**Cairo Global Temperature and the Global Temperature**

Here's a summary of Cairo's Temperature versus the global climate, as we see It's always higher than the world's average. it's very notable on charts and here's some facts about it:

1. The difference between average temperatures around 12.77 (taking in mind that Cairo's data contains an outlier in 1818 when its temperature recorded 11.06 only while the difference between medians is 12.84).

1. The Minimum temperature happened for both in the same era: 1811 for the global climate, and 1818 for Cairo’s' recording 6.86 and 11.06 (which is a very notable outlier but it’s still in the same era of the least moving average) respectively.
2. The Maximum Temperature also happened for the Global and Cairo’s average temperature the same era 2007 and 2011 recording 9.73 and 23.72 respectively.
3. Temperature is changing in the same trend with the global change in climate. Changes in both of them are high positive change with more than 34% for the global and 57% for the Cairo’s.
4. The pervious point leads us also leads us to this one which talks about the correlation coefficient (year on year) appear to be strong somehow (related 34% to the global climate) but, considering the average of the last 5 years, we can see this relation became stronger (57% correlated). Which is also appeared on the graphs below which show the ascending temperature for both of them.
5. Below there are some statistical facts also about Quartiles:

|  |  |  |  |
| --- | --- | --- | --- |
| **Statistical Facts** | **Global** | **Cairo** | **Difference** |
| **Max** | 9.73 | 23.72 | 13.99 |
| **When Max happened** | 2007 | 2010 | 3 |
| **Min** | 6.86 | 11.6 | 4.74 |
| **When Min happened** | 1811 | 1818 | 7 |
| **Range for real data** | 2.87 | 12.12 | 9.25 |
| **Range for Mov AVG** | 2.472 | 3.978 | 1.506 |
| **Average Temp** | 8.40 | 21.17 | 12.77 |
| **Change in % (Range/ Avg)** | 34.18% | 57.25% |  |
| **Median** | 8.385 | 21.245 | 12.86 |
| **1st Quartile** | 8.09 | 20.8125 | 12.7225 |
| **3rd Quartile** | 8.73 | 21.57 | 12.84 |
| **Interquartile Range** | 0.64 | 0.7575 | 0.1175 |
| **Interquartile Range/Median** | 7.63% | 3.57% | -0.040671326 |

|  |  |
| --- | --- |
| **Correlation Coefficient** | |
| For Temperature data | For Moving Average |
| 0.58 | 0.89 |

1. Here’s two charts containing data about average temperature and moving average for 5 years:

**Annex (1)**

SQL Code for extracting date and How those calculations are done

SELECT global\_data.year as "Year", global\_data.avg\_temp AS "Global AVG Temp", CT "Cairo's AVG Temp"

FROM global\_data

JOIN (SELECT city\_data.year YeR, city\_data.avg\_temp CT

FROM city\_data

WHERE city\_data.city ='Cairo') CAI

ON global\_data.year = CAI.YeR

The tool used to analyze data is MS Excel and Formulas are:

* Average() to calculate moving average with dragging.
* Max(), Min(), Median(), Range and QUARTILE.INC().
* Year for Max and Min found manually using Find All function to get all years Min and Max Happened.

**Annex (2)**

Average Annual Temperature for Cairo and Global Climate

| **Year** | **Global AVG Temp** | **Cairo's AVG Temp** | **Moving AVG Global** | **Moving AVG Cairo** |
| --- | --- | --- | --- | --- |
| **1808** | 7.63 | 17.11 |  |  |
| **1809** | 7.08 | 19.87 |  |  |
| **1810** | 6.92 | 19.93 |  |  |
| **1811** | 6.86 | 20 |  |  |
| **1812** | 7.05 | 19.93 | 7.108 | 19.368 |
| **1813** | 7.74 | 20.51 | 7.13 | 20.048 |
| **1814** | 7.59 | 20.43 | 7.232 | 20.16 |
| **1815** | 7.24 | 20.3 | 7.296 | 20.234 |
| **1816** | 6.94 | 20.51 | 7.312 | 20.336 |
| **1817** | 6.98 | 21.88 | 7.298 | 20.726 |
| **1818** | 7.83 | 11.6 | 7.316 | 18.944 |
| **1819** | 7.37 | 20.31 | 7.272 | 18.92 |
| **1820** | 7.62 | 20.58 | 7.348 | 18.976 |
| **1821** | 8.09 | 20.63 | 7.578 | 19 |
| **1822** | 8.19 | 20.72 | 7.82 | 18.768 |
| **1823** | 7.72 | 20.71 | 7.798 | 20.59 |
| **1824** | 8.55 | 21.44 | 8.034 | 20.816 |
| **1825** | 8.39 | 21 | 8.188 | 20.9 |
| **1826** | 8.36 | 20.94 | 8.242 | 20.962 |
| **1827** | 8.81 | 21.63 | 8.366 | 21.144 |
| **1828** | 8.17 | 20.99 | 8.456 | 21.2 |
| **1829** | 7.94 | 20.91 | 8.334 | 21.094 |
| **1830** | 8.52 | 21.25 | 8.36 | 21.144 |
| **1831** | 7.64 | 20.52 | 8.216 | 21.06 |
| **1832** | 7.45 | 20.2 | 7.944 | 20.774 |
| **1833** | 8.01 | 20.81 | 7.912 | 20.738 |
| **1834** | 8.15 | 20.69 | 7.954 | 20.694 |
| **1835** | 7.39 | 20.17 | 7.728 | 20.478 |
| **1836** | 7.7 | 20.59 | 7.74 | 20.492 |
| **1837** | 7.38 | 20.27 | 7.726 | 20.506 |
| **1838** | 7.51 | 20.21 | 7.626 | 20.386 |
| **1839** | 7.63 | 20.43 | 7.522 | 20.334 |
| **1840** | 7.8 | 20.56 | 7.604 | 20.412 |
| **1841** | 7.69 | 20.91 | 7.602 | 20.476 |
| **1842** | 8.02 | 20.92 | 7.73 | 20.606 |
| **1843** | 8.17 | 20.83 | 7.862 | 20.73 |
| **1844** | 7.65 | 20.66 | 7.866 | 20.776 |
| **1845** | 7.85 | 20.9 | 7.876 | 20.844 |
| **1846** | 8.55 | 21.57 | 8.048 | 20.976 |
| **1847** | 8.09 | 21.1 | 8.062 | 21.012 |
| **1848** | 7.98 | 20.89 | 8.024 | 21.024 |
| **1849** | 7.98 | 20.9 | 8.09 | 21.072 |
| **1850** | 7.9 | 20.39 | 8.1 | 20.97 |
| **1851** | 8.18 | 21.11 | 8.026 | 20.878 |
| **1852** | 8.1 | 21.04 | 8.028 | 20.866 |
| **1853** | 8.04 | 21.53 | 8.04 | 20.994 |
| **1854** | 8.21 | 20.74 | 8.086 | 20.962 |
| **1855** | 8.11 | 21.04 | 8.128 | 21.092 |
| **1856** | 8 | 20.49 | 8.092 | 20.968 |
| **1857** | 7.76 | 20.29 | 8.024 | 20.818 |
| **1858** | 8.1 | 20.9 | 8.036 | 20.692 |
| **1859** | 8.25 | 20.98 | 8.044 | 20.74 |
| **1860** | 7.96 | 21.33 | 8.014 | 20.798 |
| **1861** | 7.85 | 20.21 | 7.984 | 20.742 |
| **1862** | 7.56 | 20.22 | 7.944 | 20.728 |
| **1863** | 8.11 | 20.6 | 7.946 | 20.668 |
| **1864** | 7.98 | 21.25 | 7.892 | 20.722 |
| **1865** | 8.18 | 21.55 | 7.936 | 20.766 |
| **1866** | 8.29 | 21.35 | 8.024 | 20.994 |
| **1867** | 8.44 | 21.45 | 8.2 | 21.24 |
| **1868** | 8.25 | 20.94 | 8.228 | 21.308 |
| **1869** | 8.43 | 21.41 | 8.318 | 21.34 |
| **1870** | 8.2 | 21.3 | 8.322 | 21.29 |
| **1871** | 8.12 | 20.87 | 8.288 | 21.194 |
| **1872** | 8.19 | 21.14 | 8.238 | 21.132 |
| **1873** | 8.35 | 21.4 | 8.258 | 21.224 |
| **1874** | 8.43 | 20.77 | 8.258 | 21.096 |
| **1875** | 7.86 | 19.99 | 8.19 | 20.834 |
| **1876** | 8.08 | 21.05 | 8.182 | 20.87 |
| **1877** | 8.54 | 21.39 | 8.252 | 20.92 |
| **1878** | 8.83 | 21.54 | 8.348 | 20.948 |
| **1879** | 8.17 | 21.49 | 8.296 | 21.092 |
| **1880** | 8.12 | 21.2 | 8.348 | 21.334 |
| **1881** | 8.27 | 21.56 | 8.386 | 21.436 |
| **1882** | 8.13 | 20.38 | 8.304 | 21.234 |
| **1883** | 7.98 | 20.65 | 8.134 | 21.056 |
| **1884** | 7.77 | 20.23 | 8.054 | 20.804 |
| **1885** | 7.92 | 20.91 | 8.014 | 20.746 |
| **1886** | 7.95 | 20.55 | 7.95 | 20.544 |
| **1887** | 7.91 | 21.21 | 7.906 | 20.71 |
| **1888** | 8.09 | 21.04 | 7.928 | 20.788 |
| **1889** | 8.32 | 21.05 | 8.038 | 20.952 |
| **1890** | 7.97 | 21.09 | 8.048 | 20.988 |
| **1891** | 8.02 | 21.13 | 8.062 | 21.104 |
| **1892** | 8.07 | 21.39 | 8.094 | 21.14 |
| **1893** | 8.06 | 20.57 | 8.088 | 21.046 |
| **1894** | 8.16 | 20.95 | 8.056 | 21.026 |
| **1895** | 8.15 | 20.97 | 8.092 | 21.002 |
| **1896** | 8.21 | 21.17 | 8.13 | 21.01 |
| **1897** | 8.29 | 20.82 | 8.174 | 20.896 |
| **1898** | 8.18 | 20.92 | 8.198 | 20.966 |
| **1899** | 8.4 | 21.04 | 8.246 | 20.984 |
| **1900** | 8.5 | 21.57 | 8.316 | 21.104 |
| **1901** | 8.54 | 21.89 | 8.382 | 21.248 |
| **1902** | 8.3 | 21.36 | 8.384 | 21.356 |
| **1903** | 8.22 | 20.39 | 8.392 | 21.25 |
| **1904** | 8.09 | 20.61 | 8.33 | 21.164 |
| **1905** | 8.23 | 21.03 | 8.276 | 21.056 |
| **1906** | 8.38 | 21.24 | 8.244 | 20.926 |
| **1907** | 7.95 | 20.45 | 8.174 | 20.744 |
| **1908** | 8.19 | 20.37 | 8.168 | 20.74 |
| **1909** | 8.18 | 21.4 | 8.186 | 20.898 |
| **1910** | 8.22 | 20.65 | 8.184 | 20.822 |
| **1911** | 8.18 | 20.78 | 8.144 | 20.73 |
| **1912** | 8.17 | 20.79 | 8.188 | 20.798 |
| **1913** | 8.3 | 20.4 | 8.21 | 20.804 |
| **1914** | 8.59 | 20.96 | 8.292 | 20.716 |
| **1915** | 8.59 | 21.57 | 8.366 | 20.9 |
| **1916** | 8.23 | 21.73 | 8.376 | 21.09 |
| **1917** | 8.02 | 21.12 | 8.346 | 21.156 |
| **1918** | 8.13 | 21.43 | 8.312 | 21.362 |
| **1919** | 8.38 | 21.43 | 8.27 | 21.456 |
| **1920** | 8.36 | 20.72 | 8.224 | 21.286 |
| **1921** | 8.57 | 20.73 | 8.292 | 21.086 |
| **1922** | 8.41 | 21.39 | 8.37 | 21.14 |
| **1923** | 8.42 | 21.39 | 8.428 | 21.132 |
| **1924** | 8.51 | 21.61 | 8.454 | 21.168 |
| **1925** | 8.53 | 21.37 | 8.488 | 21.298 |
| **1926** | 8.73 | 21.22 | 8.52 | 21.396 |
| **1927** | 8.52 | 21.76 | 8.542 | 21.47 |
| **1928** | 8.63 | 21.72 | 8.584 | 21.536 |
| **1929** | 8.24 | 21.07 | 8.53 | 21.428 |
| **1930** | 8.63 | 21.73 | 8.55 | 21.5 |
| **1931** | 8.72 | 21.6 | 8.548 | 21.576 |
| **1932** | 8.71 | 21.43 | 8.586 | 21.51 |
| **1933** | 8.34 | 21.24 | 8.528 | 21.414 |
| **1934** | 8.63 | 21.52 | 8.606 | 21.504 |
| **1935** | 8.52 | 21.61 | 8.584 | 21.48 |
| **1936** | 8.55 | 22 | 8.55 | 21.56 |
| **1937** | 8.7 | 21.82 | 8.548 | 21.638 |
| **1938** | 8.86 | 20.92 | 8.652 | 21.574 |
| **1939** | 8.76 | 21.85 | 8.678 | 21.64 |
| **1940** | 8.76 | 21.59 | 8.726 | 21.636 |
| **1941** | 8.77 | 21.76 | 8.77 | 21.588 |
| **1942** | 8.73 | 21.59 | 8.776 | 21.542 |
| **1943** | 8.76 | 21.35 | 8.756 | 21.628 |
| **1944** | 8.85 | 21.4 | 8.774 | 21.538 |
| **1945** | 8.58 | 20.83 | 8.738 | 21.386 |
| **1946** | 8.68 | 21.76 | 8.72 | 21.386 |
| **1947** | 8.8 | 21.94 | 8.734 | 21.456 |
| **1948** | 8.75 | 20.88 | 8.732 | 21.362 |
| **1949** | 8.59 | 20.68 | 8.68 | 21.218 |
| **1950** | 8.37 | 21.53 | 8.638 | 21.358 |
| **1951** | 8.63 | 21.82 | 8.628 | 21.37 |
| **1952** | 8.64 | 21.92 | 8.596 | 21.366 |
| **1953** | 8.87 | 21.17 | 8.62 | 21.424 |
| **1954** | 8.56 | 21.45 | 8.614 | 21.578 |
| **1955** | 8.63 | 22.1 | 8.666 | 21.692 |
| **1956** | 8.28 | 21.48 | 8.596 | 21.624 |
| **1957** | 8.73 | 21.49 | 8.614 | 21.538 |
| **1958** | 8.77 | 21.85 | 8.594 | 21.674 |
| **1959** | 8.73 | 20.98 | 8.628 | 21.58 |
| **1960** | 8.58 | 22.3 | 8.618 | 21.62 |
| **1961** | 8.8 | 21.14 | 8.722 | 21.552 |
| **1962** | 8.75 | 22.11 | 8.726 | 21.676 |
| **1963** | 8.86 | 22.09 | 8.744 | 21.724 |
| **1964** | 8.41 | 21.07 | 8.68 | 21.742 |
| **1965** | 8.53 | 21.52 | 8.67 | 21.586 |
| **1966** | 8.6 | 22.1 | 8.63 | 21.778 |
| **1967** | 8.7 | 20.92 | 8.62 | 21.54 |
| **1968** | 8.52 | 21.48 | 8.552 | 21.418 |
| **1969** | 8.6 | 21.88 | 8.59 | 21.58 |
| **1970** | 8.7 | 21.53 | 8.624 | 21.582 |
| **1971** | 8.6 | 21.41 | 8.624 | 21.444 |
| **1972** | 8.5 | 21.57 | 8.584 | 21.574 |
| **1973** | 8.95 | 21.42 | 8.67 | 21.562 |
| **1974** | 8.47 | 21.55 | 8.644 | 21.496 |
| **1975** | 8.74 | 21.35 | 8.652 | 21.46 |
| **1976** | 8.35 | 21.28 | 8.602 | 21.434 |
| **1977** | 8.85 | 21.57 | 8.672 | 21.434 |
| **1978** | 8.69 | 21.67 | 8.62 | 21.484 |
| **1979** | 8.73 | 22.06 | 8.672 | 21.586 |
| **1980** | 8.98 | 21.52 | 8.72 | 21.62 |
| **1981** | 9.17 | 21.42 | 8.884 | 21.648 |
| **1982** | 8.64 | 21.04 | 8.842 | 21.542 |
| **1983** | 9.03 | 20.75 | 8.91 | 21.358 |
| **1984** | 8.69 | 21.32 | 8.902 | 21.21 |
| **1985** | 8.66 | 21.72 | 8.838 | 21.25 |
| **1986** | 8.83 | 21.52 | 8.77 | 21.27 |
| **1987** | 8.99 | 21.24 | 8.84 | 21.31 |
| **1988** | 9.2 | 21.65 | 8.874 | 21.49 |
| **1989** | 8.92 | 21.43 | 8.92 | 21.512 |
| **1990** | 9.23 | 21.6 | 9.034 | 21.488 |
| **1991** | 9.18 | 21.65 | 9.104 | 21.514 |
| **1992** | 8.84 | 21.11 | 9.074 | 21.488 |
| **1993** | 8.87 | 21.79 | 9.008 | 21.516 |
| **1994** | 9.04 | 22.02 | 9.032 | 21.634 |
| **1995** | 9.35 | 21.56 | 9.056 | 21.626 |
| **1996** | 9.04 | 21.88 | 9.028 | 21.672 |
| **1997** | 9.2 | 21.45 | 9.1 | 21.74 |
| **1998** | 9.52 | 22.36 | 9.23 | 21.854 |
| **1999** | 9.29 | 22.28 | 9.28 | 21.906 |
| **2000** | 9.2 | 21.49 | 9.25 | 21.892 |
| **2001** | 9.41 | 22.33 | 9.324 | 21.982 |
| **2002** | 9.57 | 22.41 | 9.398 | 22.174 |
| **2003** | 9.53 | 22.17 | 9.4 | 22.136 |
| **2004** | 9.32 | 22.08 | 9.406 | 22.096 |
| **2005** | 9.7 | 22.01 | 9.506 | 22.2 |
| **2006** | 9.53 | 22.05 | 9.53 | 22.144 |
| **2007** | 9.73 | 22.36 | 9.562 | 22.134 |
| **2008** | 9.43 | 22.64 | 9.542 | 22.228 |
| **2009** | 9.51 | 22.63 | 9.58 | 22.338 |
| **2010** | 9.7 | 23.72 | 9.58 | 22.68 |
| **2011** | 9.52 | 21.99 | 9.578 | 22.668 |
| **2012** | 9.51 | 22.48 | 9.534 | 22.692 |
| **2013** | 9.61 | 22.91 | 9.57 | 22.746 |