

Exploring Weather Trends

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Basic Details

Tool Used for Preparing Data: I used Excel(Google Sheets) to prepare the data for visualization.

Moving Average Calculation: I have calculated Moving Averages on a 10 year Scale.

Key Considerations while Visualizing Data: I wanted to smooth out the lines, so I considered both 5 year Moving Averages and 10 year Moving Averages. I used both the Averages to determine my observations

Cities Considered:

DataSet1: Bangalore

DataSet2: Bangalore & Melbourne

DATASET - 1

City-Bangalore

Preparing Data: SQL Query used to Extract Data

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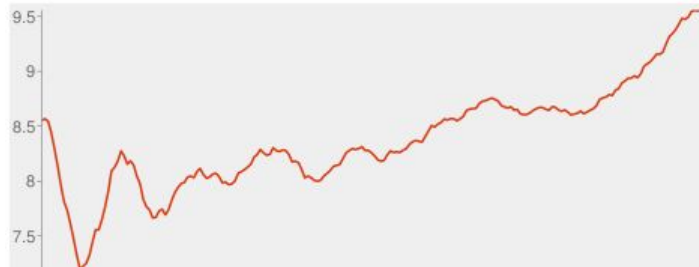
```
SELECT city_data.year,city_list.city,city_data.avg_temp AS City_AVG, global_data.avg_temp AS Global_AVG  
  
FROM city_list,city_data,global_data  
  
WHERE city_list.city = city_data.city  
  
AND city_data.country = city_list.country  
  
AND city_data.year = global_data.year  
  
AND global_data.year = city_data.year  
  
AND city_list.city='Bangalore'
```

Data Visualization: Charts

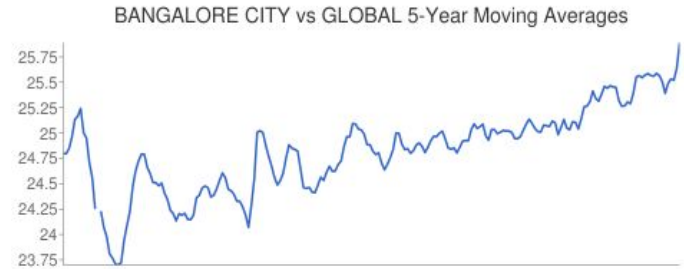
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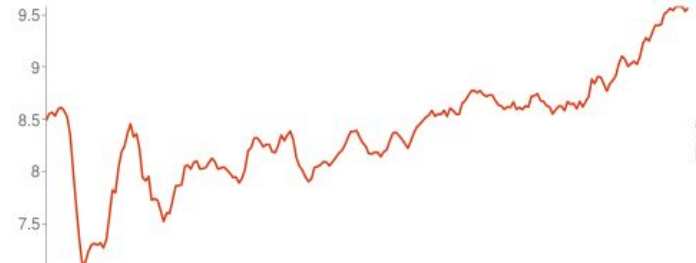
City_10-Year MA



Global_10-Year
MA



City_5-Year MA

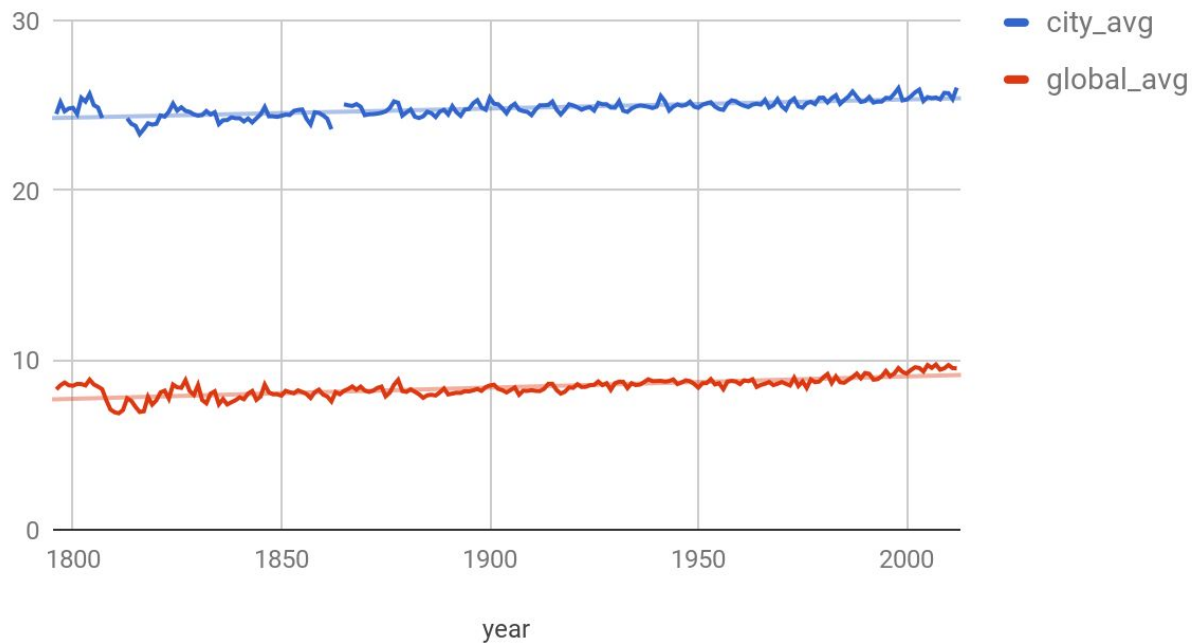


Global_5-Year
MA

Continued...

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city_avg and global_avg - 1796 to 2013



Observations

1. From 1796 to 2013, the Average Global temperature has seen an upward trend starting from around 8 degree Celsius to slightly over 9.5 Degree Celsius and the Average Temperature in the Bangalore city has increased from slightly under 25 Degree Celsius to slightly over 26.5 degree Celsius with frequent dips and raises over the period.
2. After the first decade, the average temperature in the city and across the world seems to have plummeted before gaining momentum steadily in the next few decades.
3. Comparatively, the average temperature in Bangalore City is quite high when compared to the average global temperature. This indicates that on an average Bangalore is hotter compared to most of the other cities in the world.
4. In the last five decades, the average temperature in Bangalore city seems to have had frequent fluctuations but has steadily increased over time. Whereas, the Average Global Temperature seems to have remained stable with only minor fluctuations before gradually increasing to slightly over 9.5 Degree Celsius.
5. In the past decade, it seems that the average temperature in the Bangalore City is showing an upward trend, whereas, the average Global temperature seems to dip before increase very slightly.
6. Overall, the world does seem to be becoming hotter when compared to how it was in the 1790's, but the change is not stable as there has been a rise and fall of temperature across the decades.

DATASET - 2

Cities-Bangalore & Melbourne

Preparing Data: SQL Query used to Extract Data

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```
SELECT city_data.year,city_list.city,city_data.avg_temp AS City_AVG, global_data.avg_temp AS Global_AVG

FROM city_list,city_data,global_data

WHERE city_list.city = city_data.city

AND city_data.country = city_list.country

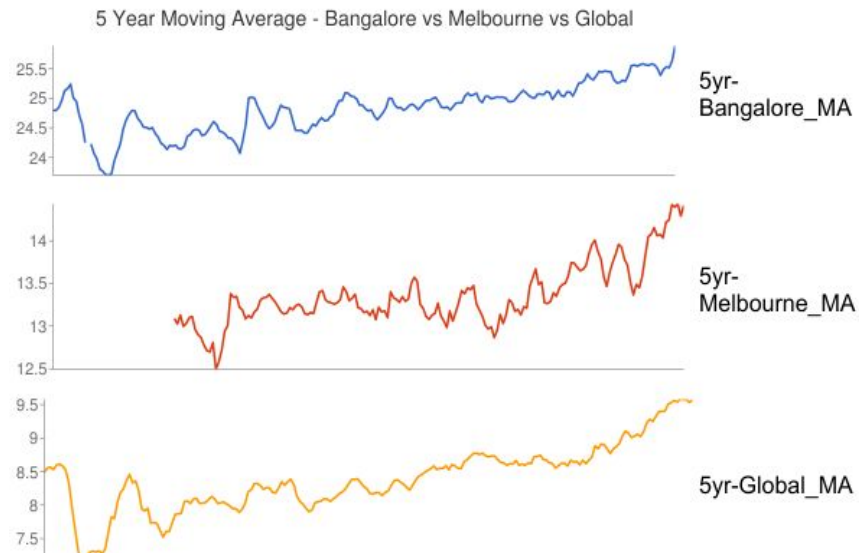
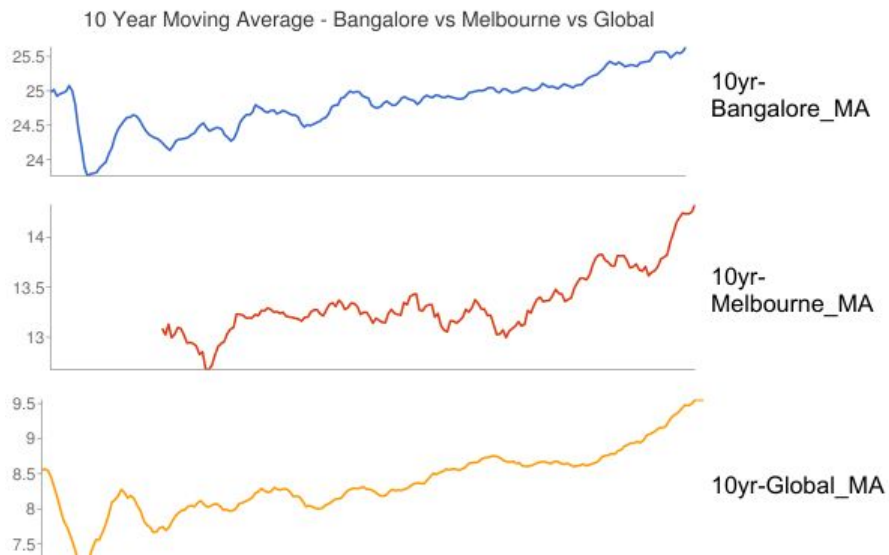
AND city_data.year = global_data.year

AND global_data.year = city_data.year

AND (city_list.city='Bangalore' OR city_list.city='Melbourne')
```

Data Visualizations: Charts

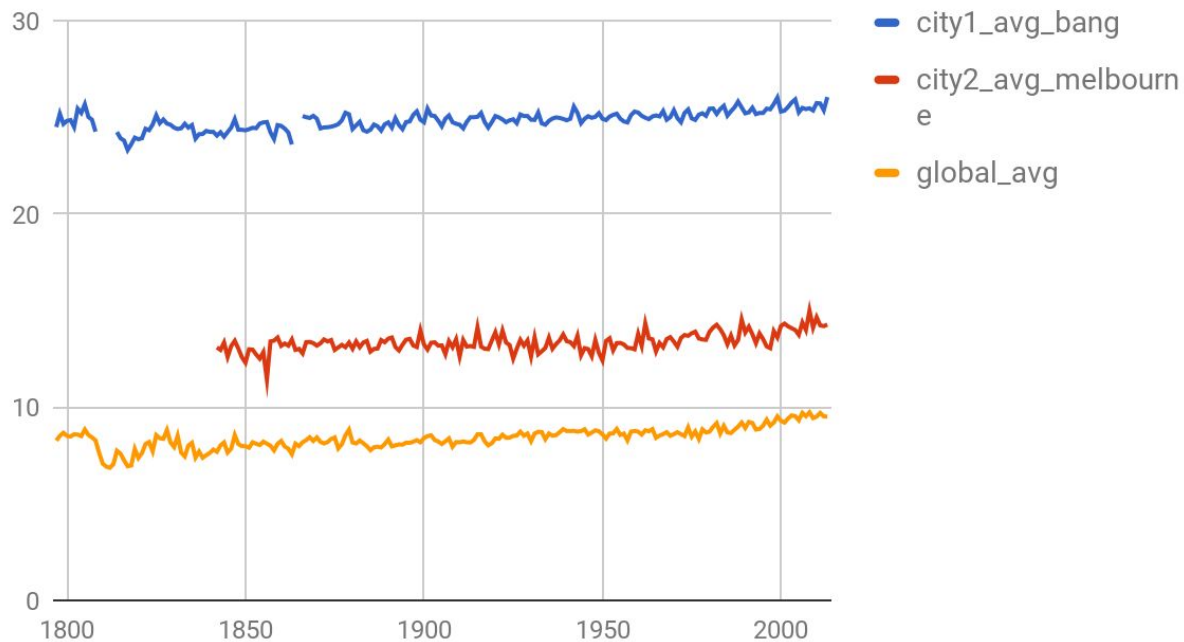
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1796 to 2013 - Bangalore vs Melbourne vs Global



Observations

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On the high level, the Average temperature across the cities Bangalore, Melbourne and across the world are showing an increasing upward trend

Bangalore shows a gradual rise in temperature with little fluctuations in the last fifty years

In the last fifty years, Melbourne shows an unsteady rise and fall in temperature with sudden spikes and slightly smaller falls but however, has continued to rise steadily.

The Global Average in the last fifty years shows a steady increasing trend.

Around the 1850's to 1860's , the average temperature in Melbourne has plummeted to an all time low, recording the lowest temperature in the last century at around 12.5 Degree Celsius

In the last decade, Melbourne has recorded the highest temperature at over 14 Degree Celsius.

Observations-Continued...

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The Average Global Temperature in the last decade has also recorded the highest temperature an all time high, with over 9.5 Degree Celsius but in the last 5 years, has remained almost stable with very minor fluctuations.

The Average Global Temperature in Bangalore in the last decade, has seen a surge in the initial years, but declined gradually before growing to over 25.5 degree Celsius.

Overall, the Average Temperature across Bangalore and Melbourne has progressed in direct proportion to the average temperature across the globe. It can be seen that temperature is increasing all over the world and that Bangalore and Melbourne have been much hotter comparatively, in the last century.