



AUGUST 2001

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

RICHMOND, VA

R.E.BYRD INTERNATIONAL AP. (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	87	59	73	-5	60	65	0	8				0.0	0.00	30.16	30.35	3.4	11	4.2	16	13	12	10	01
02	85	59*	72*	-6	60	65	0	7	BCFG HZ			0.0	0.00	30.11	30.30	5.0	16	5.2	16	16	13	17	02
03	87	63	75	-3	64	68	0	10				0.0	0.00	29.88	30.07	6.1	20	6.3	18	20	15	22	03
04	88	68	78	0	69	71	0	13	BR HZ			0.0	0.00	29.78	29.97	4.6	18	5.0	21	23	18	24	04
05	91	69	80	2	72	74	0	15	BR HZ			0.0	0.00	29.93	30.11	2.2	19	2.9	15	21	13	22	05
06	92	72	82	4	71	75	0	17	BR HZ			0.0	0.00	29.99	30.17	5.8	22	6.5	18	24	14	20	06
07	96	71	84	6	71	75	0	19	BR HZ			0.0	0.00	29.90	30.08	2.0	24	4.4	17	28	12	28	07
08	97	72	85	7	73	77	0	20	BR HZ			0.0	0.00	29.82	30.00	0.8	14	3.2	14	18	12	26	08
09	98	74	86	8	72	76	0	21	BR HZ			0.0	0.00	29.78	29.96	5.3	20	6.0	18	21	14	22	09
10	98*	73	86*	8	75	78	0	21	TS TSRA RA BR HZ			0.0	0.79	29.74	29.92	9.0	20	9.8	21	21	18	21	10
11	84	73	79	1	74	75	0	14	TS TSRA RA BR HZ			0.0	0.31	29.83	30.01	1.7	16	5.0	12	20	9	20	11
12	89	71	80	2	73	74	0	15	TS TSRA RA FG BR			0.0	3.12	29.90	30.08	4.5	21	8.3	31*	36	24*	36	12
13	84	72	78	1	74	75	0	13	TS TSRA RA BR			0.0	0.05	29.81	30.00	5.0	22	6.5	23	25	16	27	13
14	86	70	78	1	72	73	0	13	RA BR HZ			0.0	0.02	29.75	29.93	5.9	02	6.5	20	02	17	02	14
15	87	66	77	0	68	70	0	12	BR HZ			0.0	0.00	29.85	30.03	3.8	06	5.1	14	08	13	04	15
16	86	65	76	-1	69	71	0	11	FG+ BR			0.0	0.00	29.92	30.11	5.6	18	5.8	15	18	14	19	16
17	89	70	80	3	72	74	0	15	RA BR HZ			0.0	T	29.87	30.05	8.7	22	9.4	21	24	17	24	17
18	83	70	77	0	70	72	0	12	RA BR HZ			0.0	0.01	29.81	30.00	1.1	13	5.1	17	18	16	18	18
19	82	71	77	0	73	74	0	12	RA BR HZ			0.0	T	29.73	29.91	6.7	18	7.2	18	19	15	18	19
20	88	72	80	4	69	72	0	15	BR			0.0	0.00	29.76	29.94	6.2	25	7.5	28	25	14	24	20
21	84	66	75	-1	64	68	0	10				0.0	0.00	29.88	30.07	2.2	36	3.9	16	36	12	31	21
22	87	63	75	-1	64	68	0	10	BR			0.0	0.00	29.93	30.12	0.5	03	3.7	18	32	14	32	22
23	89	65	77	1	68	71	0	12	TSRA RA BR			0.0	0.04	29.85	30.04	8.2	22	9.2	26	25	23	25	23
24	83	68	76	0	67	70	0	11	BR			0.0	0.00	29.85	30.03	5.5	36	8.0	21	01	18	01	24
25	83	65	74	-2	66	69	0	9	BR			0.0	0.00	29.93	30.12	4.9	07	5.8	17	06	15	06	25
26	85	61	73	-2	64	67	0	8				0.0	0.00	29.88	30.06	2.3	16	3.6	13	15	10	17	26
27	92	68	80	5	70	72	0	15	TS TSRA RA BR HZ			0.0	0.74	29.74	29.92	3.1	19	6.3	25	32	23	32	27
28	88	69	79	4	71	73	0	14	BR HZ			0.0	0.00	29.76	29.94	3.1	23	4.4	15	24	14	24	28
29	86	69	78	3	71	73	0	13	BR			0.0	0.00	29.83	30.02	3.0	06	4.6	15	02	12	02	29
30	88	71	80	5	73	74	0	15	BR HZ			0.0	0.00	29.84	30.02	5.6	17	6.0	17	17	15	18	30
31	88	69	79	4	71	74	0	14	BR HZ			0.0	0.00	29.73	29.91	8.0	22	8.7	22	23	18	23	31

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88.1	68.2	78.2	■ ■	69.4	72.0	0.0	13.4	< MONTHLY AVERAGES	TOTALS-->	0.0	5.08	29.86	30.04	1.3	23	5.9	<-- MONTHLY AVERAGES						
1.0	1.8	1.4	■ ■	-----DEPARTURE FROM NORMAL-----						0.68	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3												
DEGREE DAYS								GREATEST 24-HR PRECIPITATION: 3.12 DATE: 12				SEA LEVEL PRESSURE				DATE TIME							
MONTHLY TOTAL DEPARTURE				SEASON TO DATE TOTAL DEPARTURE				GREATEST 24-HR SNOWFALL: 0.0 DATE:				MAXIMUM MINIMUM				: 30.39 01 1054							
HEATING: 0 0				: 1159 18				GREATEST SNOW DEPTH:				: 29.83 10 1554				PRECIPITATION ≥ 0.01 INCH : 8							
COOLING: 414 48								NUMBER OF DAYS WITH →				MAXIMUM TEMP ≥ 90: 7				MINIMUM TEMP ≤ 32: 0				PRECIPITATION ≥ 0.10 INCH : 4			
												MAXIMUM TEMP ≤ 32: 0				MINIMUM TEMP ≤ 0: 0				SNOWFALL ≥ 1.0 INCH : 0			
												THUNDERSTORMS : 6				HEAVY FOG : 1							

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

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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			DATE	Water
01													01												01		0.00		
02													02												02		0.00		
03													03												03		0.00		
04													04												04		0.00		
05													05												05		0.00		
06													06												06		0.00		
07													07												07		0.00		
08													08												08		0.00		
09													09												09		0.00		
10													10						0.30	0.45	0.01	T	0.02	10	0.78	0.79			
11	0.01												11	0.08	0.01					0.06	0.01			11	0.29	0.31			
12	T												12		T				0.63	1.18			12	2.16	3.12				
13	T	T											13	0.01	T				T	T			0.16	0.04	13	0.04	0.05		
14													14		T	0.02								14		0.02			
15													15												15		0.00		
16													16												16		0.00		
17													17		T	T									17		T		
18						0.01							18												18	0.01	0.01		
19							T						19												19		T		
20								T					20												20		0.00		
21													21												21		0.00		
22													22												22		0.00		
23													23							0.04		T			23		0.04		
24													24												24		0.00		
25													25												25		0.00		
26													26												26		0.00		
27													27								0.29	0.45	T		27		0.74		
28													28												28		0.00		
29													29												29		0.00		
30													30												30		0.00		
31													31												31		0.00		

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hour/Min)												

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 1961–1990

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

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Ceilorometer (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							10.00	10.00	
02							6.00	10.00	
03							9.00	10.00	
04							4.00	10.00	
05							3.00	7.00	
06							3.00	9.00	
07							4.00	6.00	
08							2.00	7.00	
09							2.00	7.00	
10							1.25	9.00	
11							1.00	9.00	
12							.50	10.00	
13							2.50	10.00	
14							1.00	8.00	
15							2.00	10.00	
16							.00	9.00	
17							4.00	10.00	
18							2.50	10.00	
19							2.00	10.00	
20							3.00	10.00	
21							9.00	10.00	
22							4.00	10.00	
23							5.00	10.00	
24							5.00	10.00	
25							2.00	10.00	
26							7.00	10.00	
27							.75	10.00	
28							1.00	10.00	
29							2.50	9.00	
30							1.75	9.00	
31							4.00	10.00	
MONTHLY AVGS							3.55	9.32	
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									
0 18 4									

OBSERVATIONS AT 3-HOURLY INTERVALS

RICHMOND, VA

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WBAN # 13740

Table with multiple columns: HOUR (LST), SKY COVER, CEILING, OBSERVATION, SATELLITE, WEATHER, TEMPERATURE (DRY BULB, DEW POINT, WET BULB, RELATIVE HUMIDITY), WIND (SPEED, DIRECTION), PRESSURE (STATION, SEA LEVEL), and their counterparts for the second time period.

OBSERVATIONS AT 3-HOURLY INTERVALS

RICHMOND, VA

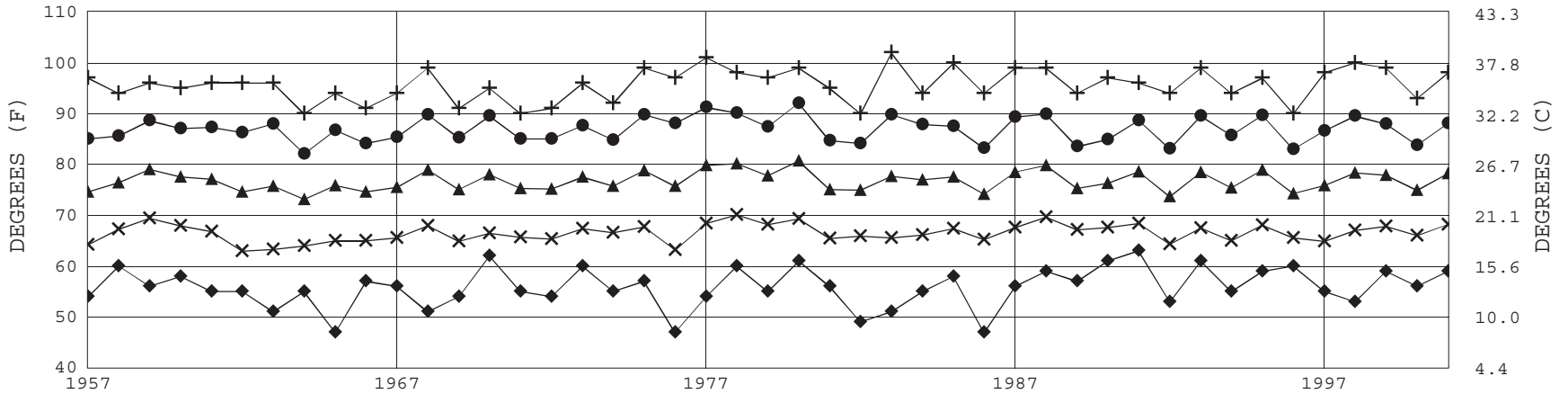
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HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)					
	SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Oktas			DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL		SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Oktas			DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL				
SUNRISE: 0534 AUG 25 SUNSET: 1848															SUNRISE: 0539 AUG 31 SUNSET: 1839																				
01	CLR	NC			4.00	BR		68	66	67	93	6	05	29.88	30.07	01	SCT	NC			9.00					71	68	69	90	8	21	29.81	30.00		
04	CLR	NC			3.00	BR		66	65	65	96	3	35	29.89	30.08	04	BKN	250			7.00						70	68	69	93	0	00	29.77	29.96	
07	FEW	NC			3.00	BR		69	67	68	93	6	36	29.94	30.13	07	OVC	008			4.00	BR					73	71	72	94	7	21	29.78	29.96	
10	SCT	NC			10.00			79	68	72	69	9	07	29.95	30.14	10	SCT	NC			6.00	HZ					79	72	74	79	6	22	29.76	29.95	
13	BKN	060			10.00			80	67	71	64	8	09	29.95	30.14	13	OVC	250			8.00						87	74	78	65	8	23	29.72	29.90	
16	SCT	NC			10.00			82	66	71	58	8	07	29.91	30.10	16	OVC	250			10.00						87	70	75	57	15	22	29.67	29.85	
19	BKN	250			10.00			74	66	69	76	7	10	29.91	30.10	19																			
22	BKN	250			10.00			68	65	66	90	0	00	29.95	30.14	22	BKN	150			10.00							79	74	75	85	12	22	29.69	29.87
SUNRISE: 0535 AUG 26 SUNSET: 1847															3-HOURLY OBSERVATION NOTES																				
01	FEW	NC			10.00			64	63	63	96	0	00	29.94	30.13	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. Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC= No ceiling detected. & = Original observation contained additional weather elements. See page 3 for additional notes.																			
04	SCT	NC			7.00			61	60	60	97	3	34	29.92	30.11																				
07	CLR	NC			10.00			65	62	63	90	0	00	29.93	30.12																				
10	CLR	NC			10.00			77	61	67	58	3	VR	29.94	30.13																				
13	CLR	NC			10.00			83	64	71	53	5	VR	29.89	30.08																				
16	FEW	NC			10.00			84	65	71	53	8	19	29.81	30.00																				
19	CLR	NC			10.00			77	66	70	69	8	14	29.81	30.00																				
22	CLR	NC			10.00			70	67	68	90	5	18	29.81	30.00																				
SUNRISE: 0535 AUG 27 SUNSET: 1845															SUMMARY BY HOUR																				
01	CLR	NC			9.00			70	68	69	93	6	17	29.78	29.97	AVERAGES																			
04	SCT	NC			9.00			68	66	67	93	0	00	29.77	29.96	RESULTANT WIND (MPH)																			
07	CLR	NC			7.00			71	66	68	84	6	19	29.75	29.94	CEILOMETER																			
10	CLR	NC			6.00	HZ		84	71	75	65	10	27	29.75	29.94	EFF CLD AMT																			
13	FEW	NC			5.00	HZ		90	73	78	58	7	VR	29.71	29.89	DRY BULB																			
16	BKN	150			10.00	TS		78	70	73	76	10	06	29.69	29.88	DEW POINT																			
19	SCT	NC			8.00			76	73	74	91	6	13	29.70	29.88	WET BULB																			
22	OVC	050			7.00	-TSRA		71	70	70	96	7	11	29.72	29.91	RELATIVE HUMIDITY																			
SUNRISE: 0536 AUG 28 SUNSET: 1844															STATION																				
01	OVC	150			6.00	BR		70	70	70	100	0	00	29.73	29.91	SEA LEVEL																			
04	BKN	250			4.00	BR		69	69	69	100	5	13	29.73	29.92	VISIBILITY (MILES)																			
07	OVC	150			1.50	BR		72	70	71	94	6	24	29.76	29.95	WIND SPEED (MPH)																			
10	BKN	150			3.00	BR		78	72	74	82	0	00	29.78	29.97	SPEED																			
13	BKN	200			4.00	HZ		85	71	75	63	6	VR	29.75	29.94	DIRECTION																			
16	BKN	250			10.00			86	70	75	59	9	23	29.71	29.90																				
19	SCT	NC			8.00			79	73	75	82	6	19	29.76	29.95																				
22	BKN	250			6.00	BR		77	73	74	88	6	25	29.78	29.97																				
SUNRISE: 0537 AUG 29 SUNSET: 1842																																			
01	OVC	250			4.00	BR		73	72	72	96	3	18	29.78	29.97																				
04	SCT	NC			3.00	BR		70	69	69	97	5	35	29.78	29.97																				
07	BKN	250			7.00			73	68	70	84	9	02	29.83	30.02																				
10	SCT	NC			9.00			80	70	73	71	7	08	29.87	30.06																				
13	FEW	NC			9.00			85	72	76	65	0	00	29.84	30.03																				
16	SCT	NC			8.00			85	72	76	65	6	06	29.82	30.00																				
19	SCT	NC			7.00			78	72	74	82	5	09	29.83	30.02																				
22	SCT	NC			4.00	BR		74	72	73	94	6	12	29.86	30.05																				
SUNRISE: 0538 AUG 30 SUNSET: 1841																																			
01	SCT	NC			2.00	BR		72	72	72	100	3	14	29.84	30.03																				
04	BKN	250			2.50	BR		72	71	71	97	3	15	29.83	30.02																				
07	BKN	250			2.00	BR		73	72	72	96	3	VR	29.87	30.06																				
10	OVC	250			7.00			81	74	76	79	3	20	29.87	30.06																				
13	SCT	NC			8.00			86	73	77	65	9	14	29.84	30.02																				
16	OVC	200			7.00			84	73	76	70	13	16	29.79	29.98																				
19	OVC	200			8.00			78	74	75	87	3	16	29.81	30.00																				
22	OVC	200			6.00	BR		74	70	71	88	6	19	29.81	30.00																				

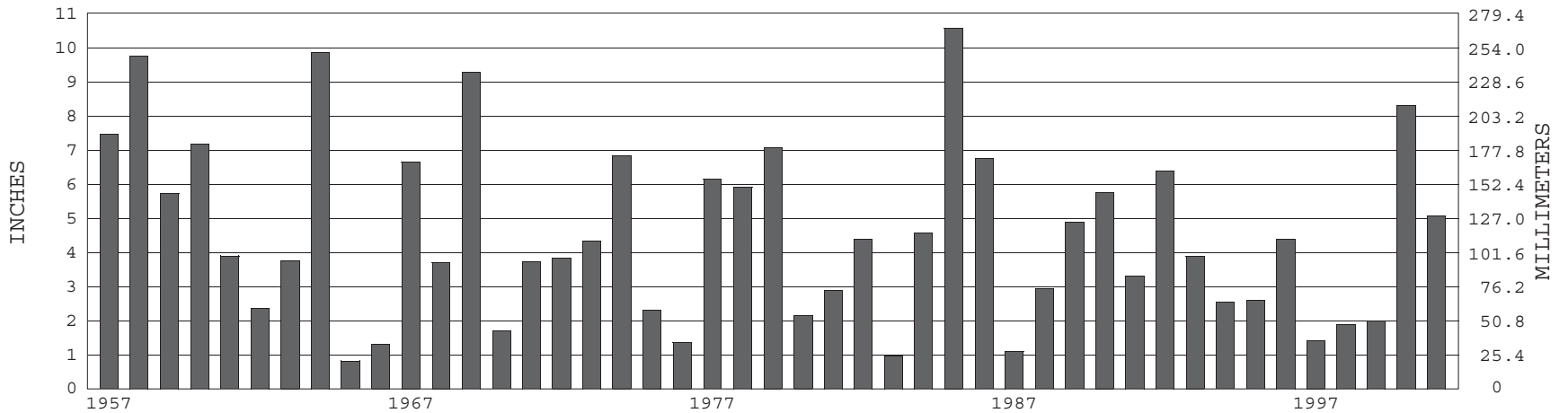
RICHMOND, VA AUGUST TEMPERATURES



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

Long-Term (1957-2001) Mean: 76.7 1961-1990 Normal: 76.8

RICHMOND, VA AUGUST PRECIPITATION



Long-Term (1957-2001) Mean Monthly Total: 4.53

1961-1990 Normal: 4.40



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LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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