

PFAS/Teflon

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ABSTRACT

The goal of our DSA Capstone Project was to see any trends or connections that will allow us to find PFAS/Teflon in GA and create an interactive website to help find sites with PFAS in the water systems. In order to achieve that we will have to have an indication to discovering any PFAS. So we are using previously found data to find any correlation between sites with found records of PFAS and other chemicals. Our data sets have two primary focus areas: those being the actual chemical compound of PFAS and the factories. We will be pooling our data to make an interactive website that will show what we discovered and correlations found. The roles to achieve our goal was split between the two of us. David focused around being the data modeler and visualizations which implemented the databases and and worked with data structure. Andres worked as the data analyzer and on visualizations which means he worked on the algorithms for our databases while also working implementing visuals to the data.

HYPOTHESIS

- See if there are chemicals from dumping that hints the future expose of PFAS into the water
- See if there is a growth in people exposed to PFAS in the US
- See if there is a correlation between the number of facilities and the population of each county in GA
- See where the most traces of PFAS occurred within the state of GA

EXPERIMENTAL APPROACH

We used Jupyter notebook, Deepnote ,and Tableau to compile our data and test K means and linear regression algorithms. These graphs allowed us to visualize our data better for a clearer picture.

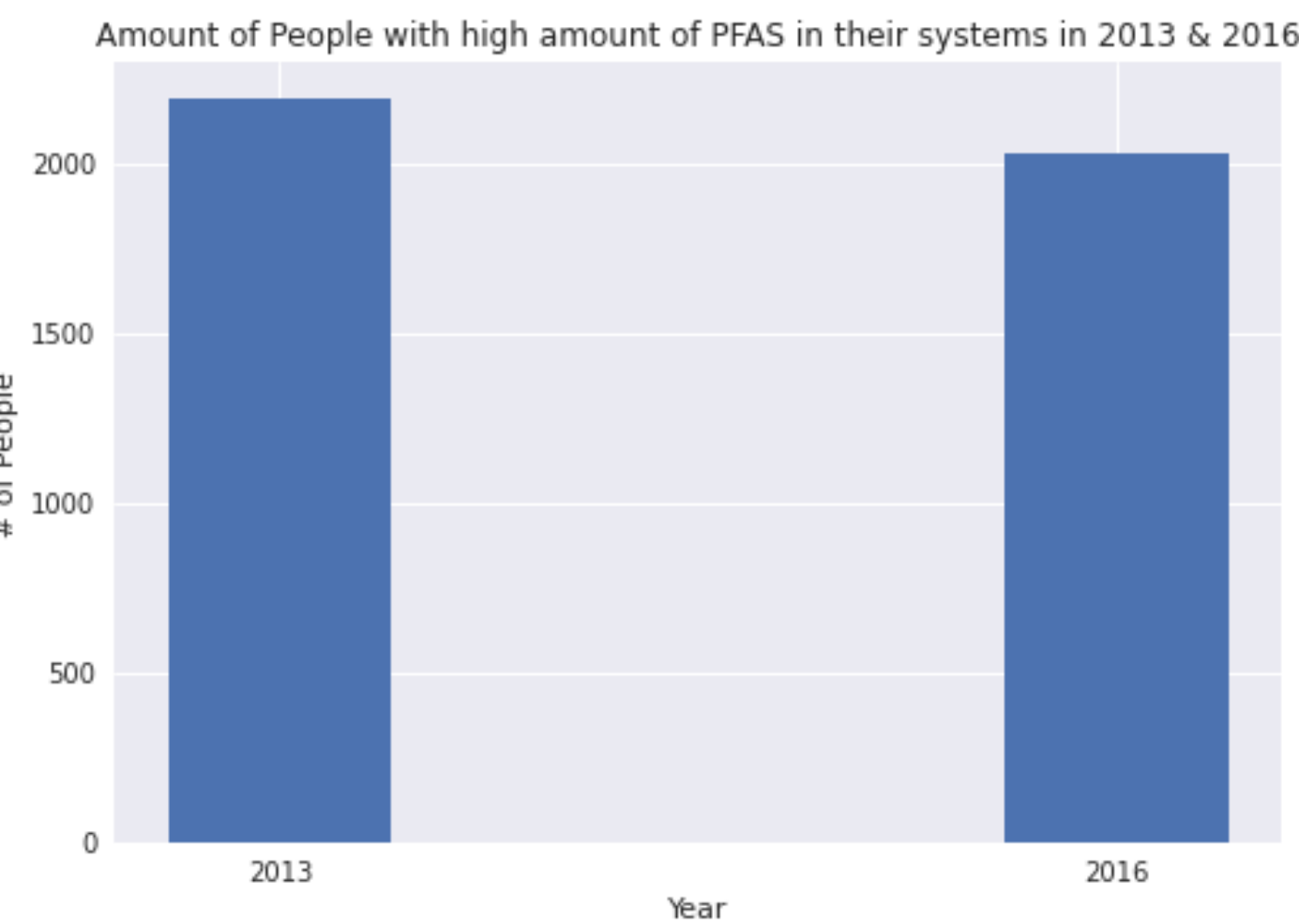


FIGURE 1

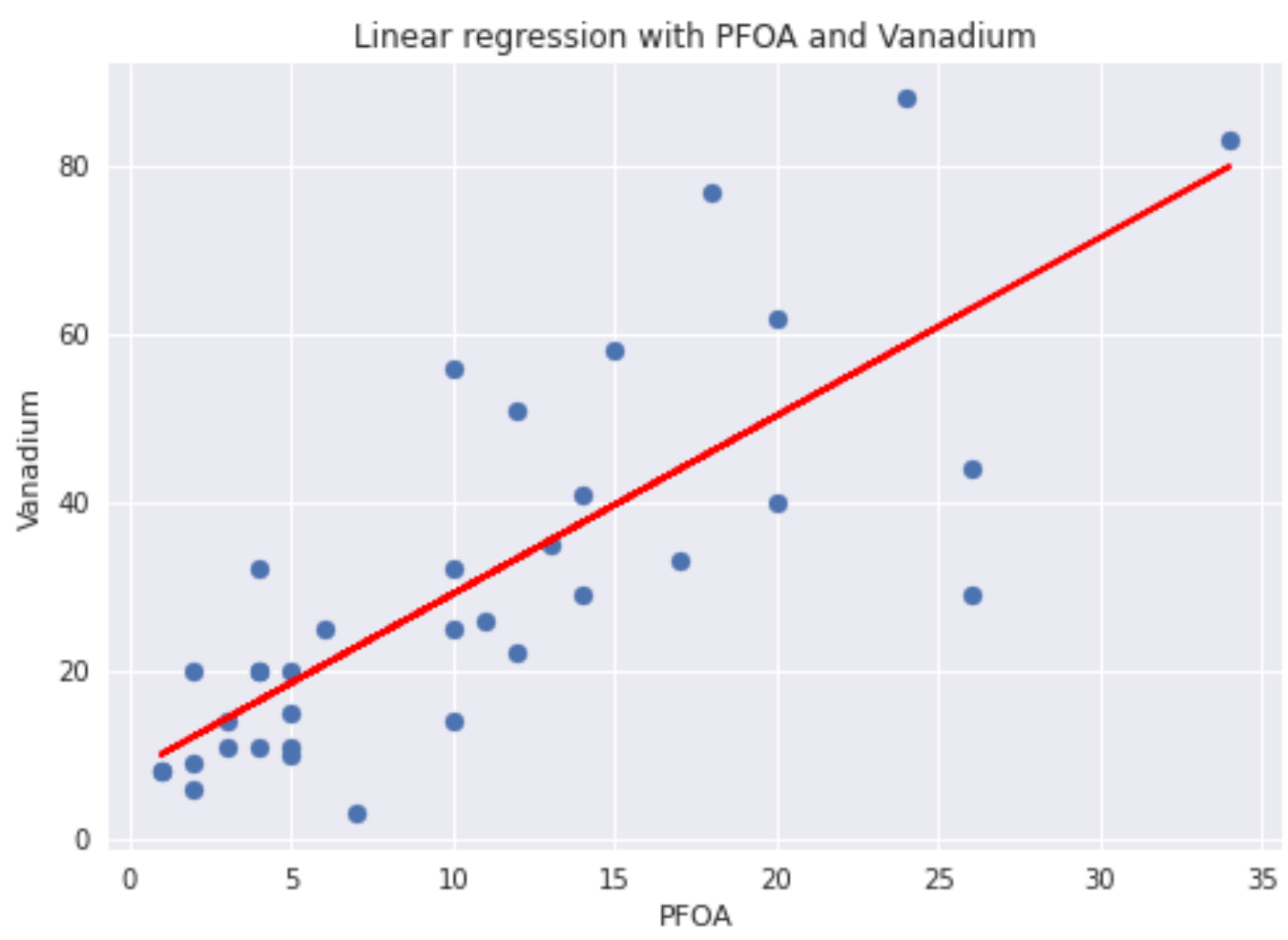


FIGURE 2

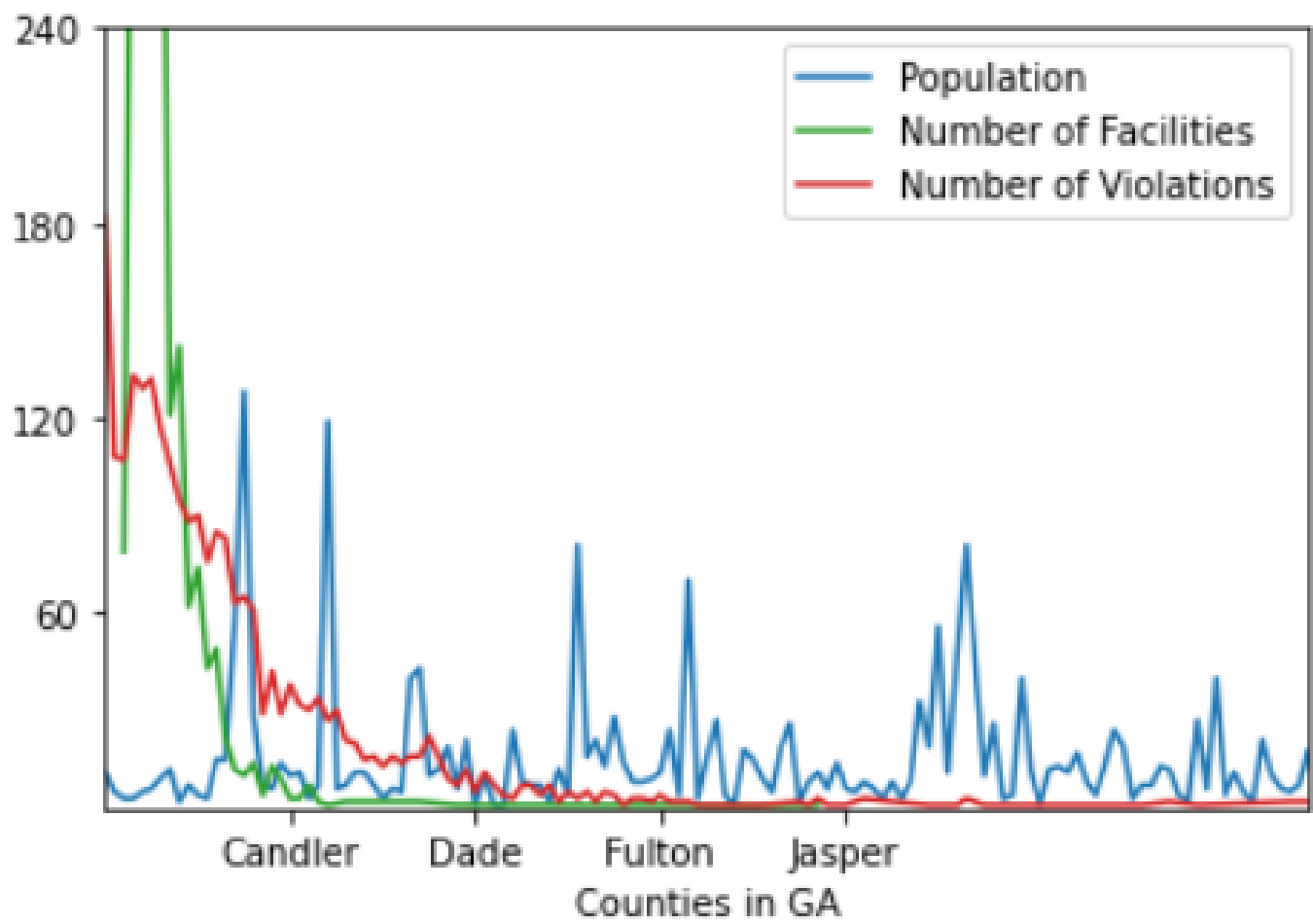


FIGURE 3

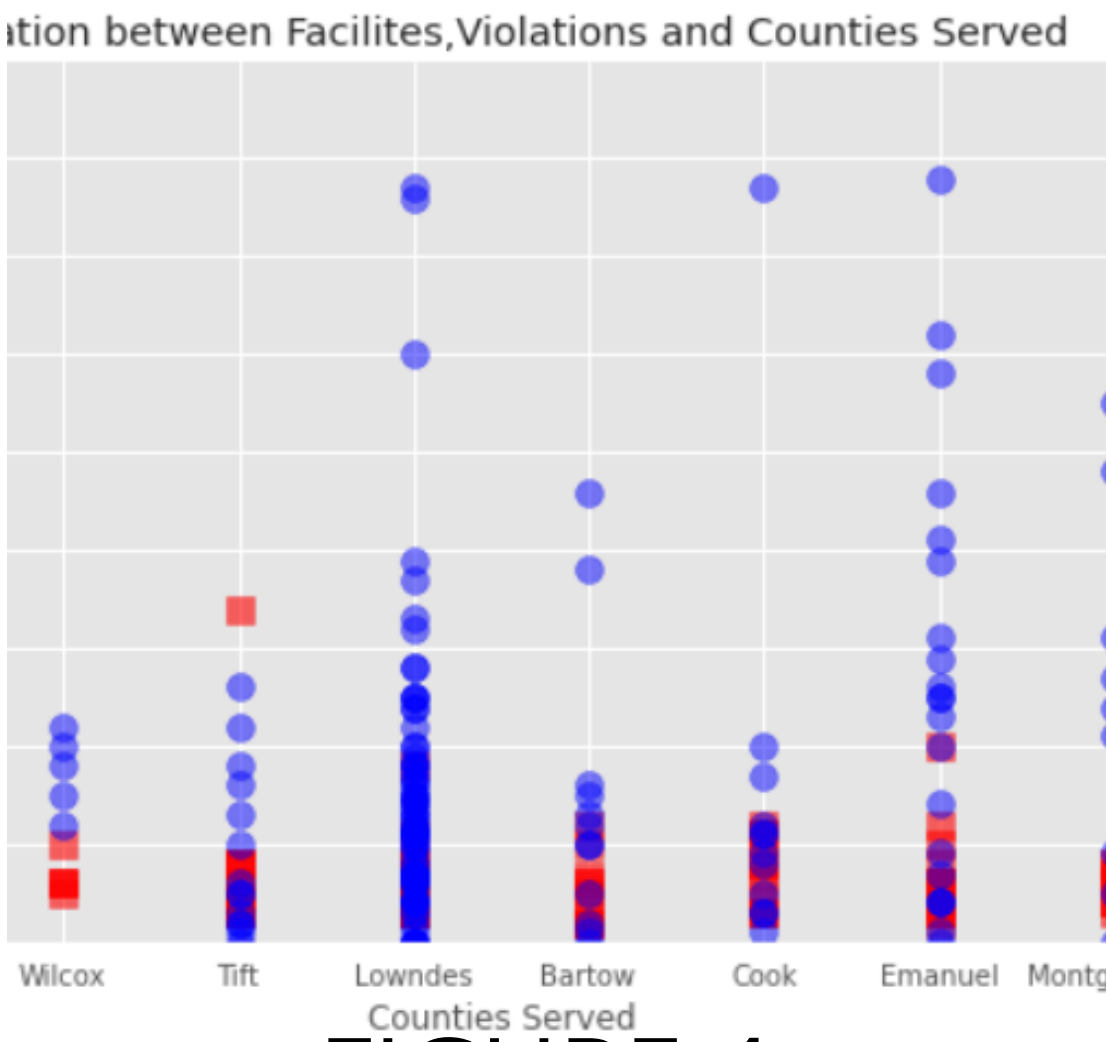


FIGURE 4

DATA

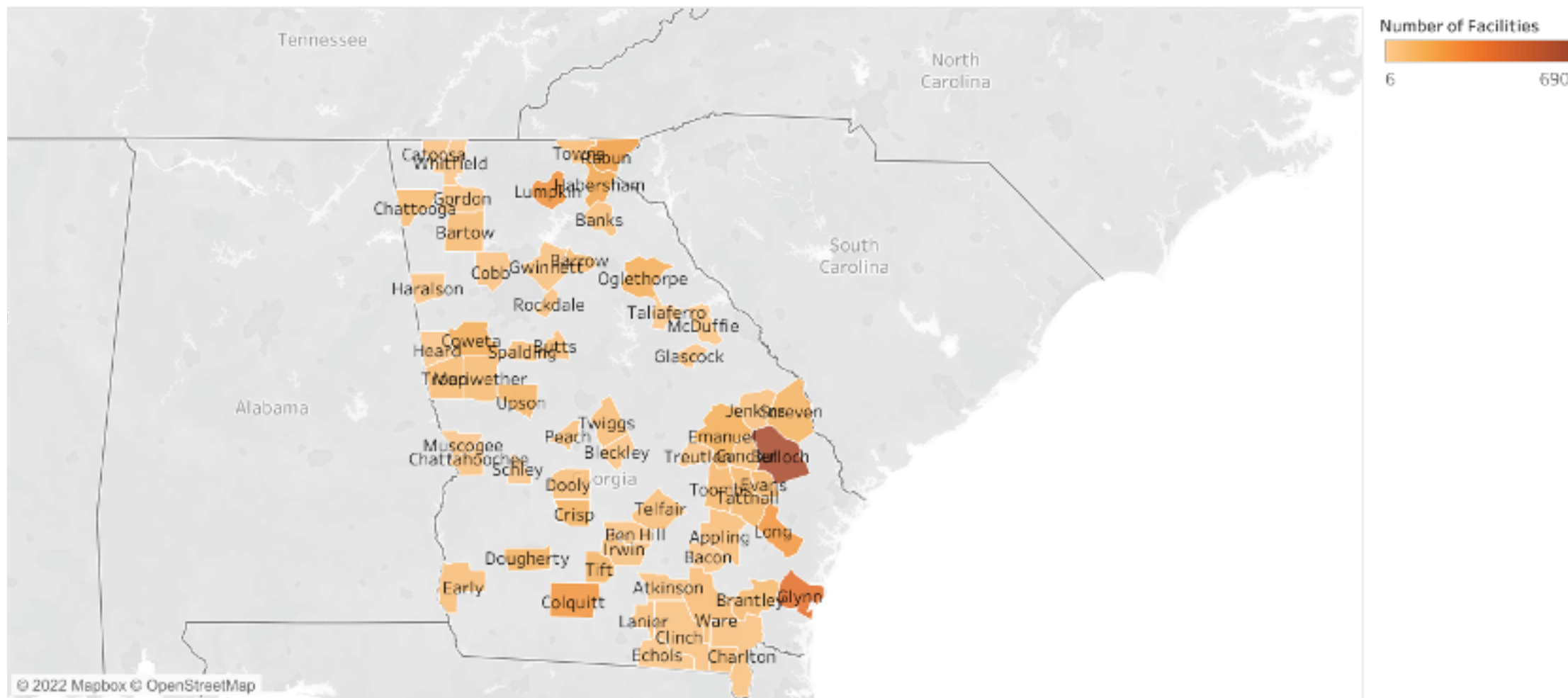


FIGURE 5

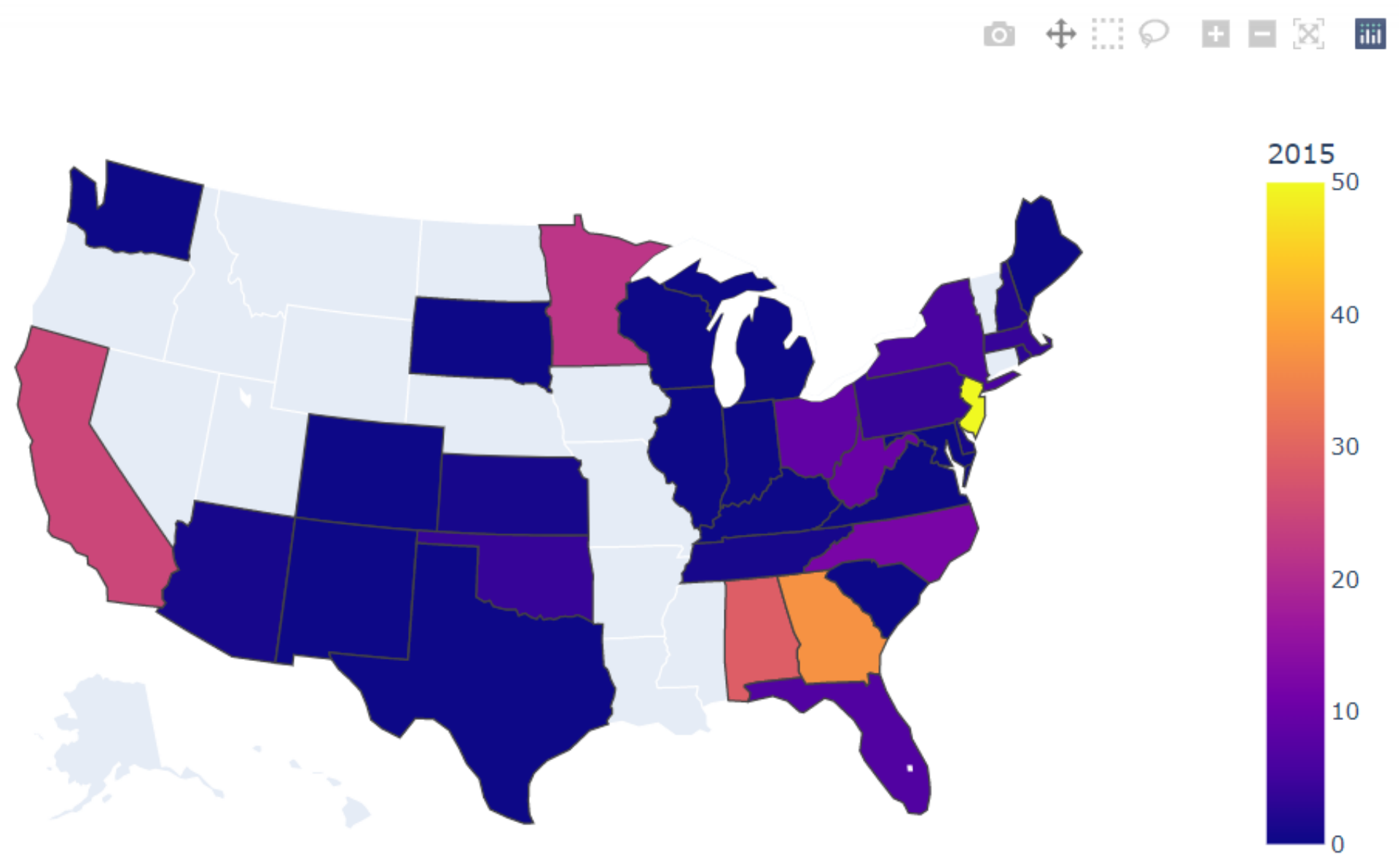


FIGURE 6

Figure 1 shows tested people which met or exceeded the minimum levels of PFAS in their blood systems in 2014 and 2016. **Figure 2** shows the correlation between vanadium and PFOA (PFAS chemical). **Figures 3 and 4** show more specifics within Georgia counties and there relation between population size, number of facilities, and number of violations that occurred. **Figure 4** specifically targeted clustering of the number of facilities and violations. **Figure 5** looked at just the raw amount of facilities that each county had within them to give us a clearer picture of Georgia and its counties. **Figure 6** Tracks PFAS/Teflon throughout the US in 2015 which gives us a nation wide scope of the situation.

CONCLUSION

In conclusion we found some correlation that certain PFAS chemicals like PFOA had certain chemicals that could be by products that consistently used with them. Then from **Figure 1** we are able to see that there was hardly any change with people contaminated with PFAS. Showing that not much progress was made for people contaminated with PFAS or that it was too late for them. Then there is a overlapping correlation when counties have lower population that increases the number of facilities along with the number of violations. Lastly, Dalton county the most facilities located in Georgia.

WORKS CITED

- Water_System_Summary.csv
- UCMR3_All.zip
- PFAS_2013-2014.csv
- PFAS_2015-2016.csv