

## HW1: Exploring Weather Trends

### Outline

In MySQL, I first used the city\_list table in order to filter out the cities that are in Canada, selecting Toronto as my city.

```
1 • SELECT *
2     FROM city_list
3     WHERE country = 'Canada';
```

I then went on the city\_data table to select all the data from Victoria, saving only the year and temperature columns as a CSV file. I repeated the previous steps with global\_data. For both data sets, I limited the years from 1750 to 2010.

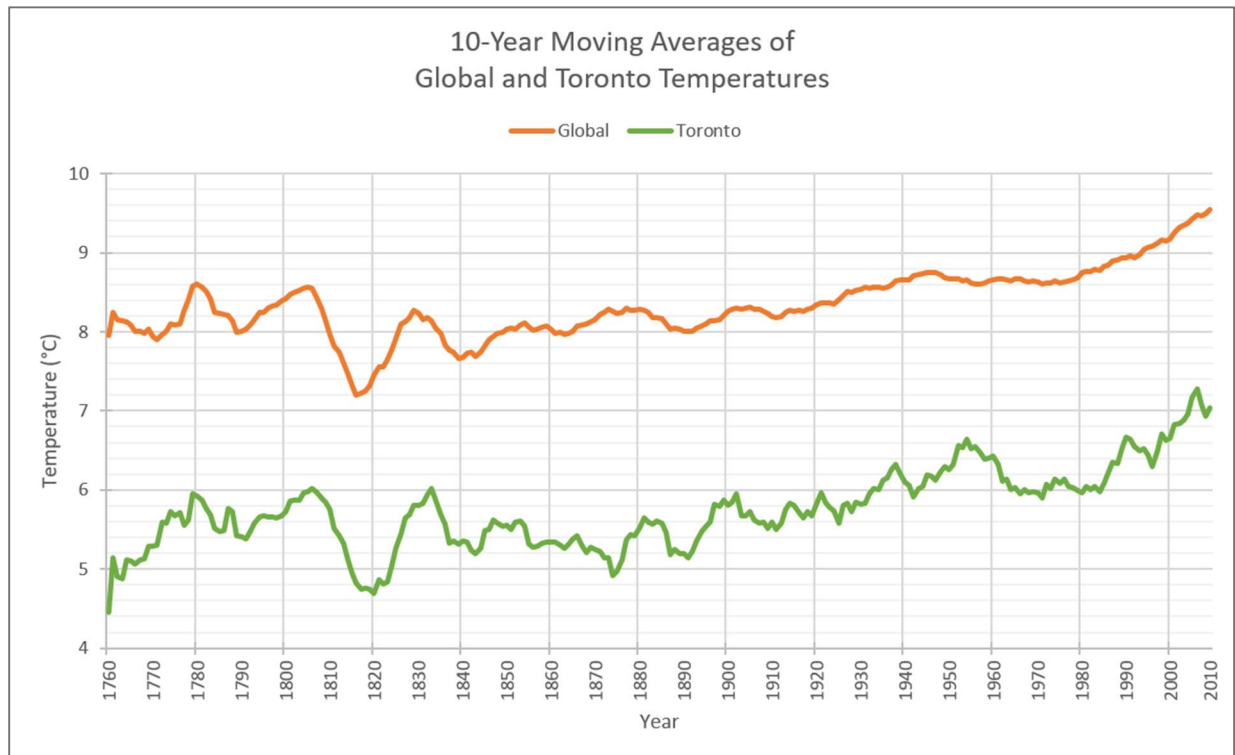
```
1 • SELECT year, avg_temp
2     FROM city_data
3     WHERE city = 'Toronto'
4     AND year BETWEEN 1750 AND 2010;
```

```
1 • SELECT year, avg_temp
2     FROM global_data
3     WHERE year BETWEEN 1750 AND 2010;
```

In Excel, I then combined the two data sets into one spreadsheet and obtained a moving average for each by calculating the average for 10 years, repeated every year after the 10<sup>th</sup>. With the data from the year, global MA, and Toronto MA columns, I created a line graph and organized the scale and axes labels to best display the data.

C11								
	A	B	C	D	E	F	G	H
1	year	avg_temp	Global	avg_temp	Toronto			
2	1750	8.72		6.29				
3	1751	7.98		6.84				
4	1752	5.78		-1.1				
5	1753	8.39		5.76				
6	1754	8.47		5.94				
7	1755	8.36		2.81				
8	1756	8.85		6.37				
9	1757	9.02		5.13				
10	1758	6.74		4.37				
11	1759	7.99	8.03	5.27	4.768			
12	1760	7.19	7.877	3.74	4.513			
13	1761	8.77	7.956	6.25	4.454			
14	1762	8.61	8.239	5.79	5.143			
15	1763	7.5	8.15	3.32	4.899			

## Line Chart



## Observations

- The temperatures in Toronto are consistently cooler than global temperatures.
- Both global and Toronto temperature trends appear to be increasing over time.
- Both global and Toronto temperature trends appear to be changing in the same overall manner (increasing and decreasing at around the same points in time); the Toronto temperatures remain around 2 to 3 degrees lower than the global temperatures.
- There was a significant “dip” in temperature, ie. the values seem to suddenly decrease, then increase, around the year 1820. This is seen in both global and Toronto data.
- Overall, the global data seems to have less variance between shorter lengths of time (the line for global temperatures is “smoother” than the line for Toronto temperatures).