



JULY 2004

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

JULY 2004
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	80	69	75	-2	68	70	0	10	BR	0		0.0	0.00	29.09	30.11	5.4	23	5.9	16	26	14	24	01							
02	84	69	77	0	68	70	0	12	TS RA BR	0		0.0	T	29.02	30.03	1.3	27	3.2	10	29	8	29	02							
03	85	69	77	0	70	72	0	12	TS RA BR	0		0.0	0.38	28.92	29.93	2.8	22	3.9	16	28	14	29	03							
04	85	71	78	1	70	72	0	13	RA BR HZ	0		0.0	0.01	28.91	29.91	9.5	23	10.1	28	22	24	22	04							
05	89	64	77	0	69	71	0	12	TS TSRA RA FG+ BR HZ	0		0.0	1.54	29.02	30.04	5.7	25	9.5	41	26	37*	26	05							
06	87	63	75	-2	67	69	0	10	TS RA FG+ BR	0		0.0	T	29.04	30.05	3.7	24	6.4	22	27	18	27	06							
07	85	68	77	0	69	71	0	12	RA	0		0.0	T	28.92	29.94	7.5	24	8.1	20	23	16	24	07							
08	86	69	78	1	67	70	0	13		0		0.0	0.00	28.96	29.97	4.2	25	5.7	13	26	10	26	08							
09	88	67	78	0	68	72	0	13	BR HZ	0		0.0	0.00	29.05	30.06	2.1	25	2.9	16	23	14	25	09							
10	90	70	80	2	70	73	0	15	BR	0		0.0	0.00	29.10	30.11	3.3	25	4.6	18	27	17	27	10							
11	89	71	80	2	70	73	0	15	TSRA RA	0		0.0	0.14	29.07	30.08	4.8	25	5.7	28	28	23	28	11							
12	89	71	80	2	71	73	0	15	TS TSRA RA BR	0		0.0	0.25	28.99	30.01	5.0	24	6.2	35	32	29	33	12							
13	89	69	79	1	71	74	0	14	TS TSRA	0		0.0	0.02	28.91	29.92	5.3	24	6.2	43*	33	33	33	13							
14	89	68	79	1	66	70	0	14	TS TSRA	0		0.0	0.06	28.81	29.82	8.4	25	10.2	28	26	22	25	14							
15	82	65	74	-4	61	66	0	9		0		0.0	0.00	28.86	29.87	2.5	32	4.0	14	30	12	30	15							
16	84	62	73	-5	62	66	0	8		0		0.0	0.00	28.87	29.89	3.6	24	4.6	15	25	13	24	16							
17	83	66	75	-3	67	68	0	10	TSRA RA BR HZ	0		0.0	0.30	28.80	29.81	0.1	02	3.8	21	23	18	24	17							
18	82	68	75	-3	65	68	0	10	BR HZ	0		0.0	0.00	28.80	29.81	3.2	35	4.1	13	01	9	32	18							
19	84	63	74	-4	62	66	0	9	FG BR HZ	0		0.0	0.00	28.86	29.87	2.1	34	3.4	13	02	10	02	19							
20	86	62	74	-4	61	66	0	9	BR	0		0.0	0.00	28.95	29.96	2.1	05	3.4	14	01	10	02	20							
21	88	62*	75	-3	62	67	0	10	BR	0		0.0	0.00	28.99	30.00	1.6	26	3.0	14	26	12	25	21							
22	86	69	78	0	68	71	0	13	TS TSRA BR HZ	0		0.0	0.17	28.94	29.95	5.2	23	6.1	21	27	17	27	22							
23	89	68	79	1	69	72	0	14	RA BR	0		0.0	T	28.94	29.95	2.4	29	4.8	13	26	10	28	23							
24	91*	72	82*	4	70	73	0	17	BR	0		0.0	0.00	29.03	30.04	7.0	03	7.9	17	01	14	02	24							
25	89	70	80	2	70	72	0	15	TS TSRA RA BR HZ	0		0.0	0.45	29.05	30.06	0.6	02	5.0	25	08	22	08	25							
26	86	70	78	0	70	71	0	13	TS TSRA RA BR	0		0.0	3.27	29.00	30.02	1.9	23	4.4	29	19	24	19	26							
27	77	69	73*	-5	69	70	0	8	RA DZ BR	0		0.0	0.13	28.96	29.98	0.2	17	5.8	16	01	13	36	27							
28	82	65	74	-4	61	66	0	9		0		0.0	0.00	28.98	30.00	5.3	03	6.3	16	04	14	05	28							
29	87	64	76	-2	67	69	0	11	TSRA RA BR	0		0.0	0.24	28.95	29.97	3.0	04	5.4	28	24	24	24	29							
30	88	70	79	1	70	73	0	14	RA BR	0		0.0	0.02	28.95	29.97	2.1	21	4.7	21	25	17	27	30							
31	85	69	77	-1	70	72	0	12	TSRA RA BR	0		0.0	0.64	28.98	29.99	1.4	29	4.2	29	26	24	27	31							
MONTHLY AVERAGES											TOTALS->					<- MONTHLY AVERAGES														
DEPARTURE FROM NORMAL																SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3														
DEGREE DAYS											GREATEST 24-HR PRECIPITATION: 3.40 DATE: 26-27					SEA LEVEL PRESSURE					DATE TIME									
MONTHLY TOTAL DEPARTURE											GREATEST 24-HR SNOWFALL: 0.0 DATE:					MAXIMUM					: 30.18 05 1853									
SEASON TO DATE TOTAL DEPARTURE											GREATEST SNOW DEPTH: 0 DATE:					MINIMUM					: 29.73 14 1553									
HEATING: 0 0 0 0											NUMBER OF DAYS WITH					MAXIMUM TEMP ≥ 90: 2					MINIMUM TEMP ≤ 32: 0					PRECIPITATION ≥ 0.01 INCH: 15				
COOLING: 371 -37 946 113																MAXIMUM TEMP ≤ 32: 0					MINIMUM TEMP ≤ 0: 0					PRECIPITATION ≥ 0.10 INCH: 11				
																THUNDERSTORMS: 14					HEAVY FOG: 2					SNOWFALL ≥ 1.0 INCH: 0				

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

KNOXVILLE, TN

JULY 2004

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		T	T										02												02		T	
03													03												03		0.38	
04							0.01	T					04												04		0.01	
05													05				1.33	0.12	0.09	T					05		1.54	
06													06									T	T		06		T	
07		T	T	T									07				T	T							07		T	
08													08												08		0.00	
09													09												09		0.00	
10													10												10		0.00	
11													11												11		0.14	
12													12				0.14	0.11	T				0.12	0.02	12		0.25	
13													13											0.02	13		0.02	
14									0.04	0.02			14												14		0.06	
15													15												15		0.00	
16													16				0.03	0.21	0.02						16		0.00	
17									0.04	T	T		17												17		0.30	
18													18												18		0.00	
19													19												19		0.00	
20													20												20		0.00	
21													21												21		0.00	
22													22												22		0.17	
23	T												23												23		T	
24													24												24		0.00	
25													25				0.37	T	0.05	0.03	T				25		0.45	
26													26					0.05	1.31	1.29	0.54	0.01	0.02	0.05	26		3.27	
27	T	T		0.01	T	T	0.03	0.01	0.07	0.01			27	T											27		0.13	
28													28												28		0.00	
29													29				0.18	0.06							29		0.24	
30													30				0.02	T							30		0.02	
31													31		0.39	0.24	0.01								31		0.64	

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.35	.68	.82	1.02	1.31	1.44	1.77	1.88	2.54	3.01	3.15	3.19
Ending Date	05	05	05	05	05	26	26	26	26	26	26	26
Ending Time (Hour/Min)	1726	1732	1736	1741	1751	1858	1910	2005	1953	2011	2025	2025

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 JULY 2004

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							6.00	10.00	
02							6.00	10.00	
03							1.25	10.00	
04							5.00	10.00	
05							.25	10.00	
06							<.25	10.00	
07							10.00	10.00	
08							8.00	10.00	
09							5.00	10.00	
10							6.00	10.00	
11							9.00	10.00	
12							1.25	10.00	
13							4.00	10.00	
14							7.00	10.00	
15							10.00	10.00	
16							7.00	10.00	
17							1.75	10.00	
18							2.00	10.00	
19							.50	10.00	
20							3.00	10.00	
21							5.00	10.00	
22							2.00	10.00	
23							2.00	10.00	
24							6.00	10.00	
25							1.50	10.00	
26							.75	10.00	
27							1.00	10.00	
28							9.00	10.00	
29							1.00	10.00	
30							5.00	10.00	
31							.75	10.00	
MONTHLY AVGS							4.61	10.00	
SUNSHINE (MINUTES)									
Total: Possible: Percent Possible:									
NUMBER OF DAYS WITH:									
SKY CONDITION									
CLR PTLY CLDY CLOUDY MISSING 31									
MINIMUM VISIBILITY (MILES)									
<=0.25 <=3.0 >=7.0 1 12 8									

OBSERVATIONS AT 3-HOURLY INTERVALS

KNOXVILLE, TN

JULY 2004

TYS

WBAN # 13891

HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)					
	SKY COVER	CEILING 100'S OF FT			OBSERVATION TIME (LST)	EFF CLD AMT Oktas	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	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
SUNRISE: 0524 JUL 01					SUNSET: 1956					SUNRISE: 0527 JUL 07					SUNSET: 1955														
01	OVC	034		9.00		70	68	69	93	3	21	29.09	30.11	01	OVC	150		10.00		72	66	68	82	0	00	28.95	29.96		
04	OVC	031		10.00		70	67	68	90	0	00	29.09	30.11	04	BKN	110		10.00		69	67	68	93	7	24	28.92	29.93		
07	OVC	025		7.00		70	68	69	93	3	22	29.11	30.13	07	BKN	046		10.00		69	66	67	90	8	24	28.95	29.97		
10	OVC	045		10.00		74	69	71	85	5	25	29.12	30.14	10	SCT	NC		10.00		76	67	70	74	14	22	28.97	29.99		
13	OVC	075		10.00		77	68	71	74	9	23	29.09	30.11	13	SCT	NC		10.00		81	69	73	67	12	23	28.95	29.96		
16	OVC	250		10.00		79	67	71	67	13	22	29.06	30.07	16	SCT	NC		10.00		84	70	74	63	12	21	28.88	29.90		
19	OVC	180		10.00		73	68	70	84	9	22	29.05	30.07	19	SCT	NC		10.00		79	71	74	77	5	24	28.86	29.87		
22	OVC	250		10.00		72	67	69	84	8	25	29.08	30.10	22	FEW	NC		10.00		75	70	72	84	8	23	28.91	29.92		
SUNRISE: 0524 JUL 02					SUNSET: 1956					SUNRISE: 0527 JUL 08					SUNSET: 1955														
01	OVC	250		10.00		70	67	68	90	5	28	29.08	30.09	01	SCT	NC		10.00		72	69	70	91	7	24	28.89	29.90		
04	OVC	065		10.00		69	68	68	96	0	00	29.06	30.08	04	BKN	060		10.00		71	67	68	87	7	23	28.92	29.93		
07	OVC	050		7.00		70	68	69	93	0	00	29.06	30.08	07	BKN	150		10.00		70	66	67	87	7	22	28.96	29.98		
10	BKN	060		10.00		75	68	70	79	5	24	29.07	30.09	10	SCT	NC		10.00		76	68	71	77	5	23	28.98	30.00		
13	OVC	035		10.00		78	68	71	71	6	30	29.03	30.05	13	SCT	NC		10.00		82	67	72	60	6	23	28.97	29.98		
16	BKN	250		10.00		82	65	71	56	3	VR	28.96	29.98	16	SCT	NC		10.00		85	64	71	50	3	05	28.93	29.95		
19	BKN	200		10.00		81	68	72	65	0	00	28.94	29.96	19	SCT	NC		10.00		83	66	72	57	0	00	28.94	29.95		
22	BKN	250		10.00		74	69	71	85	3	08	28.98	29.99	22	FEW	NC		10.00		76	67	70	74	0	00	28.98	29.99		
SUNRISE: 0525 JUL 03					SUNSET: 1956					SUNRISE: 0528 JUL 09					SUNSET: 1955														
01	OVC	040		8.00		72	68	69	87	0	00	28.95	29.97	01	CLR	NC		10.00		73	66	68	79	0	00	29.00	30.01		
04	OVC	250		6.00	BR	70	68	69	93	0	00	28.92	29.93	04	CLR	NC		5.00	BR	69	67	68	93	0	00	29.01	30.03		
07	BKN	250		5.00	BR	71	69	70	94	0	00	28.95	29.96	07	SCT	NC		5.00	BR	71	67	68	87	0	00	29.07	30.08		
10	OVC	014		4.00	BR	74	71	72	91	0	00	28.96	29.98	10	FEW	NC		10.00		81	68	72	65	0	00	29.07	30.09		
13	BKN	120		10.00		80	71	74	74	3	VR	28.94	29.95	13	FEW	NC		10.00		85	70	75	61	8	22	29.06	30.08		
16	BKN	250		10.00		80	66	71	62	7	32	28.88	29.90	16	SCT	NC		10.00		88	69	75	54	10	30	29.03	30.04		
19	BKN	250		10.00		82	71	74	69	7	20	28.87	29.87	19	BKN	200		10.00		84	69	74	61	5	28	29.05	30.06		
22	SCT	NC		10.00		76	70	72	82	7	23	28.89	29.91	22	BKN	250		10.00		79	70	73	74	3	10	29.07	30.08		
SUNRISE: 0525 JUL 04					SUNSET: 1956					SUNRISE: 0528 JUL 10					SUNSET: 1954														
01	SCT	NC		10.00		73	69	70	87	7	23	28.90	29.91	01	SCT	NC		10.00		75	71	72	88	0	00	29.08	30.09		
04	FEW	NC		10.00		71	68	69	90	5	21	28.87	29.88	04	CLR	NC		6.00	BR	71	69	70	94	0	00	29.07	30.08		
07	OVC	046		5.00	-RA BR	72	70	71	94	13	22	28.91	29.92	07	FEW	NC		8.00		74	69	71	85	0	00	29.12	30.13		
10	BKN	025		7.00		78	71	73	79	18	23	28.93	29.94	10	SCT	NC		10.00		82	72	75	72	5	VR	29.14	30.15		
13	BKN	070		7.00		80	70	73	71	16	23	28.92	29.93	13	SCT	NC		10.00		87	70	75	57	5	VR	29.11	30.12		
16	BKN	150		7.00		83	70	74	65	15	22	28.88	29.89	16	SCT	NC		10.00		88	69	75	54	6	VR	29.06	30.07		
19	SCT	NC		7.00		82	71	74	69	9	22	28.89	29.91	19	BKN	200		10.00		81	71	74	72	9	24	29.07	30.08		
22	SCT	NC		8.00		77	71	73	82	7	25	28.90	29.92	22	OVC	250		10.00		77	72	74	85	7	21	29.12	30.13		
SUNRISE: 0526 JUL 05					SUNSET: 1956					SUNRISE: 0529 JUL 11					SUNSET: 1954														
01	SCT	NC		10.00		73	69	70	87	3	24	28.92	29.93	01	BKN	250		10.00		75	71	72	88	6	26	29.10	30.11		
04	OVC	130		8.00		72	69	70	91	7	24	28.97	29.98	04	BKN	250		9.00		73	71	72	94	6	25	29.08	30.09		
07	BKN	031		10.00		75	70	72	84	12	22	29.00	30.01	07	BKN	250		10.00		75	71	72	88	0	00	29.12	30.14		
10	OVC	025		10.00		81	71	74	72	14	23	29.02	30.03	10	SCT	NC		10.00		81	71	74	72	6	27	29.12	30.13		
13	BKN	040		10.00		86	73	77	65	10	29	29.02	30.03	13	SCT	NC		10.00		87	68	74	53	7	25	29.09	30.10		
16	SCT	NC		7.00		86	74	77	67	10	22	28.98	29.99	16	BKN	250		10.00		86	71	76	61	9	25	29.03	30.04		
19	OVC	034		9.00	-RA	68	66	67	93	10	10	29.16	30.18	19	BKN	100		10.00		85	68	73	57	8	25	28.98	29.99		
22	SCT	NC		10.00		67	65	66	93	5	34	29.07	30.09	22	OVC	060		10.00		79	69	72	72	21	28	29.05	30.06		
SUNRISE: 0526 JUL 06					SUNSET: 1955					SUNRISE: 0530 JUL 12					SUNSET: 1954														
01	FEW	NC		10.00		65	64	64	97	5	27	29.07	30.08	01	BKN	150		10.00		72	70	71	94	9	21	29.04	30.05		
04	VV	001		0.25	FG	63	63	63	100	3	20	29.06	30.08	04	BKN	150		10.00		72	69	70	91	7	25	29.01	30.02		
07	FEW	NC		10.00		66	64	65	93	3	05	29.05	30.08	07	BKN	250		10.00		73	70	71	90	6	22	29.03	30.04		
10	FEW	NC		10.00		74	66	69	76	3	32	29.10	30.12	10	SCT	NC		10.00		81	72	75	74	6	23	29.04	30.05		
13	FEW	NC		10.00		84	72	76	67	8	22	29.06	30.07	13	BKN	150		10.00		85	71	75	63	7	26	29.00	30.01		
16	OVC	250		10.00		84	70	74	63	8	20	28.98	30.00	16	SCT	NC		10.00	TS	88	71	76	57	9	25	28.94	29.95		
19	BKN	150		10.00		79	68	72	69	12	25	28.95	29.96	19	OVC	045		10.00		74	69	71	85	8	21	28.96	29.98		
22	OVC	150		10.00	-RA	73	65	68	76	9	29	29.04	30.06	22	OVC	110		10.00		73	70	71	90	3	22	28.96	29.98		

OBSERVATIONS AT 3-HOURLY INTERVALS

KNOXVILLE, TN

JULY 2004

TYS

WBAN # 13891

HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)					
	SKY COVER	CEILING 100'S OF FT			OBSERVATION TIME (LST)	EFF CLD AMT Oktas	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	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
SUNRISE: 0530					JUL 13					SUNSET: 1953					SUNRISE: 0534					JUL 19					SUNSET: 1950				
01	BKN	100		10.00		72	69	70	91	3	23	28.95	29.96	01	SCT	NC		10.00		69	62	65	78	0	00	28.84	29.84		
04	SCT	NC		10.00		70	68	69	93	5	23	28.93	29.94	04	CLR	NC		5.00	BR	64	62	63	93	0	00	28.82	29.83		
07	SCT	NC		10.00		73	70	71	90	6	22	28.95	29.97	07	CLR	NC		2.50	BR	65	64	64	97	3	23	28.86	29.87		
10	BKN	033		9.00		78	72	74	82	6	23	28.95	29.97	10	SCT	NC		7.00		74	64	68	71	7	03	28.87	29.89		
13	SCT	NC		10.00		86	72	76	63	6	VR	28.93	29.94	13	BKN	070		8.00		79	63	69	58	5	31	28.87	29.88		
16	SCT	NC		10.00		88	73	77	61	10	23	28.87	29.87	16	SCT	NC		10.00		82	58	67	44	7	03	28.85	29.86		
19	SCT	NC		10.00		87	72	76	61	7	27	28.85	29.85	19	CLR	NC		10.00		80	60	67	51	5	35	28.86	29.87		
22	CLR	NC		10.00		80	73	75	79	6	27	28.89	29.90	22	CLR	NC		7.00		70	63	66	79	3	04	28.89	29.91		
SUNRISE: 0531					JUL 14					SUNSET: 1953					SUNRISE: 0535					JUL 20					SUNSET: 1950				
01	BKN	100		10.00		72	64	67	76	9	18	28.86	29.86	01	CLR	NC		5.00	BR	66	63	64	90	3	03	28.90	29.92		
04	SCT	NC		10.00		70	63	66	79	6	25	28.84	29.85	04	CLR	NC		4.00	BR	63	62	62	97	3	02	28.90	29.93		
07	SCT	NC		10.00		71	64	67	79	10	24	28.83	29.83	07	CLR	NC		3.00	BR	66	63	64	90	0	00	28.96	29.98		
10	BKN	250		10.00		72	67	69	84	10	22	28.81	29.81	10	FEW	NC		7.00		76	65	69	69	7	02	28.98	30.00		
13	SCT	NC		10.00		85	71	75	63	17	25	28.80	29.80	13	FEW	NC		10.00		83	59	68	44	3	VR	28.96	29.98		
16	SCT	NC		10.00		88	71	76	57	13	26	28.73	29.73	16	FEW	NC		10.00		86	57	68	37	7	02	28.94	29.96		
19	BKN	200		10.00		83	66	72	57	12	29	28.75	29.76	19	CLR	NC		10.00		82	59	67	46	0	00	28.93	29.94		
22	FEW	NC		10.00		76	64	68	67	5	32	28.83	29.83	22	CLR	NC		8.00		72	65	67	79	0	00	28.97	29.98		
SUNRISE: 0532					JUL 15					SUNSET: 1952					SUNRISE: 0536					JUL 21					SUNSET: 1949				
01	CLR	NC		10.00		72	64	67	76	3	30	28.83	29.83	01	CLR	NC		10.00		67	61	63	81	3	09	28.97	29.99		
04	CLR	NC		10.00		67	64	65	91	0	00	28.81	29.81	04	CLR	NC		5.00	BR	63	61	62	93	0	00	28.97	29.99		
07	FEW	NC		10.00		67	64	65	91	3	24	28.87	29.87	07	CLR	NC		5.00	BR	65	61	63	87	0	00	29.02	30.03		
10	SCT	NC		10.00		77	61	67	58	3	36	28.89	29.91	10	CLR	NC		10.00		78	62	68	58	0	00	29.03	30.04		
13	SCT	NC		10.00		80	57	66	45	8	30	28.88	29.90	13	FEW	NC		9.00		86	63	71	46	3	VR	29.00	30.01		
16	SCT	NC		10.00		80	57	66	45	7	31	28.86	29.86	16	FEW	NC		9.00		87	61	70	42	6	27	28.96	29.98		
19	SCT	NC		10.00		79	58	66	49	6	35	28.85	29.86	19	SCT	NC		10.00		84	62	70	48	5	27	28.95	29.97		
22	FEW	NC		10.00		69	61	64	76	3	07	28.87	29.89	22	CLR	NC		9.00		77	64	69	64	0	00	28.96	29.97		
SUNRISE: 0532					JUL 16					SUNSET: 1952					SUNRISE: 0536					JUL 22					SUNSET: 1949				
01	CLR	NC		10.00		66	61	63	84	0	00	28.89	29.91	01	CLR	NC		8.00		74	65	68	74	5	28	28.97	29.98		
04	CLR	NC		9.00		63	60	61	90	0	00	28.87	29.89	04	CLR	NC		6.00	HZ	70	65	67	84	0	00	28.93	29.94		
07	CLR	NC		7.00		65	62	63	90	3	23	28.89	29.91	07	BKN	250		4.00	BR	70	66	67	87	0	00	28.97	29.98		
10	SCT	NC		10.00		76	63	68	64	6	VR	28.91	29.93	10	BKN	250		6.00	HZ	79	68	72	69	5	VR	28.97	29.99		
13	BKN	250		10.00		80	62	68	54	3	VR	28.89	29.91	13	BKN	120		6.00	HZ	85	68	73	57	9	21	28.94	29.95		
16	SCT	NC		10.00		83	60	68	46	7	30	28.85	29.86	16	OVC	120		7.00		85	69	74	59	10	24	28.92	29.93		
19	BKN	250		10.00		80	64	70	58	10	23	28.83	29.84	19	BKN	200		6.00	HZ	83	71	75	67	8	23	28.89	29.90		
22	FEW	NC		10.00		74	65	68	74	6	20	28.86	29.87	22	BKN	060		6.00	HZ	79	72	74	79	7	22	28.92	29.93		
SUNRISE: 0533					JUL 17					SUNSET: 1951					SUNRISE: 0537					JUL 23					SUNSET: 1948				
01	CLR	NC		8.00		70	64	66	82	3	21	28.84	29.84	01	OVC	250		10.00		72	68	69	87	8	14	28.92	29.93		
04	BKN	180		7.00		67	64	65	91	5	08	28.82	29.82	04	FEW	NC		10.00		70	68	69	93	6	32	28.90	29.92		
07	BKN	050		4.00	BR	68	66	67	93	0	00	28.83	29.83	07	SCT	NC		2.00	BR	69	68	68	96	5	23	28.94	29.95		
10	OVC	037		5.00	BR	72	68	69	87	5	07	28.83	29.84	10	SCT	NC		10.00		77	68	71	74	3	VR	28.97	29.98		
13	BKN	110		8.00		79	68	72	69	8	24	28.79	29.80	13	SCT	NC		10.00		85	69	74	59	0	00	28.95	29.96		
16	OVC	024		4.00	-TSRA BR	73	69	70	87	13	33	28.74	29.75	16	BKN	048		10.00		88	69	75	54	0	00	28.92	29.93		
19	BKN	080		10.00		72	68	69	87	5	10	28.76	29.78	19	SCT	NC		10.00		87	70	75	57	5	32	28.91	29.93		
22	FEW	NC		7.00		69	67	68	93	0	00	28.80	29.81	22	CLR	NC		10.00		81	71	74	72	8	01	28.98	29.99		
SUNRISE: 0534					JUL 18					SUNSET: 1951					SUNRISE: 0538					JUL 24					SUNSET: 1947				
01	OVC	005		4.00	BR	68	67	67	96	3	04	28.80	29.80	01	BKN	130		9.00		75	70	72	84	5	07	28.99	30.00		
04	OVC	006		4.00	BR	68	67	67	96	3	04	28.78	29.79	04	CLR	NC		9.00		74	70	71	88	6	01	28.99	30.00		
07	OVC	008		2.00	BR	69	67	68	93	3	33	28.81	29.82	07	SCT	NC		7.00		73	69	70	87	9	03	29.05	30.06		
10	OVC	008		3.00	BR	71	67	68	87	7	33	28.84	29.85	10	SCT	NC		9.00		82	71	74	69	10	03	29.07	30.08		
13	BKN	060		10.00		78	64	69	62	6	35	28.82	29.83	13	BKN	035		10.00		86	71	76	61	8	36	29.05	30.06		
16	FEW	NC		10.00		81	64	70	57	5	VR	28.78	29.78	16	SCT	NC		10.00		90	67	74	47	9	36	29.01	30.01		
19	FEW	NC		10.00		80	61	68	52	3	36	28.78	29.78	19	BKN	250		8.00		82	72	75	72	12	36	29.02	30.03		
22	SCT	NC		10.00		73	62	66	69	8	35	28.82	29.83	22	OVC	250		8.00		78	70	73	76	6	06	29.06	30.07		

OBSERVATIONS AT 3-HOURLY INTERVALS

KNOXVILLE, TN

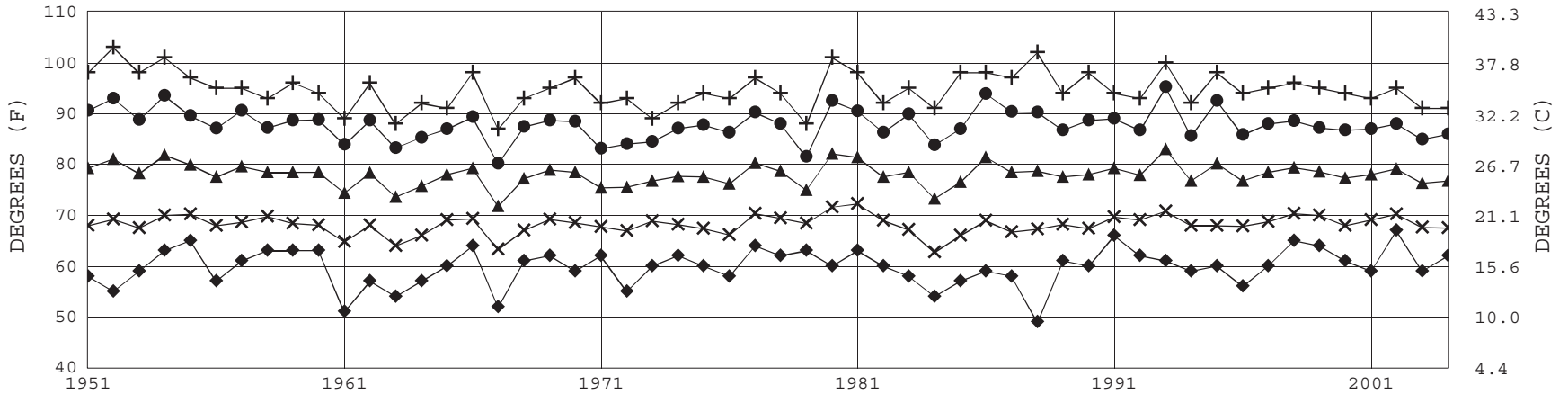
JULY 2004

TYS

WBAN # 13891

HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)																																																																																																																																																																																																																																																																																																																																													
	SKY COVER	CEILING 100'S OF FT			OBSERVATION TIME (LST)	EFF CLD AMT Otktas	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 Otktas	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL																																																																																																																																																																																																																																																																																																																																								
SUNRISE: 0539 JUL 25					SUNSET: 1946					SUNRISE: 0543 JUL 31					SUNSET: 1942																																																																																																																																																																																																																																																																																																																																																						
01	BKN	250	8.00		75	68	70	79	6	03	29.06	30.07	01	SCT	NC	10.00		77	66	70	69	7	20	28.95	29.96																																																																																																																																																																																																																																																																																																																																												
04	SCT	NC	6.00	BR	72	69	70	91	3	34	29.05	30.06	04	SCT	NC	10.00		73	68	70	84	0	00	28.94	29.96																																																																																																																																																																																																																																																																																																																																												
07	FEW	NC	4.00	BR	71	69	70	94	5	07	29.08	30.09	07	SCT	NC	10.00		73	69	70	87	0	00	28.97	29.98																																																																																																																																																																																																																																																																																																																																												
10	SCT	NC	7.00		81	71	74	72	3	32	29.09	30.10	10	BKN	100	10.00		80	72	74	76	5	34	28.99	30.00																																																																																																																																																																																																																																																																																																																																												
13	BKN	038	8.00		87	71	76	59	7	24	29.03	30.05	13	OVC	070	10.00		82	72	75	72	6	28	28.98	29.99																																																																																																																																																																																																																																																																																																																																												
16	OVC	035	8.00		86	71	76	61	8	29	28.99	30.00	16	OVC	070	10.00		74	72	73	94	6	16	28.99	30.00																																																																																																																																																																																																																																																																																																																																												
19	BKN	025	4.00	+TSRA BR	72	69	70	91	13	12	29.04	30.06	19	BKN	200	10.00		76	72	73	88	0	00	28.94	29.96																																																																																																																																																																																																																																																																																																																																												
22	OVC	200	10.00		71	70	70	96	6	36	29.04	30.06	22	BKN	250	9.00		73	71	72	94	5	06	28.99	30.01																																																																																																																																																																																																																																																																																																																																												
SUNRISE: 0539 JUL 26					SUNSET: 1946					3-HOURLY OBSERVATION NOTES																																																																																																																																																																																																																																																																																																																																																											
01	BKN	200	7.00		71	70	70	96	5	23	29.03	30.04	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.																																																																																																																																																																																																																																																																																																																																																								
04	BKN	007	8.00		71	69	70	94	5	27	29.03	30.04	Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.																																																																																																																																																																																																																																																																																																																																																								
07	OVC	006	4.00	BR	71	69	70	94	0	00	29.05	30.07	NC= No ceiling detected.																																																																																																																																																																																																																																																																																																																																																								
10	OVC	010	6.00	BR	74	70	71	88	3	01	29.05	30.07	& = Original observation contained additional weather elements.																																																																																																																																																																																																																																																																																																																																																								
13	BKN	036	9.00		82	71	74	69	10	26	29.01	30.02	See page 3 for additional notes.																																																																																																																																																																																																																																																																																																																																																								
16	BKN	032	9.00		85	71	75	63	7	27	28.93	29.94																																																																																																																																																																																																																																																																																																																																																									
19	OVC	004	0.75	+TSRA BR	70	69	69	97	10	21	28.95	29.97																																																																																																																																																																																																																																																																																																																																																									
22	OVC	008	9.00	-RA	70	69	69	97	6	16	28.99	30.01																																																																																																																																																																																																																																																																																																																																																									
SUNRISE: 0540 JUL 27					SUNSET: 1945					SUMMARY BY HOUR																																																																																																																																																																																																																																																																																																																																																											
01	OVC	150	10.00	DZ	70	68	69	93	3	22	28.95	29.97	<table border="1"> <thead> <tr> <th rowspan="2">HOUR (LST)</th> <th colspan="7">AVERAGES</th> <th colspan="2">RESULTANT WIND (MPH)</th> </tr> <tr> <th>CEILOMETER</th> <th>EFF CLD AMT</th> <th>DRY BULB</th> <th>DEW POINT</th> <th>WET BULB</th> <th>RELATIVE HUMIDITY</th> <th>PRESSURE (INCHES, HG)</th> <th>STATION</th> <th>SEA LEVEL</th> <th>VISIBILITY (MILES)</th> <th>WIND SPEED (MPH)</th> <th>SPEED</th> <th>DIRECTION</th> </tr> </thead> <tbody> <tr><td>01</td><td></td><td></td><td>71</td><td>66</td><td>68</td><td>85</td><td>28.96</td><td>29.97</td><td>9.19</td><td>4</td><td>1</td><td>23</td></tr> <tr><td>02</td><td></td><td></td><td>70</td><td>66</td><td>68</td><td>87</td><td>28.95</td><td>29.96</td><td>8.97</td><td>4</td><td>2</td><td>27</td></tr> <tr><td>03</td><td></td><td></td><td>70</td><td>67</td><td>68</td><td>89</td><td>28.94</td><td>29.96</td><td>8.66</td><td>3</td><td>2</td><td>27</td></tr> <tr><td>04</td><td></td><td></td><td>69</td><td>66</td><td>67</td><td>91</td><td>28.95</td><td>29.96</td><td>7.85</td><td>3</td><td>1</td><td>27</td></tr> <tr><td>05</td><td></td><td></td><td>69</td><td>66</td><td>67</td><td>91</td><td>28.96</td><td>29.97</td><td>7.97</td><td>3</td><td>1</td><td>24</td></tr> <tr><td>06</td><td></td><td></td><td>69</td><td>66</td><td>67</td><td>91</td><td>28.97</td><td>29.98</td><td>7.00</td><td>3</td><td>1</td><td>22</td></tr> <tr><td>07</td><td></td><td></td><td>70</td><td>67</td><td>68</td><td>90</td><td>28.98</td><td>29.99</td><td>6.66</td><td>4</td><td>2</td><td>23</td></tr> <tr><td>08</td><td></td><td></td><td>72</td><td>67</td><td>69</td><td>85</td><td>28.99</td><td>30.00</td><td>7.29</td><td>6</td><td>2</td><td>26</td></tr> <tr><td>09</td><td></td><td></td><td>74</td><td>68</td><td>70</td><td>80</td><td>28.99</td><td>30.01</td><td>7.98</td><td>5</td><td>3</td><td>24</td></tr> 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<tr><td>22</td><td></td><td></td><td>74</td><td>68</td><td>70</td><td>80</td><td>28.96</td><td>29.98</td><td>9.39</td><td>6</td><td>1</td><td>29</td></tr> <tr><td>23</td><td></td><td></td><td>73</td><td>67</td><td>69</td><td>82</td><td>28.97</td><td>29.98</td><td>9.29</td><td>4</td><td>1</td><td>26</td></tr> <tr><td>24</td><td></td><td></td><td>72</td><td>67</td><td>69</td><td>85</td><td>28.96</td><td>29.98</td><td>9.26</td><td>5</td><td>2</td><td>25</td></tr> </tbody> </table>										HOUR (LST)	AVERAGES							RESULTANT WIND (MPH)		CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)	STATION	SEA LEVEL	VISIBILITY (MILES)	WIND SPEED (MPH)	SPEED	DIRECTION	01			71	66	68	85	28.96	29.97	9.19	4	1	23	02			70	66	68	87	28.95	29.96	8.97	4	2	27	03			70	67	68	89	28.94	29.96	8.66	3	2	27	04			69	66	67	91	28.95	29.96	7.85	3	1	27	05			69	66	67	91	28.96	29.97	7.97	3	1	24	06			69	66	67	91	28.97	29.98	7.00	3	1	22	07			70	67	68	90	28.98	29.99	6.66	4	2	23	08			72	67	69	85	28.99	30.00	7.29	6	2	26	09			74	68	70	80	28.99	30.01	7.98	5	3	24	10			77	68	71	75	28.99	30.01	8.48	5	2	27	11			79	68	72	70	28.99	30.01	8.90	5	2	26	12			81	68	72	66	28.98	29.99	9.42	6	3	25	13			82	68	73	62	28.97	29.98	9.52	6	5	25	14			83	68	73	61	28.95	29.96	9.04	6	4	25	15			84	67	73	58	28.94	29.95	9.23	7	5	26	16			83	67	73	60	28.93	29.94	9.11	8	4	26	17			82	67	72	62	28.92	29.93	8.97	6	3	26	18			81	67	72	66	28.92	29.94	9.06	8	4	28	19			79	68	72	69	28.93	29.94	9.19	6	2	24	20			77	68	71	75	28.94	29.95	9.28	6	2	27	21			76	68	71	78	28.95	29.96	9.19	5	1	25	22			74	68	70	80	28.96	29.98	9.39	6	1	29	23			73	67	69	82	28.97	29.98	9.29	4	1	26	24			72	67	69	85	28.96	29.98	9.26	5	2	25
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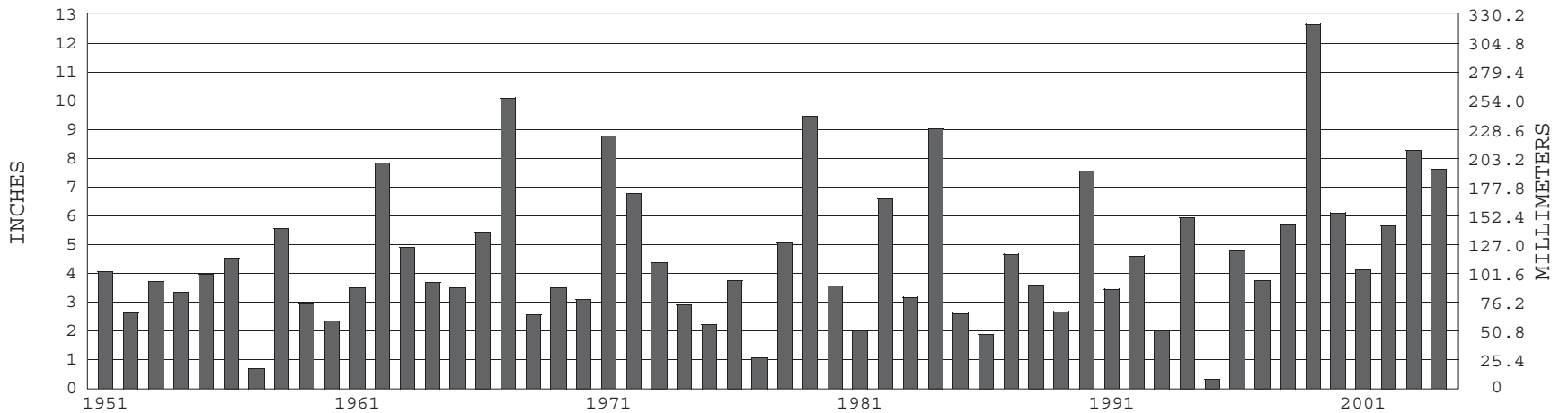
KNOXVILLE, TN JULY TEMPERATURES



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

Long-Term (1951-2004) Mean: 78.0 1971-2000 Normal: 77.7

KNOXVILLE, TN JULY PRECIPITATION



Long-Term (1951-2004) Mean Monthly Total: 4.61

1971-2000 Normal: 4.71



JULY 2004

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.

DIRECTOR

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Fax Number :(304) 726–4409
TDD : 828–271–4010
or Email : ncdc.info@noaa.gov
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