

Tackling the world's air pollution problem will require much time and effort globally. The objective of our analysis was to determine where we should best allocate our resources to maximize the impact we have on primary pollutants. We used the data provided which were the primary pollutant amounts as well as some outside data sources to account for emissions and climate. To do this we set up two linear regression models with nitrogen dioxide and ground-level ozone amounts as our dependent variables. For our independent variables, we looked at the climate's effect on our dependent variables. We also included vehicle traffic, air traffic, and power plant production to control for the number of incomplete combustions an area saw over our period. We decided to tackle nitrogen dioxide (NO₂) and the ground-level ozone (O₃) layer specifically. These two compounds should be tackled first due to the reactions that occur between both compounds and air. One of the oxygen atoms from nitrogen dioxide will break free and react with oxygen (O₂) in the air to create ozone. Therefore if we can minimize the number of nitrogen dioxides in the air we will also be minimizing the amount of ground-level ozone. The solution to this problem is to create better energy-efficient means of combustion reactions that take place in our cars and our power plants. For our project, we decided to focus on where we should allocate our resources rather than how we should allocate them. We found that the higher the air temperature caused the amount of nitrogen dioxide to fall and the ground-level ozone layer to rise. The most possible cause of this is because the higher temperature puts more energy into breaking the nitrogen and oxygen bonds which increases the formation of the ground-level ozone layer. Based on our results we should focus our energy efficiency solutions on places with a higher average annual temperature first.