Exploring weather trends

Data Extraction:

1- Finding the nearest city to mine "Dammam, Eastern province" in Saudi Arabia:

```
1   Select city , country From city_list
2   Where country ='Bahrain' or country ='Saudi Arabia';
```

In this case "Manama, Bahrain" is the nearest.

2- Extract the global temperature data

```
1   Select * From global_data
2   Order by year;
```

3- Extract city temperature data

```
1   Select * From city_data
2   Where city = 'Manama'
3   Order by year;
```

Data Manipulation:

In order calculate the 10 years moving average for Manama city and the globe, I used the average function in excel.

	C	D	E
1	country	avg_temp	10yrs_mv_avg_manama
2	Bahrain	25.26	
3	Bahrain	25.71	
4	Bahrain	21.18	
5	Bahrain		
6	Bahrain		
7	Bahrain	25.12	
8	Bahrain	25.37	
9	Bahrain	24.95	
10	Bahrain	25.62	
11	Bahrain	25.44	24.83125
12	Bahrain	25.47	24.8575
13	Bahrain	25.26	24.80125
14	Bahrain	25.5	25.34125
15	Bahrain	25.15	25.32
16	Bahrain	24.84	25.272
17	Bahrain	25.57	25.317
18	Bahrain	25.58	25.338
19	Bahrain	25.5	25.393
20	Bahrain	24.75	25.306
21	Bahrain	24.46	25.208
22	Bahrain	24.9	25.151
23	Bahrain	25.46	25.171

	A	B	C
1	year	avg_temp	10yrs_mv_avg_global
2	1750	8.72	
3	1751	7.98	
4	1752	5.78	
5	1753	8.39	
6	1754	8.47	
7	1755	8.36	
8	1756	8.85	
9	1757	9.02	
10	1758	6.74	
11	1759	7.99	8.03
12	1760	7.19	7.877
13	1761	8.77	7.956
14	1762	8.61	8.239
15	1763	7.5	8.15
16	1764	8.4	8.143
17	1765	8.25	8.132
18	1766	8.41	8.088
19	1767	8.22	8.008
20	1768	6.78	8.012
21	1769	7.69	7.982
22	1770	7.69	8.032
23	1771	7.85	7.94

Data Visualization:

The plot below shows the moving average for the globe
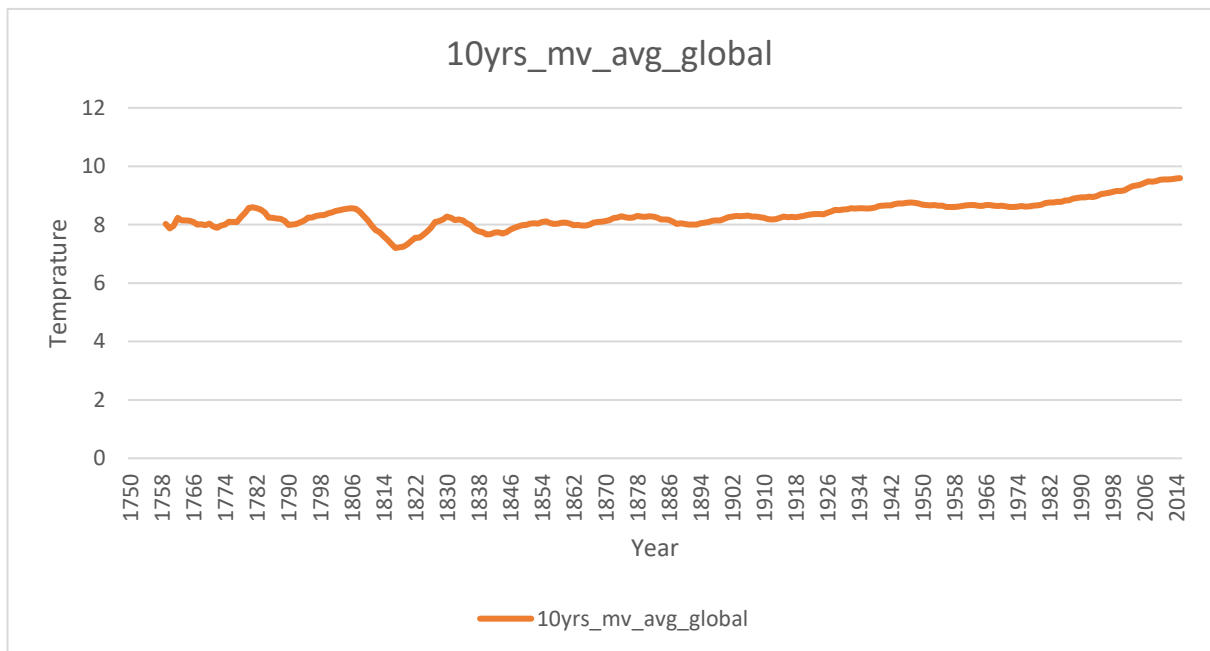
The moving average for Manama city
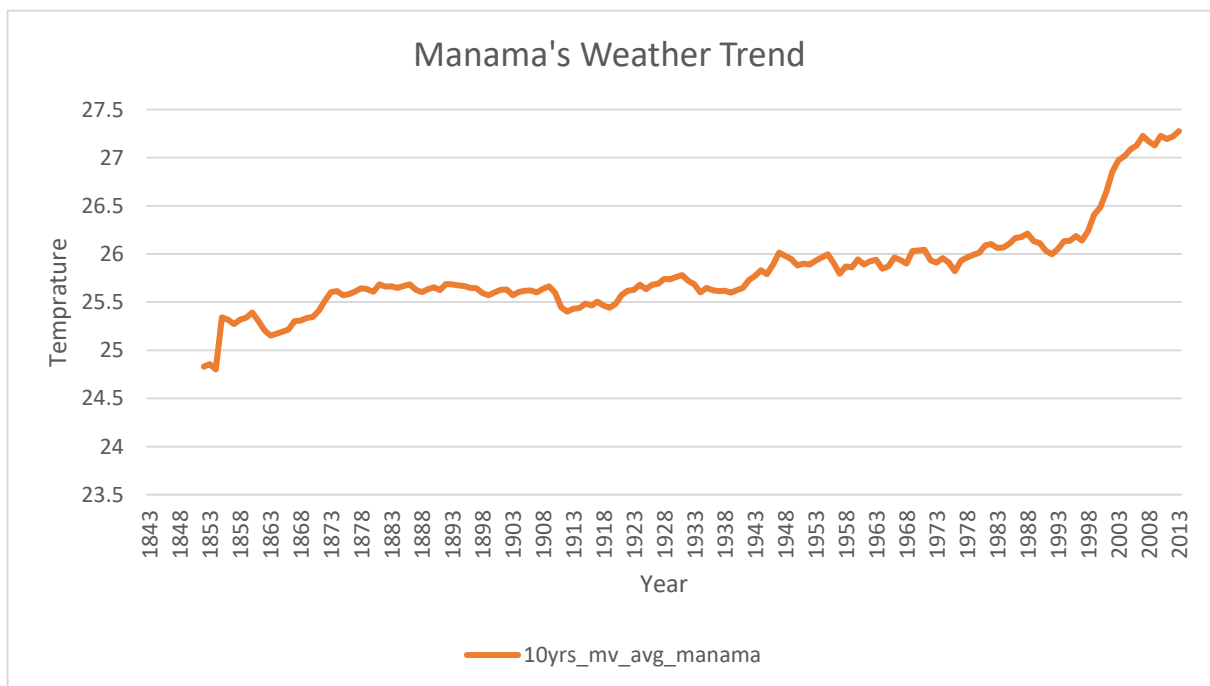
Data interpretation:

For the globe weather trend:

The chart shows global trend that Global average temperature is increasing over the years. (Hotter weather)

The minimum recorded temperature is 5.78, recorded in 1752.

The maximum recorded temperature is 9.83, recorded in 2015.

For Manama's weather trend:

The chart shows that Manama's average temprature is increasing over the years. (Hotter weather)

The minimum recorded temperature is 21.18 recorded in 1845.

The maximum recorded temperature is 28, recorded in 2010.

The weather is getting hotter over the years in Manama and the Globe.