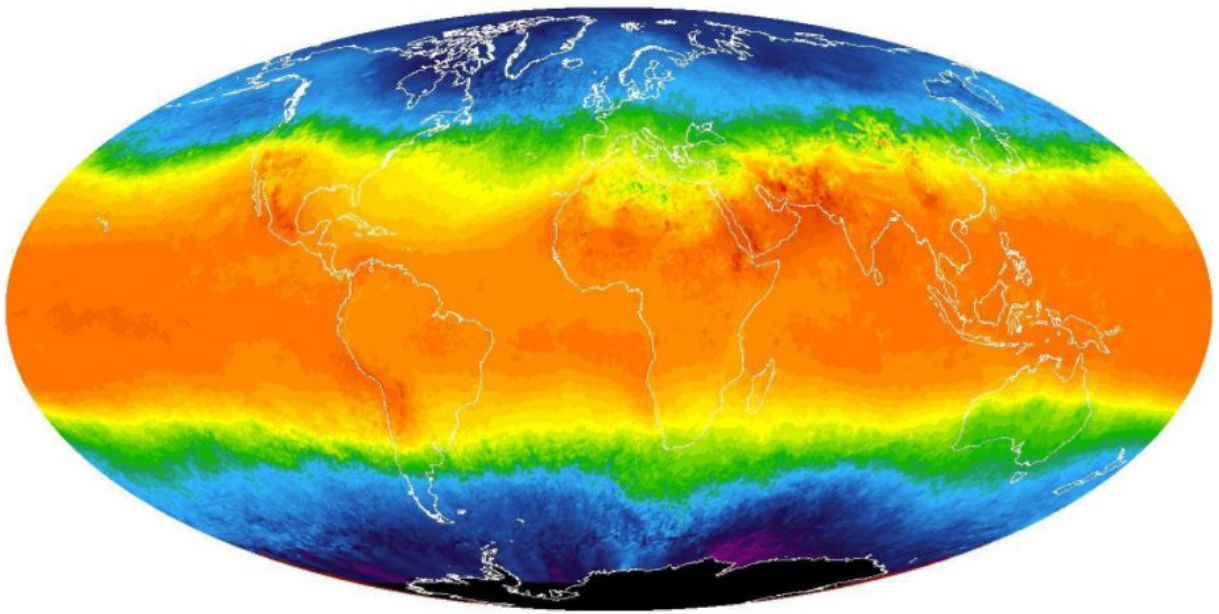


Exploring Weather Trends



By Rohit Rao

My Questions

1. Has it gotten hotter or colder as time has progressed?
2. Is New York (the city I live closest to) hotter or colder on average than the rest of the world is?
3. Has there ever been a point in history where New York has been hotter than San Francisco has?
4. Do the 10-Year Moving Averages of New York and San Francisco follow the same general pattern?

My Process

1. In order to prepare my data for analysis, I first extracted the data I want to use for my analysis. I used the following SQL statements to do so:

```
SELECT global_data.year AS Year, global_data.avg_temp AS Global,  
nyc.avg_temp AS New_York, sf.avg_temp AS San_Francisco
```

```
FROM global_data JOIN city_data nyc ON global_data.year = nyc.year JOIN  
city_data sf ON nyc.year = sf.year
```

```
WHERE nyc.city = 'New York' AND sf.city = 'San Francisco'
```

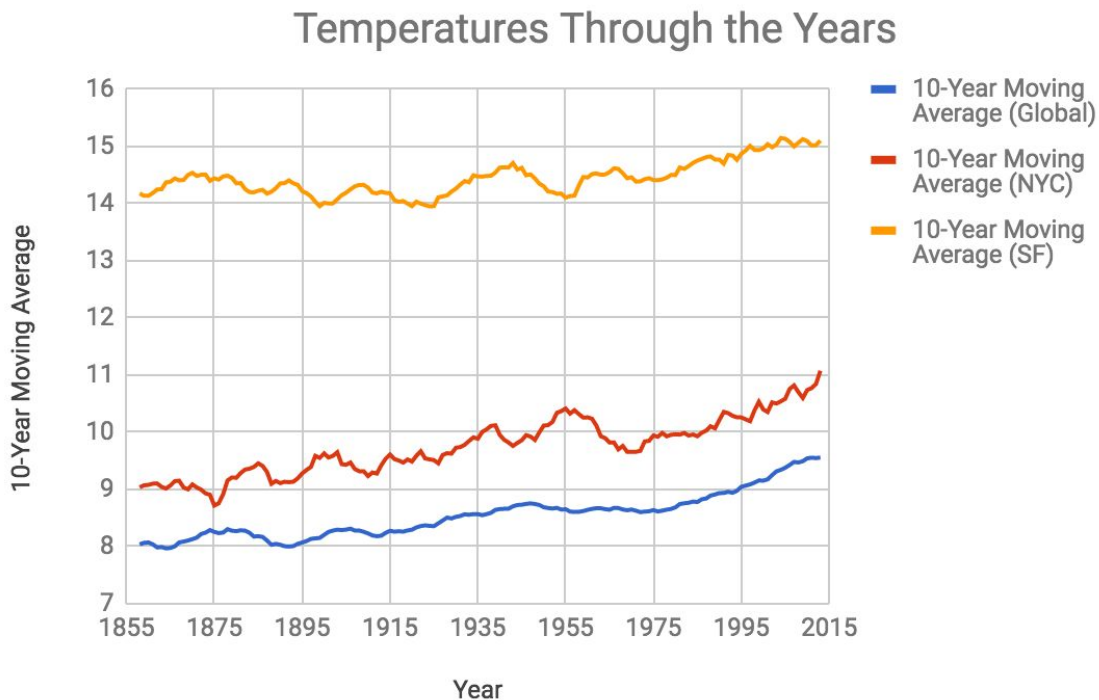
2. After extracting my desired data from SQL, I downloaded the results as CSV files and used Google Sheets to perform my analyses.

3. I then calculated a 10-year moving average (the average after 10 years) for each of the regions. In order to demonstrate how I calculated the moving average, let's say I have the following data in my spreadsheet:

year	global	10-Year Moving Average (Global)
1849	7.98	
1850	7.9	
1851	8.18	
1852	8.1	
1853	8.04	
1854	8.21	
1855	8.11	
1856	8	
1857	7.76	
1858	8.1	8.038

The formula I would use to calculate the "Global" 10-Year Moving Average in Column C would be:
`=AVERAGE(B2:B11)`

4. Finally, I plotted my results into a line graph on Google Sheets, as shown below:



My Insights

1. It has gotten hotter in all 3 regions (New York, San Francisco, Global) as time has progressed.
2. According to our data, New York has been hotter than the Global Average for a number of years.
3. There has never been a time where New York has been hotter than San Francisco, since the latter has always been significantly hotter than both New York and the Global Average.
4. Despite the significant differences in their temperatures, the fluctuations in New York and San Francisco's 10-Year Moving Averages follow a similar pattern.