Explore Weather Trends

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Purpose of project

Analysing temperatures in Tripoli, Libya in comparison to global temperatures

Data extraction

SQL used to extract the data from the database.

- Selecting a city in Libya

```
1
2   SELECT* FROM city_list WHERE country='Libya'
```

- Choosing Tripoli data

```
1
2   SELECT* FROM city_data WHERE country='Libya' and
     city='Tripoli';
```

- Extracting global data

```
1
2    SELECT* FROM GLOBAL_DATA
```

Analysing the data

For the data analysis I decided to use Python and Jupyter notebook

How did you calculate the moving average?

Moving average was calculated using the following python code for every 10 years.

> global_mavg=global_data.rolling(10).mean()

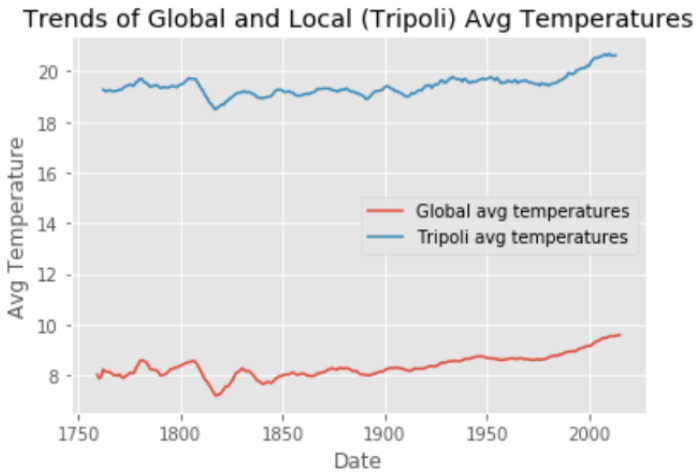
> city_mavg=city.rolling(10).mean()

What were your key considerations when deciding how to visualize the trends?

Plotting the Data

In [42]:
```
#import libraries

import matplotlib.pyplot as plt
from matplotlib import style
```

In [50]:
```
#Plotting the graph


plt.xlabel("Date")
plt.ylabel("Avg Temperature")
plt.title("Trends of Global and Local (Tripoli) Avg Temperatures")

plt.plot(df1['year'],global_mavg,label='Global avg temperatures')
plt.plot(df2['year'],city_mavg,label='Tripoli avg temperatures')

plt.legend()
```



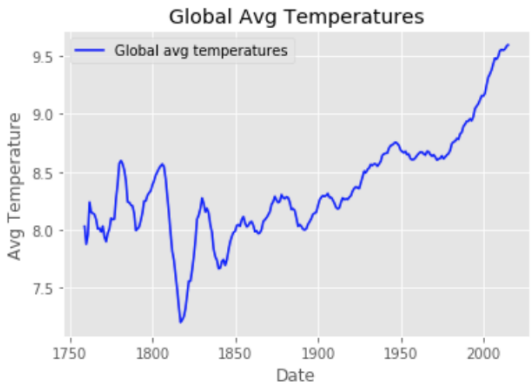
Observations about the trends:

1. There was a significant decrease in both Global and Tripoli (local) temperatures between 1800 and 1850's.

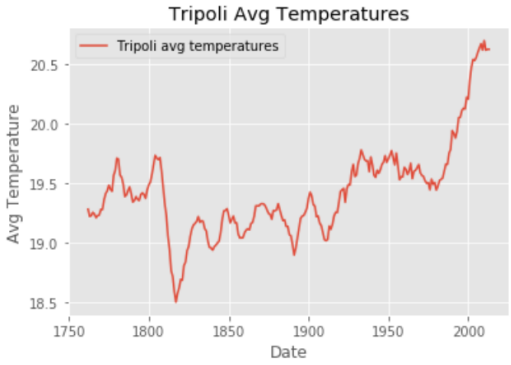
2. There was an increase in temperature between 1750-1800 in both trends.
3. Average temperatures for both trends reached the highest temperatures after the 2000s
4. Local average temperatures in Tripoli are much higher than the global average, they have risen by 2 degrees in the period from 1800-2013 which is similar to the increase in global average temperatures during the same time scale.
5. Overall the local trend in Tripoli follows the same pattern as the global trend with an significant increase in temperature as time increased leading to much hotter average temperatures worldwide.

What were your key considerations when deciding how to visualize the trends?

I used matplotlib, and decided to plot the trends separately to be able to see in more detail. This helped me pick out more insights and observations.




```
plt.xlabel("Date")
plt.ylabel("Avg Temperature")
plt.plot(df1['year'],global_mavg,label='Global avg temperatures', color='blue')
plt.title("Global Avg Temperatures")

plt.legend()
```




```
plt.xlabel("Date")
plt.ylabel("Avg Temperature")
plt.plot(df2['year'],city_mavg,label='Tripoli avg temperatures')
plt.title("Tripoli Avg Temperatures")
plt.legend()
```