Global CO2 Emissions Analysis Report

(Project #13 from Internship List)

Tools used :

- Tableau
- Jupyter Notebook (Python)
- Excel

INTRODUCTION

Objective: Analyze CO2 emissions data (1990-2018) to identify top-emitting countries, trends, and policy insights.

ABSTRACT

- China dominates emissions, contributing 11,705 Mt CO_2 in 2018 (307% growth since 1990).
- US emissions declined 4.5% post-2005 despite economic growth.
- Top 5 emitters (2018): China (28% global share), US, India, Russia, Japan.

METHODOLOGY

1. **Data Cleaning (Python):**
- Reshaped wide → long format
- Handled missing values (filled with 0)
- Calculated YoY change (%)
2. **Analysis (Excel):**
- Created pivot tables:
- Top emitters by total/average emissions
- Decadal growth rates
3. **Visualization (Tableau):**
- Built:
- Geographic heatmap with year filter
- Annotated trend lines for top 5 countries

Top 10 Polluters (2018)

Rank	Country/Region	CO_2 Emissions (Mt)	% of Global Total	Growth (1990–2018)
1	China	11,705.81	~28%	307%
2	United States	5,794.35	~14%	+4.5% (peak 2005)
3	India	3,346.63	~8%	234%
4	Russia	1,992.08	~5%	-31% (vs 1990)
5	Japan	1,154.72	~3%	4%
6	Germany	776.61	~2%	-30%
7	Iran	828.34	~2%	244%
8	South Korea	673.08	~1.6%	176%
9	Saudi Arabia	638.12	~1.5%	235%
10	Indonesia	703.86	~1.7%	44%

CONCLUSION

- This analysis highlights the need for:
- Renewable energy investments in high-growth regions (Asia).
- Standardized reporting of sector-specific emissions.
- Future Work: Incorporate population/GDP data for per-capita analysis.