

Chad Morris

08/26/2021

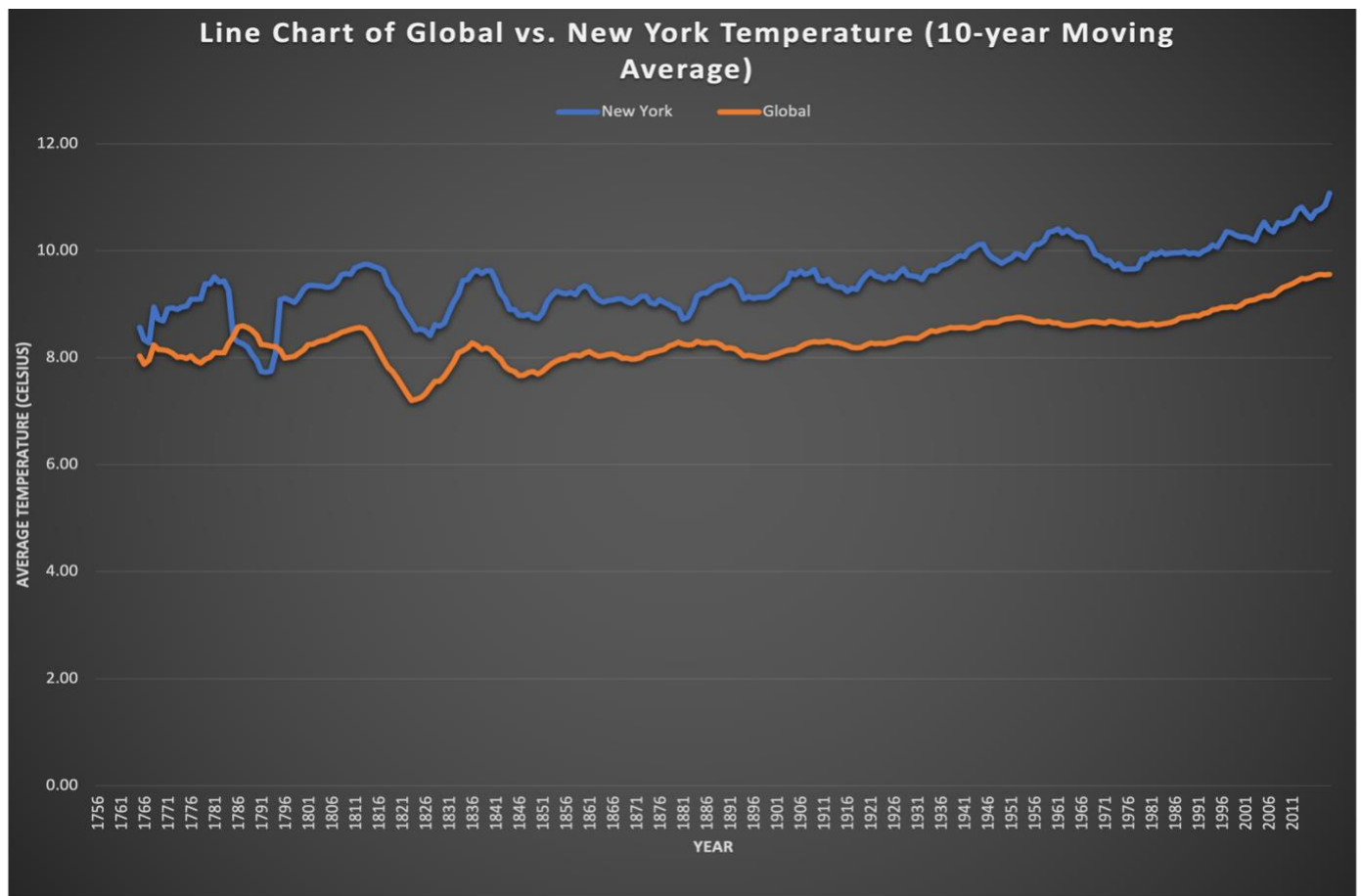
New York & Global Temperature Trends

To pull the necessary information from the database I used the following query to get my local city temperature data along with the global temperature data into one table for export as a CSV file.

```
SELECT c.year, c.city, c.country, c.avg_temp AS city_avg_temp,  
g.avg_temp AS global_avg_temp  
FROM global_data g  
JOIN city_data c  
ON c.year = g.year  
WHERE c.city = 'New York'
```

After downloading the CSV file I imported the file into Excel and I added two columns; one 7 year moving average for the New York City temperature data and another 7 year moving average for the global temperature data and created a line chart depicting the two moving averages.

I specifically chose a line chart since it's a great tool for displaying changes in a time series. Additionally, I went ahead and gave the chart a new color scheme to help everything stand out and pulled some descriptive statistics that glean further insight about the temperatures for New York and the world.



New York Descriptive Stats		Global Descriptive Stats	
Mean	9.486882129	Mean	8.359393939
Standard Error	0.067784607	Standard Error	0.035400142
Median	9.55	Median	8.365
Mode	9.1	Mode	7.98
Standard Deviation	1.099281589	Standard Deviation	0.575184226
Sample Variance	1.208420013	Sample Variance	0.330836894
Kurtosis	23.14761671	Kurtosis	1.655240749
Skewness	-3.079045959	Skewness	-0.441596319
Range	11.91	Range	3.95
Minimum	0.25	Minimum	5.78
Maximum	12.16	Maximum	9.73
Sum	2495.05	Sum	2206.88
Count	263	Count	264

Some of the things that stood out to me about the chart were:

1. New York City has consistently maintained a higher average temperature (9.48 degrees Celsius) than the world (8.35 degrees Celsius) on average, for several decades, centuries even. There was however a period where the trend flipped, and New York City saw its average temperature sharply decrease and the global average temperature sharply increased.
2. The changes in average temperature for both do seem to move somewhat closely together. The temperature change for New York City has more peaks and valleys which suggests that its local temperature is more sensitive to change and influence than the global average.
3. The overall trend is an increase in the average temperature for New York City as well as the global average temperature. New York City's average temperature is increasing at a higher rate as well.
4. The sharp and dramatic decrease/increase in average temperature for New York and the world in the 1780s, respectively, gives me reason to think something significant happened or there's something errant in the data that requires my attention. The count shows that there is one less data point for New York which might explain this.
5. Based on a comparison between their statistics, New York has a temperature range that is 4x greater than the world, higher occurring temperatures on given years based on its mode, and greater variability in temperature based on its standard deviation.