

Explore Weather Trends Project

OVERVIEW

In this project, you will analyze local and global temperature data and compare the temperature trends where you live to overall global temperature trends.

Your goal will be to create a visualization and prepare a write up describing the similarities and differences between global temperature trends and temperature trends in the closest big city to where you live. To do this, you'll follow the steps below:

Extract the Data

The closest large city that that I would be extracting data from is Los Angeles, CA, so to start I made the simple query of:

```
SELECT * FROM city_data
```

```
WHERE city = "Los Angeles"
```

However, when I pulled this query, I realized that this query was also including data for Los Angeles city in Chile as well as the one from United States:

Output	324 results		Download CSV
2008	Los Angeles	Chile	13.69
2009	Los Angeles	Chile	13.04
2010	Los Angeles	Chile	12.69
2011	Los Angeles	Chile	13.25
2012	Los Angeles	Chile	13.48
2013	Los Angeles	Chile	13.07
1849	Los Angeles	United States	15.71
1850	Los Angeles	United States	15.28
1851	Los Angeles	United States	15.53

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I only want data from Los Angeles, country is United States so in my SQL query I added an AND statement, here is the updated query:

```
SELECT * FROM city_data
```

```
WHERE city = 'Los Angeles' AND country = 'United States'
```

Input

HISTORY

MENU

SCHEMA

city_data

city_list

global_data

1 SELECT * FROM city_data

2 WHERE city = 'Los Angeles' AND country = 'United States'

3

Success!

EVALUATE

Output

165 results

Download CSV

year	city	country	avg_temp
1849	Los Angeles	United States	15.71
1850	Los Angeles	United States	15.28
1851	Los Angeles	United States	15.53
1852	Los Angeles	United States	15.61
1853	Los Angeles	United States	16.27
1854	Los Angeles	United States	15.74
1855	Los Angeles	United States	15.94
1856	Los Angeles	United States	15.52

Much better, now to extract data from the global_data table, I simply pulled the SQL query below:

```
SELECT * FROM global_data
```

Which gets us the data we need to make our comparisons:

Output	266 results
year	avg_temp
1750	8.72
1751	7.98
1752	5.78
1753	8.39
1754	8.47
1755	8.36
1756	8.85
1757	9.02

I pulled the two .csv files and added both tables into one spreadsheet. Now we have our data!

Data Manipulation

Now that we have the data that we need to make our analysis, the first thing I wanted to do is to convert the data from Celcius to Farenheight, which i did with the following formula:

```
=CONVERT(D2,"C","F")
```

Next, to find the moving averages I used the following formula for both global and Los Angeles temps:

```
=AVERAGE(E2:E8)
```

We also created a new column to find the difference in global temperature vs the LA temperature, normalizing for YoY variance, I calculated the difference between 7-Year moving averages of global temps to LA temps.

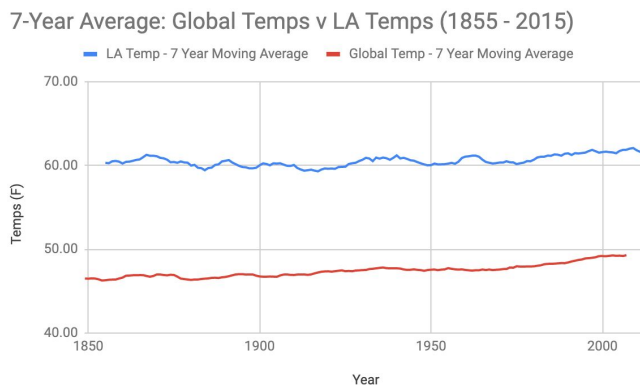
Now our data is ready to be visualized and analyzed for our charts and observations!

Data Visualization + Observations

Is Los Angeles, CA hotter or cooler on average compared to the global average?

By creating a line chart that shows the 7 Year Moving Average temperatures, we are able to see the trends over time on how average temperatures are changing over time while also comparing these trends between Los Angeles to the global trend.

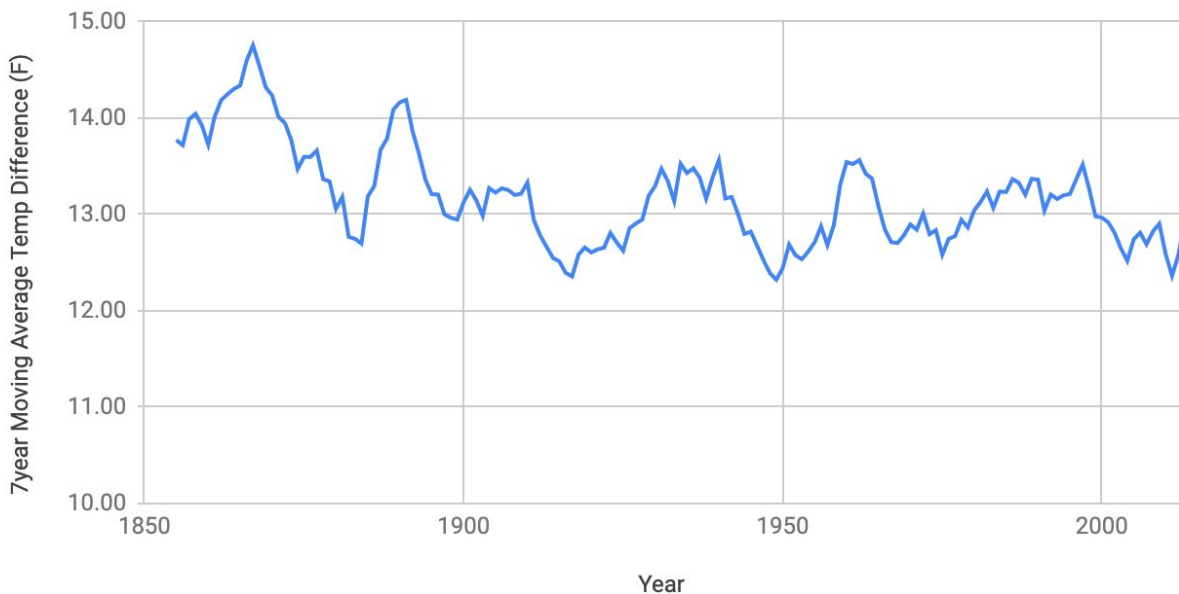
We can see below that Los Angeles consistently has higher average temperatures YoY based on our chart containing the 7 Year moving average values:



Have the difference in LA v Global Temps been consistent over time?

Using the data from the column we created, called “7year_moving_average_temp_difference” which is calculating the difference in 7 Year Moving Averages of LA to global temps, we can see that the difference in temperatures is closing in, where during the mid 1800s, 7 Year moving Average temperature differences would hover between 13 and 15 degrees fahrenheit, starting in the mid 1900s these differences are hovering between 12 and 13 degrees. Looking at our previous chart “7-Year Average: Global Temps v LA Temps (1855 - 2015),” we can see that global temperatures are rising which is the cause for the lower temperature differences between Los Angeles and global.

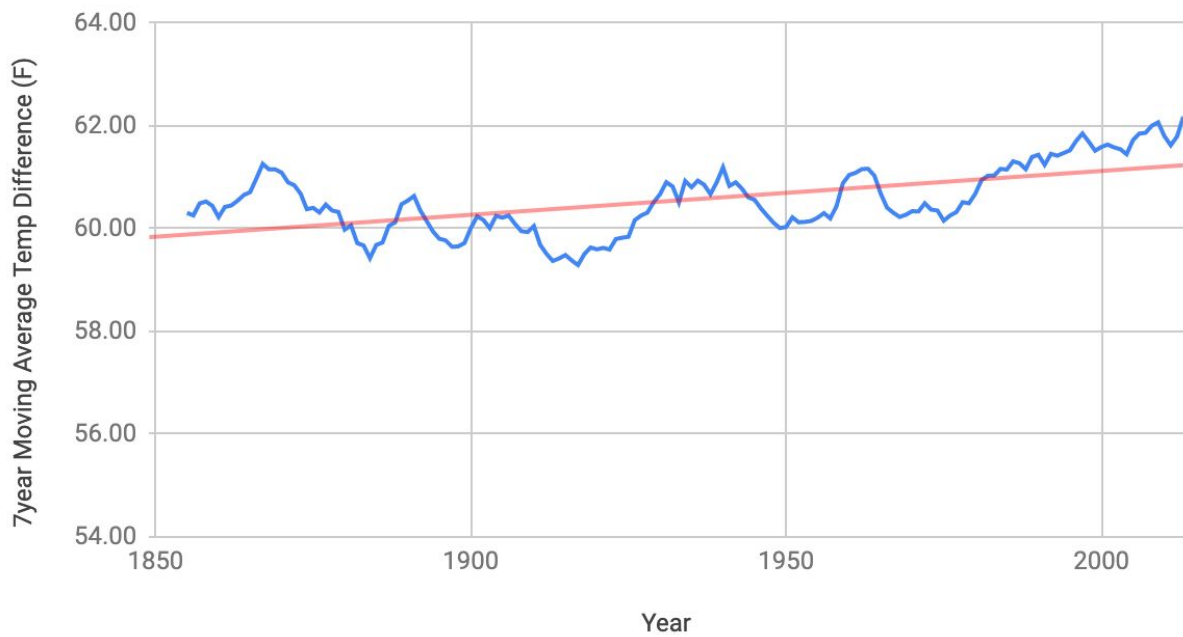
7 Year Moving Average Temp Difference (YoY)



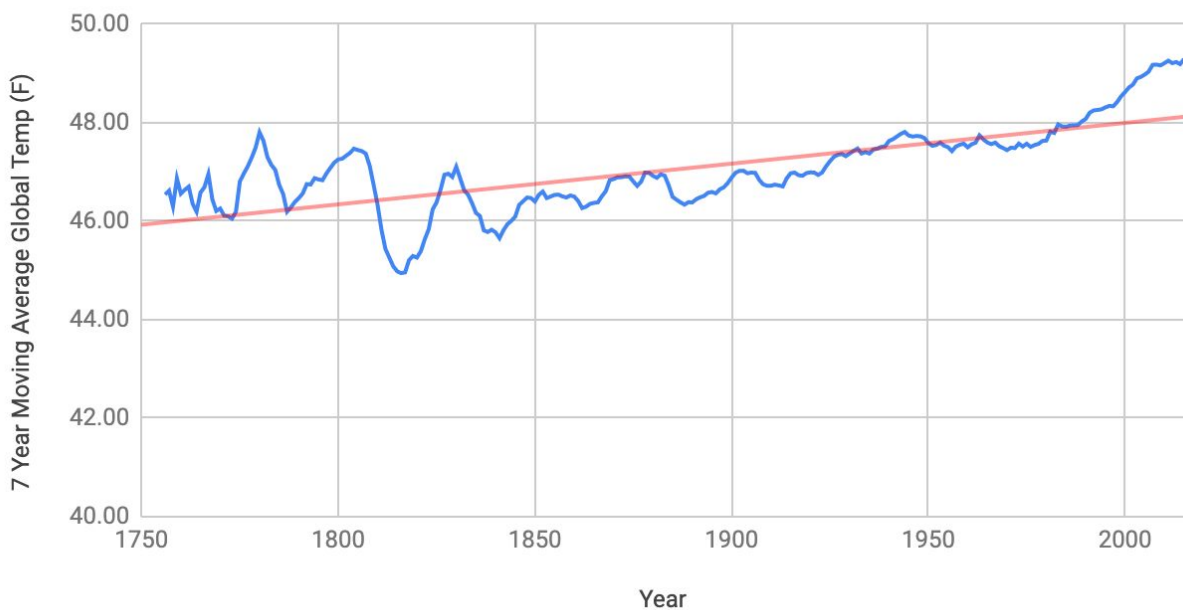
How do the changes in your city's temperatures over time compare to the changes in the global average?

Based on the two isolated charts showing the temperature trend over time for Los Angeles and the global temperatures, we can see that for both charts that the trend line is shifting upwards, which indicates that the trends for both Los Angeles and global temperatures are increasing over time.

7 Year Moving Average Temps - Los Angeles, CA



7 Year Moving Average Global Temps (1750 - 2015)



What does the overall trend look like? Is the world getting hotter or cooler? Has the trend been consistent over the last few hundred years?

Looking at the data from the 7 year moving average for global temperatures which encapsulates a large sample of temperature data from all around the world, we are able to firstly conclude that assumptions made from this data set are largely accurate given the size of the data sample.

Comparing the temperature trends between the 1800s and the 1900s with the chart below, we can see a largely consistent trend where we are able to compare 7 Year moving average temperatures between one century and another. We can see that 7 Year average temperatures in the 1900s were consistently higher than those from the 1800s, with the exception of the first 5 or so years in the 1900s. We are able to conclude from this chart that global temperatures from the 1900s were consistently hotter than temperatures from the 1800s.

