Duy Mai, Twan Tran, and Hoang-Uyen Tran

Department of Engineering, Cal State Long Beach University

CECS 450: Data Visualization

Dr. Anthony Giacalone

December 8, 2023

**What is the problem**

The last decade, our earth has been facing global warming or the greenhouse effect known as climate change. Scientists have diligently documented global surface temperatures using thermometer-based records. This observed consistent rise in temperature is a clear indication of the changing climate. The emission of greenhouse gasses (GHGs) such as CO2, CH4, and N2O. These GHGs act as a blanket in the Earth’s atmosphere, trapping heat and causing the temperature rise of Earth. The change in temperature may seem as a good sight for people living in the colder area of Earth because they will be experiencing a warmer winter than their usual cold weather. However, only one gain but many unpleasant situations come along with the temperature warmer such as: destruction in the marine life for species that live in the colder area of water that their habitat got destroyed. Melting of glaciers, rising sea level, extreme weather events, ocean acidification, disruption of ecosystems, and threat to water resources.

*Illustrate of Change in Temperature*



*Illustrate of Disasters*



**Data Gather**

Global Carbon Atlas is the climate change resource center: Provides CO2 emissions data by country and industry (Lu, 2023). The article covers worldwide CO2 emissions per capita (metric tons) from 2021 to the future (e.g 2050,2070). Our World in Data: Offers a wide range of environmental data including CO2 emissions ( Ritchie, Roser, and Rosado, 2020). Carbon Brief: Global CO2 emissions could peak as soon as 2023, IEA data reveals (Evans and Viisainen, 2023). IMF: World Needs More Policy Ambition, Private Funds, and Innovation to Meet Climate Goals (Black, Jaumotte, and Ananthakrishan, 2023). Data about global CO2 emissions from fossil fuels, land use change, region, annual emission, per capita per country, emission change overtime. Each data has its data record from 1750 to 2022 according to each countries saves in a CVS data.

**Utilizing data**