Global Climate Change

Data Analysis & Visualization

EDA in Python + Tableau Dashboard

THE DATA PIONEERS

BY

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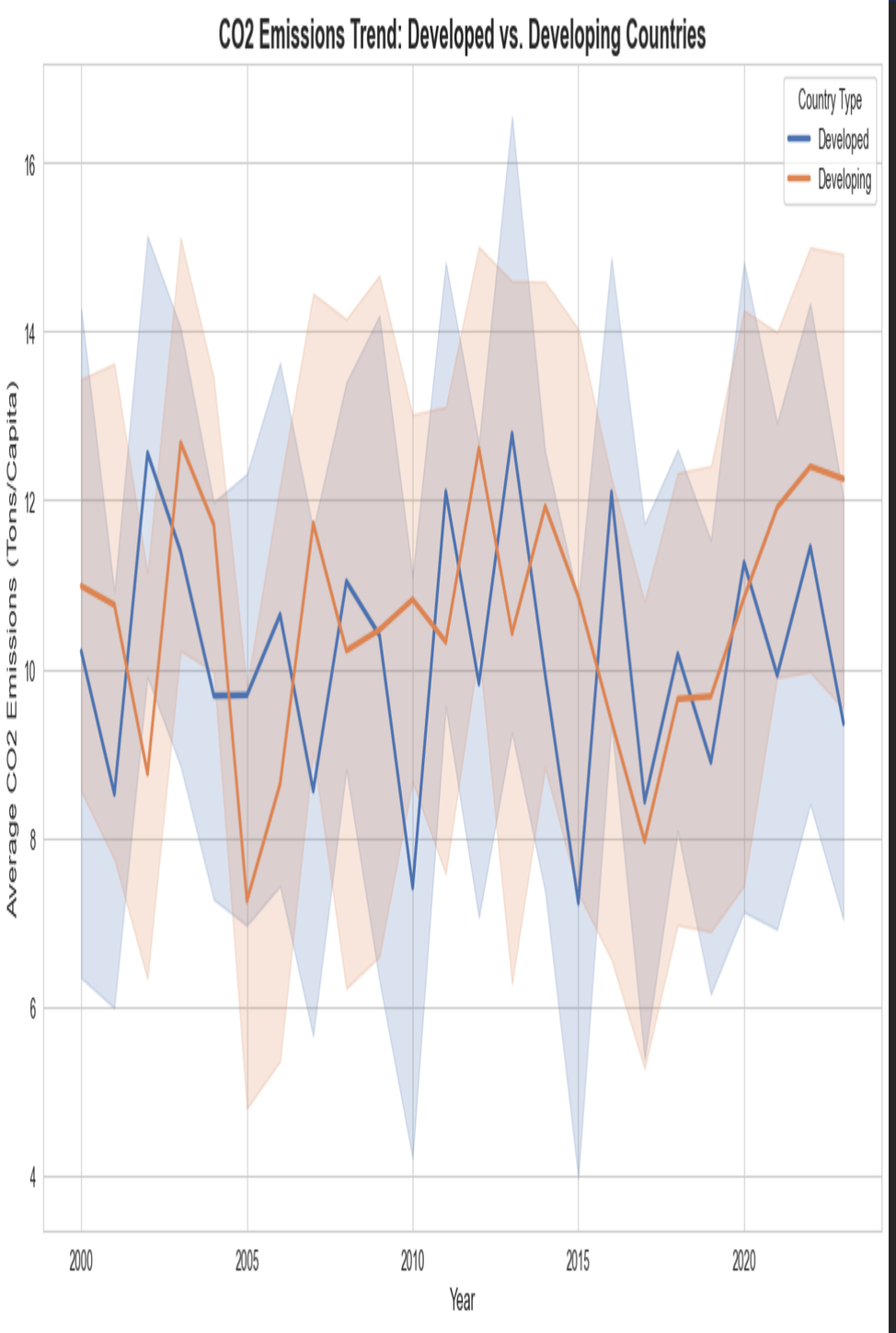


The Climate Challenge

Rising Temperatures

Global temperatures continue to climb, affecting weather patterns worldwide.

CO_2 Emissions

Carbon dioxide levels reach unprecedented highs in human history.

Sea Level Rise

Ocean levels rise as polar ice melts, threatening coastal communities.

	Year	Country	Avg Temperature (°C)	CO2 Emissions (Tons/Capita)	Sea Level Rise (mm)	Rainfall (mm)	Population	Renewable Energy (%)	Extreme Weather Events	Forest Area (%)
0	2006	UK	8.9	9.3	3.1	1441	530911230	20.4	14	59.8
1	2019	USA	31.0	4.8	4.2	2407	107364344	49.2	8	31.0
2	2014	France	33.9	2.8	2.2	1241	441101758	33.3	9	35.5
3	2010	Argentina	5.9	1.8	3.2	1892	1069669579	23.7	7	17.7
4	2007	Germany	26.9	5.6	2.4	1743	124079175	12.5	4	17.4
5	2020	China	32.3	1.4	2.7	2100	1202028857	49.4	12	47.2
6	2006	Argentina	30.7	11.6	3.9	1755	586706107	41.9	10	50.5

Dataset Overview

24

Years Covered

2000-2023 comprehensive data

15

Countries

Global representation

1K

Records

Clean, processed dataset

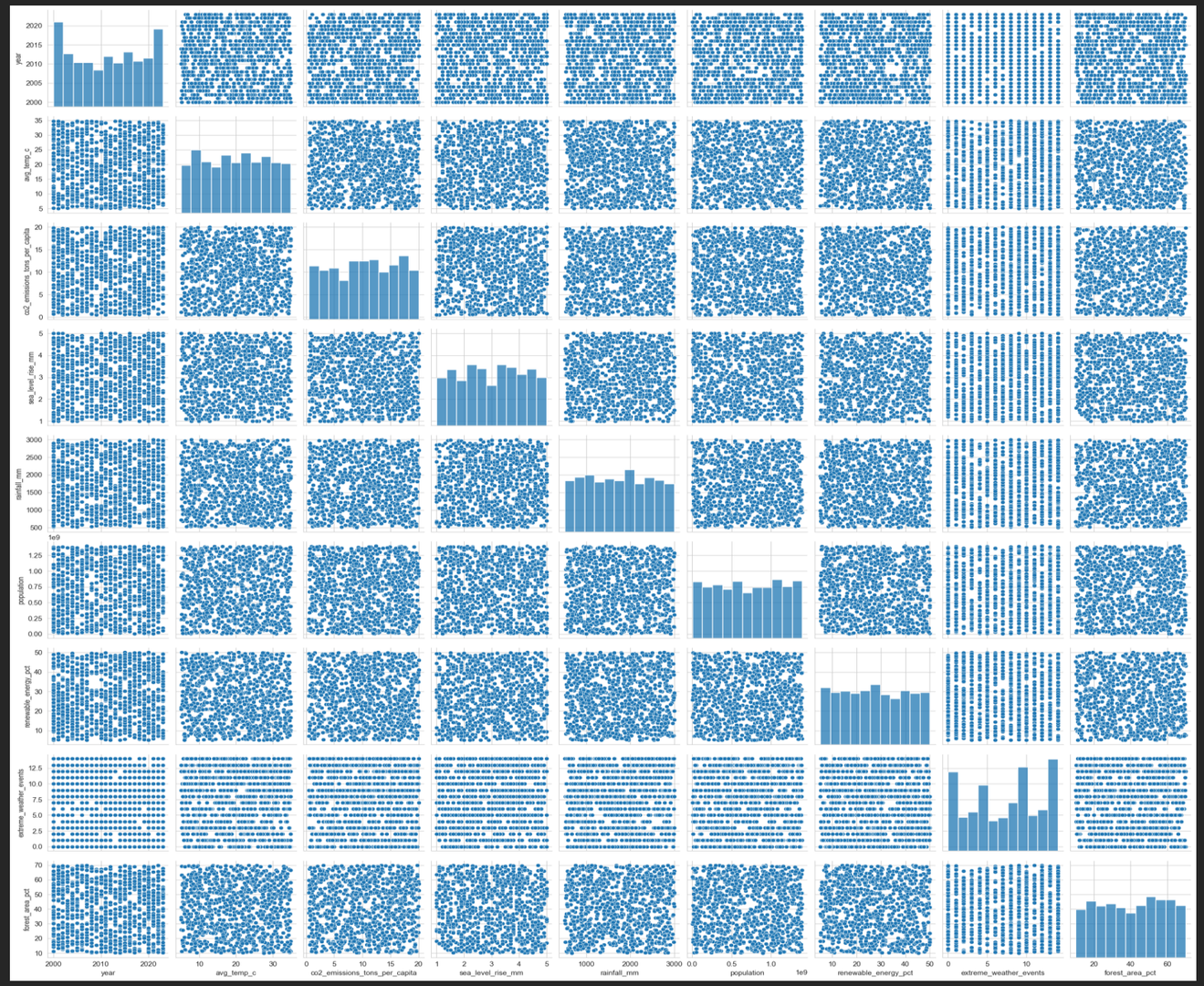
Data Quality Assessment

Clean Dataset

Pairplot analysis reveals no extreme outliers, ensuring reliable insights.

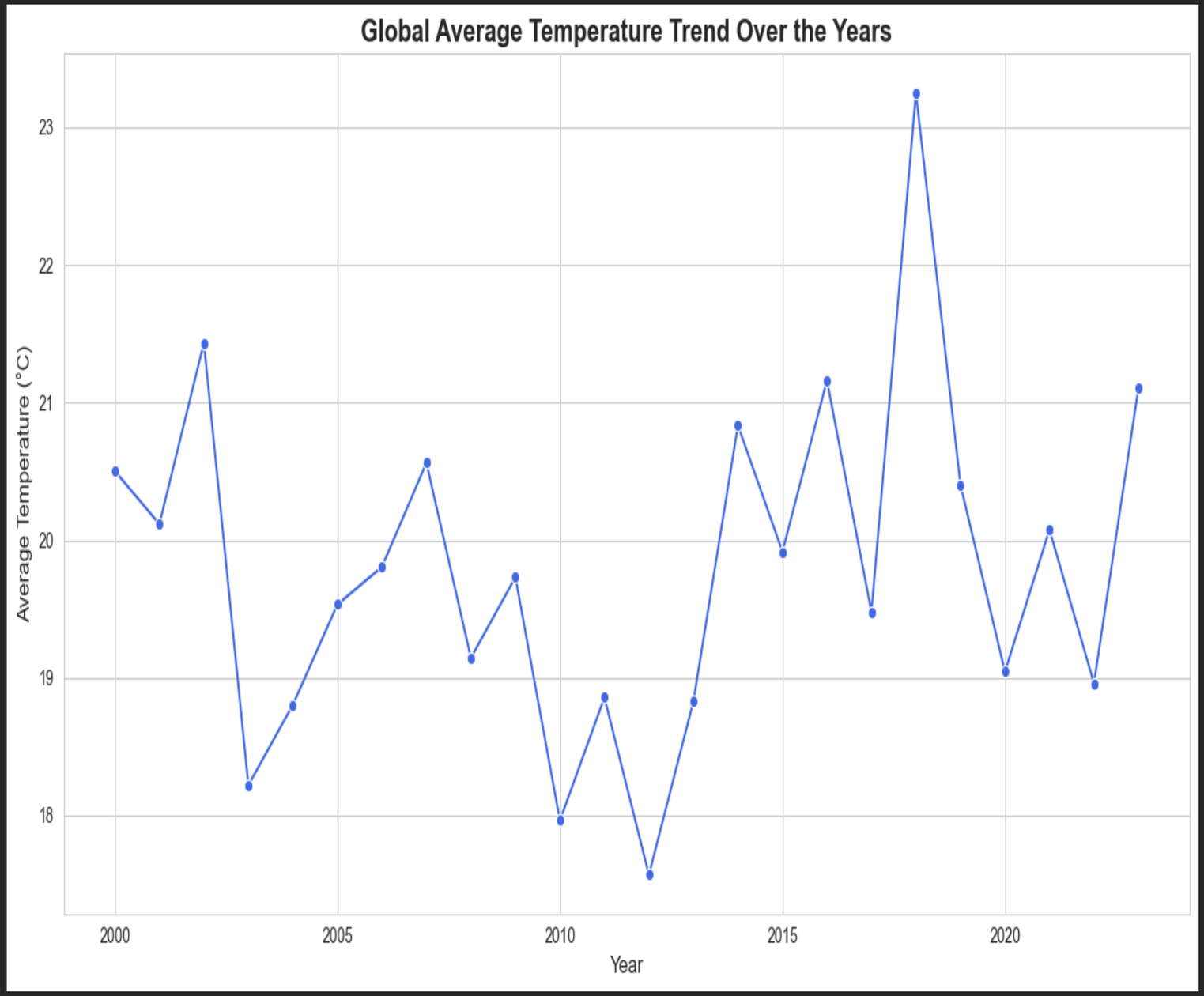
Comprehensive Coverage

8 key variables: Temperature, CO_2, Sea Level, Rainfall, Population, Renewable Energy, Forest Area, Extreme Weather.

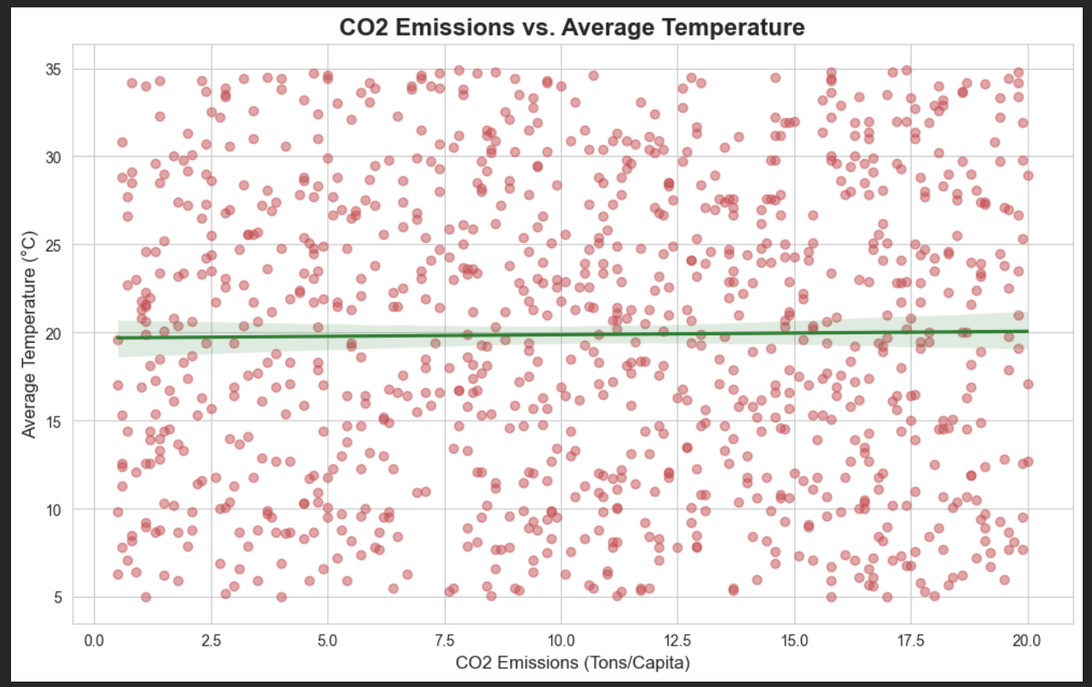


Temperature Trends Revealed

1. 2000-2003
   Gradual warming begins
2. 2003-2013
   Fluctuations in Temperature
3. 2013-2023
   Record-breaking heat patterns

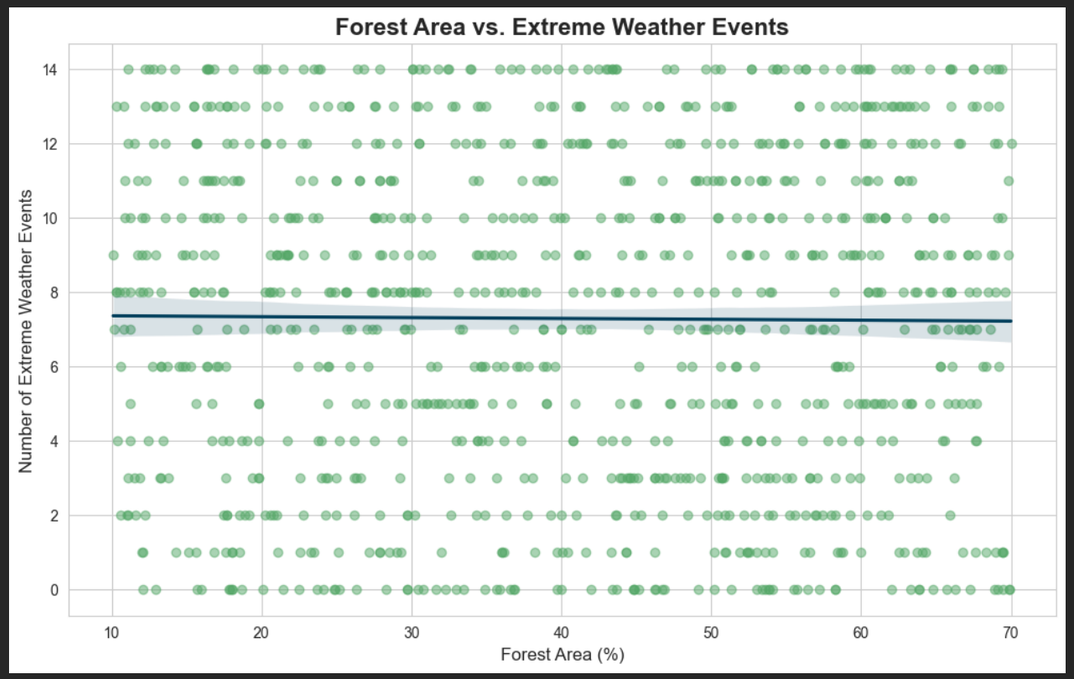


Complex Climate Relationships



CO_2 vs Temperature

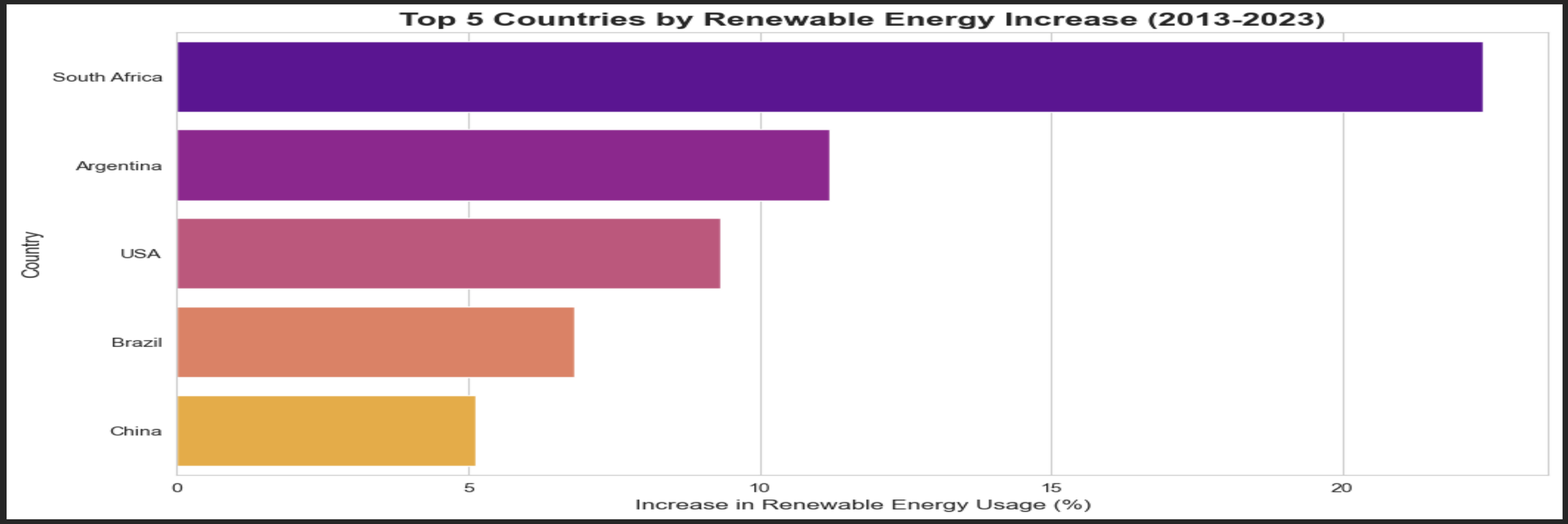
Weak direct correlation (~0.01) suggests other factors at play.



Forest vs Extreme Weather

Possible negative relationship indicates forests may buffer climate extremes.

Renewable Energy Leaders



Argentina

Significant investment in wind farms, making it one of the fastest renewable adopters in Latin America.

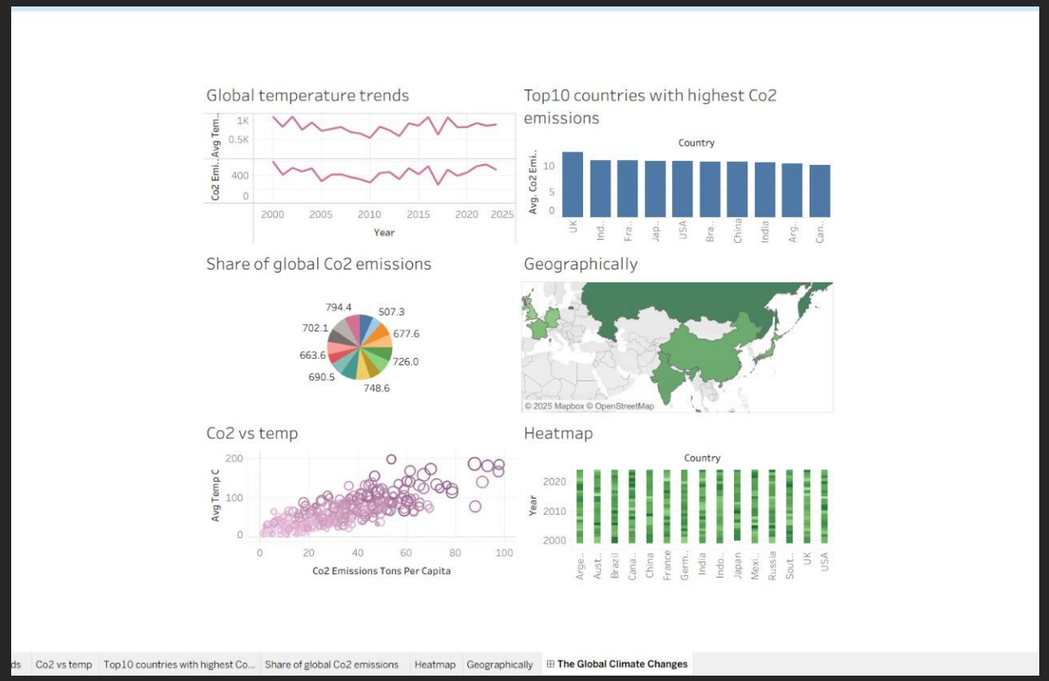
America

Steady rise in renewables through solar and wind, while balancing a high energy demand economy.

South Africa

Rapid growth in solar and wind adoption, driving the largest renewable energy increase in the dataset.

Interactive Tableau Dashboard



Multi-Chart Interface

Line, Bar, Pie, Scatter, Map, Heatmap visualizations

Dynamic Filters

Year & Country selections for targeted analysis

Dashboard Insights

Temp & CO_2 Link

Correlation strengthens over time

Emission Hotspots

Small group dominates global emissions

Clean Energy Impact

Renewable adoption reduces emissions

Key Takeaways

Data-Driven Insights

Python EDA reveals complex climate relationships beyond simple correlations.

Interactive Exploration

Tableau dashboard enables dynamic analysis of global climate patterns.

Renewable Potential

Leading countries demonstrate clean energy transition is achievable.