Explore Weather Trends

Step 01: Data Extraction

SQL query to extract data of the city where I live
select year,avg_temp from city_data where city ='Jacksonville' and country = 'United States';

SQL query to extract global data
select * from global_data;

These queries did run without any errors and did extract the intended results.

Step 02: Data Formatting

The downloaded CSV files were opened using Microsoft Excel. The tuples in these files with missing data values were discarded in a way such that the moving average temperatures could be calculated for both the city dataset and the global dataset for the same time range.

Step 03: Data Analysis

A 10-year moving average is calculated for the attribute **avg_temp** for both city(Jacksonville) and global datasets. They are further used in the line chart.

	A	B	C
1	year	avg_temp	10Y_movingavg
2	1751	7.98	
3	1752	5.78	
4	1753	8.39	
5	1754	8.47	
6	1755	8.36	
7	1756	8.85	
8	1757	9.02	
9	1758	6.74	
10	1759	7.99	
11	1760	7.19	7.87
12	1761	8.77	7.95
13	1762	8.61	8.23
14	1763	7.5	8.15
15	1764	8.4	8.14
16	1765	8.25	8.13
17	1766	8.41	8.08
18	1767	8.22	8
19	1768	6.78	8.01
20	1769	7.69	7.98
21	1770	7.69	8.03

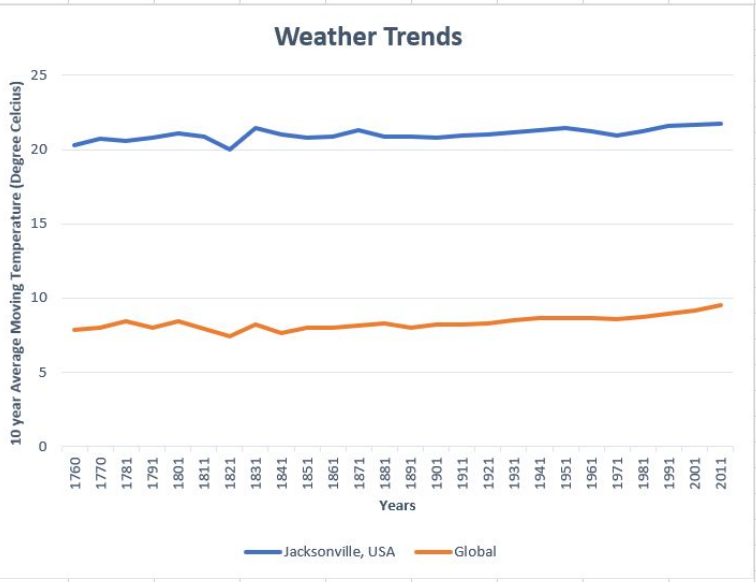
10-year Moving Avg. for Global Data

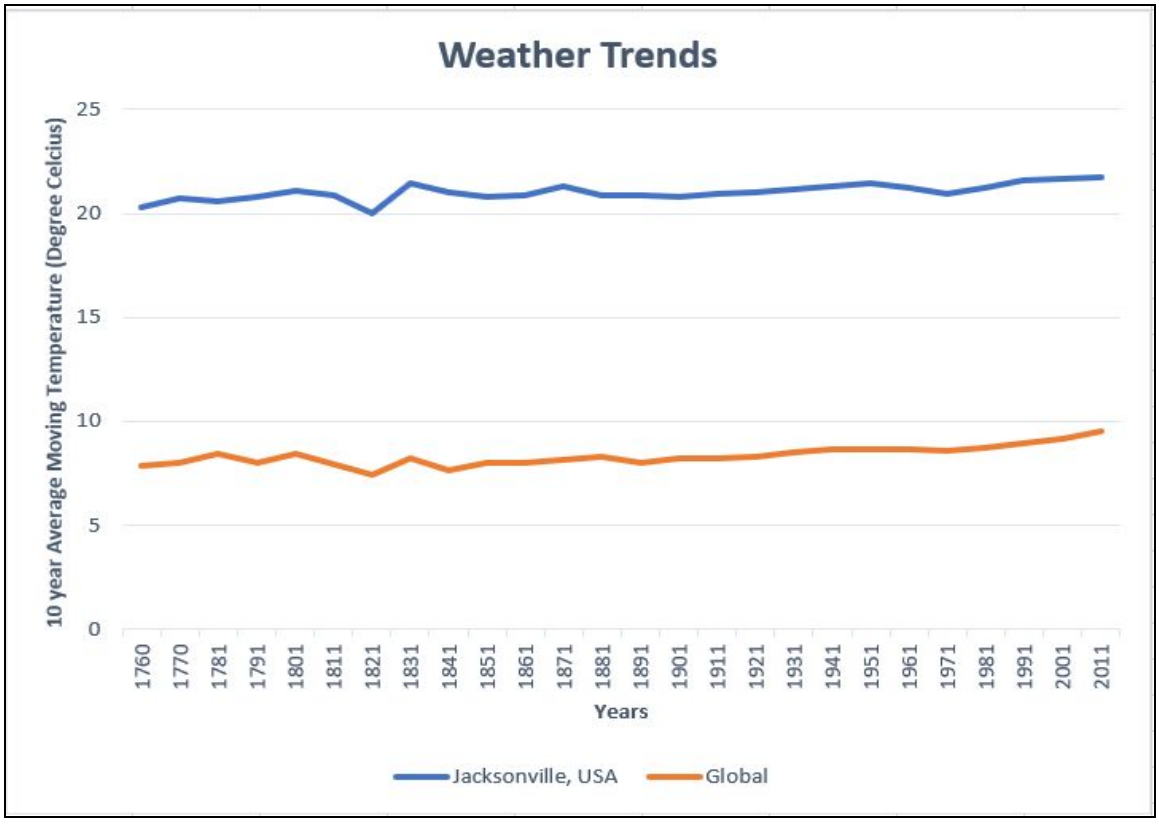
	A	B	C
1	year	avg_temp	10Y_movingavg
2	1751	21.65	
3	1752	17.8	
4	1753	21.01	
5	1754	21.07	
6	1755	19.67	
7	1756	21.42	
8	1757	20.85	
9	1758	19.54	
10	1759	20.57	
11	1760	19.49	20.3
12	1761	21.39	20.28
13	1762	20.97	20.59
14	1763	19.36	20.43
15	1764	21.28	20.45
16	1765	20.99	20.58
17	1766	21.43	20.58
18	1767	20.63	20.56
19	1768	19.82	20.59
20	1769	20.77	20.61
21	1770	20.63	20.72

10-year Moving Avg. for City (Jacksonville) Data

10-year moving averages for **every tenth year from the datasets** are considered and accordingly, a line chart is constructed as follows using Microsoft Excel. The orange line denotes global temperatures whereas the blue line denotes city (Jacksonville) temperatures.

	A	B	C
1	year	Jacksonville_10M	global_10MA
2	1760	20.3	7.87
3	1770	20.72	8.03
4	1781	20.55	8.43
5	1791	20.77	8
6	1801	21.09	8.42
7	1811	20.87	7.96
8	1821	20.04	7.44
9	1831	21.43	8.22
10	1841	21.04	7.67
11	1851	20.78	8.03
12	1861	20.87	8.03
13	1871	21.29	8.15
14	1881	20.87	8.28
15	1891	20.87	8
16	1901	20.78	8.25
17	1911	20.94	8.19
18	1921	21.02	8.33
19	1931	21.17	8.53
20	1941	21.27	8.66
21	1951	21.48	8.67
22	1961	21.25	8.65
23	1971	20.96	8.62
24	1981	21.2	8.74
25	1991	21.59	8.93
26	2001	21.65	9.17
27	2011	21.76	9.55
28			





Step 04: Notable Trends

1) Global 10-year moving average temperatures are always lesser than that of Jacksonville.
2) Both for global and Jacksonville data, 10-year moving average temperatures have increased over the course of 250 years.
3) The lowest 10-year moving average temperature both globally and for Jacksonville is in the year 1821.
4) In the last 50 years, from 1971 onwards until 2011, there is no fall in the 10-year moving average temperatures