EXPLORE WEATHER TRENDS

I have written the following SQL queries to extract the data and then I have downloaded it in .CSV

* SELECT \* FROM city\_list ;

(I searched the city nearest to my hometown and it was “Ludhiana” in “India”

* SELECT \* FROM city\_data WHERE city=”Ludhiana”;

(All the local data was retrieved by this command)

* SELECT \* FROM global\_data;

(All the global data was retrieved by this command)

Then I have used Excel to open CSV files and perform operations on it .

* First ,I combined the local and global data with respective years
* Then I calculated the moving average for both local and global data.( I have taken an interval of previous 5 years as a parameter to calculate the moving average).
* Then I have plotted the following graph on that data.

(Here temperature is plotted on y-axis and the time variation Is plotted on x-axis).

Local Temperature Over Time :-

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Global Temperature Over Time:-

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Observations :-

* Local area is hotter as compared to the rest of world.
* Temperature in the world is rising .So the world is getting hotter every year .
* For the past 40 years, the increase in temperature is high in global world as compared to the my local city.
* The trend in the local area and world is consistent for the past 100 years.

Data after operations is following:-

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| Year | MA(Local) | | | Local Temp | | | Global Temp | | | Ma (Global) | | |
| 1816 |  | | | 24.03 | | | 6.94 | | |  | | |
| 1817 |  | | | 22.18 | | | 6.98 | | |  | | |
| 1818 |  | | | 22.84 | | | 7.83 | | |  | | |
| 1819 |  | | | 22.25 | | | 7.37 | | |  | | |
| 1820 | 22.978 | | | 23.59 | | | 7.62 | | | 7.348 | | |
| 1821 | 22.802 | | | 23.15 | | | 8.09 | | | 7.578 | | |
| 1822 | 23.02 | | | 23.27 | | | 8.19 | | | 7.82 | | |
| 1833 | 23.088 | | | 23.18 | | | 8.01 | | | 7.856 | | |
| 1834 | 23.27 | | | 23.16 | | | 8.15 | | | 8.012 | | |
| 1835 | 23.006 | | | 22.27 | | | 7.39 | | | 7.966 | | |
| 1836 | 22.814 | | | 22.19 | | | 7.7 | | | 7.888 | | |
| 1837 | 22.876 | | | 23.58 | | | 7.38 | | | 7.726 | | |
| 1838 | 23.606 | | | 26.83 | | | 7.51 | | | 7.626 | | |
| 1840 | 23.572 | | | 22.99 | | | 7.8 | | | 7.556 | | |
| 1841 | 23.81 | | | 23.46 | | | 7.69 | | | 7.616 | | |
| 1842 | 24.252 | | | 24.4 | | | 8.02 | | | 7.68 | | |
| 1843 | 24.168 | | | 23.16 | | | 8.17 | | | 7.838 | | |
| 1844 | 23.338 | | | 22.68 | | | 7.65 | | | 7.866 | | |
| 1845 | 23.328 | | | 22.94 | | | 7.85 | | | 7.876 | | |
| 1846 | 23.35 | | | 23.57 | | | 8.55 | | | 8.048 | | |
| 1847 | 23.082 | | | 23.06 | | | 8.09 | | | 8.062 | | |
| 1848 | 22.994 | | | 22.72 | | | 7.98 | | | 8.024 | | |
| 1849 | 23.026 | | | 22.84 | | | 7.98 | | | 8.09 | | |
| 1850 | 23.052 | | | 23.07 | | | 7.9 | | | 8.1 | | |
| 1851 | 22.948 | | | 23.05 | | | 8.18 | | | 8.026 | | |
| 1852 | 22.936 | | | 23 | | | 8.1 | | | 8.028 | | |
| 1853 | 23.018 | | | 23.13 | | | 8.04 | | | 8.04 | | |
| 1854 | 23.116 | | | 23.33 | | | 8.21 | | | 8.086 | | |
| 1855 | 23.248 | | | 23.73 | | | 8.11 | | | 8.128 | | |
| 1856 | 23.098 | | | 22.3 | | | 8 | | | 8.092 | | |
| 1857 | 22.204 | | | 18.53 | | | 7.76 | | | 8.024 | | |
| 1870 | 22.238 | | | 23.3 | | | 8.2 | | | 8.056 | | |
| 1871 | 22.214 | | | 23.21 | | | 8.12 | | | 8.038 | | |
| 1872 | 22.136 | | | 23.34 | | | 8.19 | | | 8.054 | | |
| 1873 | 22.366 | | | 23.45 | | | 8.35 | | | 8.124 | | |
| 1874 | 23.202 | | | 22.71 | | | 8.43 | | | 8.258 | | |
| 1875 | 23.288 | | | 23.73 | | | 7.86 | | | 8.19 | | |
| 1876 | 23.246 | | | 23 | | | 8.08 | | | 8.182 | | |
| 1877 | 23.19 | | | 23.06 | | | 8.54 | | | 8.252 | | |
| 1878 | 23.12 | | | 23.1 | | | 8.83 | | | 8.348 | | |
| 1879 | 23.278 | | | 23.5 | | | 8.17 | | | 8.296 | | |
| 1880 | 23.356 | | | 24.12 | | | 8.12 | | | 8.348 | | |
| 1881 | 23.522 | | | 23.83 | | | 8.27 | | | 8.386 | | |
| 1882 | 23.582 | | | 23.36 | | | 8.13 | | | 8.304 | | |
| 1883 | 23.616 | | | 23.27 | | | 7.98 | | | 8.134 | | |
| 1884 | 23.526 | | | 23.05 | | | 7.77 | | | 8.054 | | |
| 1885 | 23.242 | | | 22.7 | | | 7.92 | | | 8.014 | | |
| 1886 | 23.102 | | | 23.13 | | | 7.95 | | | 7.95 | | |
| 1887 | 23.084 | | | 23.27 | | | 7.91 | | | 7.906 | | |
| 1888 | 23.09 | | | 23.3 | | | 8.09 | | | 7.928 | | |
| 1889 | 23.178 | | | 23.49 | | | 8.32 | | | 8.038 | | |
| 1890 | 23.272 | | | 23.17 | | | 7.97 | | | 8.048 | | |
| 1891 | 23.212 | | | 22.83 | | | 8.02 | | | 8.062 | | |
| 1892 | 23.34 | | | 23.91 | | | 8.07 | | | 8.094 | | |
| 1893 | 23.14 | | | 22.3 | | | 8.06 | | | 8.088 | | |
| 1894 | 23.038 | | | 22.98 | | | 8.16 | | | 8.056 | | |
| 1895 | 23.118 | | | 23.57 | | | 8.15 | | | 8.092 | | |
| 1896 | 23.362 | | | 24.05 | | | 8.21 | | | 8.13 | | |
| 1897 | 23.252 | | | 23.36 | | | 8.29 | | | 8.174 | | |
| 1898 | 23.568 | | | 23.88 | | | 8.18 | | | 8.198 | | |
| 1899 | 23.792 | | | 24.1 | | | 8.4 | | | 8.246 | | |
| 1900 | 23.808 | | | 23.65 | | | 8.5 | | | 8.316 | | |
| 1901 | 23.7 | | | 23.51 | | | 8.54 | | | 8.382 | | |
| 1902 | 23.808 | | | 23.9 | | | 8.3 | | | 8.384 | | |
| 1903 | 23.68 | | | 23.24 | | | 8.22 | | | 8.392 | | |
| 1904 | 23.564 | | | 23.52 | | | 8.09 | | | 8.33 | | |
| 1905 | 23.416 | | | 22.91 | | | 8.23 | | | 8.276 | | |
| 1906 | 23.4 | | | 23.43 | | | 8.38 | | | 8.244 | | |
| 1907 | 23.242 | | | 23.11 | | | 7.95 | | | 8.174 | | |
| 1908 | 23.286 | | | 23.46 | | | 8.19 | | | 8.168 | | |
| 1909 | 23.18 | | | 22.99 | | | 8.18 | | | 8.186 | | |
| 1910 | 23.218 | | | 23.1 | | | 8.22 | | | 8.184 | | |
| 1911 | 23.24 | | | 23.54 | | | 8.18 | | | 8.144 | | |
| 1912 | 23.326 | | | 23.54 | | | 8.17 | | | 8.188 | | |
| 1913 | 23.218 | | | 22.92 | | | 8.3 | | | 8.21 | | |
| 1914 | 23.242 | | | 23.11 | | | 8.59 | | | 8.292 | | |
| 1915 | 23.464 | | | 24.21 | | | 8.59 | | | 8.366 | | |
| 1916 | 23.462 | | | 23.53 | | | 8.23 | | | 8.376 | | |
| 1917 | 23.256 | | | 22.51 | | | 8.02 | | | 8.346 | | |
| 1918 | 23.378 | | | 23.53 | | | 8.13 | | | 8.312 | | |
| 1919 | 23.414 | | | 23.29 | | | 8.38 | | | 8.27 | | |
| 1920 | 23.224 | | | 23.26 | | | 8.36 | | | 8.224 | | |
| 1921 | 23.422 | | | 24.52 | | | 8.57 | | | 8.292 | | |
| 1922 | 23.634 | | | 23.57 | | | 8.41 | | | 8.37 | | |
| 1923 | 23.58 | | | 23.26 | | | 8.42 | | | 8.428 | | |
| 1924 | 23.58 | | | 23.29 | | | 8.51 | | | 8.454 | | |
| 1925 | 23.556 | | | 23.14 | | | 8.53 | | | 8.488 | | |
| 1926 | 23.24 | | | 22.94 | | | 8.73 | | | 8.52 | | |
| 1927 | 23.136 | | | 23.05 | | | 8.52 | | | 8.542 | | |
| 1928 | 23.246 | | | 23.81 | | | 8.63 | | | 8.584 | | |
| 1929 | 23.296 | | | 23.54 | | | 8.24 | | | 8.53 | | |
| 1930 | 23.288 | | | 23.1 | | | 8.63 | | | 8.55 | | |
| 1931 | 23.428 | | | 23.64 | | | 8.72 | | | 8.548 | | |
| 1932 | 23.604 | | | 23.93 | | | 8.71 | | | 8.586 | | |
| 1933 | 23.446 | | | 23.02 | | | 8.34 | | | 8.528 | | |
| 1934 | 23.444 | | | 23.53 | | | 8.63 | | | 8.606 | | |
| 1935 | 23.456 | | | 23.16 | | | 8.52 | | | 8.584 | | |
| 1936 | 23.41 | | | 23.41 | | | 8.55 | | | 8.55 | | |
| 1937 | 23.284 | | | 23.3 | | | 8.7 | | | 8.548 | | |
| 1938 | 23.424 | | | 23.72 | | | 8.86 | | | 8.652 | | |
| 1939 | 23.438 | | | 23.6 | | | 8.76 | | | 8.678 | | |
| 1940 | 23.518 | | | 23.56 | | | 8.76 | | | 8.726 | | |
| 1941 | 23.754 | | | 24.59 | | | 8.77 | | | 8.77 | | |
| 1942 | 23.84 | | | 23.73 | | | 8.73 | | | 8.776 | | |
| 1943 | 23.848 | | | 23.76 | | | 8.76 | | | 8.756 | | |
| 1944 | 23.782 | | | 23.27 | | | 8.85 | | | 8.774 | | |
| 1945 | 23.7 | | | 23.15 | | | 8.58 | | | 8.738 | | |
| 1946 | 23.642 | | | 24.3 | | | 8.68 | | | 8.72 | | |
| 1947 | 23.804 | | | 24.54 | | | 8.8 | | | 8.734 | | |
| 1948 | 23.808 | | | 23.78 | | | 8.75 | | | 8.732 | | |
| 1949 | 23.932 | | | 23.89 | | | 8.59 | | | 8.68 | | |
| 1950 | 23.866 | | | 22.82 | | | 8.37 | | | 8.638 | | |
| 1951 | 23.766 | | | 23.8 | | | 8.63 | | | 8.628 | | |
| 1952 | 23.662 | | | 24.02 | | | 8.64 | | | 8.596 | | |
| 1953 | 23.794 | | | 24.44 | | | 8.87 | | | 8.62 | | |
| 1954 | 23.786 | | | 23.85 | | | 8.56 | | | 8.614 | | |
| 1955 | 23.926 | | | 23.52 | | | 8.63 | | | 8.666 | | |
| 1956 | 23.918 | | | 23.76 | | | 8.28 | | | 8.596 | | |
| 1957 | 23.71 | | | 22.98 | | | 8.73 | | | 8.614 | | |
| 1958 | 23.654 | | | 24.16 | | | 8.77 | | | 8.594 | | |
| 1959 | 23.646 | | | 23.81 | | | 8.73 | | | 8.628 | | |
| 1960 | 23.716 | | | 23.87 | | | 8.58 | | | 8.618 | | |
| 1961 | 23.612 | | | 23.24 | | | 8.8 | | | 8.722 | | |
| 1962 | 23.706 | | | 23.45 | | | 8.75 | | | 8.726 | | |
| 1963 | 23.616 | | | 23.71 | | | 8.86 | | | 8.744 | | |
| 1964 | 23.488 | | | 23.17 | | | 8.41 | | | 8.68 | | |
| 1965 | 23.402 | | | 23.44 | | | 8.53 | | | 8.67 | | |
| 1966 | 23.464 | | | 23.55 | | | 8.6 | | | 8.63 | | |
| 1967 | 23.456 | | | 23.41 | | | 8.7 | | | 8.62 | | |
| 1968 | 23.38 | | | 23.33 | | | 8.52 | | | 8.552 | | |
| 1969 | 23.572 | | | 24.13 | | | 8.6 | | | 8.59 | | |
| 1970 | 23.686 | | | 24.01 | | | 8.7 | | | 8.624 | | |
| 1971 | 23.718 | | | 23.71 | | | 8.6 | | | 8.624 | | |
| 1972 | 23.77 | | | 23.67 | | | 8.5 | | | 8.584 | | |
| 1973 | 23.876 | | | 23.86 | | | 8.95 | | | 8.67 | | |
| 1974 | 23.758 | | | 23.54 | | | 8.47 | | | 8.644 | | |
| 1975 | 23.626 | | | 23.35 | | | 8.74 | | | 8.652 | | |
| 1976 | 23.572 | | | 23.44 | | | 8.35 | | | 8.602 | | |
| 1977 | 23.604 | | | 23.83 | | | 8.85 | | | 8.672 | | |
| 1978 | 23.572 | | | 23.7 | | | 8.69 | | | 8.62 | | |
| 1979 | 23.652 | | | 23.94 | | | 8.73 | | | 8.672 | | |
| 1980 | 23.848 | | | 24.33 | | | 8.98 | | | 8.72 | | |
| 1981 | 23.956 | | | 23.98 | | | 9.17 | | | 8.884 | | |
| 1982 | 23.88 | | | 23.45 | | | 8.64 | | | 8.842 | | |
| 1983 | 23.762 | | | 23.11 | | | 9.03 | | | 8.91 | | |
| 1984 | 23.754 | | | 23.9 | | | 8.69 | | | 8.902 | | |
| 1985 | 23.776 | | | 24.44 | | | 8.66 | | | 8.838 | | |
| 1986 | 23.69 | | | 23.55 | | | 8.83 | | | 8.77 | | |
| 1987 | 23.904 | | | 24.52 | | | 8.99 | | | 8.84 | | |
| 1988 | 24.204 | | | 24.61 | | | 9.2 | | | 8.874 | | |
| 1989 | 24.148 | | | 23.62 | | | 8.92 | | | 8.92 | | |
| 1990 | 24.08 | | | 24.1 | | | 9.23 | | | 9.034 | | |
| 1991 | 24.124 | | | 23.77 | | | 9.18 | | | 9.104 | | |
| 1992 | 23.978 | | | 23.79 | | | 8.84 | | | 9.074 | | |
| 1993 | 23.924 | | | 24.34 | | | 8.87 | | | 9.008 | | |
| 1994 | 24.058 | | | 24.29 | | | 9.04 | | | 9.032 | | |
| 1995 | 24.046 | | | 24.04 | | | 9.35 | | | 9.056 | | |
| 1996 | 24.054 | | | 23.81 | | | 9.04 | | | 9.028 | | |
| 1997 | 23.948 | | | 23.26 | | | 9.2 | | | 9.1 | | |
| 1998 | 23.948 | | | 24.34 | | | 9.52 | | | 9.23 | | |
| 1999 | 24.07 | | | 24.9 | | | 9.29 | | | 9.28 | | |
| 2000 | 24.176 | | | 24.57 | | | 9.2 | | | 9.25 | | |
| 2001 | 24.314 | | | 24.5 | | | 9.41 | | | 9.324 | | |
| 2002 | 24.644 | | | 24.91 | | | 9.57 | | | 9.398 | | |
| 2003 | 24.596 | | | 24.1 | | | 9.53 | | | 9.4 | | |
| 2004 | 24.586 | | | 24.85 | | | 9.32 | | | 9.406 | | |
| 2005 | 24.496 | | | 24.12 | | | 9.7 | | | 9.506 | | |
| 2006 | 24.54 | | | 24.72 | | | 9.53 | | | 9.53 | | |
| 2007 | 24.478 | | | 24.6 | | | 9.73 | | | 9.562 | | |
| 2008 | 24.508 | | | 24.25 | | | 9.43 | | | 9.542 | | |
| 2009 | 24.512 | | | 24.87 | | | 9.51 | | | 9.58 | | |
| 2010 | 24.684 | | | 24.98 | | | 9.7 | | | 9.58 | | |
| 2011 | 24.61 | | | 24.35 | | | 9.52 | | | 9.578 | | |
| 2012 | 24.564 | | | 24.37 | | | 9.51 | | | 9.534 | | |
| 2013 | 24.802 | | | 25.44 | | | 9.61 | | | 9.57 | | |