



# MAY 2003

## 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	82	60	71	10	62	65	0	6	TSRA RA BR HZ			0.0	0.31	29.83	30.01	7.4	19	9.0	22	18	18	18	01																										
02	81	60	71	10	63	66	0	6	TSRA RA BR			0.0	0.06	29.61	29.79	1.6	21	4.9	16	31	14	31	02																										
03	67	51	59	-2	53	55	6	0	RA			0.0	0.10	29.82	30.01	7.7	06	9.6	22	02	18	02	03																										
04	64	45	55	-6	42	49	10	0	RA			0.0	0.01	29.96	30.15	6.0	05	7.4	21	03	17	03	04																										
05	56	42*	49*	-12	48	50	16	0	RA BR			0.0	0.17	29.92	30.11	3.1	17	4.6	15	14	14	13	05																										
06	77	55	66	4	61	62	0	1	RA BR			0.0	0.01	29.76	29.94	2.6	23	4.5	16	28	13	26	06																										
07	83	57	70	7	64	66	0	5	RA FG+ BR			0.0	0.01	29.73	29.91	4.4	21	6.4	18	23	16	23	07																										
08	85*	60	73	10	64	66	0	8	TS TSRA RA BR			0.0	0.34	29.74	29.93	2.3	29	6.0	40*	01	35*	36	08																										
09	80	58	69	6	65	66	0	4	TS TSRA RA FG+ BR HZ			0.0	0.05	29.75	29.94	2.3	11	5.4	23	14	20	15	09																										
10	74	63	69	5	66	67	0	4	TSRA RA FG+ BR HZ			0.0	0.15	29.73	29.91	1.8	17	4.2	23	34	21	34	10																										
11	84	62	73*	9	68	70	0	8	FG+ BR			0.0	0.00	29.52	29.70	10.6	22	11.2	37	24	26	23	11																										
12	77	63	70	6	47	57	0	5				0.0	0.00	29.53	29.71	15.0	27	15.7	37	27	28	29	12																										
13	74	52	63	-1	39	52	2	0				0.0	0.00	29.66	29.85	11.4	28	12.6	35	27	28	27	13																										
14	77	46	62	-3	44	53	3	0				0.0	0.00	29.77	29.96	1.9	25	5.5	20	29	15	31	14																										
15	79	53	66	1	56	60	0	1	RA BR			0.0	0.18	29.81	29.99	6.9	16	7.7	28	20	21	20	15																										
16	76	56	66	1	60	61	0	1	RA DZ BR HZ			0.0	0.01	29.89	30.08	5.2	03	8.2	22	01	18	02	16																										
17	56	52	54	-11	53	53	11	0	RA DZ BR			0.0	0.31	30.10	30.29	8.5	05	8.8	20	06	16	05	17																										
18	54	50	52	-14	52	52	13	0	RA DZ BR			0.0	1.05	30.11	30.30	6.3	06	6.5	15	05	13	05	18																										
19	71	49	60	-6	52	55	5	0	BR			0.0	0.00	30.11	30.30	7.1	04	7.8	21	06	16	06	19																										
20	75	47	61	-5	50	56	4	0				0.0	0.00	30.06	30.25	2.8	13	5.3	15	15	13	15	20																										
21	70	56	63	-4	59	60	2	0	RA BR			0.0	0.92	29.95	30.13	2.0	36	8.3	20	02	17	02	21																										
22	60	55	58	-9	57	57	7	0	RA BR			0.0	0.10	29.99	30.18	5.9	04	6.6	16	02	12	07	22																										
23	60	57	59	-9	58	58	6	0	RA DZ FG+ BR			0.0	0.32	29.89	30.08	7.6	05	7.8	15	07	13	06	23																										
24	67	57	62	-7	59	60	3	0	RA DZ BR			0.0	0.05	29.78	29.97	0.9	03	4.1	13	01	10	36	24																										
25	72	57	65	-4	62	63	0	0	TSRA RA FG+ BR			0.0	1.65	29.78	29.96	5.9	13	6.5	16	11	13	09	25																										
26	75	61	68	-1	62	64	0	3	TSRA RA BR			0.0	1.76	29.73	29.91	4.5	01	6.0	26	30	22	31	26																										
27	66	57	62	-7	59	59	3	0	RA BR			0.0	0.19	29.83	30.01	3.9	06	5.7	17	01	15	01	27																										
28	71	53	62	-7	56	58	3	0	RA FG+ BR			0.0	T	29.69	29.88	3.9	24	6.4	26	01	18	01	28																										
29	68	53	61	-9	58	59	4	0	RA FG BR			0.0	0.23	29.51	29.69	1.2	29	3.6	17	26	14	28	29																										
30	80	52	66	-4	57	61	0	1	FG+ BR			0.0	0.00	29.50	29.69	3.2	25	6.2	17	22	16	24	30																										
31	76	60	68	-2	60	62	0	3	TSRA RA FG BR HZ			0.0	0.61	29.36	29.54	8.3	21	10.4	31	21	26	19	31																										
72.2										54.8		63.5		■ ■		56.7		59.4		3.2		1.8		< MONTHLY AVERAGES		TOTALS-->		0.0		8.59		29.79		29.97		0.4		20		7.2		<- MONTHLY AVERAGES							
-4.0				0.2		-1.9		■ ■		<-----DEPARTURE FROM NORMAL----->										4.63		SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																											
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 3.40 DATE :25-26										SEA LEVEL PRESSURE DATE TIME																													
MONTHLY TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 0.0 DATE :										MAXIMUM : 30.33 19 0754																													
SEASON TO DATE TOTAL DEPARTURE										GREATEST SNOW DEPTH:										MINIMUM : 29.41 31 2054																													
HEATING: 98 18 4112 201										NUMBER OF DAYS WITH →										MAXIMUM TEMP ≥ 90: 0										MINIMUM TEMP ≤ 32: 0										PRECIPITATION ≥ 0.01 INCH : 23									
COOLING: 56 -51 76 -73																				MAXIMUM TEMP ≤ 32 : 0										MINIMUM TEMP ≤ 0 : 0										PRECIPITATION ≥ 0.10 INCH : 16									
																				THUNDERSTORMS : 8										HEAVY FOG : 8										SNOWFALL ≥ 1.0 INCH : 0									

MAY 2003 RICHMOND, VA

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## RICHMOND, VA

MAY 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	0.24	0.07	T										01												01		0.31		
02													02												02		0.06		
03	T		T	0.01	0.09	T	T						03											0.04	0.02	03		0.10	
04		0.01	T	T	T								04											T	T	04		0.01	
05									0.02	T	T	0.01	05	T	T	T	0.01	T	T	0.02	0.10	0.01				05		0.17	
06													06														06		0.01
07			T					T					07														07		0.01
08	T	0.04	T										08				0.29							T	0.01	08		0.34	
09						T	T						09			0.02	0.01	0.02	T							09	0.33	0.05	
10									0.08	0.01	0.01	T	10				T	0.04	0.01	T						10		0.15	
11													11														11		0.00
12													12														12		0.00
13													13														13		0.00
14													14														14		0.00
15													15						T	T	T	0.11	0.06	0.01		15		0.18	
16			T	0.01									16						T		T					16		0.01	
17	T	T	T	T	0.01	T	T	T	T	T	T	T	17	T	0.02	0.03	0.03	0.05	0.03	T	0.04	0.03	0.04	0.01	0.02	17		0.31	
18	T	0.03	0.02	0.03	0.04	0.11	0.09	0.10	0.06	0.08	0.08	0.11	18	0.10	0.02	T	T	0.01	0.05	0.04	0.03	0.01	0.01	0.02	0.01	18		1.05	
19													19														19		0.00
20													20														20		0.00
21													21	0.02	0.04	0.06	0.19	0.08	0.13	0.15	0.12	0.05	0.04	0.03	0.01	21		0.92	
22	0.01	0.02	T	T		T	T	0.05	0.05	0.01	T	0.02	22	0.01	T	0.01	T	T	0.02	0.01	T	T		0.01	0.01	22		0.10	
23	0.02	0.06	0.05	0.02	T	T	T						23	0.01	0.01	0.01	T	T	T	0.01	T	T		T		23		0.32	
24	T	0.03	0.01	T	0.01	T							24			T	T	T	0.01	T	T					24		0.05	
25						0.01	0.06	0.05	0.03	0.29	0.25	0.04	25	T							T	T	0.01	0.24	0.67	25		1.65	
26	0.33	1.00	0.38	T	0.01	0.04	T						26													26		1.76	
27							T						27	T	0.01		0.09	0.06	0.02	T						27		0.19	
28													28		T												28		T
29			0.05	0.01	T								29	0.02	0.06	T	0.01		0.07	T						29		0.23	
30													30														30		0.00
31								T	0.06	T	T		31			0.01	0.14	0.15	0.25							31		0.61	

### MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.21	.34	.47	.57	.81	.93	1.03	1.16	1.33	1.60	1.77	2.05
Ending Date	26	26	26	26	26	26	26	26	26	26	26	26
Ending Time (Hour/Min)	0108	0113	0118	0123	0132	0140	0140	0215	0230	0137	0206	0234

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 MAY 2003

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							1.00	10.00	
02							6.00	10.00	
03							7.00	10.00	
04							7.00	10.00	
05							2.50	10.00	
06							1.75	10.00	
07							.13	10.00	
08							1.50	10.00	
09							.13	9.00	
10							.13	5.00	
11							.13	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							10.00	10.00	
15							2.50	10.00	
16							2.50	10.00	
17							2.50	10.00	
18							2.00	10.00	
19							5.00	10.00	
20							10.00	10.00	
21							1.25	10.00	
22							1.50	6.00	
23							.25	10.00	
24							1.25	10.00	
25							.06	10.00	
26							1.00	10.00	
27							2.50	10.00	
28							.13	10.00	
29							.50	10.00	
30							.25	10.00	
31							.50	10.00	
<b>MONTHLY AVGS</b>							3.33	9.68	
<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 7            21           7									





# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

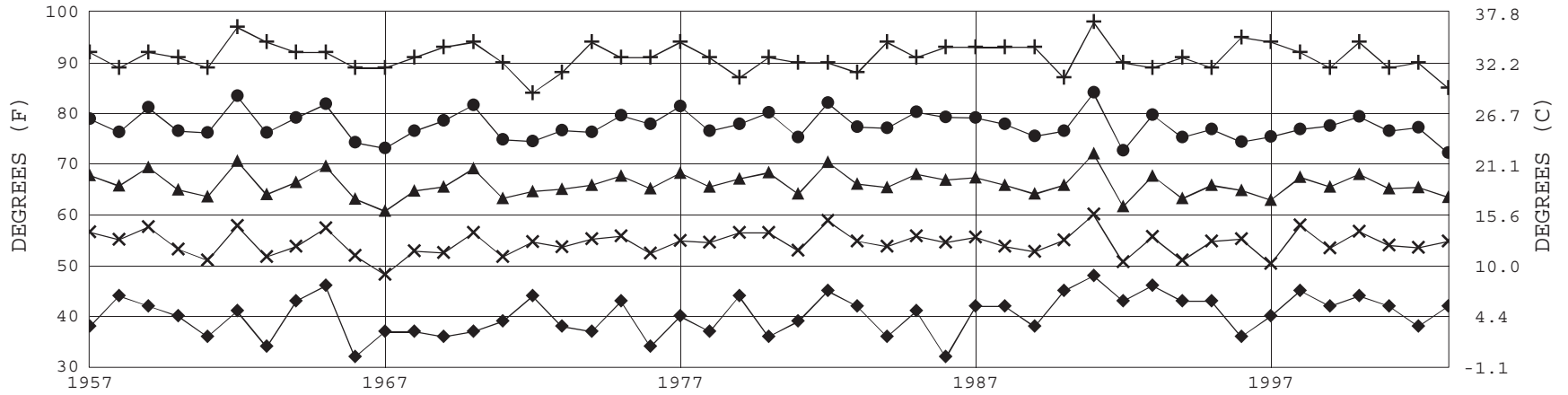
MAY 2003

RIC

WBAN # 13740

HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	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: 0453					MAY 25					SUNSET: 1919					SUNRISE: 0450					MAY 31					SUNSET: 1923				
01	CLR	NC	2.50	BR	58	58	58	100	3	13	29.79	29.98	01	OVC	200	7.00		63	59	61	87	5	18	29.51	29.69				
04	OVC	001	0.25	FG	59	59	59	100	8	14	29.77	29.96	04	BKN	200	8.00		62	58	60	86	8	20	29.47	29.65				
07	OVC	001	1.00	RA BR	61	61	61	100	7	14	29.80	29.99	07	BKN	250	6.00	HZ	64	59	61	84	9	18	29.44	29.62				
10	OVC	006	0.50	+RA FG	63	63	63	100	5	16	29.81	30.00	10	OVC	025	4.00	-RA BR	64	62	63	93	6	19	29.45	29.62				
13	OVC	030	5.00	BR	66	65	65	96	7	14	29.78	29.98	13	BKN	035	10.00		73	61	66	66	21	20	29.32	29.49				
16	BKN	048	10.00		71	65	67	81	8	16	29.75	29.94	16	OVC	032	4.00	-TSRA BR	65	63	64	93	12	16	29.27	29.45				
19	OVC	080	10.00		68	65	66	90	13	11	29.75	29.94	19	BKN	250	10.00		62	61	61	96	8	21	29.23	29.41				
22	OVC	070	10.00	-TSRA	62	61	61	96	7	11	29.76	29.96	22	FEW	NC	10.00		62	61	61	96	12	28	29.23	29.41				
SUNRISE: 0453					MAY 26					SUNSET: 1920					3-HOURLY OBSERVATION NOTES														
01	OVC	015	2.50	+TSRA BR	62	62	62	100	7	01	29.68	29.87	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	OVC	002	5.00	-RA BR	62	62	62	100	5	13	29.63	29.82	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.																
07	BKN	070	10.00		63	62	62	97	5	04	29.66	29.85	NC = No ceiling detected.																
10	BKN	017	10.00		66	61	63	84	8	35	29.72	29.91	& = Original observation contained additional weather elements.																
13	SCT	NC	10.00		72	62	66	71	6	03	29.73	29.92	See page 3 for additional notes.																
16	BKN	048	10.00		72	61	65	69	7	02	29.73	29.91																	
19	BKN	080	10.00		69	61	64	76	7	03	29.76	29.95																	
22	BKN	100	10.00		63	62	62	97	6	03	29.80	29.99																	
SUNRISE: 0452					MAY 27					SUNSET: 1920					SUMMARY BY HOUR														
01	BKN	060	10.00		61	60	60	97	0	00	29.82	30.01	AVERAGES																
04	BKN	070	7.00		60	60	60	100	8	08	29.80	29.99	RESULTANT WIND (MPH)																
07	OVC	100	10.00	-RA	60	58	59	93	6	08	29.85	30.04	HOUR (LST)																
10	OVC	018	10.00		63	58	60	84	7	10	29.85	30.04	CEILOMETER																
13	OVC	020	10.00		62	59	60	90	8	03	29.81	30.00	EFF CLD AMT																
16	OVC	040	4.00	-RA BR	59	59	59	100	10	01	29.81	30.00	DRY BULB																
19	BKN	095	9.00		58	57	57	97	5	13	29.79	29.98	DEW POINT																
22	OVC	019	8.00		58	58	58	100	0	00	29.82	30.01	WET BULB																
SUNRISE: 0452					MAY 28					SUNSET: 1921					RELATIVE HUMIDITY														
01	BKN	015	2.00	BR	54	54	54	100	5	24	29.79	29.98	PRESSURE (INCHES, HG)																
04	VV	001	0.25	FG	53	53	53	100	5	19	29.74	29.93	STATION																
07	OVC	004	2.00	BR	56	56	56	100	8	21	29.72	29.91	SEA LEVEL																
10	OVC	080	8.00		59	56	57	90	10	23	29.71	29.91	VISIBILITY (MILES)																
13	BKN	200	10.00		69	54	60	59	13	27	29.66	29.85	WIND SPEED (MPH)																
16	BKN	100	10.00		68	55	60	63	5	36	29.64	29.83	SPEED																
19	BKN	250	10.00		65	59	61	81	3	15	29.63	29.82	DIRECTION																
22	BKN	250	10.00		59	58	58	96	3	20	29.63	29.82																	
SUNRISE: 0451					MAY 29					SUNSET: 1922																			
01	SCT	NC	9.00		57	56	56	96	5	19	29.58	29.78																	
04	OVC	095	5.00	-RA BR	58	58	58	100	3	07	29.54	29.72																	
07	OVC	120	5.00	BR	59	59	59	100	6	19	29.54	29.72																	
10	OVC	080	8.00		66	59	62	78	12	27	29.53	29.71																	
13	OVC	055	2.00	-RA BR	63	59	61	87	7	27	29.51	29.69																	
16	BKN	065	10.00		64	61	62	90	5	36	29.46	29.65																	
19	BKN	039	9.00		62	61	61	96	0	00	29.47	29.65																	
22	SCT	NC	6.00	BR	56	56	56	100	0	00	29.50	29.68																	
SUNRISE: 0451					MAY 30					SUNSET: 1922																			
01	BKN	002	0.50	FG	53	53	53	100	0	00	29.46	29.64																	
04	VV	001	0.25	FG	57	57	57	100	6	26	29.47	29.65																	
07	SCT	NC	6.00	BR	59	58	58	96	5	30	29.51	29.69																	
10	FEW	NC	10.00		72	58	63	61	10	01	29.53	29.71																	
13	SCT	NC	10.00		77	56	64	48	0	00	29.51	29.69																	
16	SCT	NC	10.00		79	54	64	42	15	23	29.50	29.68																	
19	OVC	250	10.00		71	60	64	68	7	20	29.50	29.68																	
22	BKN	250	10.00		65	59	61	81	7	20	29.53	29.71																	

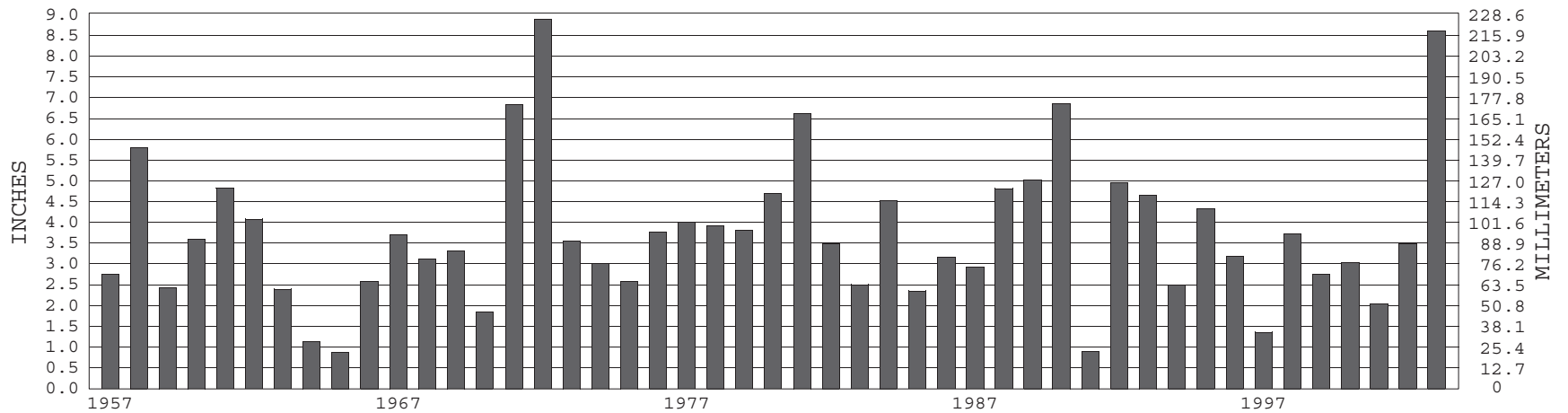
### RICHMOND, VA MAY TEMPERATURES



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

Long-Term (1957-2003) Mean: 66.0      1961-1990 Normal: 65.4

### RICHMOND, VA MAY PRECIPITATION



Long-Term (1957-2003) Mean Monthly Total: 3.73

1961-1990 Normal: 3.96



MAY 2003

RICHMOND, VA

# LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

*I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA – National Weather Service / Department Of Transportation – Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.*

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