



AUGUST 2003

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

RICHMOND, VA

RICHMOND INTL AIRPORT (RIC)
 Lat: 37°30' N Long: 77°19' W Elev (Ground): 164 Feet
 Time Zone: EASTERN WBAN: 13740 ISSN #:0198-537X

DATE	TEMPERATURE °F						DEG DAYS BASE 65°		WEATHER	SNOW/ICE ON GND(IN)		PRECIPITATION (INCHES)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES						DATE																											
	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING		0700 LST	1300 LST	2400 LST	2400 LST	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM																														
																			5-SEC		2-MIN																												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
01	85	73	79	1	74	75	0	14	TSRA RA BR HZ			0.0	0.41	29.87	30.05	6.1	18	7.5	18	19	16	15	01																										
02	84	72	78	0	74	75	0	13	TSRA RA BR			0.0	0.03	29.88	30.07	7.5	19	8.2	21	17	17	02																											
03	87	72	80	2	73	75	0	15	RA BR			0.0	T	29.87	30.06	8.5	18	9.3	33	14	28	03																											
04	86	68	77	0	73	75	0	12				0.0	0.00	29.79	29.97	7.6	19	8.1	20	16	16	04																											
05	85	67	76	-1	71	72	0	11	TS TSRA RA FG BR			0.0	0.81	29.70	29.89	6.3	20	7.0	39*	27	31*	05																											
06	85	67	76	-1	70	72	0	11	BR			0.0	0.00	29.70	29.89	2.6	17	3.5	17	15	15	06																											
07	82	71	77	0	73	73	0	12	RA BR			0.0	0.54	29.68	29.86	3.1	04	4.7	18	06	15	07																											
08	83	68	76	-1	72	73	0	11	RA FG+ BR HZ			0.0	0.02	29.73	29.92	3.3	15	4.0	26	14	23	08																											
09	80	71	76	-1	74	74	0	11	TSRA RA BR			0.0	1.20	29.77	29.96	4.4	16	5.0	15	11	14	09																											
10	82	71	77	0	73	74	0	12	RA BR			0.0	T	29.80	29.99	6.2	17	6.7	17	18	16	10																											
11	85	69	77	0	73	74	0	12	RA BR			0.0	T	29.78	29.96	2.9	18	4.0	13	23	10	11																											
12	88	72	80	3	74	75	0	15	TSRA RA BR HZ			0.0	T	29.93	30.12	4.0	16	4.3	22	14	18	12																											
13	88	72	80	4	75	76	0	15	TSRA RA FG BR HZ			0.0	0.09	30.11	30.29	1.4	18	3.8	13	12	31	13																											
14	91	73	82	6	76	77	0	17	BR HZ			0.0	0.00	30.12	30.31	0.2	11	2.4	12	04	10	14																											
15	91	74	83	7	75	77	0	18	RA BR HZ			0.0	T	29.98	30.17	2.7	32	3.5	20	31	17	15																											
16	88	71	80	4	75	76	0	15	TS TSRA RA BR HZ			0.0	0.64	29.74	29.93	4.4	22	6.2	18	21	16	16																											
17	86	71	79	3	73	75	0	14	BR			0.0	0.00	29.70	29.89	1.5	03	4.4	18	02	15	17																											
18	84	71	78	2	72	73	0	13	TS RA BR HZ			0.0	T	29.86	30.05	4.7	06	5.9	22	36	17	18																											
19	85	68	77	1	70	72	0	12	FG+ BR			0.0	0.00	29.99	30.18	3.5	10	5.5	16	10	14	19																											
20	86	66	76	0	71	73	0	11	BR HZ			0.0	0.00	30.00	30.19	3.0	16	3.8	14	18	10	20																											
21	90	70	80	4	73	75	0	15	BR HZ			0.0	0.00	29.90	30.09	6.2	20	6.6	18	25	15	21																											
22	92	72	82	6	76	78	0	17	BR HZ			0.0	0.00	29.75	29.93	5.9	21	6.4	17	21	15	22																											
23	85	66	76	0	69	72	0	11	TS TSRA BR			0.0	0.38	29.80	29.98	6.8	36	7.6	24	01	18	23																											
24	81	63	72*	-4	59	64	0	7				0.0	0.00	29.93	30.12	4.0	03	5.1	16	02	12	24																											
25	88	62*	75	-1	69	71	0	10	BR			0.0	0.00	29.87	30.06	7.0	22	7.8	22	23	18	25																											
26	91	69	80	4	74	76	0	15	BR HZ			0.0	0.00	29.80	29.98	4.2	20	5.0	17	22	15	26																											
27	95*	73	84	9	74	77	0	19	TS TSRA RA BR HZ			0.0	T	29.79	29.97	4.1	26	7.6	26	01	22	27																											
28	91	71	81	6	75	76	0	16	TS TSRA RA FG BR HZ			0.0	0.38	29.91	30.09	3.4	11	4.6	30	23	23	28																											
29	92	72	82	7	77	78	0	17	BR HZ			0.0	0.00	29.91	30.09	7.1	20	7.6	20	22	16	29																											
30	94	74	84*	9	75	77	0	19	TS TSRA RA BR			0.0	0.12	29.94	30.12	6.5	23	8.6	31	32	25	30																											
31	76	70	73	-2	72	72	0	8	RA DZ BR			0.0	0.04	30.07	30.26	4.9	07	6.3	17	05	14	31																											
86.6										70.0		78.3		■ ■		72.7		74.3		0.0		13.5		< MONTHLY AVERAGES		TOTALS-->		0.0		4.66		29.86		30.04		2.0		18		5.8		<-- MONTHLY AVERAGES							
0.9				3.2		2.0		■ ■		<-----DEPARTURE FROM NORMAL----->										0.48		SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																											
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 1.20 DATE :09										SEA LEVEL PRESSURE DATE TIME																													
MONTHLY TOTAL DEPARTURE										SEASON TO DATE TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 0.0 DATE :										MAXIMUM : 30.35 14 0954																			
HEATING: 0 -1 0 -1										GREATEST SNOW DEPTH:										MINIMUM : 29.81 07 1454																													
COOLING: 418 51 1146 -62										NUMBER OF DAYS WITH →										MAXIMUM TEMP ≥ 90: 9										MINIMUM TEMP ≤ 32: 0										PRECIPITATION ≥ 0.01 INCH : 12									
																				MAXIMUM TEMP ≤ 32 : 0										MINIMUM TEMP ≤ 0 : 0										PRECIPITATION ≥ 0.10 INCH : 8									
																				THUNDERSTORMS : 12										HEAVY FOG : 2										SNOWFALL ≥ 1.0 INCH : 0									

AUGUST 2003
RICHMOND, VA

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

RICHMOND, VA

AUGUST 2003

RIC

WBAN # 13740

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note)	2400 LST
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			Water Equiv.
01	0.06												01				0.07	0.03	0.08	0.03	T	0.01	0.08	0.04	0.01	01		0.41
02	T												02					T					0.03			02		0.03
03													03								T			T		03		T
04													04												T	04		0.00
05			T	0.28	T								05										0.52		0.01	05		0.81
06													06													06		0.00
07					T	T	T	0.01	0.05	0.17	0.09	T	07				T			0.22	T					07		0.54
08													08			T		0.02								08		0.02
09													09	0.03		T							0.03			09	0.24	1.20
10													10	T	T											10		T
11													11													11		T
12		T	T										12					T								12		T
13													13				T	.08	0.01							13		0.09
14													14													14		0.00
15													15		T	T										15		T
16						T	0.58	0.03					16								T	0.02	0.01			16		0.64
17													17													17		0.00
18													18													18		T
19													19													19		0.00
20													20													20		0.00
21													21													21		0.00
22	0.05	0.33											22													22		0.00
23													23													23		0.38
24													24													24		0.00
25													25													25		0.00
26													26													26		0.00
27													27													27		T
28			T	T	0.05								28					0.33	T		T			T		28		0.38
29													29													29		0.00
30													30							0.12	T		T			30		0.12
31								T	T	T			31	T	T					0.02	T		T			31		0.04

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.34	.49	.49	.52	.54	.58	.60	.60	.61	.61	.61	.61
Ending Date	05	05	05	05	16	16	16	16	16	16	16	16
Ending Time (Hour/Min)	2114	2116	2116	2125	0641	0655	0700	0730	0730	0730	0730	0730

Date and time are not entered for TRACE amounts.

Note : The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

* = Extreme for the month (last occurrence if more than one)

T = Trace precipitation amount

+ = also occurs on earlier date

FG+ = Heavy fog, visibility .25 miles or less
BLANK entries denote missing or unreported data

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1971–2000

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	SQ Squalls
PR Partial	RA Rain	PY Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	GL Glaze
TS Thunderstorm	SN Snow	VA Volcanic Ash	
VC In the Vicinity	UP Unknown Precipitation		

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

RICHMOND, VA AUGUST 2003

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR–SS), or midnight to midnight (MN–MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0–2 oktas, Partly Cloudy = 3–6 oktas, Cloudy = 7–8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR–SS		MN–MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							2.00	10.00	
02							3.00	10.00	
03							5.00	10.00	
04							7.00	10.00	
05							.50	10.00	
06							3.00	10.00	
07							1.25	10.00	
08							.13	10.00	
09							1.00	10.00	
10							4.00	10.00	
11							1.00	10.00	
12							2.00	9.00	
13							.50	10.00	
14							4.00	9.00	
15							2.50	5.00	
16							1.00	7.00	
17							1.50	9.00	
18							3.00	10.00	
19							.25	10.00	
20							4.00	10.00	
21							1.00	10.00	
22							3.00	7.00	
23							2.00	10.00	
24							10.00	10.00	
25							5.00	10.00	
26							1.75	7.00	
27							4.00	10.00	
28							.50	10.00	
29							1.25	10.00	
30							1.00	10.00	
31							1.25	10.00	
MONTHLY AVGS							3.17	9.45	
SUNSHINE (MINUTES)									
Total: Possible: Percent Possible:									
NUMBER OF DAYS WITH:									
SKY CONDITION									
CLR PTLY CLDY CLOUDY MISSING 31									
MINIMUM VISIBILITY (MILES)									
<=0.25 <=3.0 >=7.0 2 21 3									

OBSERVATIONS AT 3-HOURLY INTERVALS

RICHMOND, VA

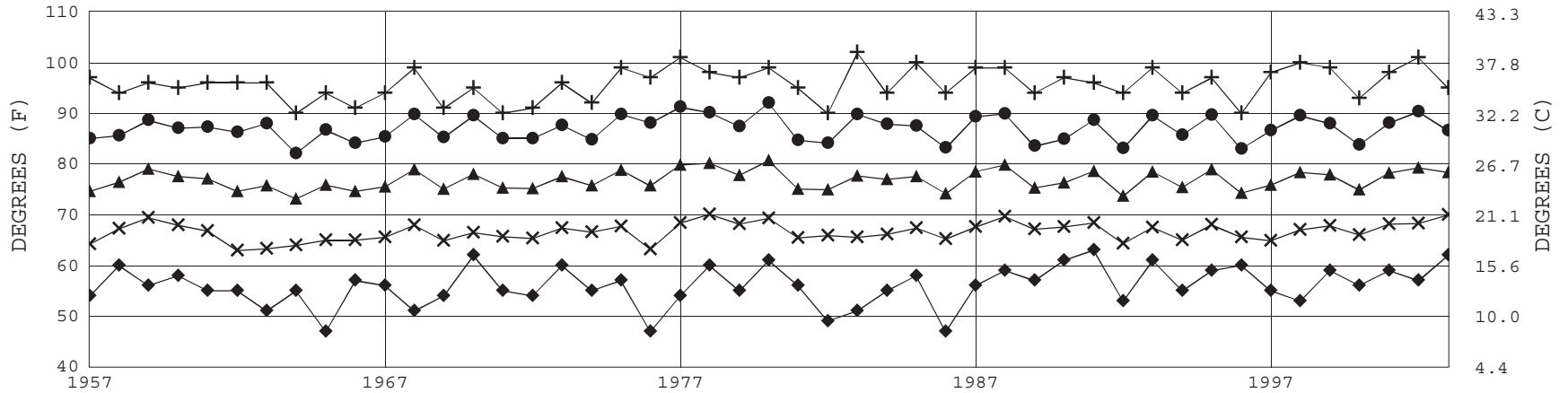
AUGUST 2003

RIC

WBAN # 13740

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)	
	DRY BULB	DEW POINT		WET BULB	RELATIVE HUMIDITY (PCT)			SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)		SPEED (MPH)	DIRECTION TENS OF DEG		STATION	SEA LEVEL										
SUNRISE: 0533								AUG 25								SUNSET: 1849															
01	CLR	NC				10.00		62	61	61	96	0	00	29.92	30.11	01	OVC	035				7.00		74	74	74	100	0	00	30.01	30.19
04	SCT	NC				10.00		64	62	63	93	3	19	29.92	30.11	04	OVC	005				3.00	BR	74	74	74	100	7	03	30.01	30.20
07	FEW	NC				10.00		67	65	66	93	7	20	29.93	30.12	07	OVC	015				4.00	BR	71	71	71	100	10	06	30.07	30.26
10	FEW	NC				10.00		80	69	73	69	13	21	29.90	30.09	10	OVC	010				8.00		71	71	71	100	8	06	30.11	30.30
13	FEW	NC				10.00		87	73	77	63	13	24	29.85	30.04	13	OVC	010				6.00	-DZ BR	72	72	72	100	7	05	30.11	30.30
16	FEW	NC				10.00		87	71	76	59	12	25	29.81	30.00	16	OVC	023				9.00		74	72	73	94	5	VR	30.08	30.27
19	CLR	NC				10.00		82	72	75	72	6	22	29.81	30.00	19	OVC	017				5.00	-RA BR	72	72	72	100	3	09	30.08	30.27
22	CLR	NC				6.00	BR	74	72	73	94	6	22	29.84	30.03	22	OVC	011				8.00		71	71	71	100	5	10	30.07	30.26
SUNRISE: 0534								AUG 26								SUNSET: 1847															
01	CLR	NC				4.00	BR	73	73	73	100	3	20	29.83	30.02	3-HOURLY OBSERVATION NOTES															
04	CLR	NC				3.00	BR	71	71	71	100	0	00	29.82	30.00	Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, VV = Vertical Visibility = 8/8.															
07	CLR	NC				1.75	BR	72	72	72	100	0	00	29.84	30.03	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.															
10	CLR	NC				7.00		85	74	77	70	0	00	29.85	30.03	NC = No ceiling detected.															
13	SCT	NC				5.00	HZ	90	75	79	62	3	VR	29.80	29.98	& = Original observation contained additional weather elements.															
16	FEW	NC				6.00	HZ	90	76	80	63	14	24	29.76	29.95	See page 3 for additional notes.															
19	SCT	NC				4.00	BR	82	78	79	88	7	19	29.73	29.91																
22	CLR	NC				5.00	BR	78	76	77	93	6	16	29.75	29.93																
SUNRISE: 0535								AUG 27								SUNSET: 1846															
01	BKN	200				6.00	BR	78	75	76	90	6	25	29.76	29.94																
04	CLR	NC				7.00		76	74	75	94	9	26	29.73	29.91																
07	CLR	NC				6.00	BR	78	75	76	90	5	25	29.78	29.97																
10	CLR	NC				8.00		91	76	80	61	9	28	29.82	30.01																
13	FEW	NC				7.00		94	75	80	54	6	VR	29.81	30.00																
16	FEW	NC				6.00	HZ	93	75	80	56	12	20	29.74	29.92																
19	BKN	250				8.00		88	77	80	70	8	23	29.76	29.94																
22	OVC	250				10.00	-RA	77	69	72	77	7	08	29.82	30.00																
SUNRISE: 0536								AUG 28								SUNSET: 1844															
01	BKN	250				10.00		74	71	72	91	0	00	29.86	30.04																
04	OVC	060				9.00	-RA	74	73	73	97	0	00	29.87	30.06																
07	CLR	NC				5.00	BR	73	73	73	100	3	05	29.92	30.11																
10	FEW	NC				10.00		84	74	77	72	0	00	29.94	30.13																
13	FEW	NC				7.00		91	79	82	68	6	VR	29.91	30.09																
16	SCT	NC				7.00		88	78	81	73	9	09	29.87	30.06																
19	OVC	130				8.00	-RA	75	74	74	96	7	04	29.89	30.08																
22	OVC	250				5.00	TS BR	75	75	75	100	6	14	29.94	30.13																
SUNRISE: 0537								AUG 29								SUNSET: 1843															
01	OVC	250				6.00	BR	74	74	74	100	0	00	29.92	30.11																
04	OVC	250				4.00	BR	73	73	73	100	3	12	29.92	30.11																
07	SCT	NC				1.75	BR	74	74	74	100	3	19	29.94	30.13																
10	CLR	NC				6.00	HZ	85	78	80	80	6	18	29.95	30.13																
13	SCT	NC				7.00		91	81	83	72	13	21	29.91	30.09																
16	SCT	NC				8.00		92	78	82	64	12	22	29.86	30.04																
19	BKN	250				10.00		84	80	81	88	5	19	29.88	30.07																
22	BKN	250				10.00		82	78	79	88	8	21	29.91	30.10																
SUNRISE: 0538								AUG 30								SUNSET: 1842															
01	BKN	150				7.00		79	75	76	88	8	21	29.92	30.10																
04	BKN	200				10.00		78	75	76	90	10	22	29.92	30.11																
07	BKN	250				10.00		79	75	76	88	13	22	29.94	30.13																
10	SCT	NC				10.00		86	77	80	75	8	24	29.94	30.12																
13	SCT	NC				10.00		92	77	81	62	8	22	29.92	30.11																
16	BKN	250				10.00		92	77	81	62	12	23	29.88	30.07																
19	OVC	090				10.00	TS	74	74	74	100	7	36	29.93	30.12																
22	OVC	065				10.00		74	74	74	100	5	04	30.00	30.19																

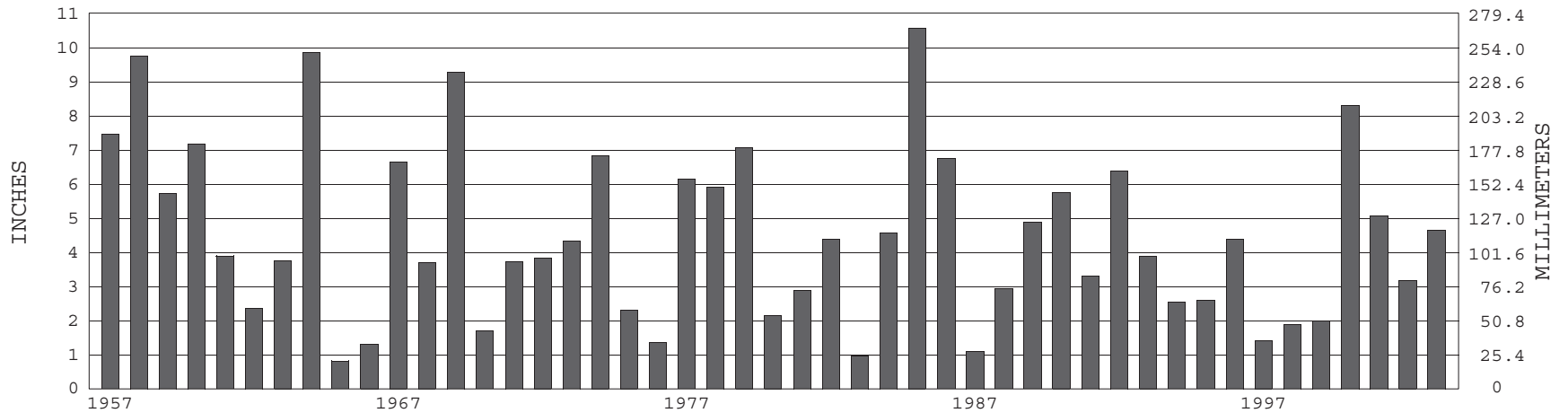
RICHMOND, VA AUGUST TEMPERATURES



+ Extreme Max. ● Mean Max. ▲ Mean × Mean Min. ◆ Extreme Min.

Long-Term (1957-2003) Mean: 76.8 1961-1990 Normal: 76.3

RICHMOND, VA AUGUST PRECIPITATION



Long-Term (1957-2003) Mean Monthly Total: 4.51

1961-1990 Normal: 4.18



AUGUST 2003

RICHMOND, VA

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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