DAND Project 1 – Explore Weather Trends

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Step 1. Extracting the Data

To determine my closest city, I ran this query on the database.

```
SELECT city FROM city_list WHERE country = 'United States'
```

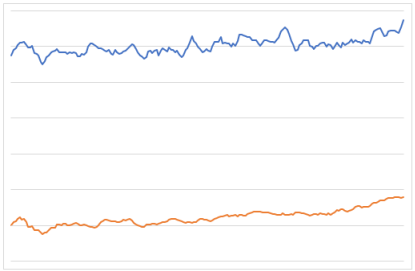
From the results I selected **Dallas**.

I then ran the following query to extract the data I needed to create the visualization.

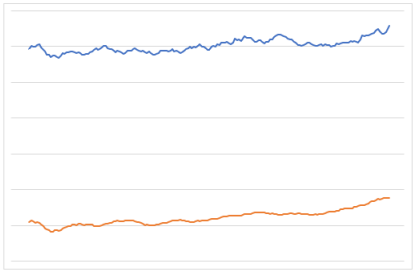
```
SELECT city_data.year, city_data.avg_temp AS Dallas, global_data.avg_temp AS Global
FROM city_data, global_data
WHERE city_data.year = global_data.year AND city_data.city = 'Dallas'
```

Step 2. Calculating the Moving Average

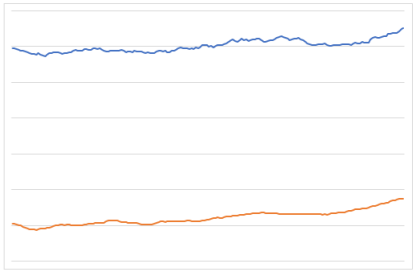
I chose a line chart which is best suited for this time-based data set. I calculated the moving averages using 5, 10- and 15-year periods and compared their respective graphs. I decided to use a 10-year period to smooth out the short-term fluctuations while still preserving a good amount of detail for long-term trends. Below are the charts and the data sheet showing the 10-year moving average calculation.



5 year MA



10 year MA



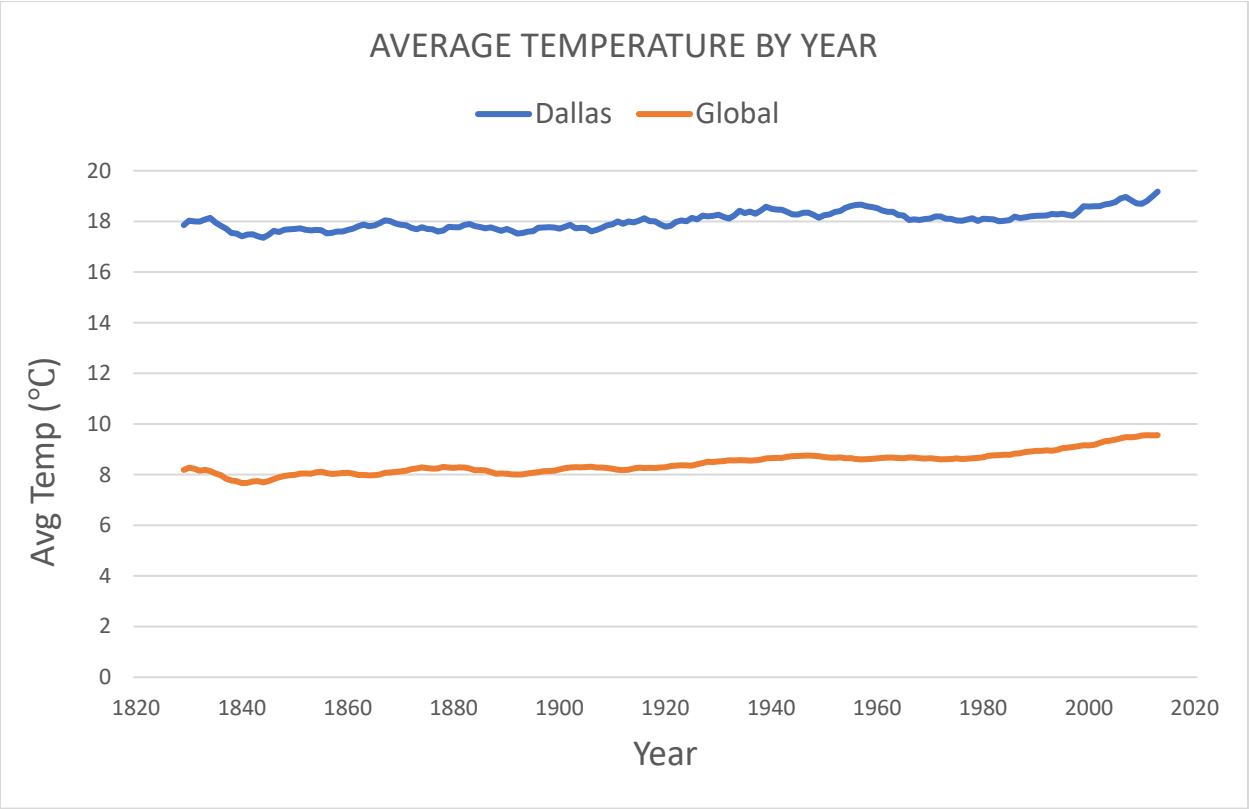
15 year MA

SUM | =AVERAGE(B2:B11)

	A	B	C	D	E	F	G	H	I
1	Year	Dallas	Global	10yrMA_Dallas	10yrMA_Global				
2	1820	16.88	7.62						
3	1821	17.33	8.09						
4	1822	17.87	8.19						
5	1823	17.46	7.72						
6	1824	17.9	8.55						
7	1825	18.38	8.39						
8	1826	17.93	8.36						
9	1827	18.62	8.81						
10	1828	18.26	8.17						
11	1829	17.89	7.94	=AVERAGE(B2:B11)	8.184				
12	1830	18.68	8.52	18.032	8.274				
13	1831	16.98	7.64	17.997	8.229				
14	1832	17.81	7.45	17.991	8.155				
15	1833	18.29	8.01	18.074	8.184				

Step 3. Creating the Line Chart

I used Excel 2019 for this step. Below is the completed chart.



Step 4. Making Observations

These are the insights I gained from the chart:

- Dallas is 10℃ hotter compared to the global average and this difference has been consistent over time
- Dallas average temperatures have risen by approximately 1.3℃ over the past 200 years
- Global average temperatures have also risen by approximately 1.3℃ over the past 200 years
- The overall trend shows the world is getting hotter and this rise has been consistent over the past century