Exploring Weather Trends

The SQL query used to retrieve the data of both the nearest city to where I live, and the global data [1]:

```
select city_data.year as "Year", city_data.avg_temp as "Riyadh Temp.",
global_data.avg_temp as "Global Temp." from city_data, global_data
where city_data.year = global_data.year
    and city_data.avg_temp is not null
    and city_data.city = 'Riyadh'
```

The tool that has been used to visualize the data is Microsoft Excel. Moreover, the moving average was calculated by finding the average on a ten years bases.
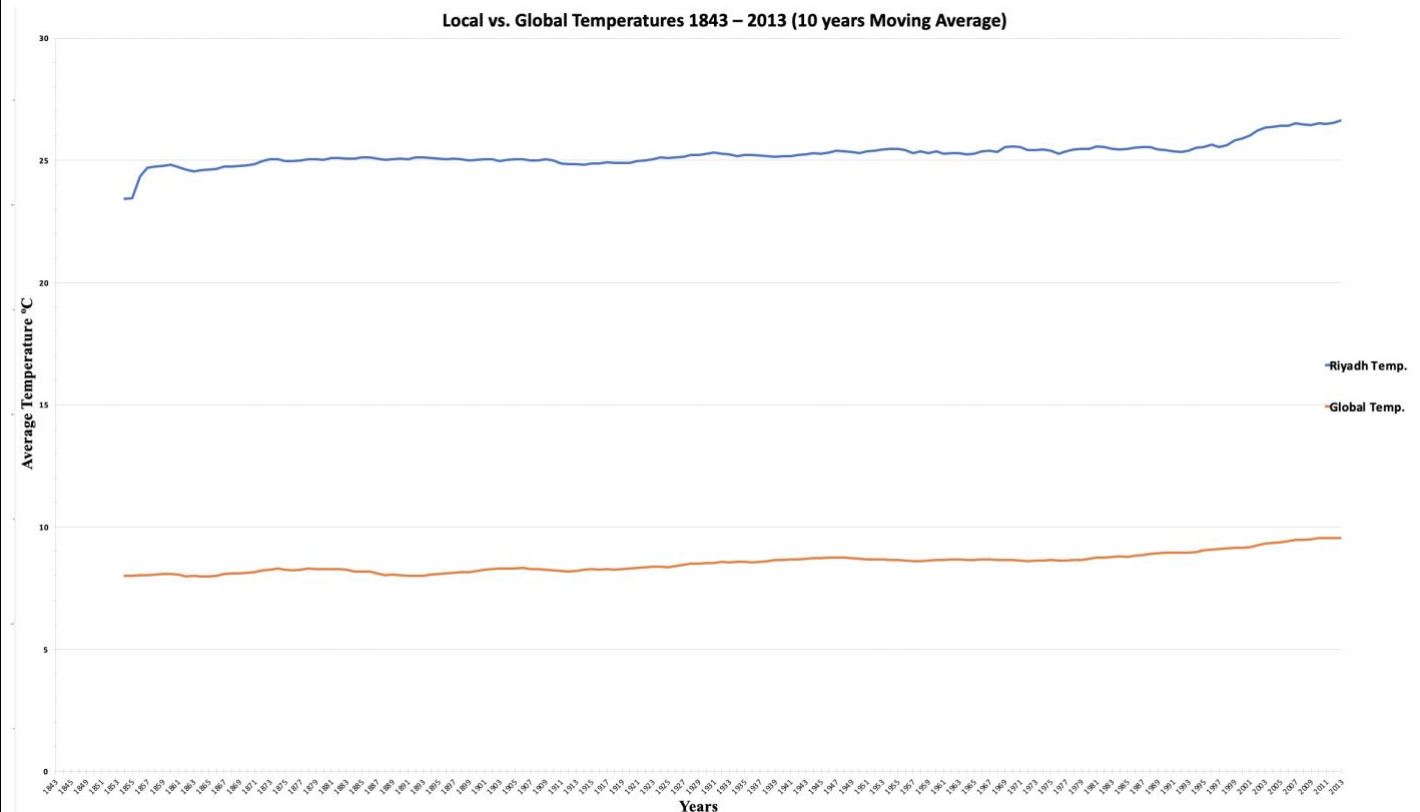
What I focused on and tried to achieve was to make the data visualization meaningful, clear, and as simple as possible. As you would see in the chart in the next few pages, the difference between the local and global temperatures is noticeable.

Year	Riyadh Temp.	Global Temp.	10-years MA (Riyadh)	10-years MA (global)
1843	24.74	8.17		
1844	15.45	7.65		
1845	20.82	7.85		
1848	24.56	7.98		
1849	24.8	7.98		
1850	24.34	7.9		
1851	25.03	8.18		
1852	24.85	8.1		
1853	24.93	8.04		
1854	24.72	8.21	23.424	8.006
1855	24.92	8.11	23.442	8
1856	24.57	8	24.354	8.035
1857	24.26	7.76	24.698	8.026
1858	25.01	8.1	24.743	8.038
1859	24.95	8.25	24.758	8.065
1860	24.94	7.96	24.818	8.071
1861	24.13	7.85	24.728	8.038
1862	23.77	7.56	24.62	7.984
1863	24.28	8.11	24.555	7.991
1864	25.03	7.98	24.586	7.968
1865	25.23	8.18	24.617	7.975
1866	24.92	8.29	24.652	8.004
1867	25.22	8.44	24.748	8.072
1868	25	8.25	24.747	8.087
1869	25.3	8.43	24.782	8.105
1870	25.02	8.2	24.79	8.129
1871	24.73	8.12	24.85	8.156
1872	24.87	8.19	24.96	8.219
1873	25.24	8.35	25.056	8.243
1874	24.98	8.43	25.051	8.288
1875	24.43	7.86	24.971	8.256
1876	24.89	8.08	24.968	8.235
1877	25.47	8.54	24.993	8.245
1878	25.51	8.83	25.044	8.303
1879	25.24	8.17	25.038	8.277
1880	24.8	8.12	25.016	8.269
1881	25.63	8.27	25.106	8.284
1882	24.66	8.13	25.085	8.278
1883	25.19	7.98	25.08	8.241
1884	24.8	7.77	25.062	8.175
1885	24.98	7.92	25.117	8.181
1886	24.98	7.95	25.126	8.168
1887	24.81	7.91	25.06	8.105
1888	25.13	8.09	25.022	8.031
1889	25.52	8.32	25.05	8.046

1890	25.07	7.97	25.077	8.031
1891	25.39	8.02	25.053	8.006
1892	25.22	8.07	25.109	8
1893	25.19	8.06	25.109	8.008
1894	24.66	8.16	25.095	8.047
1895	24.69	8.15	25.066	8.07
1896	24.88	8.21	25.056	8.096
1897	24.86	8.29	25.061	8.134
1898	24.88	8.18	25.036	8.143
1899	25.12	8.4	24.996	8.151
1900	25.29	8.5	25.018	8.204
1901	25.55	8.54	25.034	8.256
1902	25.25	8.3	25.037	8.279
1903	24.64	8.22	24.982	8.295
1904	25.07	8.09	25.023	8.288
1905	24.87	8.23	25.041	8.296
1906	24.85	8.38	25.038	8.313
1907	24.44	7.95	24.996	8.279
1908	24.95	8.19	25.003	8.28
1909	25.57	8.18	25.048	8.258
1910	24.75	8.22	24.994	8.23
1911	24.24	8.18	24.863	8.194
1912	24.96	8.17	24.834	8.181
1913	24.63	8.3	24.833	8.189
1914	24.94	8.59	24.82	8.239
1915	25.38	8.59	24.871	8.275
1916	24.85	8.23	24.871	8.26
1917	25.03	8.02	24.93	8.267
1918	24.66	8.13	24.901	8.261
1919	25.39	8.38	24.883	8.281
1920	24.94	8.36	24.902	8.295
1921	24.84	8.57	24.962	8.334
1922	25.35	8.41	25.001	8.358
1923	25.1	8.42	25.048	8.37
1924	25.69	8.51	25.123	8.362
1925	25	8.53	25.085	8.356
1926	25.19	8.73	25.119	8.406
1927	25.29	8.52	25.145	8.456
1928	25.39	8.63	25.218	8.506
1929	25.36	8.24	25.215	8.492
1930	25.39	8.63	25.26	8.519
1931	25.38	8.72	25.314	8.534
1932	24.96	8.71	25.275	8.564
1933	24.67	8.34	25.232	8.556
1934	24.97	8.63	25.16	8.568
1935	25.61	8.52	25.221	8.567

1936	25.15	8.55	25.217	8.549
1937	25.08	8.7	25.196	8.567
1938	25.11	8.86	25.168	8.59
1939	25.16	8.76	25.148	8.642
1940	25.51	8.76	25.16	8.655
1941	25.37	8.77	25.159	8.66
1942	25.49	8.73	25.212	8.662
1943	24.96	8.76	25.241	8.704
1944	25.6	8.85	25.304	8.726
1945	25.3	8.58	25.273	8.732
1946	25.49	8.68	25.307	8.745
1947	26	8.8	25.399	8.755
1948	24.85	8.75	25.373	8.744
1949	24.82	8.59	25.339	8.727
1950	24.98	8.37	25.286	8.688
1951	26.1	8.63	25.359	8.674
1952	25.72	8.64	25.382	8.665
1953	25.51	8.87	25.437	8.676
1954	25.8	8.56	25.457	8.647
1955	25.33	8.63	25.46	8.652
1956	25.02	8.28	25.413	8.612
1957	24.69	8.73	25.282	8.605
1958	25.64	8.77	25.361	8.607
1959	24.14	8.73	25.293	8.621
1960	25.67	8.58	25.362	8.642
1961	25.12	8.8	25.264	8.659
1962	26.1	8.75	25.302	8.67
1963	25.54	8.86	25.305	8.669
1964	25.14	8.41	25.239	8.654
1965	25.59	8.53	25.265	8.644
1966	26.16	8.6	25.379	8.676
1967	24.87	8.7	25.397	8.673
1968	25.21	8.52	25.354	8.648
1969	26.05	8.6	25.545	8.635
1970	25.84	8.7	25.562	8.647
1971	24.93	8.6	25.543	8.627
1972	24.74	8.5	25.407	8.602
1973	25.6	8.95	25.413	8.611
1974	25.4	8.47	25.439	8.617
1975	25.04	8.74	25.384	8.638
1976	24.97	8.35	25.265	8.613
1977	25.99	8.85	25.377	8.628
1978	25.95	8.69	25.451	8.645
1979	26.2	8.73	25.466	8.658
1980	25.83	8.98	25.465	8.686
1981	25.95	9.17	25.567	8.743

1982	24.62	8.64	25.555	8.757
1983	24.85	9.03	25.48	8.765
1984	25.05	8.69	25.445	8.787
1985	25.3	8.66	25.471	8.779
1986	25.36	8.83	25.51	8.827
1987	26.37	8.99	25.548	8.841
1988	25.99	9.2	25.552	8.892
1989	25.05	8.92	25.437	8.911
1990	25.7	9.23	25.424	8.936
1991	25.43	9.18	25.372	8.937
1992	24.37	8.84	25.347	8.957
1993	25.42	8.87	25.404	8.941
1994	26.08	9.04	25.507	8.976
1995	25.64	9.35	25.541	9.045
1996	26.28	9.04	25.633	9.066
1997	25.49	9.2	25.545	9.087
1998	26.73	9.52	25.619	9.119
1999	26.92	9.29	25.806	9.156
2000	26.55	9.2	25.891	9.153
2001	26.67	9.41	26.015	9.176
2002	26.44	9.57	26.222	9.249
2003	26.62	9.53	26.342	9.315
2004	26.2	9.32	26.354	9.343
2005	26.27	9.7	26.417	9.378
2006	26.24	9.53	26.413	9.427
2007	26.49	9.73	26.513	9.48
2008	26.21	9.43	26.461	9.471
2009	26.71	9.51	26.44	9.493
2010	27.37	9.7	26.522	9.543
2011	26.4	9.52	26.495	9.554
2012	26.83	9.51	26.534	9.548
2013	27.78	9.61	26.65	9.556

Local vs. Global Temperatures 1843 – 2013 (10 years Moving Average)

According to the average temperature readings, Riyadh is hotter in comparison to the global temperature, and it has been this way for many years.

Starting from the year 2000 till the year 2005, both local and global temperatures agreed on increasing from 25.891°C to 26.417°C locally, and from 9.153 °C to 9.378 °C globally before they disagree on the year 2006 where the local temperature dropped to 26.413 °C and the global temperature continued on increasing till the year 2007 where the temperature reached 9.48 °C. Looking at the year 2013 we can see that both the local and global temperatures have significantly increased from 26.534 °C to 26.65 °C locally, and from 9.548 °C to 9.556 globally. This change is an indication that the temperature has no intention on dropping and the world is getting hotter and hotter.

Over the last few hundred years, the temperature was reasonably lower than today's temperature. The average temperature in Riyadh was 23.424 °C, and 8.006 °C for the global temperature. Yet, this cool weather was not consistent as it kept on remarkably increasing throughout the decades.

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References

[1] The reviewer's query lines have inspired me and added to my own lines.