

1998

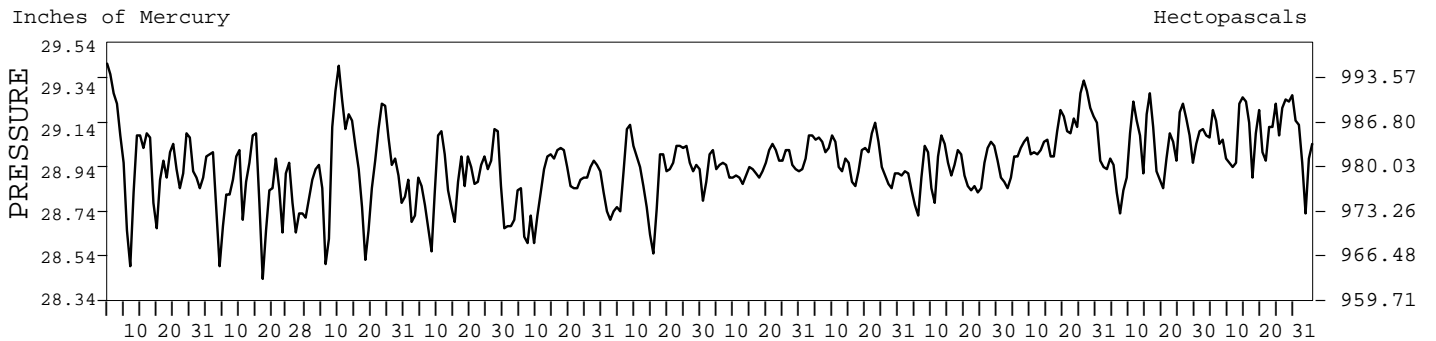
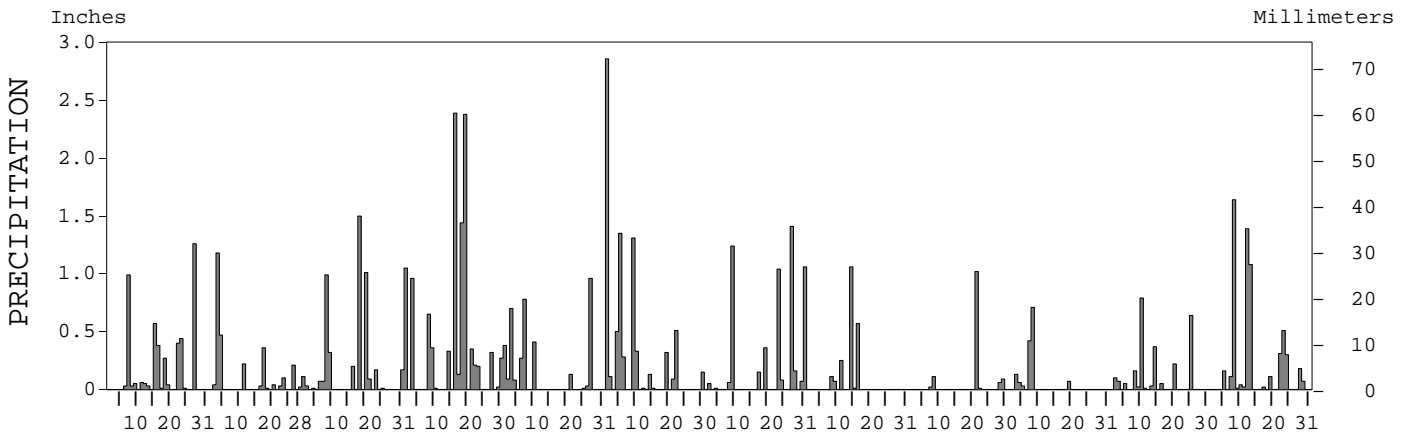
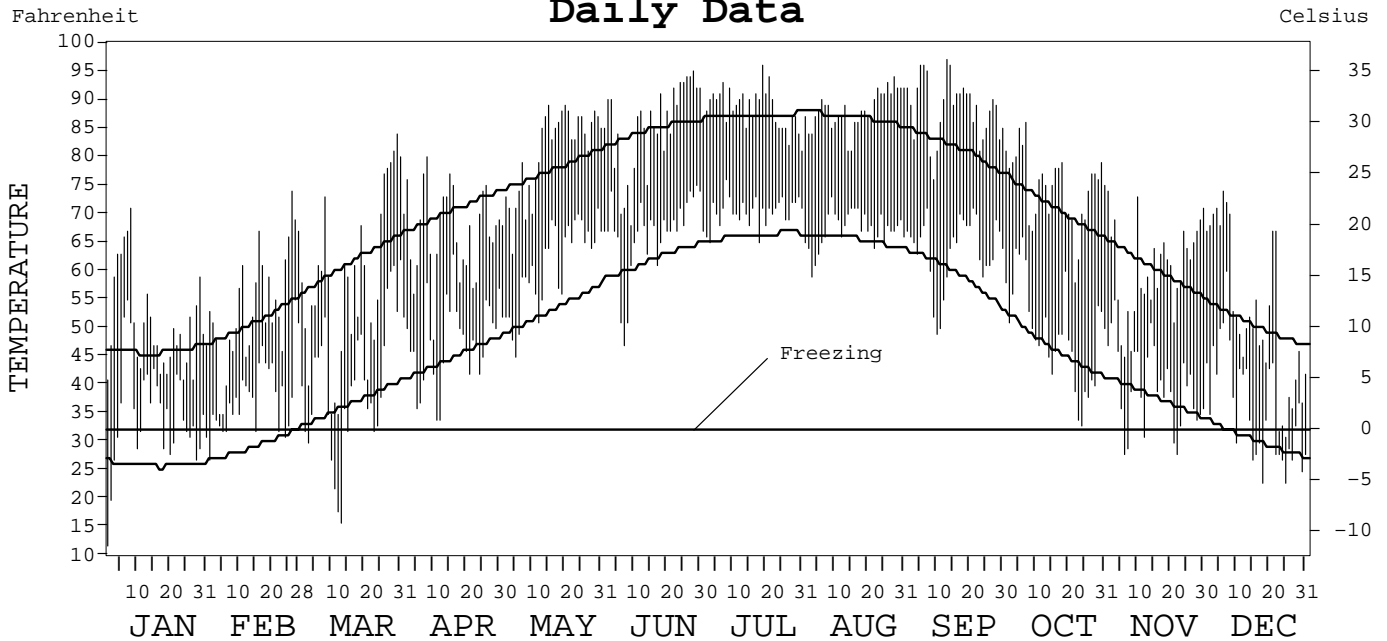
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-4810

KNOXVILLE,
TENNESSEE (TYS)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE	NATIONAL SATELLITE, DATA, AND INFORMATION SERVICE	NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA	DIRECTOR NATIONAL CLIMATIC DATA CENTER
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METEOROLOGICAL DATA FOR 1998

KNOXVILLE, TN (TYS)

LATITUDE: 35° 49' 05" N LONGITUDE: 83° 59' 09" W ELEVATION (FT): GRND: 979 BARO: 994 TIME ZONE: EASTERN (UTC+ 5) WBAN: 13891

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	50.8	53.8	58.6	67.0	80.6	85.3	88.5	88.2	88.4	74.5	60.4	52.5	70.7	
	HIGHEST DAILY MAXIMUM	71	74	84	80	89	95	96	94	97	86	74	74	97	
	DATE OF OCCURRENCE	08	26	30	08	20+	28	19	28	13	07	01	06	SEP 13	
	MEAN DAILY MINIMUM	34.8	38.2	40.2	47.6	60.7	66.5	70.3	67.2	63.6	49.2	39.8	36.2	51.2	
	LOWEST DAILY MINIMUM	12	27	16	34	45	47	65	59	49	33	28	23	12	
	DATE OF OCCURRENCE	01	01	13	12+	05	07	18+	3	10	24	22+	25+	JAN 01	
	AVERAGE DRY BULB	42.8	46.0	49.4	57.3	70.7	75.9	79.4	77.7	76.0	61.9	50.1	44.4	61.0	
	MEAN WET BULB	39.9	41.7	43.8	52.6	64.7	69.9	72.1	70.6	66.4	55.6	46.7	41.4	55.5	
	MEAN DEW POINT	36.6	36.8	37.5	47.9	61.1	66.8	69.0	67.1	61.0	50.6	42.5	38.0	51.2	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	11	15	11	14	0	0	0	51	
	MAXIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	2	2	
	MINIMUM ≤ 32°	14	6	8	0	0	0	0	0	0	0	5	13	46	
	MINIMUM ≤ 0°	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/C	HEATING DEGREE DAYS	681	528	500	234	30	12	0	0	1	133	438	632	3189	
	COOLING DEGREE DAYS	0	0	24	8	212	346	454	402	338	43	0	1	1828	
RH	MEAN (PERCENT)	81	74	67	74	75	76	75	73	64	71	77	80	74	
	HOUR 01 LST	87	81	73	83	86	85	87	86	75	86	87	85	83	
	HOUR 07 LST	90	86	79	88	90	89	89	92	87	92	91	89	88	
	HOUR 13 LST	72	66	56	63	60	64	59	57	46	50	62	74	61	
	HOUR 19 LST	75	65	60	66	66	66	64	60	53	59	68	76	65	
S	PERCENT POSSIBLE SUNSHINE	32	29	38	50	70	69	68	80	81	75		32		
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	2	0	2	2	2	1	3	2	1	3	6	2	26	
	THUNDERSTORMS	1	1	3	10	10	15	8	3	5	2	1	2	61	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.01	28.85	28.98	28.91	28.87	28.92	28.98	29.01	28.95	29.11	29.07	29.13	28.98	
	MEAN SEA-LEVEL PRESS. (IN.)	30.06	29.90	30.02	29.94	29.89		29.99	30.03	29.96	30.14	30.12	30.18		
WINDS	RESULTANT SPEED (MPH)	1.4	1.3	3.0	3.0	1.7	1.1	1.1	0.8	0.6	1.8	0.9	1.4	0.9	
	RES. DIR. (TENS OF DEGS.)	36	31	26	26	25	15	23	03	34	01	31	34	29	
	MEAN SPEED (MPH)	5.1	7.6	8.5	7.1	6.1	7.1	5.2	4.3	4.3	4.3	4.6	6.2	5.9	
	PREVAIL. DIR. (TENS OF DEGS.)	05	04	24	23	24	24	24	03	02	03	02	03	24	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	32	39	32	34	37		32	31	24	23	48	34		
	DIR. (TENS OF DEGS.)	24	23	27	28	22		29	27	22	01	29	28		
	DATE OF OCCURRENCE	08	17	20	03	07		23	16	29	21	25	22		
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	38	48	41	43	44		40	40	29	29	58	41		
DIR. (TENS OF DEGS.)	24	23	28	28	21		30	27	22	25	26	28			
DATE OF OCCURRENCE	08	17	20	03	07		23	16	29	28	25	22			
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	4.62	2.71	4.75	11.07	3.84	7.96	5.69	2.07	1.31	1.42	2.51	5.95	53.90	
	GREATEST 24-HOUR (IN.)	1.26	1.27	1.50	3.69	1.05	2.86	1.57	1.07	1.02	1.13	0.80	2.36	3.69	
	DATE OF OCCURRENCE	27	03-04	18	18-19	06-07	01	27-28	14-15	21	07-08	10-11	12-13	APR 18-19	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	16	12	14	16	11	14	12	6	6	6	12	15	140	
PRECIPITATION ≥ 0.10	7	6	8	14	7	11	7	4	2	3	6	10	85		
PRECIPITATION ≥ 1.00	1	1	2	4	0	3	4	1	1	0	0	3	20		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	0.4	0.1	T	0.0	T	T	0.0	0.0	0.0	0.0	0.0	T	0.5	
	GREATEST 24-HOUR (IN.)	0.4	0.1	T	0.0	T	T	0.0	0.0	0.0	0.0	0.0	T	0.4	
	DATE OF OCCURRENCE	27	04	11+		07+	22	0	0	0	0	0	30+	JAN 27	
	MAXIMUM SNOW DEPTH (IN.)	T	T	0	0	0	0	0	0	0	0	0	0	T	
	DATE OF OCCURRENCE	27+	04											FEB 04	
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	0	0	0	0	0	0	0	0	0	0	0	0	0		

NORMALS, MEANS, AND EXTREMES

KNOXVILLE, TN (TYS)

LATITUDE: 35° 49' 05" N LONGITUDE: 83° 59' 09" W ELEVATION (FT): GRND: 979 BARO: 994 TIME ZONE: EASTERN (UTC+ 5) WBAN: 13891

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	45.9	50.9	61.3	70.4	77.6	84.5	87.1	86.7	81.2	70.6	59.9	50.1	68.8
	MEAN DAILY MAXIMUM	51	47.3	52.1	60.6	70.4	78.1	85.0	88.0	87.2	81.6	71.2	59.2	50.0	69.2
	HIGHEST DAILY MAXIMUM	57	77	83	86	92	94	102	103	102	103	91	84	80	103
	YEAR OF OCCURRENCE		1950	1996	1963	1942	1962	1988	1952	1944	1954	1953	1948	1982	SEP 1954
	MEAN OF EXTREME MAXS.	51	67.1	70.7	78.9	85.0	88.2	92.8	94.9	94.1	91.7	83.5	75.8	68.5	82.6
	NORMAL DAILY MINIMUM	30	26.0	29.1	36.6	44.6	53.1	61.8	66.0	65.3	59.0	46.0	37.5	30.0	46.2
	MEAN DAILY MINIMUM	51	29.3	32.0	38.7	47.2	56.1	64.0	68.1	67.1	60.7	48.1	38.1	31.8	48.4
	LOWEST DAILY MINIMUM	57	-24	-8	1	22	32	43	49	49	36	25	5	-6	-24
	YEAR OF OCCURRENCE		1985	1996	1980	1987	1986	1956	1988	1946	1967	1987	1950	1983	JAN 1985
	MEAN OF EXTREME MINS.	51	9.5	12.6	22.0	31.3	41.2	52.6	59.6	58.8	47.4	33.0	22.5	14.6	33.8
	NORMAL DRY BULB	30	36.0	40.1	49.0	57.5	65.4	73.2	76.6	76.0	70.1	58.4	48.7	40.1	57.6
	MEAN DRY BULB	51	38.3	42.1	49.7	58.9	67.1	74.4	78.1	77.2	71.2	59.6	48.6	41.0	58.8
	MEAN WET BULB	15	34.8	38.2	44.3	51.6	60.7	67.8	66.3	65.4	60.0	53.7	44.7	37.8	52.1
	MEAN DEW POINT	15	29.4	32.0	37.4	45.1	56.4	64.4	63.4	62.5	56.6	49.5	39.6	33.3	47.5
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	*	0.8	5.1	10.4	8.5	2.8	0.0	0.0	0.0	27.6	
MAXIMUM ≤ 32°	30	3.5	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	6.4	
MINIMUM ≤ 32°	30	20.8	16.5	8.6	1.8	*	0.0	0.0	0.0	0.0	1.0	7.6	17.7	74.0	
MINIMUM ≤ 0°	30	0.5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
H/C	NORMAL HEATING DEG. DAYS	30	899	697	496	234	94	0	0	0	18	238	489	772	3937
	NORMAL COOLING DEG. DAYS	30	0	0	0	9	106	246	360	341	171	33	0	0	1266
RH	NORMAL (PERCENT)	30	72	68	65	63	71	74	76	76	76	73	72	73	72
	HOUR 01 LST	30	77	74	71	72	82	86	87	88	87	85	80	78	81
	HOUR 07 LST	30	81	80	80	81	86	88	90	92	92	89	84	82	85
	HOUR 13 LST	30	63	59	54	51	57	58	61	61	60	56	59	64	59
	HOUR 19 LST	30	66	60	56	52	60	62	65	66	67	65	66	68	63
S	PERCENT POSSIBLE SUNSHINE	56	40	47	53	63	64	65	64	63	61	61	49	40	56
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG(VISBY≤1/4 MI)	56	3.0	1.8	1.6	1.2	2.3	2.1	2.1	3.4	3.7	4.6	3.2	2.6	31.6
	THUNDERSTORMS	56	0.8	1.4	3.2	4.4	6.8	8.3	9.4	6.7	3.2	1.3	1.0	0.5	47.0
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	1					4.0	3.2							
	MIDNIGHT-MIDNIGHT (OKTAS)	1						3.2							
	MEAN NO. DAYS WITH:														
CLEAR	1	4.0	1.0	4.0		13.0	11.0								
PARTLY CLOUDY	1			1.0		3.0	5.0								
CLOUDY	1	2.0	3.0	10.0		4.0	4.0								
PR	MEAN STATION PRESSURE (IN)	26	29.10	29.00	29.00	29.00	28.99	29.00	29.00	29.00	29.00	29.10	29.10	29.09	29.03
	MEAN SEA-LEVEL PRES. (IN)	15	30.13	30.10	30.05	29.98	30.00	29.98	30.03	30.03	28.07	30.10	30.13	30.15	29.90
WINDS	MEAN SPEED (MPH)	41	7.6	8.0	8.5	8.5	6.9	6.4	6.1	5.5	5.6	5.6	6.7	7.2	6.9
	PREVAIL.DIR.(TENS OF DEGS)	25	24	24	24	23	24	24	24	24	05	05	05	05	24
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	3	43	39	43	64	37	34	43	33	28	36	48	39	64
	DIR. (TENS OF DEGS)		27	25	24	28	22	15	24	19	30	24	29	25	28
	YEAR OF OCCURRENCE		1996	1997	1996	1996	1998	1997	1996	1997	1996	1996	1998	1996	APR 1996
	MAXIMUM 5-SECOND:														
SPEED (MPH)	3	53	48	48	76	44	51	68	40	34	40	58	57	76	
DIR. (TENS OF DEGS)		22	23	25	27	21	14	25	27	30	28	26	28	27	
YEAR OF OCCURRENCE		1996	1998	1996	1996	1998	1997	1997	1998	1996	1996	1998	1996	APR 1996	
PRECIPITATION	NORMAL (IN)	30	4.17	4.06	5.09	3.72	4.13	3.97	4.67	3.13	3.07	2.84	3.75	4.54	47.14
	MAXIMUM MONTHLY (IN)	57	11.74	9.38	11.81	11.07	10.98	8.21	10.09	8.88	9.19	6.67	10.36	11.63	11.81
	YEAR OF OCCURRENCE		1954	1944	1994	1998	1974	1989	1967	1942	1989	1949	1948	1961	MAR 1994
	MINIMUM MONTHLY (IN)	57	0.95	0.74	1.69	0.39	0.74	0.20	0.33	0.77	0.42	T	0.97	0.45	T
	YEAR OF OCCURRENCE		1986	1968	1986	1976	1970	1944	1995	1954	1985	1963	1942	1965	OCT 1963
	MAXIMUM IN 24 HOURS (IN)	57	3.89	3.42	5.77	3.69	3.40	3.57	4.69	3.25	5.08	2.44	4.06	4.89	5.77
	YEAR OF OCCURRENCE		1946	1991	1994	1998	1984	1972	1942	1959	1944	1961	1948	1969	MAR 1994
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	11.9	11.0	12.5	10.9	11.3	10.1	11.5	9.3	8.2	8.0	10.5	11.0	126.2	
PRECIPITATION ≥ 1.00	30	0.7	0.9	1.4	0.7	1.0	1.0	1.4	0.7	0.8	0.8	0.7	1.2	11.3	
SNOWFALL	NORMAL (IN)	30	5.4	3.9	1.3	0.7	0.0	0.0	0.0	0.0	T	0.2	1.9	13.4	
	MAXIMUM MONTHLY (IN)	57	15.1	23.3	20.2	10.7	T	T	0.0	T	0.0	T	18.2	12.2	23.3
	YEAR OF OCCURRENCE		1962	1960	1960	1987	1945	1998		1995		1993	1952	1963	FEB 1960
	MAXIMUM IN 24 HOURS (IN)	57	12.0	17.5	14.1	10.7	T	T	0.0	T	0.0	T	18.2	8.9	18.2
	YEAR OF OCCURRENCE		1962	1960	1993	1987	1945	1998		1995		1993	1952	1969	NOV 1952
	MAXIMUM SNOW DEPTH (IN)	50	10	15	15	7	0	0	0	0	0	0	10	6	15
	YEAR OF OCCURRENCE		1966	1960	1993	1987							1952	1963	MAR 1993
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	1.7	1.2	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	4.3	

PRECIPITATION (inches) 1998 KNOXVILLE, TN (TYS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	4.11	5.54	2.89	2.41	1.33	7.58	3.51	6.72	3.03	1.56	2.56	7.74	48.98
1970	3.04	2.86	3.18	7.20	0.74	4.26	3.11	4.89	2.75	5.33	1.40	4.67	43.43
1971	5.03	4.93	4.21	3.87	3.78	3.73	8.76	3.05	3.41	1.98	2.21	5.48	50.44
1972	7.35	4.19	4.98	2.54	4.49	5.02	6.76	1.61	4.70	5.99	3.36	7.02	58.01
1973	3.24	2.59	10.24	5.15	5.71	5.26	4.38	2.31	3.28	3.48	5.01	7.38	58.03
1974	7.05	5.24	6.15	5.77	10.98	2.70	2.92	3.14	3.33	2.35	5.18	4.52	59.33
1975	4.66	4.68	10.42	2.43	2.98	2.43	2.25	1.61	3.28	4.02	2.92	3.59	45.27
1976	3.86	2.18	5.22	0.39	5.53	3.46	3.75	1.98	2.87	5.33	3.45	4.42	42.44
1977	2.55	1.52	6.08	6.96	1.16	6.49	1.08	5.78	6.91	4.04	5.06	3.30	50.93
1978	5.22	1.01	4.42	4.10	3.44	5.27	5.06	2.44	1.26	0.82	3.62	5.91	42.57
1979	6.18	4.17	4.21	4.30	7.21	3.80	9.47	2.29	2.64	1.97	5.73	1.92	53.89
1980	5.54	1.78	8.72	3.30	3.80	1.94	3.57	2.34	2.38	1.53	3.78	1.78	40.46
1981	1.05	3.62	2.83	4.84	3.02	5.53	2.03	3.48	6.09	4.15	3.01	4.14	43.79
1982	6.03	4.88	6.36	3.26	5.52	3.93	6.60	2.68	2.68	2.66	5.21	4.89	54.70
1983	1.58	2.90	1.99	5.88	5.42	3.26	3.18	3.89	0.95	3.34	4.40	5.69	42.48
1984	2.26	4.42	3.79	3.37	10.14	4.34	9.03	1.72	0.85	3.26	2.87	2.49	48.54
1985	3.17	4.11	1.98	2.86	1.60	4.77	2.63	4.07	0.42	3.04	5.39	2.36	36.40
1986	0.95	3.90	1.69	2.25	2.40	0.69	1.89	3.37	3.59	3.84	3.83	4.08	32.48
1987	4.68	4.63	2.91	2.18	4.62	2.66	4.67	1.08	1.93	0.60	1.21	3.49	34.66
1988	4.29	2.94	2.42	2.34	2.35	0.51	3.60	3.20	2.68	1.52	4.82	3.99	34.66
1989	4.96	6.26	3.82	3.50	5.31	8.21	2.68	3.16	9.19	1.47	4.92	2.74	56.22
1990	5.88	6.90	5.73	2.56	4.71	1.72	7.56	3.02	2.68	3.64	1.77	8.99	55.16
1991	2.53	6.99	6.36	3.97	3.10	6.02	3.45	6.13	3.14	1.10	5.24	10.23	58.26
1992	3.87	3.36	3.99	2.11	3.20	3.07	4.62	4.22	1.77	3.05	4.29	6.68	44.23
1993	4.09	2.20	6.16	2.50	3.78	0.90	2.03	6.04	4.77	2.25	3.33	7.04	45.09
1994	7.08	8.81	11.81	7.90	3.04	5.97	5.94	4.19	1.20	2.38	2.93	2.02	63.27
1995	4.90	4.54	3.54	1.74	7.05	3.90	0.33	2.08	2.46	3.58	6.21	2.50	42.83
1996	7.53	2.74	4.72	4.50	4.57	2.96	4.77	1.33	3.45	1.17	7.71	5.44	50.89
1997	5.20	5.17	6.34	3.82	6.76	5.70	3.75	2.02	3.32	2.90	2.78	2.37	50.13
1998	4.62	2.71	4.75	11.07	3.84	7.96	5.69	2.07	1.31	1.42	2.51	5.95	53.90
POR= 128 YRS	4.59	4.54	5.13	4.11	3.87	4.05	4.40	3.56	2.80	2.58	3.41	4.40	47.44

WBAN : 13891

AVERAGE TEMPERATURE (°F) 1998 KNOXVILLE, TN (TYS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	36.5	39.4	42.1	59.5	67.3	74.5	78.9	74.5	69.3	59.1	45.5	37.7	57.0
1970	30.6	39.3	48.7	61.2	68.6	73.4	78.5	77.1	75.3	62.8	48.1	44.1	59.0
1971	38.5	39.4	45.6	58.5	63.9	75.9	75.4	76.0	73.3	65.3	48.7	50.4	59.2
1972	42.5	39.4	48.2	59.5	64.9	70.8	75.5	75.9	71.9	56.8	47.5	44.8	58.1
1973	38.0	39.9	55.8	56.4	63.5	74.8	76.7	76.2	73.8	62.4	52.4	41.1	59.3
1974	49.3	43.1	55.2	59.8	68.1	70.5	77.7	76.5	69.8	58.6	50.8	41.9	60.1
1975	43.3	45.5	46.6	57.5	70.1	74.6	77.6	78.8	68.9	60.1	50.2	41.1	59.5
1976	34.3	48.2	52.6	58.9	63.4	73.9	76.2	74.9	67.7	54.5	43.2	37.5	57.1
1977	27.2	41.4	55.0	62.9	69.8	75.3	80.3	78.9	74.0	57.4	52.6	40.2	59.6
1978	29.4	34.6	49.0	61.1	66.6	75.4	78.7	77.1	74.8	58.2	54.4	42.8	58.5
1979	33.0	36.7	53.1	59.9	66.9	72.8	75.0	77.6	72.2	58.3	51.4	42.2	58.3
1980	41.6	36.6	47.6	59.1	68.1	75.2	82.1	81.7	73.7	56.0	47.3	40.1	59.1
1981	33.4	41.9	46.8	63.5	63.9	77.1	81.4	78.3	70.2	58.9	49.4	38.7	58.6
1982	33.8	43.1	53.0	55.2	69.3	72.6	77.6	76.7	70.0	59.5	50.9	46.4	59.0
1983	38.0	41.1	49.7	53.2	65.4	72.5	78.5	79.6	70.3	60.2	47.4	36.4	57.7
1984	35.3	43.4	47.7	57.3	62.8	74.8	73.3	74.1	67.1	67.6	46.3	47.5	58.1
1985	29.4	37.1	50.2	58.6	65.7	72.5	76.5	75.1	68.5	63.7	56.8	34.8	57.4
1986	35.0	43.9	48.7	58.6	68.1	77.2	81.4	76.7	72.8	60.2	52.4	39.1	59.5
1987	36.8	42.2	49.2	55.0	71.3	75.5	78.5	79.6	70.1	52.8	50.2	43.5	58.7
1988	33.9	39.4	50.1	57.2	65.0	74.4	78.7	79.6	71.3	52.7	49.7	40.4	57.7
1989	42.8	41.3	53.5	57.8	62.4	73.3	77.5	76.8	70.9	59.4	48.1	32.2	58.0
1990	44.7	48.9	53.6	57.9	65.9	75.4	78.0	77.9	72.1	59.9	52.1	45.1	61.0
1991	41.2	43.8	52.0	62.8	72.0	74.9	79.3	76.5	71.4	61.0	47.1	43.5	60.5
1992	40.5	45.8	48.3	59.0	64.0	72.2	77.9	73.7	71.3	57.4	48.3	40.0	58.2
1993	43.5	39.5	45.7	56.2	67.0	76.0	83.0	78.7	70.6	57.9	48.4	40.2	58.9
1994	32.0	43.4	49.5	61.9	63.9	76.5	76.8	75.8	69.0	60.1	53.6	44.8	58.9
1995	39.2	40.7	53.1	61.0	67.3	73.8	80.2	81.5	70.5	58.6	43.6	37.1	58.9
1996	36.4	39.6	44.8	55.1	69.4	74.2	76.8	76.2	68.9	59.2	44.1	43.3	57.3
1997	39.4	46.6	54.2	54.0	62.2	71.9	78.4	75.7	71.7	58.9	43.9	39.2	58.0
1998	42.8	46.0	49.4	57.3	70.7	75.9	79.4	77.7	76.0	61.9	50.1	44.4	61.0
POR= 128 YRS	38.9	41.8	49.4	58.7	67.2	74.7	77.8	76.8	71.3	59.7	48.4	40.6	58.8

HEATING DEGREE DAYS (base 65°F) 1998 KNOXVILLE, TN (TYS)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0	0	11	200	579	840	1063	712	496	139	45	0	4085
1970-71	0	0	13	109	497	640	813	710	596	209	76	0	3663
1971-72	0	0	0	53	496	450	692	735	516	211	47	11	3211
1972-73	0	0	9	251	522	622	828	697	283	272	97	0	3581
1973-74	0	0	10	135	373	734	481	606	304	190	41	10	2884
1974-75	0	0	23	215	439	713	666	542	563	257	9	0	3427
1975-76	0	0	42	172	437	733	944	485	380	203	91	0	3487
1976-77	0	0	19	320	651	845	1166	658	319	110	33	2	4123
1977-78	0	0	3	242	374	764	1097	846	487	148	74	0	4035
1978-79	0	0	0	210	310	681	985	786	376	167	46	0	3561
1979-80	0	0	0	220	407	700	715	815	529	185	32	1	3604
1980-81	0	0	23	284	523	761	974	641	556	104	94	0	3960
1981-82	0	0	32	196	461	809	959	606	384	295	20	0	3762
1982-83	0	0	30	228	416	577	829	662	472	356	50	3	3623
1983-84	0	0	51	163	523	878	912	619	530	240	139	5	4060
1984-85	0	0	44	30	556	536	1095	776	459	208	51	13	3768
1985-86	0	0	44	86	250	927	922	582	499	206	51	0	3567
1986-87	0	2	0	197	377	797	863	631	483	313	13	0	3676
1987-88	0	0	15	370	437	660	956	734	458	247	66	9	3952
1988-89	0	0	3	384	454	755	681	660	360	258	148	1	3704
1989-90	0	1	36	204	499	1011	622	443	358	239	68	0	3481
1990-91	0	0	26	182	382	612	730	589	405	93	16	0	3035
1991-92	0	0	46	159	538	660	753	549	512	225	113	6	3561
1992-93	0	0	13	229	494	769	659	708	592	270	38	2	3772
1993-94	0	0	37	232	495	761	1016	597	473	139	93	0	3843
1994-95	0	0	11	158	336	620	794	674	364	162	54	0	3173
1995-96	0	0	22	216	638	857	877	732	622	302	45	0	4311
1996-97	0	0	30	196	623	663	786	512	332	333	124	8	3607
1997-98	0	0	1	226	625	794	681	528	500	234	30	12	3631
1998-	0	0	1	133	438	632							

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COOLING DEGREE DAYS (base 65°F) 1998 KNOXVILLE, TN (TYS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0	0	0	15	125	294	438	304	147	23	0	0	1346
1970	0	0	0	33	162	258	427	384	326	46	0	0	1636
1971	0	0	0	20	50	333	328	350	252	69	13	3	1418
1972	0	0	0	53	51	193	332	347	223	4	2	0	1205
1973	0	0	4	19	56	298	369	355	282	60	2	0	1445
1974	0	0	9	39	142	179	399	365	171	19	17	0	1340
1975	0	0	0	39	173	293	397	434	168	26	0	0	1530
1976	0	3	1	26	48	273	356	314	107	5	0	0	1133
1977	0	5	14	57	188	317	483	440	283	14	10	0	1811
1978	0	0	0	37	130	319	432	384	302	8	0	0	1612
1979	0	0	15	20	111	242	317	399	224	23	4	0	1355
1980	0	0	0	16	136	315	538	525	290	12	0	0	1832
1981	0	0	0	62	65	373	512	421	193	14	1	0	1641
1982	0	0	17	6	157	233	396	372	187	65	2	8	1443
1983	0	0	4	6	71	235	425	462	217	23	0	0	1443
1984	0	0	0	12	77	306	263	290	116	120	2	0	1186
1985	0	0	11	20	81	247	363	322	155	53	11	0	1263
1986	0	0	0	21	156	374	517	373	241	55	6	0	1743
1987	0	0	0	18	215	321	427	460	172	0	0	0	1613
1988	0	0	3	19	74	297	431	458	200	9	0	0	1491
1989	0	2	10	47	76	257	395	374	219	35	0	0	1415
1990	0	1	13	32	101	316	410	406	245	32	1	0	1557
1991	0	0	9	32	239	306	453	364	244	42	6	2	1697
1992	0	0	0	49	91	230	410	279	206	0	0	0	1265
1993	0	0	0	10	106	339	566	432	212	21	3	0	1689
1994	0	0	0	54	67	349	372	342	137	15	0	0	1336
1995	0	0	3	50	134	268	480	521	192	26	1	0	1675
1996	0	4	0	10	187	285	371	353	152	22	3	0	1387
1997	0	1	5	9	44	222	423	338	209	46	0	0	1297
1998	0	0	24	8	212	346	454	402	338	43	0	1	1828

SNOWFALL (inches) 1998 KNOXVILLE, TN (TYS)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0.0	0.0	0.0	0.0	T	8.9	12.9	4.6	T	0.0	0.0	0.0	26.4
1970-71	0.0	0.0	0.0	0.0	T	6.3	1.3	6.4	3.6	7.0	0.0	0.0	24.6
1971-72	0.0	0.0	0.0	0.0	T	T	0.4	4.2	6.7	0.0	0.0	0.0	11.3
1972-73	0.0	0.0	0.0	0.0	T	T	9.0	T	1.9	T	0.0	0.0	10.9
1973-74	0.0	0.0	0.0	0.0	0.0	2.0	T	T	1.8	0.0	0.0	0.0	3.8
1974-75	0.0	0.0	0.0	0.0	T	1.6	1.3	T	2.5	0.0	0.0	0.0	5.4
1975-76	0.0	0.0	0.0	0.0	T	T	0.3	2.8	0.0	0.0	0.0	0.0	3.1
1976-77	0.0	0.0	0.0	0.0	1.0	2.1	7.9	0.2	0.0	0.0	0.0	0.0	11.2
1977-78	0.0	0.0	0.0	0.0	0.1	0.6	11.3	5.5	1.8	0.0	0.0	0.0	19.3
1978-79	0.0	0.0	0.0	0.0	0.0	T	4.7	18.4	T	0.0	0.0	0.0	23.1
1979-80	0.0	0.0	0.0	0.0	T	T	0.5	11.0	3.5	T	0.0	0.0	15.0
1980-81	0.0	0.0	0.0	0.0	T	T	5.0	2.5	T	0.0	0.0	0.0	7.5
1981-82	0.0	0.0	0.0	0.0	T	0.1	4.4	0.1	1.1	T	0.0	0.0	5.7
1982-83	0.0	0.0	0.0	0.0	0.0	3.0	1.1	3.4	0.7	2.0	0.0	0.0	10.2
1983-84	0.0	0.0	0.0	0.0	0.0	0.7	2.8	3.5	T	0.0	0.0	0.0	7.0
1984-85	0.0	0.0	0.0	0.0	0.0	T	14.2	8.3	0.0	0.0	0.0	0.0	22.5
1985-86	0.0	0.0	0.0	0.0	0.0	0.4	3.6	5.0	T	0.0	0.0	0.0	9.0
1986-87	0.0	0.0	0.0	0.0	T	T	7.5	T	1.6	10.7	0.0	0.0	19.8
1987-88	0.0	0.0	0.0	0.0	T	T	9.2	0.9	T	0.0	0.0	0.0	10.1
1988-89	0.0	0.0	0.0	0.0	T	2.6	1.8	2.8	0.0	0.0	0.0	0.0	7.2
1989-90	0.0	0.0	0.0	T	T	1.1	T	T	T	0.0	0.0	0.0	1.1
1990-91	0.0	0.0	0.0	0.0	0.0	T	T	1.2	0.7	T	0.0	0.0	1.9
1991-92	0.0	0.0	0.0	0.0	0.2	T	T	0.0	T	T	0.0	0.0	0.2
1992-93	0.0	0.0	0.0	0.0	0.0	0.3	T	1.0	15.1	T	0.0	0.0	16.4
1993-94	0.0	0.0	0.0	T	0.0	0.3	3.3	T	0.6	0.0	0.0	0.0	4.2
1994-95	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.1	0.6	0.0	0.0	0.0	3.7
1995-96	0.0	T	0.0	0.0		T	10.0						
1996-97							1.5						
1997-98					T	3.3	0.4	0.1	T	0.0	T	T	
1998-	0.0	0.0	0.0	0.0	0.0	T							
POR= 54 YRS	0.0	T	0.0	T	0.6	1.5	3.8	3.3	1.7	0.4	T	0.0	11.3

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REFERENCE NOTES:

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1961 - 1990). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65° F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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1998
KNOXVILLE,
TENNESSEE (TYS)

Knoxville is located in a broad valley between the Cumberland Mountains, which lie northwest of the city, and the Great Smoky Mountains, which lie southeast of the city. These two mountain ranges exercise a marked influence upon the climate of the valley. The Cumberland Mountains, to the northwest, serve to retard and weaken the force of the cold winter air which frequently penetrates far south of the latitude of Knoxville over the plains areas to the west of the mountains.

The mountains also serve to modify the hot summer winds which are common to the plains to the west. In addition, they serve as a fixed incline plane which lifts the warm, moist air flowing northward from the Gulf of Mexico and thereby increases the frequency of afternoon thunderstorms. Relief from extremely high temperatures which such thunderstorms produce serves to reduce the number of extremely warm days in the valley.

July is usually the warmest month of the year. The coldest weather usually occurs during the month of January. Sudden great temperature changes occur infrequently. This again is due mainly to the retarding effect of the mountains. Summer nights are nearly always comfortable.

Rainfall is ample for agricultural purposes and is favorably distributed during the year for most crops. Precipitation is greatest in the wintertime. Another peak period occurs during the late spring and summer months. The period of lowest rainfall occurs during the fall. A cumulative total of approximately 12 inches of snow falls annually. However, this usually comes in amounts of less than 4 inches at one time. It is unusual for snow to remain on the ground in measurable amounts longer than one week.

The topography also has a pronounced effect upon the prevailing wind direction. Daytime winds usually have a southwesterly component, while nighttime winds usually move from the northeast. The winds are relatively light and tornadoes are extremely rare.

STATION LOCATION

KNOXVILLE, TENNESSEE

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATED GROUND	* Type	REMARKS
						SEA LEVEL	GROUND											
							WIND	TEMPERATURE	WET BULB GLOBE TEMPERATURE	PRECIPITATION	RELATIVE HUMIDITY	WIND DIRECTION	WIND VELOCITY	WIND VELOCITY	WIND VELOCITY			
CITY - - NOTE: For period January 1, 1871 through August 25, 1877, refer to previous editions.																		
U.S. Custom House & Post Office, corner Clinch & Prince Streets	8/26/77	7/15/97	.75 mi. NE	35°58'	83°55'	941	88	(72) 80	(72) 80						(77) (67) 71		Thermometers 72 feet prior to 11/16/87. Rain gage 77 feet through 1886, 67 feet in 1887 and 71 feet thereafter.	
Old College Univ. of Tennessee Cumberland Avenue	7/16/97	6/18/07	.75 mi. SW	35°58'	83°56'		88	(10) 35	(10) 35		(3) 25		(3) 25			Thermometers 10 feet to 5/8/03. Rain gages 3 feet from 7/16/97 to 5/7/03 and 10/4/04 to 3/31/06.		
Van Deventer Building 311-313 Wall Avenue	6/18/07	5/18/17	.6 mi. NNE	35°58'	83°55'	935	100	93	93		84		84					
Brownlow (Henson) Bldg. 311 Market Street	5/18/17	9/19/32	200 ft. WSW	35°58'	83°55'		111	102	102		96		96					
New Sprinkle Building 508 West Union Avenue	9/19/32	3/13/34	1000 ft. S	35°58'	83°55'	935	97	79	79		72		72					
U.S. Post Office and Court House, corner Main and Walnut Sts.	3/13/34	2/28/42	1200 ft. SSE	35°58'	83°55'	921	84	66	66		57		57					
AIRPORT																		
Administration Building Knoxville Municipal (McGhee Tyson) Airport	8/24/37	12/31/38	11 mi. SSW of P.O.	35°49'	83°59'	950		#6	#6				#3			# - Estimated. Dates of instrument changes: a - 2/15/45. b - 6/1/51. c - 6/30/51. d - 11/1/51. e - 11/5/52. f - 8/18/59, for direct reading indicators. Autographic record continued from 73 ft. elevation until 4/2/63.		
Administration Building Knoxville Municipal (McGhee Tyson) Airport	1/01/39	2/28/42	No Change	35°49'	83°59'	950	45	27	27				26					
Administration Building Knoxville Municipal (McGhee Tyson) Airport	3/01/42	11/4/81	No Change	35°49'	83°59'	950	53 a71 c47 d73 f22	27 b39 d39 x	27 b37 d37 x	%36	35	27 b35	35	NA	NA	g - Commissioned 3000 feet from thermometer site 2/1/61. h - Effective 2/1/61. x - Decommissioned prior to 1964. Sling psychrometer for standby use. % - Commissioned 2/23/61. i - Type change 7/16/85. j - Raised 9/26/86. k - Minor move 12/12/89.		
NWS Building McGhee-Tyson Airport	11/4/81	Present	1.2 mi. SW	35°49'	83°59'	980	j22 j30	NA	NA	36	36	27 k5	36	j5 k5	NA	S ASOS Commissioned 10/01/95		

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