Climate change will sink the world!!

Introduction

One of the biggest issues the world society is currently experiencing is climate change. It is caused by an increase in greenhouse gases in the atmosphere of the Earth, mostly from the burning of fossil fuels, deforestation, and industrial activity. Climate change has a wide range of significant repercussions for human health, natural ecosystems, and global economic systems. The rise in Earth's average temperature is one of the most concerning aspects of climate change. It sets off a chain reaction that includes faster melting of polar ice caps and glaciers as well as more frequent and powerful extreme weather events. The rising sea levels, which pose a threat to coastal cities and communities globally, are another important factor. These adjustments take decades to materialize and are not instantaneous. It is difficult to fully appreciate their significance during our brief observation period.

Motivation

The main goal of this research is to investigate the complex relationship between rising global temperatures and the ensuing rise in sea levels, and how these phenomena together represent a threat to urban areas worldwide. An increasing number of cities are at risk of substantial financial losses, population dislocation, and in extreme situations, total submersion due to rising sea levels. To effectively develop measures to manage these risks, it is imperative to comprehend this link. The purpose of this paper is to make the necessity of taking proactive measures to combat climate change evident to stakeholders, policymakers, and the general public. We intend to highlight the necessity for quick action in reducing carbon emissions, implementing sustainable urban design techniques, and investing in climate resilience measures by concentrating on the looming risks to urban settings.

These enlarged parts, which clearly state the study's goal while highlighting the importance and scope of the current problems, ought to contribute to the development of a comprehensive and influential report.

Used Data

For the analysis of climate change impacts, particularly the correlation between temperature changes and sea level variations, the dataset used is structured as follows in a SQLite database:

Database Structure:

- **Table Name**: Temperature_Sea_Level
- **Columns**:

1. **Country** (TEXT): The country for which the data is recorded.
2. **Year** (INTEGER): The year in which the measurements were taken.
3. **Temperature_Change** (REAL): The annual change in temperature (in degrees Celsius) relative to the historical average.
4. **Measure** (TEXT): The specific body of water or region where the sea level change measurement is applicable (e.g., specific seas or oceans).
5. **Mean_Sea_Level_Change** (REAL): The change in mean sea level in millimeters for the corresponding region and year.

Sample Data:

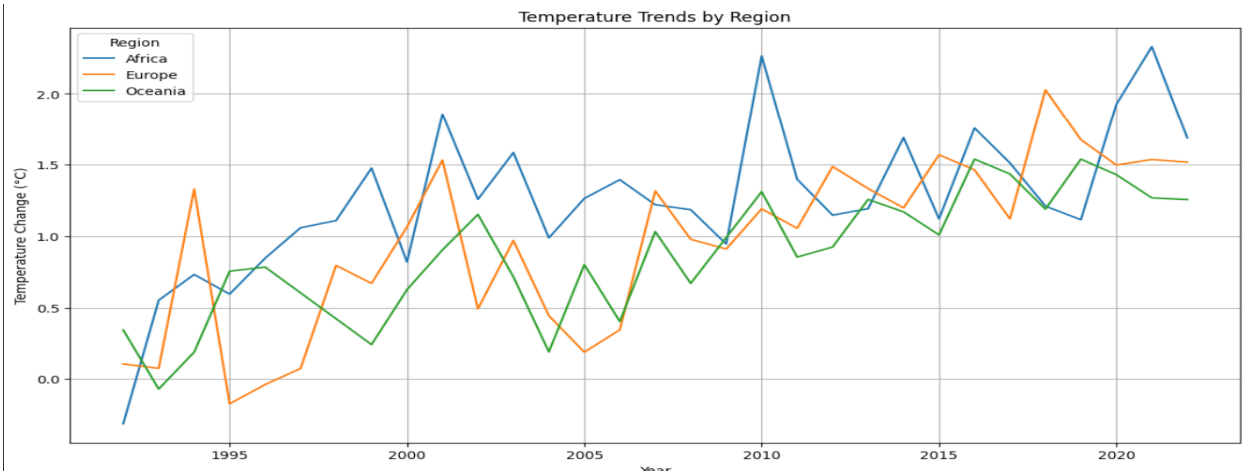
- **Entry 1**: Afghanistan, Islamic Republic of, 1992, Temperature Change: -0.294°C, Measure: Adriatic Sea, Mean Sea Level Change: -21.36 mm
- **Entry 2**: Afghanistan, Islamic Republic of, 1992, Temperature Change: -0.294°C, Measure: Andaman Sea, Mean Sea Level Change: -6.49 mm
- and so forth for different seas and ocean regions.

Discussion:

This data can be used to analyze trends over time in temperature and sea level changes across various regions. Each record combines climatic and oceanographic changes for a particular location and year.

Analysis for Our Project

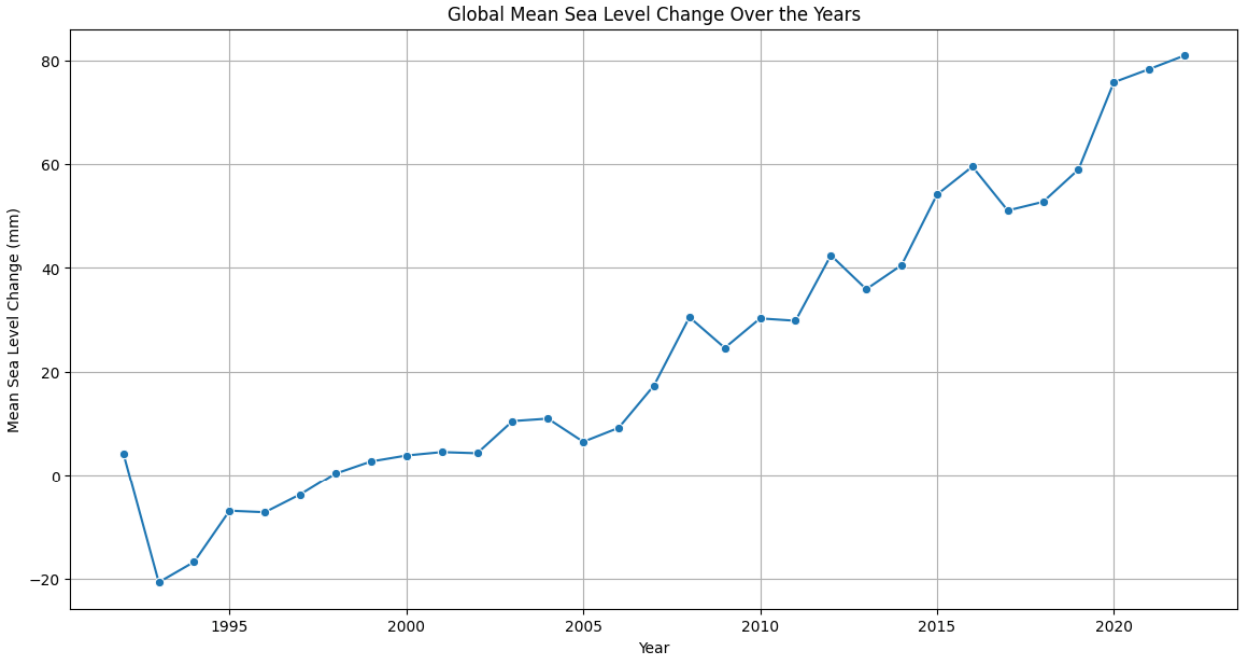
At the beginning we focused to see the trend of temperature Over the different regions to see if the temperature increased over the time starting from 1995 to 2020.



we can conclude that the temperature increasing gradually over the three regions which are Africa, Europa and Oceania.

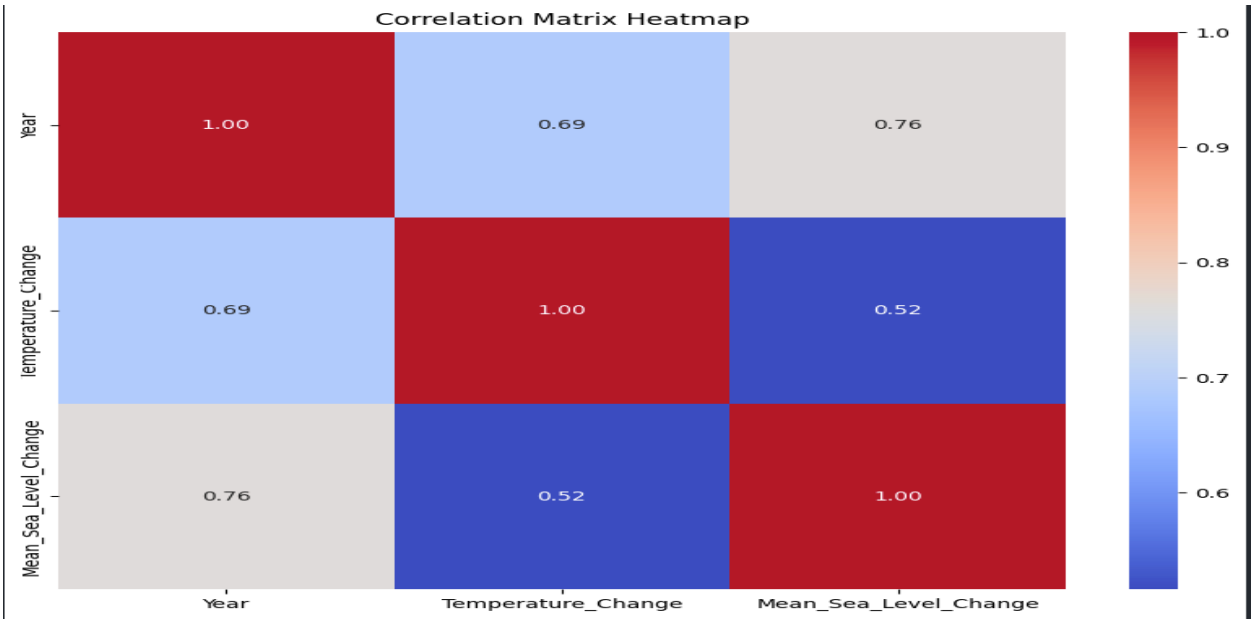
Then we see the trends of the mean sea level of the years starting from the 1995 to 2020 to see if

there any trend of the years.



Then we conclude that also there is a trend between the Mean Sea level over the years. We see that the mean of the sea level increased by 80 mm over 25 years this could be dangerous rate.

After that we will try to see if there any correlation between the temperature and mean sea level.



However, there is an increasing trending for the temperature and the mean sea level, the correlation between the temperature change and mean sea level is .52 which is not quite high.

Conclusion

In a nutshell, we couldn't answer our main question. Our in other meaning is No for the current rates of the temperature change and mean of sea level, but in other meaning this is a dangerous rate as in only 25 years and we got this high rates for the temperature and sea level change this would indicate that in 20 years we can say that this rate would increasing and may cause high risk problem for the cities on the sea or the oceans.

References

dataset reference - https://climate.esa.int/en/