

1. Use SQL to extract both San Francisco and global temperatures:

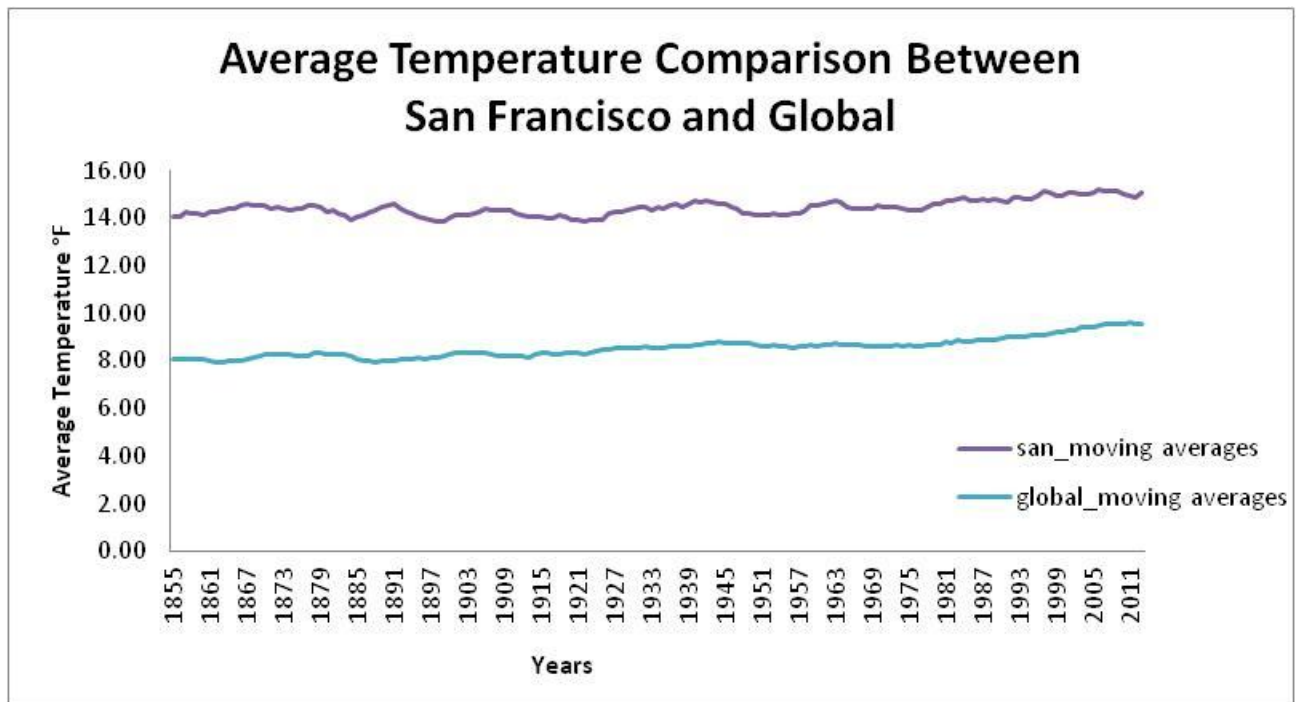
```
SELECT t1.year, t1.san_avg_temp, g.avg_temp as global_avg_temp
FROM (
    WITH t1 as (
        SELECT city
        FROM city_list
        WHERE city = 'San Francisco'
        GROUP BY city
    )
    SELECT c.year, t1.city, c.avg_temp as san_avg_temp
    FROM city_data c
    JOIN t1
    ON t1.city = c.city
    GROUP BY 1,2,3
    ORDER BY c.year
)t1

JOIN global_data g
ON g.year = t1.year
ORDER BY 1
```

2. Calculate the moving average in EXCEL:

year	san_avg_temp	global_avg_temp	san_moving averages	global_moving averages
1849	14.12	7.98		
1850	13.8	7.9		
1851	14.39	8.18		
1852	13.81	8.1		
1853	14.4	8.04		
1854	13.98	8.21		
1855	14.2	8.11	14.10	8.07
1856	14.1	8	14.10	8.08
1857	14.78	7.76	14.24	8.06
1858	14.19	8.1	14.21	8.05
1859	13.71	8.25	14.19	8.07
1860	13.81	7.96	14.11	8.06

3. To compare both data I use Line chart to see the trends:



4. Questions:

Q1: Is San Francisco hotter or colder on average compared to the global average?

From the line chart above we see San Francisco's average temperature line always above global average temperature. That means San Francisco's average temperature is hotter than the global temperature.

Q2: Has the difference been consistent over time?

From the line chart trends both San Francisco and global has not changed conspicuously.

Q3: How do the changes in San Francisco temperature over time compare to the changes in the global average?

All trends of the average temperature in both San Francisco and global is slightly up.

Q4: what does the overall trend look like?

The trend of San Francisco is unevenly curve but not be obvious. The trend of global is more smoothly up.