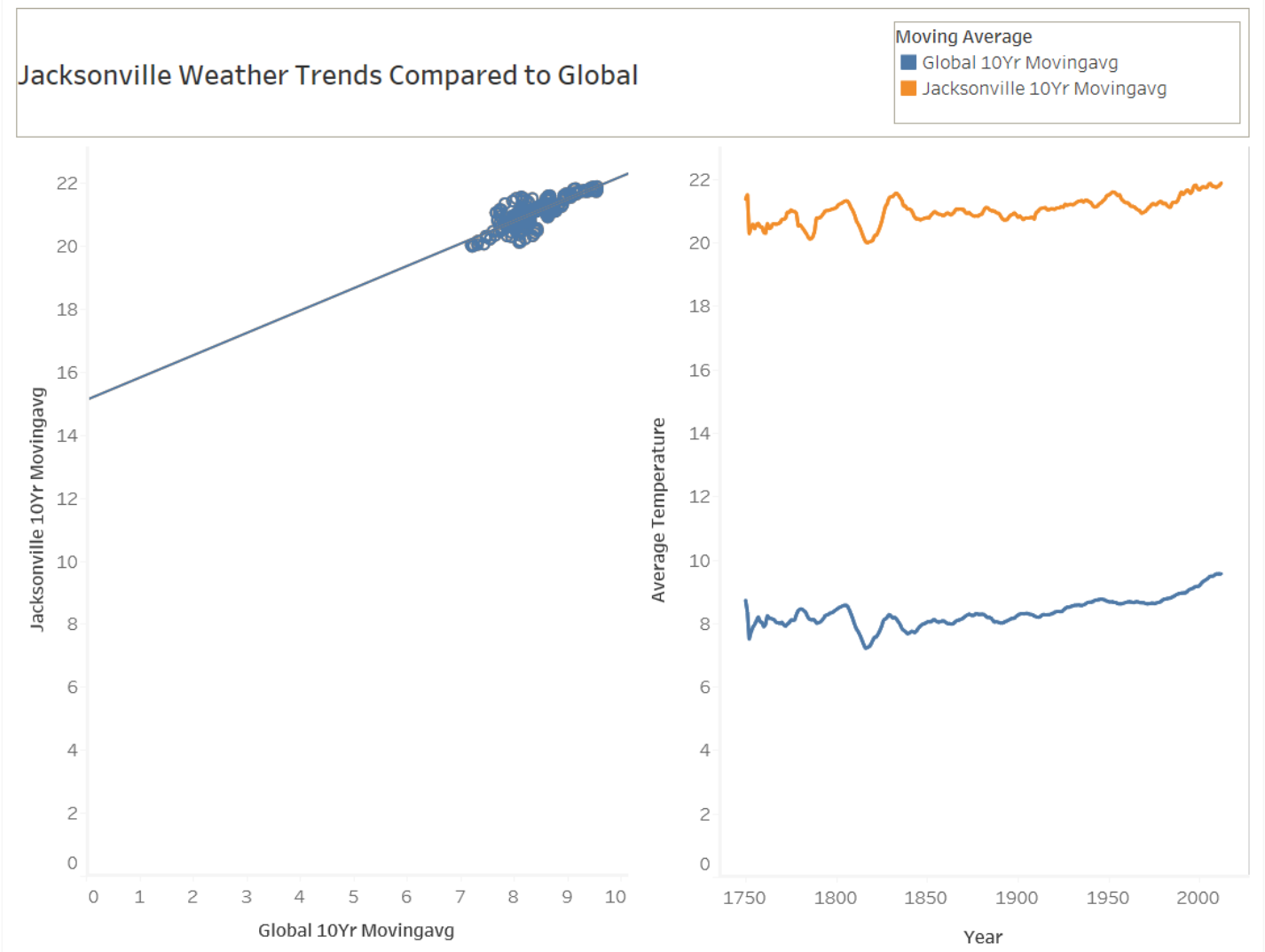
Jacksonville Weather Trends Compared to Global

- I utilized SQL to find the closest city to my home; I joined city_data, city_list and global_data tables and used avg aggregation to calculate the 10-year moving average for Jacksonville weather data and Global weather data to smooth the data.
- Exported to excel in CSV and changed the year column to text and saved the file.
- Opened the file in tableau, created a line chart with one line for Jacksonville (Orange) and the other for Global (Blue). In addition to line charts I added a scatter plot to show the correlation between the moving averages.

SQL Syntax:

```
/*Query1 - Jacksonville Weather Trends Compared to Global*/
SELECT cd.year,
       cd.avg_temp Jacksonville_avg_temp,
       Avg(cd.avg_temp)
         over (
           ORDER BY cd.year ROWS 9 preceding) AS Jacksonville_10yr_MovingAvg,
       g.avg_temp Global_avg_temp,
       Avg(g.avg_temp)
         over (
           ORDER BY cd.year ROWS 9 preceding) AS Global_10yr_MovingAVG
FROM   city_data cd
       join city_list cl
         ON cd.city = cl.city
       join global_data g
         ON g.year = cd.year
WHERE  cd.city IN ( 'Jacksonville' )
       AND cd.avg_temp IS NOT NULL
GROUP  BY 1,
          2,
          4
ORDER  BY 1;
```

Tableau Link:
https://public.tableau.com/profile/ryan.reardon#!/vizhome/JacksonvilleWeatherTrendsComparedtoGlobal/Sheet1?publish=yes



Observations

Observation 1: The obvious observation, Jacksonville's average temperature is 21 degrees Celsius compared or 69 degrees Fahrenheit to Global average temperature of 8 degrees Celsius or 46 degrees Fahrenheit. The difference between the two of 13 degrees Celsius or 23 degrees Fahrenheit has remained consistent over 273 years of data.

Observation 2: Again, Jacksonville's average temperature is higher than global average temperature, but comparing the line patterns over the 200 plus years of data they're similar; they follow the same trends over time only Jacksonville shows slightly more variation year to year. There appears to be a strong correlation between the two about .80; even though, the averages are quite different

Observation 3: Over the first 100 years of weather data tracked from 1740 to 1840, weather data trends were both uneven for Jacksonville and Global. There were a few periods of cooling and warming; for example, 1752 – 1780 steady increase or warming for Jacksonville 20 to 21 and Global temperatures 7.5 – 8.5 showed an increase of 1 degree Celsius. Then the line charts show a 10-year period of cooling between 1780 and 1790 Jacksonville dropped a degree from 21 to 20 and Global temps dropped a half a degree 8.5 to 8. 1790 to early 1800s the average temps increased Jacksonville 1 degree 20 to 21 and Global 8 to 8.5. This trend of uneven temperatures with periods of warming and cooling continues up until 1840.

Observation 4: From 1840-2011, shows a steady period of warming. Jacksonville's average temperature increase of 1 degree Celsius from 21 to 22, Global average temperatures increased too, but a slightly more significant increase at 2 degrees Celsius 7.5 to 9.5 over the period. Which could indicate other cities had a greater increase affecting the Global average during this period.