



SEPTEMBER 2012 LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

RICHMOND, VA
RICHMOND INTERNATIONAL AIRPORT (KRIC)
 Lat:37° 30'N Long: 77° 19'W Elev (Ground) 164 Feet
 Time Zone : EASTERN WBAN: 13740 ISSN#: 0198-537X



Date	Temperature °F						Deg Days BASE 65°		WEATHER	SNOW/ICE ON GND(IN)		PRECIPITATION ON GND(IN)		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					
																			3-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	91	73	82	8	71	75	0	17	RA BR	0		0.0	T	29.88	30.06	4.2	29	5.3	18	34	15	33	01	
02	91*	72	82	8	73	74	0	17	TS TSRA RA BR	0		0.0	1.57	29.83	30.02	0.5	28	3.8			22	01	02	
03	83	71	77	4	74	75	0	12	RA FG BR	0		0.0	0.03	29.85	30.04	3.2	19	4.3	8	21	8	21	03	
04	88	75	82*	9	73	76	0	17	BR	0		0.0	0.00	29.80	29.97	7.6	19	7.7	23	20	17	19	04	
05	89	73	81	8	73	75	0	16	RA BR	0		0.0	0.17	29.70	29.87	10.1	21	10.4	26	22	21	21	05	
06	80	67	74	2	70	72	0	9	TS TSRA RA FG+ FG MIFG BR	0		0.0	1.03	29.72	29.91	2.2	20	5.3	18	11	15	10	06	
07	87	63	75	3	67	70	0	10	FG+ FG MIFG BR	0		0.0	0.00	29.75	29.93	2.6	15	3.1	26	15	10	14	07	
08	88	65	77	5	69	71	0	12	TSRA RA MIFG BR	0		0.0	0.21	29.60	29.78	5.5	21	9.6	37*	32	29*	32	08	
09	80	61	71	-1	55	61	0	6	RA	0		0.0	T	29.70	29.90	6.7	35	6.9	18	36	15	35	09	
10	77	58	68	-3	51	58	0	3		0		0.0	0.00	29.88	30.09	7.4	34	7.6	24	35	16	33	10	
11	78	54	66	-5	51	57	0	1		0		0.0	0.00	30.08	30.28	0.8	07	2.3	23	15	10	33	11	
12	80	53	67	-4	54	59	0	2		0		0.0	0.00	30.16	30.35	1.7	13	2.4	10	12	8	12	12	
13	81	54	68	-3	58	62	0	3	BR	0		0.0	0.00	30.15	30.33	0.8	11	2.6	11	20	9	20	13	
14	83	60	72	1	63	66	0	7	FG+ MIFG BCFG BR	0		0.0	0.00	30.03	30.21	2.3	19	2.6	15	20	12	25	14	
15	79	56	68	-2	53	60	0	3		0		0.0	0.00	29.98	30.17	6.3	36	6.9	30	02	24	01	15	
16	73	56	65	-5	54	58	0	0		0		0.0	0.00	29.96	30.15	1.9	22	2.2	13	19	9	22	16	
17	77	60	69	-1	63	65	0	4	RA BR	0		0.0	0.05	29.90	30.08	4.1	16	4.4	18	14	15	16	17	
18	78	66	72	2	69	70	0	7	TS TSRA RA FG BR	0		0.0	0.84	29.62	29.80	11.0	18	11.9	33	20	25	18	18	
19	74	55	65	-5	53	58	0	0	RA BR	0		0.0	0.04	29.85	30.07	7.2	01	7.6	29	01	21	01	19	
20	76	51	64	-5	53	57	1	0		0		0.0	0.00	29.95	30.14	1.3	09	3.1	12	12	8	11	20	
21	81	56	69	1	59	63	0	4	BCFG	0		0.0	0.00	29.86	30.04	3.7	16	4.5	16	15	13	16	21	
22	85	62	74	6	63	66	0	9		0		0.0	0.00	29.73	29.92	9.3	21	10.3	25	23	20	20	22	
23	73	51	62	-6	46	54	3	0		0		0.0	0.00	29.90	30.11	6.6	01	7.4	24	01	18	01	23	
24	72	49	61*	-6	44	52	4	0		0		0.0	0.00	30.01	30.20	2.2	34	4.0	24	01	14	01	24	
25	76	49*	63	-4	51	56	2	0		0		0.0	0.00	30.00	30.20	6.5	19	6.8	21	21	16	19	25	
26	84	57	71	5	59	63	0	6		0		0.0	0.00	29.97	30.16	7.6	20	8.1	18	19	15	19	26	
27	85	59	72	6	63	66	0	7		0		0.0	0.00	29.95	30.13	3.8	15	4.6	16	11	9	12	27	
28	85	61	73	7	63	66	0	8	TS TSRA RA BR	0		0.0	0.10	29.85	30.03	1.1	30	3.9	23	34	17	35	28	
29	70	59	65	0	55	58	0	0	RA	0		0.0	0.04	29.80	29.98	1.8	35	3.4	14	30	12	29	29	
30	75	53	64	-1	51	57	1	0		0		0.0	0.00	29.71	29.90	2.7	23	4.8	18	25	14	23	30	

80.6		60.0		70.3		☼	60.0		64.0		0.4		6.0		< MONTHLY AVERAGES		TOTALS >		0.0		4.08		29.87		30.06		1.5		21		5.6		< MONTHLY AVERAGES	
-0.6		-0.1		-0.3			<-----DEPARTURE FROM NORMAL----->										-0.05		SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3															
DEGREE DAYS										GREATEST 24-HR PRECIPITATION : 1.57 DATE : 02										SEA LEVEL PRESSURE				DATE TIME										
MONTHLY					SEASON TO DATE					GREATEST 24-HR SNOWFALL : 0.0 DATE :					MAXIMUM : 30.40				13 1027															
TOTAL DEPARTURE					TOTAL DEPARTURE					GREATEST SNOW DEPTH : 0 DATE :					MINIMUM : 29.66				08 1554															
HEATING :		11		-17		11		-18		NUMBER OF		MAXIMUM TEMP >= 90 :		2		MINIMUM TEMP <= 32 :		0		PRECIPITATION >= 0.01 INCH :		10												
COOLING :		180		-17		1689		185		->		MAXIMUM TEMP <= 32 :		6		MINIMUM TEMP <= 0 :		0		PRECIPITATION >= 0.10 INCH :		5												
										THUNDERSTORMS :		5		HEAVY FOG :		3				SNOWFALL >= 1.0 INCH :		0												

**SEPTEMBER 2012
RICHMOND, VA**

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

RICHMOND, VA (KRIC)
SEPTEMBER 2012

WBAN # 13740

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	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												T	T	01	T											01	T	T
02					T	0.01	0.02	0.01						02			0.88	0.15	0.39	0.10	0.01					02	1.57	1.57
03												T	0.03	03	T											03	0.03	0.03
04														04												04	0.00	0.00
05														05					0.17							05	0.17	0.17
06														06			T									06	1.03	1.03
07														07												07	0.00	0.00
08														08			T	T	0.20	0.01		T	T	T	08	0.21	0.21	
09	T													09											09	T	T	
10														10											10	0.00	0.00	
11														11											11	0.00	0.00	
12														12											12	0.00	0.00	
13														13											13	0.00	0.00	
14														14											14	0.00	0.00	
15														15											15	0.00	0.00	
16														16											16	0.00	0.00	
17														17											17	0.05	0.05	
18														18	0.07	0.03	0.33	0.18	0.17	0.02	T			0.03	0.02	T	0.84	0.84
19	0.01	0.03	T	T										19											19	0.04	0.04	
20														20											20	0.00	0.00	
21														21											21	0.00	0.00	
22														22											22	0.00	0.00	
23														23											23	0.00	0.00	
24														24											24	0.00	0.00	
25														25											25	0.00	0.00	
26														26											26	0.00	0.00	
27														27											27	0.00	0.00	
28														28			T	0.10			T				28	0.10	0.10	
29		T		T	0.04									29											29	0.04	0.04	
30														30											30	0.00	0.00	

* Indicates sum of Hourly and Daily disagree.

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 (Hr/Min)												

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. 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.

Date and time are not entered for TRACE amounts.

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 1981-2010

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	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	
PR Partial	RA Rain	PY Spray	SQ Squalls
SH Shower(s)	SG Snow Grains	SA Sand	SS Sandstorm
TS Thunderstorm	SN Snow	VA Volcanic Ash	GL Glaze
VC In the Vicinity	UP Unkown Precipitation		

Intensity (as indicated on pages 4 to 6):
'+' = Heavy '' = Moderate '-' = Light

RICHMOND, VA SEPTEMBER 2012

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:

Station Augmentation-SANDSTON COOP
Lat/Lon:37.54417/-77.27583 Elevation:165
Distance:4 MI Dir:E
Augmented Elements:Temp, Precip, Snow
Equipment:MMTS, SRG, Snowboard

Date	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR-SS		MN-MN		MINIMUM	MAXIMUM	
			Sky Cover	Satellite	Sky Cover	Satellite			
01							5.00	10.00	
02							1.50	10.00	
03							2.00	10.00	
04							5.00	10.00	
05							9.00	10.00	
06							0.25	10.00	
07							0.50	10.00	
08							3.00	10.00	
09							10.00	10.00	
10							10.00	10.00	
11							10.00	10.00	
12							9.00	10.00	
13							5.00	10.00	
14							6.00	10.00	
15							9.00	10.00	
16							10.00	10.00	
17							6.00	10.00	
18							0.50	10.00	
19							9.00	10.00	
20							10.00	10.00	
21							8.00	10.00	
22							9.00	10.00	
23							10.00	10.00	
24							10.00	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							10.00	10.00	
28							4.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							7.06	10.00	
SUNSHINE (Minutes)									
Total : 0					Possible : 22333				
Percent Possible : 0									
NUMBER OF DAYS WITH : SKY CONDITION									
Clear		Partly CLDY			Cloudy			Missing	
MINIMUM VISIBILITY (MILES)									
<= .25			<= 3.0			>= 7.0			
1			6			18			

OBSERVATIONS AT 3-HOURLY INTERVALS

Table containing hourly observations for September 25, 26, 27, 28, 29, and 30. Columns include Hour (LST), Sky Cover, Ceiling, Satellite, Visibility, Weather, Temperature (Dry Bulb, Dew Point, Wet Bulb, Relative Humidity), Wind (Speed, Direction), and Pressure (Station, Sea Level).

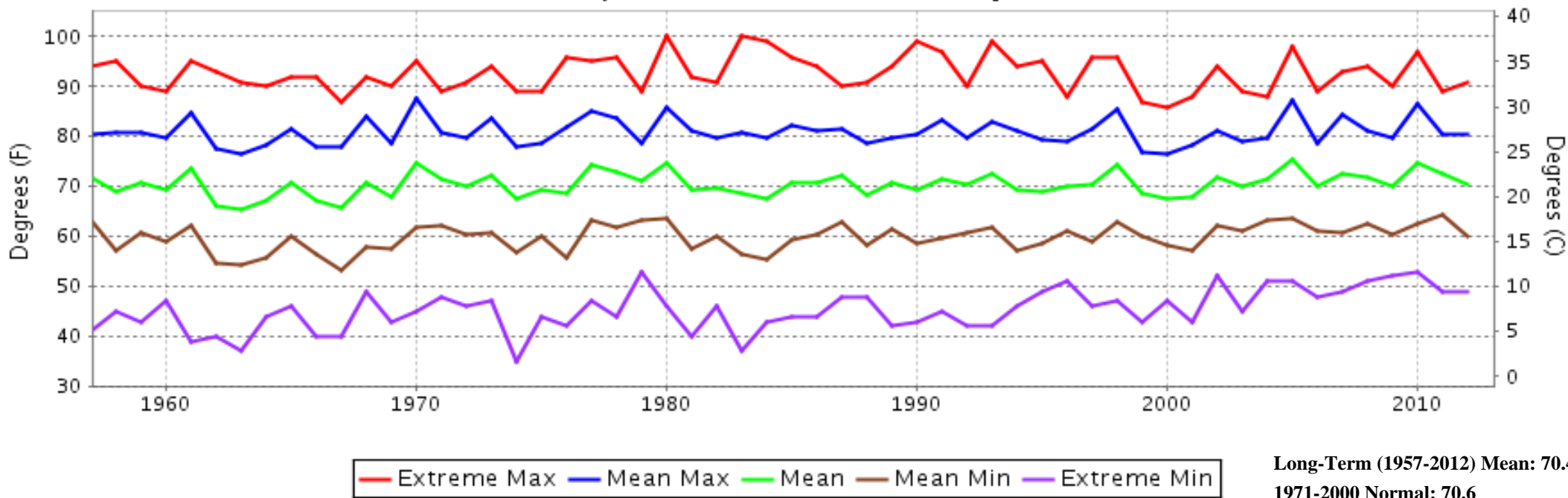
Table containing hourly observations for September 25, 26, 27, 28, 29, and 30. Columns include Hour (LST), Sky Cover, Ceiling, Satellite, Visibility, Weather, Temperature (Dry Bulb, Dew Point, Wet Bulb, Relative Humidity), Wind (Speed, Direction), and Pressure (Station, Sea Level).

3-HOURLY OBSERVATION NOTES
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, W = Vertical Visibility = 8/8
Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.
& = Original observation contained additional weather elements.
See page 3 for additional notes.

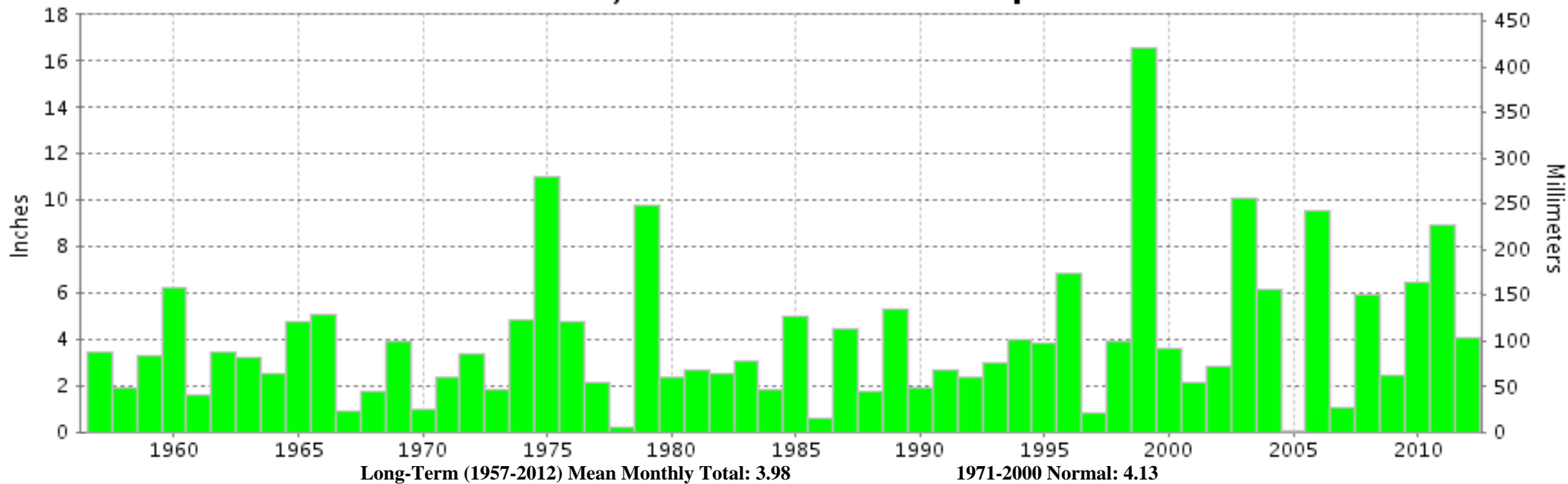
SUMMARY BY HOUR

Table showing summary by hour with columns for Hour (LST), Averages (Ceilometer, Eff Clt Amt, Dry Bulb, Dew Point, Wet Bulb, Relative Humidity, Station, Sea Level, Visibility, Wind Speed), and Resultant Wind (Speed, Direction).

RICHMOND, VA SEPTEMBER Temperatures



RICHMOND, VA SEPTEMBER Precipitation





**SEPTEMBER 2012
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.

A handwritten signature in black ink, appearing to read "Thomas R. Karl".

DIRECTOR

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We welcome your questions or comments, please contact us at:
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