

# The Climate Scientist Who Will Change the World

A Case Study by Keivon Chamanara, 2024



**Scenario:** The year is 2024 and you've just been hired as a Climate Change Research Scientist at the National Oceanic and Atmospheric Administration. All is well until 2 months into your new position and almost all scientists on your team, excluding yourself, were laid off due to the political climate (no pun intended) of the nation. Now, with greater responsibility, you must carry on the agency's mission and continue performing pressing research on the ever changing climate.

**Deliverable:** Among the remainder of your team, you are the only one with a strong background in data science. Because of this, they want you to use climate data they've collected between 1895 and 2023 to forecast future climate conditions, including average temperatures and precipitation. Thankfully, some of the code was written before the mass layoffs, such as the data cleaning, exploratory data analysis, and model building. It is up to you to finish the code to predict the average temperature, minimum temperature, maximum temperature, precipitation, and Palmer Drought Severity Index (PDSI) over the next 10 years. The GitHub repository with all the code, data, etc. is linked here:

<https://github.com/keivonc/CaseStudy>.