



# JULY 2005

## 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

JULY 2005  
RICHMOND, VA

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																												
																			SPEED	DIR	SPEED	DIR																											
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	98	73	86	9	68	73	0	21	BR HZ			0.0	0.00	29.59	29.77	4.3	25	5.2	17	24	14	24	01																										
02	89	73	81	4	68	73	0	16	BR HZ			0.0	0.00	29.67	29.85	5.5	03	7.1	20	02	15	04	02																										
03	89	69	79	2	65	70	0	14	FG+ BR			0.0	0.00	29.87	30.06	6.4	10	7.4	20	11	16	12	03																										
04	91	66	79	2	65	70	0	14				0.0	0.00	29.94	30.12	3.7	14	4.4	16	14	14	14	04																										
05	89	70	80	3	73	74	0	15	RA BR HZ VCTS			0.0	0.19	29.80	29.98	4.8	15	6.0	24	18	21	17	05																										
06	90	72	81	4	70	74	0	16	BR HZ			0.0	0.00	29.75	29.94	4.4	01	5.2	20	36	16	01	06																										
07	84	72	78	1	71	73	0	13	TSRA RA BR HZ			0.0	1.67	29.81	30.00	5.0	08	6.2	35*	21	28*	20	07																										
08	85	69	77	0	68	71	0	12	TSRA RA FG+ BR			0.0	1.41	29.77	29.95	3.8	27	8.9	32	24	25	24	08																										
09	92	66	79	2	65	70	0	14	BR HZ			0.0	0.00	29.89	30.07	2.0	26	3.6	16	32	14	26	09																										
10	91	69	80	2	67	71	0	15	BR HZ			0.0	0.00	29.94	30.12	2.6	06	3.7	13	02	12	01	10																										
11	93	71	82	4	72	75	0	17	BR HZ			0.0	0.00	29.91	30.09	3.8	24	4.1	16	26	14	25	11																										
12	93	74	84	6	75	77	0	19				0.0	0.00	29.86	30.04	5.5	23	6.3	18	21	16	21	12																										
13	93	73	83	5	74	76	0	18	TS TSRA RA FG BR HZ			0.0	1.23	29.78	29.96	3.4	15	4.8	27	12	17	12	13																										
14	87	75	81	3	74	75	0	16	RA BR HZ			0.0	T	29.78		3.7	17	4.4	15	17	13	17	14																										
15	90	74	82	4	75	76	0	17	TS TSRA RA FG+ BR HZ			0.0	1.41	29.83	30.02	1.9	17	4.2	18	18	16	18	15																										
16	93	74	84	6	76	78	0	19	TS RA BR			0.0	T	29.88	30.06	4.3	19	4.9	24	19	21	19	16																										
17	94	76	85	7	76	78	0	20	TS TSRA RA BR			0.0	0.01	29.86	30.04	5.2	22	6.2	18	24	15	23	17																										
18	94	77	86	7	75	78	0	21	BR			0.0	0.00	29.84	30.02	5.1	23	6.8	17	24	15	24	18																										
19	97	76	87	8	75	78	0	22	TS RA			0.0	0.02	29.82	30.00	5.6	25	7.6	25	33	21	33	19																										
20	93	75	84	5	74	77	0	19	BR			0.0	0.00	29.86	30.04	2.8	01	5.0	15	35	12	34	20																										
21	95	75	85	6	75	77	0	20	TS TSRA RA BR HZ			0.0	0.21	29.82	30.00	1.0	27	4.2	31	33	26	34	21																										
22	92	74	83	4	75	77	0	18	TSRA FG BR HZ			0.0	2.03	29.78	29.96	2.0	36	4.3	23	26	17	25	22																										
23	90	72	81	2	70	74	0	16	BR HZ			0.0	0.00	29.84	30.03	7.5	01	7.8	22	01	16	03	23																										
24	88	66*	77	-1	63	68	0	12				0.0	0.00	29.91	30.09	1.8	05	4.3	13	03	10	02	24																										
25	97	72	85	7	72	75	0	20	TS TSRA RA BR HZ			0.0	0.23	29.77	29.95	3.5	20	5.7	26	36	23	36	25																										
26	97	75	86	8	75	78	0	21	BR HZ			0.0	0.00	29.72	29.90	1.3	05	3.2	14	01	12	01	26																										
27	100*	78	89*	11	72	77	0	24	RA BR HZ			0.0	T	29.68	29.86	4.3	29	6.5	31	33	25	34	27																										
28	84	74	79	1	70	73	0	14	RA			0.0	T	29.85	30.03	5.5	03	6.4	20	02	13	02	28																										
29	83	71	77	-1	72	73	0	12	TSRA RA BR HZ			0.0	0.49	29.95	30.14	4.2	20	5.7	25	27	20	27	29																										
30	84	73	79	1	72	74	0	14	TSRA RA BR HZ			0.0	0.37	30.00	30.19	0.9	07	2.4	20	03	17	03	30																										
31	81	73	77*	-1	68	71	0	12	RA BR			0.0	0.01	29.99	30.18	3.8	06	4.5	13	02	12	02	31																										
90.8											72.5	81.7	■ ■	71.3	74.3	0.0	16.8	< MONTHLY AVERAGES		TOTALS-->		0.0	9.28	29.83		0.5	27	5.4	<- MONTHLY AVERAGES																				
3.3											4.2	3.8	■ ■	<-----DEPARTURE FROM NORMAL----->										4.61	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																								
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 3.08 DATE :07-08										SEA LEVEL PRESSURE DATE TIME																													
MONTHLY TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 0.0 DATE :										MAXIMUM : 30.22 31 0754																													
SEASON TO DATE TOTAL DEPARTURE										GREATEST SNOW DEPTH: DATE :										MINIMUM : 29.70 01 1754																													
HEATING: 0 0 0 0										NUMBER OF DAYS WITH →										MAXIMUM TEMP ≥ 90: 20										MINIMUM TEMP ≤ 32: 0										PRECIPITATION ≥ 0.01 INCH : 13									
COOLING: 521 106																				MAXIMUM TEMP ≤ 32 : 0										MINIMUM TEMP ≤ 0 : 0										PRECIPITATION ≥ 0.10 INCH : 10									
																				THUNDERSTORMS : 12										HEAVY FOG : 3										SNOWFALL ≥ 1.0 INCH : 0									

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## RICHMOND, VA

JULY 2005

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													01												01		0.00		
02													02												02		0.00		
03													03												03		0.00		
04													04												04		0.00		
05													05	0.03	T	0.08	0.08		T						05		0.19		
06													06												06		0.00		
07													07							0.02	0.04	0.33	0.33	0.76	0.19	07	1.67		
08	1.41	T											08												08		1.41		
09													09												09		0.00		
10													10												10		0.00		
11													11												11		0.00		
12													12												12		0.00		
13													13				T	0.33	.89	0.01					13		1.23		
14													14											T	14		T		
15					0.02								15					1.32	0.07	T					15		1.41		
16													16												16		T		
17													17												17		0.01		
18													18												18		0.00		
19													19							T					19		0.02		
20													20								0.02				20		0.00		
21													21								0.21				21		0.21		
22			0.84	0.92	0.27	T	T	T					22												22		2.03		
23													23												23		0.00		
24													24												24		0.00		
25			T	T									25												25		0.23		
26													26												26		0.00		
27													27												27		T		
28													28												28		T		
29			0.41	0.06	0.02	T							29												29		0.49		
30													30												30		0.37		
31													31												31		0.01		

### MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.29	.54	.71	.90	1.06	1.28	1.48	1.67	1.97	2.02	2.03	2.03
Ending Date	15	15	15	15	15	22	22	22	22	22	22	22
Ending Time (Hour/Min)	1622	1623	1622	1626	1633	0210	0225	0245	0305	0320	0328	0328

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 JULY 2005

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							.75	10.00	
04							7.00	10.00	
05							1.25	10.00	
06							1.50	10.00	
07							2.00	5.00	
08							2.00	10.00	
09							4.00	10.00	
10							3.00	10.00	
11							2.00	10.00	
12							7.00	10.00	
13							.25	10.00	
14							1.00	10.00	
15							2.50	10.00	
16							4.00	10.00	
17							5.00	10.00	
18							5.00	10.00	
19							7.00	10.00	
20							6.00	10.00	
21							2.50	10.00	
22							.50	10.00	
23							3.00	10.00	
24							10.00	10.00	
25							2.50	10.00	
26							3.00	10.00	
27							3.00	10.00	
28							10.00	10.00	
29							2.00	10.00	
30							2.50	10.00	
31							2.00	10.00	
<b>MONTHLY AVGS</b>							3.46	9.81	
<b>SUNSHINE (MINUTES)</b>									
Total:      Possible:      Percent Possible:									
<b>NUMBER OF DAYS WITH:</b>									
<b>SKY CONDITION</b>									
CLR   PTLY CLDY   CLOUDY   MISSING									
31									
<b>MINIMUM VISIBILITY (MILES)</b>									
<=0.25   <=3.0   >=7.0									
1                      21                      5									





# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

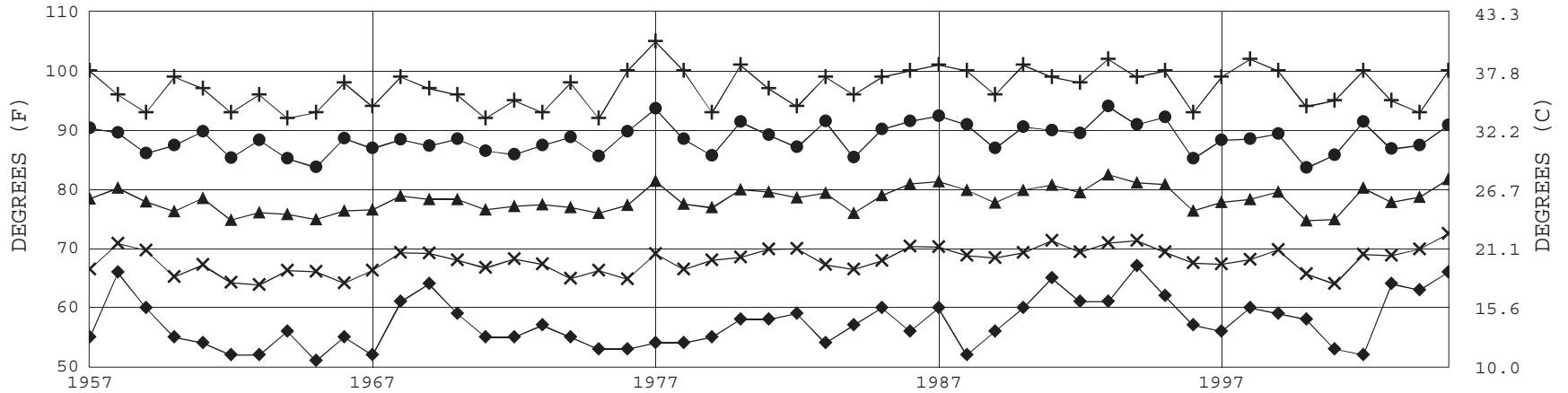
JULY 2005

RIC

WBAN # 13740

HOUR (LST)	SATELLITE		WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)				
	SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG		STATION	SEA LEVEL		OBSERVATION TIME (LST)	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL	
SUNRISE: 0508 JUL 25 SUNSET: 1924												SUNRISE: 0513 JUL 31 SUNSET: 1919														
01	BKN	120		10.00	74	66	69	76	8	18	29.85	30.04	01	OVC	200		3.00	BR	74	72	73	94	3	01	30.00	30.19
04	BKN	100		10.00	73	64	67	74	8	20	29.83	30.02	04	OVC	002		3.00	BR	74	73	73	97	7	04	29.98	30.17
07	OVC	090		10.00	73	67	69	81	5	18	29.83	30.02	07	OVC	004		6.00	BR	74	73	73	97	6	05	30.02	30.20
10	SCT	NC		9.00	83	72	75	70	8	21	29.77	29.96	10	OVC	014		10.00		76	72	73	87	8	04	30.02	30.21
13	CLR	NC		7.00	92	74	79	56	3	23	29.74	29.93	13	OVC	180		10.00		80	72	75	76	6	09	30.00	30.19
16	FEW	NC		7.00	96	74	80	49	0	00	29.69	29.88	16	OVC	180		10.00		80	71	74	74	6	08	29.98	30.17
19	CLR	NC		6.00	92	76	80	60	5	25	29.70	29.88	19	OVC	150		10.00		77	54	63	45	0	00	29.96	30.15
22	BKN	060		10.00	77	73	74	88	6	09	29.72	29.91	22	BKN	250		9.00		73	65	68	76	0	00	29.97	30.16
SUNRISE: 0509 JUL 26 SUNSET: 1923												3-HOURLY OBSERVATION NOTES														
01	SCT	NC		6.00	76	74	75	94	0	00	29.71	29.90	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.													
04	BKN	200		6.00	77	73	74	88	0	00	29.73	29.92	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.													
07	SCT	NC		7.00	81	72	75	74	6	34	29.75	29.94	NC = No ceiling detected.													
10	CLR	NC		9.00	89	73	78	59	6	34	29.76	29.95	& = Original observation contained additional weather elements.													
13	CLR	NC		6.00	95	75	80	53	6	35	29.74	29.92	See page 3 for additional notes.													
16	FEW	NC		7.00	96	77	82	54	5	10	29.69	29.88														
19	CLR	NC		5.00	90	78	81	68	3	15	29.67	29.85														
22	CLR	NC		5.00	84	77	79	80	0	00	29.70	29.89														
SUNRISE: 0509 JUL 27 SUNSET: 1922												SUMMARY BY HOUR														
01	CLR	NC		3.00	82	77	78	85	0	00	29.69	29.88	AVERAGES													
04	CLR	NC		4.00	80	75	77	85	0	00	29.68	29.86	RESULTANT WIND (MPH)													
07	CLR	NC		4.00	83	76	78	79	0	00	29.69	29.88	HOUR (LST)													
10	CLR	NC		8.00	95	74	80	51	9	28	29.68	29.87	CEILOMETER													
13	FEW	NC		10.00	99	71	79	41	12	31	29.65	29.84	EFF CLD AMT													
16	FEW	NC		9.00	99	70	78	39	12	31	29.62	29.80	DRY BULB													
19	FEW	NC		7.00	95	73	79	49	8	29	29.65	29.84	DEW POINT													
22	OVC	140		10.00	82	67	72	60	9	32	29.72	29.90	WET BULB													
SUNRISE: 0510 JUL 28 SUNSET: 1922												PRESSURE (INCHES, HG)														
01	SCT	NC		10.00	77	70	72	79	9	36	29.74	29.93	STATION													
04	FEW	NC		10.00	75	70	72	84	9	01	29.77	29.96	SEA LEVEL													
07	OVC	010		10.00	76	71	73	85	12	04	29.82	30.01	VISIBILITY (MILES)													
10	OVC	200		10.00	82	68	73	63	12	08	29.87	30.06	WIND SPEED (MPH)													
13	OVC	120		10.00	84	69	74	61	5	VR	29.88	30.06	SPEED													
16	OVC	150		10.00	83	70	74	65	6	03	29.85	30.04	DIRECTION													
19	BKN	150		10.00	79	70	73	74	6	13	29.86	30.05														
22	OVC	150		10.00	75	70	72	84	0	00	29.90	30.08														
SUNRISE: 0511 JUL 29 SUNSET: 1921																										
01	OVC	030		10.00	75	69	71	82	17	26	29.95	30.14														
04	OVC	150		7.00	72	70	71	94	0	00	29.93	30.11														
07	OVC	005		2.00	72	71	71	97	9	14	29.94	30.12														
10	OVC	150		10.00	79	72	74	79	9	18	29.97	30.16														
13	OVC	150		10.00	80	72	75	76	7	18	29.97	30.16														
16	OVC	070		10.00	82	72	75	72	6	21	29.93	30.12														
19	OVC	150		8.00	77	72	74	85	0	00	29.95	30.14														
22	OVC	013		7.00	75	73	74	94	7	17	29.97	30.15														
SUNRISE: 0512 JUL 30 SUNSET: 1920																										
01	OVC	050		9.00	75	71	72	88	3	28	29.97	30.16														
04	OVC	120		6.00	73	71	72	94	0	00	29.95	30.14														
07	OVC	150		3.00	74	72	73	94	3	20	30.01	30.19														
10	OVC	150		10.00	79	70	73	74	0	00	30.03	30.22														
13	OVC	150		8.00	82	72	75	72	3	VR	30.01	30.19														
16	OVC	150		6.00	79	73	75	82	8	07	29.99	30.18														
19	OVC	140		3.00	77	74	75	90	0	00	29.99	30.18														
22	OVC	250		3.00	75	73	74	94	0	00	30.00	30.19														

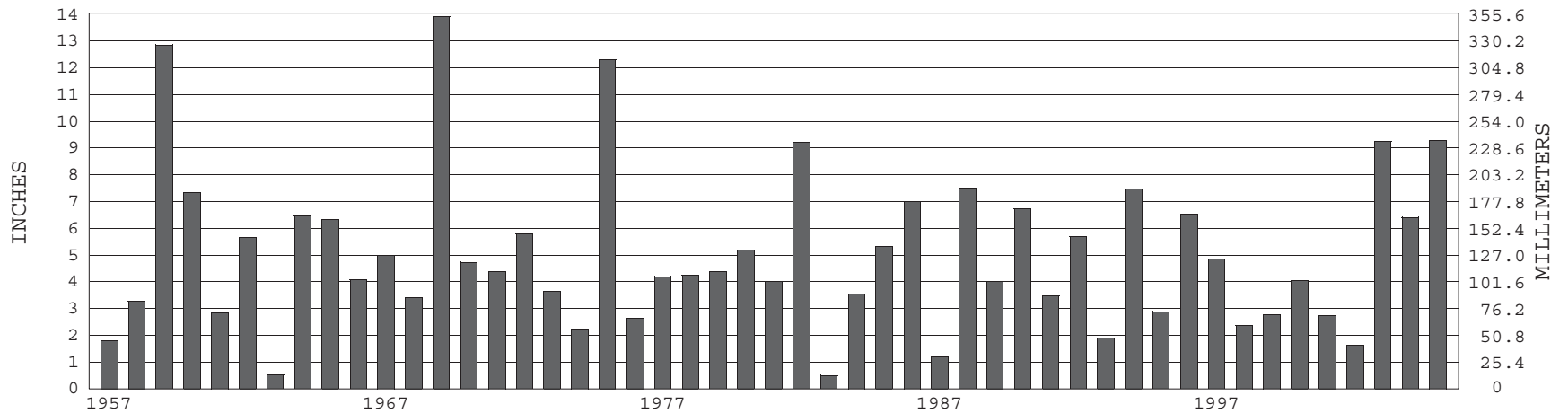
### RICHMOND, VA JULY TEMPERATURES



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

Long-Term (1957-2005) Mean: 78.3      1971-2000 Normal: 77.9

### RICHMOND, VA JULY PRECIPITATION



Long-Term (1957-2005) Mean Monthly Total: 5.05

1971-2000 Normal: 4.67



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RICHMOND, VA

# LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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