NOVEMBER 2002
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

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	DEG DAYS BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0700 LST DEPTH	1300 LST WATER EQUIV	PRECIPITATION (INCHES) 2400 LST SNOW–FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 5–SEC SPEED	5–SEC DIR	MAXIMUM 2–MIN SPEED	2–MIN DIR	DATE
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	51	40	46	–7	40	44	19	0	BR				0.00	29.19	30.24	2.7	27	4.8	15	27	12	28	01
02	52	30	41	–12	30	37	24	0					0.00	29.18	30.24	0.6	31	2.5	12	06	9	07	02
03	50	41	46	–7	38	42	19	0	RA BR				0.11	29.10	30.15	1.1	01	3.1	10	05	9	05	03
04	54	45	50	–2	48	49	15	0	RA DZ BR				0.20	29.02	30.06	2.4	04	5.2	14	04	12	03	04
05	58	47	53	1	51	51	12	0	RA DZ BR				0.67	28.77	29.81	3.7	01	5.2	20	28	15	27	05
06	58	43	51	–1	41	45	14	0	RA BR				T	28.90	29.95	10.4	28	10.7	28	26	22	29	06
07	55	37	46	–5	36	42	19	0					0.00	29.17	30.23	0.5	36	2.3	13	06	10	08	07
08	65	31	48	–3	40	43	17	0	BR				0.00	29.11	30.16	3.0	25	5.1	22	24	18	23	08
09	69	40	55	4	47	52	10	0					0.00	28.96	29.99	8.3	22	9.2	36	21	29	19	09
10	77*	63	70*	19	62	66	0	5	TSRA RA BR				0.38	28.66	29.67	17.5	21	17.7	51*	29	39*	28	10
11	70	55	63	13	55	57	2	0	TSRA RA BR				0.97	28.85	29.87	4.7	27	6.2	30	29	25	29	11
12	60	46	53	3	49	51	12	0	RA BR				0.38	29.01	30.05	6.4	01	7.1	21	01	17	01	12
13	54	38	46	–4	35	41	19	0					0.00	29.18	30.23	3.1	35	4.8	17	32	13	33	13
14	58	32	45	–4	35	40	20	0	FG+ BR				0.00	29.09	30.15	0.9	26	2.5	15	26	13	28	14
15	56	36	46	–3	42	44	19	0	RA BR				0.23	28.92	29.96	2.6	02	4.0	15	28	13	28	15
16	50	39	45	–4	45	46	20	0	RA BR				0.34	28.84	29.88	6.4	36	6.8	16	01	13	36	16
17	39	32	36	–13	33	35	29	0	RA SN BR				0.10	28.93	29.99	4.7	30	5.9	17	28	15	27	17
18	53	27	40	–8	31	36	25	0					0.00	29.22	30.29	0.9	27	1.7	12	24	9	23	18
19	56	36	46	–2	44	45	19	0	RA FG+ BR				0.22	29.18	30.24	0.3	28	2.8	13	22	12	24	19
20	51	41	46	–2	44	45	19	0	RA FG+ BR				0.09	29.11	30.16	2.8	06	3.9	13	06	10	05	20
21	59	46	53	5	46	48	12	0	RA DZ BR				0.66	28.82	29.86	6.7	23	8.8	30	28	23	28	21
22	46	38	42	–6	30	36	23	0	RA DZ SN				0.02	28.92	29.97	8.2	29	9.2	28	28	23	29	22
23	49	30	40	–7	27	35	25	0					0.00	29.12	30.18	3.6	27	5.3	13	25	12	24	23
24	60	31	46	0	34	40	19	0					0.00	29.14	30.19	0.3	26	1.0	9	23	7	25	24
25	61	34	48	2	37	42	17	0					0.00	29.11	30.16	1.1	34	1.9	15	32	14	32	25
26	56	41	49	3	42	45	16	0	RA BR				0.20	29.10	30.16	4.3	30	5.5	17	28	14	28	26
27	41	30	36	–10	26	32	29	0	SN				T	29.21	30.27	7.8	01	8.1	20	01	16	36	27
28	37	26	32*	–13	22	28	33	0					0.00	29.22	30.29	1.4	31	4.6	12	26	10	28	28
29	52	24*	38	–7	27	35	27	0					0.00	28.97	30.03	15.5	23	15.8	36	23	30	23	29
30	57	30	44	–1	28	38	21	0					0.00	28.80	29.84	14.7	25	16.7	35	24	29	26	30
	55.1	37.6	46.4		38.8	43.0	18.5	0.2	< MONTHLY AVERAGES TOTALS–>				4.57	29.03	30.08	2.7	27	6.3					<– MONTHLY AVERAGES
	–3.9	–1.3	–2.6		<–––––––––––DEPARTURE FROM NORMAL–––––––––––>								0.59	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

NOVEMBER 2002
KNOXVILLE, TN

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING:	555	85	683	–19
COOLING:	5	2	1823	373

GREATEST 24–HR PRECIPITATION: 1.34 DATE: 10-11
GREATEST 24–HR SNOWFALL: DATE:
GREATEST SNOW DEPTH: DATE:

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM	30.37	18	1053
MINIMUM	29.53	10	2053

NUMBER OF DAYS WITH →

MAXIMUM TEMP ≥ 90:	0	MINIMUM TEMP ≤ 32 :	11
MAXIMUM TEMP ≤ 32 :	0	MINIMUM TEMP ≤ 0 :	0
THUNDERSTORMS :	2	HEAVY FOG :	3
PRECIPITATION ≥ 0.01 INCH :	14		
PRECIPITATION ≥ 0.10 INCH :	12		
SNOWFALL ≥ 1.0 INCH :			

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

KNOXVILLE, TN

NOVEMBER 2002 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		T	T	T	T								03				0.01	0.03	0.02	T	T	T	0.01	0.01	0.03	03		0.11
04	0.06	0.04	0.06	0.03	T			T	T	0.01			04													04		0.20
05					T	T	0.01	0.05	0.03	T	0.06	0.02	05	0.02	0.12	0.07	0.10	0.03		0.05	.02	0.05	0.01	0.01	0.02	05		0.67
06	T	T										T	06													06		T
07													07													07		0.00
08													08													08		0.00
09													09													09		0.00
10					0.01	T	0.01				T		10	0.12		T					0.04	0.13		T	0.07	10		0.38
11	0.41	0.19	0.21	0.13	0.03	T							11												T	11		0.97
12	0.02	0.02	0.08	0.11	0.09	0.04	0.02	T	T				12													12		0.38
13													13													13		0.00
14													14													14		0.00
15													15			0.01	0.02	0.04	0.06	0.07	0.03				15		0.23
16	T		0.03	0.06	T	0.01	T		0.01	0.01	T	0.04	16	0.06	0.02	0.01	0.04	0.02	T	T	0.02	0.01	T	T	T	16		0.34
17		T	T	T	T	0.01	T	0.01	0.03	0.01	0.01	0.01	17	0.01	T	0.01	T	T								17		0.10
18													18													18		0.00
19					0.02	0.02	0.10	0.07	0.01				19													19		0.22
20													20				T	T	T	T	T	0.01	0.01	0.01	0.06	20		0.09
21	0.12	0.12	0.10	0.03	0.05	0.03	0.04	0.02	0.08	0.06	0.01	T	21	T										T	T	21		0.66
22	T					T	T		T	0.01	T	0.01	22				T					T	T			22		0.02
23													23													23		0.00
24													24													24		0.00
25													25													25		0.00
26													26				T	0.03	0.02	0.08	0.04	0.02	0.01			26		0.20
27											T		27													27		T
28													28													28		0.00
29													29													29		0.00
30													30													30		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)	.12	.21	.26	.31	.37	.40	.46	.51	.58	.66	.74	.84
Ending Date	11	11	11	11	11	11	11	11	11	11	11	11
Ending Time (Hour/Min)	0031	0031	0034	0039	0042	0058	0113	0132	0147	0210	0243	0305

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 occurence 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	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
NOVEMBER 2002

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:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
			SR−SS		MN−MN				
	TOTAL MINUTES	PERCENT POSSIBLE	CEILOMETER	SATELLITE	CEILOMETER	SATELLITE	MINIMUM	MAXIMUM	
01							5.00	10.00	
02							7.00	10.00	
03							2.50	10.00	
04							1.50	10.00	
05							1.75	9.00	
06							10.00	10.00	
07							9.00	10.00	
08							.50	10.00	
09							9.00	10.00	
10							1.50	10.00	
11							1.25	10.00	
12							3.00	10.00	
13							10.00	10.00	
14							.06	10.00	
15							2.00	10.00	
16							.75	10.00	
17							3.00	10.00	
18							8.00	10.00	
19							<.25	10.00	
20							.25	10.00	
21							.75	10.00	
22							9.00	10.00	
23							10.00	10.00	
24							9.00	10.00	
25							7.00	10.00	
26							2.50	10.00	
27							10.00	10.00	
28							10.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							5.48	9.97	

SUNSHINE (MINUTES)

Total: Possible:
Percent Possible:

NUMBER OF DAYS WITH:

SKY CONDITION

CLR	PTLY CLDY	CLOUDY	MISSING
			30

MINIMUM VISIBILITY (MILES)

<=0.25	<=3.0	>=7.0
3	13	14

OBSERVATIONS AT 3–HOURLY INTERVALS

KNOXVILLE, TN

NOVEMBER 2002 TYS WBAN # 13891

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0658	**NOV 01**			**SUNSET: 1741**					
01	OVC	041			8.00		47	44	46	90	5	13	29.16	30.22
04	OVC	041			8.00		46	44	45	93	0	00	29.15	30.20
07	OVC	043			6.00	BR	44	42	43	93	3	14	29.17	30.22
10	BKN	011			9.00		50	44	47	80	6	20	29.21	30.26
13	OVC	033			10.00		50	39	45	66	7	31	29.21	30.26
16	BKN	048			10.00		50	39	45	66	9	28	29.18	30.23
19	BKN	050			10.00		46	39	43	77	7	27	29.20	30.26
22	CLR	NC			10.00		43	35	40	74	3	30	29.21	30.27
					SUNRISE: 0659	**NOV 02**			**SUNSET: 1740**					
01	CLR	NC			8.00		38	36	37	93	0	00	29.22	30.28
04	FEW	NC			10.00		36	32	34	86	0	00	29.21	30.27
07	CLR	NC			9.00		31	29	30	92	3	06	29.21	30.28
10	CLR	NC			10.00		41	29	36	62	6	VR	29.23	30.30
13	CLR	NC			10.00		48	24	38	39	3	VR	29.19	30.25
16	SCT	NC			10.00		50	23	39	35	5	27	29.14	30.20
19	SCT	NC			10.00		45	30	39	56	3	22	29.14	30.20
22	OVC	250			10.00		46	32	40	58	6	27	29.15	30.20
					SUNRISE: 0700	**NOV 03**			**SUNSET: 1739**					
01	OVC	080			10.00		44	38	41	79	3	24	29.15	30.20
04	OVC	070			10.00	-RA	43	40	42	89	5	06	29.15	30.20
07	OVC	090			10.00		42	35	39	76	5	02	29.17	30.22
10	CLR	NC			10.00		46	33	40	61	3	02	29.15	30.20
13	OVC	047			10.00		49	35	43	59	0	00	29.12	30.16
16	OVC	028			5.00	RA	49	37	43	64	0	00	29.05	30.10
19	OVC	030			10.00		46	43	45	89	3	29	29.06	30.11
22	OVC	026			5.00	-RA BR	46	44	45	93	5	27	29.02	30.07
					SUNRISE: 0701	**NOV 04**			**SUNSET: 1738**					
01	OVC	008			1.75	-RA BR	46	46	46	100	0	00	29.00	30.05
04	OVC	009			1.50	-RA BR	46	46	46	100	6	15	28.99	30.04
07	BKN	015			10.00		48	47	47	96	6	28	29.01	30.06
10	OVC	012			7.00		50	48	49	93	3	35	29.05	30.10
13	OVC	013			10.00		52	48	50	86	5	01	29.04	30.08
16	BKN	041			10.00		54	48	51	80	6	03	28.99	30.04
19	OVC	028			10.00		52	48	50	86	9	03	29.01	30.06
22	OVC	250			10.00		50	47	48	89	6	02	29.02	30.06
					SUNRISE: 0702	**NOV 05**			**SUNSET: 1737**					
01	OVC	250			9.00		48	47	47	96	5	01	29.02	30.06
04	OVC	110			9.00		48	47	47	96	5	05	28.95	29.99
07	OVC	095			6.00	-RA BR	48	47	47	96	8	05	28.88	29.93
10	OVC	006			2.50	-RA BR	49	48	48	97	6	07	28.87	29.91
13	OVC	004			2.50	-RA BR	51	51	51	100	8	02	28.72	29.75
16	OVC	023			1.75	RA BR	53	52	52	96	8	34	28.64	29.67
19	OVC	006			2.50	-RA BR	54	54	54	100	7	01	28.59	29.62
22	OVC	006			2.50	-RA BR	56	55	55	97	0	00	28.60	29.63
					SUNRISE: 0703	**NOV 06**			**SUNSET: 1736**					
01	BKN	032			10.00		57	55	56	93	13	27	28.62	29.65
04	OVC	049			10.00		51	47	49	86	14	27	28.69	29.72
07	OVC	032			10.00		48	45	47	89	16	27	28.77	29.80
10	OVC	027			10.00		48	43	46	83	15	28	28.86	29.89
13	BKN	050			10.00		49	40	45	71	15	29	28.93	29.97
16	BKN	048			10.00		49	36	43	61	13	30	29.01	30.05
19	BKN	049			10.00		45	35	41	68	8	30	29.07	30.12
22	OVC	038			10.00		44	37	41	76	5	26	29.11	30.16

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0704	**NOV 07**			**SUNSET: 1735**					
01	OVC	038			10.00		43	37	40	80	5	29	29.14	30.19
04	OVC	037			10.00		42	35	39	76	0	00	29.15	30.20
07	OVC	030			10.00		43	34	39	71	0	00	29.18	30.24
10	SCT	NC			10.00		45	33	40	63	6	07	29.21	30.28
13	CLR	NC			10.00		51	35	44	54	0	00	29.19	30.24
16	CLR	NC			10.00		55	36	46	49	0	00	29.17	30.22
19	CLR	NC			10.00		49	38	44	66	0	00	29.17	30.22
22	CLR	NC			10.00		42	39	41	89	0	00	29.16	30.21
					SUNRISE: 0705	**NOV 08**			**SUNSET: 1734**					
01	CLR	NC			8.00		38	36	37	93	3	04	29.16	30.22
04	CLR	NC			8.00		37	36	37	96	0	00	29.17	30.22
07	CLR	NC			5.00	BR	32	32	32	100	0	00	29.17	30.23
10	SCT	NC			5.00	BR	43	40	42	89	3	VR	29.19	30.25
13	CLR	NC			10.00		61	42	51	50	15	24	29.12	30.17
16	SCT	NC			10.00		63	43	53	48	10	27	29.04	30.09
19	FEW	NC			10.00		55	43	49	64	6	23	29.04	30.09
22	CLR	NC			10.00		50	41	46	71	0	00	29.04	30.09
					SUNRISE: 0706	**NOV 09**			**SUNSET: 1733**					
01	CLR	NC			10.00		47	40	44	77	8	26	29.06	30.10
04	CLR	NC			10.00		49	41	45	74	9	27	29.05	30.09
07	FEW	NC			10.00		43	39	41	86	3	25	29.06	30.11
10	BKN	048			10.00		58	49	53	72	9	19	29.05	30.09
13	BKN	080			10.00		67	49	57	53	18	21	28.96	29.99
16	BKN	250			10.00		68	50	58	53	14	21	28.89	29.92
19	OVC	250			10.00		65	50	57	59	5	20	28.85	29.88
22	OVC	250			10.00		61	53	57	75	6	23	28.83	29.85
					SUNRISE: 0707	**NOV 10**			**SUNSET: 1733**					
01	OVC	065			10.00		64	56	59	75	7	22	28.79	29.81
04	OVC	055			10.00		68	58	62	70	16	20	28.71	29.72
07	BKN	050			10.00		67	61	63	81	16	21	28.71	29.72
10	BKN	038			10.00		71	63	66	76	17	22	28.72	29.73
13	BKN	100			7.00		72	67	69	84	15	21	28.67	29.68
16	SCT	NC			10.00		77	64	69	64	22	21	28.62	29.63
19	SCT	NC			10.00		74	62	66	67	18	20	28.58	29.59
22	BKN	250			10.00		74	64	68	71	26	21	28.56	29.57
					SUNRISE: 0708	**NOV 11**			**SUNSET: 1732**					
01	OVC	015			4.00	-TSRA BR	64	63	63	96	22	28	28.62	29.63
04	OVC	010			5.00	RA BR	59	58	58	96	13	22	28.70	29.71
07	BKN	120			10.00		56	55	55	97	7	29	28.78	29.80
10	BKN	140			10.00		58	56	57	93	6	25	28.87	29.88
13	BKN	250			10.00		64	52	57	65	7	27	28.87	29.89
16	BKN	250			10.00		65	52	58	63	6	28	28.89	29.93
19	OVC	120			10.00		61	53	57	75	0	00	28.94	29.98
22	OVC	075			10.00		59	56	57	90	0	00	28.98	30.02
					SUNRISE: 0709	**NOV 12**			**SUNSET: 1731**					
01	OVC	070			10.00	-RA	56	53	54	90	7	06	28.99	30.02
04	OVC	041			5.00	-RA BR	54	54	54	100	0	00	28.99	30.03
07	OVC	080			10.00	-RA	53	51	52	93	5	05	28.96	29.99
10	BKN	070			10.00		55	53	54	93	6	36	28.99	30.03
13	OVC	017			10.00		57	51	54	81	7	35	28.98	30.01
16	SCT	NC			10.00		58	49	53	72	13	01	28.98	30.02
19	SCT	NC			10.00		50	43	47	77	5	02	29.06	30.10
22	BKN	045			10.00		49	39	44	69	10	01	29.10	30.14

OBSERVATIONS AT 3–HOURLY INTERVALS

KNOXVILLE, TN

NOVEMBER 2002 TYS WBAN # 13891

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0710	**NOV 13**			**SUNSET: 1730**					
01	OVC	039			10.00		46	37	42	71	6	35	29.14	30.19
04	OVC	028			10.00		43	34	39	71	9	33	29.16	30.20
07	OVC	035			10.00		43	33	39	68	3	36	29.20	30.25
10	SCT	NC			10.00		45	33	40	63	8	02	29.22	30.28
13	FEW	NC			10.00		50	35	43	57	5	03	29.21	30.26
16	CLR	NC			10.00		53	33	44	47	5	26	29.18	30.23
19	CLR	NC			10.00		49	34	42	57	3	21	29.17	30.22
22	CLR	NC			10.00		42	36	39	79	0	00	29.17	30.22
					SUNRISE: 0711	**NOV 14**			**SUNSET: 1730**					
01	CLR	NC			9.00		36	35	36	97	3	04	29.16	30.22
04	CLR	NC			10.00		35	33	34	93	0	00	29.15	30.20
07	VV	001			0.06	FG	33	33	33	100	0	00	29.17	30.23
10	BKN	250			10.00		42	37	40	82	0	00	29.18	30.24
13	BKN	250			10.00		52	38	45	59	5	28	29.11	30.16
16	BKN	250			10.00		58	36	47	44	7	27	29.04	30.09
19	SCT	NC			9.00		53	33	44	47	3	23	29.02	30.07
22	FEW	NC			10.00		45	36	41	71	0	00	29.01	30.06
					SUNRISE: 0712	**NOV 15**			**SUNSET: 1729**					
01	SCT	NC			10.00		40	36	38	86	0	00	28.98	30.03
04	SCT	NC			10.00		37	36	37	96	0	00	28.97	30.02
07	BKN	250			10.00		38	37	38	97	6	36	28.94	29.99
10	OVC	047			10.00		44	39	42	83	3	06	28.95	30.00
13	OVC	110			10.00		55	40	48	57	0	00	28.88	29.93
16	OVC	045			3.00	-RA BR	50	47	48	89	7	27	28.89	29.94
19	OVC	044			4.00	RA BR	50	49	49	96	0	00	28.88	29.93
22	OVC	002			2.50	BR	49	49	49	100	7	03	28.87	29.92
					SUNRISE: 0713	**NOV 16**			**SUNSET: 1728**					
01	OVC	029			2.50	BR	49	49	49	100	6	36	28.86	29.89
04	OVC	017			2.50	RA BR	49	49	49	100	3	06	28.84	29.87
07	OVC	005			2.00	BR	50	50	50	100	6	02	28.85	29.88
10	OVC	004			1.75	BR	50	49	49	96	7	34	28.87	29.91
13	OVC	004			1.50	RA BR	47	46	46	97	8	35	28.83	29.87
16	OVC	006			1.50	-RA BR	44	43	44	96	9	34	28.81	29.85
19	OVC	021			3.00	-RA BR	42	40	41	92	12	35	28.84	29.88
22	OVC	013			10.00		40	39	40	97	7	02	28.86	29.91
					SUNRISE: 0714	**NOV 17**			**SUNSET: 1728**					
01	OVC	011			10.00		39	37	38	93	6	36	28.84	29.88
04	OVC	023			6.00	-RASN BR	37	36	37	96	6	35	28.83	29.88
07	OVC	015			10.00		38	36	37	93	0	00	28.86	29.91
10	OVC	006			5.00	-RA BR	37	35	36	93	0	00	28.88	29.94
13	OVC	008			5.00	-RA BR	37	35	36	93	5	33	28.88	29.94
16	OVC	008			5.00	BR	37	34	36	89	8	28	28.94	30.00
19	OVC	050			10.00		37	31	35	79	9	26	29.03	30.09
22	OVC	047			10.00		36	24	32	62	9	27	29.10	30.16
					SUNRISE: 0715	**NOV 18**			**SUNSET: 1727**					
01	CLR	NC			10.00		30	24	28	79	5	21	29.14	30.21
04	CLR	NC			10.00		29	25	28	85	0	00	29.18	30.25
07	CLR	NC			9.00		28	25	27	88	0	00	29.23	30.31
10	CLR	NC			10.00		37	29	34	73	0	00	29.29	30.36
13	CLR	NC			10.00		48	32	41	54	3	VR	29.27	30.34
16	SCT	NC			10.00		53	36	45	52	6	26	29.21	30.28
19	SCT	NC			10.00		46	37	42	71	6	02	29.21	30.28
22	SCT	NC			10.00		41	37	39	86	0	00	29.21	30.27

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0716	**NOV 19**			**SUNSET: 1727**					
01	OVC	250			7.00		37	36	37	96	5	06	29.19	30.24
04	OVC	045			10.00		41	38	40	89	5	04	29.12	30.17
07	OVC	034			2.50	RA BR	41	40	41	96	0	00	29.17	30.22
10	OVC	017			2.50	BR	44	44	44	100	5	05	29.21	30.28
13	OVC	009			7.00		53	50	51	89	10	23	29.20	30.25
16	SCT	NC			10.00		55	48	51	77	0	00	29.17	30.22
19	CLR	NC			6.00	BR	49	47	48	93	0	00	29.18	30.24
22	SCT	NC			1.75	BR	45	44	45	97	0	00	29.19	30.24
					SUNRISE: 0717	**NOV 20**			**SUNSET: 1726**					
01	VV	001			0.25	FG	43	43	43	100	5	04	29.20	30.25
04	OVC	001			0.25	FG	42	42	42	100	6	09	29.19	30.24
07	OVC	001			1.50	BR	42	41	42	96	0	00	29.19	30.24
10	OVC	003			3.00	BR	43	42	43	97	8	02	29.18	30.23
13	OVC	005			6.00	BR	46	42	44	86	0	00	29.11	30.17
16	OVC	070			10.00		50	44	47	80	3	01	29.04	30.09
19	OVC	048			8.00		49	46	47	90	3	36	29.03	30.08
22	OVC	034			5.00	BR	49	47	48	93	0	00	29.02	30.06
					SUNRISE: 0718	**NOV 21**			**SUNSET: 1726**					
01	BKN	008			2.00	RA BR	47	47	47	100	3	06	28.98	30.03
04	OVC	011			1.75	-RA BR	47	47	47	100	3	06	28.93	29.97
07	OVC	002			1.50	-RA BR	48	47	47	96	3	11	28.90	29.95
10	OVC	005			1.00	-RA BR	48	48	48	100	3	14	28.88	29.93
13	OVC	016			10.00		54	51	52	90	10	23	28.81	29.84
16	FEW	NC			10.00		58	45	51	62	18	22	28.72	29.75
19	SCT	NC			10.00		51	42	47	71	9	22	28.69	29.73
22	BKN	060			10.00		52	41	47	66	12	22	28.68	29.71
					SUNRISE: 0719	**NOV 22**			**SUNSET: 1725**					
01	OVC	027			10.00		44	37	41	76	14	29	28.77	29.81
04	OVC	038			10.00		42	33	38	71	9	27	28.81	29.84
07	OVC	036			10.00		40	32	37	73	9	29	28.84	29.88
10	OVC	045			10.00	DZ	39	31	36	73	6	33	28.90	29.95
13	BKN	055			10.00		40	29	35	65	9	29	28.92	29.97
16	OVC	065			10.00		40	27	35	60	9	30	28.95	30.00
19	OVC	065			10.00		39	27	34	62	9	27	29.02	30.08
22	OVC	055			10.00		38	30	35	73	6	08	29.08	30.14
					SUNRISE: 0720	**NOV 23**			**SUNSET: 1725**					
01	OVC	042			10.00		38	26	33	62	3	01	29.07	30.13
04	SCT	NC			10.00		34	24	30	67	5	34	29.08	30.14
07	FEW	NC			10.00		32	24	29	73	0	00	29.13	30.19
10	CLR	NC			10.00		37	28	34	70	0	00	29.17	30.23
13	CLR	NC			10.00		45	28	38	52	8	27	29.14	30.20
16	CLR	NC			10.00		49	26	39	41	9	26	29.11	30.16
19	CLR	NC			10.00		42	28	36	58	5	26	29.11	30.17
22	CLR	NC			10.00		41	28	36	60	7	26	29.12	30.18
					SUNRISE: 0721	**NOV 24**			**SUNSET: 1724**					
01	CLR	NC			10.00		37	28	34	70	0	00	29.15	30.21
04	CLR	NC			10.00		34	30	32	85	0	00	29.17	30.22
07	CLR	NC			10.00		33	29	31	85	0	00	29.18	30.24
10	CLR	NC			9.00		42	33	38	71	0	00	29.20	30.26
13	CLR	NC			10.00		54	37	46	53	3	VR	29.15	30.19
16	CLR	NC			10.00		59	38	49	46	0	00	29.09	30.14
19	CLR	NC			10.00		50	38	44	63	0	00	29.08	30.14
22	CLR	NC			10.00		45	38	42	77	0	00	29.09	30.14

OBSERVATIONS AT 3−HOURLY INTERVALS

KNOXVILLE, TN

NOVEMBER 2002 TYS WBAN # 13891

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0722	**NOV 25**			**SUNSET: 1724**					
01	CLR	NC			9.00		41	37	39	86	0	00	29.08	30.13
04	CLR	NC			8.00		35	34	35	96	0	00	29.09	30.14
07	SCT	NC			7.00		36	34	35	93	0	00	29.12	30.18
10	BKN	250			7.00		44	40	42	85	0	00	29.14	30.20
13	SCT	NC			10.00		57	40	49	53	3	VR	29.09	30.14
16	SCT	NC			10.00		60	37	49	42	3	29	29.07	30.12
19	CLR	NC			10.00		51	36	44	56	0	00	29.11	30.16
22	FEW	NC			10.00		46	38	42	73	6	36	29.13	30.18
					SUNRISE: 0723	**NOV 26**			**SUNSET: 1724**					
01	OVC	110			10.00		44	38	41	79	5	01	29.13	30.17
04	OVC	100			8.00		42	39	41	89	0	00	29.13	30.17
07	OVC	044			9.00		44	39	42	83	0	00	29.13	30.19
10	BKN	050			10.00		49	45	47	86	0	00	29.14	30.19
13	OVC	070			10.00		54	43	48	67	5	29	29.07	30.12
16	OVC	033			6.00	-RA	52	47	49	83	9	25	29.04	30.09
19	OVC	025			4.00	-RA BR	49	47	48	93	12	27	29.08	30.12
22	OVC	016			10.00		44	42	43	93	7	28	29.13	30.18
					SUNRISE: 0724	**NOV 27**			**SUNSET: 1723**					
01	OVC	012			10.00		40	36	38	86	10	02	29.14	30.19
04	OVC	014			10.00		37	32	35	82	12	01	29.15	30.21
07	OVC	028			10.00		34	27	31	76	9	01	29.18	30.24
10	OVC	022			10.00		34	27	31	76	8	36	29.21	30.27
13	OVC	033			10.00		35	23	31	61	9	34	29.24	30.31
16	OVC	037			10.00		35	24	31	64	7	02	29.21	30.29
19	OVC	038			10.00		35	25	31	67	7	02	29.24	30.32
22	OVC	042			10.00		34	22	30	61	7	01	29.25	30.32
					SUNRISE: 0725	**NOV 28**			**SUNSET: 1723**					
01	FEW	NC			10.00		29	21	26	72	3	01	29.23	30.31
04	OVC	037			10.00		29	22	27	75	3	05	29.22	30.30
07	OVC	035			10.00		30	23	28	75	5	04	29.24	30.32
10	OVC	037			10.00		33	22	29	64	3	VR	29.26	30.34
13	OVC	034			10.00		34	22	30	61	5	29	29.21	30.29
16	SCT	NC			10.00		36	22	31	57	8	26	29.19	30.26
19	CLR	NC			10.00		32	21	28	64	3	24	29.21	30.29
22	CLR	NC			10.00		29	21	26	72	3	23	29.19	30.26
					SUNRISE: 0726	**NOV 29**			**SUNSET: 1723**					
01	CLR	NC			10.00		24	20	23	84	8	21	29.18	30.26
04	CLR	NC			10.00		26	21	24	81	7	23	29.15	30.22
07	CLR	NC			10.00		28	21	26	75	7	22	29.09	30.16
10	CLR	NC			10.00		38	29	34	70	16	22	29.05	30.11
13	SCT	NC			10.00		50	31	42	48	24	23	28.95	30.01
16	BKN	250			10.00		50	31	42	48	23	23	28.86	29.91
19	OVC	200			10.00		49	30	41	48	20	23	28.81	29.85
22	BKN	200			10.00		49	31	41	50	20	23	28.82	29.86
					SUNRISE: 0727	**NOV 30**			**SUNSET: 1723**					
01	OVC	200			10.00		49	32	41	52	17	23	28.79	29.82
04	SCT	NC			10.00		46	33	40	61	14	23	28.73	29.77
07	SCT	NC			10.00		44	34	40	68	14	23	28.72	29.75
10	SCT	NC			10.00		50	36	44	59	23	22	28.74	29.77
13	SCT	NC			10.00		55	30	44	39	22	25	28.72	29.75
16	SCT	NC			10.00		51	23	40	33	20	29	28.78	29.81
19	CLR	NC			10.00		43	20	34	40	15	30	28.89	29.94
22	CLR	NC			10.00		34	18	28	52	10	28	28.98	30.03

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE:	**NOV 31**			**SUNSET:**					

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, VV = Vertical Visibilty = 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: CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL	VISIBILITY (MILES)	WIND SPEED (MPH)	RESULTANT WIND (MPH): SPEED	RESULTANT WIND (MPH): DIRECTION
01			43	39	41	85	29.03	30.08	8.28	6	2	30
02			43	38	41	85	29.03	30.08	8.29	6	2	32
03			43	38	41	85	29.03	30.08	7.86	6	2	30
04			42	38	40	87	29.03	30.07	8.10	5	1	27
05			42	38	40	86	29.03	30.08	7.95	5	1	28
06			41	38	40	87	29.03	30.08	7.67	5	2	31
07			41	37	40	87	29.04	30.09	7.95	4	1	29
08			42	38	40	87	29.05	30.10	7.09	5	2	30
09			43	39	41	85	29.06	30.11	7.53	5	1	28
10			46	40	43	80	29.06	30.11	8.09	5	1	26
11			48	39	44	75	29.06	30.11	8.68	7	3	26
12			50	39	45	69	29.05	30.10	8.68	7	4	25
13			51	40	46	66	29.03	30.07	8.97	7	5	26
14			52	39	46	63	29.01	30.05	9.18	8	5	26
15			53	39	47	62	29.00	30.04	9.25	9	5	26
16			53	39	46	62	29.00	30.04	8.74	9	6	27
17			51	39	46	66	29.00	30.05	8.72	7	4	25
18			50	39	45	68	29.00	30.05	8.93	6	3	26
19			49	39	44	71	29.01	30.06	8.88	6	3	27
20			47	39	44	74	29.02	30.07	9.02	6	4	27
21			46	39	43	76	29.02	30.07	8.98	5	3	27
22			46	39	43	77	29.02	30.07	8.89	6	3	27
23			45	38	42	79	29.02	30.07	8.68	6	2	28
24			44	38	42	81	29.03	30.08	8.40	6	3	28

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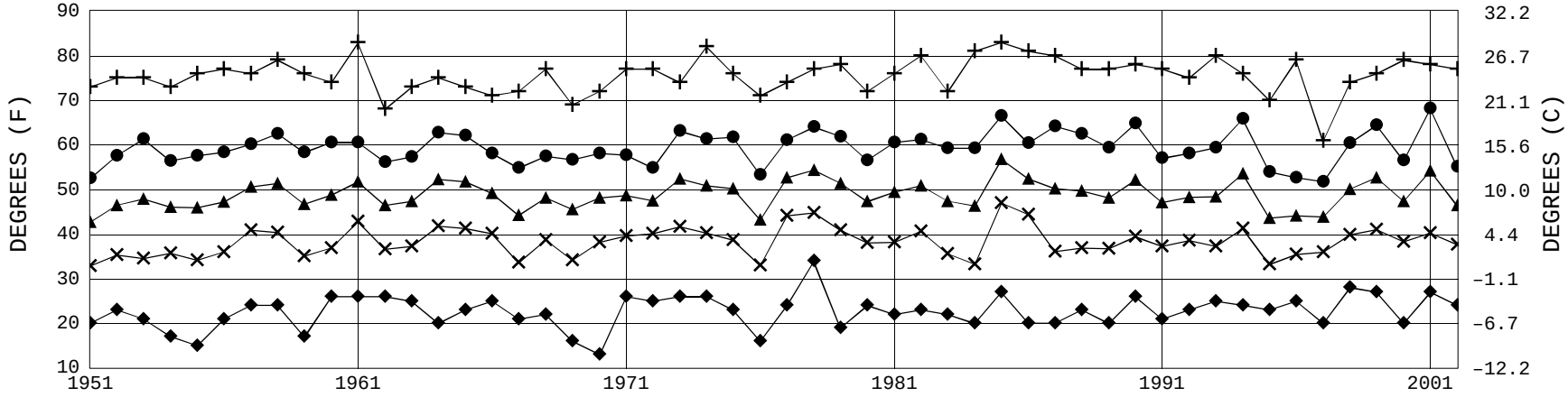
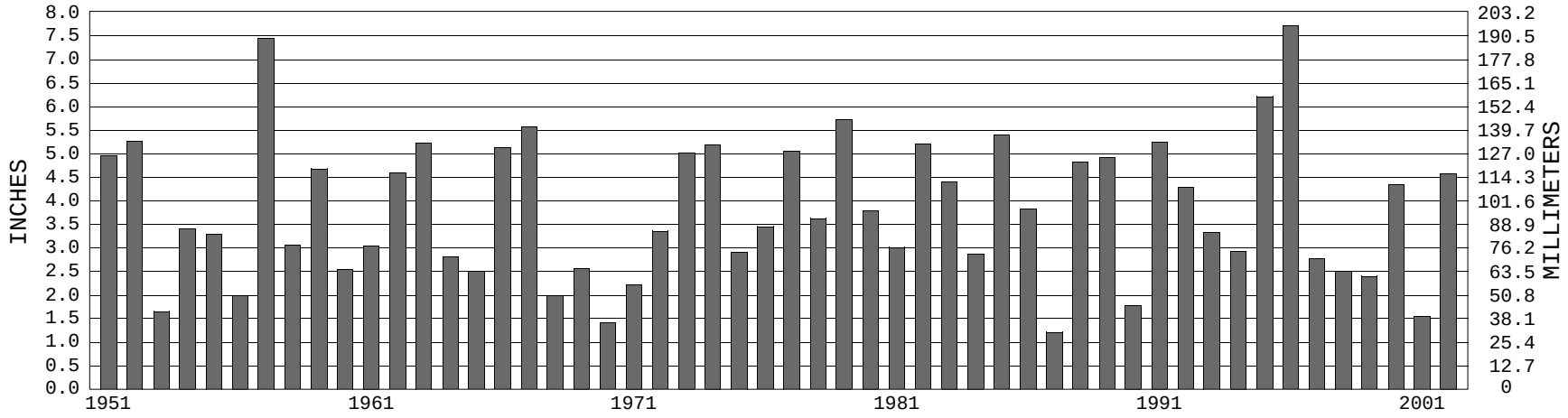
KNOXVILLE, TN NOVEMBER TEMPERATURES



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

Long–Term (1951–2002) Mean: 48.8 1961–1990 Normal: 49.0

KNOXVILLE, TN NOVEMBER PRECIPITATION



Long–Term (1951–2002) Mean Monthly Total: 3.82 1961–1990 Normal: 3.98

NOVEMBER 2002

KNOXVILLE, TN

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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