



# DECEMBER 2003

## 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

DECEMBER 2003  
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	25																			
01	56	35	46	1	23	36	19	0					0.00	29.29	30.35	1.5	31	6.0	15	32	14	24	01																				
02	49	27	38	-7	18	31	27	0					0.00	29.40	30.48	3.1	04	3.7	14	05	10	04	02																				
03	49	35	42	-2	24	35	23	0	RA				0.06	29.28	30.34	4.9	04	5.9	14	02	13	04	03																				
04	43	36	40	-4	36	38	25	0	RA DZ BR				0.80	29.10	30.16	3.2	03	4.9	14	05	13	04	04																				
05	43	36	40	-3	38	39	25	0	RA BR				0.05	28.92	29.97	10.3	24	11.0	30	25	25	25	05																				
06	39	29	34	-9	31	34	31	0	BR				0.00	29.12	30.18	3.1	32	4.7	20	28	16	28	06																				
07	46	25	36	-7	28	32	29	0	FG+ FZFG BR				0.00	29.13	30.20	0.7	05	1.4	10	08	8	05	07																				
08	51	25	38	-4	30	34	27	0	BR				0.00	29.06	30.12	0.4	36	.8	12	33	7	33	08																				
09	54	29	42	0	31	37	23	0	BR				0.00	29.02	30.08	1.9	05	2.3	9	28	8	28	09																				
10	60	35	48	6	39	43	17	0	RA DZ BR				0.69	28.61	29.65	9.1	23	13.2	41	26	33	25	10																				
11	39	29	34	-8	27	32	31	0	SN			T	28.94	30.00	8.4	27	8.8	24	26	21	26	11																					
12	45	25	35	-7	24	30	30	0					0.00	29.13	30.20	5.2	03	5.4	12	04	10	04	12																				
13	41	33	37	-4	28	34	28	0	RA DZ				0.03	29.05	30.11	5.3	04	6.2	15	04	13	03	13																				
14	42	35	39	-2	36	38	26	0	RA DZ BR				0.35	28.89	29.95	6.8	26	7.7	21	27	17	28	14																				
15	50	29	40	-1	32	35	25	0	BR HZ				0.00	29.06	30.13	0.3	26	1.8	8	25	7	22	15																				
16	62	28	45	4	38	42	20	0	RA BR				0.27	28.93	29.99	6.9	22	9.1	35	27	26	28	16																				
17	41	29	35	-5	24	31	30	0	RA SN BR				0.12	28.95	30.01	9.5	26	10.6	23	25	18	25	17																				
18	41	31	36	-4	27	33	29	0	RA DZ SN				0.01	28.87	29.92	11.8	25	12.3	30	25	23	26	18																				
19	36	26	31	-9	25	29	34	0	SN BR				0.01	28.97	30.03	12.4	26	13.0	30	27	24	28	19																				
20	34	20	27*	-13	18	24	38	0	SN			T	29.23	30.31	2.2	24	4.0	12	23	10	25	20																					
21	46	18*	32	-8	19	26	33	0	BR				0.00	29.33	30.41	1.2	20	2.3	14	23	12	23	21																				
22	58	24	41	2	26	34	24	0					0.00	29.20	30.26	2.6	25	5.0	28	24	24	23	22																				
23	63	29	46	7	39	43	19	0	RA BR				0.40	28.90	29.95	4.5	22	7.7	32	21	28	22	23																				
24	52	31	42	3	28	33	23	0	RA SN PL BR				0.11	28.95	30.01	4.8	32	6.6	18	28	17	28	24																				
25	39	26	33	-6	21	28	32	0					0.00	29.16	30.23	2.7	27	3.3	12	27	10	27	25																				
26	47	21	34	-5	22	29	31	0	BR				0.00	29.29	30.37	5.4	04	5.7	15	06	14	04	26																				
27	54	25	40	1	22	32	25	0					0.00	29.24	30.31	2.5	04	3.0	13	03	12	02	27																				
28	56	26	41	3	27	34	24	0					0.00	29.19	30.25	0.8	07	1.2	7	35	6	34	28																				
29	65*	31	48*	10	38	44	17	0	RA BR				0.36	28.99	30.04	4.7	20	7.4	41*	27	35*	27	29																				
30	47	29	38	0	30	35	27	0	RA BR				0.14	29.23	30.29	1.3	35	5.1	37	30	26	28	30																				
31	54	24	39	1	27	33	26	0	BR				0.00	29.31	30.38	1.6	24	2.8	16	22	15	23	31																				
48.5										28.4		38.5		■ ■		28.3		34.1		26.4		0.0		< MONTHLY AVERAGES		TOTALS-->		3.40		29.09		30.15		2.2		27		5.9		<-- MONTHLY AVERAGES			
-1.3				-3.5				-2.4				■ ■				<-----DEPARTURE FROM NORMAL----->												-1.09				SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3											
DEGREE DAYS									GREATEST 24-HR PRECIPITATION: 0.86 DATE :03-04									SEA LEVEL PRESSURE DATE TIME																									
MONTHLY TOTAL DEPARTURE									SEASON TO DATE TOTAL DEPARTURE									GREATEST 24-HR SNOWFALL: DATE :									MAXIMUM MINIMUM : 30.56 02 0953																
HEATING: 818 85 1411 -24									COOLING: 0 0 1295 -155									GREATEST SNOW DEPTH: DATE :									MINIMUM : 29.50 10 1353																
NUMBER OF DAYS WITH →									MAXIMUM TEMP ≥ 90: 0									MINIMUM TEMP ≤ 32: 24									PRECIPITATION ≥ 0.01 INCH : 14																
									MAXIMUM TEMP ≤ 32 : 0									MINIMUM TEMP ≤ 0 : 0									PRECIPITATION ≥ 0.10 INCH : 9																
									THUNDERSTORMS : 0									HEAVY FOG : 1									SNOWFALL ≥ 1.0 INCH :																

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

## KNOXVILLE, TN

DECEMBER 2003 TYS WBAN # 13891

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note)	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												01			0.00	
02													02												02			0.00	
03													03												03			0.06	
04	0.07	0.05	0.04	0.02	0.03	0.05	0.04	0.05	0.11	.03	0.05	0.03	04	0.01	0.05	0.12	0.03	0.01	0.01						04	T		0.80	
05	T	T	0.01	0.01	T								05		T	0.01	0.01	0.01	T					05	T		0.05		
06													06												06			0.00	
07													07												07			0.00	
08													08												08			0.00	
09													09												09			0.00	
10		T		0.04	0.10	T	0.01	0.01	0.01	0.01	0.32	0.11	10	0.07		T	0.01		T					10			0.69		
11							T	T					11												11			T	
12													12												12			0.00	
13													13												13			0.03	
14	0.05	0.06	0.07	0.03	0.02	0.04	0.04	0.01	0.01	T	0.01	T	14	T	T				0.01	0.02	0.01	T	T		14	T		0.35	
15													15												15			0.00	
16													16								T	T	0.06	0.16	0.05	16			0.27
17	0.06	0.04	0.02	T	T	T	T						17												17			0.12	
18													18		T	T									18			0.01	
19			T	T	T	T	T	T	T	T			19	T	T	0.01	T	T	T					19				0.01	
20					T	T	T						20								T	T	T	T	20			T	
21													21												21			0.00	
22													22												22			0.00	
23													23												23			0.40	
24	0.02	0.02	0.01		0.03	T	T	T			T	T	24								0.18	0.06	0.06	0.03	0.03	24	0.08		0.11
25													25												25			0.00	
26													26												26			0.00	
27													27												27			0.00	
28													28												28			0.00	
29													29												29			0.36	
30	0.05	0.07	0.02										30								T		0.01	0.01	0.31	30	0.33		0.14
31													31												31			0.00	

### MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.08	.15	.19	.22	.27	.32	.34	.36	.41	.44	.51	.51
Ending Date	29	29	29	29	29	30	30	10	10	10	10	10
Ending Time (Hour/Min)	2347	2350	2350	2350	2354	0007	0007	1122	1140	1156	1212	1212

Date and time are not entered for TRACE amounts.

Note : 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 1971–2000

### 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	PL Ice Pellets	HZ Haze	SQ Squalls
PR Partial	RA Rain	PY Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	GL Glaze
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 DECEMBER 2003

Ceilorometer (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:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR–SS		MN–MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							10.00	10.00	
02							10.00	10.00	
03							8.00	10.00	
04							1.25	9.00	
05							1.25	10.00	
06							5.00	10.00	
07							.00	10.00	
08							3.00	10.00	
09							6.00	10.00	
10							1.50	10.00	
11							9.00	10.00	
12							7.00	10.00	
13							8.00	10.00	
14							1.25	10.00	
15							3.00	10.00	
16							2.50	10.00	
17							5.00	10.00	
18							10.00	10.00	
19							.75	10.00	
20							7.00	10.00	
21							6.00	10.00	
22							8.00	10.00	
23							2.00	10.00	
24							4.00	10.00	
25							8.00	10.00	
26							6.00	10.00	
27							10.00	10.00	
28							9.00	10.00	
29							2.00	10.00	
30							3.00	10.00	
31							6.00	10.00	
<b>MONTHLY AVGS</b>							5.52	9.97	
<b>SUNSHINE (MINUTES)</b>									
Total:                      Possible: Percent Possible:									
<b>NUMBER OF DAYS WITH:</b>									
<b>SKY CONDITION</b>									
CLR   PTLY CLDY   CLOUDY   MISSING 31									
<b>MINIMUM VISIBILITY (MILES)</b>									
<=0.25    <=3.0    >=7.0 1            11           13									

# OBSERVATIONS AT 3-HOURLY INTERVALS

# KNOXVILLE, TN

DECEMBER 2003

TYS

WBAN # 13891

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)			
	DRY BULB	DEW POINT		WET BULB	RELATIVE HUMIDITY (PCT)			SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)		SPEED (MPH)	DIRECTION TENS OF DEG		STATION	SEA LEVEL												
SUNRISE: 0727 DEC 01								SUNSET: 1723								SUNRISE: 0733 DEC 07								SUNSET: 1722									
01	CLR	NC				10.00		42	26	36	53	8	25	29.20	30.24	01	BKN	032					5.00	BR		28	25	27	88	0	00	29.18	30.24
04	CLR	NC				10.00		40	25	34	55	3	20	29.21	30.26	04	CLR	NC				4.00	BR		28	26	27	92	0	00	29.15	30.22	
07	CLR	NC				10.00		37	26	33	65	7	22	29.21	30.28	07	OVC	001				0.06	FZFG		25	25	25	100	0	00	29.20	30.27	
10	CLR	NC				10.00		48	32	41	54	3	VR	29.29	30.36	10	CLR	NC				8.00			32	30	31	92	0	00	29.20	30.27	
13	CLR	NC				10.00		55	30	44	39	6	VR	29.28	30.34	13	FEW	NC				10.00			44	30	38	58	0	00	29.13	30.19	
16	SCT	NC				10.00		54	19	40	25	6	01	29.28	30.35	16	FEW	NC				10.00			45	30	39	56	5	VR	29.10	30.16	
19	CLR	NC				10.00		44	18	35	35	5	34	29.35	30.42	19	FEW	NC				10.00			41	28	36	60	0	00	29.10	30.16	
22	FEW	NC				10.00		39	15	31	38	5	04	29.42	30.48	22	FEW	NC				10.00			34	28	32	79	3	06	29.08	30.15	
SUNRISE: 0728 DEC 02								SUNSET: 1722								SUNRISE: 0733 DEC 08								SUNSET: 1722									
01	CLR	NC				10.00		36	13	28	39	5	06	29.45	30.51	01	SCT	NC				10.00			31	28	30	89	0	00	29.07	30.13	
04	CLR	NC				10.00		32	15	27	50	0	00	29.44	30.50	04	CLR	NC				6.00	BR		27	26	27	96	3	09	29.09	30.15	
07	CLR	NC				10.00		28	17	25	63	0	00	29.46	30.54	07	FEW	NC				5.00	BR		26	25	26	96	0	00	29.11	30.18	
10	BKN	250				10.00		38	23	32	55	0	00	29.49	30.56	10	CLR	NC				5.00	BR		34	30	32	85	5	03	29.13	30.19	
13	SCT	NC				10.00		46	17	35	31	6	VR	29.42	30.49	13	CLR	NC				10.00			46	32	40	58	3	VR	29.05	30.11	
16	SCT	NC				10.00		48	19	37	32	9	04	29.35	30.42	16	SCT	NC				10.00			51	32	43	48	0	00	29.01	30.07	
19	SCT	NC				10.00		41	18	33	39	6	04	29.34	30.41	19	FEW	NC				10.00			43	32	38	65	0	00	29.02	30.09	
22	SCT	NC				10.00		34	22	30	61	3	03	29.33	30.40	22	FEW	NC				9.00			37	31	35	79	0	00	29.02	30.09	
SUNRISE: 0729 DEC 03								SUNSET: 1722								SUNRISE: 0734 DEC 09								SUNSET: 1722									
01	OVC	110				10.00		37	24	32	60	8	04	29.31	30.37	01	CLR	NC				8.00			33	30	32	89	0	00	29.05	30.11	
04	OVC	120				10.00		37	20	31	50	10	04	29.29	30.36	04	FEW	NC				6.00	BR		29	28	29	96	3	06	29.07	30.13	
07	OVC	110				10.00		37	21	31	52	8	04	29.32	30.39	07	OVC	038				8.00			32	30	31	92	0	00	29.11	30.17	
10	OVC	150				10.00		40	20	33	45	8	04	29.35	30.42	10	OVC	042				10.00			37	32	35	82	3	06	29.12	30.19	
13	OVC	250				10.00		46	23	37	40	0	00	29.28	30.35	13	OVC	250				10.00			48	33	41	56	0	00	29.05	30.11	
16	OVC	250				10.00		49	24	39	38	0	00	29.24	30.31	16	OVC	250				10.00			54	33	44	45	5	09	28.98	30.03	
19	OVC	200				10.00		45	26	37	48	0	00	29.21	30.28	19	BKN	200				10.00			47	32	40	56	7	01	28.93	29.99	
22	OVC	080				10.00		43	28	37	56	3	02	29.23	30.30	22	BKN	250				10.00			45	27	38	49	5	02	28.89	29.95	
SUNRISE: 0730 DEC 04								SUNSET: 1722								SUNRISE: 0735 DEC 10								SUNSET: 1723									
01	OVC	055				6.00	RA	37	32	35	82	5	07	29.21	30.28	01	OVC	070				10.00			43	32	38	65	0	00	28.83	29.87	
04	OVC	065				9.00	-RA	37	32	35	82	7	04	29.18	30.24	04	OVC	034				4.00	+RA		44	32	39	63	7	06	28.74	29.77	
07	OVC	049				5.00	-RA	38	31	35	76	5	07	29.16	30.21	07	OVC	070				10.00	-RA		57	32	46	39	20	15	28.58	29.61	
10	OVC	004				2.50	-RA BR	40	36	38	86	5	VR	29.14	30.19	10	OVC	045				10.00	-RA		59	56	57	90	6	VR	28.49	29.51	
13	OVC	004				3.00	-RA BR	40	35	38	83	6	36	29.10	30.16	13	OVC	042				7.00			52	51	51	97	17	23	28.50	29.52	
16	OVC	006				2.50	-RA BR	43	42	43	97	3	05	29.05	30.11	16	OVC	025				10.00			46	39	43	77	23	25	28.52	29.55	
19	OVC	005				6.00	BR	42	40	41	92	3	03	29.02	30.08	19	OVC	030				10.00			41	34	38	76	16	25	28.61	29.64	
22	OVC	017				2.50	BR	42	41	42	96	5	24	29.00	30.06	22	OVC	026				10.00			37	30	34	76	15	25	28.68	29.71	
SUNRISE: 0731 DEC 05								SUNSET: 1722								SUNRISE: 0736 DEC 11								SUNSET: 1723									
01	OVC	005				1.25	-RA BR	41	40	41	96	9	25	28.97	30.03	01	OVC	022				10.00			35	28	32	76	14	26	28.74	29.78	
04	OVC	003				1.75	-RA BR	40	40	40	100	6	21	28.94	29.99	04	OVC	022				10.00			35	28	32	76	8	27	28.80	29.84	
07	OVC	005				6.00	BR	41	40	41	96	10	24	28.91	29.97	07	OVC	022				9.00	-SN		34	27	31	76	12	27	28.88	29.94	
10	OVC	004				3.00	BR	41	40	41	96	13	22	28.91	29.97	10	OVC	029				10.00			35	28	32	76	10	26	28.96	30.02	
13	OVC	011				9.00		42	40	41	92	14	22	28.87	29.92	13	OVC	030				10.00			39	29	35	67	7	29	28.95	30.01	
16	OVC	040				10.00		40	38	39	93	10	26	28.87	29.92	16	OVC	026				10.00			38	28	34	68	8	26	28.97	30.03	
19	OVC	045				10.00		38	34	36	86	12	26	28.93	29.99	19	BKN	026				10.00			35	27	32	72	7	26	29.04	30.10	
22	OVC	046				10.00		37	32	35	82	13	27	28.97		22	BKN	055				10.00			33	26	30	75	6	29	29.06	30.13	
SUNRISE: 0732 DEC 06								SUNSET: 1722								SUNRISE: 0736 DEC 12								SUNSET: 1723									
01	OVC	032				10.00		36	31	34	82	9	27	29.01	30.07	01	SCT	NC				10.00			30	26	29	85	0	00	29.08	30.15	
04	OVC	020				10.00		36	31	34	82	6	31	29.04	30.10	04	CLR	NC				9.00			28	24	27	85	7	01	29.10	30.17	
07	OVC	022				10.00		36	32	34	86	3	27	29.06	30.12	07	SCT	NC				9.00			28	23	26	81	5	04	29.12	30.19	
10	OVC	018				10.00		36	33	35	89	3	22	29.13	30.19	10	SCT	NC				10.00			34	26	31	73	7	04	29.18	30.24	
13	OVC	014				10.00		37	33	35	86	7	36	29.14	30.21	13	SCT	NC				10.00			40	23	34	51	7	35	29.15	30.21	
16	OVC	028				10.00		39	32	36	76	6	36	29.16	30.22	16	SCT	NC				10.00			45	22	36	40	8	04	29.12	30.18	
19	FEW	NC				10.00		36	30	34	79	3	01	29.18	30.24	19	FEW	NC				10.00			40	21	33	47	6	04	29.16	30.22	
22	CLR	NC				10.00		31	28	30	89	0	00	29.18	30.24	22	OVC	095				10.00			35	24	31	64	7	02	29.15	30.21	

# OBSERVATIONS AT 3-HOURLY INTERVALS

# KNOXVILLE, TN

DECEMBER 2003

TYS

WBAN # 13891

HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)	
	SKY COVER	CEILING 100'S OF FT			OBSERVATION TIME (LST)	EFF CLD AMT Oktas	DRY BULB		DEW POINT	WET BULB	SPEED (MPH)	DIRECTION TENS OF DEG		STATION	SEA LEVEL			SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)		EFF CLD AMT Oktas	DRY BULB	DEW POINT	WET BULB
<b>SUNRISE: 0737    DEC 13    SUNSET: 1723</b>																									
01	OVC	085	10.00		34	24	30	67	10	01	29.12	30.18	01	OVC	090	10.00		33	26	30	75	17	26	28.92	29.98
04	OVC	095	10.00		35	25	31	67	8	02	29.13	30.19	04	OVC	027	9.00	-SN	33	25	30	72	12	25	28.92	29.98
07	OVC	090	10.00		35	26	32	70	7	04	29.13	30.19	07	OVC	038	9.00	-SN	33	24	30	70	14	26	28.94	30.01
10	OVC	085	10.00		37	26	33	65	3	02	29.16	30.23	10	OVC	024	7.00		33	28	31	82	9	24	28.97	30.04
13	OVC	095	10.00		41	27	35	57	5	VR	29.09	30.15	13	OVC	031	9.00	-SN	36	25	32	64	22	26	28.92	29.98
16	OVC	100	10.00		41	27	35	57	3	02	29.03	30.09	16	OVC	019	4.00	-SN	32	24	29	73	15	27	28.96	30.02
19	OVC	050	10.00	-RA	38	31	35	76	5	07	28.94	30.00	19	OVC	008	1.00	+SN BR	29	27	28	92	7	29	29.01	30.08
22	OVC	045	10.00		39	31	36	73	0	00	28.89	29.95	22	OVC	085	6.00	-SN	29	21	26	72	15	29	29.06	30.13
<b>SUNRISE: 0738    DEC 14    SUNSET: 1723</b>																									
01	OVC	060	5.00	-RA	39	31	36	73	0	00	28.85	29.89	01	BKN	065	10.00		26	19	24	75	9	25	29.08	30.15
04	OVC	004	4.00	-RA BR	39	38	39	96	5	28	28.87	29.92	04	SCT	NC	10.00		23	19	22	85	3	23	29.11	30.18
07	OVC	018	3.00	-RA BR	39	38	39	96	0	00	28.86	29.90	07	SCT	NC	10.00		22	17	20	82	3	25	29.17	30.24
10	OVC	003	1.25	-DZ BR	40	39	40	97	5	22	28.87	29.93	10	FEW	NC	10.00		25	18	23	75	5	21	29.24	30.32
13	OVC	007	3.00	-DZ BR	41	40	41	96	12	24	28.84	29.89	13	SCT	NC	10.00		31	18	27	59	3	25	29.24	30.33
16	OVC	025	10.00		40	36	38	86	10	30	28.87	29.93	16	FEW	NC	10.00		33	17	28	52	0	00	29.25	30.34
19	OVC	020	10.00		38	32	35	79	16	28	28.94	30.00	19	CLR	NC	10.00		31	17	26	56	0	00	29.29	30.38
22	OVC	024	10.00		37	30	34	76	8	26	29.00	30.06	22	CLR	NC	10.00		25	17	23	72	5	03	29.33	30.42
<b>SUNRISE: 0738    DEC 15    SUNSET: 1724</b>																									
01	OVC	033	10.00		35	31	33	85	7	24	29.02	30.08	01	CLR	NC	10.00		22	18	21	85	0	00	29.34	30.43
04	SCT	NC	8.00		32	29	31	88	3	24	29.04	30.10	04	CLR	NC	10.00		22	18	21	85	0	00	29.35	30.43
07	CLR	NC	7.00		30	27	29	88	0	00	29.09	30.16	07	CLR	NC	9.00		20	17	19	89	0	00	29.38	30.46
10	FEW	NC	3.00	HZ	36	31	34	82	0	00	29.15	30.22	10	CLR	NC	10.00		25	20	23	81	0	00	29.43	30.53
13	FEW	NC	10.00		44	33	39	65	0	00	29.10	30.16	13	CLR	NC	10.00		39	19	32	45	8	22	29.35	30.43
16	FEW	NC	10.00		49	34	42	57	3	06	29.03	30.09	16	CLR	NC	10.00		46	17	35	31	8	22	29.28	30.36
19	CLR	NC	10.00		43	34	39	71	0	00	29.03	30.09	19	CLR	NC	10.00		39	20	32	46	3	12	29.26	30.34
22	CLR	NC	8.00		36	33	35	89	0	00	29.03	30.09	22	CLR	NC	10.00		31	22	28	69	0	00	29.26	30.34
<b>SUNRISE: 0739    DEC 16    SUNSET: 1724</b>																									
01	SCT	NC	5.00	BR	33	32	33	96	3	02	29.01	30.07	01	CLR	NC	10.00		31	20	27	64	6	26	29.24	30.32
04	SCT	NC	6.00	BR	32	30	31	92	0	00	29.02	30.08	04	CLR	NC	10.00		25	21	24	85	5	07	29.27	30.35
07	SCT	NC	3.00	BR	29	27	28	92	3	31	29.05	30.11	07	BKN	035	10.00		27	22	25	81	0	00	29.27	30.35
10	BKN	250	10.00		46	32	40	58	13	19	29.05	30.10	10	OVC	043	10.00		31	25	29	79	3	08	29.26	30.35
13	BKN	050	10.00		60	44	52	56	17	21	28.93	29.98	13	BKN	250	10.00		48	29	40	48	3	04	29.18	30.24
16	SCT	NC	10.00		62	44	53	52	16	20	28.85	29.89	16	BKN	250	10.00		55	31	44	40	13	24	29.14	30.20
19	SCT	NC	10.00		56	43	49	62	3	20	28.80	29.84	19	BKN	200	10.00		49	30	41	48	5	24	29.14	30.20
22	OVC	030	4.00	RA BR	50	49	49	96	14	27	28.80	29.84	22	BKN	200	9.00		40	31	36	70	0	00	29.11	30.18
<b>SUNRISE: 0740    DEC 17    SUNSET: 1724</b>																									
01	OVC	036	8.00	-RA	39	37	38	93	12	22	28.87	29.91	01	BKN	200	6.00	BR	34	31	33	89	0	00	29.06	30.12
04	OVC	010	7.00	-SN	34	32	33	92	14	29	28.89	29.93	04	CLR	NC	7.00		31	30	31	96	3	05	29.00	30.06
07	OVC	019	10.00		32	25	29	75	7	31	28.95	30.00	07	FEW	NC	5.00	BR	29	28	29	96	0	00	28.98	30.04
10	OVC	032	10.00		33	23	29	67	14	26	28.99	30.05	10	BKN	250	7.00		40	36	38	86	3	05	28.96	30.02
13	SCT	NC	10.00		37	24	32	60	13	25	28.94	30.00	13	SCT	NC	10.00		61	42	51	50	23	20	28.87	29.92
16	FEW	NC	10.00		39	19	32	45	13	25	28.92	29.98	16	BKN	090	10.00		60	42	51	52	13	22	28.81	29.85
19	CLR	NC	10.00		32	21	28	64	7	24	29.00	30.07	19	OVC	036	4.00	RA BR	51	48	50	89	13	28	28.83	29.88
22	CLR	NC	10.00		30	21	27	69	6	23	29.00	30.06	22	OVC	060	7.00	-RA	51	49	50	92	7	19	28.78	29.82
<b>SUNRISE: 0740    DEC 18    SUNSET: 1725</b>																									
01	SCT	NC	10.00		31	22	28	69	9	22	28.96	30.03	01	OVC	010	10.00	-RA	47	46	46	97	15	28	28.78	29.81
04	OVC	090	10.00		34	22	30	61	9	22	28.92	29.98	04	OVC	011	6.00	-RA BR	38	35	37	89	7	02	28.86	29.89
07	BKN	095	10.00		34	24	30	67	6	27	28.86	29.92	07	OVC	011	7.00	-SN	35	32	34	89	7	36	28.92	29.98
10	OVC	065	10.00		39	27	34	62	15	23	28.84	29.89	10	OVC	015	6.00	BR	34	30	32	85	7	35	28.99	30.04
13	OVC	027	10.00		40	30	36	68	18	26	28.79	29.85	13	OVC	024	10.00		35	27	32	72	7	28	28.95	30.01
16	OVC	033	10.00		40	31	36	70	10	24	28.82	29.86	16	BKN	032	10.00		35	25	31	67	6	22	28.97	30.03
19	OVC	022	10.00	-RA	39	31	36	73	13	24	28.87	29.93	19	SCT	NC	10.00		32	21	28	64	5	32	29.02	30.08
22	OVC	017	10.00	-RA	37	31	35	79	17	27	28.89	29.95	22	OVC	044	10.00		32	19	28	59	7	30	29.04	30.11

# OBSERVATIONS AT 3-HOURLY INTERVALS

# KNOXVILLE, TN

DECEMBER 2003

TYS

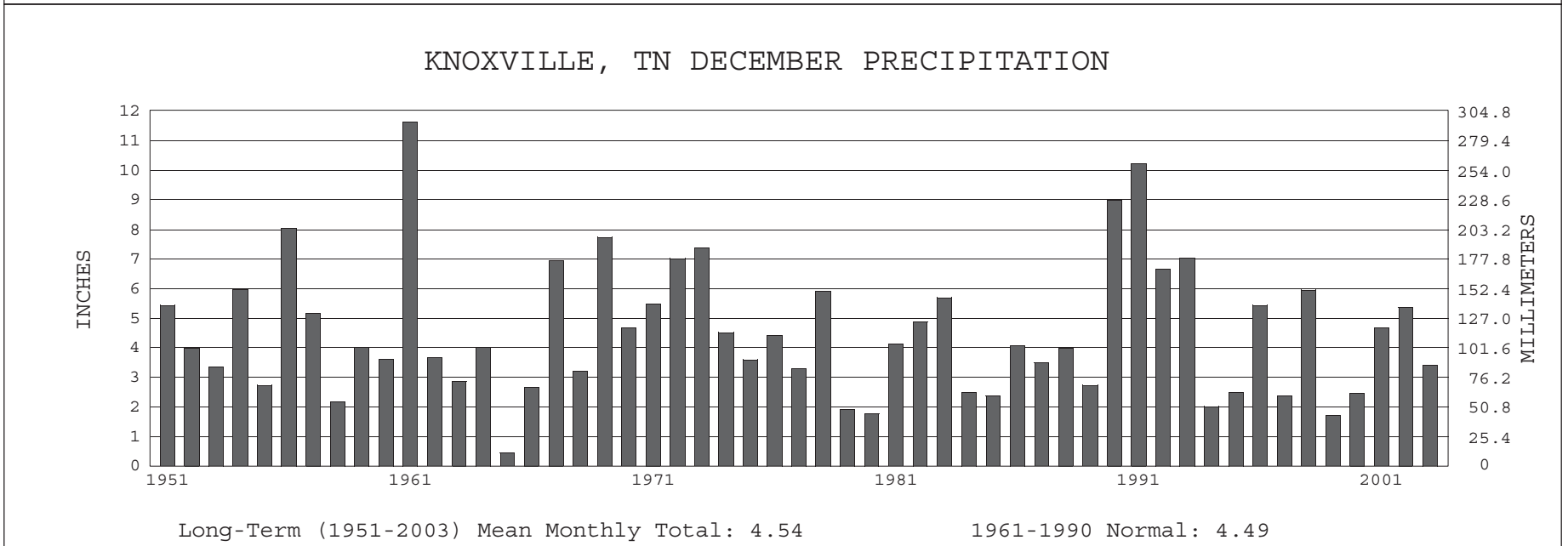
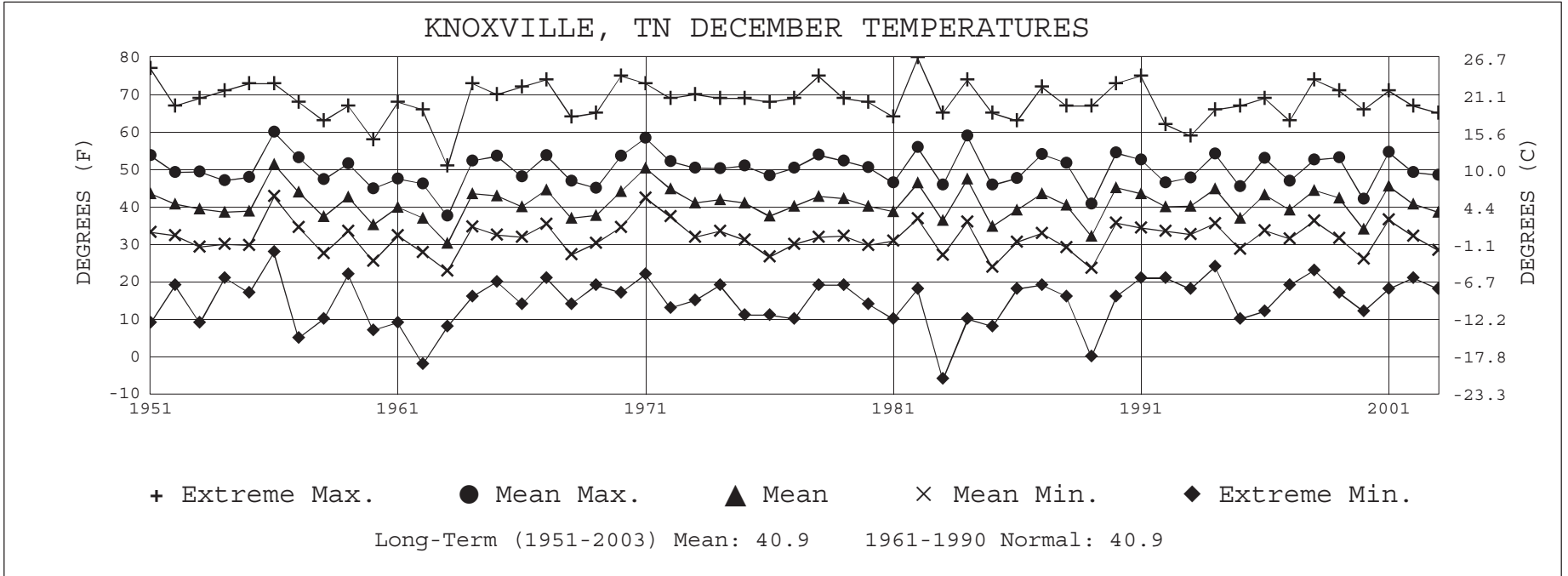
WBAN # 13891

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)			
	SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Ok/as			DRY BULB	DEW POINT	WET BULB		SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL		SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Ok/as			DRY BULB	DEW POINT	WET BULB		SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL		
SUNRISE: 0744								DEC 25	SUNSET: 1728								SUNRISE: 0746								DEC 31	SUNSET: 1732							
01	OVC	042			10.00			31	22	28	69	7	27	29.04	30.11	01	CLR	NC			10.00			29	28	29	96	0	00	29.27	30.35		
04	OVC	038			10.00			31	17	26	56	3	30	29.08	30.15	04	CLR	NC			10.00			28	25	27	88	0	00	29.28	30.35		
07	SCT	NC			10.00			29	18	25	64	5	26	29.11	30.18	07	CLR	NC			9.00			26	24	25	92	0	00	29.31	30.39		
10	BKN	030			10.00			31	21	28	67	8	25	29.19	30.26	10	CLR	NC			10.00			33	28	31	82	3	06	29.38	30.46		
13	SCT	NC			10.00			36	23	31	59	6	24	29.18	30.25	13	FEW	NC			10.00			46	30	39	54	3	VR	29.32	30.39		
16	FEW	NC			10.00			38	22	32	53	5	22	29.17	30.24	16	FEW	NC			10.00			53	27	42	37	13	22	29.28	30.35		
19	CLR	NC			10.00			34	22	30	61	3	30	29.21	30.28	19	FEW	NC			10.00			46	24	37	42	0	00	29.31	30.38		
22	CLR	NC			10.00			30	22	27	72	0	00	29.23	30.31	22	FEW	NC			10.00			36	26	32	67	0	00	29.31	30.39		
SUNRISE: 0744								DEC 26	SUNSET: 1729								<b>3-HOURLY OBSERVATION NOTES</b>																
01	CLR	NC			7.00			25	23	24	92	0	00	29.23	30.31	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, VV = 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.																	
04	CLR	NC			6.00	BR		23	21	22	92	5	08	29.28	30.36																		
07	FEW	NC			8.00			22	19	21	89	6	03	29.30	30.38																		
10	FEW	NC			10.00			30	25	28	82	10	03	29.35	30.43																		
13	FEW	NC			10.00			41	21	34	45	8	06	29.30	30.38																		
16	FEW	NC			10.00			46	22	37	38	8	06	29.27	30.35																		
19	CLR	NC			10.00			39	21	32	48	6	05	29.30	30.38																		
22	CLR	NC			10.00			31	21	28	67	3	02	29.28	30.37																		
SUNRISE: 0745								DEC 27	SUNSET: 1729																								
01	CLR	NC			10.00			31	21	28	67	9	02	29.27	30.35																		
04	CLR	NC			10.00			30	21	27	69	7	02	29.25	30.32																		
07	CLR	NC			10.00			28	21	26	75	3	04	29.27	30.35																		
10	CLR	NC			10.00			34	23	30	64	9	04	29.31	30.39																		
13	CLR	NC			10.00			46	22	37	38	3	12	29.24	30.31																		
16	CLR	NC			10.00			53	19	40	26	0	00	29.21	30.27																		
19	CLR	NC			10.00			44	23	36	43	3	06	29.20	30.27																		
22	CLR	NC			10.00			37	25	32	62	3	05	29.20	30.26																		
SUNRISE: 0745								DEC 28	SUNSET: 1730																								
01	CLR	NC			10.00			33	27	31	78	0	00	29.18	30.24																		
04	CLR	NC			10.00			27	23	26	85	5	20	29.21	30.27																		
07	CLR	NC			10.00			26	22	25	84	3	02	29.22	30.29																		
10	SCT	NC			10.00			34	28	32	79	0	00	29.27	30.35																		
13	BKN	220			10.00			51	28	41	41	0	00	29.20	30.25																		
16	BKN	250			10.00			53	29	43	40	6	06	29.16	30.22																		
19	BKN	130			10.00			45	30	39	56	3	06	29.15	30.22																		
22	OVC	150			10.00			39	29	35	67	5	07	29.13	30.19																		
SUNRISE: 0745								DEC 29	SUNSET: 1731																								
01	SCT	NC			10.00			36	31	34	82	0	00	29.13	30.18																		
04	BKN	250			9.00			33	29	31	85	0	00	29.11	30.17																		
07	BKN	250			10.00			32	29	31	88	3	04	29.09	30.15																		
10	BKN	250			10.00			41	33	38	74	3	06	29.10	30.16																		
13	SCT	NC			10.00			65	42	53	44	15	20	28.96	30.00																		
16	BKN	110			10.00			62	42	52	48	12	18	28.93	29.98																		
19	OVC	046			10.00			60	44	52	56	8	21	28.87	29.92																		
22	OVC	060			10.00	-RA		56	50	53	81	9	18	28.82	29.85																		
SUNRISE: 0745								DEC 30	SUNSET: 1731																								
01	OVC	041			9.00	-RA		42	38	40	85	17	26	29.02	30.06																		
04	OVC	040			10.00			38	35	37	89	5	25	29.14	30.19																		
07	SCT	NC			10.00			35	33	34	93	5	33	29.19	30.24																		
10	FEW	NC			10.00			39	34	37	82	5	08	29.27	30.33																		
13	CLR	NC			10.00			43	27	37	53	5	VR	29.24	30.31																		
16	CLR	NC			10.00			46	25	38	44	6	06	29.25	30.32																		
19	CLR	NC			10.00			40	25	34	55	7	04	29.28	30.35																		
22	CLR	NC			10.00			34	27	31	76	0	00	29.30	30.37																		

## SUMMARY BY HOUR

HOUR (LST)	AVERAGES										RESULTANT WIND (MPH)	
	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)		VISIBILITY (MILES)	WIND SPEED (MPH)	SPEED	DIRECTION
							STATION	SEA LEVEL				
01			34	28	32	79	29.08	30.14	8.72	6	4	27
02			33	27	31	79	29.08	30.14	8.65	5	2	28
03			33	27	31	80	29.09	30.15	8.49	5	3	29
04			32	27	30	81	29.09	30.15	8.12	5	1	33
05			32	26	30	81	29.09	30.15	8.08	5	2	29
06			32	26	30	81	29.09	30.16	7.90	5	1	28
07			32	26	30	81	29.10	30.17	8.13	5	1	30
08			32	27	30	83	29.11	30.18	8.05	4	0	0
09			34	29	32	82	29.13	30.19	8.03	5	0	0
10			37	29	34	77	29.13	30.20	8.48	5	1	26
11			39	29	35	69	29.13	30.20	9.02	6	2	26
12			42	30	37	63	29.11	30.17	9.11	7	2	23
13			44	30	38	59	29.08	30.14	9.39	7	5	24
14			46	29	39	56	29.06	30.12	9.13	7	4	23
15			47	29	39	54	29.06	30.12	9.61	9	5	25
16			46	29	39	54	29.06	30.12	9.56	8	3	25
17			45	28	38	55	29.06	30.13	9.77	7	3	26
18			43	29	37	60	29.07	30.13	9.61	6	3	27
19			41	29	36	62	29.08	30.14	9.39	6	2	29
20			40	29	35	66	29.08	30.14	9.39	5	2	26
21			38	29	35	69	29.08	30.14	9.26	5	3	29
22			37	29	34	73	29.08	30.15	9.21	5	3	28
23			36	28	33	75	29.08	30.14	9.16	6	3	29
24			35	28	32	77	29.08	30.14	8.94	6	3	29







DECEMBER 2003

KNOXVILLE, TN

# LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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