

Cairo Global Temperature and the Global Temperature

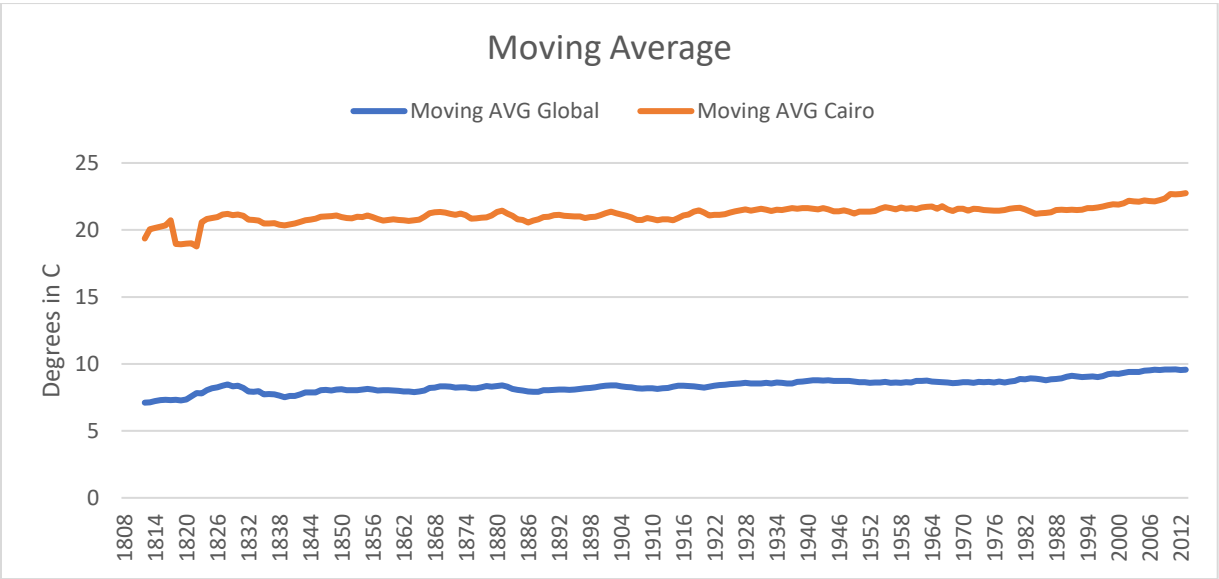
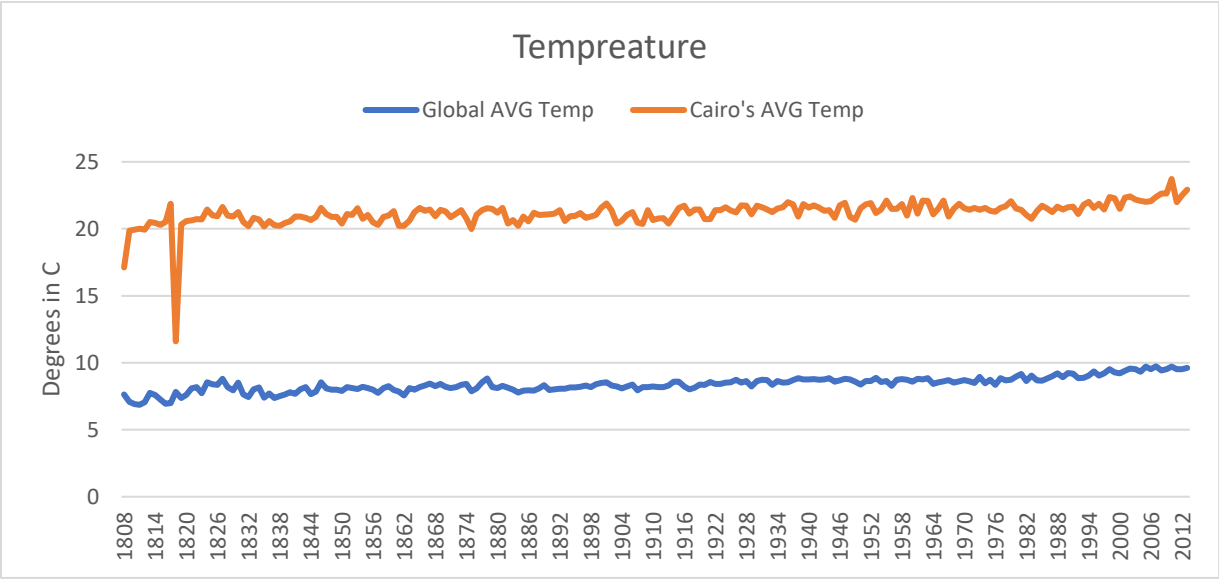
Here's a summary of Cairo's Temperature versus the global climate, as we see It's always higher than the world's average. it's very notable on charts and here's some facts about it:

- 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).
- 2) 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.
- 3) 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.
- 4) 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.
- 5) 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.
- 6) 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

7) Here's two charts containing data about average temperature and moving average for 5 years:



Annex (1)

SQL Code for extracting data 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

Year	Global AVG Temp	Cairo's AVG Temp	Moving AVG Global	Moving AVG Cairo
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

Year	Global AVG Temp	Cairo's AVG Temp	Moving AVG Global	Moving AVG Cairo
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

Year	Global AVG Temp	Cairo's AVG Temp	Moving AVG Global	Moving AVG Cairo
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

Year	Global AVG Temp	Cairo's AVG Temp	Moving AVG Global	Moving AVG Cairo
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