



# FEBRUARY 1999

## 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

FEBRUARY 1999  
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	47	27	37	1	32	35	28	0	RA BR				0.13	30.25	30.46	4.0	06	5.6	13	14	10	14	01																																				
02	57	46	52	16	51	51	13	0	RA BR				0.14	29.72	29.92	7.2	20	9.6	23	24	20	24	02																																				
03	57	38	48	12	42	45	17	0	FG+ BR				0.00	29.80	30.01	3.2	18	6.3	18	25	15	25	03																																				
04	62	42	52	16	40	46	13	0	RA BR				0.01	29.73	29.93	6.2	26	10.9	37	29	26	31	04																																				
05	56	28	42	5	23	36	23	0					0.00	30.05	30.26	5.0	34	5.9	22	32	17	31	05																																				
06	60	35	48	11	33	42	17	0	RA				T	29.81	30.01	5.1	22	8.0	22	25	17	24	06																																				
07	56	34	45	8	39	42	20	0	RA FG+ BR				0.03	29.66	29.86	3.1	11	5.7	22	14	18	14	07																																				
08	51	31	41	4	36	40	24	0	BR				0.00	29.79	29.99	6.1	35	7.3	21	02	16	02	08																																				
09	64	27	46	9	38	42	19	0	BR				0.00	29.92	30.12	7.4	21	8.0	24	21	21	21	09																																				
10	66	37	52	15	30	42	13	0					0.00	29.99	30.20	3.7	36	6.0	18	02	15	01	10																																				
11	67	31	49	11	32	42	16	0					0.00	30.06	30.27	7.9	18	8.1	21	20	16	19	11																																				
12	74*	39	57*	19	50	54	8	0	TSRA RA BR				0.20	29.76	29.96	11.1	22	16.0	38*	19	30*	19	12																																				
13	46	27	37	-1	15	29	28	0					0.00	29.96	30.17	9.2	30	12.0	30	36	24	27	13																																				
14	44	23	34	-4	12	26	31	0					0.00	30.14	30.36	7.6	32	8.0	24	33	20	33	14																																				
15	54	21	38	-1	15	30	27	0					0.00	30.11	30.32	2.4	18	3.1	14	25	10	21	15																																				
16	66	31	49	10	23	38	16	0					0.00	29.90	30.11	5.9	19	6.5	17	21	15	20	16																																				
17	69	42	56	17	39	47	9	0	RA BR				0.01	29.72	29.93	6.2	21	7.1	21	24	18	22	17																																				
18	55	36	46	7	43	45	19	0	RA DZ BR				0.50	29.65	29.85	7.7	01	8.2	26	02	20	01	18																																				
19	45	30	38	-2	29	35	27	0					0.00	29.72	29.93	7.8	02	8.5	16	02	14	03	19																																				
20	47	31	39	-1	22	32	26	0					0.00	29.77	29.98	10.5	35	11.2	23	01	20	36	20																																				
21	38	26	32	-8	12	26	33	0					0.00	29.87	30.08	12.4	35	12.8	28	32	22	36	21																																				
22	34	22	28	-12	3	21	37	0					0.00	30.06	30.27	12.4	35	12.8	30	36	23	01	22																																				
23	33	18*	26*	-15	8	21	39	0					0.00	30.22	30.43	2.5	03	3.9	11	09	9	07	23																																				
24	41	22	32	-9	21	28	33	0					0.00	30.13	30.34	7.7	02	8.0	22	36	16	36	24																																				
25	40	23	32	-9	28	30	33	0	RA SN FG+ BR				0.19	29.94	30.15	2.2	24	3.7	16	22	14	22	25																																				
26	50	29	40	-2	28	34	25	0	BR				0.00	29.92	30.13	6.9	31	8.0	24	32	22	31	26																																				
27	54	25	40	-2	29	37	25	0	RA BR				T	29.84	30.04	3.2	14	4.1	15	20	10	11	27																																				
28	62	43	53	10	48	49	12	0	RA BR				0.26	29.33	29.53	4.3	22	9.4	30	29	28	28	28																																				
< MONTHLY AVERAGES										TOTALS-->			1.47	29.89	30.09	1.9	31	8.0	<- MONTHLY AVERAGES																																								
4.2										2.8		3.5		<----- DEPARTURE FROM NORMAL ----->										-1.69		SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																																	
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 0.51 DATE: 17-18										SEA LEVEL PRESSURE DATE TIME																																							
MONTHLY TOTAL DEPARTURE										SEASON TO DATE TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: DATE: DATE:										MAXIMUM : 30.71 01 0014																													
HEATING: 631 -105										2633 -501										GREATEST SNOW DEPTH: DATE: DATE:										MINIMUM : 29.38 28 1431																													
COOLING: 0 0										1 1										NUMBER OF DAYS WITH =>										MAXIMUM TEMP ≥ 90: 0										MINIMUM TEMP ≤ 32: 18										PRECIPITATION ≥ 0.01 INCH : 9									
																														MAXIMUM TEMP ≤ 32 : 0										MINIMUM TEMP ≤ 0 : 0										PRECIPITATION ≥ 0.10 INCH : 6									
																														THUNDERSTORMS : 1										HEAVY FOG : 3										SNOWFALL ≥ 1.0 INCH :									

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## RICHMOND, VA

FEBRUARY 1999

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					T	T	T	0.04	0.04	0.02	0.01	0.01	01	0.12	0.13	
02	0.01	T	T	0.03	0.03	0.03	0.01	0.04	0.01				02					T	T	T	0.04	0.04	0.02	0.01	0.01	02	0.16	0.14	
03													03													03		0.00	
04													04	T				T	0.01							04		0.01	
05													05													05		0.00	
06													06													06		T	
07													07	T					0.01	T	0.01	0.01				07		0.03	
08													08													08		0.00	
09													09													09		0.00	
10													10													10		0.00	
11													11													11		0.00	
12													12					T	0.20	T						12		0.20	
13													13													13		0.00	
14													14													14		0.00	
15													15													15		0.00	
16													16													16		0.00	
17													17				T				T	0.01	T			17		0.01	
18	T	T	T	0.01	0.23	0.05	0.03	0.01	T	0.11	0.05	0.01	18	T												18		0.50	
19													19													19		0.00	
20													20													20		0.00	
21													21													21		0.00	
22													22													22		0.00	
23													23													23		0.00	
24													24													24		0.00	
25													25			T	0.02	0.04	0.02	0.03	0.07	0.01			25		0.19		
26													26													26		0.00	
27					T	0.04	0.01	0.01	T				27							T	T					27		T	
28													28	0.01	T	0.09	0.06	0.03	T			0.01	T	T	28		0.26		

### MAXIMUM SHORT DURATION PRECIPITATION (See Note)

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 : 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 FEBRUARY 1999

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							5.00	10.00	
02							1.00	10.00	
03							.75	10.00	
04							1.25	10.00	
05							10.00	10.00	
06							10.00	10.00	
07							2.00	10.00	
08							1.50	10.00	
09							2.50	10.00	
10							7.00	10.00	
11							10.00	10.00	
12							7.00	10.00	
13							10.00	10.00	
14							10.00	10.00	
15							7.00	10.00	
16							10.00	10.00	
17							5.00	10.00	
18							2.50	10.00	
19							7.00	10.00	
20							8.00	10.00	
21							10.00	10.00	
22							10.00	10.00	
23							10.00	10.00	
24							10.00	10.00	
25							.25	10.00	
26							2.00	10.00	
27							5.00	10.00	
28							2.00	10.00	
MONTHLY AVGS							5.96	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									
28									
<b>MINIMUM VISIBILITY (MILES)</b>									
<=0.25    <=3.0    >=7.0									
1            10           15									





# OBSERVATIONS AT 3-HOURLY INTERVALS

# RICHMOND, VA

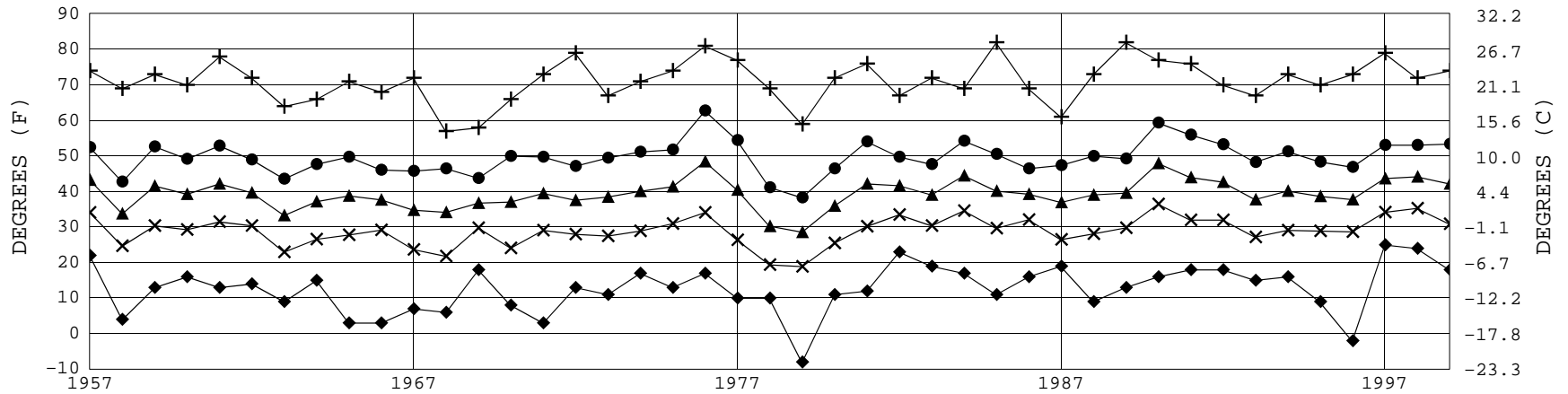
FEBRUARY 1999

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	OBSERVATION TIME (LST)	EFF CLD AMT Oktas	VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG
<b>SUNRISE: 0646</b>				<b>FEB 25</b>				<b>SUNSET: 1759</b>				<b>SUNRISE:</b>				<b>FEB 31</b>				<b>SUNSET:</b>					
01	CLR	NC			10.00	26	23	25	88	0	00	30.07	30.28												
04	SCT	NC			10.00	25	22	24	88	3	01	30.05	30.26												
07	OVC	120			10.00	26	23	25	88	0	00	30.05	30.26												
10	OVC	100			10.00	33	28	31	82	5	18	30.02	30.23												
13	OVC	030			10.00	39	28	35	65	12	22	29.91	30.11												
16	OVC	006			1.50	34	34	34	100	6	21	29.82	30.03												
19	OVC	004			0.50	32	32	32	100	0	00	29.83	30.03												
22	OVC	002			2.00	32	32	32	100	5	32	29.84	30.04												
<b>SUNRISE: 0645</b>				<b>FEB 26</b>				<b>SUNSET: 1760</b>				<b>3-HOURLY OBSERVATION NOTES</b>													
01	OVC	004			2.00	32	32	32	100	8	32	29.86	30.06	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	004			3.00	31	31	31	100	8	31	29.87	30.08	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.											
07	FEW	NC			3.00	29	28	29	96	6	28	29.93	30.14	NC= No ceiling detected.											
10	CLR	NC			10.00	38	30	35	73	10	32	29.99	30.20	& = Original observation contained additional weather elements.											
13	SCT	NC			10.00	45	28	38	52	15	27	29.96	30.16	See page 3 for additional notes.											
16	FEW	NC			10.00	49	26	40	41	12	27	29.89	30.10												
19	BKN	250			10.00	46	25	38	44	5	26	29.92	30.12												
22	SCT	NC			7.00	34	28	32	79	9	02	29.93	30.14												
<b>SUNRISE: 0644</b>				<b>FEB 27</b>				<b>SUNSET: 1801</b>				<b>SUMMARY BY HOUR</b>													
01	BKN	180			10.00	31	24	29	76	0	00	29.96	30.16	<b>AVERAGES</b>											
04	CLR	NC			9.00	28	24	27	85	0	00	29.95	30.15	<b>RESULTANT WIND (MPH)</b>											
07	SCT	NC			7.00	28	22	26	78	0	00	29.94	30.15	<b>CEILOMETER</b>											
10	BKN	250			10.00	44	24	36	45	5	10	29.93	30.14	<b>EFF CLD AMT</b>											
13	OVC	250			10.00	50	27	40	41	5	15	29.84	30.05	<b>DRY BULB</b>											
16	OVC	200			10.00	53	29	43	40	9	16	29.77	29.98	<b>DEW POINT</b>											
19	OVC	120			10.00	50	33	43	52	7	11	29.74	29.94	<b>WET BULB</b>											
22	OVC	050			10.00	47	36	42	66	8	10	29.68	29.88	<b>RELATIVE HUMIDITY</b>											
<b>SUNRISE: 0642</b>				<b>FEB 28</b>				<b>SUNSET: 1802</b>				<b>STATION</b>													
01	FEW	NC			9.00	44	39	42	83	6	13	29.59	29.80	<b>SEA LEVEL</b>											
04	OVC	060			7.00	50	45	48	83	7	16	29.50	29.70	<b>PRESSURE (INCHES, HG)</b>											
07	BKN	065			4.00	51	50	51	96	13	14	29.37	29.57	<b>VISIBILITY (MILES)</b>											
10	BKN	048			8.00	59	53	56	81	18	20	29.32	29.52	<b>WIND SPEED (MPH)</b>											
13	OVC	027			9.00	60	56	58	86	10	21	29.25	29.45	<b>SPEED</b>											
16	OVC	060			5.00	50	50	50	100	10	33	29.21	29.41	<b>DIRECTION</b>											
19	OVC	180			10.00	48	48	48	100	5	34	29.24	29.44												
22	OVC	055			2.00	47	47	47	100	5	26	29.26	29.47												
<b>SUNRISE:</b>				<b>FEB 29</b>				<b>SUNSET:</b>																	
<b>SUNRISE:</b>				<b>FEB 30</b>				<b>SUNSET:</b>																	
<b>SUNRISE:</b>				<b>FEB 31</b>				<b>SUNSET:</b>																	
01														01											
02														02											
03														03											
04														04											
05														05											
06														06											
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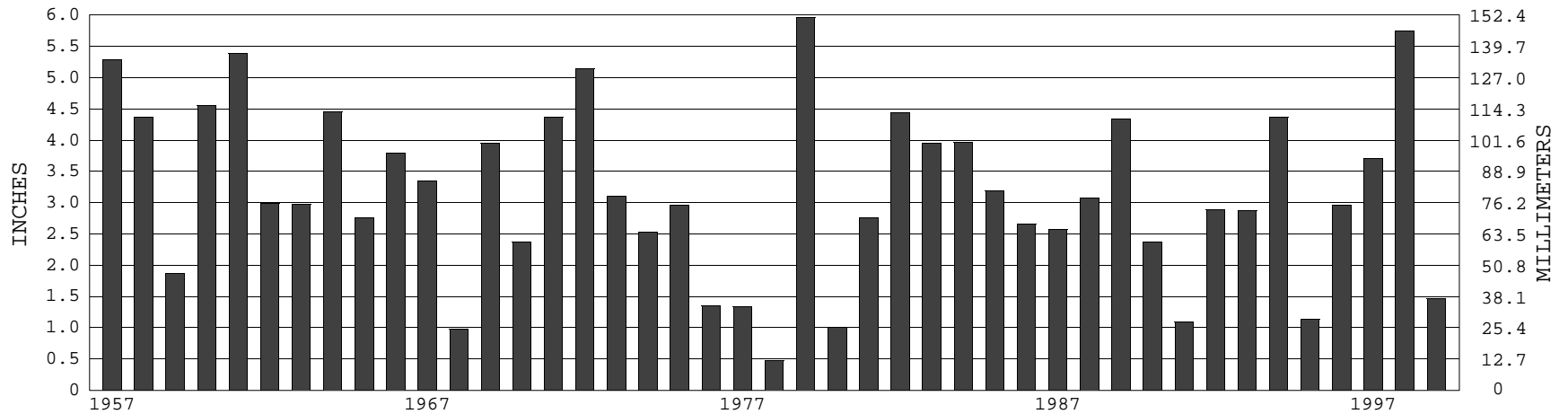
### RICHMOND, VA FEBRUARY TEMPERATURES



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

Long-Term (1957-1999) Mean: 39.4      1961-1990 Normal: 38.7

### RICHMOND, VA FEBRUARY PRECIPITATION



Long-Term (1957-1999) Mean Monthly Total: 3.19

1961-1990 Normal: 3.16



**FEBRUARY 1999  
RICHMOND, VA**

# LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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DIRECTOR

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