PROJECT 1 –EXPLORING GLOBAL WEATHER TRENDS

INTRODUCTION

For this project, per the instruction, the global and Seattle's (the nearest city) temperature data from the database was extracted using SQL. The SQL queries, listed underneath, were formulated to extract the city level and global data, joined using SQL Self Join and then the exported table saved as CSV file.

```
SELECT city_data.years  AS Year, city_data.city ,city_data.avg.temp, global_data.year AS Year

FROM city_data , globa_data

WHERE city_data.years  = global_data.year

ORDER BY city_data.Year;
```

TOOL

The csv file imported and MS Excel is used to calculate, analyze and plot average yearly temperatures of Seattle and the World.

WRANGLING

The data have no missing values and all temperature entries are integers.

Data ANALYSIS

Moving Averages was calculated, utilizing the prior 7 years average temperatures, to smooth out variances.

Moving averages trend was also calculated to further level out fluctuations in the data. Thus, the trends in the data has become more recognizable and made observation easier.

DISCUSSION

It's a common knowledge of the residents of Seattle that there were apparent annual temperature variations. A higher maximum of 9.95^{0}C and lower minimum of 3.52 ^{0}C average temperatures recorded in preceding hundred years, as compared to that of global 9.83^{0}C and 5.78^{0}C respectively. The variance for Seattle average temp is 0.457 which is higher than 0.342 of the global. This indicates that the city's average temperatures are spread out from the mean, and from one another, which confirms Seattle had more fluctuating annual temperatures over the years when compared to the world. As illustrated in figure1 that the plotted Seattle's data set is more oscillating or wavy in comparison to the global.

Figure 1 – *ANNUAL AVERAGE TEMPERATURE (SEATTLE VS GLOBAL)*

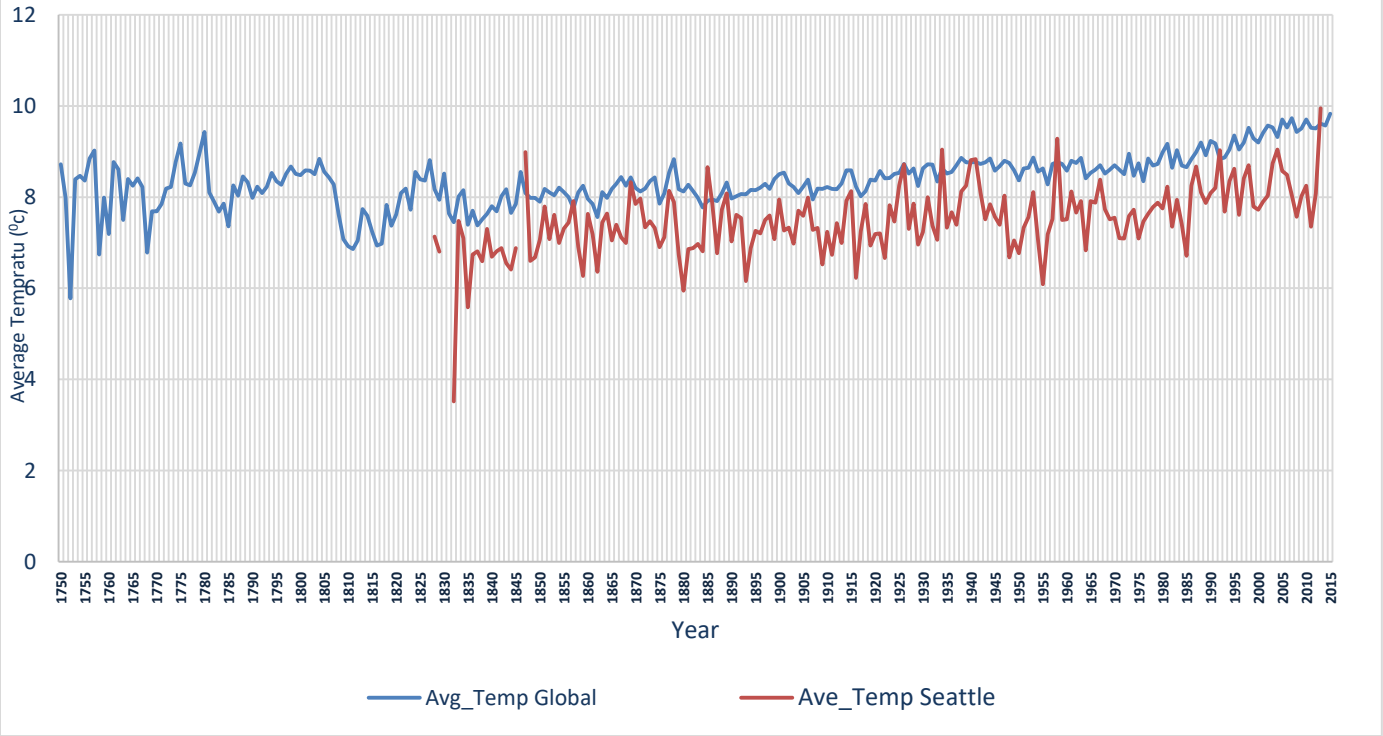
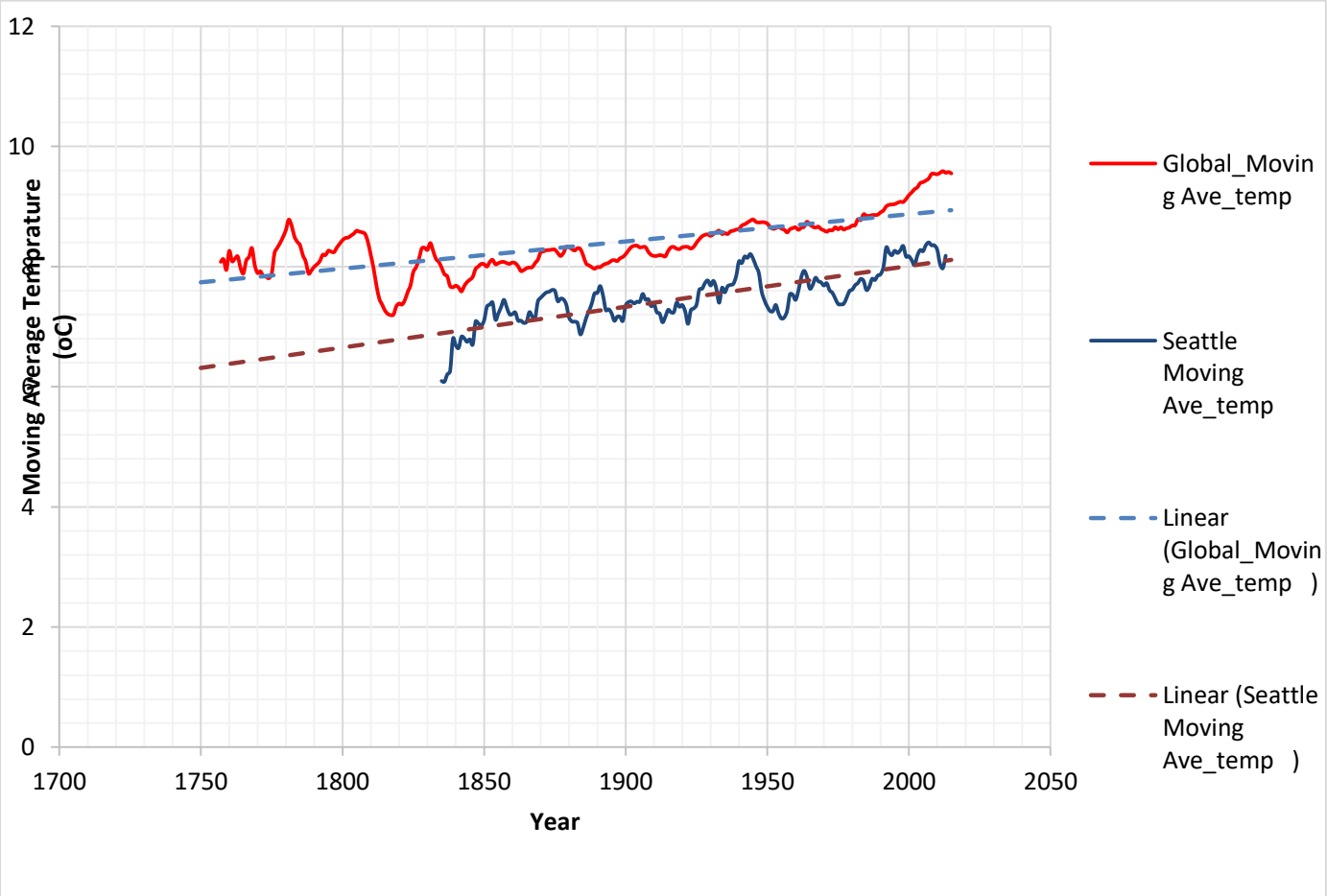


Table 1- *STATISTICAL COMPARISONS*

	SEATTLE	GLOBAL
Max	9.95	9.83
Min	3.52	5.78
Median	7.50	8.38
Mean	7.50	8.37
Standard Deviation	0.74	0.78
Variance	0.547	0.342
Mode	7.98	6.88

The annual average temperature trend of the city of Seattle is generally found to be relatively lower than the global average in the over the past hundred years. Figure 2 illustrates that both the moving average and the trend line of Seattle are located under or lower than that of the global. The mean annual average temperature of the city of Seattle and the world is 7.50^0C and 8.37^0C respectively. Furthermore, the modes of data sets are 7.98^0C and 6.88^0C for Seattle and globally. These are a good indicator that on average Seattle city is cooler as compared to the world. This trend has been consistent over the last few hundred years.

Figure 2. *MOVING AVERAGE TEMPERATURE (SEATTLE VS GLOBAL)*



CONCLUSION

Both trend lines, as shown in Figure 2, have an upward slop, which clearly demonstrates that as a whole the world is getting warmer consistently over the years .Based on the data presented and the conducted analysis, the result strongly suggests the presence of worldwide temperature increases and hence the recent environmentalists claim on global warming appears to be not far from reality.