



DECEMBER 2016 LOCAL CLIMATOLOGICAL DATA

NOAA, National Centers for Environmental Information

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 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			
20	21	22	23	24																				
01	51	38	45	0	32	39	20	0		0		0.0	0.00	28.92	30.00	7.1	24	7.6	21	22	16	23	01	
02	55	31	43	-2	29	37	22	0		0		0.0	0.00	29.13	30.22	2.6	21	3.0	14	24	12	24	02	
03	45	34	40	-4	32	37	25	0	RA	0		0.0	0.03	29.21	30.28	5.5	03	5.7	16	03	13	04	03	
04	46	39	43	-1	40	41	22	0	RA BR	0		0.0	1.29	29.05	30.08	3.8	03	4.7	15	04	13	04	04	
05	52	46	49	6	46	47	16	0	RA DZ BR	0		0.0	0.10	28.93	29.96	5.5	04	6.3	18	01	15	03	05	
06	57	47	52	9	48	49	13	0	RA BR	0		0.0	1.17	28.71	29.77	3.2	31	6.9	25	26	21	26	06	
07	56	43	50	7	37	42	15	0		0		0.0	0.00	29.00	30.06	5.1	01	5.8	15	02	13	03	07	
08	44	30	37	-5	20	33	28	0		0		0.0	0.00	29.18	30.28	5.5	30	7.6	20	28	15	28	08	
09	35	25	30	-12	15	25	35	0		0		0.0	0.00	29.42	30.51	3.3	01	4.3	13	03	10	02	09	
10	41	19*	30	-12	15	25	35	0		0		0.0	0.00	29.43	30.52	1.8	03	2.5	11	03	8	34	10	
11	55	22	39	-3	27	34	26	0		0		0.0	0.00	29.18	30.25	3.3	25	4.8	28	23	24	23	11	
12	57	44	51	9	45	47	14	0	RA BR	0		0.0	1.15	28.97	30.04	7.0	25	9.2	42	20	31	20	12	
13	46	39	43	2	40	42	22	0	RA DZ BR	0		0.0	0.09	28.99	30.04	3.7	03	4.3	15	36	12	36	13	
14	46	34	40	-1	34	38	25	0		0		0.0	0.00	29.08	30.14	2.0	36	5.6	15	01	10	03	14	
15	37	22	30	-11	10	24	35	0		0		0.0	0.00	29.24	30.34	5.5	36	7.4	20	33	15	35	15	
16	34	21	28*	-13	10	22	37	0		0		0.0	0.00	29.20	30.25	4.3	04	4.7	14	11	10	05	16	
17	67	33	50	10	15	15	0	0	RA BR	0		0.0	0.15	28.92		0.5	31	4.0	40	22	29	21	17	
18	70	29	50	10	38	41	15	0	RA BR UP HZ	0		0.0	0.89	29.05	30.16	5.5	26	15.1	48*	20	36*	20	18	
19	35	29	32	-8	25	30	33	0		0		0.0	0.00	29.49	30.58	8.8	03	9.2	22	03	17	01	19	
20	39	27	33	-7	28	32	32	0		0		0.0	0.00	29.39	30.46	1.5	03	4.1	12	25	10	24	20	
21	45	24	35	-5	30	33	30	0	SN BR UP HZ	0		T	T	29.22	30.28	1.8	03	2.7	10	36	9	35	21	
22	57	37	47	8	30	39	18	0		0		0.0	0.00	29.16	30.25	2.3	30	6.9	20	02	16	01	22	
23	57	35	46	7	29	38	19	0		0		0.0	0.00	29.26	30.31	2.1	01	5.3	15	02	13	24	23	
24	56	46	51	12	46	49	14	0	RA BR	0		0.0	0.61	29.16	30.23	2.5	28	5.7	19	32	15	33	24	
25	70*	51	61*	22	53	55	4	0	RA DZ BR	0		0.0	0.03	29.26	30.32	2.4	04	3.3		7	03	25		
26	69	48	59	20			6	0	BCFG BR	0		0.0	0.00	29.28		3.5	23	6.0	20	23	16	23	26	
27	64	41	53	14	50	52	12	0	RA BR	0		0.0	0.33	29.11	30.17	8.3	23	9.1	30	28	24	24	27	
28	58	33	46	8	35	41	19	0	TS TSRA RA BR VCTS	0		0.0	0.34	29.08	30.11	1.8	03	2.5	16	31	14	31	28	
29	52	38	45	7	31	40	20	0	TS RA BR	0		0.0	0.76	28.92	30.00	12.7	26	13.2	36	29	28	29	29	
30	46	30	38	0	17	31	27	0		0		0.0	0.00	29.10	30.17	8.6	26	10.2	36	28	26	30	30	
31	48	28	38	0	26	35	27	0	RA	0		0.0	0.02	29.05	30.08	9.2	24	10.4	42	23	33	22	31	
51.3		34.3	42.8	Σ	31.7	37.9	22.0	0.0	< MONTHLY AVERAGES TOTALS >			T	6.96	29.13	30.19	1.9	30	6.4	< MONTHLY AVERAGES					
1.5		2.6	2.0		<-----DEPARTURE FROM NORMAL----->								2.46	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3										
DEGREE DAYS									GREATEST 24-HR PRECIPITATION : 1.29 DATE : 04				SEA LEVEL PRESSURE				DATE TIME							
MONTHLY									GREATEST 24-HR SNOWFALL : T DATE : 21				MAXIMUM : 30.63				19 1053							
TOTAL DEPARTURE									GREATEST SNOW DEPTH : 0 DATE :				MINIMUM : 29.65				06 0853							
SEASON TO DATE									NUMBER OF -> DAYS WITH				MAXIMUM TEMP >= 90 : 0		MINIMUM TEMP <= 32 : 13		PRECIPITATION >= 0.01 INCH: 14							
HEATING : 681 -71 1085 -348									MAXIMUM TEMP <= 32 : 0		MINIMUM TEMP <= 0 : 0		PRECIPITATION >= 0.10 INCH: 10		SNOWFALL >= 1.0 INCH : 0									
COOLING : 0 0 2120 594									THUNDERSTORMS : 2		HEAVY FOG : 0													

DECEMBER 2016
KNOXVILLE, TN

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

KNOXVILLE, TN (KTYS)
DECEMBER 2016

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	0.03	0.03		
04	0.02	0.03	0.03	0.07	0.06	0.06	0.10	0.13	0.03	0.03	0.05	0.07	04	0.23	0.12	0.01	0.03	0.09	0.06	0.03	0.01	T	0.01	0.01	0.01	0.01	0.01	1.29	1.29
05	0.01	0.03	0.01	T	0.01	T	T		T	T	T		05			T	T	0.01	0.01	0.01	0.01	0.01	T	T	T		0.10	0.10	
06	0.01	0.01	0.06	0.15	0.25	0.07	0.07	0.01	T	0.18	0.04	0.30	06	0.02	T										06	1.17	1.17		
07													07												07	0.00	0.00		
08													08												08	0.00	0.00		
09													09												09	0.00	0.00		
10													10												10	0.00	0.00		
11													11												11	0.00	0.00		
12	T	T	T	0.01	0.20	0.22	0.43	0.21	0.07	0.01	T	T	12												12	1.15	1.15		
13											T	T	13		T	T	T	0.02	0.06	0.01	T			T	13	0.09	0.09		
14													14												14	0.00	0.00		
15													15												15	0.00	0.00		
16													16												16	0.00	0.00		
17						0.04	0.06	0.01	0.01	0.02	T		17	T	T		T	T						17	0.15	0.15			
18						0.01	0.16	0.17	0.20	0.12	0.14	0.07	18	0.02	T							0.01	T		18	0.89	0.89		
19													19												19	0.00	0.00		
20													20												20	0.00	0.00		
21													21	T											21	T	T		
22													22												22	0.00	0.00		
23													23												23	0.00	0.00		
24							0.02	0.17	0.04	0.01	0.09	0.07	24	0.01	T	T	0.01	0.02	0.01	0.02	T	T	0.02	0.11	0.01	24	0.61	0.61	
25	0.02	T	0.01										25												25	0.03	0.03		
26													26												26	0.00	0.00		
27							0.01	0.06	0.11	0.11	0.03	0.01	27												27	0.33	0.33		
28													28												28	0.34	0.34		
29	0.54	0.18	0.04	T									29												29	0.76	0.76		
30													30												30	0.00	0.00		
31													31	T	T	T	T	T							31	0.02	0.02		

* 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)	0.13	0.18	0.24	0.28	0.38	0.53	0.62	0.72	0.80	0.89	0.98	1.03
Ending Date	29	29	29	29	29	29	29	29	29	29	29	29
Ending Time (Hr/Min)	0007	0009	0007	0011	0031	0035	0046	0109	0117	0117	0117	0151

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 DECEMBER 2016

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:2200ft Dir:W
Augmented Elements:TEMP, PRECIP, SNOW
Equipment:SRG, PSY, SNOWBOARD, SNOWSTICK

Date	VISIBILITY (MILES)		
	MINIMUM	MAXIMUM	
01	10.00	10.00	
02	10.00	10.00	
03	8.00	10.00	
04	1.00	9.00	
05	1.00	10.00	
06	1.75	10.00	
07	10.00	10.00	
08	10.00	10.00	
09	10.00	10.00	
10	10.00	10.00	
11	10.00	10.00	
12	2.00	10.00	
13	1.00	10.00	
14	10.00	10.00	
15	10.00	10.00	
16	10.00	10.00	
17	0.50	10.00	
18	2.00	10.00	
19	7.00	10.00	
20	8.00	10.00	
21	0.25	10.00	
22	10.00	10.00	
23	10.00	10.00	
24	1.00	10.00	
25	1.25	10.00	
26	0.00	10.00	
27	1.25	10.00	
28	2.50	10.00	
29	3.00	10.00	
30	10.00	10.00	
31	9.00	10.00	
AVGS	5.82	9.97	
MINIMUM VISIBILITY (MILES)			
	<= .25	<= 3.0	>= 7.0
	2	14	17

OBSERVATIONS AT 3-HOURLY INTERVALS

KNOXVILLE, TN DECEMBER 2016 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					
SUNRISE: 0744 DEC 25 SUNSET: 1728					01	OVC	049	1.25	BR	51	50	50	96	7	03	29.23	30.29
04	OVC	031	2.00	BR	51	50	50	96	3	33	29.25	30.30					
07	OVC	031	2.00	BR	51	50	50	96	5	05	29.27	30.32					
10	BKN	035	1.50		54	51	52	90	6	35	29.31	30.36					
13	FEW	250	10.00		65	55	59	70	0	00	29.27	30.32					
16	BKN	250	10.00		68	56	61	65	0	00	29.24	30.28					
19	OVC	048	10.00		63	54	58	73	3	07	29.27	30.32					
22	SCT	050	10.00		57	55	56	93	5	07	29.28	30.33					
SUNRISE: 0744 DEC 26 SUNSET: 1729					01			0.25					5	36			
04								0.00					3	05			
07	BKN	050	4.00	BCFG BR	50	49	49	96	0	00	29.32	30.37					
10	BKN	250	7.00		56	53	54	90	0	00	29.34	30.40					
13	OVC	080	10.00		64	54	58	70	0	00	29.29	30.33					
16	BKN	250	10.00		69	55	61	61	11	20	29.24	30.28					
19	BKN	250	10.00		62	55	58	78	10	24	29.23	30.27					
22	FEW	055	10.00		61	55	58	81	11	20	29.19	30.24					
SUNRISE: 0745 DEC 27 SUNSET: 1729					01	OVC	041	10.00		60	56	58	86	11	22	29.15	30.18
04	OVC	023	10.00		60	56	58	86	10	23	29.11	30.14					
07	OVC	019	10.00	-RA	63	58	60	84	21	21	29.08	30.11					
10	OVC	032	1.25	-RA BR	55	53	54	93	5	27	29.16	30.21					
13	OVC	060	7.00		53	50	51	89	11	20	29.12	30.16					
16	BKN	250	10.00		55	49	52	80	8	22	29.11	30.15					
19	FEW	020	10.00		48	46	47	93	7	22	29.12	30.16					
22	FEW	020	10.00		47	38	43	71	6	25	29.15	30.20					
SUNRISE: 0745 DEC 28 SUNSET: 1730					01	CLR	NC	10.00		41	37	39	86	3	05	29.15	30.20
04	CLR	NC	10.00		35	33	34	93	3	05	29.15	30.21					
07	SCT	250	10.00		35	30	33	82	5	05	29.14	30.20					
10	FEW	250	10.00		41	33	38	73	8	03	29.16	30.22					
13	FEW	200	10.00		51	35	44	54	0	00	29.09	30.14					
16	SCT	250	10.00		56	34	46	44	0	00	29.01	30.06					
19	OVC	250	10.00		52	37	45	57	0	00	28.97	30.02					
22	OVC	090	10.00		50	38	44	63	0	00	28.88	29.93					
SUNRISE: 0745 DEC 29 SUNSET: 1731					01	OVC	030	4.00	-RA BR	48	46	47	93	6	25	28.82	29.86
04	OVC	045	7.00		50	49	49	96	7	19	28.84	29.87					
07	SCT	040	10.00		47	41	44	80	9	27	28.91	29.96					
10	FEW	180	10.00		46	35	41	66	15	27	29.01	30.06					
13	SCT	037	10.00		49	27	40	43	15	25	28.96	30.01					
16	FEW	060	10.00		50	19	38	29	23	27	28.96	30.01					
19	FEW	060	10.00		44	20	35	38	11	27	29.02	30.07					
22	BKN	070	10.00		41	22	34	47	13	27	29.06	30.12					
SUNRISE: 0745 DEC 30 SUNSET: 1731					01	CLR	NC	10.00		38	21	32	51	13	26	29.05	30.11
04	SCT	055	10.00		37	19	31	48	18	27	29.08	30.13					
07	CLR	NC	10.00		30	18	26	61	10	21	29.11	30.17					
10	FEW	036	10.00		38	20	32	48	15	24	29.15	30.21					
13	CLR	NC	10.00		43	14	33	31	13	30	29.13	30.18					
16	FEW	250	10.00		46	16	35	30	11	29	29.11	30.16					
19	CLR	NC	10.00		37	18	30	46	6	25	29.13	30.20					
22	CLR	NC	10.00		34	18	29	52	3	15	29.12	30.19					

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					
SUNRISE: 0746 DEC 31 SUNSET: 1732					01	CLR	NC	10.00		32	18	27	56	9	22	29.11	30.17
04	CLR	NC	10.00		32	17	27	54	5	25	29.07	30.13					
07	BKN	200	10.00		33	19	28	56	10	28	29.09	30.15					
10	OVC	250	10.00		38	21	32	51	3	27	29.08	30.14					
13	OVC	090	10.00		47	20	37	34	33	22	29.05	30.11					
16	OVC	090	10.00		46	35	41	66	15	23	28.96	30.02					
19	OVC	055	10.00		48	34	42	58	14	26	28.95	30.00					
22	OVC	055	10.00	-RA	43	37	40	80	10	28	28.95	30.01					

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

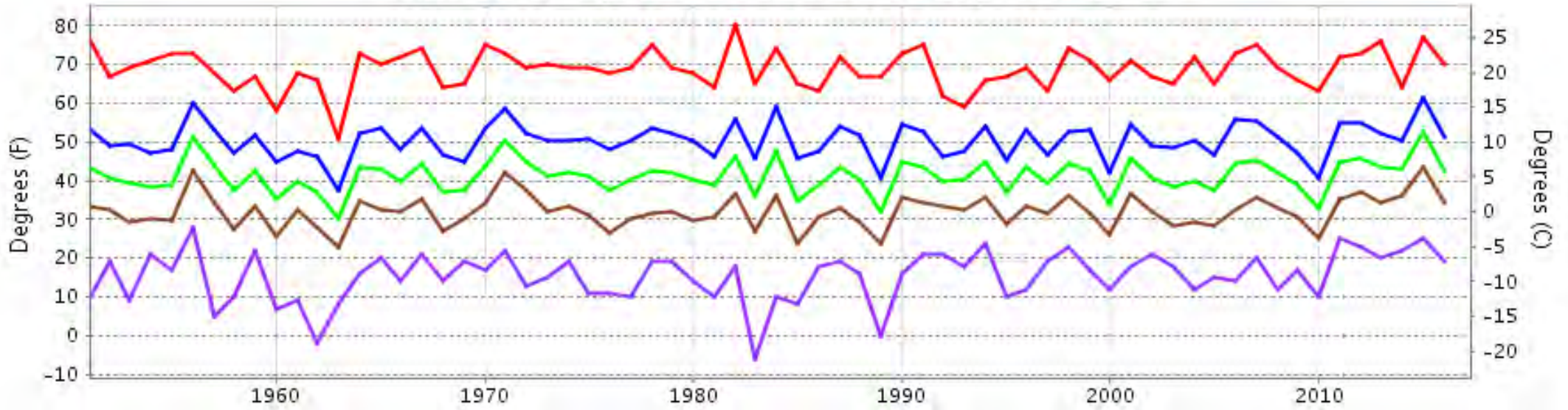
Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

& = 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	40	32	37	74	29.12	30.18	8.76	7	2	30
02	40	32	37	74	29.12	30.17	8.34	6	2	31
03	40	32	37	75	29.12	30.18	8.59	6	2	30
04	39	32	36	76	29.12	30.18	8.54	7	2	30
05	39	32	36	76	29.12	30.17	8.50	7	2	31
06	39	32	36	78	29.13	30.19	8.56	7	2	30
07	38	32	36	79	29.15	30.21	7.94	7	1	32
08	38	32	36	79	29.16	30.22	7.33	7	1	33
09	40	32	37	76	29.18	30.24	7.23	7	2	31
10	41	32	38	73	29.18	30.24	7.22	7	2	31
11	43	33	39	68	29.19	30.26	7.99	7	2	31
12	44	32	39	66	29.17	30.23	7.94	6	3	29
13	46	32	40	62	29.15	30.21	8.44	6	4	29
14	47	32	41	59	29.13	30.19	8.84	7	4	29
15	48	32	42	58	29.12	30.18	8.95	7	4	29
16	48	32	42	58	29.12	30.18	8.84	6	3	30
17	47	32	41	59	29.13	30.18	8.82	7	3	29
18	45	32	40	63	29.13	30.19	8.88	6	2	30
19	44	32	39	66	29.14	30.20	9.08	6	3	29
20	43	32	39	69	29.14	30.21	9.11	6	2	31
21	42	32	38	70	29.15	30.21	9.11	5	2	31
22	41	33	38	72	29.13	30.19	9.08	6	1	33
23	41	33	38	74	29.14	30.20	9.02	5	2	32
24	40	32	37	74	29.14	30.19	8.89	5	2	31

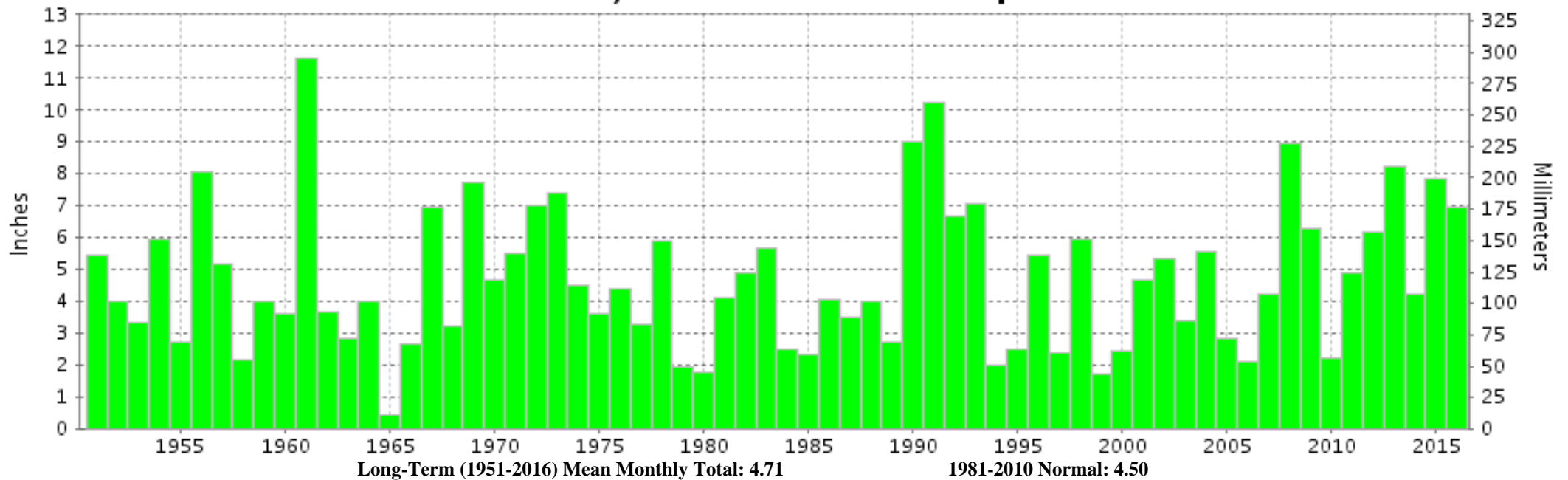
KNOXVILLE, TN DECEMBER Temperatures



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

Long-Term (1951-2016) Mean: 41.2
1981-2010 Normal: 40.8

KNOXVILLE, TN DECEMBER Precipitation



Long-Term (1951-2016) Mean Monthly Total: 4.71 1981-2010 Normal: 4.50



DECEMBER 2016

KNOXVILLE, TN

LOCAL CLIMATOLOGICAL DATA

NOAA, National Centers for Environmental Information

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 Centers for Environmental Information (NCEI), Asheville, North Carolina 28801.

A handwritten signature in black ink that reads "Margarita Jee SS".

DIRECTOR (ACTING)

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We welcome your questions or comments, please contact us at:
(828) 271-4800, option 2
Fax Number : 828-271-4876
TDD : (828) 271-4010
or Email : ncdc.orders@noaa.gov

NOAA\National Centers for Environmental Information
Attn: User Engagement & Services Branch
151 Patton Avenue
Asheville, NC 28801-5001