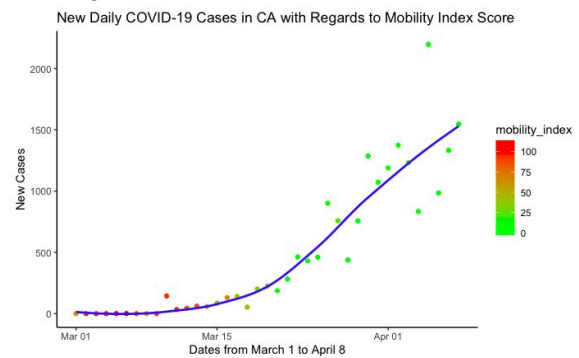
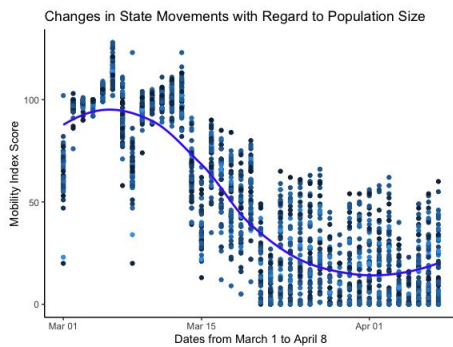
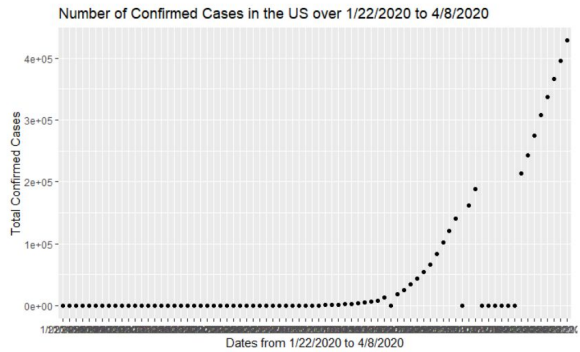
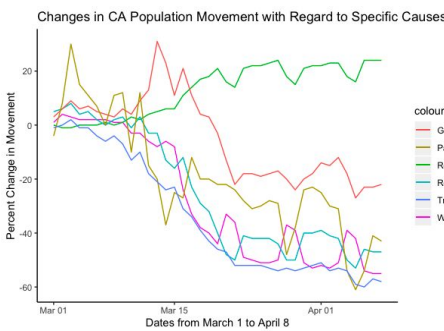


The COVID-19 pandemic has uprooted society’s way of life and has had influences on the planet as well. Between late January and early April, the number of confirmed coronavirus cases in the US has spiked dramatically, as shown:

In attempting to examine the myriad of impacts of the virus, we wanted to see how people have continued to move around in spite of the virus and various lockdown measures. We also hypothesized that in turn, due to the slowdown of everyday life, emissions would decrease and thus have a measurable impact on weather patterns. To measure people’s movements, we sourced Google Maps data from the Google COVID-19 Community Mobility Report. We also found cellular mobility data from Descartes Labs. As shown, we see that on a larger scale social distancing has had massive effects on movement:

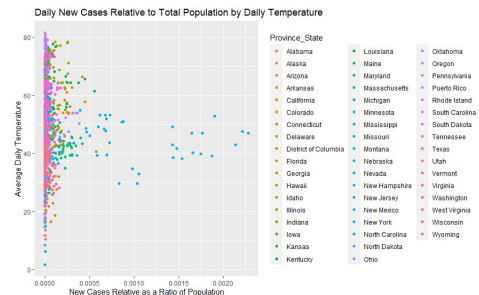


From the above left, we can see that the mobility index score (on a scale from 0 to 150, with 150 meaning more movement) has dramatically decreased for each of the fifty states in this time span. In the above right, we see a slight leveling-off of daily new cases in California alone as time goes on, with the mobility scores (as indicated by point colors) nearing 0. In fact, upon examining California further, we note some interesting trends:



While Californians have decreased their movement with regards to most aspects of daily life, we actually see an increase in mobility trends for places of residence compared to a baseline median value. Ultimately, however, the overall trend in CA is a decrease in movement, which we hypothesize would lead to changes in weather due to less emissions and pollution. We examined trends in average daily wind speed, average daily precipitation, and temperatures for each state:

When a regression analysis was run relating different meteorological phenomena with the proportion of confirmed cases relative to their each state’s total population, we find that several weather conditions have no significant associations with confirmed cases. Therefore, contrary to what we hypothesized, it doesn’t seem as if, at least in the short-term, that social distancing and lockdown policies had a measurable effect on weather patterns.



Data sources:

<https://www.kaggle.com/davidbnn92/weather-data-for-covid19-data-analysis>

<https://github.com/descarteslabs/DL-COVID-19>

https://www.gstatic.com/covid19/mobility/2020-05-09_US_California_Mobility_Report_en.pdf

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