Predicting Climate Change Case Study

Topic: Predicting changes in regional temperature anomalies

Background:

Since the early 1980s, there has been evidence of a sharp increase in global temperatures, causing widespread drought, wildfires, and other consequences across the world. Climate change has been worsening in the past few decades and has only intensified in recent years. By 2100, the average global temperature is expected to increase at least 2.7 degrees Fahrenheit if there are not aggressive reductions in greenhouse gas emissions.

However, climate change is not a central focus of policy globally, and part of this is because there are people, many of whom are political leaders, who do not believe in climate change or its gravity. By creating a model that can accurately predict changes in temperature, we can predict temperature anomaly changes in the future to demonstrate the intensity of climate change and how much worse it gets if no action is taken to mitigate it.

Prompt:

You will be provided with temperature anomaly data from different months and for different regions, and you will make the decision for which month and which region you will analyze over time. Your conclusions will depend on which time of year and which region you choose. For example, climate change in the Gulf of Mexico in July will likely be different from climate change in the Arctic in January.

Use a time series model to predict climate change in the future. You will test different models before deciding which one is the most appropriate. You will be predicting temperature anomalies, which is the deviation in temperature from a reference point, typically a long-term average. A positive anomaly indicates warming while a negative anomaly indicates cooling. You will be provided with access to potential datasets.

Deliverable:

Create a GitHub repository with the code, data, and relevant materials.