



LOCAL CLIMATOLOGICAL DATA

NOVEMBER 1995
 RICHMOND, VA
 R.E.BYRD INTERNATIONAL AP.

published by: National Climatic Data Center

LATITUDE: 37° 30' N LONGITUDE: 77° 20' W ELEVATION (GROUND): 164 FEET TIME ZONE: EASTERN STANDARD ISSN # 0198-537X
 WBAN # 13740

DATE	TEMPERATURE ° F						DEG DAYS BASE 65°		SIGNIFICANT WEATHER	SNOW/ICE ON GND (IN)		PRECIPITATION (INCHES)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES				SUNSHINE		CLOUDINESS									
	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING		0700		2400		AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT WIND SPEED	RES DIR	AVERAGE SPEED	MAXIMUM				TOTAL MINUTES	PERCENT POSSIBLE	SR-SS		MN-MN				
										LST	LST	LST	LST						5-SEC		2-MIN				CEILOMETER TENTHS	SATELLITE TENTHS	CEILOMETER TENTHS	SATELLITE TENTHS			
																			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	25	26	27	28	29			
01	65	55	60	6	59	60	5	0	RF	0		0.0	0.15	30.08	30.29	4.3	14	5.4	14	16	11	15	3	0							
02	71	65	68*	15	65	66	0	3	RF	0		0.0	0.02	29.82	30.02	8.6	20	8.9	20	23	17	23	102	16							
03	77*	49	63	10	61	63	2	0	RF	0		0.0	0.34	29.67	29.88	5.1	28	9.2	25	36	22	36	305	48							
04	51	32	42	-11	25	36	23	0	R	0		T		30.01	30.22	8.4	33	9.2	24	32	18	33	631	100							
05	47	26	37	-16	22	32	28	0		0		0.0	0.00	30.17	30.39	2.0	24	4.4	13	22	10	02	523	83							
06	53	30	42	-10	28	36	23	0		0		0.0	0.00	30.03	30.24	1.7	10	4.5	17	04	14	04	620	99							
07	52	37	45	-7	45	46	20	0	RF	0		0.0	0.62	29.58	29.78	5.7	20	8.8	24	18	18	18	0	0	10			9			
08	51	34	43	-9	29	39	22	0		0		0.0	0.00	29.69	29.89	11.4	31	11.7	33	29	26	30	550	88							
09	45	25	35	-17	18	29	30	0		0		0.0	0.00	30.08	30.29	2.1	29	4.9	17	33	15	31	622	100							
10	58	29	44	-7	31	39	21	0		0		0.0	0.00	30.16	30.37	8.6	18	9.1	24	18	18	18	584	94							
11	68	42	55	4	52	54	10	0	RF	0		0.0	1.01	29.63	29.83	11.3	18	16.2	44	30	36	23	33	5							
12	47	30	39	-12	24	33	26	0		0		0.0	0.00	29.86	30.06	7.3	28	8.7	24	29	21	30	593	96							
13	45	29	37	-14	33	36	28	0	RF	0		0.0	0.01	29.95	30.16	3.9	0	5.3	14	35	13	01	106	17							
14	42	38	40	-10	38	39	25	0	RF	0		0.0	0.47	29.54	29.75	9.5	33	12.2	25	31	21	31	0	0							
15	49	32	41	-9	25	35	24	0	R	0		T		29.62	29.83	14.0	26	14.4	33	24	25	24	292	48	5		5				
16	47	27	37	-13	25	32	28	0		0		0.0	0.00	29.99	30.20	4.1	24	5.3	18	23	15	23	447	74							
17	48	28	38	-11	28	34	27	0		0		0.0	0.00	30.14	30.35	1.1	1	4.0	17	30	13	30	556	92	0			2			
18	51	34	43	-6	33	39	22	0	R	0		T		30.04	30.25	6.4	18	6.8	18	19	16	18	107	18							
19	54	33	44	-5	34	39	21	0		0		0.0	0.00	29.98	30.19	6.0	35	8.3	23	01	18	01	517	86							
20	54	29	42	-6	34	38	23	0	F	0		0.0	0.00	29.94	30.14	3.0	20	4.5	15	19	14	22	600	100							
21	61	36	49	1	30	40	16	0	FH	0		0.0	0.00	29.65	29.85	7.0	28	9.1	33	32	29	31	430	72	4						
22	46	24	35*	-13	18	29	30	0		0		0.0	0.00	29.87	30.08	6.5	29	7.9	26	29	20	29	583	97							
23	61	23*	42	-5	25	37	23	0	R	0		T		29.88	30.09	7.3	20	8.1	23	22	18	22	416	70	4			5			
24	50	39	45	-2	34	39	20	0		0		0.0	0.00	30.07	30.28	9.1	2	9.5	21	01	16	02	0	0							
25	48	29	39	-8	25	33	26	0	RS	0		T	T	30.01	30.22	6.7	0	7.1	18	36	16	01	507	85	1			3			
26	57	24	41	-5	30	37	24	0	FH	0		0.0	0.00	29.85	30.06	5.7	18	6.0	18	19	15	18	579	98	0			1			
27	66	42	54	8	40	48	11	0		0		0.0	0.00	29.67	29.87	14.1	20	14.3	34	21	28	21	245	41	8			7			
28	74	45	60	14	50	55	5	0	RH	0		T		29.74	29.94	6.1	22	14.5					407	69							
29	45	29	37	-8	33	35	28	0	RF	0		0.0	0.25	29.87	30.08	11.7	35	11.9					0	0							
30	44	27	36	-9	26	31	29	0		0		0.0	0.00	29.97	30.18	2.5	34	7.4					539	92							
											<----- MONTHLY AVERAGES ----->				29.89	30.09	2.6	26	8.6	<-- MONTHLY AVERAGES -->											
DEPARTURE		16.3		-9.4		MONTHLY		DEGREE DAYS		TOTAL SNOWFALL:		T		TOTAL PRECIPITATION:		2.87		SUNSHINE TOTALS:		10897		PERCENT		TOTAL DEPARTURE		18324		POSSIBLE: 59			
HEATING:		620		158		TOTAL DEPARTURE		TOTAL DEPARTURE		PRECIP. DEPARTURE:		- .30		TOTAL DATE		11		WIND		SPEED		DIRECTION		DATE		MAXIMUM 5-SECOND		: 44 30 11			
COOLING:		3		3		TOTAL DEPARTURE		TOTAL DEPARTURE		GREATEST 24-HR PRECIPITATION:		1.01		GREATEST 24-HR SNOWFALL:		T		MAXIMUM 2-MINUTE		: 36		23		: 11		11					
NUMBER OF DAYS WITH		SKY CONDITIONS		CLEAR		PARTLY CLOUDY		CLOUDY		MAXIMUM TEMP ≥ 90 :		0		MINIMUM TEMP ≤ 32 :		17		PRECIPITATION ≥ 0.01 INCH :		8		PRECIPITATION ≥ 0.10 INCH :		6		<-- NUMBER OF DAYS WITH		SNOWFALL ≥ 1.0 INCH :		0	

NOVEMBER 1995
 RICHMOND, VA

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

NOVEMBER 1995 WBAN # 13740
RICHMOND, VA

DATE	A.M. HOUR (L.S.T.) ENDING AT												DATE	P.M. HOUR (L.S.T.) ENDING AT												DATE	
	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		
01	T	0.01	T		0.02	0.01	0.03	0.01	T			T	01	0.01	0.01	T	0.01	T	T				0.03	0.01			01
02		0.01	T			T	T	0.01	T			T	02	0.01	0.01							T	0.01				02
03													03				0.01	0.02	0.09	0.08	0.04	0.06	0.04				03
04	T												04														04
05													05														05
06													06														06
07						0.02	0.05	0.03	0.04	0.07	0.06	0.02	07	T	0.05	0.20	0.05	0.03									07
08													08														08
09													09														09
10													10														10
11													11														11
12													12		T	T	0.01	0.01	0.08	0.21	0.33	0.28	0.09	T	T	12	
13													13											T	T	13	
14	0.08	0.06	0.03	0.01	0.02	0.05	0.06	0.08	0.04	0.01	T	14	T	0.01	T			0.01	0.01	0.01		T		T	14		
15	T	T										15														15	
16													16														16
17													17														17
18													18														18
19													19												T	T	19
20													20														20
21													21														21
22													22														22
23													23														23
24													24											T			24
25		T	T										25														25
26													26														26
27													27														27
28													28														28
29	0.01	T	0.01	0.08	0.07	0.04	0.02	0.02	T			T	29							T	T	T			T	29	
30													30														30

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* The sum of the hourly totals follows the * when it disagrees with the daily total on page 1. NWS does not edit ASOS hourly precipitation but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

MAXIMUM SHORT DURATION PRECIPITATION (MSDP) **

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)												
ENDED: DATE												
ENDED: TIME												

** NCDC derives MSDP data from one-minute ASOS data. The MSDP data are not printed when inconsistent with ASOS hourly totals.

The time indicated is the ending time of the interval.
Date and time are not entered for trace amounts.

REFERENCE NOTES :

WFO = WEATHER FORECAST OFFICE.
 ASOS = AUTOMATED SURFACE OBSERVING SYSTEM.
 * = EXTREME FOR THE MONTH (LAST OCCURRENCE IF MORE THAN ONE).
 T = TRACE PRECIPITATION AMOUNT.
 + = ALSO OCCURS ON EARLIER DATES.
 F+ = HEAVY FOG, VISIBILITY .25 MILES OR LESS.
 BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA.
 THE HEATING DEGREE DAY SEASON BEGINS JULY 1.
 THE COOLING DEGREE DAY SEASON BEGINS JANUARY 1.
 CEILOMETER (30-SECOND) DATA ARE USED TO DERIVE CLOUDINESS AT OR BELOW 12,000 FEET. THIS CLOUDINESS IS THE MEAN CLOUD COVER DETECTED DURING THE TIME INTERVAL (HOUR, SUNRISE TO SUNSET, OR MIDNIGHT TO MIDNIGHT).
 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. 50 x 50 KM).
 SKY CONDITION IS BASED ON THE SUM (NOT TO EXCEED 10) 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 - 3 TENTHS, PARTLY CLOUDY = 4 - 7 TENTHS, AND CLOUDY = 8 - 10 TENTHS.
 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' INDICATES CALM.
 SR-SS = SUNRISE TO SUNSET. MN-MN = MIDNIGHT TO MIDNIGHT.
 SNOWFALL IS FOR THE 24-HOUR PERIOD ENDING AT THE TIME INDICATED IN COLUMN HEADING.
 WATER EQUIVALENT OF SNOW ON THE GROUND IS REPORTED ONLY WHEN THE DEPTH IS 2 OR MORE INCHES.
 H, F, F+, P-, R, S, AND ZR ARE REPORTED FROM ASOS AUTOMATED SENSORS. OTHER WEATHER TYPES MAY BE ADDED TO THE REPORT BY STATION PERSONNEL OR BE PROVIDED BY THE WEATHER FORECAST OFFICE (WFO).

A HAIL	GL GLAZE	SG SNOW GRAINS
BD BLOWING DUST	H HAZE	SP SNOW PELLETS
BN BLOWING SAND	IC ICE CRYSTALS	T THUNDER
BS BLOWING SNOW	IF ICE FOG	V VOLCANIC ASH
BY BLOWING SPRAY	IP ICE PELLETS	ZL FREEZING DRIZZLE
D DUST	K SMOKE	ZR FREEZING RAIN
F FOG	L DRIZZLE	& TORNADO
F+ HEAVY FOG	P- UNKN. PRECIP.	&C FUNNEL CLOUD
GF GROUND FOG	R RAIN	&W WATERSPOUT
	S SNOW	

NORMALS ARE FOR THE YEARS 1961 - 1990.
 A HEATING (COOLING) DEGREE DAY IS THE DEFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65°F.
 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 THE MOISTURE CONTENT WAS INCREASED TO 100% RELATIVE HUMIDITY.

TEMPERATURE - HUMIDITY INDEX (STEADMAN, 1979)

TEMPERATURE ° F	RELATIVE HUMIDITY (PERCENT)										APPARENT TEMPERATURE	
	0	10	20	30	40	50	60	70	80	90		100
120	107	116	130	148								
115	103	111	120	135	151							
110	99	105	112	123	137	150						
105	95	100	105	113	123	135	149					
100	91	95	99	104	110	120	132	144				
95	87	90	93	96	101	107	114	124	136			
90	83	85	87	90	93	96	100	106	113	122		
85	78	80	82	84	86	88	90	93	97	102	108	
80	73	75	77	78	79	81	82	85	86	88	91	
75	69	70	72	73	74	75	76	77	78	79	80	
70	64	65	66	67	68	69	70	70	71	71	72	

WIND CHILL EQUIVALENT TEMPERATURE (SIPLE & PASSEL, 1945)

TEMPERATURE ° F	WIND VELOCITY (MPH)									
	4	5	10	15	20	25	30	35	40	45
45	45	43	34	29	26	23	21	20	19	18
40	40	37	26	23	19	16	13	12	11	10
35	35	32	22	16	12	8	6	4	3	2
30	30	27	16	9	4	1	-2	-4	-5	-6
25	25	22	10	2	-3	-7	-10	-12	-13	-14
20	20	16	3	-5	-10	-15	-18	-20	-21	-22
15	15	11	-3	-11	-17	-22	-25	-27	-29	-30
10	10	6	-9	-18	-24	-29	-33	-35	-37	-38
5	5	0	-15	-25	-31	-36	-41	-43	-45	-46
0	0	-5	-22	-31	-39	-44	-49	-52	-53	-54
-5	-5	-10	-27	-38	-46	-51	-56	-58	-60	-62
-10	-10	-15	-34	-45	-53	-59	-64	-67	-69	-70
-15	-15	-21	-40	-51	-60	-66	-71	-74	-76	-78
-20	-20	-26	-46	-58	-67	-74	-79	-82	-84	-85
-25	-25	-31	-52	-65	-74	-81	-86	-89	-92	-93
-30	-30	-36	-58	-72	-81	-88	-93	-97	-100	-102

ADDITIONAL INFORMATION :

SUPPLEMENTARY HOURLY PRECIPITATION
UNIVERSAL RAIN GAUGE (WATER EQUIVALENT IN INCHES)

NOVEMBER 1995
RICHMOND, VA

LATITUDE 37° 30'N
LONGITUDE 77° 20'W

DATE	A.M. HOUR (L.S.T.) ENDING AT												DATE	P.M. HOUR (L.S.T.) ENDING AT												DATE	DAILY TOTAL	
	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12			
01		0.01				0.02	0.03						01				0.04							0.03	0.01	01	0.14	
02													02														02	0.00
03													03														03	0.33
04	T												04														04	T
05													05														05	0.00
06													06														06	0.00
07						0.01	0.04	0.03	0.04	0.07	0.04	0.02	07	T	0.05	0.18	0.07	0.02									07	0.57
08													08														08	0.00
09													09														09	0.00
10													10														10	0.00
11													11		T	T	0.01	0.01	0.13	0.16	0.36	0.27	0.07	T		11	1.01	
12													12														12	0.00
13													13														13	0.01
14	0.08	0.06	0.02	0.02	0.01	0.57	0.08	0.03	0.01	T		T	14	0.01	T		0.01	0.01	0.01							14	0.92	
15	T	T											15														15	T
16													16														16	0.00
17													17														17	0.00
18													18														18	T
19													19														19	0.00
20													20														20	0.00
21													21														21	0.00
22													22														22	0.00
23													23											T	T		23	T
24													24														24	0.00
25		T	T										25														25	T
26													26														26	0.00
27													27														27	0.00
28													28														28	T
29	T	T	T	0.07	0.04	0.04	0.03	0.01				T	29														29	0.19
30												T	30														30	0.00
												MONTHLY TOTAL												3.17				

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SUPPLEMENTARY MAXIMUM SHORT DURATION PRECIPITATION (MSDP)

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)	0.15	0.24	0.31	0.33	0.38	0.45	0.51	0.60	0.64	0.68	0.72	0.79
ENDED: DATE	11	11	11	11	11	11	11	11	11	11	11	11
ENDED: TIME	1947	1952	1957	2002	2011	2026	2041	2059	2059	2059	2059	2059

The National Weather Service has determined that the ASOS Heated Tipping-Bucket (HTB) rain gauge may not measure water equivalent precipitation accurately during frozen precipitation events. Precipitation data from a nearby site is provided on this page to supplement the ASOS HTB data.

The time indicated is the ending time of the interval.
Date and time are not entered for trace amounts.

USCOM - NOAA - ASHEVILLE, NC 325

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Kenneth D Hagan

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