

**Project 1**  
**Explore Weather Trends**

Data Analysis/Visualization by  
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Submitted To  
**Udacity**

## **Steps for Data Analysis/Visualization**

### **Step 1: Extracting the Data**

SQL is used to extract the data from the tables. Below code is used for data extraction purpose.

```
SELECT
    city_data.city AS "City Name",
    city_data.year AS "Year",
    city_data.avg_temp AS "City Average Temperature",
    global_data.avg_temp AS "Global Average Temperature"
FROM
    city_data
JOIN
    global_data
ON
    city_data.year = global_data.year
WHERE
    city_data.city='Sydney'
```

### **Step 2: CSV file Download**

After data extraction csv file downloaded from the workspace for further analysis and visualization.

### **Step 3: Checking Missing Data**

Excel is used to check the csv file for any missing values in the data.

### **Step 4: Tableau Visualization of Line Chart**

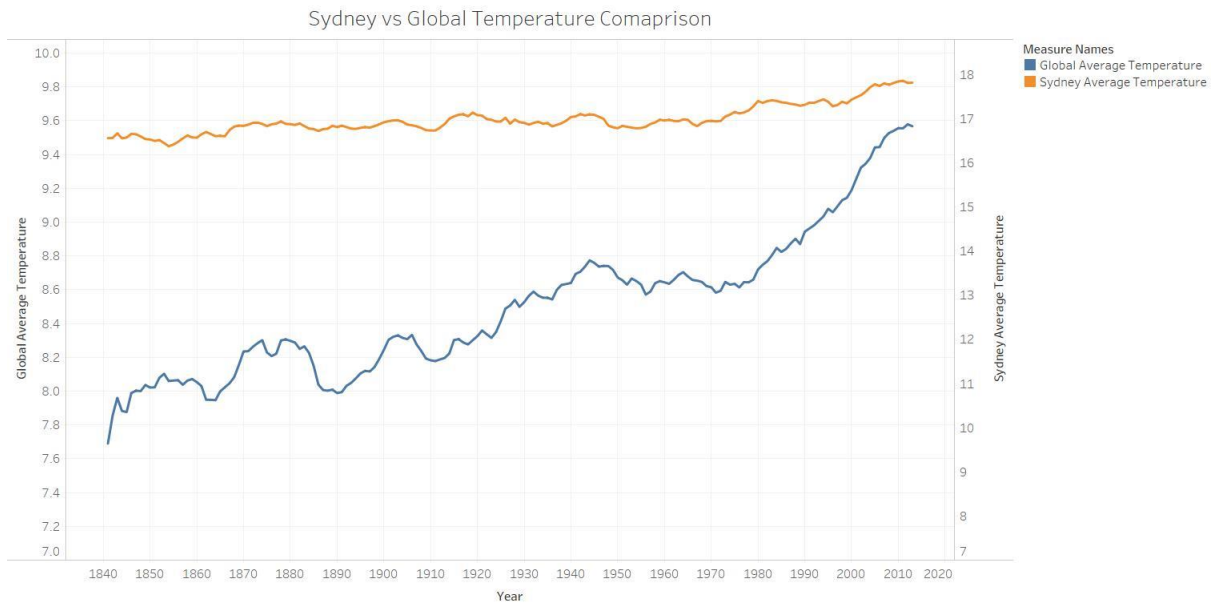
Tableau is used to open the csv file to analyze and visualize the line chart of Sydney vs Global average temperature.

### **Step 5: Moving Average Calculation**

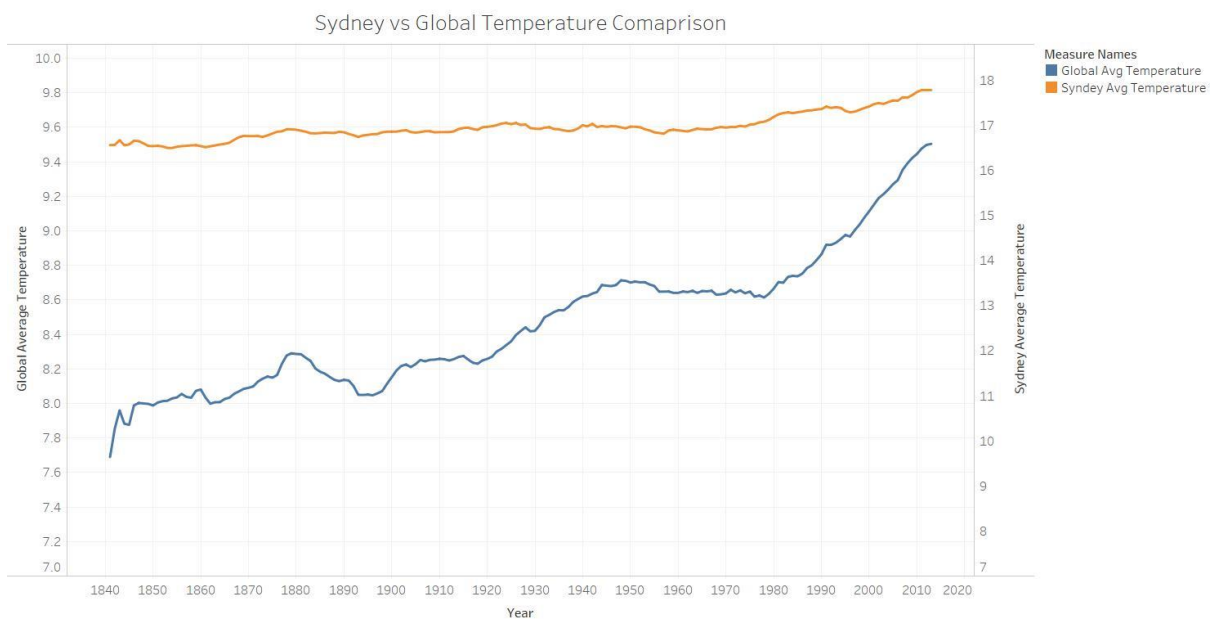
To smooth out the line chart 7 and 14 year moving average calculated using tableau quick table calculations and edited the quick table calculation to adjust the line chart for the 7 and 14 year moving average. Both of the line charts are shown below in the line chart section.

## Line Chart

### 7 year Moving Average Line Chart



### 14 year Moving Average Line Chart



## Observations

According to the above line chart:

1. Temperature of Sydney is always higher/hotter than the global temperature since eighteen centuries.
2. The fluctuations in the temperature of Sydney is not that much as compared to the global temperature.
3. Due to the global warming in past few decades rise in the temperature is significant.

4. The global temperature started increasing abruptly since 1980 till 2013 while the increase in Sydney city temperature is gradual.