

# Weather Trends

I am Shubh. I belong to Bareilly, Uttar Pradesh, India. So I selected Delhi (India) to be my near most city. The climate of Delhi is an overlap between monsoon-influenced, humid subtropical and semi-arid, with high variation between summer and winter temperatures and precipitation. To compare these trends let's retrieve the data.

## Data Retrieval

There are three tables in the database:

- city\_list - This contains a list of cities and countries in the database. Look through them in order to find the city nearest to you.
- city\_data - This contains the average temperatures for each city by year (°C).
- global\_data - This contains the average global temperatures by year (°C).

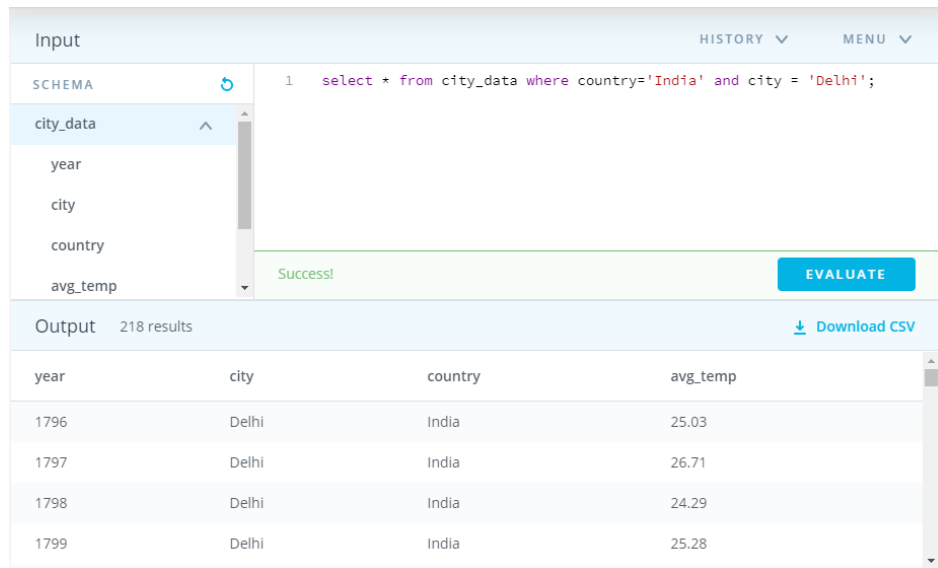
1. Since I live in India, so I made query by searching my country name from the city\_list table which is having all the country and city names.

The screenshot shows a database query interface. On the left, there is a 'SCHEMA' dropdown menu with options: city\_data, city\_list, city, country, and global\_data. The 'city\_list' table is selected. The main area displays a SQL query: `1 select * from city_list where country='India';`. Below the query, a green bar indicates 'Success!'. To the right of the success message is a blue 'EVALUATE' button. Below the query area, the 'Output' section shows '22 results' and a 'Download CSV' link. The output is a table with two columns: 'city' and 'country'. The first five rows are visible:

city	country
Agra	India
Ahmadabad	India
Allahabad	India
Amritsar	India

From above csv file I had find my nearby city and it was Delhi.

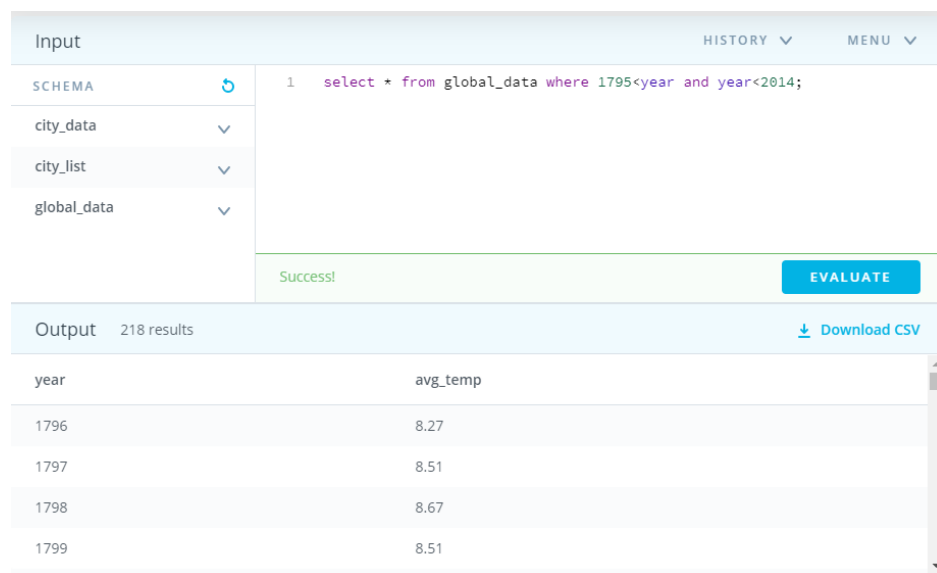
- Later wards, I made a query in city\_data table to retrieve data about average temperature across Delhi.



The screenshot shows a SQL query interface. On the left, under the 'Input' tab, the 'city\_data' table is selected from a schema. The table's columns are listed: year, city, country, and avg\_temp. The main query area contains the following SQL statement: `1 select * from city_data where country='India' and city = 'Delhi';`. Below the query, a green bar indicates 'Success!'. To the right of the query is an 'EVALUATE' button. Below the query area, the 'Output' section shows '218 results' and a 'Download CSV' link. The output is displayed as a table with the following data:

year	city	country	avg_temp
1796	Delhi	India	25.03
1797	Delhi	India	26.71
1798	Delhi	India	24.29
1799	Delhi	India	25.28

- And finally, I made query across the global\_data table to retrieve all the data available in years 1796-2013(since we are having that much data for Delhi).



The screenshot shows a SQL query interface. On the left, under the 'Input' tab, the 'global\_data' table is selected from a schema. The table's columns are listed: year and avg\_temp. The main query area contains the following SQL statement: `1 select * from global_data where 1795<year and year<2014;`. Below the query, a green bar indicates 'Success!'. To the right of the query is an 'EVALUATE' button. Below the query area, the 'Output' section shows '218 results' and a 'Download CSV' link. The output is displayed as a table with the following data:

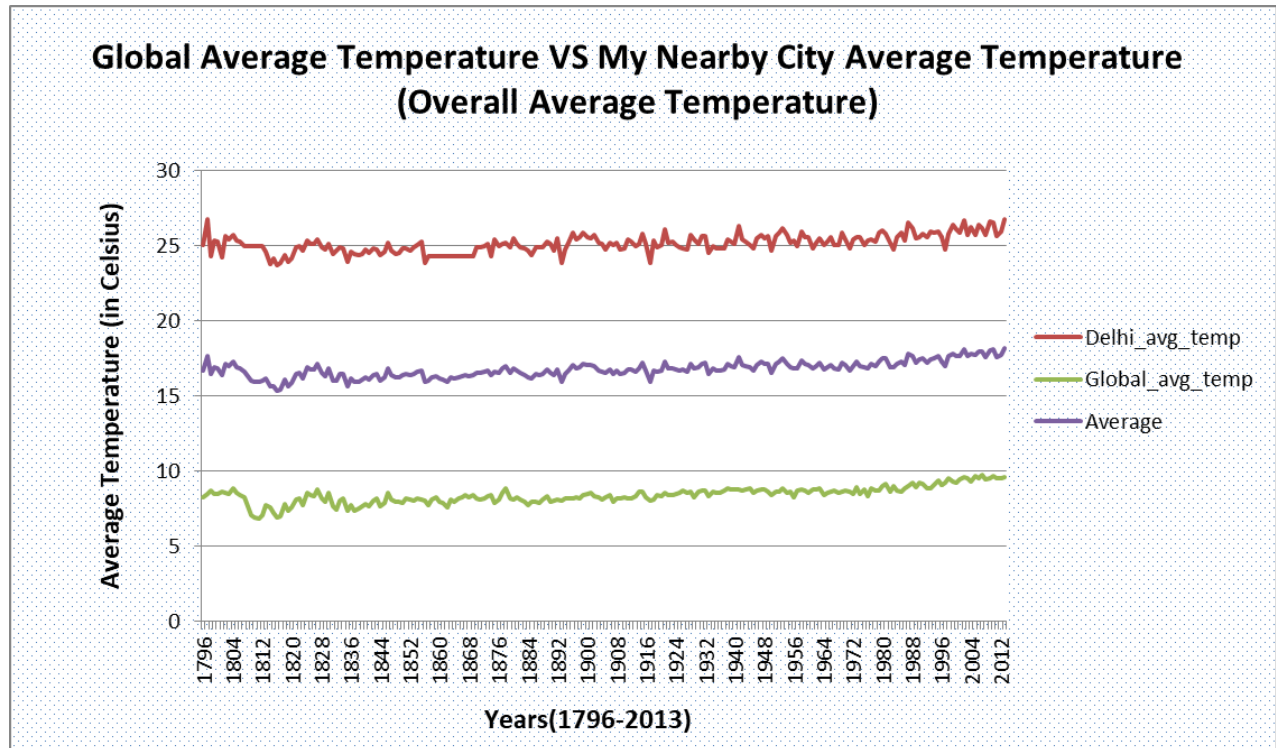
year	avg_temp
1796	8.27
1797	8.51
1798	8.67
1799	8.51

## Comparison

So now I am going to compare weather trends between Delhi and the global information with the help of average temperatures (in Celsius), respectively, in 4 parts.

To visualize the data I had used **MS Excel**.

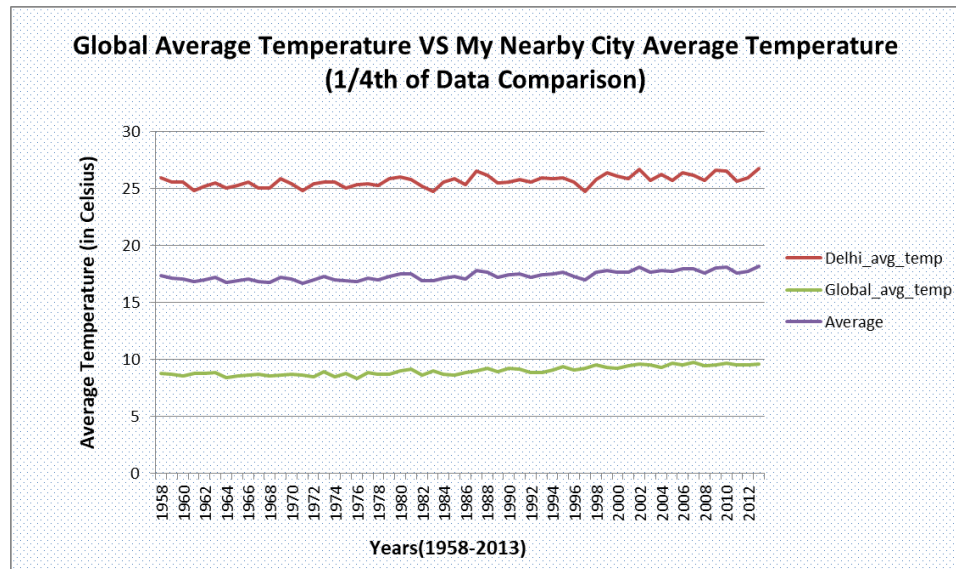
### 1. General Overview



The above data is showing a huge variation between global average temperature and Delhi (India) average temperature. It is crystal clear that Delhi's average temperature is higher than the global average temperature, i.e., about the difference of 16.7 degree Celsius.

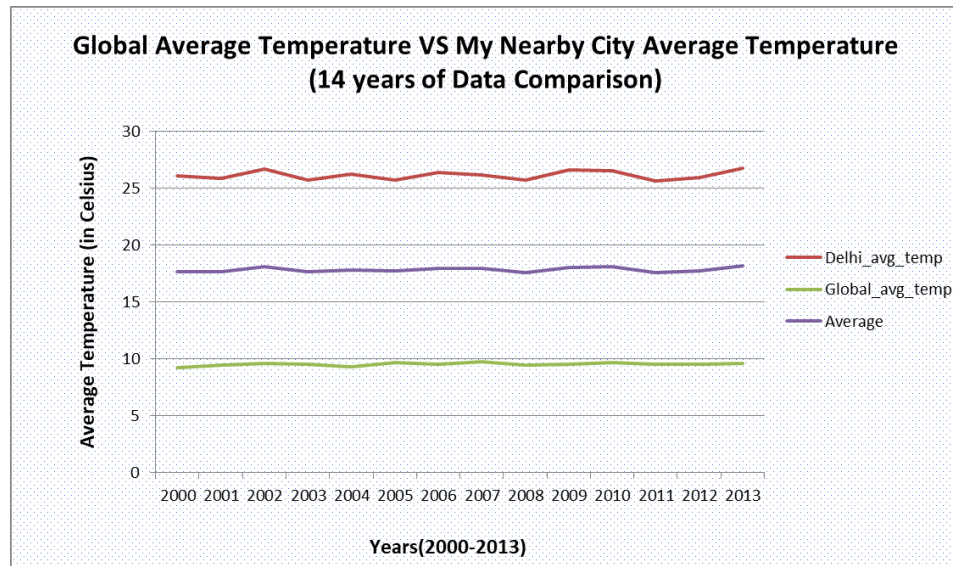
For more details let's consider other observations as given below:-

## 2. 1/4<sup>th</sup> Data Comparison



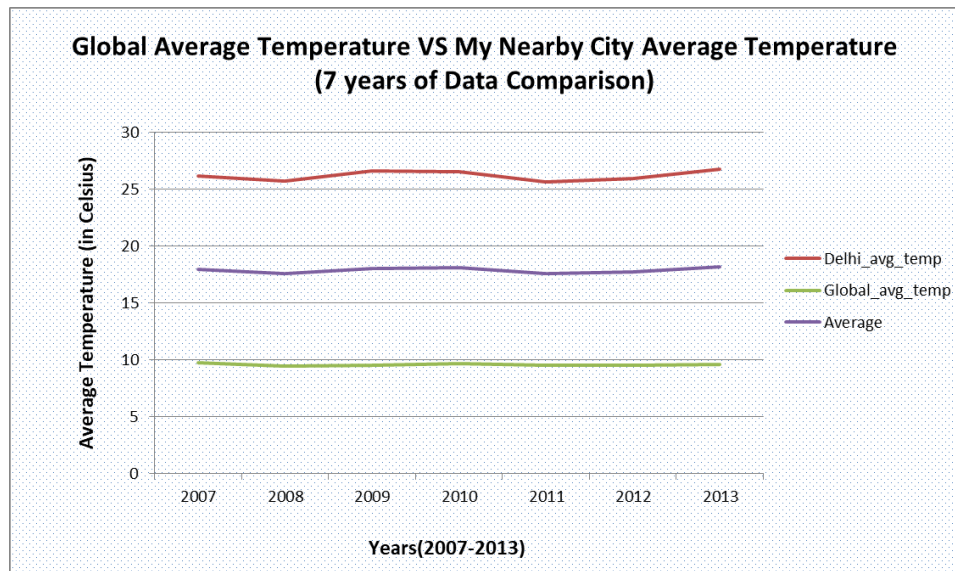
The above data of about 55 years resembles very less fluctuations in global average temperature change, while there are many fluctuations or changes in Delhi's average temperature. Both are increasing with a period of time (in year). For clear cut image let's compare 14 years of data.

## 3. Past 14 Years of Data



The above line graph is showing nearly constant temperature of global average temperature, i.e., about 9.51929 degrees Celsius and on the other hand Delhi average temperature is showing gradual changes in its temperature, and on the average it is 26.1229 degree Celsius.

## 4. Past 7 years of Data



The above line graph is showing nearly constant temperature of global average temperature, i.e., about 9.57286 degrees Celsius and on the other hand Delhi average temperature is also showing constant behavior in its temperature, and on the average it is 26.1614 degree Celsius. The average difference between both the temperatures is 16.588 degree Celsius (0.112 degree Celsius less than the overall comparison).

### Observations:-

- Delhi is hotter than overall average compared to the global average (about 16.7 degree Celsius).
- The difference been consistent over time.
- On the basis of 2<sup>nd</sup> line chart, we can say that there are more certain changes in temperature in compare to the global temperature.
- On the basis of overall chart we can say that the overall trend is increasing with low rate.
- The world is getting hotter.
- The trend seems to be consistent over the last few hundred years as it maintained the overall average temperature to 8.36 degree Celsius globally (max. 9.83 and min. 5.78 degree Celsius).