Examining Weather Trends

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Methodology:

In order to extract the data two queries were used. The first query was used to determine the nearest city data on record. This query is listed below under (1). This was used to determine that New Orleans was represented within the data.

(1) SELECT * FROM city_list;

Once the city was determined the next step required that the city data be extracted in order to retrieve the data for comparison. This query is listed below under (2). This was used to extract the recorded average temperature data within the city of New Orleans. Once results were achieved the results were extracted and opened within Excel.

(2) SELECT * FROM city_data

WHERE city = ‘New Orleans’;

Once this data was open it was discovered that New Orleans failed to have consistent data until 1820. This mean an additional parameter was necessary, represented in (3).

(3)SELECT * FROM city_data

WHERE year >= 1820

AND city = 'New Orleans';

This provided consistent data points in order to extrapolate the average temperature to the global temperature. Having the city data represented, the next step was to add the global temperature. This was done creating query represented below (4).

(4)SELECT * FROM global_data

WHERE year >= 1820;

Once this data was retrieved it became apparent that the temperature of the globe extended until 2015 while the New Orleans data only went to 2013. In order to accommodate this inconsistency the query was added to, and in order maintain the ten year moving average the query was added to.

(5)SELECT * FROM global_data

WHERE year >= 1820

AND year < 2010;

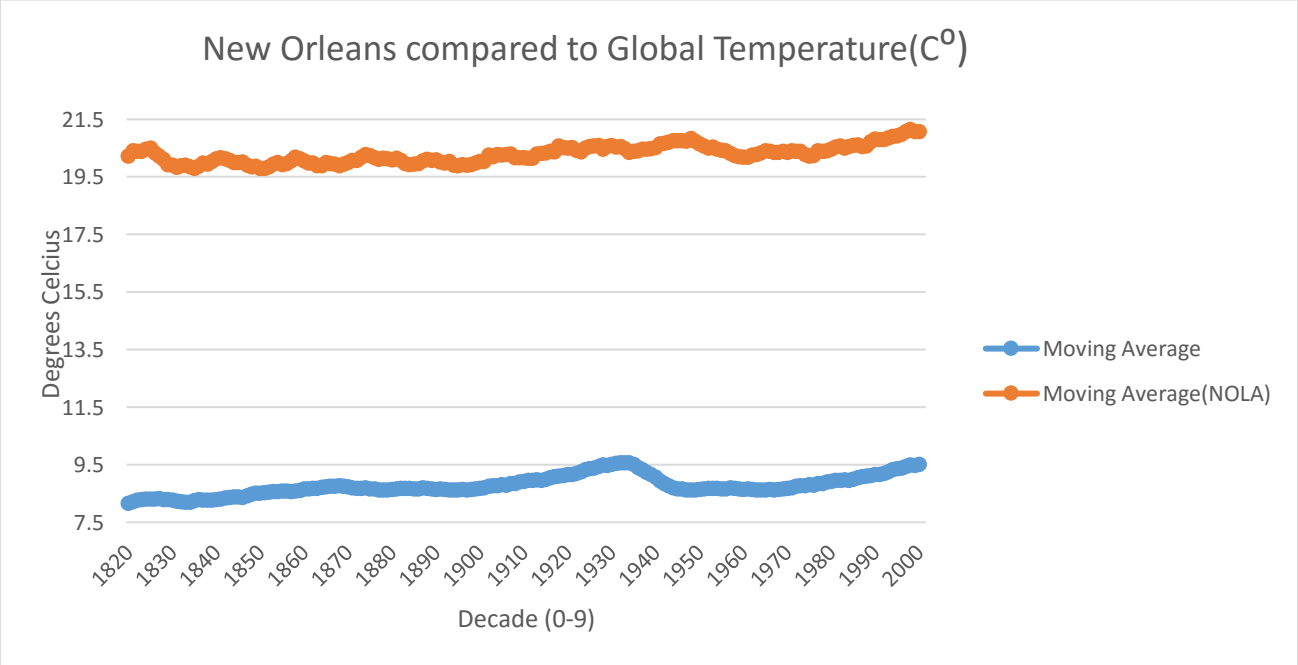
Once all data was extracted and review for consistency, the data was added in the same file on separate work sheets. City temperature was entered into the tab labeled “results” and the global temperature was added into the tab labeled “Global”. This allowed for review that could be reviewed and kept separate for protective data purposes.

This data was used to build three columns the first being a decade column in order to prepare for the moving averages to be created. The decade range was determined to be used to give a range of data that obtain clear points to visualize in the graph but remain plentiful enough to allow for greater variance.

The second column was to create to global moving average. This was created using the AVERAGE function in Excel. An example of the formula is shown in (6). This was formula was recreated using ranges of 10 cells until the year 2000. This method of creating the moving averages would be duplicated with a call to the “results” worksheet in order to create the moving average of the city ending with the average between the years 00-09.

(6) =AVERAGE(B72:B81)

Once the three cells were created the graph was created using the moving ranges in order to build a line graph. There are two lines one representing the city (red). While the second shows the global date (blue). The decade line was used as the horizontal axis. And the temperature was used to create the vertical axis. The vertical axis was changed from the standard vertical starting point of 0 to 7.5 and the upper limit of the axis was set to 22.



Results

New Orleans has a significantly higher temperature than the global temperature.

Both sets have a spike in the early 1900s.

While the global temperature is spiked significantly in the 1930s, the New Orleans line shows a slower rise and decent in the time period.

Both graphs have a rise that has been continuing from the 1970s to today.

The two data lines have a correlation coefficient of 0.641 indicating a positively moderate relationship between the two data points.

Due to the positive correlation between New Orleans and the rest of the globe, it could be possible to predict the temperature of one with the other, however because the correlation is only moderately strong the predictive temperature would not be majorly reliable.