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DAND

Term 1 – Project 1: Explore Weather Trends

Data was extracted from the provided databases using two SQL queries. The Atom text editor was used to organize the code and highlight keywords in the syntax.

```sql
/* Extract global data. */
SELECT *
FROM global_data;
```

```sql
/* Extract city specific data. */
SELECT *
FROM city_data
WHERE city = 'San Diego';
```

Tabular results from these two SQL queries were exported as .csv files for post-processing in Excel. To smooth the data a 12-year moving average was calculated using the AVERAGE() function.

SUM | =AVERAGE(E2:E13)

	A	B	C	D	E	F
1	San Diego >>>	year	city	country	avg_temp	12-year MA
2		1849	San Diego	United States	16.03	
3		1850	San Diego	United States	15.55	
4		1851	San Diego	United States	15.66	
5		1852	San Diego	United States	16.06	
6		1853	San Diego	United States	16.69	
7		1854	San Diego	United States	16.11	
8		1855	San Diego	United States	16.31	
9		1856	San Diego	United States	15.75	
10		1857	San Diego	United States	16.41	
11		1858	San Diego	United States	15.96	
12		1859	San Diego	United States	15.64	
13		1860	San Diego	United States	15.74	=AVERAGE(E2:E13
14		1861	San Diego	United States	16.82	16.06
15		1862	San Diego	United States	16.37	16.13
16		1863	San Diego	United States	16.10	16.16
17		1864	San Diego	United States	16.87	16.23
18		1865	San Diego	United States	16.18	16.19

Several observations are made from a line plot of the 12-year moving averages for San Diego and global temperatures.

1. San Diego is consistently hotter than the global average by around 8 [°C]. This implies that San Diego is exposed to more sunlight than majority of the earth's surface.

2. San Diego experienced a 15 year decline in temperature around 1940 while the global temperature remained nearly constant. This implies that the global climate is not uniform with some areas of the earth's surface decreasing in temperature while others increase.

3. San Diego data prior to 1849 does not exist; global data prior to 1849 is much more variable than the global data post 1849. This variability may be reason to suspect methods of data collection prior to 1849.

4. The clear trend of both San Diego and global temperature since 1900 is a steady increase with the most dramatic rise beginning in 1980.