Extract the data from the database. There's a workspace in the next section that is connected to a database. You'll need to export the temperature data for the world as well as for the closest big city to where you live. You can find a list of cities and countries in the `city_list` table. To interact with the database, you'll need to write a SQL query.

Select city

FROM city_list

Where country like 'United States'

ALTER TABLE global_data RENAME COLUMN avg_temp to global_avg_temp;

ALTER TABLE city_data RENAME COLUMN avg_temp to city_avg_temp;

-- Download the joined tables

SELECT global_data.year, global_data.global_avg_temp, city_avg_temp

FROM global_data INNER JOIN city_data

ON global_data.year=city_data.year

WHERE city like 'Miami';

--saved as CombinedResult.csv

	A	B	C
1	year	global_avg_temp	city_avg_temp
2	1758	6.74	23.05
3	1759	7.99	22.56
4	1760	7.19	15.14
5	1761	8.77	
6	1762	8.61	
7	1763	7.5	
8	1764	8.4	
9	1765	8.25	
10	1766	8.41	
11	1767	8.22	
12	1768	6.78	21.77
13	1769	7.69	22.57
14	1770	7.69	22.64
15	1771	7.85	23.28
16	1772	8.19	
17	1773	8.22	23.52
18	1774	8.77	
19	1775	9.18	24.52
20	1776	8.3	24.26
21	1777	8.26	24.16
22	1778	8.54	
23	1779	8.98	
24	1780	9.43	
25	1781	8.1	23.39
26	1782	7.9	23.45
27	1783	7.68	22.44

CombinedResults

Open up the CSV using Python

df = pd.read_csv("CombinedResults.csv")

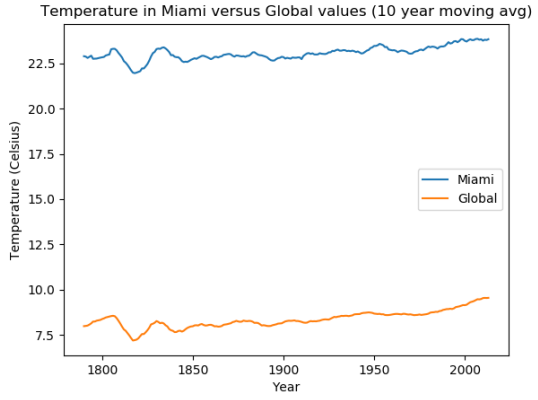
Drawn with Matplotlib in Python

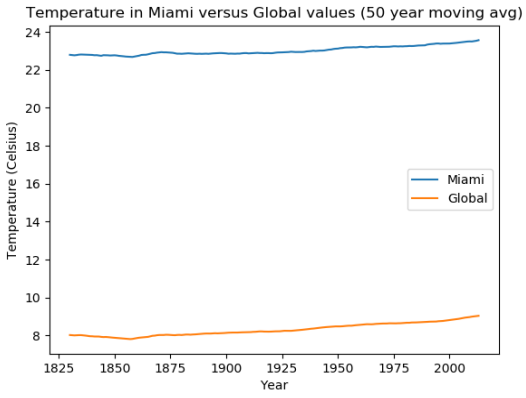
Calculated mean average for csv with numpy and pandas.

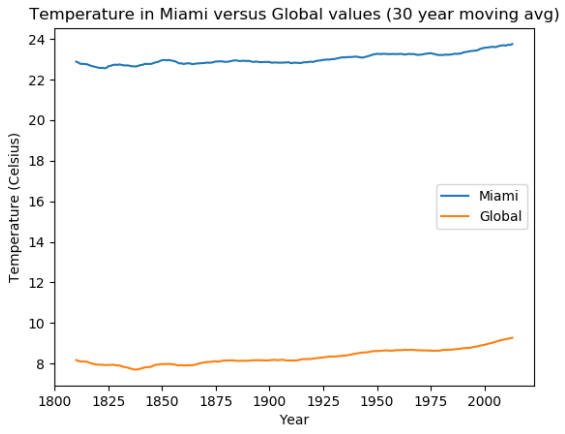
```
def RollingMean(windowRolling, df_i):
    df_o = df_i.rolling(window = windowRolling, center=False, on = "year").mean().dropna()
    return df_o
```

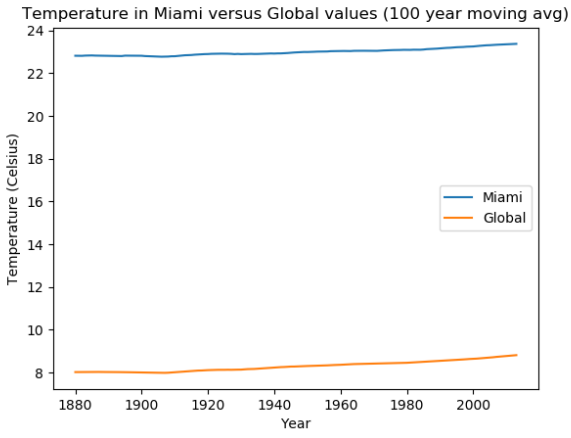
```
# Calculation
rollingWindow = 30
df_movingAverage = RollingMean(rollingWindow, df)
```

Created a line chart for 10, 30, 100, & 150 moving averages.









Four observations:

Miami is observed to have weather conditions that are hotter than the global temperature in all the plots.

The overall trend is staying consistent over the time chart but since 1990 it has showed an upward trend of stayed warmer like the global temperature.

The temperature data changes in the Miami coincide with the global's when the moving average is adjusted.

Miami has cooling period starting in 1808-1817 that shows consistently with the global temperate and risings back up after this.