

EXPLORE WEATHER TRENDS

Step 1 - Extracting the data:

I live in a city near to Munich in Germany. So, I pulled out the data using SQL, for the city of Munich only.

```
SELECT g. year, g.avg_temp global_avg_temp, c.avg_temp city_avg_temp
FROM global_data g
JOIN city_data c
ON c. year = g. year
WHERE c. city = 'Munich'
```

Step 2 – Preparing the Data for Analysis in Excel:

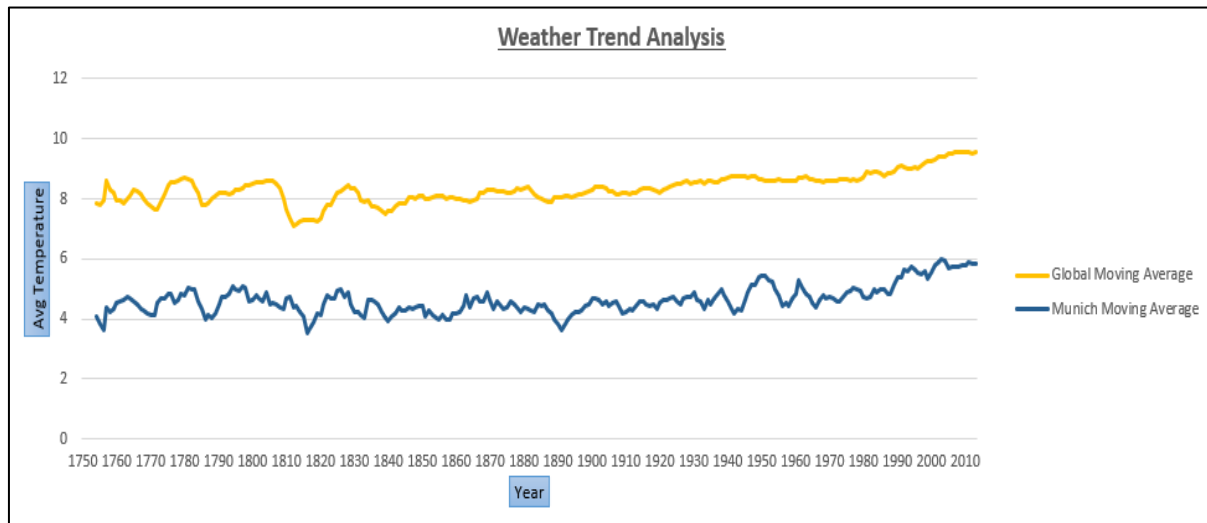
Exported the data to a excel file and calculated 5 year Moving Averages for Global and Munich temperatures.

Sample of data in Excel:

	A	B	C	D	E
1	Year	Global Average Temarature	Global Moving Average	Munich Average Temparature	Munich Moving Average
2	1750	8.72		5.4	
3	1751	7.98		5.54	
4	1752	5.78		0.53	
5	1753	8.39		4.61	
6	1754	8.47	7.868	4.33	4.082
7	1755	8.36	7.796	4.05	3.812
8	1756	8.85	7.97	4.64	3.632
9	1757	9.02	8.618	4.3	4.386
10	1758	6.74	8.288	3.83	4.23
11	1759	7.99	8.192	4.89	4.342
12	1760	7.19	7.958	5.02	4.536
13	1761	8.77	7.942	4.94	4.596
14	1762	8.61	7.86	4.49	4.634
15	1763	7.5	8.012	4.25	4.718
16	1764	8.4	8.094	4.82	4.704
17	1765	8.25	8.306	4.52	4.604
18	1766	8.41	8.234	4.28	4.472
19	1767	8.22	8.156	3.85	4.344
20	1768	6.78	8.012	3.84	4.262

Step 3 – Creating a Line Chart:

The Line chart has been created with Year values on the X axis and Moving averages of Temperatures on the Y axis.



Step 4 – Making observations:

1. Calculated the coefficient of correlation using the average temperatures at both Global and City level, using the Excel function CORREL.
The coefficient of correlation is **0.56**. This means, as the Global temperatures increase, the temperature in the city of Munich is also likely to increase and vice versa.
2. The trend lines in both the series are moving up, which means that the average temperatures are increasing with every passing year.
3. In the last 100 years the temperature has increased by a little more than 1 degree.
4. There is a lot of fluctuation in the temperatures till 1900. From 1900 onwards there is not much fluctuation in the temperatures. The temperature is consistently and gradually increasing.