



# JULY 2014

## LOCAL CLIMATOLOGICAL DATA

### NOAA, National Climatic Data Center

**KNOXVILLE, TN**  
**MC GHEE TYSON AIRPORT (KTYS)**  
**Lat:35° 49'N Long: 83° 59'W Elev (Ground) 962 Feet**  
**Time Zone : EASTERN WBAN: 13891 ISSN#: 0198-4810**



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	1300 LST	2400 LST	2400 LST	AVERAGE STATION 15	AVERAGE SEA LEVEL 16	RESULTANT SPEED 17	RES DIR 18	AVERAGE SPEED 19	MAXIMUM					
																			3-SEC		2-MIN			
									DEPTH 11	WATER- EQUIV 12	SNOW- FALL 13	WATER EQUIV 14					SPEED 20	DIR 21	SPEED 22	DIR 23				
01	89	71	80	3	71	74	0	15		0		0.0	0.00	28.90	29.92	8.0	22	8.2	22	21	17	23	01	
02	89	74	82	5	68	72	0	17		0		0.0	0.00	28.92	29.93	7.0	26	8.0	19	23	15	24	02	
03	84	67	76	-1	60	66	0	11		0		0.0	0.00	28.98	30.01	5.6	35	7.2	22	33	16	32	03	
04	82	61	72	-5	54	61	0	7		0		0.0	0.00	29.11	30.15	7.7	03	8.2	20	04	15	06	04	
05	85	59	72	-5	55	62	0	7		0		0.0	0.00	29.16	30.18	2.8	36	6.5	15	26	13	02	05	
06	87	61	74	-3	59	65	0	9		0		0.0	0.00	29.08	30.08	3.0	23	4.3	20	23	15	22	06	
07	90	64	77	0	62	68	0	12		0		0.0	0.00	28.97	29.98	8.4	22	9.0	30	21	23	21	07	
08	88	70	79	2	66	70	0	14	RA	0		0.0	0.10	28.94	29.96	12.7	21	13.2	36	20	29	21	08	
09	84	67	76	-2	67	70	0	11	RA	0		0.0	0.20	28.97	29.98	7.8	22	8.6	41	26	31*	27	09	
10	86	67	77	-1	67	70	0	12	BR	0		0.0	0.00	29.02	30.04	2.2	03	3.4	17	03	14	03	10	
11	91	65	78	0	63	68	0	13	BCFG BR	0		0.0	0.00	29.09	30.12	2.9	03	4.3	15	03	12	02	11	
12	91	68	80	2	67	71	0	15		0		0.0	0.00	29.11	30.13	2.1	23	4.1	17	16	15	15	12	
13	92	70	81	3	69	72	0	16		0		0.0	0.00	29.04	30.05	5.7	23	6.9	29	25	18	24	13	
14	93*	71	82*	4	69	73	0	17	TS TSRA RA VCTS	0		0.0	0.35	28.92	29.93	10.0	22	10.8	44*	25	28	25	14	
15	81	68	75	-3	66	69	0	10	RA BR	0		0.0	0.19	28.86	29.87	2.5	25	6.1	17	28	15	28	15	
16	80	59	70	-8	53	60	0	5		0		0.0	0.00	28.91	29.94	3.8	02	5.2	21	36	14	02	16	
17	83	57	70	-8	56	62	0	5		0		0.0	0.00	28.99	30.02	4.9	04	5.6	18	05	15	04	17	
18	71	64	68	-10	63	65	0	3	RA BR	0		0.0	0.61	29.07	30.10	3.9	02	5.2	12	32	10	31	18	
19	75	64	70	-8	67	68	0	5	RA BR	0		0.0	1.79	29.01	30.03	5.1	04	5.6	14	04	12	04	19	
20	85	67	76	-2	68	70	0	11	RA BCFG	0		0.0	T	28.98	30.01	1.5	35	3.8	23	21	18	18	20	
21	87	67	77	-1	69	71	0	12	BR	0		0.0	0.00	29.02	30.04	0.9	05	3.6	10	04	8	09	21	
22	88	70	79	1	70	73	0	14	BCFG BR	0		0.0	0.00	29.05	30.07	1.3	23	2.9	12	22	10	21	22	
23	83	72	78	0	70	72	0	13	RA VCTS	0		0.0	0.01	29.00	30.02	1.6	23	5.6	23	35	17	33	23	
24	85	66	76	-2	68	70	0	11	TS TSRA RA BR	0		0.0	0.24	28.92	29.94	3.3	28	6.8	23	31	18	30	24	
25	83	63	73	-5	62	66	0	8		0		0.0	0.00	28.98	30.00	2.0	27	3.9	18	24	15	24	25	
26	86	62	74	-4	65	68	0	9	RA	0		0.0	0.01	28.98	29.99	3.4	23	5.3	17	23	14	26	26	
27	90	69	80	2	70	73	0	15	TS TSRA RA FG BR VCTS	0		0.0	1.16	28.91	29.90	10.0	22	11.1	36	02	28	23	27	
28	82	67	75	-3	63	67	0	10	TS RA BR VCTS	0		0.0	0.01	28.89	29.92	4.9	28	7.5	24	28	16	29	28	
29	78	58	68	-10	56	61	0	3		0		0.0	0.00	28.97	30.00	3.5	34	5.0	19	28	14	26	29	
30	78	54*	66*	-12	56	60	0	1		0		0.0	0.00	29.04	30.07	4.7	04	5.1	16	07	12	05	30	
31	82	59	71	-7	61	64	0	6		0		0.0	0.00	29.04	30.07	2.5	06	4.0	8	31	7	31	31	
84.8		65.2	75.0	Σ	63.9	67.8	0.0	10.2	< MONTHLY AVERAGES   TOTALS >		0.0	4.67	28.99	30.01	1.6	26	6.3	< MONTHLY AVERAGES						
-3.4		-3.5	-3.4		<-----DEPARTURE FROM NORMAL ----->							-0.41	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3											
<b>DEGREE DAYS</b>								GREATEST 24-HR PRECIPITATION : 2.25 DATE : 18-19				SEA LEVEL PRESSURE				DATE TIME								
MONTHLY				SEASON TO DATE				GREATEST 24-HR SNOWFALL : 0.0 DATE :				MAXIMUM : 30.25 05 0907				MINIMUM : 29.79 27 1656								
TOTAL DEPARTURE				TOTAL DEPARTURE				GREATEST SNOW DEPTH : 0 DATE :				MINIMUM TEMP <= 32 : 0				PRECIPITATION >= 0.01 INCH: 11								
HEATING :		0 0		0 0		NUMBER OF ->		MAXIMUM TEMP >= 90 : 6		MINIMUM TEMP <= 32 : 0		PRECIPITATION >= 0.10 INCH: 8		THUNDERSTORMS : 4		HEAVY FOG : 0		SNOWFALL >= 1.0 INCH : 0						
COOLING :		317 -100		852 -32																				

**JULY 2014**  
**KNOXVILLE, TN**

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

KNOXVILLE, TN (KTYS)  
JULY 2014

WBAN # 13891

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	0.00	0.00		
02													02												02	0.00	0.00		
03													03												03	0.00	0.00		
04													04												04	0.00	0.00		
05													05												05	0.00	0.00		
06													06												06	0.00	0.00		
07													07												07	0.00	0.00		
08													08			0.10							T	T	08	0.10	0.10		
09				T	T	T							09				T	0.20							09	0.20	0.20		
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												T	14											0.20	0.13	0.02	14	0.35	0.35
15									T				15	0.15	0.04										15	0.19	0.19		
16													16												16	0.00	0.00		
17													17												17	0.00	0.00		
18													18	0.01	0.05	0.02	0.11	0.03	0.04	0.04	0.05	0.01	0.03	0.06	0.06	18	0.61	0.61	
19	0.07	0.10	0.17	0.19	0.12	0.45	0.19	0.05	0.05	0.12	0.07	T	19	0.03	0.04	T									19	1.79	1.79		
20					T	T							20												20	T	T		
21													21												21	0.00	0.00		
22													22												22	0.00	0.00		
23												0.01	23												23	0.01	0.01		
24													24	T			0.24		T						24	0.24	0.24		
25													25												25	0.00	0.00		
26													26												26	0.01	0.01		
27				T	T								27								0.11	T	T	0.01	1.05	27	1.16	1.16	
28	0.01												28												28	0.01	0.01		
29													29												29	0.00	0.00		
30													30												30	0.00	0.00		
31													31												31	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)	0.45	0.73	1.01	1.04	1.05	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Ending Date	27	27	27	27	27	28	28	28	28	28	28	28
Ending Time (Hr/Min)	2342	2346	2350	2354	2354	0008	0008	0008	0008	0008	0008	0008

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.

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).

## 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	
VC In the Vicinity	UP Unkown Precipitation		GL Glaze

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

# KNOXVILLE, TN JULY 2014

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet.

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.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

**NORMALS ARE FOR THE YEARS 1981-2010**

### ADDITIONAL NOTES & ERRATA:

Station Augmentation-CONTRACTOR ON AIRPORT  
Lat/Lon:/ Elevation:  
Distance:2200 FT Dir:W  
Augmented Elements:Temp,Precip,Snow  
Equipment:SRG, PSY, Snow Board, Snow stick

Date	VISIBILITY (MILES)	
	MINIMUM	MAXIMUM
01	8.00	10.00
02	7.00	10.00
03	10.00	10.00
04	10.00	10.00
05	10.00	10.00
06	8.00	10.00
07	9.00	10.00
08	7.00	10.00
09	10.00	10.00
10	6.00	10.00
11	6.00	10.00
12	9.00	10.00
13	9.00	10.00
14	2.00	10.00
15	7.00	10.00
16	10.00	10.00
17	10.00	10.00
18	1.75	10.00
19	1.00	10.00
20	10.00	10.00
21	6.00	10.00
22	4.00	10.00
23	10.00	10.00
24	4.00	10.00
25	10.00	10.00
26	8.00	10.00
27	5.00	10.00
28	7.00	10.00
29	10.00	10.00
30	10.00	10.00
31	8.00	10.00
<b>AVGS</b>	7.51	10.00
<b>MINIMUM VISIBILITY (MILES)</b>		
<= .25	<= 3.0	>= 7.0
0	3	22





# OBSERVATIONS AT 3-HOURLY INTERVALS

# KNOXVILLE, TN

JULY 2014

KTYS

WBAN # 13891

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)	
					DRY BULB	DEW POINT	WET BULB		SPEED (MPH)	DIRECTION Tens of Deg	STATION	SEA LEVEL
<b>SUNRISE: 0538 JUL 25</b>					<b>SUNSET: 1947</b>							
01	OVC	029	10.00		66	63	64	90	5	02	28.98	30.00
04	CLR	NC	10.00		63	62	62	97	3	03	28.97	29.98
07	BKN	020	10.00		65	62	63	90	5	02	29.03	30.05
10	BKN	015	10.00		72	64	67	76	0	00	29.03	30.05
13	FEW	250	10.00		79	63	69	58	7	VR	28.99	30.01
16	FEW	250	10.00		82	59	67	46	13	28	28.97	29.99
19	SCT	250	10.00		79	61	68	54	6	24	28.96	29.98
22	SCT	250	10.00		74	62	66	67	0	00	28.97	29.99
<b>SUNRISE: 0539 JUL 26</b>					<b>SUNSET: 1946</b>							
01	BKN	200	10.00		68	63	65	84	3	02	29.00	30.01
04	FEW	200	10.00		66	64	65	93	3	27	28.98	30.00
07	BKN	180	8.00		66	63	64	90	3	06	29.01	30.03
10	SCT	250	10.00		77	65	69	66	6	21	29.02	30.03
13	BKN	250	10.00		82	65	71	56	3	VR	29.00	30.01
16	SCT	250	10.00		85	66	72	53	10	26	28.93	29.94
19	FEW	250	10.00		83	65	71	55	7	25	28.93	29.95
22	SCT	250	10.00		78	66	70	67	6	23	28.96	29.98
<b>SUNRISE: 0540 JUL 27</b>					<b>SUNSET: 1945</b>							
01	BKN	110	10.00		74	68	70	82	7	22	28.98	30.00
04	BKN	120	10.00		72	68	69	87	5	19	28.91	29.92
07	BKN	200	10.00		73	68	70	84	6	17	28.96	29.97
10	BKN	250	10.00		82	72	75	72	13	20	28.96	29.97
13	BKN	250	10.00		87	73	77	63	17	22	28.89	29.90
16	BKN	250	10.00		90	72	77	56	20	22	28.81	29.81
19	OVC	250	10.00		85	69	74	59	14	22	28.82	29.83
22	BKN	050	10.00		75	68	70	79	9	16	28.82	29.82
<b>SUNRISE: 0540 JUL 28</b>					<b>SUNSET: 1945</b>							
01	OVC	055	7.00		71	70	70	96	5	17	28.86	29.87
04	OVC	090	10.00		70	69	69	97	8	22	28.86	29.88
07	FEW	040	9.00		70	68	69	93	8	22	28.88	29.89
10	FEW	022	10.00		75	62	67	64	10	28	28.92	29.94
13	BKN	055	10.00		79	59	66	50	13	26	28.91	29.93
16	BKN	080	10.00		79	60	67	52	3	VR	28.90	29.92
19	BKN	110	10.00		76	61	67	60	5	35	28.90	29.92
22	SCT	090	10.00		71	59	64	66	7	35	28.95	29.97
<b>SUNRISE: 0541 JUL 29</b>					<b>SUNSET: 1944</b>							
01	OVC	090	10.00		68	59	63	73	5	36	28.95	29.96
04	BKN	080	10.00		66	59	62	78	3	33	28.94	29.96
07	FEW	060	10.00		64	60	62	87	5	03	28.96	29.98
10	BKN	048	10.00		70	59	63	68	3	30	28.99	30.01
13	SCT	043	10.00		75	56	64	52	6	32	28.98	30.00
16	SCT	055	10.00		75	54	63	48	10	27	28.97	29.98
19	FEW	055	10.00		71	50	59	47	10	35	29.00	30.03
22	FEW	050	10.00		64	53	58	68	5	04	29.04	30.06
<b>SUNRISE: 0542 JUL 30</b>					<b>SUNSET: 1943</b>							
01	CLR	NC	10.00		61	54	57	78	0	00	29.04	30.06
04	CLR	NC	10.00		58	54	56	87	6	03	29.04	30.06
07	FEW	250	10.00		57	55	56	93	3	05	29.06	30.09
10	SCT	250	10.00		70	57	62	64	9	03	29.06	30.09
13	BKN	250	10.00		75	56	64	52	9	05	29.05	30.07
16	OVC	250	10.00		77	54	63	45	6	35	29.03	30.05
19	OVC	250	10.00		72	57	63	59	5	05	29.02	30.05
22	BKN	250	10.00		64	60	62	87	5	05	29.04	30.07

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)	
					DRY BULB	DEW POINT	WET BULB		SPEED (MPH)	DIRECTION Tens of Deg	STATION	SEA LEVEL
<b>SUNRISE: 0543 JUL 31</b>					<b>SUNSET: 1942</b>							
01	BKN	250	10.00		61	59	60	93	0	00	29.04	30.07
04	OVC	250	8.00		59	58	58	96	3	07	29.04	30.06
07	OVC	250	10.00		62	59	60	90	6	03	29.04	30.07
10	OVC	250	10.00		68	60	63	76	7	04	29.07	30.10
13	BKN	250	10.00		78	62	68	58	5	VR	29.06	30.09
16	OVC	250	10.00		81	59	67	47	3	VR	29.03	30.05
19	OVC	250	10.00		77	63	68	62	6	13	29.02	30.05
22	OVC	250	10.00		72	64	67	76	0	00	29.04	30.06

## 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.

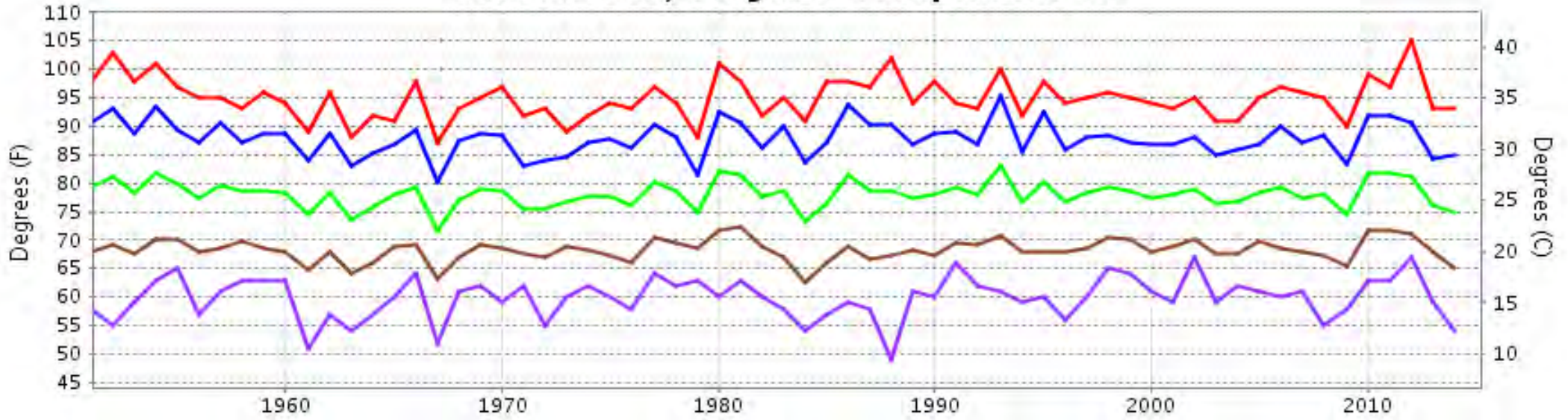
& = Original observation contained additional weather elements.

See page 3 for additional notes.

## SUMMARY BY HOUR

HOUR (LST)	AVERAGES								RESULTANT WIND (MPH)	
	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG)		VISIBILITY (Miles)	WIND SPEED (MPH)	SPEED	DIRECTION
					STATION	SEA LEVEL				
01	70	64	66	84	29.00	30.01	9.63	4	1	22
02	69	64	66	84	28.99	30.00	9.60	5	1	24
03	68	64	65	87	28.98	30.00	9.61	4	1	21
04	68	64	65	88	28.98	30.00	9.55	4	1	24
05	67	64	65	88	28.99	30.01	9.42	4	1	23
06	67	64	65	90	29.01	30.03	8.98	4	1	24
07	69	65	66	87	29.02	30.04	9.03	5	1	19
08	71	65	67	81	29.03	30.05	9.61	6	1	23
09	74	65	68	74	29.04	30.05	9.72	6	2	25
10	76	65	69	69	29.04	30.05	9.76	8	1	24
11	78	64	69	64	29.03	30.05	10.00	7	1	24
12	80	64	70	59	29.02	30.04	10.00	7	3	26
13	81	64	70	58	29.01	30.02	9.45	8	4	26
14	82	64	70	55	28.99	30.01	9.52	9	4	26
15	83	63	70	53	28.98	29.99	9.87	9	5	26
16	83	63	70	53	28.97	29.99	9.64	8	5	26
17	82	63	70	55	28.96	29.98	9.50	8	3	26
18	81	63	69	58	28.96	29.98	9.73	9	1	25
19	79	63	69	60	28.97	29.99	9.71	8	2	25
20	76	63	68	66	28.98	30.00	9.71	6	2	25
21	74	64	68	72	28.99	30.01	9.77	6	1	24
22	73	64	67	75	29.00	30.02	9.52	6	2	25
23	71	64	67	79	29.01	30.02	9.74	5	2	25
24	70	64	66	81	29.01	30.02	9.61	5	1	23

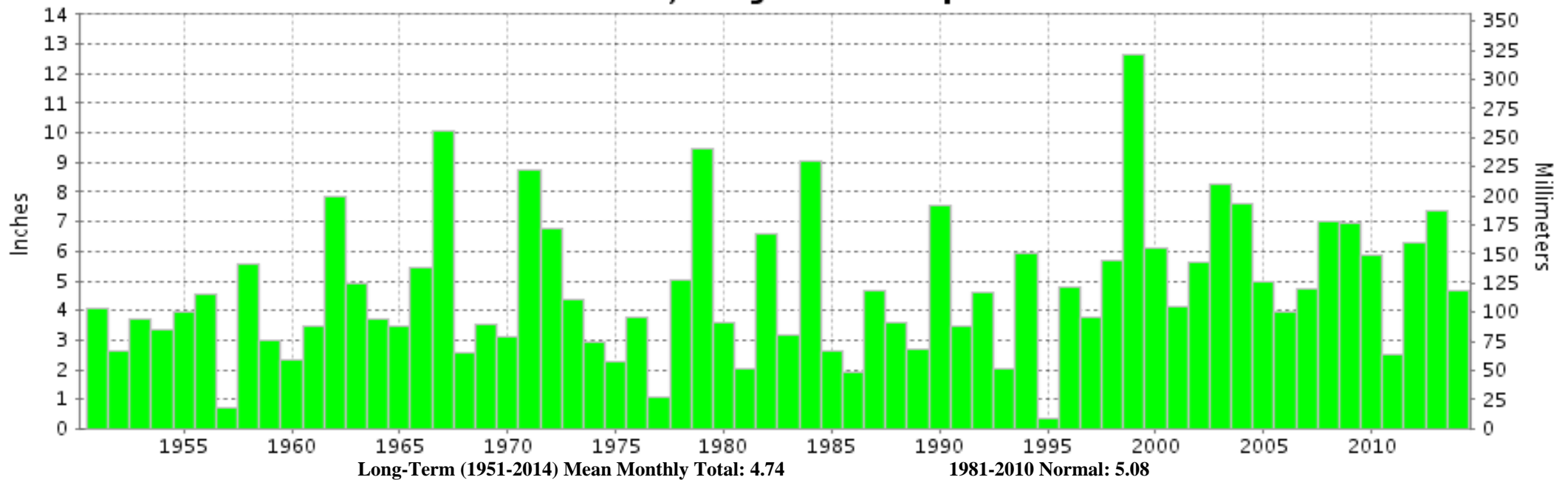
## KNOXVILLE, TN JULY Temperatures



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

Long-Term (1951-2014) Mean: 78.1  
1981-2010 Normal: 78.4

## KNOXVILLE, TN JULY Precipitation



Long-Term (1951-2014) Mean Monthly Total: 4.74

1981-2010 Normal: 5.08



**JULY 2014**  
**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.*

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

**DIRECTOR**

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Fax Number : 828-271-4876  
TDD : (828) 271-4010  
or Email : [ncdc.orders@noaa.gov](mailto:ncdc.orders@noaa.gov)

NOAA\National Climatic Data Center  
Attn: User Engagement & Services Branch  
151 Patton Avenue  
Asheville, NC 28801-5001