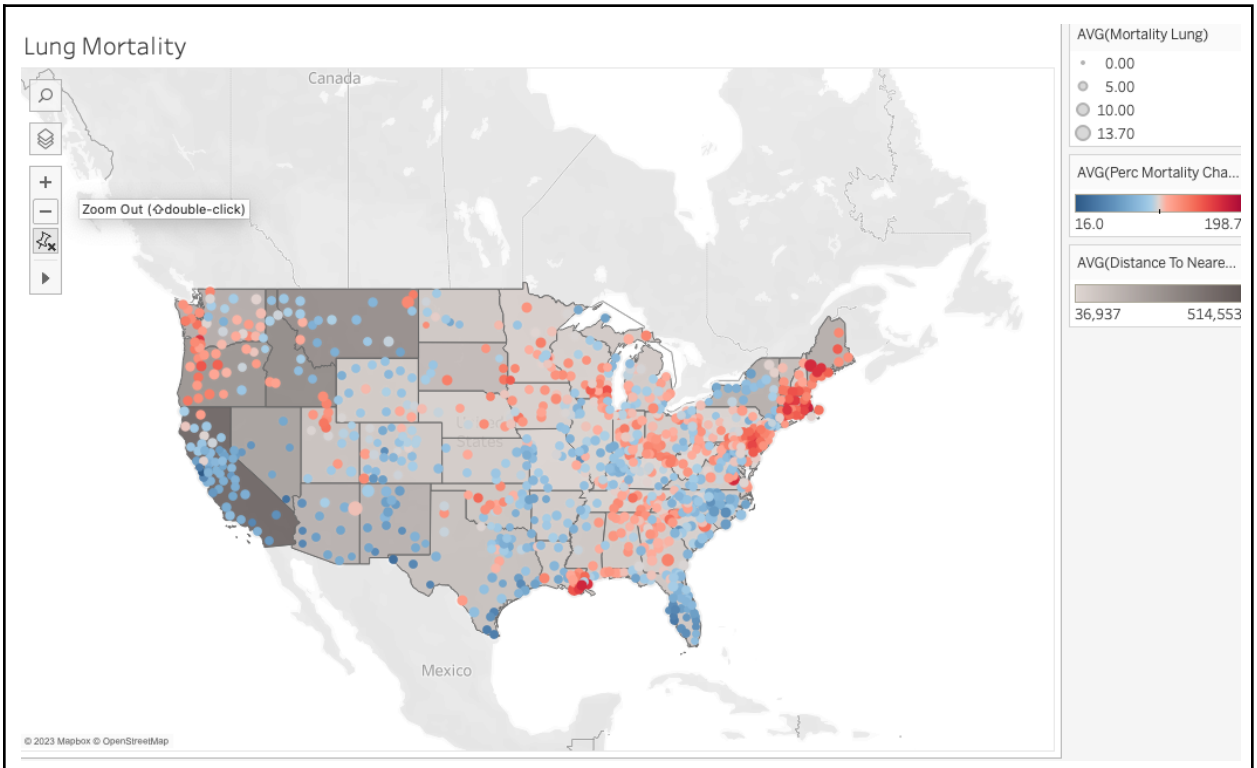
Explanation of Tableaus: Eric Leinweber

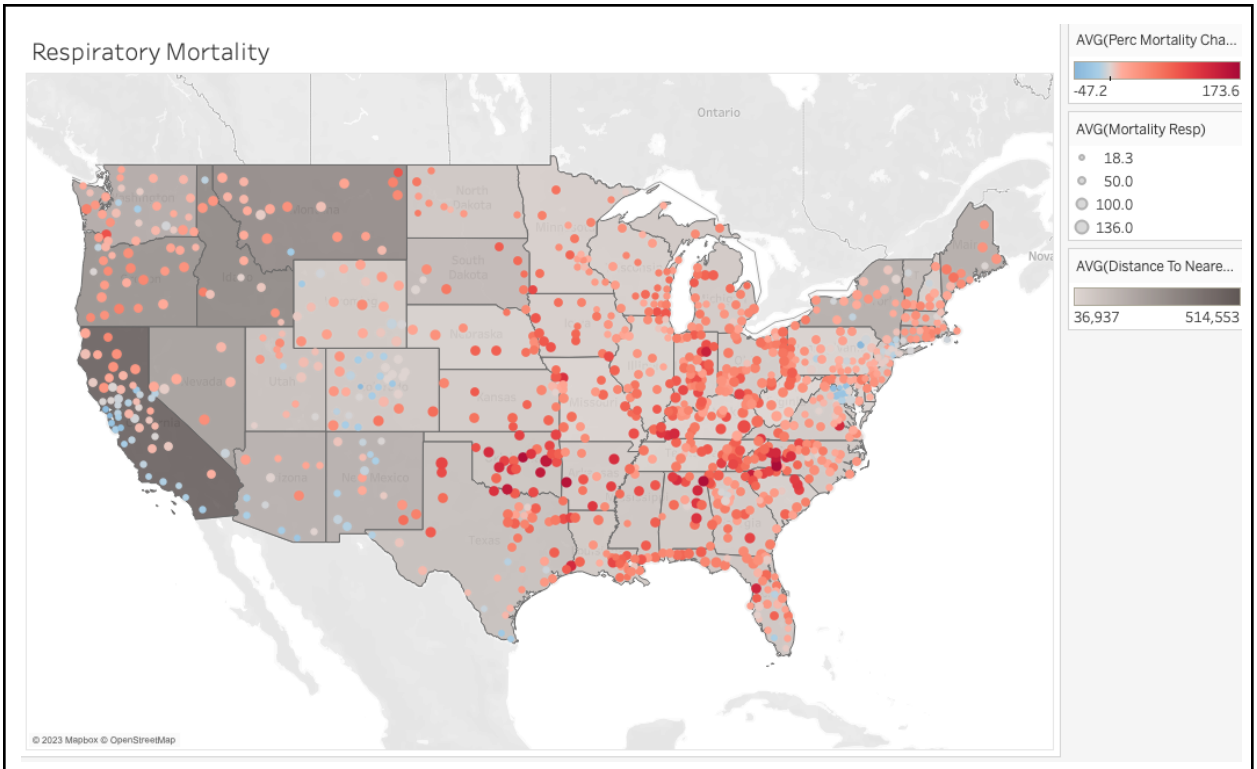


This tableau shows the lung disease mortality percent change from 1980 to 2014, with the color indicating the percent change of deaths. A darker red circle indicates a greater increase in the percentage of deaths due to lung diseases. A positive percent change in this case means that the overall deaths attributed to lung diseases have increased since 1980 in a given county.

The larger the circle indicates a greater number of deaths due to lung diseases solely in 2014.

The grey shade on the states shows the average distance each state is from a coal power plant. This average was done using all county-level data and averaging it to a state value.

What's important here?
While there are some interesting areas in which lung disease mortality has seemingly increased since 1980, there is no conclusive pattern based on the data collected for this visual specifically as it pertains to lung disease mortality.

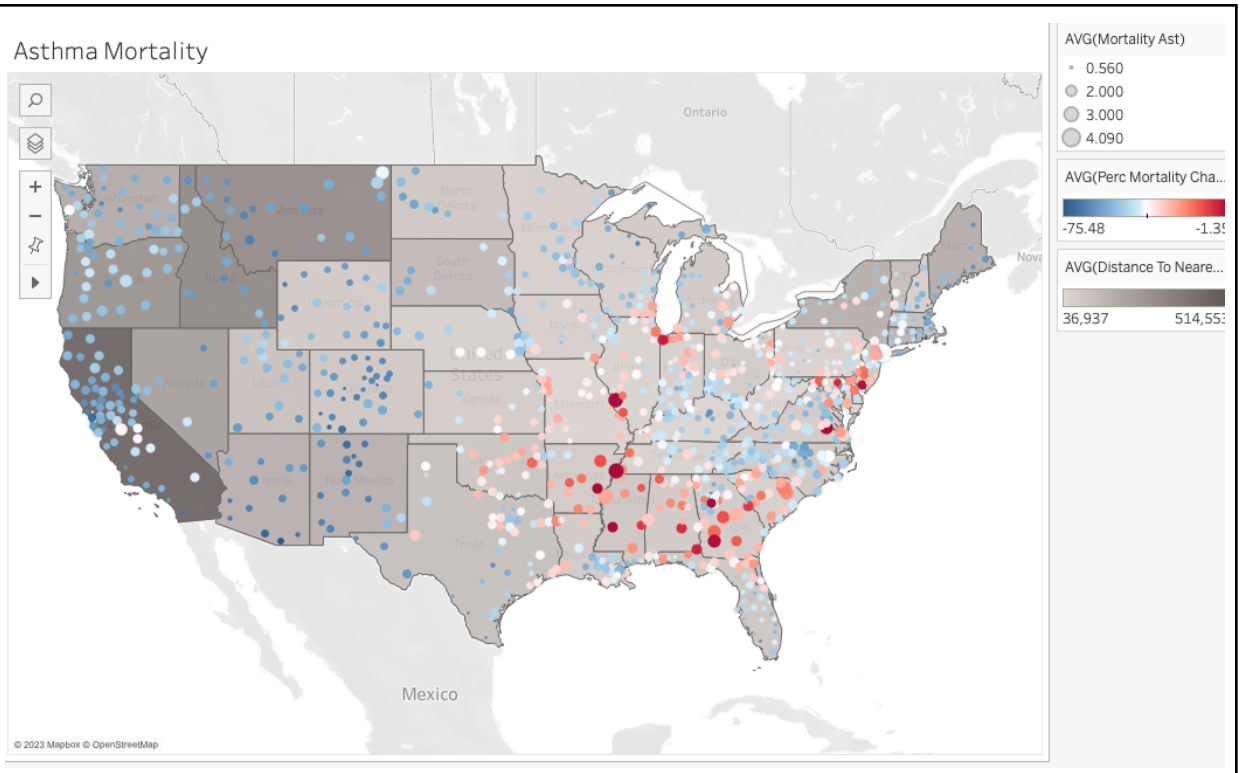


This tableau shows the respiratory disease mortality percent change from 1980 to 2014, with the color indicating the percent change of deaths. A darker red circle indicates a greater increase in the percentage of deaths due to respiratory diseases. A positive percent change in this case means that the overall deaths attributed to respiratory diseases have increased since 1980 in a given county.

The larger the circle indicates a greater number of deaths due to respiratory diseases solely in 2014.

The grey shade on the states shows the average distance each state is from a coal power plant. This average was done using all county-level data and averaging it to a state value.

What's important here?
While there are some interesting areas in which respiratory disease mortality has seemingly increased since 1980, there is no conclusive pattern based on the data collected for this visual. One interesting takeaway, however, is that eastern, especially southeastern counties are more red than most other counties, indicating more deaths due to respiratory disease in 2014 than in 1980.

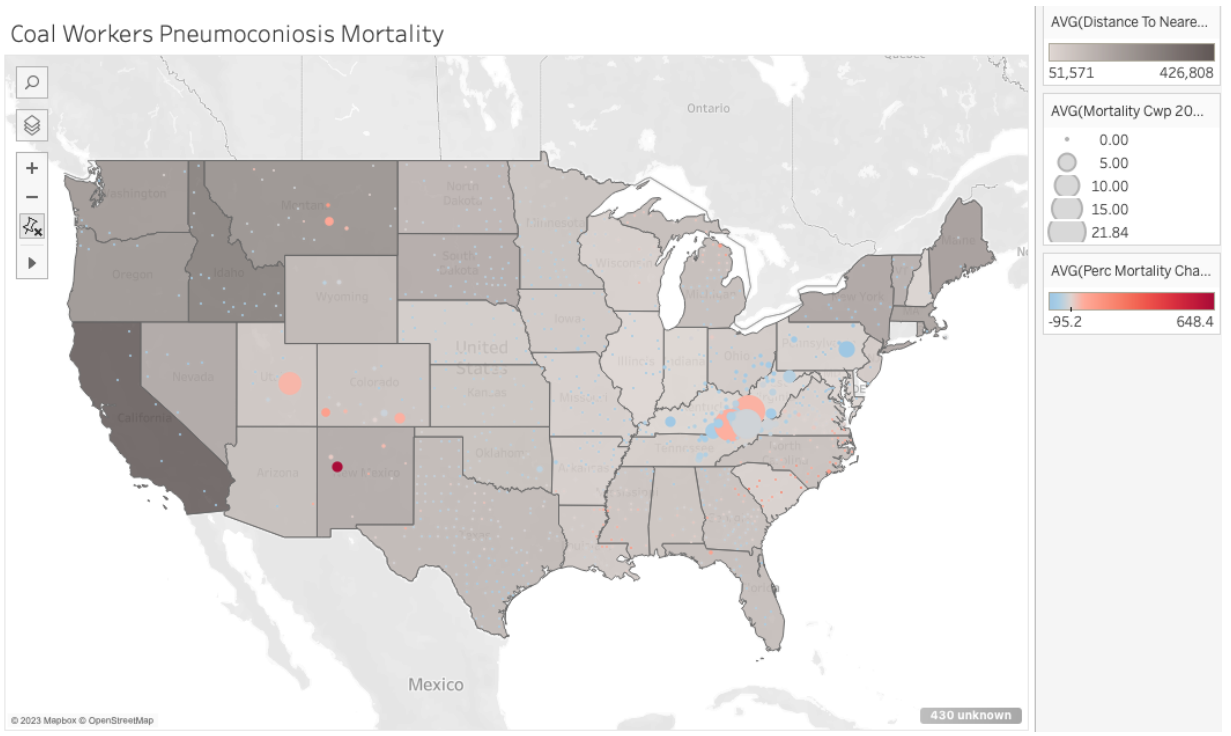


This tableau shows the asthma mortality percent change from 1980 to 2014, with the color indicating the percent change of deaths. A darker red circle indicates a greater increase in the percentage of deaths due to asthma. A positive percent change in this case means that the overall deaths attributed to asthma have increased since 1980 in a given county.

The larger the circle, however, indicates a greater number of deaths due to asthma solely in 2014.

The grey background shows the average distance each state is from a coal power plant. This average was done using all county-level data and averaging it to a state value.

What's important here?
There is a clear pattern of an increased number of asthma-related deaths occurring in southeastern counties, especially those within Arkansas, Missouri, Mississippi, Alabama, and Georgia. While this could help in determining how coal-fired power plants fit into this matrix, the data will need to include one of the biggest contributors to asthma-related deaths: smoking. This will be done below.



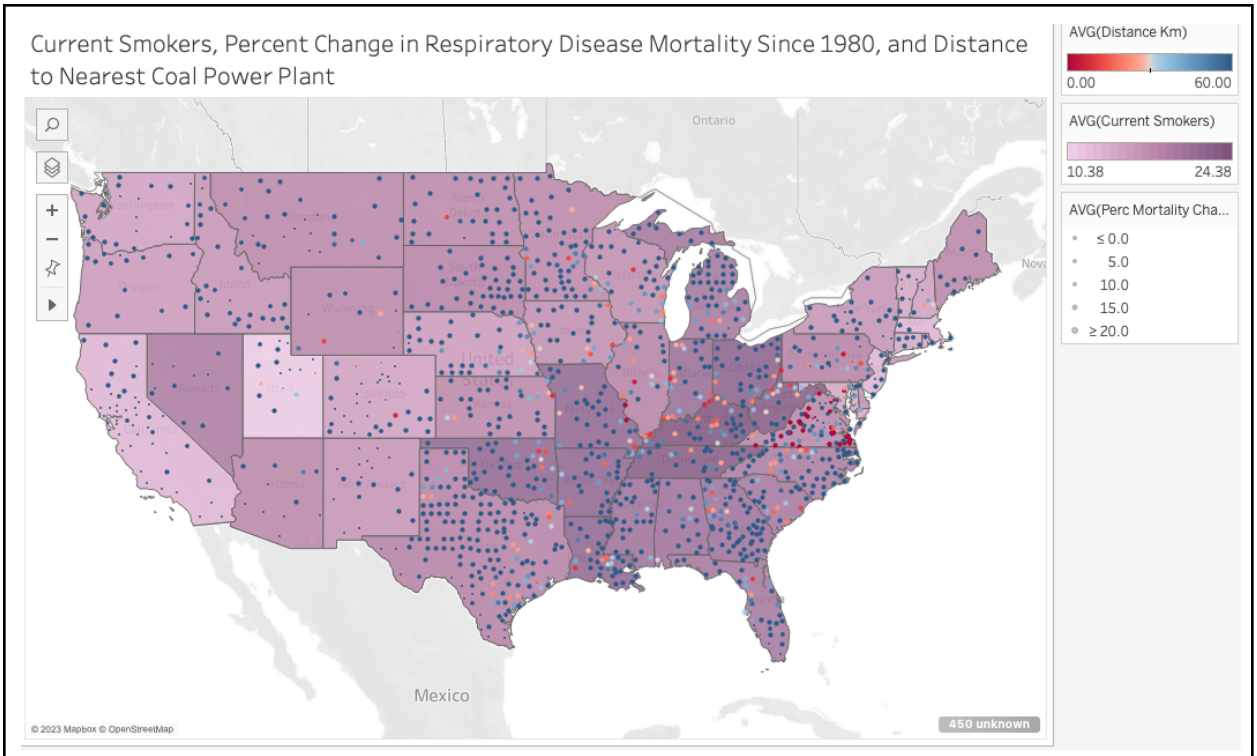
This tableau shows the coal workers pneumoconiosis mortality percent change from 1980 to 2014, with the color indicating the percent change of deaths. A darker red circle indicates a greater increase in the percentage of deaths due to coal workers pneumoconiosis. A positive percent change in this case means that the overall deaths attributed to coal workers pneumoconiosis have increased since 1980 in a given county.

The larger the circle, however, indicates a greater number of deaths due to coal workers pneumoconiosis solely in 2014.

The grey background shows the average distance each state is from a coal power plant. This average was done using all county-level data and averaging it to a state value.

What's important here?
While there is no real pattern to see, it is evident that the states near the Appalachian, specifically West Virginia, Kentucky, and Tennessee, have a lot of deaths comparatively to the nation, but they have, for the most part, decreased since 1980. This is shown by the fact that the circles are large, but lacking in a dark red color.

Another interesting note is the dark red circle in New Mexico, which indicates a small number of deaths in 2014, but a significant increase since 1980. Upon further research, this is Cibola County which currently has over 300 active mining claims.

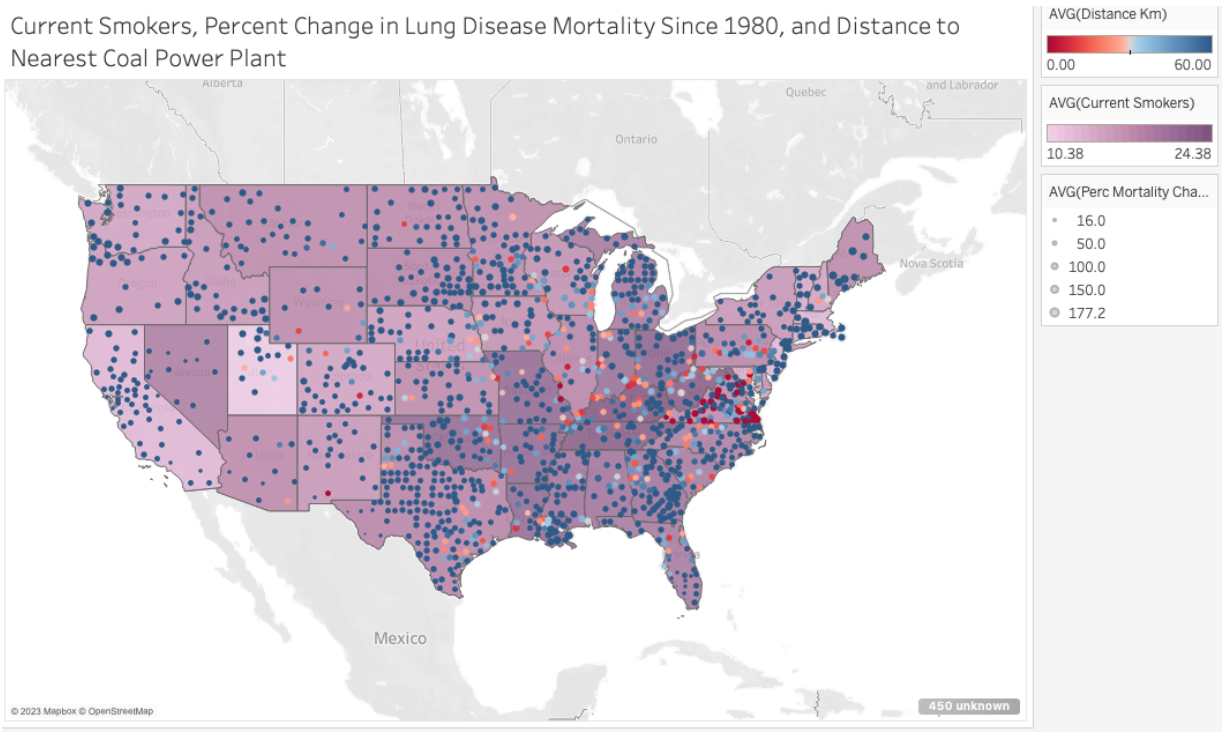


This tableau shows the average distance of each county from a coal-fired power plant, with a closer proximity to a coal power plant being indicated by a darker red circle; the closer a county is to a coal-fired power plant, the darker the red the circle will be, and, likewise, the further away a county is from a coal-fired power plant, the darker the blue the circle will be. The "central point" of this distance is 30km, as literature has shown that 30km is considered a "safe distance" away from a coal-fired power plant. Counties closer than 30km to a coal-fired power plant are a shade of red, those further than 30km are a shade of blue.

The purple shade on the states indicate the average current number of smokers in each state. The darker the color purple, the more smokers that state has on average. This was taken from county-level and averaged into a state-level value.

The size of the circle indicates the percent mortality change from 1980 to 2014 from respiratory diseases. A larger circle means more deaths from respiratory diseases happened in 2014 than they did in 1980.

What's important here?
One of the biggest takeaways from this visual is the dark red circles throughout Virginia. These counties are seemingly fairly close (less than 30km away from a coal-fired power plant) and have percent mortality changes greater than 0 (represented by the fact they are larger circles, compared to many of the smaller ones seen throughout the West). Furthermore, Virginia is a state with relative fewer average current smokers, which means that for Virginia specifically, smoking may not be tied to respiratory disease deaths specifically, and it is interesting to see that we have more people dying since 1980 at a closer proximity to coal-fired power plants, yet fewer persons smoking on average.



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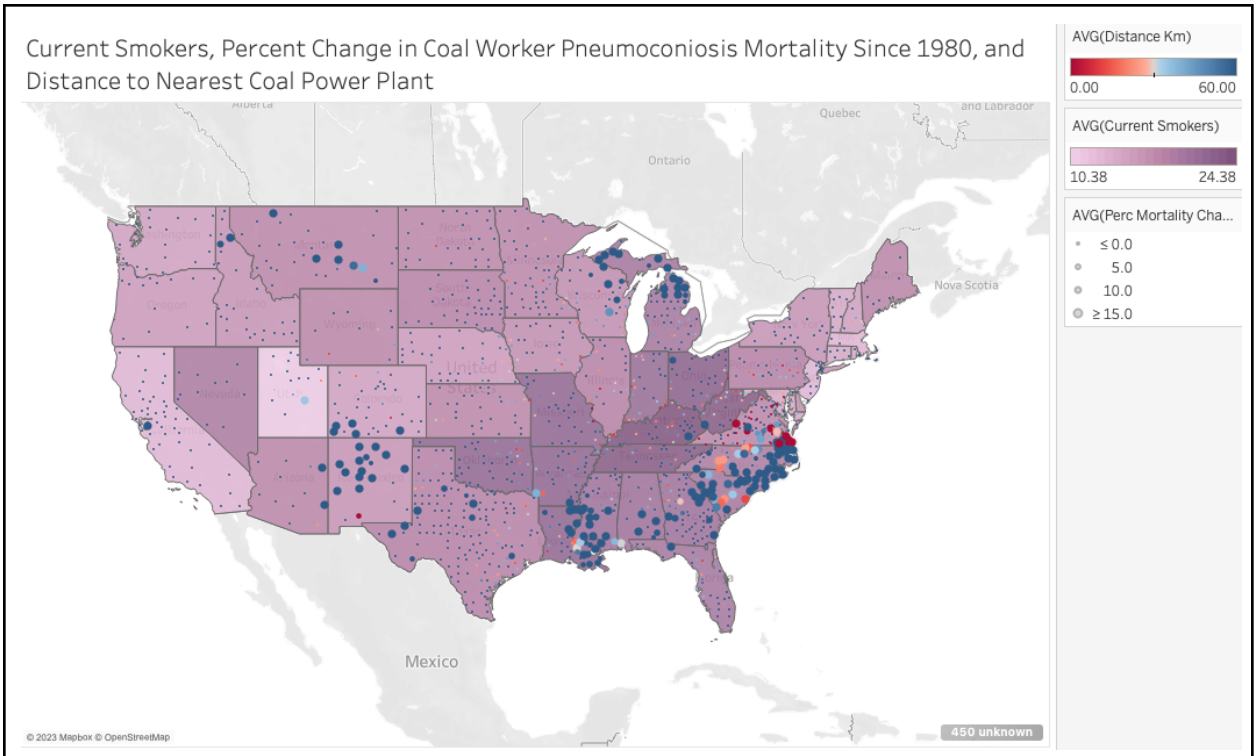
The size of the circle indicates the percent mortality change from 1980 to 2014 from lung diseases. A larger circle means more deaths from lung diseases happened in 2014 than they did in 1980.

What’s important here?
Similarly to the visual above, Virginia shows an interesting correlation between the proximity of a county to a coal-fired power plant and an increase in lung disease-related mortalities since 1980 that can seemingly not be attributed to having an increase in individuals who smoke. Many states surrounding Virginia are both a darker purple and have circles with a greater (representing counties) with a greater magnitude.



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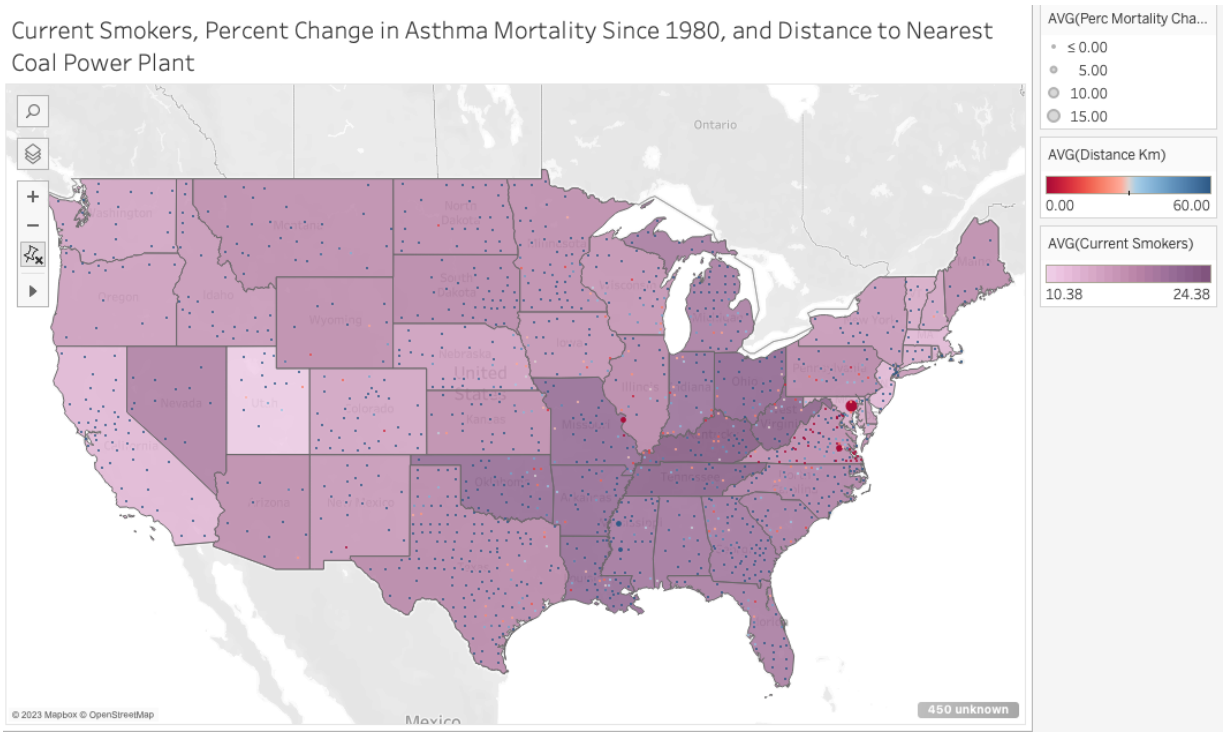
The size of the circle indicates the percent mortality change from 1980 to 2014 from coal workers pneumoconiosis. A larger circle means more deaths from coal workers pneumoconiosis happened in 2014 than they did in 1980.

What's important here?
Naturally, smoking and coal worker pneumoconiosis are probably not going to have much of a correlation, since they are two very different things (one cannot cause the other without a major confounder: working in a coal mine/coal-fired power plant). What's interesting here, however, is the significant percent change increase in coal worker pneumoconiosis deaths between 1980 and 2014. Again, Virginia sticks out as having counties that are both close in distance to a coal-fired power plant and having a greater magnitude in the number of deaths since 1980.
It is also interesting to see the various "pockets" of an increased percentage change in mortality from coal worker pneumoconiosis, which may be attributed to coal mines specifically, rather than just a coal-fired power plant.



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The size of the circle indicates the percent mortality change from 1980 to 2014 from asthma. A larger circle means more deaths from asthma happened in 2014 than they did in 1980.

What’s important here?
The only interesting note here is the very dark red, large county in Maryland, which represents Baltimore City. More research would need to be conducted to make a more causal, or even corollary, statement between distance to a coal-fired power plant and asthma mortality, but it seems very likely that such a relationship could exist. After all, there are fewer smokers throughout the state, represented by the light shade of purple, a smaller distance to a coal-fired power plant, yet there is a higher percent change of asthma-related mortalities since 1980. Coal-fired power plants could certainly be a leading cause for asthma mortality in Baltimore City, Maryland.