备用

We used three separate approaches to achieve three versions of the final calibration of CO2 concentration. Firstly, relying on PCA, we managed to transfer the original 10 factors into three variables which is connected to the result by Multivariate Regression, and weights that each original factor carries were figured out respectively. In the second approach, we took on Stepwise Regression to select three factors that bear the most irreplaceability and uniqueness. These factors are then related with CO2 levels through STI. As for the third approach, we employed differential equation to express artificial feedbacks to the changes, in which two hand-picked factors featured a new variable’s function of time. We then applied ODE so as to compute the concentration around which human will be forced to switch to emergent relief measures from long-term strategies. Three versions of the relationship were thus created.

forced to switch to vigorous measures from long-term strategies

Because the data collected for Problem 2 present little consecutive trend, we preprocessed the data with Lowess Smoothing and analog the result to a quadratic function. To mimic the original data’s characteristics of sharp and brief vibrations, we composited three sine functions to it and predicted that land-ocean temperature will complete the 1.25C change in ???, the 1.50C change in ??? and the eventual 2C change in ??? compared to the base period 1951-1980.

While the first two approaches go from original factors to the CO2 curve, the third approach describes a retroaction effect that human efforts exert back on CO2 concentration.

Based on common understandings to the requirements, the team first established a prime goal: to predict future CO2 concentration in the atmosphere and its influence on temperature with algorithms that correspond with historical records.

From breaking news in the Weather Channel to the frontline of researches in climate change, the changing levels of CO2 in the air constantly attracts billions of views, for the trends in concentration of CO2 directly or indirectly affect the world in multiple ways.

We designed our approaches in order to cover as many aspects as possible, at the same time taking possible carbon-free measures into account.

Prior to our attempt to answer Problem 1, we concluded on authorized data that the 2004 increase in CO2 concentration alone is not solely responsible for that decade’s increase being the highest in all ten-year periods recorded.