



# SEPTEMBER 1996

## LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

# KNOXVILLE, TN

MC GHEE TYSON AIRPORT (TYS)  
 Lat: 35° 49' N Long: 83° 59' W Elev (Ground): 979 Feet  
 Time Zone: EASTERN WBAN: 13891 ISSN #: 0198-4810

SEPTEMBER 1996  
KNOXVILLE, TN

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	85	67	76	2	62	67	0	11	BR HZ				0.00	28.95	29.96	3.8	07	4.9	18	11	13	08	01																										
02	76	67	72	-2	64	67	0	7	RA BR HZ				0.07	28.95	29.97	3.9	06	3.2	11	05	10	05	02																										
03	84	66	75	2	66	68	0	10	TS TSRA RA BR				0.25	28.90	29.92	4.0	06	4.7	21	21	17	21	03																										
04	83	65	74	1	66	69	0	9	TS TSRA RA FG+ BR HZ				0.57	28.88	29.92	4.7	05	3.8	23	06	20	06	04																										
05	83	65	74	1	67	69	0	9	RA BR				0.04	28.87	29.89	5.3	05	5.2	13	03	10	05	05																										
06	85	67	76	3	67	70	0	11					0.00	28.84	29.84	4.0	27	4.8	14	27	11	26	06																										
07	86*	66	76*	4	67	69	0	11	TS RA FG+ BR				0.01	28.87	29.88	2.9	25	3.6	22	29	20	29	07																										
08	83	65	74	2	67	69	0	9	BR HZ				0.00	28.88	29.89	3.6	25	3.9	11	25	10	25	08																										
09	80	66	73	1	68	69	0	8	RA BR HZ				0.07	28.90	29.92	3.8	24	3.8	18	29	16	29	09																										
10	78	68	73	1	69	70	0	8	BR HZ				0.00	28.95	29.97	0.6	29	2.6	11	11	9	10	10																										
11	83	64	74	2	63	67	0	9	BR HZ				0.00	28.92	29.93	5.6	04	5.9	16	06	13	06	11																										
12	84	59	72	1	61	64	0	7	TSRA RA FG+ BR HZ				0.09	28.85	29.86	1.4	04	4.6	34*	30	28*	30	12																										
13	72	54	63	-8	52	57	2	0	BR				0.00	28.82	29.84	5.4	30	6.3	20	29	16	29	13																										
14	73	50	62	-9	50	55	3	0	BR				0.00	28.90	29.92	5.8	25	5.6	17	25	14	27	14																										
15	78	49	64	-7	54	59	1	0	RA FG+ BR				T	28.91	29.94	4.2	23	2.6	10	28	9	28	15																										
16	78	64	71	1	65	66	0	6	TS TSRA RA FG BR				0.82	28.74	29.75	2.8	26	7.3	23	22	18	22	16																										
17	71	57	64	-6	60	62	1	0	BR				0.00	28.89	29.91	6.6	30	9.1	22	30	20	30	17																										
18	73	51	62	-8	53	56	3	0	FG+ BR				0.00	29.04	30.07	4.7	36	5.9	21	03	15	02	18																										
19	74	49	62	-8	51	56	3	0	BR HZ				0.00	29.01	30.04	3.3	03	3.8	16	05	15	06	19																										
20	77	51	64	-6	55	58	1	0	BR				0.00	28.97	30.00	1.8	34	2.6	15	31	11	30	20																										
21	76	56	66	-3	58	61	0	1	RA BR				0.24	28.85	29.87	0.7	15	6.1	25	27	21	27	21																										
22	78	58	68	0	56	60	0	3	FG+ BR				0.00	28.91	29.94	6.6	25	6.5	18	28	15	27	22																										
23	82	57	70	2	58	62	0	5					0.00	29.00	30.02	6.4	25	5.8	17	27	14	27	23																										
24	79	58	69	1	61	64	0	4	RA				T	28.99	30.01	4.3	26	6.1	21	25	17	25	24																										
25	80	63	72	5	62	65	0	7	BR				0.00	29.01	30.03	3.2	04	5.0	14	06	9	08	25																										
26	85	61	73	6	59	64	0	8	BR HZ				0.00	29.01	30.03	5.4	19	9.0	33	22	25	20	26																										
27	78	69	74	8	63	67	0	9	RA BR				0.10	28.98	30.00	12.4	20	13.0	30	21	25	21	27																										
28	73	50	62	-4	59	60	3	0	RA BR				1.19	28.97	29.99	3.7	28	6.8	28	28	23	29	28																										
29	69	46*	58*	-7	50	53	7	0	FG+ BR				0.00	29.11	30.16	6.6	04	7.3	18	07	15	07	29																										
30	68	50	59	-6	54	57	6	0	BR				0.00	29.21	30.25	5.2	05	3.9	13	03	11	03	30																										
										78.5	59.3	68.9	■ ■					1.0	5.1	< MONTHLY AVERAGES				TOTALS-->					3.45	28.94					1.0	29	5.5	<- MONTHLY AVERAGES											
										-2.7	0.3	-1.2	■ ■	<----- DEPARTURE FROM NORMAL ----->										0.40	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																								
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 1.20 DATE: 28-29										SEA LEVEL PRESSURE DATE TIME																													
MONTHLY TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: DATE:										MAXIMUM : 30.30 30 0918																													
SEASON TO DATE TOTAL DEPARTURE										GREATEST SNOW DEPTH: DATE:										MINIMUM : 29.67 16 1839																													
HEATING: 30 12										NUMBER OF DAYS WITH =>										MAXIMUM TEMP ≥ 90: 0										MINIMUM TEMP ≤ 32: 0										PRECIPITATION ≥ 0.01 INCH : 11									
COOLING: 152 -19																				MAXIMUM TEMP ≤ 32 : 0										MINIMUM TEMP ≤ 0 : 0										PRECIPITATION ≥ 0.10 INCH : 6									
																				THUNDERSTORMS : 5										HEAVY FOG : 7										SNOWFALL ≥ 1.0 INCH : 0									

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## KNOXVILLE, TN

SEPTEMBER 1996 TYS WBAN # 13891

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			0.00	
02																									02			0.07	
03												T													03			0.25	
04												0.01													04	T		0.57	
05														0.02											05			0.04	
06																									06			0.00	
07																									07			0.01	
08																0.01		T							08			0.00	
09																									09			0.00	
10																									10			0.07	
11																									11			0.00	
12																									12			0.09	
13																									13			0.00	
14																									14			0.00	
15																									15			T	
16	T																								16			0.82	
17																									17			0.00	
18																									18			0.00	
19																									19			0.00	
20																									20			0.00	
21																									21			0.24	
22																									22			0.00	
23																									23			0.00	
24																									24			T	
25																									25			0.00	
26																									26			0.00	
27																									27			0.10	
28																									28			1.19	
29																									29			0.00	
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	PE Ice Pellets	HZ Haze	SQ Squalls
PR Partial	RA Rain	PY Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	
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

# KNOXVILLE, TN SEPTEMBER 1996

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.

## ADDITIONAL NOTES:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR-SS		MN-MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							1.25	9.00	
02							3.00	9.00	
03							5.00	10.00	
04							<.25	10.00	
05							1.50	10.00	
06							8.00	10.00	
07							.25	10.00	
08							3.00	10.00	
09							.75	10.00	
10							1.50	7.00	
11							4.00	10.00	
12							.50	10.00	
13							5.00	10.00	
14							4.00	10.00	
15							<.25	10.00	
16							.50	10.00	
17							2.50	10.00	
18							.25	10.00	
19							4.00	10.00	
20							3.00	10.00	
21							1.25	10.00	
22							<.25	10.00	
23							10.00	10.00	
24							9.00	10.00	
25							6.00	10.00	
26							4.00	10.00	
27							2.00	10.00	
28							1.25	10.00	
29							.25	10.00	
30							5.00	10.00	
<b>MONTHLY AVGS</b>							2.90	9.83	
<b>SUNSHINE (MINUTES)</b>									
Total:                      Possible: Percent Possible:									
<b>NUMBER OF DAYS WITH:</b>									
<b>SKY CONDITION</b>									
CLR   PTLY CLDY   CLOUDY   MISSING 30									
<b>MINIMUM VISIBILITY (MILES)</b>									
<=0.25   <=3.0   >=7.0 6                      19                      3									

# OBSERVATIONS AT 3-HOURLY INTERVALS

# KNOXVILLE, TN

SEPTEMBER 1996

TYS

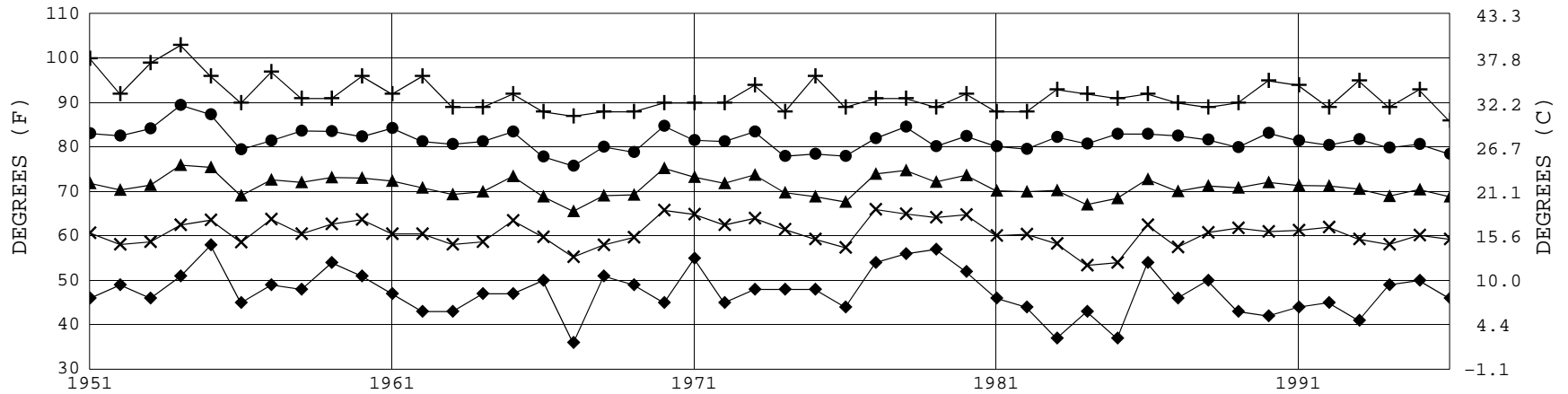
WBAN # 13891

HOUR (LST)	≤ 12K FEET		SATELLITE		WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	≤ 12K FEET		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	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
SUNRISE: 0608						SEP 01	SUNSET: 1904						SUNRISE: 0613						SEP 07	SUNSET: 1854							
01	FEW	NC			4.00 BR	68	65	66	90	6	23	28.95	29.97	01	CLR	NC			10.00	71	68	69	90	0	00	28.87	29.88
04	CLR	NC			3.00 BR	68	66	67	93	0	00	28.95	29.97	04	CLR	NC			8.00	68	66	67	93	3	22	28.87	29.87
07	FEW	NC			1.25 BR	67	66	66	97	3	06	28.98	30.00	07	VV	001			0.25 FG	67	67	67	100	3	18	28.89	29.91
10	FEW	NC			4.00 HZ	76	65	69	69	6	08	28.99	30.01	10	CLR	NC			10.00	77	68	71	74	5	25	28.90	29.92
13	SCT	NC			5.00 HZ	82	60	68	47	9	08	28.95	29.97	13	FEW	NC			10.00	83	67	72	59	0	00	28.86	29.86
16	CLR	NC			7.00	85	56	67	37	12	08	28.91	29.92	16	SCT	NC			7.00	73	68	70	84	7	28	28.84	29.85
19	FEW	NC			8.00	78	58	66	50	5	07	28.91	29.93	19	CLR	NC			9.00	73	69	70	87	7	19	28.85	29.86
22	BKN	100			8.00	72	61	65	69	3	24	28.93	29.95	22	CLR	NC			10.00	71	66	68	84	6	29	28.87	29.89
SUNRISE: 0609						SEP 02	SUNSET: 1903						SUNRISE: 0613						SEP 08	SUNSET: 1853							
01	CLR	NC			8.00	71	62	65	73	6	29	28.94	29.95	01	CLR	NC			10.00	67	63	64	87	5	23	28.87	29.87
04	OVC	100			5.00 BR	68	64	66	87	0	00	28.95	29.96	04	BKN	039			9.00	66	64	65	93	3	20	28.86	29.87
07	SCT	NC			3.00 BR	68	64	66	87	6	03	28.97	29.99	07	FEW	NC			6.00 BR	66	63	64	90	0	00	28.88	29.91
10	BKN	080			9.00	74	61	66	64	7	07	28.99	30.01	10	FEW	NC			7.00	73	67	69	81	5	24	28.92	29.94
13	OVC	060			6.00 HZ	74	65	68	74	3	VR	28.97	29.98	13	BKN	029			4.00 HZ	80	69	73	69	5	23	28.90	29.92
16	OVC	050			6.00 HZ	76	65	69	69	3	30	28.93	29.95	16	CLR	NC			3.00 HZ	81	68	72	65	5	30	28.84	29.85
19	OVC	050			9.00	74	65	68	74	0	00	28.92	29.94	19	CLR	NC			4.00 HZ	76	69	71	79	7	25	28.85	29.86
22	OVC	035			3.00 RA BR	70	68	69	93	0	00	28.94	29.96	22	CLR	NC			6.00 HZ	74	68	70	82	0	00	28.88	29.90
SUNRISE: 0610						SEP 03	SUNSET: 1860						SUNRISE: 0614						SEP 09	SUNSET: 1851							
01	OVC	065			9.00	67	66	66	97	5	06	28.92	29.93	01	CLR	NC			4.00 BR	71	68	69	90	0	00	28.88	29.89
04	OVC	048			8.00	67	66	66	97	3	10	28.91	29.93	04	CLR	NC			2.50 BR	69	67	68	93	3	22	28.87	29.88
07	OVC	055			8.00	68	66	67	93	3	06	28.94	29.96	07	CLR	NC			0.75 BR	67	66	66	97	0	00	28.89	29.91
10	BKN	100			9.00	74	67	69	79	3	VR	28.94	29.96	10	SCT	NC			3.00 BR	72	68	69	87	6	31	28.95	29.97
13	CLR	NC			10.00	78	65	70	64	5	VR	28.91	29.93	13	CLR	NC			5.00 HZ	72	67	69	84	6	23	28.92	29.94
16	OVC	060			10.00	80	67	71	64	6	06	28.86	29.86	16	CLR	NC			10.00	80	67	71	64	6	23	28.87	29.88
19	OVC	028			6.00 -TSRA BR	70	68	69	93	6	24	28.88	29.91	19	CLR	NC			10.00	75	67	70	76	6	25	28.89	29.91
22	CLR	NC			10.00	68	66	67	93	5	33	28.87	29.89	22	CLR	NC			10.00	71	67	68	87	3	10	28.92	29.94
SUNRISE: 0610						SEP 04	SUNSET: 1858						SUNRISE: 0615						SEP 10	SUNSET: 1850							
01	OVC	003			6.00 BR	67	66	66	97	0	00	28.87	29.89	01	BKN	020			7.00	70	67	68	90	0	00	28.94	29.96
04	OVC	002			3.00 BR	67	66	66	97	3	06	28.87	29.88	04	OVC	020			6.00 BR	69	67	68	93	0	00	28.94	29.95
07	VV	001			<.25 FG					5	08	28.89	29.88	07	SCT	NC			4.00 BR	69	67	68	93	0	00	28.95	29.98
10	OVC	005			9.00					8	03	28.92	29.88	10	CLR	NC			4.00 BR	73	69	70	87	5	07	28.98	30.00
13	SCT	NC			10.00	80	67	71	64	3	VR	28.87	29.88	13	SCT	NC			3.00 HZ	75	70	72	84	3	03	28.97	29.99
16	CLR	NC			10.00	81	66	71	61	0	00	28.82	29.83	16	SCT	NC			3.00 HZ	78	70	73	76	6	10	28.92	29.93
19	OVC	029			7.00 -TSRA					18	08	28.86	29.83	19	CLR	NC			3.00 BR	74	70	71	88	5	07	28.92	29.94
22	BKN	048			10.00	68	67	67	96	0	00	28.88	29.83	22	FEW	NC			1.50 BR	71	70	70	96	3	02	28.93	29.95
SUNRISE: 0611						SEP 05	SUNSET: 1857						SUNRISE: 0616						SEP 11	SUNSET: 1848							
01	CLR	NC			10.00	66	65	65	96	0	00	28.88	29.90	01	CLR	NC			7.00	69	65	66	87	6	03	28.94	29.96
04	OVC	001			2.00 BR	65	64	64	97	5	05	28.87	29.89	04	CLR	NC			8.00	66	63	64	90	0	00	28.91	29.93
07	OVC	001			2.00 BR	66	65	65	96	5	04	28.90	29.93	07	OVC	025			6.00 BR	66	63	64	90	5	04	28.95	29.98
10	OVC	005			6.00 BR	69	66	67	90	3	09	28.93	29.96	10	SCT	NC			5.00 HZ	75	66	69	74	5	03	28.96	29.98
13	BKN	011			8.00	74	70	71	88	8	03	28.90	29.92	13	SCT	NC			9.00	82	63	70	53	10	05	28.93	29.94
16	CLR	NC			10.00	82	70	74	67	7	01	28.83	29.84	16	SCT	NC			10.00	82	60	68	47	12	05	28.87	29.89
19	FEW	NC			10.00	77	70	72	79	5	06	28.83	29.84	19	CLR	NC			9.00	76	61	67	60	6	36	28.88	29.90
22	CLR	NC			10.00	74	69	71	85	5	03	28.84	29.85	22	CLR	NC			6.00 HZ	69	63	65	81	6	04	28.89	29.91
SUNRISE: 0612						SEP 06	SUNSET: 1856						SUNRISE: 0616						SEP 12	SUNSET: 1847							
01	CLR	NC			10.00	72	67	69	84	7	01	28.82	29.83	01	CLR	NC			6.00 BR	66	62	64	87	0	00	28.88	29.89
04	FEW	NC			10.00	70	67	68	90	0	00	28.80	29.81	04	CLR	NC			4.00 BR	62	60	61	93	5	35	28.87	29.88
07	SCT	NC			8.00	68	66	67	93	5	23	28.83	29.84	07	VV	001			0.50 FG	61	60	60	97	3	10	28.88	29.91
10	CLR	NC			10.00	77	70	72	79	8	26	28.86	29.86	10	CLR	NC			6.00 HZ	73	62	66	69	5	15	28.91	29.93
13	CLR	NC			10.00	80	67	71	64	8	26	28.85	29.86	13	CLR	NC			9.00	81	60	68	49	0	00	28.85	29.86
16	CLR	NC			10.00	84	65	71	53	9	28	28.83	29.83	16	FEW	NC			10.00	82	57	66	43	7	24	28.78	29.79
19	CLR	NC			10.00	81	66	71	61	6	26	28.83	29.84	19	FEW	NC			9.00	66	62	64	87	7	15	28.81	29.83
22	CLR	NC			10.00	73	68	70	84	0	00	28.86	29.87	22	CLR	NC			4.00 BR	64	63	63	96	0	00	28.81	29.82





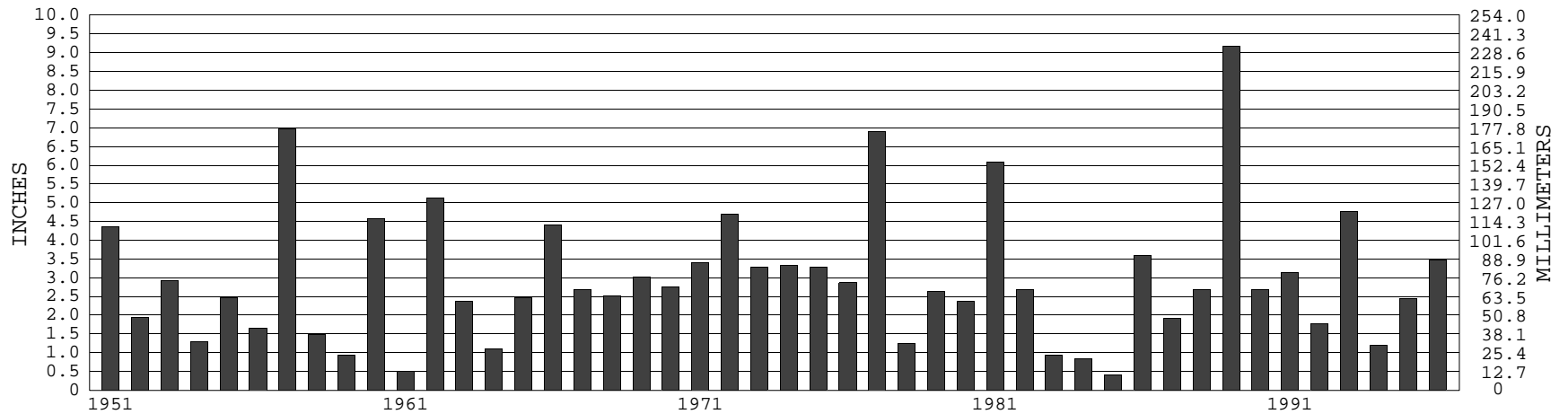
### KNOXVILLE, TN SEPTEMBER TEMPERATURES



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

Long-Term (1951-1996) Mean: 71.2      1961-1990 Normal: 70.1

### KNOXVILLE, TN SEPTEMBER PRECIPITATION



Long-Term (1951-1996) Mean Monthly Total: 2.99

1961-1990 Normal: 3.07



**SEPTEMBER 1996  
KNOXVILLE, TN**

# 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.*

*Kenneth D Hadean*

DIRECTOR

## NOTICE

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

We welcome your questions or comments, please contact us at  
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