



# JULY 2002

## 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

JULY 2002  
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													
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	92	69	81	4	64	70	0	16				0.0	0.00	29.97	30.15	5.9	16	6.2	16	14	13	14	01											
02	97	69	83	6	69	73	0	18	HZ			0.0	0.00	29.86	30.05	2.5	15	4.8	14	08	12	08	02											
03	99	72	86	9	73	76	0	21	TS TSRA RA BR HZ			0.0	0.32	29.77	29.95	0.4	03	5.7	23	36	18	36	03											
04	100	72	86	9	71	76	0	21	BR HZ			0.0	0.00	29.77	29.95	3.7	36	5.2	16	01	13	34	04											
05	96	74	85	8	65	72	0	20	BR HZ			0.0	0.00	29.80	29.98	7.4	02	8.0	23	02	18	01	05											
06	87	65	76	-1	56	64	0	11				0.0	0.00	29.92	30.10	7.6	01	8.6	22	02	18	01	06											
07	92	60	76	-1	58	65	0	11				0.0	0.00	30.00	30.18	1.0	08	3.6	17	26	14	26	07											
08	96	66	81	4	59	67	0	16	HZ			0.0	0.00	30.00	30.19	7.2	21	8.1	22	18	17	21	08											
09	97	71	84	7	68	72	0	19	RA HZ			0.0	T	29.86	30.04	8.6	24	10.3	40*	31	32*	31	09											
10	90	75	83	5	70	74	0	18	RA BR HZ			0.0	0.02	29.79	29.97	2.9	02	6.1	17	01	16	04	10											
11	80	56	68*	-10	49	59	0	3	RA BR HZ			0.0	T	29.90	30.08	9.5	03	10.0	28	01	22	03	11											
12	85	52*	69	-9	51	59	0	4				0.0	0.00	29.90	30.09	3.9	16	5.9	20	19	17	18	12											
13	90	62	76	-2	59	65	0	11	RA			0.0	T	29.83	30.02	6.0	13	6.7	20	11	15	12	13											
14	76	69	73	-5	70	70	0	8	RA BR			0.0	0.67	29.81	29.99	7.3	06	7.8	24	09	20	09	14											
15	90	67	79	1	67	71	0	14				0.0	0.00	29.82	30.01	2.6	33	5.0	16	28	13	28	15											
16	95	70	83	5	66	72	0	18	HZ			0.0	0.00	29.81	30.00	5.5	33	5.9	22	33	17	32	16											
17	97	70	84	6	63	70	0	19	BR HZ			0.0	0.00	29.84	30.02	1.0	31	4.2	18	34	13	28	17											
18	97	73	85	6	69	74	0	20	RA HZ			0.0	T	29.75	29.94	4.3	24	5.8	21	26	17	25	18											
19	96	72	84	5	72	75	0	19	RA BR HZ			0.0	T	29.69	29.87	1.8	29	5.1	29	31	26	30	19											
20	92	71	82	3	70	73	0	17	BR HZ			0.0	0.00	29.79	29.97	3.9	02	6.8	20	17	16	18	20											
21	91	68	80	1	68	72	0	15	BR HZ			0.0	0.00	29.91	30.10	5.0	13	5.8	21	16	16	15	21											
22	95	69	82	3	70	74	0	17	BR HZ			0.0	0.00	29.93	30.11	7.8	18	8.5	24	21	20	16	22											
23	93	73	83	4	72	75	0	18	RA			0.0	T	29.89	30.07	10.3	20	12.1	23	21	20	20	23											
24	83	73	78	0	72	74	0	13	TS RA BR HZ			0.0	0.06	29.93	30.11	3.6	04	4.9	15	03	12	03	24											
25	77	71	74	-4	70	71	0	9	RA BR			0.0	0.01	29.95	30.13	6.8	06	7.9	17	09	14	06	25											
26	75	68	72	-6	70	70	0	7	RA BR			0.0	0.28	29.92	30.10	5.5	09	5.9	16	12	14	12	26											
27	86	70	78	0	73	73	0	13	TSRA RA FG+ BR HZ			0.0	0.27	29.83	30.01	3.8	22	6.0	35	30	28	30	27											
28	97	70	84	6	73	77	0	19	BR			0.0	0.00	29.79	29.98	6.3	23	7.1	17	22	14	24	28											
29	100*	75	88*	10	73	78	0	23	BR			0.0	0.00	29.75	29.93	8.1	26	8.9	18	29	15	29	29											
30	97	76	87	9	69	75	0	22				0.0	0.00	29.74	29.92	7.6	30	9.2	24	32	22	32	30											
31	94	71	83	5	69	74	0	18	BR HZ			0.0	0.00	29.77	29.95	2.0	01	4.7	21	01	16	01	31											
										91.4		69.0	80.2	■ ■	66.7	71.3	0.0	15.4	< MONTHLY AVERAGES		TOTALS-->		0.0	1.63	29.85	30.03	0.8	26	6.8	<- MONTHLY AVERAGES				
										3.9	0.7	2.3	■ ■	-----DEPARTURE FROM NORMAL-----										-3.04	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 0.67 DATE: 14										SEA LEVEL PRESSURE DATE TIME														
MONTHLY TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 0.0 DATE:										MAXIMUM : 30.26 08 0854														
SEASON TO DATE TOTAL DEPARTURE										GREATEST SNOW DEPTH: DATE:										MINIMUM : 29.81 19 1454														
HEATING: 0 0 0 0										NUMBER OF DAYS WITH →										MAXIMUM TEMP ≥ 90: 23														
COOLING: 478 50 1032 173																				MAXIMUM TEMP ≤ 32 : 0														
																				MINIMUM TEMP ≤ 0 : 0														
																				PRECIPITATION ≥ 0.01 INCH : 7														
																				PRECIPITATION ≥ 0.10 INCH : 4														
																				SNOWFALL ≥ 1.0 INCH : 0														

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## RICHMOND, VA

JULY 2002

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			T	0.24	0.07	0.01						03		0.32		
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					T					T		09		T		
10	T	T											10					T					T		10		0.02		
11													11												11		T		
12	T												12												12		0.00		
13													13												13		T		
14	T	0.03	T	0.01	T	T	T	T	0.02	0.07	0.06	0.27	14	0.19	0.01	T	T	T	T		0.01	T	T		14		0.67		
15													15												15		0.00		
16													16												16		0.00		
17													17												17		0.00		
18													18												18		T		
19													19				T								19		T		
20													20				T	T							20		0.00		
21													21												21		0.00		
22													22												22		0.00		
23													23												23		T		
24													24								0.03	0.01		T	24		0.06		
25	0.01	T											25											0.02	25		0.01		
26						T	T	0.17	0.09	0.01	T	T	26	0.01	T										26		0.28		
27													27			T	0.25	0.02							27		0.27		
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)	.12	.20	.21	.23	.24	.32	.38	.43	.45	.47	.51	.53
Ending Date	03	03	03	27	14	14	14	14	14	14	14	14
Ending Time (Hour/Min)	1631	1635	1640	1532	1154	1221	1230	1238	1245	1245	1238	1245

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 2002

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							7.00	10.00	
02							3.00	10.00	
03							.75	5.00	
04							1.75	10.00	
05							4.00	10.00	
06							9.00	10.00	
07							7.00	10.00	
08							5.00	8.00	
09							5.00	10.00	
10							5.00	10.00	
11							6.00	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							1.00	10.00	
15							10.00	10.00	
16							6.00	10.00	
17							5.00	10.00	
18							3.00	10.00	
19							1.75	6.00	
20							3.00	7.00	
21							2.00	9.00	
22							1.75	10.00	
23							8.00	10.00	
24							3.00	10.00	
25							3.00	10.00	
26							2.00	10.00	
27							.25	10.00	
28							5.00	10.00	
29							4.00	10.00	
30							9.00	10.00	
31							6.00	10.00	
<b>MONTHLY AVGS</b>							4.84	9.52	
<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            13            8									

# OBSERVATIONS AT 3-HOURLY INTERVALS

## RICHMOND, VA

JULY 2002

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	BKN	070	10.00		71	62	66	73	3	18	30.01	30.19	01	BKN	250	10.00		66	58	61	75	3	03	29.97	30.16				
04	BKN	060	7.00		70	63	66	79	0	00	29.99	30.17	04	SCT	NC	10.00		61	59	60	93	0	00	29.97	30.16				
07	OVC	070	10.00		73	64	67	74	0	00	30.02	30.21	07	OVC	200	9.00		68	61	64	78	0	00	30.03	30.22				
10	OVC	060	10.00		82	66	71	58	6	16	30.00	30.19	10	BKN	200	10.00		82	59	68	46	5	VR	30.04	30.23				
13	FEW	NC	10.00		89	64	72	43	8	13	29.96	30.14	13	BKN	250	10.00		87	56	68	35	9	23	30.00	30.19				
16	FEW	NC	8.00		90	66	74	45	8	16	29.91	30.09	16	SCT	NC	10.00		91	53	68	28	8	27	29.95	30.14				
19	SCT	NC	10.00		84	66	72	55	12	14	29.91	30.10	19	BKN	250	8.00		85	56	67	37	6	07	29.96	30.15				
22	CLR	NC	10.00		76	64	68	67	6	14	29.94	30.13	22	SCT	NC	9.00		74	61	66	64	5	09	30.01	30.20				
SUNRISE: 0452 JUL 02					SUNSET: 1934					SUNRISE: 0456 JUL 08					SUNSET: 1933														
01	BKN	095	10.00		76	62	67	62	6	16	29.92	30.11	01	BKN	250	6.00	HZ	70	64	66	82	0	00	30.03	30.22				
04	FEW	NC	10.00		71	64	67	79	3	19	29.90	30.09	04	SCT	NC	7.00		66	62	64	87	7	20	30.03	30.22				
07	CLR	NC	10.00		75	67	70	76	7	20	29.92	30.11	07	OVC	250	5.00	HZ	69	63	65	81	5	18	30.07	30.26				
10	CLR	NC	4.00	HZ	86	70	75	59	0	00	29.90	30.09	10	SCT	NC	7.00		83	63	70	51	6	23	30.06	30.25				
13	SCT	NC	4.00	HZ	93	68	76	44	3	VR	29.86	30.05	13	FEW	NC	5.00	HZ	93	56	70	29	12	24	30.00	30.19				
16	SCT	NC	3.00	HZ	95	69	77	43	8	08	29.80	29.98	16	BKN	250	8.00		94	55	69	27	8	18	29.94	30.13				
19	CLR	NC	3.00	HZ	89	71	77	55	3	15	29.80	29.98	19	BKN	250	7.00		86	57	68	37	7	18	29.94	30.13				
22	CLR	NC	4.00	HZ	79	73	75	82	7	13	29.80	29.99	22	FEW	NC	5.00	HZ	77	56	64	48	10	19	29.96	30.15				
SUNRISE: 0453 JUL 03					SUNSET: 1934					SUNRISE: 0456 JUL 09					SUNSET: 1933														
01	CLR	NC	4.00	BR	77	73	74	88	3	19	29.80	29.99	01	CLR	NC	5.00	HZ	75	61	66	62	10	20	29.94	30.13				
04	CLR	NC	4.00	BR	74	71	72	91	3	17	29.79	29.97	04	FEW	NC	6.00	HZ	71	66	68	84	9	21	29.93	30.11				
07	CLR	NC	2.50	HZ	80	73	75	79	3	VR	29.80	29.99	07	BKN	250	6.00	HZ	75	69	71	82	12	21	29.91	30.09				
10	CLR	NC	3.00	HZ	92	73	78	54	7	05	29.79	29.98	10	SCT	NC	5.00	HZ	88	68	74	52	10	25	29.90	30.09				
13	SCT	NC	5.00	HZ	96	72	79	46	5	VR	29.75	29.94	13	OVC	250	6.00	HZ	94	67	75	41	8	25	29.84	30.03				
16	OVC	065	4.00	-TSRA	84	75	78	74	14	19	29.71	29.90	16	BKN	100	7.00		96	65	75	36	18	22	29.77	29.95				
19	BKN	200	3.00	BR	77	75	76	94	3	24	29.73	29.91	19	BKN	150	7.00		82	70	74	67	8	22	29.78	29.97				
22	SCT	NC	4.00	BR	79	75	76	88	8	25	29.76	29.94	22	OVC	120	9.00		81	69	73	67	12	28	29.81	29.99				
SUNRISE: 0453 JUL 04					SUNSET: 1934					SUNRISE: 0457 JUL 10					SUNSET: 1932														
01	CLR	NC	3.00	BR	74	73	73	97	0	00	29.75	29.93	01	OVC	130	8.00		76	70	72	82	5	22	29.79	29.97				
04	CLR	NC	3.00	BR	75	74	74	96	5	26	29.76	29.94	04	OVC	130	6.00	BR	76	72	73	88	3	20	29.76	29.95				
07	CLR	NC	5.00	HZ	80	74	76	82	8	36	29.79	29.98	07	OVC	120	5.00	HZ	80	69	73	69	7	31	29.79	29.98				
10	CLR	NC	10.00		91	72	78	54	10	02	29.80	29.99	10	BKN	150	7.00		82	70	74	67	0	00	29.82	30.01				
13	SCT	NC	10.00		95	67	76	40	7	01	29.78	29.96	13	OVC	150	7.00		87	70	75	57	5	03	29.78	29.97				
16	SCT	NC	10.00		98	66	76	35	5	03	29.72	29.91	16	OVC	150	8.00		86	71	76	61	9	03	29.75	29.93				
19	FEW	NC	10.00		93	70	77	47	6	02	29.73	29.92	19	OVC	100	10.00		83	69	74	63	7	03	29.76	29.95				
22	CLR	NC	7.00		81	71	74	72	0	00	29.76	29.95	22	OVC	120	6.00	HZ	78	70	73	76	7	08	29.80	29.98				
SUNRISE: 0454 JUL 05					SUNSET: 1934					SUNRISE: 0457 JUL 11					SUNSET: 1932														
01	CLR	NC	6.00	BR	77	74	75	90	0	00	29.75	29.94	01	OVC	070	6.00	BR	75	71	72	88	7	04	29.78	29.97				
04	CLR	NC	5.00	HZ	78	71	73	79	3	32	29.75	29.94	04	BKN	080	10.00		72	53	61	52	15	03	29.82	30.01				
07	CLR	NC	6.00	HZ	83	72	75	70	10	01	29.80	29.98	07	OVC	095	10.00		70	51	59	51	17	02	29.90	30.09				
10	CLR	NC	10.00		91	69	76	49	15	01	29.81	30.00	10	OVC	250	10.00		73	48	59	41	15	05	29.93	30.12				
13	BKN	060	10.00		91	67	75	45	12	36	29.79	29.98	13	OVC	250	10.00		77	43	59	30	10	03	29.93	30.11				
16	FEW	NC	10.00		95	63	74	35	10	35	29.76	29.94	16	OVC	250	10.00		79	42	59	27	6	VR	29.89	30.08				
19	SCT	NC	10.00		86	50	65	29	8	05	29.78	29.96	19	BKN	250	10.00		73	44	57	36	5	07	29.91	30.10				
22	FEW	NC	10.00		76	58	65	54	8	03	29.85	30.04	22	CLR	NC	10.00		62	46	54	56	0	00	29.93	30.12				
SUNRISE: 0454 JUL 06					SUNSET: 1934					SUNRISE: 0458 JUL 12					SUNSET: 1932														
01	CLR	NC	10.00		72	59	64	64	7	03	29.87	30.06	01	CLR	NC	10.00		58	47	52	67	3	33	29.93	30.11				
04	CLR	NC	10.00		67	58	62	73	8	01	29.89	30.07	04	CLR	NC	10.00		55	49	52	80	0	00	29.92	30.11				
07	SCT	NC	10.00		71	59	64	66	12	02	29.93	30.11	07	BKN	250	10.00		64	54	58	70	6	VR	29.95	30.14				
10	FEW	NC	9.00		78	57	65	48	8	03	29.94	30.13	10	BKN	250	10.00		77	49	61	37	5	VR	29.95	30.14				
13	SCT	NC	10.00		86	54	66	33	17	01	29.91	30.10	13	SCT	NC	10.00		81	47	62	30	0	00	29.90	30.09				
16	BKN	250	10.00		86	53	66	32	9	33	29.88	30.07	16	SCT	NC	10.00		84	51	64	32	12	18	29.85	30.04				
19	SCT	NC	10.00		81	55	65	41	9	36	29.91	30.09	19	BKN	250	10.00		77	52	62	42	12	14	29.84	30.03				
22	FEW	NC	10.00		70	57	62	64	0	00	29.95	30.14	22	FEW	NC	10.00		69	54	60	59	8	15	29.87	30.06				

# OBSERVATIONS AT 3-HOURLY INTERVALS

## RICHMOND, VA

JULY 2002

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: 0459				JUL 13				SUNSET: 1931				SUNRISE: 0503				JUL 19				SUNSET: 1928						
01	BKN	200		10.00	63	56	59	78	3	13	29.87	30.06	01	BKN	140		5.00	HZ	79	71	74	77	7	22	29.71	29.90
04	OVC	070		10.00	65	58	61	78	0	00	29.86	30.05	04	OVC	250		4.00	BR	74	72	73	94	3	16	29.69	29.88
07	OVC	065		10.00	68	58	62	70	5	16	29.87	30.06	07	BKN	250		3.00	HZ	78	73	75	85	6	27	29.71	29.89
10	OVC	085		10.00	79	60	67	52	8	15	29.85	30.04	10	SCT	NC		6.00	HZ	87	71	76	59	7	33	29.71	29.90
13	BKN	200		10.00	86	57	68	37	8	09	29.82	30.01	13	SCT	NC		6.00	HZ	93	69	76	46	5	VR	29.67	29.85
16	OVC	070		10.00	85	57	68	39	6	15	29.78	29.97	16	OVC	080		4.00	-RA	81	74	76	79	18	33	29.64	29.83
19	OVC	180		10.00	80	56	65	44	13	11	29.79	29.98	19	OVC	100		5.00	HZ	85	74	77	70	6	35	29.66	29.84
22	OVC	150		10.00	75	67	70	76	8	11	29.81	29.99	22	OVC	120		4.00	HZ	79	74	75	85	0	00	29.69	29.88
SUNRISE: 0459				JUL 14				SUNSET: 1931				SUNRISE: 0504				JUL 20				SUNSET: 1928						
01	OVC	070		10.00	73	70	71	90	3	09	29.81	29.99	01	BKN	045		3.00	HZ	78	73	75	85	0	00	29.70	29.88
04	OVC	100		10.00	70	70	70	100	7	07	29.79	29.98	04	BKN	110		4.00	HZ	75	70	72	84	6	36	29.70	29.89
07	OVC	046		10.00	71	71	71	100	7	07	29.80	29.99	07	BKN	200		4.00	HZ	77	71	73	82	6	02	29.77	29.95
10	OVC	005		3.00	73	72	72	96	8	09	29.81	30.00	10	BKN	200		5.00	HZ	83	70	74	65	8	34	29.81	29.99
13	OVC	013		3.00	71	70	70	96	13	06	29.80	29.99	13	BKN	160		6.00	HZ	90	69	76	50	10	03	29.79	29.98
16	OVC	015		10.00	75	70	72	84	15	09	29.77	29.96	16	OVC	150		5.00	HZ	87	69	75	55	7	06	29.77	29.96
19	OVC	019		10.00	71	69	70	94	8	04	29.80	29.99	19	OVC	180		6.00	HZ	79	71	74	77	7	22	29.81	30.00
22	OVC	018		10.00	69	67	68	93	6	02	29.83	30.02	22	OVC	200		5.00	HZ	74	70	71	88	5	24	29.85	30.04
SUNRISE: 0500				JUL 15				SUNSET: 1930				SUNRISE: 0504				JUL 21				SUNSET: 1927						
01	OVC	020		10.00	69	66	67	90	7	01	29.82	30.01	01	SCT	NC		4.00	BR	70	70	70	100	0	00	29.87	30.06
04	BKN	080		10.00	68	66	67	93	6	35	29.81	30.00	04	FEW	NC		3.00	BR	69	69	69	100	3	14	29.88	30.07
07	BKN	080		10.00	71	67	68	86	6	35	29.86	30.05	07	CLR	NC		2.00	BR	73	72	72	96	3	12	29.92	30.11
10	BKN	250		10.00	82	66	71	60	5	VR	29.86	30.05	10	FEW	NC		5.00	HZ	85	69	74	59	6	VR	29.94	30.12
13	BKN	040		10.00	83	68	73	61	6	27	29.82	30.01	13	BKN	055		7.00		89	66	74	47	6	14	29.93	30.11
16	BKN	250		10.00	89	68	75	50	7	VR	29.78	29.97	16	SCT	NC		8.00		89	67	74	48	9	15	29.89	30.07
19	CLR	NC		10.00	86	66	73	51	6	27	29.79	29.97	19	CLR	NC		7.00		83	68	73	61	13	14	29.89	30.08
22	BKN	060		10.00	77	70	72	79	0	00	29.80	29.99	22	CLR	NC		9.00		74	67	69	79	8	14	29.93	30.12
SUNRISE: 0501				JUL 16				SUNSET: 1930				SUNRISE: 0505				JUL 22				SUNSET: 1926						
01	SCT	NC		10.00	74	70	71	88	0	00	29.81	29.99	01	CLR	NC		7.00		71	70	70	96	0	00	29.93	30.12
04	SCT	NC		10.00	71	70	70	96	0	00	29.79	29.98	04	BKN	100		4.00	BR	70	70	70	100	5	19	29.93	30.12
07	CLR	NC		7.00	78	68	71	71	6	31	29.84	30.03	07	CLR	NC		2.50	BR	73	72	72	96	3	22	29.97	30.16
10	CLR	NC		8.00	88	63	72	43	9	34	29.84	30.02	10	CLR	NC		6.00	HZ	85	73	77	68	9	15	29.96	30.15
13	SCT	NC		10.00	91	63	72	39	13	35	29.80	29.99	13	FEW	NC		7.00		93	67	75	42	13	18	29.93	30.11
16	SCT	NC		9.00	93	63	73	37	15	34	29.76	29.95	16	FEW	NC		7.00		93	68	76	44	15	16	29.87	30.06
19	SCT	NC		8.00	90	65	73	44	8	33	29.79	29.97	19	FEW	NC		7.00		88	70	76	55	12	18	29.88	30.07
22	BKN	250		8.00	79	68	72	69	0	00	29.82	30.01	22	BKN	250		10.00		80	70	73	71	10	20	29.92	30.11
SUNRISE: 0501				JUL 17				SUNSET: 1929				SUNRISE: 0506				JUL 23				SUNSET: 1926						
01	BKN	250		5.00	74	68	70	82	0	00	29.85	30.03	01	SCT	NC		10.00		75	71	72	88	9	20	29.93	30.11
04	SCT	NC		5.00	72	68	69	87	0	00	29.84	30.02	04	SCT	NC		8.00		74	73	73	97	12	21	29.91	30.10
07	SCT	NC		8.00	77	64	69	64	8	35	29.87	30.06	07	SCT	NC		10.00		78	72	74	82	16	21	29.93	30.11
10	SCT	NC		10.00	88	63	72	43	0	00	29.88	30.07	10	SCT	NC		10.00		87	70	75	57	14	19	29.91	30.10
13	SCT	NC		10.00	93	59	71	32	0	00	29.86	30.04	13	OVC	150		10.00		87	70	75	57	14	19	29.88	30.06
16	SCT	NC		10.00	95	60	72	31	5	VR	29.80	29.99	16	SCT	NC		10.00		91	70	76	50	13	17	29.80	29.99
19	BKN	250		10.00	92	57	70	31	8	28	29.80	29.99	19	BKN	150		10.00		85	73	77	68	12	18	29.83	30.01
22	SCT	NC		10.00	77	62	68	60	5	16	29.81	30.00	22	OVC	150		10.00		81	73	75	77	13	20	29.88	30.07
SUNRISE: 0502				JUL 18				SUNSET: 1929				SUNRISE: 0507				JUL 24				SUNSET: 1925						
01	OVC	150		9.00	78	66	70	67	3	18	29.79	29.97	01	OVC	140		10.00		75	72	73	90	9	33	29.90	30.08
04	OVC	150		7.00	76	67	70	74	3	19	29.77	29.96	04	OVC	140		10.00		73	72	72	96	0	00	29.90	30.09
07	OVC	200		4.00	77	70	72	79	5	19	29.79	29.98	07	BKN	150		6.00	BR	75	72	73	90	6	02	29.93	30.11
10	SCT	NC		4.00	89	70	76	53	3	VR	29.78	29.97	10	OVC	015		6.00	HZ	78	72	74	82	8	01	29.96	30.14
13	SCT	NC		5.00	94	65	74	38	7	26	29.73	29.91	13	OVC	040		6.00	HZ	83	72	75	70	7	VR	29.94	30.13
16	OVC	150		5.00	93	66	75	41	14	24	29.70	29.89	16	OVC	028		8.00		81	71	74	72	10	07	29.91	30.10
19	OVC	200		3.00	84	75	78	74	6	21	29.72	29.91	19	OVC	027		7.00		79	71	74	77	7	05	29.92	30.11
22	OVC	110		8.00	83	70	74	65	8	23	29.74	29.93	22	OVC	010		3.00	BR	74	74	74	100	3	02	29.93	30.12

# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

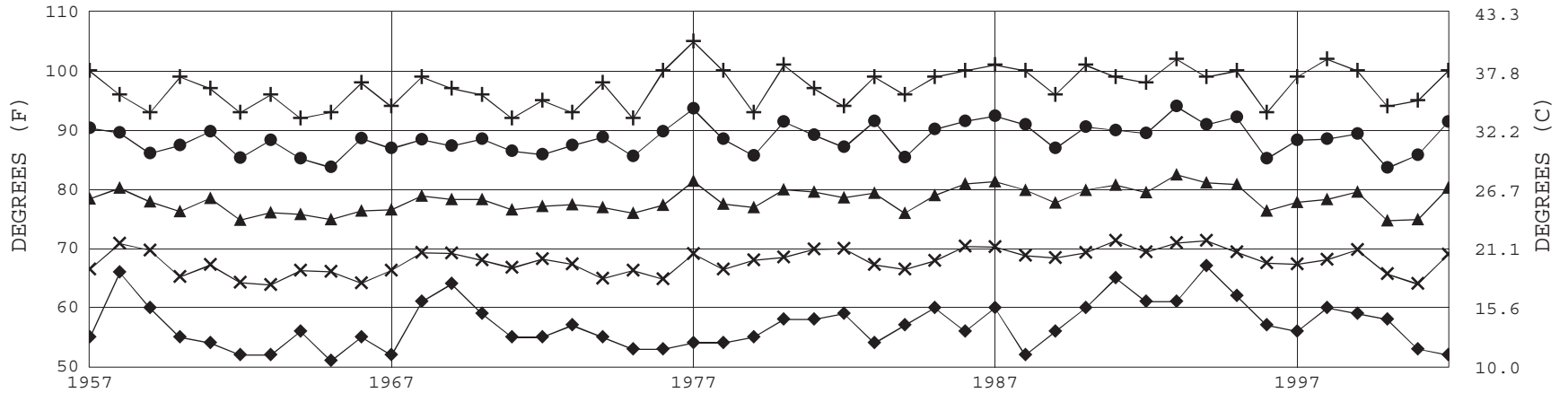
JULY 2002

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: 0508								JUL 25								SUNSET: 1924								SUNRISE: 0512								JUL 31								SUNSET: 1919							
01	OVC	013			3.00	-RA BR		73	73	73	100	3	03	29.90	30.09	01	CLR	NC				10.00		74	68	70	82	0	00	29.75	29.94																
04	OVC	005			3.00	BR		72	72	72	100	8	03	29.90	30.09	04	CLR	NC				9.00		76	68	71	77	0	00	29.77	29.96																
07	OVC	010			10.00			72	71	71	97	8	03	29.93	30.12	07	SCT	NC				7.00		77	69	72	77	6	33	29.80	29.99																
10	OVC	008			7.00			74	72	73	94	8	07	29.96	30.15	10	BKN	250				9.00		88	71	76	57	12	35	29.80	29.99																
13	OVC	011			10.00			73	70	71	90	10	06	29.96	30.15	13	SCT	NC				10.00		90	67	74	47	3	VR	29.77	29.96																
16	OVC	017			10.00			76	69	71	79	13	07	29.94	30.13	16	BKN	250				9.00		93	68	76	44	10	01	29.72	29.90																
19	OVC	029			10.00			75	65	69	71	7	10	29.96	30.14	19	SCT	NC				8.00		88	71	76	57	5	18	29.73	29.91																
22	OVC	047			10.00			72	66	68	82	0	00	29.97	30.16	22	FEW	NC				7.00		77	70	72	79	7	12	29.75	29.94																
SUNRISE: 0508								JUL 26								SUNSET: 1923								3-HOURLY OBSERVATION NOTES																							
01	OVC	027			10.00			70	66	67	87	5	07	29.95	30.14	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	024			10.00			69	66	67	90	5	06	29.93	30.12	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.																															
07	OVC	023			2.50	-RA BR		69	67	68	93	5	11	29.94	30.13	NC = No ceiling detected.																															
10	OVC	006			10.00			70	70	70	100	3	VR	29.95	30.14	& = Original observation contained additional weather elements.																															
13	OVC	007			2.00	-RA BR		71	71	71	100	6	09	29.94	30.12	See page 3 for additional notes.																															
16	OVC	013			10.00			74	72	73	94	7	08	29.88	30.07																																
19	OVC	042			10.00			73	72	72	96	5	10	29.88	30.06																																
22	BKN	150			7.00			71	71	71	100	6	13	29.88	30.07																																
SUNRISE: 0509								JUL 27								SUNSET: 1923																															
01	OVC	007			8.00			71	71	71	100	3	11	29.86	30.04																																
04	OVC	003			3.00	BR		72	72	72	100	0	00	29.84	30.02																																
07	OVC	002			0.25	FG		73	73	73	100	5	18	29.84	30.03																																
10	OVC	004			2.00	BR		76	74	75	94	8	17	29.83	30.02																																
13	BKN	250			5.00	HZ		85	74	77	70	5	VR	29.83	30.02																																
16	OVC	034			9.00	-TSRA		70	70	70	100	6	19	29.80	29.98																																
19	BKN	250			10.00			74	73	73	97	5	19	29.77	29.96																																
22	BKN	250			7.00			70	70	70	100	5	20	29.82	30.01																																
SUNRISE: 0510								JUL 28								SUNSET: 1922																															
01	BKN	150			10.00			73	71	72	94	7	26	29.81	30.00																																
04	SCT	NC			10.00			73	72	72	96	6	22	29.80	29.98																																
07	BKN	250			8.00			75	72	73	90	3	24	29.81	30.00																																
10	SCT	NC			9.00			88	75	79	66	6	25	29.83	30.01																																
13	BKN	100			10.00			94	74	80	52	8	25	29.80	29.99																																
16	SCT	NC			10.00			95	73	79	49	7	VR	29.77	29.95																																
19	SCT	NC			9.00			92	74	79	56	12	24	29.75	29.94																																
22	FEW	NC			8.00			81	76	77	85	8	21	29.77	29.95																																
SUNRISE: 0511								JUL 29								SUNSET: 1921																															
01	CLR	NC			7.00			81	76	77	85	8	22	29.75	29.93																																
04	CLR	NC			7.00			80	74	76	82	6	25	29.75	29.94																																
07	CLR	NC			7.00			82	74	76	77	6	28	29.78	29.97																																
10	CLR	NC			10.00			92	73	78	54	3	VR	29.79	29.97																																
13	SCT	NC			10.00			97	72	79	45	13	28	29.75	29.94																																
16	SCT	NC			10.00			97	69	77	40	14	26	29.70	29.89																																
19	FEW	NC			10.00			94	72	78	49	8	28	29.71	29.89																																
22	CLR	NC			10.00			88	73	77	61	9	24	29.74	29.93																																
SUNRISE: 0512								JUL 30								SUNSET: 1920																															
01	CLR	NC			10.00			83	74	77	74	6	25	29.72	29.91																																
04	CLR	NC			10.00			80	73	75	79	8	25	29.71	29.89																																
07	CLR	NC			10.00			83	72	75	70	10	27	29.74	29.93																																
10	CLR	NC			10.00			93	69	76	46	12	30	29.75	29.94																																
13	SCT	NC			10.00			96	66	75	37	17	33	29.74	29.93																																
16	SCT	NC			10.00			96	66	75	37	14	31	29.72	29.91																																
19	FEW	NC			10.00			90	66	74	45	8	34	29.73	29.92																																
22	CLR	NC			10.00			81	68	72	65	5	36	29.74	29.93																																

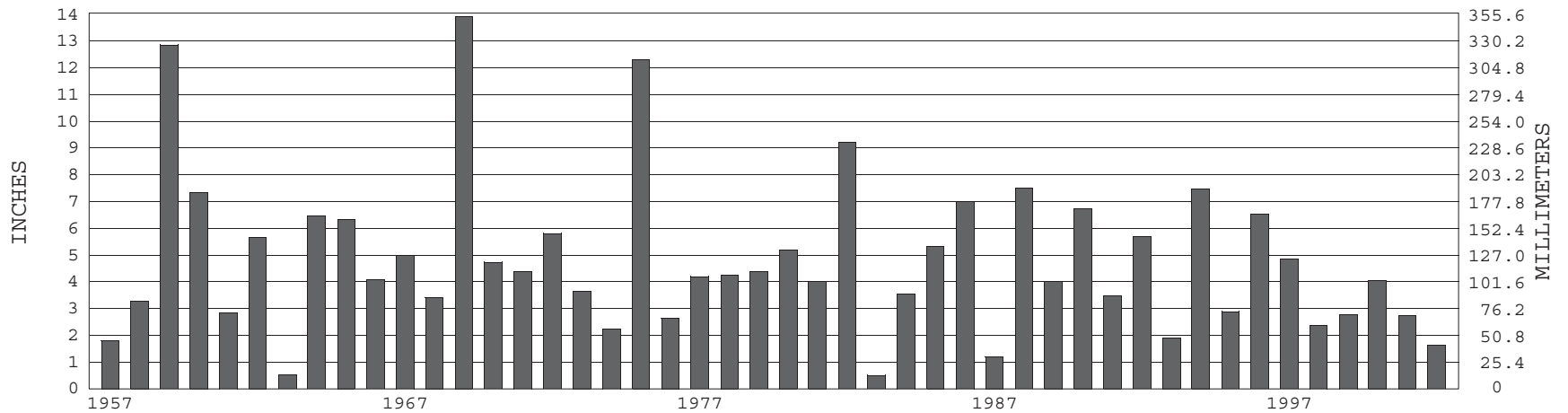
### RICHMOND, VA JULY TEMPERATURES



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

Long-Term (1957-2002) Mean: 78.2      1961-1990 Normal: 77.9

### RICHMOND, VA JULY PRECIPITATION



Long-Term (1957-2002) Mean Monthly Total: 4.84

1961-1990 Normal: 4.67



JULY 2002

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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