3.0 Temperature Climatology

3.1 Monthly, Seasonal, and Annual Average

Monthly, seasonal, and annual average temperatures, computed from observed daily maximum and minimum temperatures for the period 1945 through 2002, are presented in Table 3.1 and Table 3.2. In these tables, the highest and lowest values, representing the warmest and coldest month, season, or year, are noted. Averages are based on the entire period of record, and climatological normal temperatures are based on the period 1971 through 2000.

As indicated in Table 3.1, much wider ranges and variabilities in temperatures are found during the late autumn and winter months (November through February) than during the rest of the year. The range of average monthly temperatures for January is from 12.1°F (1950) to 42.5°F (1953), a span of 30.4°F; for November, 21.7°F; February, 18.9°F; and December, 17.5°F; whereas for the rest of the year, the monthly temperature span is from a low of 10.5°F in April to a high of 13.8°F in June. The coldest month recorded was January 1950 (12.1°F); the hottest month recorded was July 1985 (82.2°F). As shown in Table 3.2, the seasonal range is from 8.0°F during the summer (June, July, and August) to 16.4°F in winter (December, January, and February). The coldest season was the winter of 1948-1949 (24.2°F); the hottest was the summer of 1958 (78.2°F).

3.2 Days with Maximum Temperatures ≥100°F, ≥90°F, and ≤32°F

Table 3.3 contains the number of days each year with maximum temperatures in the categories ≥100°F, ≥90°F, and ≤32°F.

Maximum temperatures ≥100°F have occurred as early as May 5 (1966) and as late as September 6 (1955). The annual number of days with maximum temperatures in this category ranged from 1 to 28 (1954 and 1958, respectively). The greatest number of consecutive days with maximum temperatures ≥100°F is 11, which occurred 3 times: July 22 through August 1, 1962; August 10 through 20, 1967; and August 6 through 16, 1981.

One particularly notable period of above normal temperatures occurred July 15 through August 13, 1971. This 30-day period included 27 days with maximum temperatures ≥100°F in 3 separate periods of 9 consecutive days each. The lowest maximum temperature during the 30-day period was 98°F; the highest was 112°F. The average maximum temperature during this period was 104.7°F.

Table 3.4 lists the dates of all occurrences of maximum temperatures ≥104°F.

Table 3.1. Monthly and Annual Average Temperatures (°F)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1945	33.9	38.6	42.1	50.3	61.7	67.5	78.0	77.5	64.6	56.4	40.6	32.7	53.7
1946	34.4	39.6	45.5	53.7	64.2	66.9	76.1	76.6	63.5	49.5	35.8	34.8	53.4
1947	27.4	40.0	49.6	56.1	**68.7**[a]	67.8	75.3	71.8	65.4	53.4	41.2	33.1	54.2
1948	32.0	31.8	42.1	49.4	58.3	72.4	72.8	71.8	64.4	51.0	40.8	26.9	51.1
1949	13.9	31.8	45.2	55.5	67.0	69.3	74.9	74.8	68.3	50.2	45.2	35.1	52.6
1950	**12.1**[a]	30.7	42.3	49.9	59.0	66.5	75.4	76.4	67.5	51.1	40.7	36.2	50.6
1951	33.0	36.9	40.1	54.1	61.1	69.4	76.7	74.2	66.8	51.5	39.5	27.4	52.6
1952	25.2	36.7	44.1	55.2	62.7	67.1	77.0	74.0	69.0	59.0	34.0	34.8	53.2
1953	**42.5**[a]	41.2	46.2	51.0	58.0	**63.0**[a]	75.8	74.0	67.8	55.4	43.4	37.6	54.7
1954	28.9	39.3	41.5	51.4	62.9	65.5	73.9	71.4	65.1	51.4	46.0	34.0	52.6
1955	30.0	35.3	**39.4**[a]	**47.5**[a]	57.0	70.2	73.0	75.5	66.4	53.3	31.3	29.4	50.7
1956	31.8	**25.6**[a]	43.8	56.2	65.3	65.7	78.9	75.3	67.3	52.1	36.6	34.6	52.8
1957	16.5	34.1	44.0	55.2	65.9	70.8	74.3	72.9	69.0	50.7	40.4	**38.5**[a]	52.7
1958	37.1	**44.5**[a]	43.5	51.3	68.1	73.9	81.2	79.4	65.6	54.4	40.6	35.2	56.2
1959	32.0	35.5	45.1	54.2	57.5	68.6	77.7	71.8	62.6	53.4	36.5	33.1	52.3
1960	23.3	37.4	45.1	52.6	58.5	70.1	81.8	71.4	67.7	54.5	41.2	29.0	52.7
1961	35.0	43.7	46.1	52.3	60.0	74.0	79.4	80.2	63.8	51.6	35.3	33.7	54.6
1962	29.8	36.6	42.6	55.6	56.9	68.3	76.0	71.9	67.1	52.6	43.2	36.8	53.1
1963	25.4	38.3	46.4	49.8	61.7	69.4	72.4	75.7	71.1	56.0	42.8	30.2	53.3
1964	35.6	38.1	43.8	50.2	59.7	67.7	74.5	**69.8**[a]	63.0	53.3	38.2	25.5	51.6
1965	32.3	40.5	42.9	54.8	60.5	69.3	76.5	74.7	62.4	57.1	43.1	33.0	53.9
1966	34.0	39.9	45.4	54.6	63.2	66.9	73.3	75.6	68.8	53.4	43.7	38.2	54.8
1967	39.8	43.7	44.3	47.6	60.5	72.5	78.6	**81.5**[a]	71.8	55.1	41.5	33.1	55.8
1968	35.7	41.8	49.0	51.3	62.4	69.8	79.7	71.5	66.8	50.3	41.7	30.6	54.2
1969	19.8	31.7	45.8	52.2	64.6	75.1	76.0	72.8	67.4	51.0	40.2	34.6	52.6
1970	30.7	40.6	45.0	49.0	61.5	73.6	78.6	76.3	61.8	50.9	39.7	30.8	53.2
1971	35.8	39.1	40.7	52.0	64.0	65.3	78.7	80.5	61.5	51.7	40.4	30.6	53.4
1972	30.5	34.8	47.0	49.6	64.3	69.7	76.2	77.6	61.4	52.3	39.9	27.3	52.6
1973	29.1	38.5	47.4	53.6	63.1	68.7	78.2	73.9	65.7	52.4	38.4	38.1	53.9
1974	29.4	40.9	45.2	52.9	57.9	72.6	74.5	75.5	68.0	52.5	41.6	36.2	53.9
1975	32.5	33.7	42.5	48.2	60.2	67.2	79.5	71.0	68.0	52.5	39.5	34.5	52.4
1976	32.0	37.6	41.4	50.8	60.5	65.6	75.1	70.8	69.0	52.4	40.6	30.7	52.2
1977	25.2	40.5	45.4	57.3	56.9	72.6	73.7	79.2	61.5	52.0	38.9	33.8	53.1
1978	32.5	37.9	47.5	51.9	58.6	70.3	75.7	72.7	63.8	52.2	32.3	27.5	51.9
1979	13.9	34.2	46.5	52.8	64.1	70.8	77.2	74.6	69.2	56.5	34.2	36.4	52.5
1980	23.7	34.6	44.5	55.2	61.4	64.7	74.7	71.2	66.0	52.6	41.0	36.6	52.2
1981	38.0	39.7	48.7	54.0	60.5	66.0	73.9	79.0	66.3	52.0	42.7	32.8	54.5
1982	29.8	38.1	45.9	49.4	60.4	73.1	74.9	75.8	65.4	51.4	36.9	32.0	52.8
1983	37.5	40.9	48.5	51.1	63.8	65.4	71.3	74.4	61.7	52.6	43.6	21.2	52.7
1984	31.6	38.7	47.2	50.5	**56.0**[a]	65.7	76.1	74.0	62.1	**47.9**[a]	39.4	23.6	51.1
1985	25.0	29.9	44.0	55.5	63.2	70.2	**82.2**[a]	70.5	**58.8**[a]	49.8	**24.8**[a]	**21.0**[a]	**49.6**[a]
1986	34.0	39.1	48.6	50.9	62.3	73.0	70.6	79.2	62.2	54.7	42.3	32.4	54.1
1987	30.7	40.1	48.3	58.0	66.2	73.4	74.3	76.6	69.9	55.5	43.6	31.5	55.7
1988	31.9	41.0	45.9	55.2	61.1	69.2	77.3	75.2	65.6	**59.6**[a]	44.2	31.8	54.8
1989	37.2	27.3	43.8	56.6	61.5	72.0	75.5	73.4	67.4	54.0	44.3	33.3	53.9
1990	40.4	37.6	48.0	57.9	60.7	70.1	80.8	76.8	**72.4**[a]	52.3	**46.5**[a]	24.1	55.6
1991	28.7	**44.5**[a]	44.1	54.0	60.4	65.6	78.0	78.9	69.7	52.9	41.3	37.8	54.7
1992	37.5	42.6	**51.5**[a]	56.0	67.2	**76.8**[a]	76.6	76.9	64.5	55.7	41.2	30.0	**56.4**[a]
1993	24.8	30.8	43.2	52.5	66.5	68.4	**70.5**[a]	73.1	66.4	55.4	34.6	35.4	51.8
1994	38.6	36.0	49.2	**58.2**[a]	64.9	69.8	81.0	76.6	70.5	54.4	39.6	35.1	56.2
1995	34.2	43.1	46.1	52.6	64.5	68.1	77.1	72.0	69.9	52.1	44.1	32.6	54.7
1996	28.8	32.8	44.8	55.0	58.1	69.0	79.5	75.6	64.4	52.4	38.4	29.8	52.4
1997	33.6	40.2	47.4	51.8	65.0	68.5	75.3	78.0	66.8	53.2	43.2	34.7	54.8
1998	36.2	42.2	48.4	54.4	62.4	71.0	82.0	77.9	71.0	52.4	45.6	33.0	**56.4**[a]
1999	38.3	41.7	46.3	50.9	57.9	67.4	73.8	76.2	65.0	51.8	45.8	37.7	54.4
2000	32.9	38.7	44.7	55.4	61.2	69.9	75.5	74.0	63.6	52.1	34.0	29.8	52.6
2001	33.4	35.7	46.8	51.4	63.7	66.5	76.0	77.7	69.0	53.5	42.8	34.9	54.3
2002	37.6	38.4	42.4	53.2	60.1	71.6	79.6	75.5	66.3	50.4	41.0	37.2	54.4
Average[b]	31.0	37.7	45.2	52.9	61.8	69.3	76.4	75.1	66.2	53.0	40.2	32.4	53.4
Normal[c]	31.8	37.9	46.1	53.5	61.8	69.3	76.3	75.4	65.9	53.0	40.1	31.7	53.6

(a) Highest and lowest averages.
(b) Based on entire period of record, 1945 through 2001.
(c) Based on period 1971-2000.

Table 3.2. Seasonal Average Temperatures (°F)

Year	Winter Dec-Feb	Spring Mar-May	Summer Jun-Aug	Autumn Sep-Nov
1945	--	51.4	74.3	53.9
1946	35.6	54.5	73.2	49.6
1947	34.1	58.1	71.6	53.3
1948	32.3	49.9	72.3	52.1
1949	**24.2**[a]	55.9	73.0	54.6
1950	26.0	50.4	72.8	53.1
1951	35.4	51.8	73.4	52.6
1952	29.8	54.0	72.7	54.0
1953	39.5	51.7	70.9	55.5
1954	35.3	51.9	70.3	54.2
1955	33.1	**48.0**[a]	72.9	50.3
1956	28.9	55.1	73.3	52.0
1957	28.4	55.0	72.7	53.4
1958	40.0	54.3	**78.2**[a]	53.5
1959	34.2	52.3	72.7	50.8
1960	31.3	52.1	74.4	54.5
1961	35.9	52.8	77.9	50.2
1962	33.4	51.7	72.1	54.3
1963	33.5	52.6	72.5	56.6
1964	34.6	51.2	70.7	51.5
1965	32.8	52.7	73.5	54.2
1966	35.6	54.4	71.9	55.3
1967	**40.6**[a]	50.8	77.5	56.1
1968	36.9	54.2	73.7	52.9
1969	27.4	54.2	74.6	52.9
1970	35.3	51.8	76.2	50.8
1971	35.2	52.2	74.8	51.2
1972	32.0	53.6	74.5	51.2
1973	31.6	54.7	73.6	52.2
1974	36.1	52.0	74.2	54.0
1975	34.1	50.3	72.6	53.3
1976	34.7	50.9	70.5	54.0
1977	32.1	53.2	75.2	50.8
1978	34.7	52.7	72.9	49.4
1979	25.2	54.5	74.2	53.3
1980	31.6	53.7	**70.2**[a]	53.2
1981	38.1	54.4	73.0	53.7
1982	33.6	51.9	74.6	51.2
1983	36.8	54.5	70.4	52.6
1984	30.5	51.2	71.9	49.8
1985	26.2	54.2	74.3	**44.5**[a]
1986	31.4	53.9	74.3	53.1
1987	34.4	57.5	74.8	56.3
1988	34.8	54.1	73.9	56.5
1989	32.1	54.0	73.6	55.2
1990	37.1	55.5	75.9	**57.1**[a]
1991	32.4	52.8	74.2	54.6
1992	39.3	**58.2**[a]	76.8	53.8
1993	28.5	54.1	70.7	52.1
1994	36.7	57.4	75.8	54.8
1995	37.5	54.4	72.4	55.4
1996	31.4	52.6	74.7	51.7
1997	34.5	54.7	73.9	54.4
1998	37.7	55.1	77.0	56.3
1999	37.7	51.7	72.5	54.2
2000	36.4	53.8	73.1	49.9
2001	32.9	54.0	73.4	55.1
2002	37.0	51.9	75.7	52.6
Average[b]	33.7	53.3	73.6	53.1
Normal[c]	33.8	53.8	73.7	53.0

(a) Highest and lowest averages.
(b) Based on entire period of record, 1945 through 2002.
(c) Based on period 1971-2000.

Table 3.3. Monthly and Seasonal Number of Days with Maximum Temperatures (°F) Above or Below Certain Thresholds

	100°F or Above						90°F or Above								32°F or Below							
Year	May	Jun	Jul	Aug	Sep	Total	Apr	May	Jun	Jul	Aug	Sep	Oct	Total	Season	Oct	Nov	Dec	Jan	Feb	Mar	Total
1945	0	0	8	4	0	12	0	1	7	21	21	5	0	55	1944-45	--	--	--	12	1	1	14
1946	0	0	7	6	0	13	1	0	4	15	18	0	0	38	1945-46	0	2	9	0	0	0	11
1947	1	0	2	0	0	3	0	8	4	17	11	2	0	42	1946-47	0	4	4	14	0	0	22
1948	0	2	0	0	0	2	0	1	9	14	7	7	0	38	1947-48	0	0	6	8	9	0	23
1949	0	1	6	2	1	10	0	8	8	15	18	8	0	57	1948-49	0	0	13	28	8	0	49
1950	0	0	2	3	2	7	0	1	5	20	22	8	0	56	1949-50	0	0	5	24	5	1	35
1951	0	0	8	3	0	11	0	1	8	23	19	5	0	56	1950-51	0	0	2	8	2	0	12
1952	0	0	9	4	0	13	0	2	5	21	17	12	0	57	1951-52	0	0	16	19	0	0	35
1953	0	0	4	4	0	8	0	0	0	21	13	11	0	45	1952-53	0	9	6	1	0	0	16
1954	0	0	1	0	0	**1**[a]	0	2	3	20	9	3	0	37	1953-54	0	0	2	12	4	0	18
1955	0	2	5	2	2	11	0	0	9	12	19	8	0	48	1954-55	0	0	5	13	2	1	21
1956	0	0	10	5	0	15	0	7	2	22	16	7	0	54	1955-56	0	15	16	7	15	0	53
1957	0	1	1	0	0	2	0	3	8	14	8	6	0	39	1956-57	0	7	10	22	7	0	46
1958	1	6	10	11	0	**28**[a]	0	8	11	28	25	5	0	77	1957-58	0	0	2	2	0	0	4
1959	0	0	8	1	0	9	0	1	7	21	12	3	0	44	1958-59	0	3	5	8	2	0	18
1960	0	0	16	5	0	21	0	1	12	28	12	5	0	58	1959-60	0	5	7	23	1	2	38
1961	0	7	8	10	0	25	0	1	15	26	24	1	0	67	1960-61	0	0	14	10	0	0	24
1962	0	0	10	1	0	11	0	0	11	17	10	8	0	46	1961-62	0	0	7	12	2	0	21
1963	0	3	0	3	0	6	0	4	7	8	18	11	0	48	1962-63	0	0	3	14	3	0	20
1964	0	0	6	0	0	6	0	0	5	14	10	2	0	31	1963-64	0	1	11	3	0	0	15
1965	0	0	6	5	0	11	0	1	7	20	12	1	0	41	1964-65	0	0	14	5	0	0	19
1966	1	0	2	4	0	7	0	5	2	15	21	7	0	50	1965-66	0	1	8	3	0	0	12
1967	0	2	6	15	0	23	0	2	13	25	27	12	0	**79**[a]	1966-67	0	0	2	0	0	0	**2**[a]
1968	0	0	10	3	0	13	1	1	5	22	12	4	0	45	1967-68	0	0	10	4	0	0	14
1969	0	3	4	2	0	9	0	6	17	20	15	7	0	65	1968-69	0	0	7	20	4	0	31
1970	0	9	11	5	0	25	0	2	15	22	19	0	0	58	1969-70	0	3	9	15	0	0	27
1971	0	0	16	11	0	27	0	2	2	20	26	2	0	52	1970-71	0	3	11	9	1	0	24
1972	0	0	5	10	0	15	0	5	8	21	19	5	0	58	1971-72	1	0	10	9	7	0	27
1973	0	2	10	5	0	17	0	6	7	21	18	4	0	56	1972-73	0	0	14	10	0	0	24
1974	0	6	5	3	0	14	0	0	18	16	18	6	0	58	1973-74	0	4	1	12	0	0	17
1975	0	0	9	0	0	9	0	2	4	22	12	8	0	48	1974-75	0	0	0	6	6	0	12
1976	0	1	2	0	1	4	0	1	4	17	9	4	0	35	1975-76	0	3	5	7	0	0	15
1977	0	1	2	13	0	16	1	0	13	16	22	0	0	52	1976-77	0	0	12	20	3	0	35
1978	0	1	6	6	0	13	0	0	12	17	11	2	0	42	1977-78	0	5	9	6	2	0	22
1979	0	2	7	1	0	10	0	1	13	23	20	7	0	64	1978-79	0	7	11	30	4	0	52
1980	0	0	3	0	0	3	0	0	0	18	9	2	0	**29**[a]	1979-80	0	7	3	16	6	0	32

Table 3.3. (contd)

Year	100°F or Above						90°F or Above								32°F or Below							
	May	Jun	Jul	Aug	Sep	Total	Apr	May	Jun	Jul	Aug	Sep	Oct	Total	Season	Oct	Nov	Dec	Jan	Feb	Mar	Total
1981	0	0	3	13	0	16	1	0	4	19	22	11	0	57	1980-81	0	1	6	0	2	0	9
1982	0	2	5	3	0	10	0	0	15	16	17	5	0	53	1981-82	0	0	8	10	2	0	20
1983	1	0	1	0	0	2	0	8	2	9	13	0	0	32	1982-83	0	3	10	5	0	0	18
1984	0	0	3	3	0	6	0	1	4	21	16	4	0	46	1983-84	0	0	25	12	1	0	38
1985	0	1	15	0	0	16	0	3	10	30	7	0	0	50	1984-85	0	2	18	29	9	0	**58**[a]
1986	3	1	0	6	0	10	0	6	11	9	27	3	0	56	1985-86	0	15	25	5	1	0	46
1987	1	5	3	4	1	14	2	6	15	14	19	12	0	68	1986-87	0	0	7	9	0	0	16
1988	0	0	8	3	3	14	0	4	11	19	20	7	0	61	1987-88	0	0	16	11	1	0	28
1989	0	0	2	2	0	4	0	0	13	20	9	3	0	45	1988-89	0	0	11	2	8	1	22
1990	0	0	11	9	0	20	0	1	8	24	15	12	0	60	1989-90	0	2	6	0	1	0	9
1991	0	0	4	8	0	12	0	0	1	25	23	5	0	54	1990-91	0	0	15	13	0	0	28
1992	0	7	5	9	0	21	0	8	16	15	17	3	0	59	1991-92	0	0	3	0	0	0	3
1993	1	0	0	2	0	3	0	7	6	4	15	11	0	43	1992-93	0	1	11	20	8	2	42
1994	0	1	13	7	0	21	0	5	8	25	18	12	0	68	1993-94	0	6	4	1	8	0	19
1995	0	0	5	3	1	9	0	4	7	17	11	12	0	51	1994-95	0	0	5	6	2	0	13
1996	0	0	13	6	0	19	0	0	8	25	18	5	0	56	1995-96	0	0	8	9	5	0	22
1997	0	0	3	7	0	10	0	5	3	18	22	5	0	53	1996-97	0	5	12	8	2	0	27
1998	0	0	14	9	3	26	1	3	7	26	24	12	0	73	1997-98	0	0	2	5	0	0	7
1999	1	4	2	0	0	7	0	2	5	17	21	4	0	49	1998-99	0	0	7	3	0	0	10
2000	0	1	5	1	0	7	0	0	9	19	16	1	0	45	1999-2000	0	0	4	4	0	0	8
2001	1	1	4	8	0	14	0	7	3	20	21	8	0	59	2000-2001	0	5	10	6	2	0	23
2002	0	3	11	2	0	16	0	0	11	24	17	7	0	59	2001-2002	0	2	5	0	0	0	7
															2002-2003	0	4	3	--	--	--	--
Average[b]	<1	1	6	4	<1	12	<1	3	8	19	17	6	0	52	Average	<1	2	8	10	3	<1	23
Normal[c]	<1	2	6	5	<1	13	<1	2	9	19	17	5	0	52	Normal	<1	2	10	10	2	<1	24

(a) Greatest and least seasonal totals.
(b) Based on entire period of record, 1945 through 2002.
(c) Based on period 1971-2000.
Note: Dashes indicate no data are available.

Table 3.4. Days with Maximum Temperatures ≥104°F

Temperature, °F	Date(s) of Occurrence						
113	07/13/02	08/04/61					
112	07/12/02	07/27/98	08/09/71				
111	07/22/94	06/23/92	07/31/71				
110	08/04/98	07/12/90	07/20/79	07/09/75	08/08/72	07/06/68	07/18/60
	07/17/60						
109	07/11/02	08/10/96	07/24/94	07/23/94	07/21/94	08/14/92	07/11/90
	07/19/79	08/07/72	08/10/71	08/01/71			
108	07/28/98	07/26/98	07/26/96	07/15/96	06/24/92	08/05/90	07/18/79
	07/27/75	07/05/75	08/12/71	08/11/71	07/27/71	07/19/71	07/28/68
	07/08/68	07/04/68	08/18/67	08/17/67	08/16/67	07/31/65	07/13/61
	06/17/61						
107	07/31/00	08/13/92	08/01/92	07/31/92	06/25/92	07/14/87	07/29/82
	07/28/82	08/08/81	07/17/79	08/18/77	08/08/71	07/30/71	07/28/71
	07/05/68	08/03/61	07/22/59	07/20/59	07/19/59	07/28/58	07/14/55
106	07/24/02	07/04/01	08/14/98	08/05/98	08/14/97	08/04/97	07/27/96
	07/14/96	08/02/94	08/18/92	07/18/92	06/22/92	09/01/87	06/30/87
	07/09/85	07/25/84	07/22/80	08/09/78	07/23/78	08/17/77	08/13/77
	07/10/75	07/29/73	07/15/73	08/06/72	07/20/71	07/04/70	08/01/65
	07/12/64	07/24/62	06/16/61	06/22/58	07/19/56	07/09/52	
105	08/12/01	07/28/99	08/13/98	07/22/98	08/06/97	08/05/97	08/25/96
	07/28/96	07/24/96	07/19/95	07/17/92	07/03/91	07/22/90	07/15/90
	07/26/88	08/09/87	07/20/85	07/27/82	07/26/82	08/16/81	08/13/81
	08/12/81	08/04/78	08/03/78	07/04/75	07/21/71	07/18/71	08/23/70
	07/19/70	07/16/70	07/08/70	07/27/68	07/07/68	07/03/68	08/30/67
	08/20/67	08/19/67	08/15/67	08/13/67	07/03/67	08/02/61	08/11/60
	07/19/60	07/07/60	07/13/55	08/04/52	07/30/52	07/10/52	07/20/46
	08/16/45						
104	06/26/02	08/15/01	08/09/00	08/03/98	07/25/98	07/17/98	08/09/96
	07/25/96	07/23/96	07/13/96	07/18/95	07/20/94	07/17/94	07/10/90
	07/25/88	07/21/88	07/20/88	05/31/86	05/30/86	07/29/85	07/21/85
	07/08/85	07/04/85	08/07/82	08/11/81	08/10/81	08/07/81	07/27/81
	07/04/81	08/08/78	07/25/78	08/20/77	08/12/77	07/30/74	07/28/74
	08/01/73	07/27/73	07/19/73	06/22/73	08/28/72	08/09/72	08/13/71
	08/07/71	07/16/71	07/09/70	07/03/70	06/23/70	06/21/70	08/31/67
	08/11/67	07/12/67	07/30/65	07/25/62	07/23/62	08/14/61	06/18/61
	08/10/60	07/16/60	07/18/59	08/25/58	08/24/58	08/11/58	07/17/58
	07/11/58	08/22/56	07/24/56	07/23/56	07/21/56	07/22/55	08/15/53
	07/23/51	07/17/51	08/01/49	07/31/49	07/30/49	07/15/49	06/29/48
	08/22/46	08/21/46	07/28/46	07/21/46	07/11/45	07/10/45	

Maximum temperatures ≥90°F occur an average of 52 times per year and vary from a low of 29 times in 1980 to a high of 79 times in 1967. The earliest occurrences varied from early in the year (April 24, 1977) to late in the year (July 2, 1953), with an average annual occurrence of May 21 (Table 3.5). The latest annual occurrence of maximum temperatures ≥90°F varied from August 17 (1983) to September 29 (1993 and earlier years). The average date for maximum temperatures ≥90°F for the period 1946 through 2002 is September 16. The longest period of consecutive maximum temperatures ≥90°F is 32 days from July 13 through August 13, 1971.

Table 3.5. Record of Annual First and Last Dates with Maximum Temperatures ≥90°F and Minimum Temperatures ≤32°F

	Maximum Temperature ≥90°F		Minimum Temperature ≤32°F		
Year	First in Spring	Last in Summer	Last in Spring	First in Autumn	Growing Days[a]
1945	May 30	Sep 14	Apr 10	Oct 18	190
1946	Apr 25	Aug 24	Apr 07	Oct 11	186
1947	May 06	Sep 12	Apr 07	Nov 04	210
1948	May 26	Sep 13	May 02	Oct 17	167
1949	May 08	Sep 27	May 03	Oct 08	157
1950	May 26	Sep 23	Apr 27	Nov 08	194
1951	May 22	Sep 19	Apr 21	Oct 15	176
1952	May 24	Sep 26	Apr 29	Nov 01	185
1953	**Jul 02**[b]	Sep 15	Apr 15	Oct 24	191
1954	May 17	Sep 10	May 01	Oct 01	152
1955	Jun 06	Sep 10	May 14	Oct 31	169
1956	May 16	Sep 19	Apr 06	Oct 22	198
1957	May 29	Sep 15	Mar 26	Oct 22	209
1958	May 18	Sep 10	**Mar 19**[b]	Oct 21	215
1959	May 13	Sep 13	May 05	Oct 30	177
1960	May 10	Sep 18	Apr 21	Oct 11	172
1961	May 25	Sep 04	Apr 19	Oct 20	183
1962	Jun 08	Sep 26	May 04	**Nov 12**[b]	191
1963	May 20	Sep 29	Apr 16	Oct 25	191
1964	Jun 23	Sep 24	Apr 19	Oct 16	179
1965	May 28	Sep 01	May 05	Oct 16	163
1966	May 03	Sep 22	Apr 19	Oct 14	177
1967	May 20	Sep 28	Apr 28	Oct 26	180
1968	Apr 29	Sep 09	Apr 22	Oct 21	181
1969	May 09	Sep 12	Apr 26	Oct 13	169
1970	May 16	Aug 31	May 11	Oct 07	148
1971	May 11	Sep 10	Apr 22	Oct 16	176
1972	May 13	Sep 16	Apr 30	Sep 25	147
1973	May 13	Sep 11	Apr 08	Oct 04	178
1974	Jun 10	Sep 25	**May 16**[b]	Oct 06	142
1975	May 30	Sep 15	Apr 29	Oct 23	176
1976	May 16	Sep 29	Apr 23	Oct 19	178
1977	**Apr 24**[b]	Aug 22	Apr 14	Oct 27	195
1978	Jun 02	Sep 03	Apr 23	Oct 07	166
1979	May 22	Sep 20	Apr 19	Oct 31	194
1980	Jun 01	Sep 06	Apr 11	Oct 22	193
1981	Apr 30	Sep 18	Apr 13	Oct 14	183
1982	Jun 10	Sep 08	Apr 21	Oct 18	179
1983	May 23	**Aug 17**[b]	Apr 16	Oct 11	177
1984	May 29	Sep 18	Apr 13	Oct 14	183
1985	May 18	Aug 29	Apr 21	Oct 07	168
1986	May 25	Sep 04	Apr 30	Nov 09	192
1987	Apr 27	Sep 23	Apr 20	Oct 16	178
1988	May 11	Sep 14	Apr 09	Oct 27	200
1989	Jun 01	Sep 24	Mar 30	Oct 29	212
1990	May 05	Sep 29	Mar 27	Oct 17	203
1991	Jun 10	Sep 26	Apr 08	Oct 22	196
1992	May 04	Sep 03	Apr 08	Oct 15	189
1993	May 10	**Sep 29**[b,c]	Apr 06	Oct 20	196
1994	May 07	Sep 28	Mar 26	Oct 29	216
1995	May 28	Sep 17	Apr 15	Oct 29	196
1996	Jun 02	Sep 15	May 08	Oct 17	161
1997	May 12	Sep 25	May 02	Oct 08	158
1998	Apr 30	Sep 17	Apr 13	Oct 19	188
1999	May 23	Sep 22	May 08	Oct 17	163
2000	Jun 04	Sep 14	Apr 07	**Sep 23**[b]	168
2001	May 12	Sep 24	Apr 14	Oct 28	196
2002	Jun 12	Sep 15	May 8	Oct 12	156
Average[d]	May 21	Sep 16	Apr 20	Oct 19	181
Normal[e]	May 21	Sep 16	Apr 18	Oct 17	181

(a) Days between last freezing temperature in spring and first freezing temperature in autumn.
(b) Earliest and latest dates.
(c) Also in previous years.
(d) Based on entire period of record, 1945 through 2002.
(e) Based on period 1971-2000.

The average seasonal number of days with maximum temperatures ≤32°F is 23. The earliest seasonal occurrence of a day with a maximum temperature ≤32°F was October 30 (1971) and the latest was March 11 (1950). The number of winter days with maximum temperatures ≤32°F varied from 2 to 58 days (winters of 1966-1967 and 1984-1985, respectively). The greatest consecutive number of days with maximum temperatures ≤32°F is 29 days, from December 30, 1984, through January 27, 1985. During the period December 27, 1978, through February 4, 1979 (40 days), only 1 maximum temperature greater than 32°F occurred. The average maximum temperature for that period was 21°F.

Table 3.6 lists the monthly and annual maximum temperatures. Only 6 days were recorded when the daily maximum temperature was ≤0°F. These were:

Maximum Date	Temperature
January 31, 1950	-2°F
February 1, 1950	-3°F
February 2, 1950	-3°F
January 27, 1957	0°F
December 29, 1968	-2°F
December 30, 1968	-2°F

3.3 Days with Minimum Temperatures ≤32°F or ≤0°F

The monthly and seasonal number of days with minimum temperatures at or below 32°F or 0°F are listed in Table 3.7.

The seasonal average number of days with minimum temperatures ≤32°F is 106; however, the number ranges from 70 to 143 days (winters of 1991-1992 and 1984-1985, respectively). The greatest consecutive number of days with minimum temperatures of ≤32°F is 93, from November 9, 1978, through February 9, 1979.

The first autumn temperature ≤32°F occurred as early as September 23 (2000) and as late as November 12 (1962). The average date is October 19 (Table 3.5). The last date in spring for minimum temperatures ≤32°F varied from March 19 (1958) to May 16 (1974), with an average date of April 20. The average number of days between last freezing temperature in the spring and first freezing temperature in the autumn is 181 days.

On average, 3 days per winter season have a minimum temperature ≤0°F; however, nearly half of all winters have no minimum temperatures in this category (Table 3.7). The greatest number of these days in any season was 18 (winter of 1949-1950) and the least number of these days was 0 (as recently as the winter of 2000-2001). The greatest number of consecutive days with minimum temperatures ≤0°F is 11 days, from January 25 through February 4, 1950. During this same period, 4 consecutive days had minimum temperatures ≤-20°F. Table 3.8 lists all days with minimum temperatures ≤0°F. Table 3.9 lists monthly and annual minimum temperatures.

Table 3.6. Monthly and Annual Maximum Temperatures (°F)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1945	61	65	72	76	90	98	104	105	93	84	72	57	105
1946	57	60	76	91	89	98	105	104	89	75	64	64	105
1947	57	68	76	88	101	97	103	98	94	83	63	55	103
1948	60	64	73	76	91	104	98	97	98	78	57	52	104
1949	48	56	64	84	98	102	104	104	100	74	65	60	104
1950	50	63	64	78	90	99	102	103	102	76	62	55	103
1951	55	65	65	82	94	97	104	101	97	79	60	58	104
1952	50	55	70	89	92	94	106	105	97	85	62	54	106
1953	63	65	69	78	88	86	103	104	97	81	65	59	104
1954	59	63	65	83	98	94	100	99	92	73	62	54	100
1955	50	58	63	77	86	102	107	101	101	75	66	56	107
1956	59	56	64	85	96	95	106	104	94	79	64	59	106
1957	48	65	66	89	97	100	102	96	98	73	60	59	102
1958	60	63	63	78	101	106	107	104	97	89	67	60	107
1959	59	60	65	79	91	97	107	103	92	77	70	64	107
1960	55	55	83	82	90	96	110	105	94	82	63	52	110
1961	60	64	68	75	94	108	108	113	90	81	58	56	113
1962	63	60	70	85	81	98	106	100	97	76	67	56	106
1963	56	64	70	72	93	102	96	101	98	83	61	57	102
1964	57	60	74	73	88	95	106	97	90	80	60	57	106
1965	60	67	71	82	91	96	108	106	91	84	64	56	108
1966	56	59	78	81	100	95	100	102	99	82	64	56	102
1967	62	67	65	71	92	101	105	108	98	78	65	62	108
1968	66	64	68	90	90	99	110	102	97	73	60	59	110
1969	44	46	74	80	95	103	101	102	96	74	63	54	103
1970	56	60	67	71	92	104	106	105	89	86	63	58	106
1971	72	66	65	76	92	99	111	112	91	85	64	50	112
1972	59	68	76	78	96	98	103	110	95	83	58	65	110
1973	51	61	68	80	98	104	106	104	98	76	62	58	106
1974	61	59	69	77	86	103	104	103	92	80	64	60	104
1975	56	58	65	75	90	95	110	98	96	82	75	62	110
1976	59	59	69	80	90	100	102	98	102	84	71	57	102
1977	61	70	73	94	82	100	101	107	87	75	68	64	107
1978	51	57	74	76	87	101	106	106	90	81	69	54	106
1979	37	62	76	83	94	102	110	101	96	84	59	59	110
1980	51	59	68	87	87	88	106	98	95	89	65	69	106
1981	55	66	70	91	89	96	104	107	99	83	65	58	107
1982	57	68	71	81	88	102	107	104	94	75	63	62	107
1983	61	62	64	77	103	92	100	99	87	78	67	46	103
1984	60	62	67	79	94	96	106	103	92	81	61	52	106
1985	36	60	68	82	95	102	106	97	86	74	66	39	106
1986	57	72	74	84	104	103	99	103	95	84	63	52	104
1987	55	60	70	93	102	106	107	105	106	87	66	59	107
1988	54	71	71	83	94	99	105	102	102	88	69	57	105
1989	67	53	67	80	88	97	101	103	94	80	73	58	103
1990	60	64	76	81	94	96	110	108	98	80	68	57	110
1991	59	66	69	82	83	93	105	103	95	88	65	59	105
1992	60	62	78	85	98	111	107	109	91	87	62	53	111
1993	56	52	66	73	100	98	96	100	98	86	65	67	100
1994	61	63	79	88	95	101	111	106	94	84	62	64	111
1995	67	68	69	80	95	98	105	102	101	74	69	57	105
1996	58	63	68	82	86	98	108	109	94	86	66	52	109
1997	57	64	76	75	94	98	101	106	95	77	63	52	106
1998	57	58	72	92	93	99	112	110	103	84	67	60	112
1999	62	62	75	82	97	102	105	101	91	81	76	62	105
2000	55	54	68	82	87	100	107	104	92	76	58	49	107
2001	56	54	70	83	101	100	106	105	95	83	68	58	106
2002	63	68	70	80	86	104	113	103	96	81	67	56	113

Table 3.7. Monthly and Seasonal Number of Days with Minimum Temperatures (°F) at or below 32°F or 0°F

	Minimum Temperature ≤32°F										Minimum Temperature ≤0°F				
Season	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	Nov	Dec	Jan	Feb	Total
1944-1945	--	--	--	--	27	18	12	6	0	63	--	--	0	0	0
1945-1946	0	5	14	25	27	20	10	2	0	103	0	0	0	0	0
1946-1947	0	8	23	24	27	19	6	1	0	108	0	0	1	0	1
1947-1948	0	0	11	26	25	24	21	7	1	115	0	0	0	0	0
1948-1949	0	8	15	30	31	25	11	4	1	125	0	2	9	0	11
1949-1950	0	10	4	25	30	22	18	4	0	113	0	0	14	4	**18**[a]
1950-1951	0	0	13	19	26	25	21	2	0	106	0	0	0	0	0
1951-1952	0	6	19	26	31	24	20	6	0	132	0	0	0	0	0
1952-1953	0	0	25	19	9	15	12	4	0	84	0	0	0	0	0
1953-1954	0	1	14	22	23	16	19	4	1	100	0	0	2	0	2
1954-1955	0	6	6	26	30	25	22	10	1	126	0	0	0	0	0
1955-1956	0	1	22	28	25	26	14	2	0	118	1	0	2	3	6
1956-1957	0	3	18	21	31	23	11	0	0	107	0	0	12	1	13
1957-1958	0	2	17	16	19	5	16	0	0	75	0	0	0	0	0
1958-1959	0	4	14	24	25	24	14	2	1	108	0	0	2	0	2
1959-1960	0	2	24	26	31	21	10	4	0	118	0	0	1	0	1
1960-1961	0	4	15	29	23	10	7	5	0	93	0	0	0	0	0
1961-1962	0	7	28	26	27	17	19	0	1	125	0	0	1	0	1
1962-1963	0	0	13	17	27	17	11	2	0	87	0	0	2	0	2
1963-1964	0	5	8	31	26	26	16	4	0	116	0	0	0	0	0
1964-1965	0	5	13	29	25	18	19	1	1	111	0	2	0	0	2
1965-1966	0	1	8	25	26	22	13	3	0	98	0	0	0	0	0
1966-1967	0	3	11	18	20	17	18	9	0	96	0	0	0	0	0
1967-1968	0	1	17	25	23	13	6	5	0	90	0	0	0	0	0
1968-1969	0	4	8	24	30	25	15	1	0	107	0	4	5	1	10
1969-1970	0	5	19	21	28	13	16	7	1	110	0	0	0	0	0
1970-1971	0	8	14	28	24	19	20	7	0	120	0	0	0	0	0
1971-1972	0	9	18	27	25	23	13	6	0	121	0	0	3	1	4
1972-1973	3	6	13	23	30	23	10	4	0	112	0	7	1	0	8
1973-1974	0	4	14	16	19	15	12	0	1	81	0	0	8	0	8
1974-1975	0	4	12	26	29	24	17	7	0	119	0	0	0	0	0
1975-1976	0	2	23	28	30	22	19	6	0	130	0	0	0	0	0
1976-1977	0	8	17	30	30	19	14	1	0	119	0	0	0	0	0
1977-1978	0	3	18	25	22	17	11	4	0	100	0	1	2	0	3
1978-1979	0	7	26	31	31	21	13	2	0	131	0	3	8	2	13
1979-1980	0	1	23	22	31	22	13	3	0	115	0	0	1	0	1
1980-1981	0	4	16	16	17	17	11	6	0	87	0	0	0	0	0
1981-1982	0	5	13	23	27	17	12	12	0	109	0	0	2	0	2
1982-1983	0	4	21	26	20	13	4	9	0	97	0	0	0	0	0
1983-1984	0	3	11	31	26	17	5	2	0	95	0	4	0	0	4
1984-1985	0	14	20	31	31	25	20	2	0	**143**[a]	0	4	0	3	7
1985-1986	0	7	23	31	23	17	8	4	0	113	5	1	0	0	6
1986-1987	0	0	11	29	25	17	9	2	0	93	0	0	0	0	0
1987-1988	0	3	11	25	29	22	13	2	0	105	0	0	0	0	0
1988-1989	0	1	12	23	24	25	11	0	0	96	0	0	0	4	4
1989-1990	0	2	11	25	18	20	11	0	0	87	0	0	0	0	0
1990-1991	0	2	11	27	27	14	14	2	0	97	0	8	0	0	8
1991-1992	0	6	8	18	22	11	3	2	0	**70**[a]	0	0	0	0	0
1992-1993	0	1	9	29	27	23	10	1	0	100	0	0	2	0	2
1993-1994	0	5	26	22	21	21	12	0	0	107	1	0	0	0	1
1994-1995	0	2	20	24	20	11	13	2	0	92	0	0	0	0	0
1995-1996	0	3	12	25	28	22	13	5	1	109	0	0	2	3	5
1996-1997	0	7	19	26	24	18	10	7	1	112	0	1	0	0	1
1997-1998	0	4	12	25	21	14	9	3	0	88	0	0	0	0	0
1998-1999	0	5	10	23	20	15	13	7	2	95	0	1	0	0	1
1999-2000	0	6	10	22	29	21	14	2	0	104	0	0	0	0	0
2000-2001	1	5	27	30	28	26	12	4	0	133	0	0	0	0	0
2001-2002	0	1	14	26	19	22	20	7	1	110	0	0	0	0	**0**[a,b]
Average[c]	<1	4	15	24	26	20	13	4	<1	106	<1	1	1	<1	3
Normal[d]	<1	4	16	25	25	19	12	4	<1	105	<1	1	1	<1	3

(a) Greatest and least seasonal totals.
(b) Most recent of numerous occurrences.
(c) Based on entire period of record, 1945 through 2002.
(d) Based on period 1971-2000.

Table 3.8. Days with Minimum Temperatures ≤0°F

Temperature (°F)	Date(s) of Occurrence					
-23	02/03/50	02/01/50				
-22	01/26/57					
-21	01/27/57	02/02/50	01/31/50			
-18	02/01/96	01/31/96	01/29/50			
-15	02/03/96					
-14	02/02/96	12/30/68	01/29/57	01/28/57		
-13	11/23/85	12/22/83	01/09/74	12/16/64	01/30/50	
-12	12/22/90	11/24/85	02/01/79	12/17/64	01/25/57	
-11	01/30/96	01/01/79	01/17/50	01/14/50	01/25/49	
-10	12/29/90 02/02/56	12/21/90 02/01/56	02/02/79	12/30/78	01/06/74	12/29/68
-9	12/23/83	01/06/79	12/31/78	01/02/78	01/08/74	
-8	12/01/85 01/16/50	01/06/82	01/07/74	12/10/72	01/23/69	01/30/57
-7	01/07/79	01/31/56	01/28/50	01/05/50		
-6	12/28/96 01/29/69 01/11/49	11/22/85 01/28/69	01/31/79 01/18/57	01/05/74 01/20/54	12/13/72 01/04/50	12/08/72 01/24/49
-5	02/05/89 01/15/50	02/04/85	01/01/78	1/10/74	12/12/72	12/09/72
-4	01/13/93 01/11/74 01/12/49	12/23/90 12/11/72	02/04/89 01/28/72	12/19/84 01/12/63	12/21/83 01/28/49	01/27/79 01/13/49
-3	02/06/89 12/29/78 01/11/63	11/25/85 12/31/77 01/17/57	02/03/85 01/31/69	12/18/84 01/30/69	01/10/80 12/31/68	01/08/79 12/28/68
-2	12/31/90 01/04/74 01/10/49	12/30/90 12/14/72 12/27/48	12/20/90 01/22/62	12/21/84 01/31/57	12/20/84 01/19/57	01/05/79 01/20/49
-1	12/21/98 02/01/69 01/30/56	11/24/93 01/18/60 11/14/55	11/26/85 01/04/59 02/04/50	01/08/73 02/02/57 01/25/50	02/03/72 01/16/57 01/13/50	01/26/72 02/03/56
0	01/11/93 01/28/79 01/26/50	12/24/90 01/27/72 01/04/49	02/02/89 01/03/59 12/26/48	02/06/85 01/24/57 01/15/47	12/27/83 01/21/54	01/07/82 01/27/50

Table 3.9. Monthly and Annual Minimum Temperatures (°F)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1945	21	14	10	28	38	46	53	47	35	26	16	13	10
1946	18	18	25	30	33	44	50	49	35	21	16	6	6
1947	0	11	23	32	42	45	53	50	40	34	22	16	0
1948	14	1	13	28	32	51	49	47	34	22	20	-2	-2
1949	-11	3	27	30	31	42	49	47	38	23	28	10	-11
1950	-21	-23	20	27	38	44	49	51	38	34	21	22	-23
1951	6	18	22	26	37	41	51	47	39	27	23	4	4
1952	5	16	24	27	37	42	49	46	42	34	7	17	5
1953	24	20	23	27	36	40	52	51	37	30	24	20	20
1954	-6	17	18	26	28	41	45	48	36	26	23	14	-6
1955	18	15	6	26	31	42	43	48	37	32	-1	9	-1
1956	-7	-10	15	28	38	40	54	49	39	31	15	2	-10
1957	-22	-1	28	34	48	48	51	52	36	32	20	23	-22
1958	16	29	23	34	38	47	49	53	34	30	9	21	9
1959	-1	19	25	30	30	41	49	49	41	26	6	14	-1
1960	-1	10	13	30	33	46	52	41	40	30	22	14	-1
1961	16	27	25	31	38	44	50	56	36	26	10	3	3
1962	-2	7	15	33	31	37	42	49	40	34	16	16	-2
1963	-4	8	22	28	36	45	49	49	45	23	17	7	-4
1964	15	19	15	30	35	45	50	44	39	30	20	-13	-13
1965	10	18	14	32	32	48	50	42	33	30	26	10	10
1966	17	19	19	26	37	38	48	50	43	29	22	22	17
1967	23	20	20	27	34	47	52	56	43	30	17	6	6
1968	10	15	25	23	33	42	51	47	39	30	23	-14	-14
1969	-8	-1	22	31	38	52	53	45	41	29	19	19	-8
1970	8	21	24	26	30	46	50	52	34	23	11	8	8
1971	8	15	15	27	36	44	44	51	38	13	21	5	5
1972	-4	-1	24	26	36	45	50	49	30	20	24	-8	-8
1973	-1	21	26	27	34	45	46	46	43	31	16	14	-1
1974	-13	23	21	33	32	41	48	48	40	29	24	17	-13
1975	14	10	19	21	33	38	53	46	44	26	15	14	10
1976	16	10	11	25	35	37	47	44	42	28	13	12	10
1977	4	21	24	31	34	39	49	48	36	28	9	-3	-3
1978	-9	17	25	30	37	44	50	47	41	21	7	-10	-10
1979	-11	-12	20	29	38	45	39	53	42	32	13	19	-12
1980	-3	19	25	28	38	40	47	42	41	30	18	9	-3
1981	23	8	24	24	35	40	45	48	34	27	19	8	8
1982	-8	9	24	24	33	47	45	51	41	26	18	13	-8
1983	12	15	29	27	37	40	49	50	35	29	22	-13	-13
1984	10	24	25	30	33	37	51	47	36	12	25	-4	-4
1985	5	-5	21	26	33	44	56	46	33	26	-13	-8	-13
1986	12	15	29	28	37	43	48	54	38	33	16	18	12
1987	9	18	24	30	38	43	49	51	41	31	17	9	9
1988	14	9	24	31	35	42	47	52	38	32	28	8	8
1989	15	-5	14	35	39	46	49	52	44	27	21	19	-5
1990	22	9	24	37	39	47	46	52	48	31	28	-12	-12
1991	5	26	22	31	38	44	55	47	42	23	23	20	5
1992	19	22	32	27	37	49	54	43	40	30	17	12	12
1993	-4	3	17	32	35	46	50	43	37	29	-1	21	-4
1994	20	5	19	35	36	44	50	53	47	30	19	8	5
1995	8	8	21	28	39	47	52	45	42	16	17	16	8
1996	-18	-18	18	30	29	45	49	48	34	34	17	-6	-18
1997	8	20	28	25	30	46	49	52	44	29	23	19	8
1998	7	22	23	29	39	47	58	50	43	25	27	-1	-1
1999	18	20	25	25	30	38	45	43	36	27	26	20	18
2000	18	21	24	29	33	43	44	49	32	30	18	13	13
2001	20	17	23	28	34	44	53	50	38	31	26	16	16
2002	13	16	18	29	32	46	50	50	38	7	11	23	7

3.4 Monthly Extremes of Daily Maximum and Minimum Temperatures

Monthly extremes of daily maximum and minimum temperatures are presented in Table 3.10. Note that ranges are comparable in the winter and in the summer. February temperatures ranged from 72°F to -23°F, a range of 95°F. July temperatures ranged from 112°F to 39°F, a range of 83°F.

3.5 Daily Temperature Distributions

Daily temperatures are generally described relative to a long-term average temperature or to a record high or low temperature. For example, the daily maximum temperature may be described as above average or near the record for the day. However, this type of description does not provide information about whether the temperature is in the range of temperatures that is typical for the day. Figure 3.1 shows an example of a different way of presenting temperature information that places the temperatures in the context of the climatological records. The figure shows the record low and high daily maximum temperatures at the Hanford Meteorology Station for January 7 based on climatological records from 1945 through 2001. Between the record low and high temperatures, the figure has a bar that shows the range of daily maximum temperatures that have occurred 70% of the time centered on the median. This range can be considered the range of typical daily maximum temperatures for the date. In 15% of the years, the daily maximum temperature has been above the range, and in 15% of the years, it has been below the range. On the bar there is a horizontal mark that indicates the median daily maximum temperature. The median temperature is the daily maximum temperature that has been exceeded in 50% of the years of record. For the Hanford Meteorology Station, the median daily maximum temperature is generally quite close to the long-term average daily maximum temperature. Finally, there is a solid square on the bar. The solid square shows the daily maximum temperature for January 7, 2000. A similar presentation can be prepared for daily minimum temperatures. Figure 3.2 through 3.25 show the daily maximum and daily minimum temperature data by month and the data for 2002.

3.6 Average Daily Temperature Range

Table 3.11 represents the average daily temperature range by month and year for the period 1945 through 2002. This statistic is compiled by determining each daily temperature range (the difference between the maximum and minimum temperature), totaling for every day of the month, and dividing by the number of days in the month. As can be seen from the table, the average daily temperature ranges for July and August (>30°F) are more than double the ranges for December and January (<15°F). The lowest average daily temperature range was 6.8°F in January 1985; the greatest was 34.5°F in August 1967. The greatest range for any single day was 48°F on August 14, 1995 (high of 93°F, low of 45°F) and also on May 11, 1946 (high of 86°F, low of 38°F). The smallest range for any single day was 1°F as recently as December 25, 2000 (high of 31°F, low of 30°F).

3.7 Normal and Extreme Daily Temperatures

Table 3.12 lists the normal and extreme daily maximum and minimum temperatures. Climatological normals are computed every 10 years and are based on a 30-year period, ending with the first year of each new decade. This table is using revised normals based on the period 1971 through 2000. The normal temperatures in Table 3.12 are computed using a 7-day running mean, centered on each day.

Table 3.10. Monthly Normal Temperature (°F) and Monthly Extremes of Maximum and Minimum Temperatures (°F)

	Normal (1971-2000)			Daily Extreme											
				Maximum						Minimum					
Month	Maximum	Minimum	Mean	High	Day	Year	Low	Day	Year	High	Day	Year	Low	Day	Year
Jan	39.0	24.7	31.8	72	31	1971	-2	31	1950	53	30	1971	-22	26	1957
Feb	47.1	28.7	37.9	72	25	1986	-3	1	1950	60	24	1986	-23	3	1950
				72	24	1986							-23	1	1950
Mar	57.8	34.3	46.1	83	25	1960	24	3	1960	50	15	1992	6	5	1955
										50	5	1987			
										50	3	1987			
Apr	66.8	40.2	53.5	94	24	1977	41	7	1945	64	28	1987	21	5	1975
May	75.7	47.9	61.8	104	31	1986	51	11	1967	71	29	1986	28	1	1954
				104	30	1986									
Jun	83.6	55.1	69.3	111	23	1992	55	3	1966	80	24	1992	37	3	1962
													37	2	1976
													37	1	1984
Jul	91.6	61.1	76.3	113	13	2002	59	2	1966	82	23	1994	39	2	1979
Aug	90.7	60.1	75.4	113	4	1961	64	31	1999	81	4	1961	41	22	1960
Sep	80.6	51.3	65.9	106	1	1987	52	22	1984	72	7	1955	30	27	1972
													30	25	1972
Oct	65.8	40.2	53.0	89	4	1980	32	30	1971	60	25	1945	7	31	2002
				89	3	1958				60	15	1988			
										60	2	1988			
Nov	48.5	31.7	40.1	76	13	1999	6	24	1985	60	9	1989	-13	23	1985
Dec	38.4	25.0	31.7	69	26	1980	-2	30	1968	56	2	1975	-14	30	1968
							-2	29	1968						
Annual	65.5	41.7	53.6	113		7/13/02	-3		2/1/50	82		7/23/94	-23		2/3/50
						8/4/61									2/1/50

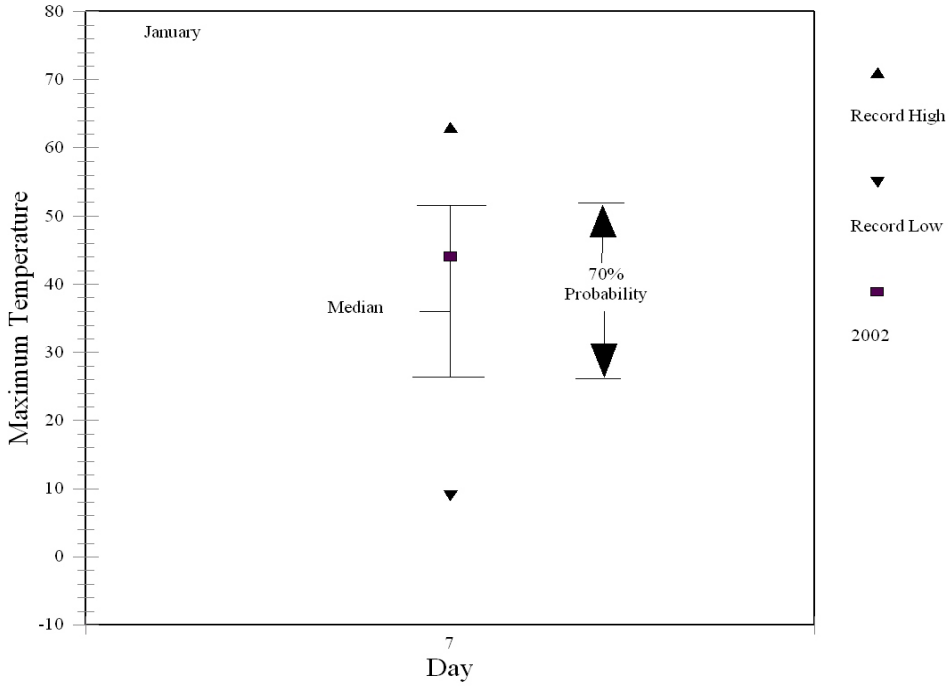

Figure 3.1. Graphical Presentation of Daily Maximum Temperatures

Four possible temperature extremes are presented for each day, a record high and low maximum and a record high and low minimum. These daily records, plus the year of occurrence for the period 1945 through 2002, also are indicated in Table 3.12.

3.8 Heating- and Cooling-Degree Days

Data about heating- and cooling-degree days are generally used by the utility industry and those involved in building design to assess heating and cooling energy requirements. A temperature of 65°F is generally used as the basis for this calculation. To determine whether a day has either heating-degree days or cooling-degree days, 65 is subtracted from the daily average temperature (computed by adding the daily maximum and minimum temperatures and dividing by two). If the difference is positive, the day has cooling-degree days. If the difference is negative, the day has heating-degree days.

Example Calculations

	Summer Day	Winter Day
Daily high temperature	90	42
Daily low temperature	60	20
Daily average temperature	75 (150÷2)	31 (62÷2)
Threshold temperature	-65	-65
Difference	10 (10 CDDs)*	-34 (34 HDDs)*

*CDDs = cooling-degree days; HDDs = heating-degree days.

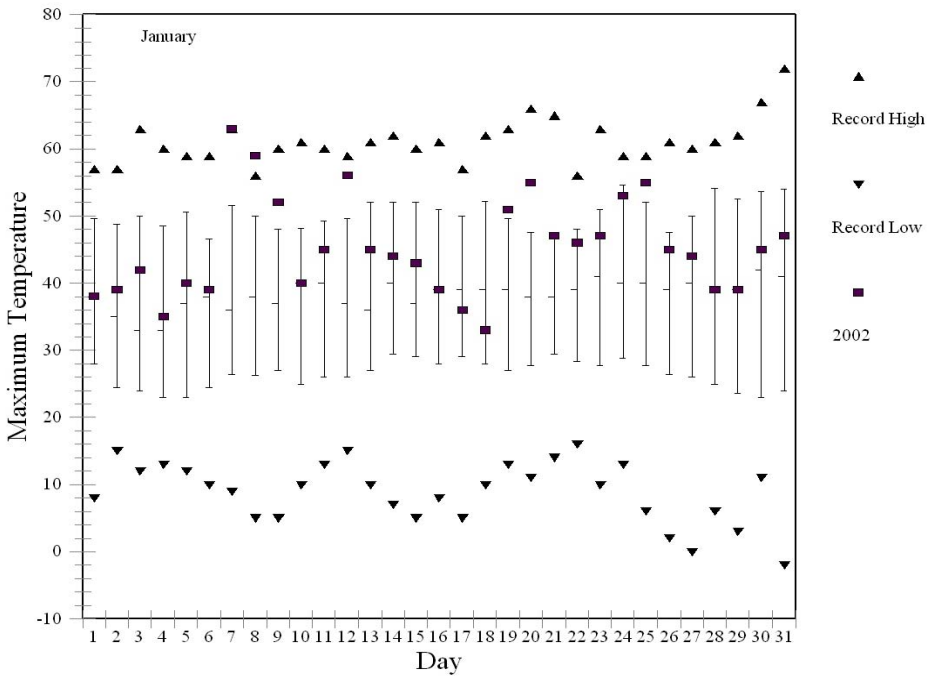

Figure 3.2. Daily Maximum Temperatures (°F), January 2002

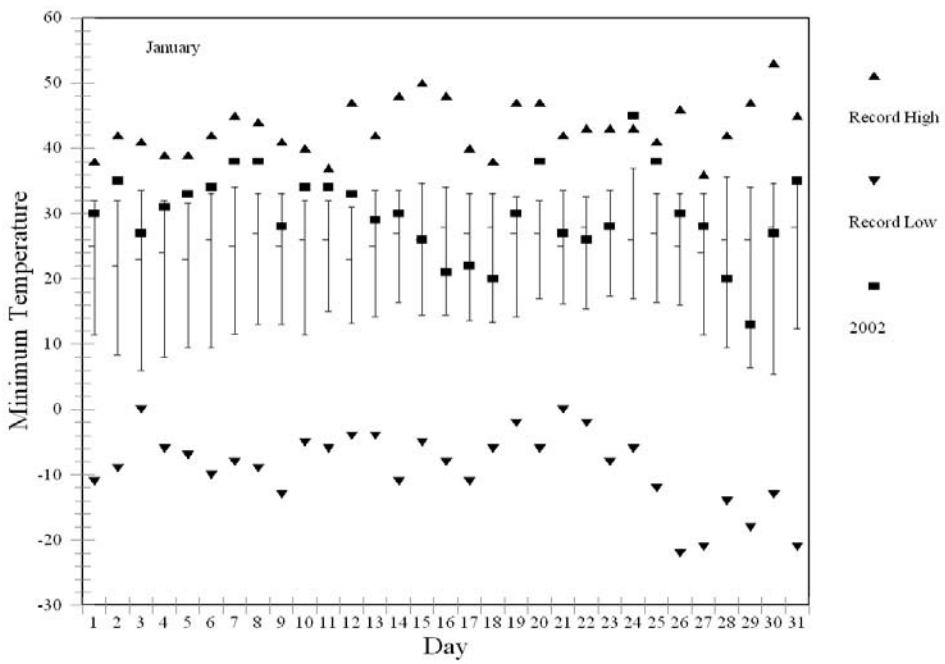

Figure 3.3. Daily Minimum Temperatures (°F), January 2002

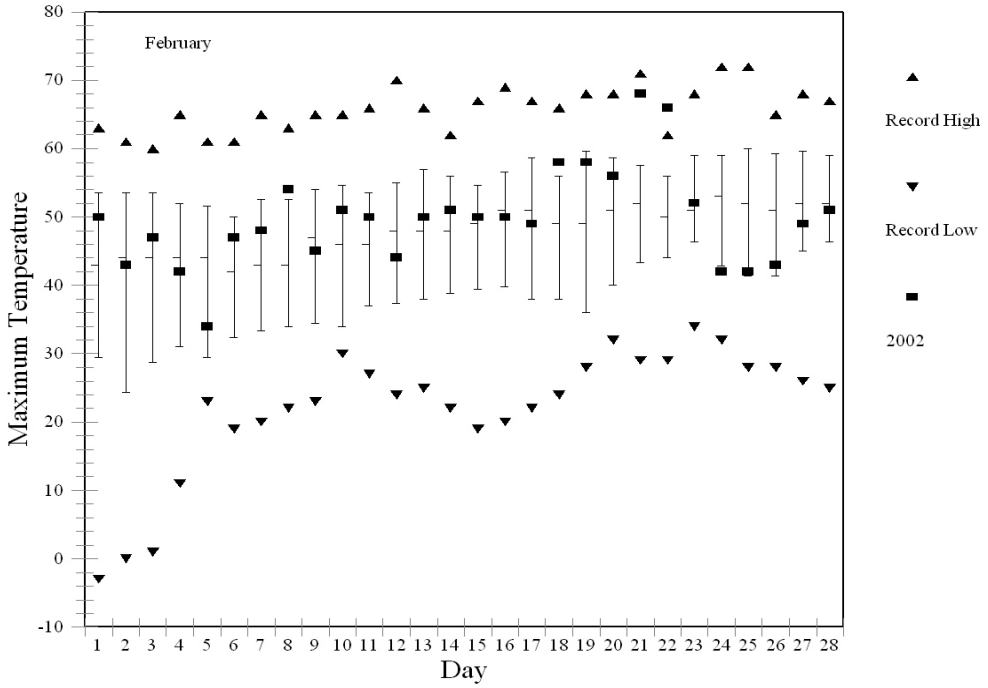

Figure 3.4. Daily Maximum Temperatures (°F), February 2002

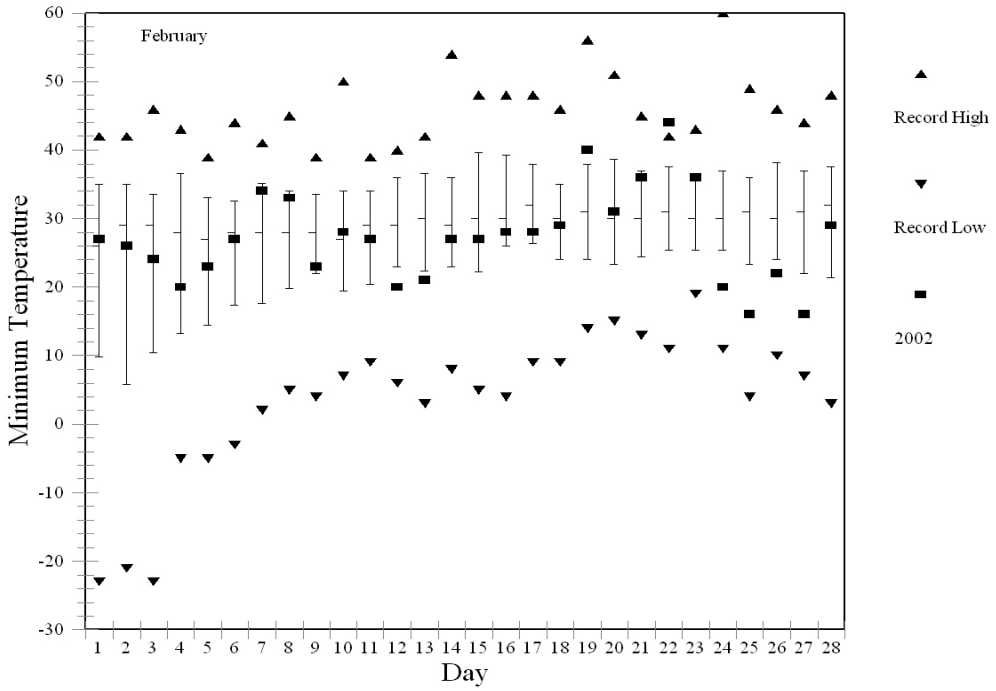

Figure 3.5. Daily Minimum Temperatures (°F), February 2002

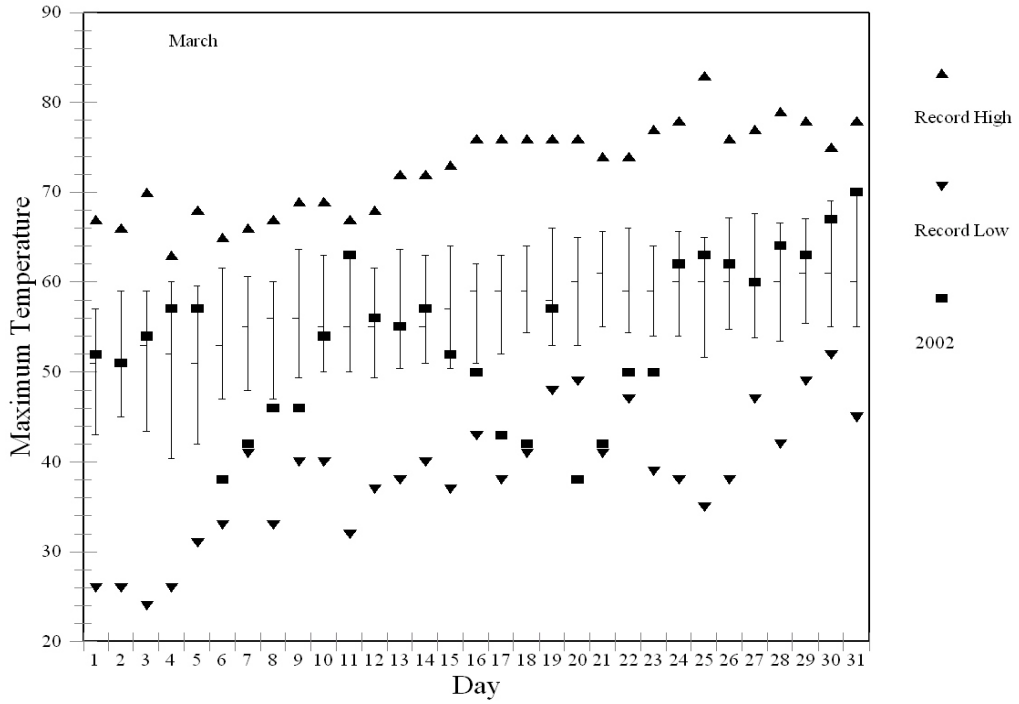

Figure 3.6. Daily Maximum Temperatures (°F), March 2002

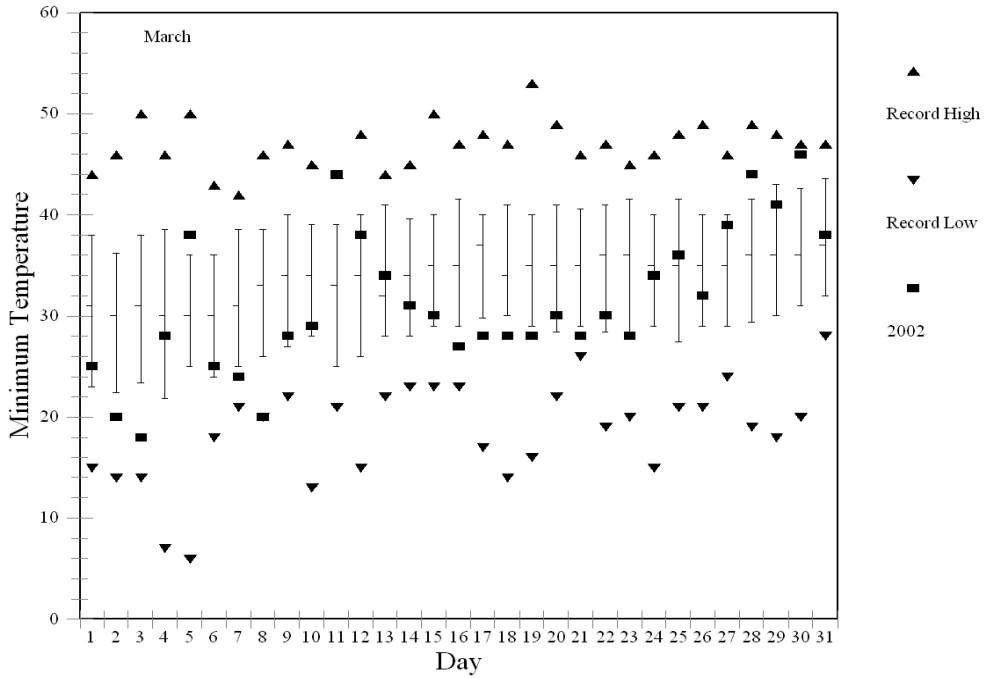

Figure 3.7. Daily Minimum Temperatures (°F), March 2002

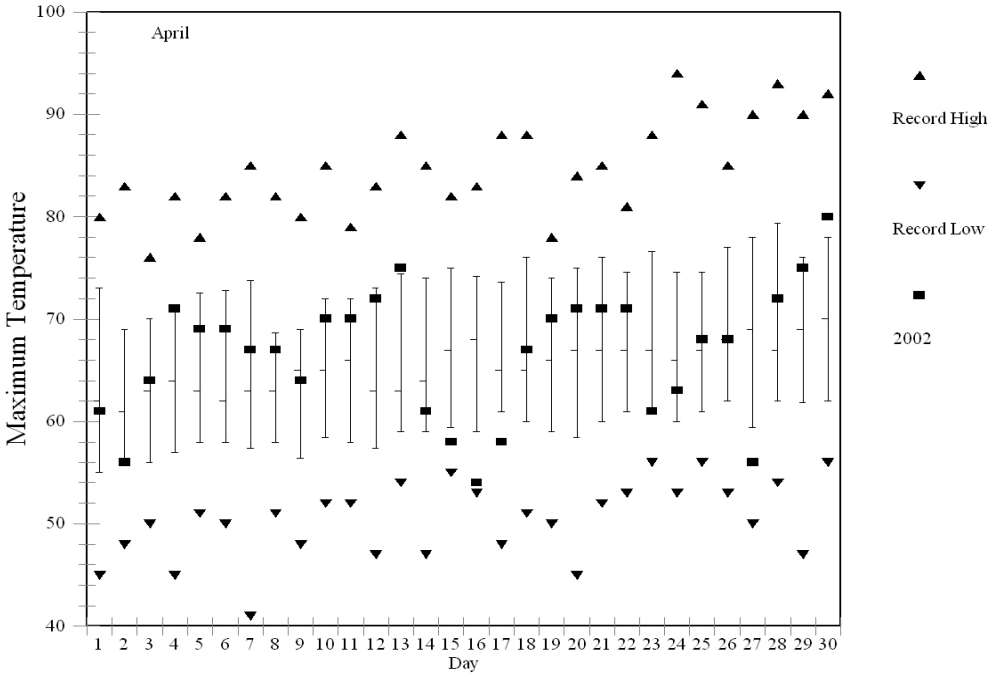

Figure 3.8. Daily Maximum Temperatures (°F), April 2002

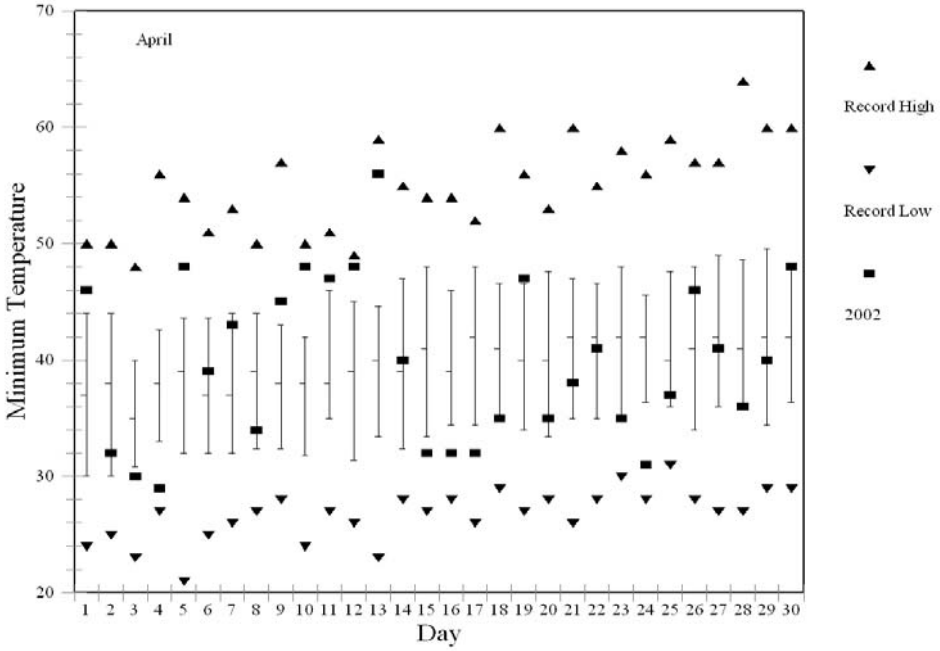

Figure 3.9. Daily Minimum Temperatures (°F), April 2002

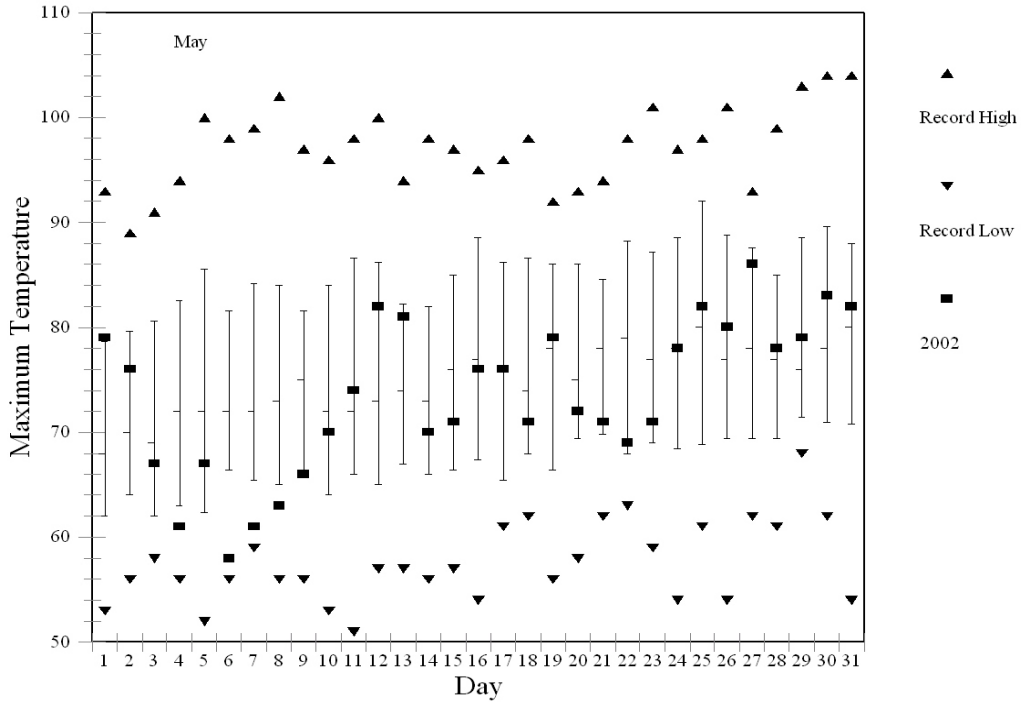

Figure 3.10. Daily Maximum Temperatures (°F), May 2002

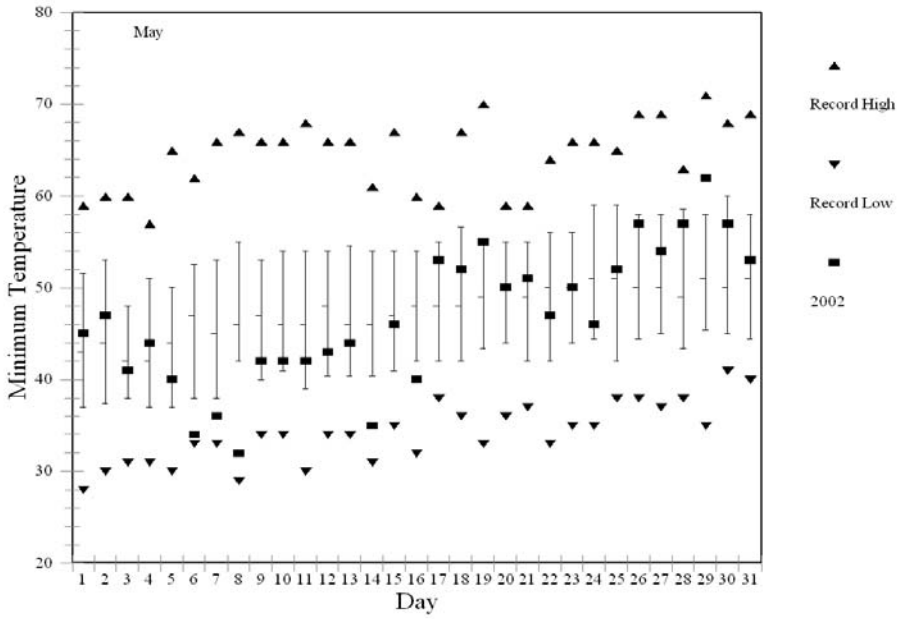

Figure 3.11. Daily Minimum Temperatures (°F), May 2002

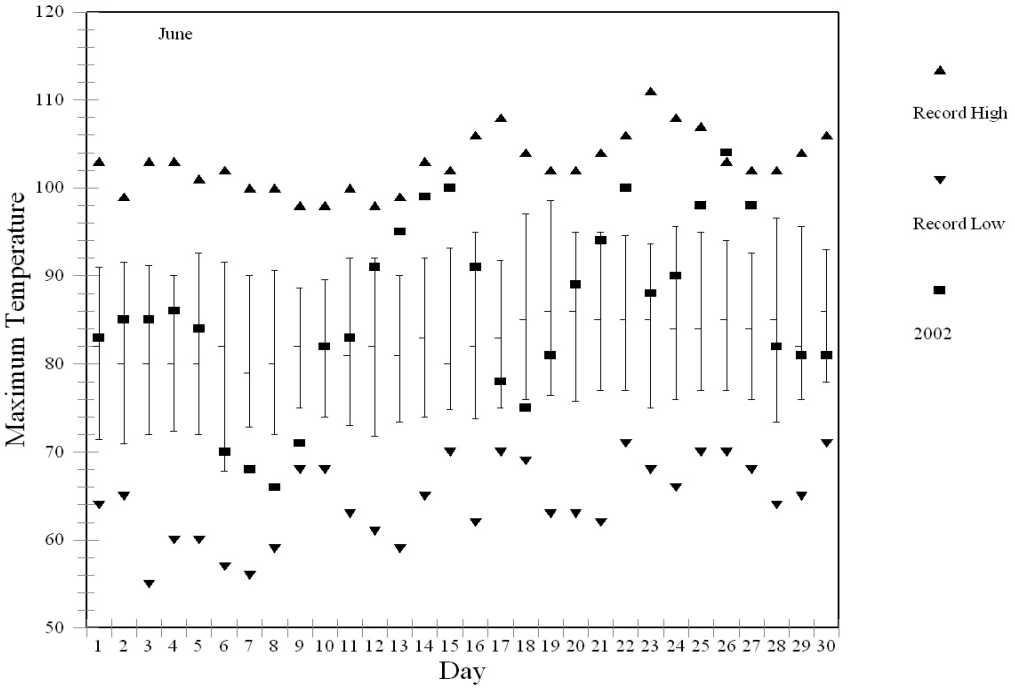

Figure 3.12. Daily Maximum Temperatures (°F), June 2002

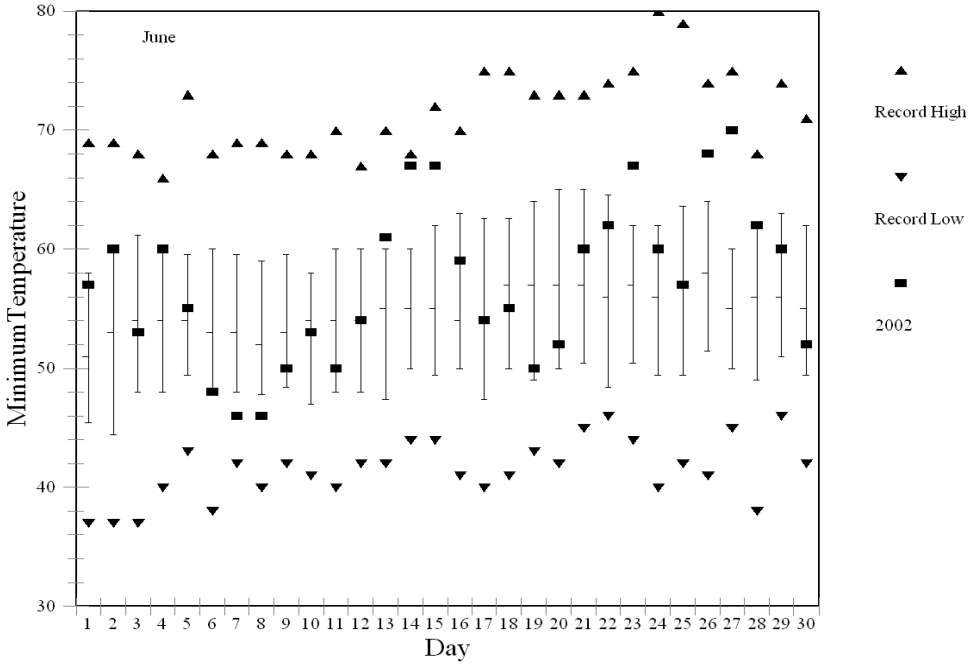

Figure 3.13. Daily Minimum Temperatures (°F), June 2002

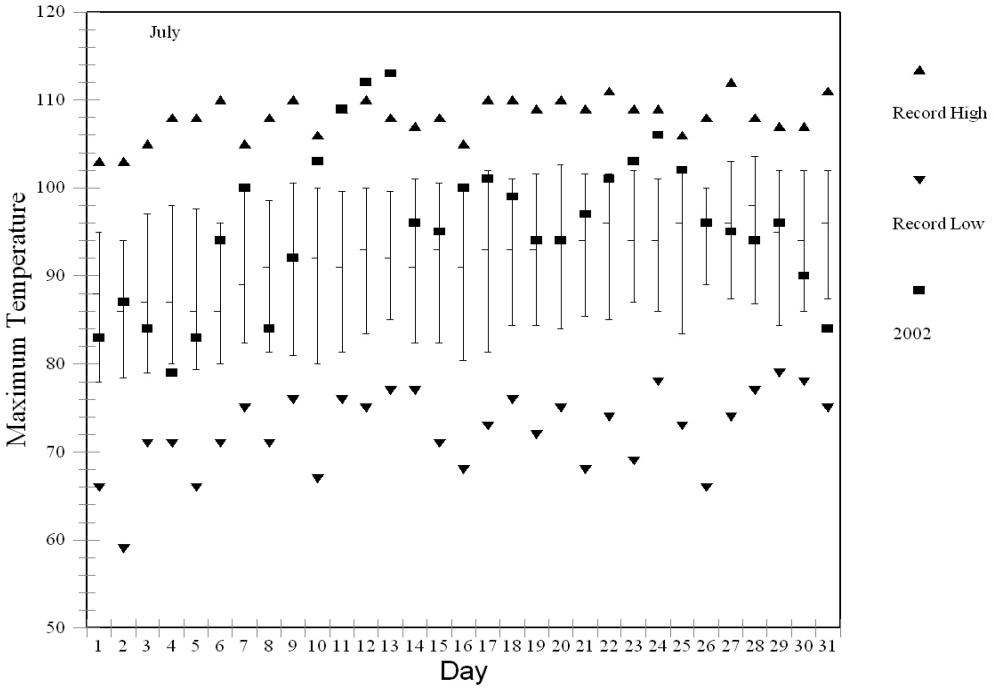

Figure 3.14. Daily Maximum Temperatures (°F), July 2002

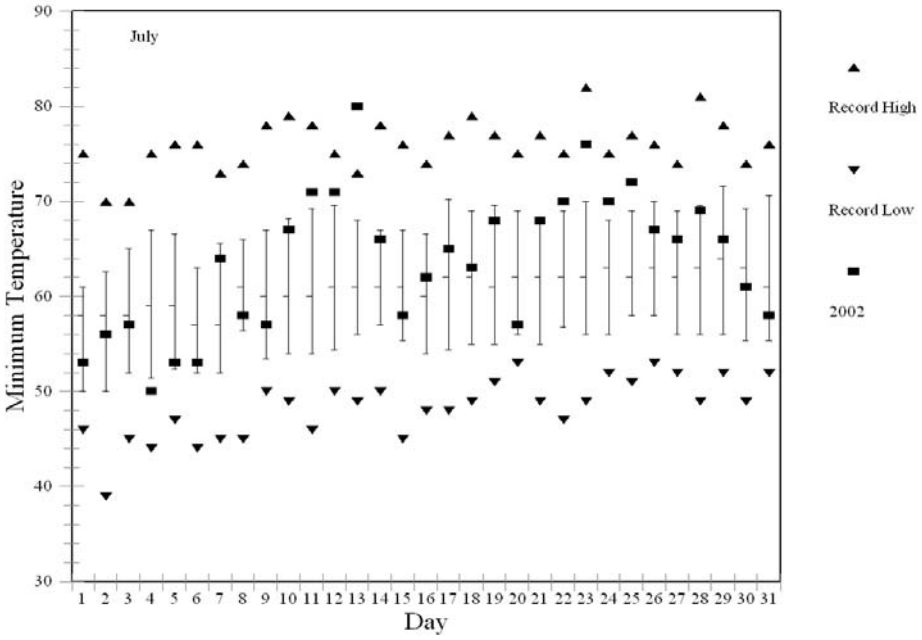

Figure 3.15. Daily Minimum Temperatures (°F), July 2002

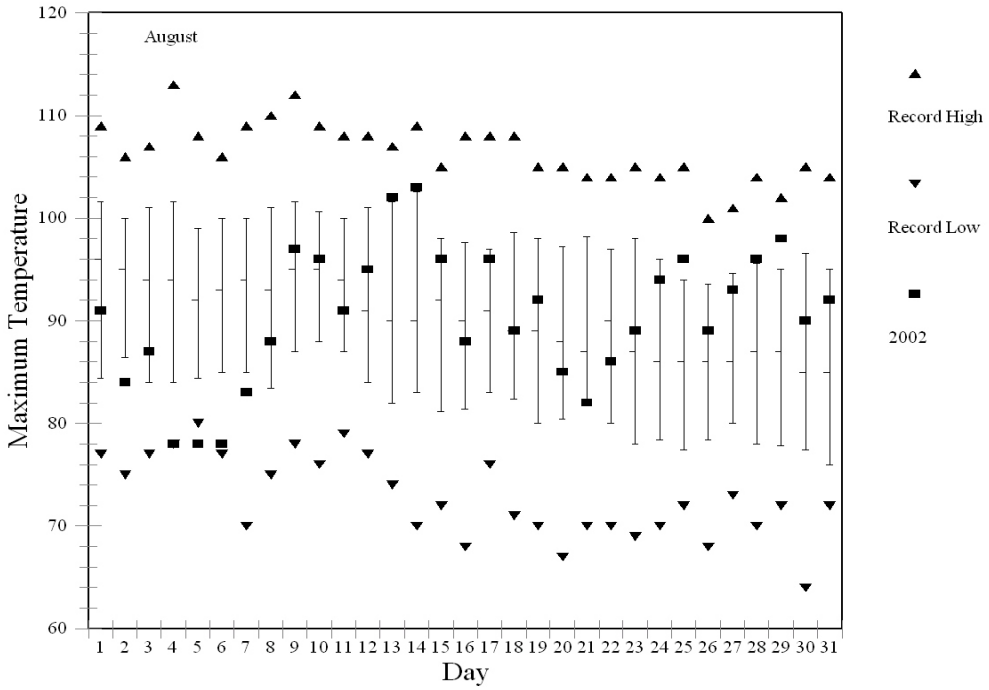

Figure 3.16. Daily Maximum Temperatures (°F), August 2002

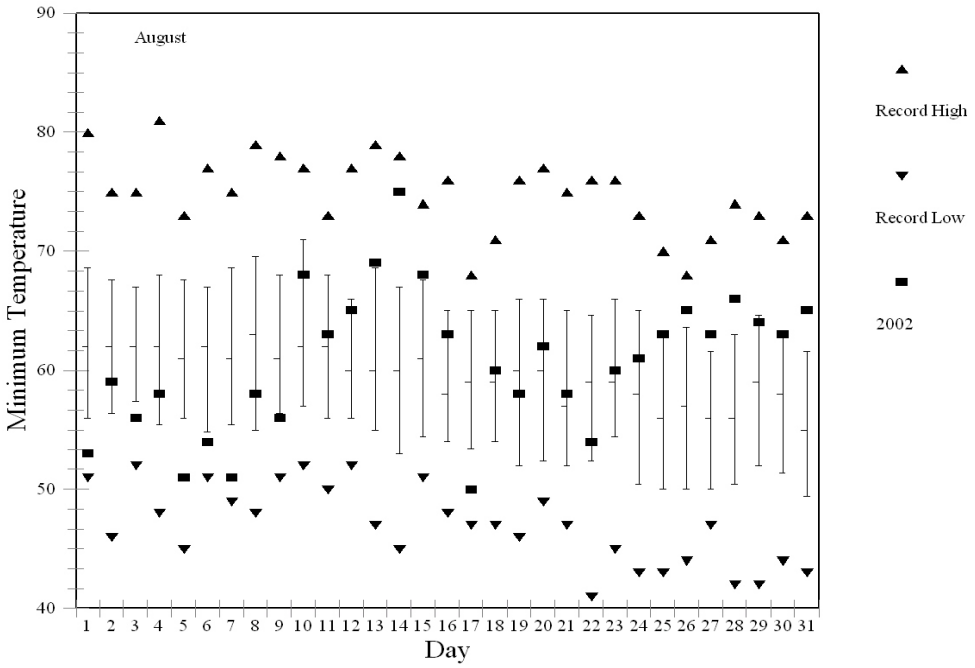

Figure 3.17. Daily Minimum Temperatures (°F), August 2002

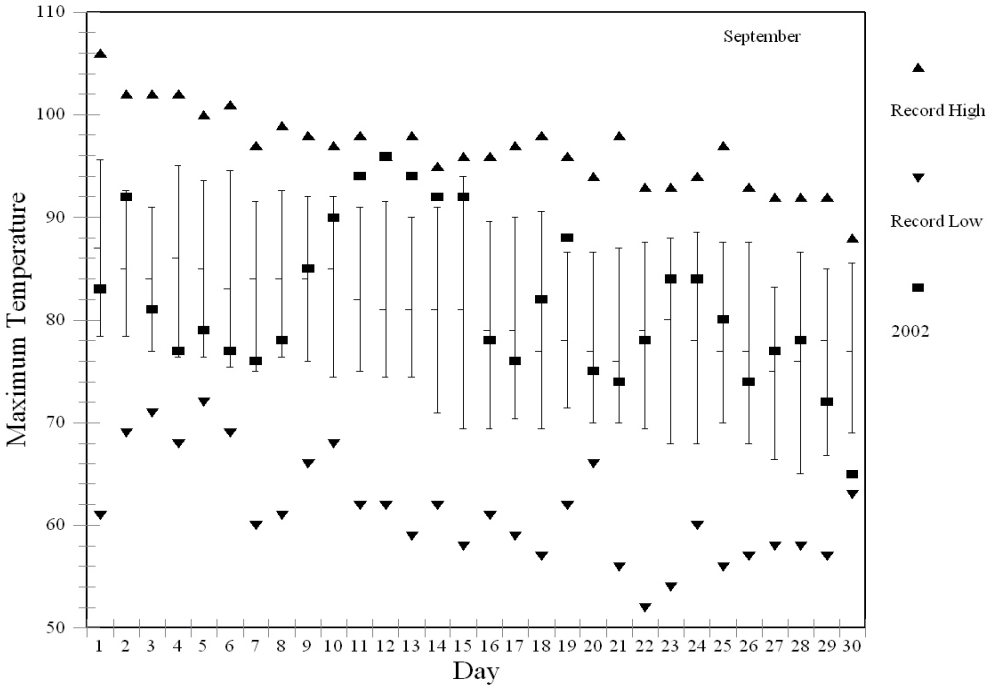

Figure 3.18. Daily Maximum Temperatures (°F), September 2002

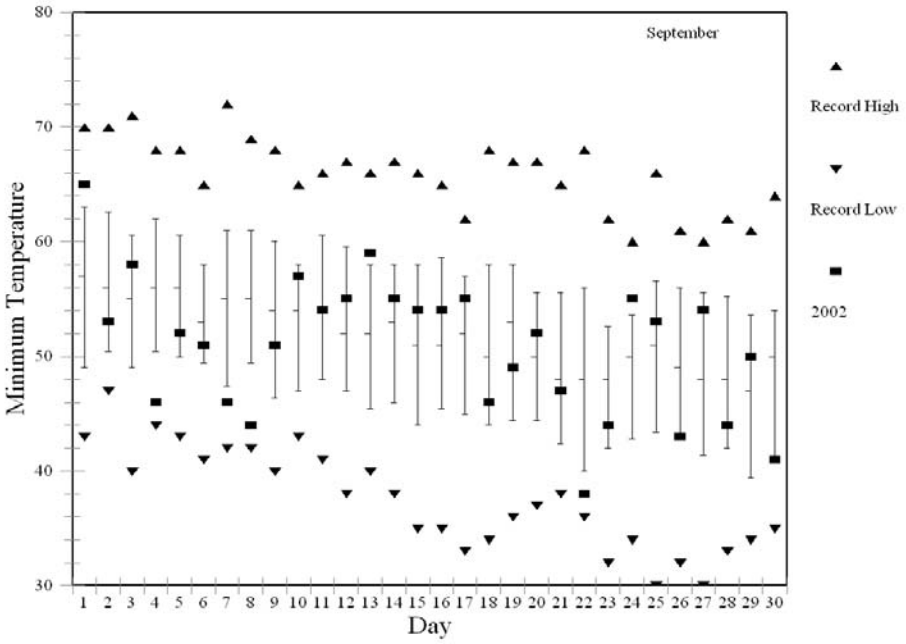

Figure 3.19. Daily Minimum Temperatures (°F), September 2002

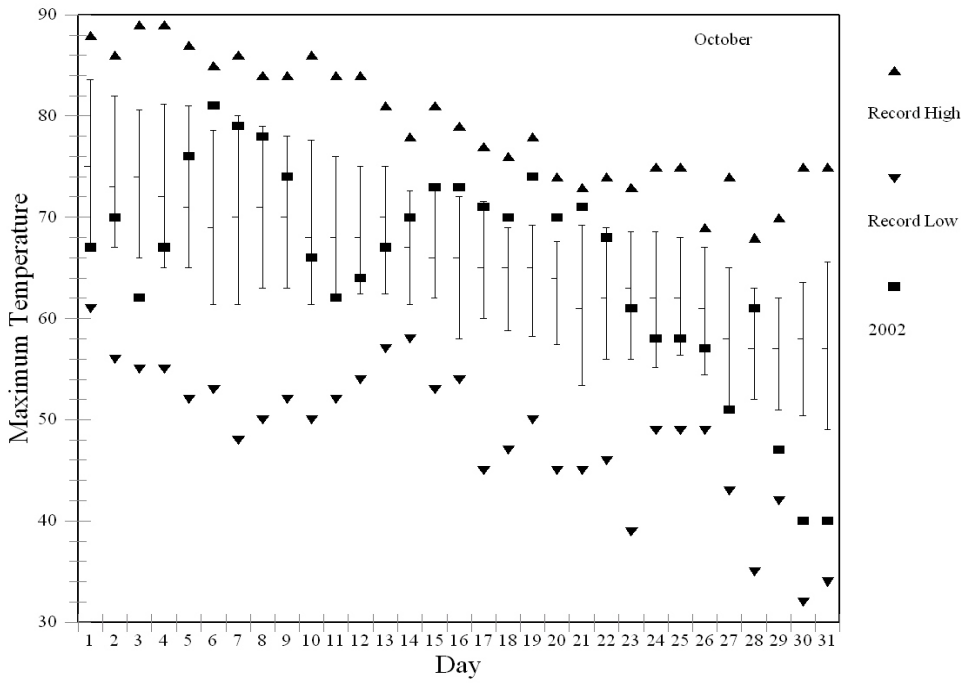

Figure 3.20. Daily Maximum Temperatures (°F), October 2002

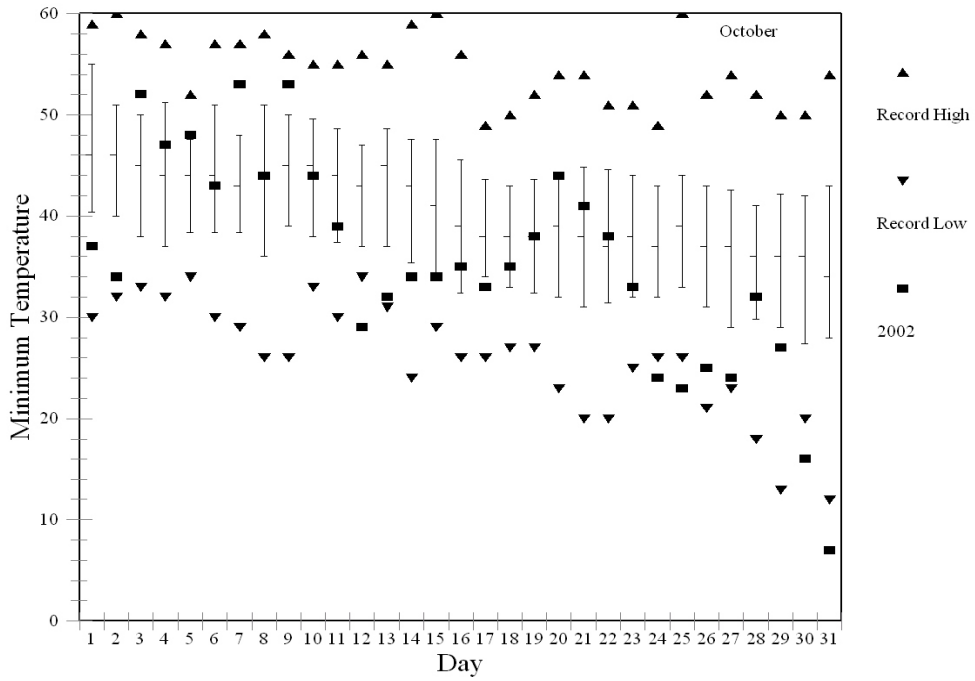

Figure 3.21. Daily Minimum Temperatures (°F), October 2002

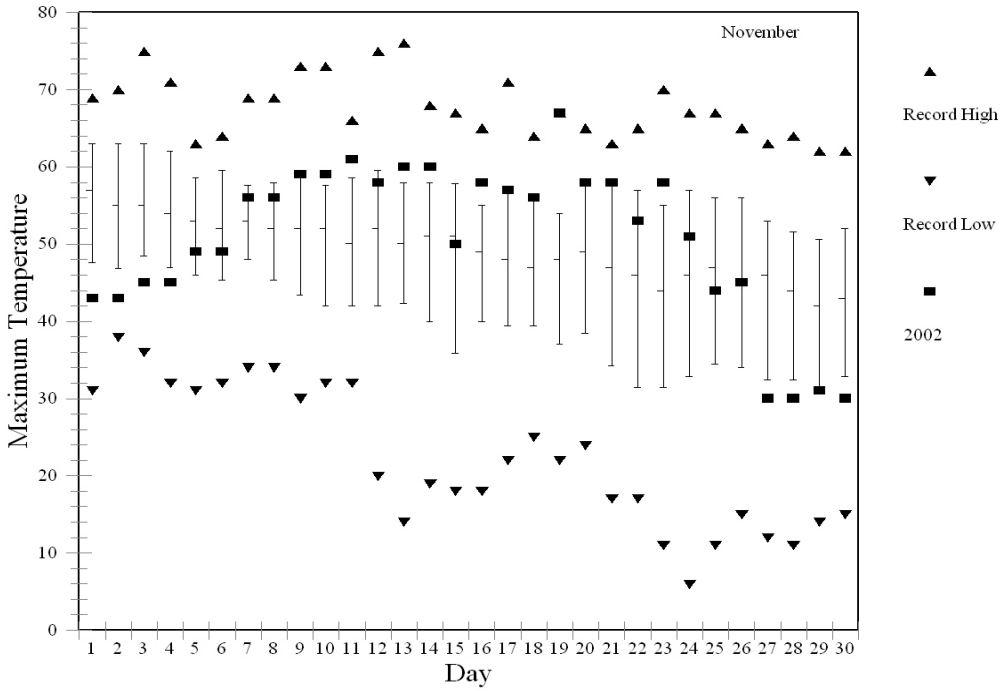

Figure 3.22. Daily Maximum Temperatures (°F), November 2002

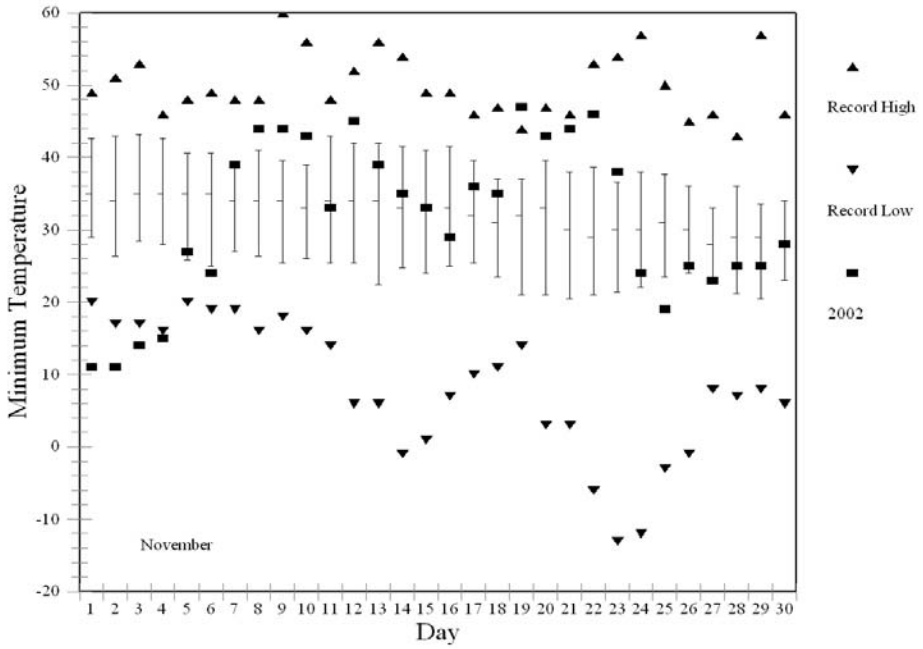

Figure 3.23. Daily Minimum Temperatures (°F), November 2002

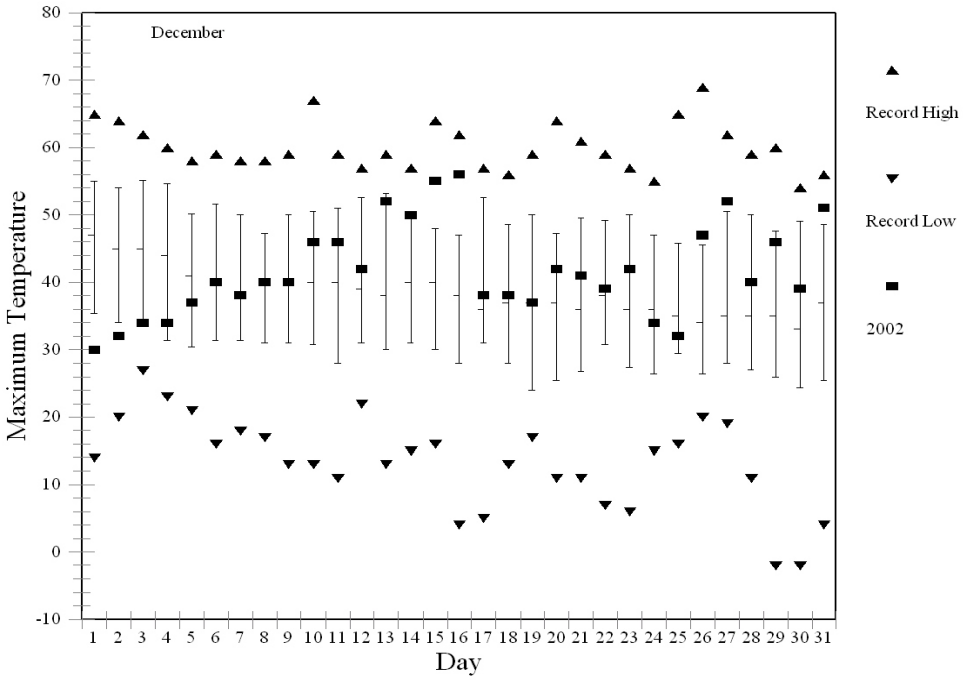

Figure 3.24. Daily Maximum Temperatures (°F), December 2002

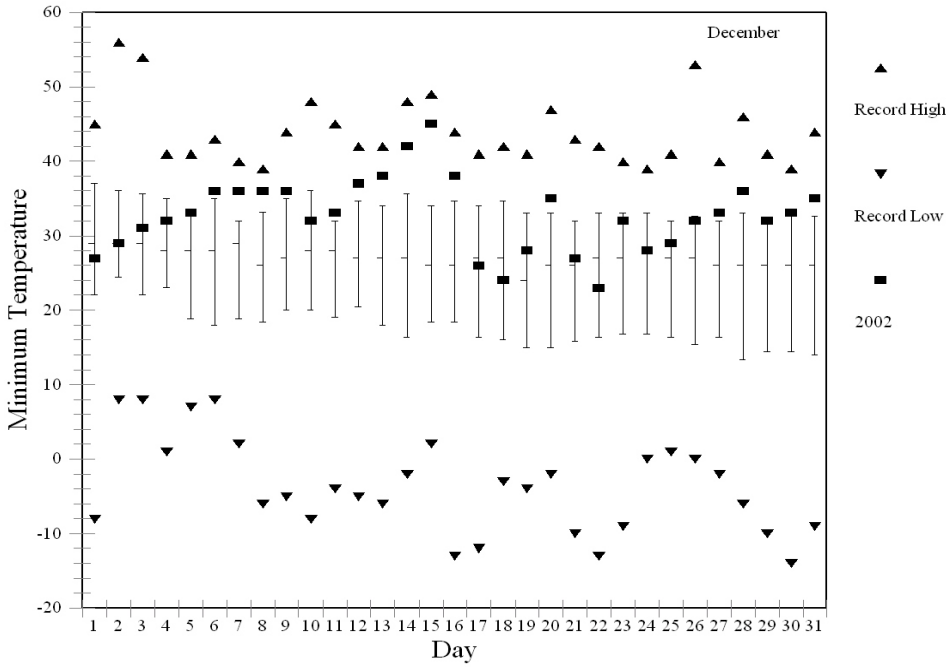

Figure 3.25. Daily Minimum Temperatures (°F), December 2002

Table 3.11. Average Daily Temperature (°F) Range

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1946	17.3	21.0	21.8	26.1	29.6	25.6	30.4	29.4	26.8	23.6	17.7	15.8	23.8
1947	18.4	22.2	25.5	27.7	29.6	**25.3**[a]	29.3	28.8	27.3	**18.1**[a]	15.4	11.1	23.2
1948	15.0	17.2	23.0	23.2	**22.6**[a]	26.4	29.1	28.0	28.7	26.5	17.8	15.9	22.8
1949	**18.8**[a]	19.3	20.6	30.5	28.2	30.2	30.5	30.4	27.2	26.6	16.8	16.7	24.6
1950	16.0	15.6	20.0	25.3	29.6	25.7	32.3	31.6	32.4	18.2	14.7	9.7	22.6
1951	13.7	18.4	20.8	30.3	30.2	28.9	**33.8**[a]	31.5	30.9	23.3	17.4	13.7	24.4
1952	12.6	17.0	22.8	30.3	28.1	27.3	32.6	32.2	32.8	29.0	16.0	9.4	24.2
1953	15.6	19.8	24.4	24.0	27.9	26.4	32.8	29.1	32.5	27.8	20.3	**17.7**[a]	24.9
1954	14.3	13.8	23.7	26.3	28.1	26.8	31.4	27.6	26.2	24.5	15.8	13.2	22.6
1955	9.2	18.9	21.8	24.9	25.3	29.4	27.9	31.7	27.5	22.7	16.1	12.3	22.3
1956	12.9	15.0	20.9	28.0	26.6	26.9	30.8	28.8	30.6	22.1	13.9	13.4	22.5
1957	15.2	18.3	**18.4**[a]	24.7	24.8	27.7	28.7	27.0	29.8	18.4	19.1	14.7	22.2
1958	13.3	15.0	22.0	23.9	29.6	27.3	30.5	33.1	27.0	27.8	17.8	10.2	23.1
1959	14.1	16.2	24.3	26.9	26.5	27.1	31.1	29.9	23.8	24.4	21.9	13.4	23.3
1960	14.6	19.3	23.2	25.7	26.5	31.2	32.8	28.1	28.3	25.7	18.7	10.9	23.8
1961	12.5	17.2	20.0	25.3	25.5	31.5	30.6	30.9	26.9	25.4	20.4	15.0	23.4
1962	18.1	17.4	22.0	28.9	23.2	29.9	30.2	28.3	29.9	21.4	17.3	11.4	23.2
1963	17.2	16.8	23.3	**21.4**[a]	28.1	26.6	27.8	30.7	29.8	24.5	16.9	9.5	22.7
1964	16.0	**24.1**[a]	23.7	27.1	27.9	26.4	31.2	29.4	29.7	26.4	**12.2**[a]	14.8	24.1
1965	12.3	20.3	25.6	26.4	28.3	28.1	31.1	27.7	29.8	27.4	14.2	15.7	23.9
1966	14.3	19.3	24.4	28.2	30.7	27.3	28.7	29.1	28.4	25.7	18.1	13.4	24.0
1967	17.6	24.0	24.6	24.4	27.7	28.7	32.0	**34.5**[a]	31.7	25.5	19.9	15.7	**25.5**[a]
1968	17.2	20.4	23.5	27.5	27.5	27.3	31.2	**26.2**[a]	28.2	22.8	14.2	13.9	23.3
1969	12.2	14.1	25.5	24.5	29.2	27.7	31.3	33.3	27.6	25.0	17.4	9.2	23.1
1970	12.0	16.4	23.8	25.3	29.2	29.3	31.7	33.1	27.2	26.5	17.8	15.4	24.0
1971	18.4	21.1	22.8	26.8	27.7	26.9	32.0	32.3	27.8	25.8	17.8	14.8	24.5
1972	17.3	18.3	25.2	26.8	27.2	26.9	30.1	30.6	30.5	27.5	13.1	17.2	24.2
1973	15.7	16.6	24.6	29.6	31.1	29.7	32.1	32.7	27.0	22.2	12.6	12.5	23.9
1974	17.8	18.8	23.2	23.4	27.3	**32.7**[a]	29.8	31.9	32.2	28.3	16.3	16.5	24.8
1975	15.0	17.0	21.2	24.8	29.5	28.2	30.3	28.7	32.2	22.0	20.9	14.8	23.7
1976	15.2	21.0	25.3	26.0	30.6	28.8	30.5	28.0	30.5	27.5	20.3	16.6	25.0
1977	10.8	20.7	23.4	**30.6**[a]	26.0	30.2	30.5	29.1	23.8	26.6	19.1	15.1	23.8
1978	11.4	15.2	23.0	23.8	27.7	31.3	31.0	29.0	25.8	**30.3**[a]	18.2	16.8	23.6
1979	15.5	18.7	26.0	26.5	29.4	31.1	32.9	32.0	31.1	25.6	13.0	12.9	24.6
1980	13.2	**10.5**[a]	22.1	27.1	25.8	25.8	31.3	29.9	27.3	24.6	15.3	11.4	**22.0**[a]
1981	9.9	17.5	25.9	27.4	27.1	28.3	31.7	32.9	30.8	26.0	20.0	14.2	24.3
1982	16.0	21.4	24.4	28.2	29.9	28.0	30.6	29.5	27.1	24.9	16.6	13.0	24.1
1983	15.5	17.3	20.7	27.9	28.4	27.9	26.3	28.4	27.5	24.7	15.5	11.0	22.6
1984	13.5	15.2	21.6	23.9	26.3	26.1	32.3	32.0	26.6	25.5	14.0	15.7	22.7
1985	**6.8**[a]	20.4	25.4	28.7	29.2	29.4	32.0	29.9	24.3	25.4	15.8	**8.0**[a]	22.9
1986	12.5	17.1	22.1	26.4	26.6	29.1	28.6	31.0	**23.5**[a]	26.8	15.1	8.4	22.3
1987	11.9	19.0	22.4	28.2	28.9	31.2	28.1	30.1	33.0	28.9	19.8	12.0	24.5
1988	13.4	23.8	25.1	25.3	27.4	26.3	30.0	32.1	31.2	26.2	16.9	11.4	24.1
1989	16.5	17.3	20.2	26.2	26.0	28.5	31.1	27.3	31.1	24.0	16.0	9.4	22.8
1990	15.7	20.5	26.5	27.1	24.4	26.8	28.8	27.3	32.2	23.6	18.4	16.0	23.9
1991	16.0	21.4	22.7	26.0	25.1	25.6	30.2	29.6	31.1	26.4	13.1	13.5	23.4
1992	12.5	15.2	25.9	24.6	**31.9**[a]	28.5	28.0	31.6	28.1	24.4	13.6	14.5	23.2
1993	12.8	15.1	18.6	23.7	29.1	27.1	**25.5**[a]	29.5	**33.5**[a]	28.6	**23.9**[a]	10.5	23.2
1994	15.7	17.2	**28.4**[a]	26.0	26.5	29.4	33.0	31.2	31.2	25.4	17.2	13.6	24.6
1995	13.2	20.1	23.7	25.2	28.0	26.3	29.9	30.6	30.2	24.3	19.5	11.7	23.6
1996	14.0	21.2	22.9	26.0	26.6	31.0	33.7	34.1	30.8	23.9	17.0	13.1	24.5
1997	15.6	18.8	22.1	25.7	28.1	27.3	31.2	31.2	26.7	24.3	17.6	14.2	23.6
1998	15.9	19.0	23.7	28.5	27.5	29.2	30.5	33.2	31.9	26.6	16.2	**17.7**[a]	25.0
1999	16.4	18.0	22.2	28.9	28.0	28.0	30.2	29.0	32.9	25.7	17.7	13.5	24.2
2000	14.0	16.8	23.3	28.2	26.4	29.0	31.9	32.7	27.9	23.5	14.1	9.1	23.1
2001	10.5	17.7	24.3	24.2	30.6	26.7	29.5	31.4	31.0	23.8	16.2	13.4	23.3
2002	15.3	22.4	22.5	26.9	26.8	28.8	32.1	29.8	30.9	29.9	19.2	8.9	24.3
Average[b]	14.4	18.3	23.1	26.4	27.7	28.1	30.6	30.3	29.1	25.1	16.9	13.3	23.6
Normal[c]	14.3	18.3	23.5	26.6	27.8	28.5	30.5	30.6	29.3	25.6	16.8	13.3	23.8

(a) Greatest and least values.
(b) Based on entire period of record, 1945 through 2002.
(c) Based on period 1971-2000.

Table 3.12. Normal and Extreme Daily Maximum and Minimum Temperatures (°F)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
					January						
1	35	21	28	57	98[a]	8	69	38	81[a]	-11	79
2	36	21	28	57	97	15	69	42	63	-9	78
3	36	21	28	63	89	12	50	41	81	0	59
4	36	21	28	60	94[a]	13	59	39	54	-6	50
5	36	21	28	59	90[a]	12	50	39	81	-7	50
6	36	22	28	59	90[a]	10	82	42	98	-10	74
7	36	22	29	63	02[a]	9	79	45	90	-8	74
8	36	22	29	59	02	5	74	44	53	-9	74
9	36	22	29	60	90[a]	5	74	41	90	-13	74
10	36	23	29	61	83	10	74	40	83	-5	74
11	37	23	30	60	83[a]	13	63	37	90	-6	49
12	38	24	31	59	53	15	63	47	53	-4	63[a]
13	39	25	32	61	94	10	50	42	66	-4	93[a]
14	40	26	33	62	99	7	50	48	61	-11	50
15	40	26	33	60	74[a]	5	50	50	74	-5	50
16	41	27	34	61	74	8	50	48	89	-8	50
17	41	27	34	57	98	5	50	40	89	-11	50
18	41	27	34	62	89	10	50	38	89	-6	57
19	41	27	34	63	68	13	50	47	68	-2	57
20	41	27	34	66	68	11	54	47	72	-6	54
21	41	27	34	65	68	14	54	42	72	0	54
22	41	27	34	56	90	16	69	43	81	-2	62
23	41	27	34	63	53	10	69	43	81	-8	69
24	41	27	34	59	84[a]	13	57	45	02	-6	49
25	41	26	34	59	92[a]	6	50	41	74[a]	-12	57
26	41	26	34	61	71	2	57	46	62	-22	57
27	41	26	33	60	84[a]	0	57	36	95[a]	-21	57
28	41	26	33	61	67	6	57	42	99	-14	57
29	40	25	33	62	67	3	50	47	99	-18	50
30	40	25	33	67	89[a]	11	57	53	71	-13	50
31	40	25	33	72	71	-2	50	45	53	-21	50
					February						
1	40	25	32	63	71	-3	50	42	92	-23	50
2	40	25	32	61	91[a]	0	50	42	68	-21	50
3	40	24	32	60	67[a]	1	50	46	91	-23	50
4	40	24	32	65	67	11	85	43	68	-5	85
5	40	25	32	61	65	23	85	39	61	-5	89
6	41	25	33	61	67	19	85	44	99	-3	89
7	42	25	34	65	45	20	48	41	55	2	89
8	43	26	35	63	96	22	56	45	45	5	94[a]
9	45	27	36	65	51	23	56	39	61[a]	4	85
10	46	28	37	65	77	30	56[a]	50	51	7	85
11	46	28	37	66	88	27	54	39	93[a]	9	48
12	47	29	38	70	77	24	49	40	77	6	48
13	48	30	39	66	71	25	49	42	47	3	49
14	49	30	40	62	97[a]	22	80	54	82	8	95
15	49	31	40	67	82	19	56	48	81	5	56
16	49	31	40	69	77	20	56	48	81	4	56
17	49	31	40	67	77[a]	22	56	48	48	9	56
18	50	31	40	66	81	24	56	46	81	9	90
19	50	31	41	68	95	28	56	56	95	14	90[a]

Table 3.12. (contd)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
20	51	31	41	68	82	32	57[a]	51	61	15	86
21	51	31	41	71	88	29	57	45	95	13	57
22	51	31	41	66	02	29	57	44	02	11	93
23	51	31	41	68	47	34	93[a]	43	83[a]	19	93
24	51	31	41	72	86	32	62	60	86	11	93[a]
25	52	31	41	72	86	28	93	49	86	4	93
26	52	31	41	65	57[a]	28	93[a]	46	92	10	93
27	52	31	41	68	72	26	93	44	92	7	62
28	52	31	41	67	67	25	93	48	72	3	93
29	52	31	41	63	88[a]	40	60	43	92	12	60
				March							
1	52	31	42	67	94	26	93	44	94	15	71[a]
2	52	31	42	66	68	26	60	46	87	14	60
3	52	31	42	70	94	24	60	50	87	14	89
4	52	31	42	63	53	26	55	46	87	7	55
5	53	32	42	68	72	31	45	50	87	6	55
6	53	33	43	65	67[a]	33	57	43	79	18	60
7	54	33	44	66	53	41	45	42	86[a]	21	74[a]
8	55	33	44	67	53	33	51	46	83	20	02[a]
9	56	34	45	69	53	40	51	47	83	22	94[a]
10	57	34	46	69	72	40	48	45	87[a]	13	48
11	57	35	46	67	95[a]	32	50	44	02[a]	21	50
12	58	35	46	68	98[a]	37	51	48	87	15	56
13	58	35	46	72	98	38	51	44	98[a]	22	69[a]
14	58	35	47	72	92	40	49	45	61	23	53
15	59	35	47	73	94	37	49	50	92	23	76
16	59	36	47	76	72	43	89	47	94	23	55
17	60	36	48	76	72	38	65	48	69	17	65
18	60	36	48	76	47	41	65	47	90	14	65
19	60	36	48	76	47	48	65[a]	53	97	16	65
20	60	36	48	76	47	49	50	38	02	22	74
21	60	36	48	74	60	41	75	46	98[a]	26	82[a]
22	60	35	48	74	78[a]	47	71	47	78	19	94
23	60	35	48	77	60	39	64	45	98[a]	20	48
24	60	35	48	78	60	38	55	46	01	15	64
25	60	35	48	83	60	35	55	48	52	21	96
26	60	35	48	76	46	38	65	49	92[a]	21	85
27	61	35	48	77	94	47	79	46	89	24	75
28	61	35	48	79	94	42	54	49	78	19	75
29	61	36	49	78	94[a]	49	54	48	94[a]	18	54
30	62	36	49	75	92	52	67	47	92[a]	20	54
31	62	36	49	78	92	45	96	47	61	28	53
				April							
1	63	37	50	80	90	45	76	50	59	24	82
2	63	37	50	83	92	48	82	50	87	25	76
3	64	37	50	76	00[a]	50	63[a]	48	77	23	75
4	64	38	51	82	60	45	75	56	91	27	50
5	64	38	51	78	77[a]	51	75	54	60	21	75
6	64	38	51	82	77	50	82	51	62	25	97
7	64	38	51	85	77	41	45	53	60	26	54
8	65	38	51	82	96	51	53	50	96	27	92[a]
9	65	38	51	80	85	48	92	57	96	28	01
10	65	38	52	85	68	52	45	50	96	24	81

Table 3.12. (contd)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
11	65	39	52	79	88	52	83	51	56[a]	27	83
12	66	39	52	83	88	47	95	48	82[a]	26	97
13	66	40	53	88	47	54	55	59	88	23	68
14	66	40	53	85	62[a]	47	75	55	85	28	01
15	67	40	54	82	88	55	75[a]	54	87	27	55
16	67	41	54	83	54	53	63	54	92	28	82
17	67	41	54	88	94	48	63	52	90	26	55
18	68	41	54	88	94	51	67	60	94	29	68
19	68	41	54	78	56	50	51	56	94	27	66
20	68	41	55	84	56	45	67	53	90[a]	28	82
21	68	42	55	85	56	52	67	60	56	26	85[a]
22	68	42	55	81	82[a]	53	88	55	98	28	72
23	68	42	55	88	81[a]	56	79[a]	58	77	30	78
24	69	42	55	94	77	53	75	56	52	28	86[a]
25	69	42	56	91	46	56	58	59	52	31	55
26	69	43	56	85	92	53	48	57	78	28	48
27	70	43	56	90	87	50	90	57	92	27	70
28	70	43	57	93	87	54	95	64	87	27	67
29	71	44	57	90	68	47	67	60	87	29	52
30	71	44	58	92	98	56	67[a]	60	98	29	86
				May							
1	72	44	58	93	98	53	69	59	98[a]	28	54
2	72	44	58	89	98[a]	56	88	60	71	30	97
3	73	45	59	91	66	58	93	60	71	31	49
4	73	45	59	94	66	56	63	57	46	31	62
5	73	45	59	100	66	52	61	65	66	30	59
6	73	45	59	98	92	56	86	62	87	33	00
7	74	46	60	99	87	59	99	66	92	33	84
8	74	46	60	102	87	56	99[a]	67	94[a]	29	96
9	74	46	60	97	87	56	48	66	49	34	99[a]
10	75	47	61	96	49	53	67	66	49	34	70
11	75	47	61	98	49	51	67	68	49	30	70
12	75	47	61	100	93	57	70	66	93	34	85
13	75	47	61	94	97	57	55	66	97	34	85
14	76	48	62	98	73	56	55	61	73[a]	31	55
15	76	48	62	97	73	57	59	67	97	35	74
16	76	48	62	95	73	54	55	60	73	32	74
17	76	48	62	96	73	61	74	59	85	38	88[a]
18	76	48	62	98	54	62	74	67	56	36	72
19	76	48	62	92	93	56	62	70	56	33	75
20	76	48	62	93	47	58	60	59	56	36	71
21	77	49	63	94	58	62	60[a]	59	58	37	74[a]
22	78	49	63	98	58	63	64	64	58	33	60
23	78	50	64	101	01	59	62	66	58	35	64
24	78	50	64	97	01[a]	54	62	66	01	35	75
25	78	50	64	98	92[a]	61	98	65	83	38	91[a]
26	78	51	64	101	58[a]	54	80	69	47	38	78
27	78	51	65	93	83	62	89	69	58	37	73
28	78	51	65	99	83	61	89	63	72[a]	38	79[a]
29	79	51	65	103	83	68	98[a]	71	86	35	76
30	79	51	65	104	86	62	76[a]	68	86	41	55[a]
31	79	52	66	104	86	54	71	69	86	40	96[a]
				June							
1	80	52	66	103	86	64	76	69	86	37	84
2	80	52	66	99	70	65	99[a]	69	89[a]	37	76

Table 3.12. (contd)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
3	80	52	66	103	70	55	66	68	86[a]	37	62
4	80	53	66	103	69	60	74	66	86[a]	40	80[a]
5	80	53	66	101	78	60	88	73	69	43	76[a]
6	81	53	67	102	70[a]	57	95	68	77	38	99
7	81	53	67	100	77	56	50	69	77	42	99
8	81	53	67	100	48	59	64	69	69	40	53
9	82	53	67	98	55	68	59	68	69[a]	42	99
10	82	54	68	98	55	68	00	68	79	41	59
11	82	54	68	100	55	63	00	70	55	40	56
12	83	54	69	98	74	61	01	67	87[a]	42	68
13	83	55	69	99	74	59	80	70	99	42	52
14	83	55	69	103	74	65	95	68	87	44	78[a]
15	83	55	69	102	99[a]	70	65	72	63	44	54
16	84	55	69	106	61	62	49	70	63	41	54
17	84	56	70	108	61	70	73	75	61	40	81
18	84	56	70	104	61	69	64	75	58	41	54
19	85	56	70	102	85	63	95	73	58	43	86
20	85	56	71	102	82	63	91	73	59	42	53
21	85	57	71	104	70	62	84	73	58	45	56
22	86	57	71	106	92[a]	71	93	74	92	46	97[a]
23	86	57	71	111	92	68	72	75	58	44	52
24	86	57	71	108	92	66	72	80	92	40	83
25	86	57	72	107	92	70	46	79	92	42	76
26	86	57	72	104	02	70	75	74	70	41	76[a]
27	87	57	72	102	92	68	47	75	87	45	64[a]
28	87	57	72	102	87[a]	64	46	68	87	38	75
29	87	57	72	104	48	65	52	74	87	46	71[a]
30	87	57	72	106	87	71	55	71	87	42	49
				July							
1	87	57	72	103	87	66	66	75	87	46	73[a]
2	86	57	72	103	96	59	66	70	45	39	79
3	86	57	72	105	91[a]	71	66	70	67	45	99
4	87	57	72	108	68	71	86	75	70	44	00
5	87	58	72	108	75	66	51	76	75	47	99[a]
6	88	58	73	110	68	71	55	76	68	44	71
7	88	59	73	105	68[a]	75	81	73	68	45	71
8	88	59	73	108	68	71	72	74	85	45	81
9	89	59	74	110	75	76	55	78	75	50	72[a]
10	89	60	74	106	75	67	74	79	75	49	97[a]
11	90	60	75	109	02[a]	76	74	78	75	46	81
12	90	60	75	112	02	75	88	75	90	50	74
13	90	60	75	113	02	77	93[a]	80	02	49	76
14	91	61	76	107	87[a]	77	83	78	61	50	83
15	91	61	76	108	96	71	82	76	55	45	82
16	92	61	77	105	70	68	86	74	90	48	74
17	92	62	77	110	60	73	93	77	58	48	86
18	93	62	77	110	60	76	96	79	60	49	96[a]
19	93	62	78	109	79	72	49	77	79	51	77
20	94	63	78	110	79	75	65[a]	75	95	53	68[a]
21	94	63	79	109	94	68	65	77	88	49	49
22	94	63	79	111	94	74	92	75	94[a]	47	82
23	95	63	79	109	94	69	92	82	94	49	63
24	95	63	79	109	94	78	63	75	62	52	52[a]
25	96	64	80	106	84	73	90	77	62	51	49[a]
26	96	64	80	108	98[a]	66	55	76	88	53	99
27	96	64	80	112	98	74	48	74	98[a]	52	86

Table 3.12. (contd)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
28	96	64	80	108	98[a]	77	50[a]	81	98	49	59
29	96	64	80	107	79	01	93[a]	78	82	52	50
30	96	64	80	107	71	78	75	74	90	49	50
31	95	64	79	111	71	75	85	76	00	52	95
				August							
1	95	64	79	109	71	77	76[a]	80	49	51	87
2	95	63	79	106	94	75	56	75	77[a]	46	64
3	95	63	79	107	61	77	62	75	99[a]	52	59
4	95	63	79	113	61	78	02[a]	81	61	48	54
5	95	63	79	108	90	78	02	72	91	45	69
6	95	63	79	106	72	77	46	77	90	51	47
7	95	63	79	109	72	70	62	75	45	49	46
8	94	63	79	110	72	75	62	79	82[a]	48	49
9	94	63	78	112	71	78	47	78	90	51	95[a]
10	94	62	78	109	96[a]	76	85	77	71	52	47
11	94	62	78	108	71	79	83	73	58	50	85
12	93	62	77	108	71	77	95	77	92	52	00
13	92	61	76	107	92	74	68	79	92	47	95
14	91	60	76	109	92	70	68	78	92[a]	45	95
15	90	60	75	105	67	72	60	74	92	51	74
16	90	60	75	108	67	68	93	76	45	48	76
17	89	59	74	108	67	76	95	68	91	47	76
18	89	59	74	108	67	71	80	71	97	47	76
19	88	59	74	105	67	70	68	76	91	46	80[a]
20	88	59	73	105	67	67	59	77	82	49	52
21	88	58	73	104	46	70	60	75	46	47	85[a]
22	88	58	73	104	56[a]	70	92	76	61[a]	41	60
23	88	58	73	105	70	69	92	76	46	45	92
24	88	57	73	104	58	70	68	73	00	43	92
25	88	57	72	105	96	72	77	70	46	43	93
26	88	57	72	100	84	68	56	70	96	44	93[a]
27	88	57	72	101	72	73	68	71	67	47	78[a]
28	87	57	72	104	72	70	51	74	86	42	80
29	87	57	72	102	67	72	51	73	67	42	65
30	86	57	72	105	67	64	99	71	67	44	64
31	86	56	71	104	67	72	99[a]	73	67	43	99
				September							
1	86	56	71	106	87	61	71	70	87	43	99
2	86	56	71	102	98[a]	69	00	70	49	47	75[a]
3	85	55	70	102	98	71	97	71	95	40	00
4	85	55	70	102	88	68	59	68	55	44	80
5	85	55	70	100	55	72	60	68	63	43	69
6	85	55	70	101	55	69	46	65	57[a]	41	96
7	84	54	69	97	58	60	78	72	55	42	92[a]
8	84	54	69	99	81	61	85	69	63	42	76[a]
9	83	53	68	98	81[a]	66	85	68	69	40	62
10	83	53	68	97	93	68	85	65	63	43	82[a]
11	82	53	68	98	90[a]	62	85	66	69	41	88
12	82	52	67	96	02[a]	62	70	67	53	38	49
13	82	52	67	98	48	59	80	66	01	40	74
14	81	52	67	95	01	62	92	67	00	38	70
15	81	52	66	96	79[a]	58	59	66	00	35	70
16	80	52	66	96	81[a]	61	46	65	79	35	65
17	80	51	65	97	81	59	86	62	51	33	65
18	79	51	65	98	81	57	83	68	00	34	65

Table 3.12. (contd)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
19	78	50	64	96	67	62	83	67	56	36	57
20	78	49	64	94	94	66	72[a]	67	94	37	83
21	78	49	63	98	67	56	00	65	62	38	93[a]
22	77	48	62	93	66	52	84	68	66	36	81[a]
23	77	48	62	93	87	54	77	62	92	32	00
24	77	47	62	94	01[a]	60	72	60	50	34	00[a]
25	77	47	62	97	52	56	77	66	49	30	72
26	77	47	62	93	52	57	48	61	79	32	72
27	77	47	62	92	63[a]	58	77	60	49	30	72
28	77	47	62	92	67	58	77	62	76	33	85
29	76	47	62	92	96[a]	57	77	61	89	34	85[a]
30	76	47	61	88	93[a]	63	54[a]	64	93	35	85
				October							
1	75	46	61	88	91[a]	61	59	59	92	30	54
2	75	46	60	86	93[a]	56	67	60	88	32	54
3	74	46	60	89	58	55	50	58	88[a]	33	99[a]
4	73	45	59	89	80	55	50	57	88	32	73
5	72	44	58	87	58	52	57	52	88[a]	34	82[a]
6	72	44	58	85	80	53	57[a]	57	60	30	74
7	72	44	58	86	80	48	57	57	88	29	74
8	71	44	57	84	65	50	97	58	87	26	85
9	71	44	57	84	45	52	58	56	96	26	85
10	70	43	57	86	96	50	62	55	96	33	59
11	70	43	56	84	52	52	68[a]	55	63	30	60
12	69	43	56	84	45	54	66	56	52	29	02
13	68	42	55	81	99	57	69	55	88	31	69
14	68	41	54	78	45	58	90[a]	59	88	24	69
15	67	40	54	81	63	53	92	60	88	29	70
16	66	40	53	79	63	54	92[a]	56	95	26	46
17	65	39	52	77	97	45	96	49	55	26	96
18	65	38	51	76	73	47	49	50	00[a]	27	49
19	64	38	51	78	92[a]	50	45	52	92	27	69[a]
20	63	37	50	74	78	45	47	54	73	23	49
21	63	37	50	73	91[a]	45	96	54	63	20	84
22	62	37	50	74	59	46	50	51	52	20	84
23	62	37	49	73	66[a]	39	84	51	60	25	84
24	61	37	49	75	77[a]	49	57	49	46	24	02
25	60	37	48	75	55[a]	49	57	60	45	23	02
26	59	37	48	69	92	49	00[a]	52	94	21	78
27	59	36	47	74	85	43	99[a]	54	81	23	70
28	58	36	47	68	65[a]	35	91	52	49	18	71
29	57	35	46	70	53	42	91[a]	50	97	13	71
30	56	35	45	75	67	32	71	50	97	16	02
31	56	35	45	75	67	34	84	54	67	7	02
				November							
1	55	35	45	69	88	31	84	49	87	11	02
2	55	35	45	70	45	38	91	51	85	11	02
3	54	35	45	75	75	36	73	53	83	14	02
4	54	35	44	71	75	32	73	46	89[a]	15	02
5	54	35	44	63	89	31	73	48	88	20	73[a]
6	53	35	44	64	58	32	73	49	89	19	73
7	52	34	43	69	78	34	45	48	97[a]	19	93[a]
8	52	34	43	69	95	34	45	48	89	16	45
9	51	34	43	73	89	30	45	60	89	18	86

Table 3.12. (contd)

	Normal (1971-2000)			Extreme (1945-2002)							
				Maximum				Minimum			
Day	Maximum	Minimum	Mean	High	Year	Low	Year	High	Year	Low	Year
10	51	34	43	73	89	32	45	56	89	16	86
11	51	34	42	66	89	32	85	48	89	14	78
12	50	33	42	75	99	20	55	52	49	6	55
13	50	33	41	76	99	14	55	56	98	6	59
14	50	33	41	68	01	19	55	54	01	-1	55
15	49	33	41	67	98	18	55	49	01	1	55
16	49	32	40	65	76	18	55	49	54	7	59
17	48	32	40	71	76	22	55	46	83[a]	10	61
18	48	31	40	64	46	25	55	47	54	11	55
19	47	31	39	67	02[a]	22	85	47	02	14	85
20	46	30	38	65	58	24	85	47	74	3	85
21	45	29	37	63	58	17	85	46	65	3	85
22	45	29	37	65	67[a]	17	85	53	90	-6	85
23	44	29	37	70	59	11	85	54	90	-13	85
24	44	28	36	67	95[a]	6	85	57	90	-12	85
25	43	28	36	67	98	11	85	50	98	-3	85
26	43	28	36	65	49	15	85	45	49	-1	85
27	43	28	36	63	49	12	85	46	49	8	85
28	43	28	36	64	95	11	85	43	73	7	85
29	43	28	36	62	95	14	85	57	95	8	85
30	43	28	36	62	95[a]	15	85	46	94	6	85
				December							
1	43	28	36	65	72	14	85	45	81	-8	85
2	43	28	35	64	77	20	85	56	75	8	85
3	42	27	35	62	82[a]	27	85[a]	54	75	8	85
4	42	27	34	60	75[a]	23	72	41	52	1	72
5	41	26	34	58	91[a]	21	72	41	87	7	72
6	40	26	33	59	87	16	56	43	87	8	56
7	40	26	33	58	73[a]	18	56	40	52	2	56
8	40	26	33	58	89	17	72	48	46	-6	72
9	40	26	33	59	87[a]	13	72	44	56	-5	72
10	40	26	33	67	93	13	72	48	46	-8	72
11	40	26	33	59	91[a]	11	72	45	46	-4	72
12	40	26	33	57	99[a]	22	72	42	77[a]	-5	72
13	40	26	33	59	46	13	72	42	46	-6	72
14	40	26	33	57	79[a]	15	72	48	79	-2	72
15	39	26	32	64	59	16	72	49	99	2	72
16	39	25	32	62	99	4	64	44	99	-13	64
17	38	25	31	57	98[a]	5	64	41	62	-12	64
18	38	24	31	56	99[a]	13	64	42	99	-3	84
19	37	24	30	59	94	17	84	41	94	-4	84
20	37	24	30	64	94	11	84	47	94	-2	90[a]
21	36	24	30	61	72	11	90	43	73	-10	90
22	36	24	30	59	80	7	90	42	72	-13	83
23	36	24	30	57	63	6	83	40	72	-9	83
24	36	24	30	55	61[a]	15	90[a]	39	80[a]	0	90
25	36	24	30	65	80	16	90	41	72	1	90
26	36	24	30	69	80	20	90[a]	53	80	0	48
27	36	24	30	62	80[a]	19	48	40	94[a]	-2	48
28	35	23	29	59	98	11	96	46	98	-6	96
29	35	23	29	60	98[a]	-2	68	41	98	-10	90[a]
30	35	22	29	54	70	-2	68	39	88[a]	-14	68
31	35	22	28	56	62	4	68	44	80	-9	78

(a) Latest of several occurrences.

Table 3.13 and Table 3.14 provide monthly heating-degree day and cooling-degree day data, respectively, for the period 1945 through 2002. The heating-degree days are traditionally totaled for the 12-month period July through June of the following year.

The heating degree accumulation begins July 1 of one year and ends June 30 of the following year. Figure 3.26 shows the climatological variation of the accumulation heating-degree days for the period from July 1945 through July 2001. It also shows the accumulation of heating-degree days for the 2001-2002 heating season. The figure shows a somewhat warmer than average fall and early winter, with cumulative heating-degree days below the range of typical seasons. However, the early spring was cooler than average, as a result, the heating degree days for the season ended within the range of typical seasons.

Figure 3.27 presents the climatological statistics for cooling-degree days and data for the 2002 cooling season. The figure shows a typical spring, followed by a warm July and September. Overall, the cooling season was warmer than average, and ended at the top of the range of typical cooling seasons.

The record highs and lows in Figure 3.26 and Figure 3.27 are cumulative values at each date. The record values did not all occur in the same season.

3.9 Subsurface Soil Temperatures

Hourly subsurface soil temperature data at depths of ~0.5 inch, 15 inches, and 36 inches are available for the period from 1955 through 2002. The subsurface soil temperature sensors are installed in the natural soil of the area with the vegetation cover removed. The soil is sandy and mixed with large gravel.

Monthly averages and extremes of monthly averages are presented in Table 3.15. The absolute hourly extremes are also indicated in that table.

Table 3.13. Monthly and Seasonal Heating-Degree Days

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Season
1944-45	--	--	--	--	--	--	967	738	709	442	141	38	--
1945-46	0	2	97	277	733	1,000	949	710	603	331	79	42	4,823
1946-47	0	1	101	479	875	935	1,168	702	476	266	**36**[a]	25	5,064
1947-48	0	7	70	351	714	989	1,024	963	709	471	237	5	5,540
1948-49	2	0	109	438	725	1,184	1,581	928	616	281	85	36	5,985
1949-50	1	0	52	456	592	927	**1,640**[a]	959	704	452	196	66	6,045
1950-51	0	0	64	431	728	895	994	786	773	325	146	45	5,187
1951-52	5	19	46	421	763	1,164	1,235	823	645	311	118	45	5,595
1952-53	0	2	34	**200**[a]	929	934	**694**[a]	664	585	419	228	**90**[a]	4,779
1953-54	0	3	59	298	649	851	1,118	720	722	408	124	77	5,029
1954-55	10	4	79	423	567	957	1,090	832	**794**[a]	**522**[a]	253	23	5,554
1955-56	**22**[a]	0	108	364	1,008	1,105	1,029	**1,147**[a]	655	273	110	55	5,876
1956-57	0	6	32	399	850	940	1,499	862	650	308	50	11	5,607
1957-58	0	0	37	443	739	**822**[a]	862	576	666	411	72	3	4,631
1958-59	0	0	74	339	731	927	1,025	827	617	325	248	29	5,142
1959-60	4	6	118	359	855	987	1,292	799	616	374	227	21	5,658
1960-61	0	**32**[a]	35	330	717	1,114	930	598	587	380	179	16	4,918
1961-62	0	0	91	418	893	974	1,090	797	698	287	255	51	5,554
1962-63	12	1	60	385	657	874	1,228	747	577	456	170	25	5,192
1963-64	1	1	25	285	668	1,078	913	784	656	445	195	33	5,084
1964-65	0	21	94	360	804	1,224	1,009	686	685	307	171	16	5,377
1965-66	5	14	115	247	660	995	963	702	605	311	133	58	4,808
1966-67	17	2	26	362	638	829	782	598	639	519	175	12	4,599
1967-68	0	0	13	305	704	993	907	670	495	416	117	23	4,643
1968-69	0	13	50	458	702	1,064	1,399	932	591	384	88	6	5,687
1969-70	0	5	39	431	745	941	1,064	683	625	480	137	23	5,173
1970-71	0	0	122	439	758	1,063	906	726	752	392	124	50	5,332
1971-72	13	3	133	420	728	1,064	1,065	878	560	463	112	23	5,462
1972-73	1	3	179	397	754	1,168	1,112	742	544	338	144	38	5,420
1973-74	2	9	73	389	798	837	1,104	675	611	361	236	27	5,122
1974-75	8	0	32	388	698	892	996	880	704	504	174	31	5,307
1975-76	0	13	25	388	764	949	1,024	796	735	422	159	74	5,349
1976-77	5	15	23	392	736	1,065	1,232	684	608	253	258	22	5,293
1977-78	5	7	153	401	783	967	1,001	761	550	393	203	22	5,246
1978-79	1	10	76	390	981	1,162	1,582	861	571	369	94	21	**6,118**[a]
1979-80	13	0	10	266	924	887	1,277	888	638	302	138	68	5,411
1980-81	5	18	53	394	723	883	838	707	503	345	165	51	4,685
1981-82	8	0	108	402	668	998	1,092	754	590	469	164	17	5,270
1982-83	10	0	75	420	844	1,023	855	676	511	419	151	50	5,034
1983-84	8	0	125	387	643	1,357	1,035	763	552	432	**292**[a]	70	5,664
1984-85	0	3	145	**532**[a]	768	1,288	1,245	982	651	288	137	21	6,060
1985-86	0	10	**197**[a]	475	**1,206**[a]	**1,362**[a]	959	724	509	426	213	10	6,091
1986-87	18	0	153	319	680	1,009	1,066	696	522	239	85	16	4,803
1987-88	1	0	32	304	640	1,040	1,028	695	591	301	166	65	4,863
1988-89	3	0	100	208	625	1,033	859	1,054	658	254	141	6	4,941
1989-90	1	0	12	339	621	985	763	767	530	217	149	28	4,412
1990-91	4	**0**[a]	**0**[a]	401	**553**[a]	1,269	1,124	**575**[a]	649	330	148	55	5,108
1991-92	0	0	12	381	710	842	851	648	**418**[a]	278	77	13	**4,230**[a]
1992-93	1	18	94	298	716	1,084	1,247	958	674	374	94	23	5,581
1993-94	1	13	89	303	911	914	819	813	490	**217**[a,b]	97	22	4,689
1994-95	0	0	3	332	759	924	954	614	581	372	89	46	4,674
1995-96	0	1	24	398	623	1,003	1,124	935	623	302	225	14	5,272
1996-97	3	0	99	401	797	1,090	973	692	544	395	95	2	5,091
1997-98	2	0	38	367	658	941	892	642	521	332	131	**1**[a]	4,523
1998-99	0	0	15	393	582	1,000	829	651	581	424	265	62	4,802
1999-00	8	17	65	407	576	846	995	760	630	288	143	35	4,770
2000-01	8	1	115	400	931	1,093	981	820	562	411	138	56	5,516
2001-02	**0**[a,b]	**0**[a,b]	30	363	669	936	854	745	698	359	181	28	4,863
2002-03	1	1	54	454	714	865	--	--	--	--	--	--	--
Average[c]	4	5	71	375	745	1,012	1,057	773	612	365	154	34	5,205
Normal[d]	4	5	75	376	747	1,032	1,028	767	587	350	156	33	5,160

(a) Greatest and least values.
(b) Most recent of numerous occurrences.
(c) Based on entire period of record, 1945 through 2002.
(d) Based on period 1971-2000.
NOTE: Dashes indicate no data are available.

Table 3.14. Monthly and Annual Cooling-Degree Days

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1945	0	0	0	0	39	113	325	388	86	11	0	0	962
1946	0	0	0	9	53	100	345	360	57	0	0	0	924
1947	0	0	0	3	153	108	321	217	86	11	0	0	899
1948	0	0	0	0	31	230	243	213	90	0	0	0	807
1949	0	0	0	4	147	168	311	307	146	0	0	0	1,083
1950	0	0	0	0	13	112	321	353	139	0	0	0	938
1951	0	0	0	1	26	173	370	303	123	0	0	0	996
1952	0	0	0	16	46	110	371	281	151	16	0	0	991
1953	0	0	0	0	8	**26**[a]	336	282	143	1	0	0	796
1954	0	0	0	0	55	90	289	204	91	0	0	0	729
1955	0	0	0	0	4	174	270	325	13	0	0	0	786
1956	0	0	0	10	122	78	430	322	106	0	0	0	1,068
1957	0	0	0	12	77	185	289	255	160	0	0	0	978
1958	0	0	0	0	**167**[a]	282	500	447	93	14	0	0	**1,503**[a]
1959	0	0	0	0	15	137	397	218	45	0	0	0	812
1960	0	0	0	2	26	174	518	233	118	3	0	0	1,074
1961	0	0	0	0	23	288	447	469	55	0	0	0	1,282
1962	0	0	0	5	**3**[a]	148	352	215	125	0	0	0	848
1963	0	0	0	0	67	156	232	333	205	5	0	0	998
1964	0	0	0	0	30	115	299	**171**[a]	34	0	0	0	**649**[a]
1965	0	0	0	0	31	145	362	314	33	2	0	0	887
1966	0	0	0	0	80	116	274	332	141	1	0	0	944
1967	0	0	0	0	34	237	419	**508**[a]	216	0	0	0	1,414
1968	0	0	0	5	35	168	451	213	104	0	0	0	976
1969	0	0	0	0	73	310	338	245	110	0	0	0	1,076
1970	0	0	0	0	29	281	421	351	27	1	0	0	1,110
1971	0	0	0	0	94	59	437	481	28	10	0	0	1,109
1972	0	0	0	0	87	164	339	392	67	1	0	0	1,050
1973	0	0	0	0	87	149	413	285	94	0	0	0	1,028
1974	0	0	0	0	12	264	303	326	125	0	0	0	1,030
1975	0	0	0	0	28	102	451	202	117	0	0	0	900
1976	0	0	0	0	22	91	319	195	141	3	0	0	771
1977	0	0	0	24	5	253	276	447	46	0	0	0	1,051
1978	0	0	0	0	5	182	332	248	41	0	0	0	808
1979	0	0	0	1	65	197	394	299	138	5	0	0	1,099
1980	0	0	0	7	26	57	305	207	80	9	0	0	691
1981	0	0	0	16	25	82	287	438	144	0	0	0	992
1982	0	0	0	0	20	261	315	333	88	0	0	0	1,017
1983	0	0	0	0	115	61	203	291	26	1	0	0	697
1984	0	0	0	0	11	88	340	280	60	0	0	0	779
1985	0	0	0	3	83	175	**532**[a]	183	**11**[a]	0	0	0	987
1986	0	**1**[a]	0	3	125	245	192	442	68	1	0	0	1,077
1987	0	0	0	**26**[a]	125	265	289	359	179	11	0	0	1,254
1988	0	0	0	6	45	187	385	318	113	**44**[a]	0	0	1,098
1989	0	0	0	1	34	215	323	260	89	0	**1**[a]	0	923
1990	0	0	0	3	16	182	491	367	**222**[a]	3	0	0	1,284
1991	0	0	0	3	6	72	400	427	155	7	0	0	1,070
1992	0	0	0	11	147	**365**[a]	362	392	81	10	0	0	1,368
1993	0	0	0	0	139	127	**171**[a]	265	135	6	0	0	843
1994	0	0	0	15	94	163	501	358	167	3	0	0	1,301
1995	0	0	0	0	73	142	376	216	174	0	0	0	981
1996	0	0	0	4	14	134	450	324	79	9	0	0	1,014
1997	0	0	0	0	96	118	324	404	92	0	0	0	1,034
1998	0	0	0	16	55	183	527	398	195	3	0	0	1,377
1999	0	0	0	**0**[a,b]	43	135	281	366	66	**0**[a,b]	0	0	891
2000	0	0	0	1	25	185	335	282	74	1	0	0	903
2001	0	0	0	7	98	100	343	390	150	4	0	0	1,092
2002	0	**0**[a,b]	0	1	28	224	456	327	94	1	**0**[a,b]	0	1,131
Average[c]	0	<1	0	4	56	162	355	316	104	3	<1	0	1,001
Normal[d]	0	<1	0	5	57	163	355	326	103	4	<1	0	1,014

(a) Greatest and least values.
(b) Most recent of numerous occurrences.
(c) Based on entire period of record, 1945 through 2002.
(d) Based on period 1971-2000.

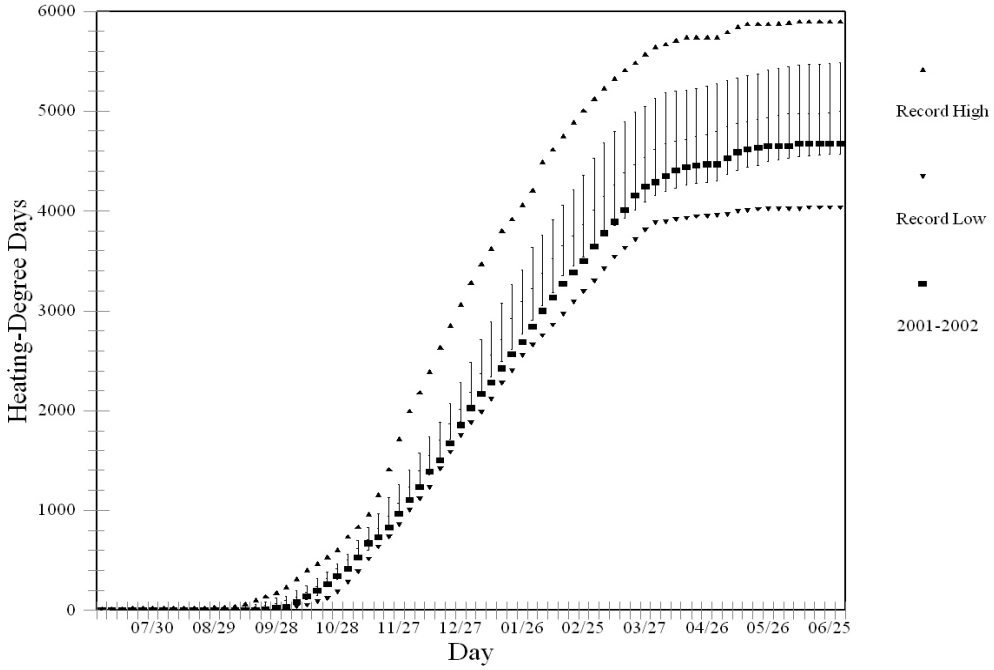

Figure 3.26. Climatological Statistics on Heating-Degree Days with Data for the 2001-2002 Heating Season

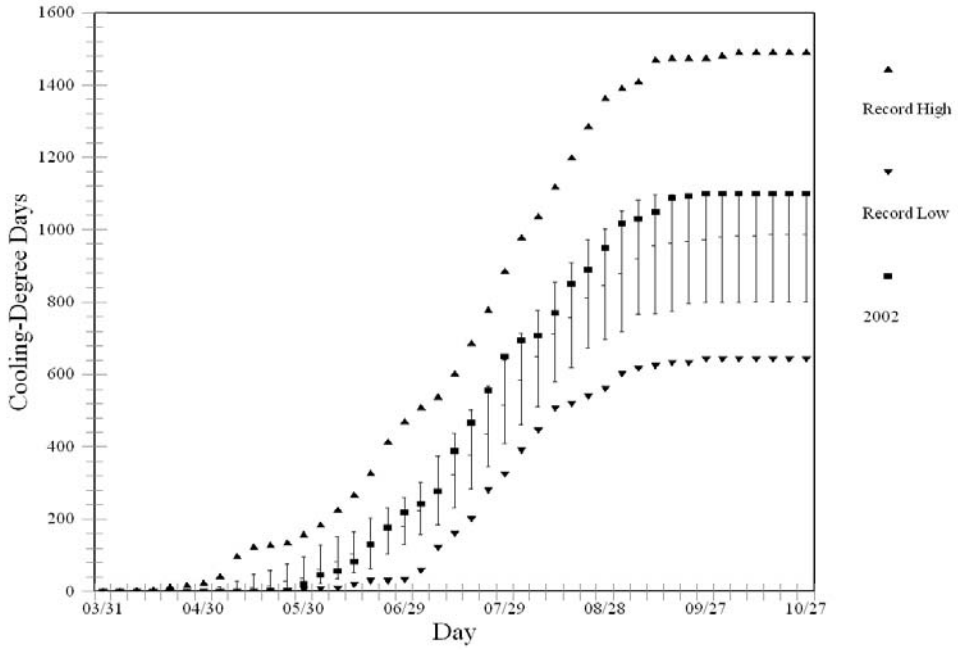

Figure 3.27. Climatological Statistics on Cooling-Degree Days with Data for the 2002 Cooling Season

Table 3.15. Subsurface Soil Temperatures (°F) at Depths of 0.5, 15, and 36 Inches

	Monthly Averages			0.5-in. Depth				15-in. Depth				36-in. Depth			
Month	0.5 in.	15 in.	36 in.	Highest Monthly Average	Year	Lowest Monthly Average	Year	Highest Monthly Average	Year	Lowest Monthly Average	Year	Highest Monthly Average	Year	Lowest Monthly Average	Year
Jan	32.7	36.2	42.6	39.4	1967	19.2	1979	42.7	1981	25.5	1979	48.7	1975	36.3	1979
Feb	38.2	38.8	42.0	45.1	1958	28.6	1989	44.9	1967	29.6	1957	46.9	1967	33.5	1957
Mar	48.0	46.3	46.0	54.3	1992	42.4	1955	52.6	1968	37.7	1956	51.7	1968	38.0	1956
Apr	59.8	55.7	53.1	69.4	1977	52.4	1984	62.1	1977	48.7	1955	57.4	1966	47.3	1955
May	72.0	65.6	60.7	81.4	1992	63.6	1984	71.4	1992	58.7	1984	65.1	1987	54.8	1955
Jun	82.5	75.1	68.6	90.4	1986	75.3	1956	84.5	1966	70.2	1956	73.4	1969	62.8	1984
Jul	90.8	81.8	75.1	96.2	1973	81.0	1993	88.2	1967	75.4	1955	81.1	1967	70.8	1955
Aug	87.6	82.7	78.5	94.9	1971	81.6	1960	89.2	1967	77.5	1964	83.9	1967	75.3	1999[a]
Sep	74.0	74.7	74.9	81.0	1967	65.5	1985	82.2	1967	68.8	1959	81.4	1967	70.1	1978
Oct	56.4	62.4	67.2	62.6	1988	52.4	1985	66.6	1967	57.9	1957	72.3	1967	62.9	1959
Nov	40.7	48.1	56.7	45.7	1999	31.9	1985	54.0	1974	42.5	1955	62.7	1974	51.2	1955
Dec	33.5	39.1	47.7	38.7	1974	26.5	1984	45.0	1974	34.1	1984	54.6	1974	41.4	1955
Annual	59.7	58.8	59.6	62.8	1967	55.9	1955	63.0	1967	54.6	1955	67.3	1987	55.5	1955
				Absolute Hourly Extremes											
				156.8	1996	-2.0	1972	93.0	1967	16.1	1979	85.3	1967	32.2	1957

(a) Most recent of multiple occurrences.