



NOVEMBER 1998

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

NOVEMBER 1998
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	68	35	52	-2	32	43	13	0					0.00	29.85	30.06	2.1	01	3.5	15	33	11	31	01																																										
02	60	40	50	-3	40	47	15	0	RA BR				0.02	29.84	30.04	2.2	36	3.7	10	32	9	01	02																																										
03	50	41	46	-7	43	44	19	0	RA DZ BR				0.51	29.76	29.97	6.7	03	7.0	18	04	16	03	03																																										
04	51	36	44	-9	37	40	21	0	RA DZ BR				0.13	29.75	29.96	6.2	36	6.4	17	36	14	36	04																																										
05	50	31	41	-12	26	34	24	0					0.00	29.79	30.00	7.9	36	8.4	20	36	15	36	05																																										
06	50	32	41	-11	29	36	24	0					0.00	29.88	30.09	8.1	33	8.9	23	32	18	32	06																																										
07	55	32	44	-8	27	36	21	0					0.00	30.13	30.34	4.5	31	5.4	17	29	15	33	07																																										
08	50	30	40	-12	31	38	25	0	BR				0.00	30.12	30.32	0.8	14	9	9	13	8	14	08																																										
09	60	42	51	-1	39	44	14	0	RA BR				T	30.09	30.30	1.2	09	2.3	10	11	8	12	09																																										
10	70	40	55	4	52	55	10	0	RA BR HZ				T	30.00	30.20	9.8	16	10.5	33	18	24	18	10																																										
11	73	39	56	5	46	53	9	0	TS TSRA RA BR				0.15	29.89	30.09	9.2	23	12.0	41*	19	33*	20	11																																										
12	59	35	47	-4	29	39	18	0					0.00	30.19	30.40	2.8	36	4.0	20	01	16	02	12																																										
13	58	36	47	-4	34	41	18	0					0.00	30.05	30.26	3.4	19	3.8	14	22	11	18	13																																										
14	54	37	46	-4	44	46	19	0	RA BR HZ				0.01	29.78	29.98	6.7	20	7.0	16	21	14	20	14																																										
15	70	44	57	7	44	51	8	0	BR				0.00	29.65	29.86	5.3	28	7.5	21	30	17	30	15																																										
16	65	35	50	0	43	47	15	0					0.00	29.75	29.96	4.5	14	5.9	18	16	15	12	16																																										
17	71	48	60	11	46	53	5	0	BR				0.00	29.73	29.93	5.4	30	9.3	24	30	20	30	17																																										
18	58	36	47	-2	36	42	18	0					0.00	30.13	30.34	3.5	06	5.2	15	05	13	05	18																																										
19	65	34	50	1	42	46	15	0	BR HZ				0.00	30.02	30.23	4.4	19	4.9	13	18	11	18	19																																										
20	72	49	61*	13	54	57	4	0	RA BR HZ				0.18	29.73	29.93	5.9	22	8.6	34	01	30	01	20																																										
21	55	35	45	-3	32	40	20	0	FG+ BR				0.00	30.00	30.21	5.8	32	8.0	22	33	18	30	21																																										
22	51	26*	39*	-9	27	34	26	0					0.00	30.23	30.44	0.5	15	2.5	13	21	9	21	22																																										
23	67	33	50	3	38	45	15	0	BR				0.00	29.99	30.20	9.5	21	9.9	22	22	18	22	23																																										
24	67	36	52	5	37	48	13	0					0.00	29.91	30.12	4.8	32	7.3	22	01	18	01	24																																										
25	59	31	45	-2	33	41	20	0	RA				0.02	29.97	30.18	5.2	15	5.4	21	15	17	15	25																																										
26	65	48	57	11	38	48	8	0	RA BR				0.28	29.68	29.88	9.4	25	11.9	31	27	26	26	26																																										
27	66	39	53	7	31	43	12	0					0.00	29.84	30.05	4.4	27	6.6	22	27	16	27	27																																										
28	69	34	52	6	35	43	13	0					0.00	29.96	30.17	4.5	20	4.7	20	21	14	20	28																																										
29	73	36	55	10	39	46	10	0					0.00	29.96	30.16	2.7	18	2.8	10	19	8	18	29																																										
30	74*	46	60	15			5	0					0.00					9.8	31	22	25	23	30																																										
											61.8		37.2		49.5		■ ■		15.2		0.0		< MONTHLY AVERAGES				TOTALS-->				1.30				6.5		<-- MONTHLY AVERAGES																												
											0.5		-.7		-.1		■ ■		<----- DEPARTURE FROM NORMAL ----->												-1.87		SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																																
DEGREE DAYS											GREATEST 24-HR PRECIPITATION: 0.64 DATE: 03-04											SEA LEVEL PRESSURE DATE TIME																																											
MONTHLY TOTAL DEPARTURE											SEASON TO DATE TOTAL DEPARTURE											GREATEST 24-HR SNOWFALL: DATE: DATE:											MAXIMUM MINIMUM											: 30.52 22 0954																					
HEATING: 457 -5											640 -78											NUMBER OF DAYS WITH →											MAXIMUM TEMP ≥ 90: 0											MINIMUM TEMP ≤ 32: 6											PRECIPITATION ≥ 0.01 INCH: 8										
COOLING: 0 0											1618 270																						MAXIMUM TEMP ≤ 32: 0											MINIMUM TEMP ≤ 0: 0											PRECIPITATION ≥ 0.10 INCH: 5										
																																	THUNDERSTORMS: 1											HEAVY FOG: 1											SNOWFALL ≥ 1.0 INCH: :										

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

RICHMOND, VA

NOVEMBER 1998

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													01												01			0.00	
02													02												02			0.02	
03	T				0.03	0.02	T	0.16	0.12	0.09	0.07	0.01	03	T	T	T					T	0.02	T	03			0.51		
04	0.04	0.07	0.02	T									04											04			0.13		
05													05											05			0.00		
06													06											06			0.00		
07													07											07			0.00		
08													08											08			0.00		
09				T	T	T							09											09			T		
10													10										T	10			T		
11	T	T	T	T			0.02	0.02	0.08	0.03	T	T	11											11			0.15		
12													12											12			0.00		
13													13											13			0.00		
14												T	14	0.01	T								T	14			0.01		
15													15											15			0.00		
16													16											16			0.00		
17													17											17			0.00		
18													18											18			0.00		
19													19						T					19			0.00		
20													20								0.09	0.07	0.02	20			0.18		
21													21											21			0.00		
22													22											22			0.00		
23													23											23			0.00		
24													24											24			0.00		
25													25											25	0.01		0.02		
26	0.05	0.06	0.05	0.13	T								26											26	0.01		0.28		
27													27											27			0.00		
28													28											28			0.00		
29													29											29			0.00		
30													30											30			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)												
Ending Date												
Ending Time (Hour/Min)												

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	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 NOVEMBER 1998

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 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							10.00	10.00	
02							6.00	10.00	
03							1.75	10.00	
04							3.00	10.00	
05							10.00	10.00	
06							9.00	10.00	
07							8.00	10.00	
08							5.00	10.00	
09							5.00	10.00	
10							4.00	10.00	
11							6.00	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							4.00	10.00	
15							5.00	10.00	
16							8.00	10.00	
17							1.25	10.00	
18							10.00	10.00	
19							3.00	10.00	
20							1.75	10.00	
21							3.00	10.00	
22							7.00	10.00	
23							5.00	10.00	
24							10.00	10.00	
25							10.00	10.00	
26							5.00	10.00	
27							10.00	10.00	
28							10.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							6.69	10.00	
SUNSHINE (MINUTES)									
Total: Possible:									
Percent Possible:									
NUMBER OF DAYS WITH:									
SKY CONDITION									
CLR PTLY CLDY CLOUDY MISSING									
30									
MINIMUM VISIBILITY (MILES)									
<=0.25 <=3.0 >=7.0									
0 6 15									

OBSERVATIONS AT 3-HOURLY INTERVALS

RICHMOND, VA

NOVEMBER 1998

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	DRY BULB			DEW POINT	WET BULB	SPEED (MPH)		DIRECTION TENS OF DEG	STATION	SEA LEVEL	DRY BULB		DEW POINT	WET BULB		SPEED (MPH)	DIRECTION TENS OF DEG			STATION	SEA LEVEL								
SUNRISE: 0634								NOV 01	SUNSET: 1711								SUNRISE: 0640								NOV 07	SUNSET: 1705							
01	CLR	NC				10.00		41	31	37	67	0	00	29.85	30.06	01	FEW	NC				8.00		35	30	33	82	0	00	30.08	30.29		
04	CLR	NC				10.00		37	31	35	79	0	00	29.85	30.06	04	CLR	NC				10.00		34	26	31	73	8	34	30.10	30.31		
07	BKN	140				10.00		43	33	39	68	7	06	29.89	30.09	07	CLR	NC				10.00		34	25	31	70	6	31	30.14	30.35		
10	SCT	NC				10.00		58	33	47	39	9	04	29.92	30.12	10	CLR	NC				10.00		47	27	39	46	6	VR	30.17	30.37		
13	CLR	NC				10.00		65	27	48	24	7	VR	29.83	30.03	13	SCT	NC				10.00		53	28	42	38	7	VR	30.12	30.32		
16	SCT	NC				10.00		67	29	49	24	6	VR	29.81	30.01	16	CLR	NC				10.00		54	26	42	34	10	34	30.11	30.32		
19	SCT	NC				10.00		56	36	47	47	0	00	29.82	30.03	19	CLR	NC				10.00		44	28	38	53	0	00	30.15	30.36		
22	BKN	150				10.00		48	36	43	63	0	00	29.85	30.05	22	CLR	NC				10.00		36	28	33	73	0	00	30.17	30.37		
SUNRISE: 0635								NOV 02	SUNSET: 1710								SUNRISE: 0641								NOV 08	SUNSET: 1705							
01	CLR	NC				10.00		47	36	42	66	3	01	29.84	30.05	01	CLR	NC				10.00		34	28	32	79	0	00	30.17	30.38		
04	FEW	NC				10.00		44	36	41	73	0	00	29.84	30.04	04	CLR	NC				8.00		32	28	31	85	0	00	30.17	30.37		
07	BKN	100				10.00		46	41	44	83	5	01	29.87	30.07	07	BKN	040			BR	5.00		33	31	32	92	0	00	30.17	30.37		
10	OVC	100				10.00		56	42	49	60	3	VR	29.89	30.09	10	OVC	100				9.00		44	31	39	60	0	00	30.17	30.37		
13	OVC	120				10.00		60	38	49	44	5	VR	29.83	30.03	13	OVC	075				10.00		49	30	41	48	0	00	30.12	30.32		
16	OVC	100				10.00		58	39	49	50	5	32	29.81	30.01	16	OVC	065				10.00		49	31	41	50	5	15	30.06	30.27		
19	OVC	060				10.00		55	44	50	67	3	01	29.82	30.02	19	OVC	050				10.00		46	31	40	56	3	12	30.06	30.27		
22	OVC	060				10.00	-RA	53	44	49	72	3	27	29.86	30.06	22	OVC	044				10.00		46	36	42	68	0	00	30.06	30.27		
SUNRISE: 0636								NOV 03	SUNSET: 1709								SUNRISE: 0643								NOV 09	SUNSET: 1704							
01	OVC	055				10.00		50	48	49	93	8	01	29.82	30.02	01	OVC	090				10.00		45	38	42	77	0	00	30.06	30.26		
04	OVC	044				10.00		49	46	47	90	3	10	29.78	29.98	04	OVC	055			-RA	8.00		44	41	43	89	3	14	30.06	30.27		
07	OVC	045				8.00		48	47	47	96	5	04	29.76	29.97	07	OVC	044				7.00		45	41	43	86	0	00	30.09	30.29		
10	OVC	008				2.00	RA BR	44	42	43	93	13	04	29.80	30.00	10	BKN	055				8.00		51	39	45	64	6	03	30.13	30.33		
13	OVC	006				2.00		42	40	41	92	9	02	29.75	29.96	13	SCT	NC				10.00		56	37	47	49	3	18	30.08	30.28		
16	OVC	008				2.50	BR	42	40	41	92	8	03	29.73	29.94	16	SCT	NC				10.00		59	38	49	46	0	00	30.07	30.27		
19	OVC	007				2.50		42	40	41	92	6	03	29.74	29.94	19	SCT	NC				10.00		49	40	45	71	3	12	30.12	30.32		
22	OVC	023				6.00	BR	42	41	42	96	0	00	29.75	29.95	22	SCT	NC				6.00	BR	44	40	42	85	3	11	30.13	30.34		
SUNRISE: 0637								NOV 04	SUNSET: 1708								SUNRISE: 0644								NOV 10	SUNSET: 1703							
01	OVC	025				5.00	-RA BR	41	39	40	93	9	01	29.71	29.92	01	SCT	NC				5.00	BR	42	40	41	92	0	00	30.12	30.32		
04	OVC	031				7.00		41	39	40	93	5	34	29.70	29.90	04																	
07	OVC	029				5.00	BR	42	39	41	89	8	35	29.72	29.93	07	OVC	027			BR	6.00	BR	48	45	47	89	6	12	30.12	30.32		
10	OVC	031				5.00	BR	44	41	43	89	7	01	29.76	29.96	10	OVC	016				7.00		56	47	51	72	12	14	30.10	30.30		
13	OVC	043				10.00		49	38	44	66	7	02	29.73	29.94	13	OVC	041				8.00		65	53	58	66	17	16	29.99	30.19		
16	SCT	NC				10.00		49	32	42	52	8	02	29.74	29.95	16	OVC	250				9.00		69	56	61	63	14	16	29.92	30.12		
19	CLR	NC				10.00		42	34	39	73	0	00	29.79	29.99	19	OVC	040				9.00		67	58	62	73	12	16	29.90	30.11		
22	CLR	NC				9.00		36	33	35	89	0	00	29.82	30.02	22	BKN	250				10.00		68	61	64	78	20	18	29.86	30.06		
SUNRISE: 0638								NOV 05	SUNSET: 1707								SUNRISE: 0645								NOV 11	SUNSET: 1702							
01	CLR	NC				10.00		34	28	32	79	8	36	29.83	30.03	01	OVC	120				10.00		70	62	65	76	28	19	29.78	29.98		
04	FEW	NC				10.00		33	25	30	72	8	36	29.84	30.04	04	OVC	080				10.00		70	64	66	82	21	19	29.74	29.94		
07	SCT	NC				10.00		32	24	29	73	9	35	29.85	30.05	07	OVC	028			-RA	6.00	-RA	61	56	58	84	16	28	29.80	30.01		
10	FEW	NC				10.00		42	24	35	49	8	01	29.84	30.05	10	OVC	034				10.00		57	52	54	83	8	23	29.88	30.08		
13	CLR	NC				10.00		49	23	39	36	9	32	29.78	29.98	13	SCT	NC				10.00		62	48	55	60	12	25	29.88	30.08		
16	FEW	NC				10.00		49	25	39	39	12	36	29.74	29.94	16	FEW	NC				10.00		69	27	50	21	13	28	29.90	30.10		
19	CLR	NC				10.00		40	28	35	63	8	36	29.75	29.96	19	CLR	NC				10.00		55	29	44	37	6	24	29.99	30.19		
22	CLR	NC				10.00		35	27	32	72	7	36	29.76	29.97	22	CLR	NC				10.00		46	31	40	56	5	36	30.06	30.26		
SUNRISE: 0639								NOV 06	SUNSET: 1706								SUNRISE: 0646								NOV 12	SUNSET: 1701							
01	BKN	200				10.00		35	28	32	76	7	35	29.74	29.94	01	CLR	NC				10.00		41	32	37	70	3	31	30.10	30.31		
04	FEW	NC				10.00		34	28	32	79	8	32	29.75	29.96	04	CLR	NC				10.00		37	31	35	79	0	00	30.15	30.36		
07	CLR	NC				9.00		33	28	31	82	7	33	29.80	30.01	07	FEW	NC				10.00		38	28	34	68	3	33	30.22	30.43		
10	OVC	065				10.00		45	28	38	52	12	36	29.86	30.07	10	CLR	NC				10.00		51	27	41	39	13	01	30.27	30.47		
13	OVC	055				10.00		49	25	39	39	13	33	29.86	30.07	13	CLR	NC				10.00		56	23	42	28	10	34	30.22	30.42		
16	OVC	060				10.00		47	29	39	50	15	31	29.90	30.11	16	BKN	250				10.00		56	25	43	30	5	05	30.17	30.37		
19	BKN	060				10.00		44	31	39	60	7	29	29.97	30.18	19	BKN	250				10.00		45	30	39	56	0	00	30.19	30.40		
22	BKN	060				10.00		41	32	37	70	5	VR	30.04	30.24	22	BKN	250				10.00		41	30	37	65	3	15	30.18	30.39		

OBSERVATIONS AT 3-HOURLY INTERVALS

RICHMOND, VA

NOVEMBER 1998

RIC

WBAN # 13740

HOUR (LST)	SATELLITE		WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	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	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
SUNRISE: 0647				NOV 13				SUNSET: 1700				SUNRISE: 0653				NOV 19				SUNSET: 1656					
01	OVC	250		10.00	36	31	34	82	3	16	30.15	30.35	01	CLR	NC		10.00	37	34	36	89	0	00	30.12	30.33
04	OVC	140		10.00	41	35	38	79	0	00	30.13	30.33	04	CLR	NC		7.00	36	33	35	89	0	00	30.11	30.32
07	OVC	100		10.00	42	34	39	73	0	00	30.11	30.32	07	SCT	NC		3.00	34	33	34	97	3	35	30.12	30.33
10	OVC	250		10.00	49	34	42	57	7	21	30.11	30.32	10	OVC	250		5.00	49	43	46	80	6	19	30.11	30.32
13	OVC	250		10.00	57	33	46	41	7	21	30.05	30.25	13	OVC	250		10.00	61	43	52	52	10	21	30.01	30.21
16	OVC	250		10.00	55	33	45	44	8	19	29.98	30.19	16	OVC	250		10.00	64	46	55	52	10	16	29.94	30.15
19	BKN	250		10.00	43	35	40	74	5	16	29.98	30.19	19	OVC	250		10.00	58	47	52	67	5	20	29.94	30.15
22	CLR	NC		10.00	42	36	39	79	3	14	29.97	30.18	22	OVC	017		9.00	59	52	55	77	6	21	29.92	30.12
SUNRISE: 0648				NOV 14				SUNSET: 1660				SUNRISE: 0654				NOV 20				SUNSET: 1656					
01	CLR	NC		10.00	40	36	38	86	5	21	29.92	30.13	01	OVC	011		10.00	60	55	57	85	9	20	29.87	30.07
04	CLR	NC		10.00	40	35	38	83	0	00	29.86	30.07	04	OVC	042		6.00	58	56	57	93	3	20	29.82	30.02
07	OVC	085		9.00	41	37	39	86	5	14	29.85	30.06	07	SCT	NC		2.50	57	56	56	96	6	19	29.78	29.98
10	OVC	080		8.00	49	41	45	74	8	20	29.86	30.06	10	OVC	250		6.00	61	55	58	81	8	19	29.75	29.96
13	OVC	044		5.00	51	48	50	89	10	19	29.77	29.97	13	BKN	250		8.00	70	55	61	59	14	22	29.65	29.85
16	OVC	250		6.00	53	49	51	86	7	18	29.71	29.92	16	OVC	150		8.00	69	54	60	59	12	20	29.61	29.81
19	OVC	090		5.00	53	50	51	89	9	21	29.68	29.89	19	OVC	060		7.00	64	55	59	73	8	21	29.64	29.84
22	OVC	013		6.00	54	51	52	90	12	21	29.65	29.85	22	OVC	013		3.00	51	50	51	96	9	02	29.77	29.97
SUNRISE: 0649				NOV 15				SUNSET: 1659				SUNRISE: 0655				NOV 21				SUNSET: 1655					
01	OVC	085		7.00	54	50	52	87	8	22	29.60	29.80	01	FEW	NC		3.00	48	48	48	100	0	00	29.81	30.01
04	OVC	010		7.00	54	51	52	90	8	23	29.59	29.79	04	CLR	NC		10.00	46	39	43	77	9	32	29.86	30.06
07	OVC	250		6.00	53	51	52	93	8	25	29.62	29.82	07	SCT	NC		10.00	43	34	39	71	7	25	29.93	30.14
10	CLR	NC		10.00	63	49	55	60	10	26	29.65	29.85	10	BKN	250		10.00	51	30	42	45	15	28	29.98	30.19
13	SCT	NC		10.00	70	41	55	35	15	31	29.63	29.84	13	SCT	NC		10.00	54	27	43	35	13	29	29.99	30.19
16	CLR	NC		10.00	68	38	53	33	13	31	29.63	29.84	16	SCT	NC		10.00	53	26	42	35	10	32	30.04	30.24
19	FEW	NC		10.00	54	39	47	57	0	00	29.72	29.92	19	SCT	NC		10.00	42	29	37	60	6	04	30.12	30.33
22	CLR	NC		10.00	51	37	45	59	9	04	29.73	29.93	22	SCT	NC		10.00	38	28	34	68	8	01	30.17	30.38
SUNRISE: 0650				NOV 16				SUNSET: 1658				SUNRISE: 0656				NOV 22				SUNSET: 1655					
01	CLR	NC		10.00	40	35	38	83	5	18	29.79	29.99	01	CLR	NC		10.00	35	26	32	70	3	36	30.20	30.40
04	CLR	NC		8.00	38	35	37	89	0	00	29.79	30.00	04	CLR	NC		10.00	30	25	28	82	0	00	30.22	30.42
07	CLR	NC		9.00	38	35	37	89	0	00	29.84	30.05	07	CLR	NC		9.00	29	25	28	85	3	31	30.29	30.50
10	CLR	NC		10.00	55	40	48	57	12	11	29.85	30.05	10	CLR	NC		10.00	42	28	37	58	7	02	30.31	30.52
13	BKN	060		10.00	63	45	54	52	6	VR	29.76	29.96	13	CLR	NC		10.00	48	26	39	42	5	23	30.24	30.45
16	SCT	NC		10.00	64	48	55	56	10	16	29.69	29.89	16	CLR	NC		10.00	51	29	42	43	6	14	30.22	30.42
19	BKN	250		10.00	54	49	51	83	10	14	29.68	29.89	19	CLR	NC		10.00	41	29	36	62	0	00	30.21	30.42
22	OVC	030		10.00	56	50	53	81	5	19	29.67	29.87	22	CLR	NC		9.00	37	29	34	73	0	00	30.19	30.40
SUNRISE: 0651				NOV 17				SUNSET: 1658				SUNRISE: 0657				NOV 23				SUNSET: 1654					
01	OVC	022		8.00	60	56	58	86	12	21	29.64	29.84	01	CLR	NC		10.00	37	30	34	76	0	00	30.16	30.37
04	OVC	014		8.00	60	56	58	86	10	26	29.60	29.80	04	CLR	NC		7.00	34	33	34	97	9	20	30.13	30.33
07	CLR	NC		1.25	52	52	52	100	6	21	29.62	29.83	07	CLR	NC		6.00	35	34	35	96	3	16	30.11	30.32
10	CLR	NC		10.00	64	51	57	63	13	27	29.67	29.87	10	CLR	NC		10.00	52	37	45	57	14	22	30.08	30.29
13	FEW	NC		10.00	70	43	56	38	10	32	29.66	29.86	13	CLR	NC		10.00	65	34	50	32	14	22	29.96	30.16
16	FEW	NC		10.00	69	39	54	33	12	32	29.72	29.91	16	CLR	NC		10.00	66	36	51	33	10	22	29.90	30.10
19	CLR	NC		10.00	59	39	49	48	14	36	29.85	30.05	19	CLR	NC		10.00	59	42	51	54	12	20	29.87	30.07
22	CLR	NC		10.00	50	38	44	63	6	36	29.95	30.15	22	CLR	NC		10.00	61	49	55	65	10	22	29.85	30.06
SUNRISE: 0652				NOV 18				SUNSET: 1657				SUNRISE: 0658				NOV 24				SUNSET: 1654					
01	CLR	NC		10.00	47	38	43	71	6	01	30.00	30.20	01	CLR	NC		10.00	61	53	57	75	13	23	29.81	30.01
04	CLR	NC		10.00	43	36	40	76	3	33	30.07	30.27	04	BKN	080		10.00	60	53	56	78	5	25	29.82	30.02
07	CLR	NC		10.00	40	35	38	83	7	02	30.13	30.34	07	OVC	250		10.00	53	50	51	89	7	02	29.89	30.09
10	FEW	NC		10.00	51	36	44	56	8	07	30.20	30.40	10	FEW	NC		10.00	61	37	49	41	13	01	29.95	30.15
13	FEW	NC		10.00	56	36	47	47	8	02	30.16	30.36	13	CLR	NC		10.00	66	28	49	24	10	30	29.91	30.11
16	SCT	NC		10.00	56	37	47	49	5	13	30.14	30.34	16	CLR	NC		10.00	65	26	48	23	7	33	29.91	30.11
19	SCT	NC		10.00	45	36	41	71	8	13	30.16	30.36	19	CLR	NC		10.00	53	27	42	37	0	00	29.95	30.15
22	CLR	NC		10.00	42	35	39	76	3	13	30.16	30.36	22	CLR	NC		10.00	43	29	37	58	6	34	30.00	30.20

OBSERVATIONS AT 3-HOURLY INTERVALS

RICHMOND, VA

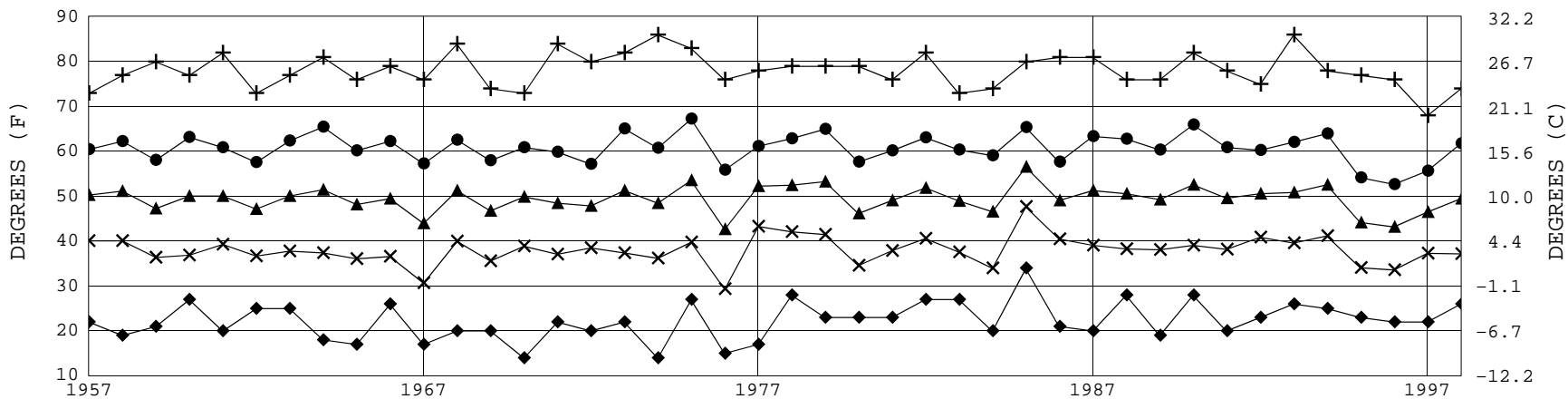
NOVEMBER 1998

RIC

WBAN # 13740

HOUR (LST)	SATELLITE		WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	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	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
SUNRISE: 0659				NOV 25				SUNSET: 1653				SUNRISE: NOV 31				SUNSET:									
01	CLR	NC		10.00	36	27	33	70	0	00	30.01	30.22													
04	CLR	NC		10.00	34	27	31	76	0	00	30.03	30.24													
07	OVC	250		10.00	32	26	30	79	0	00	30.05	30.25													
10	OVC	250		10.00	53	33	44	47	8	13	30.08	30.28													
13	OVC	250		10.00	58	29	45	33	7	15	30.01	30.21													
16	OVC	250		10.00	58	34	47	41	6	16	29.95	30.16													
19	OVC	250		10.00	51	41	46	69	10	13	29.89	30.10													
22	OVC	065		10.00	52	43	48	72	17	15	29.81	30.01													
SUNRISE: 0700				NOV 26				SUNSET: 1653				3-HOURLY OBSERVATION NOTES													
01	OVC	065		10.00	49	47	48	93	8	12	29.72	29.93	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	075		10.00	51	51	51	100	13	22	29.64	29.85	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.												
07	FEW	NC		10.00	52	49	50	89	15	25	29.62	29.82	NC= No ceiling detected.												
10	BKN	250		10.00	57	40	49	53	17	29	29.71	29.91	& = Original observation contained additional weather elements.												
13	FEW	NC		10.00	63	33	49	33	21	28	29.68	29.88	See page 3 for additional notes.												
16	SCT	NC		10.00	62	29	47	29	10	26	29.66	29.86													
19	FEW	NC		10.00	58	31	46	36	9	26	29.69	29.89													
22	CLR	NC		10.00	53	29	43	40	6	24	29.72	29.92													
SUNRISE: 0701				NOV 27				SUNSET: 1653																	
01	CLR	NC		10.00	49	29	41	46	6	24	29.73	29.93													
04	CLR	NC		10.00	46	30	39	54	7	23	29.74	29.95													
07	CLR	NC		10.00	46	30	39	54	6	24	29.79	30.00													
10	CLR	NC		10.00	57	32	46	39	9	27	29.86	30.07													
13	CLR	NC		10.00	64	30	48	28	13	29	29.83	30.03													
16	FEW	NC		10.00	65	30	49	27	8	29	29.84	30.05													
19	FEW	NC		10.00	50	33	43	52	6	05	29.91	30.12													
22	CLR	NC		10.00	46	32	40	58	0	00	29.94	30.14													
SUNRISE: 0702				NOV 28				SUNSET: 1652				SUMMARY BY HOUR													
01	CLR	NC		10.00	38	33	36	83	0	00	29.96	30.16	AVERAGES												
04	CLR	NC		10.00	35	31	33	85	0	00	29.97	30.17	HOUR (LST)	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)		VISIBILITY (MILES)	WIND SPEED (MPH)	RESULTANT WIND (MPH)	
07	FEW	NC		10.00	35	31	33	85	0	00	30.01	30.22								STATION	SEA LEVEL			SPEED	DIRECTION
10	CLR	NC		10.00	56	42	49	60	9	20	30.02	30.23	01			44	38	42	79	29.92	30.12	9.17	5	2	22
13	CLR	NC		10.00	67	36	52	32	8	22	29.95	30.16	02			44	38	41	80	29.91	30.12	8.80	5	2	22
16	CLR	NC		10.00	67	33	51	29	12	20	29.91	30.11	03			44	38	41	81	29.91	30.12	8.93	5	2	21
19	CLR	NC		10.00	57	36	47	45	7	20	29.93	30.13	04			43	38	41	82	29.91	30.11	9.17	5	2	24
22	CLR	NC		10.00	51	36	44	56	5	19	29.94	30.14	05			43	38	41	83	29.92	30.12	8.90	4	1	25
SUNRISE: 0703				NOV 29				SUNSET: 1652																	
01	CLR	NC		10.00	42	36	39	79	3	19	29.92	30.13	06			42	37	40	83	29.93	30.13	8.83	5	1	26
04	CLR	NC		10.00	42	36	39	79	3	22	29.92	30.13	07			42	38	40	84	29.94	30.14	8.06	5	2	29
07	CLR	NC		10.00	40	36	38	86	3	19	29.96	30.17	08			45	39	42	80	29.96	30.16	7.78	5	2	30
10	CLR	NC		10.00	55	38	47	53	0	00	30.01	30.21	09			49	39	45	69	29.97	30.17	8.55	8	2	31
13	SCT	NC		10.00	70	39	54	32	5	20	29.95	30.15	10			53	38	46	59	29.97	30.17	9.00	9	1	28
16	FEW	NC		10.00	72	41	56	33	5	16	29.92	30.13	11			56	37	47	51	29.96	30.16	9.50	9	3	28
19	FEW	NC		10.00	56	40	48	55	3	17	29.95	30.16	12			58	37	48	47	29.94	30.14	9.47	8	3	28
22	BKN	250		10.00	55	39	47	55	3	17	29.99	30.19	13			59	36	49	45	29.91	30.11	9.43	9	4	26
SUNRISE: 0704				NOV 30				SUNSET: 1652																	
01	SCT	NC		10.00	49	40	45	71	6	21	29.99	30.19	14			60	36	49	43	29.90	30.10	9.43	9	4	27
04	SCT	NC		10.00	51	40	46	66	5	18	30.00	30.20	15			61	36	49	42	29.89	30.09	9.70	9	4	26
07	OVC	250		10.00	48	40	44	74	5	19	30.01	30.22	16			60	36	49	43	29.89	30.09	9.52	8	2	25
10	OVC	250		10.00	61	44	52	54	12	20	30.03	30.24	17			56	37	47	50	29.89	30.10	9.52	7	1	21
13	OVC	250		10.00	73	53	61	50	18	22	29.96	30.16	18			54	37	46	56	29.90	30.11	9.48	6	2	18
16	BKN	250		10.00	73	52	61	48	12	21	29.90	30.11	19			51	38	45	62	29.91	30.12	9.45	6	2	17
19	BKN	250		10.00	62	52	57	70	8	19	29.92	30.12	20			49	38	44	67	29.92	30.12	9.36	5	1	18
22																									

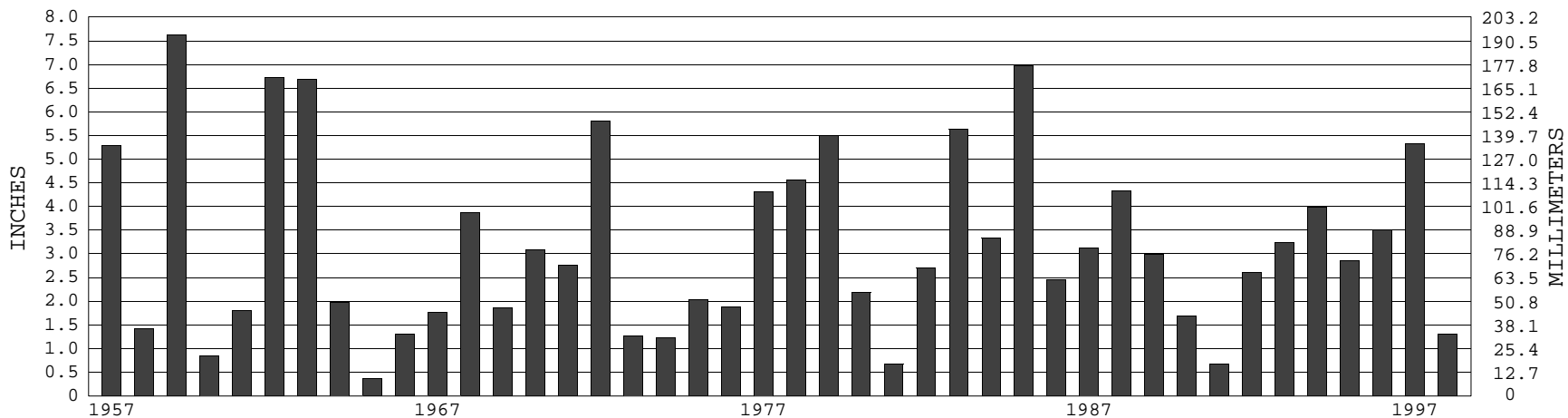
RICHMOND, VA NOVEMBER TEMPERATURES



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

Long-Term (1957-1998) Mean: 49.5 1961-1990 Normal: 49.6

RICHMOND, VA NOVEMBER PRECIPITATION



Long-Term (1957-1998) Mean Monthly Total: 3.19

1961-1990 Normal: 3.17



**NOVEMBER 1998
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.

DIRECTOR

NOTICE

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

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