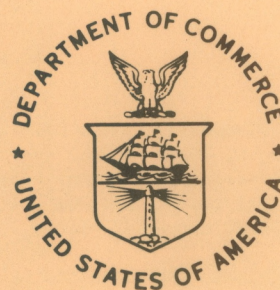


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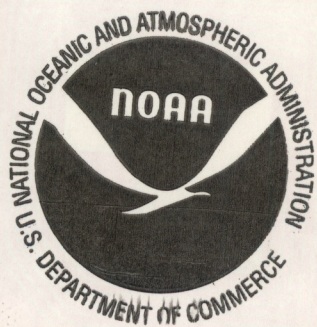
HEATING AND COOLING DEGREE
DAYS FOR TENNESSEE

Washington, D.C.
March 1978

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NATIONAL OCEANIC AND
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- EDSTM 14 Georgia Tropical Cyclones and Their Effect on the State. Horace S. Carter, January 1970.
(PB-190-768)

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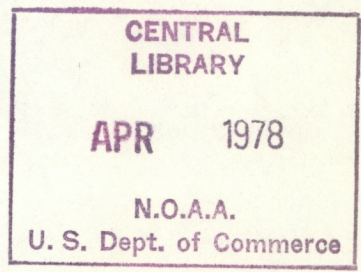
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HEATING AND COOLING DEGREE
" DAYS FOR TENNESSEE

Dewayne L. Ingram and Henry A. Fribourg

Washington, D.C.
March 1978



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HEATING AND COOLING DEGREE DAYS FOR TENNESSEE

Dewayne L. Ingram¹ and Henry A. Fribourg²

ABSTRACT. Warm and cold season monthly heating and cooling degree days for 40 Tennessee locations are tabulated for base temperatures 55°, 60°, 65°, and 70°F. Included also are a map and brief discussion of Tennessee temperature climate, and a table of mean monthly temperature at these locations. The length of record used is 30 yr (1941-70) for most stations.

INTRODUCTION

Heating and cooling degree days can be used to characterize the climate of Tennessee in general, and in particular can be used to estimate heating and cooling requirements in areas throughout the State. Because of the simplicity of the degree day method it has been widely used to guide agricultural operations, to plan land usage, and to maximize energy conservation efforts.

The realization in this country of the need for energy conservation has stimulated consideration of federal and State energy policies. Information concerning heating and cooling requirements at specific locations helps put reliable facts into study and action programs involving utilization and conservation of energy. Heating and cooling degree days are also a help in long-range planning by agriculturists, contractors, and persons in business and industry. This information can help engineers determine insulation requirements in a specific area, and help in greenhouse planning. Cooling degree days information can be used to estimate summer stress on humans and animals, and air conditioning needs.

The degree day method is very helpful in the prediction of planting and harvesting dates for many crops. The food processing industry needs to know when certain crops will be harvested, to plan for peak processing periods (Chang 1971; Shaw 1975). This is done by fitting growth patterns of crops to the accumulation of degree days through the several stages of plant growth. Heating and cooling degree days also can be used in universities and other agencies dealing with public services. Information concerning heating and/or cooling degree days during the time an experiment is in progress could help the investigator more accurately interpret the results.

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This report presents heating and cooling degree days for 40 locations throughout Tennessee. The heating degree days were determined for four base temperatures (55°, 60°, 65°, and 70°F) and the cooling degree days for three (60°, 65°, and 70°F). The degree days obtained at the different base temperatures could help users evaluate differences in maintaining indoor temperatures economically at these various bases. A greenhouse producer might be considering producing a winter crop that requires a minimum temperature of 65°F, while another requires a minimum temperature of only 55°F. The heating degree days required to maintain these two temperatures could allow the producer to examine the costs and returns for the two crops in advance, and determine which crop would yield the best return on the investment.

GENERAL CLIMATE OF TENNESSEE

Tennessee falls within the "humid subtropical" subtype of "humid mesothermal" climates. In most years, there are four distinct seasons of about equal duration caused by easterly movement of migratory high and low pressure systems across the State. Weather systems which influence the State originate either in the interior portion of North America or over the Gulf of Mexico, which is the primary source of moist and warm air.

The terrain differs across Tennessee. The State extends from the rocky crest of the southern Appalachian Mountains in the east to the Mississippi River flood plain in the west (figure 1). Statewide average annual temperatures vary from 60°F in the southwest to near 45°F at the higher elevations in the mountains.

The mountains in the eastern end of the State range up to 6,000 ft above sea level. These mountains and the Cumberland Plateau play an important role in the temperature pattern in East Tennessee, since temperature is greatly affected by topography. Temperature generally decreases 3°F for each 1000-ft increase in elevation. This factor accounts for most of the real temperature variations in East Tennessee. Thus, the temperature is lower on the Cumberland Plateau and in the mountains than in the Great Valley which lies between these two regions. In the Great Valley temperatures increase from north to south and are comparable to those in Middle and West Tennessee in southern counties. The Plateau has cooler summers and colder winters than the Valley. Temperatures in East Tennessee generally remain somewhere between 10°F and 80°F throughout the year. Daily averages are normally near 35°F in January and 75°-80°F in July.

West Tennessee is relatively flat to gently rolling. The elevation is about 300 ft above sea level in Memphis and increases slightly toward the east. The average annual temperature of 60°-65°F in West Tennessee is the warmest in the State. Temperatures generally remain somewhere between 20°F and 90°F throughout the year. Daily average temperatures are normally near 45°F in January and 80°F in July. Mississippi River bottomland locales generally average 2° to 3°F warmer than locations farther east.

SOURCES OF DATA

The temperature data used for calculating the degree days were obtained from daily observations collected by National Weather Service Climatological Cooperative stations and first-order stations, and Tennessee Agricultural Experiment Station research stations.

An attempt was made to select as many stations as possible to better characterize all areas of the State. It should be recognized that the data obtained at an observation site are most representative of the immediately-surrounding area, and that the temperature in a specific area will be affected by the immediate topography within that area. The 40 sites reported in this publication are shown in figure 1.

The temperatures used in this study were observed in louvered ventilated wooden shelters following standards of the National Weather Service (U. S. Dept. of Commerce 1970). Daily minimum and maximum air temperatures were obtained with minimum and maximum thermometers. The standard height of observation is 5 ft above the ground.

It was intended that 30 yr of continuous records, ending in 1970, be used from each site. The entire 30-yr record was not available for a few stations, and the exact length of record used for each station is given in table 1. Stations with less than 30 yr of continuous records were included in the study, with proper reference to the length of record, to maintain a reasonably regular sampling density across the region.

For some stations, data values were missing for short periods. Although such situations occurred with varying frequency among sites and years, computations were done using all days for which both daily maximum and minimum temperatures were available.

PRESENTATION OF DATA AND METHODS OF COMPUTATION

Since the temperature data base was very large (over 400,000 days), digital computer programs were used for quality control procedures on the original entries, to calculate the appropriate statistics, and to summarize and tabulate the results.

The National Weather Service publishes normal and mean heating and cooling degree days at a base of 65°F, usually on monthly and annual bases (U. S. Dept. of Commerce 1973). Normal values are the arithmetic average of 30 yr of record, in accord with standards set by the World Meteorological Organization.

DEGREE DAYS

The heating degree day is a measurement of the departure of the mean daily temperature below a selected base temperature. Conversely, the cooling degree day is a measure of the departure of the mean daily temperature above a selected base temperature. For example, if the base temperature is 65°F and the mean daily temperature was 48°F, then there are 17 heating degree

days for that particular day. If the base temperature for cooling degree days is 70°F and the mean daily temperature was 80°F, then there are 10 cooling degree days for that day. If the same occurred for a 30-day month, there would be 300 degree days for that month. Annual degree days are the sum of the monthly degree days.

Monthly and annual heating degree days for the 40 locations at base temperatures of 55°, 60°, 65°, and 70°F are presented in tables 2, 3, 4, and 5, respectively. It can be noted that the number of heating degree days at the 65°F base, for example, is larger than the number of heating degree days at a lower base, such as 55°F. This would be expected, since it takes more heat input to maintain a 65°F temperature in a building during winter than it would take to maintain 55°F.

The monthly and annual cooling degree days are presented in tables 6, 7, and 8, for bases of 60°, 65°, and 70°F, respectively. As would be expected, the number of cooling degree days is larger at lower base temperatures, for example, 60°F than at higher bases. The extent of this difference depends upon the general temperature regime at each specific location.

In the tables, the average and maximum monthly degree days and the average annual degree days, calculated from the years of record, are presented for all locations. The maximum monthly degree days represent the maximum number of degree days observed in each particular month over the period of available data.

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West Tennessee

- Bolivar 455
- Brownsville 360
- Covington 310
- Jackson 400
- Martin 387
- Memphis 258
- Milan 430
- Newbern 370
- Paris 450
- Sambart 290
- Savannah 440

Middle Tennessee

- Ashwood 725
- Carthage 540
- Clarksville 382
- Dale Hollow Dam 560
- Dickson 814
- Dover 475
- Franklin 670
- Lewisburg 787
- Lynnville 730
- Monteagle 1930
- Murfreesboro 550
- Nashville 590
- Palmetto 770
- Springfield 745
- Tullahoma 1072
- Waynesboro 750

East Tennessee

- Allardt 1672
- Chattanooga 665
- Copperhill 1535
- Crossville 1810
- Gatlinburg 1454
- Greeneville 1320
- Jefferson City 1200
- Kingsport 1284
- Knoxville 980
- Loudon 775
- Middlesboro, Ky. 1175
- Oak Ridge 905
- Rogersville 1355

Table 1.--Mean Temperature (°F)

LOCATION	YEARS OF RECORD	MONTHS												ANNUAL
		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
ALLARDT*	1941-70	35.3	38.0	44.6	50.0	64.1	70.2	73.4	72.6	66.7	56.3	44.9	37.0	54.9
ASHWOOD	1941-70	39.6	42.9	49.1	59.8	67.5	75.3	77.7	76.6	70.6	60.1	49.0	41.3	59.0
BOLIVAR	1948-70	39.8	42.2	50.1	61.4	68.9	76.3	79.2	78.1	71.5	60.8	49.5	41.8	60.0
BROWNSVILLE	1948-70	40.3	43.5	51.0	62.3	70.1	77.5	80.2	79.2	72.6	62.7	51.1	42.6	61.1
CARTHAGE	1941-70	39.0	41.3	48.6	59.5	67.7	75.1	78.0	77.1	71.2	60.4	48.6	40.7	58.9
CHATTANOOGA	1941-70	40.2	42.9	49.8	60.5	68.5	76.0	78.8	78.0	71.9	60.8	48.9	41.2	59.8
CLARKSVILLE	1941-70	37.9	40.9	48.6	60.2	68.2	76.1	79.2	78.1	71.4	60.4	48.5	39.9	59.1
COPPERHILL	1941-70	38.3	40.3	46.6	57.1	65.3	72.5	75.5	74.6	68.6	57.8	46.6	39.4	56.9
COVINGTON	1941-70	38.9	42.1	49.4	60.9	69.5	77.4	80.1	78.9	72.1	61.7	49.9	41.2	60.2
CROSSVILLE	1941-70	34.5	36.4	44.0	55.1	63.3	69.9	72.9	72.1	66.5	56.1	44.6	36.0	54.3
DALE HOLLOW DAM**	1948-70	36.7	39.7	46.6	57.8	66.3	73.4	76.8	75.1	70.0	58.9	47.1	39.1	57.4
DICKSON	1949-70	38.5	41.4	49.1	60.5	68.1	75.6	78.6	77.5	71.2	60.8	48.9	40.5	59.2
DOVER	1948-70	37.7	40.6	48.2	59.8	67.0	74.8	77.7	76.9	70.1	59.4	48.2	39.7	58.3
FRANKLIN	1941-70	39.1	41.7	49.0	59.9	67.7	75.4	78.0	77.1	70.7	60.2	48.8	40.8	59.0
GATLINBURG	1941-70	38.3	40.3	47.3	57.2	64.6	71.2	74.0	73.1	67.9	57.3	46.3	39.0	56.4
GREENEVILLE	1948-70	38.5	40.7	47.7	57.6	66.0	73.4	76.2	75.2	69.5	58.7	47.2	39.2	57.5
JACKSON	1941-70	38.7	42.0	49.2	60.7	68.7	76.3	79.1	78.0	71.4	60.8	49.2	41.1	59.6
JEFFERSON CITY***	1948-70	36.7	40.7	48.2	56.7	65.5	72.1	75.6	74.9	69.2	57.7	47.6	39.4	57.0
KINGSPORT	1941-70	39.9	41.3	47.3	58.0	66.1	73.1	76.1	75.1	70.0	59.1	47.7	40.1	57.3
KNOXVILLE	1941-70	40.6	42.8	49.9	60.3	68.4	75.5	78.2	77.3	71.6	60.9	49.2	41.5	59.7
LEWISBURG	1941-70	38.0	40.5	47.6	58.8	66.9	74.8	77.8	76.9	70.7	59.7	47.9	40.1	58.3
LOUDON	1949-70	40.6	42.3	48.6	58.7	67.6	75.8	78.7	77.8	72.1	60.8	48.0	40.9	59.3
LYNNVILLE	1941-70	39.0	41.6	48.6	59.2	66.7	74.3	77.4	76.6	70.1	59.2	47.9	40.5	58.4
MARTIN	1941-70	38.2	41.6	49.3	60.8	69.0	76.8	79.4	78.6	71.9	61.7	49.3	40.4	59.8
MEMPHIS	1941-70	40.5	43.8	51.0	62.5	70.9	78.6	81.6	80.4	73.6	63.0	50.9	42.7	61.6
MIDDLESBORO KY	1943-70	38.5	40.3	48.3	57.3	65.0	72.6	75.7	74.7	69.6	58.1	46.2	40.2	57.2
HILAN	1941-70	38.1	41.3	49.0	60.4	68.4	76.2	79.1	78.0	71.1	60.5	48.9	40.5	59.3
HONTEAGLE	1941-70	37.6	40.0	46.9	58.2	65.6	72.2	74.6	74.0	68.6	58.9	47.1	39.1	56.9
HURFREESBORO	1941-70	40.1	42.8	50.1	60.8	68.5	76.0	78.9	78.0	71.9	61.1	49.5	41.8	60.0
WASHVILLE	1948-70	38.3	41.0	48.7	60.1	68.5	76.6	79.6	78.5	72.0	60.9	48.4	40.4	59.4
NEWBERN	1948-70	38.4	41.7	49.4	61.0	69.5	77.1	79.7	78.6	71.8	61.5	49.2	40.7	59.9
OAK RIDGE	1948-70	38.1	40.4	47.6	58.4	66.7	74.2	77.0	76.1	70.1	59.1	47.1	39.2	57.8
PALMETTO	1941-70	40.0	42.5	49.6	60.4	68.0	75.5	78.2	77.4	71.5	61.1	49.4	41.3	59.6
PARIS	1941-70	37.5	40.7	48.3	58.8	67.1	75.4	78.3	77.7	70.6	59.6	48.3	39.7	58.5
ROGERSVILLE	1941-70	37.9	40.4	47.7	58.1	65.9	72.3	75.6	74.8	69.4	58.9	47.0	38.9	57.3
SANBURG	1941-70	36.6	39.7	47.8	60.1	69.0	77.1	80.0	78.6	71.4	60.6	48.3	39.0	59.0
SAVANNAH	1941-70	40.8	43.7	51.1	62.1	69.3	76.8	80.0	79.2	72.5	61.7	50.4	42.4	60.8
SPRINGFIELD	1942-70	36.5	39.3	46.9	58.6	66.7	74.7	77.6	76.6	70.6	59.9	47.5	38.9	57.8
TULLAHOHA	1941-70	39.7	42.3	49.3	60.2	67.4	74.5	77.2	76.4	70.5	60.2	48.9	41.4	59.0
WAYNESBORO	1948-70	37.5	39.9	47.6	58.8	66.2	73.8	77.0	76.1	69.7	58.5	47.1	39.2	57.6

*Based on 1949-70.

**Based on 1950-70.

***Based on 1953-70.

Table 2.--Average and maximum monthly and annual heating degree days
 - base of 55 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE	590	460	310	90						80	290	520	2360
	MAX	800	750	720	210						170	500	840	
ASHWOOD	AVE	490	360	240	50						40	230	440	1870
	MAX	760	630	570	120						150	390	740	
BOLIVAR	AVE	490	330	230	40						40	210	400	1760
	MAX	730	610	510	100						130	340	750	
BROWNSVILLE	AVE	480	330	210	30						30	190	370	1680
	MAX	710	600	520	80						100	320	680	
CARTHAGE	AVE	500	380	250	50						40	230	450	1940
	MAX	780	690	570	120						100	350	650	
CHATTANOOGA	AVE	470	340	210	40						30	220	440	1760
	MAX	720	600	520	90						80	350	640	
CLARKSVILLE	AVE	540	390	260	50						40	230	460	2050
	MAX	830	680	610	130						110	380	820	
COPPERHILL	AVE	520	410	290	80						60	270	490	2130
	MAX	750	700	610	170						130	420	740	
COVINGTON	AVE	510	370	230	40						30	210	440	1880
	MAX	760	660	570	100						110	340	770	
CROSSVILLE	AVE	640	500	350	110						90	330	590	2640
	MAX	860	830	760	240						200	530	920	
DALE HOLLOW DAM	AVE	520	390	270	80						50	250	440	2030
	MAX	790	680	630	160						130	420	750	
DICKSON	AVE	520	370	260	50						40	240	460	1990
	MAX	720	650	610	120						110	370	760	
DOVER	AVE	560	400	280	60						60	260	490	2160
	MAX	810	670	630	150						160	400	770	
FRANKLIN	AVE	500	370	240	50						40	230	440	1900
	MAX	750	650	570	120						90	390	750	
GATLINBURG	AVE	500	390	270	70						70	280	480	2070
	MAX	790	660	650	190						170	470	730	
GREENEVILLE	AVE	370	270	170	40						30	150	310	1340
	MAX	750	700	620	170						110	360	790	
JACKSON	AVE	520	370	250	50						40	230	450	1940
	MAX	760	660	550	120						130	360	790	
JEFFERSON CITY	AVE	460	330	210	70						60	190	380	1720
	MAX	750	660	630	200						130	330	740	
KINGSPORT	AVE	440	330	230	50						40	230	430	1760
	MAX	790	670	640	170						120	400	770	
KNXVILLE	AVE	500	370	240	50						40	240	460	1900
	MAX	750	640	580	150						80	390	770	

Table 2.--(continued) average and maximum monthly and annual heating degree days - base of 55 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE	530	400	280	70						60	250	470	2080
	MAX	760	680	630	140						170	420	790	
LOUDON	AVE	470	350	250	60						40	230	460	1890
	MAX	700	650	620	150						100	360	660	
LYNNVILLE	AVE	510	380	250	50						50	240	460	1990
	MAX	740	650	570	140						160	390	770	
MARTIN	AVE	530	380	240	40						40	210	460	1940
	MAX	770	680	610	120						100	360	750	
MEMPHIS	AVE	470	320	200	30						20	190	400	1670
	MAX	710	580	490	70						110	320	710	
MIDDLESBORO KY	AVE	540	430	270	70						60	280	530	2190
	MAX	860	710	630	180						150	410	840	
MILAN	AVE	530	380	240	50						50	240	460	1990
	MAX	810	660	460	120						140	380	810	
MONTEAGLE	AVE	540	410	280	60						50	260	500	2110
	MAX	770	710	640	150						110	450	800	
MURFREESBORO	AVE	470	350	220	40						40	220	420	1790
	MAX	750	620	550	120						110	360	710	
NASHVILLE	AVE	540	390	260	60						40	250	470	2050
	MAX	790	670	600	120						140	410	760	
NEWBERN	AVE	530	370	240	40						40	230	430	1920
	MAX	800	640	580	100						130	370	780	
OAK RIDGE	AVE	530	390	270	60						50	270	500	2080
	MAX	780	620	600	190						110	420	760	
PALMETTO	AVE	470	350	230	40						40	220	420	1800
	MAX	700	630	550	120						120	370	700	
PARIS	AVE	550	400	270	70						60	250	480	2150
	MAX	830	700	620	180						160	400	770	
ROGERSVILLE	AVE	520	400	260	60						50	260	480	2040
	MAX	800	720	680	170						140	380	840	
SAMBURG	AVE	550	420	270	50						40	240	480	2110
	MAX	800	700	650	150						150	390	790	
SAVANNAH	AVE	460	310	200	30						30	190	410	1750
	MAX	720	600	510	100						110	360	710	
SPRINGFIELD	AVE	550	420	290	70						60	260	520	2200
	MAX	810	760	730	180						130	390	860	
TULLAHOMA	AVE	490	360	240	40						40	230	430	1840
	MAX	720	660	570	120						130	400	710	
WAYNESBORO	AVE	570	420	300	80						70	290	480	2250
	MAX	770	700	630	160						200	450	820	

Table 3.--Average and maximum monthly and annual heating degree days
 - base of 60 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE	740	590	440	170						160	420	660	3250
	MAX	950	890	860	330						300	630	1000	
ASHWOOD	AVE	640	490	360	110						100	350	580	2670
	MAX	910	760	710	220						260	510	900	
BOLIVAR	AVE	630	440	340	90						90	320	540	2510
	MAX	880	740	640	190						250	460	900	
BROWNSVILLE	AVE	620	450	320	80						70	300	500	2390
	MAX	870	730	660	160						200	450	830	
CARTHAGE	AVE	650	510	370	110						100	360	590	2750
	MAX	930	830	710	220						210	490	800	
CHATTANOOGA	AVE	620	470	340	90						80	340	590	2570
	MAX	870	730	650	170						180	490	790	
CLARKSVILLE	AVE	680	520	380	110						100	350	600	2850
	MAX	980	810	760	220						210	510	970	
COPPERHILL	AVE	670	540	430	150						130	410	640	3010
	MAX	910	830	750	290						240	560	900	
COVINGTON	AVE	650	490	350	90						90	330	580	2650
	MAX	910	790	710	190						220	460	930	
CROSSVILLE	AVE	790	640	480	200						170	470	740	3580
	MAX	1010	960	900	360						320	670	1080	
DALE HOLLOW DAM	AVE	650	500	390	140						110	360	570	2770
	MAX	940	820	770	260						250	540	910	
DICKSON	AVE	660	500	380	110						100	360	610	2790
	MAX	880	780	760	220						210	500	910	
DOVER	AVE	700	530	400	130						130	390	630	2990
	MAX	960	800	770	250						270	530	920	
FRANKLIN	AVE	640	490	360	100						90	350	590	2680
	MAX	900	780	710	200						170	520	900	
GATLINBURG	AVE	640	510	390	140						140	410	620	2900
	MAX	940	800	800	300						300	600	870	
GREENEVILLE	AVE	460	350	250	80						70	220	390	1840
	MAX	900	830	770	280						220	500	940	
JACKSON	AVE	660	490	360	100						100	350	590	2710
	MAX	920	790	690	220						240	480	950	
JEFFERSON CITY	AVE	590	430	310	130						110	290	500	2400
	MAX	900	800	770	320						230	470	900	
KINGSPORT	AVE	570	440	340	110						100	340	560	2490
	MAX	940	810	780	280						230	530	930	
KNOXVILLE	AVE	640	500	360	110						90	360	600	2690
	MAX	910	780	720	260						180	520	930	

Table 3.--(continued) average and maximum monthly and annual heating degree days - base of 60 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE	680	530	400	130						120	370	620	2910
	MAX	910	810	780	230						280	530	940	
LOUDON	AVE	620	480	380	130						90	350	600	2690
	MAX	860	790	760	270						180	490	820	
LYNNVILLE	AVE	650	500	370	110						110	360	600	2760
	MAX	900	780	710	230						290	520	930	
MARTIN	AVE	680	500	360	100						90	320	610	2720
	MAX	930	810	750	220						190	480	900	
MEMPHIS	AVE	610	450	320	70						70	300	540	2430
	MAX	860	710	630	150						210	450	870	
MIDDLESBORO KY	AVE	690	560	380	130						130	420	670	3020
	MAX	1020	840	770	290						260	550	990	
MILAN	AVE	680	510	360	100						100	350	610	2780
	MAX	960	790	610	210						250	520	960	
MONTEAGLE	AVE	690	540	400	130						110	390	650	2950
	MAX	930	840	780	250						210	590	950	
MURFREESBORO	AVE	620	470	330	90						90	330	570	2570
	MAX	900	750	690	190						220	480	870	
NASHVILLE	AVE	680	520	380	120						100	370	610	2840
	MAX	940	800	750	220						250	540	910	
NEWBERN	AVE	670	490	360	100						90	350	570	2680
	MAX	950	770	720	190						210	520	930	
OAK RIDGE	AVE	680	520	400	130						110	400	640	2920
	MAX	940	760	750	300						210	550	920	
PALMETTO	AVE	620	470	350	100						90	330	570	2580
	MAX	850	760	690	200						240	490	850	
PARIS	AVE	700	530	390	140						120	370	630	2990
	MAX	980	830	760	290						270	520	930	
ROGERSVILLE	AVE	660	530	380	120						110	390	620	2850
	MAX	950	850	830	290						260	520	990	
SAMBURG	AVE	690	540	390	110						100	350	620	2900
	MAX	960	830	790	240						260	530	950	
SAVANNAH	AVE	600	430	310	80						80	310	550	2510
	MAX	880	730	640	170						220	480	860	
SPRINGFIELD	AVE	690	550	410	140						110	390	660	3010
	MAX	960	890	870	290						230	520	1010	
TULLAHOMA	AVE	630	490	350	100						100	350	580	2640
	MAX	870	790	720	210						250	540	870	
WAYNESBORO	AVE	710	550	430	150						150	420	620	3130
	MAX	930	830	780	250						320	570	970	

Table 4.--Average and maximum monthly and annual heating degree days
 - base of 65 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE	890	720	580	270	100				60	270	560	810	4290
	MAX	1110	1020	1010	460	250				130	440	770	1150	
ASHWOOD	AVE	790	620	500	200	60				30	190	480	740	3630
	MAX	1070	890	860	330	170				100	390	650	1050	
BOLIVAR	AVE	780	570	480	170	40				20	180	450	680	3410
	MAX	1030	880	790	310	120				70	380	600	1060	
BROWNSVILLE	AVE	770	580	450	150	30				30	150	430	640	3280
	MAX	1020	860	800	260	100				130	320	590	990	
CARTHAGE	AVE	800	640	510	200	60				30	190	490	740	3700
	MAX	1090	960	860	330	160				100	350	640	960	
CHATTANOOGA	AVE	770	600	480	170	40				20	170	480	740	3500
	MAX	1030	860	810	290	140				100	310	640	950	
CLARKSVILLE	AVE	840	650	510	200	60				40	190	480	750	3810
	MAX	1140	940	900	340	150				170	350	660	1130	
COPPERHILL	AVE	820	670	570	260	80				30	250	550	790	4030
	MAX	1060	970	910	420	230				100	380	700	1050	
COVINGTON	AVE	810	620	480	170	40				30	170	460	730	3570
	MAX	1060	920	860	300	120				100	340	600	1080	
CROSSVILLE	AVE	940	770	630	310	120				70	290	610	890	4660
	MAX	1170	1100	1060	500	270				130	460	810	1230	
DALE HOLLOW DAM	AVE	790	630	520	240	70				30	200	490	700	3690
	MAX	1090	950	930	380	180				110	390	670	1060	
DICKSON	AVE	810	630	520	190	50				30	190	500	760	3740
	MAX	1030	910	900	330	160				130	330	650	1070	
DOVER	AVE	860	660	540	220	70				40	230	520	790	3990
	MAX	1110	940	920	370	180				90	410	680	1080	
FRANKLIN	AVE	790	620	500	190	60				30	180	490	730	3630
	MAX	1060	920	860	320	170				150	280	670	1060	
GATLINBURG	AVE	780	640	530	240	90				40	250	550	770	3900
	MAX	1100	930	950	430	250				90	450	740	1010	
GREENEVILLE	AVE	560	430	330	140	40				20	140	310	480	2450
	MAX	1050	970	920	410	140				60	350	650	1100	
JACKSON	AVE	810	630	500	180	50				30	180	480	740	3650
	MAX	1070	930	830	330	140				140	370	620	1100	
JEFFERSON CITY	AVE	720	540	430	220	70				30	200	390	620	3230
	MAX	1050	930	920	450	250				140	360	620	1050	
KINGSPORT	AVE	700	550	460	190	60				30	190	460	690	3340
	MAX	1100	940	940	410	200				90	380	670	1080	
KNCXVILLE	AVE	800	630	500	200	50				20	180	500	750	3640
	MAX	1060	910	880	390	170				90	310	670	1080	

Table 4.--(continued) average and maximum monthly and annual heating degree days - base of 65 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE	830	660	540	220	70				30	210	510	770	3870
	MAX	1060	940	930	350	170				100	410	670	1100	
LOUDON	AVE	770	610	520	230	60				30	180	480	750	3660
	MAX	1010	920	920	400	190				110	300	620	970	
LYNNVILLE	AVE	800	630	510	210	60				30	210	490	760	3740
	MAX	1050	910	860	350	180				150	430	670	1080	
MARTIN	AVE	830	640	500	180	40				30	170	450	760	3640
	MAX	1080	950	900	330	120				130	310	630	1060	
MEMPHIS	AVE	760	580	450	140	30				20	140	430	690	3300
	MAX	1020	850	770	260	90				100	330	590	1020	
MIDDLESBORO KY	AVE	840	690	520	220	80				40	240	560	830	4040
	MAX	1170	980	930	420	200				120	400	700	1150	
MILAN	AVE	830	640	500	190	50				30	190	490	760	3730
	MAX	1110	920	760	320	140				100	380	670	1120	
MONTEAGLE	AVE	850	680	540	230	80				30	210	540	800	3970
	MAX	1080	980	930	380	220				140	360	730	1110	
MURFREESBORO	AVE	770	600	470	170	50				30	170	470	720	3500
	MAX	1060	880	840	300	150				190	350	620	1020	
NASHVILLE	AVE	830	650	520	210	50				20	190	510	760	3780
	MAX	1100	940	890	340	160				120	380	680	1070	
NEWBERN	AVE	820	620	500	180	40				30	160	480	720	3600
	MAX	1110	900	860	300	100				130	300	670	1090	
OAK RIDGE	AVE	840	650	550	230	60				30	210	550	800	3940
	MAX	1090	890	900	420	190				90	350	700	1070	
PALMETTO	AVE	770	600	480	180	50				30	170	460	720	3500
	MAX	1010	890	830	300	170				130	380	630	1000	
PARIS	AVE	850	660	530	230	70				50	210	510	780	3980
	MAX	1130	960	910	410	160				180	410	670	1080	
ROGERSVILLE	AVE	810	660	510	220	70				30	210	530	770	3820
	MAX	1110	990	980	420	210				90	400	670	1150	
SAMBURG	AVE	840	670	530	200	50				30	190	490	760	3840
	MAX	1110	970	940	350	140				100	390	680	1100	
SAVANNAH	AVE	750	560	440	150	40				30	160	440	700	3440
	MAX	1030	860	790	280	120				230	350	620	1020	
SPRINGFIELD	AVE	840	680	550	230	80				30	200	520	820	3980
	MAX	1120	1030	1010	420	190				100	350	670	1170	
TULLAHOMA	AVE	780	620	490	180	60				30	190	490	730	3590
	MAX	1020	930	860	330	180				100	400	680	1020	
WAYNESBORO	AVE	870	680	570	240	70				50	250	560	770	4110
	MAX	1080	970	930	370	190				160	460	710	1130	

Table 5.-- Average maximum monthly and annual heating degree days
 - base of 70 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE	1050	860	730	400	190				130	410	700	960	5520
	MAX	1260	1160	1160	600	370				240	600	910	1310	
ASHWOOD	AVE	940	750	650	310	130				80	320	630	890	4750
	MAX	1220	1030	1010	460	270				150	530	800	1210	
BOLIVAR	AVE	930	700	620	280	90				60	290	590	830	4460
	MAX	1190	1010	940	430	220				130	530	740	1210	
BROWNSVILLE	AVE	920	710	600	250	80				60	260	570	790	4300
	MAX	1180	1000	950	390	180				160	450	740	1140	
CARTHAGE	AVE	950	770	660	320	130				70	310	640	900	4830
	MAX	1240	1100	1020	460	260				150	500	790	1110	
CHATTANOOGA	AVE	920	740	630	290	100				60	300	630	890	4610
	MAX	1180	1000	960	410	240				130	460	790	1100	
CLARKSVILLE	AVE	990	790	660	310	120				80	310	620	900	4900
	MAX	1290	1080	1050	470	250				220	500	810	1280	
COPPERHILL	AVE	980	810	730	390	170				100	380	700	950	5260
	MAX	1220	1100	1060	550	350				200	530	850	1210	
COVINGTON	AVE	960	760	630	290	100				70	280	610	890	4670
	MAX	1220	1060	1010	430	210				140	490	750	1240	
CROSSVILLE	AVE	1100	900	770	450	220				150	430	760	1050	5940
	MAX	1320	1230	1210	640	390				260	620	960	1390	
DALE HOLLOW DAM	AVE	930	750	660	360	140				80	320	630	830	4760
	MAX	1240	1090	1080	510	290				160	540	820	1220	
DICKSON	AVE	970	760	660	310	110				80	310	640	910	4840
	MAX	1190	1050	1060	460	260				170	470	800	1220	
DOVER	AVE	1010	790	690	330	140				90	360	670	940	5120
	MAX	1270	1070	1080	490	290				170	560	830	1230	
FRANKLIN	AVE	950	760	640	310	120				70	300	630	880	4730
	MAX	1210	1050	1010	450	280				200	430	820	1210	
GATLINBURG	AVE	930	770	670	370	170				110	390	690	910	5080
	MAX	1250	1070	1100	570	370				200	600	890	1160	
GREENEVILLE	AVE	650	510	420	220	90				50	220	390	580	3150
	MAX	1210	1100	1080	550	250				160	490	800	1250	
JACKSON	AVE	970	760	650	290	110				80	300	620	900	4750
	MAX	1230	1060	990	460	240				190	510	770	1260	
JEFFERSON CITY	AVE	840	650	550	330	140				80	300	500	740	4180
	MAX	1210	1070	1080	590	360				230	510	770	1210	
KINGSPORT	AVE	820	670	600	310	130				80	300	590	830	4380
	MAX	1250	1080	1090	540	310				180	530	820	1240	
KNOXVILLE	AVE	950	770	650	320	120				60	300	650	900	4760
	MAX	1220	1050	1030	520	280				150	460	820	1240	

Table 5.--(continued) average and maximum monthly and annual heating degree days - base of 70 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE	980	790	690	340	140				80	330	650	920	4990
	MAX	1220	1080	1080	480	280				170	560	810	1250	
LOUDON	AVE	920	740	670	350	130				70	300	620	900	4740
	MAX	1170	1060	1070	530	300				150	450	770	1130	
LYNNVILLE	AVE	960	770	660	330	130				90	340	640	910	4900
	MAX	1210	1050	1020	490	300				200	580	820	1240	
MARTIN	AVE	980	770	640	290	100				70	280	590	910	4690
	MAX	1240	1080	1050	450	210				170	450	780	1210	
MEMPHIS	AVE	920	710	590	240	70				50	240	570	850	4320
	MAX	1170	980	920	370	180				150	470	730	1180	
MIDDLESBORO KY	AVE	990	830	660	340	160				100	370	710	980	5200
	MAX	1330	1110	1080	550	310				220	560	850	1300	
MILAN	AVE	990	780	640	300	110				80	310	630	910	4830
	MAX	1270	1060	920	440	230				160	520	820	1270	
MONTEAGLE	AVE	1000	810	690	360	160				90	340	690	960	5150
	MAX	1240	1110	1090	520	340				210	510	880	1260	
MURFREESBORO	AVE	920	740	610	290	110				70	290	610	870	4570
	MAX	1210	1020	990	420	250				230	500	770	1180	
NASHVILLE	AVE	990	780	670	320	110				70	310	660	920	4890
	MAX	1250	1070	1050	470	260				160	530	830	1220	
NEWBERN	AVE	980	760	650	290	90				70	270	630	860	4660
	MAX	1260	1040	1010	420	180				170	440	820	1240	
OAK RIDGE	AVE	990	790	700	360	140				80	340	700	950	5090
	MAX	1250	1030	1060	570	300				190	500	850	1230	
PALMETTO	AVE	920	730	630	300	120				70	290	610	870	4610
	MAX	1160	1030	990	440	270				170	520	780	1150	
PARIS	AVE	1000	800	680	350	140				100	340	650	930	5110
	MAX	1290	1100	1070	540	250				250	550	820	1240	
ROGERSVILLE	AVE	960	790	660	350	150				90	340	680	920	4990
	MAX	1260	1120	1130	560	310				200	550	820	1300	
SAMBURG	AVE	980	810	670	310	110				80	300	620	910	4910
	MAX	1270	1100	1090	480	240				160	530	830	1260	
SAVANNAH	AVE	900	690	580	250	90				60	270	580	860	4490
	MAX	1190	1000	950	410	220				270	480	770	1170	
SPRINGFIELD	AVE	990	810	700	340	150				80	310	670	970	5090
	MAX	1270	1160	1170	550	290				170	500	820	1320	
TULLAHOMA	AVE	940	750	640	290	120				80	310	630	890	4690
	MAX	1180	1060	1010	450	290				140	550	830	1180	
WAYNESBORO	AVE	1020	810	720	360	150				110	380	710	920	5280
	MAX	1240	1100	1090	490	300				210	600	860	1280	

Table 6.-- Average and maximum monthly and annual cooling degree days
- base of 60 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE			12	60	160				220	50	0	0	1580
	MAX			90	110	290				350	180	20	10	
ASHWOOD	AVE			20	100	250				320	100	20	0	2290
	MAX			120	200	440				450	270	50	20	
BOLIVAR	AVE			30	130	300				320	110	20	0	2460
	MAX			110	210	470				450	210	50	10	
BROWNSVILLE	AVE			30	140	330				370	150	30	10	2700
	MAX			130	220	520				520	280	60	30	
CARTHAGE	AVE			20	100	260				330	110	10	0	2290
	MAX			90	200	460				480	300	60	20	
CHATTANOOGA	AVE			20	100	280				360	110	10	0	2470
	MAX			100	190	470				470	260	50	20	
CLARKSVILLE	AVE			30	120	270				330	110	20	0	2350
	MAX			140	200	420				490	270	60	20	
COPPERHILL	AVE			10	60	200				260	60	10	0	1900
	MAX			60	110	350				410	190	50	10	
COVINGTON	AVE			30	120	310				340	140	20	0	2570
	MAX			120	220	490				470	300	60	30	
CROSSVILLE	AVE			10	50	150				210	50	0	0	1530
	MAX			50	120	290				350	190	30	0	
DALE HOLLOW DAM	AVE			10	80	210				290	80	10	0	2000
	MAX			60	160	380				430	150	40	20	
DICKSON	AVE			20	110	280				330	110	20	0	2360
	MAX			120	190	440				470	210	40	20	
DOVER	AVE			30	110	240				290	90	20	0	2210
	MAX			100	190	400				470	170	60	20	
FRANKLIN	AVE			20	100	260				280	110	20	0	2150
	MAX			110	170	420				490	250	50	10	
GATLINBURG	AVE			20	60	170				230	60	10	0	1630
	MAX			80	130	330				360	200	40	30	
GREENEVILLE	AVE			10	40	130				170	40	10	0	1170
	MAX			40	90	360				430	120	70	10	
JACKSON	AVE			30	120	290				340	120	20	0	2480
	MAX			120	210	470				500	270	60	30	
JEFFERSON CITY	AVE			10	50	170				220	60	10	0	1570
	MAX			70	130	380				400	130	60	10	
KINGSPORT	AVE			10	70	180				240	70	10	0	1710
	MAX			70	160	360				400	160	60	10	
KNOXVILLE	AVE			20	100	270				340	100	10	0	2360
	MAX			90	190	440				480	250	40	20	

Table 6.--(continued) average and maximum monthly and annual cooling degree days - base of 60 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE			20	90	230	430	520	500	320	110			2240
	MAX			110	180	420	600	610	610	460	250			
LOUDON	AVE			20	80	250	420	530	510	330	110			2260
	MAX			90	140	400	600	630	610	420	250			
LYNNVILLE	AVE			20	90	220	410	520	470	300	90			2130
	MAX			100	170	390	510	600	590	440	250			
MARTIN	AVE			30	120	290	480	570	540	350	140			2540
	MAX			120	200	460	590	680	640	480	270			
MEMPHIS	AVE			30	150	350	540	620	590	400	160			2900
	MAX			130	240	520	650	700	680	540	310			
MIDDLESBORO KY	AVE			10	70	190	370	470	430	270	70			1890
	MAX			90	150	350	530	590	570	370	190			
MILAN	AVE			30	120	280	470	560	510	330	120			2440
	MAX			110	220	480	600	660	620	480	280			
MONTEAGLE	AVE			10	70	200	370	450	430	270	80			1890
	MAX			70	130	380	530	580	540	420	190			
MURFREESBORO	AVE			30	120	280	470	560	530	350	120			2480
	MAX			150	210	450	620	660	630	490	290			
NASHVILLE	AVE			20	110	290	470	580	550	350	120			2500
	MAX			120	200	470	600	690	650	510	190			
NEWBERN	AVE			30	110	300	460	570	530	310	130			2460
	MAX			120	220	510	610	660	620	480	210			
OAK RIDGE	AVE			10	80	230	410	510	490	300	80			2120
	MAX			40	160	390	560	590	580	420	150			
PALMETTO	AVE			30	100	260	420	540	490	340	120			2320
	MAX			130	200	450	560	610	630	500	290			
PARIS	AVE			30	90	250	450	540	500	310	110			2300
	MAX			130	160	420	620	660	640	500	280			
ROGERSVILLE	AVE			10	70	200	350	480	440	280	80			1920
	MAX			90	140	340	540	560	580	450	250			
SAMBURG	AVE			20	110	290	480	560	520	330	120			2450
	MAX			100	220	530	600	700	640	480	250			
SAVANNAH	AVE			40	140	290	460	510	490	350	130			2450
	MAX			150	230	440	600	650	640	510	290			
SPRINGFIELD	AVE			20	90	230	430	510	500	300	100			2190
	MAX			120	180	420	560	620	610	440	230			
TULLAHOMA	AVE			20	100	240	430	520	500	320	100			2240
	MAX			130	180	420	620	620	590	470	270			
WAYNESBORO	AVE			20	90	230	400	490	460	280	80			2060
	MAX			80	170	360	540	580	530	410	180			

Table 7.--Average and maximum monthly and annual cooling degree days
 - base of 65 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE				20	70	180	250	230	110	20			880
	MAX				50	150	320	370	350	210	90			
ASHWOOD	AVE				40	130	300	380	350	190	40			1440
	MAX				120	290	440	480	460	310	160			
BOLIVAR	AVE				60	170	330	410	370	200	50			1610
	MAX				100	320	460	480	490	300	130			
BROWNSVILLE	AVE				70	200	360	450	390	230	70			1790
	MAX				130	370	530	520	490	380	140			
CARTHAGE	AVE				40	140	290	380	350	200	40			1450
	MAX				110	310	440	460	500	330	180			
CHATTANOOGA	AVE				40	150	320	410	390	220	40			1580
	MAX				90	320	460	500	480	330	150			
CLARKSVILLE	AVE				50	150	310	400	350	200	50			1530
	MAX				120	280	450	490	440	350	160			
COPPERHILL	AVE				20	90	230	320	300	140	20			1120
	MAX				50	210	370	420	370	270	100			
COVINGTON	AVE				50	180	360	420	400	210	60			1700
	MAX				110	350	460	520	480	340	180			
CROSSVILLE	AVE				10	60	170	240	220	100	10			810
	MAX				40	160	290	340	340	210	100			
DALE HOLLOW DAM	AVE				30	110	240	330	320	170	30			1230
	MAX				80	240	410	450	420	300	90			
DICKSON	AVE				50	150	290	390	360	200	50			1500
	MAX				110	290	420	500	450	330	110			
DOVER	AVE				50	130	270	370	340	170	40			1380
	MAX				100	250	390	470	410	330	90			
FRANKLIN	AVE				40	140	290	350	310	170	40			1350
	MAX				90	280	440	470	450	350	140			
GATLINBURG	AVE				20	70	180	240	240	120	20			890
	MAX				50	190	330	350	670	220	100			
GREENEVILLE	AVE				10	60	140	190	180	90	10			680
	MAX				30	220	290	400	390	290	60			
JACKSON	AVE				50	160	330	410	380	210	50			1610
	MAX				110	330	450	530	450	360	160			
JEFFERSON CITY	AVE				20	80	180	270	240	120	20			930
	MAX				70	230	310	390	410	260	60			
KINGSPORT	AVE				20	80	200	280	260	130	20			990
	MAX				80	220	380	400	400	260	80			
KNCXVILLE	AVE				40	150	300	400	370	210	40			1510
	MAX				110	290	450	480	480	330	150			

Table 7.--(continued) average and maximum monthly and annual cooling degree days - base of 65 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE				30	120	290	370	350	190	40			1400
	MAX				90	270	460	450	460	330	150			
LOUDON	AVE				30	130	280	380	360	200	40			1420
	MAX				70	250	450	480	450	290	140			
LYNNVILLE	AVE				30	110	270	370	330	180	30			1320
	MAX				90	240	360	450	430	300	140			
MARTIN	AVE				50	170	340	420	390	210	60			1650
	MAX				110	310	460	530	500	340	140			
MEMPHIS	AVE				70	210	390	470	450	260	80			1950
	MAX				130	370	500	550	530	390	200			
MIDDLESBORO KY	AVE				20	90	230	320	280	140	20			1100
	MAX				60	200	380	440	410	250	100			
MILAN	AVE				50	160	330	410	360	200	50			1580
	MAX				110	330	460	510	460	330	170			
MONTEAGLE	AVE				20	90	220	300	280	140	20			1070
	MAX				60	240	380	420	390	280	100			
MURFREESBORO	AVE				50	150	320	410	380	210	50			1580
	MAX				120	300	470	500	470	340	180			
NASHVILLE	AVE				50	160	330	430	400	220	50			1650
	MAX				120	320	460	540	490	370	120			
NEWBERN	AVE				40	170	330	420	380	190	60			1600
	MAX				110	360	470	510	470	330	130			
OAK RIDGE	AVE				30	120	270	360	340	170	30			1320
	MAX				80	250	420	440	420	290	90			
PALMETTO	AVE				40	140	280	390	350	210	50			1470
	MAX				100	300	410	460	470	360	170			
PARIS	AVE				40	130	300	390	350	190	50			1470
	MAX				90	270	470	510	480	360	170			
ROGERSVILLE	AVE				20	90	220	320	290	160	30			1130
	MAX				70	190	390	410	430	300	140			
SAMBURG	AVE				50	170	340	420	380	200	60			1640
	MAX				120	380	450	550	480	350	130			
SAVANNAH	AVE				60	170	320	380	360	220	60			1590
	MAX				120	290	460	500	490	360	180			
SPRINGFIELD	AVE				40	120	290	360	350	180	40			1390
	MAX				90	280	420	470	460	300	120			
TULLAHOMA	AVE				40	130	290	370	350	190	40			1420
	MAX				100	270	470	460	430	330	160			
WAYNESBORO	AVE				40	110	260	350	310	160	30			1270
	MAX				80	220	390	440	380	280	110			

Table 8.--Average and maximum monthly and annual cooling degree days
 - base of 70 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
ALLARDT	AVE				0	10	70	120	100	40	0			340
	MAX				10	40	180	210	200	100	30			
ASHWOOD	AVE				10	50	160	230	210	90	10			760
	MAX				40	160	290	320	310	180	70			
BOLIVAR	AVE				10	70	190	270	230	100	10			880
	MAX				40	190	310	330	330	190	70			
BROWNSVILLE	AVE				20	90	220	300	250	120	20			1020
	MAX				50	230	380	370	340	250	70			
CARTHAGE	AVE				10	50	160	230	210	100	10			770
	MAX				40	170	290	310	350	190	100			
CHATTANOOGA	AVE				10	60	190	260	240	110	10			880
	MAX				30	190	310	340	320	200	70			
CLARKSVILLE	AVE				10	60	180	250	220	100	10			830
	MAX				50	150	310	350	300	220	80			
COPPERHILL	AVE				0	20	110	170	150	50	0			500
	MAX				20	80	220	260	220	140	40			
COVINGTON	AVE				10	80	220	280	260	110	20			980
	MAX				40	210	320	370	350	210	90			
CROSSVILLE	AVE				0	10	60	110	90	30	0			300
	MAX				0	60	160	200	200	90	30			
DALE HOLLOW DAM	AVE				10	30	120	190	180	70	10			610
	MAX				20	110	270	300	260	170	40			
DICKSON	AVE				10	60	160	250	220	100	10			810
	MAX				50	160	280	340	300	200	60			
DOVER	AVE				10	40	150	230	190	80	10			710
	MAX				30	120	260	310	270	200	40			
FRANKLIN	AVE				10	50	170	210	180	80	10			710
	MAX				30	140	300	320	300	220	60			
GATLINBURG	AVE				0	20	70	110	120	40	0			360
	MAX				10	70	180	200	520	100	40			
GREENEVILLE	AVE				0	20	60	100	90	40	0			310
	MAX				10	90	160	240	230	160	20			
JACKSON	AVE				10	70	190	270	230	110	20			900
	MAX				40	190	310	380	310	230	80			
JEFFERSON CITY	AVE				0	20	80	140	130	50	0			420
	MAX				10	100	170	240	250	130	20			
KINGSPORT	AVE				0	20	90	150	130	50	0			440
	MAX				20	80	230	240	240	130	30			
KNOXVILLE	AVE				10	50	170	240	220	100	10			800
	MAX				40	150	300	330	320	190	70			

Table 8.--(continued) average and maximum monthly and annual cooling degree days - base of 70 F

LOCATION		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
LEWISBURG	AVE				10	40	160	230	210	100	10			760
	MAX				30	150	320	300	310	200	70			
LOUDON	AVE				0	50	150	230	210	90	10			740
	MAX				20	130	300	320	300	170	60			
LYNNVILLE	AVE				0	30	140	220	190	80	10			670
	MAX				20	110	230	290	280	180	60			
MARTIN	AVE				10	70	200	280	250	110	20			940
	MAX				40	170	320	370	360	210	70			
MEMPHIS	AVE				20	100	250	330	300	140	30			1170
	MAX				50	240	350	390	370	260	110			
MIDDLESBORO KY	AVE				0	20	100	180	150	60	0			510
	MAX				20	80	240	280	260	140	40			
MILAN	AVE				10	60	190	270	220	100	20			870
	MAX				40	190	330	350	310	190	80			
MONTEAGLE	AVE				0	20	100	150	130	50	0			450
	MAX				10	110	230	270	230	150	30			
MURFREESBORO	AVE				10	60	190	260	240	110	10			880
	MAX				50	160	320	350	320	200	80			
NASHVILLE	AVE				10	70	190	280	250	110	10			920
	MAX				60	190	310	380	340	240	60			
NEWBERN	AVE				10	80	190	280	240	90	20			910
	MAX				40	220	340	350	310	190	70			
OAK RIDGE	AVE				0	40	130	210	190	70	0			640
	MAX				20	120	280	280	270	160	40			
PALMETTO	AVE				10	50	160	240	210	100	10			780
	MAX				30	170	270	310	320	230	80			
PARIS	AVE				10	50	180	250	210	90	10			800
	MAX				30	150	320	360	330	220	90			
ROGERSVILLE	AVE				0	20	100	180	150	70	10			530
	MAX				20	70	240	260	270	160	70			
SAMBURG	AVE				10	70	210	270	240	110	20			930
	MAX				40	240	300	390	330	220	70			
SAVANNAH	AVE				20	70	190	250	230	110	20			890
	MAX				50	150	320	340	330	220	90			
SPRINGFIELD	AVE				10	40	160	220	200	90	10			730
	MAX				30	150	290	310	310	170	60			
TULLAHOMA	AVE				10	40	150	220	200	80	10			710
	MAX				30	140	320	310	290	190	70			
WAYNESBORO	AVE				10	30	130	200	170	70	10			620
	MAX				20	100	260	300	230	150	60			

(Continued from inside front cover)

- EDSTM 15 Improved Estimates of Winds at Standard Heights Generated From Winds Recorded at Standard Pressure Levels. Harold L. Crutcher, Russell F. Lee, and H. B. Harshbarger, March 1970. (PB-192-904)
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- EDS 18 The Effect of Atmospheric Aerosol on Climate With Special Reference to Surface Temperature. J. Murray Mitchell, Jr., November 1970. (COM-71-00341)
- EDS 19 Terrain and Climate. Robert L. Schloemer, April 1971.
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- EDS 22 Probability of Sequences of Wet and Dry Days for Tennessee. John M. Safley, Jr., Henry A. Fribourg, John V. Vaiksnoras, and Rodney H. Strand, September 1974. (COM-75-10650)
- EDS 23 Probability of Low and High Temperatures in Tennessee. Henry A. Fribourg and Dewayne L. Ingram, March 1978.

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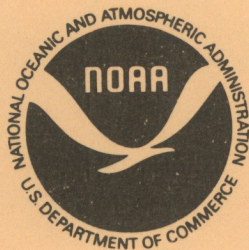
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