Explore Weather Trends Project

Global vs Baghdad Trend Temperature

- ## Extracting data:

  By SQL commands

  SELECT*
  FROM city_list
  WHAERE country = ‘Iraq’;

  We’ll got two cities in Iraq: ***Baghdad*** *and* ***Irbil***

  Then:

  SELECT*
  FROM city_data
  WHAERE country = ‘Iraq’ AND city = ‘Baghdad’;

  Extracting data by download city_data for Baghdad (csv format)

  SELECT*
  FROM city_data
  WHAERE country = ‘Iraq’ AND city = Irbil’;

  Extracting data by download city_data for Irbil (csv format)

  SELECT*
  FROM global_data

  Extracting data by download global_data (csv format)

- ## Opening data in excel format

Then we'll move all data to excel file, it will contain:

1. Years of study (starting from 1750 for global, 1808 for Irbil and 1819 for Baghdad).
2. Global_average_temperature starting from 1750 till 2015
3. Baghdad_average_temperature starting from 1819 till 2013
4. Irbil_average_temperature starting from 1808 till 2013.

- ## Calculating Moving Average Temperature

Calculating the Moving Average Temperature for Global, Baghdad and Irbil Data, I will consider (ten years) in calculating the Moving Average.
In excel we'll use the following command: =AVERAGE(B2:B11) ..*then press enter*

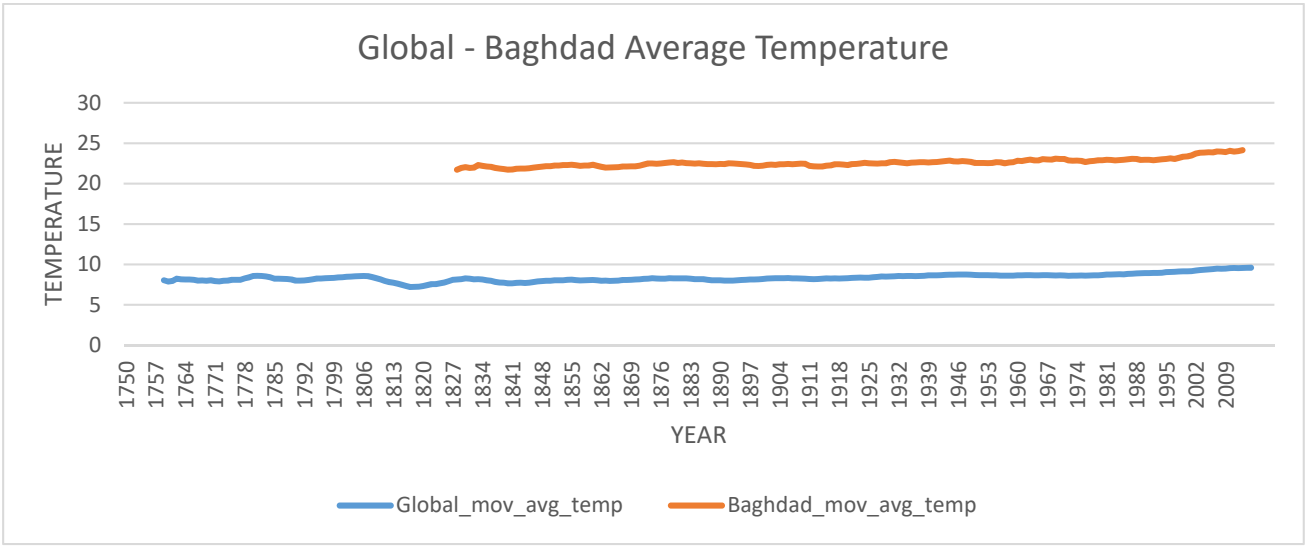
- For global MA, =AVERAGE(B2:B11) ..*then press enter*
- For Baghdad MA, =AVERAGE(D71:D80) ..*then press enter*
- For Irbil MA, =AVERAGE(F60:F69) ..*then press enter*

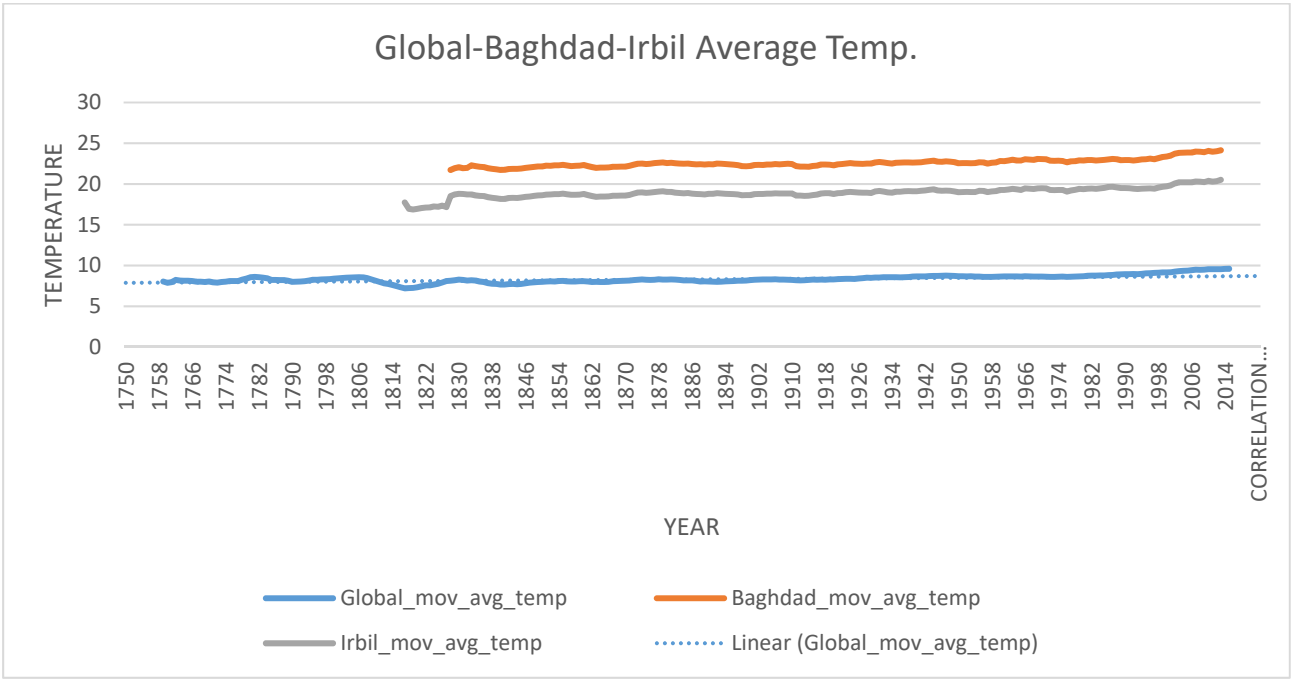
- ## Calculating Correlation Coefficient

- For global R, =CORREL(B11:B267, C11:C267) ..*then press enter*
- For Baghdad R, =CORREL(B80:B265, E80:E265) ..*then press enter*
- For Irbil R, =CORREL(B80:B265, G69:G265) ..*then press enter*

- **Drawing line charts**

  Then we'll start drawing line charts
  - First chart for global – Baghdad temperature.
  - Second chart for global – Baghdad and Irbil temperature.





- **Conclusion:**
  - Global Correlation coefficient: 0.751 > 0.7 indicates strong relationship.
  - Baghdad Correlation coefficient: 0.873 > 0.7 indicates strong relationship.
  - Irbil Correlation coefficient: 0.854 almost = Baghdad correlation coefficient.
  - The global temperature is tending to rise during the period from 1750 till 2015,
  - Baghdad temperature & Irbil temperature are both tending to rise too.
  - Average global temperature in the first years from 1750 till about 1980 is about (8.0 C° plus/minus) since that there is a notable rise in temperature till now (temperature is about 9.0 to 10 C°, in average of about 9.5 C°).
  - There is a rise of average global temperature of about 1.5 C°.
  - Same conclusion we can reach from the data Baghdad & Irbil average temperature.
  - This a proof of **Global warming** and that the world get hotter.
  - The Global Average Temperature = 8.4 C°
  - Baghdad Average Temperature = 22.6 C°
  - Irbil Average Temperature = 18.9 C°
  - Baghdad Temperature = Global Temperature + 14.2 C° (Baghdad temperature is above the average global temperature by 14.2 C°. . this mean that Baghdad above the average global temperature and the city is a hot city).
  - Same for Irbil temperature = global temperature + 10.5 C° (in average)
  - Adding Irbil city give us the same conclusions that we have got from Baghdad and Global charts