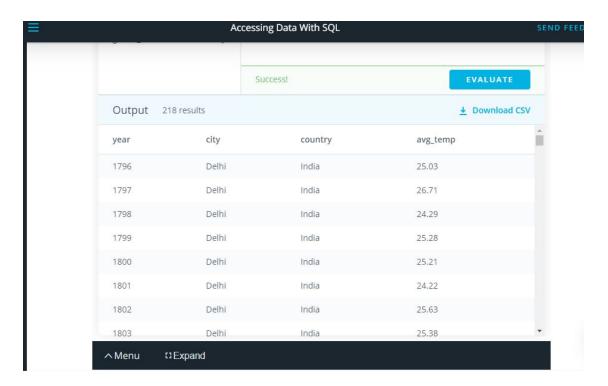
An outline of the steps to prepare the data

Used the following commands to first check for the cities whose data is available and then to get the data of the required city. (SQL queries)

select city from city_data where country ='India'; select * from city_data where city='Bhopal'; select * from city_data where city='Delhi'; select * from global_data;



<u>Used the average function to calculate the moving average-></u> = AVERAGE(D2:D13)

fx	=AVERAGE(D2:D13)								
	A	В	С	D	E	ı			
1	year	city	country	avg_temp					
2	1796	Bhopal	India	25.06					
3	1797	Bhopal	India	26.27					
4	1798	Bhopal	India	24.24					
5	1799	Bhopal	India	25.33					
6	1800	Bhopal	India	25.3					
7	1801	Bhopal	India	24.15					
8	1802	Bhopal	India	25.77					
9	1803	Bhopal	India	25.53					
10	1804	Bhopal	India	25.88					
11	1805	Bhopal	India	25.41					
12	1806	Bhopal	India	25.31					
13	1807	Bhopal	India	24.64	25.24083333				
14	1808	Bhopal	India		25.25727273				
15	1809	Bhopal	India		25.156				
16	1810	Bhopal	India		25.25777778				
17	1811	Bhonal	India		25 24875				

<u>Used a Raw data sheet for making the graph with the data from three different sheets.</u>

	いる中で	100% ▼ £	% .000_ 1	23 ▼ Default (Ari	🕶 10	- B
	А	В	С	D	Е	()
	Year	Bhopal_12yr_avc	Delhi_12yr_avg	Global_12yr_avg		
	1807	25.24083333	25.24333333	8.518333333		
	1808	25.25727273	25.26272727	8.465		
	1809	25.156	25.118	8.345833333		
	1810	25.25777778	25.21	8.2		Ten
	1811	25.24875	25.20125	8.0625		
	1812	25.24142857	25.2	7.943333333		
	1813	25.31428571	25.24857143	7.8725		
	1814	25.03857143	24.97714286	7.79		
	1815	24.84714286	24.79285714	7.685		
	1816	24.55142857	24.51	7.526666667		
	1817	24.34714286	24.30428571	7.395		e e
	1818	24.20714286	24.18285714	7.345		ale -
	1819	24.12142857	24.03	7.269166667		Temperature
	1820	24.135	24.04125	7.268333333		Tell
	1821	24.22111111	24.12888889	7.3525		
	1822	24.297	24.209	7.458333333		
	1823	24.34818182	24.24727273	7.53		
	1824	24.43833333	24.335	7.655		
	1825	24.48166667	24.38083333	7.709166667		
	1826	24.59833333	24.49666667	7.773333333		
ij.	1827	24.69416667	24.6025	7.904166667		-
	4000	0.70007	0.4.7005	0.00000007		

Calculation of the moving average

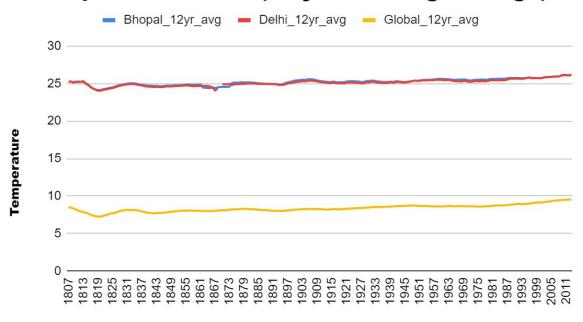
Moving average is calculated for 10 years.

Key considerations when deciding how to visualize the trends

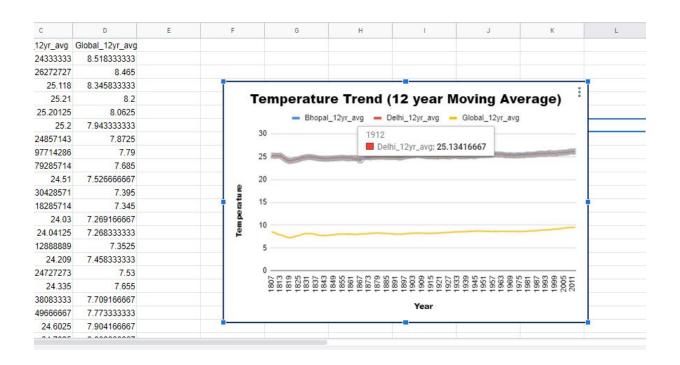
As 12 year moving average is taken for the 3 categories, hence a line chart is populated w.r.t Year and Avg temperature

Line chart with local and global temperature trends

Temperature Trend (12 year Moving Average)



Year



<u>Observations about the similarities and/or differences in the trends</u>

- a) Global temperatures are very less compared to Bhopal and Delhi
- b) The temperatures for all the 3 categories have increased marginally in the last 200 years of data
- c) Temperature of Delhi and Bhopal have been almost the same.
- d) It can be observed that temperatures have changed by an increase or decrease of 0.3
- e) Exactly 50 years from the year 1807, we observe that Global, Bhopal and Delhi have their temperatures dipped.
- f) The difference in 12 year MA temperatures when comparison done w.r.t 1807 vs 2013: global 0.89 and Delhi 1.04
- g) The correlation coefficient for Global vs Delhi is 0.937