Data report exploring the relationship between world forest data and climate insights data

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1 Introduction

This report discusses the relationship between changes in forest area over time and variations in global temperature. The main question answered in this report is how does change in forest area affect global climate. For this analysis, two different datasets have been used.
Forest Area Data: From 1990 to 2020, the annual forest area measurements (in square kilometres) for a number of different countries are included in this dataset. It offers perception into the changes in forest cover over the course of three decades.
Global Climate Insights Data: This dataset includes climate-related variables for many nations, namely temperature, precipitation, and CO2 emissions.

2 Used Data

The data format of **Forest Area Dataset** is CSV. Since the dataset is licensed under CC0: Public Domain, anyone can use and alter the data without obtaining permission beforehand. This dataset offers data on a number of factors out of which this project focuses on variations in the mean worldwide surface Temperature, CO2 Emissions and Precipitation for every nation between 1970 and 2021. For the analysis, the years 2000 to 2021 have been used.
The data format of **Global Climate Insights Dataset** is CSV. The World Bank Dataset has granted permission to extract, download, and duplicate the data contained in their dataset. Moreover, a Creative Commons Attribution 4.0 International Licence (CC BY 4.0) is used to distribute this work. This dataset provides data on global forest area changes for the years 1990–2021, expressed in km and percentage. For the analysis, the global forest area changes expressed in km have been used.

3 Analysis

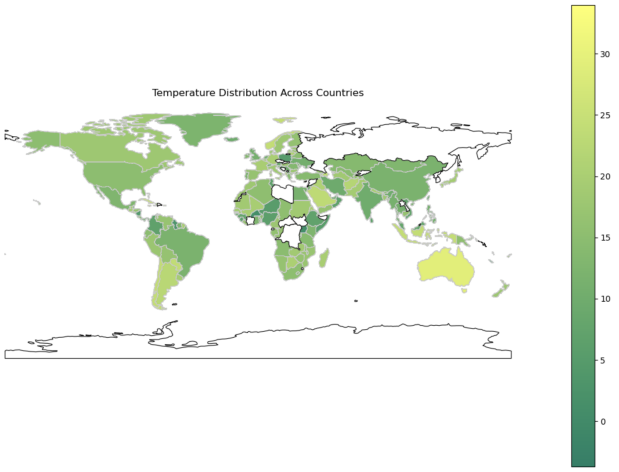

Figure 1: Temperature Distribution Across Countries

Figure 1 depicts the temperature distribution across the countries.The countries for which no data is available in the dataset are filled with white color and a black border.

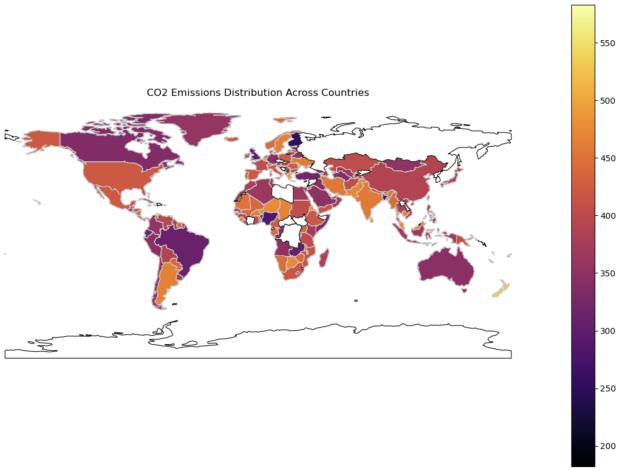

Figure 2: CO2 Emissions Distribution Across Countries

Figure 2 depicts the CO2 Emissions distribution across the countries.The countries for which no data is available in the dataset are filled with white color and a black border.

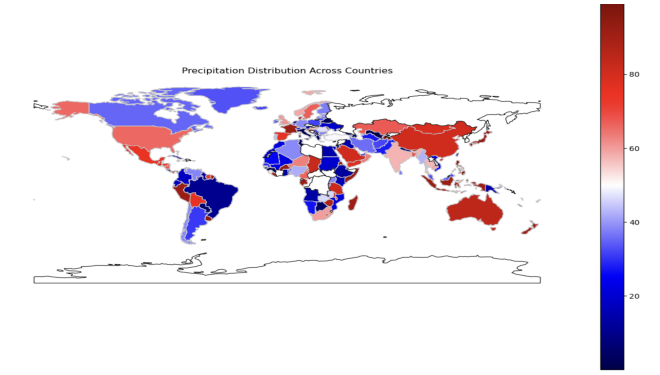

Figure 3: Precipitation Distribution Across Countries

Figure 3 depicts the precipitation distribution across the countries.The countries for which no data is available in the dataset are filled with white color and a black border.

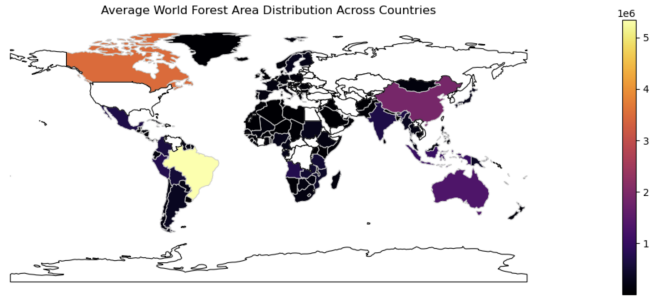

Figure 4: Average World Forest Area Distribution Across Countries

Figure 4 depicts the average world forest area distributed across the countries. The countries for which no data is available in the dataset are filled with white color and a black border.

Figure 5: Global Average CO2 Emissions vs. Forest Area Over Years

Figure 5 depicts the change in the global CO2 Emissions and the Forest Area over the years.

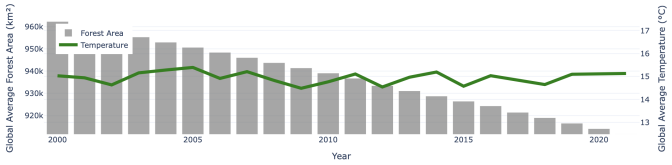

Figure 6: Global Average Temperature vs. Forest Area Over Years

Figure 6 depicts the change in the global temperatures and the Forest Area over the years.

Figure 7: Global Average Precipitation vs. Forest Area Over Years

Figure 7 depicts the change in the global Average Precipitation and the Forest Area over the years.

4 Conclusion

The analysis of these datasets show an important and interconnected relationship between global temperature variations, CO2 emissions, precipitation, and forest area changes over the years. The decline in the forest area has resulted in an increase in the temperature over the world. An increase in the CO2 emissions can be noticed with the decline in the forest areas representing an inverse relationship between them. The precipitation levels vary with the decline in the forest area representing a complex relationship.