Project 1: Explore Weather Trends

By Shuai Wu, sw3142@nyu.edu

The place where I currently live is New York City, so I inner joined city_data table and global_data table using year as the connecting key and applying “where” condition to filter the data to show only New York’s temperature . The reason I use inner join is because comparing local temperature with global data is meaningful only when both local and global temperate is available.

Based on above logic, the query I wrote using MySQL is:

```
select city_data.year,city,country,city_data.avg_temp as nytemp,global_data.avg_temp as globaltemp
from city_data inner join global_data
on city_data.year=global_data.year
where city like'%New York%';
```

So my output in excel looks like below:

year	city	country	nytemp
1750	New York	United States	10.07
1751	New York	United States	10.79
1752	New York	United States	2.81
1753	New York	United States	9.52
1754	New York	United States	9.88
1755	New York	United States	6.61

Afterwards, in order to plot the trends smoothly, I added two columns to calculate New York temperature 5 year moving average and global temperature 5 year moving average, stating from the fifth row, typing into average(D2:D6),here D column is New York temperature column, the build-in formula in excel is attached below:

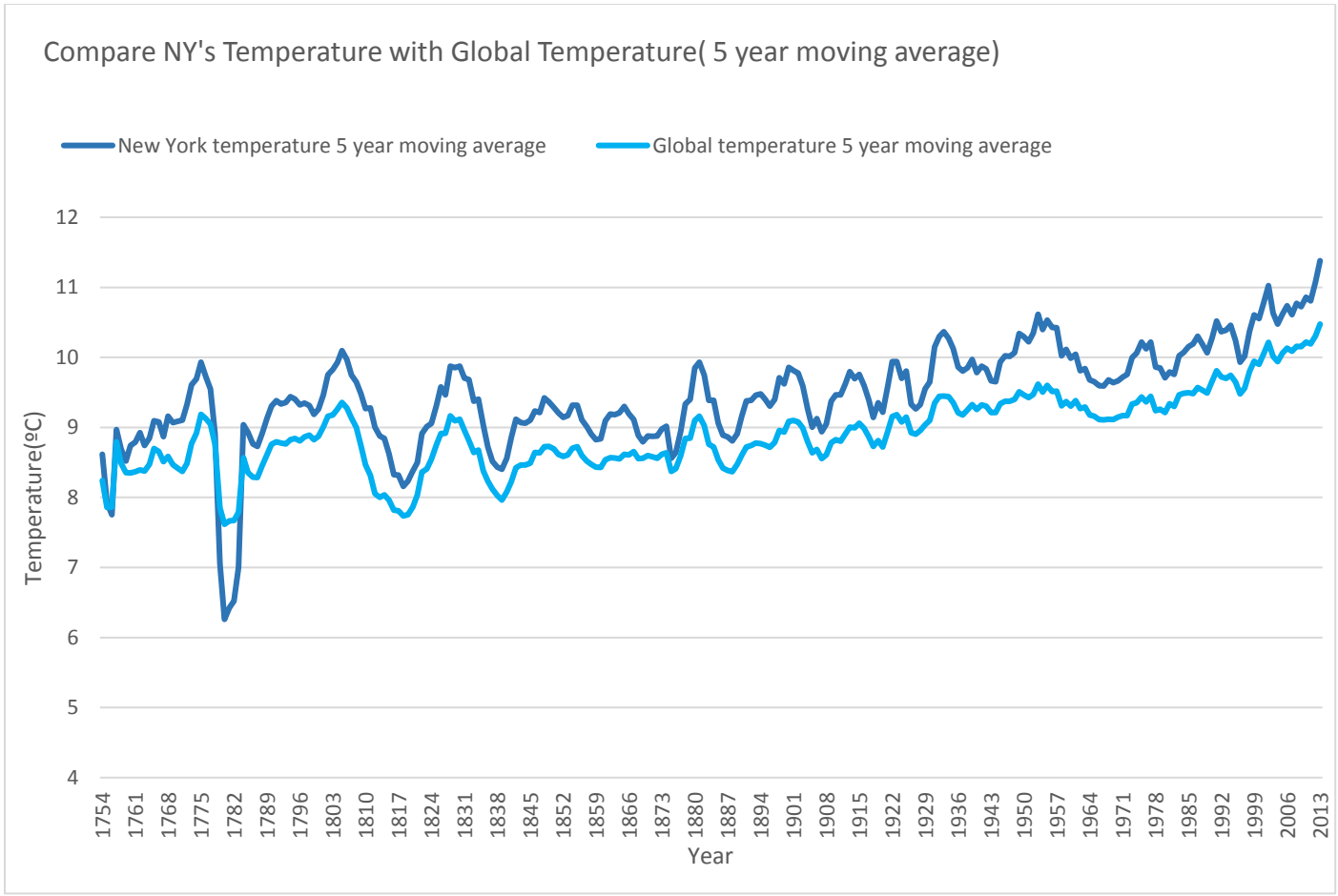
ear	city	country	nytemp	globaltemp	New York temperature 5 year moving average
1750	New York	United States	10.07	8.72	
1751	New York	United States	10.79	7.98	
1752	New York	United States	2.81	5.78	
1753	New York	United States	9.52	8.39	
1754	New York	United States	9.88	8.47	=AVERAGE(D2:D6)

And then drag down to the end. Using same fashion to get global temperate 5 year moving average

, the two columns look like below:

year	city	country	nytemp	globaltemp	New York temperature 5 year moving average	Global temperature 5 year moving average
1750	New York	United States	10.07	8.72		
1751	New York	United States	10.79	7.98		
1752	New York	United States	2.81	5.78		
1753	New York	United States	9.52	8.39		
1754	New York	United States	9.88	8.47	8.614	8.241
1755	New York	United States	6.61	8.36	7.922	7.859
1756	New York	United States	9.94	8.85	7.752	7.861
1757	New York	United States	8.89	9.02	8.968	8.793
1758	New York	United States	8.15	6.74	8.694	8.491
1759	New York	United States	9.01	7.99	8.52	8.356
1760	New York	United States	7.73	7.19	8.744	8.351
1761	New York	United States	10.18	8.77	8.792	8.367
1762	New York	United States	9.55	8.61	8.924	8.392
1763	New York	United States	7.23	7.5	8.74	8.376

Then plot the temperatures against years, the visualization looks like below:



From the chart, I got those insights:

1. Global temperature is rising from year 1754 to 2012, though some years the temperature is dropping, but in general the temperature is rising.
2. New York's temperature is generally rising from year 1754 to 2012.
3. Generally, New York's temperature is consistently higher than global average temperature.
4. New York's temperature rose more than global temperature, roughly speaking, global temperature rose around 2 degrees from year 1754 to 2012, but New York's rose around 3 degrees at the same time period.