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HEAT WAVES AT TORONTO

by R.B. CROWE

There is always a great deal of interest in extremes of weather and it is the purpose of this report to make information readily available on hot summer temperatures at Toronto. Continuous weather records are available since 1840 at Toronto. The daily maximum temperatures for the period 1840 to 1966 have been examined and all occurrences of temperatures of 90°F or more are tabulated in various ways in the tables that follow.

The first seven tables deal with heat waves. In this report a heat wave is defined as a period of three or more consecutive days with maximum temperature over 88°F each day with a maximum of 90°F or higher occurring at least once. These tables are followed by a listing of the occurrences of temperatures of 100°F or more and several tables showing the frequency of temperatures of 95°F or more and 90°F or more by months, yearly, 5-year and 30-year periods. The final table is comprised of the five highest mean maximum temperatures for the summer months of June, July and August.

The highest temperature recorded at Toronto was 105.0°F on July 9, 1936. The temperatures the day before and the day after this occurrence were only a few tenths of a degree lower than this record. The month of July, 1936, had the most intense heat wave on record at Toronto. However, it is interesting to note that the month of July, 1936, did not rank in the top five as one of the highest monthly mean maximum temperatures as the value was 84.1°F, while the highest mean maximum was 88.1°F in July, 1921.

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TABLE I

HEAT WAVES

<u>Year</u>	<u>No. of Days</u>	<u>Period</u>	<u>Successive Daily Maximum Temperatures</u>
1845	7	July 12 - 18	89, 95, 91, 90, 89, 88, 88
1853	4	Aug. 10 - 13	89, 95, 92, 91
1856	3	July 24 - 26	88, 88, 90
1864	3	Aug. 8 - 10	94, 92, 93
1866	3	July 15 - 17	91, 92, 89
1867	3	July 22 - 24	91, 88, 94
1868	5	July 11 - 15	89, 90, 93, 93, 92
1872	5	June 29 - July 3	88, 88, 96, 90, 90
1876	3	July 8 - 10	93, 92, 89
1881	3	Sept. 5 - 7	91, 93, 90
1887	3	Aug. 3 - 5	89, 90, 90
1895	5	May 30 - June 3	93, 92, 92, 93, 92
1897	6	July 4 - 9	90, 93, 89, 89, 88, 91
1898	5	Aug. 31 - Sept. 4	94, 90, 96, 89, 89
1899	3	Aug. 18 - 21	91, 88, 89
1900	6	Aug. 6 - 11	97, 96, 95, 91, 96, 95
1901	6	June 27 - July 2	97, 90, 90, 88, 92, 88
1901	4	July 14 - 18	91, 89, 94, 92
1903	3	July 8 - 10	91, 89, 88
1910	3	July 1 - 3	93, 89, 90
1911	6	July 1 - 6	98, 101, 103, 97, 95, 92
1912	5	July 6 - 10	90, 90, 92, 91, 91
1913	3	Aug. 16 - 18	92, 92, 89
1916	7	July 20 - 26	89, 91, 92, 90, 93, 94, 95
1916	3	July 29 - 31	92, 100, 89
1916	3	Aug. 3 - 5	88, 95, 91
1916	4	Aug. 19 - 22	89, 96, 98, 97
1917	4	July 29 - Aug. 1	98, 98, 92, 92
1918	3	July 20 - 22	91, 92, 89
1918	3	July 26 - 28	90, 90, 89
1918	4	Aug. 5 - 8	95, 89, 101, 91
1918	3	Aug. 11 - 13	92, 88, 102
1919	3	June 2 - 4	91, 94, 91
1919	7	June 13 - 19	88, 94, 93, 88, 90, 90, 90
1919	5	July 1 - 5	90, 93, 97, 98, 93
1919	3	July 17 - 19	88, 92, 93
1921	3	June 21 - 23	88, 88, 91
1921	8	July 2 - 9	91, 92, 97, 98, 97, 97, 92, 88
1921	4	July 11 - 14	94, 89, 95, 92
1921	3	July 26 - 28	90, 88, 88

<u>Year</u>	<u>No. of Days</u>	<u>Period</u>	<u>Successive Daily Maximum Temperatures</u>
1922	3	Aug. 14 - 16	88, 88, 93
1923	3	June 19 - 21	90, 93, 88
1923	3	July 19 - 21	90, 92, 89
1925	6	June 3 - 8	89, 90, 94, 95, 90, 89
1929	3	Sept. 2 - 4	91, 94, 90
1930	3	July 17 - 19	90, 88, 92
1930	3	Aug. 6 - 8	88, 90, 89
1931	3	June 30 - July 2	91, 98, 97
1931	3	Aug. 4 - 6	88, 90, 92
1931	4	Sept. 10 - 13	95, 96, 91, 91
1933	3	June 27 - 29	89, 90, 90
1933	4	July 20 - 23	94, 91, 88, 92
1933	5	July 28 - Aug. 1	93, 95, 98, 91, 94
1935	4	July 18 - 21	89, 93, 90, 88
1936	8	July 7 - 14	89, 105, 105, 105, 96, 92, 100, 92
1937	4	July 7 - 10	90, 95, 88, 90
1938	3	Aug. 14 - 16	88, 92, 88
1940	3	July 24 - 26	93, 89, 91
1941	4	June 19 - 22	89, 90, 94, 91
1941	3	June 26 - 28	92, 92, 94
1943	3	June 25 - 27	94, 90, 90
1944	3	Aug. 3 - 5	91, 94, 90
1944	3	Aug. 10 - 12	92, 96, 94
1944	3	Aug. 14 - 16	90, 91, 88
1947	3	Aug. 12 - 14	93, 93, 92
1948	6	Aug. 24 - 29	90, 101, 98, 94, 100, 91
1949	4	July 1 - 4	88, 89, 92, 93
1949	5	July 25 - 29	88, 89, 93, 91, 91
1949	4	Aug. 8 - 11	91, 99, 98, 89
1952	3	June 24 - 26	88, 90, 95
1952	3	July 12 - 14	91, 89, 91
1952	3	July 21 - 23	93, 91, 90
1952	4	Sept. 10 - 13	88, 89, 88, 91
1953	10	Aug. 26 - Sept. 4	91, 95, 95, 95, 97, 89, 93, 100, 94, 93
1955	3	July 21 - 23	94, 95, 94
1955	4	July 31 - Aug. 3	91, 98, 92, 92
1955	3	Aug. 19 - 21	92, 91, 91
1956	4	June 12 - 15	94, 95, 94, 90
1958	3	June 30 - July 2	88, 89, 90
1959	3	June 8 - 10	93, 93, 90
1959	5	July 27 - 31	88, 89, 88, 88, 91
1959	3	Aug. 13 - 15	89, 94, 91
1959	4	Aug. 24 - 27	91, 89, 90, 90
1962	3	May 16 - 18	89, 92, 94
1963	3	June 30 - July 2	89, 93, 94
1963	5	July 24 - 28	88, 89, 90, 93, 88
1964	3	July 17 - 19	89, 90, 88
1966	5	June 23 - 27	91, 91, 93, 94, 88

TABLE II

LONGEST HEAT WAVES

<u>Year</u>	<u>No. of Days</u>	<u>Period</u>
1953	10	Aug. 26 - Sept. 4
1936	8	July 7 - 14
1921	8	July 2 - 9
1919	7	June 13 - 19
1916	7	July 20 - 26
1845	7	July 12 - 18
1948	6	Aug. 24 - 29
1925	6	June 3 - 8
1911	6	July 1 - 6
1901	6	June 27 - July 2
1897	6	July 4 - 9
1900	6	Aug. 6 - 11

TABLE III

EARLIEST HEAT WAVES

<u>Year</u>	<u>Period</u>
1962	May 16 - 18
1895	May 30 - June 3
1919	June 2 - 4
1925	June 3 - 8
1959	June 8 - 10
1956	June 12 - 15
1919	June 13 - 19

TABLE IV

LATEST HEAT WAVES

<u>Year</u>	<u>Period</u>
1952	Sept. 10 - 13
1931	Sept. 10 - 13
1881	Sept. 5 - 7
1953	Aug. 26 - Sept. 4
1929	Sept. 2 - 4
1898	Aug. 31 - Sept. 4

TABLE V

INTENSITY OF HEAT WAVES

Highest maximum temperatures averaged over 3 to 7 consecutive days

	<u>3 Days</u>	<u>4 Days</u>	<u>5 Days</u>	<u>6 Days</u>	<u>7 Days</u>
1.	105.0 (1936)	102.8 (1936)	100.6 (1936)	100.5 (1936)	99.3 (1936)
2.	100.7 (1911)	99.8 (1911)	98.8 (1911)	97.7 (1911)	95.7 (1911)
3.	98.3 (1921)	98.3 (1948)	96.8 (1948)	96.0 (1921)	95.3 (1921)
4.	97.7 (1948)	98.0 (1921)	96.8 (1921)	95.7 (1948)	94.9 (1953)
5.	97.0 (1916)	95.5 (1953)	95.0 (1900)	95.0 (1900)	94.4 (1948)

TABLE VI

NUMBER OF HEAT WAVES PER 5-YEAR PERIOD

1841-45	1	1886-90	1	1931-35	7
1846-50	0	1891-95	1	1936-40	4
1851-55	1	1896-00	4	1941-45	6
1856-60	1	1901-05	3	1946-50	5
1861-65	1	1906-10	1	1951-55	8
1866-70	3	1911-15	3	1956-60	6
1871-75	1	1916-20	13	1960-65	4
1876-80	1	1921-25	8		
1881-85	1	1926-30	3		

TABLE VII

NUMBER OF HEAT WAVES PER 30-YEAR PERIOD

	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1841-70	0	0	5	2	0	7
1846-75	0	0	5	2	0	7
1851-80	0	0	6	2	0	8
1856-85	0	0	6	1	1	8
1861-90	0	0	5	2	1	8
1866-95	0	1	5	1	1	8
1871-00	0	1	3	3	2	9
1876-05	0	2	4	3	2	11
1881-10	0	2	4	3	2	11
1886-15	0	2	6	4	1	13
1891-20	0	4	13	7	1	25
1896-25	0	6	17	8	1	32
1901-30	0	6	17	7	1	31
1906-35	0	7	18	8	2	35
1911-40	0	7	20	9	2	38
1916-45	0	10	18	11	2	41
1921-50	0	8	13	10	2	33
1926-55	0	6	12	12	3	33
1931-60	0	8	13	13	2	36
1936-65	1	6	13	12	1	33

TABLE VIII

OCCURRENCES OF TEMPERATURES EQUAL TO OR GREATER THAN 100°F

<u>Year</u>	<u>Date</u>	<u>Value</u>
1936	July 9	105.0
1936	July 10	104.9
1936	July 8	104.5
1911	July 3	103.2
1918	August 13	102.2
1948	August 25	101.4
1911	July 2	101.1
1918	August 7	101.0
1948	August 28	100.2
1916	July 30	100.2
1936	July 13	100.0
1953	September 2	99.8

TABLE IX

NUMBER OF DAYS WITH A MAXIMUM OF 95°F OR MORE BY MONTH AND YEAR

	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1845	0	1	0	0	1
1846	0	1	0	0	1
1853	0	0	1	0	1
1854	0	4	1	0	5
1862	0	1	0	0	1
1867	0	0	1	0	1
1872	0	1	0	0	1
1874	0	0	1	0	1
1878	0	1	0	0	1
1887	0	1	0	0	1
1898	0	0	0	1	1
1900	0	0	5	0	5
1901	1	0	0	0	1
1911	0	5	0	0	5
1913	1	1	0	0	2
1916	0	2	4	0	6
1917	0	2	0	0	2
1918	0	0	3	0	3
1919	0	2	0	1	3
1921	0	5	0	0	5
1923	1	0	0	0	1
1925	1	0	0	0	1
1927	1	0	0	0	1
1930	0	0	1	0	1
1931	0	2	0	2	4
1932	0	0	1	0	1
1933	0	2	0	0	2
1936	0	5	1	0	6
1937	0	1	0	0	1
1941	0	2	0	0	2
1944	0	0	1	0	1
1948	0	0	3	0	3
1949	0	0	2	0	2
1952	1	0	0	0	1
1953	0	0	4	1	5
1955	0	1	2	0	3
1956	1	0	0	0	1
1964	1	0	0	0	1
1966	0	2	0	0	2

TABLE X

GREATEST NUMBER OF DAYS WITH A MAXIMUM OF 95°F OR MORE PER MONTH

<u>Year</u>	<u>Month</u>	<u>No.</u>	<u>Year</u>	<u>Month</u>	<u>No.</u>
1900	August	5	1854	July	4
1911	July	5	1916	August	4
1921	July	5	1953	August	4
1936	July	5			

TABLE XI

GREATEST NUMBER OF DAYS WITH A MAXIMUM OF 95°F OR MORE PER YEAR

6 - 1916	1936				
5 - 1854	1900	1911	1921	1953	
4 - 1931					

TABLE XII

GREATEST NUMBER OF CONSECUTIVE DAYS WITH A MAXIMUM OF 90°F OR MORE

<u>Year</u>	<u>Period</u>	<u>No.</u>
1936	July 8 - 14	7
1921	July 2 - 8	7
1948	August 24 - 29	6
1916	July 21 - 26	6
1911	July 1 - 6	6
1900	August 6 - 11	6
1953	August 26 - 30	5
1933	July 28 - August 1	5
1919	July 1 - 5	5
1912	July 6 - 10	5
1895	May 30 - June 3	5

TABLE XIII

GREATEST NUMBER OF DAYS WITH A MAXIMUM OF 90°F OR MORE PER MONTH

<u>Year</u>	<u>Period</u>	<u>No.</u>
1916	July	12
1955	July	11
1921	July	11
1933	July	9
1916	August	8
1919	June	8
1919	July	8
1944	August	8
1911	July	7
1936	July	7
1955	August	7

TABLE XIV

GREATEST NUMBER OF DAYS WITH A MAXIMUM OF 90°F OR MORE PER YEAR

<u>Year</u>	<u>No.</u>	<u>Year</u>	<u>No.</u>
1916	21	1959	13
1919	19	1936	12
1955	18	1941	12
1933	16	1953	12
1921	16	1911	11
1854	13	1918	11
1931	13	1944	10
1949	13		

TABLE XV

NUMBER OF DAYS WITH A MAXIMUM OF 90°F OR MORE PER 30-YEAR PERIOD

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1841-70	1	0	9	32	11	4	57
1846-75	0	0	9	31	13	4	57
1851-80	0	0	9	34	13	4	60
1856-85	0	1	6	26	9	4	46
1861-90	0	1	7	27	10	4	49
1866-95	0	3	11	29	8	4	55
1871-00	0	3	11	25	17	8	64
1876-05	0	3	13	34	15	8	73
1881-10	0	3	13	36	18	8	78
1886-15	0	4	17	50	21	6	98
1891-20	0	5	24	78	37	8	152
1896-25	0	3	30	86	39	10	168
1901-30	0	5	34	89	33	9	170
1906-35	0	5	40	98	38	14	195
1911-40	0	6	39	109	41	17	212
1916-45	0	5	46	100	48	17	216
1921-50	0	4	42	78	45	16	185
1926-55	0	4	33	87	54	18	196
1931-60	0	2	38	80	58	19	197
1936-65	0	5	33	69	54	15	176

TABLE XVI

NUMBER OF DAYS WITH A MAXIMUM OF 90°F OR MORE PER 5-YEAR PERIOD

<u>Period</u>	<u>No.</u>	<u>Period</u>	<u>No.</u>
1841-45	6	1906-10	10
1846-50	2	1911-15	28
1851-55	22	1916-20	60
1856-60	3	1921-25	32
1861-65	10	1926-30	25
1866-70	14	1931-35	40
1871-75	6	1936-40	27
1876-80	5	1941-45	32
1881-85	8	1946-50	29
1886-90	6	1951-55	43
1891-95	16	1956-60	26
1896-00	23	1961-65	19
1901-05	15		

TABLE XVII

NUMBER OF DAYS WITH A MAXIMUM OF 90°F OR MORE BY MONTHS

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1840	0	0	0	0	0	0	0
1841	0	0	1	0	0	0	1
1842	1	0	0	1	0	0	2
1843	0	0	0	0	0	0	0
1844	0	0	0	0	0	0	0
1845	0	0	0	3	0	0	3
1846	0	0	0	1	0	0	1
1847	0	0	0	0	0	0	0
1848	0	0	1	0	0	0	1
1849	0	0	0	0	0	0	0
1850	0	0	0	0	0	0	0
1851	0	0	0	0	0	0	0
1852	0	0	0	1	0	0	1
1853	0	0	1	1	3	0	5
1854	0	0	1	6	3	3	13
1855	0	0	1	2	0	0	3
1856	0	0	0	2	0	0	2
1857	0	0	0	0	0	0	0
1858	0	0	1	0	0	0	1
1859	0	0	0	0	0	0	0
1860	0	0	0	0	0	0	0
1861	0	0	0	0	0	0	0
1862	0	0	0	2	1	0	3
1863	0	0	0	0	0	0	0
1864	0	0	1	1	3	0	5

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1865	0	0	1	0	0	1	2
1866	0	0	1	0	0	0	4
1867	0	0	0	0	1	0	4
1868	0	0	0	6	0	0	6
1869	0	0	0	0	0	0	0
1870	0	0	0	0	0	0	0
1871	0	0	0	0	1	0	1
1872	0	0	0	3	0	0	3
1873	0	0	1	0	0	0	1
1874	0	0	0	0	1	0	1
1875	0	0	0	0	0	0	0
1876	0	0	0	2	0	0	2
1877	0	0	0	0	0	0	0
1878	0	0	0	1	0	0	1
1879	0	0	0	1	0	0	1
1880	0	0	1	0	0	0	1
1881	0	1	0	1	1	3	6
1882	0	0	0	1	0	0	1
1883	0	0	0	0	0	0	0
1884	0	0	0	0	1	0	1
1885	0	0	0	0	0	0	0
1886	0	0	0	1	0	0	1
1887	0	0	1	2	1	0	4
1888	0	0	1	0	0	0	1
1889	0	0	0	0	0	0	0
1890	0	0	0	0	0	0	0
1891	0	0	1	0	1	0	2
1892	0	0	0	2	1	0	3
1893	0	0	1	1	0	0	2
1894	0	0	1	1	0	0	2
1895	0	2	3	1	0	1	7
1896	0	0	0	1	0	0	1
1897	0	0	0	3	0	1	4
1898	0	0	1	3	0	1	8
1899	0	0	0	0	2	0	2
1900	0	0	0	0	6	1	8
1901	0	0	3	1	0	0	9
1902	0	0	0	1	0	0	1
1903	0	0	0	1	0	0	1
1904	0	0	0	2	0	0	2
1905	0	0	0	2	0	0	2
1906	0	0	0	0	0	0	0
1907	0	0	0	0	0	0	0
1908	0	0	0	2	1	0	3
1909	0	0	0	0	2	0	2
1910	0	0	0	4	0	0	5
1911	0	2	1	7	1	0	11
1912	0	0	0	6	0	1	7
1913	0	0	2	2	2	0	6
1914	0	0	1	1	2	0	4

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1915	0	0	0	0	0	0	0
1916	0	0	0	12	8	1	21
1917	0	0	0	6	2	0	8
1918	0	0	0	5	6	0	11
1919	0	1	8	8	1	1	19
1920	0	0	1	0	0	0	1
1921	0	0	2	11	1	2	16
1922	0	0	1	0	1	1	3
1923	0	0	4	2	1	0	7
1924	0	0	0	0	1	0	1
1925	0	0	5	0	0	0	5
1926	0	0	0	3	0	0	3
1927	0	1	2	1	0	0	4
1928	0	0	0	1	1	0	2
1929	0	1	2	2	0	3	8
1930	0	0	1	4	3	0	8
1931	0	0	3	4	2	4	13
1932	0	0	0	0	1	0	1
1933	0	0	4	9	2	1	16
1934	0	0	2	5	0	0	7
1935	0	0	0	3	0	0	3
1936	0	1	0	7	4	0	12
1937	0	0	0	3	0	2	5
1938	0	0	0	2	2	0	4
1939	0	0	0	2	0	1	3
1940	0	0	0	3	0	0	3
1941	0	1	6	3	2	0	12
1942	0	0	0	3	0	0	3
1943	0	0	3	0	1	1	5
1944	0	0	1	1	8	0	10
1945	0	0	1	0	1	0	2
1946	0	0	1	3	0	0	4
1947	0	0	0	1	4	0	5
1948	0	0	0	0	6	1	7
1949	0	0	4	5	4	0	13
1950	0	0	0	0	0	0	0
1951	0	0	0	1	0	0	1
1952	0	0	2	5	1	1	9
1953	0	0	1	2	5	4	12
1954	0	0	0	3	0	0	3
1955	0	0	0	11	7	0	18
1956	0	0	4	1	0	0	5
1957	0	0	2	0	1	0	3
1958	0	0	0	1	0	0	1
1959	0	0	4	1	6	2	13
1960	0	0	0	1	1	2	4
1961	0	0	0	1	0	1	2
1962	0	2	0	1	0	0	3
1963	0	0	1	5	0	0	6
1964	0	1	3	3	0	0	7
1965	0	0	0	0	1	0	1
1966	0	0	5	4	0	0	9