



# DECEMBER 1997

## 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

DECEMBER 1997  
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	51	34	43	-2	34	41	22	0	RA DZ BR				0.02	29.50	29.70	12.6	35	13.3	36*	01	30*	01	01						
02	52	29	41	-3	25	34	24	0					0.00	29.93	30.13	4.3	29	4.9	14	30	11	30	02						
03	53	27	40	-4	30	37	25	0	RA				0.05	29.90	30.10	5.0	17	5.1	15	14	13	15	03						
04	62	44	53*	10	47	49	12	0	RA BR				0.20	29.49	29.69	2.7	26	5.0	15	28	11	27	04						
05	50	33	42	-1	28	38	23	0	RA				T	29.48	29.68	8.8	30	9.2	29	27	24	28	05						
06	40	29	35	-8	14	27	30	0					0.00	29.62	29.83	9.8	27	10.1	26	31	22	28	06						
07	46	27	37	-5	19	30	28	0					0.00	29.77	29.98	9.0	28	9.5	26	28	21	28	07						
08	44	23	34	-8	24	31	31	0					0.00	29.92	30.13	1.5	24	2.4	14	23	11	23	08						
09	43	32	38	-4	34	37	27	0	RA BR				0.02	29.80	30.00	1.3	11	2.2	9	18	7	17	09						
10	45	33	39	-2	40	41	26	0	RA DZ BR				0.35	29.58	29.78	1.2	25	5.4	18	13	15	13	10						
11	47	41	44	3	40	42	21	0	BR				0.00	29.77	29.97	1.5	04	4.2	13	26	10	26	11						
12	45	30	38	-3	37	39	27	0	BR HZ				0.00	29.86	30.07	2.1	33	3.3	15	01	13	01	12						
13	47	25	36	-5	27	32	29	0	BR				0.00	29.77	29.98	2.2	23	3.6	17	36	14	01	13						
14	44	27	36	-4	24	31	29	0					0.00	29.83	30.04	4.4	36	5.2	18	01	13	01	14						
15	46	20*	33	-7	23	30	32	0					0.00	29.98	30.19	0.4	35	2.6	14	01	11	02	15						
16	59	23	41	1	21	32	24	0	HZ				0.00	29.89	30.09	0.5	14	1.0	7	15	7	16	16						
17	59	25	42	2	22	34	23	0					0.00	29.73	29.93	2.9	01	3.0	17	01	15	01	17						
18	51	32	42	3	26	34	23	0					0.00	29.90	30.11	3.2	36	4.6	16	01	13	04	18						
19	62	30	46	7	28	37	19	0					0.00	29.92	30.12	5.6	23	6.6	17	24	15	24	19						
20	63*	30	47	8	33	41	18	0					0.00	29.83	30.04	3.4	28	7.5	23	01	18	01	20						
21	48	32	40	1	29	36	25	0					0.00	30.07	30.28	4.6	04	5.2	18	02	16	02	21						
22	42	34	38	0	36	38	27	0	RA DZ BR UP				0.48	29.99	30.20	5.1	03	6.7	16	33	14	32	22						
23	60	38	49	11	41	43	16	0	BR				0.00	29.79	30.00	3.7	27	6.2	16	26	14	26	23						
24	46	36	41	3	39	41	24	0	RA BR				0.23	29.87	30.08	5.1	09	5.5	18	09	15	10	24						
25	59	42	51	13	44	46	14	0	RA DZ FG+ BR				0.15	29.60	29.80	5.4	27	6.2	20	26	15	26	25						
26	56	35	46	8	37	41	19	0	FG BR				0.00	29.73	29.93	2.5	28	2.9	14	26	13	25	26						
27	40	32	36	-1	34	35	29	0	RA SN PE BR				0.65	29.55	29.75	10.1	01	10.7	23	36	18	01	27						
28	41	26	34	-3	24	30	31	0	SN				T	29.76	29.96	6.4	34	7.8	28	01	21	36	28						
29	38	24	31*	-6	29	31	34	0	RA SN PE BR				0.21	29.46	29.67	1.5	01	8.6	18	26	16	02	29						
30	43	33	38	1	27	33	27	0	DZ SN BR				T	29.29	29.50	15.6	25	15.9	30	26	24	25	30						
31	40	26	33	-4	15	28	32	0					0.00	29.84	30.05	11.1	29	12.0	25	31	21	30	31						
< MONTHLY AVERAGES										TOTALS-->				<- MONTHLY AVERAGES															
-1.1										0.8				-2															
DEPARTURE FROM NORMAL										->				->															
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 0.65				DATE: 27-28				SEA LEVEL PRESSURE				DATE TIME							
MONTHLY										GREATEST 24-HR SNOWFALL:				DATE:				MAXIMUM				: 30.43				31 2359			
TOTAL DEPARTURE										GREATEST SNOW DEPTH:				DATE:				MINIMUM				: 29.30				30 0150			
HEATING: 771										NUMBER OF DAYS WITH				MAXIMUM TEMP ≥ 90: 0				MINIMUM TEMP ≤ 32: 20				PRECIPITATION ≥ 0.01 INCH: 10							
COOLING: 0										->				MAXIMUM TEMP ≤ 32: 0				MINIMUM TEMP ≤ 0: 0				PRECIPITATION ≥ 0.10 INCH: 7							
														THUNDERSTORMS: 0				HEAVY FOG: 1				SNOWFALL ≥ 1.0 INCH: 0							

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## RICHMOND, VA

DECEMBER 1997

RIC

WBAN # 13740

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note 2)	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	T	0.01	T	T		0.01	T						01												01		0.02		
02													02												02		0.00		
03													03												03		0.05		
04	T		0.08	0.10	0.02	T							04											0.01	0.03	0.01	04	0.20	
05								T	T				05														05	T	
06													06														06	0.00	
07													07														07	0.00	
08													08														08	0.00	
09						T	T						09	T	0.01	0.01	T									09	0.02		
10									0.01	0.04	0.12	0.06	10	0.04	0.05	0.03	T									10	0.35		
11													11														11	0.00	
12													12														12	0.00	
13													13														13	0.00	
14													14														14	0.00	
15													15														15	0.00	
16													16														16	0.00	
17													17														17	0.00	
18													18														18	0.00	
19													19														19	0.00	
20													20														20	0.00	
21													21														21	0.00	
22						0.02	T	0.03	0.02	T	T	0.01	22	0.02	0.03	0.10	0.13	0.03	0.04	0.03	0.01	0.01	T	T	T	22	0.48		
23													23														23	0.00	
24													24				T	0.02	0.02	0.06	0.04	0.01	0.03	0.02	0.02	24	0.22		
25	0.09	0.07	T	T	T	T							25													25	0.16		
26													26														26	0.00	
27							0.02	0.18	0.08	0.12	0.06	0.01	27	0.01	0.02	0.01	0.02	0.03	0.03	0.04	0.01	T	T	T	T	27	0.64		
28	T												28														28	T	
29													29		0.01	0.02	T	T	0.01	0.04	0.10	0.03				29	0.21		
30	T	T	T	T									30														30	T	
31													31														31	0.00	

### MAXIMUM SHORT DURATION PRECIPITATION (See Note 1)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.04	.06	.07	.08	.10	.12	.15	.17	.21	.23	.25	.26
Ending Date	04	04	04	04	10	10	10	04	22	22	22	22
Ending Time (Hour/Min)	0213	0320	0320	0324	1052	1106	1122	0324	1543	1551	1610	1701

Date and time are not entered for TRACE amounts.

Note 1: NCDC derives these data from one-minute ASOS values. The table is not printed when inconsistent with ASOS hourly totals.

Note 2: The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

## REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

\* = Extreme for the month (last occurrence if more than one)

T = Trace precipitation amount

+ = also occurs on earlier date

FG+ = Heavy fog, visibility .25 miles or less  
BLANK entries denote missing or unreported data

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1961 – 1990

### WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PE 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 DECEMBER 1997

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 at constant pressure by evaporation of moisture into it, to 100% relative humidity.

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							8.00	10.00	
03							7.00	10.00	
04							1.50	10.00	
05							10.00	10.00	
06							10.00	10.00	
07							10.00	10.00	
08							7.00	10.00	
09							2.50	10.00	
10							.50	10.00	
11							6.00	10.00	
12							2.00	10.00	
13							4.00	10.00	
14							10.00	10.00	
15							8.00	10.00	
16							6.00	10.00	
17							8.00	10.00	
18							9.00	10.00	
19							10.00	10.00	
20							10.00	10.00	
21							9.00	10.00	
22							1.50	10.00	
23							2.00	10.00	
24							2.50	10.00	
25							.25	10.00	
26							.50	10.00	
27							.75	10.00	
28							10.00	10.00	
29							4.00	10.00	
30							6.00	10.00	
31							10.00	10.00	
<b>MONTHLY AVGS</b>							5.74	10.00	
<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 11 15									

# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

DECEMBER 1997

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 Oktas	VISIBILITY (MILES)	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	VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
<b>SUNRISE: 0705</b>					<b>DEC 01</b>	<b>SUNSET: 1652</b>					<b>SUNRISE: 0711</b>					<b>DEC 07</b>	<b>SUNSET: 1651</b>												
01	OVC	003		2.00	DZ BR	50	50	50	100	6	27	29.22	29.42	01	CLR	NC		10.00		29	14	24	54	10	27	29.68	29.88		
04	OVC	003		2.00		50	50	50	100	6	35	29.24	29.44	04	SCT	NC		10.00		28	15	24	58	9	26	29.68	29.89		
07	OVC	013		10.00		49	45	47	86	21	01	29.35	29.55	07	BKN	110		10.00		30	16	26	56	13	27	29.73	29.94		
10	SCT	NC		10.00		46	32	40	58	20	36	29.47	29.67	10	BKN	100		10.00		36	18	30	48	14	28	29.77	29.98		
13	CLR	NC		10.00		50	24	40	36	23	33	29.50	29.71	13	CLR	NC		10.00		45	21	36	39	14	29	29.73	29.93		
16	CLR	NC		10.00		50	25	40	38	18	33	29.58	29.78	16	CLR	NC		10.00		45	21	36	39	10	32	29.77	29.98		
19	CLR	NC		10.00		42	24	35	49	7	34	29.68	29.88	19	CLR	NC		10.00		38	22	32	53	6	28	29.83	30.03		
22	CLR	NC		10.00		38	25	33	60	8	34	29.75	29.96	22	CLR	NC		10.00		30	22	27	72	0	00	29.89	30.10		
<b>SUNRISE: 0706</b>					<b>DEC 02</b>	<b>SUNSET: 1651</b>					<b>SUNRISE: 0712</b>					<b>DEC 08</b>	<b>SUNSET: 1651</b>												
01	CLR	NC		10.00		35	24	31	64	0	00	29.80	30.01	01	CLR	NC		10.00		28	21	26	75	0	00	29.91	30.11		
04	CLR	NC		10.00		36	24	32	62	10	28	29.84	30.04	04	CLR	NC		10.00		25	21	24	85	0	00	29.93	30.14		
07	CLR	NC		10.00		32	24	29	73	5	26	29.91	30.11	07	CLR	NC		10.00		23	20	22	88	0	00	29.95	30.16		
10	SCT	NC		10.00		42	24	35	49	12	30	29.96	30.16	10	FEW	NC		10.00		38	27	34	65	0	00	30.00	30.21		
13	SCT	NC		10.00		49	23	39	36	6	27	29.93	30.14	13	OVC	250		10.00		43	24	36	47	6	21	29.93	30.14		
16	FEW	NC		10.00		52	24	41	34	5	29	29.93	30.14	16	OVC	180		10.00		42	24	35	49	5	27	29.90	30.11		
19	CLR	NC		10.00		39	27	34	62	3	06	29.97	30.18	19	OVC	200		10.00		37	27	33	67	0	00	29.90	30.11		
22	FEW	NC		10.00		35	25	31	67	0	00	29.99	30.20	22	OVC	150		10.00		36	27	33	70	0	00	29.89	30.09		
<b>SUNRISE: 0707</b>					<b>DEC 03</b>	<b>SUNSET: 1651</b>					<b>SUNRISE: 0712</b>					<b>DEC 09</b>	<b>SUNSET: 1651</b>												
01	CLR	NC		10.00		30	25	28	82	0	00	30.00	30.21	01	SCT	NC		10.00		34	28	32	79	0	00	29.86	30.07		
04	CLR	NC		10.00		28	25	27	88	0	00	30.00	30.21	04	OVC	060		10.00		36	29	33	76	0	00	29.82	30.02		
07	SCT	NC		10.00		29	24	27	82	0	00	30.01	30.22	07	OVC	041		10.00		36	31	34	82	0	00	29.81	30.02		
10	OVC	250		10.00		42	27	36	55	7	16	30.01	30.21	10	OVC	030		10.00		39	32	36	76	5	18	29.83	30.04		
13	OVC	180		10.00		49	26	40	41	9	16	29.91	30.12	13	OVC	018		10.00		42	35	39	76	3	13	29.76	29.96		
16	OVC	250		10.00		53	31	43	43	6	15	29.84	30.04	16	OVC	016		4.00	BR	42	39	41	89	5	05	29.76	29.96		
19	BKN	042		10.00		50	33	43	52	10	17	29.79	30.00	19	OVC	036		9.00		41	39	40	93	3	07	29.78	29.99		
22	OVC	060		10.00	-RA	47	39	43	74	8	18	29.74	29.94	22	OVC	046		9.00		40	38	39	93	5	11	29.78	29.99		
<b>SUNRISE: 0708</b>					<b>DEC 04</b>	<b>SUNSET: 1651</b>					<b>SUNRISE: 0713</b>					<b>DEC 10</b>	<b>SUNSET: 1651</b>												
01	OVC	050		10.00		45	42	44	90	6	17	29.63	29.83	01	BKN	019		0.75	BR	33	33	33	100	0	00	29.76	29.97		
04	OVC	055		1.75	-RA BR	45	45	45	100	5	30	29.57	29.77	04	OVC	011		5.00	BR	38	37	38	97	0	00	29.70	29.91		
07	OVC	070		3.00	BR	46	46	46	100	3	18	29.52	29.73	07	OVC	002		0.50	BR	38	38	38	100	5	13	29.67	29.87		
10	OVC	080		3.00	BR	50	49	49	96	9	23	29.50	29.70	10	OVC	002		0.75	-RA BR	39	39	39	100	8	08	29.64	29.85		
13	OVC	075		10.00		59	51	55	75	6	23	29.44	29.65	13	OVC	004		1.25	RA BR	44	44	44	100	7	14	29.48	29.68		
16	SCT	NC		10.00		61	48	54	63	6	23	29.41	29.61	16	OVC	004		2.00	BR	44	43	44	96	7	33	29.43	29.63		
19	SCT	NC		10.00		55	48	51	77	5	28	29.43	29.63	19	OVC	011		9.00		42	41	42	96	5	26	29.46	29.67		
22	CLR	NC		10.00		47	46	46	97	7	01	29.45	29.66	22	OVC	007		10.00		43	41	42	93	10	24	29.53	29.74		
<b>SUNRISE: 0709</b>					<b>DEC 05</b>	<b>SUNSET: 1651</b>					<b>SUNRISE: 0714</b>					<b>DEC 11</b>	<b>SUNSET: 1652</b>												
01	OVC	065		10.00		47	45	46	93	0	00	29.42	29.62	01	OVC	007		10.00		44	42	43	93	8	26	29.57	29.77		
04	OVC	090		10.00		45	43	44	93	0	00	29.41	29.61	04	FEW	NC		8.00		42	41	42	96	0	00	29.62	29.83		
07	OVC	060		10.00		45	38	42	77	5	30	29.43	29.63	07	OVC	005		10.00		42	40	41	92	3	01	29.70	29.91		
10	BKN	070		10.00		47	35	42	63	10	28	29.46	29.66	10	OVC	008		10.00		44	40	42	85	0	00	29.79	29.99		
13	SCT	NC		10.00		50	21	39	32	15	30	29.42	29.62	13	OVC	014		10.00		46	40	43	79	7	05	29.80	30.01		
16	BKN	080		10.00		47	18	36	31	16	30	29.46	29.67	16	OVC	027		10.00		47	39	43	74	6	07	29.83	30.03		
19	CLR	NC		10.00		42	19	34	40	12	29	29.56	29.76	19	OVC	027		10.00		45	41	43	86	0	00	29.86	30.06		
22	CLR	NC		10.00		36	18	30	48	7	28	29.62	29.82	22	SCT	NC		10.00		42	40	41	92	3	13	29.88	30.09		
<b>SUNRISE: 0710</b>					<b>DEC 06</b>	<b>SUNSET: 1651</b>					<b>SUNRISE: 0715</b>					<b>DEC 12</b>	<b>SUNSET: 1652</b>												
01	FEW	NC		10.00		33	17	28	52	8	28	29.60	29.80	01	BKN	140		6.00	BR	40	40	40	100	0	00	29.85	30.05		
04	CLR	NC		10.00		30	17	26	59	9	25	29.57	29.78	04	OVC	004		5.00	BR	40	40	40	100	0	00	29.85	30.06		
07	SCT	NC		10.00		30	18	26	61	9	25	29.59	29.80	07	OVC	004		2.00	BR	41	40	41	96	5	01	29.86	30.06		
10	SCT	NC		10.00		35	14	28	42	15	29	29.64	29.85	10	OVC	008		2.00	BR	43	40	42	89	7	33	29.90	30.11		
13	FEW	NC		10.00		38	11	29	33	15	28	29.59	29.80	13	OVC	034		10.00		43	37	40	80	5	36	29.85	30.06		
16	CLR	NC		10.00		38	11	29	33	13	28	29.62	29.83	16	OVC	050		10.00		45	35	41	68	0	00	29.85	30.05		
19	CLR	NC		10.00		34	13	27	42	12	27	29.66	29.87	19	SCT	NC		10.00		37	34	36	89	3	23	29.87	30.08		
22	CLR	NC		10.00		31	13	25	47	8	27	29.68	29.89	22	SCT	NC		10.00		34	32	33	92	6	24	29.87	30.08		

# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

DECEMBER 1997

RIC

WBAN # 13740

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE ° F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE ° F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)	
	DRY BULB	DEW POINT		WET BULB	OBSERVATION TIME (LST)			EFF CLD AMT Ok/as	DRY BULB	DEW POINT		WET BULB	SPEED (MPH)	DIRECTION TENS OF DEG	STATION		SEA LEVEL	DRY BULB		DEW POINT	WET BULB			OBSERVATION TIME (LST)	EFF CLD AMT Ok/as	DRY BULB		DEW POINT	WET BULB	SPEED (MPH)	DIRECTION TENS OF DEG
<b>SUNRISE: 0715 DEC 13 SUNSET: 1652</b>								<b>SUNRISE: 0719 DEC 19 SUNSET: 1654</b>																							
01	FEW	NC				7.00		29	28	29	96	3	20	29.87	30.08	01	FEW	NC				10.00		35	26	32	70	3	19	29.93	30.14
04	FEW	NC				6.00	BR	27	26	27	96	0	00	29.83	30.04	04	CLR	NC				10.00		31	26	29	82	3	17	29.93	30.14
07	BKN	250				7.00		25	23	24	92	0	00	29.81	30.02	07	CLR	NC				10.00		31	26	29	82	6	19	29.94	30.15
10	SCT	NC				8.00		38	32	36	79	0	00	29.82	30.02	10	BKN	250				10.00		46	32	40	58	9	24	29.97	30.17
13	BKN	250				10.00		44	28	38	53	8	18	29.76	29.96	13	BKN	250				10.00		59	28	45	31	7	24	29.90	30.11
16	BKN	150				10.00		45	26	37	48	7	23	29.70	29.91	16	SCT	NC				10.00		61	26	46	26	12	26	29.88	30.09
19	OVC	130				10.00		40	30	36	68	5	19	29.71	29.92	19	SCT	NC				10.00		46	28	39	50	6	23	29.90	30.11
22	SCT	NC				10.00		35	28	32	76	0	00	29.71	29.92	22	CLR	NC				10.00		41	28	36	60	3	22	29.90	30.11
<b>SUNRISE: 0716 DEC 14 SUNSET: 1652</b>								<b>SUNRISE: 0720 DEC 20 SUNSET: 1654</b>																							
01	CLR	NC				10.00		33	25	30	72	9	01	29.72	29.93	01	FEW	NC				10.00		37	27	33	67	6	25	29.88	30.08
04	CLR	NC				10.00		29	24	27	82	9	02	29.77	29.97	04	CLR	NC				10.00		33	26	30	75	3	19	29.85	30.06
07	CLR	NC				10.00		29	24	27	82	0	00	29.80	30.01	07	SCT	NC				10.00		32	27	30	82	5	20	29.85	30.05
10	OVC	250				10.00		35	26	32	70	5	36	29.85	30.06	10	BKN	250				10.00		48	31	41	52	7	26	29.84	30.05
13	BKN	250				10.00		41	24	35	51	6	31	29.84	30.04	13	OVC	250				10.00		61	35	49	38	15	27	29.77	29.97
16	OVC	250				10.00		43	23	35	45	0	00	29.84	30.05	16	OVC	250				10.00		61	37	49	41	6	27	29.75	29.96
19	OVC	250				10.00		38	24	33	57	5	03	29.86	30.07	19	BKN	075				10.00		52	37	45	57	3	25	29.80	30.01
22	SCT	NC				10.00		35	22	30	59	10	02	29.89	30.10	22	BKN	070				10.00		52	37	45	57	13	01	29.89	30.09
<b>SUNRISE: 0717 DEC 15 SUNSET: 1653</b>								<b>SUNRISE: 0720 DEC 21 SUNSET: 1655</b>																							
01	FEW	NC				10.00		31	22	28	69	10	03	29.91	30.12	01	BKN	070				10.00		45	33	40	63	13	02	29.93	30.13
04	CLR	NC				10.00		25	21	24	85	0	00	29.95	30.16	04	BKN	050				10.00		39	32	36	76	3	03	29.99	30.19
07	FEW	NC				10.00		21	19	20	92	3	22	30.00	30.21	07	FEW	NC				9.00		34	31	33	89	3	01	30.04	30.24
10	CLR	NC				10.00		37	25	33	62	5	32	30.04	30.24	10	BKN	250				10.00		42	29	37	60	12	06	30.13	30.33
13	CLR	NC				10.00		44	23	36	43	0	00	29.99	30.19	13	SCT	NC				10.00		46	27	38	47	3	VR	30.08	30.28
16	CLR	NC				10.00		45	24	37	44	5	20	29.98	30.19	16	OVC	250				10.00		46	27	38	47	7	03	30.07	30.28
19	CLR	NC				10.00		36	25	32	64	0	00	29.99	30.20	19	OVC	250				10.00		39	27	34	62	6	09	30.13	30.33
22	CLR	NC				9.00		28	24	27	85	5	15	29.98	30.19	22	OVC	250				10.00		36	29	33	76	0	00	30.17	30.38
<b>SUNRISE: 0717 DEC 16 SUNSET: 1653</b>								<b>SUNRISE: 0721 DEC 22 SUNSET: 1655</b>																							
01	CLR	NC				8.00		27	23	26	85	0	00	29.97	30.17	01	OVC	060				10.00		36	29	33	76	5	08	30.14	30.35
04	CLR	NC				7.00		25	22	24	88	0	00	29.95	30.16	04	OVC	150				10.00		36	30	34	79	6	08	30.09	30.30
07	CLR	NC				8.00		25	21	24	85	0	00	29.97	30.18	07	OVC	075				10.00	-RA	35	32	34	89	6	36	30.13	30.34
10	CLR	NC				7.00		42	28	36	58	0	00	29.97	30.18	10	BKN	100				10.00		37	35	36	93	5	06	30.12	30.33
13	CLR	NC				10.00		55	14	40	20	0	00	29.88	30.09	13	OVC	008				6.00	-RA BR	40	39	40	97	8	04	30.00	30.20
16	CLR	NC				10.00		58	14	41	18	0	00	29.82	30.02	16	OVC	004				1.50	RA BR	41	41	41	100	8	36	29.93	30.13
19	CLR	NC				10.00		40	22	33	49	3	14	29.83	30.04	19	OVC	002				1.50	DZ BR	42	42	42	100	7	03	29.85	30.06
22	FEW	NC				10.00		37	21	31	52	0	00	29.80	30.00	22	OVC	002				1.50	DZ BR	41	40	41	96	7	34	29.77	29.98
<b>SUNRISE: 0718 DEC 17 SUNSET: 1653</b>								<b>SUNRISE: 0721 DEC 23 SUNSET: 1656</b>																							
01	CLR	NC				10.00		32	23	29	69	0	00	29.74	29.95	01	OVC	003				4.00	BR	38	38	38	100	9	31	29.76	29.97
04	CLR	NC				10.00		29	22	27	75	0	00	29.71	29.91	04	OVC	007				5.00	BR	39	38	39	96	7	28	29.74	29.95
07	SCT	NC				10.00		27	21	25	78	5	01	29.72	29.93	07	OVC	003				5.00	BR	39	38	39	96	8	26	29.76	29.97
10	OVC	250				10.00		45	19	35	35	3	33	29.75	29.96	10	BKN	005				10.00		43	41	42	93	8	23	29.82	30.03
13	OVC	250				10.00		58	20	43	23	8	03	29.70	29.91	13	FEW	NC				10.00		58	42	50	56	10	25	29.75	29.96
16	SCT	NC				10.00		57	20	42	24	5	03	29.69	29.89	16	OVC	250				10.00		59	42	51	54	8	25	29.77	29.97
19	BKN	250				10.00		46	23	37	40	3	03	29.73	29.93	19	OVC	250				10.00		49	42	46	77	3	35	29.81	30.02
22	CLR	NC				10.00		39	24	33	55	0	00	29.77	29.98	22	OVC	250				10.00		45	43	44	93	5	07	29.85	30.05
<b>SUNRISE: 0719 DEC 18 SUNSET: 1654</b>								<b>SUNRISE: 0722 DEC 24 SUNSET: 1657</b>																							
01	CLR	NC				10.00		39	27	34	62	9	36	29.79	30.00	01	SCT	NC				5.00	BR	40	39	40	97	0	00	29.88	30.08
04	CLR	NC				10.00		36	27	33	70	8	01	29.84	30.04	04	SCT	NC				5.00	BR	38	37	38	97	0	00	29.91	30.11
07	FEW	NC				10.00		33	27	31	78	5	35	29.88	30.09	07	BKN	033				5.00	BR	40	39	40	97	7	05	29.94	30.15
10	CLR	NC				10.00		44	28	38	53	10	03	29.95	30.16	10	OVC	034				10.00		42	40	41	92	10	11	30.02	30.22
13	CLR	NC				10.00		49	23	39	36	3	VR	29.91	30.11	13	OVC	033				10.00		45	35	41	68	10	08	29.91	30.11
16	FEW	NC				10.00		51	21	39	31	0	00	29.91	30.11	16	OVC	060				10.00	-RA	44	36	41	73	7	09	29.88	30.08
19	OVC	250				10.00		37	24	32	60	3	14	29.94	30.15	19	OVC	012				4.00	-RA BR	42	41	42	96	7	07	29.82	30.03
22	SCT	NC				10.00		36	25	32	64	0	00	29.96	30.16	22	OVC	004				3.00	-RA BR	44	43	44	96	7	08	29.70	29.91

# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

DECEMBER 1997

RIC

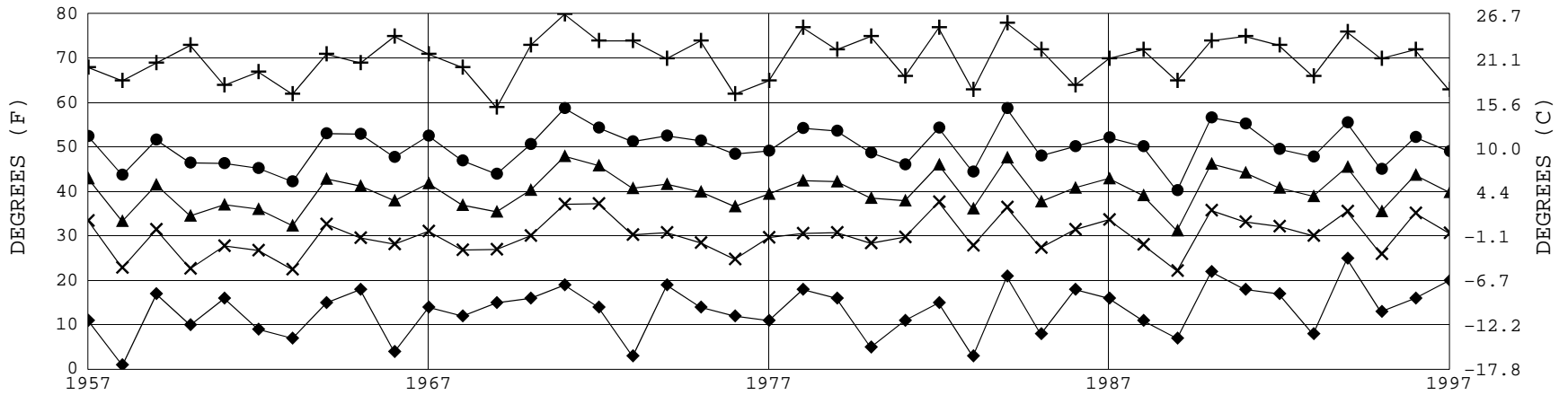
WBAN # 13740

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		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: 0722							DEC 25	SUNSET: 1657							SUNRISE: 0724							DEC 31	SUNSET: 1701							
01	OVC	001			1.00	RA BR	46	46	46	100	7	34	29.56	29.76	01	OVC	100			10.00			35	21	30	57	12	26	29.54	29.74
04	OVC	002			1.00	DZ BR	42	42	42	100	10	31	29.56	29.76	04	BKN	080			10.00			33	21	29	61	10	26	29.60	29.80
07	OVC	002			2.00	BR	42	41	42	96	6	24	29.55	29.76	07	CLR	NC			10.00			30	18	26	61	7	26	29.69	29.90
10	BKN	006			10.00		47	45	46	93	7	24	29.60	29.80	10	CLR	NC			10.00			36	16	29	44	12	29	29.80	30.01
13	CLR	NC			10.00		54	45	49	72	10	26	29.55	29.76	13	SCT	NC			10.00			40	17	32	40	18	28	29.80	30.01
16	CLR	NC			10.00		58	45	51	62	7	25	29.59	29.80	16	OVC	065			10.00			38	15	30	39	16	29	29.87	30.08
19	BKN	046			10.00		45	42	44	90	0	00	29.64	29.85	19	CLR	NC			10.00			33	14	27	45	14	30	30.01	30.22
22	SCT	NC			10.00		50	46	48	86	0	00	29.68	29.89	22	CLR	NC			10.00			29	5	22	36	14	31	30.15	30.36
SUNRISE: 0722							DEC 26	SUNSET: 1658							3-HOURLY OBSERVATION NOTES															
01	FEW	NC			1.25	BR	39	39	39	100	5	22	29.67	29.88	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	045			0.50	FG	39	39	39	100	0	00	29.68	29.88	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.															
07	FEW	NC			10.00		40	40	40	100	3	25	29.72	29.93	NC = No ceiling detected.															
10	SCT	NC			10.00		49	37	44	64	7	30	29.77	29.97	& = Original observation contained additional weather elements.															
13	SCT	NC			10.00		54	34	45	47	7	28	29.72	29.92	See page 3 for additional notes.															
16	FEW	NC			10.00		55	36	46	49	6	29	29.72	29.93																
19	FEW	NC			10.00		44	37	41	76	0	00	29.75	29.96																
22	FEW	NC			10.00		38	34	36	86	0	00	29.74	29.95																
SUNRISE: 0723							DEC 27	SUNSET: 1658																						
01	SCT	NC			10.00		37	34	36	89	0	00	29.70	29.91																
04	FEW	NC			10.00		39	36	38	89	8	03	29.66	29.87																
07	OVC	034			7.00	RA	39	36	38	89	7	01	29.67	29.87																
10	OVC	026			3.00	RA BR	38	37	38	97	9	03	29.59	29.80																
13	OVC	004			4.00	-RA BR	36	35	36	97	13	01	29.43	29.64																
16	OVC	006			4.00	-RAPE BR	35	34	35	96	16	01	29.39	29.60																
19	OVC	003			0.75	-SN BR	32	32	32	100	14	36	29.46	29.67																
22	OVC	007			5.00	-SN BR	33	32	33	96	14	34	29.50	29.71																
SUNRISE: 0723							DEC 28	SUNSET: 1659																						
01	OVC	055			10.00		34	31	33	89	13	33	29.56	29.76																
04	FEW	NC			10.00		33	24	30	70	15	33	29.63	29.84																
07	CLR	NC			10.00		30	23	28	75	8	33	29.71	29.92																
10	FEW	NC			10.00		35	24	31	64	13	33	29.79	30.00																
13	SCT	NC			10.00		40	23	34	51	12	35	29.78	29.99																
16	BKN	250			10.00		40	21	33	47	3	VR	29.80	30.01																
19	CLR	NC			10.00		30	24	28	79	0	00	29.83	30.04																
22	CLR	NC			10.00		27	23	26	85	5	14	29.85	30.06																
SUNRISE: 0723							DEC 29	SUNSET: 1660																						
01	CLR	NC			10.00		26	22	25	84	7	14	29.84	30.04																
04	CLR	NC			10.00		28	23	26	81	7	14	29.80	30.01																
07	BKN	250			10.00		26	23	25	88	5	09	29.72	29.93																
10	OVC	250			10.00		32	27	30	82	8	05	29.61	29.82																
13	OVC	075			10.00		36	31	34	82	9	03	29.43	29.64																
16	OVC	011			10.00		37	35	36	93	12	03	29.21	29.42																
19	OVC	011			4.00	RA BR	36	34	35	93	10	27	29.17	29.38																
22	OVC	021			7.00		33	31	32	92	7	28	29.12	29.32																
SUNRISE: 0724							DEC 30	SUNSET: 1701																						
01	OVC	004			6.00	DZ BR	33	32	33	96	14	24	29.10	29.31																
04	OVC	055			10.00		33	31	32	92	14	24	29.11	29.31																
07	OVC	090			10.00		33	29	31	85	13	23	29.18	29.39																
10	OVC	250			10.00		37	30	34	76	16	24	29.26	29.47																
13	BKN	250			10.00		42	27	36	55	20	26	29.27	29.47																
16	SCT	NC			10.00		42	22	34	45	21	27	29.35	29.55																
19	CLR	NC			10.00		37	26	33	65	17	25	29.43	29.63																
22	OVC	250			10.00		35	21	30	57	15	26	29.51	29.72																

### SUMMARY BY HOUR

HOUR (LST)	AVERAGES											RESULTANT WIND (MPH)	
	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)		VISIBILITY (MILES)	WIND SPEED (MPH)	DIRECTION	SPEED	DIRECTION
							STATION	SEA LEVEL					
01			36	31	34	81	29.74	29.94	8.10	5	2	30	
02			36	31	34	82	29.74	29.94	7.98	5	2	29	
03			36	30	34	82	29.74	29.95	7.98	5	3	28	
04			35	30	33	84	29.74	29.94	7.94	5	2	30	
05			35	30	33	83	29.74	29.95	7.92	5	2	31	
06			34	30	33	85	29.75	29.96	8.14	5	2	30	
07			34	30	32	85	29.76	29.97	8.34	5	2	30	
08			34	30	33	84	29.77	29.98	7.69	5	2	31	
09			38	31	35	78	29.79	30.00	8.03	6	2	32	
10			41	31	37	69	29.80	30.00	8.83	8	3	31	
11			44	30	38	62	29.78	29.99	8.93	9	4	31	
12			46	30	39	57	29.76	29.96	9.44	10	5	30	
13			47	29	40	54	29.74	29.94	9.40	9	4	29	
14			48	29	40	53	29.72	29.93	9.37	8	4	30	
15			48	29	40	52	29.72	29.93	9.19	8	5	30	
16			48	29	40	53	29.73	29.93	9.08	8	4	30	
17			45	30	39	58	29.74	29.94	9.06	6	3	29	
18			42	30	38	65	29.75	29.95	9.11	5	2	29	
19			41	30	37	69	29.76	29.96	8.98	6	2	29	
20			40	30	36	71	29.77	29.97	9.07	6	2	30	
21			39	30	36	71	29.77	29.98	9.27	5	3	31	
22			38	30	35	75	29.77	29.98	9.18	5	2	31	
23			37	30	34	77	29.78	29.98	9.08	6	2	30	
24			36	29	34	79	29.77	29.98	8.37	5	2	32	

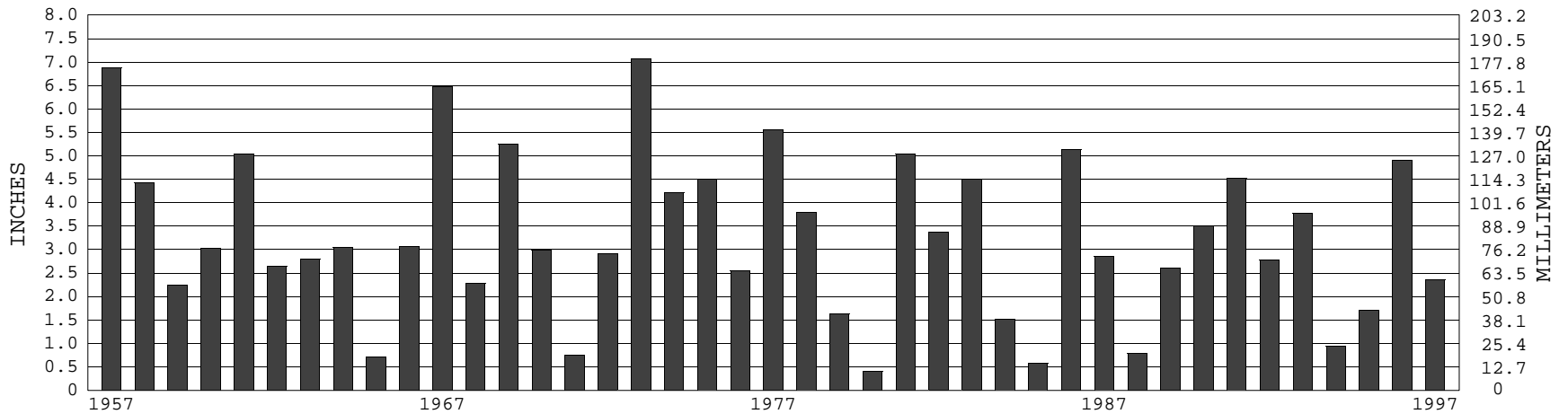
### RICHMOND, VA DECEMBER TEMPERATURES



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

Long-Term (1957-1997) Mean: 40.2      1961-1990 Normal: 40.1

### RICHMOND, VA DECEMBER PRECIPITATION



Long-Term (1957-1997) Mean Monthly Total: 3.30

1961-1990 Normal: 3.26



**DECEMBER 1997  
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.*

ACTING DIRECTOR

**NOTICE**

Effective July 1, 1996, the National Weather Service & Federal Aviation Administration began using the METAR format for Hourly Observations.

We welcome your questions or comments, please contact us at  
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