

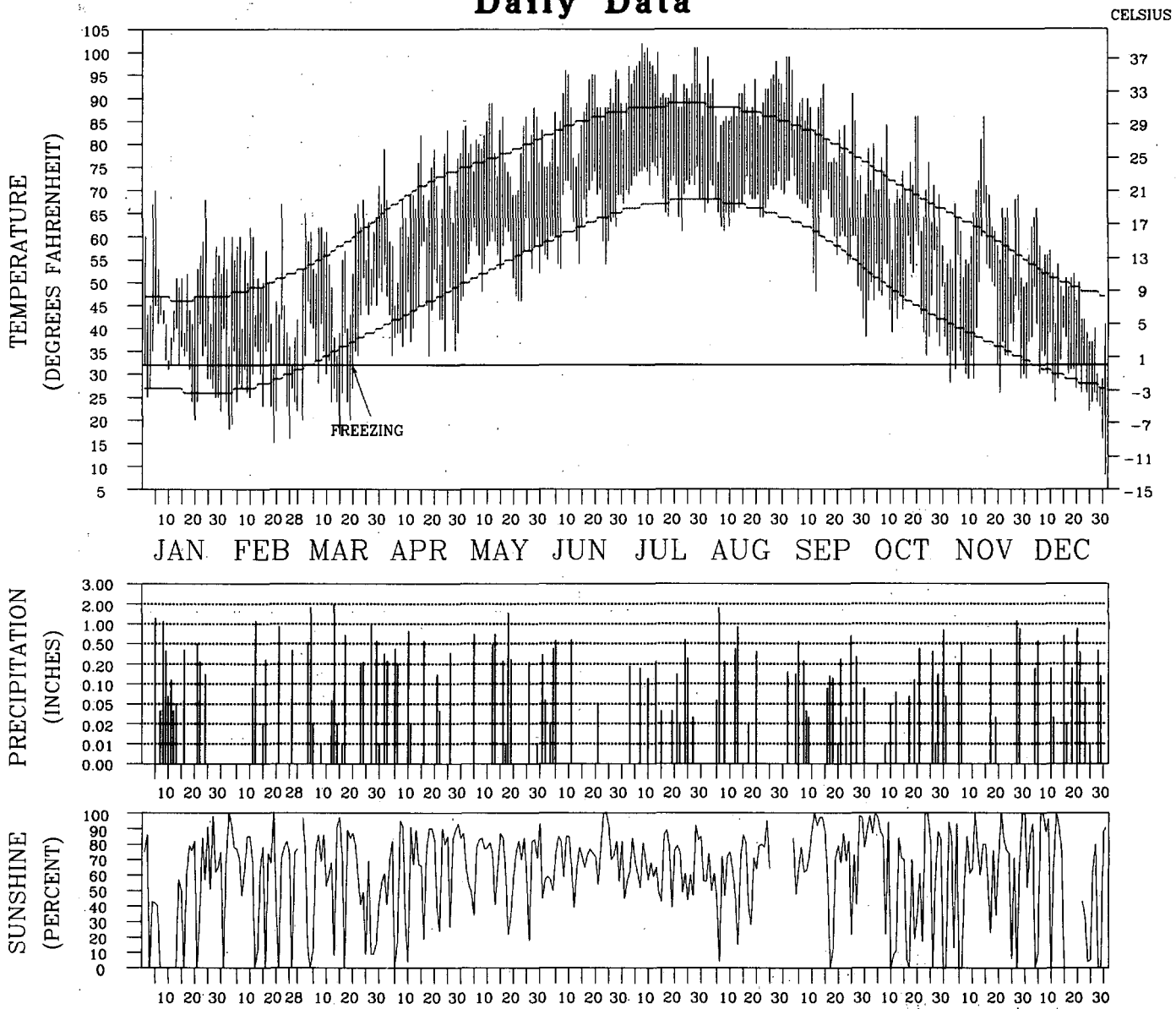
1993 LOCAL CLIMATOLOGICAL DATA

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. Walden
 DIRECTOR NATIONAL CLIMATIC DATA CENTER

METEOROLOGICAL DATA FOR 1993

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	50.3	48.3	56.3	68.0	79.7	86.5	94.0	89.5	83.0	70.3	62.1	47.9	69.7
-Daily Minimum	32.5	27.2	35.4	43.8	55.6	63.5	70.9	67.5	62.0	46.8	39.6	30.1	47.9
-Monthly	41.4	37.8	45.9	55.9	67.7	75.0	82.5	78.5	72.5	58.6	50.9	39.0	58.8
-Monthly Dewpt.	32.0	23.7	35.3	41.3	56.1	62.7	67.9	66.7	62.6	49.6	40.0	30.1	47.3
Extremes													
-Highest	70	67	71	83	89	96	102	99	99	86	86	66	102
-Date	5	22	30	25	12	28	8	2	2	21	15	5	JUL 8
-Lowest	20	15	17	34	46	53	61	61	42	34	26	8	8
-Date	20	19	15	18	23	7	23	8	30	24	21	31	DEC 31
DEGREE DAYS BASE 65 °F:													
Heating	724	757	585	280	24	0	0	0	26	213	436	799	3844
Cooling	0	0	0	14	112	307	547	426	261	20	18	0	1705
% OF POSSIBLE SUNSHINE													
	42	62	53	64	66	72	65		65	56	63		
AVG. SKY COVER (tenths)													
Sunrise - Sunset	7.6	6.0	7.3	6.5	6.0	5.8	5.9	5.4	5.8	6.4	6.6	6.8	6.3
Midnight - Midnight	7.0	5.3	6.7	5.8	5.9	5.4	5.8	5.2	5.7	6.0	5.7	6.1	5.9
NUMBER OF DAYS:													
Sunrise to Sunset													
-Clear	4	7	6	6	8	6	8	9	10	9	7	5	85
-Partly Cloudy	5	10	5	9	11	13	13	13	7	7	5	9	107
-Cloudy	22	11	20	15	12	11	10	9	13	15	18	17	173
Precipitation													
.01 inches or more	12	6	14	10	10	6	11	7	15	11	6	13	121
Snow, Ice pellets, hail													
1.0 inches or more	0	2	1	0	0	0	0	0	0	0	0	2	5
Thunderstorms													
	1	0	1	1	4	4	6	6	4	0	0	0	27
Heavy Fog, visibility													
1/4 mile or less	1	3	1	0	2	1	0	1	3	1	0	0	13
Temperature °F													
-Maximum													
90° and above	0	0	0	0	0	9	26	15	8	0	0	0	58
32° and below	0	2	0	0	0	0	0	0	0	0	0	3	5
-Minimum													
32° and below	16	22	11	0	0	0	0	0	0	0	9	21	79
0° and below	0	0	0	0	0	0	0	0	0	0	0	0	0
AVG. STATION PRESS. (mb)													
	1016.9	1013.2	1011.5	1008.8	1009.8	1010.8	1009.5	1011.2	1011.5	1012.2	1016.3	1011.2	1011.9
RELATIVE HUMIDITY (%)													
Hour 01													
	79	70	82	71	84	85	82	85	88	88	82	81	81
Hour 07													
	83	74	83	75	81	81	78	87	90	91	86	83	83
Hour 13 (Local Time)													
	62	49	57	48	51	48	47	52	55	55	50	59	53
Hour 19													
	72	58	65	53	66	60	60	67	74	77	68	73	66
PRECIPITATION (inches):													
Water Equivalent													
-Total	4.48	2.88	7.24	3.23	4.66	1.75	1.91	3.89	2.97	2.23	3.24	3.77	42.25
-Greatest (24 hrs)	1.32	1.24	2.36	0.83	1.75	1.00	0.60	1.82	0.70	0.85	2.05	1.27	2.36
-Date	5	11-12	3-4	10	18-19	4-5	24-25	6	25	30	27-28	20-21	MAR 3-4
Snow, Ice pellets, hail													
-Total	0.5	5.3	3.5	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	14.4
-Greatest (24 hrs)	0.5	4.0	2.8	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0
-Date	16	26-27	13	6								28-29	DEC 28-29
WIND:													
Resultant													
-Direction (!!!)	334	319	339	229	185	192	155	146	208	318	232	297	247
-Speed (mph)	1.6	3.4	0.8	1.8	2.8	1.2	0.7	1.7	2.0	0.5	1.2	2.6	0.8
Average Speed (mph)	8.5	10.0	9.3	10.5	8.3	7.6	7.1	6.7	8.0	7.3	8.3	8.7	8.4
Fastest Obs. 1 Min.													
-Direction (!!!)	27	17	04	35	34	31	29	26	27	29	15	31	26
-Speed (mph)	29	29	28	25	29	28	23	29	23	23	26	25	29
-Date	24	16	13	26	16	5	7	20	27	21	28	5	AUG 20
Peak Gust													
-Direction (!!!)	W	S	SE	NW	N	NW	NW	W	W	W	SE	NW	SE
-Speed (mph)	38	41	51	36	37	35	36	46	38	36	38	39	51
-Date	24	16	13	26	16	5	7	20	27	21	28	5	MAR 13

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		45.7	49.2	59.5	70.0	77.8	85.1	88.4	87.1	80.9	70.7	61.3	50.2	68.8	
-Daily Minimum		25.7	28.1	36.3	44.6	54.2	62.7	67.5	66.4	59.0	46.5	37.9	29.9	46.6	
-Monthly		35.7	38.7	48.0	57.3	66.0	73.9	78.0	76.8	70.0	58.6	49.6	40.1	57.7	
Extremes															
-Record Highest	64	80	83	93	96	100	104	105	102	103	99	86	80	105	
-Year		1950	1932	1938	1990	1941	1952	1977	1983	1954	1941	1993	1971	JUL 1977	
-Record Lowest	64	-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)		908	736	527	241	61	0	0	0	23	233	462	772	3963	
Cooling (base 65°F)		0	0	0	10	92	270	403	366	173	34	0	0	1348	
% OF POSSIBLE SUNSHINE	43	54	58	62	66	66	70	68	66	64	63	59	54	63	
MEAN SKY COVER (tenths)															
Sunrise - Sunset	48	6.4	6.3	6.2	6.1	6.3	6.0	6.1	6.1	5.8	5.4	5.8	6.2	6.1	
MEAN NUMBER OF DAYS:															
Sunrise to Sunset															
-Clear	48	8.3	8.2	8.2	7.8	7.0	6.8	6.9	7.2	9.2	11.5	9.3	9.4	99.8	
-Partly Cloudy	48	6.7	6.4	8.2	9.2	10.1	11.9	11.6	11.6	8.6	7.3	7.7	6.4	105.8	
-Cloudy	48	16.1	13.6	14.6	13.0	13.9	11.3	12.5	12.2	12.2	12.1	13.0	15.2	159.6	
Precipitation															
.01 inches or more	56	10.3	9.2	10.8	9.4	10.7	9.4	11.1	9.7	8.1	7.3	8.3	9.0	113.3	
Snow, Ice pellets, hail															
1.0 inches or more	56	1.3	1.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	3.8	
Thunderstorms															
Heavy Fog Visibility	56	0.2	0.4	1.6	2.4	5.4	6.7	8.7	6.6	2.9	1.0	0.6	0.3	36.6	
1/4 mile or less	64	2.7	2.0	1.7	1.6	1.9	1.5	2.1	2.5	3.0	3.3	2.2	2.8	27.2	
Temperature °F															
-Maximum															
90° and above	64	0.0	0.0	0.1	0.8	2.7	9.4	14.1	11.0	4.5	0.4	0.0	0.0	42.9	
32° and below	64	3.2	1.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.*	1.7	6.5	
-Minimum															
32° and below	64	21.3	18.8	10.4	2.1	0.1	0.0	0.0	0.0	0.0	1.8	10.0	20.1	84.5	
0° and below	64	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)	21	1012.9	1012.5	1010.8	1009.3	1009.4	1009.5	1010.1	1011.3	1012.4	1013.3	1013.5	1013.7	1011.6	
RELATIVE HUMIDITY (%)															
Hour 01	59	77	74	73	74	83	86	88	90	90	87	80	77	82	
Hour 07 (Local Time)	59	80	79	78	76	80	82	85	89	90	89	84	81	83	
Hour 13 (Local Time)	59	57	53	49	46	51	53	56	57	56	53	51	55	53	
Hour 19	59	68	63	59	55	65	67	71	75	78	76	69	70	68	
PRECIPITATION (inches):															
Water Equivalent															
-Normal		3.24	3.16	3.61	2.96	3.84	3.62	5.03	4.40	3.34	3.53	3.17	3.26	43.16	
-Maximum Monthly	56	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	56	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	56	3.31	2.67	3.43	2.97	3.08	4.61	5.73	8.79	4.02	6.50	4.07	3.16	8.79	
-Year		1962	1979	1992	1987	1981	1963	1969	1955	1985	1961	1956	1958	AUG 1955	
Snow, Ice pellets, hail															
-Maximum Monthly	56	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	56	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)	45	8.1	8.7	9.1	9.0	7.8	7.4	6.9	6.4	6.7	7.0	7.6	7.8	7.7	
Prevailing Direction through 1963		S	NNE	W	S	SSW	S	SSW	S	S	NNE	S	SW	S	
Fastest Obs. 1 Min.															
-Direction (!!!)	8	23	32	27	21	23	30	23	18	36	36	27	21	23	
-Speed (MPH)	8	30	32	41	29	46	32	40	30	37	29	32	32	46	
-Year		1992	1987	1989	1990	1989	1987	1992	1991	1989	1990	1989	1988	MAY 1989	
Peak Gust															
-Direction (!!!)	9	NW	NW	W	N	SW	NW	N	SW	N	N	SW	SW	SW	
-Speed (mph)	9	48	48	67	49	79	53	61	48	49	43	54	49	79	
-Date		1985	1987	1989	1992	1989	1987	1986	1992	1989	1990	1988	1988	MAY 1989	

PRECIPITATION (inches)

RICHMOND, VIRGINIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
1990	2.84	2.38	2.54	2.81	6.85	0.97	6.74	5.76	1.92	3.90	1.70	3.52	41.93
1991	3.62	1.09	5.87	0.87	0.91	6.24	3.47	3.32	2.69	2.50	0.67	4.53	35.78
1992	1.57	2.89	5.87	2.21	4.95	2.28	5.68	6.40	2.35	1.94	2.62	2.79	41.55
1993	4.48	2.88	7.24	3.23	4.66	1.75	1.91	3.89	2.97	2.23	3.24	3.77	42.25
Record Mean	3.13	2.99	3.65	2.96	3.77	3.64	5.35	4.87	3.48	3.29	3.17	3.16	43.47

See Reference Notes on Page 6B.
Page 4A

AVERAGE TEMPERATURE (deg. F)

RICHMOND, VIRGINIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
1990	46.3	48.0	52.1	57.9	65.8	75.0	79.9	76.3	69.5	63.1	52.6	46.3	61.1
1991	40.2	44.0	50.8	60.2	72.1	75.3	80.7	78.6	71.6	59.9	49.6	44.3	60.6
1992	40.7	42.7	47.2	57.8	61.7	70.8	79.5	73.7	70.3	56.3	50.6	40.9	57.7
1993	41.4	37.8	45.9	55.9	67.7	75.0	82.5	78.5	72.5	58.6	50.9	39.0	58.8
Record Mean	37.5	39.5	47.3	57.2	66.3	74.1	78.1	76.5	70.1	58.8	49.1	39.9	57.9
Max	47.3	50.1	58.7	69.6	78.1	85.3	88.4	86.6	80.9	70.6	60.6	50.0	68.9
Min	27.6	28.9	35.9	44.7	54.4	62.9	67.7	66.3	59.3	46.9	37.6	29.8	46.8

See Reference Notes on Page 6B.
Page 4B

HEATING DEGREE DAYS Base 65 deg. F

RICHMOND, VIRGINIA

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
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	4303
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	574	472	436	258	50	3	3519
1990-91	0	0	39	146	365	574	762	582	443	193	27	1	3126
1991-92	0	0	29	190	458	637	749	640	545	261	142	10	3657
1992-93	0	0	37	275	427	739	724	757	585	280	24	0	3848
1993-94	0	0	26	213	436	799							

See Reference Notes on Page 6B.
Page 5A

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
1990	0	1	43	51	81	312	470	356	177	96	6	2	1589
1991	0	0	10	53	254	316	494	428	227	40	3	0	1825
1992	0	0	0	0	48	192	457	275	202	12	3	0	1240
1993	0	0	0	14	112	307	547	426	261	20	18	0	1705

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
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	0.0	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	0.0	T	T	0.2	0.0	0.0	11.2
1990-91	0.0	0.0	0.0	0.0	0.0	T	T	1.9	T	0.0	0.0	0.0	1.9
1991-92	0.0	0.0	0.0	0.0	0.1	T	0.0	0.8	T	T	0.0	0.0	0.9
1992-93	0.0	0.0	0.0	0.0	0.0	0.0	0.5	5.3	3.5	T	0.0	0.0	9.3
1993-94	0.0	0.0	0.0	0.0	0.0	5.1							
Record Mean	0.0	0.0	0.0	T	0.4	2.0	4.9	4.1	2.4	0.1	T	0.0	14.0

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 ASOS - AUTOMATED SURFACE OBSERVING SYSTEM IN OPERATION DURING THESE MONTHS.</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 1961-1990 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. BOLD VALUES INDICATE EXTREME VALUES WHICH OCCURRED AFTER THE ASOS SYSTEM WAS COMMISSIONED.</p> <p>PAGE 4B RECORD = PERIOD OF RECORD RECORD MEAN PRECIPITATION IS THE MEAN OF ALL DAILY PRECIPITATION AMOUNTS DURING THE PERIOD OF RECORD. RECORD MAX(MIN) TEMPERATURE IS THE MEAN OF ALL DAILY MAX(MIN) TEMPERATURES DURING THE PERIOD OF RECORD. RECORD MEAN TEMPERATURE IS THE SUM OF THE RECORD MAX AND RECORD MIN DIVIDED BY 2. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAX AND MIN TEMPERATURE DIVIDED BY 2.</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.

Notice of Correction

Any previously received edition of the "Local Climatological Data Annual Summary for 1993" should be discarded. This revised edition contains updates to the "Normals" based upon the 1961-1990 record period as noted in the "Reference Notes" on Page 6B.

STATION LOCATION

RICHMOND, VIRGINIA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										* Type	REMARKS	
						SEA LEVEL		GROUND										AUGUSTINE OBSERVATION
						GROUND	SEA LEVEL	WIND INSTRUMENTS	EXTREME THERMOMETERS	ALTIMETER	SUNSHINE SWITCH	TIPPING BUCKLE	RAIN GAGE	WINDING RAIN GAGE	8 INCH RAIN GAGE			
CITY - NOTE: For per State Library Building Capitol Square Chamber of Commerce Bldg., Ninth & Main Sts Times Building 10th & Bank Streets Mutual Assurance Bldg. Ninth & Main Streets Weather Bureau Building Chimborazo Park 3301 E Broad Street AIRPORT WB-CAA Building Army Hangar (Operations Annex) Old Airport Administration Bldg. Byrd Field + New Terminal Building + R.E. Byrd International Airport effective 2/18/71 ++ ++ Richmond International Airport effective 9/22/85. Executive Terminal Richmond International Airport														Section Center; no observations. Observational Program begun 10/5/97. 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. 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. AF operation. WBAS reopened. 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 8/28/59. e - 3 feet to 10/8/69. f - Commissioned 11/19/63. g - Installed on roof 1/1/80. h - Minor move 12/2/82. i - Type change 7/9/84. j - ASOS installed 10/1/85. k - Type change 11/12/85. l - Inactive summer 1985 until relocated 12/10/85. m - Not moved 8/19/88, other instruments moved 8/20-31/88.				

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