156	46	5	5				4			WBAS reopened.
Byrd Field † New Terminal Building † R. E. Byrd International Airport effective 2/18/71 ††	6/01/50	08/19/88	4/5 mi. N	37° 30'	77° 20'	c164	b20 g33	d6	d6	760 j30	e19	£19	e19	a4 h4 i4	NA M	a - Installed 2700 feet ENE of thermometer site 6/26/59. b - 67 feet to 1/11/61. c - 162 feet to 6/26/59. d - Discontinued 6/26/59. e - 3 feet to 10/9/69. % - Commissioned 11/19/63. f - Installed on roof 1/1/80. g - Minor move 12/2/82. h - Type change 7/9/84. M - ASOS installed 10/1985. i - Type change 11/12/85. j - Inactive summer 1985 until relocated 12/10/85.
†† Richmond International Airport effective 9/22/85.																
Executive Terminal Richmond International Airport	08/19/88	Present	1/4 mi. N	37° 31'	77° 20'	164	k33	NA	NA	NA	3	3	3	k4	M	k - Not moved 08/19/88, other Instruments moved 08/20-31/88.

SUBSCRIPTION:

Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801

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