



# JULY 2004

## 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 2004  
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	87	65	76	-1	71	73	0	11	BR HZ			0.0	0.00	29.94	30.12	4.2	18	5.1	14	19	12	18	01							
02	90	71	81	4	72	74	0	16	BR HZ			0.0	0.00	29.84	30.02	1.5	13	3.5	20	10	17	09	02							
03	89	68	79	2	72	74	0	14	FG+ BR			0.0	0.00	29.79	29.98	5.0	11	5.5	15	09	13	10	03							
04	84	72	78	1	75	75	0	13	TSRA RA BR HZ			0.0	1.02	29.76	29.94	5.7	15	8.3	30	23	23	23	04							
05	93	72	83*	6	73	75	0	18	TS TSRA RA BR			0.0	0.66	29.74	29.93	4.4	23	6.7	31	31	25	32	05							
06	92	72	82	5	72	74	0	17	TS TSRA BR			0.0	0.22	29.77	29.95	3.2	29	5.6	24	32	22	31	06							
07	90	70	80	3	71	73	0	15	TSRA RA BR HZ SQ			0.0	0.03	29.69	29.88	2.9	16	5.4	38*	31	31*	31	07							
08	93*	66	80	3	71	74	0	15	TS BR			0.0	0.00	29.73	29.91	5.5	21	6.3	21	22	18	21	08							
09	91	69	80	3	68	72	0	15	RA BR			0.0	T	29.85	30.04	2.5	23	4.2	22	23	14	23	09							
10	89	72	81	3	70	73	0	16	BR			0.0	0.00	29.92	30.10	4.2	04	5.5	14	08	13	01	10							
11	88	73	81	3	73	75	0	16	TS TSRA BR HZ			0.0	0.42	29.90	30.09	4.4	15	5.4	23	14	18	14	11							
12	91	72	82	4	73	75	0	17	TSRA RA FG BR HZ			0.0	0.23	29.79	29.97	6.5	20	7.5	30	28	23	28	12							
13	90	74	82	4	74	76	0	17	RA BR			0.0	0.05	29.64	29.82	1.0	24	5.1	28	03	25	03	13							
14	92	69	81	3	73	75	0	16	BR HZ			0.0	0.00	29.49	29.67	3.8	22	7.1	29	24	22	24	14							
15	86	67	77	-1	63	68	0	12				0.0	0.00	29.55	29.73	8.1	28	8.7	23	25	17	30	15							
16	87	65	76	-2	61	67	0	11				0.0	0.00	29.65	29.83	6.0	26	6.7	23	25	17	23	16							
17	88	63*	76	-2	66	69	0	11	TSRA RA BR			0.0	0.23	29.69	29.88	1.3	20	6.1	31	23	24	23	17							
18	83	68	76	-3	70	71	0	11	RA BR			0.0	0.04	29.62	29.81	5.0	03	6.1	16	03	14	04	18							
19	84	67	76	-3	69	71	0	11	FG BR HZ			0.0	0.00	29.66	29.84	1.5	05	4.8	22	34	16	35	19							
20	86	66	76	-3	68	71	0	11	BR HZ			0.0	0.00	29.77	29.96	2.6	03	4.1	15	01	13	01	20							
21	88	68	78	-1	69	72	0	13	BR HZ			0.0	0.00	29.81	29.99	1.8	09	3.3	12	03	9	02	21							
22	91	70	81	2	71	74	0	16	TSRA RA BR HZ			0.0	0.35	29.73	29.91	5.6	19	5.9	35	26	26	25	22							
23	81	72	77	-2	73	74	0	12	RA BR			0.0	0.20	29.73	29.91	3.6	12	5.6	14	12	10	02	23							
24	77	70	74*	-4	71	72	0	9	RA DZ BR			0.0	0.96	29.91	30.09	12.4	01	12.5	25	02	20	01	24							
25	78	71	75	-3	73	73	0	10	RA DZ BR			0.0	0.55	29.97	30.16	9.7	04	9.9	17	04	14	05	25							
26	80	71	76	-2	74	74	0	11	RA BR			0.0	0.12	29.90	30.09	6.6	08	7.1	14	09	10	12	26							
27	90	72	81	3	75	76	0	16	TS TSRA RA BR HZ			0.0	0.81	29.80	29.98	4.9	20	6.8	25	24	21	23	27							
28	84	73	79	1	74	75	0	14	RA BR			0.0	0.44	29.80	29.99	2.7	17	3.5	17	18	15	17	28							
29	88	73	81	3	74	75	0	16	RA BR HZ			0.0	0.07	29.89	30.07	2.1	07	5.0	16	11	14	15	29							
30	89	72	81	3	73	75	0	16	BR			0.0	0.00	29.93	30.11	7.5	17	8.1	18	16	15	19	30							
31	90	73	82	4	75	76	0	17	RA BR			0.0	0.02	29.89	30.08	4.9	17	6.1	22	18	18	17	31							
< MONTHLY AVERAGES											TOTALS-->					<-- MONTHLY AVERAGES														
DEPARTURE FROM NORMAL											1.75					SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3														
DEGREE DAYS											GREATEST 24-HR PRECIPITATION: 1.40 DATE: 24-25					SEA LEVEL PRESSURE DATE TIME														
MONTHLY TOTAL DEPARTURE											GREATEST 24-HR SNOWFALL: 0.0 DATE:					MAXIMUM : 30.18 25 1054														
SEASON TO DATE TOTAL DEPARTURE											GREATEST SNOW DEPTH:					MINIMUM : 29.56 14 1754														
HEATING: 0 0 0 0											NUMBER OF DAYS WITH →					MAXIMUM TEMP ≥ 90: 12					MINIMUM TEMP ≤ 32: 0					PRECIPITATION ≥ 0.01 INCH: 18				
COOLING: 433 18 1079 238																MAXIMUM TEMP ≤ 32: 0					MINIMUM TEMP ≤ 0: 0					PRECIPITATION ≥ 0.10 INCH: 13				
																THUNDERSTORMS : 10					HEAVY FOG : 1					SNOWFALL ≥ 1.0 INCH : 0				

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## RICHMOND, VA

JULY 2004

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	0.02	0.14	T								0.37	0.34	04		1.02	
05	0.04	T				0.01				T	T	0.15	05					0.29	0.30		0.02	T			05		0.66		
06													06												06		0.22		
07				0.01									07	T	0.02									0.22	07		0.03		
08													08												08		0.00		
09													09								T				09		T		
10													10												10		0.00		
11													11			0.25	0.17								11		0.42		
12	T												12			.05	0.15	0.06			0.01	0.01			12		0.23		
13													13												13		0.05		
14													14												14		0.00		
15													15												15		0.00		
16													16				T								16		0.00		
17													17				T	T	0.18	T					17		0.23		
18	T			T	0.01	0.03							18		T							T	T	0.05	18		0.04		
19													19												19		0.00		
20													20												20		0.00		
21													21					0.12	0.21	0.02					21		0.00		
22													22												22		0.35		
23		T	0.05	0.07	0.01	0.01	0.04	0.02	T				23												23		0.20		
24				T			0.01	0.01	0.01				24	0.06	0.04	0.07	0.46	0.13	T	T	0.01	T	0.01	0.03	0.11	24		0.96	
25	0.18	0.04	0.02	T		0.01		0.05	0.01	0.01	0.03	0.13	25	0.02	T					0.01	T	0.02	0.02		25		0.55		
26													26	T	0.01		T						0.01	T	0.03	26		0.12	
27					T	0.03	0.03			T	0.02	0.02	27	T	0.03			T				0.01	0.10	T	0.03	27		0.81	
28	0.05	0.20	T	0.03	0.08	T		0.03	T				28			0.02	0.03								28		0.44		
29													29			0.07			T	T					29		0.07		
30													30												30		0.00		
31													31			0.01					0.01				31		0.02		

### MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.20	.40	.52	.57	.59	.67	.67	.70	.72	.75	.75	.75
Ending Date	05	05	05	05	05	04	04	04	05	05	05	05
Ending Time (Hour/Min)	1759	1757	1801	1806	1810	2310	2326	2343	0006	0022	0022	0022

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 2004

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							2.50	9.00	
02							2.50	10.00	
03							.13	10.00	
04							1.00	10.00	
05							.75	10.00	
06							1.25	10.00	
07							3.00	10.00	
08							1.50	10.00	
09							5.00	10.00	
10							5.00	10.00	
11							1.00	10.00	
12							.50	10.00	
13							3.00	10.00	
14							4.00	10.00	
15							8.00	10.00	
16							7.00	10.00	
17							1.25	10.00	
18							3.00	10.00	
19							.50	10.00	
20							4.00	8.00	
21							2.50	9.00	
22							1.75	6.00	
23							1.50	10.00	
24							.75	7.00	
25							1.25	10.00	
26							1.75	10.00	
27							1.75	10.00	
28							2.00	10.00	
29							.75	10.00	
30							4.00	10.00	
31							5.00	10.00	
<b>MONTHLY AVGS</b>							2.92	9.65	
<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                      22                      2									

# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

JULY 2004

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: 0452					JUL 01					SUNSET: 1934					SUNRISE: 0455					JUL 07					SUNSET: 1933				
01	FEW	NC	2.50	BR	67	67	67	100	5	11	29.97	30.16	01	CLR	NC	8.00	BR	74	72	73	94	0	00	29.73	29.91				
04	CLR	NC	2.50	BR	68	68	68	100	0	00	29.97	30.16	04	FEW	NC	5.00	BR	72	71	71	97	5	03	29.70	29.89				
07	CLR	NC	4.00	BR	70	70	70	100	7	21	29.97	30.16	07	FEW	NC	3.00	BR	75	74	74	96	3	19	29.71	29.90				
10	SCT	NC	5.00	HZ	79	72	74	79	3	VR	29.98	30.16	10	SCT	NC	9.00		86	75	78	70	8	16	29.70	29.89				
13	SCT	NC	8.00		85	71	75	63	9	18	29.94	30.14	13	OVC	055	10.00	-RA	74	68	70	82	15	30	29.70	29.89				
16	SCT	NC	8.00		86	71	76	61	10	19	29.89	30.08	16	OVC	150	10.00		71	69	70	94	7	13	29.66	29.85				
19	OVC	180	9.00		81	72	75	74	5	16	29.88	30.07	19	OVC	200	10.00		73	70	71	90	0	00	29.65	29.84				
22	OVC	200	9.00		78	73	75	85	6	15	29.90	30.09	22	SCT	NC	10.00		71	69	70	94	6	20	29.69	29.88				
SUNRISE: 0453					JUL 02					SUNSET: 1934					SUNRISE: 0456					JUL 08					SUNSET: 1933				
01	OVC	250	6.00	BR	75	73	74	94	5	14	29.89	30.08	01	FEW	NC	4.00	BR	69	69	69	100	3	17	29.69	29.88				
04	OVC	250	5.00	BR	72	71	71	97	0	00	29.86	30.04	04	CLR	NC	6.00	BR	67	67	67	100	5	17	29.68	29.87				
07	OVC	250	4.00	BR	75	73	74	94	0	00	29.87	30.06	07	SCT	NC	9.00		72	71	71	97	5	VR	29.71	29.90				
10	SCT	NC	8.00		84	73	76	70	0	00	29.87	30.06	10	BKN	070	10.00		85	72	76	65	9	19	29.74	29.93				
13	SCT	NC	9.00		88	71	76	57	5	VR	29.83	30.01	13	BKN	060	10.00		90	71	77	54	10	26	29.72	29.91				
16	SCT	NC	8.00		89	72	77	57	6	36	29.77	29.96	16	SCT	NC	10.00		88	73	77	61	8	20	29.71	29.89				
19	SCT	NC	9.00		79	71	74	77	8	13	29.80	29.98	19	SCT	NC	10.00		87	68	74	53	6	24	29.73	29.92				
22	BKN	250	7.00		75	72	73	90	0	00	29.80	29.99	22	CLR	NC	8.00		77	74	75	90	5	19	29.77	29.96				
SUNRISE: 0453					JUL 03					SUNSET: 1934					SUNRISE: 0456					JUL 09					SUNSET: 1933				
01	FEW	NC	4.00	BR	71	70	70	96	0	00	29.81	29.99	01	CLR	NC	9.00		75	72	73	90	5	27	29.78	29.96				
04	VV	001	0.13	FG	70	70	70	100	0	00	29.78	29.97	04	CLR	NC	6.00	BR	70	68	69	93	3	17	29.81	30.00				
07	SCT	NC	2.50	BR	74	72	73	94	0	00	29.79	29.98	07	SCT	NC	9.00		76	69	71	79	0	00	29.87	30.06				
10	SCT	NC	10.00		84	73	76	70	6	08	29.81	30.00	10	SCT	NC	10.00		85	66	72	53	7	VR	29.88	30.06				
13	BKN	035	9.00		86	73	77	65	10	10	29.80	29.98	13	BKN	250	10.00		88	65	73	46	7	22	29.87	30.05				
16	SCT	NC	7.00		87	73	77	63	9	08	29.76	29.94	16	SCT	NC	10.00		90	65	73	44	8	24	29.84	30.02				
19	BKN	250	8.00		82	73	76	74	8	13	29.77	29.96	19	BKN	250	10.00		84	71	75	65	3	18	29.85	30.03				
22	BKN	023	7.00		76	74	75	94	7	11	29.80	29.99	22	OVC	110	10.00		81	72	75	74	0	00	29.89	30.07				
SUNRISE: 0454					JUL 04					SUNSET: 1934					SUNRISE: 0457					JUL 10					SUNSET: 1932				
01	OVC	015	3.00	BR	75	74	74	96	6	11	29.79	29.98	01	BKN	120	8.00		75	72	73	90	0	00	29.88	30.06				
04	OVC	005	3.00	BR	76	75	75	97	7	15	29.78	29.97	04	CLR	NC	6.00	BR	74	71	72	91	9	04	29.87	30.06				
07	OVC	010	4.00	BR	76	75	75	97	9	14	29.79	29.98	07	BKN	250	10.00		74	69	71	85	8	02	29.93	30.11				
10	BKN	150	5.00	-RA BR	79	76	77	90	8	17	29.79	29.98	10	BKN	250	10.00		82	69	73	65	7	07	29.95	30.14				
13	OVC	150	8.00		84	76	78	77	3	20	29.74	29.93	13	SCT	NC	10.00		86	70	75	59	7	07	29.93	30.11				
16	OVC	250	8.00		79	77	78	94	12	09	29.73	29.92	16	BKN	250	10.00		86	69	74	57	6	04	29.91	30.09				
19	BKN	250	9.00		78	76	77	93	8	14	29.70	29.89	19	OVC	180	10.00		82	70	74	67	3	36	29.90	30.09				
22	OVC	031	10.00		78	71	73	79	14	30	29.74	29.93	22	OVC	150	8.00		77	73	74	88	3	19	29.92	30.10				
SUNRISE: 0454					JUL 05					SUNSET: 1934					SUNRISE: 0458					JUL 11					SUNSET: 1932				
01	BKN	055	10.00	-RA	73	72	72	96	3	20	29.72	29.91	01	OVC	150	5.00	BR	77	73	74	88	3	34	29.91	30.09				
04	SCT	NC	5.00	BR	72	72	72	100	3	20	29.71	29.90	04	OVC	035	4.00	BR	75	73	74	94	0	00	29.90	30.09				
07	SCT	NC	6.00	BR	75	73	74	94	7	24	29.75	29.94	07	BKN	035	5.00	BR	78	74	75	87	0	00	29.93	30.11				
10	CLR	NC	10.00		86	75	78	70	7	26	29.77	29.95	10	BKN	160	10.00		85	70	75	61	5	10	29.93	30.12				
13	FEW	NC	10.00		91	74	79	57	6	28	29.74	29.92	13	BKN	032	6.00	HZ	87	74	78	65	9	16	29.90	30.09				
16	SCT	NC	10.00		92	72	78	52	13	23	29.71	29.90	16	OVC	042	3.00	-TSRA	80	73	75	79	9	08	29.86	30.05				
19	BKN	250	10.00		78	74	75	87	10	14	29.74	29.93	19	OVC	250	6.00	BR	77	74	75	90	9	17	29.87	30.06				
22	SCT	NC	10.00		74	71	72	91	7	36	29.76	29.95	22	BKN	250	9.00		75	72	73	90	9	19	29.90	30.09				
SUNRISE: 0455					JUL 06					SUNSET: 1933					SUNRISE: 0458					JUL 12					SUNSET: 1932				
01	CLR	NC	7.00		72	71	71	97	0	00	29.74	29.93	01	CLR	NC	5.00	BR	73	71	72	94	5	13	29.88	30.06				
04	FEW	NC	10.00		74	71	72	91	7	31	29.76	29.94	04	OVC	003	3.00	BR	73	72	72	96	7	19	29.84	30.03				
07	SCT	NC	10.00		77	71	73	82	7	36	29.79	29.98	07	OVC	003	1.50	BR	75	73	74	94	7	19	29.86	30.05				
10	SCT	NC	10.00		85	71	75	63	7	31	29.81	30.00	10	OVC	100	7.00		84	74	77	71	3	20	29.84	30.03				
13	SCT	NC	10.00		90	70	76	52	7	34	29.78	29.96	13	BKN	150	8.00		90	73	78	58	8	17	29.78	29.97				
16	FEW	NC	10.00		91	68	75	47	10	27	29.74	29.93	16	OVC	150	10.00		86	73	77	66	15	21	29.72	29.91				
19	BKN	080	6.00	TS BR	78	75	76	90	0	00	29.72	29.91	19	OVC	250	2.50	HZ	79	72	74	78	6	17	29.71	29.90				
22	CLR	NC	8.00		75	73	74	94	6	22	29.75	29.94	22	OVC	150	7.00		78	74	75	88	7	22	29.72	29.90				

# OBSERVATIONS AT 3-HOURLY INTERVALS

## RICHMOND, VA

JULY 2004

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: 0459					JUL 13					SUNSET: 1931					SUNRISE: 0503					JUL 19					SUNSET: 1928				
01	BKN	150	8.00		76	75	75	97	6	24	29.66	29.84	01	FEW	NC	5.00	BR	71	70	70	96	3	35	29.63	29.82				
04	OVC	008	3.00	BR	74	73	73	97	7	21	29.65	29.84	04	CLR	NC	3.00	BR	68	68	68	100	6	36	29.61	29.80				
07	SCT	NC	5.00	BR	76	73	74	90	5	27	29.67	29.85	07	BKN	004	1.25	BR	69	68	68	96	6	01	29.65	29.84				
10	FEW	NC	8.00		85	75	78	72	7	36	29.67	29.85	10	SCT	NC	10.00		79	70	73	74	3	VR	29.67	29.86				
13	BKN	040	10.00		88	73	77	61	5	30	29.64	29.83	13	BKN	035	10.00		84	70	74	63	6	VR	29.65	29.84				
16	BKN	100	8.00		78	76	77	93	6	06	29.61	29.80	16	BKN	200	9.00		82	70	74	67	6	17	29.63	29.81				
19	SCT	NC	10.00		80	74	76	82	3	15	29.60	29.79	19	SCT	NC	10.00		79	70	73	73	3	VR	29.64					
22	FEW	NC	7.00		75	73	74	94	3	18	29.60	29.79	22	BKN	035	10.00		74	66	69	76	9	03	29.73	29.92				
SUNRISE: 0460					JUL 14					SUNSET: 1931					SUNRISE: 0504					JUL 20					SUNSET: 1927				
01	SCT	NC	6.00	BR	74	74	74	100	5	04	29.58	29.76	01	CLR	NC	7.00		68	67	67	96	9	20	29.70	29.89				
04	CLR	NC	5.00	BR	73	73	73	100	3	12	29.53	29.71	04	CLR	NC	7.00		67	66	66	97	5	01	29.71	29.90				
07	CLR	NC	4.00	BR	77	75	76	94	6	25	29.54	29.72	07	SCT	NC	7.00		72	67	69	84	0	00	29.77	29.96				
10	BKN	150	6.00	HZ	82	76	78	82	7	23	29.53	29.71	10	CLR	NC	8.00		80	68	72	67	9	02	29.80	29.99				
13	SCT	NC	10.00		91	73	78	56	10	23	29.48	29.66	13	SCT	NC	7.00		84	67	73	57	6	VR	29.77	29.96				
16	SCT	NC	10.00		92	74	79	56	18	22	29.40	29.57	16	SCT	NC	7.00		85	67	73	55	8	02	29.76	29.95				
19	BKN	100	10.00		76	69	71	79	10	03	29.43	29.60	19	CLR	NC	6.00	HZ	80	69	73	69	3	06	29.77	29.96				
22	SCT	NC	10.00		72	69	70	91	5	01	29.48	29.66	22	CLR	NC	5.00	BR	74	70	71	88	3	36	29.80	29.99				
SUNRISE: 0500					JUL 15					SUNSET: 1930					SUNRISE: 0505					JUL 21					SUNSET: 1927				
01	FEW	NC	8.00		70	69	69	97	0	00	29.49	29.67	01	CLR	NC	4.00	BR	70	68	69	93	0	00	29.81	30.00				
04	CLR	NC	10.00		69	67	68	93	0	00	29.49	29.67	04	CLR	NC	3.00	BR	68	68	68	100	0	00	29.79	29.98				
07	CLR	NC	10.00		74	64	68	71	7	25	29.53	29.71	07	CLR	NC	4.00	BR	73	69	70	87	5	31	29.84	30.03				
10	CLR	NC	10.00		82	61	69	49	15	31	29.55	29.74	10	CLR	NC	9.00		84	67	73	57	7	03	29.84	30.03				
13	SCT	NC	10.00		84	58	68	41	16	26	29.55	29.73	13	SCT	NC	8.00		87	67	74	51	5	01	29.81	30.00				
16	SCT	NC	10.00		84	60	69	44	10	29	29.56	29.75	16	BKN	250	7.00		87	68	74	53	5	06	29.78	29.97				
19	CLR	NC	10.00		82	61	69	49	10	26	29.56	29.75	19	OVC	250	6.00	HZ	82	72	75	72	5	10	29.78	29.97				
22	CLR	NC	10.00		75	61	66	62	6	31	29.62	29.80	22	BKN	250	5.00	HZ	76	71	73	85	5	12	29.79	29.98				
SUNRISE: 0501					JUL 16					SUNSET: 1930					SUNRISE: 0506					JUL 22					SUNSET: 1926				
01	FEW	NC	10.00		68	62	64	81	0	00	29.62	29.80	01	CLR	NC	4.00	BR	73	71	72	94	0	00	29.78	29.96				
04	FEW	NC	10.00		69	60	64	73	6	27	29.61	29.80	04	CLR	NC	3.00	BR	71	70	70	96	0	00	29.77	29.96				
07	FEW	NC	10.00		73	60	65	64	5	29	29.64	29.83	07	FEW	NC	2.50	BR	74	71	72	91	5	18	29.76	29.95				
10	CLR	NC	10.00		81	62	69	53	6	30	29.66	29.85	10	OVC	250	5.00	HZ	84	71	75	65	6	18	29.75	29.94				
13	SCT	NC	10.00		86	59	69	40	10	28	29.65	29.84	13	OVC	250	6.00	HZ	90	71	77	54	13	19	29.71	29.90				
16	SCT	NC	10.00		86	59	69	40	9	27	29.63	29.82	16	BKN	250	6.00	HZ	90	72	77	56	13	20	29.66	29.85				
19	CLR	NC	10.00		82	60	68	47	8	24	29.64	29.83	19	OVC	019	2.50	RA BR	72	72	72	100	0	00	29.71	29.90				
22	CLR	NC	10.00		72	63	66	73	0	00	29.69	29.88	22	OVC	080	3.00	RA BR	73	73	73	100	5	17	29.70	29.89				
SUNRISE: 0502					JUL 17					SUNSET: 1929					SUNRISE: 0506					JUL 23					SUNSET: 1925				
01	CLR	NC	7.00		67	63	64	87	3	19	29.68	29.87	01	OVC	016	2.50	BR	74	73	73	97	3	17	29.71	29.90				
04	CLR	NC	7.00		66	63	64	90	0	00	29.68	29.87	04	OVC	026	2.50	-RA BR	72	72	72	100	3	18	29.68	29.87				
07	BKN	200	7.00		71	64	67	79	5	21	29.70	29.89	07	OVC	009	1.50	-RA BR	73	72	72	96	9	15	29.69	29.88				
10	SCT	NC	9.00		82	64	70	55	10	19	29.70	29.89	10	OVC	008	3.00	BR	75	74	74	96	9	13	29.72	29.91				
13	OVC	060	10.00		84	65	71	53	9	18	29.68	29.87	13	BKN	017	9.00		78	74	75	87	8	11	29.71	29.90				
16	OVC	070	8.00	-RA	77	68	71	74	10	29	29.66	29.85	16	BKN	250	10.00		80	74	76	82	8	11	29.71	29.90				
19	OVC	120	5.00	BR	72	69	70	91	8	01	29.67	29.86	19	OVC	008	5.00	BR	75	73	74	94	3	12	29.75	29.94				
22	OVC	065	6.00	-RA BR	70	68	69	93	7	36	29.70	29.89	22	OVC	025	5.00	BR	75	73	74	94	3	36	29.80	29.99				
SUNRISE: 0503					JUL 18					SUNSET: 1929					SUNRISE: 0507					JUL 24					SUNSET: 1925				
01	OVC	100	4.00	BR	68	67	67	96	10	05	29.67	29.86	01	OVC	005	3.00	BR	73	72	72	96	7	02	29.80	29.98				
04	OVC	005	3.00	-RA BR	68	68	68	100	8	05	29.63	29.82	04	OVC	015	2.00	BR	73	72	72	96	10	02	29.82	30.01				
07	OVC	003	3.00	BR	70	69	69	97	0	00	29.64	29.83	07	OVC	007	1.50	-RA BR	73	73	73	100	12	01	29.86	30.05				
10	BKN	016	8.00		76	71	73	85	7	06	29.63	29.82	10	OVC	009	5.00	BR	75	73	74	94	16	01	29.89	30.08				
13	BKN	039	10.00		80	71	74	74	8	02	29.60	29.79	13	OVC	008	1.75	-RA BR	72	71	71	97	18	01	29.92	30.11				
16	SCT	NC	10.00		82	70	74	67	9	34	29.57	29.76	16	OVC	009	1.00	+RA BR	71	70	70	96	14	01	29.94	30.13				
19	SCT	NC	9.00		78	70	73	76	7	03	29.59	29.78	19	OVC	008	3.00	-RA BR	71	70	70	96	14	02	29.96	30.15				
22	SCT	NC	5.00	BR	72	70	71	94	6	01	29.62	29.81	22	OVC	004	1.50	-RA BR	71	70	70	96	12	02	29.98	30.17				

# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

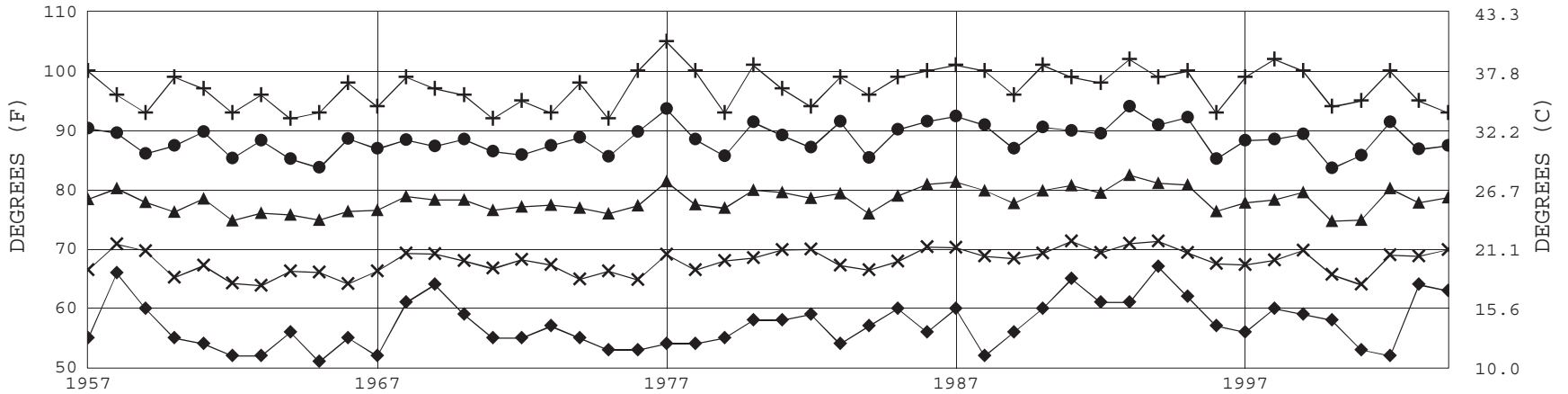
JULY 2004

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)		
	SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Ok/as			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 Ok/as			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	OVC	005			1.50	RA BR		71	71	71	100	9	03	29.96	30.15	01	FEW	NC				10.00			76	74	75	94	6	15	29.93	30.11
04	OVC	006			1.50	BR		72	71	71	97	10	04	29.95	30.14	04	CLR	NC				10.00			75	74	74	96	7	17	29.90	30.09
07	OVC	005			4.00	BR		72	71	71	97	8	04	29.98	30.17	07	BKN	004				10.00			76	76	76	100	5	21	29.92	30.10
10	OVC	005			3.00	-RA BR		74	73	73	97	13	03	29.99	30.18	10	BKN	034				10.00			85	75	78	72	9	18	29.94	30.12
13	OVC	008			2.50	-RA BR		76	75	75	97	10	04	29.97	30.16	13	BKN	250				10.00			88	73	77	61	8	22	29.89	30.07
16	OVC	011			7.00			77	74	75	90	14	04	29.95	30.14	16	BKN	250				10.00			83	77	79	82	9	15	29.84	30.02
19	OVC	011			9.00			75	74	74	96	9	05	29.95	30.14	19	BKN	250				10.00			83	75	77	77	5	14	29.85	30.03
22	OVC	006			2.50	-RA BR		72	72	72	100	8	05	29.97	30.16	22	SCT	NC				10.00			77	75	76	94	5	15	29.87	30.06
SUNRISE: 0509								JUL 26				SUNSET: 1923				<h3>3-HOURLY OBSERVATION NOTES</h3> <p>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. &amp; = Original observation contained additional weather elements. See page 3 for additional notes.</p>																
01	OVC	004			6.00	BR		72	72	72	100	8	08	29.95	30.14																	
04	OVC	002			4.00	BR		71	71	71	100	8	05	29.93	30.12																	
07	OVC	004			6.00	BR		71	71	71	100	7	06	29.94	30.13																	
10	OVC	007			10.00			74	72	73	94	7	08	29.94	30.13																	
13	OVC	008			7.00	-RA		75	74	74	96	6	09	29.91	30.10																	
16	OVC	026			10.00			79	76	77	90	6	11	29.86	30.05																	
19	OVC	025			10.00			78	75	76	90	6	09	29.84	30.03																	
22	OVC	015			10.00			76	75	75	97	0	00	29.85	30.04																	
SUNRISE: 0510								JUL 27				SUNSET: 1922																				
01	OVC	006			7.00			76	75	75	97	9	13	29.82	30.01																	
04	OVC	007			6.00	BR		75	75	75	100	5	17	29.79	29.98																	
07	OVC	007			4.00	BR		77	75	76	94	8	20	29.83	30.02																	
10	SCT	NC			7.00			84	76	78	77	9	18	29.81	29.99																	
13	BKN	075			8.00	-RA		87	74	78	65	12	24	29.77	29.96																	
16	BKN	060			8.00			85	75	78	72	7	17	29.72	29.91																	
19	OVC	065			8.00	-TSRA		73	72	72	96	6	22	29.79	29.98																	
22	SCT	NC			7.00	-RA		73	73	73	100	3	16	29.80	29.99																	
SUNRISE: 0510								JUL 28				SUNSET: 1921																				
01	OVC	025			3.00	RA BR		73	73	73	100	3	19	29.79	29.98																	
04	OVC	005			3.00	RA BR		73	73	73	100	5	21	29.78	29.97																	
07	OVC	003			4.00	BR		74	73	73	97	3	18	29.80	29.99																	
10	OVC	013			7.00			77	74	75	90	5	18	29.83	30.01																	
13	BKN	035			10.00			83	74	77	74	6	VR	29.78	29.97																	
16	OVC	200			7.00			80	76	77	87	8	16	29.77	29.96																	
19	OVC	021			10.00			77	73	74	88	0	00	29.81	29.99																	
22	OVC	200			9.00			75	74	74	96	3	20	29.83	30.02																	
SUNRISE: 0511								JUL 29				SUNSET: 1920																				
01	OVC	008			6.00	BR		74	74	74	100	3	10	29.84	30.03																	
04	OVC	002			4.00	BR		73	73	73	100	3	01	29.85	30.04																	
07	BKN	023			5.00	BR		74	72	73	94	10	03	29.90	30.09																	
10	OVC	016			5.00	HZ		79	74	75	85	6	02	29.91	30.10																	
13	BKN	050			8.00			84	73	76	70	7	02	29.90	30.09																	
16	BKN	047			9.00			85	73	77	68	6	06	29.85	30.04																	
19	BKN	200			10.00			78	75	76	90	5	17	29.88	30.07																	
22	BKN	110			10.00			76	74	75	94	5	17	29.92	30.11																	
SUNRISE: 0512								JUL 30				SUNSET: 1920																				
01	FEW	NC			10.00			73	73	73	100	6	18	29.92	30.11																	
04	FEW	NC			10.00			73	72	72	96	5	16	29.91	30.10																	
07	OVC	003			4.00	BR		75	75	75	100	5	20	29.95	30.14																	
10	SCT	NC			10.00			82	75	77	79	9	22	29.97	30.15																	
13	SCT	NC			10.00			86	73	77	65	7	15	29.93	30.12																	
16	BKN	250			10.00			88	69	75	54	10	16	29.89	30.08																	
19	BKN	250			10.00			84	73	76	70	6	16	29.90	30.09																	
22	SCT	NC			10.00			78	74	75	87	9	15	29.94	30.12																	

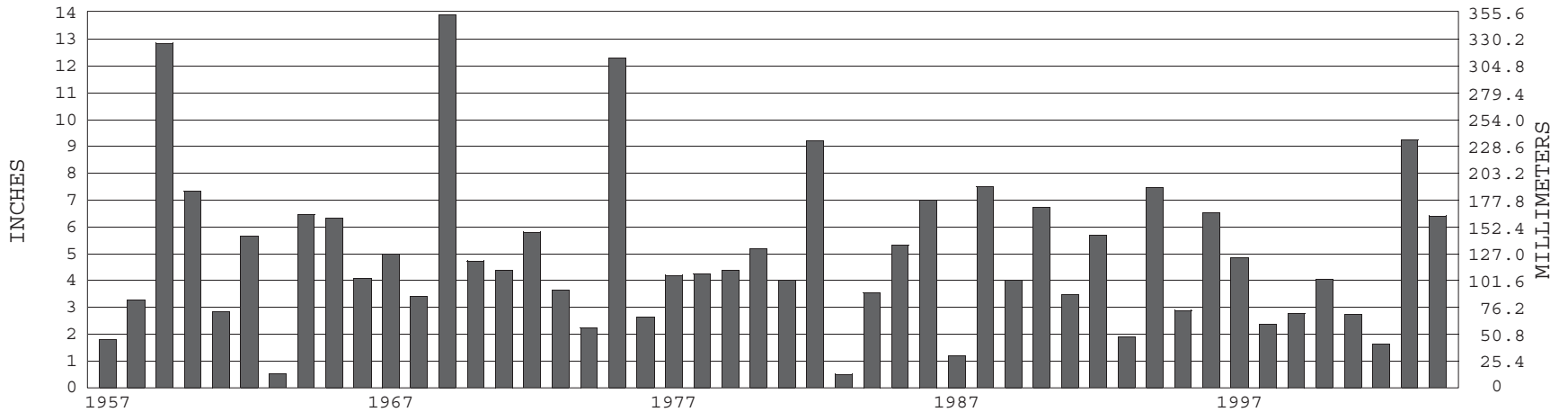
### RICHMOND, VA JULY TEMPERATURES



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

Long-Term (1957-2004) Mean: 78.2      1971-2000 Normal: 77.9

### RICHMOND, VA JULY PRECIPITATION



Long-Term (1957-2004) Mean Monthly Total: 4.96

1971-2000 Normal: 4.67



JULY 2004

RICHMOND, VA

# LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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DIRECTOR

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