

Exploring Weather Trends

- An outline of steps to complete the project:

1. Write SQL queries to extract data from the database:

- a) Extract the average temperature of Sydney where I'm living in;

Input

HISTORY ▾

MENU ▾

SCHEMA ↻

city_data ^

year

city

country

avg_temp

1 SELECT year, avg_temp

2 FROM city_data

3 WHERE city='Sydney'

4

Success!

EVALUATE

Output 173 results

Download CSV

- b) Extract the global average temperature.

Input

HISTORY ▾

MENU ▾

SCHEMA ↻

city_data ▾

city_list ▾

global_data ^

year

avg_temp

1 SELECT *

2 FROM global_data

3

4

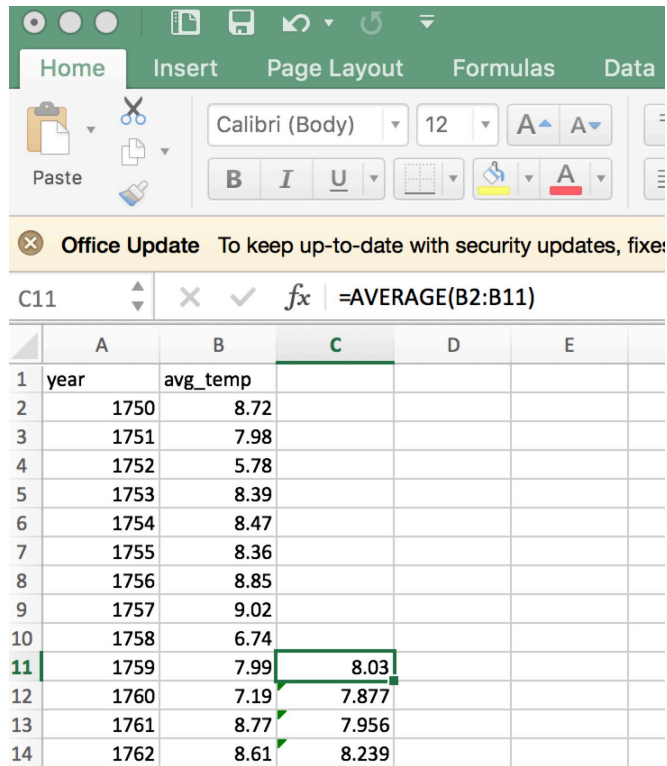
Success!

EVALUATE

Output 266 results

Download CSV

2. Export the data to CSV files and open them up using Excel.
3. Create a line chart to compare the global and local weather trends over the last few hundreds of years. Plot the moving average over 10 years in order to smooth out the lines, making trends more observable.

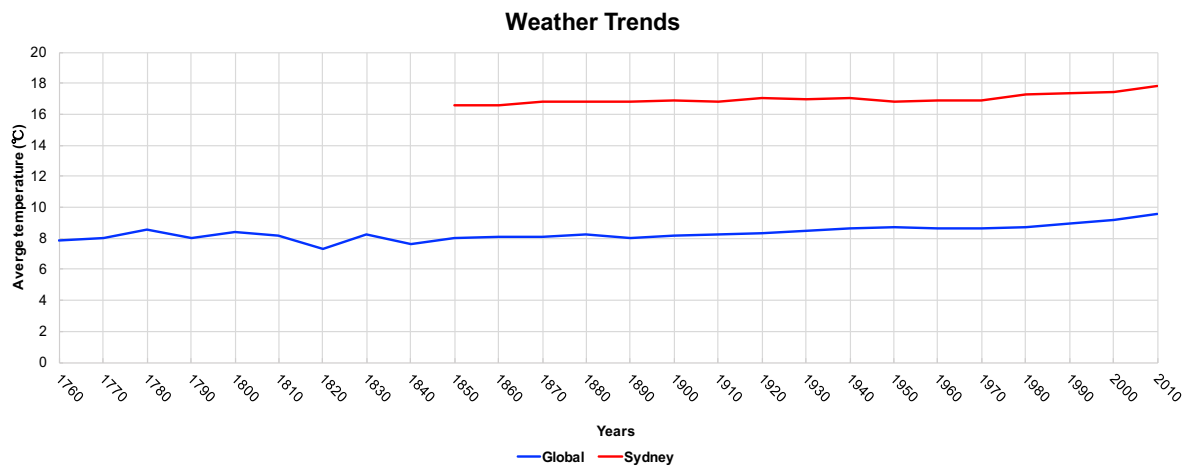


The screenshot shows the Microsoft Excel interface. The formula bar at the top displays `=AVERAGE(B2:B11)` for cell C11. The spreadsheet contains the following data:

	A	B	C	D	E
1	year	avg_temp			
2	1750	8.72			
3	1751	7.98			
4	1752	5.78			
5	1753	8.39			
6	1754	8.47			
7	1755	8.36			
8	1756	8.85			
9	1757	9.02			
10	1758	6.74			
11	1759	7.99	8.03		
12	1760	7.19	7.877		
13	1761	8.77	7.956		
14	1762	8.61	8.239		

4. Make observations of the global and local weather trends.

- **Line chart of local and global temperature trends:**



- **Observations from the line chart:**

1. The global weather was recorded from 1750s to 2010s. Overall speaking, the global temperature is increased over the last few hundreds of years from 8 °C to 9.6 °C, suggesting the world is getting hotter.
2. Within the time frame, the global weather was fluctuant from 1760 to 1840, with the difference between the highest and lowest temperature up to 1.3 °C. The average temperature was then steady from 1840 to 1910, which was around 8 °C. After that, the temperature was gradually increasing and reached the maximum value as 9.6 °C in 2015.
3. The local temperature of Sydney was recorded from 1850s to 2010s. During this time period, the average local temperature is gradually increasing from 16.5 °C to 17.8 °C.
4. For the past 160 years, the average temperature of Sydney is always about 8 °C higher than the global temperature. Both of the average temperature shows a trend towards hotter weather with similar increase.