



# JUNE 2010 LOCAL CLIMATOLOGICAL DATA

## NOAA, National Climatic Data Center

**RICHMOND, VA**  
**RICHMOND INTERNATIONAL AIRPORT (KRIC)**  
 Lat:37° 30'N Long: 77° 19'W Elev (Ground) 163 Feet  
 Time Zone : EASTERN WBAN: 13740 ISSN#: 0198-537X



Date 1	Temperature °F						Deg Days BASE 65°		WEATHER 10	SNOW/ICE ON GND(IN)		PRECIPITATION ON GND(IN)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES								Date 24
	MAXIMUM 2	MINIMUM 3	AVERAGE 4	DEP FROM NORMAL 5	AVERAGE DEW PT 6	AVERAGE WET BULB 7	HEATING 8	COOLING 9		0700 LST 11	1300 LST 12	2400 LST 13	2400 LST 14	AVERAGE STATION 15	AVERAGE SEA LEVEL 16	RESULTANT SPEED 17	RES DIR 18	AVERAGE SPEED 19	MAXIMUM					
																			3-SEC		2-MIN			
01	88	68	78	8	67	71	0	13	TS TSRA RA	0		0.0	0.08	29.75	29.92	9.9	23	10.2	24	24	20	25	01	
02	89	67	78	8	68	71	0	13	FG+ FG BR HZ	0		0.0	0.00	29.68	29.85	4.3	20	4.8	18	23	14	23	02	
03	89	71	80	10	69	71	0	15	TS TSRA RA BR HZ	0		0.0	0.09	29.62	29.79	4.4	22	7.4	33	35	28	35	03	
04	92	69	81	11	69	72	0	16	RA HZ	0		0.0	T	29.67	29.85	2.7	19	3.6	20	15	15	15	04	
05	94	73	84	14	69	74	0	19	TS	0		0.0	0.00	29.64	29.81	8.1	25	8.5	22	35	17	26	05	
06	94	70	82	12	68	73	0	17	TSRA RA BR	0		0.0	0.16	29.49	29.67	8.9	26	11.0	37	29	29	29	06	
07	80	62	71	0	56	62	0	6		0		0.0	0.00	29.70	29.92	4.9	02	5.4	18	36	15	01	07	
08	80	62	71	0	47	58	0	6		0		0.0	0.00	29.91	30.12	5.8	02	6.6	21	36	15	02	08	
09	82	60*	71*	-1	61	66	0	6	RA	0		0.0	T	29.86	30.02	8.9	21	10.2	29	20	21	22	09	
10	92	72	82	9	63	70	0	17		0		0.0	0.00	29.72	29.91	4.6	29	6.1	23	34	18	34	10	
11	88	65	77	4	62	68	0	12		0		0.0	0.00	29.90	30.10	3.3	12	4.9	18	15	12	15	11	
12	96	66	81	7	66	71	0	16	RA BR HZ SQ	0		0.0	T	29.90	30.07	8.7	22	9.8	44*	25	37*	25	12	
13	96	74	85	11	70	75	0	20	RA	0		0.0	0.05	29.71	29.89	3.8	27	6.3	24	02	20	29	13	
14	95	76	86	12	68	74	0	21		0		0.0	0.00	29.69	29.88	2.8	32	5.8	21	28	16	28	14	
15	88	71	80	6	68	72	0	15	BR HZ	0		0.0	0.00	29.82	30.03	4.9	08	7.1	16	13	14	13	15	
16	85	70	78	4	70	73	0	13	TS TSRA RA BR HZ	0		0.0	0.01	29.88	30.04	5.9	20	7.4	26	23	21	23	16	
17	93	72	83	9	63	70	0	18		0		0.0	0.00	29.77	29.96	7.3	36	9.2	26	33	17	36	17	
18	89	64	77	3	59	66	0	12		0		0.0	0.00	29.91	30.10	2.3	09	4.5	15	13	12	13	18	
19	93	65	79	5	66	71	0	14		0		0.0	0.00	29.87	30.05	5.6	21	6.3	29	21	16	24	19	
20	96	73	85	10	66	72	0	20	BR	0		0.0	0.00	29.77	29.96	2.4	32	6.9	24	34	17	36	20	
21	95	72	84	9	64	71	0	19		0		0.0	0.00	29.85	30.05	3.9	02	5.6	18	01	13	36	21	
22	98	70	84	9	68	73	0	19	BR HZ	0		0.0	0.00	29.89	30.07	4.0	24	4.8	21	26	15	21	22	
23	99	76	88	13	67	74	0	23	HZ	0		0.0	0.00	29.84	30.02	3.4	32	5.9	23	27	16	27	23	
24	102	78	90*	15	67	74	0	25	RA	0		0.0	T	29.73	29.92	8.2	29	9.2	32	27	24	29	24	
25	94	74	84	8	64	70	0	19		0		0.0	0.00	29.82	30.01	3.6	01	6.6	20	34	15	27	25	
26	97	72	85	9	70	74	0	20	BR HZ	0		0.0	0.00	29.75	29.91	3.0	18	4.9	25	23	17	21	26	
27	102	72	87	11	66	74	0	22	HZ	0		0.0	0.00	29.62	29.79	6.7	24	7.4	25	21	17	24	27	
28	102*	76	89	13	70	75	0	24	TS TSRA RA BR	0		0.0	0.43	29.55	29.74	10.8	25	11.4	37	28	30	28	28	
29	93	75	84	8	68	73	0	19		0		0.0	0.00	29.69	29.90	3.3	27	6.6	17	23	15	01	29	
30	85	66	76	-1	57	65	0	11		0		0.0	0.00	29.89	30.09	5.4	04	6.4	22	05	17	04	30	

92.2	70.0	81.1	☼	65.2	70.8	0.0	16.3	< MONTHLY AVERAGES   TOTALS >				0.0	0.82	29.76	29.95	2.4	25	7.0	< MONTHLY AVERAGES			
8.6	6.7	7.6		-----DEPARTURE FROM NORMAL -----								-2.72	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									
<b>DEGREE DAYS</b>								GREATEST 24-HR PRECIPITATION : 0.43 DATE : 28				SEA LEVEL PRESSURE				DATE TIME						
MONTHLY								GREATEST 24-HR SNOWFALL : 0.0 DATE :				MAXIMUM : 30.17 30 2359										
TOTAL DEPARTURE								GREATEST SNOW DEPTH : 0 DATE :				MINIMUM : 29.55 06 1554										
SEASON TO DATE								NUMBER OF -> DAYS WITH				MAXIMUM TEMP >= 90 : 19				MINIMUM TEMP <= 32 : 0						
TOTAL DEPARTURE								THUNDERSTORMS : 6				MAXIMUM TEMP <= 32 : 0				MINIMUM TEMP <= 0 : 0						
HEATING : 0 -8 3654 -265								PRECIPITATION >= 0.01 INCH : 6				PRECIPITATION >= 0.10 INCH : 2				SNOWFALL >= 1.0 INCH : 0						
COOLING : 490 213 774 348												HEAVY FOG : 1										

**JUNE 2010**  
**RICHMOND, VA**

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

RICHMOND, VA (KRIC)  
JUNE 2010

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													01												01	0.08	0.08	
02													02												02	0.00	0.00	
03													03												03	0.09	0.09	
04	T	T	T										04												04	T	T	
05													05												05	0.00	0.00	
06													06												06	0.16	0.16	
07													07												07	0.00	0.00	
08													08												08	0.00	0.00	
09													09												09	T	T	
10													10												10	0.00	0.00	
11													11												11	0.00	0.00	
12													12												12	T	T	
13													13												13	0.05	0.05	
14													14												14	0.00	0.00	
15													15												15	0.00	0.00	
16			0.01	T									16												16	0.01	0.01	
17													17												17	0.00	0.00	
18													18												18	0.00	0.00	
19													19												19	0.00	0.00	
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	T	T	
25													25												25	0.00	0.00	
26													26												26	0.00	0.00	
27													27												27	0.00	0.00	
28													28												28	0.43	0.43	
29													29												29	0.00	0.00	
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)	0.16	0.29	0.36	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Ending Date	28	28	28	28	28	28	28	28	28	28	28	28
Ending Time (Hr/Min)	1700	1704	1708	1709	1709	1709	1709	1709	1709	1709	1709	1709

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 1971-2000

## 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 JUNE 2010

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							10.00	10.00	
02							0.25	10.00	
03							5.00	10.00	
04							5.00	10.00	
05							9.00	10.00	
06							5.00	10.00	
07							10.00	10.00	
08							10.00	10.00	
09							9.00	10.00	
10							7.00	10.00	
11							10.00	10.00	
12							3.00	10.00	
13							7.00	10.00	
14							10.00	10.00	
15							5.00	10.00	
16							5.00	10.00	
17							10.00	10.00	
18							10.00	10.00	
19							8.00	10.00	
20							6.00	10.00	
21							10.00	10.00	
22							6.00	10.00	
23							5.00	10.00	
24							6.00	10.00	
25							9.00	10.00	
26							4.00	10.00	
27							6.00	10.00	
28							1.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							7.04	10.00	
<b>SUNSHINE (Minutes)</b>									
Total : 0					Possible : 26456				
Percent Possible : 0									
<b>NUMBER OF DAYS WITH : SKY CONDITION</b>									
Clear		Partly CLDY			Cloudy			Missing	
<b>MINIMUM VISIBILITY (MILES)</b>									
<= .25		<= 3.0			>= 7.0				
1		3			16				





# OBSERVATIONS AT 3-HOURLY INTERVALS

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE		WEATHER	TEMPERATURE °F			WIND		PRESSURE (INCHES, HG)						
			Observation Time (LST)	Eff Cl'd Amt Oktas		DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION Tens of Deg	STATION	SEA LEVEL				
SUNRISE: 0450						JUN 25						SUNSET: 1934					
01	SCT	250				76	66	70	71	5	02	29.77	29.95				
04	BKN	250				75	67	70	76	6	35	29.80	29.99				
07	BKN	250				77	65	69	67	10	02	29.85	30.04				
10	BKN	250				85	64	71	49	8	04	29.88	30.06				
13	BKN	250				90	60	71	37	5	02	29.85	30.03				
16	BKN	250				92	59	71	33	11	30	29.80	29.99				
19	BKN	250				88	58	69	36	6	26	29.80	29.99				
22	SCT	250				78	68	71	71	8	12	29.82	30.01				
SUNRISE: 0450						JUN 26						SUNSET: 1934					
01	SCT	060				74	69	71	84	3	12	29.81	29.99				
04	SCT	080			BR HZ	73	69	70	87	0	00	29.78	29.96				
07	SCT	250				76	71	73	85	3	15	29.80	29.99				
10	BKN	250				86	72	76	63	9	19	29.79	29.98				
13	BKN	075				92	70	77	49	10	21	29.72	29.90				
16	SCT	065				95	65	75	37	7	29	29.67	29.85				
19	SCT	250				89	71	76	55	8	12	29.65	29.84				
22	FEW	250				80	72	75	77	3	23	29.67	29.85				
SUNRISE: 0450						JUN 27						SUNSET: 1934					
01	CLR	NC				76	70	72	82	5	19	29.65	29.84				
04	CLR	NC				76	70	72	82	6	24	29.64	29.82				
07	FEW	250				80	67	71	65	3	30	29.66	29.84				
10	CLR	NC				93	66	75	41	6	25	29.66	29.84				
13	FEW	080				99	64	75	32	10	23	29.62	29.80				
16	BKN	250				101	64	76	30	10	27	29.56	29.75				
19	BKN	250				95	64	74	36	10	23	29.54	29.73				
22	BKN	250				88	68	74	52	11	23	29.56	29.75				
SUNRISE: 0451						JUN 28						SUNSET: 1934					
01	FEW	250				85	71	75	63	11	24	29.56	29.75				
04	CLR	NC				79	71	74	77	9	22	29.55	29.73				
07	FEW	250				82	70	74	67	10	24	29.57	29.75				
10	FEW	250				92	70	77	49	8	22	29.55	29.73				
13	SCT	250				97	67	76	38	14	25	29.53	29.72				
16	BKN	150				100	66	76	33	18	25	29.49	29.68				
19	BKN	250				79	72	74	79	3	22	29.54	29.73				
22	OVC	150				76	70	72	82	6	25	29.59	29.78				
SUNRISE: 0451						JUN 29						SUNSET: 1934					
01	OVC	140				77	71	73	82	8	26	29.61	29.80				
04	BKN	140				75	71	72	87	6	25	29.65	29.84				
07	BKN	250				80	71	74	74	7	28	29.69	29.88				
10	OVC	120				84	69	74	61	7	34	29.74	29.93				
13	BKN	150				89	66	74	47	3	VR	29.74	29.93				
16	BKN	250				92	63	73	38	9	27	29.69	29.88				
19	OVC	200				88	65	73	47	7	24	29.73	29.91				
22	BKN	250				79	70	73	74	7	18	29.77	29.95				
SUNRISE: 0451						JUN 30						SUNSET: 1934					
01	BKN	250				76	66	70	71	10	02	29.79	29.98				
04	BKN	150				73	66	69	79	10	03	29.84	30.03				
07	BKN	250				73	57	63	57	14	03	29.91	30.09				
10	BKN	250				77	51	62	40	9	01	29.95	30.14				
13	OVC	250				81	52	64	37	5	VR	29.95	30.13				
16	OVC	250				82	52	64	35	7	35	29.91	30.10				
19	BKN	250				77	57	65	50	5	11	29.92	30.11				
22	FEW	250				69	59	63	71	0	00	29.95	30.14				

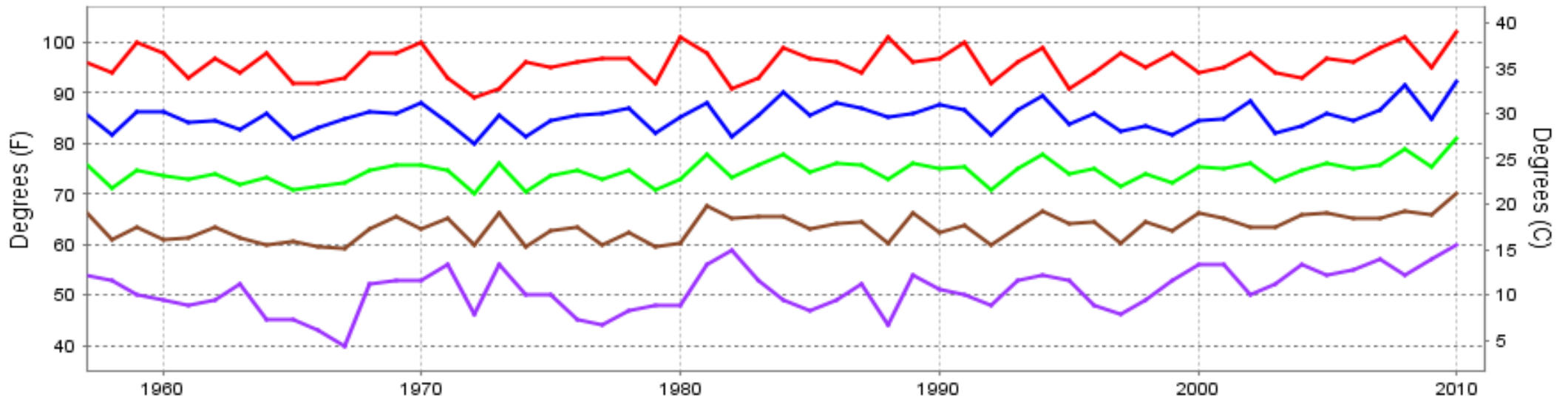
HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE		WEATHER	TEMPERATURE °F			WIND		PRESSURE (INCHES, HG)		
			Observation Time (LST)	Eff Cl'd Amt Oktas		DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION Tens of Deg	STATION	SEA LEVEL

**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

HOUR (LST)	AVERAGES								RESULTANT WIND (MPH)		
	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG)		WIND SPEED (MPH)	DIRECTION	
							STATION	SEA LEVEL			
01			74	67	69	78	29.76	29.94	6	3	24
02			74	67	69	79	29.75	29.94	6	3	24
03			73	66	69	80	29.75	29.94	9	3	24
04			72	66	68	81	29.76	29.94	8	2	22
05			72	66	68	81	29.77	29.96	8	2	23
06			73	66	69	79	29.78	29.97	8	2	23
07			76	66	69	72	29.79	29.98	7	2	22
08			79	66	70	64	29.80	29.99	9	2	22
09			82	65	71	58	29.80	29.99	9	2	20
10			85	65	72	52	29.80	29.98	9	3	24
11			87	64	72	48	29.79	29.98	9	4	24
12			88	64	72	45	29.78	29.97	9	4	25
13			90	64	73	43	29.76	29.95	9	6	26
14			90	63	72	42	29.75	29.93	9	7	26
15			91	64	73	41	29.73	29.92	9	5	25
16			91	64	73	42	29.72	29.91	10	6	26
17			89	64	72	45	29.72	29.91	10	5	25
18			86	64	72	50	29.73	29.91	9	3	24
19			83	65	71	56	29.73	29.92	9	7	22
20			80	66	71	62	29.74	29.93	9	7	19
21			77	66	70	69	29.76	29.95	9	7	20
22			77	66	70	72	29.77	29.95	9	7	21
23			76	67	70	74	29.76	29.95	9	5	23
24			75	67	70	75	29.76	29.95	9	5	23

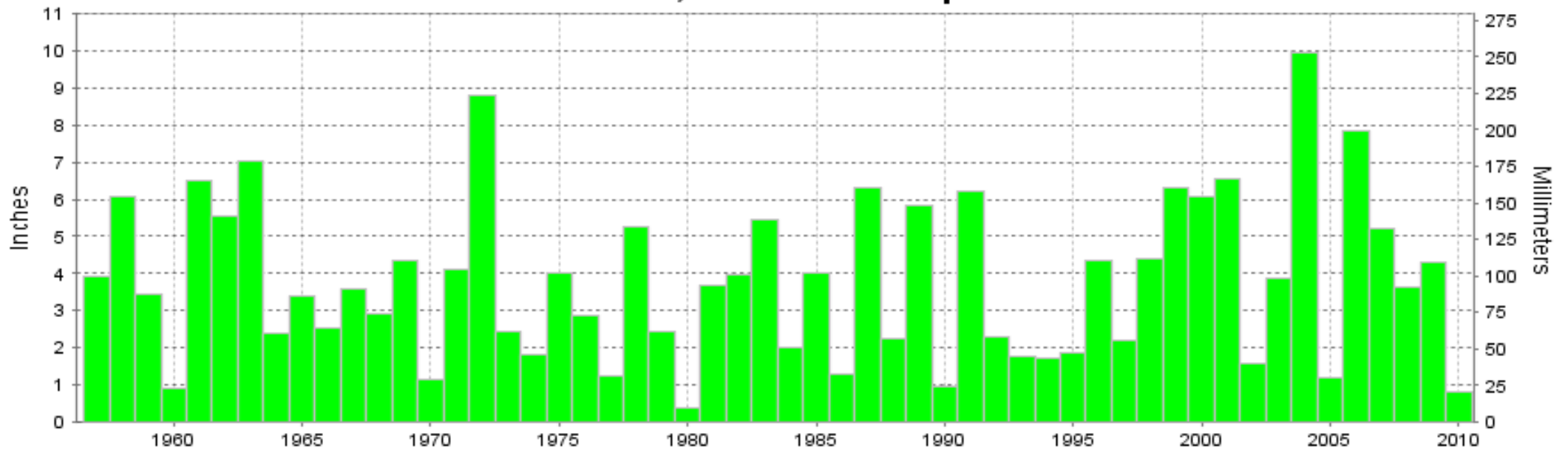
## RICHMOND, VA JUNE Temperatures



— Extreme Max   
 — Mean Max   
 — Mean   
 — Mean Min   
 — Extreme Min

**Long-Term (1957-2010) Mean: 74.4**  
**1971-2000 Normal: 73.5**

## RICHMOND, VA JUNE Precipitation



Long-Term (1957-2010) Mean Monthly Total: 3.80

1971-2000 Normal: 3.54



JUNE 2010  
RICHMOND, VA

## LOCAL CLIMATOLOGICAL DATA NOAA, National Climatic Data Center

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**DIRECTOR**

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