

# AVERAGE MONTHLY TEMPERATURES FOR THE MINNEAPOLIS-ST. PAUL METROPOLITAN AREA

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The data hereon are monthly temperature averages based on observations taken in the Minneapolis-St. Paul metropolitan area from 1819 to 1977. Most of the original data were taken at Fort Snelling and at Farmington. Data from the cities themselves were not generally used to avoid problems due to the growing metropolitan heat island.

For the data analysis, only original records, or direct copies of the original records were used. Appropriate corrections have been applied to the data to make the set consistent with itself throughout, and to what would have been observed at Farmington throughout, and as if all observations to calculate mean temperature had been made at midnight daily. Corrections made include exclusion of 7AM values at Fort Snelling during months when solar heating of the thermometer likely occurred, derivation of a diurnal temperature curve to adjust all information to daily means calculated on an equivalent midnight-to-midnight basis, adjustment of local meridian time and standard time, estimating temperatures for days with missing values, and relating all temperatures to the Farmington site by comparison of concurrent records. It is fortunate that both the Fort Snelling observing site and the Farmington observing site have the similar topographic feature of being located on high ground relative to their surroundings, and that they are both located on identical original vegetation sites -- oak grove adjacent to natural prairie. The similarity minimizes climatic differences. Of course, with the growth of the heat island, the Fort is now warmer -- hence the use of Farmington data. It is assumed that the heat island has not yet invaded the Farmington site to any appreciable extent.

There were seven years of overlap of the Fort Snelling and the Farmington station. This was between 1885 and 1892. Information from these years were used to draw the data into uniformity. Observations were not available from either site from July 1858 to May 1867. For these years, Dr. Charles Anderson's Minneapolis data were used from July to December 1858, and D. D. Patterson's data from St. Paul were used from January 1859 to May 1867. The data were corrected by site comparison with Fort Snelling during years of observation overlap.

All values reduced to those which would be observed outside the metropolitan heat island.

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
1820	-0.5	17.6	22.7	48.3	55.2	66.6	65.2	63.6	58.7	46.6	28.6	8.1
1821	5.4	12.5	26.7	38.1	54.6	71.0	68.5	72.8	57.6	48.0	29.7	8.8
1822	10.2	16.9	35.2	41.3	58.1	67.1	72.1	71.1	59.2	41.9	29.6	2.7
1823	11.7	3.0	27.7	46.8	53.7	70.0	72.4	70.3	54.6	46.4	30.8	11.8
1824	15.7	11.2	21.7	39.3	53.1	62.9	69.6	68.8	59.6	41.2	29.1	20.4
1825	13.3	23.2	34.1	51.2	57.0	67.5	74.1	70.6	63.2	44.0	31.5	14.3
1826	10.7	12.2	27.2	34.9	62.1	66.4	68.9	65.5	53.9	48.4	34.0	18.1
1827	15.9	22.6	29.1	41.4	58.4	67.4	70.1	69.0	59.3	48.4	30.7	11.7
1828	7.3	12.5	29.3	42.1	55.9	70.2	71.9	71.3	56.4	48.9	34.9	23.5
1829	15.3	0.8	27.6	44.1	62.9	69.4	70.2	69.9	57.2	50.3	26.0	23.8
1830	12.5	21.9	32.0	48.9	55.2	64.9	77.7	70.3	57.5	53.7	41.8	14.0
1831	6.3	11.9	30.6	42.3	57.3	66.2	70.7	70.0	53.6	46.8	29.3	1.4
1832	15.2	3.5	36.1	51.1	51.5	67.8	71.3	64.3	58.7	50.3	32.5	25.4
1833	19.8	18.7	32.9	49.3	58.0	63.4	71.6	69.2	60.6	41.5	37.1	30.7
1834	1.1	29.8	30.9	50.9	58.1	62.8	74.7	71.7	56.1	46.4	38.4	19.4
1835	22.2	7.1	31.2	41.4	59.1	65.1	67.6	65.0	51.9	44.5	23.9	17.3
1836	10.8	14.9	17.3	43.2	62.5	64.3	71.3	65.6	56.2	42.8	33.2	15.8
1837	17.8	23.2	22.0	39.0	53.1	64.5	71.0	66.8	58.2	46.0	37.4	16.3
1838	6.5	0.5	33.8	39.1	50.8	68.5	72.5	70.7	60.0	41.2	19.5	8.6
1839	19.1	21.0	28.8	48.8	54.7	63.0	71.5	71.7	54.7	52.7	29.2	19.0
1840	10.7	19.3	31.9	45.5	62.8	68.3	70.2	65.1	57.2	41.6	28.6	18.7
1841	10.0	16.5	33.1	39.4	58.6	69.3	72.4	68.9	55.7	46.2	29.4	18.7
1842	13.8	16.2	36.9	48.8	50.0	54.0	66.5	67.1	57.4	46.9	22.4	16.4
1843	20.4	1.4	3.0	41.8	52.0	61.9	69.4	66.5	58.4	37.1	26.5	22.5
1844	8.9	20.9	31.5	50.9	54.0	61.6	69.1	64.5	54.9	41.2	27.8	16.9
1845	18.9	24.8	33.1	47.0	59.7	66.2	74.0	69.5	60.5	46.3	29.6	15.3
1846	27.8	19.1	37.9	46.0	63.9	65.9	74.3	74.4	64.3	46.0	40.4	21.2
1847	4.9	18.4	22.1	45.0	52.3	64.2	71.7	67.5	58.3	47.3	31.1	16.2
1848	17.1	19.0	27.9	44.5	59.5	67.1	67.1	66.3	54.2	47.8	26.1	7.8
1849	4.5	13.6	29.2	39.5	53.4	66.0	69.2	65.4	59.8	46.6	41.4	7.8
1850	13.5	17.4	24.2	36.6	54.2	67.6	73.4	72.0	62.3	50.0	34.0	12.8
1851	15.7	21.7	38.7	50.1	58.6	68.3	75.9	68.4	68.1	50.5	30.5	11.7
1852	12.6	22.5	27.5	43.1	58.2	70.0	73.7	72.5	63.8	52.9	26.3	10.9
1853	13.4	6.5	22.8	45.1	53.6	65.3	67.3	69.3	60.2	45.3	29.2	10.8
1854	1.6	14.8	29.1	48.2	56.4	67.5	73.4	71.3	62.0	51.4	31.9	20.6
1855	10.6	6.7	23.1	47.7	59.4	65.3	72.1	66.2	60.4	46.0	33.1	7.1
1856	-0.2	9.9	19.5	47.1	58.4	70.4	74.4	67.1	59.1	51.5	29.5	6.5
1857	-4.6	13.7	22.4	31.2	54.4	63.6	73.8	69.5	61.8	48.6	25.8	23.6
1858	22.6	11.9	37.3	42.7	58.2	67.4	72.1	69.5	60.3	48.1	30.9	19.3
1859	11.8	15.9	31.2	36.1	58.1	60.2	69.7	65.2	54.6	40.8	29.0	3.6
1860	13.8	16.8	35.8	43.5	60.2	64.5	67.4	62.1	53.0	46.1	27.2	12.9
1861	8.7	17.4	25.2	44.7	52.1	66.4	65.9	65.0	55.7	45.3	27.5	19.1
1862	4.9	2.9	25.4	39.3	58.2	63.2	68.3	64.5	56.1	45.1	26.2	19.7
1863	19.3	14.1	26.0	45.9	59.4	63.0	66.1	64.7	55.6	38.5	28.1	17.8
1864	10.4	20.2	25.9	41.4	57.8	66.7	71.0	67.6	56.1	42.8	27.8	9.5
1865	13.4	23.3	23.4	42.4	58.7	66.0	64.1	64.8	64.9	46.2	34.3	8.0
1866	9.7	7.2	18.2	40.9	55.4	62.0	71.6	62.3	51.3	47.8	30.2	14.7
1867	6.9	14.5	12.3	39.3	49.4	65.8	66.1	66.6	55.3	42.2	31.7	13.3
1868	3.8	11.7	31.7	38.2	58.9	65.4	75.8	65.0	49.1	42.8	30.0	14.3
1869	18.3	17.5	19.9	40.2	56.9	62.3	67.8	67.4	58.9	39.0	27.8	18.3
1870	11.6	15.7	26.5	49.8	64.2	71.1	72.3	64.9	62.1	46.4	35.9	17.7
1871	11.5	18.9	31.2	45.0	59.5	65.1	69.0	68.5	56.1	46.4	34.7	17.7

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
1872	12.9	17.7	20.3	47.1	55.7	66.8	71.8	70.6	58.0	47.4	23.9	2.6
1873	3.8	10.0	25.3	40.6	54.0	67.6	70.1	70.6	54.6	41.7	25.1	16.9
1874	11.6	12.6	22.0	37.5	59.6	67.6	72.9	69.2	60.8	49.0	27.9	17.4
1875	-6.0	-3.0	20.9	38.5	57.7	62.8	69.6	66.5	58.2	43.3	25.0	25.2
1876	16.4	16.1	24.9	42.7	53.3	60.3	70.7	67.3	59.2	45.2	31.8	8.5
1877	7.9	29.1	21.9	44.8	61.0	62.2	71.9	70.8	63.7	46.8	30.5	30.8
1878	20.1	29.6	43.7	50.6	55.2	67.7	75.5	74.7	63.2	42.8	37.9	17.8
1879	10.2	6.3	29.5	49.5	61.1	69.6	76.1	72.1	57.8	56.9	30.7	7.0
1880	18.1	17.8	26.2	42.9	62.3	68.8	72.1	69.8	59.4	43.7	18.6	9.2
1881	3.8	12.5	26.7	42.8	62.2	64.6	70.2	72.6	59.7	47.3	26.9	25.1
1882	15.1	23.9	32.4	47.6	50.8	64.3	65.3	68.8	60.6	50.2	30.5	11.1
1883	3.8	7.0	21.1	43.7	51.5	64.4	70.3	67.1	56.3	43.3	29.9	15.0
1884	2.6	7.1	24.1	43.3	57.5	66.8	66.8	67.7	62.2	48.8	28.4	8.3
1885	4.4	4.5	24.3	43.3	56.9	65.3	70.7	64.0	56.9	42.1	32.6	20.8
1886	2.9	12.0	25.7	47.1	56.3	64.1	71.7	70.2	58.5	56.6	26.3	5.7
1887	-1.4	6.9	25.4	44.5	62.1	68.8	72.9	66.0	57.2	40.8	29.3	15.9
1888	-2.9	10.3	18.0	39.7	48.7	56.0	70.4	65.0	57.5	44.6	34.2	24.8
1889	19.2	11.2	36.7	48.4	57.6	65.9	71.9	70.0	58.8	44.6	29.0	29.7
1890	9.9	19.2	23.4	48.1	52.7	69.3	71.0	65.2	56.6	45.1	34.7	18.3
1891	21.4	10.6	24.6	48.2	57.9	66.4	66.2	67.7	61.5	48.0	33.7	28.1
1892	11.0	22.6	28.3	42.6	50.7	65.2	70.5	69.4	61.5	49.8	27.7	14.1
1893	2.1	7.0	21.6	37.4	52.7	69.9	72.3	67.4	60.4	47.5	29.1	11.4
1894	8.6	13.8	34.2	47.0	57.3	71.7	74.4	71.3	62.0	47.2	26.1	25.3
1895	3.1	8.0	27.9	50.8	56.9	65.1	67.6	69.4	63.0	41.9	28.7	19.4
1896	14.7	19.4	26.5	46.2	61.5	65.3	69.1	69.2	53.9	42.4	18.9	20.5
1897	16.3	16.3	20.8	42.6	53.5	61.3	70.4	63.4	64.2	49.2	24.7	11.5
1898	19.7	18.4	32.9	43.8	55.9	65.1	68.6	65.8	59.2	44.2	27.4	11.7
1899	12.6	4.8	15.3	45.5	57.1	65.4	71.2	70.4	57.2	50.4	39.1	18.5
1900	19.2	5.5	23.3	48.1	60.9	67.1	69.9	75.1	59.5	46.0	27.3	20.1
1901	15.6	11.2	28.9	49.0	59.5	68.4	76.6	72.0	60.0	52.6	31.7	15.1
1902	18.0	16.0	35.7	44.8	60.8	62.7	70.7	65.7	58.8	48.2	35.7	15.1
1903	13.0	13.0	32.9	44.3	57.9	62.5	68.2	64.8	56.8	48.6	28.1	9.3
1904	5.3	3.2	27.7	40.3	56.8	63.7	66.8	65.5	59.1	48.3	37.8	18.3
1905	5.0	8.5	34.9	43.4	54.2	64.5	68.2	69.4	62.6	44.1	33.7	22.8
1906	19.4	16.1	22.4	50.2	55.1	64.7	68.7	70.4	62.8	46.0	32.2	19.6
1907	7.0	17.0	30.9	36.1	47.5	63.3	68.9	66.8	58.0	46.4	33.5	23.4
1908	18.4	20.7	29.5	45.4	55.1	62.7	70.5	66.8	65.7	47.2	35.2	20.0
1909	15.0	16.9	28.7	37.6	54.2	66.1	71.1	72.6	59.0	46.0	36.8	11.4
1910	12.8	10.1	43.3	50.6	54.3	70.7	73.5	68.7	62.6	53.3	27.9	18.3
1911	10.0	22.2	35.9	45.4	63.7	72.6	70.5	66.6	59.8	44.8	22.4	23.4
1912	4.6	12.9	23.3	47.4	57.9	63.7	70.3	67.2	60.4	50.6	35.9	22.4
1913	12.4	12.5	25.7	48.1	55.1	70.6	70.9	72.0	60.9	46.4	39.1	28.2
1914	20.8	6.5	29.8	44.4	60.3	66.2	74.3	68.5	61.4	54.7	35.4	9.2
1915	9.4	23.3	25.9	54.3	52.1	60.7	64.6	64.7	59.8	49.6	34.3	20.0
1916	9.0	9.7	25.3	43.0	55.2	62.0	71.1	71.1	58.2	45.4	32.0	10.6
1917	5.4	4.6	25.1	41.9	54.2	62.9	71.1	65.9	58.4	37.9	37.3	8.1
1918	2.4	15.4	37.0	42.7	59.4	64.9	69.0	69.5	53.7	50.0	36.4	27.4
1919	19.1	15.5	29.9	44.4	55.7	68.5	72.1	68.9	62.6	42.9	25.0	9.6
1920	6.0	14.4	28.9	37.6	57.3	67.2	69.1	67.2	63.6	54.5	31.4	21.8
1921	20.4	23.7	33.3	50.4	58.1	71.3	75.3	68.7	62.0	49.0	25.8	19.7
1922	12.0	9.7	30.9	44.0	61.8	67.7	68.4	72.0	63.7	51.5	38.0	17.0
1923	15.5	8.3	21.5	43.2	57.1	69.1	74.3	65.8	61.0	45.9	37.8	29.2
1924	4.7	19.4	28.7	44.4	49.9	63.9	68.1	66.9	56.8	54.5	31.4	7.3
1925	10.8	20.1	33.6	51.6	53.5	68.8	69.0	64.3	68.8	69.0	31.6	14.1
1926	14.5	22.2	24.8	43.0	61.5	63.1	70.3	68.5	56.7	45.8	25.9	11.2
1927	9.8	21.6	32.9	43.4	52.7	63.4	67.1	64.3	60.9	49.7	28.4	5.1
1928	14.8	19.8	31.9	37.6	59.6	61.5	70.1	69.0	57.0	50.2	34.8	25.2
1929	2.0	8.4	34.5	46.3	50.3	64.1	72.1	68.7	58.7	49.4	27.4	17.8
1930	4.1	26.5	31.7	47.4	57.7	64.7	73.5	73.1	60.5	45.8	35.4	20.8
1931	24.6	31.1	30.3	48.8	54.5	72.3	75.1	70.7	67.1	52.4	38.7	28.4
1932	15.2	16.9	20.3	44.5	56.7	69.5	72.6	71.2	59.0	45.0	32.0	13.8
1933	21.2	10.6	29.1	42.9	55.0	73.1	73.7	67.0	64.1	44.6	29.0	15.6
1934	18.4	16.9	27.3	44.3	66.9	70.7	74.1	67.9	57.1	52.2	36.8	12.0
1935	7.8	23.1	32.0	41.0	51.5	62.1	76.9	71.3	61.1	47.8	28.2	15.9
1936	2.1	20.6	27.5	39.6	53.5	64.8	78.9	73.7	64.5	45.2	29.2	19.8

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
1975	12.7	15.5	21.5	37.7	60.6	66.7	73.0	68.2	55.1	50.6	35.5	19.6
1976	10.2	26.8	32.0	50.8	56.8	69.3	73.5	69.8	58.9	42.6	26.0	9.2
1977	-2.9	20.9	36.2	52.4	66.2	66.5	71.4	64.0	60.7	47.3	30.8	

Feb. 1978

Latitude Longitude Elevation  
 44 54 N 93 11 W 840 feet  
 Fort Snelling  
 Farmington 44 40 N 93 11 W 980 feet

The Farmington site has been in the same place since 1885, on the Akin farm, with only three observers -- Jerome, his father, and his grandfather. Since May 1977, mean temperature values have been derived from a thermograph in the Akin shelter, placed there with the kind permission of the National Weather Service and the kind cooperation of the Akins.